

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COX COMMUNICATIONS, INC.
Petitioner

v.

AT&T INTELLECTUAL PROPERTY I, L.P.
Patent Owner

Case IPR2015-01227

Patent 7,907,714

Title: Profile Management System Including User Interface for Accessing and
Maintaining Profile Data of User Subscribed Telephony Services

REPLY DECLARATION OF PROFESSOR NADER MIR, Ph.D.

I, Professor Nader F. Mir, Ph.D., declare as follows:

1. My name is Nader F. Mir. I previously signed a declaration in this matter on May 18, 2015, which was filed with the Patent Trial and Appeal Board on May 19, 2015. My personal background and qualifications are set out in my first declaration.

2. In addition to the materials I reviewed in rendering the opinions expressed in my first declaration, I have reviewed:

- AT&T's Preliminary Response (Paper 12);
- the Board's Institution Decision (Paper 13);
- AT&T's Patent Owner Response (Paper 40);
- the Declaration of Dr. Robert Akl (Ex. 2043);
- Microsoft Computer Dictionary, Fourth Edition (excerpt) (Ex. 2049);
- the Deposition testimony of Dr. Robert Akl for the '714 matter (Ex. 1026).

3. I am not a lawyer and I have no legal training. Cox's counsel has informed me about certain legal principles and standards, summarized in detail in my previous declaration in this matter. My understanding of the law remains the same for my instant declaration, except where Cox's counsel has informed me of

supplemental information on the law where necessitated by AT&T's arguments.

In those cases, I note my understanding of the law in this declaration.

4. I understand that since my first declaration, Patent Owner AT&T Intellectual Property I, L.P. ("AT&T") submitted a Patent Owner Preliminary Response on September 2, 2015, the Board filed an Institution Decision on November 19, 2015, and AT&T submitted a Patent Owner Response on April 29, 2016. I also understand that the Board's decision instituted this *inter partes* review on the grounds of claims 1-7, 12-17, and 20 being anticipated under § 102(e) by Buhrmann, claims 8, 9, 18, and 19 being unpatentable under § 103(a) by the combination of Buhrmann and Boulware, claim 10 being unpatentable under § 103(a) by the combination of Buhrmann, Boulware, and Bayless, claims 14, 15, 21, and 22 being unpatentable under § 103(a) by the combination of Buhrmann and Beck, claims 1-7, 11, and 13-17 being anticipated under § 102(e) by An, claim 10 being unpatentable under § 103(a) by the combination of An and Bayless, and claims 14, 15, 21, and 22 being unpatentable under § 103(a) by the combination of An and Beck.

5. After reviewing the materials listed above and discussed herein, it remains my opinion that the challenged claims of U.S. Patent No. 7,907,714 ("the '714 patent") are unpatentable. However, there are certain portions of AT&T's

Patent Owner Response and the Declaration of Dr. Robert Akl (Ex. 2043) that I wish to respond to with clarification of my previously offered opinions.

6. As I explained in my previous declaration, I understand that claims enjoy the priority date of a provisional application to which priority is claimed only if the provisional application provided adequate written description support under 35 U.S.C. § 112, ¶ 1. (Ex. 1014, ¶ 21.) To expand, I understand this to mean that the provisional patent application fully discloses support for the relied-upon disclosure and at least one claim of the non-provisional application.

7. I am also aware that the claim terms of an unexpired patent in an *inter partes* review are to be given their broadest reasonable interpretation. I understand that this means that claims are to be interpreted as broadly as their terms will allow, in light of and consistent with the specification and file history of the patent. I also understand that the broadest reasonable interpretation takes into account the ordinary and customary meaning of the claim terms, as they would be understood by a person of ordinary skill in the art.

1. Claim Construction of Claim 1 Preamble

8. I understand that the Board, in its Institution Decision, determined that certain recitations of the preamble of claim 1 are entitled to patentable weight “because they state necessary and defining aspects of the invention embodied in this challenged claim.” (Paper 13, p. 14-16.) Moreover, I understand that AT&T

now contests Cox's proof regarding the unpatentability of the claims in light of the Board's adopted interpretation. (Paper 40, pp. 4-5.)

9. In response to AT&T's contentions, it is my opinion that An's disclosure teaches the preamble of claim 1 and similar language appearing in claim 13. I previously opined that:

My review of *An* confirms that it teaches all of the elements for a profile management method as recited in claims 1-7, 11, and 13-17 of the '714 patent. In particular, *An* discloses receiving a subscriber "query for service profile" (step 214) from Internet access unit 58, which hosts a graphical user interface, namely, a web browser, and is connected to Web server 50 through the Internet. (*See, e.g.*, Ex. 1005, 5:6-12, 9:6-8, FIGS. 2-12, 16.) In response to the query, the service profile is retrieved from a digital multiplexed switch (DMS) on the communications network via at least one intermediate system, such as a subscriber service provisioning manager (SSPM). (*See, e.g., id.*, 4:16-46, 5:17-21, 8:31-36, 9:11-13, FIGS. 2-3, 15-16.) A person of ordinary skill would recognize that SSPM is a server for profile management.

(Ex. 1014, ¶ 99.) This opinion and the portions of *An* cited therein recite "subscriber profile data . . . the subscriber profile data being stored on a communication network which executes the communications service in accordance with the subscriber profile data . . .," as called out by the Board. (Paper 13, pp. 14-16.)

10. Moreover, it is my opinion that the above-mentioned portions of *An*, as recited in my previous declaration, are fully disclosed and supported by the *An*

Provisional. For example, many of the figures from An cited in this proceeding are nearly mirrored in analogous figures in the An Provisional. (*See, e.g.*, Ex. 1006, pp. 15-24.) Also, the An Provisional contains an entire in-depth section describing and entitled “Subscriber Service Provisioning Manager,” or SSPM, which I opined would be understood by one of ordinary skill in the art to be a server for profile management. (*See, e.g.*, Ex. 1006, pp. 25-35; Ex. 1014, ¶ 99.) In view of this support, which I previously identified, my opinions regarding the unpatentability of the claims are unchanged by the Board’s adopted interpretation.

2. An Provisional support for the claims of An

11. I previously expressed my opinion that the An Provisional fully describes the substance of the subject matter claimed in An. (Ex. 1014, ¶ 101.) My review of the arguments in AT&T’s Patent Owner Response and the opinions expressed in Dr. Akl’s Declaration do not change this opinion. Therefore, it remains my opinion that An is entitled to the priority date of the An Provisional application. However, because AT&T and Dr. Akl have challenged An’s entitlement to the priority date of the An Provisional, I will elaborate herein.

12. During my initial review of An in preparing my first declaration, I found no reason to interpret the claim language “*wherein the server performs a protocol conversion dependent on the type of the service manager node,*” or similar language appearing in other claims, beyond the plain and ordinary meaning as

would be understood by a person having ordinary skill in the art. (Ex. 1005, claim 1.) I understand that Dr. Akl interprets An's claims to require "support for protocol conversion, performed by a server, dependent on a type of service manager node." (Ex. 2043, ¶ 80.) In addition, Dr. Akl appears to interpret the claim language as requiring support for "multiple types of service manager nodes." (*Id.*)

13. I have again reviewed An's specification and claims in light of AT&T's challenge and, consistent with my previous analysis, identify no such requirement. As such, it is my opinion that Dr. Akl's interpretation is both unnecessary and inappropriately limiting. Dr. Akl is correct in stating that the term "protocol conversion" "would have the plain an ordinary meaning as understood by one of ordinary skill in the art at the time for the An patent." (Ex. 1026, 61:10-21.) One consideration is that An's claim language references merely "*a type*" or "*the type*" of service manager node, which would not be understood by a person of ordinary skill in the art to require multiple types of service manager nodes, as Dr. Akl contends. Dr. Akl also described "*protocol conversion*" as "changing" or "modifying" the protocol. (Ex. 1026, 61:22-62:10.) I agree that a person of ordinary skill in the art would understand "protocol conversion," in the context of An's claims, to mean "changing" or "modifying" a protocol. Also, as shown in

additional detail below, for example in Table 1, at Element [1e], it is my opinion that the An Provisional supports “protocol conversion” under this interpretation.

