

CC Family of Data Collectors

Timely. Accurate. Complete. These are the characteristics you expect from CDR (Call Detail Recording) data generated by a call accounting system.

CC data collectors* complement these characteristics by interfacing with multi-vendor PBXs to filter and store complicated CDR data used in downstream production of reports.

Note: * refers to *CC PLUS* and *CC3 3/6* data collectors.

An intelligent storage and communications device, the CC data collector can convert the CDR output produced from various types of PBXs into a standard call record format. This unique feature simplifies the processing of cost allocation and network management reports.

CC data collectors work in unison with *SEM data transport* software and *Switch Support Software*, forming a Telecom Data Transport System that automates the collection of CDR data used to allocate costs, manage facilities usage and determine calling patterns and grades of service.

The CC lets you focus on the CDR information itself rather than the process used to gather the information.

1.0 Telecom Data Transport System

The CC data collector is the CDR hardware component of the Telecom Data Transport System. Attached to the RS-232C port of individual PBXs, the CC filters, collects, compresses and stores CDR data from remote PBXs and transports it over least cost, dial-up networks, or over a hardwired connection to a central polling system where it can be accessed by processing applications.

Switch Support Software, resident in the CC data collector, and *SEM Communications Controller* (the Central Polling System) are the software components of the Telecom Data Transport System.

CC switch support software is downloaded from the Host and empowers CC data collectors with the ability to recognize different types of PBXs and apply user-defined CDR collection criteria to filter and store call detail records.

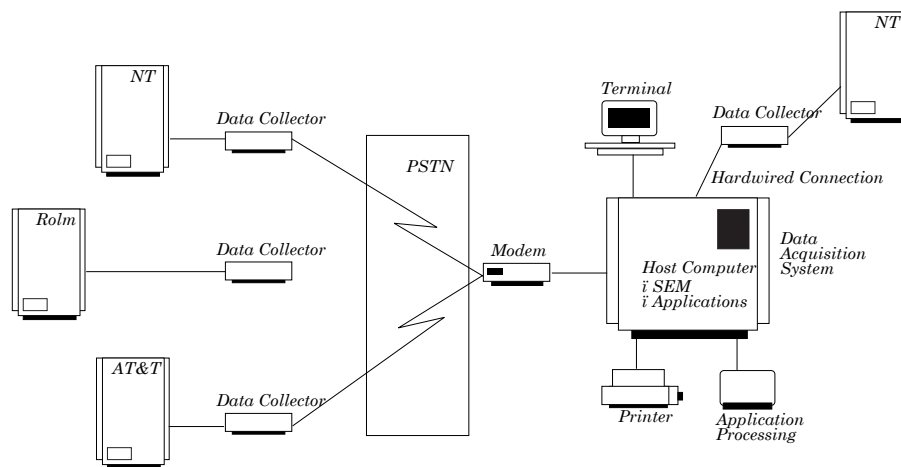


Figure 1. The Telecom Data Transport System

The Telecom Data Transport System is available for the Sun Solaris™ operating system.

2.0 Benefits

CC data collectors provide a number of important benefits to anyone managing or maintaining a telecom network.

Centralized Control

SEM can collect CDR data from individual or grouped CC3 data collectors in multiple PBX locations. CCs are accessed and controlled by the Network Management Centre, providing a central point of access for maintenance and for configuration of collection criteria, thereby reducing on-site visits.

An operator notified of a problem at a site where a CC unit is stationed can view CDR records as they are generated by the PBX in real-time. This feature allows you to tag appropriate CDR records, helping to make a timely diagnosis of the problem.

Multi-Vendor PBX Support

The CC data collector supports multi-vendor networks by providing a common interface to various makes and models of PBXs.

Switch support software is used to translate PBX CDR output and allow the CC to recognize the PBX it is monitoring. Switch support enables the CC to interpret the data format of a specific type of PBX and transform it into a comprehensive common record format.

Reliability

CCs operate year after year without failure or loss of data. CCs contain back-up batteries to ensure continuous operation for a minimum of 4 hours (3 hours for *CC PLUS*) in case of a power failure.

The CC3 uses a cyclic redundancy check (CRC-16) to ensure accurate reception of data at the Network Control Centre. Any corrupted data is automatically re-transmitted.

CDR records are grouped into standard length blocks for transmission. Any corrupted blocks are automatically re-transmitted.

The *CC PLUS* provides CCITT v.32/v.42 error correction to ensure accurate high speed data transmission.

Internal Diagnostics

CC data collectors diagnose and report problems, ensure accuracy of data and provide 24 hour-a-day uptime.

CCs run continuous diagnostic tests on internal modem, battery, memory, CMOS and PBX-port status and report these alarms to the Network Management Centre when they occur. When AC power fails, DC power is low, memory is full or approaching a user-defined threshold, CCs report these alarms and SEM responds by with an immediate poll of all records.

