



ADVANCED INTELLIGENT NETWORK

In order to meet enhanced service provider (ESP) and end user demands for advanced network capabilities, BellSouth is deploying its version of an Advanced Intelligent Network (AIN). The key architectural attribute of AIN is the separation of service logic programs and/or databases from traditional end office switches. The placement of service logic programs on separate network computer platforms is made possible by SS7 technology that facilitates communications between the switch and the service hardware/software.

By moving service logic to a separate computer platform, AIN reduces LEC dependence on service specific software deployment (i.e. feature capability) within network end offices. In this manner, AIN allows for the development of a single service application, which can operate in conjunction with different switch types, rather than the traditional development of a specialized service application for each switch type. Aside from the benefits to be gained by introducing such operational and development efficiencies, AIN will benefit end users by allowing for more rapid and efficient deployment of new end user applications.

BellSouth's AIN is composed of AIN-equipped switches, service switching points (SSPs), signal transfer points (STPs), service control points (SCPs) and service nodes (SNs).¹ The STPs and SCPs are deployed in BellSouth's network as mated pairs for increased reliability. The STPs are deployed in a two-tier hierarchy, with local STPs distributed across the region. Network elements served by different local STPs can communicate with each other through linkages with a regional STP.

A fundamental precept in the deployment of the AIN is the ability of the end office switch to suspend real time call processing to allow for interaction with other AIN network elements. Suspension of call processing to request AIN instructions can occur at several points within the AIN call model.² Once a call is suspended, queries (triggers) can be launched to AIN SCPs and SNs³ and responses (commands) which provide call-processing instructions can be directed from these same platforms to the switch.

BellSouth's SCP is a programmable platform which receives AIN queries from the SSP and sends AIN call control commands to the SSP. The SCP is interconnected to the SSP via SS7 signaling links and does not have a physical connection to the call itself.

The AIN SN is a programmable platform, which may be used to provide services that require physical connectivity to a call. A service node could be used, for example, to provide customized announcements, voice recognition, voice synthesis, or digit collection in support of

¹ BellSouth's AIN network does not include switch adjuncts described in Bellcore technical requirements for AIN Release 1 (TA-NWT-001127, "AIN Adjunct General Requirements", Issue 1, April 1992).

² The AIN call model and the various points of interaction are more thoroughly described in Bellcore TR 1298, AIN 0.2 Switching Systems Generic Requirements, Issue 2, April 1993.

³ AIN messaging to and from SNs requires AIN 0.2.



voice services. These nodes will be connected to an SSP via an ISDN interface. Today, third party SNs can be connected to the network via a tariffed voice grade ISDN circuit.

BellSouth uses a separate platform known as a service management system (SMS) to administer the SCP memory, to manage SCP and SN data, to access network traffic data, to enter/update service provider and end user records, and to manage the subscription to AIN services. In this manner the SMS acts as a key Operations Support System (OSS) for AIN.

In this report, BellSouth will concentrate on the service offerings through which it intends to make AIN functionalities available to third parties and end users. While BellSouth is working steadily to provide the capabilities summarized in this report, not all aspects of providing the technology to support these offerings are within BellSouth's control.⁴ In most instances, BellSouth is dependent upon vendors to develop both hardware and software, which underlie the AIN. To the extent that vendors do not meet service schedules or service design criteria, BellSouth's capability to deploy AIN and offer logical interconnection with its components will likely be delayed.

⁴ While BellSouth outlines in this report its current plans for making AIN functionalities available to ESPs, BellSouth must also caution that this technology is still evolving. Accordingly, certain service options and interfaces discussed herein may be subject to change.

AIN ASSOCIATED SERVICES:

CALL CONTROL⁵

Call Control will utilize AIN functionality to provide incoming and outgoing call restriction capabilities. It is expected that the service will allow a subscriber to activate or deactivate call restrictions by entering a password. Treatment or disposition of an incoming or outgoing call is determined via a database (SCP) query. Outgoing restriction will enable both blocking of all outgoing calls (except 911) or blocking of calls of a specific type (e.g. long distance calls, international calls, pay services such as 900, 976, etc., operated assisted calls and directory assistance calls). At the present time, incoming restrictions are limited to one option and thus will require similar default treatment for all incoming calls.

Call Control subscription information will be maintained via subscriber input to an AIN service node. The service node will subsequently update subscription data residing in BellSouth's SCPs.

BellSouth has re-evaluated this capability and plans to offer this service have been deferred.

