

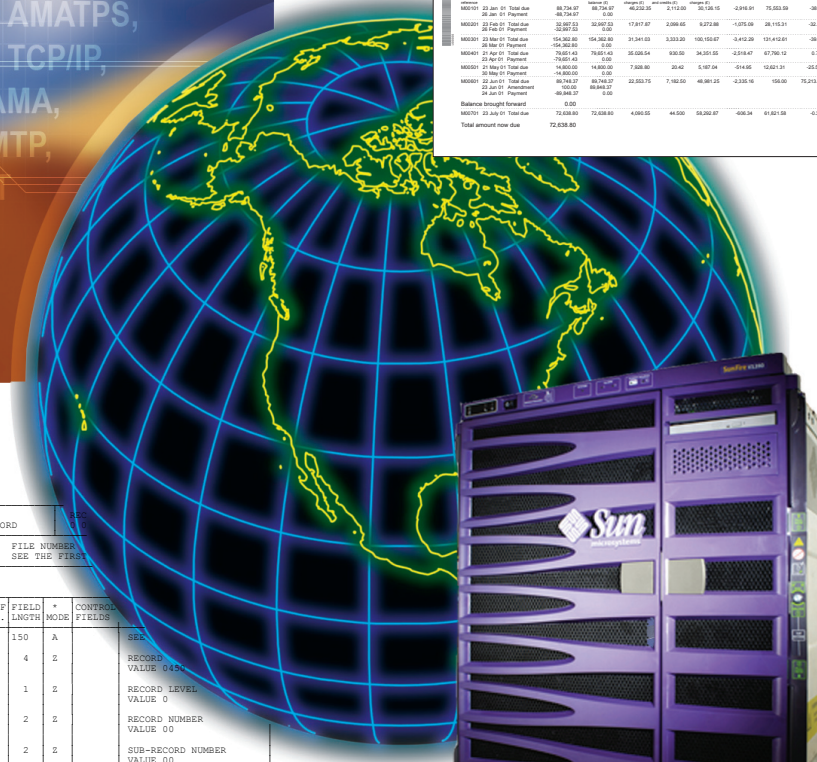
Call Detail Record Multi-Vendor Acquisition, Distribution, and Analysis

Distributed Data for Enterprise Decisions

ISO 8202, OSI 8073, APT,
OSI FTAM, AMATPS,
FTP, CMIP, TCP/IP,
Bell core AMA,
Ericsson MTP,
BX.25, XQT

Statement of account for A & J Design PLC

Invoice date	Invoice amount	Invoice value	Invoice charge	Invoice discount	Invoice total	Invoice net	Invoice gross
M0001 22 Jan 01 Total due	88,754.07	88,754.07	0.00	0.00	88,754.07	88,754.07	88,754.07
M0001 22 Jan 01 Payment	48,754.07	0.00	0.00	0.00	48,754.07	48,754.07	48,754.07
M0001 22 Feb 01 Total due	39,000.00	39,000.00	0.00	0.00	39,000.00	39,000.00	39,000.00
M0001 22 Feb 01 Payment	32,000.00	0.00	0.00	0.00	32,000.00	32,000.00	32,000.00
M0001 22 Mar 01 Total due	154,362.00	154,362.00	0.00	0.00	154,362.00	154,362.00	154,362.00
M0001 22 Mar 01 Payment	154,362.00	0.00	0.00	0.00	154,362.00	154,362.00	154,362.00
M0001 21 Apr 01 Total due	79,015.45	79,015.45	0.00	0.00	79,015.45	79,015.45	79,015.45
M0001 21 Apr 01 Payment	79,015.45	0.00	0.00	0.00	79,015.45	79,015.45	79,015.45
M0001 21 May 01 Total due	14,800.00	14,800.00	0.00	0.00	14,800.00	14,800.00	14,800.00
M0001 21 May 01 Payment	14,800.00	0.00	0.00	0.00	14,800.00	14,800.00	14,800.00
M0001 22 Jun 01 Total due	89,748.07	89,748.07	0.00	0.00	89,748.07	89,748.07	89,748.07
M0001 22 Jun 01 Payment	89,748.07	0.00	0.00	0.00	89,748.07	89,748.07	89,748.07
M0001 22 Jul 01 Total due	75,638.89	75,638.89	0.00	0.00	75,638.89	75,638.89	75,638.89
M0001 22 Jul 01 Payment	75,638.89	0.00	0.00	0.00	75,638.89	75,638.89	75,638.89
Total amount due due	75,638.89				75,638.89		



