

**TRUNKING DATA**  
**OVERVIEW**  
**NETWORK SWITCHING ENGINEERING—TRUNKING DATA**  
**NETWORK SERVICES METHODS**

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1. GENERAL . . . . .	1	<b>1.03</b> References in this section to methods, planning, data requirements, service levels, and equipment quantities are based on American Telephone and Telegraph Company recommendations.
2. IMPORTANCE OF TRUNKING DATA . . . . .	2	<b>1.04</b> For the standard meaning of terms and definitions used in this section, refer to Section 780-400-305, Glossary of Trunk Facilities Terms and Definitions.
A. Objectives of Trunking Data Collection and Processing . . . . .	2	<b>1.05</b> For the purposes of this section, data are defined as measures or estimates of the levels, characteristics, or distribution of customer generated traffic flow that change over time. Data include measures of attempts, successful and unsuccessful, to use various elements of the message network. In addition, data include measures of the volume and characteristics of particular items or categories of traffic and volumes of delays encountered.
B. Timeliness of Trunking Data . . . . .	2	<b>1.06</b> The term "data", as used in this section, does not encompass the trunk record information that identifies volumes, locations, detailed connection arrangements, or assignments of the elements of hardware of the network or the logic of the software systems included in the network.
C. Quality of Trunking Data . . . . .	2	<b>1.07</b> The data required for trunk forecasting and servicing are:
D. Trunking Data Scheduling . . . . .	2	<ul style="list-style-type: none"> <li>● Measurements of the levels and attempts of the flow of traffic experienced on a trunk group which are referred to as <b>trunk group data</b>.</li> <li>● Measurements of the traffic flow from one defined geographical area to another which are referred to as <b>point-to-point data</b>.</li> </ul>
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<b>1. GENERAL</b>		
<b>1.01</b> This section provides an overview of trunking data, including point-to-point and trunk group data. The importance of data, their sources, and types are discussed. This section also provides a reference index to the other sections on trunking data.		
<b>1.02</b> Whenever this section is reissued, the reason(s) for reissue will be given in this paragraph.		

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## SECTION 780-401-100

are also collected and processed for use by other work groups, including network planning, engineering, administration, and management.

**1.09** The intent of this section is to provide an overview of all phases of trunking data as they relate to trunk forecasting and servicing. Other sections in the 780-401-ZZZ series provide more detail on trunking data related subjects.

**1.10** Sections in the 780-401-1ZZ series are related to trunking data in general. The 780-401-2ZZ series are related specifically to trunk group data, while the 780-401-3ZZ series are related specifically to point-to-point data.

**1.11** The index listed in Table A provides trunking data section numbers and a brief summary of their contents.

### **2. IMPORTANCE OF TRUNKING DATA**

**2.01** Ever increasing mechanization, permitting more complex network configurations makes the recording, accumulating, processing, analyzing, and transmitting of high quality trunking data in sufficient quantities to forecast and service today's message network increasingly more critical.

**2.02** Almost everything known about the use and performance of the message network comes from data. The allocation and commitment of a significant portion of the system's annual capital dollar expenditures are dependent on forecasts of future network requirements based on today's data. If required data are missing or erroneous, the user is uninformed and/or misled.

**2.03** The regular monitoring of current data in comparison with the trunk forecast is the trunk servicers primary method of ensuring that there are the proper number of trunks, in the proper place, at the proper time.

**2.04** Obtaining the optimum balance between service and cost in the forecasting and servicing of the complex message network is dependent on the major ingredient, trunking data.

#### **A. Objectives of Trunking Data Collection and Processing**

**2.05** The objectives of trunking data collection and processing are to obtain:

- (a) Timely trunking data
- (b) All significant hours and seasons
- (c) Accurate representation of the actual flow of traffic during a study period.

