In the
Supreme Court of the United States

SIGRAM SCHINDLER
BETEILIGUNGSGESELLSCHAFT MBH,

Petitioner,

v.

MICHELLE K. LEE, Deputy Under Secretary of
Commerce for Intellectual Property and Acting
Director, Patent and Trademark Office,

Respondent.

On Petition for Writ of Certiorari
to the United States Court of Appeals
for the Federal Circuit

PETITION FOR WRIT OF CERTIORARI

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QUESTION PRESENTED

"Does the US Constitution, in legal decisions based on 35 USC §§ 101/102/103/112,

- require instantly avoiding the inevitable legal errors in construing incomplete and vague classical claim constructions – especially for "emerging technology claim(ed invention)s, ET CIs" – by construing for them the complete/concise refined claim constructions of the Supreme Court's *KSR/ Bilski/Mayo/Myriad/Biosig/Alice* line of unanimous precedents framework,

or does the US Constitution for such decisions

- entitle any public institution to refrain, for ET CIs, for a time it feels feasible, from proceeding as these Supreme Court precedents require – or meeting its requirements just by some lip-service – and in the meantime to construe incomplete classical claim constructions, notwithstanding their implied legal errors?"

PARTIES AND RULE 29.6 STATEMENT

Pursuant to this Court's Rule 29.6, counsel for petitioner certifies that:

Sigram Schindler Beteiligungsgesellschaft mbH ("SSBG") has no direct parent companies. No publicly held company owns 10 percent or more of SSBG.

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OPINIONS AND ORDERS BELOW

The opinion of the court of appeals is provided in the attached appendix (App. 1a-26a), just as the opinion of the PTO's Board of Patent Appeals (App. 27a-69a).

JURISDICTION

The judgment of the court of appeals was entered on April 4, 2014. SSBG's timely petition for rehearing en banc was filed on June 9, 2014. The Court of Appeals for the Federal Circuit rejected it on July 14, 2014. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

Sections 101, 102, 103, and 112 of the Patent Act, 35 U.S.C. §§ 101, 102, 103, 112 are provided in the attached appendix. (App. 72a-78a).

I. STATEMENT OF THE CASE

This petition is a refinement of SSBG's preceding petition [121][1], asking this Court to unmistakably clarify, to the whole patent community[12], that its *Mayo/Biosig/Alice* decisions ("**3 decisions**") ended the claim construction anomaly[2] hampering especially ET CIs[1] – but meet, by their "**ET proof**" refined claim construction, **all** ET CI's needs.

By contrast, this petition – focusing on the groundbreaking advantages implied by the 3 decisions' refined claim construction framework – asks this Court to convey to this community its determination to get all courts short term taking into use these so implied enormous advantages.

These advantages are e.g.: ●) the dramatic simplifications in construing a CI's refined claim construction, ●) the latter's substantially increased legal quality, and the ●) far reaching increases of professional efficiency of patent experts and users – being just the immediately visible advantages of the refined claim construction, e.g. not [60]).

Not using short term such amazing advantages would create doubts as to the credibility of the 3 decisions' [113, 121[S.VII]3.a)].

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[1] This petition continues using terminology introduced by SSBG's preceding petition, e.g. "classical technology / emerging technology claimed invention, CT / ET CI", "$\forall$ .../....s = (for) any/all". Most of the relevant information only referred to here is available on www.fstp-expert-system.com – often proof read or just with typos removed.

[2] in the National Patent System (NPS), by 35 U.S.C. §§ 101/102/103/112, abbr. SPL (Substantive Patent Law)

I.e.: Due to word count and time limitation[3], the preceding petition could not yet ask this Court to make this community aware of the fact that these 3 decisions took SPL precedents to a much higher level of development, offering the advantages of these just mentioned 3 bullet points. This petition now does it.

To this end it presents, in Section II, just some – but any patent professional already electrifying – advantages of this refined claim construction: Its much higher level   ●) of legal safety of the CI it protects, and   ●) of professional efficiency of any patent expert/user working with it. Both these increased levels, induced already by this Court's *Mayo* decision, are now confirmed by its *Biosig/Alice* decisions.

Both petitions thus strive for complementary objectives: The preceding petition to making the classical claim construction ET proof by refining it, so increasing its legal safety and bridging the "**ET divide**" currently still separating this Court from the CAFC, PTO [121[S.VII]], and mass of patent practitioners – this petition to speed-up achieving broad awareness of the refined claim construction's much higher level of development, enabling increased professional efficiency and consistent/predictable SPL precedents for ET CIs.

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3   This petition is tightly tied[1] to its preceding petition's [121] pages/ftns/Sects. Their identifiers from the preceding petition are just inserted into this reference, e.g. as [121[3]], [121[SectVII]] or just [121[S.VII]]. A rationale here so referred to, is not repeated (except, in Section II, the FSTP-Test), in particular not the classical claim construction's incapability – inevitably caused by its incompleteness [121[8.a)]] – to clarify all terms/notions of an ET CI.

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Thereby the credo of both petitions is that, eventually, this "ET proof" understanding of SPL precedents, i.e. its refined claim construction, will become an indispensable part of any textbook about patent law and of the basic knowledge of any patent user – due to the enormous advantages it enables, compared to the classical claim construction. But, this transition of the whole patent community[12], from pre- to post-Mayo claim construction, will be finished much sooner or much later – depending on the degree to which CAFC and PTO will support it in the mean-time [121[S.VII]]. Such a deferral in achieving clarity and security about ET CIs' patent protection may become a serious threat for the whole society's inno-vativity[4] and hence should be avoided.

Based on these presentations, this petition asks the Supreme Court to stimulate this transition [121[α]] of the whole patent community[12] to using the refined claim construction framework – and with it its substantially increased completeness, con-/precise-ness, CI-safety, efficiency, consistency & predictabi-lity of SPL-precedents, inventivity, inventivity control … enabled by this Court's 3 decisions – i.e. to stimulate the patent community[12] to leverage on the much higher level of productivity of the US society's innovativity they enable. Granting this petition would be a strong and clear such stimulus.

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[4] Prolongating this claim construction anomaly in the NPS – i.e. its current schisms encouraging sloppiness in SPL prece-dents – badly hampers the innovativity of the US economy in all areas of ET [68], just as it stopped the petitioner's in-vestments into follow-up technologies of the '453 technology (see Section IV).

II. THE 3 DECISIONS VASTLY INCREASE
● CIs' LEGAL SAFETY,
● PATENT EXPERTs' & USERs' EFFICIENCY,
● PATENT-NONELIGIBILITY's CONSISTENCY

Every patent practitioner feels immediately stimulated to rapidly familiarize with practicing the much higher level of "legal CI safety" provided by the 3 decisions' refined claim construction, once he/she learns the latter is also much more complete/concise/consistent than the classic claim construction and even enormously increases his/her everyday professional efficiency[5]. This holds for patent experts just as for patent users.

These amazing capabilities of a refined claim construction for a CI were induced by this Court's *Mayo* interpretation of 35 U.S.C. §§ 101/102/103/112 [121[S.III]], telling: There is a unique **operationally testable** alias decidable set of **necessary and sufficient** and **precise** legal criteria[6] satisfying SPL.

The vast notional – especially business – advantages of the refined claim construction are, e.g.:

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[5] Earlier attempts to develop a patent evaluation tool achieving similar results as those enabled by the refined claim construction had no chance to succeed, due to two reasons. None of them ●) had sufficient background knowledge about problems in the historic development of Mathematics/Physics/AIT for "reading" ●) the deep insights this Court achieved into SPL precedents, prompted by its massive problems with ET CIs, e.g. summarized in *Alice* [121[1)-7)]].

[6] This ∀CIs unique set of legal criteria is a set of relations this Court derived from SPL, and the FSTP-Test partially put mathematically: They all are holding on a CI's TT.0/S[0]/interpretation[8)] iff it satisfies SPL [121[3)8)]].

a) A CI's patent protection by 35 U.S.C. §§ 101/102/ 103/112, once granted to it on the basis of this set of legal criteria, is legally much more robust/resilient than hitherto ever achievable, due to the classical claim construction's incompleteness [121[8.a)]].

b) I.e.: Already a CI's patent examination process is much more rational than hitherto ever possible.

c) Especially as to a CI's patent-(non)eligibility aspects, **a)** and **b)** may leverage on the substantially increased notional clarity provided by the refined claim construction, in particular for ET CIs.

d) For a patent lawyer/examiner/judge, analyzing a CI for satisfying SPL, this analysis may automatically in real-time be guided completely and correctly – and instantly repeated, whenever needed[11].

e) Also for a patent's inventor/controller/manager/licensor/licensee/marketer/…this analysis may at any time stimulate his/her creativity as to any aspect of the CI during his/her respective activity.

Subsection II.A focuses on the *Mayo* framework's practical advantages: That construing/having/ using a CI's refined claim construction is much more easy/safe/efficient than construing/having/using its classic claim construction. Subsection II.B focuses on the *Mayo* framework's cognitive advantages: That it enables systematical/notional rationality in dealing with the ET CIs' patent-ineligibility issue – in hindsight recognized to be the basic booby-trap of classic claim construction thinking – thus ending the hitherto tinkering with SPL precedents as a whole [128]. This implies a clear increase of the attractiveness of the 3 decisions' refined claim construction framework, on top of its above advantages, thus strongly improving the readiness to transfer to it.

II.A   Practical Advantages of a CI's
Refined Claim Construction:
● Its Automatic Guidance in Construing it,
● its Much Higher Legal Safety, and
● its Increase of Professional Efficiency.

[121**S.II/III**] tell: "{∀ SPL test} ≡ FSTP-Test" **7.a)**.
Thus, familiarity**7.b)** with the FSTP-Test**8)** pays. It
tests, ∀interpretations/TT.0s of a CI, their inventive
concept sets satisfying ∀necessary ∧ sufficient and
precise legal criteria**6)** for CI's passing its SPL test.

For SPL testing a CI, the FSTP-Test hence
needs ∀TT.0s of CI ∀ their compound inventive con-
cepts and ∀ their elementary inventive concepts – as
recognized and input by the user. Its fully automatic
guidance greatly sharpens his/her such cognition
processes by **forcing** him/her – by prompting to input
blindly trusted answers to ∀ questions of the FSTP-
Test as to ∀TT.0s of a CI – to iteratively identify ●) **∀
inventive concepts of TT.0** and to check   ●) **∀ their
necessary ∧ sufficient relations for their holding**6).
ftn**8)** is the FSTP-Test from [121**8.b)**], fixed**7.c)** by
test.9 to model *Alice* concisely.

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7   **.a)**   AIT views the FSTP-Test as a "program scheme", the
set of ∀ interpretations of which = {∀ SPL test}. Yet, the
term "FSTP-Test" also stands for implicitly using some
default interpretation, e.g. "process all information on a line
prior to proceeding to the next line".
.b)   While the FSTP-Test**8)**, at a first look seems compli-
cated, intuitively grasping it is vastly trivial, as its
● structure evidently mirrors SPL 1:1, just as its
● terms' meanings principally mirror those used by
Mayo/Biosig/Alice – in spite of these FSTP terms being CI
independent and their meanings CI specific.
.c)   For simplicity, TT.0 has no index in FSTP-Test**8)**.

Executing the FSTP-Test is normally simple –
once one is familiarized with it – as done next.

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[8] The FSTP-Test comprises the steps 1)-10):

1) **The FSTP-Test** prompts the user to input
   (a) $\forall TT.i \wedge 0 \leq i \leq I = |RS| \wedge 1 \leq n \leq N = N(TT.0)$: $BAD^{i}\text{-}cr\underline{C}in$;
   (b) $\forall TT.0 \wedge 1 \leq n \leq N$ justof: $\mathbf{BAD^{0}\text{-}cr\underline{C}0n}$ is **definite**;
   (c) $S^{0} ::= \{BED^{0}\text{-}cr\underline{C}0nk \mid 1 \leq k \leq K^{0n}, 1 \leq n \leq N\}$:
       $BAD^{0}\text{-}cr\underline{C}0n = \wedge^{1 \leq k \leq K0n} BED^{0}\text{-}cr\underline{C}0nk \wedge K^{0} ::= \sum^{1 \leq n \leq N} K^{0n}$;
   (d) $\forall 1 \leq k \leq K^{0n} \wedge 1 \leq n \leq N$ justof: $BED^{0}\text{-}cr\underline{C}0nk$ is **definite**;
2) $\wedge$ $\forall \epsilon S^{0}$ for justof: their **lawful disclosure**;
3) $\wedge$ $\forall \epsilon S^{0}$ for justof: their **definiteness** under § 112.6;
4) $\wedge$ $\forall \epsilon S^{0}$ for justof: their **joint enablement of TT.0**;
5) $\wedge$ $\forall \epsilon S^{0}$ for justof: their **joint independence**;
6) $\wedge$ $\forall \epsilon S^{0}$ for justof: their **joint *KSR*-nonequivalence**:
   $BED^{0*}\text{-}in\underline{C}ik ::= N \quad \forall 1 \leq k \leq K^{0n} \wedge 0 \leq i \leq I$;
   $BED^{0*}\text{-}in\underline{C}0k ::= A \quad$ if $BED^{0}\text{-}in\underline{C}0k \epsilon^{KSR}$ posc;
   $BED^{0*}\text{-}in\underline{C}ik ::= A \quad BED^{0}\text{-}in\underline{C}ik =^{KSR} BED^{0}\text{-}in\underline{C}0k$,
   $1 \leq i \leq I$;
7) $\wedge$ for justof: by $NAIO^{*)}$ S^{0} is **not an abstract idea only**;
8) $\wedge$ for justof: S^{0} **contains a patent-eligible** $BED^{0}\text{-}cr\underline{C}0nk$;
9) $\wedge$ for justof: S^{0} **is a patent-eligible combination**;
10) $\wedge$ for justof: by $NANO^{**)}$ S^{0} is **patentable** on $S^{0pat\text{-}el} \subseteq S^{0}$.

*) The **"Not Abstract Idea Only, NAIO"** test prompts the user
   1) for input&justof: the CI specification discloses a problem,
      P, to be solved by TT.0 of CI;
   2) for input&justof: S^{0} alias TT.0 solves P;
   3) for input&justof: P is not solved, if in S^{0} a $BED^{0}\text{-}inC0k$ is
      relaxed (i.e. the truth set of a $BED^{0}\text{-}in\underline{C}0k$ is enlarged);
   If 1)-3) apply, then <CI,S^{0}> is "not an abstract idea only".

) The **"Not Anticipated And Not Obvious, NANO" test checks
   of RS all its "anticipation combinations, $AC^{0}s$" as to S^{0} [5,6]:
   1) It starts from the 'anticipation(A^{0})/non-anticipation(N^{0})"
      matrix of FSTP-test.6, any one of the I+1 lines of which
      shows, by its K^{0} column entries, for i = 1,2,...,I, which of
      the peer TT.0 entries is anticipated/non-anticipated by a
      former one, and for i=0 is anted/non-anted by posc.
   2) It automatically derives from the AN^{0} matrix the set of
      all $\{AC^{0}\}$ with the minimal number, $Q^{plcs/0}$, of "N" entries.

On a CI the FSTP-Test works interpretation/ TT.0/S^0-wise[6], with $|\{TT.0\}|=|\{S^0\}|\geq 1$ (see **1)(b)**). A $S^0=\{BED\text{-}crCk/1\leq k\leq K^0\geq N\geq 1\}$ is a "generative set" of an interpretation/TT.0 of CI, derived from an N-tupel $\{BAD\text{-}crCn/1\leq n\leq N\}$, with the same N $\forall$ TT.0s of CI. Any BAD-crCn is 1 of the N compound inventive concepts, CI's specification discloses for any TT.0 [5]. Any justof (= "justification of") input[11] may comprise, for TT.0, several nonredundant instantiations, which are managed separately by the FSTP-Test[11].

The FSTP-Test[9] is an algorithm easily implementable in any programming language. When, for a CI, its execution is started for construing its refined claim construction (then the prior art reference set is empty, $|RS|=0$), it prompts (see line **1)**) its user to input, into this execution, CI by all its compound inventive concepts for CI's interpretations/TT.0s[11]. The FSTP-Test thereafter automatically continues this execution by prompting its user, step by step interactively. I.e.: In total, it prompts its user dozens of times to input specific information for its CI.

This short outline of the working of the FSTP-Test shows that it fully automatically guides its user through all questions, for that he/she must "input an explorative answer, IEA", when testing a CI under SPL, (Some IEAs are automatically derivable from preceding input, which is skipped here). If he/she

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9 The FSTP-Test per se[7.a] is a scientific cognition, hence is patent-noneligible. A prototype implementation will be made available over the Internet for free later this year. The related patent applications [6,7,11,43,59] are specific applications of the thinking it embodies.

cannot IEA to a prompt, he/she must backtrack on the path that took him/her to this prompt for seeking another path to it, on which he/she may IEA. If necessary – as for a TT.0 no path through all of it can be found on that all prompts may be IEAed by him/her – the backtracking must return to line 1)(a) and replace this TT.0 by another one. CI passes the SPL test iff one of CI's finitely many TT.0s has a path on which all prompts are answered positively.

At a second look one sees, how incredibly far this fully automatic guidance reaches: The FSTP-Test enables fully automatically guiding the user through – in a by him/her selected predetermined or spontaneously put together execution sequence alias control path through the FSTP-Test, this selection being independent for **a)**, **b)**, **c)** or not – <u>**all**</u>

a) questions the FSTP-Test comprises which he/she must be able to answer confirmatively, this guidance including performing a just explained backtracking frequently unavoidable, and/or

b) input answers at any point in time of executing the FSTP-Test, thus enabling easily and dependably checking them for their truthfulness, and/or

c) backtracking decisions made by **a)** and unused path segments of the FSTP-Test, thus enabling easily and dependably checking also them for their truthfulness.

These amazing features **a)/b)/c)**, enabled by the FSTP-Test, increase the legal quality of the refined claim construction for CIs, as compared to their classical claim construction. The latter, by evident logical reasons, due to its incompleteness, cannot enable the automatic complete guidance of him/

her as of **a)**/ **b)/c)**, i.e. of the constructor/user.

This and the following is meant, when qualifying the refined claim construction for a CI as warranting to it a much higher level of legal safety[10].

By leveraging on **a)/b)/c)**, namely a versatile "SPL precedents automaton" for a CI[10.b] may be built up, by using the FSTP-Test in explorative mode[10.b], which is capable – by using the FSTP-Test, once more, now in affirmative mode[10.b] – of protecting this CI against attacks that it would not satisfy a SPL requirement: By automatically and instantly countering this attack in realtime by providing at least one "legal argument chain, LAC"[10.b] proving

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[10] **.a)** Any court's particular SPL decision may evidently be independent of this refined claim construction of "higher level of legal safety" quality. But then it does not dependably verify/falsify the correctness of its decision – while this much higher quality should be the standard of SPL precedents, this petition asks for.

.b) This legal safety provided to a CI does not build-up for this CI by itself, but – by running the FSTP-Test on this CI – its user builds it up. Thereby the FSTP-Test fully automatically may guide this user by prompting it through any of the FSTP-Test's "basic arguable subtests, BASTs" on this CI and storing the user's answer, which justifies why this BAST is contributing to confirming that this CI passes the complete SPL test alias FSTP-Test. Due to dealing with a FFOL problem, then also any conjunction of BASTs – being ASTs underlying "legal argument chains, LACs" [43,46,59,60,71] – provides such a justification. Thereby, this much higher legal safety for this CI's SPL test in affirmative mode is complete – and then there is usable by any LAC – iff the FSTP-Test is successfully executed on this CI in explorative mode. I.e.: CI does not pass the SPL test iff the FSTP-Test on it cannot be successfully executed in explorative mode.

that this attack embodies a legal error, as this LAC proves that CI does meet this very SPL requirement.

On this basis a broad range of legal redundancy checks may be performed – if felt appropriate – in some cases even a formal correctness prover engaged, for assessing that this AST resp. one of its LACs, presenting the AST to an inventor/controller/examiner/lawyer/judge/investor/… is correct[10.b)], thus increasing once more the legal safety of the CI as provided to it by its post-*Mayo* refined claim construction. While these kinds of its further reaching legal enablements, which it provides, cannot be elaborated on here (even if limited to just considering alternative presentations of LACs [59,60]), its specific enablement of fully automatically guiding the FSTP-Test user through exploratively executing a CI's SPL test correctly and completely – the completeness mathematically proven correct fully, the former correctness only proven correct as to some aspects [74,91] – is outlined, finally.

This guidance is conveyed to the FSTP-Test user by a textual representation of the FSTP-Test on a screen – its logic potentially/optionally graphically emphasized[11)] – which is augmented by several fade in/out icons for navigating therein by referring to points or parts of it, which tell the user at any time, e.g. where it is (its "control point"), what its "controllable items" are and which of them it has selected, what its future/past "control paths" are and which of

them it has selected, what its "controllable BASTs"[11]
are [60] and which of them it has selected,…[11].

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[11] The "abstract" FSTP-Test may automatically be transfor-
med [121[3.b)]] into a tree shaped (mathematically precise)
graph, in which prompts and inputs are represented by
nodes, just as any "other" activity it performs while
executing it. Any node is of one of these three types.

Any prompt node is interconnected to another node by a
single arrow representing the "logical sequence" relation
between both. A prompt node and/or an input node may
have a "replication" arrow pointing to itself – representing
that it may create a new node (and interconnect to it by an
arrow) representing a replication of itself respectively of a
nonredundant input node, in both cases inheriting the
outgoing arrow(s). The prompt nodes' meanings are
predetermined by the FSTP-Test, i.e. independent of the CI
under SPL test.

The graph representing the "concrete" FSTP-Test
shows its execution on a concrete CI and is derived from the
abstract FSTP-Test graph by adding to any one of its nodes
the "CI meaning" provided by its specification and other
arrows (representing user selected sequence of their input,
as explained in **a)/b)/c)** above).

II.B   The Refined Claim Construction Establishes Rationality in Patent-(Non)Eligibility

SPL ought to be plain rationality, also its notion of patent-noneligibility. Though, the latter's pragmatics was murky, as to ET CIs irrational [121[8.b)]]. The 3 decisions clarified and established this notion's very rational pragmatics.

Socially, SPL and its precedents must be:
1) broadly supported – requiring CIs are neither **i)** abstract ideas nor **ii)** natural phenomena only; otherwise they were preempting creations of **i)** man-made or **ii)** pre-existing kind, both kinds of preemptions being socially inacceptable, and
2) consistent and predictive – requiring CIs are definite and subject to a single claim construction framework exhausting SPL exactly; otherwise SPL precedents gets inconsistent & non-predictive.

Hence, a CI is patent-noneligible if it is indefinite, or only an abstract idea, or a natural phenomenon – being undecidable without this single claim construction framework exhausting SPL exactly. **The latter is now established by these 3 decisions**.

Sections II.B.1/2 elaborate on the clarity and rationality of the pragmatics of patent-eligibility, established by the 3 decisions' exhaustive, hence refined claim construction framework. This will convince the patent community of the vast superiority of the post-*Mayo* SPL thinking over the classic/pre-*Mayo* thinking – thus greatly increasing the former's social appeal, too, on top of the business charms of its practical advantages (that Section II.A presented).

II.B.1: The 3 Decisions' Notion of Patent-Eligibility.

For "true MoT type" CIs, the pragmatics/completeness aspects of 35 U.S.C. §§ 101/102/103/112 and of the meanings of the terms a patent specification as well as the "match-making" (alias determining the relations[6] between both, perhaps by means of the posc [121[8.a]]) – i.e. the legal interpretation of both documents and applying the former one on the latter one – are indeed often so simple that the human brain may easily perform all these activities correctly, in a multitude of situations supported by its whatsoever intuition. Hence, pre-*Mayo* such CIs induced the feeling that this simplicity is ubiquitous in SPL precedents, resulting in the broad erroneous feeling that patent-eligibility exemptions were something esoteric.

The truth is: The pre-*Mayo*/classical claim construction for a CI simply had no idea of the rationales embodied by its patent-eligibility issue: neither of the need to distinguish between its invention's patent-eligible/-noneligible aspects nor of the logical implications of a CI having such aspects, namely the need to identify them and assess their lawfulness (requiring, for the posc, their disclosure, definiteness, joint independence/construability/size), i.e. to legally check all eligibility as well as all non-eligibility aspects of this CI as its "features" – by *Mayo* called CI's "inventive concepts". This also reminds that these very CI aspects/features eventually cause its patentability.

I.e., these rationales and their implications existed "since ever" for any CI. Getting familiar with

the FSTP-Test creates awareness of them with any of its readers, just as it originally did with its author.

