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NETWORK OPERATIONS SYSTEMS

BUSINESS NETWORK MANAGEMENT

SWITCH/PBX POLLER: DESCRIPTION

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1. INTRODUCTION

1.01 This Northern Telecom Practice (NTP) describes the purpose and functions of the Switch/PBX Poller (SPP). The SPP is a hardware and software package designed to collect call data record (CDR) data from a variety of types of private branch exchanges (PBXs) or switches, hereafter referred to as nodes. [Then the Business Network Management (BNM) feature converts the records into DMS SMDR format to facilitate the use of standard processing and existing feature capabilities, for example, call tracking and spooling.]

Structure of this Practice

1.02 This NTP is divided into the following three parts:

(a) *Introduction.* This part introduces the purpose and functions of the SPP.

(b) *Overview Of The SPP.* This part describes the SPP hardware, the SPP software, and the SPP operations.

(c) *Switches Supported By The SPP.* This part lists all of the switches that are supported by SPP.

Associated Documents

1.03 The following documents contain further information on the SPP.

DOCUMENT	DESCRIPTION
CC3 User Guide	This guide provides a description of CC3 functions, and instructions for CC3 installation and operation. It is available from
	TSB International Inc. 115-5399 Eglington Avenue West Etobicoke, Ontario M9C 5K6 CANADA
	Telephone: (416) 622 7010
NTP 450-1021-331	This Practice contains instructions for using SPP features.
NTP 450-1021-531	This Practice contains a description of SPP log subsystems and explanations of log messages.

2. OVERVIEW OF SPP

HARDWARE

2.01 The SPP hardware (see Fig. 2-1) consists of the following main components:

(a) call collector 3 (CC3) and connections

(b) line interface unit (LIU) and connections

(c) a file processor and connected hard disk

Call Collector 3

2.02 A CC3 is an intelligent buffer that includes built-in communications modems, back-up batteries to ensure record protection, and a large record-storage capacity. One CC3 is dedicated to each node in the network.

2.03 The CC3 listens to its associated node in real time and stores the node's call detail record (CDR) data. According to a regular schedule Switch/PBX Poller (SPP) software polls the CC3 device and collects the CDR data for further processing.

2.04 *Connecting Hardware.* Each CC3 connects directly to the node's maintenance port by means of an RS-232C interface connector. The CC3 connects to a local area network (LAN) interface unit (LIU) by means of an RS-232C interface connector.

Note: The CC3 connects directly to a PBX when used as a node. Other vendor centrex switches may require additional interface devices, please contact TSB International Inc. (see chapter 1 for the address of this company) for further details.

Local Area Network Interface Unit

2.05 The LIU interfaces the CC3 to a file server residing on a DNC-500, DNC-100, or DNC-50 device. The LIU is a stand alone, self-contained, self-powered unit.

2.06 The LIU communicates with CC3s at a data rate of up to 9600 bit/s. The LIU communicates with the file server at a data rate of 2.56 Mbit/s.

