Release 4.2

Model Methodology

SS7 Module

(Book V of VII)

Verizon

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ICM MODEL METHODOLOGY PACKAGE

➢ Conceptual Framework	Book I
➢ Loop Module	Book II
➢ Switch Module	Book III
➢ Interoffice Transport Module	Book IV
➢ **SS7 Module**	**Book V**
➢ Expense Module	Book VI
➢ Mapping/Report Module	Book VII

EXPLANATORY NOTE

In the following documentation, “Verizon” is used to refer to the former GTE Corporation and its operations which are now part of Verizon Communications along with the former Bell Atlantic Corporation.

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SS7 Module

The Signaling System 7 (SS7) network is a stand-alone network used for the transmission and distribution of signals that tell the switched telephone network how to operate. It is connected to the switched telephone network at each end office and tandem and acts primarily to set up and disconnect calls and to control the network for efficient utilization of facilities. The SS7 network is also used to query databases such as for 800/888 and credit card calls.

The SS7 Module[1] identifies the SS7 investments required for each end office. These investments are passed to the Mapping/Report Module where they are combined to determine the investment required for the use of SS7 for call set up and unbundled network elements. The associated expenses are then calculated and the monthly costs developed.

Network Components

Figure 1 shows the basic components of the SS7 network.

[1] The SS 7 Module Methodology is (Book V of VII) within the ICM Methodology package. The contents of the package include seven booklets: Conceptual Framework (Book I); Loop Module (Book II); Switch Module (Book III); Interoffice Transport Module (Book IV); SS7 Module (Book V); Expense Module (Book VI); and Mapping/Reports Module (Book VII).

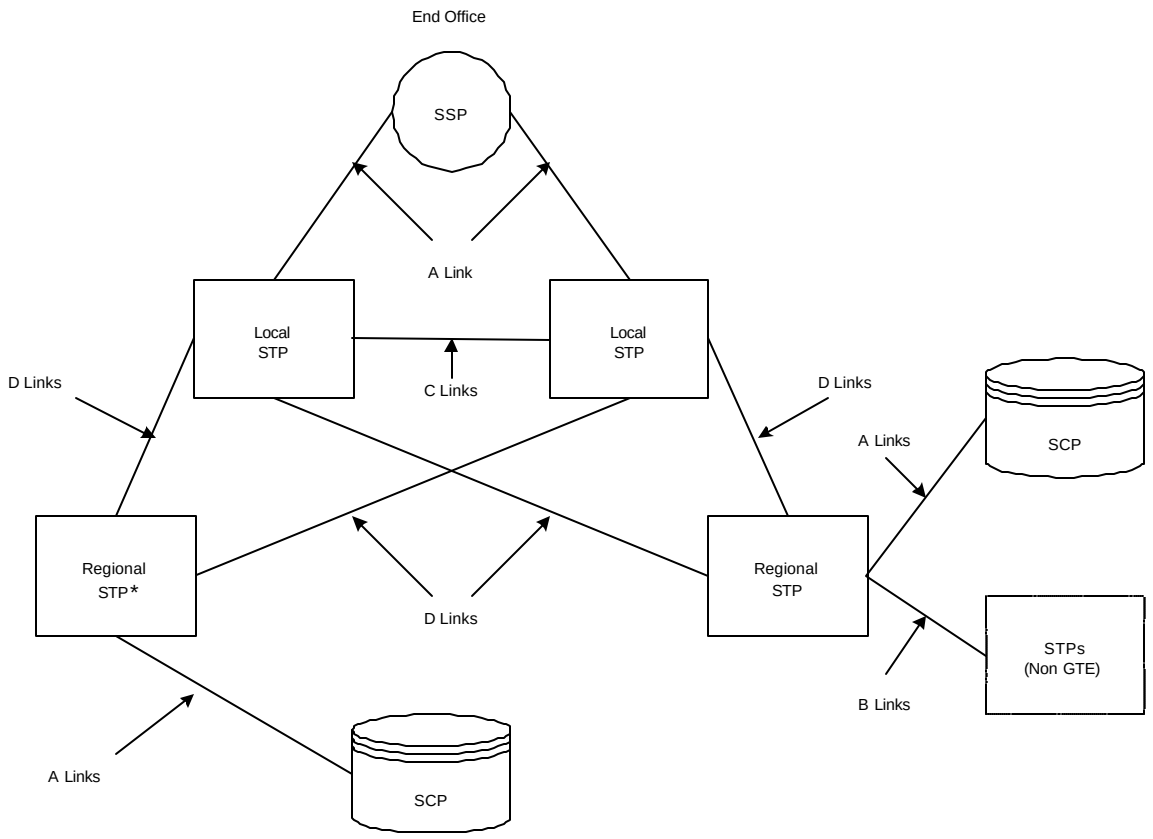


Figure 1: Signaling System 7 Network Components

In ICM, investment for the following types of SS7 equipment are identified:

- **Service Switching Points (SSPs)** are the SS7 network elements contained within end offices and tandem offices. SSPs provide the points of connection between the switches and the SS7 network links.
- **Service Control Points (SCPs)** are remote databases that provide translation and routing information for advanced network services. SCPs are collocated with regional Signal Transfer Points (STPs).
- **Signal Transfer Points (STPs)** are the SS7 components that send call setup and disconnect information between offices and route data queries between offices and SCPs.
- **"A," "C," and "D" Links** are DS-0 level transport circuits used to carry data between the different points (SSPs, SCPs, and STPs) in

* Regional STP and SCP are collocated.

the SS7 network. Depending on SS7 network traffic volume, links can be common or specific to SS7-related services.

- Each SSP has at least one pair of A links, one to each local STP of a mated pair.
- Each pair of local STPs has a set of four D links to a pair of regional STPs.
- A regional STP is connected by at least eight A links to each SCP of a mated pair.
- Each mated pair of STPs is connected by between two and eight C Links.

- **STP Ports** for connection of “A,” “C,” and “D” Links. These ports can be basic, common, or specific for each SS7-related service.

The SS7 Module assumes that each end office switch is equipped as an SSP having at least one A link to each local STP of a mated pair. STPs are linked to regional STPs that are connected to SCPs and to STPs for other networks. Software is used to control this network and the associated databases.

For basic calls, end office switches send setup messages about the dialed telephone number from the SSP to the local STP. The STP determines how the call is to be routed and reserves a path through the switched network for the call. This information is in turn relayed to each switch needed for the call, which may include a tandem switch. The SS7 network ensures efficient use of the switched network by not setting up call paths until they can be used for actual calls.

The SS7 network also is used for other services requiring database queries, including 800/888 Service number translations and LIDB (Line Information Data Base) queries.

The complete list of SS7 network elements can be found under the heading "Outputs" on page 11.

Modeling Approach

The SS7 Module is constructed as a forward-looking model of Verizon's national Signaling System 7 network. The model equations are designed for application to any state, while user inputs include the appropriate data for producing accurate state-specific results. See the following flowchart for an overview of model development and processing steps.

