

# APPLICATION FOR PATENT UNDER 37 C.F.R. §1.53(c)

## TRANSMITTAL FORM

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03/30/99  
JCS15 U.S. PTO

PROX PROVISIONAL PATENT APPLICATION  
Assistant Commissioner for Patents  
Washington, D.C. 20231

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*Willie Jiles*  
Willie Jiles

JCS41 U.S. PTO  
60/127169  
03/30/99

Dear Sir:

Enclosed application parts are:

☒ Spec w/o Claims      Number of Pages 9  
☒ Informal drawings      Number of Sheets 5  
☒ Verified Statement Claiming Small Entity Status (unsigned)

Inventor(s):

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TITLE OF INVENTION:

*IntelligentIP*

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Was this invention made under a Government contract? ☒ No ☐ Yes

Identify contract and the Government agency: \_\_\_\_\_

Enclosed is a check in the amount of \$75.00 for the filing fee. The Commissioner is authorized to charge any extra fees or credit any overpayment to Deposit Account No. 02-0384 of Baker & Botts, L.L.P. This form is transmitted in duplicate.

Respectfully submitted,

*Wei Wei Jeang*  
Wei Wei Jeang

Registration No. 33,305

Date *March 30, 1999*

**PROVISIONAL APPLICATION FOR PATENT ONLY**

Applicant or Patentee: Duke Kaczmarczyk, et al.  
Serial or Patent No. TBD  
Filed or Issued: Filed March 30, 1999  
Title: INtelligentIP

Attorney's Docket 065968.0104

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) & 1.27(c)) -- SMALL BUSINESS CONCERN**

I hereby declare that I am an official of the small business concern empowered to act on behalf of the concern identified below:

Name of Small Business Concern: Telecom Technologies, Inc.  
Address of Small Business Concern: 1701 N. Collins Blvd., Suite 3000  
Richardson, Texas 75080

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled *INtelligentIP* by inventors Duke Kaczmarczyk and Siva Ravikumar, described in the specification filed herewith.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e):

NONE

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or my maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby 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 the 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, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Person Signing: Anousheh Ansari  
Title of Person if other than owner: President and CEO  
Address of Person Signing: 1701 N. Collins Blvd., Suite 3000  
Richardson, Texas 75080

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

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INtelligentIP

TECHNICAL FIELD OF THE INVENTION

This invention is related to the field of telecommunications network and equipment, and more particularly, to a new intelligent peripheral (IP) solution set, INtelligentIP.

BACKGROUND OF THE INVENTION

The intelligent peripheral or IP is a network node in the intelligent network (IN) or advanced intelligent network (AIN) that uses the signaling system no. 7 (SS7) international standard protocol for sending messages. The intelligent peripheral was designed to be the network node, under control of the service switching point (SSP), that facilitates customer interaction, which may contain voice message storage, facsimile storage, voice prompting, tone decoders, voice synthesis, and conference circuits. However, these functionalities are limited and that the intelligent peripheral was envisioned to be not quite so intelligent.

There are several limitations in the voice (wireline and wireless) and data communications networks being able to communicate together. Currently, a customers using one type of network may not have access to features provisioned in another type of network. Further, the quality of service may differ for customers on one network versus another.

In wireless voice technology using AMPS (advanced mobile phone service), CDMA (code division multiplex access), TDMA (time division multiplex access), GSM (global standard for mobile communications), the current wireless infrastructure supports a traditional digital voice switch connected to an array of radios and adjunct systems such as voice mail systems, location registers, billing systems and other networks. Some of the issues facing wireless network are: high cost and laborious initial turn up, reoccurring support, and network maintenance.

In H.323 network environment for voice over IP (internet protocol), unlike the traditional voice (telephony) infrastructure, the current H.323

implementation are not feature rich and lack network management.