For many ET CIs even the posc has absolutely no intuition. Testing these under SPL, i.e. by some FSTP-Test interpretation[7.a)], and trusting a human brain alone, is technically & legally extremely error prone, especially as to completeness aspects. As the FSTP-Test deals with a FFOL and hence decidable problem [121[3)5.d)]], any controversial argument about a CI satisfying SPL is always caused by such errors.

I.e.: Pre-*Mayo*, SPL precedents took care of a CI's patent-noneligible aspects only sloppily in "free style" – no systematic framework for dealing with them was felt necessary, in spite of ET CIs' ubiquitous need for it (as evident, in hindsight).

By its *Mayo* decision, this Court provided this – since *Funk Brothers* – missing framework. Since then this Court also repeatedly addressed its new key ideas about a CI's patent-(non)eligibility, for clarification, in invitations of amicus briefs [18,19], though initially implicitly only [121[7.a)]]. By its *Alice* decision, this Court now explicitly elaborated on them and on their separation.

Prior to turning to the Test or System Design Technique thinking in II.B.2/3, the below Subsection
i)   briefly reminds the broad initial misinterpretation of the patent-noneligible term "abstract idea",
ii) fixes this misinterpretation by this term's meaning in any scientific/engineering context, and
iii) outlines the 3 decisions' further rational insights into a CI's SPL test – shown by the FSTP-Test[7.a)].

<u>As to i)</u> – The metaphysics "abstract idea" notion:

Initially, the "patent community"[12] assumed this Court had by *Bilski/Mayo* required to **.)** take the meaning of the "abstract idea as such" and to **:)** declare an invention to be patent-noneligible, if the meaning of this "invention as such" is equal thereto.

This assumption is rationally untenable. A meaning of the term "abstract idea as such" is by everybody vaguely imaginable, but by nobody rationally definable, just as the "true life as such", or the "spiritual beauty as such", … – well known since the beginning of analytic philosophy [130,131].

E.g.: The meaning of "sqrt_of -1 as such", i.e. of "i as such", is rationally not definable. Yet, taking this indefinable meaning of "i as such" as properties/ attribute[13] of certain other fictions (= "items as such"), namely of real numbers, the relations between these rationally indefinable meanings of "i as such" occurrences wondrously turn out to be rationally definable (in the well-known mathematical sense). Electro-technics is unthinkable without this attribute[13] of real numbers, which is indefinable as meaning of the "i as such".

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[12] – comprising the CAFC and district courts etc, the PTO, the mass of all kinds of other patent users, and the other public interested in SPL precedents –

[13] modeled by the – for the 'real number' concept – innovative concept "i", the "multiply" relation between two such concept instantiations being rationally definable/- ed. Note: The posc in Electro-technics – or any other one – has no idea about these epistemological insights.

<u>As to ii)</u> – The rational "abstract idea" notion:

As shown in **i)**, SPL cannot use the meaning of the notion "abstract idea as such", as it is plainly metaphysical, i.e. rationally nonexistent. Yet, it may rationally use, of the term "abstract idea", the above "relational meaning", as *Alice* does – clarified next.

For a CI, *Alice* unmistakably defines its "abstract idea" category of patent-noneligible interpretations/TT.0s to the set of TT.0's inventive concepts thus related to each other that they do not solve the problem to be solved by CI, as set out by CI's specification[14] – i.e. this notion to be of relational meaning.

I.e.: **a)** Any combination of TT.0's BED-inCs not solving the problem set out to be solved, is an abstract idea, i.e. element of this category [121[8.b)]]. **b)** If TT.0 does solve the problem, broadening TT.0's scope by broadening the truth set of one of its inventive concepts alias BED-inCs (comprising completely leaving it away) transforms this TT.0 legally into an abstract idea (as now being preemptive). **c)** For a combination of CI's BED-inCs not solving the problem set out to be solved, it may be possible by tightening their scopes and/or adding BED-inCs to transform this combination into solving this problem such that this combinations scope is not preemptive (then it is no element of this 'abstract

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[14] In more detail [121[7.a)]]: For a CI this category is rationally defined to be the set of all FFOL attributes of all such sets of BED-inCs – defining of CI a particular interpretation/TT.0 – that the conjunction of its BED-inCs is unequal to the FFOL attribute describing the problem to be solved by the CI, this problem being set out by CI's specification [121[8.b)]].

idea'-category of CI. **d)** There are mixtures of **b)**/**c)** achieving **a)**.

Such legal transformations **c)**/**d)** of CI are exactly what this Court defined in *Alice*: It requires [121[1)2)8.b)]] to (try to) transform a patent-noneligible CI[15] into a patent-eligible CI as follows. CI is assumed to be not patent-eligible; hence CI's generative set of inventive concepts comprises non-patent-eligible inventive concepts; these are to be combined with one or several patent-eligible inventive concepts of this set, such that the resulting compound inventive concept is a specific patent-eligible application of the non-patent-eligible elementary inventive concept(s).

More generally: The "abstract idea" attribute of something clearly insinuates by its tautology that there may be at least one different, potentially still unknown, concretizations of this something. If this something is a CI – i.e. a pair of, firstly, one or several TT.0s/interpretations of a claim, secondly, this claim that claims the intellectual property rights in all inventions within these claimed TT.0s' scopes[16] – then this insinuation may be (as shown in more detail in [58], but only as to its indefiniteness aspect, here its patent-noneligibility being at issue)

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[15] **.a)** This legal transformation is mathematically precisely describable, hence rational. The FSTP test.9 checks the transformability of a TT.0 of CI into an eligible combination, to be justified by the user.

.b) Note here already that passing the NAIO test means only, CI is non-abstract/nonpreemptive, but one of its BED-inCs may be a natural phenomenon, potentially making CI a natural phenomenon (see II.B.3).

[16] this Court's *Biosig* decision assumes, only 1 TT.0 exists

- either caused solely by the claim's wording, i.e. has nothing to do with anyone of its potentially several interpretations, thus is due to a purely linguistic ambiguity; then everyone of its different interpretations/TT.0s/S^0s is considered patent-eligible,
- or due to an ambiguity of one of CI's interpretations/TT.0s/S^0s[8)], about which then is only known that it is patent-noneligible, kind of crude[17.a)]; put in SPL, it is ●) either indefinite ●) or definite and
  o either an abstract idea only (i.e. preemptive)
  o or a natural phenomenon only.
- or comprising both.

If a CI is definite, then the NAIO test is always capable of determining, whether it is not an "abstract idea only", i.e. is not preemptive.

Thereby the premise of the NAIO test is that this Court wants to avoid patenting a CI, which is an "abstract idea" only as concretisations of which might comprise one or several inventions not dis-

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[17] .a) In science/engineering this 'crude' phenomenon is well-known since long time and quoted by the term "status nascendi" of a discovery/invention/creation/… Two famous examples from mathematics/physics are "complex functions" and the "energy operator", which both could not get out from this blurring state for years – during this period causing many controversies among scientists – until Gauss resp. Hilbert saw the deficiencies to be removed from them, thus supporting their unfolding.

The Supreme Court replaced the term "status nascendi" by the – in the patenting context – better term "abstract idea" for a blurring as insufficiently defined invention. Indeed then just an "abstract idea" exists of this invention – but not a patent-eligible version of it.

.b) Many inventions have evolved this way[17.a)]. A very recent one is described in [119].

closed by the specification [121[8.b)] [17.b)18)]. The NAIO test hence is designed to verify of a CI that it is nonpreemptive by checking the problem identified and disclosed by the specification [121[8.b)]], which to solve CI is invented for, and by deriving thereof that all inventive concepts this CI is allegedly based on are indeed indispensable for the invention's functioning such that it solves this problem. This assessment is in principle always derivable from the just checked information as the NAIO test solves an FFOL problem [121[3.c)]].

<u>As to iii)</u> – The 3 decisions' further rational insights:

Three bullet points and ftn[19)] outline resp. remind of further rational insights the *Mayo* framework achieves as to a CI's patent-eligibility test.

- For exactly modeling the *Mayo* requirements – which this Court derived by its re-interpretation of 35 U.S.C. §§ 101/102/103/112 as to ET CIs' needs, and to be met by CIs under SPL test – and thus avoiding that the meanings of terms used by *Mayo/ Alice* are not defined, a CI's patent-noneligible elementary inventive concepts must be checked for satisfying § 112, just as this CI's patent-eligible elementary inventive concepts[19)].

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[18] This 'non abstract idea only' CI property is necessary and sufficient for excluding that it preempts an invention, i.e. unfairly comprises it into its scope(CI). Hence CI's otherwise exemption from patent-eligibility seems not to be a 35 USC. § 101 limitation contradicting the Constitution [113[Prolog]].

- The nonpreemptivity NAIO test.7 may be skipped on the BED level. Yet, if it fails, this saves performing test.8 – separating "natural/human phenomena" BED-inCs from patent-eligible BED-inCs – and test.9, recombining them again and required (by *Alice*) to check these combinations (= original BAD-inCs[8]) by the "BAD-NAIO" test.7 on the BAD level; *Alice* thus recognizes the BAD-inC disaggregation in test.1. If test.7 is passed, test.9 may be dropped. I.e.: test.7 and test.9 are alternative[19].

- A CI may have several interpretations/TT.0s/S^0s. For ET CIs this is of fundamental importance, and [58,60] showed that they are manageable rationally. As evident from the FSTP-Test, with such a CI it is irrelevant that a TT.0 of it, identified by its respective S^0, does not pass one of the 10 FSTP-test.o – if only a TT.0' of this CI, identified by some respective disclosed $S^{0'}$, does pass all 10 of them, as this TT.0' guarantees CI's passing its SPL test – in consistence with this Court's *Biosig* decision.

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[19] The necessities of any SPL test, i.e. of the FSTP-Test[7.a)], not yet noticed by today's post-*Mayo* SPL precedents – i.e. for which SPL precedents is needed, as sooner or later the SPL test of a practical ET CI will need it – are: test.5, test.6, the crossover-checks implied by S^0, and test.7 (NAIO, as explained in **ii)** above [74,91], i.e. ignoring that a relaxed inC in principle may require redoing test.1-test.6). test.10 is commonly known, here put precisely/mathematically.

II.B.2: A "Patent-Eligibility Evolution Guideline"

The public response to the 3 decisions shows the need of a new type of patent-eligibility guideline, a "patent-eligibility evolution guideline." It ought to be focused – unlike seemingly all guidelines of the MPEP, not on the PTO's examiners needs, or on an ET area, or on a noneligibility category – on the whatsoever actual/potential improvements of patent business enabled by the refined claim construction framework and especially on the growing significance of patent-eligibility precedents in all ET areas and its dynamics[20].

This guideline's first part should enable the patent community to swiftly leverage on the massive advantages of the 3 decisions' refined claim construction framework, thereby ensuring its same view over all ET areas at post-*Mayo* patent-eligibility.

I.e., its mind-setting section should ●) state the refined claim construction requirements to be met by any CI under SPL test (e.g. by a FSTP-Test[7.a]), and emphasize the hitherto nonexistent massive advantages, enabled by this refined claim construction – as described by Section II.A – and ●) proactively clarify, for which aspects of these requirements (i.e. for which parts of the FSTP-Test) precedents does not exist yet – what hitherto also was impossible. Thereafter, as soon as arising, before missing SPL precedents would be mirrored by the respective are of the FSTP-Test. This enables predic-

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[20] It would comprise the content currently discussed by the PTO with the public [73] in its second part indicated below, organized for uniformity and sustainability.

tability and consistency of the development of ET CIs' SPL precedents, too, as needed for fostering inventivity[21)].

Thus, a so designed new guideline would achieve, by the 4 reasons of the following 4 bullet points, a swift and consensual transition of the whole patent community to the refined claim construction framework of this Court's 3 decisions:

i) There are the enormous (just mentioned) advantages of the refined claim construction framework. But, the hitherto disorientation of the patent community as to refining SPL precedents for catering ET CIs [121[7.a)]] suggests emphasizing also its two additional irresistible charms.

ii) Any SPL test of an ET CI according to this guideline is, a priori, subject to exactly the same basic structuring principles[21.a)] as IT system designs[21.b)] – being above any doubt. Hence, the whole patent community would consider this "Patent-eligibility Evolution Guideline" for post-*Mayo* SPL testing of ET CIs to be "technically" safe and sound.

iii) The post-*Mayo* framework for construing, for an ET CI, its refined claim construction is the same

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[21] .a) This structuring of any SPL test (of any CI) is a priori guaranteed by the FSTP-Test[7.a)].
.b) The basics of the structuring principles of System Design Technique [122-125], everybody heard of, are since long time known as sound and successful, i.e. are broadly accepted without reservations. They – and also their here arising inventions inspiring potentials – are elaborated on in some more detail by [60].

for all areas of ET. This implies an ET area independent view at SPL precedents.

iv) Finally, this guideline's inspirational potentials. Its openly identifying those questions in SPL testing of ET CIs for which no precedents exists yet, would not only spare the PTO the pain to necessarily over-interpret these 3 decisions. Without this openness, the erroneous assumption would likely arise that these 3 decisions had already provided as to any question in such tests a directive or at least an indication of how to legally evaluate its answer – which definitely does not exist, hence cannot be found when this question is encountered, and thus would anew create fruitless/controversial and innovativity impeding debates. But, and more importantly, the FSTP-Test, due to its exhaustion of all possible legal and technical questions [6,60,121[3)]], evidently enables identifying the technically and legal questions not yet settled by SPL precedents (the former briefly touched on in [60,136]). This information and its clear separation of legal from subject matter issues would avoid all tensions resulting from their current mishmash [77] and stimulate creativity[21.b)] [6,136]. Thus also here, the whole patent community would consider the guidance provided by this post-*Mayo* guideline as useful & inspiring.

Thus, a 'patent-eligibility evolution guideline' would generate and overlay, on any CI, an ET area independent joint legal/technical "coordinate system", enabling a CI user to navigate on all its knowledge.

III. AN ANEW, EXTREMELY DANGEROUS ATTACK ON THE COURT'S DECISIONS

The self-healing process of overcoming the ET divide between this Court and especially the CAFC, questioned earlier [113,121], is anew put at stake by a voice of very high public profile, hence being extremely dangerous. Namely: While ●) the CAFC and PTO since these 3 decisions only made a tiny move towards the framework underlying them, ●) the former chief CAFC Judge Michel – just having been a key speaker at a PTO event [77] – took on, in a recent interview [129], a hardliner position and fiercely attacked the decisions of this Court, warning that the recent decisions (*Bilski/Mayo/Myriad/Alice*) will result in "chaos" – and alleging that *Alice*, in particular, "will create total chaos."

If such an incredible attack is run so bluntly against the Supreme Court by a (former) CAFC chief judge, calling for Congress to intervene against this Court because of these decisions, the patent community is pushed into sheer fear as to ●) refining SPL precedents such that it meets also ET CIs' need of legal consistency and predictability, and ●) the NPS'es capability to protect, by SPL, also ET CIs, i.e. investments into ET R&D.

Yet, this Court may take immediate action: By showing that this warning and these allegations are ill advised – as explained in detail below – and by reemphasizing the far reaching advantages provided by the refined claim construction framework, as Section II explained. If this type of attack is not countered forthwith, it would cause an incalculable deferral on getting the 3 decisions broadly accepted [135].

Going beyond only defending against a delay, in this particular case an immediate riposte on this attack would even imply accelerating the transfer of the whole patent community to the framework of these 3 decisions – which to support this petition asks for. This attack's two big deficiencies then would namely unfold very effectively against its objective and in favor of getting the patent community's mind-settings welcome in great breadth this transfer: This attack is namely not only

- without any substance and as to many aspects totally irrational/unreasonable, as shown in **a)-o)**,
- but also driven by one of the best known and most credible personalities in the nationwide "anti-*Mayo* camp" – hence of highest publicity – who presents very enthrallingly and persuasively his insights concerning the set of this framework's controversial issues.

This latter aspect implies: Disenthralling these presentations as not only occasionally but totally untrue would dramatically and abruptly disillusion this whole camp and recreate its trust into this Court.

Before turning to the disenthralling proves of these presentations' absurdities, a short summary is provided of the above mentioned today's positions of CAFC/PTO. It shows a practical standstill of both of them as to grasping these 3 decisions' framework[22].

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[22] Continuing the metaphor used by Justice Breyer in [121[7.a)]], the boat builder would respond to Archimedes: "I can't 'apply' your idea about water displacement as I don't know what this term means." If the boat builder had been the former chief CAFC judge Michel, he would even have responded: "Your idea of an '*inventive concept, whatever that means*' and of its describing water displacement '*make no sense*', they are 'unscientific', they will 'create total chaos'

Both institutions' current[23] positions

- eagerly practice lip service, in their recent documents[25], by repeatedly quoting from the 3 decisions, thus pretending they would operate as expected by the Constitution and this Court, but
- they just copy wordings from the opinions of these 3 decisions, the CAFC thus justifying its patent-ineligibility opinions, and the PTO thus drafting its guidelines with patent-eligibility tests[26], i.e. without providing the slightest indication that they noticed, what this Court clearly and unmistakably requires by these 3 decisions: To start any patent-eligibility enquiry by the refined claim construction set forth by their framework[23][24][25].

This blind copying tells so much about their not accepting any notion of this framework – i.e. just some of its terms, totally ignoring their post-*Mayo* meanings – that comments on them are superfluous.

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in trying to build a consistent fleet of such boats, ….", to quote just some of his statements about the 3 decisions' framework from item list a)-o).

[23] Of the CAFC its *Ultramercial* and *Biosig* decisions, of the PTO the current draft of the patent-eligibility guideline [77].

[24] But the sloppiness of the pre-*Mayo*/classical claim construction neither was overcome by this Court's *Mayo/Alice* decisions by just dropping the term "inventive concept", nor can these CAFC decisions [25] overcome it this trivial way – this "term dropping" might indicate a first step to grasping their meanings in the post-*Mayo* view at an ET CI's SPL test[27].

[25] which implies that post-*Mayo* the classical claim construction is obsolete, as indicated by *Mayo* just as by *Alice*, which both base also their patentability enquiry on inventive concepts (i.e. not just on whatsoever "claim terms" as these CAFC decisions[25] evidently do).

What follows is a point-by-point refutation of very strong statements of the former chief judge Michel in his interview [129]. [135] already proved: It does exert the disastrous impact feared above[26][27].

The item list **a)-o)** addresses 20+ of the many more by him fully misrepresented meanings[29] of the key terms crucial for the *Mayo/Alice* framework and identifies their correct meanings, as unmistakably determined by the 3 decisions' refined claim construction framework. It proceeds roughly in the sequence of their appearances in [129], as several terms appear multiply. The initial "…" of any item in **a)-o)** stands for the string "[129] erroneously alleges that <for> these decisions …", or an alike string.

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[26] All these refutations are based on the refinement of the classical claim construction as induced by the 3 decisions' framework into developing the FSTP-Test. Hence the question may arise, whether still another, i.e. not "SPL isomorphic" interpretation exists of this framework. By [5,6,7,...] – and under assumptions practically irrelevant – it does not exist, if the interpretation of the CI comprises its refinement as described there, mathematically described in [64] – originally based on *Mayo*, now confirmed by *Alice.*

[27] The petitioner deeply regrets that both most recent former chief CAFC judges, Michel as well as Rader, missed to get familiar with the clean/resilient epistemological, i.e. analytic philosophical, foundation of the *Mayo* decision and of its basic philosophy/structure, when invited by him to this effort immediately after this decision. It was evident already then: This Court had found by *Mayo* the right way to perform the scientification of SPL precedents, on which it meanwhile successfully went ahead, as shown by its unanimous *Biosig* and *Alice* decisions. These 3 decisions will prevail as a milestone in developing "Innovation Science". [136] outlines their philosophy/structure, identical to that of a clean system design and of rational/scientific thinking

The text quoted from [129] is highlighted:

a) ... "*unclear how the standards annunciated can be applied ...*", as the FSTP-Test[8] is properly defined and may take its user though all its steps automatically.

b) ... "*create a standard too vague, too subjective, too unpredictable and impossible to administer*", because of answer **a)**.

c) ... "*will create total chaos*", because of answer **a)**.

d) ... no "*fair or consistent or predictable*" way to apply the *Alice* standard, because of answer **a)**.

e) ... "*inventive concept, whatever that means*", as the meaning of the term "concept" is broadly known and used in AIT [2-4] for precisely describing the properties of whatsoever subject matter, and its variant "inventive concept" is derived from it in an evident way.

f) ... "*new form of non-obviousness*", as *Alice* introduces no such new form.

g) ... "*mixes up obviousness notions with eligibility notions*", as *Mayo/Alice* explicitly separate both notions, as shown by the FSTP-Test.

h) ... "*it's impossible to make sense out of it*", as the contrary is true: The 3 decisions' refined claim construction framework based SPL test alias FSTP-Test is the only test of which is mathematically provable that a CI passes it iff CI satisfies 35 U.S.C. §§ 101/102/103/112 (subject to the correctness of its input).

i) ... "*eager to be the policymaker in the patent arena*" and "*it is a power struggle between the Court and Congress*", as it contradicts this Court's explicit presentations as to this issue in its *Mayo* opinion.

j) ... "*patents were going to deter more innovation than they were going to incentivize*", as [129] here totally misrepresents the serious preemptivity alias abstract idea problem – evidently as it practically does not exist with CT CIs – but with ET CIs the preemptivity alias abstract idea problem is a fundamental issue, which to ignore means making SPL rationally inapplicable to ET CIs.

k) ... "*the Supreme Court making policy based on a wild guess that they have no factual foundation for*", as the answer **h)** holds also here. I.e., passing the SPL test alias FSTP-Test by a CI (required by the 3 decisions) is – mathematically proven – necessary and sufficient for CI satisfying the requirements stated by 35 U.S.C. §§ 101/102/103/112.

l) ... "*to make* [SPL] *fact based. And now the Court is undoing all that*", as answer **k)** holds also here.

m) ... "*we're back where we were in the 30s and 40s*", as recognizing the preemptivity alias abstract idea problem is a big additional step forward, the necessity of which was not recognized prior to *Mayo*, which enables consistent and predictable SPL precedents also for ET CIs – while this is impossible with the classical claim construction, as the recent clashes in the CAFC about them showed, and theoretically is easily seen to be unavoidable due to its incomplete earlier interpretation of the requirements stated by 35 U.S.C. §§ 101/102/103/112.

n) ...patenting *"mere discoveries"*, ... patenting *"things derived from nature"*, as granting patents to them as it was done before – and as liked by highly speculative patentees – is bringing SPL as a whole more and more into a totally untenable situation, as the *Mayo* opinion correctly noticed.

o) … categories such as things derived from nature are unscientific/unclear/overlapping/indefinite… and "*… none* [of the exceptions to eligibility] *are clear and objective*", and … "*inventive concepts, adding enough*", as this applies only to the pre-*Mayo*/classical claim construction and is sufficiently/substantially clarified by the post-*Mayo* claim construction, as put more precisely by *Alice*.

The reason is well-known, of such unavoidable horrendous blunder of the brains of virtually all men, when it comes to thinking – in the absence of any other context – logically absolutely correctly. Since the beginning of what today is called "Analytic Philosophy" and its "Atomism" (see e.g. Frege/Russel/Turing/Tarski/Church/Rosser/Dijkstra [130,131]), is known that this is possible only when dealing exclusively with terms representing "atomic" meanings, i.e. very simple ones, avoiding compound and the more "metaphysics" ones. The reason being: All human brains notoriously (unless trained otherwise) think "contextually", perform mostly correct combinations and draw conclusions from them without letting us know, i.e. "are intelligent" – here leading straight-ahead into undecidable problems (at best) or fooling all of us by making us convinced we would understand/decide something rationally while being far away from such an understanding.

Here, we call this compound/intelligent level of thinking "abstract" and its atomic/rigorous-logics level "elementary" – hence the BAD/BED inCs[8].

After the preceding post-*Mayo*[28] critics of the former CAFC chief judge, the petitioner would like to add two reconciliatory notes: He recognized correctly

- as to the meaning of the term "abstract idea": "*It's not a question of whether the claim covers something more than the* [an/its] *abstract idea, the question is whether the claim covers something less than the abstract idea*". Thus, he also has figured out, for a CI, the meaning of its "abstract idea" property, which the Supreme Court considers to make it patent-noneligible – as the NAIO test models[8]. If he follows his key question consequently, he ends up with liking Mayo[29].

- that the US NPS, with its single Supreme and single Appeal Court, is worldwide the by far best one – which the petitioner full heartedly supports.