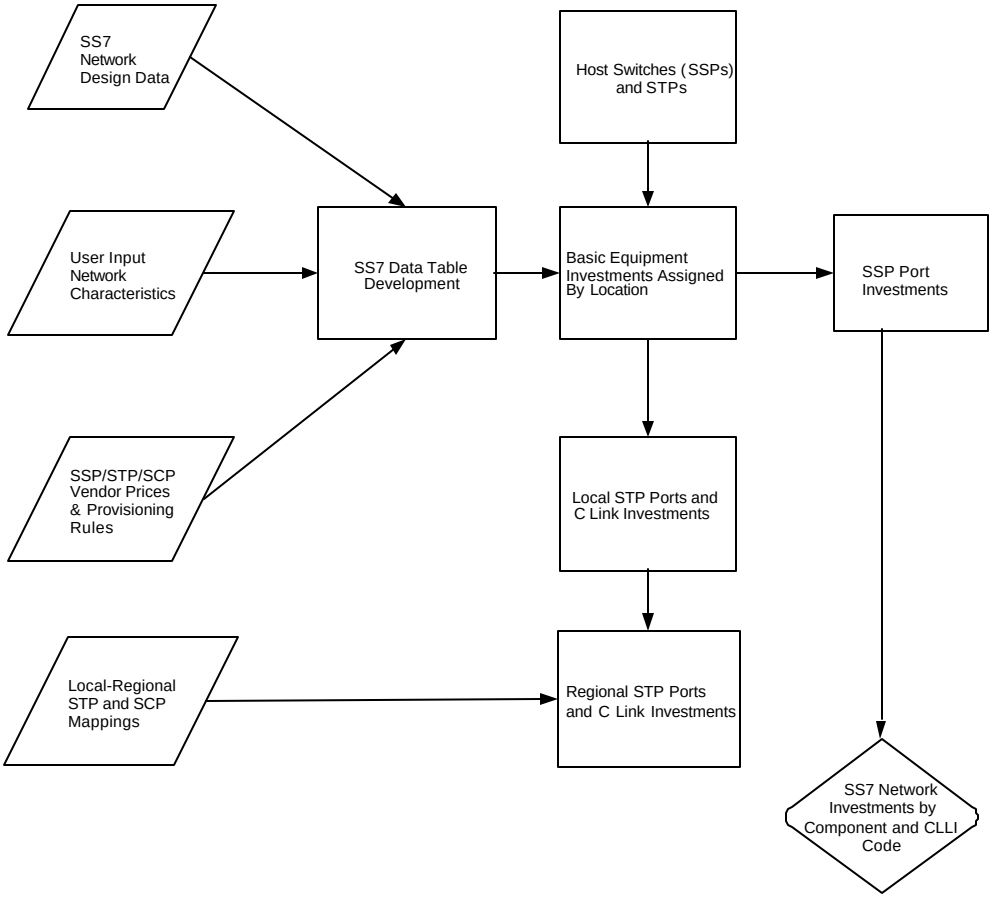


Figure 2: SS7 Flow Chart

Model development begins with a study of the SS7 network, including the engineering of SSPs, STPs, SCPs, and all of the links that connect these nodes. Engineering data is gathered from switch, STP, and SCP vendors and from Verizon network planners. The Telcordia switching model SCIS and Verizon's COSTMOD produce SSP hardware investments, while Verizon-vendor contracts include software investments. Contracts and engineering

documents enable Verizon to model the various versions of STPs and SCPs. The ICM Transport Module provides circuit equipment and cable investments for links, such as C and D links that are shared among offices. Since A link investments are office-specific, those investments are calculated within the Mapping Module. Details for each part of the model development are given below.

SSP Modeling

Each host and standalone switching office is assumed to be equipped as a Service Switching Point (SSP). Thus, the model includes ports for at least two A links between an office and the pair of STPs serving that office. Based on traffic requirements, some offices may have ports for more than two A links. The actual number of A links, from Verizon Trunk Traffic Engineering (TTE) data, is stored in the SSP Table for each office.

The SS7 Investment Table includes switching software investments for SSP ports and for processing 800 database queries. The variable "SSPIPort" is the software investment per port for the initial two ports. The variable "SSPAPort," investment per additional port, is also used if the office has more than two A links. Since no software is provisioned on a per link basis, all basic SSP software is included currently in the investment for the two initial links. These port investments are included in the costs for call setup and in the service costs for database queries. The software required for 800 database queries is identified by the Investment Table variable SSP800_SW; this software is included only in the service-level costs for 800 database queries.

The SCIS and COSTMOD switch investment models include SSP hardware as a basic switch investment. Since outputs from these models are used in the switch module, the SS7 module does not include them.

SSP software investments are stored in the SS7 Investment Table. Engineering and installation investments are added using the Engineered, Furnished, and Installed (EF&I) factors from the Switching Module.

STP Modeling

Signaling Transfer Points are modeled according to functional cost drivers, resulting in the following investment categories and corresponding SS7 Investment Table items:

Investment Category	Investment Table Variable
Direct Investment per STP Port	STPPort
STP Common Equipment	STPCommon
STP Global Title Translation Software	STP_GTTSW

The Direct Investment per STP Port and the STP Common Equipment Investment make up the switching portion of the investment per STP port

(circuit equipment and outside plant portions are addressed later). The common equipment investment is converted to common investment per port through division by number of ports. The number of ports is the STP port capacity for volume-sensitive costs and the number of ports in service for average costs; these quantities are stored in the STP Table for each STP location.

Global Title Translation (GTT) software is required to process a Transaction Capabilities Applications Part (TCAP) message for 800, LIDB, or LNP database queries. The total software investment is stored in the SS7 Investment Table, and the model calculates an investment per message by dividing the investment by number of TCAP messages. For volume-sensitive costs the number of messages is the message capacity, from the SS7 Network Parameters Table, times the number of ports in service. For average costs this quantity is adjusted by the average utilization on the links. At local STPs the A link utilization is used, and at regional STPs the D link utilization is used.

The STPs in the current network are the DMS STP, the DSC A32 and the DSC Mini STP. The DMS STP can support up to 432 links, the DSC A32 STP can support up to 720 links and the DSC Mini STP can support up to 120 links.

STP prices and provisioning rules are used to develop a “bottoms-up” model for each type of STP. That is, the specific categories of investments (port, common, GTT) consist of equipment items and quantities according to the vendor’s provisioning rules for each item. Interface cards and related shelves and frames are typically included in the direct investment per port. Other items are provisioned simply as a specific quantity per STP, such as central processors, maintenance equipment, and spare circuit packs. This equipment is generally considered common. In addition, all software related to database queries is included in the GTT Software investment.

The vendors, DMS and DSC, have specified a price per line that includes all the required STP equipment. An effective discount is developed based on this price per line and the equipment item list prices, resulting in discounted STP investments by category.

For STP values in the SS7 Investment Table, discounted STP investments are combined with investments for miscellaneous hardware, such as test equipment, routers, and workstations.

Hardware and software STP investments are stored in the SS7 Investment Table, along with specific quantities of hours for engineering, installation, and installation test labor. These hours are used with the labor rates stored in the SS7 Loading Factor Table in order to add engineering and installation investments to the hardware and software investments. Since an STP may or may not be in the same state as the end offices, each STP’s state abbreviation is stored in the STP Table so that the model can use the state-specific labor rates stored in the SS7 Loading Factor Table.

SCP Modeling

For Service Control Points the model uses investments for IBM hardware and Telcordia software. Hardware and software SCP investments are stored in the SS7 Investment Table, along with specific quantities of hours for engineering, installation, and installation test labor. ICM uses these hours with the state-specific labor rates stored in the SS7 Loading Factor Table in order to add engineering and installation investments to the hardware and software investments.

For each type of database query (DB800, LIDB, and LNP), the model computes an SCP investment per query. Investments are based on query capacities for volume-sensitive costs and on estimated query demand for average costs. Volume-insensitive investments are defined as the difference between average and volume-sensitive investments.