At this time a single solution set does not exist,  
that will provide all the capabilities, features and  
5 functionality to address the above limitations and  
challenges.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a block diagram of the INtelligentIP of the present invention shown supporting communications to SS7/STP/SCP, voice, video, data, wireless networks, PSTN networks, ATM networks, IP networks, and IPDC/MGCP/H.323/SIP;

FIGURE 2 is a more detailed block diagram of the INtelligentIP of the present invention;

FIGURE 3 is another more detailed block diagram of the INtelligentIP of the present invention showing connectivity to the various networks;

FIGURE 4 is a more detailed block diagram of the INtelligentIP of the present invention showing INtelligentIP serving as an interface between local exchange companies and competitive local exchange companies and various networks; and

FIGURE 5 is a more detailed block diagram of the INtelligentIP of the present invention showing an evolution step.

DESCRIPTION OF INVENTION

INtelligentIP solution set is an integrated hardware and software solution which provides the capability to receive signaling messages from any type of network and transmit the messages across a different network, keeping the existing customer feature set. This solution bridges the gap between packet based networks and traditional PSTN communications to advance lower cost, and high revenue value-added services.

This solution set allows for decoupling of service intelligence from transport equipment and unburdens the switch and router hardware of sophisticated call processing tasks, freeing them to concentrate on their main task: transmitting information across a network with minimal transmission delay.

INtelligentIP solution set allows the telecommunications companies, such as CLECs and LECs (competitive local exchange companies and local exchange companies), to use the cheaper internet protocol/packet networks for transmission of their voice traffic while maintaining features and quality of service where applicable.

In the wireless arena, the INtelligentIP solution set will use multi-point wireless T1 radios from the traditional CDMA base station system (BSS) radio to the mobile-service switching center (MSC) or switching vehicle. The protocol used on the wireless T1 radios will be TCP/IP (transmission control protocol/internet protocol) with the wireless gateway located at the CDMA BSS radio facility. Additionally, the INtelligentIP will build the switching vehicle (MSC replacement) in an LAN/WAN (local area network/wide area network) configuration. PSTN (public switched telephone network) gateways will be located on the MSC LAN/WAN. The INtelligentIP allows for a faster radio

turn up, seamless hand over within one providers network as well as long distance call capabilities internal to the providers LAN/WAN network.

5 The solution set also comprises of network management, billing, and LDAP servers. The software development for the solution set (applications, servers, interfaces, translation and routing, etc.) may use object oriented programming software and techniques, such as CORBA, C++, JAVA, ObjectStore (OODBMS), and VisiBroker (CORBA).

10 This invention may be used by data communication companies, voice communication companies, ISPs (internet service providers), CLECs, LECs, long distance providers, wireless communication companies, etc., to interface to other networks such as ATM (asynchronous transfer mode),  
15 frame relay, H.323, internet, voice, wireless, etc.

The focus of the INtelligentIP is to provide:

- Telephony class independence
- Protocol independence
- Interface hardware vendor independence
- 20 • Telephony network authorization, i.e. support features such as:
  - Originating IP address
  - ANI (automatic number identification)
  - Pre or post dialed authorization codes
  - 25 • Account codes
  - Time-of-day/Day-of-week routing
  - Calling card
  - Interactive Voice Response
  - Credit Card
  - 30 • LDAP
  - Wireless home location register (HLR)



- Dialed digits translation, i.e. support features such as:
  - Route around/route anywhere
  - Follow-U-Anywhere
  - IP Home Location Register
  - NANP (North American numbering plan) to IP and vise versa
- Route selector:
  - Traditional Telephony Route choices
  - IP network provider route choices
  - IP network tunnel route choices
  - ATM route choices
  - Frame relay choices

FIGURE 1 is a block diagram of the INTelligentIP of the present invention shown supporting communications to SS7/STP/SCP, voice, video, data, wireless networks, PSTN networks, ATM networks, IP networks, and IPDC/MGCP/H.323/SIP.

FIGURE 2 is a more detailed block diagram of the INTelligentIP of the present invention. INTelligentIP includes a switch coupled to a network management server, a billing server, an LDAP server, an H.323 gatekeeper, and other application servers.

