EXHIBIT 31 b

the appropriate network elements in box 535 which will typically result in a communication path through the network elements and connections. Other activity, such as applications and control procedures might be implemented as well. Additionally, in boxes 530 and 540, signals are formulated and sent to the points. Typically the new signals generated by the CCP are sent to network elements or multiple signaling points. These new signals could be the same, however different signaling is typically sent to the different network elements which may used as part of a communication path.

Figure 5 represents the sequence that the CCP performs in one embodiment to control communications and establish a communication path from a first point to a second point through network elements and connections. Figures 6 and 7 represent a similar sequence, and they are in the context of an Interexchange Carrier (IXC) similar to that depicted in Figure 3. The IXC accepts DS0 connections and SS7 signaling from a LEC and employs a broadband system to make the substantial portion of the communication path.

Figure 6 depicts the flow of the CCP in a version of the present invention when a communication path is established from the LEC to a narrowband switch in the IXC. Box 600 shows that an SS7 message is accepted from the LEC which contains a Message Transfer Part (MTP) and an Integrated Service User Part (ISUP). As those skilled in the art are aware, the MTP contains the Originating Point Code (OPC) and the Destination Point Code (DPC). These point codes define specific signaling points in the network and are typically associated with a switch. As such, the OPC and DPC define a portion of the desired communication path.

When the communication path is extended into the IXC network, the OPC designates the LEC switch that connected to the IXC (#325 on Figure 3). Previously, the DPC has

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designated the narrowband switch that the LEC would connect to for calls into the IXC. In this embodiment of the present invention, the DPC may designate a particular narrowband switch from the LEC's perspective, but the CCP actually selects the actual narrowband switch used. A mux or a broadband switch accepts the connection from the LEC, not a narrowband switch.

The ISUP contains the Circuit Identification Code (CIC) which designates the DS0 port that the LEC has seized. Previously, this DS0 Port was on a narrowband switch, but in this embodiment of the present invention, the DS0 port is actually on a mux.

Box 605 shows that the CCP may receive status information from the narrowband switches. These messages include Operational Measurements (OM) and CPU Occupancy information. OM includes trunk usage status of the switches which tells the CCP which DS0 ports are available on the narrowband switches. CPU Occupancy tells the CCP of the specific switching load of each narrowband switch. Box 610 shows that the CCP may also accept status information from the broadband switches indicating which connections are idle. This information allows the CCP to specify and balance routing through the broadband switches if desired. As discussed in relation to some of the other embodiments, the broadband switches may be left with that selection.

The CCP processes the information it has received in box 615. Those skilled in the art are aware of other information which would be useful in this context. As a result of the processing, a narrowband switch and a DS0 port on that switch are typically selected as shown in box 620. The selected narrowband switch may be close to the LEC or across the broadband network. The CCP determines which narrowband switch will process the call. This makes the narrowband switches virtually interchangeable.

Box 625 shows that a signal indicating these

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selections is generated and sent to the appropriate broadband switches in box 635. As discussed, the broadband switches may employ interworking units to handle signaling. Typically, the broadband switches will use internal tables to select broadband connections based on information in the signal from the CCP. Such information might identify the existing extent of the communication path and specify the narrowband switch and the DS0 port on that switch to which the communication path should be extended. The tables would be entered with this information and yield a particular broadband connection to use. Broadband switches further along the communications path could also receive similar signals from the CCP and use similar tables. Alternatively, the broadband switches further along the communications path might only need to enter an internal table using the incoming broadband connection and yield a new broadband connection on which to extend the communications path.

Those skilled in the art are familiar with broadband systems which can accomplish this. Broadband signaling is discussed in the following ITU-TS Recommendations: Q.2762 "B-ISDN, B-ISDN User Part - General Functions of Messages"; Q.2763 "B-ISDN, B-ISDN User Part - Formats and Codes"; Q.2764 "B-ISDN, B-ISDN User Part - Basic Call Procedures"; Q.2730 "B-ISDN, B-ISDN User Part - Supplementary Services"; Q.2750 "B-ISDN, B-ISDN User Part to DSS2 Interworking Procedures"; and Q.2610 "Usage of Cause and Location in B-ISDN User Part and DSS2".

