

NETWORK SUPERVISOR—CROSSBAR TANDEM

Personnel assigned as Network Supervisor—Crossbar Tandem will generally be responsible for optimum loading, balancing and equipment utilization of installed crossbar tandem machines. This entails daily monitoring of service and load indicators and the identification, investigation and resolution of service problems. It also extends to protection of service levels during equipment additions and/or rearrangements.

This position supervises activities of reporting clerks related to the scheduling, collection, validation, and provision of network data. The Network Supervisor uses this data to monitor the tandem switching performance and to evaluate present and future crossbar tandem machine capacities and switching configurations. When deficiencies and/or balance problems are discovered, the Network Supervisor—Crossbar Tandem coordinates corrective action with counterparts in the Network Operations, Network Design, Equipment Engineering and Trunk Administration Organizations. A significant part of the responsibilities of this position involves the analysis of calling patterns, determination of common equipment capacities, and other relatively technical functions.

| DUTIES AND RESPONSIBILITIES | PERCENT OF TOTAL TIME |
|--|-----------------------|
| A. Equipment Utilization | 25 |
| B. Office Status Evaluation/Capacity Determination | 20 |
| C. Service Problem Analysis | 15 |
| D. Data Administration | 15 |
| E. Transition Management | 10 |
| F. Trunk Network Adequacy | 10 |
| G. Miscellaneous | 5 |

Note: Any reference to the Bell System product names may be substituted by outside vendor names, if applicable. All recommendations should apply with minimal modification when utilizing other vendor products.

NOTICE

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TITLE: NETWORK SUPERVISOR—CROSSBAR TANDEM

DEPARTMENT: NETWORK

SUPERVISOR: NETWORK MANAGER

JOB SUMMARY

This position is responsible for the optimum loading, balancing, and utilization of installed equipment; the daily analysis of tandem switching network performance; the analysis of future crossbar tandem switching configurations and their capacities; and the identification, investigation, and resolution of all service problems. Additionally, this position is responsible for the protection of service during the installation of new equipment in crossbar tandem machines.

The area of responsibility for this position depends upon the degree of data mechanization for the crossbar tandem machines being administered. With full mechanization of downstream engineering and administration data, it should be possible for the Network Supervisor to increase the span of control from between two to four crossbar tandems (under partial mechanization) to three to five machines.

Should the number of crossbar tandems in a given area be limited, it would be possible to design this position to encompass management of local machines. If this is done, the crossbar tandem job description would be enhanced.

DUTIES AND RESPONSIBILITIES

25% A. Analyzes trunk and common control equipment data to insure that installed crossbar tandem is being efficiently utilized.

- (1) Sets threshold values for items in crossbar tandem load service reports and adjusts if required. These items include holding times and peg count ratios for office and trunk link frames and for common equipment components such as markers and various types of senders.
- (2) Analyzes data records to identify adverse trends of peg count, overflow, usage and/or holding time.
- (3) Develops capacity levels for common equipment components during various load conditions throughout the day. Advises Maintenance Supervisor of tolerable levels. Compares recommended and actual maintenance levels.
- (4) Analyzes data within and between groups of common control equipment. Compares to appropriate engineering criteria.
- (5) Combines analysis of above items (1 through 4) to identify adverse equipment operation and utilization situations.
- (6) Authorizes the distribution of network data trouble tickets to the Maintenance Supervisor for identified data troubles. Monitors to insure timely trouble correction and negotiates to remove obstacles.
- (7) Analyzes and cooperates with the Maintenance Supervisor in the investigation of circumstances where the data indicates that equipment is operating incorrectly, or where an equipment imbalance or excessive maintenance outage situation is evident.