FIGURE 3 is a more detailed block diagram of the INTelligentIP of the present invention. INTelligentIP includes a number of application program interfaces (APIs) for serving as switch interfaces to application servers and H.323 gatekeeper. Further, the switch communicates with the network management server via an SNMP/HTTP communications link. Call detail records (CDRs) are generated by the billing server. The service management server is further coupled to a service plan database, an authentication database, and a routing database. Service

plan database contains the service plans and features for the customers. The authentication database may contain information that may be used to authenticate a caller or called party or a service plan usage. The routing database  
5 may contain call routing information. The switch is further coupled to a modem shelf via a PRI/Q.SIG link and to a customer premise equipment (CPE) or private branch exchange (PBX) via an ISDN/PRI link. The switch is further coupled to the SS7 network, PSTN network, IP/ATM network,  
10 and wireless network as described above.

FIGURE 4 is another block diagram of the INtelligentIP of the present invention. INtelligentIP may be coupled to local exchange companies (LEC) or competitive local exchange companies (CLEC) via a data link such as T1/E1,  
15 T3, or other similar links. The local exchange companies and competitive local exchange companies service facsimile terminals, telephones, private branch exchanges, data/voice routers, etc. INtelligentIP serves as a gateway for the local exchange companies and competitive local exchange companies to all types of networks, such as PSTN, ATM, IP,  
20 and wireless.

FIGURE 5 is a block diagram showing another embodiment of the INtelligentIP operating in the telecommunications network. One or more INtelligentIPs may serve as points of presence (POP) in the network, coupled together by optical  
25 IP or ATM backbone links. INtelligentIPs are coupled to central offices (CO) via T1/E1, DS3/E3, or optical OCx data links. The central offices interface with facsimile terminals, telephones, private branch exchanges, data/voice routers, PC/WS/servers, etc. INtelligentIPs are further  
30 coupled to interconnected INtelligent peripherals (INtelligentP), which are coupled to signal transfer point

(STP) or service control point (SCP) via SS7 communications links.

