TRUNK GROUP DATA

OVERVIEW

NETWORK SWITCHING ENGINEERING — TRUNKING DATA

NETWORK SERVICES METHODS

1. GENERAL

1.01 This section provides a general overview of trunk group data including a general description of the sources and purposes. The various types of trunk group measurements and the data preferences are discussed briefly. This section provides general guidelines for consideration in reference to a trunk group data program which includes trunk group data administration, scheduling, processing, and interchanging of trunk group data.

1.02 Whenever this section is reissued, the reasons(s) for reissue will be given in this paragraph.

1.03 References in this section to methods, planning, data requirements, service levels, and equipment requirements are based on American Telephone and Telegraph Company recommendations.

1.04 The standard meaning of trunking terms and definitions used in this section may be found in Section 780-400-305, "Glossary of Trunk Facilities Terms and Definitions."

1.05 Trunk group data are measurements of the traffic on a group of trunks. Trunk group data are sometimes expressed as a count of events (peg count) during a given time interval or sometimes as a carried load (usage) during a given time interval. Time intervals are normally 1 hour of data.

1.06 Trunk group data may be expressions of load or congestion.

(a) Trunk group load can be expressed in terms of 100 call seconds per hour (CCS), or counts of events. Usage (U) received from the traffic usage recorder (TUR) and peg count (PC), received from peg count registers, are examples of load oriented trunk group data.

(b) Trunk group congestion (overload) can be expressed in terms of CCS, percent, or counts of events. Overflow (O) and last trunk busy (LTB) are examples of congestion oriented trunk group data. Load and congestion oriented trunk group data are discussed further in Section 780-401-210.

2. USES OF TRUNK GROUP DATA

2.01 Adequate amounts of accurate trunk group data are essential to users.

(a) The network planner needs trunk group data to plan, design, maintain, and revise trunking

layouts and switching systems that will provide trunking networks that are both service oriented and cost efficient.

(b) The trunk servicer needs trunk group data that accurately reflect the most recent condition of the network so decisions can be made about adding/disconnecting trunks.

(c) The trunk forecaster uses trunk group data to develop base data for projecting future trunk requirements and to provide data for special network studies.

(d) Network Administration and support groups use trunk group data for network monitoring and reporting purposes.

(e) There are many other nontrunking demands for trunk group data for purposes such as separation studies, system statistics, and marketing studies.

3. TYPES AND SOURCES OF TRUNK GROUP MEASUREMENTS

3.01 Trunk group data are pieces of information pertaining to trunk group loads and attempts through which logical trunking network decisions may be made. However, before decisions, such as rearrangement, adding trunks, etc, can be made, the meaning or significance of these pieces of information must be recognized.

3.02 Types of trunk group measurements include:

(a) Usage (U): The load, expressed in CCS, **carried** on a group of trunks.

(b) Peg Count (PC): A count of the number of attempts to seize a trunk in a group of trunks.

(c) Overflow (O): A count of the number of attempts failing to find an idle trunk.

(d) All Trunks Busy (ATB): The number of times all trunks in a group of trunks are simultaneously busy.

(e) Last Trunk Busy (LTB): The number of times the last trunk in a group of trunks is busy.

(f) Last Trunk Usage (LTU): The load, expressed in CCS, **carried** on the last trunk in a group of trunks.

(g) Peak Load: The greatest load within a 24-hour period, usually expressed in CCS, carried on trunk groups measured by the Small Office Network Data System (SONDS). Peak loads are converted by SONDS into time-consistent busy hour loads.

3.03 Each type of trunk group measurement has application in various types of trunk groups and/or equipment. More detailed information on the types of measurements, their application, and the measurements preferences may be found in Section 780-401-210, Trunk Group Data Sources and Measurements. However, it should be emphasized that whenever it is technically feasible, usage, peg count and overflow should be collected on all trunk groups.

TRUNK GROUP DATA SOURCES

3.04 In order to predict with any degree of accuracy the number of trunks required at a given time in a network, it is necessary to have valid data in adequate amounts. Various measurement devices, used primarily in manual and semimechanized environments, are available for trunk group measurements. Section 780-401-210 discusses the various types of trunk group data measurement devices.

3.05 The engineering need for more complete traffic data on most trunk groups and the technical feasibility of such expanded data collection have now become a reality because of the widespread availability of mechanized data retrieval and processing systems. Trunk group data collection systems are discussed in Section 780-401-110.

