

**Bellcore**

 Bell Communications Research

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SNS System Description  
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# **Service Negotiation Support (SNS)**

## **System Description**

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Service Negotiation Support (SNS)  
System Description  
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## 1. Introduction and Documentation Index

This document provides an overview of the Service Negotiation Support (SNS) system. The information is presented in the form of responses to four general questions:

- What is the Service Negotiation Support (SNS) System?
- How Does SNS Fit into the Overall Service Negotiation Architecture?
- How does SNS work?
- What Hardware and Software Does SNS Use?

Detailed information about the SNS system is provided in six related documents:

1. *Service Negotiation Support (SNS) Contract Specifications*, BR 007-560-403, describes the communication between SNS and the contract originator.
2. *Service Negotiation Support (SNS) System Administration Guide*, BR 007-560-405, covers application installation, security, recovery, troubleshooting, and other topics.
3. *Service Negotiation Support (SNS) Database Administration Guide*, BR 007-560-406, describes the SNS databases and explains database installation, recovery, and maintenance.
4. *Service Negotiation Support (SNS) TNLIST Maintenance Guide*, BR 007-560-407, provides instructions on working with the TNLIST Maintenance screens.
5. *PREMIS/NMAG Application Guide*, BR 007-560-408, explains the procedures for working with the MTC SVA screen and for producing reports.
6. *PREMIS/NMAG Database Administration Guide*, BR 007-560-409, describes the PREMIS system marketing database area and provides the physical data specifications for the area and the records.

## **2. What is the Service Negotiation Support (SNS) System?**

The Bellcore Client Companies (BCCs) are upgrading their networks to include more advanced technologies, such as the Integrated Services Digital Network (ISDN) and the Advanced Intelligent Network (AIN). These technologies allow the BCCs to offer many new complex network-based services, such as LATA-wide Centrex. As the networks and services become more complex, the process of negotiating with customers who request the services is made more complicated. Different customers request different services, and the availability of those services depends on the types of network equipment that serve those customers. There is a great deal of information that must be available to the service negotiator during negotiation with a customer.

For example, if a customer requests ISDN services, the service negotiator first must verify that the basic network requirements (i.e., the availability of a qualified loop) are met. Once this is accomplished, the negotiator needs to know which features or feature packages are available. To determine this information, the negotiator needs to know the available features and the software version on the switching system.

SNS makes the needed information available to the negotiator instantly. SNS ensures that enough information is gathered to complete a successful negotiation session and provides the customer with important data, such as service and feature availability, service descriptions, and telephone numbers.

SNS provides access to the information a service negotiator needs to negotiate telecommunications services with a customer. The negotiator can assist the customer in selecting service options and can then issue an electronic service request that is forwarded to a provisioning process system.

The initial general release of the SNS system supports business services, including ISDN and digital Centrex. Later releases will support other services for residential and business customers.

### **3. How Does SNS Fit into the Overall Service Negotiation Architecture?**

The SNS system forms one part of an overall service negotiation architecture that conforms to the OSCA™ architecture guidelines. This architecture is made up of sets of programs called building blocks. Each building block operates in one of three logical layers: the data layer, the process layer, and the user layer.

There are two distinct process-layer building blocks in the service-negotiation architecture: account-based negotiation and network-based negotiation. Account-based negotiation is directly related to the customer account and is mainly concerned with gathering information to prepare service requests. This type of negotiation involves (a) operational functions needed to maintain customer account information, such as handling account inquiries, credit validation, collections, and so forth, and (b) non-network-related products, such as traditional listing services (white pages, directory assistance records, etc.) and alternate billing services (credit card issuance). Network-based negotiation supports the provisioning process and requires network data. This type of negotiation works in conjunction with the account-based negotiation process. Network-based negotiation determines the availability of products requested at a customer's location, identifies the appropriate network element (e.g., switch) and node (e.g., central office), selects telephone numbers, validates switch-specific parameters, and issues a provisioning request. The Service Negotiation Support system performs network-based negotiation functions. (See Figure 3-1.)

Customer requests can be activated from the user layer building block (ULBB). The total negotiation will always include an account-based negotiation and may also include a network-based negotiation. The account-based part of the negotiation receives the customer product request, analyzes the information using current customer records, and updates the customer request to reflect product selection, modification, and removal requirements. Information is also provided to initiate billing. The network-based part of the negotiation determines the availability of the requested services at the customer's location, identifies the appropriate network element that can offer the requested service, selects telephone numbers, and reserves network resources. Information is also provided to initiate a provisioning service order.

The service order is then sent to a service order processor (SOP). A direct interface between the network-based negotiation and the Service Activation

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Controller (SAC) gives customers direct control over service activation. The data layer building blocks will maintain this information on customer-determined services. Some of the network-based data layer building blocks that SNS accesses include the Integrated Assignment Inventory (e.g., LFACS, TIRKS® system, SWITCH), Network Services, and Network Resource Availability (e.g., NSAG) databases.

