Symmetricom

TimePictra

Carrier-Class Synchronization Management

KEY FEATURES

- Carrier Class Sync Management System
- Robust, Multi-vendor, Scalable and Modular
- Auto-action Support for Zero-touch Processes
- Secure Web-based Access from Anywhere at Anytime
- Full FCAPS Management Functions

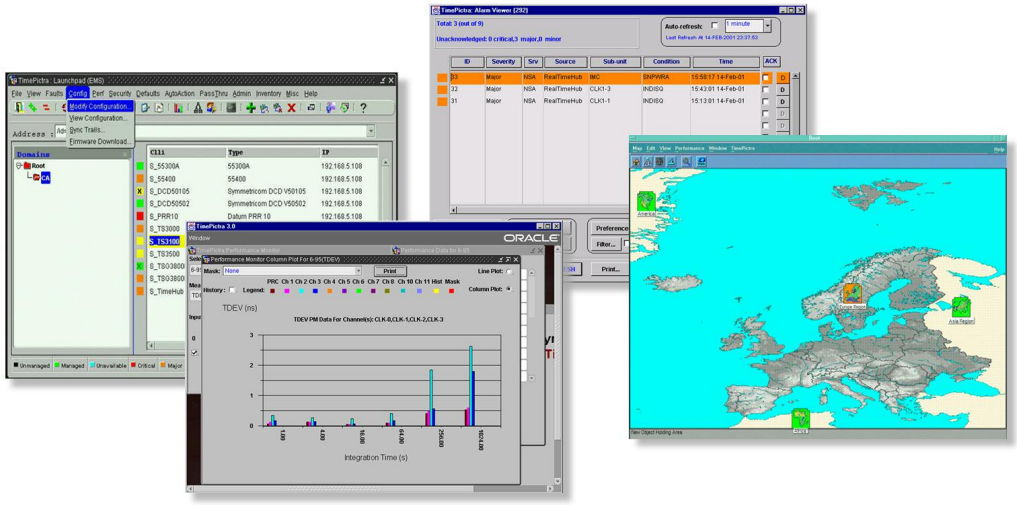

FIG.1 Key screenshots of the TimePictra Synchronization Software

INTRODUCTION

TimePictra™ is a web-enabled synchronization network management system. This carrier-class platform has an open, scalable, modular architecture that will grow and evolve with the network.

Network management is a key step towards ensuring control and visibility of the entire network. The synchronization system must be capable of keeping pace with the growth and evolution of the network in general and the sync network in particular. TimePictra offers this and more with its open, multi-tier architecture. New network elements can be rapidly added to the large list of manageable elements. TimePictra integrates with higher-level systems through north-bound interfaces, allowing rapid problem identification in a Network Operation Center (NOC) environment, while adding a large number of value-added features and functions that are unique to the sync network.

WEB AND X-WINDOW GUIS

Authorized users can have secure access to TimePictra, and manage their sync network from anywhere at anytime. It enables connectivity to the mission-critical sync network from remote locations. The low-bandwidth requirements of a thin-client web-based GUI implies no special client-side installation or setup and is ideal for a dial-up or VPN connection.

The rich X-windows (HP OpenView®) interface allows fully functional interactive maps, color-coded conditions and icons. Drill down functionality enables more visibility into the network's synchronization status.

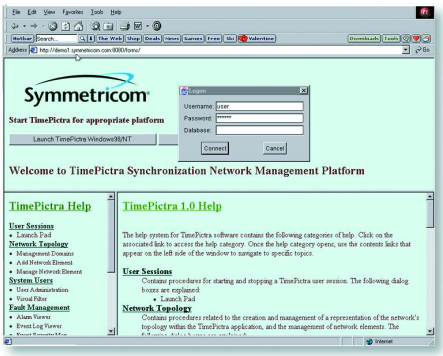

FIG.2 Secure access, readily accessible information regarding the system

SECURE ACCESS AND COMMUNICATIONS

TimePictra offers several modes of security for managing synchronization networks. Role-based access guarantees only authorized users use the system. Management Domains add a level of security and organization. SSL-enabled communications ensures secure access over the web. Transaction logs ensure all activities by users are documented and logged. Encrypted TL1 communications (when supported by the sync NEs) ensure that events, alarms and commands are protected and secure, even from remote locations.

FAULT MANAGER

The fault manager provides access to all of the network elements. Events and alarms are displayed using a color-coded format compliant with ITU-T standards; notifications are easily intelligible. Whether in-office or in the field, network personnel have the ability to readily access the entire suite of information about any Network Elements (NEs).

