



TimePictra

Carrier-Class Synchronization Management

KEY FEATURES

- Carrier-Class Sync Management System
- Robust and Reliable Performance and Scalability
- Secure Web-based Access from Anywhere at Anytime
- Task Automation for Automatic Operations
- Full FCAPS Management
- Resiliency for fail-over protection
- 1588 PTP Server and Client Management
- SNMP northbound OSS integration

INTRODUCTION

TimePictra® is a web-enabled synchronization network management system. This carrier-class platform has a scalable and modular architecture that can 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 GRAPHICAL USER INTERFACE

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. The thin clients can be invoked over a dial-up connection or a Virtual Private Network anytime, anywhere.

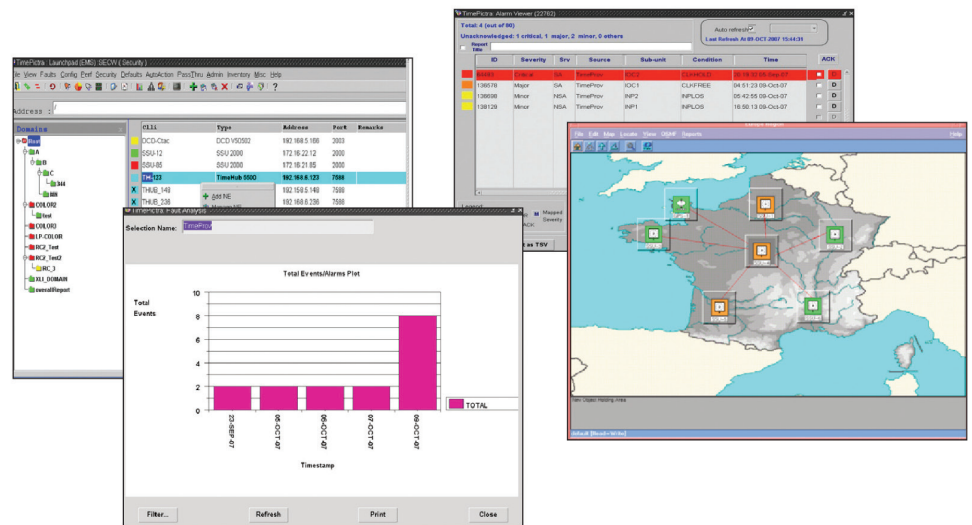
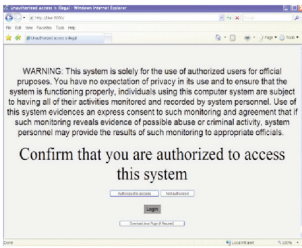


FIG.1 Key screenshots of the TimePictra Synchronization Software

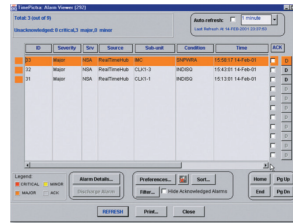


SECURE ACCESS AND COMMUNICATIONS

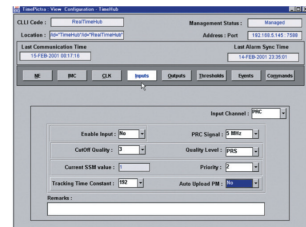
TimePictra offers several modes of security for managing synchronization networks. Role-based access guarantees only authorized users can access the system. Management Domains add a level of security and organization. SSL-enabled communications ensures secure access over the web. Transaction logs ensure 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).



NEC	CLX1	CLX2	1A	2A	3A	4A	5A	6A	7A	8A
...

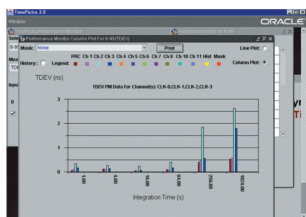
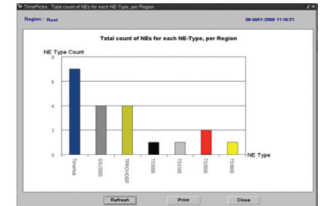


CONFIGURATION MANAGER

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. 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 lowest level of granularity, 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.