14. Dr. Akl also compares “protocol conversion” to “encapsulation” in his analysis, which is contrary to the understanding a person of ordinary skill in the art would afford to An’s claim language when read in light of the specification. (Ex. 2043, ¶ 87, 89.) As Dr. Akl correctly pointed out in his deposition, the term “encapsulation” does not even appear in An’s claims. (Ex. 1026, 63:19-64:15 (“Q: . . . The terms ‘encapsulate’ or ‘encapsulation’ do not appear in the claims of the An patent; correct? . . . A: I don’t see the words ‘encapsulate,’ at least in Claims 1, 7, and 11, which are the independent claims. Q: And you didn’t see the term ‘encapsulation,’ either; correct? A: Yes, that is correct.”).) The term’s absence from the claims is one reason that Dr. Akl’s comparison between “protocol conversion” and “encapsulation” is misguided. Also, An’s specification differentiates between “conversion” and “encapsulation,” noting that: “The service manager adaptor 138 *encapsulates* the specific protocols to be used to communicate with each class of service manager. . . . It receives transactions from the dispatcher 132, *formats them in a service manager specific protocol*, and sends them to the service manager 142.” (Ex. 1005, 7:55-64 (emphasis added).) A person of ordinary skill in the art would understand that the “encapsulation” is

separate from the “format[ing] them in a service manager specific protocol,” which is analogous to “*protocol conversion*.”

15. Consistent with my previously provided opinion, I believe that the An Provisional provides support for “*protocol conversion*,” as that language would be understood by a person of ordinary skill in the art. The An Provisional recites that the “ServiceManagerAdaptor . . . receives transactions from the Dispatcher, formats them in a ServiceManager specific protocol, and sends them to the ServiceManager.” (Ex. 1006, p. 34.) A person of ordinary skill in the art would understand this formatting to support a conversion of the protocol. Figure 5 of the An Provisional, reproduced in Table 1, below, is also illustrative of the document’s support. (Ex. 1006, p. 31.)

16. It is my opinion that the An Provisional provides support for the recited “*protocol conversion*,” even under Dr. Akl’s flawed understanding that would require multiple types of service manager nodes. For example, Figure 3, “Object Instance Diagram,” denotes the existence of multiple ServiceManagers, each having a type. (Ex. 1006, p. 29.) A person of ordinary skill in the art would understand these ServiceManagers to be the “service manager node” recited in An’s claims. Other description in the An Provisional refers to ServiceManagers in the plural, further supporting the conclusion that there can be multiple ServiceManagers. (E.g., Ex. 1006, pp. 30-31.) A person of ordinary skill in the art

would understand these ServiceManagers to disclose the service manager nodes of An. In addition, and as shown in Table 1 below, it is my opinion that the An Provisional discloses support for, as Dr. Akl phrases it, “the ability to perform a protocol conversion appropriate for each type of service manager node.” (Ex. 2043, ¶ 80.) In particular, the An Provisional discloses that the “ServiceManagerAdaptor . . . receives transactions from the Dispatcher, formats them in a ServiceManager specific protocol, and sends them to the ServiceManager.” (Ex. 1006, pp. 31-35.) A “ServiceManager specific protocol” would be understood to be a protocol which is appropriate for a type of service manager node.

17. I am also not persuaded by the assertions of AT&T and its expert that the An Provisional does not provide an enabling disclosure for the subject matter of An. I previously opined regarding the An Provisional’s support for An. I understand that one component of this analysis is whether a provisional application would enable a person of ordinary skill in the art to make and use the claimed subject matter without undue experimentation. Cox’s counsel has informed me that an analysis of whether undue experimentation is required involves the consideration of a set of factors, which include: the amount of experimentation that would be required, the amount of guidance presented, the presence or absence of working examples, the nature of the invention, the state of the art, the relative skill

of those in the art, the predictability or unpredictability of the art, and the breadth of the claims. I understand that these factors are illustrative and that a reasonable amount of experimentation will not render a disclosure non-enabling.

18. My review of the An Provisional, considering both the factors that inform an undue experimentation analysis and the arguments of Dr. Akl, confirms my conclusion that a person of ordinary skill in the art could practice the claims of An without undue experimentation. This analysis would not change under either Dr. Akl's definition of a person having ordinary skill in the art or my own. (Ex. 2043, ¶ 43, Ex. 1014, ¶ 31.)

19. The An Provisional contains extensive discussion regarding the structure and operation of the subject matter claimed in An. One of ordinary skill in the art would find that this helpful explanation would guide them in making and using the subject matter of An's claims. This includes, for example, discussion of contemplated hardware configurations and of the arrangement and function of various components making up the system. (*E.g.*, Ex. 1006, pp. 3, 5-6, 31-35.) I understand that Dr. Akl perceives the An Provisional to be deficient in certain areas, such as disclosure relating to protocol conversion. However, as discussed above and detailed in Table 1, it is my opinion that the An Provisional provides support for the subject matter of An and this support would provide one having ordinary skill in the art with substantial guidance toward practicing the invention.

20. With regard to another of the factors to consider, the presence or absence of working examples, it is my opinion that the An Provisional describes a working embodiment of the invention. The An Provisional provides extensive discussion regarding the setup of the contemplated system, noting further that the Appendices provide “details relating to the invention and its implementation.” (See Ex. 1006, p. 6.) In addition, the An Provisional contains, as Appendix 3, an example of the protocol used for describing a subscriber profile, dated October 18, 1996, five days before the filing of the An Provisional. (Ex. 1006, p. 61.) Appendix 3 presents an SGML-based tag set that describes an implicit *Standard Generalized Markup Language* (“SGML”) *Document Type Definition* (“DTD”). (Ex. 1006, p. 61.) SGML is a standard for specifying a document markup language or tag set. Such a specification is a DTD which is in turn a set of markup declarations that defines a document type for the SGML family. The SGML family includes *Hypertext Markup Language* (“HTML”), widely known as the language that Web browsers use in 1996. The mentioned SGML-based tag set of discloses a set of rules such as “a profile must have at least one TERMINAL or *Directory Number* (DN) entity . . . ” where the set defines certain entities and functionalities of a working example. Consequently, these portions of the An Provisional suggest that a person of ordinary skill in the art would interpret the An Provisional to disclose a working example. Dr. Akl appears to conclude that undue

experimentation would be required based on a perception that the An Provisional lacks description of working embodiments. Even were Dr. Akl's observation correct, it is my opinion that each of the other factors supports the conclusion that a person of ordinary skill in the art would be able to practice An's claimed subject matter without undue experimentation.

21. I previously opined on the technical background "before the '714 patent," including various telecommunications databases and related systems, in my first declaration in this matter. (Ex. 1014, ¶¶ 36-45.) It is my opinion that the subject matter described and claimed in An and its provisional falls into the same field as that of the '714 patent, such that my previous discussion is equally applicable here. In particular, while the subject matter described in An may represent an improvement over the prior art, it does not represent a radical departure from the understanding of telecommunications databases at the time, such that a person of ordinary skill in the art would not, in light of the An Provisional, require undue experimentation to practice An's claims.

22. My opinions regarding the state of the art at that time, including the knowledge of those skilled in the art regarding various telecommunications databases, would also apply to a consideration of whether the subject matter of An can be practiced by one skilled in the art without undue experimentation. In light

of the state of the art, one armed with the An Provisional would certainly be capable of making and using the subject matter of An's claims.

23. Under either the definition of a person of ordinary skill in the art that I provided in my previous declaration or under the definition provided by Dr. Akl, the relative skill of those in the art was such that they would have the education and work experience that would afford them sufficient skill to make and use the subject matter claimed in An in light of the An Provisional's disclosures. (Ex. 2043, ¶ 43; Ex. 1014, ¶ 31.)

24. A person of ordinary skill in the art during the relevant timeframe would not have found the technical field of An and its provisional to be especially unpredictable. In light of the technical background "before the '714 patent," on which I previously opined, as noted above, telecommunications databases were well-known during this period. One of ordinary skill would understand the components and functionality described in the An Provisional each to function in a predictable manner, such that undue experimentation would not be required to make and use An's claimed subject matter.