- (8) Develops and recommends to the Network Manager the establishment of a load balance plan for trunk assigners to follow, based on trunk weights and types and the balance of loads between trunk link frames, office link frames and sender link frames.
- (9) Monitors traffic flow on the network together with the ongoing assignment of trunks to insure an equalized traffic load between frames and switches. Requests trunk rearrangements and transfers be issued when these are required.
- (10) Analyzes circuit requirements and forwards recommendations to Network Manager.
- (11) Receives and analyzes network data, growth forecasts, current plans and special service estimates. Maintains trends on key data items and refers problem areas involving the Engineering and Trunk Administration Departments to the Network Manager.
- (12) Analyzes circuit requirements which impact upon TSP and/or CAMA operator service offices. Refers problems and shortage information to network manager.
- (13) Coordinates arrangements made for tone and recorded announcements with the Maintenance Supervisor.
- (14) Establishes records and summaries of toll network completion activities. Reviews and analyzes network call completion performance for problem areas within the tandem serving area involving automatic call distributor, Centrex CU and INWATS customers. After problem identification, refers to local Network Supervisor for resolution with the call completion committee or marketing department.

20% B. Reviews and studies proposed equipment orders, analyzes data and calculates capacities to insure that adequate central office equipment is scheduled to be provided in the future.

- (1) Studies proposed equipment arrangements and coordinates with Network Design Engineer and/or Equipment Engineer to effect changes of unacceptable arrangements.
- (2) Reviews capacities of trunk groups and calculates capacities for common equipment elements and for switching paths. Determines limiting item(s). Advises Network Manager concerning capacities and recommends courses of action. Negotiates with the Network Design Engineer to insure that adequate tandem equipment relief is scheduled.
- (3) Calculates projected engineering characteristics and oversees development of crossbar tandem load-service relationships. Analyzes results and advises Network Manager.
- (4) Calculates capacities to the exhaust of the current office configuration. Compares current results to calculated capacities to detect early signs of adverse trends. Recommends corrective action to the Network Manager. Negotiates with the Network Design Engineer regarding growth size, scheduling and replacement relief.
- (5) Analyzes current office data to detect changes in office and common equipment characteristics due to alteration in traffic patterns and types of traffic. Maintains trend charts on such key items as marker, transverter and sender holding times. Identifies cases where these changes will affect crossbar tandem capacities and/or exhaust dates. Advises Network Manager and negotiates with Network Design Engineer for relief.
- (6) Calculates in-service requirements. Advises the Network Manager and coordinates with Maintenance Supervisor to insure that the requirements are met.

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15% C. Monitors and reviews all service indicators, investigates and studies data and other information to identify causes of service problems and formulates corrective action to remove or rectify these problems.

- (1) Directs the monitoring of near real-time reports on service indicators. Analyzes selected key service indicators, including ineffective machine attempts (IMA), sender delay, overflows and incoming matching loss for developing problems, patterns and conditions which may require corrective action.
- (2) Studies network data, incoming service observation failure summaries, customer complaints and all other related data, and investigates to identify cause of service problems. Directs the implementation of supplementary analysis techniques such as review of vacant codes and announcement volumes to determine toll call difficulties.
- (3) Contacts Maintenance Supervisor to coordinate concentration of testing activities on those equipment components most likely to have trouble conditions based upon data indications. Ensures that out-of-service equipment is repaired and restored to service promptly.
- (4) Interprets trunk group exception reports, including overflow percentages, attempts per circuit per hour (ACH), connections per circuit per hour (CCH), usage and percent occupancy. Works with Trunk Administration Supervisor on identified problem groups and provides current performance analysis to determine imbalances or shortages in trunks.
- (5) Originates corrective action plan to solve service problems and reviews progress of the plan. Cooperates with and coordinates activities of other departmental groups such as tandem maintenance, engineering, and the network analysis bureau, to implement the plan and remove the problem cause.
- (6) Reviews assignment of first choice trunks to service observing equipment to assure an adequate sample size for incoming trunk service observing index. Coordinates required changes with service observing bureau, trunk assignment group and/or engineering.
- (7) In crossbar tandem offices linked with traffic service position (TSP) office(s), reviews causes for a high rate of no position attached and cooperates with operator services, tandem maintenance and Network Design Engineering to correct the situation.
- (8) Investigates and studies all available data to identify future service problems such as forecasted weak spots and seasonal overloads. Advises manager concerning these problems, develops interim relief plans and coordinates these with other affected departmental groups.
- (9) Participates in the development of tandem network control plans for each machine to minimize the service impact caused by abnormal service conditions (holidays, disasters, telethons, elections, etc.)
- (10) Analyzes office condition in each machine to identify a service problem that requires toll network management action. Cooperates with Toll Network Manager to determine the required action. Participates in control action as provided locally.

