



Core and Billing Manager 800 Basics

Functional description

The Core and Billing Manager 800 (CBM 800) offers terminal access to the core, the ability to transfer files to and from the core, log delivery service, and applications for managing accounting data. The CBM 800 enhances OAM&P functionality by enabling service providers to use their existing LAN resources to create an “operations intranet”, with Ethernet connectivity from the core to upstream OSSs, off-loading OAM&P responsibilities from the core. The CBM 800 provides application and OSS interface equivalence to the SuperNode Data Manager (SDM). The CBM 800 also provides accounting management functionality to replace the functionality provided by the Distributed Processing Peripheral (DPP).

CBM 800 hardware

The CBM 800 hardware resides on the carrier-grade, NEBS-compliant Sun Netra 240 server and can be configured in a MISC cabinet. The Sun Netra 240 server is 2U (3.5 in) high and is designed for high-availability, containing two processors, redundant hot-swap power supplies, and two internal hot-swap RAID-1 mirrored hard disk drives that provide redundant, exact copies of system data. In addition, the server contains a DVD-RW drive, which facilitates easy media exchange for software delivery and backups.

Network connectivity

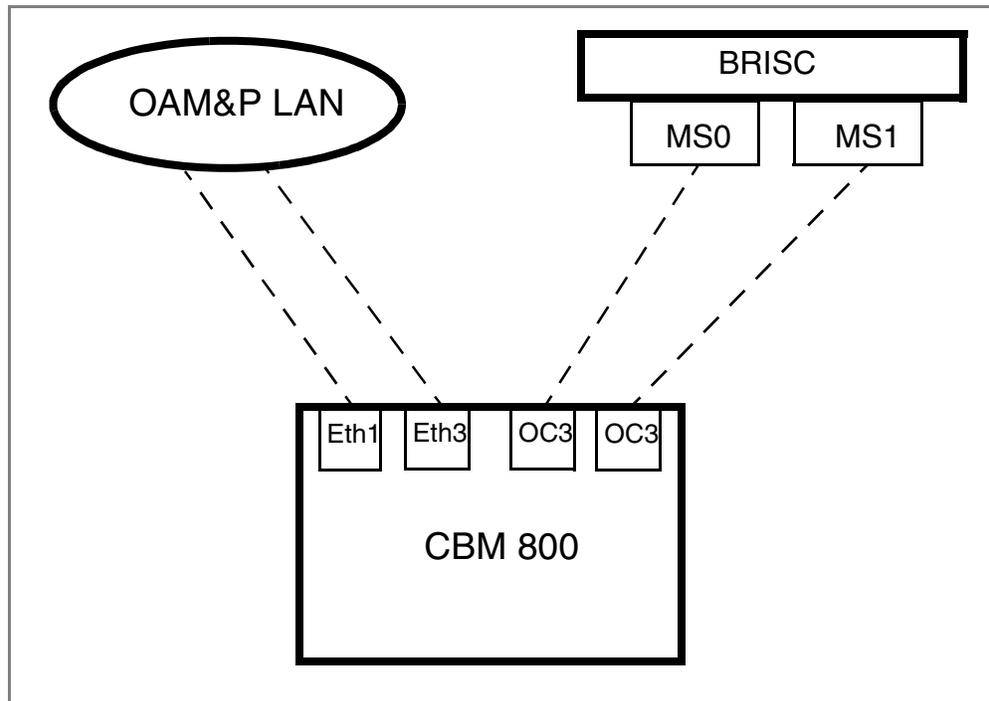
The CBM 800 is equipped with two Ethernet ports (GigE interfaces, 10/100/1000 auto sensing) for connection to the operations LAN. Each port is connected to a separate Ethernet controller, thus providing fault-tolerant connectivity. The CBM 800 serves as a physical firewall between the OSS network and the DMS core, and does not allow IP traffic to flow through it.

The CBM 800 connects to the BRISC core through dual OC3 links. There is no network fabric to engineer between the core MS and the CBM 800. The IP address used for communication with the core is

datafilled on the core in table SDMINV. This parameter is retrieved automatically by the CBM 800 through core communication.

The following illustration shows the basic CBM 800 network connectivity.