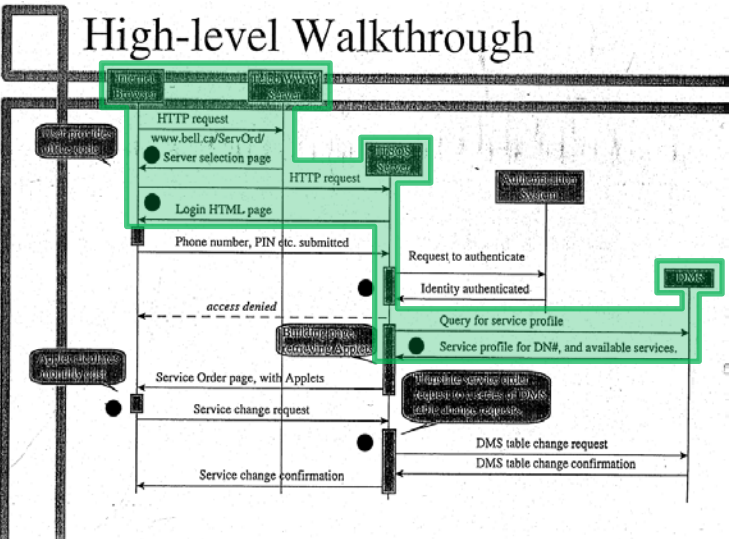
25. The breadth of the claims also supports my conclusion that a person of ordinary skill in the art would be able to practice the invention without undue experimentation. The claims of the An patent are narrowly drawn and plainly recite the elements that are required to practice the invention. Moreover, as

discussed below, my opinion that the An Provisional's disclosures fully cover the scope of An's claims supports my conclusion that a person of ordinary skill in the art could make and use the claims of An without undue experimentation, in light of the An Provisional.

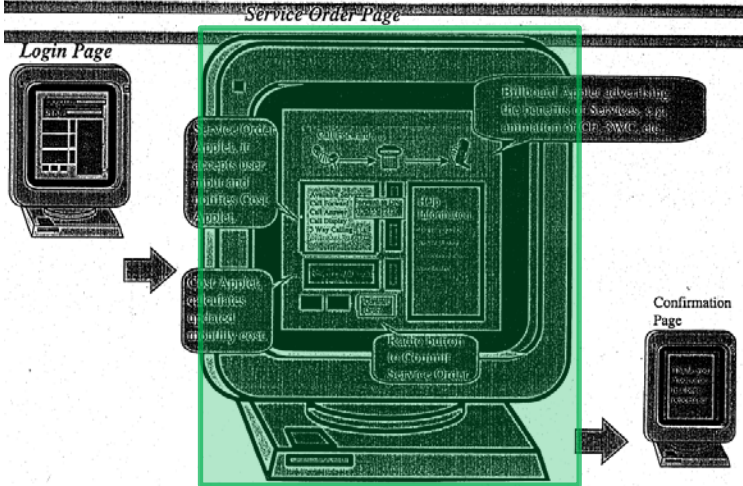
26. Because AT&T and Dr. Akl dispute the An Provisional's support for the claims of An, I identify such support in additional detail in Table 1, below.

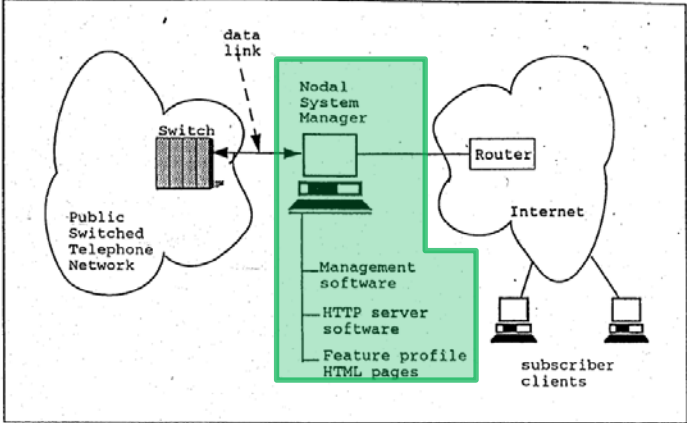
Table 1: U.S. Prov. App. SN 60/028,760 Support for USPN 6,031,904

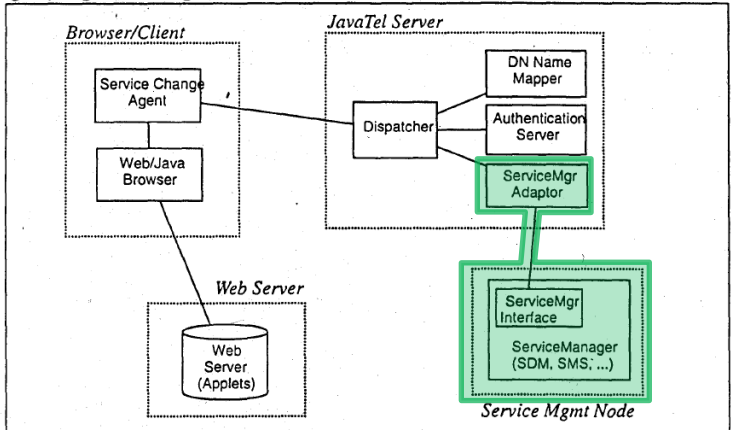
Claim	Provisional Support
<p>[1a.] A feature ordering system for use in connection with a telephone network which implements features for individual subscribers on the basis of a feature profile stored for each subscriber DN (directory number), the feature ordering system comprising:</p>	<p>The An Provisional discloses that “[t]he subscriber can locate his personal ‘telephone feature profile’ on the telephone service provider’s server on the Internet, access it via a password, such as his/her ‘calling card’ PIN, and see at a glance the features and options currently active on his line/number. Additionally, the subscriber may submit requests to add/change/delete features, on-line.” (<i>See, e.g.</i>, Ex. 1006, 7:2-6 (“This invention relates . . . to a system which permits a subscriber to add/change or delete features with respect to his/her particular telephone feature profile.”), 7:22-28 (“The subscriber can locate his personal ‘telephone feature profile’ on the telephone service provider’s server on the Internet, access it via a password, such as his/her ‘calling card’ PIN, and see at a glance the features and options currently active on his line/number. Additionally, the subscriber may submit requests to add/change/delete features, on-line.”), 8:2-7 (“A person arriving at a new location, such as a hotel room, or someone else’s home, could access his/her ‘telephone feature profile’ via the hotel or friend’s Internet access and activate his/her ‘call forward’ feature with the number of</p>

Claim	Provisional Support
	<p>the telephone in the hotel or friend's home.”), 9:23-10:1 (“On verification of [the telephone number and the PIN], the HTTP server would provide access to a series of pages about this particular telephone number. The contents of the pages could be almost without limit, showing perhaps current bill, detailed list of calls etc., as well as current features and cost what-ifs on possible feature complements.”), 13 (Claim 1, describing system), 25 (“The Subscriber Service Provisioning Manager (SSPM) is intended to allow an end-user (Service subscriber) to configure various services and features related to their lines or terminals using an access method from their environment, such as their home computer or desk-top computer.”), 38 (“ITSOS – A JavaTel Server”), 50-51 (“To order a service using ITSOS, a telephone subscriber load his/her Telco's Service Order page. This page shall provide the Universal Resource Locators (URLs) of ITSOS'. The subscriber can locate the ITSOS which is serving his phone line”).)</p>
<p>[1b.] a server acting directly or indirectly on the feature profiles, the server being connected to an information communications network and accessible by subscribers through the information communications network and</p>	<p>The An Provisional discloses this element.</p>  <p>(See, e.g., Ex. 1006, 9:3-10:4 (“An HTTP server is placed on the machine which stores the feature profiles, or on a machine that has direct (and</p>

Claim	Provisional Support
	<p>probably proprietary) access to the machine that does have those profiles. In the case of the indirect method (our preferred approach), the intermediate machine would have replicas of the real data and the HTTP server would act on them. The intermediate machine would commit the contents of the change to the real data at critical points, such as when the customer decides to ‘submit’ his changes.”), 12:1-10 (“A potential implementation for DMS is to equip the SDM with a HTTP server and connect the SDM to the public Internet. As an alternative, if the SDM is connected with a Telco LAN, it only requires that the LAN be connected to the public Internet, and the HTTP server can be on any machine on the Telco LAN. In either case, the subscribers will be able to access the HTTP server from the public Internet.”), 31-35 (“High-level Design View” and related description, depicting “JavaTel Server” including “Dispatcher” which “receives service change transactions from the ServiceChangeAgent [from a subscriber] and routes them to the appropriate Service Manager”), 38-40 (“A JavaTel Sever” depicting system setup, “<i>Server provides programmability to any Service Provider in any network</i>” (emphasis in original)), 48 (describing modes of subscriber access), 50 (“High-level Walkthrough” noting “ITSOS Server” in system workflow, noting “[t]ranslate[s] service order request to a series of DMS table change requests.”).)</p>
<p>[1c.] permitting, when accessed by a subscriber, access to that subscriber’s telephone feature profile for viewing and optionally changing, adding, or deleting features by the subscriber; and</p>	<p>The An Provisional discloses that “[v]ia a mechanism such as an HTML ‘form’ or a Java ‘applet’, a subscriber can activate/deactivate features and change the parameters of those features, on-line. Submission of the ‘form’ will modify his ‘profile’.”</p>