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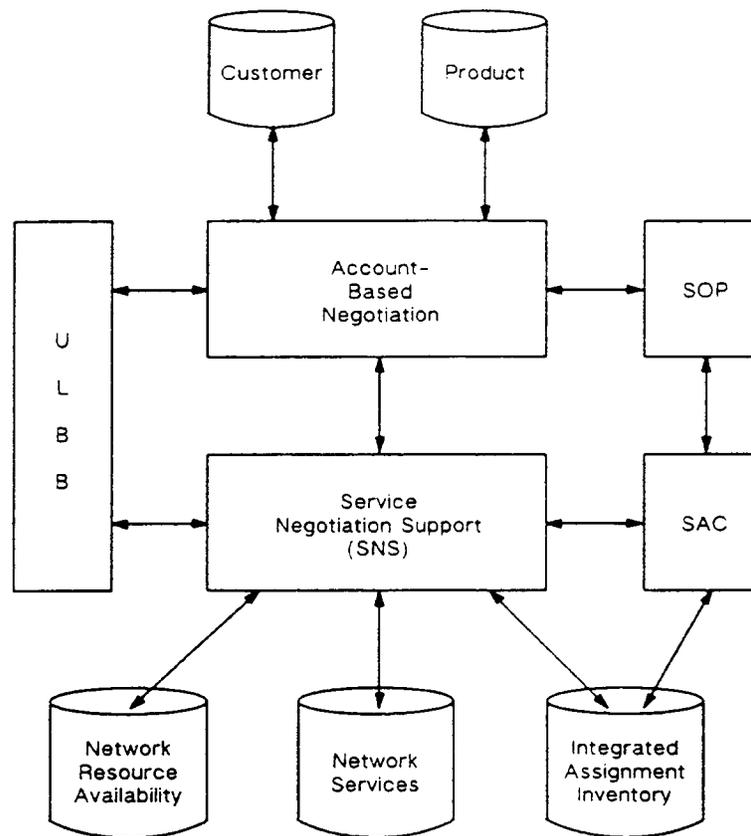


Figure 3-1. Service Negotiation Architecture

#### 4. How Does SNS Work?

The following example illustrates a typical flow of activities during an SNS negotiation session. Suppose that a customer requests new lines for digital Centrex service. SNS needs to determine whether the service request can be satisfied. Given the customer serving location and the requested service, SNS decides if the serving location is within a digital Centrex service area. Once this is verified, the network element that could provide the requested service is selected, and the serving terminal is identified. If necessary, SNS must then verify that suitable network paths exist and/or reserve outside plant facilities.

After it has been determined that the service is available, telephone numbers are selected. The combination of all the data gathered during the negotiation process provides the contents for a provisioning service order. This order causes specific work activities to occur so that the service can be activated at the customer serving location.

As the example above implies, SNS draws upon the resources of numerous other systems and building blocks — developed by Bellcore and the BCCs — to carry out the service negotiation function. SNS interfaces with other building blocks using the FCIF (flexible computer interface form) language. It generates requests to various data layer building blocks that hold network data and obtains corporate data from BCC systems. All the while, SNS provides the user with a "single-system view" by providing "behind-the-scenes" access to these different systems.

SNS obtains information from network-inventory databases to determine which types of products and services are available to a particular customer. It also checks that customer-premises equipment is compatible with the serving switching system and identifies allowable features. SNS has interfaces with Bellcore provisioning and network-operations systems, including the Loop Facilities Assignment and Control System (LFACS) and PREMIS in SNS Release 1.0. In future releases, interfaces with the Network Services Data Base and the SWITCH system will be installed. The end product is an electronic service order that is sent to provisioning and network-operations systems, which ultimately implement the requested services.

SNS coordinates and controls the activities that take place among the different systems during service negotiation. SNS has been developed in a flexible manner that allows the BCCs to tailor the negotiation flow to accommodate their unique needs.

## 5. What Hardware and Software Does SNS Use?

SNS runs on mainframe computers in a Multiple Virtual System (MVS) Standard Operating Environment (SOE). The IBM Information Management System (IMS) provides the environment for all contract processing. IMS and DB2<sup>TM</sup> databases are used for SNS local data. The IMS local data is maintained in the Session and Rules databases and the S1 Security and TTS (TIRKS Table Subsystem) databases. The DB2 databases are used to store TN selection data (e.g., TN lists). Both DB2 and IMS databases are used for the Provisioning PLATFORM Data Dictionary/Reference Data Administration System (DD/RDAS).

The SNS application uses a set of Bellcore application environment (BAE) services and the Provisioning PLATFORM common services. The BAE services include the environmental services, portable services (i.e., debugging) and the BAE common services, such as the Telecommunications Interface System (TCIS), TTS, and S1 Security. The Provisioning PLATFORM common services include the Immediate Message Poster, Application State Processing, Output Handler, Data Dictionary, and support services, which supplement table, security, debugging, and interrupt handling.

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