SCP query capacities in the Verizon SS7 network are defined as follows.

- Average number of A links between a regional STP and an SCP is 16.
- Each A link has a busy hour engineered capacity of 10, 080,000 octets.
- Total SCP octet capacity is 16 * 10,080,000 (or 161,280,000) octets.
- Value of 161,280,000 octets is divided by 94 octets[2] per query.
- As a result, the capacity for DB800 queries is estimated at 1,715,744 per SCP per busy hour.

The database query demand per SCP is estimated by multiplying the above capacity by the SCP utilization factor estimate from the SS7 Network Parameters Table.

Link Modeling

ICM models the following links in the SS7 network:

- A Links between SSP and Local STP
- D Links between Local STP and Regional STP
- D Links between Regional STPs
- A Links between Regional STPs and SCPs

The model also considers investments for C links between the mated pairs of STPs, but those links have a fixed quantity for each STP pair, which is not specific to any particular service or network element. In fact, the C links are

[2] As per the SS7 Network Parameter Table, the number of octets per query is 94.

used only for network management. Therefore, the model treats these links as shared investments for each pair of STPs.

Circuit equipment investments per link at each end of the C links are computed consistently with the mapping module calculation for a dedicated DS0 termination. For C links within a Verizon LATA, DS0 facility mileage investments are also calculated and multiplied by link mileages. For InterLATA C links the model uses the monthly lease expense.

For STP pairs within the state being studied, circuit equipment and fiber investments are taken from the transport module outputs for the respective wire center. The model identifies the wire center associated with the STP through the STP Table field "WCenter_CLLI", which is the CLLI code of the wire center switch colocated with the STP. For out-of-state STPs, such as regional STPs, the model uses the average of the transport outputs for the state being studied. This method provides for consistency of C link investments among all offices studied in a state.

Detailed descriptions for modeling of all A and D links follow.

A Links between SSP and STP

The A links between SSPs, or end offices, and STPs, is modeled both for the unbundled network element "SS7 Link" and for the SS7 call setup elements.

The unbundled SS7 link is modeled according to its wholesale rate elements, which consist of the Link Termination and the Link Facility Mileage. The Link Termination cost includes the investments of all circuit equipment required for a DS0 termination at both the SSP and the STP.

Office-level facility costs per mile for unbundled SS7 links are calculated within the Mapping Module using the same equations as for dedicated DS0 transport facilities. At the state level, the office-specific results are averaged using number of links times the total mileage of the two links as the weighting factor. Link facility costs apply only to those offices that are linked via Verizon facilities to the pair of local STPs. Thus, link facility costs are not calculated for offices using leased links to connect to the STPs. Generally, InterLATA links are leased, while most IntraLATA links are on Verizon facilities.

For SS7 call setup network elements, the link termination components are combined with the link facility components within the Mapping Module. The link facility component investment is multiplied by the route mileage between the SSP and the STP so that both termination and facility investments are identified on a per link basis. The combined investment per link is then divided by octets per link and multiplied by octets per call to obtain the link investment per call setup.

D Links between Local and Regional STPs

The D links that connect local STPs to regional STPs are used for transporting database query messages to SCPs. The SS7 Module calculates investments for those links and includes them in the basic network function cost for local-regional SS7 transport. The D link costs are also included in the service costs for database queries.

The D link costs consist of the costs per DS0 for interoffice circuit equipment at both ends, and the interoffice facilities between the STPs.

If the local and regional STPs are in the same state, then the STP-specific circuit equipment investments are used, based on the transport module outputs for the wire centers where the STPs are located. If the local and regional STPs are in different states, then the model uses the statewide-average circuit equipment investments and units from the transport module outputs. This method produces a consistent set of D Link investments among all offices in a state.

With few exceptions, the local and regional STP pairs are in different LATAs. In those cases the interoffice facilities are modeled as leased links. The monthly D link lease costs are stored in the STP Table by STP. When the local and regional STP pairs are in the same LATA, the links are modeled as Verizon facilities using an average of the DS0 transport facility costs at the two STPs. The transport facility costs at the STPs are based on the transport module outputs for the wire centers where the two pairs of STPs are located.

D Links between Regional STPs

The D links connecting two pairs of regional STPs transport database query messages across regions. These links are used when the SCP and the state being studied are in different regions. The SS7 Module calculates investments for these links and includes them in the basic network function cost for region to region SS7 transport. These D link costs are also included in the service costs for database queries.

The D link costs consist of the costs per DS0 for interoffice circuit equipment at both ends and the interoffice facilities between the STPs.

Since no two pairs of Regional STPs are in the same state, the model uses the statewide-average circuit equipment investments and units from the transport module outputs.

All combinations of regional STP pairs are also in different LATAs. Therefore, the region to region interoffice facilities are modeled as leased links. The monthly D link lease costs are stored in the STP Table by STP and by service (DB800, LIDB, and LNP).

A Links between Regional STPs and SCPs

The A links between regional STPs and SCPs are included in both network element and service-related query costs. Each SCP is collocated with a regional STP. On average, 16 A links are used between a regional STP and an SCP. In the case of the SCP collocated with an STP, the A links cost is zero because no interoffice facilities are required. In this case the cost is for Channel Bank terminations only. For the SCP collocated with the other STP in the mated pair, the A link is equivalent to the C link between the STPs, with the same circuit equipment and interoffice facility costs. Therefore, the A link cost used is half of the total cost of C links between the mated pair of regional STPs. If the regional STPs are in the same state as the state being studied, then STP-specific transport costs are used for these A links. Otherwise, the model uses statewide average component outputs from the transport module, along with the specific distances between the STPs.

Data Inputs

SS7 data inputs consist of six tables that contain all investment, expense, usage, engineering, and geographic data necessary to model the SS7 network. The Investment Table includes all SSP, STP, and SCP equipment and software utilized. Lease expenses are entered in the SSP and STP tables for all SS7 links not owned by Verizon. Usage and engineering parameters, such as octets per call and octets per link, are in the Network Parameters Table. Geographic information, such as STPs serving SSPs and distances between STPs, is stored in the SSP and STP tables. The model also includes a loading factor table containing state-specific hardware and software minor material loadings and labor rates for all states in the SS7 network of the state being studied.

Appendix A contains detailed information about the data inputs and their impacts on the outputs.

Pre-processing

Based on network requirements and engineering planning guidelines, the number and type of each component used in the SS7 network is determined external to the model. The state-specific forward-looking local telephone network and the forward-looking national SS7 network are the bases for identifying the required investments and characteristics. Each end office is assumed to be an SS7-equipped digital switch having A links directly to a mated pair of STPs to ensure reliable service. Hardware and software investments for each SS7 component are developed through detailed modeling of the engineering for each switch technology type (DMS-100, 5ESS, etc.) and each STP type (Nortel DMS STP or a DSC version). These investments are entered according to the appropriate unit cost driver, e.g. port, link, query, etc.

All applicable link lease expenses are calculated during pre-processing and entered into the SSP (for SSP-STP A links) and STP (for C and D links) tables.

Model Processing

The SS7 Module calculates the component investments by CLLI code required by the Mapping Module for cost studies of SS7-related network elements and services. Following is a summary of the steps involved after all of the pre-processing and entry of data inputs.