Claim	Provisional Support
	 <p>The diagram illustrates a service order system architecture. It begins with a 'Login Page' on the left, represented by a computer monitor icon. An arrow points from the Login Page to a central 'Service Order Page', which is depicted as a large computer monitor. This central page contains a complex interface with multiple sections: a top section for 'Select Service' (with options like 'Add, to create user', 'Add, to create office', 'Cost, add'), a middle section for 'Add Service' (with options like 'Add, to create user', 'Add, to create office', 'Cost, add'), and a bottom section for 'Route, to create' and 'Service Order'. A callout box points to the 'Add Service' section, stating 'Billboard Available advertising the benefits of Services, e.g., animation of CP, SWC, etc.'. An arrow points from the Service Order Page to a 'Confirmation Page' on the right, represented by a computer monitor icon.</p> <p>(See, e.g., Ex. 1006, 9:23-10:4 (“An HTTP server is placed on the machine which stores the feature profiles, or on a machine that has direct (and probably proprietary) access to the machine that does have those profiles. In the case of the indirect method (our preferred approach), the intermediate machine would have replicas of the real data and the HTTP server would act on them. The intermediate machine would commit the contents of the change to the real data at critical points, such as when the customer decides to ‘submit’ his changes.”), 11:23-25 (“It provides a powerful set of services that allow SDM processes to read, change, delete and add tuples to DMS tables, thus changing customer’s service profiles.”), 12:1-10 (“A potential implementation for DMS is to equip the SDM with a HTTP server and connect the SDM to the public Internet. As an alternative, if the SDM is connected with a Telco LAN, it only requires that the LAN be connected to the public Internet, and the HTTP server can be on any machine on the Telco LAN. In either case, the subscribers will be able to access the HTTP server from the public Internet.”), 16-26 (Figures depicting access abilities), 31-35 (“High-level Design View” and related description, depicting</p>

Claim	Provisional Support
	<p>“JavaTel Server” including “Dispatcher” which “receives service change transactions from the ServiceChangeAgent [from a subscriber] and routes them to the appropriate Service Manager”), 49-55 (“High-level Walkthrough” noting “ITSOS Server” in system workflow, noting “[t]ranslate[s] service order request to a series of DMS table change requests.”).)</p>
<p>[1d.] a profile repository storing the feature profiles, the profile repository managed by a service manager program on a service manager node,</p>	<p>The An Provisional discloses that “[a]n HTTP server is placed on the machine which stores the feature profiles, or on a machine that has direct (and probably proprietary) access to the machine that does have those profiles.”</p> <p>FIGURE 1.</p>  <p>(See, e.g., Ex. 1006, 9:3-13 (“An HTTP server is placed on the machine which stores the feature profiles, or on a machine that has direct (and probably proprietary) access to the machine that does have those profiles.”), 11:13-25 (“In a preferred aspect of the invention the machine storing the feature profiles is a switch, and Figure 1 illustrates the network configuration using a switch and a nodal system manager as the intermediate machine. The nodal system manager would normally be connected to a plurality of switches.”), 15 (Figure 1 depicting “Nodal System Manager” and “Management software” thereon), 25-28 (depicting “Service Profile” managed by “Service Manager”), 31 (depicting</p>

Claim	Provisional Support
	<p>“ServiceMgr Interface” on “Service Mgmt Node”), 46 (“An <i>ITSOS Agent</i> is needed on the SDM to support RPCs from ITSOS applications.”), 59 (“Make DMS table available to ITSOS server . . . on demand read, creation, deletion, and modification of a tuple.”).)</p>
<p>[1e.] wherein the server performs a protocol conversion dependent on the type of the service manager node.</p>	<p>The An Provisional discloses that the “ServiceManagerAdaptor . . . receives transactions from the Dispatcher, formats them in a ServiceManager specific protocol, and sends them to the ServiceManager.”</p> <p>Figure 8 High-level Design View</p>  <p>(See, e.g., Ex. 1006, 11:19-25 (“The switch is preferably a DMS (digital multiplexing switch) and the nodal system manager may be a Super-node Data Manager (SDM) of Nortel which is a high performance computing platform that provides nodal OAM&P services to DMS platforms. It provides a powerful set of services that allow SDM processes to read, change, delete and add tuples to DMS tables, thus changing customer’s service profiles.”), 29 (depicting multiple Service Managers with corresponding types), 31-35 (“Dispatcher . . . routes transactions to the DNMapper to resolve the subscriber’s DN into the appropriate ServiceManager type and specific address; the actual connections are managed by the ServiceManagerAdaptor,”</p>

Claim	Provisional Support
	<p>high performance computing platform that provides nodal OAM&P services to DMS platforms. It provides a powerful set of services that allow SDM processes to read, change, delete and add tuples to DMS tables, thus changing customer's service profiles. . . . The HTTP server has a communication link to the DMS switch. Through this link the HTTP server will be able to query and change the data tables on the DMS."), 15 (Figure 1 depicting "subscriber clients" accessing "Feature profile HTML pages" with associated "Management software" on "Nodal System Manager"), 25-26 (describing subscriber access to various services and features), 30-31 (depicting "Logistical Architecture" and describing subscriber interaction with "Service Manager . . . The service management service as used by the service provider. It provides the necessary interface to the profile repository, and has a transactional interface to the rest of the world (create, read, update, delete)."), 38 ("ITSOS – A JavaTel Server"), 48-55 (discussing subscriber access and depicting "Client Side UI Scenario," including "Service Order Applet, it accepts user input and notifies Cost Applet").)</p>
<p>[3.] A system according to claim 1 further comprising a subscriber authentication server, wherein a subscriber is prompted to enter identification information which is then authenticated by the authentication server before the subscriber is allowed to view or change the feature profile.</p>	<p>The An Provisional discloses support for this claim.</p>

Claim

Provisional Support

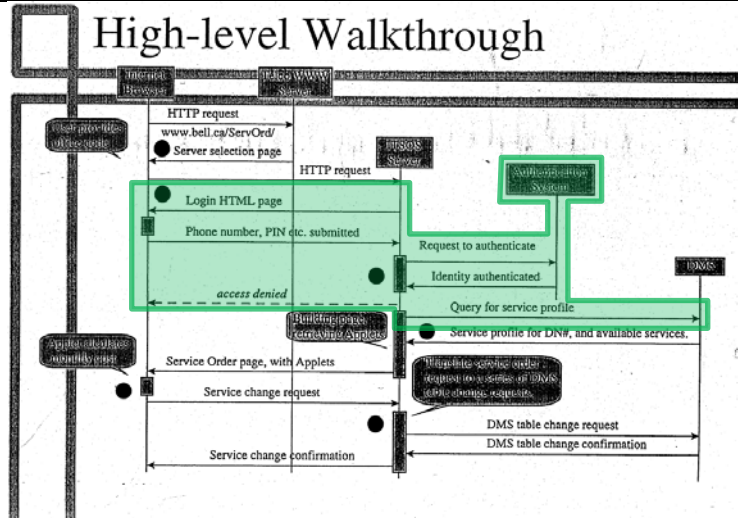
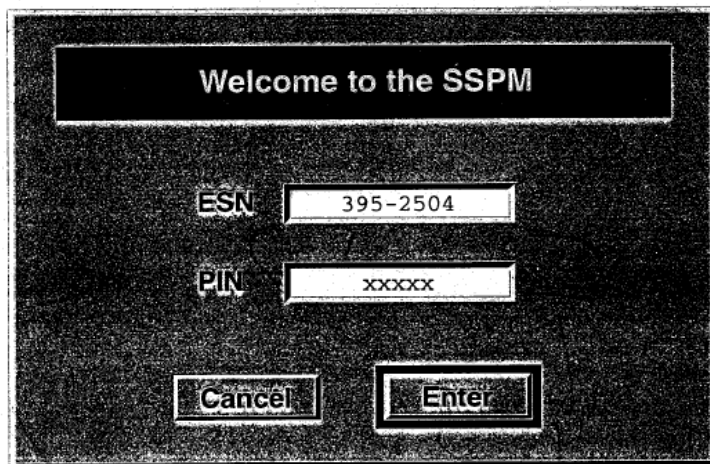
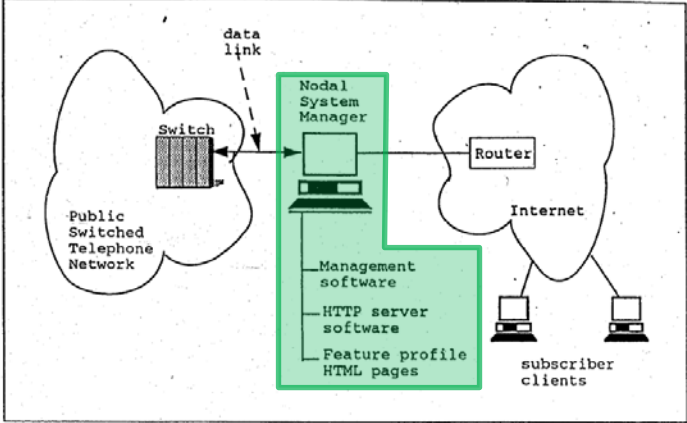