Figure 1 CBM 800 network connectivity

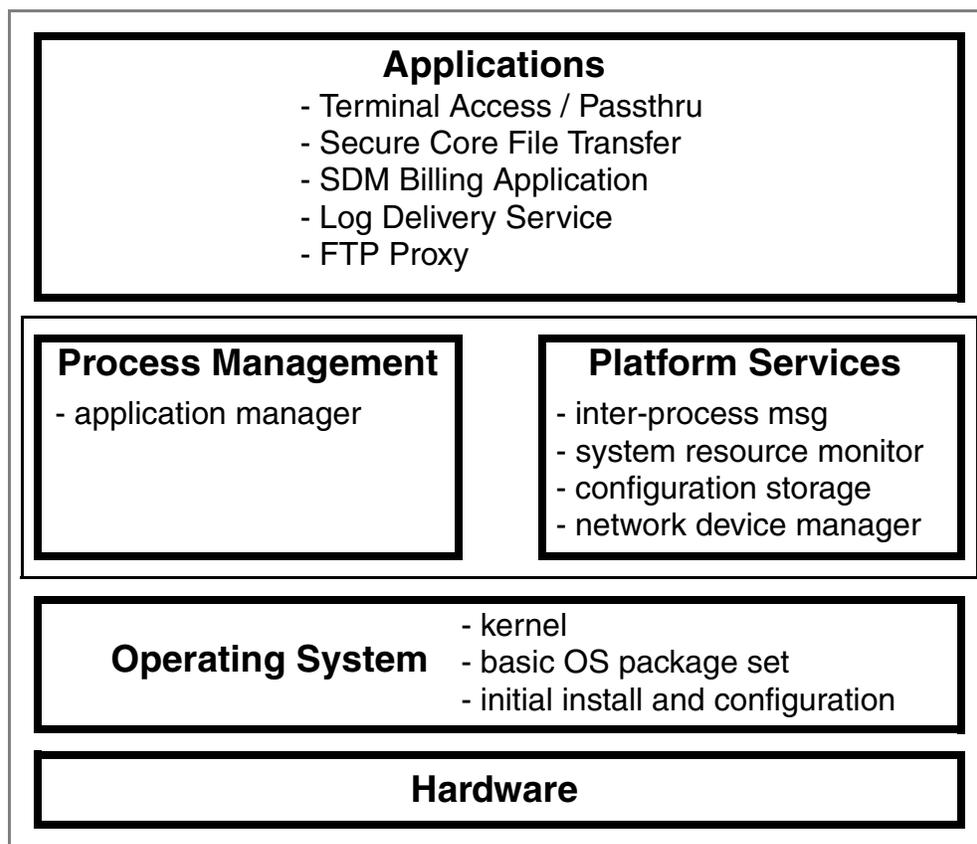


CBM 800 software

The CBM 800 software is built on top of the Succession Server Platform Foundation Software (SSPFS), which includes the Solaris operating system and several software components, tools, and utilities used for managing system equipment and software. SSPFS provides a hardened operating system, routinely exercised with standard security vulnerability detection software.

The base components of the CBM 800 software consist of the process management and platform services subsystems. The process management subsystem provides control, monitoring, alarming, and recovery of the applications and other system processes. The platform services provide general tools used for administration and maintenance of the platform hardware and software.

The CBM 800 software architecture is shown in the following illustration.

Figure 2 CBM 800 software architecture**CBM 800 applications and services**

The following applications and services are supported on the CBM 800.

Terminal Access / Pass Through

The CBM 800 can be accessed through standard terminal access client software: telnet and ssh. These access methods can be individually enabled or disabled. Any ssh client that interoperates with OpenSSH 3.4 can be used.

The CBM 800, as the call server element manager, provides terminal access to the core through terminal access clients running either on the CBM 800 or through the "Passthru" mechanism. Passthru users are immediately transferred to a terminal access session to the core upon login to the CBM 800. A Passthru user can be configured to require a local (CBM 800) password. Without a local password, the Passthru user is forwarded to the core login process, where the core userid and password are required.

The maximum number of simultaneous users directly logged into the CBM 800 is 64. This number is limited, however, by the computing

capacity required to carry out all of the actions initiated by users who are logged in.