800 SERVICE CONNECTIVITY THROUGH A LOCAL TELEPHONE NUMBER

This service is envisioned as a service that will allow an 800 service access customer to access its service through a local seven or ten digit telephone number. When an end user dials the local telephone number, the number is translated using AIN capabilities to an 800 Service number. In addition to the number translation, the calling party number will be inserted in the charge field of the SS7 initial address message. This service will provide the end user the appearance of having a local presence. It also allows the calling party number to be used by the IXC and/or end user for billing segmentation or other purposes.

BellSouth previously indicated its plans to tariff this service, pending approval of its Part 69 Waiver. However, BellSouth has re-evaluated this capability and plans to offer this service have been deferred.

NAME & NUMBER DELIVERY SERVICE

This service will allow a caller to leave name and number for a called party when the line of the called party is busy or is not answered. BellSouth conducted a market trial of this capability in Georgia and based upon the results of the trial, has deferred plans to offer this capability.

ORIGINATING SWITCHED ACCESS TO PRIVATE VIRTUAL NETWORKS

This service is designed to allow callers to access interexchange carriers' virtual private networks (VPNs) from off-network locations. Access to the VPN will be provided to presubscribed lines

⁵ Call Control was formerly known as Call Management.

via the dialing of a public office dialing plan feature code, e.g., *96. Calls initiated by this feature code will be routed to the predesignated VPN. No toll charges will be billed to the calling location. The service will eliminate two concerns with existing VPN access: long dialing sequences and charging VPN calls to the calling party. Calls that are not initiated with the designated feature code dialing will be completed and billed in the normal manner.

Technical trials of this service, in conjunction with interexchange carriers were conducted in the second half of 1995 and into 1996. BellSouth previously indicated its plans to tariff this service, pending approval of its Part 69 Waiver. However, BellSouth has re-evaluated this service and plans to tariff this capability have been deferred.

REVERSE PIC SELECTION AND BILLING FOR CALLS TO DEDICATED NXX

This service will route 1+ calls to a specific NANP telephone NPA-NXX (with geographic significance) via an interexchange carrier preselected by the service subscriber rather than the calling party. The 1+ call to the designated NPA-NXX will be reverse billed to the called party. Calls to the designated NPA-NXX which are initiated by 10XXX or 101XXXX dialing will be carried and billed in the normal manner where technically feasible.

BellSouth previously indicated its plans to tariff this service, pending approval of its Part 69 Waiver. However, BellSouth has re-evaluated this service and plans to tariff this capability have been deferred.

SIMULTANEOUS RING SERVICE

Simultaneous Ring Service is a landline-based service that, when activated, enables calls to an end-user's landline telephone to ring both the landline telephone and one activated wireless telephone (which is not in use) *simultaneously*. Whichever telephone is answered first gets the call, freeing the other telephone for additional calls.

BellSouth began a limited deployment offering of this service in New Orleans, Louisiana during November 1999. A market trial of this capability is planned for Birmingham, Alabama during 2000.

TALKING CALL WAITING

This service is an enhancement to the existing Call Waiting basic feature. When a traditional call waiting condition occurs, the name of the calling party is retrieved from the name database. The service node translates the name into a voice announcement. The voice path between parties is then temporarily suspended and the name of the calling party is played for the called party after the first Call Waiting tone. When complete, the service node releases the connection to the switch and re-connects the called party with the original party. The called party can then flash the switch-hook to toggle between the original party and the calling party. The calling party name is only played after the first Call Waiting tone.

BellSouth plans to begin offering this capability during the fourth quarter of 2000.

VIRTUAL ACCESS VOICE (OFF NETWORK ACCESS TO CENTREX SYSTEMS)

This service supports off-network access to Centrex systems through shared facility groups. Off-network calls to the Centrex system are placed to a local seven or ten digit telephone number. Calls to that number are validated either through the calling party number or through the entry of a personal identification number. Upon verification of a caller, calls are directed to a Centrex IBN route.

BellSouth currently supports this service via special assembly in Tennessee and North Carolina.

COMMON CHANNEL SIGNALING

Common Channel Signaling/Signaling System 7 (CCS/SS7) is the backbone of the intelligent network infrastructure. This network infrastructure performs traditional functions more efficiently, broadens the capabilities that BellSouth may offer its customers, and supports the FCC's goal of bringing to the public the benefits of the information age.

The Common Channel Signaling network capability is based on the American National Standards Institute (ANSI) T1 Committee's Signaling System 7 protocol. CCS/SS7 is a signaling system which performs network control functions for a variety of services, including interoffice trunk signaling, database queries, data transmission and access call setup. Since these links can provide signaling and control functions for multiple telecommunications paths without utilizing these paths, greater efficiencies are gained.