FIGURE 2

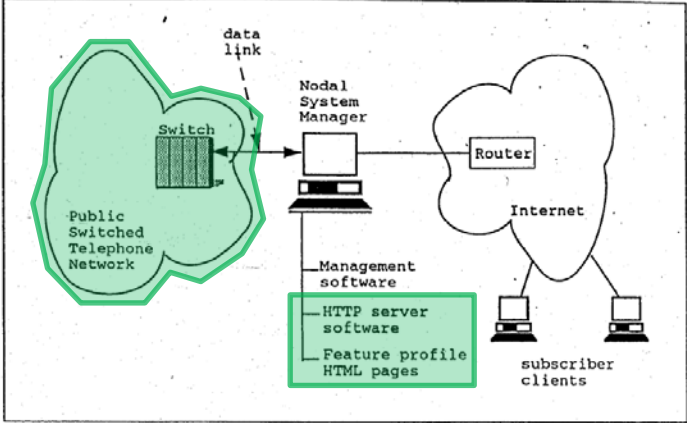


(See, e.g., Ex. 1006, 9:23-26 (“The browser would request the subscriber’s telephone number and the PIN (see Figure 2). On verification of this pair of numbers, the HTTP server would provide access to a series of pages about this particular telephone number.”), 10:19-22 (“A security mechanism which would involve encryption and decryption known per se could be used to prevent revealing PINs to those tapping in on communications lines or intermediate servers or routers.”), 11:1-3 (“The PIN referred to is a Personal Identity Number, which acts as a ‘password’ to authenticate the customer.”), 16 (Figure 2, depicting authentication screen), 30 (“Logical Architecture” depicting

Claim	Provisional Support
	<p>“Authentication Service”), 31-35 (“High-level Design View” depicting “Authentication Server”), 38 (“A JavaTel Server” depicting “Authentication Server”), 44 (“ITSOS Server Applications,” including “Authentication”), 50-52 (describing “Authentication procedures” as part of system).)</p>
<p>[4.] A system according to claim 1 wherein said server also provides access to billing information in relation to the DN.</p>	<p>The An Provisional discloses that “[t]he contents of the pages could be almost without limit, showing perhaps current bill, detailed list of calls etc., as well as current features and cost what-ifs on possible feature complements.” (<i>See, e.g.</i>, Ex. 1006, 9:26-10:1 (“The contents of the pages could be almost without limit, showing perhaps current bill, detailed list of calls etc., as well as current features and cost what-ifs on possible feature complements.”), 44 (“ITSOS Server Applications” listing “Billing”), 49-51 (“Typically [the page] includes the subscriber’s current service profile, other available services, an Applet which will react to user selection and calculates monthly cost etc.”).)</p>
<p>[5.] A system according to claim 1 wherein said server provides cost estimates for features selected by the subscriber.</p>	<p>The An Provisional discloses that “[t]he contents of the pages could be almost without limit, showing perhaps current bill, detailed list of calls etc., as well as current features and cost what-ifs on possible feature complements.” (<i>See, e.g.</i>, Ex. 1006, 9:26-10:1 (“The contents of the pages could be almost without limit, showing perhaps current bill, detailed list of calls etc., as well as current features and cost what-ifs on possible feature complements.”), 44 (“ITSOS Server Applications” listing “Billing”), 49-51 (“Typically [the page] includes the subscriber’s current service profile, other available services, an Applet which will react to user selection and calculates monthly cost etc.”).)</p>
<p>[6.] The system according to claim 1, wherein the server</p>	<p>The An Provisional discloses support for this claim.</p>

Claim	Provisional Support
<p>and the service manager program are each run on the service manager node, and the profile repository is stored on the service manager node.</p>	<p>FIGURE 1.</p>  <p>(See, e.g., Ex. 1006, 9:6-13 (“In the case of the indirect method (our preferred approach), the intermediate machine would have replicas of the real data and the HTTP server would act on them. The intermediate machine would commit the contents of change to the real data at critical points, such as when the customer decides to ‘submit’ his changes. The intermediate machine could also pre-process and validate the request to reduce error and improve efficiency.”), 11:13-18 (“[T]he nodal system manager may be a Super-node Data Manager (SDM) of Nortel which is a high performance computing platform that provides nodal OAM&P services to DMS platforms. It provides a powerful set of services that allow SDM processes to read, change, delete and add tuples to DMS tables, thus changing customer’s service profiles.”), 15 (Figure 1 depicting “Management software, HTTP server software, feature profile HTML pages” on “Nodal System Manager.”), 59-60 (describing data acquisition and server process including synchronization).)</p>
<p>[7a.] A service order system for allowing a subscriber having access to an Internet browser to select which features are active on a</p>	<p>The An Provisional discloses this element. See Table 1, Element [1a], above.</p>

Claim	Provisional Support
subscriber line having a particular directory number, the features being provided by a service provider having a feature profile repository containing feature profile information determining which features are active on the subscriber line, the service order system comprising:	
[7b.] a server in communication with the feature profile repository and also with a communications network	The An Provisional discloses this element. <i>See</i> Table 1, Element [1b], above.
[7c.] for presenting feature profile information on a subscriber's access unit connected to the server through the communications network, and for receiving changes, additions or deletions requested by the subscriber through their access unit,	The An Provisional discloses this element. <i>See</i> Table 1, Element [1c], above.
[7d.] wherein the feature profile repository is managed by a service manager program on a service manager node,	The An Provisional discloses this element. <i>See</i> Table 1, Element [1d], above.
[7e.] and the server performs a protocol conversion dependent on the type of the service manager node.	The An Provisional discloses this element. <i>See</i> Table 1, Element [1e], above.
[8.] A service order system according to claim 7 wherein the profile repository is stored on a switch forming part of the PSTN (public switched telephone network), and the server is an HTTP (hypertext	The An Provisional discloses that "[i]n a preferred aspect of the invention the machine storing the feature profiles is a switch" and "[t]he HTTP server has a communication link to the DMS switch."

Claim	Provisional Support
<p>transport protocol) server which downloads feature profile information to the subscriber's access unit in the form of HTML (hypertext mark-up language) pages.</p>	<p>FIGURE 1.</p>  <p>(See, e.g., Ex. 1006, 9:6-17 (“In the case of the indirect method (our preferred approach), the intermediate machine would have replicas of the real data and the HTTP server would act on them. The intermediate machine would commit the contents of the change to the real data at critical points, such as when the customer decides to ‘submit’ his changes. . . .The machine with the HTTP server would be connected to the public Internet, accessible on the World Wide Web (WWW). Feature profiles will be formulated as HTML pages on the WWW.”), 11:13-18 (“In a preferred aspect of the invention the machine storing the feature profiles is a switch, and Figure 1 illustrates the network configuration using a switch and a nodal system manager as the intermediate machine.”), 15 (Figure 1 depicting “Switch” on “Public Switched Telephone Network”), 26-27 (describing “switch-based services, realized on the switch” and depicting switches forming a part of the PSTN), 50 (“High-level Walkthrough” depicting system operation including use of HTTP server and provision of HTML pages to subscriber).)</p>
<p>[9a.] A service order system according to claim 8 wherein there are a plurality of said profile repositories each</p>	<p>The An Provisional discloses that the “Service Manager [is t]he service management service as used by the Service Provider. It provides the necessary interface to the profile repository, and</p>