15% D. Controls, plans and coordinates the activities of clerks concerning traffic measuring device administration, data scheduling and collection, and data validation and provision.

- (1) Identifies data required for network administration purposes, network design engineering, trunk servicing and forecasting, division of revenue, network control and network completion purposes. Directs vocational personnel who schedule mechanized data gathering or traffic usage recorder devices.
- (2) Reviews network design or equipment orders for problems concerning data measuring devices or traffic registration equipment. Negotiates with Network Design Engineer to resolve problems.

- (3) Reviews assignments and input documents related to traffic measuring devices. Originates procedures to ensure that devices are properly assigned initially and to ensure the integrity of the data base.
- (4) Plans and controls busy hour studies and selection of switching and common control busy hours. Provides final data collection schedule to Network Manager for approval.
- (5) Directs the overall data collection processes (including proper traffic measuring device operation). Cooperates interdepartmentally for the correction of data related problems.
- (6) Oversees the monitoring of daily service results and insures that data are collected for all potential high days. Establishes thresholds for exception reporting on trunk groups and components in the ineffective machine attempt report.
- (7) Analyzes data for components reported to Network Design Engineering and validates this information by comparing holding times for individual and group components with engineered values. Informs engineering of data problems, invalid data and unusual circumstances which affected the data. Directs reconstruction of missing or invalid data. Distributes final summary data to Network Design Engineer upon Network Manager's approval.
- (8) Reviews indications of data trouble (trouble tickets) identified by clerks. Distributes to Maintenance Supervisor and monitors the prompt correction of data troubles.
- (9) Oversees and controls all activities and negotiates all obstacles related to data scheduling and collection and data validation and provision.
- (10) Directs annual pre-busy season check of measuring devices to insure proper assignment, wiring and operation. Coordinates follow-up action for correction of identified problems.

10% E. Studies and investigates planned tandem equipment additions, rearrangements and/or conversions. Supervises preparation of required cross-connections. Plans for the efficient utilization of new equipment and the protection of service during the translation. Studies and interprets network data relating to each office before, during and after the equipment addition. Coordinates the toll/tandem administration activities required for preparation of the method of procedure (MOP).

- (1) Studies documents and capacity data relating to each proposed growth or replacement job and participates in all network design order activities. Evaluates impact of proposed jobs on service and inputs special items for consideration by the Network Design Engineer, Plant Extension Engineer, and Equipment Engineer during final order preparation and growth job scheduling.
- (2) Reviews final network design orders and associated drawings for correctness and adherence to the latest service demand and routing arrangements. Consults with network design or engineering to remove any identified discrepancies.
- (3) Prepares a written service protection plan for derivation of detailed MOP based upon equipment requirements for peak traffic periods. Directs and oversees preparation of documents involving sender load service curves, minimum common equipment requirements, ineffective machine attempts (IMA) and incoming matching loss levels. Reviews these documents with Network Manager, who will approve them. Distributes documents along with any requests for advance turnover or special job step sequences, to the job contact committee.
- (4) Determines work activity required in the Tandem Administration Organization with regard to provision of cross-connections, including those for traffic measurement devices. Oversees the preparation of these assignments and reviews them with the Network Manager before distribution to appropriate groups.