PERFORMANCE MANAGER

The 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.

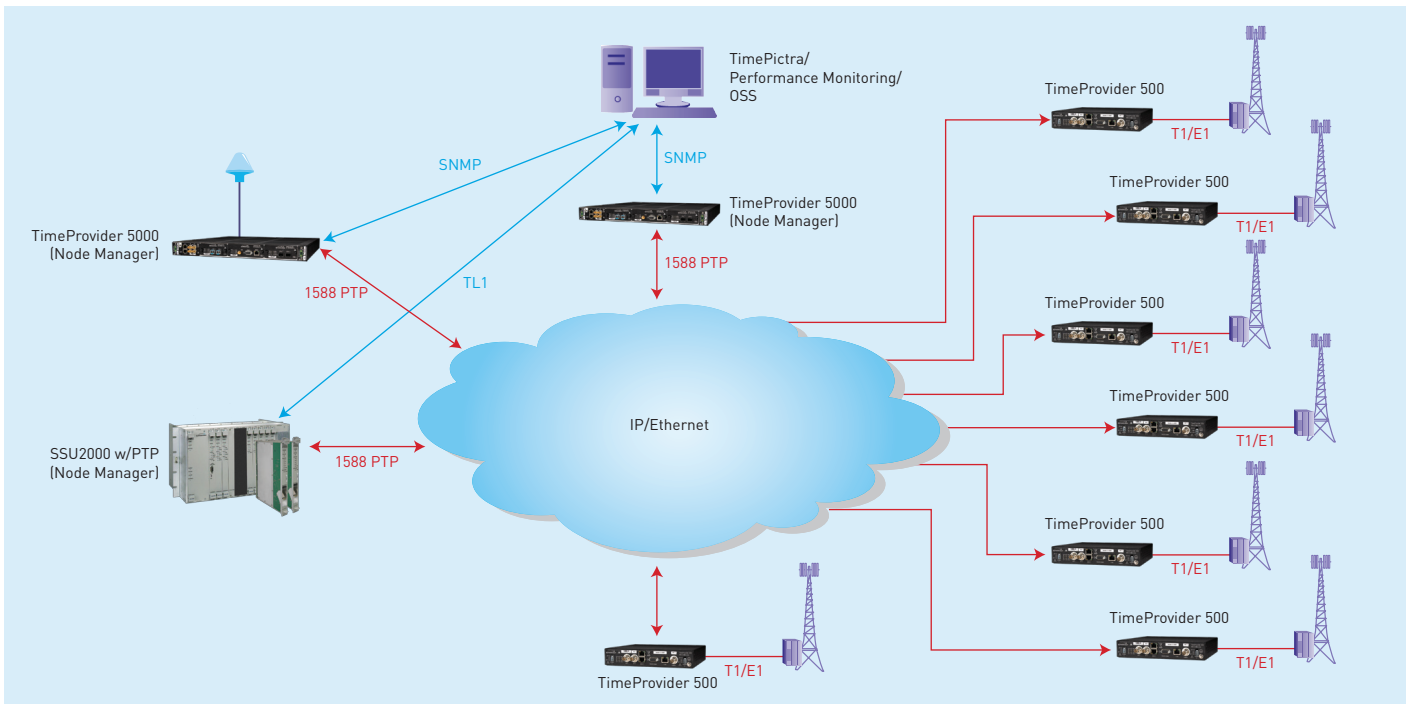
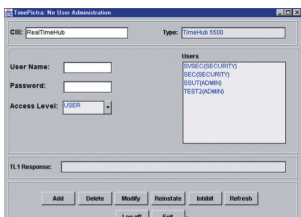


FIG.2 End-To-End PTP Network Management

IEEE 1588 (PTP) Client Management

Time Pictra can now manage IEEE 1588 (PTP) remote clients located at the edge of the network. It can add or delete clients and monitor their status in terms of sync flow detected or not detected. TimePictra management functions include automatic client detection and reporting of alarms, events, status and performance metrics. TimePictra Server is also capable of downloading firmware upgrades to TimeProvider 5000 Grandmaster as well as to the IEEE 1588 (PTP) clients that are attached to it.