In at least one embodiment, the broadband switches are equipped with signaling interworking units. These units translate SS7 messages into B-ISDN messages. In that event, the CCP could transmit SS7 to the broadband switches which could convert the signals properly. Interworking is discussed in ITU-TS Recommendation Q.2660, "B-ISDN, B-ISUP to N-ISUP Interworking".

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In one embodiment, the broadband switches may select the actual virtual connection that corresponds through a mux to a DS0 port. This DS0 port could be on a narrowband switch or at on a point, such as a LEC switch. In this case, the CCP would not need to select a DS0 port since the broadband switch was in effect doing so. The internal tables of the broadband switches would be programmed to trigger when the particular broadband switch was connecting to particular broadband connections. These connections might be to a DS0 port on a narrowband switch or any specified point. Upon the trigger, the broadband switch would signal the CCP of the broadband connection it has used. The CCP would incorporate this information into the signal it sends to the narrowband switch or specified point. It is preferred that the CCP select the DS0 port on the selected narrowband switches, and that the broadband switches be allowed to select the broadband connection out of the network (through a mux) and signal the CCP of its selection.

The SS7 message from the LEC informed the CCP which DS0 port had been seized (the CIC), on which IXC device (DPC), and by which LEC switch (the OPC). By tracking the DS0 Port through the mux (#380 on Figure 3), the CCP knows which connection the communication path will use to get to the broadband switch (#360 on figure 3). The CCP provides the broadband network with the proper signaling to extend the communication path from this switch to the selected narrowband switch as shown in box 635.

Box 630 shows that the CCP formulates an SS7 message based on the selections relating to the narrowband switch. SS7 message formulation methods, such as drop and insert, are known in the art. A new DPC is inserted that will designate the narrowband switch selected by the CCP. A new CIC is inserted that will designate the DS0 port on that switch as selected by the CCP. The SS7 message is sent to

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the narrowband switch in box 640.

As such, the communication path is extended from the LEC through the broadband network to the narrowband switch, and the narrowband switch is notified of the incoming communication path. Another portion of the SS7 message contains call information including ANI and DNIS. This information was supplied by the LEC and is in the SS7 message sent to the narrowband switch.

The narrowband switch uses this information along with its own programming to switch the call. This switching may include various switching programs and remote databases. The narrowband switch will select a new DPC based on this processing. It will switch the call to a new DS0 port. Previously, this port was connected to a trunk connected to the next narrowband switch in the call routing scenario. However, in the present invention, the DS0 port is connected through a mux to broadband switch. The narrowband switch will place the new DPC in an SS7 message. Along with the new DPC, a new CIC identifying the new DS0 circuit, and a new OPC designating the narrowband switch itself is placed in the SS7 message and sent to the CCP.

Figure 7 shows the flow of the CCP when extending a communication path from the selected narrowband switch to a point outside of the IXC in one embodiment of the present invention. The SS7 message generated by the narrowband switch after processing the call is received by the CCP in box 700. In it, the CIC designates the DS0 port the communications path extends from on the narrowband switch. Because this port is connected to a mux with corresponding connections, the CCP can determine which connection the communication path uses to extend back to the broadband switch.

The CCP may also receive status information from the broadband switches as shown in box 705. This information allows the CCP to select broadband connections if desired.

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As discussed, the broadband switches may make these selections. Typically, the broadband switches will use internal tables to select broadband connections based on information in the signal from the CCP. Such information might specify destination code. The destination code might correspond to a terminating switch or a LEC switch to which the communication path should be extended.

As shown in box 710, the CCP applies processing and selects the appropriate destination for the broadband network to extend the communication path to as shown in box 715. The CCP may use the new DPC provided by the narrowband switch to identify the destination for the broadband communication path.