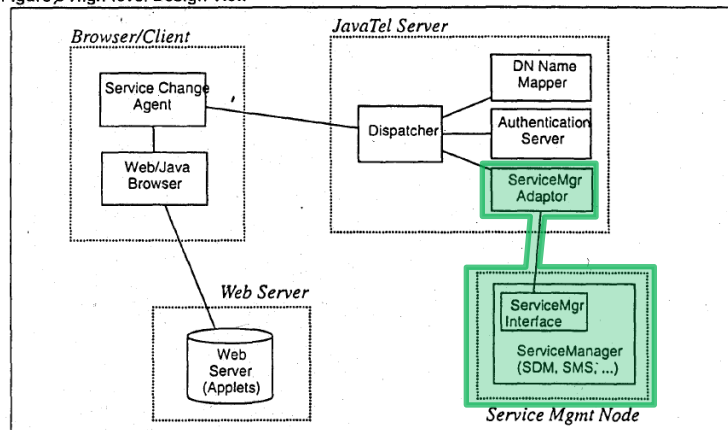
Claim	Provisional Support
<p>managed by a respective service manager program on a respective service manager node, each service manager node having a type;</p>	<p>has a transactional interface to the rest of the world (create, read, update, delete). There may be many Service Managers.” <i>(See, e.g., Ex. 1006, 9:3-13 (“An HTTP server is placed on the machine which stores the feature profiles, or on a machine that has direct (and probably proprietary) access to the machine that does have those profiles. In the case of the indirect method (our preferred approach), the intermediate machine would have replicas of the real data and the HTTP server would act on them. The intermediate machine would commit the contents of the change to the real data at critical points, such as when the customer decides to ‘submit’ his changes.”), 11:13-25 (“In a preferred aspect of the invention the machine storing the feature profiles is a switch, and Figure 1 illustrates the network configuration using a switch and a nodal system manager as the intermediate machine. The nodal system manager would normally be connected to a plurality of switches.”), 15 (Figure 1 depicting “Nodal System Manager” and “Management software” thereon), 27-31 (depicting “Service Profile” managed by “Service Manager,” and depicting “ServiceMgr Interface” on “Service Mgmt Node”), 46 (“An ITSOS Agent is needed on the SDM to support RPCs from ITSOS applications.”), 59 (“Make DMS table available to ITSOS server . . . on demand read, creation, deletion, and modification of a tuple.”).</i></p>
<p>[9b.] wherein the server performs a protocol conversion to convert the profile information received from each service manager node to a form suitable for inclusion in the HTML pages, the protocol conversion being</p>	<p>The An Provisional discloses that the “Service Change Agent . . . interacts with ServiceManagers from Service Providers,” “uses HTML formatting where appropriate,” and the “ServiceManagerAdaptor . . . receives transactions from the Dispatcher, formats them in a ServiceManager specific protocol, and sends them to the ServiceManager.”</p>

Claim

dependent on the type of the service manager node.

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Figure 8 High-level Design View



(See, e.g., Ex. 1006, 9:14-17 (“The machine with the HTTP server would be connected to the public Internet, accessible on the World Wide Web (WWW). Feature profiles will be formulated as HTML pages on the WWW.”), 11:19-25 (“The switch is preferably a DMS (digital multiplexing switch) and the nodal system manager may be a Super-node Data Manager (SDM) of Nortel which is a high performance computing platform that provides nodal OAM&P services to DMS platforms. It provides a powerful set of services that allow SDM processes to read, change, delete and add tuples to DMS tables, thus changing customer’s service profiles.”), 29 (depicting multiple Service Managers with corresponding types), 31-35 (“Dispatcher . . . routes transactions to the DNMapper to resolve the subscriber’s DN into the appropriate ServiceManager type and specific address; the actual connections are managed by the ServiceManagerAdaptor,” “ServiceManagerAdaptor . . . receives transactions from the Dispatcher, formats them in a ServiceManager specific protocol, and sends them to the ServiceManager”), 46 (“ITSOS Deployed with SDM . . . configuration can be easily expanded to allow an ITSOS server to

Claim	Provisional Support
	support multiple DMS’/SDMs”), 55 (“Service Order request processing: When the subscriber commits his order, the http server will fire up the ‘Request Processing’ application, which will translate the request to a series of table change request and send them to DMS for processing.”).)
[10.] A service order system according to claim 9 further comprising a name mapper which determines which service manager controls the feature profile information for a given subscriber directory number.	The An Provisional discloses that the “DN Name Mapper . . . maps Directory Numbers to specific ServiceManager references.” (<i>See, e.g.</i> , Ex. 1006, 31-35.)
[11a.] A method of updating features which are active on a subscriber line having a particular DN (directory number), the method comprising:	The An Provisional discloses this element. <i>See</i> Table 1, Element [1a], above.
[11b.] a subscriber accessing a feature management server with an access device with a connection through a communications network;	The An Provisional discloses this element. <i>See</i> Table 1, Element [1c], above.
[11c.] the feature management server presenting a series of pages on the access device;	The An Provisional discloses that “[a] telephone subscriber would use [a personal computer or other suitable device] and a Universal resource Locator for access to his/her telephone service provider’s server. . . . [T]he HTTP server would provide access to a series of pages about this particular telephone number.”

Claim	Provisional Support
	<p style="text-align: center;">High-level Walkthrough</p> <p>(See, e.g., Ex. 1006, pp. 9:16-10:18 (“Feature profiles will be formulated as HTML pages on the WWW,” “[o]n verification of this pair of numbers, the HTTP server would provide access to a series of pages about this particular telephone number,” and describing Figures 2-10 depicting pages displayed to a user on an access device), 16-24 (Figures 2-10 depicting series of pages), 25-26 (“The Subscriber Service Provisioning Manager (SSPM) is intended to allow an end-user (Service subscriber) to configure various services and features related to their lines or terminals using an access method from their environment, such as their home computer or desk-top computer.”), 48-49 (discussing subscriber access and depicting “Client Side UI Scenario.”).)</p>
[11d.] the subscriber entering their DN on one of the pages and submitting this to the server;	The An Provisional discloses this element.

Claim

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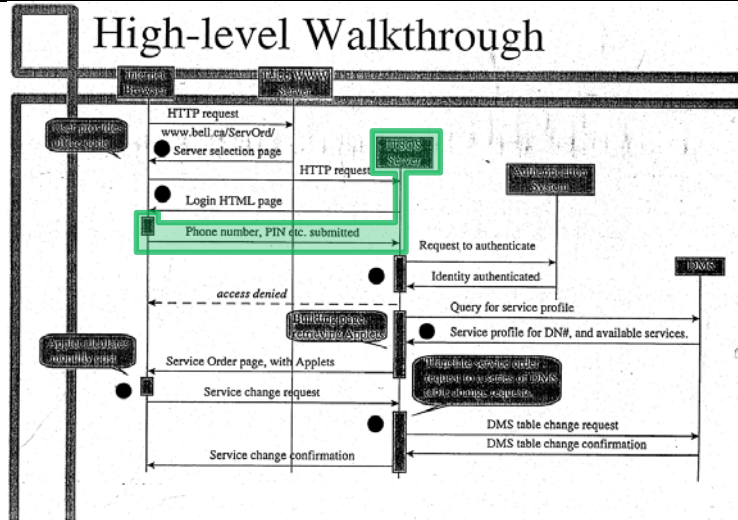


FIGURE 2

The screenshot shows a black background with white text and input fields. At the top, a banner reads "Welcome to the SSPM". Below this, there are two input fields: "ESN" with the value "395-2504" and "PIN" with the value "xxxxxx". At the bottom, there are two buttons: "Cancel" and "Enter".