2.07 *Connecting Hardware.* The LIU connects to the CC3 by means of an RS-232 interface connector. Modems or data units are required if the CC3s are more than 15 m (50 ft) from the LIU. The LIU connects to the file server by means of ordinary twisted-pair telephone wiring. Teladapt* cables, connectorized at each end with male Teladapt connectors, are used to connect to the DNC device.
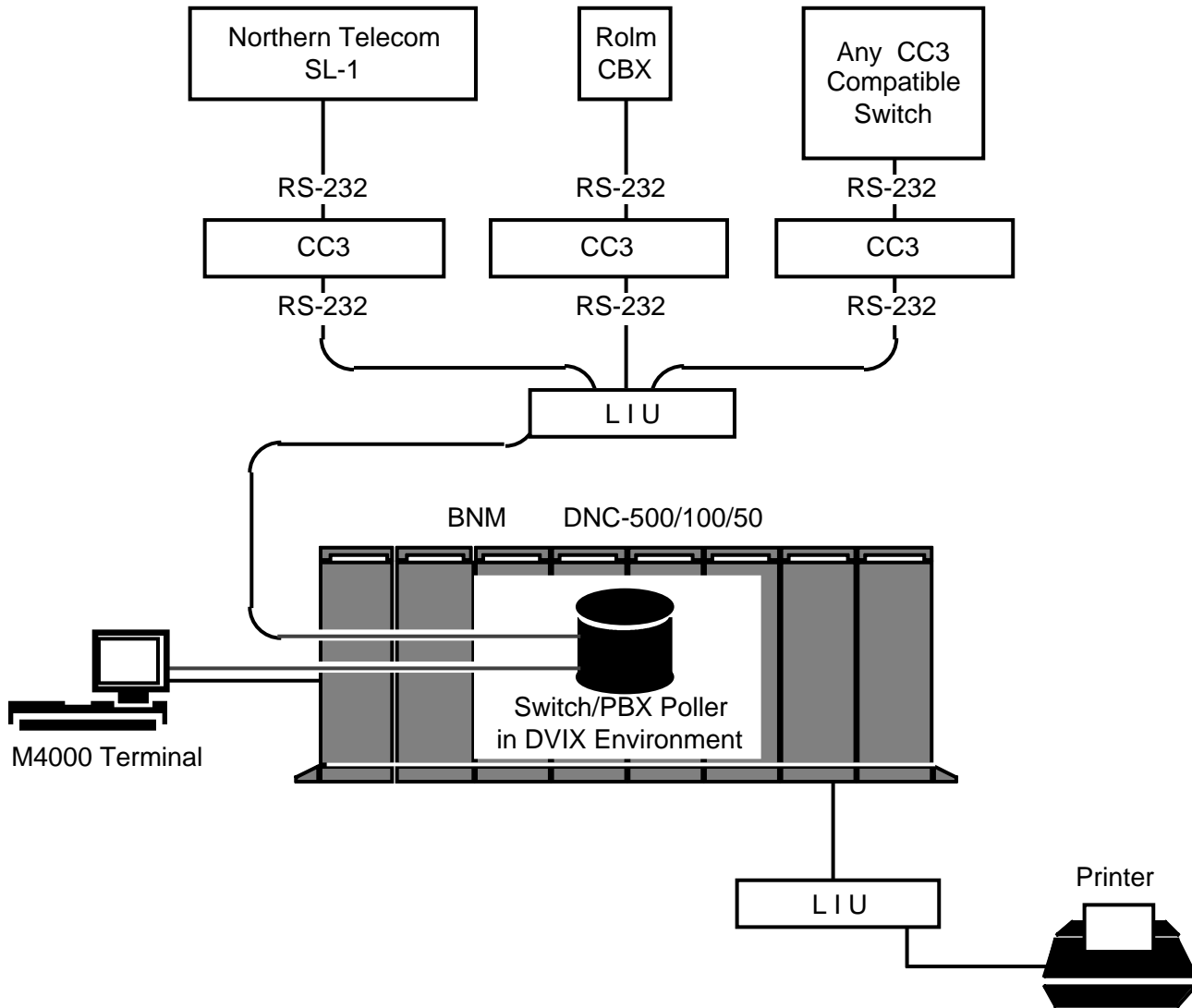
* Teladapt is a trademark of Northern Telecom.

Fig. 2-1
Switch/PBX Poller Hardware

File Server

2.08 A file server and connected hard disk are located within the DNC-500, DNC-100, or DNC-50 device. The file server's shared resource unit (SRU) serves as a specialized applications processor that connects directly to system storage devices by means of a high-speed small computing systems interface (SCSI) bus.

2.09 The file server supports a DVIX operating system, which drives the SPP software.

SOFTWARE

Call Collector 3 Software

2.10 Each CC3 supports only one node. The CC3 listens to its associated node in real time and receives CDR record data in ASCII format. As CDR records are received they are translated into a generic format before being stored in memory. The CC3 then transmits these records to a DNC device when the SPP initiates a request for data transmission.

2.11 *Remote Communications.* The CC3 contains menu driven, interactive software for configuring the CC3 device and its operations. This CC3 software is accessed using SPP man machine interface (MMI) screens.