#### **B. Timeliness of Trunking Data**

**2.06** Most data have a time value that is related to their use. Trunk forecasting and servicing places stringent time requirements on trunking data from the time of collection to the availability of data in a usable form. The most accurate and complete data have no value if they are made available too late for practical use for a specific purpose. Recent changes and trends can be recognized and dealt with expediently only with the availability of timely data. Section 780-401-200 discusses trunking data turn-around time.

#### **C. Quality of Trunking Data**

**2.07** The quality of trunking data is determined by how accurately it represents the flow of traffic during the significant hours of a study period. This requires the following:

- (a) A data collection schedule that encompasses all significant hours
- (b) The availability of types of measurements that properly describe the information desired about the traffic.
- (c) Where sampling is employed, a sampling rate and technique that statistically produces an acceptable representation of the universe sampled.
- (d) A data collection system that produces data for the scheduled hours and days, without omission.

Section 780-401-130 provides more information concerning the quality of trunking data.

#### **D. Trunking Data Scheduling**

**2.08** The only data collection schedule that guarantees never missing a significant piece of data is one that runs 24 hours each day, 365 days a year. Of course, such a schedule is not practical, economical, or necessary. Patterns of the occurrences of busy

**TABLE A**  
**TRUNKING DATA BSP SECTIONS**

SECTION NUMBER	TITLE AND CONTENTS
	<b>Trunking Data</b>
780-401-100	Overview — provides an overview of both trunk group and point-to-point data.
780-401-110	Collection Systems — provides a general description of the various systems available for the collection of trunk group and point-to-point data.
780-401-120	Collection Scheduling — provides general guidelines and economic considerations relative to the scheduling of data collection.
780-401-130	Quality — relates the various influences affecting the quality of trunk group and point-to-point data and methods of negating their effect.
	<b>Trunk Group Data</b>
780-401-200	Overview — defines trunk group data and provides information related to the use, types, and sources of trunk group data.
780-401-210	Sources and Measurements — provides descriptions of trunk group data types of measurements, measurement devices, and data preferences.
780-401-220 (to be issued 1Q-1983)	SONDS — provides a general description of the Small Office Network Data System and the trunk group data available from it.
	<b>Point-to-Point Data</b>
780-401-300	Overview — defines point-to-point data, its application in trunk forecasting and servicing, and the types and sources of point-to-point data.
780-401-320	CMDS-TE — describes the application of point-to-point data provided by the Centralized Message Data System—Trunk Engineering and the methods of estimating traffic item loads.
780-401-330	Preroute Peg Count — explains preroute peg count, how it is obtained and used.
780-401-340 (available 1985)	The Local Point-to-Point Data Acquisition System — provides a description of the system, the available studies, and application of the data derived from it.

seasons and busy hours are usually known well enough to permit the establishment of data collection schedules that normally cover the significant hours. Section 780-401-120 provides more detailed information about trunking data scheduling.

**3. TYPES AND SOURCES OF TRUNKING DATA MEASUREMENTS**

**3.01** Trunk forecasting requires trunk group data measurements to create first route offered loads (base loads) for trunk groups. The trunk forecaster needs point-to-point trunking data to create base loads for traffic items in the combinations in which they will route or that they will be rerouted to other trunk groups in future periods.

**3.02** The trunk servicer requires trunking data measurements that provide frequent measures of network attempts, usage, overflow, and blocking.

**3.03** To accommodate the needs of both forecasting and servicing, trunking data are required that provide measurements of both trunk groups and traffic items. These requirements have resulted in the commonly used measurements shown in Table B. The table provides a description of each measurement and indicates whether it is trunk group data or point-to-point data.

**3.04** The measurements listed in Table B are derived from a variety of trunking environments ranging from totally manual, to semimechanized to fully mechanized. Trunking data collection environments are defined as follows:

- Manual—Applicable where registers are read and subtractions made by a clerical work force.
- Semimechanized—Applicable where camera and film are used to collect trunking data which is marked on cards for keypunch processing.
- Fully mechanized—Applicable to trunk group data collected by the Engineering and Administrative Data Acquisition System (EADAS) and the Traffic Data Administra-

tion System (TDAS), or their equivalent, and processed by the Trunk Servicing System (TSS) or similar support system.