- Investment Table values are combined with the minor material factors, Switch EF&I factors, and labor rates from the Loading Factors Table to determine total investment for each table item.
- STP link and port investments and units are calculated for each local STP in the state's network.
- STP link and port investments and units are calculated for each regional STP serving the state.
- SSP-specific link and port investments and units are calculated for each host/standalone office in the SSP Table.
- Local and regional STP investments and units are assigned to the SSPs according to the SSP-STP serving arrangements listed in the SSP Table.
- The ACTSS7H host component output file is populated with the above results by host/standalone CLLI code.
- The ACTSS7R remote component output file is populated with the respective host results for each remote.
- The ICM system-wide component output table, ACTCMPNT, is populated with the results from ACTSS7H and ACTSS7R.

Outputs

The SS7 Module produces component investments by CLLI code for the following types of costs:

Average Cost- based on total costs and the estimated actual average busy hour usage of the network elements. Usage is estimated at 25 and 50% of usable capacity for the A and D links, respectfully.[3]

Volume Sensitive Cost- based on the maximum usable capacity of the network element, and including only equipment having investments that vary with demand.

[3] Usable capacity is defined as 10,080,000 octets per link per busy hour. All other usage-sensitive capacities are derived from this value, which is based on 40 percent engineered maximum occupancy on 56 Kbps links.

Volume Insensitive Cost- based on the part of the average cost that is not recovered by the volume sensitive cost at average usage. It is the difference between total cost and volume sensitive cost.

Appendix A contains details about the SS7 Module component outputs and their impact on network element and service cost outputs.

The Mapping / Reports Module uses component investments for the categories listed above to produce total investments and unit costs for the following Basic Network Functions (BNF)s:

- SS7
  - SS7 Link - Termination
  - SS7 Link – Facility / Route Mile – DS0
  - SS& Link – Facility / Route Mile – DS1
  - STP Port
- Call Related Databases
  - DB800 Query
  - LIDB Query
  - CNAM Query
- SS7 Database Related Call Setups
  - DB800 Call Setup
  - LIDB Call Setup
  - CNAM Call Setup
- SS7 Database Transport –Local STP to Regional STP / Query
  - DB800 Transport
  - LIDB Transport
  - CNAM Transport
- SS7 Transport Local STP to Regional STP / Month
- SS7 Transport Regional STP to Regional STP/ Month

The SS7 Cost per Call Setup listed above is in addition to the call setup cost calculated within the Switching Module. The Switching Module provides the cost components for call setup within the switch, including the SSP hardware, while the SS7 Module provides the components for SSP software, SSP-STP links, and STP ports. The Mapping Module uses ICM usage parameter inputs

to convert SS7 Module outputs from busy hour investments to costs for any call in a any day.

The Mapping Module uses the above BNF outputs to calculate the following SS7-related Unbundled Network Element (UNE) costs:

- SS7 Access Service
  - DSAL – 56 KB
  - DSAL – DS1
  - DSAT – 56KB Facility per ALM
  - DSAT – DS1 Facility per ALM
  - STP Port Termination
- Call Related Databases
  - Carrier Selection Service – DB800 Query
  - LIDB Query
  - CNAM Query
- SS7 Query Setup
  - DB800 Query Setup
  - CNAM Query Setup
- SS7 Query Transport
  - DB800 Query Transport
  - CNAM Query Transport
- SS7 Transport (/Month)
  - Transport – Local STP to Regional STP
  - Transport – Regional STP to Regional STP

The Switching Cost per Call Setup listed above combines the switch and SS7 call setup costs for a total investment per call setup.

The Mapping Module also uses the SS7 BNF outputs to calculate product/service costs for call setup and for database queries.

Appendix A: Data Tables (SS7)

The data **input** and **output** tables are listed below. The name of each database (db) file is listed below; often the first two letters indicate state (that is, xxexbase.db). A user may modify data in all of the tables listed below. Detailed descriptions of each of the tables are provided in the following section.

Following the description of data input and output tables, a bubble chart for SS7 is provided under the heading "Processing Flow". The chart contains a graphic presentation of the database files that are input to and outputs of the SS7 Module.

SS7 Data Input Tables

- Service Switching Point (SSP) [xxSSP.DB]
- Signal Transfer Points (STP) [xxSTP.DB]
- STP Location [xxSTPLoc.DB]
- SS7 Investment [xxSS7Inv.DB]
  - SS7 Investment Table Item Descriptions
- Network Parameters [xxSS7Par.DB]
  - SS7 Network Parameters Table Item Descriptions
- Loading Factor [xxLoad.DB]

SS7 Data Output Tables

- SS7 Host Component Output [ACTSS7H.DB]
- SS7 Remote Component Output [ACTSS7R.DB]

Processing Flow

- SS7 bubble chart

Data Input Tables (SS7)

The data input tables are listed below. The input tables can be viewed and printed by selecting **View Tables / SS7** on the tool bar.

Table Name	File Name	Purpose	Column Headings	Description of Column Headings
Service Switching Point (SSP)	XXSSP.DB	Provides CLLI Code for Service Switching Points (SSP) in the state, along with the CLLI codes of STPs supporting the SSPs. As part of a forward-looking model, each host/remote office is assumed to be SSP equipped.	SSP_CLLI	The CLLI code for each host end office in the state
			LOCAL_STP1	Local STP 1 CLLI code
			LOCAL_STP2	Local STP 2 CLLI code
			ALINKS	Number of A Link Ports (minimum of two ports)
			A1 EXPENSE	Monthly Lease Expense to Local STP 1
			A2 EXPENSE	Monthly Lease Expense to Local STP 2
Signal Transfer Points (STP)	XXSTP.DB	Provides general data about regional and local STP, such as geographic coordinates, port qualities, and expenses for links to other STPs.	STP_CLLI	STP CLLI code
			WCENTER CLLI	CLLI code of Wire Center where STP is located
			STATE	Two Character state abbreviation

Table Name	File Name	Purpose	Column Headings	Description of Column Headings
			STP_TYPE	Abbreviation of STP Vendor/Version Modeled
			STP_LATITUDE	STP Latitude in degrees
			STP_LONGITUDE	STP Longitude in degrees
			PORTS_INSVC	Number of STP Ports in Service
			PORTCAP	STP Port Capacity
			REGIONAL_STP1	Regional STP1 CLLI Code
			REGIONAL_STP2	Regional STP2 CLLI Code
			CLINKS	Number of C Links
			CLINK_DISTANCE	Distance of C Links to the Mate STP
			CLINK_EXPENSE	Average Monthly Lease Expense per Link to Mate STP
			DLINK_EXPENSE	Average Monthly Lease Expense per Link to Regional STP
			DB800LINK_EXP	Average Monthly Lease Expense for Links between Regional STPs and DB800 Regional STPs
			LIDBLINK_EXP	Average Monthly Lease Expense for Links between Regional STPs and LIDB Regional STPs
			LNPLINK_EXP	Average Monthly Lease Expense for Links between Regional STPs and LNP Regional STPs (not currently used)
			AINLINK_EXP	Average Monthly Lease Expense for Links between Regional STPs and AIN Regional STPs (not currently used)

Table Name	File Name	Purpose	Column Headings	Description of Column Headings
STP Location	XXSTPLoc.DB	For each regional STP, indicates where each pair of service-specific SCPs is located.	REGIONAL_STP1	Regional STP CLLI code
			DB800_PriSCP1	CLLI Code of STP colocated with first primary DB800 SCP
			DB800_PriSCP2	CLLI Code of STP colocated with second primary DB800 SCP
			DB800_SecSCP1	CLLI Code of STP colocated with first secondary DB800 SCP
			DB800_SecSCP2	CLLI Code of STP colocated with second secondary DB800 SCP
			LIDB_PriSCP1	CLLI Code of STP colocated with first primary LIDB SCP
			LIDB_PriSCP2	CLLI Code of STP colocated with second primary LIDB SCP
			LIDB_SecSCP1	CLLI Code of STP colocated with first secondary LIDB SCP
			LIDB_SecSCP2	CLLI Code of STP colocated with second secondary LIDB SCP
			LNP_PriSCP1	CLLI Code of STP colocated with first primary LNP SCP (not currently used).
			LNP_PriSCP2	CLLI Code of STP colocated with second primary LNP SCP (not currently used).
			LNP_SecSCP1	CLLI Code of STP colocated with first secondary LNP SCP (not currently used).
			LNP_SecSCP2	CLLI Code of STP colocated with second secondary LNP SCP (not currently used).
			AIN_PriSCP1	CLLI Code of STP colocated with first primary AIN SCP (not currently used).