   Note: Initially, a CC3 device is set up by technical support, at the CC3 site. Refer to the CC3 manual for details on CC3 installation.

2.12 *Diagnostic Records.* At the instigation of a poll job by SPP, or upon a manual command, the CC3 device creates a diagnostic record of the CC3 equipment and operations. This record identifies any potential or critical alarm conditions.

2.13 *Alarms.* The CC3 performs continuous status tests on its modem, battery, memory, and port. It identifies a critical condition to the SPP in the following two ways:

(a) If a critical condition occurs and the SPP is listening to the CC3 by means of a dedicated port, the CC3 dials out an alert to the SPP. The SPP then initiates a diagnostic record, and upon recognizing that a critical alarm conditions exists, performs a poll.

(b) If a critical condition occurs and the SPP is not listening to the CC3, the CC3 creates a log indicating the alarm condition. The SPP retrieves this log during a scheduled poll.

2.14 The CC3 defines the following situations as alarm conditions:

(a) a user-defined record-storage threshold has been reached

(b) the memory is completely full

(c) a date was not set when the CC3 was configured

(d) there has been a hard disk failure

(e) there has been a complimentary metal oxide semiconductor (CMOS) failure

(f) the node port is offline

(g) there have been dynamic random access memory (DRAM) failures

(h) there have been DRAM checksum failures

(i) direct current is low

(j) there is no alternating current

Switch/PBX Poller Software

2.15 The primary purpose of SPP software is to poll CC3 devices for the CDR data that they have collected from their dedicated nodes.

Note: The SPP can poll up to 30 nodes.

2.16 The functions of the SPP include the following:

(a) define nodes and CC3 devices

(b) select communication ports

(c) deliver SPP node information to the BNM node table

(d) allow facility mapping by means of BNM MMI

(e) allow poll scheduling by means of BNM scheduling services

(f) provide manual poll capability

(g) manage communications between the SPP and the CC3s

      (h) collect CDR data from the CC3s

      (i)   create polling logs

      (j)   convert generically formatted CDR into SMDR format

OPERATIONS

Switch/PBX Poller Man Machine Interface

2.17 The SPP main menu is accessed through the BNM main menu. The SPP MMI is based on commands and screen displays for interactive datafill entry, similar to the BNM MMI.

Logs and Alarms Handling

2.18 The SPP creates two types of logs: poll logs and CC3 logs. Log and alarm reports are accessed through the Log Query and Alarm Query menus on the BNM main menu. The severity levels of an alarm log can be downgraded or upgraded using the Log Query MMI.

2.19 *Poll Logs File.* A poll logs file supplies information on every poll initiated by SPP. There are 12 possible types of logs for reflecting the results of a poll.

2.20 *CC3 Logs File.* One CC3 log file exists for each CC3 device. This file records the two possible types of CC3 faults: critical alarm condition and potential alarm condition. Also, in the event that errors occur when compiling alarm logs, the CC3 produces a log indicating this malfunction.

Poll Scheduling

2.21 The polling of nodes is scheduled by means of the BNM scheduling services. MMI screens permit the operator to view existing poll schedules, to add or update a node and polling timetable, or to view and change the timing for the next poll of a node.

    Note: A DNC-100 customer can schedule a poll job directly. A DNC-500 customer must have the poll job scheduled by the telco.

Administration

2.22 The SPP operations are set up by directly entering data into fields on the SPP MMI screens. Also, the BNM Node table, Customer table, Feature Data table, Customer Node table, Customer Feature Profile record, Facility Ownership records, and Facility Mapping records must be updated before a poll can be performed. For details refer to the procedure "Configuring the Switch/PBX Poller," in 450-1021-331.

2.23 *Node Table.* To incorporate SPP node information into BNM, a softkey titled Retrieve SPP Nodes (see Fig. 2-2 for an example of the SPP Nodes display) is present in the BNM node table. Selecting this key automatically incorporates the SPP nodes into the BNM Node table, where the BNM Scheduling Services schedules them for polling.

