SWITCHED SERVICES NETWORKS

USING CENTRAL OFFICE SWITCHING MACHINES

GENERAL PROCEDURES AND RESPONSIBILITIES

TROUBLE REPORTING PROCEDURES

1. GENERAL

1.01 Trouble reporting procedures and office responsibilities for Switched Services Networks (SSN) are covered in this section.

1.02 This section is being reissued for the following reasons:

(a) To introduce the Sub-Network Control Office concept.

(b) To change certain special trouble reporting procedures for FTS at customer's request.

(c) To cover special trouble reporting procedures for AUTOVON/ADC.

(d) To change the point at which the SSBs notify NCO of circuit outages.

(e) To require report by SSB to NCO of any circuit outage exceeding 24 hours.

(f) To state NCO's responsibility regarding "Releases."

1.03 Personnel should familiarize themselves with Section 310-200-100, "Switched Services Networks — Description," which defines frequently used SSN terms and Section 310-200-000, "Switched Services Networks, General Procedures and Responsibilities — General."

1.04 *Network Control Office*

(a) Each SSN will have a Network Control Office (NCO) assigned. Its definition and responsibilities are covered in the "Toll Telephone Facility Maintenance — Office Responsibilities" section. In general, the NCO is responsible for the service condition of all parts of the network in all matters which concern their operation as a network.

(b) In special applications, the Network Control Office can delegate certain responsibilities for a part of a network to an office where this part can be administered more efficiently. This office will be designated as "Sub-Network Control." In all cases, the Network Control Office remains responsible for the total service. See Paragraphs 3.13 and 3.14 of this section for details.

1.05 Switched Services Bureau (SSB) as used in this section, is defined as the location where the network trouble reports are received and trouble analysis work is performed. This Bureau may be at the 17E, 19A or equivalent testboard associated with the Switched Services Network office or a separate group established primarily for the purpose of receiving and analyzing troubles. There should be an SSB associated with each SSN office.

1.06 Certain networks have PBX complexes made up of main PBXs serving remote tributary PBXs all located some distance away from the Switched Services Network office. In these cases, it may be more practical to establish a reporting center near the main PBX. This would be known as a Switched Services Report Center (SSRC).

Switched Services Report Center (SSRC) as used in this section, is defined as the location where the PBX complex trouble reports are received and trouble analysis work for the PBX complex is performed. This Center may be at the private line testboard or equivalent testboard serving the main PBX or a separate group established primarily for the purpose of receiving and analyzing troubles within the PBX complex and network trouble reports. (See Section 310-200-000, Paragraph 1.04 and Fig. 1.)

2. TROUBLE REPORTING

Station Users with PBX or CENTREX Attendants

2.01 Station Users will report all troubles encountered to the attendant.

2.02 The attendant will refer to the Serving Plant Service Center (SPSC) all station and PBX troubles and difficulties encountered on calls between stations served by the same PBX.

    (a) This will be done using the code or number listed for the SPSC.

2.03 Difficulties on network calls identified by (1) user dialing access code, (2) attendant manually connecting to Access Line or Tie Trunk, or (3) user having direct access from a station set to a Switched Services Network office, should be reported to the SSB or SSRC.

    (a) This is done in the following manner:

        (1) The attendant dials the SSB via the network.

        (2) If this cannot be done via the network, the attendant places a collect call to the SSB or SSRC.

Station Users with No Attendants

2.04 Certain locations having no attendants can connect directly from the station set to the SSN office. In these cases, any station troubles should be reported to the SPSC using the listed code or number.

2.05 When the station user has difficulty making a network call, a report should be made to the SSB by placing a collect call.

General

2.06 Network trouble reports misdirected to the SPSC or any other office should be relayed to the proper SSB. To accomplish this, each SSB and SSRC is responsible to give its telephone number to its SPSCs serving network locations. Conversely, any misdirected local reports made to the SSB or SSRC should be relayed to the appropriate SPSC. After accepting the report, explain to customer that using proper reporting procedure will help speed up trouble clearing time.

Trouble Reporting for FTS Network

Station Users with PBX or Centrex Attendants

2.07 Station users will report all troubles encountered to the attendant.

2.08 The attendant will refer to the Serving Plant Service Center all station and PBX troubles and difficulties encountered on calls between stations served by the same PBX.

    (a) This will be done using the code or number listed for the SPSC.

2.09 Difficulties on FTS network calls identified by (1) user dialing access code, or (2) attendant manually connecting to Access Line or Tie Trunk, should be reported to the SSB or SSRC. The General Services Administration (GSA) requires that attendants at tributary or satellite PBXs forward reports of network troubles to their Main PBX FTS attendant. She will record them along with Main PBX reports and forward as follows:

    (1) For Main PBXs without SSRCs, attendant dials SSB via the network.

    (2) For Main PBXs with SSRCs, attendant calls its assigned SSRC.

Station Users with No Attendants

2.10 Certain FTS users are served by small PBXs with no attendant service. From these locations, all troubles on FTS calls should be reported to the FTS attendant which serves as information and assistance operator for that unattended FTS PBX. All unattended PBXs on FTS have a remotely located attendant which can be reached by dialing a minimum number of digits (0 or Access code + 0).