Finally, an interesting statement by another member of academia, Prof. Feldman [128], is commented on. It namely, on the one side ●) also recognizes the *Mayo* refinement of claim construction and confirms the need of an improved base for SPL precedents, but on the other side ●) may easily be misunderstood as confirming, the today's above criticized position of the CAFC[23][24] were already meeting the 3 decisions' needs, **due to the following effect.**

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[28] enabling SPL scientification – inevitable anyway, as without scientification SPL precedents on ET CIs, i.e. based on the classical claim construction, exceeds by far the capacity of the human brain of operating rationally –

[29] though this Court's statement is also correct, i.e. there is no contradiction between both phrases. The "more" refers to the inventivity CI embodies, the "less" to the scope CI preempts. This Court correctly leverages on the relation: Increasing CI's inventivity (so adding limitations) reduces scope(CI).

[128] – interesting also as to other respects –

- clearly recognizes the deficiencies of the CAFC's decision making. She starts from stating her observation that this Court, by contrast to earlier ones, "*is far more interested in wrapping its decisions in careful fidelity to precise statutory language and legal precedent, rather …*" and therefore recently repeatedly rebuked the CAFC's insisting in "*but this is how we do things*" by "l*oudly and clearly signaling that the CAFC's legal doctrines must rest on more then* [drafting efforts and hence] *tenuous grounds*" – which lead to the CAFC's lack of a "*coherent logical base*", a "*plague of the CAFC*" she described as the CAFC doctrines' "*death by tinkering*". She then

- equally clearly recognizes that, in *Alice*, this Court "*gave up and delineated its own rule on patentable subject matter*", i.e. required to use the "*two-part test*", discussed in detail in Section II and [121[1)2)]]. But then she

- may easily be grossly misunderstood, as she – in her paper's subsequent discussion of recent CAFC decisions – completely omits commenting on the above criticized current position of the CAFC[23)24)].

Thus, while [128] nowhere confirms, the opinions of these CAFC decisions were meeting the 3 decisions' needs, it yet is mute as to this crucial question. This may insinuate the erroneous conclusion, these opinions already meet Alice's requirements as to refined claim constructions. Although construing them as required would not change these decisions' outcomes, their justifications were improved compared to those provided by this Court in *Alice* – as it asked for in [121[7.a)]][22)], being indicated in [113[8.VII]].

IV.   THE 3 DECISIONS AND THE '453 CASE

This Section IV basically repeats of [121^{Sect.VI}]³⁾ its Subsections only abbreviated, because they comprise no substantive differences – as the same specification underlies both the patents '902 there and '453 here. I.e., as to the claim(s) at issue, the CAFC opinion provides absolutely nothing new.

IV.A   The '453 Invention: The CI at issue, claim 35, of U.S. Patent No. 6,954,453 ("the '453 patent").

IV.B   The '453 Proceedings: In its interpretation of claim 35, the CAFC not only ignored this Court's 3 decisions, but also diametrically contradicted them: The

- *Biosig* decision – clearly and unmistakably declaring the BRI application for claim construction as violating the Constitution – by yet applying it, and

- *Mayo/Alice* decisions – clearly and unmistakably requiring the application of the refined claim construction framework – by not applying it.

IV.C *Biosig* Ruins the '453 Decision ... [121^{Sect.IV}], as the CAFC uses the BRI^{pto} [121^{Sect.II/III}] – and "legalizes" its use by the BPAI – on page 14 and on page 20 (just as e.g., stated in its September 30, 2014 decision, *In re Taylor Made Golf Company, Inc.*).

IV.D *Alice* Ruins the '453 Decision ... [121[Sect.VI]], as the CAFC – just provocatively – states: *"Mayo simply does not speak to claim construction."* (App. 22a)

As a consequence of applying the BRI[pto], i.e. by simply leaving away several BED-inCs/limitations and in consequence thus evidently grossly violating this Court's *Biosig* decision, the prima facie CI* the CAFC construed here – totally distinct from the actual CI at stake (just as in the '902 case) – itself is an "abstract idea". This nonsense, of taking one of CI's abstract ideas CI* as proof of CI's obviousness or non-novelty over prior art, is impossible to construe by applying the 3 decisions' framework. Also: If this CI* were correct, the CAFC then would have had to find it to be patent-noneligible, up-front!

V.   CONCLUSION

[121[S.VI/VII]] and the above Section III showed that it is questionable, whether the *Mayo/Biosig/Alice* decisions are really accepted by the CAFC and the PTO – not just "in principle" and/or by lip service, waiting for an opportunity to get rid of them, for falling back into the hitherto comfortable/convenient but incomplete and sloppiness inviting classical claim construction – disastrous for ET CIs, .

By this Court's 3 decisions, these confusions of the classical claim construction are eliminated in the way since ever used by science/technology developments, namely by rationality.

Due to these good grounds, this Court is asked to grant this petition: For thus ●) confirming its determination to overcome the 'ET divide' in SPL precedents and broadly establishing the 'ET proof' refined claim construction framework, it set forth by its unanimous decisions in *KSR/Bilski/Mayo/Myriad/Biosig/Alice*, and ●) stimulating a fast transition of the whole patent community to this post-*Mayo* SPL precedents.

October 6, 2014   Respectfully submitted.[30]

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[30] Prof. Sigram Schindler, the primary inventor of the '453 patent, should be recognized for significant contributions to this Petition.

APPENDIX

APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

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IN RE TELES AG
INFORMATIONSTECHNOLOGIEN AND SIGRAM
SCHINDLER BETEILIGUNGSGESELLSCHAFT
MBH

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2012-1297

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Appeals from the United States Patent and Trademark Office, Board of Patent Appeals and Interferences in Reexamination No. 90/010,017.

———————————

Decided: April 4, 2014

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MICHAEL D. KAMINSKI, Foley & Lardner LLP, of Washington, DC, argued for appellants. With him on the brief were HOWARD N. SHIPLEY, GEORGE E. QUILLIN and RYAN A. SCHMID.

AMY J. NELSON, Associate Solicitor, United States Patent and Trademark Office, of Alexandria, Virginia, argued for appellee. With her on the brief were NATHAN K. KELLEY, Deputy Solicitor. Of counsel was SCOTT C. WEIDENFELLER, Associate Solicitor.

FRANK E. SCHERKENBACH, Fish & Richardson P.C., of Boston, Massachusetts, for amicus curiae. Of counsel on the brief was CRAIG E. COUNTRYMAN, of San Diego, California; and HOWARD G. POLLACK and MICHAEL R. HEADLEY, of Redwood City, California.

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Before DYK, MOORE, and WALLACH, *Circuit Judges*.

DYK, *Circuit Judge*.

Teles AG Informationstechnologien and Sigram Schindler Beteiligungsgesellschaft MBH (collectively, "Teles") own all substantial rights in U.S. Patent No. 6,954,453 ("the '453 patent") on a method and apparatus for transmitting data in a telecommunications network. The Patent and Trademark Office ("PTO") conducted an *ex parte* reexamination of the '453 patent and rejected claims 34–36 and 38 as obvious under 35 U.S.C. § 103. The Board of Patent Appeals and Interferences ("Board") affirmed. Teles brought suit in the United States District Court for the District of Columbia, challenging the Board's decision pursuant to 35 U.S.C. § 145 (2006). We agree with the district court that it lacked subject matter jurisdiction, and hold that the version of § 145 in effect at the time did not authorize a patent owner in an *ex parte* reexamination to bring suit in district court challenging the Board's action. But we hold that the district court erred in dismissing the case and instead should have transferred the case as it attempted to do after the dismissal. We treat the

case as having been transferred to this court and consider it as an appeal from the Board's decision. We affirm the Board's rejection of claim 35 as obvious under § 103.

BACKGROUND

I.

In 1980, Congress established a system of *ex parte* reexamination that allowed patent owners and third parties to ask the PTO to reexamine claims of issued patents in view of prior art. *See* An Act to Amend the Patent and Trademark Laws, Pub. L. No. 96-517, 94 Stat. 3015 (1980) (codified at 35 U.S.C. §§ 302–07 (1986)). We have recognized the "important public purpose" behind reexamination as "part of a larger effort to revive United States industry's competitive vitality by restoring confidence in the validity of patents issued by the PTO." *Patlex Corp. v. Mossinghoff*, 758 F.2d 594, 601 (Fed Cir. 1985); *see also* H.R. Rep. No. 96-1307(I), at 3 (1980), *reprinted in* 1980 U.S.C.C.A.N. 6460, 6462 (describing the goal of "strengthen[ing] investor confidence in the certainty of patent rights by creating a system of administrative reexamination of doubtful patents").

Section 145 has long authorized patent applicants to challenge the Board's adverse examination decisions in district court instead of directly appealing to this court pursuant to 35 U.S.C. § 141. *See Kappos v. Hyatt*, 132 S. Ct. 1690, 1694 (2012). After the reexamination statute was enacted, we allowed patent owners to challenge adverse *ex*

parte reexamination decisions in district court pursuant to § 145. *See Joy Techs., Inc. v. Manbeck*, 959 F.2d 226, 227 (Fed. Cir. 1992). In 1999, Congress amended § 145 and related provisions. This case raises the question of whether § 145 civil actions remained available to patent owners seeking to challenge adverse reexamination decisions after Congress amended the statute in 1999 and before 2011, when Congress amended the statute to clarify that § 145 review was not available to patent owners.

II.

Teles is the owner of the '453 patent, which issued on October 11, 2005. '453 patent, at [45]. The '453 patent recites a "method for transmitting data in a telecommunications network and switch for implementing said method." *Id.* at [54]. In August 2007, a third party filed a request that the PTO conduct an *ex parte* reexamination of the '453 patent. The examiner rejected claims 34–36 and claim 38 under 35 U.S.C. § 103 as obvious over U.S. Patent No. 6,069,890 ("White") combined with either U.S. Patent No. 6,137,792 ("Jonas") or U.S. Patent No. 4,996,685 ("Farese"). Teles appealed the rejections to the Board, which affirmed. Teles then sought review of the Board's decision in the United States District Court for the District of Columbia pursuant to § 145. The district court dismissed the case for lack of subject matter jurisdiction, holding that, after the 1999 amendments, § 145 proceedings could not be maintained by patent owners.

Teles appealed the district court's dismissal for lack of subject matter jurisdiction to this court pursuant to 28 U.S.C. § 1295(a)(1). Teles did not appeal the Board's decision to this Court.

DISCUSSION

I.

We address initially the question of jurisdiction. While we have jurisdiction to review the district court's dismissal pursuant to § 1295(a)(1), the question is whether we also have jurisdiction to review the Board's action (if the district court lacked jurisdiction). After the district court granted the motion to dismiss, it also purported to transfer the case to this court pursuant to 28 U.S.C. § 1631. A transfer "is not proper when combined with a dismissal." *Hollyanne Corp. v. TFT, Inc.*, 199 F.3d 1304, 1307 (Fed. Cir. 1999); *see also Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 797, 818 (1988). Once the district court dismissed the case for lack of jurisdiction, it "was without authority to transfer the case." *Tootle v. Sec'y of Navy*, 446 F.3d 167, 173 (D.C. Cir. 2006).

But we hold that the district court erred in dismissing the case rather than transferring it. Once the district court held that it lacked jurisdiction, it should have transferred the case pursuant to § 1631. *See Paul v.I.N.S.*, 348 F.3d 43, 47 (2nd Cir. 2003); *see also Kolek v. Engen*, 869 F.2d 1281, 1283–84 (9th Cir. 1989). Here, as in *Paul* and *Kolek*, the statutory deadline for filing an appeal to this court had passed, and no evidence suggested bad faith in Teles' filing

with the district court. Under these circumstances, it was in the interest of justice to transfer the case pursuant to § 1631, and we "treat [Teles'] petition for review, which was timely filed with the district court, as if it had been properly transferred" to this court rather than dismissed. *Paul*, 348 F.3d at 47 (citing *Miller v. Hambrick*, 905 F.2d 259, 262 (9th Cir. 1990) (district court correctly determined that it lacked jurisdiction but abused its discretion in failing to consider whether transfer was in the interest of justice)); *see also Kolek*, 869 F.2d at 1284 (treating dismissal as transfer where appellate court had exclusive jurisdiction and timely filing deadline had passed); *In re McCauley*, 814 F.2d 1350, 1352 (9th Cir. 1987) (reviewing merits of dismissed appeal as if properly transferred to appellate court).

In reviewing the case as though the district court had transferred the case, we address (1) the district court's jurisdiction, and (2) if the district court lacked jurisdiction, the Board's decision on the merits. We review both the district court's dismissal for lack of jurisdiction and the question of statutory interpretation underlying that dismissal de novo. *Mudge v. United States*, 308 F.3d 1220, 1224 (Fed. Cir. 2002) (citing *Strickland v. United States*, 199 F.3d 1310, 1313 (Fed. Cir. 1999) and *Muniz v. United States*, 972 F.2d 1304, 1309 (Fed. Cir. 1992)). We review the Board's decisions de novo for errors of law and for substantial evidence as to questions of fact. *In re Enhanced Sec. Research, LLC*, 739 F.3d 1347, 1351 (Fed. Cir. 2014) (citing *In re Baxter Int'l, Inc.*, 678 F.3d 1357, 1361 (Fed. Cir. 2012)).

II.

On its face, even before the 1999 amendments, § 145 only provided for district court actions brought by patent "applicants." Nonetheless, in *Joy Technologies*, we construed § 145 as applicable to a "patent owner" involved in an *ex parte* reexamination. 959 F.2d at 229. This construction of the statute was continued in later cases. *See Takeda Pharm. Co., Ltd. v. Doll*, 561 F.3d 1372 (Fed. Cir. 2009); *In re Lueders*, 111 F.3d 1569, 1577, n.14 (Fed. Cir. 1997); *Boeing Co. v. Comm'r of Patents & Trademarks*, 853 F.2d 878, 881 (Fed. Cir. 1988).

In 1999, Congress amended the Patent Act to create a system of *inter partes* reexamination that allowed third parties who had requested the reexamination to participate actively in the PTO reexamination process.[1] When Congress created the *inter partes* reexamination system, it changed the text of existing statutory provisions, including §§ 134, 141, and 145. The district court concluded that these changes made § 145 unavailable to patent owners (as opposed to patent applicants).

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[1] *See* American Inventors Protection Act ("AIPA"), enacted as part of the Intellectual Property and Communications Omnibus Reform Act of 1999, Pub. L. No. 106-113, 113 Stat. 1501 (1999); 35 U.S.C. §§ 311, 316; *see also* 145 Cong. Rec. H6944 (1999) (statement of Rep. Dana Rohrabacher) (describing legislative effort to "further encourage potential litigants to use the PTO as a[n] avenue to resolve patentability issues . . . [by] creat[ing] an additional reexam option that permits a 3rd party requestor to file additional written briefs").

First, Congress amended § 141, which provided for appeals of Board decisions to this court, by inserting an express limitation on the appeal rights of patent owners in any reexamination proceeding: "A patent owner in any reexamination proceeding dissatisfied with the final decision in an appeal to the Board of Patent Appeals and Interferences under section 134 *may appeal* the decision *only* to the United States Court of Appeals for the Federal Circuit." 35 U.S.C. § 141 (2000) (emphases added).

Second, Congress changed the substance and structure of § 134, governing appeals to the Board. Before 1999, § 134 mentioned only patent applicants: "An applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the primary examiner to the Board of Patent Appeals and Interferences, having once paid the fee for such appeal." 35 U.S.C. § 134 (1994). As amended, the section for the first time addressed patent applicants, patent owners, and third party requesters individually, as follows:

a) PATENT APPLICANT.—An applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the administrative patent judge to the Board of Patent Appeals and Interferences, having once paid the fee for such appeal.

(b) PATENT OWNER.—A patent owner in any reexamination proceeding may appeal from the final rejection of any claim by the administrative patent judge to the Board of

Patent Appeals and Interferences, having once paid the fee for such appeal.

(c) THIRD-PARTY.—A third-party requester in an *inter partes* proceeding may appeal to the Board of Patent Appeals and Interferences from the final decision of the administrative patent judge favorable to the patentability of any original or proposed amended or new claim of a patent, having once paid the fee for such appeal. The third-party requester may not appeal the decision of the Board of Patent Appeals and Interferences. 35 U.S.C. § 134 (2000).[2]

Third, Congress amended § 145, which previously referenced § 134 generally, to refer only to § 134(a), governing patent applicants:

An applicant dissatisfied with the decision of the Board of Patent Appeals and Interferences in an appeal under section *134(a)* of this title may, unless appeal has been taken to the United States Court of Appeals for the Federal Circuit, have remedy by civil action against the Director in the United States District Court for the District of Columbia . . .

35 U.S.C. § 145 (2000) (emphasis added). On their face, these amendments would appear to restrict §

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[2] In 2002, Congress amended § 134, substituting "primary examiner" for "administrative patent judge." 35 U.S.C § 134 (2006).

145 appeals to patent applicants. However, Teles argues that § 145 continued to be available to patent owners.

Teles' first argument is that the phrase in § 141 stating that a patent owner "may appeal the [adverse reexamination] decision only to the United States Court of Appeals for the Federal Circuit" does not preclude an owner from invoking the provisions of §§ 145 and 306 because a civil action under § 145 is not an "appeal." Under Teles' interpretation, the "only" restriction limits patent owners' appeals to this court as opposed to other circuit courts and does not limit the availability of § 145 district court review to patent owners. But this reading makes the provision entirely superfluous because this court already had exclusive jurisdiction over decisions of the Board. 28 U.S.C. § 1295 (a)(4)(A) (1994). Significantly, § 141 did not subject patent applicants to a similar limitation, stating that "[a]n applicant dissatisfied with the decision in an appeal to the Board of Patent Appeals and Interferences under section 134 of this title *may appeal* the decision to the United States Court of Appeals for the Federal Circuit." 35 U.S.C. § 141 (2000) (emphasis added). If the "only" limitation were designed to restrict appeals to this court, rather than other circuit courts, it is hard to understand why Congress would not employ similar language as to patent applicants.

Teles' second argument is that the conclusion that the 1999 amendments restricted § 145 to patent applicants is inconsistent with the language of § 306, pertaining to appeals by patent owners in *ex parte*

reexaminations. After the 1999 amendments, § 306 continued to read:

> The patent owner involved in a reexamination proceeding under this chapter may appeal under the provisions of section 134 of this title, and *may seek court review under the provisions of section 141 to 145 of this title*, with respect to any decision adverse to the patentability of any original or proposed amended or new claim of the patent.

35 U.S.C. § 306 (2000) (emphasis added). Teles argues that the reference in § 306 to "the provisions of section 141 to 145" shows that § 145 continues to be available to patent owners. But this inconsistency in retaining a reference to § 145 in § 306 does not undermine the clear intention of the 1999 amendments to eliminate § 145 as to patent owners.

In *Chickasaw Nation v. United States*, the Supreme Court considered a similar question involving an apparent contradiction between statutory language and an internal cross-reference. 534 U.S. 84 (2001). There, the question was whether Indian tribes were exempt from paying certain taxes. One subsection of the statute stated that "Internal Revenue Code provisions that 'concer[n] the reporting and withholding of taxes' with respect to gambling operations shall apply to Indian tribes in the same way as they apply to the States," but also stated "in its parenthetical that those provisions 'includ[e]' Internal Revenue Code 'chapter 35.'" *Id.* at 87 (alterations in original). Chapter 35, however,

said "nothing about the *reporting* or *withholding* of taxes, [but] simply *impose[d]* taxes . . . from which it exempt[ed] certain state controlled gambling activities." *Id.* The Indian tribes claimed that the chapter 35 reference exempted them from paying taxes from which states were similarly exempt. *Id.*

Faced with this apparent contradiction, the Supreme Court held that "[t]he language of the statute is too strong to bend as the Tribes would wish—*i.e.,* so that it gives the chapter 35 reference independent operative effect." *Id.* at 89. The Court explained that "the language outside the parenthetical is unambiguous. It says without qualification that the subjection applies to 'provisions . . . concerning the reporting and withholding of taxes.'" *Id.* In light of such strong and unambiguous language, making the chapter 35 reference effective on its own would have required "seriously rewriting the language of the rest of the statute." *Id.* Rather than reach that result, the Court concluded that "in context, common sense suggests that the cross-reference is simply a drafting mistake," and that Congress "unintentionally failed to remove what had become a superfluous numerical cross-reference." *Id.* at 91, 92. The same is evidently true here with respect to the retention of the cross-reference to § 145 in § 306.

The fact that in the case of an *inter partes* reexamination, § 315, as of the time of the 1999 amendments, provided for an appeal by the patent owner "under the provisions of sections 141 through 144," 35 U.S.C. § 315(a)(1) (2000), merely confirms

the likelihood that the reference to § 145 in § 306 was a drafting error. Moreover, the fact that § 145 on its face applied only to "applicants" and not owners helps to explain why Congress could have failed to focus on the drafting error in § 306.

Teles argues, however, that here, legislative history demonstrates that Congress deliberately retained the reference to § 145 in § 306. Teles points out that bills proposed before 1999 would have amended § 306 to eliminate the reference to § 145, and that these bills were not adopted. This does not assist Teles. As the Supreme Court held in *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng'rs*, reliance on failed legislative proposals is disfavored as a means of inferring legislative intent. 531 U.S. 159, 169 (2001).

Teles also relies on the fact that during consideration of the 1999 amendments, one of the bills proposed to amend § 306 by eliminating the reference to § 145. *See* American Inventors Protection Act of 1999, H.R. 1907 106th Cong. (as introduced); *see also* H. Rep. 106-287(I), at 59–60 (Aug. 3, 1999) (describing proposed changes to § 306). But the proposed section made an even more significant change: it gave third party requesters in *inter partes* examinations the right to appeal Board decisions to this court or to become parties in appeals taken by patent owners. When the bill was reported out of the House Judiciary Committee, this

provision was removed.[3] The debate on the provision suggests nothing about a decision to retain § 145 for patent owners, but demonstrates that the provision was removed because of opposition to giving appeal rights to third parties in *ex parte* examinations.

During the House debate over the bill, Representative Lofgren asked about this change, but only with respect to the removal of third parties' appeal rights. 145 Cong. Rec. 6942 (statement of Rep. Zoe Lofgren). The response to Representative Lofgren's question similarly focused on the impact it would have on the rights of third party requesters, not patent owners. *See* 145 Cong. Rec. H6942 (statement of Rep. Coble) (explaining that the change "was done for the benefit of the independent inventors to balance the interest of a third party with those of a . . . patentee, by allowing a third party to pursue reexamination . . . while assuring that a patentee would not be subject to harassment in such proceedings"). There was no suggestion that the provision was rejected in an attempt to retain § 145 review for patent owners.[4]

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[3] Although third parties in *inter partes* examinations were given the right to appeal to this court in 2002, Pub. L. 107-273 § 13106(c), such appeals remain unavailable to third parties in *ex parte* examinations. *See* 35 U.S.C. § 141 (2012).

[4] Teles' other references to statements during floor debates do not show that the § 145 reference remained because of legislative intent rather than inadvertence. *See, e.g.*, 145 Cong. Rec. H6942 (statement of Rep. Zoe Lofgren) ("[T]he bill was amended to retain existing law for *ex parte* reexaminations . . . ."); 145 Cong. Rec. S14720 (statement of Sen. Trent Lott) ("Subtitle F leaves existing *ex parte* reexamination procedures

The only specific reference to the appeal rights of patent owners is Senator Lott's statement that "[t]he patentee is not entitled to the alternative of an appeal of an *inter partes* reexamination to the U.S. District Court for the District of Columbia. Such appeals are rarely taken from *ex parte* reexamination proceedings under existing law and its removal should speed up the process." 145 Cong. Rec. S14720. Interestingly, Senator Lott viewed the amendment to § 141 discussed above as precluding § 145 review: "a patent owner in a reexamination proceeding may appeal an adverse decision . . . only to the U.S. Court of Appeals for the Federal Circuit as earlier noted." *Id.* at S14721. These statements hardly indicate a desire to retain § 145 review for patent owners.

Finally, Teles argues that the 2011 amendments to § 306 show that the 1999 amendments left the appeal rights of patent owners intact. When Congress enacted the America Invents Act in 2011, it amended § 306 by limiting patent owners to review "under the provisions of sections 141 to 144." *See* Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-129, 125 Stat. 284 (2011) (codified as amended at 35 U.S.C. § 306 (2011)). The 2011 amendments thus removed the cross-reference to § 145 in § 306 (but were not retroactive). Teles argues

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in Chapter 30 of title 35 intact."). These statements do not say anything about the appeal rights of patent owners after completion of the reexamination.

that this change demonstrates that § 306 before the changes preserved § 145 for patent owners.