BellSouth's use of the CCS/SS7 technology is part of the ongoing modernization of its network. Deployment of CCS/SS7 technology in BellSouth is based on a total view of existing and future services, network evolution and market needs. Use of the CCS/SS7 technology facilitates BellSouth's ability to provide logical interconnection to other technologies such as BellSouth's Advanced Intelligent Network (AIN).

BellSouth has long been committed to use of the CCS/SS7 technology, beginning with its initial interstate offering of Common Channel Signaling Access Capability (CCSAC). CCSAC is an optional signaling arrangement associated with switched access, which is available with Feature Group D. The CCSAC option was filed and became effective in 1990. When a customer orders Feature Group D trunks with CCSAC, the necessary signaling connections are provided as part of Feature Group D service.

Other optional features available with Feature Group D when CCSAC is specified are Calling Party Number (CPN), Charge Number or Automatic Number Identification (ANI), and Carrier Selection Parameter (CSP). The CPN option provides the capability in end offices to pass to an access service customer the calling party's ten digit telephone number. ANI provides the capability in end offices to pass to an access service customer the calling party's billing number. CSP (1) identifies the dialing pattern employed by the end user, if known, and (2) provides an indicator in the initial address message which signifies whether or not the call originated from a presubscribed end user of that access customer.

Another option available with the CCS/SS7 technology is the 64 Clear Channel Capability. The 64 Clear Channel Capability provides the transmission rate capability of CCSAC equipped trunks at 64 Kbps. Other interstate offerings available via the CCS/SS7 technology include BellSouth's Line Information Database (LIDB) and 800 Database services.

IntraLATA offerings made available through CCS/SS7 include BellSouth's TouchStar[®] family of

products. As indicated in Report 5 of this Annual Report, this family of products includes Call Return, Repeat Dialing, Call Tracing, Call Block, Call Selector, Preferred Call Forwarding, Caller ID, Call Tracking and BellSouth's new service offering Caller ID Deluxe. These features are available on an optional and individual basis.

BellSouth has identified 11 ESP requested capabilities, which require use of CCS/SS7 technology. Six of these features are presently available on an individual and unbundled basis. Details regarding the ESP requested capabilities that have been met or may be met with CCS/SS7 technology are available in Report 5 of this Annual Report.

INTEGRATED SERVICES DIGITAL NETWORK

Integrated Services Digital Network (ISDN) is a digital network with signaling, switching and transport capabilities supporting a wide range of customer options over a single digital interface.

ISDN is a digital loop technology, which, in conjunction with CCS/SS7, enables end-to-end digital information, signaling, switching and transport. ISDN technology also provides a common interface to voice and data services, quality data transmission, network management and control capabilities.

BellSouth is committed to the use and deployment of ISDN technology and continues to use the technology to make new options available. BellSouth has used ISDN technology to make a number of tariffed options available to customers throughout its nine state region. These offerings include Basic Rate ISDN (ISDN Business Service and ISDN Residence Service) and Primary Rate ISDN. Several optional features may be added to these basic ISDN capabilities. These ISDN services and optional features are referenced in Report #5 of this Annual Report.

Following is a brief description of the options.

Non Facility Associated Signaling (NFAS)

The new NFAS option provides the capability of controlling more than one DS-1 facility with one Primary Rate ISDN D-Channel. The NFAS capability allows a D-channel to control up to 20 DS-1 facilities. The NFAS option has been filed and approved in the Private Line Tariffs for all nine states.

Switched Fractional DS-1 (SWF-DS1)

The SWF-DS1 option provides the network capability of switching multiple (up to 24) DS-0 (64 Kbps) channels through the network as a single entity. This capability enables PRI compatible CPE to hand off a single data stream to DTE with bandwidth, which varies, from 128 Kbps to 1.53 Mbps in multiples of 64 Kbps. This feature will be useful to customers with requirements for video conferencing, LAN-to-LAN bridging, file transfer, private network capacity augmentation, or disaster recovery.

BellSouth previously reported that tariff filings for this capability were under study. BellSouth has re-evaluated this service and plans to tariff this capability have been deferred.

In addition to the existing tariffed options available with ISDN technology, BellSouth has also identified 9 ESP requests that may be met with future ISDN deployment. A listing of the ESP requested capabilities that may be met with ISDN technology is available in Report #5 of this Annual Report.