FIELD NAME	LOCATION FROM	NO OF TO	NO OF CHAR.	FIELD LENGTH	MODE	* CONFIRMED	FIELD
CAP	1	150	150	150	A		RECORD VALUE 0
CAP-REC-LEN	1	4	4	4	2		RECORD LEVEL VALUE 0
CAP-REC-LEVEL	5	5	1	1	2		RECORD NUMBER VALUE 00
CAP-REC-NO	6	7	2	2	2		SUB-RECORD NUMBER VALUE 00
CAP-SREC-NO	8	9	2	2	2		SEQUENCE NUMBER USED FOR SEQUENCING SIMILAR RECORDS
CAP-SEQ-NO	10	17	8	8	2		



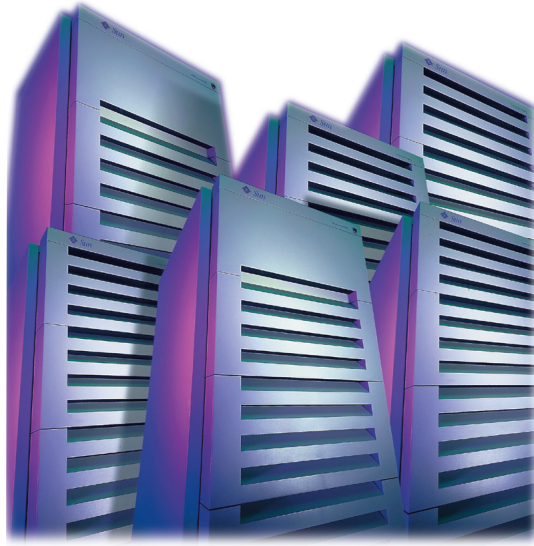
Sun Microsystems
Informix

Quantum Systems
Integrators, Inc.

CDR Collection Manager™



Solaris™



Quantum Systems Integrators, Inc.

Quantum Systems specializes in solving complex technological problems with robust and efficient integrated hardware and software solutions. Quantum's staff has decades of in-house software development and systems integration experience.

Quantum is able to evaluate requirements and recommend the best possible solution for each customer project. Quantum's engineers stay abreast of the latest developments in hardware and software engineering through ongoing training, company R&D initiatives and our strategic partnerships with our vendors.

Quantum's keen awareness results in the most cost effective and reliable software and hardware combinations for our customers that not only satisfy requirements, but also adapt to an evolving computing and network infrastructure.

Quantum takes special pride in its ability to provide high performance solutions that are orders of magnitude faster than competing products. We understand the benefit, and the *necessity*, in a highly competitive marketplace, for customers to quickly and efficiently perform complex tasks and get concise, decision-driving results. Quantum develops performance-enhancing technologies in the areas of Data Warehousing, Data Caching Techniques, Database Interfaces, Self-Updating Software, and Graphical User Interfaces.

Quantum is a proven leader in reliable data collection, distribution, and management systems. Customers trust Quantum software to collect, archive, and distribute their critical data, such as cellular billing records, in sites all around the world. Quantum's solutions are designed as mission-critical applications, working reliably without the need for administrative care, ensuring critical enterprise information is not lost.

CDR Collection Manager™ (CCM™)

Billing data is arguably one of the most important pieces of information for a telecommunications company. Yet many companies use inefficient or non-automated means to collect billing data. This can result in slow turnarounds to create bills, or potentially lost or duplicated data due to human error.

Quantum System's CDR Collection Manager (CCM) reliably and automatically collects CDR/AMA billing data from a variety of switch types, and manages the information for processing by one or more third party billing systems.

CCM has been developed to work with many common switch types and protocol layers, and has been modularly designed such that support for other equipment can be "plugged-in" without code changes.

CCM's use of the X.25 over TCP/IP (XOT) network protocol results in reduced hardware costs by allowing many X.25 applications to communicate over a standard ethernet WAN infrastructure.