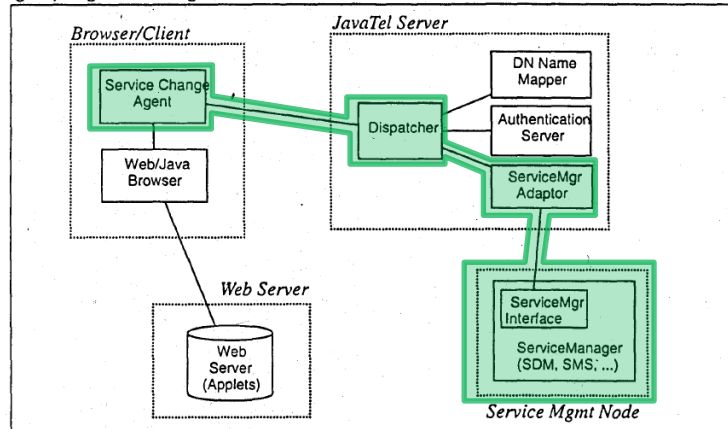
(See, e.g., Ex. 1006, 9:23-26 (“The browser would request the subscriber’s telephone number and the PIN (see Figure 2). On verification of this pair of numbers, the HTTP server would provide access to a series of pages about this particular telephone number.”), 10:19-22 (“A security mechanism which would involve encryption and decryption known per se could be used to prevent revealing PINs to those tapping in on communications lines or intermediate servers or routers.”), 11:1-3 (“The PIN referred to is a Personal Identity Number, which acts as a ‘password’ to authenticate the customer.”), 16 (Figure 2, depicting authentication screen), 30 (“Logical Architecture” depicting

Claim	Provisional Support
	<p>“Authentication Service”), 31-35 (“High-level Design View” depicting “Authentication Server”), 38 (“A JavaTel Server” depicting “Authentication Server”), 44 (“ITSOS Server Applications,” including “Authentication”), 50-52 (describing “Authentication procedures” as part of system).)</p>
<p>[11e.] the server collecting from a feature profile repository feature profile information relevant to the DN entered by the subscriber, performing a protocol conversion dependent upon a type of service node containing a service manager program that manages the feature profile repository, and presenting this feature profile information on one or more of the pages;</p>	<p>The An Provisional discloses that the “Service Change Agent . . . provides the User Interface for accessing, browsing, and modifying subscriber service profile information,” the “Dispatcher . . . routes transactions to the DNMapper to resolve the subscriber’s DN into the appropriate ServiceManager type and specific address,” and “ServiceManagerAdaptor . . . receives transactions from the Dispatcher, formats them in a ServiceManager specific protocol, and sends them to the ServiceManager.”</p>

Claim

Provisional Support

Figure 3 High-level Design View



High-level Walkthrough

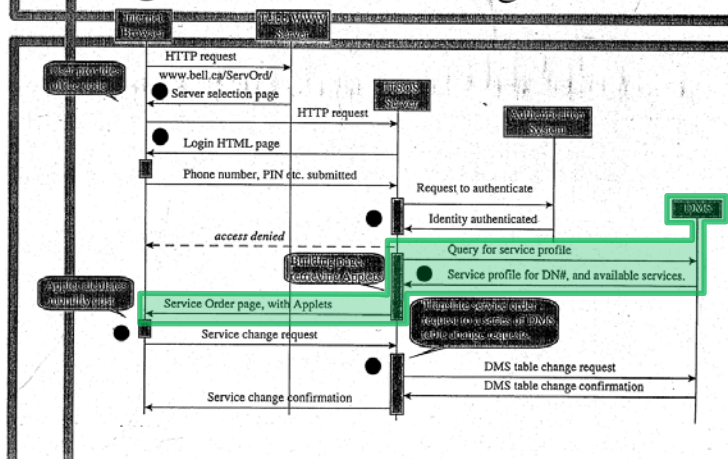
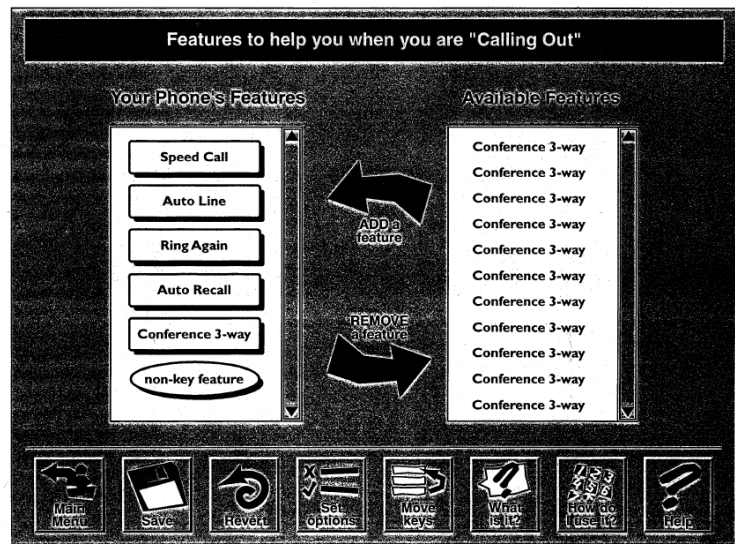


FIGURE 4

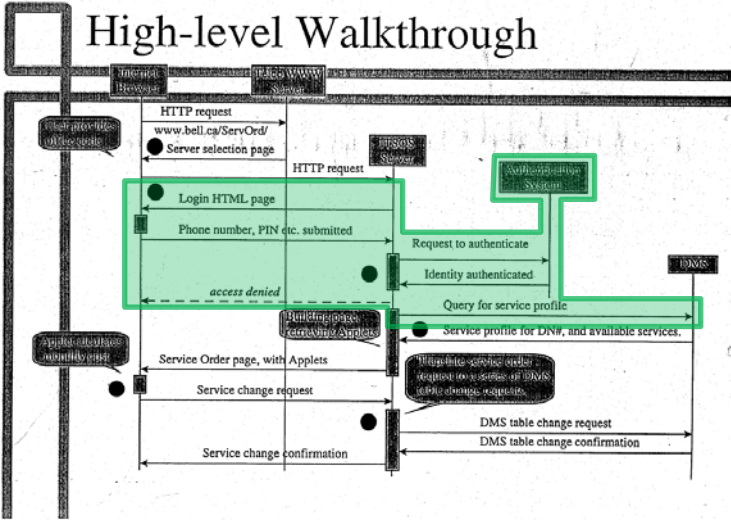
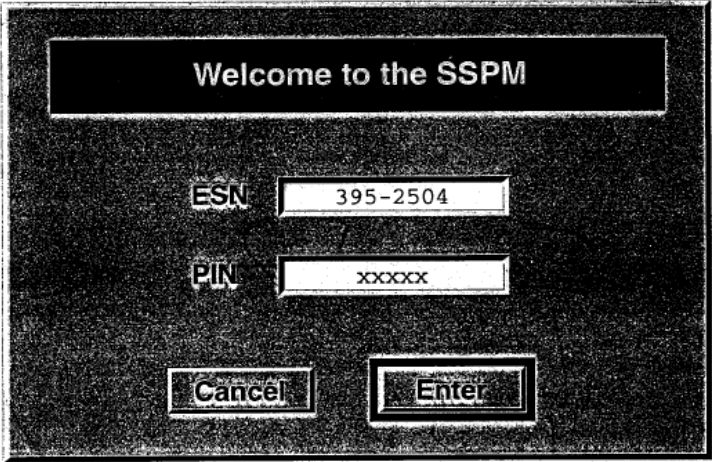


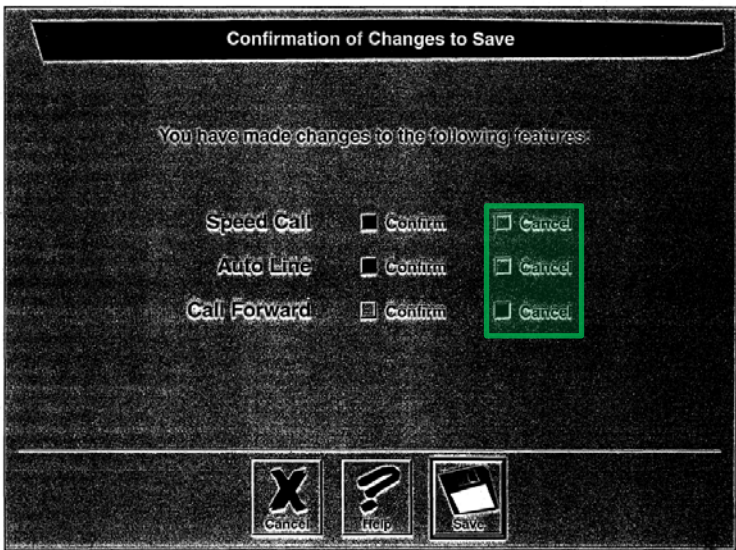
(See, e.g., Ex. 1006, 9:3-10:4 ("An HTTP server is placed on the machine which stores the feature