4. CONSIDERATIONS FOR A TRUNK GROUP DATA PROGRAM

4.01 A comprehensive trunk group data program can be effective only when certain basic items have been carefully considered.

A. Method of Collecting Data

4.02 The present methods of data collection must be considered:

(a) Manual

(b) Semimechanized

(c) Mechanized

(d) Combinations of a, b, and/or c.

4.03 The methods of data collection should be the most cost/service effective for the types of installed and planned switching system equipment.

4.04 Most operating telephone companies (OTCs), because of a variety of switching system equipment-type combinations, ie, step-by-step (SXS) No. 5 crossbar (5XB), electronic switching system (ESS), etc, fall into the category expressed by 4.02(d). As more sophisticated switching system equipment replaces older equipment, an increasingly mechanized data collection environment should result. Section 780-401-210 discusses in greater detail the types of measurements that can be taken on specific types of equipment and/or trunk groups.

B. Turnaround Time

4.05 Trunk group data, to be usable, must be accurate and current. The trunk servicer can react to network congestion only when there is an awareness of the existing problem.

4.06 Trunk group data, even in a mechanized environment, must be accumulated, validated and processed. Trunk group data received within a 3-week time frame may be considered current. Turnaround time greater than 4 weeks after the measurement period should be investigated and the reasons(s) for delay corrected.

C. Collection Intervals

4.07 Sound traffic engineering judgments for network planning, forecasting, and servicing are made based on trunk group data received during significant hours. Each year AT&T publishes a letter specifying 26 weeks of trunking data collection intervals. These include the three major busy seasons during which trunk group data must be collected. This is a minimum trunk group data collection requirement for fully mechanized offices. Most companies, with the ease of today's sophisticated mechanization, collect much more than the minimum trunk group data collection requirements. Collection intervals and schedules are discussed further in Section 780-401-120.

4.08 Usually, average business day (ABD) loads reflect the busy hour loads for most trunk groups. However, a Saturday or Sunday may contain the busy hour for certain trunk groups. Saturday or Sunday peak loads may be suspected for trunk groups

serving, for example, college campuses or resort areas. The Trunk Servicing System (TSS) can process Sunday data but presently cannot process Saturday data. However, a requirements change request, to modify TSS to include the processing of Saturday data capability, has been submitted for consideration. Collection of Sunday data for those trunk groups with suspected Sunday busy hours should include, as a minimum, the Sunday study periods specified in the annual AT&T data collection schedule letter.

D. Data Interchange

4.09 The North American Network is an integrated complex of switching systems and trunk groups owned independently and/or jointly by OTCs and Long Lines. In addition, some trunk groups may be jointly owned with an independent telephone company (ITC).

4.10 Reliable trunk group data are required by each company for each jointly owned trunk group as well as other trunk groups, perhaps not jointly owned, that they receive overflow from or that they overflow to.

4.11 Intercompany Data Interchange (DIXC) procedures are established to obtain and/or provide required trunk group data. The Traffic Data Administrative System (TDAS), a subsystem of the Total Network Data System (TNDS), provides a means of producing a DIXC tape. A standard interface arrangement has been established for non-TNDS companies.

4.12 The T-TRAN network is used for DIXC transmission to the requesting company. The T-TRAN is a telecommunications software system, initially developed by AT&T Data Systems, for computer to computer exchange of data. The AT&T letter, GL 77-03-013, provides detailed information about data interchange procedures.

E. Data Retention

4.13 While traffic engineers rely heavily on current trunk group data for network planning and forecasting purposes, they also use historical data to validate current data, to estimate bases that are missing and to build historical data files. Therefore, it is imperative to retain historical data files against all in-service and discontinued trunk groups.

4.14 All company records are governed by the Federal Communications Commission (FCC) Rules and Regulations, Part 42, which provide a **minimum** retention schedule for all data generated by the Bell System. Trunking data in its processed format must be retained for at least the minimum time specified by the FCC. An AT&T System Letter, IL80-01-230, Bell System Reference Index for FCC Rules and Regulations, contains Part 42 of the FCC Rules and Regulations.

4.15 Various Bell System records are required from time to time to satisfy the needs of other government agencies such as the Equal Employment Opportunity Commission (EEOC), the Internal Revenue Service (IRS), and the Occupational Safety and Health Administration (OSHA). Each user of trunking data must be aware of the need for records retention and should contact their company records retention coordinator for specific instructions.