2.11 Trouble reports on other than FTS calls received by the attendant from unattended locations should be referred to the SPSC serving the unattended PBX.

2.12 Troubles on FTS calls should be referred to the SSB or SSRC as described in Paragraph 2.09, above. The SSB is responsible for providing a trouble reporting number to each attended PBX in its complex.

Trouble Reporting for AUTOVON/ADC Access Lines

2.13 This type of service generally differs from regular SSN services in that most customer locations home on more than one switching center. In addition, the circuits are engineered to provide vital communication links in our national defense. If a trouble is reported to one of the other SSBs than where the call is routed, delay results and unproductive work effort is expended trying to find the faulty condition. It follows that on troubles on AUTO-VON calls, wherever possible, the Access Line should be identified and the report directed to the appropriate SSB. This will result in the most efficient and rapid trouble clearing effort.

2.14 To handle the unique serving arrangement of AUTOVON/ADC, Direction Centers (DC), Combat Centers (CC), combined CC/DCs and NORAD Cheyenne Mountain Complex (NCMC) are candidates for becoming Sub-Network Control offices for certain AUTOVON Access Lines. Network Control Office (NCO) will specifically designate the S-NCOs and their respective parts of the network per Paragraph 3.13 of this section. In addition, these Telephone Company locations will be designated Switched Services Report Centers (SSRC) for all the AUTOVON Access Lines terminating in their offices.

2.15 *At CCs, DCs, and Combined CC/DCs:*

(a) User reports all troubles to the customer's local maintenance control center. Troubles encountered by PBX users should be reported via PBX attendant who may be able to identify the circuit for reference to this center.

(b) The maintenance control center attendant refers the trouble to the SSRC. Where Dial Restoration Panels (DRP) are installed, the center may be able to assist the SSRC by identifying the circuit in use.

(c) The SSRC attempts to isolate the trouble condition in or out of his office. This may require testing data sets (DDT, DDR) or Common User Group (CUG) equipment.

(d) The SSRC refers the case to the appropriate SSB for whatever action is necessary to identify and clear the trouble. If the SSRC finds a trouble condition within his

office resulting from a trouble report, the details should be called to the appropriate SSB to be included with other AUTOVON trouble reports. The SSB is determined by the Access Line involved in the call.

(e) If the user reports trouble on a call in which the connection is not held (the Access Line is not identified), the SSRC refers the report to any of his SSBs randomly selected. The report will then be included in the network summary printout for later analysis.

2.16 *At Sites with Customers' Local Maintenance Control Centers.*

(a) User reports all troubles to the customer's local maintenance control center. Troubles encountered by PBX users should be reported via PBX attendant (if available) who may be able to identify the circuit for reference to this center.

(b) For Data and Ground/Air circuits, the Site maintenance control center attendant will usually call his DC maintenance control center, involved, for assistance and confirmation of the condition. In this case, the DC maintenance control center will report the trouble to his SSRC as in Paragraph 2.15 above.

(c) For troubles on AUTOVON voice calls, the Site attendant will attempt to identify the Access Line in use and report the trouble to the appropriate SSB. This is preferable for rapid trouble clearing but may be modified at user demand. If an Access Line is found to be not usable, the SSB should notify the S-NCO applying the note in Paragraph 3.06 of this section.

2.17 *At Sites without Customers' Local Maintenance Control Centers*

(a) Generally, the military user can identify the Access Line in use by either manual selection (operating key) or by PBX attendant meeting him on the circuit.

(b) For Data and Ground/Air circuits, the user will usually call his DC maintenance control center for assistance and confirmation of the condition. As in Paragraph 2.16(b) above, the DC will then report the case to his SSRC.

(c) For troubles on AUTOVON voice calls, the user or PBX attendant, upon identifying the Access Line in use, will report the case to the appropriate SSB as in Paragraph 2.16(c) above.

2.18 *At NORAD Cheyenne Mountain Complex (NCMC):*

(a) User reports all troubles to the customers' local maintenance center.

(b) The maintenance control center reports the trouble to the SSB.

2.19 When receiving a trouble report with a specific Access Line held, the SSB or SSRC should immediately attempt to determine whether or not the originating Access Line is in trouble and advise the customer of the condition as soon as possible. In addition, if the Access Line is out of service, the appropriate Sub-Network Control Office must be informed as described in Paragraph 3.07 of this section.

Further investigation may show that the far-end Access Line is in trouble. The SSB for that Access Line applies the procedure covered in Paragraph 3.06 regarding Sub-Network Control Office, if one is assigned.

2.20 Unless notified in writing by an Air Force Headquarters (CC) that they do not want the information, the Sub-Network Control Offices serving its Air Divisions will be responsible to keep the test center at the CC advised of outages in accordance with Paragraph 3.06.

3. OFFICE RESPONSIBILITIES

Responsibilities of All Offices

3.01 General responsibilities of all offices and responsibilities of circuit control offices for Switched Services Networks are covered in "Toll Telephone Facility Maintenance — Office Responsibilities" section. Specific office responsibilities for SSBs, SSRCs, NCOs and Sub-Network Control Offices are contained in this section. (STC responsibilities under the SSN Plan are functions of SSBs and SSRCs.)