**3.05** As switching systems and facilities become more sophisticated and the message network more complex, the need arises for increased amounts of data that are both timely and accurate. As a result of this advanced switching system technology, data systems have been developed that provide more complete trunking data services, eg, the accumulation, processing, storing, and transmitting of data.

**3.06** Table C provides a listing of the more common data devices and systems, including manual, semimechanized and mechanized that are used in varying degrees for the provision of trunking data. The right column indicates the type of data accumulated.

**3.07** Section 780-401-210 provides more information about trunk group data sources and measurements. Section 780-401-300 details the types and sources of point-to-point data.

**4. RESPONSIBILITY FOR TRUNKING DATA COLLECTION AND EXCHANGE**

**4.01** Trunking data are required for many other trunking and nontrunking purposes besides trunk forecasting and servicing. However, because the Circuit Administration Center (CAC) is the primary user of trunking data, the responsibility is theirs for assuring the accurate scheduling, collection, and validation of data.

**4.02** Reliable trunking data are required by each company (Bell Operating Companies, Long Lines, or Independent Companies) when trunk groups are jointly owned and/or used. Data are needed not only for the jointly owned/used groups but also for the groups that they overflow to or receive overflow from.

**4.03** An intercompany procedure, Data Interchange (DIXC), is established for transmission of the required data. A telecommunications software system, the T-TRAN network, provides DIXC with the means for the computer-to-computer exchange of data. Section 780-401-200 provides more information about DIXC and T-TRAN.

**TABLE B**  
**TRUNKING DATA MEASUREMENTS**

MEASUREMENT	DESCRIPTION	POINT-TO-POINT (PP) OR TRUNK GROUP (TG)
Usage (U)	A measurement of the load, usually expressed in CCS, carried on a trunk or group of trunks.	TG
Peg Count (PC)	A count of the number of attempts made to seize a trunk or group of trunks.	TG
Overflow (O)	A count of the number of attempts that fail to find an idle trunk.	TG
All Trunks Busy (ATB)	A count of the number of times all trunks in a group were busy.	TG
Last Trunk Busy (LTB)	A count of the number of times the last trunk in a group was busy.	TG
Last Trunk Usage (LTU)	A measurement of the observed load carried on the last trunk in a group, usually expressed in CCS.	TG
Peak Load	A measurement of the daily peak hourly load carried on a group of trunks in a 24-hour period, usually expressed in CCS.	TG
Messages	A count of the number of messages between two defined geographic areas.	PP
Conversation CCS	A calculation made by converting conversation seconds to conversation CCS, ie,  $\frac{\text{Total conversation seconds}}{100}$	PP
Preroute Peg Count	A count of the number of attempts made from one defined geographic area to another.	PP

TABLE C

## TRUNKING DATA COLLECTION DEVICES AND SYSTEMS

DEVICE/SYSTEM	TYPE OF DATA ACCUMULATED
Traffic Registers	U, PC, O, Preroute PC ATB, LTB, LTU
Traffic Usage Recorder (TUR)	U
ESS Traffic Measurements	U, PC, O
The Small Office Network Data System (SONDS)	Peak Load
The Engineering and Administrative Data Acquisition System (EADAS)	U, PC, O
The Traffic Data Analysis System (TDAS)	U, PC, O
The Automatic Traffic Recording and Analysis Complex (AUTRAX)	U, PC, O
The 4A Peripheral Bus Computer (4A PBC)	U, PC, O
The Centralized Message Data System-Trunk Engineering (CMDS-TE)	Toll Messages & Conversation CCS
Preroute Peg Count	Count of Attempts
The Local Point-to-Point Data Acquisition System (Future)	Messages & Conversation CCS