The benefits of using CCM over conventional or home-spun methods:

- Centralization
- Support for Many Switch Types and Protocols
- Configuration and Monitoring with Java GUI
- Reduced Hardware Costs
- Multiple CDR Data Consumers
- Fault Tolerant, Mirrored Data
- Optional Integration with Fault Management
- Optional RDBMS Analysis Module
- Reliability
- Field Tested and Proven

Support for Many Switch Types and Protocols

The current release of CCM (3.0) provides support for the following switch types and protocols:

Switch Types:

- Nortel DMS 100, 250, 500
- Nortel DPP
- Motorola EMX 2500
- Ericsson AXE
- Lucent 5ESS

Session-layer protocols

- BX.25 (aka AMATPS)
- AFT
- MFT
- XFR

Network-layer protocols:

- X.25 via XOT (TCP/IP)
- X.25 via SunLink card
- X.25 via HP9000/X.25 card

Centralization

Quantum's CCM technology collects your enterprise's CDR data from geographically remote and diverse telecommunication switch types to one central location or a set of distributed locations for processing over standard TCP/IP. The CCM system can manage a network of switches located anywhere in the world and in the event of a WAN or system failure, a backup server can easily take over all tasks.

Configuration and Monitoring with Java™ GUI

CCM can be configured by the user to mix and match any of the above switch types, session layer protocols, and network layer protocols. The software has been developed such that new protocol layers can be developed and "plugged-in" without modifying any of the existing CCM software.

The protocol choices, as well all other system parameters, are fully configurable via a Java-based GUI. The GUI also allows you to bring CCM systems up and down, monitor their collection state, view lists of collected files, and track system status and problems.

Reduced Hardware Costs

CCM is unique among CDR billing collectors in that it uses the XOT protocol to increase reliability and lower cost when talking to the typical X.25 provisioned telecommunication switch. Competing systems require expensive and outdated X.25 end-to-end infrastructures or collocation of many proprietary billing collection hosts, each equipped with an X.25 interface.

CCM uses XOT, which encapsulates X.25 packets within standard TCP/IP communication. Thus, with low cost XOT capable routers (available from Cisco or Dymec) or using an existing X.25 cloud, CCM can collect data from potentially hundreds of switches using a single industry standard Unix server using standard Ethernet.

Multiple CDR Data Consumers

There is often more than one use for the collected CDR data, such as fraud analysis or competitive comparison analysis with a second billing house. CCM provides a "client" interface to the collected data, where each client can manage its own distinct or overlapping set of CDR data.

Fault Tolerant, Mirrored Data

Like most Quantum products, CCM is hosted on fault tolerant RAID disk suites using data mirroring technology to drastically reduce the possibility of data loss. Data can also be mirrored across the enterprise for high availability in the event of a WAN failure.



Optional Integration with Fault Management

Although CCM typically runs as a standalone system, it has been fully integrated into fault management (FM) systems, such as Quantum's XFM, and other third party systems. In this highly integrated mode CCM becomes a service like a native "probe" or "gateway", with all system control and parameter configuration and seamlessly controlled via the FM system. In this highly integrated mode CCM status messages and alerts will also appear in the native alert window of the FM system allowing full monitoring and control of your revenue critical stream.

Optional RDBMS Analysis Module

CCM integrates with the Informix™ RDBMS to automatically populate the entire Call Detail Record or a defined subset of data. Once data is populated into the database, the CCM RDBMS module can examine the data to determine various measurements and trends useful for tracking call volume, call duration, termination type, and for performing fraud analysis.

Reliability

Like all Quantum products, CCM has been extensively tested for reliability. By strictly adhering to each session layer and network layer protocol, and by using well-organized local storage procedures, CCM ensures that data is not lost or duplicated. Searching for a six sigma solution that you can trust to handle your critical billing data? Look no further, Quantum's CCM system meets this elusive reliability metric.

Field Tested and Proven

CCM technology is currently collecting data 24 hours/day in systems worldwide, including Cablevision (Eastern United States), Metronet (Canada) and Telebrasil (Brazil). Our deployed CCM products have no recorded data loss in over seven years of worldwide operation.

Availability

Now available in cost effective pre-configured systems for fast turn key deployments featuring:

- Server: Sun Enterprise V250, E280R, V480, V880, or V1280
- OS: Solaris 2.8 and 2.9
- RDBMS: Informix OWS/ODS version 7.3
- Storage: SCSI hardware Raid (365 to 1,752 GB) or FC-AL hardware RAID (504 to 4,088GB)



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