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
- Resiliency Fail-over Option
- Performance Analyzer (TimeMonitor)

TIMEPICTRA SCALABLE 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 protects 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.

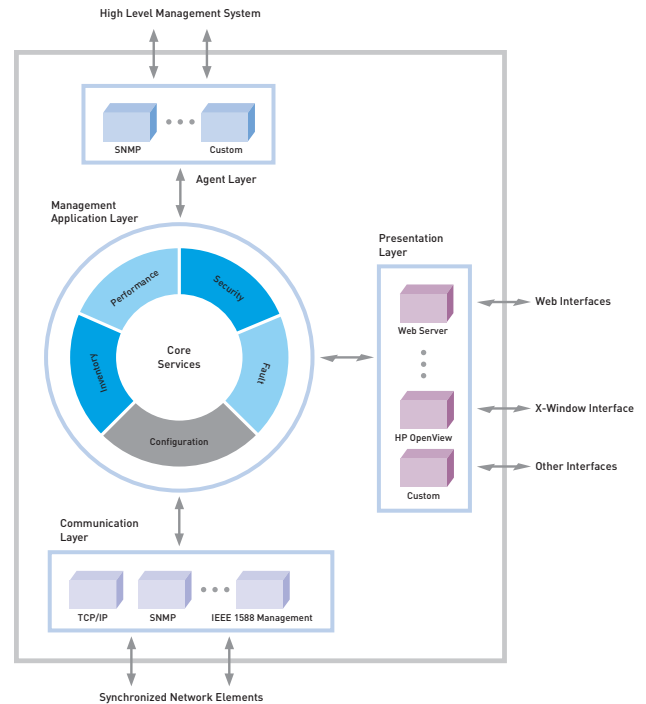


FIG.3 TimePictra Scalable Architecture

TIMEPICTRA SPECIFICATIONS

MANAGEMENT CAPACITY

- Dynamic 500, 1500 or 2500 Network Elements

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

- SNMP, TL1,¹

MINIMUM SERVER SPECIFICATIONS

- System:
 - HP Itanium rx2620 or higher with HP-UX version 11i v2: Foundation Operating Environment*
 - HP PA-RISC rp3410 or higher with HP-UX 11i v1/v2: Foundation Operating Environment
 - HP C3700 Workstation or higher with Operating System HP-UX 11i v1 Minimal Technical Operating Environment

RAM: min 4Gb RAM

HDD: min 73GB

DVD/CD Drive

DAT or DLT tape backup recommended.

• Other Software:

- Oracle 10g version 10.1.2.0.2 Application Server Forms and Report Services 10.1.2.0.2
- Oracle 10g R2 Database Standard Edition*
- Oracle 9i Release 1.0.2.2.2 Application Enterprise Edition

- Oracle 9i Release 2 (9.2.0.7) Database Standard Edition
- Java RTE 1.2, 1.3 or 1.4 (downloadable from web)
- Java SDK 1.3.1.02.00
- HP OpenView NNM 6.2x, 6.4 or 7.5 (Optional)

PC based client specifications:

- Pentium computer system with P4 processor (or better)
- min 512 MB of system RAM
- min 70 GB of free hard disk space

Operating System

Microsoft Internet Explorer version 6.0/7.0 or FireFox 3.0 or higher

PLUG-INS Required for both OS

- Oracle JInitiator 1.3.1.30 (included with TimePictra)
- Adobe Acrobat Reader version 5.0 or higher

FCAPS FUNCTIONALITY

- Fault
 - Events
 - Alarms: minor, major, critical, clears
 - Alarm status synchronization
 - Status panel
 - Fault analysis
- Configuration²
 - 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 layer)
- 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

• Options¹

- Replication: back up system
- SNMP interface
- Email, Pager Notification³
- SMS messages³

1 Contact Symmetricom for availability 2 Dependent on individual equipment 3 May require additional third party equipment/software

* For TimePictra 4.0 or higher

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