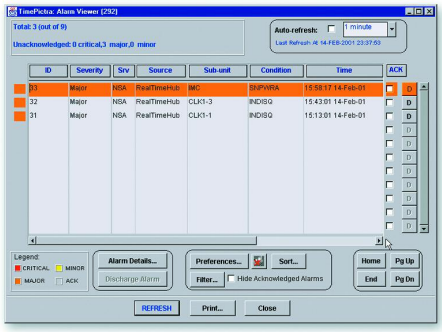

FIG.3 Fault Manager

FIG.4 Fault Analysis

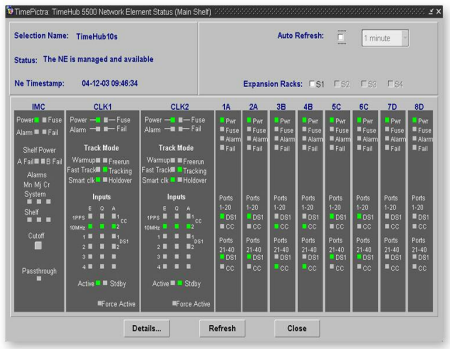

FIG.5 Status Panel

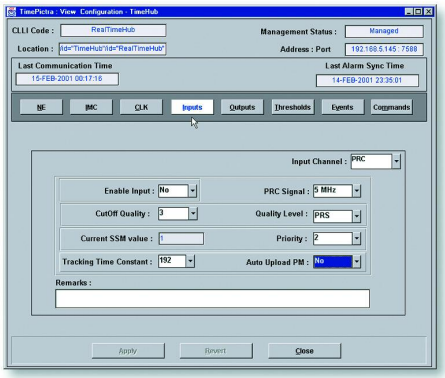

FIG.6 Configuration Manager

CONFIGURATION MANAGER

The configuration manager allows network personnel to access information about NEs and update their configurations from within this single application. Information is provided graphically at system, port and card levels, in real time. NE's firmware can be automatically downloaded from the management system.

ACCOUNTING/INVENTORY MANAGER

This manager provides inventory information on any of the managed elements in the synchronization network. Information is provided down to the component level, including such information as location, serial number, part number, type of equipment, software and hardware revision levels. The Inventory Manager even tracks legacy equipment not capable of reporting this information by itself.

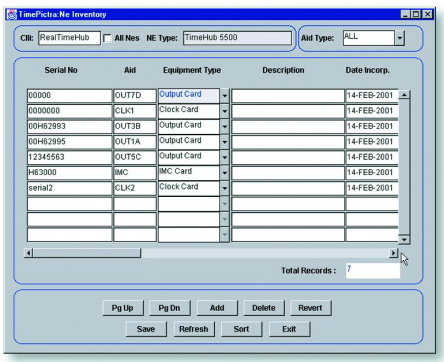

FIG.7 Accounting/Inventory Manager

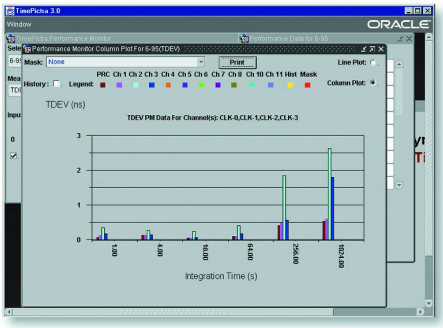

FIG.8 Performance Manager

PERFORMANCE MANAGER

Graphically displays a variety of standard performance data such as MTIE, TDEV and phase, in order to proactively identify and correct problems in the synchronization network. TimePictra enables users to compare current readings to stored industry standard masks and previously stored data.

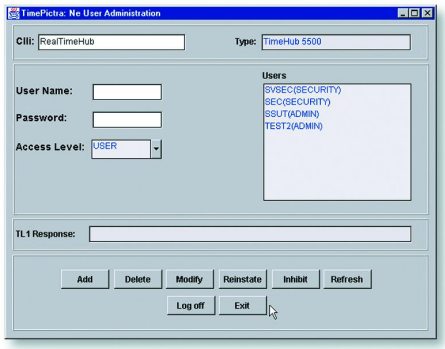

FIG.9 Security Manager

SECURITY MANAGER

Security is vital to your operation. TimePictra offers multiple levels of role-based security, enforced by passwords and login requirements. Securely administered permissions control access to domains and functionality. SSL and data encryption are both supported to ensure secure remote communications.

OPTIONS

- SNMP North-bound Interface
- Multi-Vendor Connector[1, 4]
- Resiliency Fail-over Option
- Performance Analyzer (TimeMonitor™)

TIMEPICTRA OPEN ARCHITECTURE

TimePictra's multi-tier architecture is the basis of its strength as a modular, multivendor, scalable and evolvable system. It has the ability to manage entire synchronization networks consisting of equipment from multiple vendors, while providing the scalability that would protect investments as the infrastructure in a network grows. The architecture enables rapid, easy integration to higher level network management systems through its north-bound standard interfaces.