Teles' theory contradicts the legislative history, which recognized that the amendments corrected a drafting error in the 1999 legislation: "§ 306 is amended to conform to the changes made by § 4605 of the American Inventors Protection Act of 1999, Public Law 106-113 to §§ 134 and 141 of Title 35." H.R. Rep No. 112-98(I), at 77 (2011) (Statement of Rep. Smith) (June 1, 2011); *see also* 157 Cong. Rec. S1377 (daily ed. Mar. 8, 2011) (statement of Sen. Kyle) ("It is fairly apparent, however, that [the authority for a patent owner to bring a civil action under § 145] was intended to be eliminated by the amendments made by section 4605 of the American Inventors Protection Act of 1999, Public Law 106-113, to sections 134 and 141 of Title 34 . . . . The AIPA neglected, however, to eliminate a cross reference to section 145 in section 306 of Title 35 . . . ."). Amendments intended to clarify statutory language do not indicate that the original language should be construed to mean the opposite of the clarifying language. *See Jerman v. Carlisle, McNellie, Rini, Kramer & Ulrich LPA*, 559 U.S. 573, 591 & n.12 (2010) (referencing statements in legislative history as evidence that amendment intended to clarify, rather than change, the scope of existing statutory provision). The 2011 amendments do not manifest Congress' intent to preserve the availability of § 145 in the earlier version of the section.

We therefore hold that the 1999 amendments eliminated the right of patent owners to secure review under § 145, and affirm that the district court lacked jurisdiction over the § 145 action.

III.

We turn next to Teles' appeal of the Board's rejection of claim 35.[5] This claim was rejected on the ground that the claim would have been obvious.

A. Claim Construction

Teles argues that the Board's decision rests on an incorrect claim construction. During reexamination, the PTO must give claims their "broadest reasonable construction consistent with the specification." *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007). We review de novo the Board's claim construction to determine if it gives claims their broadest reasonable construction. *Rambus v. Rea*, 731 F.3d 1248, 1252 (Fed. Cir. 2013); *see also In re Abbott Diabetes Care Inc.*, 696 F.3d 1142, 1148 (Fed. Cir. 2012).

Claim 35 depends on independent claim 34, which recites a "[s]witching apparatus for routing a telephone call . . . selectively by line switching or packet switching." '453 patent col. 14 ll. 48–53. Dependent claim 35 reads:

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[5] The Board also rejected claims 34, 36, and 38, but Teles does not challenge these rejections on appeal.

35. The switch of claim 34,[6] further comprising means to produce the control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal, said control signal being produced automatically when demands on the

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6 The full text of claim 34 reads:

34. Switching apparatus for routing a telephone call comprising non-packetized data from a first end terminal located at a user's premises to a second end terminal located at another user's premises, selectively by line switching or packet switching, the switching apparatus comprising:

means for establishing a connection through a line-switching network to the second end terminal;

means for line-switching transferring data received from the first end terminal as non-packetized data over the line-switching network to the second end terminal;

means for establishing a connection through a packet-switching network to the second end terminal;

means for packet-switching transferring data received from the first end terminal as non-packetized data over the packet-switching network to the second end terminal; and

means responsive to a control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal;

said means responsive to a control signal changing-over to a line switching data transfer or a packet-switching transfer during the existing transfer with the presence of said control signal.

'453 patent col. 14 l. 48 to col. 15 l. 4.

quality of the data transfer are understepped
or exceeded.

'453 patent col. 15 ll. 5-10.

Claim 35 pertains to the utilization of line
switching and packet switching in routing telephone
calls. Line switching and packet switching are two
different types of telecommunications technologies.
In line switching, "a connection is continually
provided in real time with the complete bandwidth of
a channel between two points" reserved for that
connection. *Id.* col. 1 ll. 39–41. The fixed bandwidth
allows for communications that are "free of any time
delays," but can be "expensive, particularly during
telephone conversations since the costs accumulate
irrespectively of the information actually
transferred." *Id.* col. 1 ll. 44–48. Packet switching
operates "quite differently from line-switching
exchanges, [in that] a fixed connection does not have
to be maintained . . . i.e., each packet is treated
individually and not in conjunction with others." *Id.*
col 1. ll. 33–34, 56–59. The Internet is an example of
a network that uses packet switches (routers) to
transfer data. *Id.* col. 1. ll. 60–67. Although packet-
switching can provide connections cheaply, it can
also produce significant time delays. *Id.* col. 2. ll. 3–
7, 15–21. Claim 35 is directed to a device for
switching from a packet-switched network to a line-
switched network "automatically when demands on
the quality of the data transfer are understepped or
exceeded." *Id.* col. 15 ll. 5–10.

The Board construed the claimed "means to produce the control signal" under § 112 ¶ 6 (now § 112(f)). Section 112 ¶ 6 provides that functional claim language, like the "means to produce the control signal" element of claim 35, "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112 ¶ 6 (2006). The Board defined the function as "produc[ing] the control signal for transferring to a line-switching or a packet-switching transfer to the second end terminal." J.A. 1435. The Board agreed with the examiner that, in order to release a control signal, the claim required monitoring factors related to demands of quality, but did not limit those factors to include only the bandwidth of a particular transfer. The Board explained that "by using the broad term 'demands of quality,' claim 35 is not limited to the 'bandwidth of a transfer,'" and that the time delay of a transmission was an example of a "quality factor." J.A. 1435. The Board found that the structure corresponding to the claimed means was the change-over device, identified in Figure 4 by label 711.

While Teles' argument is not entirely clear, it appears that Teles argues that the Board erred by not construing the function of claim 35 to be defined by the description of structure in the following portion of the specification:

Alter[n]atively, it can also be possible for the change-over control device 711 to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the

> event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer.

'453 patent col. 9 ll. 36–42. Teles contends that this passage requires that the function include monitoring the bandwidth of the packet-switched network in connection with the transfer. But the fact that the specification describes monitoring bandwidth as an alternative possibility for producing a change-over command does not support construing that function to match the alternative function disclosed in the specification rather than the recitation in the claim.

When construing functional claims under § 112 ¶ 6, "[t]he statute does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim." *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999) ("[T]he district court erred . . . by incorporating unrecited functional limitations into the claims."); *see also Globetrotter Software, Inc. v. Elan Computer Grp.*, 236 F.3d 1363, 1367 (Fed. Cir. 2001) (The structure disclosed in the specification must be necessary to perform "the function described in the claim.") (citing *Micro Chem.*, 194 F.3d at 1258). Even if the passage in the specification relied on by Teles were relevant to construing the claim language, it does not support a different claim construction. The passage states that a control signal could be released automatically on "understepping or exceeding a certain bandwidth

and/or in the event of a time delay when forwarding IP data packets." '453 patent col. 9 ll. 35–40. On its face, this language (using "and/or") describes two factors—bandwidth and time delay—as potential alternatives for producing a change-over command; it does not suggest that bandwidth monitoring is necessary to perform that function. The Board did not err in its claim construction.

Finally, Teles argues that the Board's claim construction is erroneous in light of its alleged inventive concept as defined by the inventor (monitoring the bandwidth of a particular transfer). Teles argues that "the Supreme Court's *Mayo* decision requires that the 'inventive concepts' embodied by the claimed invention be identified as part of construing claims." Reply Br. 5 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1294 (2012)). But the Court in *Mayo* referred to an "inventive concept" only in the context of § 101 patent eligibility analysis, and specifically in the context of ensuring that a process "amounts to significantly more than a patent upon the natural law" which its steps invoke. *Mayo*, 132 S. Ct. at 1294. Requiring claims to recite an inventive concept does not mean that claims must be construed in light of unspecified inventive concepts. *Mayo* simply does not speak to claim construction. The inventive concept aspect of its discussion has no bearing on claim construction.

B. Claim Construction

Obviousness is a question of law that we review de novo, but it rests upon factual determinations that we review for substantial evidence. *In re Baxter Int'l, Inc.*, 678 F.3d at 1361 (Fed. Cir. 2012) (citing *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000)).

The Board upheld the examiner's rejection of claim 35 (as well as claims 34, 36 and 38) as obvious in view of White combined with either Jonas or Farese. White "relates to an Internet telephone service where calls can be made over the Internet from telephone to telephone, telephone to computer, or computer to telephone." J.A. 1411 (citing '890 patent col. 4 ll. 5–24). Farese relates to a technique for dynamically changing between packet and circuit switching in Integrated Services Digital Network (ISDN) communications. Jonas' system and method "enables data packets to be transmitted over a bypass [line]-switched telephone network between two computers connected to a public packet-switched network, such as the Internet." J.A. 1413 (citing '792 patent col. 1 ll. 8–12). Jonas further discloses that the bypass network could be used to avoid time delays associated with packet switching. The Board affirmed the examiner's finding that "'it was well known in the art to change over to [] line-switching or packet-switching during an existing transfer during a communication in response to a control signal,' as disclosed by Farese and Jonas." J.A. 1427.

Although White did not itself disclose changing between line-switched and packet-switched

connections during an ongoing communication, the Board agreed with the examiner "that it would have been obvious to modify White to allow a change-over . . . during an existing transfer, as explicitly taught by Jonas and Farese." J.A. 1428. Moreover, this modification "would dynamically take advantage of both the inherent cost benefit of using the packet-switched Internet and the minimal time delay of [line]-switched telephone network." J.A. 1428. According to the examiner, this benefit explained "why one of ordinary skill in the art would combine the teachings of White and Jonas and Farese." J.A. 1429. With respect to claim 35, the Board agreed with the examiner that Jonas disclosed changing to a line-switched network when transmission delays are detected and thus "discloses 'producing a control signal automatically when the demands of quality are understepped or exceeded.'" J.A. 1435.

Teles challenges the conclusion of obviousness on the grounds that the prior art references do not disclose all of the recited limitations of claim 35. Teles' main objection is to Jonas, specifically, that it discloses a method of calculating transmission delay based on monitoring the entire network rather than an individual communication. But this argument assumes an overly limiting construction of the prior art reference and the language of claim 35. Under the Board's construction, the change-over control device of claim 35 must produce a signal automatically, which requires monitoring quality factors, such as delay, but there is no reason to require monitoring the bandwidth of a single transfer in isolation from the network.

Additionally, the Board found that Jonas teaches that transmission delay may be detected "using a variety of measures known to those skilled in the art, including topological delay time for the transmission, cost, or the number of gateways through which the network path traverses" as well as by "monitor[ing] the delay time . . . by sending occasional 'ping' messages to the destination router . . . and monitoring delay times of any response packets." J.A. 14–17 (citing '792 patent col. 5 l. 53 to col. 6 l. 3). We find no reason to overturn the Board's finding that Jonas discloses the limitation of claim 35.

Teles next argues a person of ordinary skill would not have found it obvious, or even possible, to combine White with Jonas. Teles asserts that incorporating Jonas' "freestanding" switches into White's switches, the central offices of local exchange carriers, would be "an extremely complicated process." Reply Br. 25. The Board cited the examiner's reasons for rejecting Teles' argument: "White is proposing providing a redesigned network [for] handling Internet based call[s] . . . [and] already anticipates redesigning the Central Office equipment to respond to Internet type calls, thus Jonas would clearly be envisioned in this network redesigned by White." J.A. 1304. This finding directly contradicts Teles' assertion that White on its own requires "no change of its switching apparatus," Reply Br. 26, and instead shows that White presumes that modifications would be required.

The Board did not err in rejecting claim 35 of the '453 patent as obvious in view of White and Jonas.

AFFIRMED

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APPENDIX B

UNITED STATES PATENT AND TRADEMARK
OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

—————————

Ex parte TELES AG
INFORMATIONSTECHNOLOGIEN
Appellant

—————————

Appeal 2010-000115
Reexamination Control 90/010,017
Technology Center 3900
United States Patent 6,945,543

—————————

Before ROBERT E. NAPPI, SCOTT R. BOALICK,
and KEVIN F. TURNER, *Administrative Patent
Judges.*

BOALICK, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

Teles AG Informationstechnologien, ("Teles")[2] appeals under 35 U.S.C. § 134(b) and 35 U.S.C. § 306 from a final rejection of claims 34-36 and 38. Claims 1-33 and 37 are not subject to reexamination. We have jurisdiction under 35 U.S.C. §§ 134(b) and 306.

An oral hearing was held on December 2, 2009. The record includes a written transcript of the oral hearing.

We affirm.

STATEMENT OF THE CASE

Reexamination Proceedings

A request for *ex parte* reexamination of U.S. Patent No. 6,954,453 (the '453 patent) was filed on August 30, 2007, and was assigned Reexamination Control No. 90/010,017. The '453 patent, entitled "Method for Transmitting Data in a Telecommunications Network and Switch for Implementing Said Method," issued October 11, 2005, to Sigram Schindler, Andreas Illg, Karsten Lüdtke, and Frank Paetsch, based on Application

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" shown on the PTOL-90A cover letter attached to this decision.

[2] Teles is said to be the real party in interest and assignee of the patent under reexamination. (App. Br. 2.)

No. 09/147,970, filed October 7, 1997. The '453 patent claims the benefit, under 35 U.S.C. § 119, of two German patent applications. The effective filing date of the '453 patent is said to be October 7, 1996. (App. Br. 1.)

Related Litigation

The Brief (App. Br. 6, n. 3; *see also* Oral Hr'g Tr. 2:21 to 3:11) indicates that the '453 patent is involved in litigation.

Appellant's Invention

The '453 patent relates to a switching apparatus that transfers data from a first switch to a second switch selectively by either line-switching or packet-switching. (Abstract; col. 1, 11. 7 · 10.) A line-switching connection is expensive but is free of time delay and has a fixed bandwidth. (Col. 1, ll. 39-48.) A packet-switching connection is inexpensive but has a time delay that can become so great that certain applications are no longer possible. (Col. 1, 1. 52 to col. 2, .1 21.) The switching apparatus can changeover to a line-switching connection from a packet-switching connection, or vice versa, without interrupting the connection. (Col. 3, 1. 15-18.) Thus, "data transfer can be interchanged dynamically between line switching and packet switching." (Col. 3, ll. 57-58.) Two "important uses" of the invention are Internet telephony and downloading of files from a web server. (Col 7, ll. 24-26.) The invention "allows flexible data transfer between the switches and

more particularly cost-effective data transfer with real time properties." Col. 3, ll. 12-14.)

Independent claim 34, with emphasis and reference numerals added by Appellant (App. Br. 12), is reproduced below:

34. Switching apparatus for routing a telephone call comprising non-packetized data from a first end terminal located at a user's premises to a second end terminal located at another user's premises, selectively by line switching or packet switching, the switching apparatus comprising:

[1] means for establishing a connection through a line-switching network to the second end terminal;

[2] means for line-switching transferring data received from the first end terminal as non-packetized data over the line-switching network to the second end terminal;

[3] means for establishing a connection through a packet-switching network to the second end terminal;

[4] means for packet-switching transferring data received from the first end terminal as non-packetized data over the packet-switching network to the second end terminal; and

[5] means responsive to a control signal for transferring to a line-switching transfer or a

packet-switching transfer to the second end terminal;

[6] said means responsive to a control signal changing-over to a line-switching data transfer or a packet-switching transfer during the existing transfer with the presence of said control signal.

The Rejection

Claims 34-36 and 38 stand rejected under 35 U.S.C. § 103(a) as being obvious over White (U.S. Patent 6,069,890) in view of Jonas (U.S. Patent 6,137,792) or Farese (U.S. Patent 4,996,685).

Appellant relied upon the following[3] in rebuttal to the Examiner's rejection:

Declaration under 37 C.F.R. § 1.132 of Sigram Schindler, dated April 28, 2008 ("Schindler Declaration" or "Schindler Decl.").

Declaration under 37 C.F.R. § 1.132 of Frank Paetsch, dated June 27, 2008 ("Paetsch Declaration" or "Paetsch Decl.").

McNiff (U.S. Patent 6,807,150).

Thornton (U.S. Patent 6,363,065).

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[3] This opinion only addresses arguments made by Appellant. Arguments not made are considered waived. See 37 C.F.R. § 41.37(c)(1)(vii). WE have considered the declaration evidence to the extent raised by Appellant's arguments.

ISSUES

The following dispositive issues are presented:

1. Has the Examiner properly applied 35 U.S.C. § 112, ¶ 6?

2. Does the combination of White and Jonas or Farese teach or suggest a "means responsive to a control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal; said means responsive to a control signal changing-over to a line-switching data transfer or a packet-switching transfer during the existing transfer with the presence of said control signal"?

3. Has the Examiner properly combined White and Jonas or Farese?

4. Has the Examiner properly considered Appellant's proffered evidence of non-obviousness

FINDINGS OF FACT

'453 Patent

1. In the BACKGROUND OF THE INVENTION section, the '453 patent teaches that "[l]ine-switching connections use line switches, alias line switching equipment, between the individual line sections." (Col. 1, ll. 17-18) A line switch "is called telecommunications apparatus (TK apparatus) in the private sector, and exchanges of the network supplies in the public sector." (Col. 1, lll. 29-32.) "Line switching connections are synchronous, i.e., data transfer is carried out substantially without

any time delay from one line section to an adjoining line section through a switch (here, a line switching apparatus) ." (Col. 1, ll. 34-37.) "Line-switching connections are expensive, particularly during telephone conversations since the costs accumulate irrespectively of the information actually transferred. The advantage of a line switching connection is that it is free of any time delay and has a fixed bandwidth." (Col. 1, ll. 43-47.)

2. The BACKGROUND OF THE INVENTION section of the '453 patent further teaches that" [p]acket-switching connections use packet switches, alias packet switching equipment, between the individual line sections of a network." (Col. 1, ll. 20-22.) A packet switch "is also called a router, an IP switch or a host computer." (Col. 1, ll. 32-33.) "With packet exchange, data, e.g. audio data, video data or computer files, are packeted and transferred as data packets." (Col. 1, ll. 50-52.) "Packet switching works in the asynchronous transfer mode, i.e., data is transferred time-delayed between two adjoining line sections by a switch (here, a packet switching apparatus)." (Col. 1, 11. 52-55.) "In the case of packet-switching exchanges, and quite differently from line-switching exchanges, a fixed connection does not have to be maintained. It is connection-less, i.e., each packet is treated individually and not in conjunction with others." (Col. 1, ll. 55-59.)

3. The BACKGROUND OF THE INVENTION section of the '453 patent discusses Farese, stating that "a method and device are known which allow in an ISDN communications network, during an existing connection between a user and a host computer, a dynamic change between a line switching connection through an ISDN B channel and a packet-switching connection through an ISDN D channel." (Col. 2, ll. 22-27.) "A command to change between a line-switching and a packet-switching connection thereby always emanates from the Host computer." (Col. 2, ll. 27-30.) The '453 patent characterizes Farese, stating that it "is restricted to undertaking on an ISDN connection a change between a line-switching and a packet-switching data transfer whereby a line-switching transfer is carried out on a B channel and a packet-switching transfer is carried out on the D channel." (Col. 2, ll. 31-36.)

4. The '453 patent states that "the present invention is concerned with the problem of providing a method for transferring data from a first switch to a second switch and providing a switching for carrying out the method which, depending on the data origin and headers of a user or network management system, allows flexible data transfer between the switches and more particularly cost-effective data transfer with real time properties." (Col. 3, ll. 7-14.) "The solution according to the present invention makes it possible during pocket-switching [sic] connection between two switches to achieve a dynamic change-

over to line-switching connection without interrupting the connection." (Col. 3, ll. 15-18.) This change-over is advisable if there is a data build up of data packets before the switches of the packet-switching network. (Col. 3, ll. 18-20.) The establishment of a line-switching connection between the switches produces a bypass over which data can be transferred with fixed bandwidth and slight time delays substantially in real time in order to bypass the data blockage. (Col. 3, ll. 21-25.) "Since a line switching connection is established only when required, i.e., when a packet-switching data transfer no longer has the desired bandwidth, the invention allows a flexible, most cost-effective data transfer." (Col. 3, ll. 25-30.)

5. "A switch according to the present invention has ... a control device which directs incoming data either to the IP switching device or to the line switching device depending on the control signals." (Col. 3, ll. 41-47.) The '453 patent teaches that "[t]he corresponding control signals are triggered by a user, or at the command of a network management system and are transferred together with other signaling data to the switch. Alternatively, the switch itself automatically produces a corresponding control command upon exceeding a certain bandwidth of the packet-switching transfer." (Col. 3, ll. 48-54.)

6. Figure 1 (reproduced below) "shows a telecommunications network according to the present invention with switches 7a and 7b

according to the present invention." (Col. 7, ll. 13-15.)

FIG.1
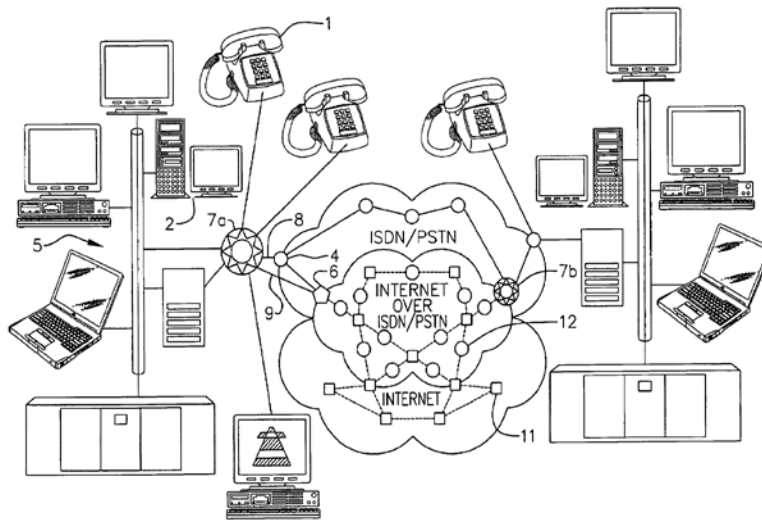
7.   Figure 4 (reproduced below) "shows diagrammatically the establishment of a switch 7 according to the present invention." (Col. 8, ll. 16-17.) "The switch 7 is part of both a packet-switching network (internet) and a line-switching network (telephone network), i.e., it is connected through lines to further network junctions to which it can transfer or receive line-switched or packet-switched data." (Col. 8, ll. 17-22.)

FIG.4
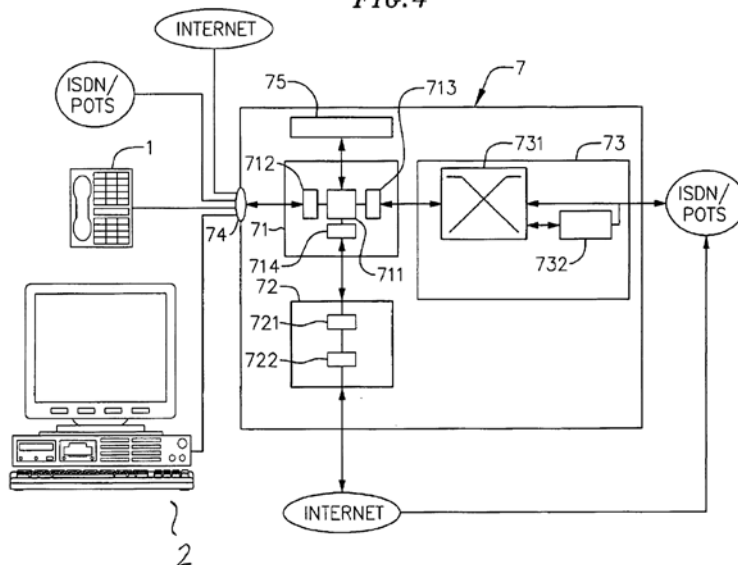
8.   The switch 7 has a control device 71 that produces internal control commands as to whether packet-switching is to take place through the IP switch 72 or line switching is to take place through the line-switching device 73. (Col. 8, ll. 53-56.) "The device 71 is substantially a switch which forwards the incoming data either as data packets to the IP switch 72 or as bit flow to the line switching device 73." (Col. 8, ll. 56-59.) Control device 7 has a change-over control unit 711 that "monitors and controls which open connections are present (i.e., which and how many data channels are connected) and which bandwidth the individual data channels require." (Col. 8, ll. 60-64; *see also* col. 8, l. 65 to col. 9, l. 22.)

9. "Through a control command which is sent by an end terminal or another switch and for example triggered by a user by pressing a certain button on the terminal or by the network management system, the type of communication is switched over to line-oriented or packet oriented communication." (Col. 9, ll. 23-28.) "A corresponding signaling command for changing between packet and line switching is, for example, represented by a certain bit sequence wherein the switching unit 71 stores the detailed incoming data in an intermediate register 712 and compares it with stored bit sequences. If a certain bit sequence exists, then a change over to a different type of switching is carried out." (Col. 9, ll. 29-35.) "Alteratively, [sic] it can also be possible for the change-over control device 711 to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer." (Col. 9, ll. 35-41.)