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- (5) Reviews transition management study data. Prepares and recommends a plan for making equipment and trunks involved in rearrangements or modifications available to the WEC0. Informs the Network Manager, who will approve plan.
- (6) Originates a plan for the efficient use of new equipment. Coordinates efforts to relocate or rearrange equipment. Suggests job sequences which will allow maintenance forces sufficient time to receive cross-connections and trunk orders and to perform preliminary jumper work. Distributes and coordinates plans with the Maintenance Supervisor, the WEC0 supervisor, and other departmental groups involved.
- (7) Evaluates proposed MOP to insure that desired equipment configuration is realized within allowable out-of-service guidelines, considering the time of day and season when installation and/or rearrangements are to be performed.
- (8) Develops follow-up procedure to monitor adherence to the MOP agreement during the transition period. Schedules and analyzes common equipment data and service results to determine increases in ineffective machine attempts, sender attachment delay or incoming matching loss. Notes significant changes in holding times, excessive maintenance or installation outages as well as unequal distribution of traffic to various machine components. Initiates contingency plans for emergency restoral of equipment during heavy load conditions.
- (9) Monitors performance of load- and service-indicating devices during transition period to insure data is available for all required periods. Issues job status-service reports during the transition.
- (10) Reviews and studies data gathered during transition period. Determines whether there is a deterioration of service due to transitional activity and coordinates with all related departmental groups to effect a resolution to the problem.
- (11) Maintains trunk and routing integrity during major transitions. Recommends any required trunk transfers from existing trunk and office link frames to new ones. In addition, reviews trunk assignments within the group-start/group-end sequence to ensure that load is distributed equitably over all secondary switches.
- (12) Administers overall tandem administration involvement on the job contact committee. Analyzes all requests made upon tandem administration in relation to each addition and negotiates with Tandem Maintenance Supervisor, WEC0 supervisor, Equipment Engineer and Network Manager to insure that the network administration responsibilities related to all additions are met.
- (13) Coordinates with all departmental groups the placement of new equipment into service.

10% F. Analyzes trunk group data, monitors tandem trunk network usage and activity and coordinates with trunk administrator, network engineering and tandem maintenance to insure an adequate trunking network.

- (1) Supervises the processing of trunk orders and maintenance of tandem records by reporting clerks. Ensures proper trunk assignment with regard to balance considerations, traffic separations class marks, and data considerations.
- (2) Reviews toll/tandem network configuration to insure that the in-service network is in agreement with the design trunk estimate and routing guides.
- (3) Determines adequacy and integrity of existing trunking network and insures that trunks are in service prior to perceived need. Coordinates with Trunk Administrator and/or Tandem Maintenance

Supervisor for order initiation, placement of trunks in service and to overcome any obstacles preventing the implementation of the required trunk network.

- (4) Analyzes trunking data to identify trunk groups that are beyond capacity or contribute to switch and frame imbalance. Coordinates with Trunk Administrator for additional trunks, routing changes and/or rearrangements which will correct imbalances and optimize call completion.
- (5) Monitors and analyzes near real-time trunking data to identify suspected trunk group troubles and coordinates with Maintenance Supervisor for trouble identification and correction.
- (6) Determines if call volumes require mass calling arrangements, and negotiates relief with Network Manager and Trunk Administrator. Supervises the monitoring of toll and special announcements.

5% G. Miscellaneous

- (1) Represents Tandem Administration Organization at service review and other meetings.
- (2) Oversees preparation of all reports related to tandem administration activities. Reviews, endorses and distributes reports.
- (3) Administers personnel-related activities for clerical force (Company policy and objectives, subordinates' performance, evaluations, salary administration, training, safety, absences, etc).
- (4) Develops procedures to insure adequate work force, adequate training and organizational efficiency.
- (5) Maintains positive relations with the vocational representative groups.
- (6) Maintains positive interdepartmental working relationship.

SCOPE AND NATURE OF SUPERVISION

- (1) This position reports to a network manager along with three or four other network supervisors who may be dedicated to administration of other tandem or 4A toll offices or may have responsibilities for the administration of local machines.
- (2) Immediate supervisor is involved in the setting of the overall goals and policies. However, due to the scope of the responsibilities of the network manager, most of the activities of this position are not subject to supervisory review.
- (3) Guides for the job include the Network Management Handbook, DFMPs, TFPs, BSPs, Company policy, job aids, union contracts, formal system training classes, and mutual agreements between the manager and the incumbent. Some of these procedures are detailed but there are many activities requiring decisions based upon precedent or experience.