File transfer

This application provides the ability to transfer files to and from the CBM 800, and to and from the core through the CBM 800. Since the CBM 800 platform provides ftp service and the OpenSSH software, the following methods for file transfer are available:

- ftp, which provides standard file transfer service; passwords are transferred in clear text across the network
- scp, which provides a "command line" encrypted file transfer service. This service is well suited for machine-to-machine interface.
- sftp, which provides interactive encrypted file transfer service

The CBM 800 also extends file transfer capabilities of ftp and ssh to allow a user direct access to the core file systems in order to transfer files to and from the user's client machine and the core.

File Transfer Protocol Proxy (FTPP) The FTTP application provides the ability to transfer files between the core and client machines through the CBM 800, without the need for files being stored on the CBM 800. This capability is provided through a special daemon running on the CBM 800 that is accessed by CBM pass-through users, or users who are members of the "passthru" user group. Through this application, a member of a Passthru user group will not have access to the CBM 800 file system and a CBM 800 user will not have access to the core file system.

Secure Core File Transfer (SCFT) SSHCore File Copy allows an ssh user to execute standard ftp commands on the core, through an ssh tunnel from the client machine and the CBM 800. The path from the client machine to the CBM 800 is fully ssh-secured (that is, authenticated, authorized, and encrypted). Files are transferred between the client machine and the core without the need for the files being stored on the CBM 800. The user interface is similar in form and function to the "scp" ssh command. An appropriate CBM 800 userid and password or static ssh user key setup is required, to provide the authentication and authorization information. An audit log records the operation of this application, including the identification of the user executing commands and the commands being executed.

SuperNode Billing Application (SBA)

The SBA provides a data server to collect billing records from the core, in compliance with the AMA Data Networking System (AMADNS)

design described in GR-1343. Billing data retrieved from the core is stored on the two RAID-1 mirrored disks of the CBM 800. Files can then be sent from the CBM 800 to downstream systems for processing. More complete information about the SBA application can be found in the Accounting NTP in the CBM 800 NTP suite.

SBA Real-time Billing

The Real-time Billing (RTB) application enables transfer downstream of billing data as the data is also being written to the CBM 800 disk. The downstream system can thereby process the billing records received by the CBM 800 in near real-time. This application can be used for billing streams configured to store the received billing records in DIRP file format on the CBM 800. More complete information about the SBA application can be found in the Accounting NTP in the CBM 800 NTP suite.

Log Delivery Service

The log delivery system collects core logs and CBM 800 logs, formats them in either Nortel-standard or SCC2 format, and routes them to remote hosts printers and to UNIX files. The Log Delivery Service provides high-speed log delivery, using TCP/IP protocol to transfer logs from the CBM 800 to the OSS. The applications supporting Log Delivery Service allow flexible configuration options such as log filtering.

SSPFS services

The CBM 800 shares with other tools built on top of SSPFS a common platform of hardware, operating system, and third party services and tools. SSPFS provides the services for managing the hardware and system health.

CBM 800 maintenance

CBM 800 administration and maintenance is performed through a local interface called the "CBM 800 maintenance interface (cbmmtc)." This interface provides:

- a hierarchical set of screens or levels
- a dynamic alarm banner with state nomenclature that reports overall CBM 800 state, application states, core connectivity status, NTP

health status, platform (hardware) status, system resources status, and file system resources status and health

- context-sensitive fault reporting and help
- administration functions such as user pass-through functionality, terminal access configuration, and software installation and maintenance

The status of the CBM 800 and of its components is available also through command line query commands.

CBM 800 applications and services generate customer logs, which are written to persistent storage in a simple text file. SSPFS logs identifying platform issues are also generated on the CBM 800. Core logs are also generated for state changes.

The general product state of the CBM 800 is also reflected in the server LEDs for critical, major, and minor alarms, as well as through the office alarm unit of the frame in which the CBM 800 is installed.

The CBM 800 supports electronic software delivery of software releases and patches, including automatic schedule patch application.

CBM 800 emergency access

Emergency access is provided through a standard RS-232 console port with an RJ-45 connector.