Table Name	File Name	Purpose	Column Headings	Description of Column Headings
			AIN_PriSCP2	CLLI Code of STP colocated with second primary AIN SCP (not currently used).
			AIN_SecSCP1	CLLI Code of STP colocated with first secondary AIN SCP (not currently used).
			AIN_SecSCP2	CLLI Code of STP colocated with second secondary AIN SCP (not currently used).
SS7 Investment	XXSS7INV.DB	Provides SS7 hardware and software investment by network component along with estimated labor hours.	NODE_TYPE	Type of SS7 Network Node (e.g. SSP/STP/SCP)
			ITEM	Investment Table Item Code (e.g. “SSPPort_HW”)
			TECHNOLOGY	Type of SSP or STP (e.g. DMS-100, DSC-A32)
			ACCOUNT	Part 32 Account Code
			HARDWARE	Hardware Investment Value
			SOFTWARE	Software Investment Value
			ENG_HRS	Engineering Hours
			INST_HRS	Installation Hours
			TEST_HRS	Installation Testing Hours

SS7 Investment Table Item Descriptions

CODE	DESCRIPTION	IMPACTS
SCPInv	Total Investment per Service Control Point; IBM hardware and Telcordia software investments are identified in respective columns, including vendor installation and engineering. Additional Verizon engineering hours are indicated in the table.	DB800 Query, LIDB Query, LNP Query
SCP_SPEC_CKT	The code name is the hardware investment for the Digital Service Unit/Channel Service Unit DSC/CSU) special circuit termination of the A-Link at a SCP. The input table values are engineering labor and installation labor for the special circuit to the SCP.	SS7 Call Setup DB800 Query, LIDB Query, LNP Query
SSP800_SW	Right-to-use (RTU) fees for end office software to support toll-free calling. Includes software for 800, 888, and any other new types of toll-free calling numbers.	DB800 Query (Service Only)
SSPIPort	Investment per port at an end office (SSP), for the initial pair of ports. The investment for the additional ports may differ from the investment for the initial pair of ports because of SS7-related fixed investments, such as frames and spare circuit packs, that are included only in the investments for initial ports. Initial port investments consist of both hardware and software.	SS7 Call Setup
SSPAPort	Hardware investment per additional port at an end office (SSP), beyond the initial pair of ports. The investment for the additional ports may differ from the investment for the initial pair of ports because of SS7-related fixed investments, such as frames and spare circuit packs, that are included only in the investments for initial ports. Depending upon the STP vendor, this item may include software as well as hardware.	SS7 Call Setup, only when more than 2 SSP-STP A links are used.
SSP_SPEC_CKT	The code name is the hardware investment for the Digital Service Unit/Channel Service Unit (DSC/CSU) special circuit termination of the A-Link at an SSP. The input values are engineering labor and installation labor for the special circuit at the SSP	SS7 Call Setup SS7 Call Setup DB800 Query, LIDB Query, LNP Query
STPCommon	Common equipment investment per STP, by vendor and STP type (DMS-STP, DSC-A32, or DSC-Mini). This investment includes all equipment in an STP that is not provisioned on a per port basis. Examples include central processing units, maintenance and test equipment, alarms, and spare circuit packs. Common equipment investment may include both hardware and software.	STP Port, SS7 Call Setup, DB800 Query, LIDB Query, LNP Query
STPPort	Direct investment per port, by vendor and STP type (DMS-STP, DSC-A32, or DSC-Mini). This investment includes only the plug-in cards and equipment having quantities dependent upon number of ports, such as certain shelves and frames. Direct investment per port may include both hardware and software.	STP Port, SS7 Call Setup, DB800 Query, LIDB Query, LNP Query

CODE	DESCRIPTION	IMPACTS
STP_GTTSW	STP software RTU fees required specifically for Global Title Translations (GTT). GTT software allows for appropriate routing of database query messages, such as for toll-free calling or credit card validation, to SCPs. This routing information is in the form of Transaction Capabilities Applications Part (TCAP) messages.	DB800 Query, LIDB Query, LNP Query

Table Name	File Name	Purpose	Column Headings	Description of Column Headings
Loading Factor	XXLOAD.DB	Provides state-specific minor material loadings and labor rates to convert material investments to total investments. Calculated total investments then include all associated minor material and labor investments.	STATE	Two-Character state abbreviation
			HW_FACTOR	Hardware Minor Material/Supply Loading Factor
			SW_FACTOR	Software Minor Material/Supply Loading Factor
			ENG_RATE	Engineering Labor Rate per Hour (Labor Group (011))
			INST_RATE	Installation Labor Rate per Hour (Labor Group (101))
			TEST_RATE	Maintenance/Testing Labor Rate per Hour (Labor Group (211))
Network Parameters	XXSS7.DB	Provides SS7 network engineering and utilization data required for cost calculations.	CODE	Network Parameter Code
			DESCRIPTION	Description of Network Parameter
			VALUE	Network Parameter Value

SS7 Network Parameters Table Item Descriptions

CODE	DESCRIPTION	IMPACTS
OctetCap	Busy hour engineered octet capacity per SS7 link, where an octet is eight bits of signaling information. Links are 56 Kbps circuits engineered at 40 percent maximum occupancy, so the busy hour engineered capacity is 56,000 bits/second * 8 bits/octet * 3600 seconds/hour * 40% = 10,080,000 octets.	SS7 Call Setup, DB800 Query, LIDB Query, LNP Query
CallOctets	Number of signaling octets required to set up an interoffice call. Value from Verizon Network Dimensioning document is 100 octets.	SS7 Call Setup
DB8000ctets	Number of signaling octets required for a query to a toll-free calling database. Value from Verizon SS7 Network Traffic studies is 94 octets.	DB800 Query
LIDBOctets	Number of signaling octets required for a query to a Line Information Database (LIDB), for services such as credit card validation. Value from Verizon SS7 Network Traffic studies is 83 octets.	LIDB Query
LNPOctets	Number of signaling octets required for a query to a Local Number Portability database. Value from Verizon SS7 Network Traffic studies is 113 octets.	LNP Query
DB800Util	Average capacity utilization of links to SCPs for toll-free calling databases, including D links between regional STPs and A links between regional STPs and SCPs, as a fraction of parameter *OctetCap*. (User changeable value).	DB800 Query
LIDBUtil	Average capacity utilization of links to SCPs for LIDB queries, including D links between regional STPs and A links between regional STPs and SCPs, as a fraction of parameter *OctetCap*. (User changeable value).	LIDB Query
LNPUtil	Average capacity utilization of links to SCPs for LNP queries, including D links between regional STPs and A links between regional STPs and SCPs, as a fraction of parameter *OctetCap*. (User changeable value).	LNP Query
ALinkUtil	Average capacity utilization of A links between SSPs and local STPs, as a fraction of parameter *OctetCap*. (User changeable value).	SS7 Call Setup
DLinkUtil	Average capacity utilization of D links between local STPs and local STPs, as a fraction of parameter *OctetCap*. (User changeable value).	DB800 Query LIDB Query LNP Query
STPMtceGrowth	STP maintenance and growth factor; investment per port is multiplied by (1 + STPMtceGrowth) to reflect ports reserved for these purposes. Model uses 8 percent of port capacity for growth and 10 percent for maintenance.	STP Port, SS7 Call Setup, DB800 Query, LIDB Query, LNP Query
SCPALinks	Number of A links between a regional STP and an SCP. Model currently uses average value of 16 A links.	DB800 Query, LIDB Query, LNP Query