In box 720, signals are generated reflecting this selection and sent to the appropriate broadband switches in box 725. As discussed, the broadband switch may trigger and signal the CCP when it uses particular connections. This would occur for a connection through a mux to a LEC switch. This signal is accepted by the CCP in box 730 and is used to identify the DS0 port. An SS7 message is formulated in box 735 and in it the CIC will identify this DS0 connection on the LEC switch (#335 on Figure 3). Alternatively, this DS0 port may have been selected by the CCP and signalled to the broadband switch. The LEC is signalled in box 740.

From Figures 6 and 7, a sequence is shown that demonstrates the procedures that the CCP can follow to accept signaling from the LEC and make selections that control communications through the IXC network. The CCP must produce signals to implement its selections and transmit them to the applicable network elements. The CCP is able to use the routing, billing, and service features of a narrowband switch, but is still is able to employ a broadband network to make a substantial part of the communications path.

Figure 8 is a flow diagram of CCP signal processing in one embodiment of the invention. Box 800 shows that an SS7 signal has been accepted by the CCP. Box 805 shows that the CCP determines the message type. If the message is not a call message, it is routed or used to update the CCP memory if appropriate as shown in box 810. Non-call messages are familiar to those skilled in the art with examples being filler or management messages. If the SS7 message is a call message, it is examined to determine if it is an initial address message (IAM) in box 815. Call messages and IAMs are familiar to those skilled in the art. If it is an IAM, the information provided by automatic number identification (ANI) is used to validate the call in box 820. ANI validation is accomplished with a table look-up and is well known. If invalid, the communication path is terminated as shown in box 825.

Once an IAM with a valid ANI is determined, a table is entered which yields an OPC -- DPC -- CIC combination as shown in box 830. One skilled in the art will recognize that such a table can take many forms. One example is to set up a table with every combination of OPC -- DPC -- CIC on one side. The table is entered using the OPC -- DPC -- CIC of the incoming IAM message. After entry through these fields is accomplished, the table yields a new OPC -- DPC -- CIC which can be formulated into the SS7 message and sent to the switching network as shown in box 835. The switching network is capable of using this information to make connections.

Once the IAM signal has been processed, subsequent SS7 messaging can be processed by a separate CIC look-up table entered using the CIC as shown in box 840. Subsequent messages, such as address complete, answer, release, and release complete can be processed by entering the CIC table using the CIC in these non-IAM signals. For signals directed to the first point, the table yields the original

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OPC which is used as the DPC. Additionally, subsequent messages from the first point enter the CIC table using their CIC, and the table yields the DPC previously selected by the CCP for the IAM processing. The CIC table is constantly updated to reflect current processing as shown in box 845. In this way, the CCP is able to efficiently process non-IAMs because theses signals only need to reflect the results of previous IAM selections.

There can be exceptions to the use of the CIC table for non-IAM call messages. One example would be if a new connection is allowed after release. In that case, the IAM procedures would be followed.

Those skilled in the art will recognize the numerous factors that can be used to design and load the tables. Different OPC -- DPC -- CIC combinations can be yielded by the tables based on many factors. Some of these factors are: called number, time of day, CPU occupancy, switch status, trunk status, automatic call distribution, operational control, error conditions, network alarms, user requests, and network element status.

For example, if a certain switch must be taken out of service, it is merely replaced in the table with suitable substitutes. The switch is then effectively taken out of service because it is no longer selected. If the CPU loading of a certain switch reaches a threshold, its presence in the tables can be diminished and distributed to other switches.

In another example, if it is busy hour in region A, the tables may yield network elements in region B to process the call. This can be accomplished by adding an area code or a dialed number entry, and time of day entry in the table. For calls placed from an OPC in region A to an area code or dialed number in region B, a narrowband switch in region B could be selected. As such, the DPC yielded by the table during this time frame should reflect

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a region B narrowband switch. Also, for calls placed from an OPC in region B to an area code or dialed number in region A, the tables should provide the DPC of a region B narrowband switch.