10. "To change from packet switching to line switching, first at the command of the control unit 71, a connection is made via the line-switching unit 73 (bypass) with another switch (destination switch)." (Col. 9, ll. 42-45.) "After the connection is established, all the incoming data of the communications connection considered are no longer directed through the IP-switch 72 but through the line-switching unit 73" (col. 9, ll. 47-51)

and "[t]he data are now transferred by line-switching with fixed bandwidth through the established bypass to the other switch" (col. 9, ll. 51-53). "The change-over control unit 711 thereby checks, within the scope of the change-over process and prior to sending the data to the device 73, whether they are IP packets and whether unpacketing is to take place in the packeting/unpacketing device 713." (Col. 9, ll. 54-58.) "The decision on this is made dependent on control signals of the network management system or the end terminal or alternatively by the change-over control unit 711 itself dependent on the data arrival." (Col. 9, ll. 58-61.) "For the channel or sub-channel considered, a line-switching transfer takes place to the switch which represents the other side of the line-switching connection until a control command again reaches the device 71 to switch over again to packet-switching." (Col. 11, ll. 24-28.) "This command is in turn coded by a certain bit sequence or is produced automatically. Then through the control device, the switched-through line is broken off and the incoming data are then again directed to the IP switch 72." (Col. 11, ll. 28-32.)

White

11. White relates to an Internet telephone service where calls can be made over the Internet from telephone to telephone, telephone to computer, or computer to telephone. (Abstract; col. 4, 11. 5-24.) One object of the invention [is] to provide voice

service over public telephone systems via the Internet where the use of the Internet is optional to the Telco and transparent to the customer. (Col. 3, ll. 57-60.) White teaches that "[p]ublic switched telephone networks utilizing program controlled switching systems are arranged in an architecture with the Internet to provide a methodology for facilitating telephone use of the Internet by customers on an impromptu basis." (Col. 4, ll. 8-12.) The system allows "a caller to set-up and carry out a telephone call over the Internet from telephone station to telephone station without access to computer equipment, without the necessity of maintaining a subscription to any Internet service, and without the requiring Internet literacy or knowledge." (Col. 4, ll. 12-17.) In one implementation, the call may be routed over the Internet by the user dialing a special access code (e.g., *82). (Col. 5, ll. 51 to col. 6, l. 1.)

12. Figure 2 (below) shows one implementation of a system for providing telephone service over the Internet. (Col. 4, ll. 58-62.)

FIG. 2
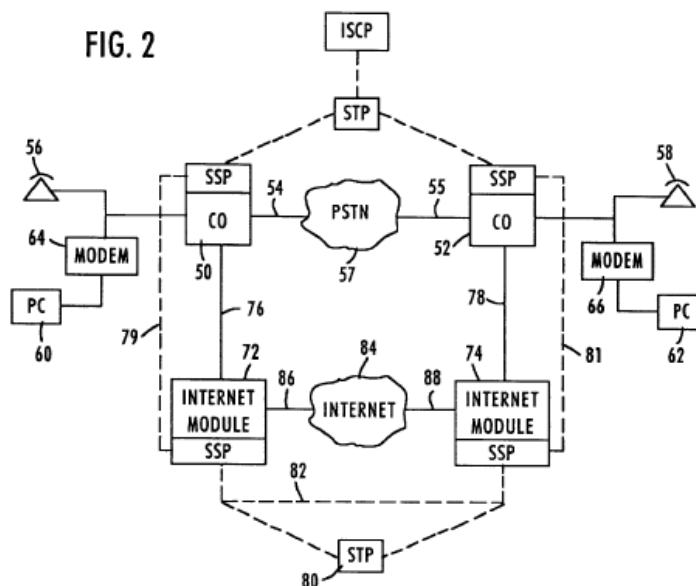
13. A calling telephone 56, which may be a Plain Old Telephone Service (POTS) telephone, is connected to a central office switch 50 which is in turn connected to the PSTN 57. (Col. 5, l. 8-23, 51-63.) Similarly, a second central office switch 52 is connected to the PSTN 57 and to a destination telephone 58. (Col. 5, l. 8-23, 51-63.) The central office switch 50 is also connected to an Internet Module 72, which is connected to the Internet 84. (Col. 5, l. 24 · 50.) The second central office switch 52 is also connected to an Internet Module 74 which is connected to the Internet 84. (Col. 5, ll. 24-

50.) A conventional telephone call can be made over the PSTN using conventional dialing or a telephone call can be made over the internet by dialing the special prefix that identifies the call as an Internet call. (Col. 5, l. 8 · 16, col. 5, l. 51 to col. 6, l. 45.)

Jonas

14.   Jonas relates to a system and method that enables data packets to be transmitted over a bypass circuit-switched telephone network between two computers connected to a public packet-switched network, such as the Internet. (Abstract; col. 1, ll 8-12.) The source computer designates data packets to be transmitted over the bypass network. (Abstract.) The source router detects these data packets, establishes a connection to the destination router via the bypass network, and transmits the data packets to the destination router via the bypass network. (Abstract.) The destination router then transmits the data packets to the destination computer.(Abstract.)

15.   Jonas explains that security is one problem associated with transmitting data packets over the Internet. (Col. 2, l. 1 to col. 3, l. 3.) "An additional problem which occurs when communicating across public packet-switched networks, such as the Internet, is the presence of 'delays' or pauses which occur when a packet must wait for transmission-related resources to become available at individual routers or nodes along its path" (Col. 3, ll. 4-9.) These delays can be caused by network congestion.

(Col. 3, ll. 9-11.) "A user transmitting or receiving critical data across a network may not be willing to tolerate these delays. Accordingly, there exists a need for a method and system to enable computer users connected to a public packet-switched network to transmit at least a portion of a communication between hosts on a circuit-switched network with minimal delay time" (Col. 3, ll. 13-20.) "Although such a method may require additional costs and resources, as compared to transmitting solely over the Internet, these costs may be justified in light of the critical nature of the data being transmitted." (Col. 3, ll. 20-23). Jonas further explains that one "object of the present invention to provide a method and system for avoiding the delays inherent in a public packet-switched network by providing a bypass mechanism for secret and/or critical data traffic which requires minimal transmission delay." (Col. 3, ll. 30-34.)

16. Figure 1 (below) shows a block diagram of a typical system architecture. (Col. 4, ll. 1-3.)
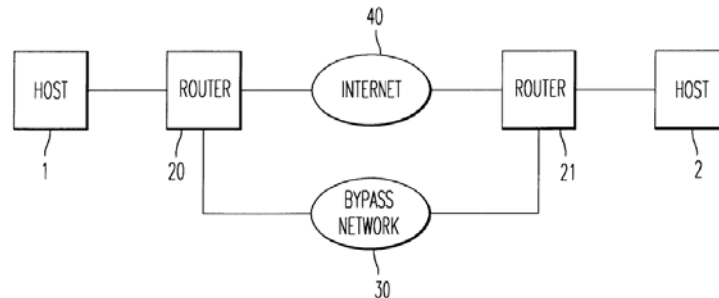
FIG. 1

17. In normal operation, hosts 1 and 2 transmit data to each other through routers 20 and 21 over the Internet 40. (Col. 4, ll. 13 · 14.) However, on occasion the transmitting host may wish to transmit secret data over the bypass circuit-switched telephone network 30. (Col. 4, ll 14-16.) The host "may also wish to transmit via the bypass network if the delay time over available paths on the Internet is unacceptable, such as for interactive or other time-critical applications." (Col. 4, ll. 17-20.)

18. Jonas states that several methods may be used for designating a packet to be sent over the bypass network 30. (Col. 4, ll. 41 · 51.) "Preferably, packets to be transmitted over the bypass network 30 are so designated in the IP header 100." (Col. 4, ll. 42-44.) "Alternatively, specialized applications for

transmitting secret or time critical data may connect to a specific port of the router's 20 operating system. This port is preconfigured to reliably route the data over the bypass network." (Col. 4, l. 44-48.)" A third method for designating a packet for the bypass network is to transmit the message to the router with a special internet source address or destination address." (Col. 4, l. 48-51.)

19.   Jonas teaches that "[o]nce a connection between source and destination routers 20 and 21 has been established, the source router 20 will monitor the data packet traffic between the source and destination routers." (Col. 5, ll. 45-48.) If there is no activity for a preset amount of time, the source router 20 will disconnect the circuit-switched connection. (Col. 5, ll. 48-52.)

20. Jonas further teaches that

> Certain applications, may wish to dynamically take advantage of both the inherent cost benefit of using the packet-switched Internet and the minimal delay time of circuit-switched telephone networks. This is accomplished by having the system monitor the transmission delay between the source router 20 and destination router 21. If this delay rises above a threshold value the source router 20 will establish a connection over the bypass network 30. The source router 20 may detect the transmission delay to the destination router 21 using a variety of

measures known to those skilled in the art, including topological delay time for the transmission, cost, or the number of gateways through which the network path traverses ("hops"). While transmitting over the bypass network 30, the source router 20 may continue to monitor the delay time between the source router 20 and destination router 21 by sending occasional "ping" messages to the destination router 21 and monitoring delay times of any response packets.

(Col. 5, l. 53 to col. 6, l. 3.)

Farese

21. Farese relates to a technique for use in an ISDN (Integrated Services Digital Network) communications system that permits a "host computer to dynamically change the ISDN access path between a packet switched connection and a circuit switched connection during an ongoing host session with the user in order to provide a particular ISDN connection that is most suited to the communication requirements of a current task being executed by the host computer during the session." (Col. 1, ll. 11-18; *see also* col. 6, ll. 35-42; col. 6, l. 58 to col. 7, l. 13; col. 11, ll. 53-62; col. 13, l. 3-10.) A multitude of users can dynamically change between circuit and packet switched connections in accordance with communication requirements of each user. (Col. 13, 1. 3-10.) The dynamic changing of the ISDN access path "does not disrupt the host

session and is substantially transparent to the user." (Abstract; *see also* col. 6, ll. 45-50.)

22. Farese teaches that ISDN provides both voice and data telephonic services. (Col. 1, ll. 20-23.) "Within the ISDN, an ISDN access line connects each caller and an ISDN switch located at a central office." (Col. 1, 1. 27-28.) "In one configuration, i.e[.] basic access, an ISDN access path consists of two ISDN 'B' digital channels and one ISDN 'D' digital channel." (Col. 1, ll. 28-31.) "The 'D' channel can only carry packets; while each of the 'B' channels can carry either packets or continuous (circuit switched) signals." (Col. 1, ll. 33-36.) Farese further teaches that, "[w]ith this arrangement, an ISDN switch can provide either a circuit switched connection or a packet switched connection to a caller." (Col. 1, ll. 47-49.) A circuit switched connection can only occur on the "B" channel. (Col. 1, ll. 49-54.) "In contrast, a packet switched connection merely relies on queuing packets of data at an ISDN switch for transmission between a caller, frequently a user, and a called party, typically a host computer, and then sequentially transmitting those packets, from point to point within the packet network that forms part of the ISDN as transmission capacity becomes available therebetween." (Col. 1, ll. 56-63.) Regarding Figure 1, Farese states that "[a]lthough a single ISDN switch [32] is shown at one central office [30], this switch would in actuality likely be replaced by an ISDN network that contains multiple ISDN

switches inter-connected by appropriate end-to-end transport and toll switching facilities."

23. Farese teaches that circuit switched and packet switched connections each provide different advantages and drawbacks. (Col. 2, ll. 4-7.) "[A] circuit switched connection provides a continuous transmission path from the caller to the called party throughout the duration of a call. Such a connection imparts relatively little, if any, transmission delay to any communication can-ied over the path." (Col. 2, ll. 7-12.) "Therefore, circuit switched connections are used in those communication applications, such as illustratively conversational voice traffic or highly interactive data traffic, where any appreciable transmission delay can not be tolerated." (Col. 2, ll. 12-16.) However, Farese teaches that using a circuit switched connection tends to be quite expensive. (Col. 2, ll. 24-31.) In contrast, "by virtue of the potential sharing inherent in packet switched connections ... , packet switched connections provide a highly economical though delay prone point-to-point transport media." (Col. 3, ll. 33 · 37.)

ANALYSIS

Claim interpretation

Claim interpretation necessarily precedes the addressing of questions of patentability. *See, e.g., Gechter v. Davidson*, 116 F.3d 1454, 1457 (Fed. Cir. 1997) ("Implicit in our review of the Board's

anticipation analysis is that the claim must first have been correctly construed to define the scope and meaning of each contested limitation."). Patent claims in a reexamination proceeding in the USPTO are given their broadest reasonable interpretation consistent with the patent disclosure. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

Interpretation of means-plus-function limitations

Means-plus-function claim language must be construed in accordance with 35 U.S.C. § 112, 6 by "look[ing] to the specification and interpret[ing] that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure." *In re Donaldson Co., Inc.*, 16 F.3d 1189, 1193 (Fed. Cir. 1994) (en banc). "Structural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations." *Golight, Inc. v. Wal-Mart Stores*, 355 F.3d 1327, 1334-35 (Fed. Cir. 2004) (quoting *Asyst Techs., Inc. v. Empak, Inc.*, 268 F.3d 1364, 1370 (Fed. Cir. 2001)).

> The first step in construing a means-plus-function limitation is to define the particular function of the claim limitation ....

> The next step in construing a means-plus-function claim limitation is to look to the specification and identify the corresponding

structure for that function. "Under this second step, 'structure disclosed in the specification is "corresponding" structure only if the specification clearly links or associates that structure to the function recited in the claim.'"

Id. at 1333-1334 (citations omitted).

A structure in the prior art may be equivalent to a corresponding structure described in a specification if the structure in the prior art performs the identical function recited in the "means-plus-function" limitation in substantially the same way as in the corresponding structure with substantially the same result. *Kemco Sales, Inc. v. Control Papers Co., Inc.*, 208 F.3d 1352, 1364 (Fed. Cir. 2000).

"Means-plus-function claiming applies only to purely functional limitations that do not provide the structure that performs the recited function .... Further, [using] the word 'means' in a claim limitation creates a presumption that 35 U.S.C. § 112 paragraph 6 applies.'" *Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1095-96 (Fed. Cir. 2008) (internal citations and quotation marks omitted).

<u>Interpretation of specific claim limitations</u>

The interpretation of the following limitations of claim 34 is at issue (with emphasis and reference numerals added by Appellant (App. Br. 12)):

[5] means responsive to a control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal;

[6] said means responsive to a control signal changing-over to a line-switching data transfer or a packet-switching transfer during the existing transfer with the presence of said control signal

Appellant argues that the Examiner has misapplied 35 U.S.C. §112, ¶ 6. (App. Br. 9, 14, 15, 17, 18, 20, and 21; Reply Br. 3-6.) According to Appellant, the corresponding structure in the '453 patent specification for the "means responsive to a control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal" is the control device 71 having a change-over control unit 711. (App. Br. 14, 15, 17, 18, 20, and 21; Reply Br. 3-6.) Appellant further contends that the change-over control unit 711 must be "configured 'to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer.'" (App. Br. 14 (quoting col. 9, lines 37-42 of the '453 patent); *see also* App. Br. 17, 18, 20; Reply Br. 3-6.)

The Examiner acknowledges that, for the "means for transferring" limitation recited by [5]

and [6] above, the corresponding structure is control device 71 because " [t]he <u>function</u> that corresponds to the 'control device 71' structure is the changing-over function." (Ans. 10.) However, the Examiner disagrees with Appellant's interpretation that the corresponding structure must also be "configured to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer." (Ans. 10.)

The recited function of the "means" in [5] and [6] above is "transferring to a line-switching transfer or a packet-switching transfer to the second end terminal." Next, the corresponding structure set forth in the '453 patent specification that performs this function is the control device 71, and equivalents thereof. (See FF 7-10.) The '453 Specification describes a switch 7 that is "part of both a packet-switching network (internet) and a line-switching network (telephone network)" (col. 8, 11. 17-19) and includes an IP switch 72, a line switching device 73, and a control device 71 that produces "internal control commands, as to whether a packet switching is to take place through the IP switch [72] or a line-switching is to take place through the line switching device 73" (col. 8, 11. 53-56). (FF 7-8.) Control device 71 is "substantially a switch." (Col. 8, ll. 56-57; FF 8.) "To change from packet switching to line switching,

first at the command of the control unit 71, a connection is made via the line-switching unit 73 (bypass) with another switch (destination switch)." (Col. 9, ll. 42-45; FF 10.) "[A] line-switching transfer takes place to the switch which represents the other side of the line-switching connection until a control command again reaches the device 71 to switch over again to packet switching." (Col. 11, ll. 24-28; FF 10.) Thus, we agree with the Examiner that the corresponding structure is control device 71.

Like the Examiner, we disagree with Appellant's argument that the corresponding structure also must be "configured to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer."

The '453 patent specification further teaches that the control device 71 includes a change-over control unit 711 that "monitors and controls which open connections are present (i.e., which and how many data channels are connected) and which bandwidth the individual data channels require." (Col. 8, ll. 60-64; *see also* FF 8.)

As one option, the '453 patent specification teaches that, "[t]hrough a control command which is sent by an end terminal or another switch and for example triggered by a user by pressing a

certain button on the terminal or by the network management system, the type of communication is switched over to line-oriented or packet-oriented communication." (Col. 9, 11. 23-28; FF 9.) The control unit 71 compares the incoming data with stored commands and then the change over to a different type of switching is carried out. (Col. 9, 11. 29-35; FF 9.) "Alteratively, [sic] it can also be possible for the change-over control device 711 to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer." (Col. 9, 11. 35-41; FF 9.)

The monitoring and control function performed by change-over control unit 711 is a different function than the function recited by the "means for transferring" in [5] and [6] above --namely "transferring to a line-switching transfer or a packet-switching transfer to the second end terminal." While the monitoring and control function may be used in conjunction with the switching function, it is not required by the switching function. In addition, a change-over based on the bandwidth monitoring of change-over control unit 711 is described merely as an alternative to other embodiments where, for example, change-over commands may be initiated manually by a user or be initiated by the network management system. In other words, the '453 patent does not describe the bandwidth monitoring

of the change-over control unit 711 as a required feature in changing over to a different type of transfer. Accordingly, we do not agree that the change-over control unit 711, and more particularly the described alternative monitoring and control function, must be construed as corresponding structure for the "means for transferring" recited by limitations [5] and [6] of claim 34. And even if the change-over control unit 711 itself were to be construed as part of the corresponding structure, its described alternative monitoring and control function would not.

In addition, we note that claim 35, which depends from claim 34, further recites (with emphasis added) a "means to produce the control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal, said control signal being produced automatically when demands on the quality of the data transfer are understepped or exceeded." The recited "demands on the quality of the data transfer" is broadly drafted, but would at least include "a certain bandwidth." Thus, the function recited by claim 35 would at least include the function performed by the alternative monitoring and control feature of the change-over control unit 711. Therefore, claim differentiation further supports the conclusion that the monitoring and control feature of change-over control unit 711 is not required by independent claim 34.

Accordingly, we agree with the Examiner that, under the proper application of 35 U.S.C. §1 12, rq

6, the "means for transferring" recited by limitations [5] and [6] of claim 34 does not need to be "configured to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer."

§ 103 Rejection

Teachings of combined references

With respect to the second issue, we agree with the Examiner that the combination of White and Jonas or Farese teaches or suggests a "[5] means responsive to a control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal; [6] said means responsive to a control signal changing-over to a line-switching data transfer or a packet-switching transfer during the existing transfer with the presence of said control signal."

As previously discussed, we disagree with Appellant's claim construction argument that the monitoring and control functions of the change-over control unit 711 are required by the "means for transferring" recited by limitations [5] and [6] of claim 34. Therefore, we do not address these arguments further with respect to the disclosures of White, Jonas, or Farese.

Appellant argues that White does not disclose or suggest "that the routing of an already existing call [can] be changed from the PSTN to the Internet, or vice versa, following its initiation." (App. Br. 13.) Appellant also argues that White "discloses no switching apparatus having any type of change-over control unit." (App. Br. 14.)

The Examiner acknowledged that White does not explicitly teach a change-over from a line-switch connection to a packet-switched connection during the existing transfer. (Ans. 6, 11, 13.) However, as the Examiner pointed out, "the rejection and specifically the teaching of 'during the existing transfer' was based on a combination of White and a secondary reference." (Ans. 11.) The Examiner found that White teaches that "a call that originates as a line-switched call from a POTS telephone may be changed into a packet switched call over the Internet by means of a control signal generated by the user dialing as pecial access code (e.g., *82)" (Ans. 5; *see also* FF 11-13) and "[a]lternatively, White suggests that the change-over may be caused independently by the telephone company providing its own control signal" (Ans. 5, *see also* FF 11). Thus, the Examiner found that, although "White shows the changing over before the two parties are connected but within a single telephone call" (Ans. 6), it also suggests that the telephone company could perform the change-over and that the change would be transparent to the customer. (Ans. 6; *see also* FF 11.) In addition, the Examiner found that "it was well known in the art

to change over to a line-switching or packet-switching during an existing transfer during a communication in response to a control signal," (Ans. 6) as disclosed by Farese and Jonas. (Ans. 6; *see also* FF 14-23.) Specifically, Farese teaches that "a multitude of users can dynamically change between circuit and packet switch [sic] in accordance with communication requirements of each user" (Ans. 6; *see also* Ans. 19-22; FF 21) and Jonas teaches that "once a connection between a source and destination has been established the source can monitor for transmission delay and will dynamically connect to a bypass network (circuit switch)" (Ans. 7; *see also* Ans. 15-19; FF 14-20). We agree with the Examiner.

In addition, the Examiner correctly found that White discloses a control device (i.e., the central office switch) that performs the function of changing over from a PSTN connection to an Internet connection. (Ans. 12-15.) The Examiner also correctly found that central office switch of White is the equivalent of the claimed "means for transferring" because it performs the same function in substantially the same way and produces substantially the same result as the control device 71 disclosed in the '453 patent. (Ans. 14-15; *see also* FF 12-13.)

Appellant's arguments regarding Jonas and Farese (App. Br. 15-21) are based on the claim construction argument which we have previously rejected. However, with respect to both Jonas and

Farese, we note that the Examiner has correctly identified a control device in each of these references (Ans. 15-17, 20-21; *see also* FF 14-23) that performs the recited function of transferring to a line-switching transfer or a packet-switching transfer in substantially the same way and produce substantially the same result as the control device 71 disclosed in the '453 patent.

In sum, we agree with the Examiner (Ans. 5-7; 11-31) that the combination of White and Jonas or Farese teach or suggest a "means for transferring" as recited by limitations [5] and [6] of claim 34.

Combination of the references

With respect to the third issue, we agree with the Examiner (see, e.g., Ans. 6, 7, 22-31; *see also* FF 11-23) that it would have been obvious to modify White to allow a change-over from line-switching to packet switching, or vice-versa, during an existing transfer, as explicitly taught by Jonas and Farese. As the Examiner reasoned, this combination would "dynamically take advantage of both the inherent cost benefit of using the packet-switched Internet and the minimal delay time of circuit-switched telephone network depending on the connection." (Ans. 7; *see also* FF 11-23.) We also agree with the Examiner that, in view of the disclosure in White that the telephone company could perform the change-over transparently to the customer, it would have been obvious that "the

Telco may have control when the change-over is implemented." (Ans. 6.)

Appellant argues that the Examiner "failed to specify an objectively defined problem to be solved, and failed to consider the degree of skill that was needed to solve that problem." (App. Br. 11; *see also* App. Br. 22-31, Reply Br. 2, 6-10.) In particular, Appellant argues that "the Examiner's analysis is fundamentally flawed under *KSR* and fails to identify, or to consider, the problem that the Schindler patent inventors confronted when making the claimed subject matter, and fails to analyze the degree of skill that was needed to solve that problem given the information available and then-conventional wisdom in the art." (App. Br. 24; *see also* App. Br. 25, 26, 30, Reply Br. 2, 6.) We do not agree

The Examiner articulated a reason with rational underpinnings as to why one of ordinary skill in the art would combine the teachings of White and Jonas or Farese (Ans. 6, 7, 24-31). See *KSR Int'lC o. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Specifically, the Examiner found that it would have been obvious to modify White to allow, during an existing transfer, for a change-over from packet-switching to line-switching, or vice versa, as taught by both Jonas and Farese in order to dynamically take advantage of the lower cost of using the packet-switched Internet or the minimal time delay of using a circuit-switched telephone

network. (Ans. 7.) It is not necessary for the Examiner to address the precise problem addressed by the Schindler inventors in articulating a reason for combining the references. Indeed, *KSR* instructs that "[u]nder the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* at 420.