CODE	DESCRIPTION	IMPACTS
TestPorts	Number of ports per STP reserved for testing. Model currently uses engineering standard value of 4 ports per STP.	STP Port, SS7 Call Setup, DB800 Query, LIDB Query, LNP Query
ISUPOctets	Average number of octets per message for basic interoffice call setup. These messages use ISDN User Part (ISUP) protocol. Model uses 25 octets per message, from Nortel SS7 engineering document. Value is used along with *TCAPOctets*, described below, to estimate TCAP message capacity per STP port.	DB800 Query, LIDB Query, LNP Query
TCAPOctets	Average number of octets per message for database queries. These messages use Transaction Capabilities Applications Protocol (TCAP) protocol. Model uses 80 octets per message, from Nortel SS7 engineering document. Value is used along with *ISUPOctets*, described above, to estimate TCAP message capacity per STP port (GTTMsgCap).	DB800 Query, LIDB Query, LNP Query
GTTMsgCap	Busy Hour capacity per port for TCAP messages. Model assumes that, for each call requiring a database lookup, one TCAP message and five ISUP messages are used. Therefore, TCAP message capacity is estimated, using OctetCap, as 10,080,000 octets per port / ((5 ISUP messages per TCAP message * 25 octets per ISUP message) + 80 octets per TCAP message) = 10,080,000 ÷ 205, or 49,170 TCAP messages per port.	DB800 Query, LIDB Query, LNP Query
STPFill	Fill factor (fraction of capacity) for STP ports. STP port capacity is adjusted by this value for calculating volume-sensitive investment per port. Model currently uses default value of 1 to indicate 100 percent.	STP Port, SS7 Call Setup, DB800 Query, LIDB Query, LNP Query
PL2RQ	Percent of Local STP to Regional STP queries originated by Verizon. Value from the Verizon SS7 Network Traffic Studies is 95%.	DB800 Query LIDB Query CNAM Query
PR2QR	Percent of Regional STP to Regional STP queries originated by Verizon. Value from the Verizon SS7 Network Traffic Studies is 95%.	DB800 Query LIDB Query CNAM Query
UL2RT	Current number of users purchasing Local STP to Regional STP transport. Default value is 10.	SS7 Transport
UR2RT	Current number of users purchasing Region STP to Regional STP transport. Default value is 10.	SS7 Transport

Data Output Tables (SS7)

The data output tables are listed below. The output tables can be **viewed** using tool bar selection **Utilities / Index Table Viewer / Source / Open Table / ACTSS7H.DB or ACTSS7R.DB.** The output tables can be **viewed and printed** using tool bar selection **Utilities / Query / Select Table / Open Table / ACTSS7H.DB or ACTSS7R.DB / Print Table.**

Table Name	File Name	Purpose	Column Headings	Description of Column Headings
SS7 Host Component Output	ACTSS7H	Provides the SS7 network investments by component for host[4] and standalone office. The included components and function of these outputs are defined in the SS7 Output Descriptions table below.	CLLI	The CLLI code for host/standalone office
			ACCOUNT	The part 32 account number associated with SS7 investment or cost components
			COMPONENT	Describes the investment or unit (e.g., miles, octets, or links) component. See SS7 Output Description Table below for more complete definitions
			CATEGORY	Value of 7 identifies the investment or unit component is SS7 related
			TOTAL INV	Total incremental component investment or unit value, by CLLI code, for average cost purposes. Investment values are based upon demand by cost driver (e.g., octets, queries, etc.).

[4] ACTSS7R file is populated with the host SS7 component values for each remote.

Table Name	File Name	Purpose	Column Headings	Description of Column Headings
			VS INV	Incremental component investment or unit values, by CLLI code, for volume-sensitive cost purposes. Unit values in this column are equal to values in the TOTAL INV column. Investment values are based upon usable equipment capacity.
			VIS INV	Investment component or unit values, by CLLI code, for volume-insensitive cost purposes. Unit values in this column are equal to values in the TOTAL INV column. Investment values reflect the difference between average and volume-sensitive investments.

SS7 Module Output Descriptions (In ACTSS7H and ACTSS7R Tables)

The following components are outputs from the SS7 Investment Module. The values are placed in the ACTSS7H file for host offices. Remote offices use the SS7 links terminating at their respective host offices, so the host values are used for each remote in the ACTSS7R file.

COMPONENT CODE	DESCRIPTION	IMPACTS
ALINK800AERF	Aerial fiber investment required for an A link between a regional STP and 800 database SCP. Value is actually half of the aerial fiber investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	DB800 Query
ALINK800BURF	Buried fiber investment required for an A link between a regional STP and 800 database SCP. Value is actually half of the buried fiber investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	DB800 Query
ALINK800CKT	Circuit equipment investment required for an A link between a regional STP and 800 database SCP. Value is actually half of the circuit equipment investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no additional facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of the DSU/CSU termination investment and the full link investment is used.	DB800 Query
ALINK800COND	Conduit investment required for an A link between a regional STP and 800 database SCP. Value is actually half of the conduit investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	DB800 Query
ALINK800POLE	Pole investment required for an A link between a regional STP and 800 database SCP. Value is actually half of the pole investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with	DB800 Query

	the other regional STP. Thus, an average of 0 and the full link investment is used.	
ALINK800UNDF	Underground fiber investment required for an A link between a regional STP and 800 database SCP. Value is actually half of the underground fiber investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	DB800 Query
ALINKCKT=0	Investment for special termination equipment, beyond the basic equipment required for DS0 terminations. This investment is no longer required because the functions are integrated in channel banks and STP Ports.	SS7 Link - Termination; DB800 Query Service, LIDB Query Service, LNP Query Service.
ALINKDISTANCE	For SSP-STP A links that are on Verizon facilities, this value is the sum of the mileages of the two A links in the link pair. If the link pair is leased, this value is 0. If one of the links in the pair is leased, then the mileage for the other link is used. In the calculation of the SS7 Call Setup Cost this total distance is multiplied by the SS7 Link Facility Cost per Mile for a total DS0 investment, which is then converted to investment per octet and to investment per call. This value is also multiplied by ALINKS to obtain the weighting factor for calculating the state-average SS7 Link Facility Cost per Mile.	SS7 Call Setup; DB800 Query Service, LIDB Query Service, LNP Query Service.
ALINKEXP	Total monthly lease expense, where applicable, for the pair of SSP-STP A links, which is used only in the SS7 call setup investment. This value is the sum of the A link lease expenses on each link in the link pair. Generally, a link is leased if it crosses a LATA boundary; otherwise, with a few exceptions, the link is on Verizon interoffice facilities.	SS7 Call Setup; DB800 Query Service, LIDB Query Service, LNP Query Service.
ALINKLIDBAERF	Aerial fiber investment required for an A link between a regional STP and LIDB SCP. Value is actually half of the aerial fiber investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	LIDB Query
ALINKLIDBBURF	Buried fiber investment required for an A link between a regional STP and LIDB SCP. Value is actually half of the buried fiber investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	LIDB Query
ALINKLIDBCKT	Circuit equipment investment required for an A link between a regional STP and LIDB SCP. Value is actually half of the circuit equipment investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no additional facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an	LIDB Query