TSB001	user-defined memory threshold exceeded
TSB002	memory is 100% full
TSB003	PBX port is off-line. DSR not received from PBX
TSB004	memory failure detected
TSB005	date failure. PBX clock stuck or no PBX data record
TSB006	CMOS RAM failure
TSB007	device lost AC power
TSB008	device DC low

Diagnostic results are stored in a diagnostic record. When a problem is detected, the CC can dial-out a diagnostic alarm as a warning. Call records can be polled before they become lost or corrupted. A diagnostic record:

- identifies the PBX ID, PBX type and ROM version of software in the data collector and the downloaded version of the switch support.
- provides a count of the number of records stored in memory - both the actual record count, overflow record count and the percentage of memory currently in use.
- provides a CC hardware and software diagnostic check list that identifies whether a CC alarm has occurred.

Security

Access to the CC is protected by a password. The password controls the general security of, and access to, CC data collectors and the stored information. It provides security for polling, downloading, remote diagnostics, logging options and the review of CDR information.

Flexibility

Logging of short duration calls, local calls or internal calls may be of no value to you. Through the configuration of logging options, the CC data collector can filter unwanted calls records and only store what is required.

The CC data collector supports two modes of CDR record collection:

- CC3 'native' mode transforms PBX records into a generic call detail record that is variable in length depending on the type of PBX record received.
- CC3 'dumb' mode collects records in their raw CDR record format, as received from the PBX.

Switch support allows the CC to distinguish between many different types of call record formats. Knowing what output to expect, the CC isolates and extracts the relevant fields, transforming the information into a comprehensive common record format.

CDR Common Record Format

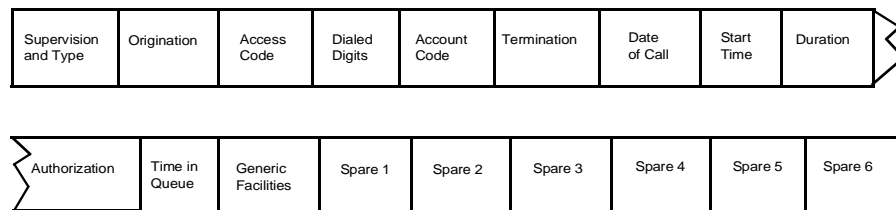


Figure 2. CC Common Record Format

Besides being able to determine what types of CDR information you want to collect, the CC data collectors are available in a wide variety of memory sizes and some models can be fitted with expansion boards to ensure they grow with your network.

Sample Polling allows the user to periodically retrieve records for test reports without affecting data stored in the unit for scheduled polling.

Cost-effective

The CC suppresses unused portions of partially filled common format field to compress CDR records, providing a more efficient use of memory.

CDR records are transmitted to the Network Management Centre in the compressed state and are expanded to their original common record format field lengths by SEM. Shorter polling time means savings on long distance polling charges.

Another way to save on long distance polling charges is to program the CC to respond to polling requests by hanging up and returning the call. This allows service bureaus to save the cost of long distance charges associated with polling, and allows end users to have polling charges reflect the network discounts they have negotiated with carriers.

Transmission costs can be further improved with the *CC PLUS* 9600 baud modem. It can accept or transmit data at speeds of 2400 to 9600 baud, which saves time and improves performance.

3.0 Hardware Specifications

	CC3-3,6	CC PLUS, v5.x.x
Memory Capacities	CC3-3 — 64K CC3-6 — 128K	CC-15 — 256K CC-30 — 512K CC-60 — 1M CC-240 — 4M
External Power Requirements	North America: 117VAC±10%, 60Hz±10%, 9.6 watts max Europe: 240VAC±10%, 50Hz, 9.6 watts max	117VAC±10%, 60Hz±10%, 19.2 watts max 240VAC±10%, 50Hz, 19.2 watts max
External Power Transformer	12VDC, 800mAmp	12VDC, 1.6 AMP
Internal Battery Backup	6VDC, 1.2 amp hour	8VDC, 3.2 amp hour
Internal Backup Duration	Fully Operational Backup: 4 hours minimum Non-volatile memory back-up: 1 year	Fully Operational Backup: 2 hours minimum Non-volatile memory back-up: 1 year
Operating Temperature	10° - 40°C (50° - 104°F)	10° - 40°C (50° - 104°F)
Dimensions	11 x 8.8 x 1.8 in (27.9 x 22.4 x 4.6 cm)	12.5 x 10.8 x 2.8 in (31.8 x 27.4 x 7.1 cm)
Weight	~6 lbs (2.7kg)	~15 lbs (6.8 kg)
Modem Standards	Bell 103/212 (300/1200 baud) CCITT v.22 (1200 bps) v.22bis (2400 bps) North America Only	CCITT v.32/v.42 (1200/2400/4800/9600 bps)

4.0 Test Specifications

1) Low Temperature Storage:	IEC 68-2-1 Test Ab -40°C @ 16 hours
2) High Temperature Storage:	IEC 68-2-1 Test Bb & Bd 70°C @ 16 hours
3) Low Temperature Operation:	IEC 68-2-1 Test Ab -20°C @ 5 hours
4) High Temperature Operation:	IEC 68-2-2 Test Bb & Bd 50°C @ 16 hours
5) Temperature Shock:	IEC 68-2-14 Test Na -60°C to + 60°C @ 1 hour
6) Damp Heat, Steady State Operation:	IEC 68-2-3 Test Ca 40°C, 90% RH 5 days
7) MTBF (Mean Time Between Failure):	(MIL STD 217 standard) ~7.5 years @ 40°C