In a preferred embodiment, IAM messages would cause the CCP to query an SCP, data element, or database for support. The SCP would answer the query by using tables as discussed above. The answers would be sent to the CCP and used to formulate signaling. Subsequent messages would be then handled by the CCP using the CIC table. An example of such support would be for the CCP to query the SCP in response to receiving an IAM message. The query may include the OPC, CIC, DPC, and the area code, or dialed number. The SCP could use this information to select network characteristics and avoid busy regions as described in the above busy region example. For example, the SCP would maintain tables for OPC -- dialed area code -- time of day combinations that would yield a new DPC and CIC. This assumes that busy hour in a region corresponds to time of day, but other factors and yields could also be involved.

In one embodiment, the dialed number or area code could be used to select the new DPC, and time stamps could be placed in the signaling. This might entail tables with OPC -- dialed area code entries that yield a new DPC and CIC. In this case, narrowband switches may not even be needed since billing can be applied using the time stamps. The CCP could then route the call directly using only the broadband network. This is especially relevant for POTS calls in which only an area code entry would need to be added to the tables.

As discussed above, often a connection will consist of two separate connection procedures. One connection procedure will be from the origination to a selected network element. The other connection procedure will be

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from the selected network element to the destination. Also it has been disclosed that the CCP could actually be discreet machines located regionally. In these cases, the CCP device processing the first connection procedure could be located in the origination region, and the CCP device that processes the second connection procedure could be located in the region of the selected network element.

The present invention offers the advantage of separating at least a portion of the communication control from the communication path. By examining and translating signaling independently of the communication path, multiple switches and network elements can be connected in the optimum way. Communications paths are no longer limited to only the connections the switches can control. Networks do not have to wait for standardization among signaling and interface protocols.

The present invention allows for the selection of network characteristics, such as network elements and connections, before switches process or apply the signaling. The switches are not required to have a capability either to make selections or to signal each other. The switches only make connections as directed by the CCP which signals in each switches own signaling format. Various criteria can be used for the selections in the CCP, such as time of day, load balancing, or invalid ANI. As such, the present invention allows for a smooth transition from narrowband to broadband networks. It also allows for the selection of network elements, such as servers and enhanced services platforms.

The present invention represents a fundamental and powerful departure from previous telecommunications technology. By separating the communications path from communication control, the CCP can utilize different networks and network devices intelligently. Previously, telecommunications systems have been dependent on the

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switches to accomplish communication control. As such, telecommunications systems have had to wait for the switches to develop communication control before new technology could be implemented. Switches have always been required to physically make connections and provide control over which connections are required. Switch capabilities have not been able to keep up with all of the network possibilities available. The result is a limited system.

Switches have been given support in this dual task. SCPs, STPs, and adjunct processors provide support for communication control. However, these devices only support the switches communication control, and the switch remains essential to communication control. This dependence has created a bottleneck given the available network possibilities.

One advantage of the present invention is that it allows narrowband switches be used interchangeably in a narrowband/broadband hybrid network. Any narrowband switch may be taken out of service without re-routing traffic and changing routing logic in each switch. The CCP is simply programmed not to select the given narrowband switch for call processing. The CCP will route calls over the broadband network to another narrowband switch. This flexibility also allows the telecommunications network to easily transfer narrowband switch loads.

An important advantage of this system is that both the advantages of broadband and narrowband systems are utilized. The transmission capabilities of a broadband network are coupled with the narrowband network's ability to apply features. For example, the CCP can use the broadband network to substantially make the call connection from origination to destination. The CCP diverts the traffic to the narrowband network for processing. The narrowband network can apply features, such as billing and routing. Once processed, the traffic is directed back to

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the broadband network for completion of the connection. The CCP can then use the routing information generated by the narrowband system to route the traffic through the broadband system to the destination. As a result, the telecommunications system does not have to develop a billing or "800" routing feature for its broadband network. This can be accomplished because the CCP allows both networks to work together intelligently.

Another advantage of the present invention is the elimination of a substantial percentage of the DS0 ports required on the existing narrowband switches. In the current architectures, narrowband switches are interconnected to each other. A substantial percentage of the switch ports are taken up by these connections. By eliminating the need for the switches to connect to each other, these ports can be eliminated. Each narrowband switch is only connected to the broadband system. This architecture requires fewer ports per switch. By load balancing with the CCP, the number of ports required on busy switches can be reduced. The architecture in the present invention does require additional broadband ports, but these can be added at a significant cost saving versus narrowband ports.