	average of the DSU/CSU termination investment and the full link investment is used.	
ALINKLIDBCOND	Conduit investment required for an A link between a regional STP and LIDB SCP. Value is actually half of the conduit investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	LIDB Query
ALINKLIDBPOLE	Pole investment required for an A link between a regional STP and LIDB SCP. Value is actually half of the pole investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	LIDB Query
ALINKLIDBUNDF	Underground fiber investment required for an A link between a regional STP and LIDB SCP. Value is actually half of the underground fiber investment per link between the pair of regional STPs. This method is used because each regional STP is colocated with one SCP, requiring no interoffice facilities, while the regional STP does have an interoffice link to the SCP colocated with the other regional STP. Thus, an average of 0 and the full link investment is used.	LIDB Query
ALINKOCTETS	Octet demand per SSP-STP A Link. Value is derived as busy hour usable link octet capacity (10,080,000), from SS7 Network Parameters table, times the A link utilization factor, also from the SS7 Network Parameters Table.	SS7 Call Setup
ALINKS	Number of A links between the office (SSP) and its pair of local STPs. Value is used with SSP equipment investment to determine investment per SSP port for call setup cost. ALINKS is also used as the weighting factor for state-average SS7 link termination and STP Port costs. ALINKS is multiplied by ALINKDISTANCE to obtain weighting factor for state-average SS7 Link Facility Cost per Mile.	SS7 Call Setup; SS7 Link – Termination, SS7 Link – Facility Mileage, & STP Port (state-level only)
CALLOCTETS	Number of octets per interoffice call for the signaling portion of call setup, from the SS7 Network Parameters Table. Costs per octet for SSP, SS7 link, and STP port equipment are multiplied by this value to obtain the SS7 cost for call setup.	SS7 Call Setup
DB800OCTETS	Number of octets per query to a database for toll-free calling, from the SS7 Network Parameters Table. Value is multiplied by regional STP and D link costs per octet to obtain those components' contribution to the Cost per DB800 Query.	DB800 Query
DLINK800CKT	Circuit equipment investment per D link from the regional STP pair closest to the local STPs to the regional STP pair colocated with the 800 database SCPs. Value is the total investment for circuit equipment at both ends of the link. Model uses the average of the investments for the links to each STP of the primary and secondary regional STP pairs for 800 queries.	DB800 Query (Service Only)
DLINK800EXP	Monthly lease expense for a D link from the regional STP pair closest to the local STPs to the regional STP pair colocated with the 800 database SCPs. Value is an average of	DB800 Query (Service Only)

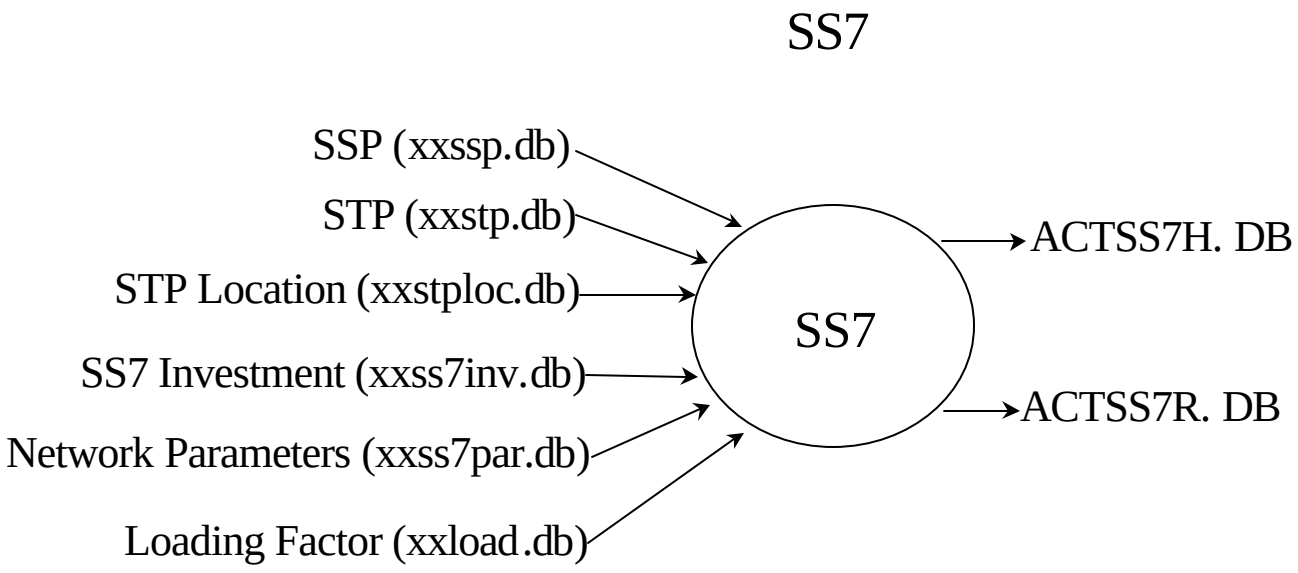
	the lease expenses to each STP of the primary and secondary regional STP pairs for 800 queries.	
LINK800OCTETS	Average octet demand on D links between pairs of regional STPs for 800 database queries, based on measured SS7 network traffic characteristics. Value is octet capacity per link, from the SS7 Network Parameters Table, times the 800/888 SCP average utilization, also from the Network Parameters Table.	DB800 Query
DLINKAERF	Aerial fiber investment required for a D link between a local STP and a regional STP. Applies only when the local and regional STPs are in the same LATA. Value is the average of investments for links from each local STP of a mated pair to each regional STP in a mated pair.	DB800 Query, LIDB Query, LNP Query (Service Only)
DLINKBURF	Buried fiber investment required for a D link between a local STP and a regional STP. Applies only when the local and regional STPs are in the same LATA. Value is the average of investments for links from each local STP of a mated pair to each regional STP in a mated pair.	DB800 Query, LIDB Query, LNP Query (Service Only)
DLINKCKT	Underground fiber investment required for a D link between a local STP and a regional STP. Applies only when the local and regional STPs are in the same LATA. Value is the average of investments for links from each local STP of a mated pair to each regional STP in a mated pair.	DB800 Query, LIDB Query, LNP Query (Service Only)
DLINKCOND	Conduit investment required for a D link between a local STP and a regional STP. Applies only when the local and regional STPs are in the same LATA. Value is the average of investments for links from each local STP of a mated pair to each regional STP in a mated pair.	DB800 Query, LIDB Query, LNP Query (Service Only)
DLINKEXP	Monthly link lease expense for a D link between a local STP and a regional STP. Applies when the local and regional STPs are in different LATAs. Value is the average of lease expenses for links from each local STP of a mated pair to each regional STP in a mated pair.	DB800 Query, LIDB Query, LNP Query (Service Only)
DLINKOCTETS	Octet demand per D link between local and regional STPs. Value is result of busy hour usable link octet capacity (10,080,000), from SS7 Network Parameters Table, times the D link utilization factor, also from the SS7 Network Parameters Table.	DB800 Query, LIDB Query, LNP Query (Service Only)
DLINKPOLE	Pole investment required for a D link between a local STP and a regional STP. Applies only when the local and regional STPs are in the same LATA. Value is the average of investments for links from each local STP of a mated pair to each regional STP in a mated pair.	DB800 Query, LIDB Query, LNP Query (Service Only)
DLINKUNDF	Underground fiber investment required for a D link between a local STP and a regional STP. Applies only when the local and regional STPs are in the same LATA. Value is the average of investments for links from each local STP of a mated pair to each regional STP in a mated pair.	DB800 Query, LIDB Query, LNP Query (Service Only)
LINKLIDBCKT	Circuit equipment investment per D link from the regional STP pair closest to the local STPs to the regional STP pair colocated with the LIDB SCPs. Value is the total investment for circuit equipment at both ends of the link. Model uses the average of the investments for the links to each STP of the primary and secondary regional STP pairs for LIDB queries.	LIDB Query (Service Only)
LINKLIDBEXP	Monthly lease expense for a D link from the regional STP	LIDB Query