Appellant also argues that the teachings of Jonas or Farese can not be applied to White without "totally changing the principle of operation of White." (App. Br. 27, 29.) We do not agree. Instead, for the reasons stated by the Examiner (Ans. 22-30), we conclude that the principle of operation of White would not be changed in the combination with the teachings of either Jonas or Farese.

Appellant further argues that Jonas fails to teach or suggest that its routers are suited for telephone calls or other real-time applications (App. Br. 28; Reply Br. 8). We do not agree. Instead, for the reasons stated by the Examiner (Ans. 24-25; *see also* FF 14-20), we conclude that Jonas does teach real-time applications.

Additionally, Appellant argues for the first time in the Reply Brief that Farese does not disclose carrying telephone calls over a packet-switching network (Reply Br. 9). Specifically, Appellant argues that Farese "has nothing to do with

connectionless Internet communications" (Reply Br. 9) because "ISDN is a connection-oriented line-switched network, not a packet-switching network" (Reply Br. 9). Although ISDN, including an ISDN "D" channel, can carry data packets, Appellant argues that this transmission of packets is not "packet-switching transferring" within the meaning of the claims. (Reply Br. 9.)

Under the broadest reasonable interpretation consistent with the Specification of the '453 patent, we do not agree with Appellant's arguments. The '453 patent does not specifically define a "packet-switching network" or a "packet-switching transfer." Nor does the '453 patent describe a packet-switching network or a packet-switching transfer in a manner that requires the exclusion of ISDN. The '453 patent does not characterize ISDN as a connection-oriented line-switched network, and Appellant does not point to convincing evidence of record to support this characterization. The '453 patent describes "packet-switching exchanges" as connection-less. (FF 2.) However, this feature is not described by the '453 patent as required for a "packet-switching *network*." In other words, the '453 patent does not define a "packet switching network" so as to exclude networks that are not connection-less.

Also, Figure 1 of the '453 patent supports an interpretation that a "packet-switching network" may include ISDN. Specifically, Figure 1 shows switch 7a for connecting to ISDN/PSTN, to the

Internet over ISDN/PSTN, and to the Internet. (FF 6.) Figure 3 provides similar support. Thus, the '453 provides support for an interpretation that ISDN may be considered as either a line-switching network or a packet-switching network within the meaning of the claims.

As further support that ISDN may be considered a packet-switching network,[4] Farese teaches that "a packet switched connection merely relies on queuing packets of data at an ISDN switch for transmission between a caller, frequently a user, and a called party, typically a host computer, and then sequentially transmitting those packets, *from point to point within the packet network that forms part of the ISDN* as transmission capacity becomes available therebetween" (Col. 1, ll. 56-63 (emphasis added); FF 22.)

Next, the '453 patent describes "packet-switching transfer" broadly enough to encompass ISDN. For example, in discussing the ISDN network of Farese, the background section of the '453 patent states that "a line-switching transfer is carried out on a B channel and a packet-switching transfer is carried out on the D channel." (FF 3; *see also* FF 21-23.) Thus, we conclude that ISDN, e.g., an ISDN D channel, transmitting packets may be considered a packet-switching transfer within the

---

[4] Appellant already states that ISDN may be considered a line-switching network. (Reply Br. 9).

meaning of the claims. Although broad, this interpretation is reasonable and supported by the '453 patent specification.

Accordingly, we conclude that the Examiner has properly combined White and Jonas or Farese.

Evidence of non-obviousness

With respect to the fourth issue, Appellant argues (App. Br. 32-44; Reply Br. 10-19) that the Examiner did not properly account for evidence presented regarding secondary considerations. In particular, Appellant argues that: 1) the Examiner did not present a "strong case" of obviousness; 2) the McNiff and Thornton Patents demonstrate a long-felt but unsolved need; and 3) the Examiner improperly dismissed the Paetsch and Schindler declarations. (App. Br. 32-44; Reply Br. 6, 10-19.) We do not agree.

For the reasons previously discussed regarding the content of and reasons to combine the teachings of the applied prior art, we conclude that the Examiner presented a strong case of obviousness.

Next, on this record, we find the McNiff and Thornton patents to be weak evidence of the long-felt need asserted by Appellant. Appellant contends that these two later-filed patents claim broader inventions than recited by claim 34 of the '453 patent and thus demonstrate that top researchers in the field were still struggling with the problems

identified in the '453 patents years after its filing and that those researchers ultimately made the same discovery as the '453 patent. (App. Br. 32-43; Reply Br. 13-17.)

However, Appellant has not provided any persuasive evidence on the record to support Appellant's theory regarding how McNiff and Thornton demonstrate a long-felt but unsolved need. For example, Appellant has not presented any persuasive evidence to corroborate the assertion that top researchers were still struggling with the same problem years after the filing of the '453 patent. As a further example, there is no evidence on the record regarding the McNiff and Thornton inventors' knowledge or awareness of the state of the art, whether these inventors were indeed top researchers, or whether these inventors had devised a solution to the problem at an earlier time. Instead, Appellant merely presents attorney argument. In addition, we note that the prior art reveals that the problem of delay on a packet-switched network was known, as was the solution -- namely, switching to a circuit-switched network. (FF 14-23.) Thus, on this record, McNiff and Thornton are at best weak evidence of a long-felt but unsolved need.

Finally, we conclude that the Examiner properly considered the declaration evidence submitted by Appellant. Objective evidence of nonobviousness (also called "secondary considerations") must always be considered in making an obviousness

determination, *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983), but it is not necessarily conclusive, *Ashland Oil, Inc. v. Delta Resins & Refrac., Inc.*, 776 F.2d 281, 306 (Fed. Cir. 1985). The Examiner reviewed both the Paetsch declaration (Ans. 24-25; *see also* Final Office Action at 4, 5, and 17-19) and the Schindler declaration (Ans. 34-35; *see also* Final Office Action at 3, 4, 33-35). We agree with the Examiner (Ans. 24-25) that Paetsch's conclusory declaration is not convincing with respect to its assertions about the teachings of Jonas. We also agree with the Examiner (Ans. 34-35) that Appellant has not, through the Schindler declaration or otherwise, demonstrated a legally sufficient nexus between the merits of the claimed invention and the evidence of commercial success.

Accordingly, we conclude that the Examiner has properly considered Appellant's proffered evidence of non-obviousness. Weighing all of the evidence, including Appellant's evidence of secondary considerations, we reach the same conclusion as the Examiner with respect to the obviousness of independent claim 34.

Dependent claims

Appellant separately argues dependent claim 35 (App. Br. 31-32). Claim 35 depends from claim 34 and further recites a "means to produce the control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end

terminal, said control signal being produced automatically when demands on the quality of the data transfer are understepped or exceeded."

With respect to dependent claim 35, Appellant argues that the corresponding structure is limited to that of independent claim 34 "with the additional restriction that corresponding 'change-over control unit 711' be configured 'to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth ... to automatically release a control command to change over to the relevant other type of transfer.'" (App. Br. 31.) Appellant further argues that White, Jonas, and Farese do not teach or suggest this type of structure. (App. Br. 31-32.)

The Examiner contends that, under 35 U.S.C. § 112, ¶ 6, the claim "do[es] not require exceeding a certain bandwidth, but merely require[s] determining that the demands of quality were exceeded." (Ans. 32.) The Examiner finds that the combination of White and Jonas disclose monitoring the transmission delay between a source router 20 and destination router 21 and, if the delay rises above a threshold value, the source router 20 establishes a connection over the bypass network 30. (Ans. 7, 31; *see also* FF 14-20.) The Examiner finds that delay is a quality factor, and thus concludes that Jonas discloses "producing a control signal automatically when the demands of quality are understepped or exceeded." (Ans. 31.) We agree with the Examiner.

The function of the means recited by claim 35 is "to produce the control signal for transferring to a line-switching or a packet-switching transfer to the second end terminal." We agree with Appellant that the corresponding structure is change-over device 711. (*See* FF 7-10.) However, we agree with the Examiner that, by using the broad term "demands of quality," claim 35 is not limited to the "bandwidth of a transfer." The disclosure of a delay threshold in Jonas also meets the recited "demands of quality." Thus, we agree with the Examiner that Jonas discloses the means limitation recited by claim 35.

Appellant does not present separate arguments for dependent claims 36 and 38. (*See* App. Br. 32.) Therefore, these claims fall with claim 34, from which they depend.

DECISION

The rejection of claims 34-36 and 38 under 35 U.S.C. § 103(a) is affirmed.

Requests for extensions of time in this *ex parte* reexamination proceeding are governed by 37 C.F.R. § 1.550(c). *See* 37 C.F.R. § 41.50(f).

69a

<u>AFFIRMED</u>

cu

cc:

<u>FOR PATENT OWNER</u>

NOVAK DRUCE & QUIGG, LLP
1300 EYE STREET, NW
SUITE 100 WEST TOWER
WASHINGTON, DC 20005

70a

APPENDIX C

NOTE: This order is nonprecedential.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

————————————

IN RE SIGRAM SCHINDLER
BETEILIGUNGSGESELLSCHAFT MBH

————————————

2012-1297

————————————

Appeal from the United States Patent and Trade- mark Office, Board of Patent Appeals and Interferences in Reexamination No. 90/010,017.

————————————

ON PETITION FOR REHEARING EN BANC

————————————

Before PROST,* *Chief Judge*, NEWMAN, LOURIE, DYK MOORE, O'MALLEY, REYNA, WALLACH, TARANTO, and HUGHES, *Circuit Judges.***

————————————

* Sharon Prost assumed the position of Chief Judge on May 31, 2014

PER CURIAM.

O R D E R

Appellant Sigram Schindler Beteiligungs-gesellschaft MBH filed a petition for rehearing en banc. The petition was first referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc was referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for panel rehearing is denied.

The petition for rehearing en banc is denied.

The mandate of the court will issue on July 21, 2014.

FOR THE COURT

July 14, 2014   /s/ Daniel E. O'Toole
                      Daniel E. O'Toole
                      Clerk of Court

** Randall R. Rader, who retired from the position of Circuit Judge on June 30, 2014, did not participate in this decision. Circuit Judge Chen did not participate.

APPENDIX D

35 U.S.C. 101   Inventions patentable.

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. 102 (pre-AIA)   Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve

months before the filing of the application in the United States, or

(e) the invention was described in — (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language; or

(f) he did not himself invent the subject matter sought to be patented, or

(g) (1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or

(2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to

conceive and last to reduce to practice, from a time prior to conception by the other.

35 U.S.C. 103 (pre-AIA)   Conditions for patentability; non-obvious subject matter.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

(b) (1) Notwithstanding subsection (a), and upon timely election by the applicant for patent to proceed under this subsection, a biotechnological process using or resulting in a composition of matter that is novel under section 102 and nonobvious under subsection (a) of this section shall be considered nonobvious if—

(A)   claims to the process and the composition of matter arc contained in either the same application for patent or in separate applications having the same effective fi ling date; and

(B) the composition of matter, and the process at the time it was invented, were owned by the same person or subject to an obligation of assignment to the same person.

(2)   A patent issued on a process under paragraph（I）−

(A)   shall also contain the claims to the composition of matter used in or made by that process. or

(B) shall, if such composition of matter is claimed in another patent, be set to expire on the same date as such other patent, notwithstanding section 154.

(3)   For purposes of paragraph (1), the tem1 "biotechnological process" means−

(A)   a process of genetically altering or otherwise inducing a single・ or multi-celled organism to-

(i) express   an   exogenous nucleotide sequence,

(ii) inhibit, eliminate, augment, or alter expression of an endogenous nucleotide sequence, or

(iii) express   a   specific physiological   characteristic   not   naturally associated with said organism;

(B) cell fusion procedures yielding a cell line that expresses a specific protein, such as a monoclonal antibody; and

(C) a method of using a product produced by a process defined by subparagraph (A) or (B), or a combination of subparagraphs

(A) and (B).

(c)   (1)   Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

(2)   For purposes of this subsection, subject matter developed by another person and a claimed invention shall be deemed to have been owned by the same person or subject to an obligation of assignment to the same person if—

(A) the claimed invention was made by or on behalf of parties to a joint research agreement that was in effect on or before the date the claimed invention was made;

(B) the claimed invention was made as a result of activities undertaken within the scope of the joint research agreement; and

(C) the application for patent for the claimed invention discloses or is amended to disclose the names of the parties to the joint research agreement.

(3) For purposes of paragraph (2), the term "joint research agreement" means a written contract, grant, or cooperative agreement entered into by two or more persons or entities for the performance of experimental, developmental, or research work in the field of the claimed invention.

35 U.S.C. 112 (pre-AIA) Specification.

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

A claim may be written in independent or, if the nature of the case admits, in dependent or multiple dependent form.

Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

A claim in multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed. A multiple dependent claim shall not serve as a basis

for any other multiple dependent claim. A multiple dependent claim shall be construed to incorporate by reference all the limitations of the particular claim in relation to which it is being considered.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

APPENDIX E

UNITED STATES PATENT
SCHINDLER ET AL.

Patent No.: US 6,945,453 B1
Date of Patent: Oct. 11, 2005

METHOD FOR TRANSMITTING DATA IN A
TELECOMMUNICATIONS NETWORK AND SWITCH FOR
IMPLEMENTING SAID METHOD

Inventors: Sigram Schindler, Berlin (DE);
                Andreas Illg, Berlin (DE);
                Karsten Lüdtke, Berlin (DE);
                Frank Paetsch, Berlin (DE)

Assignee: Teles AG Informationstechnologien,
                Berlin (DE)

(*) Notice   Subject to any disclaimer, the term of
                this patent is extended or adjusted
                under 35 U.S.C. 154(b) by 0 days.

Appl. No.:   09/147,970

PCT Filed: Oct. 7, 1997

PCT No.:   PCT/DE/97/02363

§ 371 (c)(1), (2), (4) Date: Mar. 23, 1999

80a

PCT Pub. No.:   WO98/15933

PCT Pub. Date: Apr. 16, 1998

Foreign Application Priority Data

Oct. 7, 1996   DE   ……………196 42 063
Oct. 23, 1996   DE   ……………196 45 368

Int. Cl. ……………..H04L 12/66 (2006.01)

U.S. Cl.……………..370/352; 370/295.2; 370/465

Field of Search……………..370/352, 353
              370/354, 355, 356, 395.2, 395.21,
              395.3, 395, 31, 401, 402, 403, 404, 405,
              465;

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(Continued)

ABSTRACT

A method for transferring data from a first switch to a second switch selectively by line-switching or by packet-switching as well as to a switch for carrying out the method. Data packets are thereby first transferred packet-switched through a packet-switching network to the second switch. With the presence of a corresponding control signal a line-switching connection is established from the first

switch to the second switch and the data are then transferred through this connection.

Where applicable a renewed change over to a packet-switching transfer is carried out. A flexible packet-switching or line-switching data transfer linked with dynamic costs between the junctions of a telecommunications network is enabled.

38 Claims, 6 Drawing Sheets
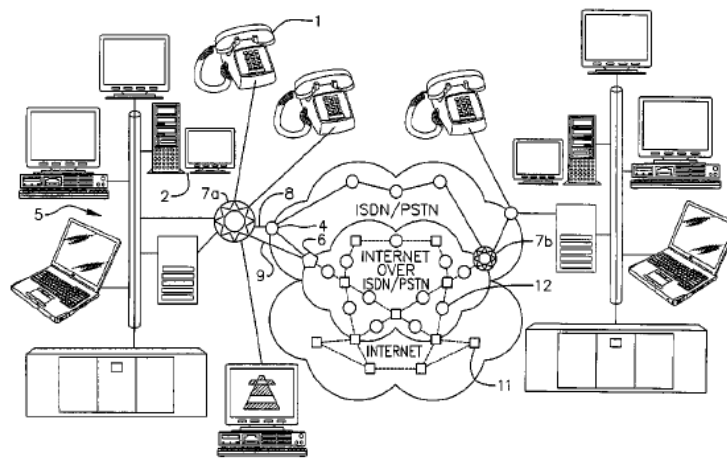
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FIG.1