Additionally, the narrowband switches no longer signal each other since all signaling is directed to the CCP. This concentration accounts for a reduction in required signaling link ports. This reduction possibly could result in the elimination of STPs.

As mentioned above, an advantage of the present invention is its ability to treat narrowband switches, or groups of narrowband switches, interchangeably. The CCP can pick any narrowband switch to process a particular call. This allows the network to pull narrowband switches out of service without taking extreme measures. In turn, this simplifies the introduction of new services into the

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network. A switch can be pulled out of service simply by instructing the CCP to stop selecting it. The switch can be re-programmed and put back into service. Then the next switch can then be updated in the same manner until all of the switches are implementing the new service. Switches can also be easily pulled to test developing applications.

This narrowband switch flexibility also allows the CCP to balance switch loads through the network during peak times, or during mass calling events.. This eliminates the need to implement complex and expensive load balancing features in the narrowband network. Instead of programming the several switches to balance among themselves, one command to the CCP can achieve this.

Another advantage is the reduction in call set-up time. Most large networks require that a call pass through more than two narrowband switches arranged in a hierarchical fashion. One large network employs a flat architecture in which all narrowband switches are interconnected, but this still requires that the call pass through two narrowband switches. In the present invention, only one narrowband switch is required for each call. The use of broadband switches to set-up and complete the call represents significant time savings.

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CLAIMS:

What is claimed is:

1. A method for processing telecommunications signaling for a telecommunications network comprising a plurality of network elements wherein at least one network element is a switch, the method comprising:

receiving a first signal into a processor which is located externally to the switches;

selecting, in the processor, at least one network characteristic in response to the first signal;

generating a second signal reflecting the network characteristic;

transmitting the second signal to at least one network element before that network element has applied the first signal.

2. The method of claim 1 wherein selecting the network characteristic comprises selecting a network element.

3. The method of claim 2 wherein selecting the network element comprises selecting a switch.

4. The method of claim 2 wherein selecting the network element comprises selecting a server.

5. The method of claim 2 wherein selecting the network element comprises selecting an enhanced platform.

6. The method of claim 2 wherein selecting the network element comprises selecting a service control point.

7. The method of claim 2 wherein selecting the network element comprises selecting a service data point.

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8. The method of claim 2 wherein selecting the network element comprises selecting a intelligent peripheral.

9. The method of claim 2 wherein selecting the network element comprises selecting an adjunct processor.

10. The method of claim 2 wherein selecting the network element comprises selecting a service node.

11. The method of claim 1 wherein selecting the network characteristic comprises selecting a connection.

12. The method of claim 11 wherein selecting the connection comprises selecting a physical connection.

13. The method of claim 11 wherein selecting the connection comprises selecting a logical connection.

14. The method of claim 1 wherein selecting the network characteristic comprises selecting a network code.

15. The method of claim 1 wherein receiving the first signal comprises receiving a first signal in Signaling System #7 format.

16. The method of claim 15 further including selecting, in the processor, at least one network characteristic based at least in part on at least one point code in the first signal.

17. The method of claim 15 further including selecting, in the processor, at least one network characteristic based at least in part on the circuit identification code in the first signal.

18. The method of claim 1 wherein receiving the first signal comprises receiving a first signal in broadband format.

19. The method of claim 1 further including selecting, in the processor, at least one network characteristic based at least in part on a message type in the first signal.

20. The method of claim 1 further including selecting, in the processor, at least one network characteristic based at least in part on at least a portion of a dialed number in the first signal.

21. The method of claim 1 further including selecting, in the processor, at least one network characteristic based at least in part on set-up information in the first signal.

22. The method of claim 1 further comprising receiving information into the processor from the network elements and wherein selecting at least one network characteristic is based at least in part on the information received from the network elements.

23. The method of claim 22 wherein receiving information comprises receiving information which reflects the loading of at least one network element.

24. The method of claim 22 wherein receiving information comprises receiving information which reflects the status of at least one connection to the network elements.