	pair closest to the local STPs to the regional STP pair colocated with the LIDB SCPs. Value is an average of the lease expenses to each STP of the primary and secondary regional STP pairs for LIDB queries.	(Service Only)
LINKLIDBOCTETS	Average octet demand on D links between pairs of regional STPs for LIDB queries, based on measured SS7 network traffic characteristics. Value is octet capacity per link, from the SS7 Network Parameters Table, times the LIDB SCP average utilization, also from the Network Parameters Table.	LIDB Query
LIDBOCTETS	Number of octets per query to a Line Information Database, from the SS7 Network Parameters Table. Value is multiplied by regional STP and D link costs per octet to obtain those components' contribution to the Cost per LIDB Query.	LIDB Query
LNPOCTETS	Number of octets per Local Number Portability query, from the SS7 Network Parameters Table. Value is multiplied by regional STP and D link costs per octet to obtain those components' contribution to the Cost per LNP Query.	LNP Query
PORTLIDBAERF	Aerial fiber investment per regional STP port for access to a LIDB database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	LIDB Query
PORTLIDBBURF	Buried fiber investment per regional STP port for access to a LIDB database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	LIDB Query
PORTLIDBCKT	Circuit equipment investment per regional STP port for access to a LIDB database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	LIDB Query
PORTLIDBCOND	Conduit investment per regional STP port for access to a LIDB database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	LIDB Query
PORTLIDBPOLE	Pole investment per regional STP port for access to a LIDB database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	LIDB Query
PORTLIDBSWT	Switching equipment investment per regional STP port for access to a LIDB database. This value consists of the direct hardware and software investment per port, plus the STP common equipment investment. The common equipment investment is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	LIDB Query
PORTLIDBUNDF	Underground fiber investment per regional STP port for access to a LIDB database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average	LIDB Query

	costs.	
PORT800AERF	Aerial fiber investment per regional STP port for access to an 800 database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query
PORT800BURF	Buried fiber investment per regional STP port for access to an 800 database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query
PORT800CKT	Circuit equipment investment per regional STP port for access to an 800 database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query
PORT800COND	Conduit investment per regional STP port for access to an 800 database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query
PORT800POLE	Pole investment per regional STP port for access to an 800 database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query
PORT800SWT	Switching equipment investment per regional STP port for access to an 800 database. This value consists of the direct hardware and software investment per port, plus the STP common equipment investment. The common equipment investment is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query
PORT800UNDF	Underground fiber investment per regional STP port for access to an 800 database. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query
RSPORTAERF	Aerial fiber investment per regional STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query, LIDB Query, LNP Query (Service Only)
RSPORTBURF	Buried fiber investment per regional STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query, LIDB Query, LNP Query (Service Only)
RSPORTCKT	Circuit equipment investment per regional STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query, LIDB Query, LNP Query (Service Only)

RSPORTCOND	Conduit investment per regional STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query, LIDB Query, LNP Query (Service Only)
RSPORTPOLE	Pole investment per regional STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query, LIDB Query, LNP Query (Service Only)
RSPORTSWT	Switching equipment investment per regional STP port. This value consists of the direct hardware and software investment per port, plus the STP common equipment investment. The common equipment investment is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query, LIDB Query, LNP Query (Service Only)
RSPORTUNDF	Underground fiber investment per regional STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	DB800 Query, LIDB Query, LNP Query (Service Only)
SCP800	SCP investment per query for toll-free calling, including calls using 800, 888, and other toll-free numbers. Total SCP hardware and software investment is divided by the query capacity for volume-sensitive costs and by estimated query demand for average costs. Query capacity is calculated using the query capacity per SS7 link times 16 average STP-SCP A links per SCP.	DB800 Query
SCPLIDB	SCP investment per query to a Line Information Database, for services such as Credit Card Validation. Total SCP hardware and software investment is divided by the query capacity for volume-sensitive costs and by estimated query demand for average costs. Query capacity is calculated using the query capacity per SS7 link times 16 average STP-SCP A links per SCP.	LIDB Query
SSP800PORT	RTU fees for end office software to support access to toll-free calling databases.	DB800 Query (Retail service only)
SSPPORT	End office investment per port for Service Switching Point (SSP) equipment, including hardware and software. Total investment is divided by ALINKS, the number of links terminating at the office.	SS7 Call Setup
STPPORTAERF	Aerial fiber investment per local STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	STP Port
STPPORTBURF	Buried fiber investment per local STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	STP Port
STPPORTCKT	Circuit equipment investment per local STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports	STP Port

	in service for average costs.	
STPPORTCOND	Conduit investment per local STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	STP Port
STPPORTEXP	Monthly leased link expense per local STP port. This value, if applicable, is for the C links between the mated pair of STPs. The total lease expense for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs. The link lease expense applies only when the mated pair of local STPs are in different LATAs.	STP Port
STPPORTPOLE	Pole investment per local STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	STP Port
STPPORTSWT	Switching equipment investment per local STP port. This value consists of the direct hardware and software investment per port, plus the STP common equipment investment. The common equipment investment is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	STP Port
STPPORTUNDF	Underground fiber investment per local STP port. This investment is for the C links between the mated pair of STPs. The total investment for the C links is divided by the STP port capacity for volume-sensitive costs and by the STP ports in service for average costs.	STP Port
TCAPSWL	Local STP Right-to-Use (RTU) fees for Global Title Translation (GTT) software that provides for routing of database query messages using Transaction Capabilities Application Part (TCAP) protocol. Total investment is divided by TCAP message capacity for volume-sensitive costs and by estimated TCAP message demand for average costs.	DB800 Query, LIDB Query, LNP Query
TCAPSWR	Regional STP Right-to-Use (RTU) fees for Global Title Translation (GTT) software that provides for routing of database query messages using Transaction Capabilities Application Part (TCAP) protocol. Total investment is divided by TCAP message capacity for volume-sensitive costs and by estimated TCAP message demand for average costs.	DB800 Query, LIDB Query, LNP Query

Processing Flow

The SS7 bubble-chart provides a graphic view of the database files that are input to and output of the SS7 Module.