84a

ISDN/PSTN

INTERNET OVER ISDN/PSTN

INTERNET

7b

12

11

4

6

8

9

7a

1

2

5

FIG.2
PRIOR ART

ISDN OR POTS

INTERNET

1

4

5

2

3

6

10
10
10
10

86a

FIG.3

87a

FIG.4

88a

FIG.5A

```
              ┌─────────────────────────┐
          ┌──▶│   SENDING  IP  PACKETS   │
          │   └─────────────────────────┘
          │                 │
          │                 ▼
      NO  │        ╱───────────────────╲
    ◀─────┼───────┤   CONTROL  SIGNAL ?  ├
          │        ╲───────────────────╱
          │                 │ YES
          │                 ▼
          │   ┌─────────────────────────┐
          │   │  ESTABLISH  LINE-SWITCHING│
          │   │ CONNECTION TO OTHER SWITCH│
          │   └─────────────────────────┘
          │                 │
          │                 ▼
          │   ┌─────────────────────────┐
          │   │  CHANGE  TO  LINE-SWITCHING│
          │   │         TRANSFER         │
          │   └─────────────────────────┘
          │                 │
          │                 ▼
          │   ┌─────────────────────────┐
          ├──▶│  LINE-SWITCHING  TRANSFER│
          │   └─────────────────────────┘
          │                 │
          │                 ▼                  YES  ┌──────────────────────┐
          │        ╱───────────────────╲──────────▶│  ACTIVATE  MULTIPLEXER│
          │       ┤    SUB  CHANNELS ?   ├          └──────────────────────┘
          │        ╲───────────────────╱                       │
          │                 │ NO ◀──────────┐                  ▼
          │                 ▼               │      ┌──────────────────────┐
      NO  │        ╱───────────────────╲    │      │   RESERVE  ONLY  EACH │
    ◀─────┼───────┤   CONTROL  SIGNAL ?  ├   │      │    N-TH  BYTE/BIT     │
          │        ╲───────────────────╱    │      └──────────────────────┘
          │                 │ YES           │                  │
          └─────────────────┘               └──────────────────┘
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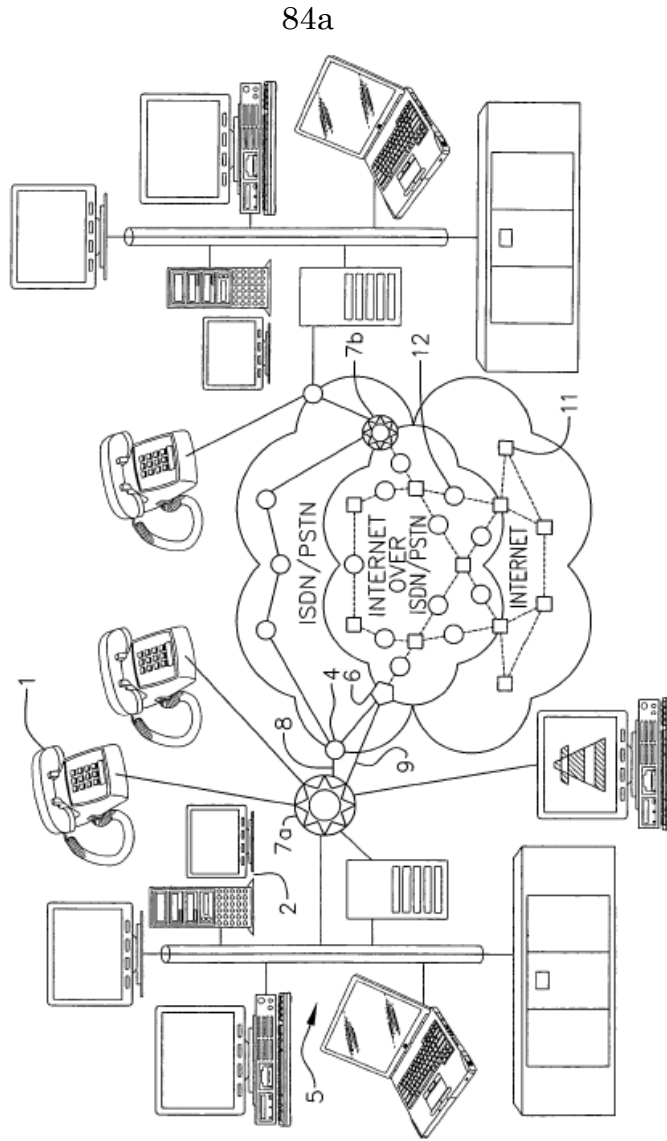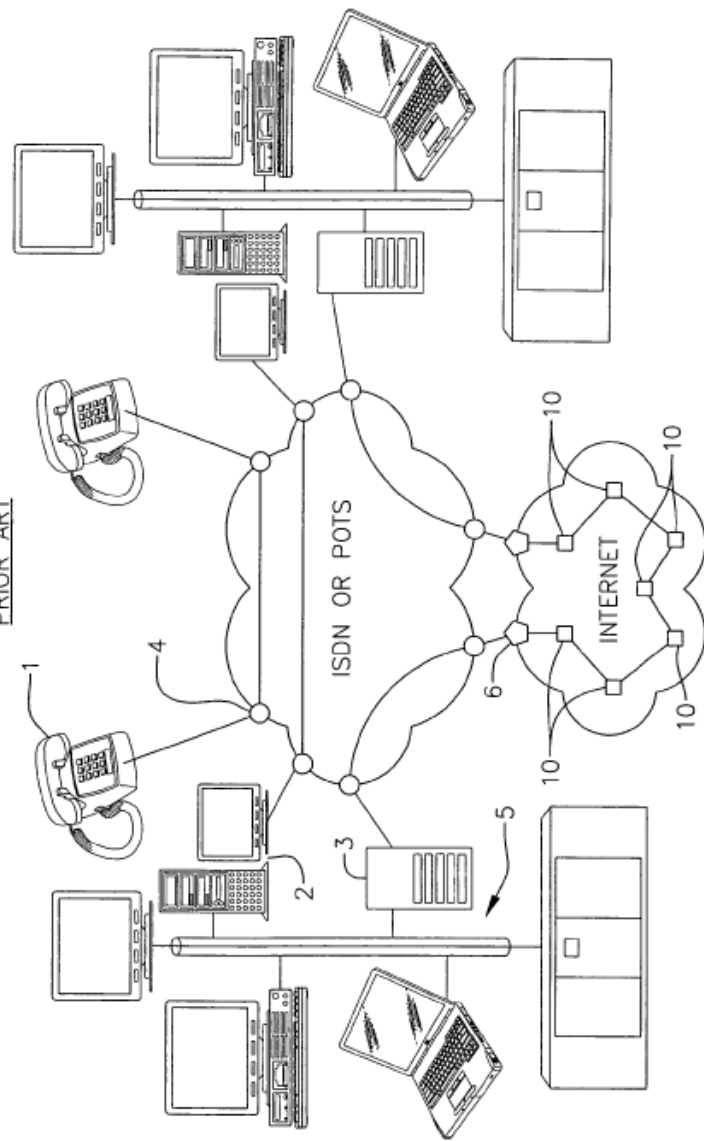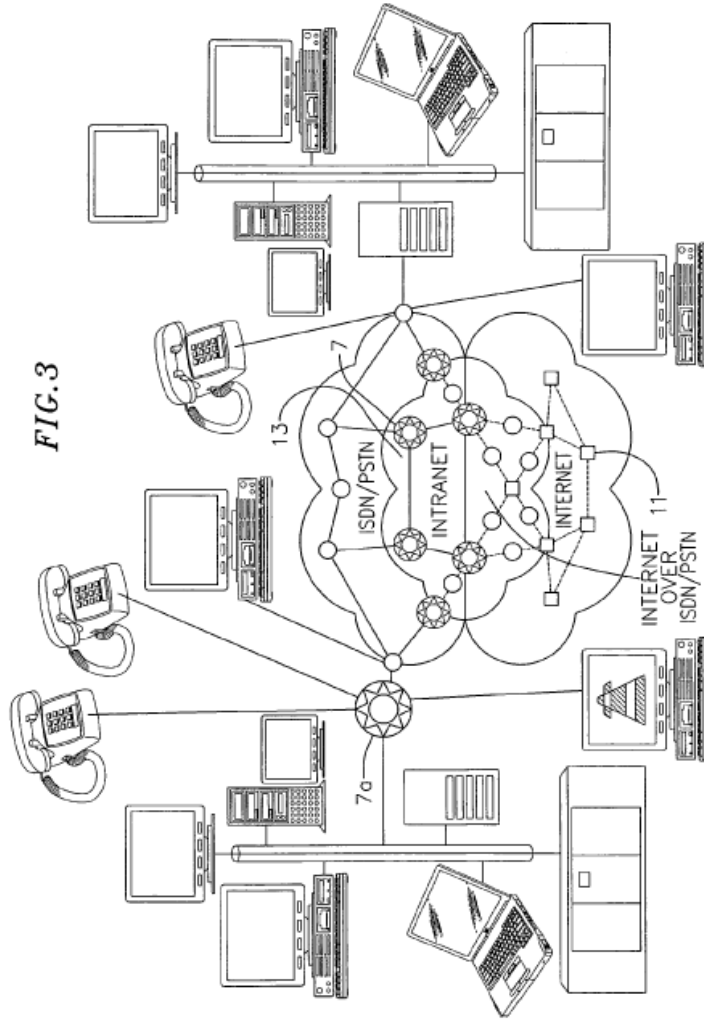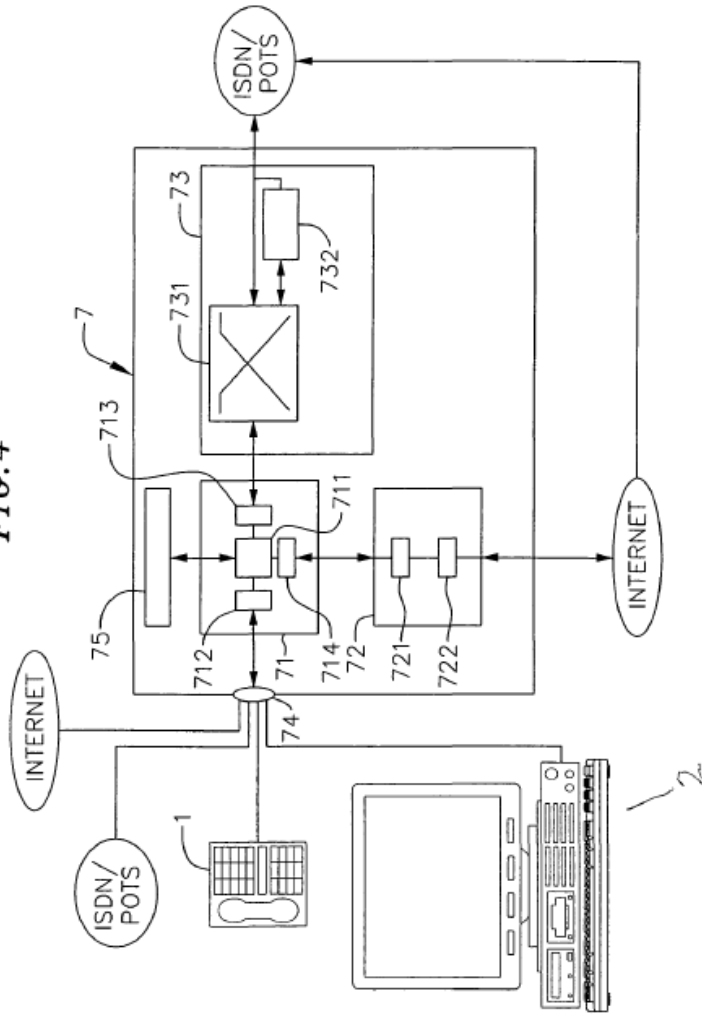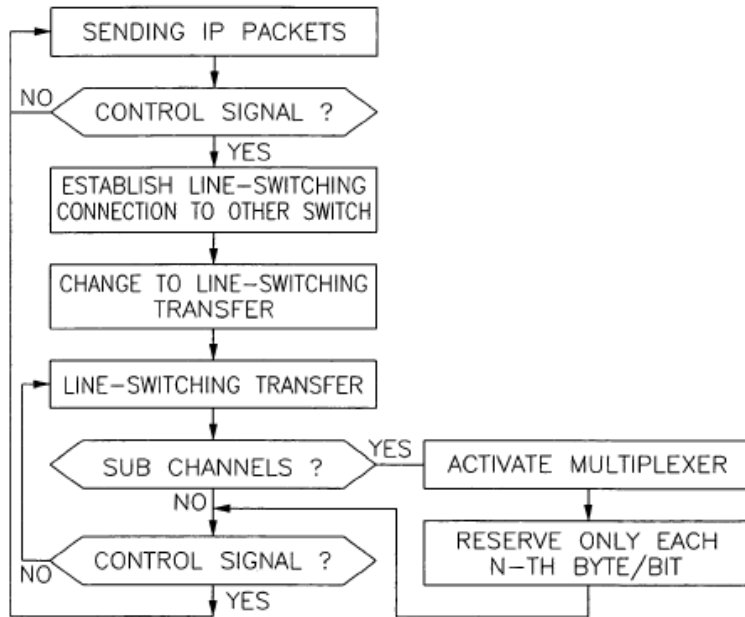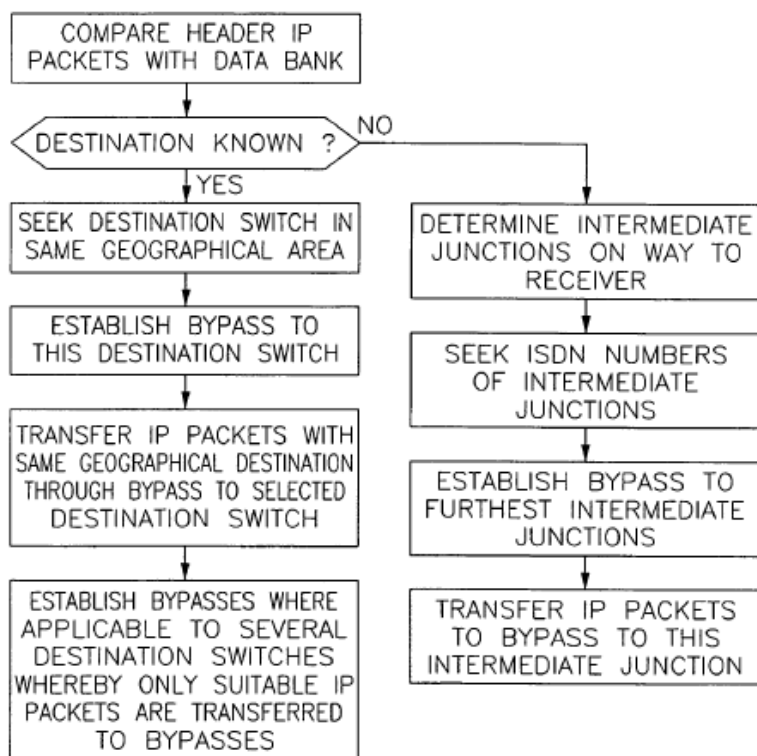
FIG.5B

METHOD FOR TRANSMITTING DATA IN A TELECOMMUNICATIONS NETWORK AND SWITCH FOR IMPLEMENTING SAID METHOD

BACKGROUND OF THE INVENTION

The invention relates to a method for transferring data from a first switch to a second switch, selectively by line switching or by packet switching, and to a switch for carrying out the method.

The present-day situation in telecommunications is marked by a division between two different connecting and switching technologies. These are the synchronous line-switching technology (line-switching or circuit switching) and asynchronous packet-switching technology (packet-switching).

Line-switching connections use line switches, alias line switching equipment, between the individual line sections, each of which copies over 1 byte packets and has a corresponding buffer size. Packet-switching connections use packet switches, alias packet switching equipment, between the individual line sections of a network, each of which copies over multi-byte packets. The buffer size of a packet switch correspondingly amounts to n bytes where n stands for the number of bytes in the copied data packets. The term "switch" is used below so that it includes both a line switch of a line switching network and a packet switch of a packet switching network.

A line switch, alias line switching equipment, is called telecommunications apparatus (TK apparatus) in the private sector, and exchanges of the network supplies in the public sector. A packet switch, alias packet switching apparatus, is also called a router, an IP switch or a host computer.

Line switching connections are synchronous, i.e., data transfer is carried out substantially without any time delay from one line section to an adjoining line section through a switch (here, a line switching apparatus).

When a line-switching call is put through, a connection is continually provided in real time with the complete bandwidth of a channel between two points. Even if no useful information is being sent e.g., during a pause in telephone conversation, the transmission channel is occupied or engaged.

Line-switching connections are expensive, particularly during telephone conversations since the costs accumulate irrespectively of the information actually transferred. The advantage of a line switching connection is that it is free of any time delay and has a fixed bandwidth.

The other important type of data exchange nowadays is the packet exchange. With packet exchange, data, e.g., audio data, video data or computer files, are packeted and transferred as data packets. Packet switching works in the asynchronous transfer mode, i.e., data is

transferred time-delayed between two adjoining line sections by a switch (here, a packet switching apparatus). In the case of packet-switching exchanges, and quite differently from line-switching exchanges, a fixed connection does not have to be maintained. It is connection-less, i.e., each packet is treated individually and not in conjunction with others.

Packet switching is used in particular on the Internet. The data packets are termed there as IP packets (IP=Internet Protocol). Each IP packet contains a header which contains, inter alia, sender and receiver addresses. The IP packets form a data flow which is transferred through packet switching apparatus (alias IP switches or Routers or Host computers) in the Internet from the sender to the relevant receiver.

As a result of the length of the IP packets (16 bytes or more), a time delay occurs in the packet switching apparatus when copying. This time delay can be so great, when there is a heavy load on the packet switching apparatus which passes a data packet over the route to the destination address, that certain applications are no longer possible.

These delays are of considerable significance particularly in the case of the Internet. With Internet telephony, a cost-conscious caller uses the normal Internet with approximately 8 kbit/s bandwidth and a time delay of 0.5 seconds. When the Internet is overloaded, the time delay of the

individual packets becomes so great that an acceptable conversation connection between telephone partners is no longer possible.

Internet telephony is marked by a great advantage that only the relevant local telephone charges to the next POP (Point of Presence), the access point to the Internet offered by an Internet Service Provider ISP, as well as time charges calculated by the ISPs for the length of the Internet access as well as volume charges, but not expensive long distance telephone charges are incurred.

From U.S. Pat. No. 4,996,685 a method and device are known which allow in an ISDN communications network, during an existing connection between a user and a host computer, a dynamic change between a line switching connection through an ISDN B channel and a packet-switching connection through an ISDN D channel. A command to change between a line-switching and a packet-switching connection thereby always emanates from the Host computer.

The method disclosed in U.S. Pat. No. 4,996,685 is restricted to undertaking on an ISDN connection a change between a line-switching and a packet-switching data transfer whereby a line-switching transfer is carried out on a B channel and a packet-switching transfer is carried out on the D channel. A method of this kind is indeed expedient to produce effective access from an end subscriber to a host computer, possibly an exchange point of the

telephone network or an access point to the Internet, but does not relate to the transfer of data between switches or routers of a network.

WO 95/31060 A1 describes a method for transferring data between an information source and a destination device wherein the data to be transferred are transferred as data packets. Depending on type of information of the data packets, the data are transferred automatically either solely by line-switching solely by packet-switching. More particularly in the case of small amounts of data to be transferred, a packet-switching transfer is chosen and in the case of large amounts of data, a line-switching data transfer is chosen.

WO 95/25407 A1 describes a method for transferring data between a data source and transceiver either through a packet-switching network or a line-switching network. A control device is thereby provided which uses certain criteria to decide which network and which method of transfer is best suited for the transfer and then selects same.

U.S. Pat. No. 4,903,260 describes a digital coupling network and a coupling field chip which are designed so that paths leading from any input to any output can, depending on requirements, either be switched through for line-switching connections or can be preset for packet-switching information. Preset paths for the packet-switched information

thereby form a network whose junctions lie in the coupling field chip of the coupling network. Those function devices which are required to send each data packet on the path preset for same are integrated in the coupling field chips. It is thus possible to divide up a single coupling network depending, on requirements, dynamically into a line-switching network and a packet-switching network.

SUMMARY OF THE INVENTION

Based on the prior art, the present invention is concerned with the problem of providing a method for transferring data from a first switch to a second switch and providing a switching for carrying out the method which, depending on the data origin and headers of a user or network management system, allows flexible data transfer between the switches and more particularly cost-effective data transfer with real time properties.

The solution according to the present invention makes it possible during packet-switching connection between two switches to achieve a dynamic change-over to line-switching connection without interrupting the connection. This is always advisable if a data build up of data packets exists before the switches of the packet-switching network. Through the establishment of a line-switching connection between the switches, a bypass is produced according to the invention on which data can be transferred with fixed

bandwidth and slight time delays substantially in real time so that the data blockage is bypassed. Since a line switching connection is established only when required, i.e., when a packet-switching data transfer no longer has the desired bandwidth, the invention allows a flexible, most cost-effective data transfer.

The term "switch" is used in the sense of the present invention as already explained so that it includes both a line-switch of a line-switching network which copies over 1-byte packets, and a packet-switch (router) of a packet-switching network which copies over multi-byte packets. Data to be transferred can be any type of data, such as audio data, video data or computer files.

The present invention provides for carrying out the method according to the present invention, on switches which allow both line-switching and packet-switching, and combine the functions of a line-switch and a packet-switch. A switch according to the present invention has a packeting device for packeting and unpacketing data, an IP switching device for routing data packets, a line-switching device for establishing connections for switching through data channels and a control device which directs incoming data either to the IP switching device or to the line switching device depending on the control signals.

The corresponding control signals are triggered by a user, or at the command of a network

management system and are transferred together with other signaling data to the switch. Alternatively, the switch itself automatically produces a corresponding control command upon exceeding a certain bandwidth of the packet-switching transfer.

The network which consists of interconnected switches according to the present invention forms an Intranet wherein data transfer can be interchanged dynamically between line switching and packet switching and ensures, under normal conditions, data transfer substantially in real time through the possibility of establishing when required, a line-switching connection of a fixed bandwidth. This is particularly important for Internet telephony.

There are numerous useful areas for the switches according to the present invention. The switches according to the present invention can even replace conventional line-switches such as TK equipment and exchanges as well as packet switches. More particularly they can be used to build up new networks with real time capacity (intranets) which can operate both by line-switching and by packet-switching.

The method according to the present invention is used in a first embodiment of the invention between two switches which are part of a line-switching network, but not directly part of a packet-switching network. Therefore, for a packet-

switching transfer, first a connection is established through the line-switching network from a first switch to an access point to the packet-switching network (such as Internet access point). The data are transferred line-switched to the access point to the packet-switched network, where they are packeted if they do not already exist as packets, and are transferred from the access point packet-switched through the packet-switching network to the second switch. The data are thereby preferably already packeted in the first switch and transferred as data packets line-switched to the access point.

If both switches are part of both a line-switching network and a packet-switching network, then in a second embodiment of the method according to the present invention, a packet-switched data transfer can take place directly between the switches. With both embodiments, with a presence of a corresponding control signal, a line-switching connection is built up through the line-switching network directly to the second switch. If there is no longer any need for a line-switching transfer, then a change back to a packet-switching transfer takes place.

In one embodiment of the method according to the present invention, the data packets remain, after the change-over to a line-switching data transfer, as data packets and are then transferred as such by line-switching. In an alternative embodiment, the data packets are unpacketed, more particularly the headers of the data packets are removed, and only

the data are then transferred by line-switching. The advantage of the first embodiment lies in the fact that if the data is once again to be transferred over the packet-switching network, they already exist as data packets and therefore time is saved when switching. The advantage of the second embodiment is that by removing the headers from the individual data packets, the effective bandwidth of the data transfer is increased.

In a preferred embodiment of the method according to the present invention, the same data channel is used for transferring the data packets from the first switch to the access point to the packet-switching network, and for transferring data from a first switch to the second switch through the line-switching network. This embodiment has the advantage that only one data channel is constantly engaged which, depending on the type of transfer, transfers data either to the access point to the packet-switching network, or to the other switch. More particularly in the case of an ISDN network, the same B data channel is used for both sending data to the access point to the packet-switching network, and for sending data through a bypass to another switch.

A data transfer from the first switch to the access point to the packet-switching network always takes place by line-switching. Thus compared with a packet-switching transfer to the access point (e.g., through an ISDN D channel), which is also possible, a larger and fixed bandwidth is ensured

up to the access point. If an ISDN network exists, then an ISDN B channel is used as the data channel. Data packets are thereby sent through the B channel by applying them to the ISDN framework. This is known per se and fixed in the PPP protocol.

In a further embodiment, two data channels are provided for data transfer from a first switch, whereby through the first data channel the data packets are transferred to the access point to the packet-switching network, and through the second data channel the data are transferred to the second switch through line-switching. Depending on the type of transfer, either the one data channel or the other data channel is used. This has the advantage that data can be transferred simultaneously by packet-switching and line-switching. By way of example, less important data such as correspondence is transferred by packet-switching and audio data is transferred by line-switching.

In a further preferred embodiment of the present invention, with a line-switching data transfer between the first switch and the second switch or between the first switch and the access point to the packet-switching network, the data of several users are multiplexed on a data channel by forming sub-channels of fixed bandwidth. It is thereby provided that the data of one user are transferred after its selection by line-switching with a transfer rate which corresponds to only a fraction of the transfer

rate of the bandwidth which is available as standard to the user.

More particularly with an ISDN network on the B channels sub channels of a bandwidth of 32, 16, 8, 4, 2 or 1 kbit/s are available. To implement the sub-channels, only each n-th byte or each n-th bit of an ISDN frame is copied over immediately forwarded on the data channel to the next switch or to the computer network access point.

The formation of sub-channels on a data channel, possibly an ISDN B channel or a data channel of the GSM mobile phone system, allows additional flexibility for the data transfer. In many cases, it is entirely adequate that the bandwidth only uses up a part of the bandwidth which is available on a data channel. The use of the sub-channel thereby has an advantage for the user that according to the bandwidth of the sub-channel, lower costs are incurred but a fixed bandwidth is still available. Sub-channels of different bandwidth thereby define different service quality.

Thus a packet-switching transfer, a line-switching transfer with a part of the available bandwidth of a data channel, and a line-switching transfer with the complete bandwidth of the data channel are available as alternatives.

In a further development of the method according to the present invention, with a change from a packet-switching transfer to a line-switching

transfer, the address information of the data packets are evaluated and sorted according to network topology. Thus for each data packet whose destination addresses relate to the same topological area of the network, a switch located in this area is selected, a line-switching connection (bypass) is established to the selected switch and the corresponding data or data packets are transferred to the switch by line-switching.

A classification of the data packets is thereby preferably carried out according to geographical points of view, whereby, for data packets whose destination address relate to the same geographical area, a switch located in this geographical area is selected and a line-switching connection is established to this switch. This allows a bypass to be effectively established since for data packets with roughly the same destination, a line-switching connection is established directly to a network junction which lies, regarding network topology, in the destination area of the data packets. The establishment of an effective bypass between the individual switches has great importance in the case of packet-switching networks since a data packet can run on the way from Berlin to Munich via Paris and New York. By bringing together all data packets intended for Munich and transferring these data packets by line-switching directly from Berlin to Munich, it is possible to provide a more effective data transfer.

For classifying data packets according to geographical points of view, it is preferable to compare the destination address with destination addresses stored in a data bank whereby the data bank contains a link between the destination addresses and the associated geographical position. The data bank is thereby preferably integrated in the switch. If the data packets are IP data packets, then the relevant IP addresses are consulted in the data bank and assigned to a certain bypass depending on the geographical destination.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows diagrammatically a telecommunications network according to the invention;

FIG. 2 shows diagrammatically a telecommunications network known in the prior art;

FIG. 3 is a diagrammatic illustration of a telecommunications network in which switches according to the invention form an Intranet;

FIG. 4 shows diagrammatically a switch according to the invention;

FIG. 5*a* shows a flow chart of the method according to the invention for transferring data between two switches; and

FIG. 5*b* shows diagrammatically a flow chart for the method according to the invention for selecting a destination switch through topological points of view.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 2 shows a conventional telecommunications network. Data terminals such as telephone 1 or personal computer 2 are connected to an exchange 4 of the telephone network directly or by means of a telecommunications apparatus (TK-apparatus) 3 through an ISDN/POTS line. Where applicable, a local network LAN 5 is connected to the TK-apparatus 3. The exchanges 4 pass on incoming connection requests and provide line-switching connections. Entry to a packet-switching network is possible through an access point POP (Point of Presence) 6. Data are transferred between interlinked packet switches 10 by packet-switching through the packet-switching network.

The Internet will now be considered as packet-switching network without restricting the present invention. Indeed any packet-switching network could be used such as mobile phone networks within the scope of the present invention.

The technologies used are known per se. The data transfer between terminals 1and 2 and a line-switch (TK apparatus 3 or the exchange 4) takes place line-oriented, and similarly the data transfer between the individual line switches (such as

between the individual exchanges 4 and the POP 6 of the Internet Service Providers IPS). The lines are switched through via coupling fields which are produced in the exchange and in the TK-apparatus.

The PCM 30 System is particularly wide spread in ISDN networks wherein 8 Bit codewords for each 30 useful channels within a scanning period of 125 µs are multiplexed and sent in one pulse frame. However, no multiplexing takes place on a single channel. The pulse frame is transferred in constant repetition between sender and receiver even if no useful signals are contained. In the digital coupling field, individual bytes are copied and then sent (switch of 1-byte-packet). Since during the exchange process only one byte is read into a memory each time and then read out again, only a minimal time delay occurs when exchanging the connecting path.

From the access point POP 6 to the Internet, the transfer of data is still only carried out packet-switched on the basis of the known network protocol UDP/IP or TCP/IP. Access to the Internet is brought about by a packet switch (hereinafter also called IP Switch) which receives data packets which are not intended for itself and passes them on to the party network whose address they support. During routing, copying of the IP packets is carried out (switch of multi-byte packets). Time delays thereby occur in the packet-switching network according to the size of the IP packet and

the number of routers passing on an IP-packet. These time delays can assume such proportions in the event of overloading the IP switches 10 that in the case of the Internet telephony, delays of more than 0.5 s may occur.

FIG. 1 shows a telecommunications network according to the present invention with switches 7 *a* and 7 *b* according to the present invention which are shown as starred and are described in detail in FIG. 3. The switches 7 *a* and 7 *b* integrate the functions of a packet switch and a line switch.

The important factor is therefore the possibility of dynamically switching between packet-switching and line-switching during one transfer, as will be described in further detail below. It is thereby possible to change over, when desired, from an asynchronous packet-switching transfer of variable bandwidth to a synchronous line-switching transfer of greater and fixed bandwidth. Internet telephony and downloading of files from a WWW server are two important uses.

The implementation of the switches $7a$ and $7b$ takes place selectively through hardware or software. The line switching, is thereby preferably implemented by hardware and the packet-switching by software. Thus with line switching, after switching through a connection the data are forwarded without further examination, whilst with packet switching the destination addresses of

each data packet is evaluated and the next IP switch has to be selected from the routing tables. A switching device for the switches 7*a* and 7*b* which undertakes a change over between packet and line-switching is preferably likewise implemented as software.

The switches 7*a* and 7*b* can be mounted according to FIG. 1 at different points in the telecommunications network. The switch 7*a* represents a service access module for connecting the LANs or end terminals 1 and 2 to the ISDN/PSTN network and Internet. On the user side, the switch 7*a* has an ethernet interface for a LAN connection, a printer interface and interfaces for connecting telephones (radio telephones, ISDN telephones, analog telephones)—not shown. The switch 7*a* is connected to an exchange point 4 of the telephone network through a line 8.

Since the switch 7 *a* is not a part of the Internet, it is necessary for the packet-switching transfer of data through the Internet to first make a connection with the access point POP 6. This can be carried out through the exchange point 4 or even through a standing line 9 to the POP 6. The data are transferred line-switched up to the POP 6 and are preferably already packeted. If a change to line-switching data transfer is to take place, then a line to another switch is switched through the exchange 4 and the data are transferred to this by line-switching. The switch 7 *a* thus routes the IP switched/line-switched channels to the

line 8 controlled by same so that they are more cost-effective or more real time depending on the wishes of the user or provider of the channels.

The switch 7*a* is integrated in the Internet and connected to further IP switches 11 and/or line switches 12. Ideally the network still only consists of switches 7*b* which allow both line switching and packet switching, so that with each switch 7*b* there is the possibility where necessary of providing a higher quality line-switching transfer instead of a packet-switching transfer. A line-switched transfer is thereby established as bypass, more particularly between switches where a data blockage builds up.

FIG. 3 shows a telecommunications network wherein switches 7 which allow a data transfer selectively by packet switching or by line switching form an Intranet within the Internet. A real time communications possibility is thereby present between the switches 7. So that this is always possible, additional real time communications channels exist between the switches 7. These are additional ISDN/PSTN connections or additional Intranet channels. A line switching connection (bypass) between the switches 7 can thus arise not only through the telephone network, but also through separate channels.

FIG. 4 shows diagrammatically the establishment of a switch 7 according to the present invention. The switch 7 is part of both a packet-switching network (Internet) and a line-switching network

(telephone network), i.e., it is connected through lines to further network junctions to which it can transfer or receive line-switched or packet-switched data. Data coming in through a data input 74 can have any source, more particularly come from an IP switch/router, a line-switch such as an exchange point or a telecommunications unit, from a LAN or from an end terminal 1 or 2. The data input 74 has for this purpose, in a known way, an ethernet interface, an analog interface with A/D converter and an ISDN interface. In addition where applicable, an ATM interface and an interface with a mobile phone network can also be provided. The ISDN networks are with incoming data of 8 bit long words which arrive on a multiplexed supply line of the switch 7.