# Type of communications supported

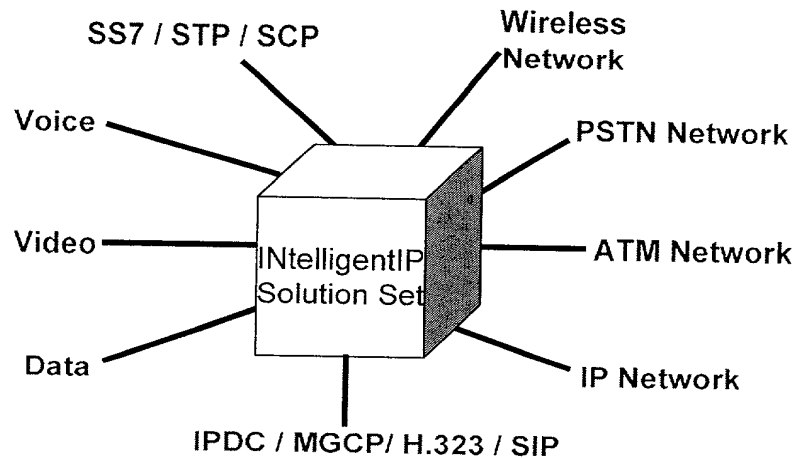


FIGURE 1

# The Box

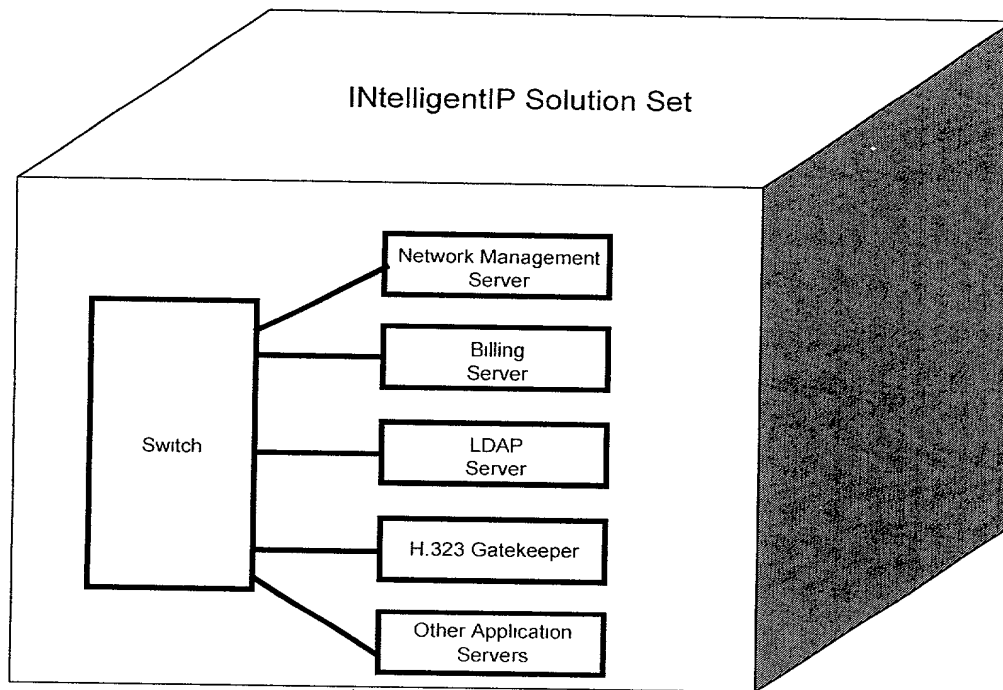


FIGURE 2

# The Box (continued)