2.24 *Facility Mapping.* From the BNM main menu, customer groups, trunk ownerships, and attendant subgroups must be identified. This is so that the facilities that are represented by numbers in the call records can be mapped against their meaningful names.
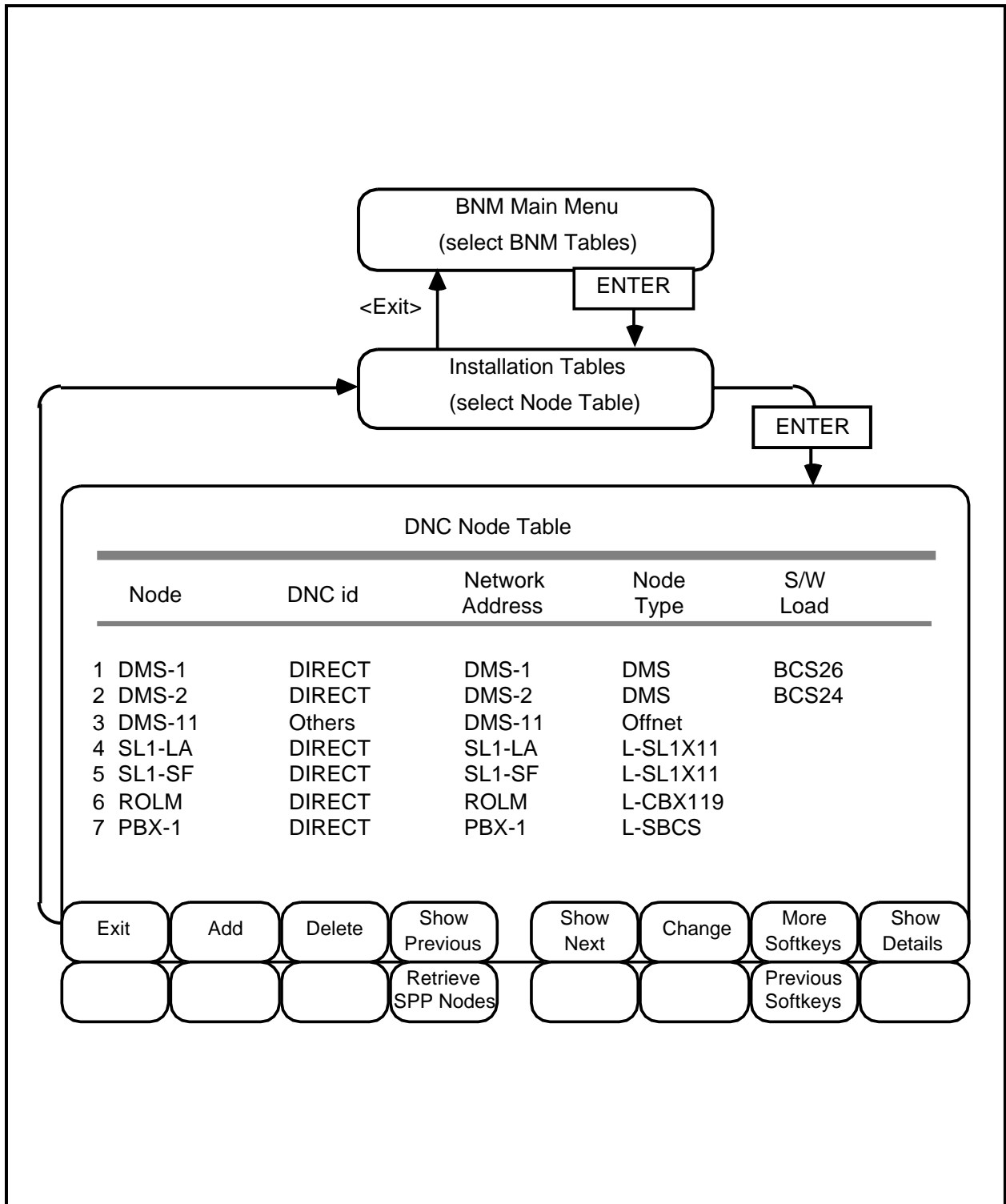
Fig. 2-2
BNM Node Table and the Retrieve SPP Nodes Softkey