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	<p>profiles, or on a machine that has direct (and probably proprietary) access to the machine that does have those profiles. In the case of the indirect method (our preferred approach), the intermediate machine would have replicas of the real data and the HTTP server would act on them. The intermediate machine would commit the contents of the change to the real data at critical points, such as when the customer decides to ‘submit’ his changes.”), 11:19-25 (“The switch is preferably a DMS (digital multiplexing switch) and the nodal system manager may be a Super-node Data Manager (SDM) of Nortel which is a high performance computing platform that provides nodal OAM&P services to DMS platforms. It provides a powerful set of services that allow SDM processes to read, change, delete and add tuples to DMS tables, thus changing customer’s service profiles.”), 15-24 (Figures 2-10, depicting series of screens), 29 (depicting multiple Service Managers with corresponding types), 31-35 (“Dispatcher . . . routes transactions to the DNMapper to resolve the subscriber’s DN into the appropriate ServiceManager type and specific address; the actual connections are managed by the ServiceManagerAdaptor,” “ServiceManagerAdaptor . . . receives transactions from the Dispatcher, formats them in a ServiceManager specific protocol, and sends them to the ServiceManager”), 46 (“ITSOS Deployed with SDM . . . configuration can be easily expanded to allow an ITSOS server to support multiple DMS’/SDMs”), 55 (“Service Order request processing: When the subscriber commits his order, the http server will fire up the ‘Request Processing’ application, which will translate the request to a series of table change request and send them to DMS for processing.”).)</p>
[11f.] the subscriber selecting,	The An Provisional discloses that “[v]ia a

Claim	Provisional Support
<p>on one or more of the pages, changes, additions, or deletions for the feature profile information and submitting this to the server; and</p>	<p>mechanism such as an HTML ‘form’ or a Java ‘applet’, a subscriber can activate/deactivate features and change the parameters of those features, on-line.”</p> <p>High-level Walkthrough</p> <p>(See, e.g., Ex. 1006, 9:23-10:18 (“Via a mechanism such as an HTML ‘form’ or a Java ‘applet’, a subscriber can activate/deactivate features and change the parameters of those features, on-line. Submission of the ‘form’ will modify his ‘profile.’ . . . Figure 3 illustrates a first screen display that might be presented after verification. This specifies different categories of interest. By pointing and clicking on ‘calling out’ the screen display shown in Figure 4 is presented. This shows the subscriber the features on his profile and enables him to update this by pointing and clicking.”), 15-24 (Figures 2-10, depicting series of screens), 25-26 (“The Subscriber Service Provisioning Manager (SSPM) is intended to allow an end-user (Service subscriber) to configure various services and features related to their lines or terminals using an access method from their environment, such as their home computer or desk-top computer.”), 31-35 (“Service Change Agent . . . interacts with the JavaTel services to query and modify service</p>

Claim	Provisional Support
	<p>profile information in the relevant ServiceManager”), 49-55 (describing server permitting subscriber access to feature profile and ability to view or change features).)</p>
<p>[11g.] the server making corresponding changes to the feature profile repository.</p>	<p>The An Provisional discloses support for this element.</p> <p>High-level Walkthrough</p> <p>(See, e.g., Ex. 1006, 9:6-11 (“In the case of the indirect method (our preferred approach), the intermediate machine would have replicas of the real data and the HTTP server would act on them. The intermediate machine would commit the contents of change to the real data at critical points, such as when the customer decides to ‘submit’ his changes.”), 31-35 (“High-level Design View” and related description, depicting “JavaTel Server” including “Dispatcher” which “receives service change transactions from the ServiceChangeAgent [from a subscriber] and routes them to the appropriate Service Manager”), 38-40 (“A JavaTel Sever” depicting system setup, “<i>Server provides programmability to any Service Provider in any network</i>” (emphasis in original)), 50 (“High-level Walkthrough” noting “ITSOS Server” in system workflow, noting “[t]ranslate[s] service order request to a series of DMS table change</p>

Claim	Provisional Support
<p>[12.] A method according to claim 11 further comprising: the subscriber entering security information together with the DN; and the server performing authentication on the security information before allowing the subscriber access to the feature profile information.</p>	<p>requests.”).)</p> <p>The An Provisional discloses this element.</p> <p>High-level Walkthrough</p>  <p>FIGURE 2</p>  <p>(See, e.g., Ex. 1006, 9:23-26 (“The browser would request the subscriber’s telephone number and the PIN (see Figure 2). On verification of this pair of numbers, the HTTP server would provide access to a series of pages about this particular telephone number.”), 10:19-22 (“A security mechanism which would involve encryption and decryption known per se could be used to prevent revealing PINs to those tapping in on communications lines or intermediate servers or routers.”), 11:1-3 (“The PIN referred to is a Personal Identity Number, which acts as a</p>

Claim	Provisional Support
	<p>‘password’ to authenticate the customer.”), 16 (Figure 2, depicting authentication screen), 30 (“Logical Architecture” depicting “Authentication Service”), 31-35 (“High-level Design View” depicting “Authentication Server”), 38 (“A JavaTel Server” depicting “Authentication Server”), 44 (“ITSOS Server Applications,” including “Authentication”), 50-52 (describing “Authentication procedures” as part of system).)</p>
<p>[13.] A method according to claim 11 further comprising the server providing on the access device information pertaining to the cost of the selected feature profile, wherein the subscriber is given the option of cancelling the submission of the changes made to the feature profile.</p>	<p>The An Provisional discloses that “[t]he contents of the pages could be almost without limit, showing perhaps current bill, detailed list of calls etc., as well as current features and cost what-ifs on possible feature complements.”</p> <p>FIGURE 10</p>  <p>(See, e.g., Ex. 1006, 9:26-10:1 (“The contents of the pages could be almost without limit, showing perhaps current bill, detailed list of calls etc., as well as current features and cost what-ifs on possible feature complements.”), 22 (Figure 8, depicting “Revert” selection), 24 (Figure 10, depicting “Cancel” selection), 44 (describing “Billing” as a “Server Application”), 49-51 (“Typically [the page] includes the subscriber’s current service profile, other available services,</p>

Claim	Provisional Support
	an Applet which will react to user selection and calculates monthly cost etc.”).)
[14a.] A method of updating features which are active on a subscriber line having a particular DN (directory number), the method comprising:	The An Provisional discloses this element. <i>See</i> Table 1, Element [1a], above.
[14b.] a subscriber accessing a feature management server with an access device over a communications network;	The An Provisional discloses this element. <i>See</i> Table 1, Element [1c], above.
[14c.] the subscriber receiving from the feature management server one or more pages on the access device;	The An Provisional discloses this element. <i>See</i> Table 1, Element [11c], above.
[14d.] the subscriber entering a DN on at least one of the one or more pages and submitting this to the feature management server;	The An Provisional discloses this element. <i>See</i> Table 1, Element [11d], above.
[14e.] the subscriber receiving feature profile information on one or more additional pages, wherein the feature profile information is from a feature profile repository which is managed by a service manager program on a service manager node, the feature profile information is relevant to the DN entered by the subscriber, and a protocol conversion is performed dependent upon a type of the service manager node; and	The An Provisional discloses this element. <i>See</i> Table 1, Element [11e], above.
[14f.] the subscriber selecting, on at least one of the one or	The An Provisional discloses this element. <i>See</i> Table 1, Element [11f], above.

Claim	Provisional Support
more additional pages, changes, additions, or deletions for the feature profile information and submitting this to the feature management server.	
[15a.] A method of updating features which are active on a subscriber line having a particular DN (directory number), the method comprising:	The An Provisional discloses this element. <i>See</i> Table 1, Element [1a], above.
[15b.] a feature management server being accessed by an access device;	The An Provisional discloses this element. <i>See</i> Table 1, Element [1c], above.
[15c.] the feature management server sending at least one first page to the access device;	The An Provisional discloses this element. <i>See</i> Table 1, Element [11c], above.
[15d.] the feature management server receiving at least one second page in which a DN has been entered;	The An Provisional discloses this element. <i>See</i> Table 1, Element [11d], above.
[15e.] the feature management server collecting from a feature profile repository feature profile information relevant to the DN, performing a protocol conversion dependent upon a type of a service node containing a service manager program that manages the feature profile repository, and sending this feature profile information in at least one third page;	The An Provisional discloses this element. <i>See</i> Table 1, Element [11e], above.
[15f.] the feature management server receiving at least one fourth page containing at least	The An Provisional discloses this element. <i>See</i> Table 1, Element [11f], above.

Claim	Provisional Support
one change, addition, or deletion to the feature profile information; and	
[15g.] the feature management server making one or more corresponding changes to the feature profile repository.	The An Provisional discloses this element. <i>See</i> Table 1, Element [11g], above.

27. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with full knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: June 24, 2016

Nader F. Mir

Nader F. Mir, Ph.D.