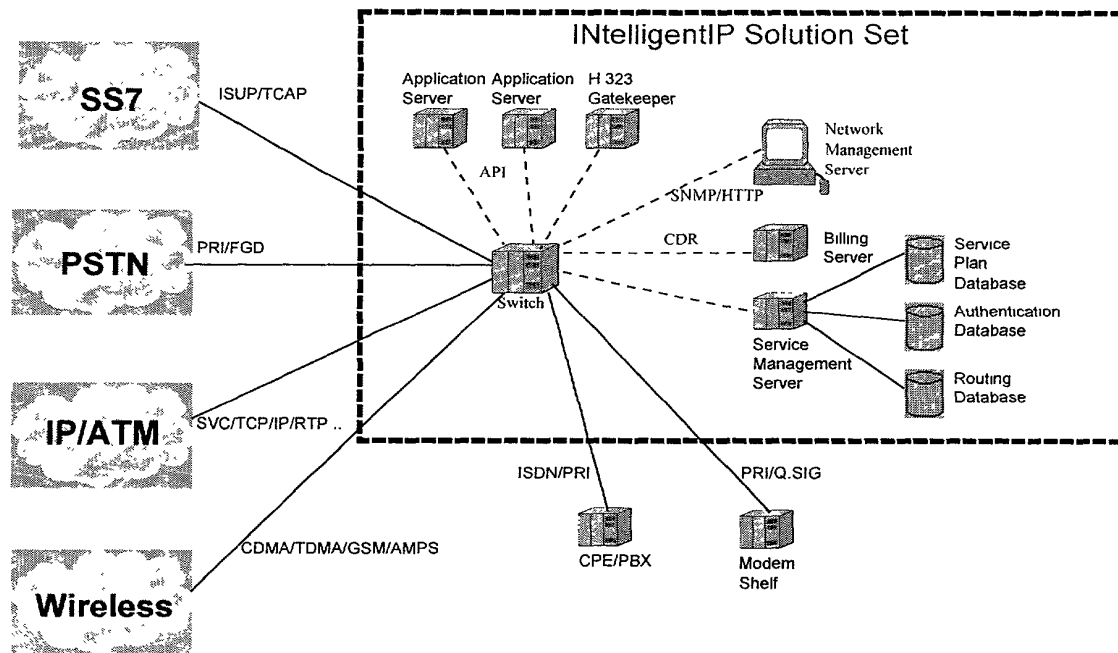


FIGURE 3

# The Solution

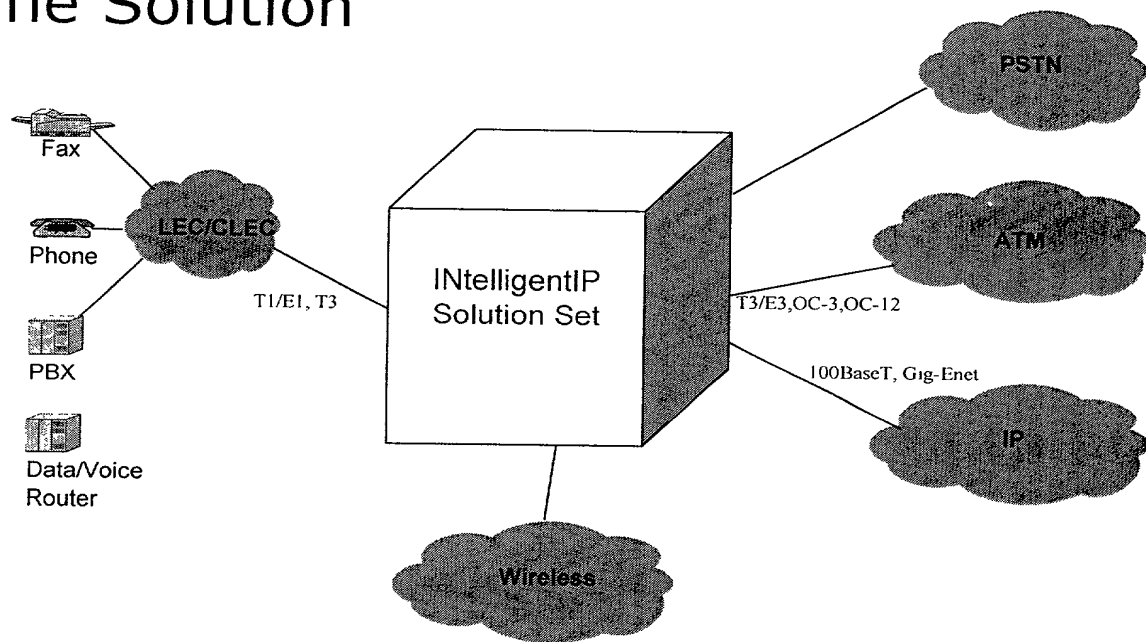


FIGURE 4

# Evolution

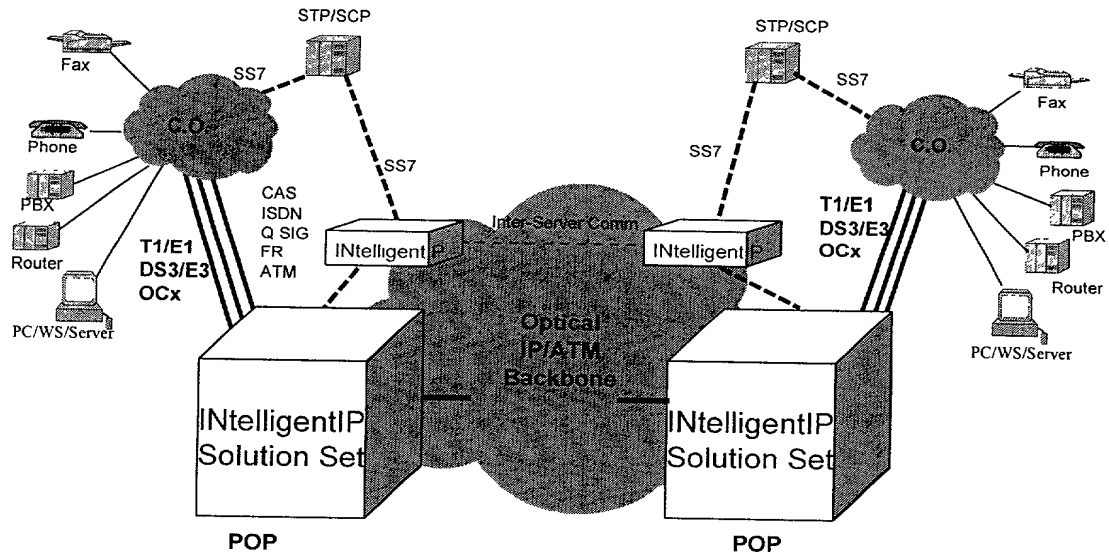


FIGURE 5