25. The method of claim 22 wherein receiving information comprises receiving information which reflects the status of at least one error condition.

26. The method of claim 22 wherein receiving information comprises receiving information which reflects the status of at least one alarm.

27. The method of claim 22 wherein receiving information comprises receiving Signaling System #7 information.

28. The method of claim 1 further comprising receiving information into the processor from a network operational control and selecting at least one network characteristic based at least in part on the information from the network operational control.

29. The method of claim 28 wherein receiving the information comprises receiving an instruction not to select a particular network element.

30. The method of claim 1 wherein generating the second signal comprises generating a second signal in Signaling System #7 format.

31. The method of claim 1 wherein generating a second signal comprises generating a second signal in broadband format.

32. The method of claim 1 wherein generating a second signal comprises generating a second signal containing different information from the first signal.

33. A method for controlling communications in a telecommunications network wherein the network comprises network elements and connections that establish communications paths among points, wherein at least one network element is a switch, and wherein the network is operable to control the communications paths by signaling the network elements, the method comprising:

receiving a first signal into the network from a point;

routing the first signal to a processor that is external to the switches;

selecting, in the processor, at least one network characteristic in response to the first signal;

generating a second signal reflecting the selected network characteristic;

transmitting the second signal to at least one network element before that network element has applied the first signal.

34. A processor for processing telecommunications signaling wherein the processor is operable to receive signaling in a format identical to signaling received by a switch, wherein the processor is not directly coupled to a switching matrix and is linked to a plurality of network elements, and wherein the processor is operable to generate new signaling information based on the received signaling.

35. A processing system for processing telecommunications signaling for a telecommunications network, the network being comprised of a plurality of network elements wherein at least one network element is a switch, and wherein the processing system is external to the switches, the processing system comprises:

an interface that is external to the switches and is operational to receive and transmit signaling;

a translator that is coupled to the interface and is operational to identify particular information in the received signaling and to generate new signaling based on new information;

a processor that is coupled to the translator and is operational to process the identified information from the translator in order to select at least one network characteristic, and to provide new information to the translator reflecting the selection, the identified information being used in the processor before it is used in the particular network elements that receive the new signaling.

36. A telecommunications network wherein the network comprises:

a plurality of network elements wherein at least one network element is a switch;

a plurality of connections between the network elements;

a processor located externally to the switches operable to receive a first signal, to select at least one network characteristic in response to the first signal, and to generate a second signal reflecting the selection;

a plurality of links between the processor and the network elements operable to transmit the second signal to at least one network element before that network element has applied the first signal.

37. The network of claim 36 wherein the network is an interexchange carrier.

38. The network of claim 36 wherein the network is a local exchange carrier.

39. The network of claim 36 wherein the network is a connection-oriented network.

40. The network of claim 36 wherein the network is an international gateway.

41. The network of claim 36 wherein the network is a satellite network.

42. The network of claim 36 wherein the network is a wireless network.

43. The network of claim 36 wherein at least one of the network elements is a broadband switch.

44. The network of claim 36 wherein at least one of the network elements is a narrowband switch.

45. The network of claim 36 wherein at least one of the network elements is an asynchronous transfer mode switch.

46. The network of claim 36 wherein at least one of the network elements is a packet switch.

47. The network of claim 36 wherein at least one of the network elements is a server.

48. The network of claim 36 wherein at least one of the network elements is an intelligent platform.

49. The network of claim 36 wherein a portion of the signaling is in Signaling System # 7 format.

50. The network of claim 36 wherein a portion of the signaling is in broadband format.

51. A method for controlling communications in a telecommunications network wherein the network comprises switches and connections that establish communications paths among points, and the network is operable to control the communications paths by signaling the switches, the method comprising:

receiving a first signal into the network from a point;

routing the first signal to a processor that is external to the switches;

selecting, in the processor, at least one network characteristic in response to the first signal;

generating a second signal reflecting the selected network characteristic;

transmitting the second signal to at least one switch before that switch has applied the first signal.