The "Customer Trouble Report Analysis Plan" applies as appropriate at customer location installations (PBXs, stations, etc).

Switched Services Bureau Responsibilities

3.02 SSB personnel shall maintain trouble report tickets according to the procedure set forth in Section 310-200-002.

3.03 Periodically, the SSB will furnish each SPSC with a record of network difficulties encountered by the SPSCs served locations. In addition, the SPSC should be contacted whenever network trouble reports from a particular PBX shows a substantial increase. This will enable the local plant management to discharge their responsibility for the quality of service furnished to a customer.

3.04 The SSB is responsible for forwarding all trouble reports to the Network Control Office by TWX for analysis and summarization as covered in Section 310-200-005 *whether or not a Sub-Network Control Office is assigned.*

3.05 The SSB is responsible for maintaining close coordination with the associated switching machine maintenance group and providing them with summaries of all trouble reports that may involve the switching machine.

3.06 Normally, the SSB is responsible for advising the NCO by telephone immediately of the following:

(a) Whenever over 25% of an Access Line group or trunk group is out of service if the group is 20 or less circuits. Report if over 10% is out of service for group of 21 or more circuits.

(b) Common switching problems that may seriously delay network traffic.

(c) Whenever any circuit outage exceeds 24 hours.

Note: When a Sub-Network Control Office is assigned for an Access Line, the SSB is responsible to notify that office by telephone instead of the NCO of every outage and restoral related to the Access Line. The SSB can enter the location and telephone number of the S-NCO on the respective Access Line History Card, Form E-5123 (see Section 310-200-004).

Switched Services Report Center

3.07 SSRC personnel shall maintain trouble report tickets according to the procedure set forth in Section 310-200-002.

3.08 The SSRC is responsible for forwarding all network trouble reports to the SSB at the SSN office on which it homes as covered in Section 310-200-005.

3.09 Maintain close coordination between the SSRC and the SPSC that serves the main PBX to resolve network switching difficulties at the main PBX.

3.10 Periodically, the SSRC will furnish each SPSC serving location in the PBX complex with a record of network difficulties encountered by the PSCs served locations. In addition, the SPSC should be contacted whenever network trouble reports from a particular PBX show a substantial increase.

Network Control Office

3.11 The Network Control Office has the overall responsibility for the service condition of the network. It will also coordinate network matters, as required, with other Operating Departments and the various companies.

3.12 Some of the specific responsibilities the NCO has are as follows:

(1) Makes overall network trouble analysis and takes appropriate action, as covered in Section 310-200-005.

(2) Coordinates and assists SSN offices on equipment or routing changes and additions to the network.

(3) Acts as a central location to receive and pass on information on significant failures reported on the network.

(4) Establishes limits of and administers "releases" of circuits in the network as may be required by Traffic Network Administrative group and the customer.

(5) Advises Engineering, Traffic and Marketing Departments of shortages of equipment, overload of facilities, etc, that are indicated by trouble reports.

(6) Works with Traffic Network Administrative group as soon as possible, if trouble in one switching center threatens switching tie-up in other centers. Notifies SSBs of actions they should take.

(7) Summarizes reports of all network conditions for service measurement.

(8) Assumes responsibility for good service on the network.

SUB-NETWORK CONTROL OFFICE

3.13 Where designated by a Network Control Office, a Sub-Network Control Office will act for it in overseeing the performance and will be responsible for service for a part of network.

(a) The sub-network is established only where facilities are intentionally grouped for a special or unique purpose within a specific group of stations or locations. Circuits making up a sub-network do not necessarily have to physically appear at the sub-network control location.

(b) Some examples of sub-networks:

— Customer transmits data between specific stations on a regular basis.

— A predetermined conferencing arrangement using a hubbing device.

— Access Lines serving all the specific SAGE locations within an Air Division.

(c) Network Control Office will determine if a group of Access Lines should be treated as a sub-network and assign sub-network control to the appropriate SSB or SSRC. Any given Access Line can be assigned to only one sub-network.

3.14 Here are some of the general guidelines related to the Sub-Network Control Office:

(a) The S-NCO should be familiar with the overall intent of the sub-network and of its various components.

(b) Maintain a Layout Card File of the associated Access Lines.

(c) Develop and coordinate testing and control methods necessary to ensure reliable operation of the sub-network.

(d) Analyze the service conditions on the sub-network as a unit — current and long term. This includes maintaining records of current outages and following up on restoral activities. The Network Control Office will arrange to provide the S-NCO with weekly printouts of all trouble reports for the preceding four weeks involving the Access Lines in the sub-network. These will be in the format covered in Section 310-200-005.

(e) If responsible for an Access Line group, advise the NCO whenever over 25% is out of service if the group is 20 or less circuits or over 10% if the group is 21 or more circuits.

(f) Advise the NCO, and, if directed by the customer, a designated reporting location of day-to-day problems or any periodic unusual conditions as necessary.