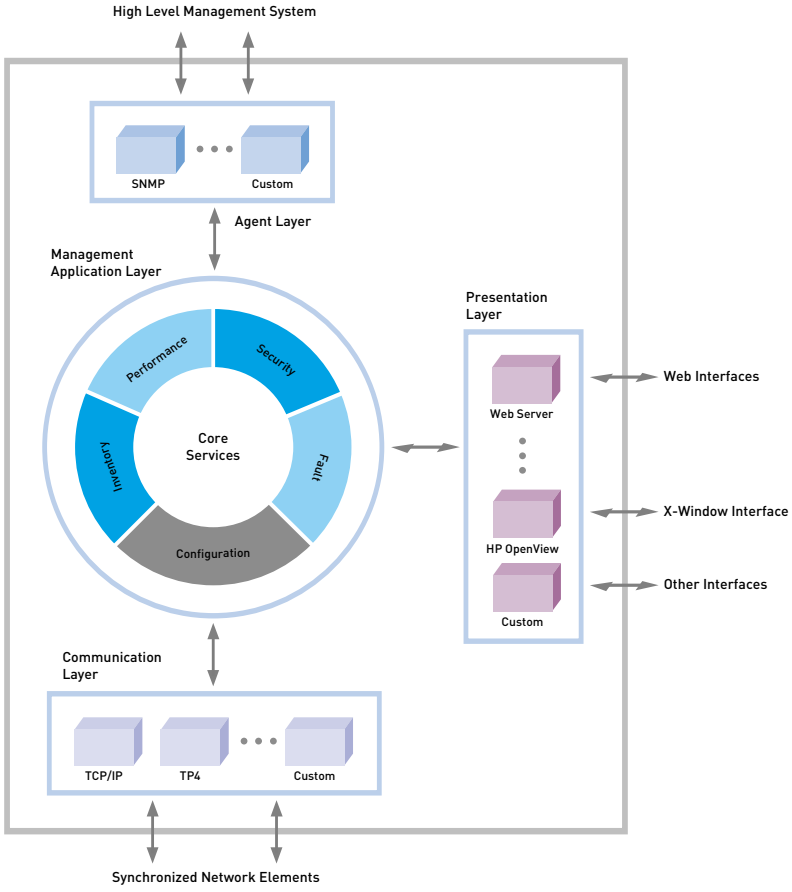

FIG.10 TimePictra Open Architecture

TimePictra Specifications

MANAGEMENT CAPACITY

- 1500+ network elements*

*For large networks (more than 1500 elements) contact Symmetricom for special hardware configuration

INDUSTRY STANDARDS

- ITU-T M.3400 (FCAPS)
- ITU-T X.733 and X.734

PERFORMANCE MASKS

- ITU-T G.811, G.812, G.813

COMMUNICATION PROTOCOL

- TCP/IP, TP4, RS-232 (using terminal server)

MANAGEMENT INTERFACE

- CMIP/Q3[4], SNMP, TL1, Custom[1]

MINIMUM SERVER SPECIFICATIONS

- Hardware: HP B2600 or C3700 Workstation or higher
  - RAM: 2 Gb RAM (4 Gb for over 500 NEs)
  - HDD: 70GB
  - CDROM
  - Tape drive recommended
  - Monitor: Color, 20"
- Software: Operating System: HP-UX 11i OS with June 2002 Quality Pack
  - Database: Oracle 9i Release 2 (9.2.0.7) Database standard edition
  - Others: Oracle 9i Release 1.0.2.2.2 Application Server Enterprise edition
    HP OpenView NNM 6.2x
    Java SDK 1.3.1.02.00
  - Access: X-Windows, Web (Internet Explorer 5.01 or higher)

FCAPS FUNCTIONALITY

- Fault
  - Events
  - Alarms: minor, major, critical, clears
  - Alarm status synchronization
  - Status panel
  - Fault analysis
- Configuration[2]
  - Ports: Signal type, framing, alarm type, enable/disable, unique attributes
  - Module: Enable/disable, unique attributes
  - Shelf/system: unique attributes
  - Full provisioning
- Accounting/Inventory:
  - Location
  - Description
  - Model/part number
  - Serial number
  - Resource status (active, inactive, etc.)
  - Revisions of hardware and software
  - Warranty end date
  - Remove date
  - Remarks
- Performance:
  - Current performance of synchronization network
  - Compare current data against industry masks and history data
- Security:
  - Login authentication
  - Management domains
  - User class levels
  - Supports SSL (secure socket level)
  - Supports data encryption when supported by NE
- Miscellaneous:
  - Pass through utility
  - Sync trails
  - Auto action
  - Thin client architecture for web-based clients

Highlighted functions are value added features beyond FCAPS specifications

- Options[1]
  - Replication: back up system
  - CMIP/Q3 TMN interface[4]
  - SNMP interface
  - Email, Pager Notification[3]
  - SMS messages[3]

Notes:

1 Contact Symmetricom for availability

2 Dependent on individual equipment

3 May require additional third party equipment/software

4 Available as custom solution

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