52. A telecommunications signaling system for use in conjunction with a plurality of telecommunication switches which comprises:

a plurality of signaling points;

a signaling processor linked to the signaling points and residing externally to the switches, the signaling processor being operational to process signaling, to generate new signaling information based on the processing, and to transmit the new signaling information over the links to multiple signaling points.

53. The signaling system of claim 52 wherein the new signaling information is comprised of different signaling messages and wherein the different signaling messages are transmitted to different signaling points.

54. The signaling system of claim 52 wherein a plurality of the signaling points each reside in a different switch and are directly coupled to a processor in the switch that directs a switching matrix in the switch in response to signaling processed by the signaling point, and wherein the signaling processor is operational to direct the switching matrixes of multiple switches by signaling multiple signaling points.

55. The signaling system of claim 52 wherein the signaling processor is operational to signal multiple points in response to signaling from a single source.

56. The signaling system of claim 52 wherein the signaling processor is operational to signal a point in response to signaling from multiple sources.

57. A method for controlling communications in a telecommunications network which comprises a plurality of switches comprised of at least a first switch and a second switch, the switches being operable to establish communications paths over connections between the switches, the telecommunications network being operable to control the communications paths by signaling the switches, the method comprising:

receiving a communication path into a first switch;

receiving a first signal that relates to the communication path into a processor before the first signal is applied by the first switch connected to the communication path, the processor being external to the first switch connected to the communications path;

selecting, in the processor, a particular second switch for connection to the communication path in response to the first signal;

generating and transmitting a second signal to the first switch connected to the communication path reflecting the selected second switch and a third signal to the selected second switch relating to the communications path;

extending the communications path from the first switch connected to the communications path to the selected second switch in response to the second signal.

58. The method of claim 57 wherein the first switch and the second switch are different switch types.

59. The method of claim 57 wherein the first switch and the second switch are the same switch types.

60. The method of claim 57 wherein the first switch and the second switch are provided by different manufacturers.

61. The method of claim 57 wherein the first switch is a broadband switch and the second switch is a narrowband switch.

62. A method for controlling communications in a telecommunications network which comprises a plurality of switches comprised of at least a first switch and a second switch, the switches being operable to establish communications paths over connections between the switches, the telecommunications network being operable to control the communications paths by signaling the switches, the method comprising:

extending a communication path from a first switch to a particular second switch;

generating a first signal in the first switch relating to the communication path extending from the first switch to the particular second switch;

routing the first signal to a processor before the first signal is applied by the second switch connected to the communication path, the processor being external to the second switch connected to the communication path;

selecting, in the processor, a particular destination for connection to the communication path in response to the first signal;

generating and transmitting a second signal to the second switch connected to the communication path reflecting the selection of the destination and a third signal to the destination relating to the communications path;

extending the communications path from the second switch connected to the communications path to the destination in response to the second signal.

63. The method of claim 62 wherein the first switch is a narrowband switch and the second switch is a broadband switch.

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ABSTRACT OF THE INVENTION

The present invention includes a method, system, and apparatus for providing communication control. The invention includes a method in which signaling is processed externally to a switch before it is applied by the network elements. The processor is able to select network characteristics and signal the network elements based the selections. A network employing the processing method is also included, as well as a signaling system that employs the processing method.

DECLARATION AND POWERS OF ATTORNEY

As a below named inventor, I hereby declare that my residence, post office address and citizenship is as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled "METHOD, SYSTEM AND APPARATUS FOR TELECOMMUNICATIONS CONTROL," the specification of which was filed on ____, as Application Serial No. _____ and was amended herewith or, if not identified here by filing date and serial number, is attached hereto. I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 CFR 1.56(a). I hereby claim foreign priority benefits under 35 USC 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate by me or my representatives or assigns for this invention having a filing date before that of the application on which priority is claimed:

Application No. ________________ in _________ on _______ priority claimed ( ) Yes ( ) No
Application No. ________________ in _________ on _______ priority claimed ( ) Yes ( ) No
Application No. ________________ in _________ on _______ priority claimed ( ) Yes ( ) No

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 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. I hereby appoint, individually and collectively, the following as my/our attorney or agent with full power of substitution and revocation, to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith:

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