The switch 7 has a known IP switch 72 which copies over incoming IP packets (switch of multi-byte packets) and forwards them in the Internet to suitable switches according to the address of the packets. These relate to the known Internet protocol UDP/IP and TCP/IP. A data compression device 721 is integrated as an option in the IP switch 72. For data compression, a reference is made to the international compression standards developed for individual communications, more particularly the compression process according to ITU standard G.72 X. Furthermore, a coding device 722 for coding data packets can be provided as an option.

Furthermore, the switch 7 has a line switching device 73. This has a digital coupling 731 which is known per se for switching through telephone conversation channels of the line-switching network, and a multiplex/demultiplex device 732 which produces sub-channels on existing data channels, as will be described in further detail below.

The internal control commands, as to whether a packet switching is to take place through the IP switch or a line switching is to take place through the line switching device 73, are produced in a control device 71. The device 71 is substantially a switch which forwards the incoming data either as data packets to the IP switch 72 or as bit flow to the line switching device 73. To this end, the control information of the incoming data are evaluated. The change-over control unit 711 monitors and controls which open connections are present (i.e., which and how many data channels are connected) and which bandwidth the individual data channels require.

In detail the control device 71 has a change-over control unit 711, two packeting/unpacketing devices 713 and 714, and an intermediate register 712. The change-over control unit is connected to a topography data bank 75 which contains geographical data for a number of IP addresses.

If the incoming data are IP packets, then the headers of the IP packets are evaluated by the change-over control unit 711. If the incoming data are a continuous data stream, then the signaling information of the signaling channel (in band signaling or outband signaling) are evaluated by the change-over control unit 711. The basic state thereby provides that the incoming data are sent into the Internet through the IP switch 72. If the incoming data do not yet exist as IP packets then they are packeted into corresponding IP packets in the packeting/unpacketing device 714 and sent to the IP switch.

If the data exist as IP packets but are to be transferred line-switched through the line-switching device 73 then the data are, where applicable, unpacketed in the packeting/unpacketing device 713. More particularly the headers, of the data packets are removed. Unpacketing is optional however and not absolutely necessary since data packets can be transferred line-switched where applicable according to the PPP protocol. The (packeted or non-packeted) data are transferred as bit stream to the line switching device 73 by the change-over control unit 711.

Through a control command which is sent by an end terminal or another switch and for example triggered by a user by pressing a certain button on the terminal or by the network management

system, the type of communication is switched over to line-oriented or packet-oriented communication.

A corresponding signaling command for changing between packet and line switching is, for example, represented by a certain bit sequence wherein the switching unit 71 stores the detailed incoming data in an intermediate register 712and compares it with stored bit sequences. If a certain bit sequence exists, then a change over to a different type of switching is carried out. Alteratively, it can also be possible for the change-over control device 711 to monitor the bandwidth of a transfer and on understepping or exceeding a certain bandwidth and/or in the event of a time delay when forwarding IP data packets to automatically release a control command to change over to the relevant other type of transfer.

To change from packet switching to line switching, first at the command of the control unit 71, a connection is made via the line-switching unit 73 (bypass) with another switch (destination switch). To this end, the ISDN signaling command SETUP is sent to the next exchange point. After the connection is established, all the incoming data of the communications connection considered are no longer directed through the IP-switch 72 but through the line-switching unit 73. The data are now transferred by line-switching with fixed bandwidth through the established bypass to the other switch.

The change-over control unit 711 thereby checks, within the scope of the change-over process and prior to sending the data to the device 73, whether they are IP packets and whether unpacketing is to take place in the packeting/unpacketing device 713. The decision on this is made dependent on control signals of the network management system or the end terminal or alternatively by the change-over control unit 711 itself dependent on the data arrival. The control signals here contain corresponding transfer parameters. In each case, the data after being sent to the device 73 are then exposed in the coupling field 731 to an ISDN data frame.

To establish the most effective line-switching connection possible, it is important to select a suitable destination switch where the bypass is established. To this end, a switch is selected as destination switch which lies in a geographical area which coincides with the destination address of numerous IP packets. Then in particular, these IP packets are transferred through the bypass to the corresponding destination switch so that the data packets still only have a short transfer path from the destination switch to the final destination.

The classification of the IP packets and selection of a corresponding destination switch takes place by means of the topology data bank 75 which contains a geographical link between a number of IP addresses and their geographical position. In the line switching device 73, the IP destination address

of each packet is compared with the addresses stored in the data bank 75 and in the event of a successful association of the IP address, this is given a code. This can be a number which characterizes a certain geographical region. This code is recognized by the coupling field 731 and the data packet is then switched through to the corresponding destination switch.

Since it would result in too much time delay to interrogate the data bank 75 for each data packet, the change-over control unit 711 contains a cache which can be quickly accessed and in which the result of the last data bank inquiry is stored. If the IP address of a data packet arriving through the data input 74 is stored in the cache, then the corresponding code can be quickly given.

If the IP address is not contained in the cache, then a data bank inquiry is carried out, and the IP packets are directed onto the IP switch 72 until the result of the data bank inquiry is provided. Only then is a change-over made for this data to a line-switching transfer through a bypass. It is thereby possible that several bypasses to different destination switches exist at the same time whereby the change over control unit 711 controls the coupling field 731 so that the data packets are each time sent to the destination switch which is most favorable from the network topological point of view. The change-over control unit 711 thus informs the coupling field 731 of which data is to be sent to which destination switch.

If the destination address of a data packet is not contained in the data bank 75, then those intermediate junctions of the packet-switching network are checked to be fully functioning which are normally run through when sending data packets with a certain destination address. To this end, the corresponding data are exchanged between the individual network junctions in known way by trace routing. At the appropriate intermediate junctions, i.e., the intermediate junctions with low functioning output, it is determined whether the ISDN number is known and this is requested where applicable. The change-over control unit 711 of the data bank 75 is thereby operated in the manner already described. A bypass is then established from the change-over control unit 711 to a switch which lies in the chain of switches as close as possible to the destination switch.

The multiplex/demultiplex device 732 of the line-switching device 73 allows, depending on the control commands of the change-over control unit 711, a line-switching transfer to sub-channels with a bandwidth which corresponds to a fraction of the usual bandwidth of a data channel considered. Data channels are thereby bundled which are formed or determined in the coupling field 731 according to the control commands of the change-over control unit 711. A time multiplex channel of the PCM 30 system is considered as ISDN data frame which has information of 30 data channels and two signal channels. The bandwidth of the data channels each amounts to 64 kbit/s.

The multiplex/demultiplex device 732 allows a multiplexing inside each of the 30 data channels of the time multiplex channel. To this end, two methods are alternatively used. In a first method only a part of the 8 bit of a PCM Word is switched through each other, thus 1, 2 or 4 bits. The bandwidth is reduced accordingly to 8, 16 or 32 kbit/s. The data of several channels are in this way multiplexed on one data channel.

Alternatively a PCM word (byte) of the time multiplex channel of the PCM 30 system is not switched through in each of the successive pulse frames, but only in each n-th pulse frame whereby the bandwidth is reduced to 64/n kbit/s.

The two multiplex methods described can also be combined. By way of example, one bandwidth of 1 kbit/s is produced for one data channel in that each eight bit in each eighth frame of the ongoing data channel stems from the data channel considered.

The switching through in the line switching device 731 takes place, depending on the selected data rate, and in the case of transfer rates per data channel unequal to 64 kbit/s, includes the multiplex/demultiplex device 732. If no multiplexing takes place on a data channel, then the data are passed by the multiplex/demultiplex device 732.

For the channel or sub-channel considered, a line-switching transfer takes place to the switch which

represents the other side of the line-switching connection until a control command again reaches the device 71 to switch over again to packet-switching. This command is in turn coded by a certain bit sequence or is produced automatically. Then through the control device, the switched-through line is broken off and the incoming data are then again directed to the IP switch 72.

FIGS. 5 *a* and 5 *b* show the method sequence. FIG. 5 *a* shows the course of the method when changing from a packet-switching data transfer to a line-switching data transfer between two switches. With the presence of a corresponding control signal, a line-switching connection is set up to another switch and the data sent by line-switching.

If a line-switching data transfer is to take place to sub-channels of fixed bandwidth then a multiplexer/demultiplexer is activated which multiplexes several data streams so that each time only every n^{th} bit and/or every n^{th} byte is reserved in the outgoing data stream for an incoming data stream. It can thereby be provided that the individual sub-channels have a different bandwidth, i.e., the different input data streams have different proportions in the outgoing data stream. With the presence of a further control signal, a change back to a packet-switching transfer is undertaken.

FIG. 5*b* shows the selection of a suitable switch when establishing a bypass. To this end, the

headers of the IP data packets are compared with the information of a data bank. If the header information is associated with a certain geographical destination, then the bypass is established to a switch mounted in this geographical area. If the header information is not associated with a certain geographical destination, then as described above, a bypass is made to an intermediate junction where the data packets pass through in the normal case. Where applicable, the switch has numerous bypasses to different switches wherein each time only data packets with the same or similar topological destination features are transferred to the individual switches within the frame of the bypass.

The present invention is not restricted in its design to the embodiments given above. Rather a number of variations are possible which make use of the invention even in fundamentally different types of designs.

What is claimed is:

1. A method for transferring data from a first end terminal to a second end terminal using a first switch and a second switch, selectively by line-switching or packet switching, comprising:

   a) locating the first switch between the first end terminal and an access point of a packet-switching network, the first switch being part of

a line-switching network or having access to a line-switching network;

b) establishing a connection via the first switch through the line-switching network from the first end terminal to the access point of the packet-switching network;

c) line-switching transferring of non-packetized data through said connection from the first end terminal to the access point of the packet-switching network;

d) packeting of the data into data packets and packet-switching transferring of the data packets through the packet-switching network from the access point to the second switch;

e) checking repeatedly whether a control signal exists for transferring to a line-switching connection to the second switch;

f) establishing the line-switching connection, during an existing transfer, through the line-switching network from the first switch to the second switch with a presence of the control signal, if the line-switching connection is not yet present; and

g) changing-over to a line-switching data transfer during the existing transfer and transferring data over the line-switching

connection to the second switch and from the second switch to the second end terminal.

2. The method of claim 1, wherein the first end terminal is a telephone.

3. The method of claim 2, wherein the telephone is an analog telephone.

4. The method of claim 2, wherein the telephone is an ISDN telephone.

5. The method of claim 2, wherein the telephone is a mobile telephone.

6. The method of claim 1, wherein the first end terminal is part of a local area network.

7. The method of claim 1, wherein the first end terminal is connected to a private branch exchange (PBX), which is in turn connected to the first switch.

8. The method of claim 1, wherein the data transferred from the first end terminal to the access point of the packet-switching network are analog data.

9. The method of claim 8, wherein the data, when transferred over the line-switching connection to the second switch, remain as analog data.

10. The method of claim 1, wherein the data transferred from the first end terminal to the access point of the packet-switching network are digital, non-packetized data.

11. The method of claim 1, in which transferring the data over the line-switching connection comprises transferring the data over an PSTN/ISDN network.

12. The method of claim 1, in which transferring the data through the packet-switching network comprises transferring the data through the internet.

13. The method of claim 1, wherein the first switch is located at the first end terminal.

14. The method of claim 1, wherein the control signal which triggers a change-over between the packet-switching transfer and the line-switching transfer is produced automatically when demands on a quality of a data transfer, including a time delay or a noise proportion, is understepped or exceeded.

15. The method of claim 1, wherein the control signal which triggers a change-over between the packet-switching transfer and the line-switching transfer is produced by a user of the first end terminal.

16. The method of claim 1, wherein, when the data is being transferred using the line-switching data transfer, further comprising:

    a) checking repeatedly whether a second control signal exists for changing-over to a packet-switching data transfer to the second switch;

    b) establishing a second connection through the line-switching network, during the existing transfer, from the first switch to the access point of the packet-switching network with a presence of the second control signal, if the connection to the access point is no longer present;

    c) changing-over to a packet-switching data transfer during the existing transfer;

    d) line-switching transferring of the data through the connection or the second connection to the access point;

    e) packeting of the data into data packets and packet-switching transferring of the data packets through the packet switching network from the access point to the second switch; and

    f) transferring the data from the second switch to the second end terminal.

17. The method according to claim 1, wherein, with the line-switching data transfer between the first switch and the second switch or between the first

switch and the access point to the packet-switching network, the data of several end terminals are multiplexed on one data channel by forming sub-channels of a fixed bandwidth.

18. The method according to claim 1, wherein, with a data transfer from the first switch changing over from a packet-switching data transfer to the line-switching data transfer,

   a) address information of the data packets are evaluated and classified according to a network topology, and

   b) for the data packets whose destination addresses correspond to a same topological area of the network, the second switch is selected which is located in the same topological area.

19. The method according to claim 18 wherein, to classify the data packets according to the network topology, the destination addresses of the data packets are sorted according to geographical areas whereby, for data packets whose destination addresses correspond to a same geographical area, the second switch is selected to be located in this geographical area.

20. The method according to claim 19 wherein, for classifying the data packets according to geography, the destination addresses are compared with destination addresses stored in a data bank

which contains a link between the destination addresses and associated geographical areas.

21. A method for transferring data from a first end terminal to a second end terminal, selectively by line-switching or packet switching, comprising:

a) establishing a connection through a line-switching network from the first end terminal to an access point of a packet switching network;

b) line-switching transferring of non-packetized data through said connection from the first end terminal to the access point of the packet-switching network;

c) packeting of the data into data packets and packet-switching transferring of the data packets through the packet-switching network from the access point to the second end terminal;

d) checking repeatedly whether a control signal exists for transferring to a line-switching connection to the second end terminal;

e) establishing the line-switching connection, during an existing transfer, through the line-switching network from the first end terminal to the second end terminal with a presence of the control signal, if the line-switching connection is not yet present; and

f) changing-over to a line-switching data transfer during the existing transfer and transferring data over the line-switching connection to the second end terminal.

22. The method of claim 21, wherein the first end terminal is a telephone.

23. The method of claim 22, wherein the telephone is an analog telephone.

24. The method of claim 22, wherein the telephone is an ISDN telephone.

25. The method of claim 22, wherein the telephone is a mobile telephone.

26. The method of claim 21, wherein the first end terminal is part of a local area network.

27. The method of claim 21, wherein the data transferred from the first end terminal to the access point of the packet-switching network are analog data.

28. The method of claim 27, wherein the data, when transferred over the line-switching connection to the second end terminal, remain as analog data.

29. The method of claim 21, wherein the data transferred from the first end terminal to the access point of the packet-switching network are digital, non-packetized data.

30. The method of claim 21, in which transferring the data over the line-switching connection comprises transferring the data over an PSTN/ISDN network.

31. The method of claim 21, in which transferring the data through the packet-switching network comprises transferring the data through the internet.

32. The method of claim 21, wherein the control signal which triggers a change-over between the packet-switching transfer and the line-switching transfer is produced automatically when demands on a quality of a data transfer such as a time delay or a noise proportion is understepped or exceeded.

33. The method of claim 21, wherein the control signal which triggers a change-over between the packet-switching transfer and the line-switching transfer is produced by a user of the first end terminal.

34. Switching apparatus for routing a telephone call comprising non-packetized data from a first end terminal located at a user's premises to a second end terminal located at another user's premises, selectively by line switching or packet switching, the switching apparatus comprising:

    means for establishing a connection through a line-switching network to the second end terminal;

means for line-switching transferring data received from the first end terminal as non-packetized data over the line-switching network to the second end terminal;

means for establishing a connection through a packet-switching network to the second end terminal;

means for packet-switching transferring data received from the first end terminal as non-packetized data over the packet-switching network to the second end terminal; and

means responsive to a control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal;

said means responsive to a control signal changing-over to a line-switching data transfer or a packet-switching transfer during the existing transfer with the presence of said control signal.

35. The switch of claim 34, further comprising means to produce the control signal for transferring to a line-switching transfer or a packet-switching transfer to the second end terminal, said control signal being produced automatically when demands on the quality of the data transfer are understepped or exceeded.

36. The switch of claim 34, wherein the data received from the first end terminal are analog data.

37. The switch of claim 36, wherein the data, when transferred over the line-switching connection to the second end terminal, remain as analog data.

38. The switch of claim 34, wherein the data received from the first end terminal are digital, non-packetized data.

* * * * *

APPENDIX F

UNITED STATES PATENT AND TRADEMARK
OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.   ：6,954,453 B1
APPLICATION NO.   ：09/147,970
DATED   ：October 11, 2005
INVENTOR(S)   ：Schindler et al.

It is certified that error appears in the above-
identified patent and that said Letters Patent is
hereby corrected as shown below:

<u>In the Drawings</u>

FIG. 3, Sheet 3 of 6

> Delete Drawing Sheet 3 and
> substitute therefore the Drawing
> Sheet, consisting of Fig. 3 as shown on
> the attached page

<u>On the Title Page</u>

References Cited
Foreign Patent Documents

> Delete "EP 732835 A2 9/1996"
> Insert --EP 0 732 835 A2 9/1996--

130a

Abstract, line 7

Delete "estalished",
Insert --established--

Abstract, line 9

After "connection",
Insert --.--

In the Claims

Column 13, line 37, Claim 18   Delete "are"
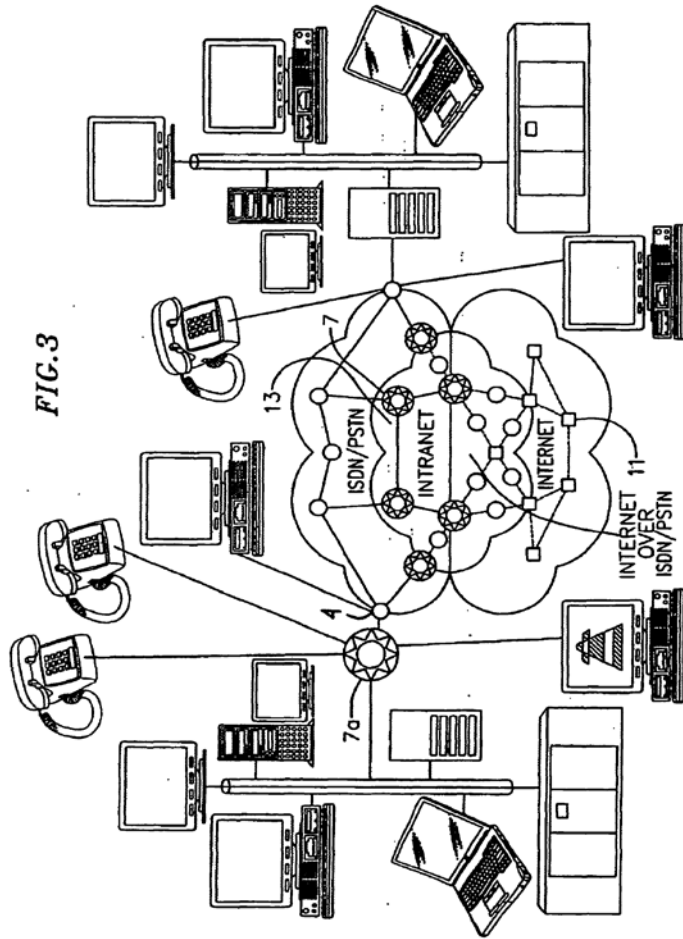   Insert --is--

Signed and Sealed this Third Day of October, 2006

/s/Jon W. Dudas

JON W. DUDAS
Director of the United States Patent and
Trademark Office

U.S. Patent Oct. 11, 2005 Sheet 3 of 6 **6,954,453 B1**

FIG.3

APPENDIX G
MANUAL OF PATENT EXAMINING
PROCEDURE

2111   CLAIM INTERPRETATION; BROADEST
REASONABLE INTERPRETATION

CLAIMS MUST BE GIVEN THEIR BROADEST
REASONABLE INTERPRETATION IN LIGHT OF
THE SPECIFICATION

During patent examination, the pending claims
must be "given their broadest reasonable
interpretation consistent with the specification."
The Federal Circuit's *en banc* decision in *Phillips v.
AWH Corp.,* 415 F.3d 1303, 1316, 75 USPQ2d 1321,
1329 (Fed. Cir. 2005) expressly recognized that the
USPTO employs the "broadest reasonable
interpretation" standard:

The Patent and Trademark Office ("PTO")
determines the scope of claims in patent
applications not solely on the basis of the claim
language, but upon giving claims their broadest
reasonable construction "in light of the specification
as it would be interpreted by one of ordinary skill
in the art." *In re Am. Acad. of Sci. Tech. Ctr.,* 367
F.3d 1359, 1364[, 70 USPQ2d 1827, 1830] (Fed. Cir.
2004). Indeed, the rules of the PTO require that
application claims must "conform to the invention
as set forth in the remainder of the specification
and the terms and phrases used in the claims must
find clear support or antecedent basis in the

description so that the meaning of the terms in the claims may be ascertainable by reference to the description." 37 CFR 1.75(d)(1).

See also *In re Hyatt,* 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Because applicant has the opportunity to amend the claims during prosecution, giving a claim its broadest reasonable interpretation will reduce the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Yamamoto,* 740 F.2d 1569, 1571 (Fed. Cir. 1984); *In re Zletz,* 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow."); *In re Prater,* 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969) (Claim 9 was directed to a process of analyzing data generated by mass spectrographic analysis of a gas. The process comprised selecting the data to be analyzed by subjecting the data to a mathematical manipulation. The examiner made rejections under 35 U.S.C. 101 and 35 U.S.C. 102. In the 35 U.S.C. 102 rejection, the examiner explained that the claim was anticipated by a mental process augmented by pencil and paper markings. The court agreed that the claim was not limited to using a machine to carry out the process since the claim did not explicitly set forth the machine. The court explained that "reading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, is a quite different thing from 'reading limitations of the specification

into a claim,' to thereby narrow the scope of the claim by implicitly adding disclosed limitations which have no express basis in the claim." The court found that applicant was advocating the latter, i.e., the impermissible importation of subject matter from the specification into the claim.). See also *In re Morris,* 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997) (The court held that the PTO is not required, in the course of prosecution, to interpret claims in applications in the same manner as a court would interpret claims in an infringement suit. Rather, the "PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant's specification.").

The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright,* 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999) (The Board's construction of the claim limitation "restore hair growth" as requiring the hair to be returned to its original state was held to be an incorrect interpretation of the limitation. The court held that, consistent with applicant's disclosure and the disclosure of three patents from analogous arts using the same phrase to require only some increase in hair growth, one of ordinary skill would

construe "restore hair growth" to mean that the claimed method increases the amount of hair grown on the scalp, but does not necessarily produce a full head of hair.). Thus the focus of the inquiry regarding the meaning of a claim should be what would be reasonable from the perspective of one of ordinary skill in the art. *In re Suitco Surface, Inc.,* 603 F.3d 1255, 1260, 94 USPQ2d 1640, 1644 (Fed. Cir. 2010); *In re Buszard,* 504 F.3d 1364, 84 USPQ2d 1749 (Fed. Cir. 2007). In *Buszard,* the claim was directed to a flame retardant composition comprising a flexible polyurethane foam reaction mixture. 504 F.3d at 1365, 84 USPQ2d at 1750. The Federal Circuit found that the Board's interpretation that equated a "flexible" foam with a crushed "rigid" foam was not reasonable. *Id.* at 1367, 84 USPQ2d at 1751. Persuasive argument was presented that persons experienced in the field of polyurethane foams know that a flexible mixture is different than a rigid foam mixture. *Id.* at 1366, 84 USPQ2d at 1751.

See MPEP § 2173.02 for further discussion of claim interpretation in the context of analyzing claims for compliance with 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph.