

# TimePictra™: Managing Time Machines

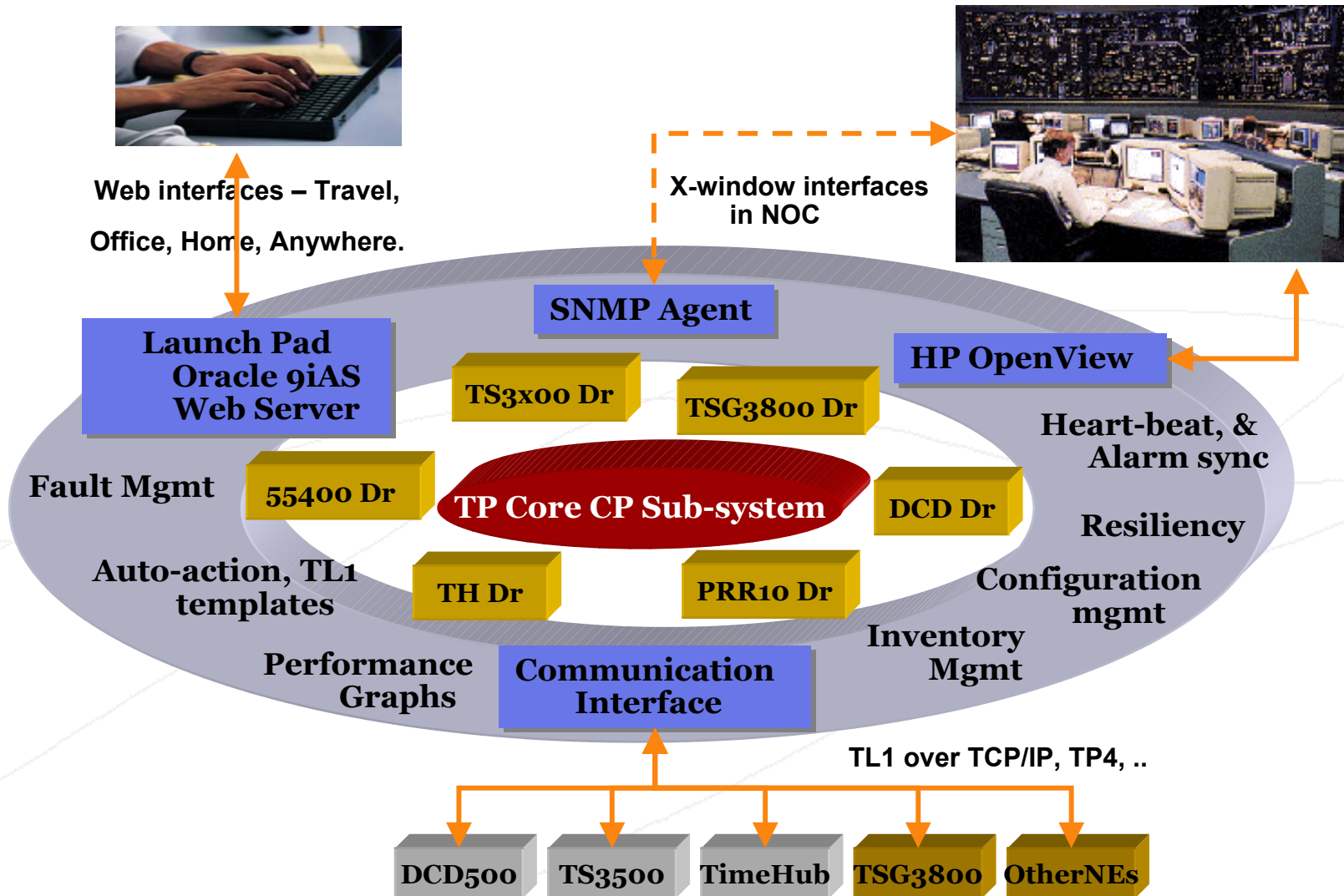
Carrier-Class, MultiVendor, Web based, Feature-Rich, Synchronization Network Management



- ✓ **Why Network Management (Trends, Goals, Reports)**
- ✓ **Architecture (Drivers) - robust platform**
- ✓ **FCAPS (international standards) ..... and much more**
- ✓ **Innovations in TimePictra (with major benefits)**
  - ✓ **Auto-Action**
  - ✓ **SNMP Option**
  - ✓ **Resiliency Option**
  - ✓ **TL1 Bundles / Templates**
  - ✓ **Audit / Defaults**
- ✓ **Customer Savings/Benefits / Key Value Propositions**
- ✓ *If time permits, then a TimePictra simulation (click-demo)*

- ▶ Build, Operate and Grow a Reliable network
  - Ensure the network can be scaled as well as evolved easily
- ▶ Maximize utilization of assets in the network and talents on staff
- ▶ Reduce Opex through centralized operation
  - FCAPS, Remote configuration/provisioning, Security
  - No need to learn TL1
- ▶ QoS: Quality of Service - Environment of high competition
  - Pro-Active, Re-Active
  - Automatic Fault and Event management
  - Trend analysis

# Driver Architecture



- ▶ **Auto-Action**
- ▶ **TL1-Templates / Bundles**
- ▶ **Defaults / Audit**
- ▶ **Activity Log**
- ▶ **Pass Through (like a direct telnet)**
- ▶ **Sync-Trails (create links between NEs)**
- ▶ **Alarm Viewer / Historic\_Events Viewer**
- ▶ **Alarm Synchronization** (as a backup, 12 hr, NENA)
- ▶ **Web Server / OpenView Maps**
- ▶ **HeartBeat**
- ▶ **Trend Analysis tool**
- ▶ **Configuration Alignment** (if NE's TL1 model supports it)



## Fault

- ▶ Rational network view through maps & domains
- ▶ Rapid Identification of problem spots



## Configuration

- ▶ Configure elements remotely
- ▶ Download firmware upgrades
- ▶ Auto update status
- ▶ Heartbeat



## Accounting (inventory)

- ▶ Track equipment (cards and ports)
- ▶ Track legacy equipment
- ▶ Automatic data upload from NEs



## Performance

- ▶ Data analysis (MTIE, TDEV etc.)
- ▶ Masks and data plots
- ▶ Option: TimeMonitor analysis tool



## Security

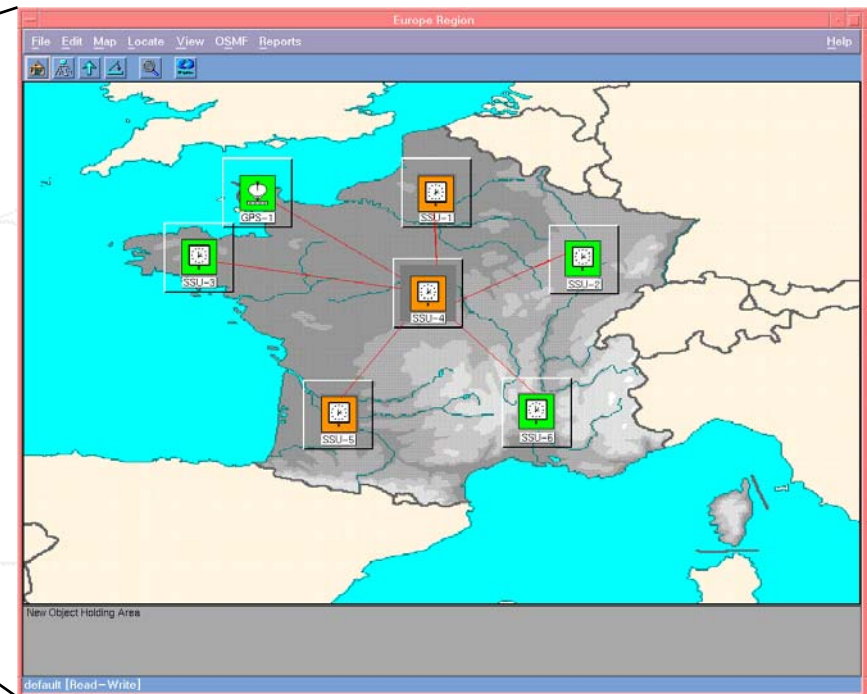
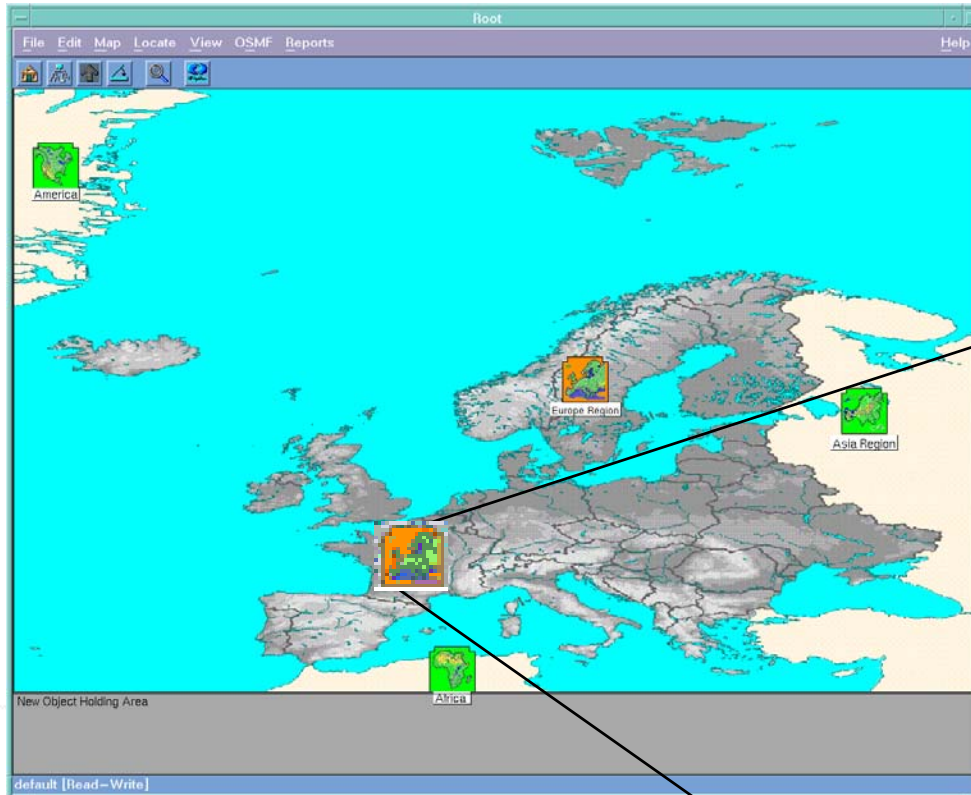
- ▶ Multi-level password protected security
- ▶ Segregated into domains
- ▶ Detailed activity log and tracking
- ▶ Multi-level privileges

**Proprietary value added features (one patented) :**

- ▶ **Robust, scalable, carrier-class platform**
- ▶ **Adaptable system that evolves with the network**
  - **Modular architecture to allow vendor/version changes.**
- ▶ **Secure WEB-based access / Web based management**
- ▶ **Manage Multiple Vendors - FCAPS Hooks**
- ▶ **Task-Automation - Auto-Action TL1 Templates**
- ▶ **Audit and Configuration Defaults**
- ▶ **Growing customer base**



# Maps based NMS interface



# Web based NMS interface



TimePictra : Launchpad (EMS)

File View Faults Config Perf Security Defaults AutoAction PassThru Admin Inventory Misc Help

Address : /id="CA"

**Domains**

- Root
  - CA

CLli	Type	IP
S_55300A	55300A	192.168.5.108
S_55400	55400	192.168.5.108
X S_DCD50105	Symmetricom DCD V50105	192.168.5.108
S_DCD50502	Symmetricom DCD V50502	192.168.5.108
S_PRR10	Datum PRR 10	192.168.5.108
S_TS3000	TimeSource 3000	192.168.5.108
S_TS3100	TimeSource 3100	192.168.5.108
S_TS3500	TimeSource 3500	192.168.5.108
X S_TSG3800D	Datum TSG3800 Ver D	192.168.5.108
S_TSG3800E	Datum TSG 3800 Ver E	192.168.5.108
S_TimeHub	TimeHub 5500	192.168.5.108

Legend: Unmanaged (black), Managed (green), Unavailable (cyan), Critical (red), Major (orange), Minor (yellow), x Manage Failed (grey)

# One Web URL is all you need!




Symmetricom : TimePictra 3.1 - Microsoft Internet Explorer

Address <http://tp3:8080/index.html>


File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History

Links Google News Buy1 CNN DIR MAPS YP DICT M-W ePrj Hmail HPCU M 619 Independent HindustanTimes



## Welcome to the TimePictra Network Management Platform



[Launch TimePictra 3.1](#)

### Help Quicklinks

- [Introduction and General Information](#)
- [Starting and Stopping a User Session](#)
- [Network Topology - Synchronization](#)

Maps

- [Network Topology - Launch Pad](#)
- [Network Topology Creation](#)
- [Fault Management](#)
- [Performance Management](#)
- [Inventory Management](#)
- [Security Management](#)
- [Configuration Management](#)
- [Defaults](#)
- [Auto Action](#)
- [Command Pass-Thru](#)
- [Miscellaneous Functions](#)
- [Appendix A - DCD 5.01.05](#)
- [Appendix B - DCD 5.04.02/5.05.04](#)
- [Appendix C - PRR10](#)

The documentation for TimePictra contains the following categories of help. Click on the associated link to access the help category. Once the help category opens, use the content links that appear in the left frame to navigate to specific topics.

### **Introduction and General Information**

Contains general information about TimePictra, it's user classes and privileges, management domains, and the Synchronization Planning Tool.

- User Classes
- Management Domains
- Feature List
- SPT

### **Starting and Stopping a User Session**

Contains web client system requirements and setup information, and procedures to start and stop different types of user sessions.

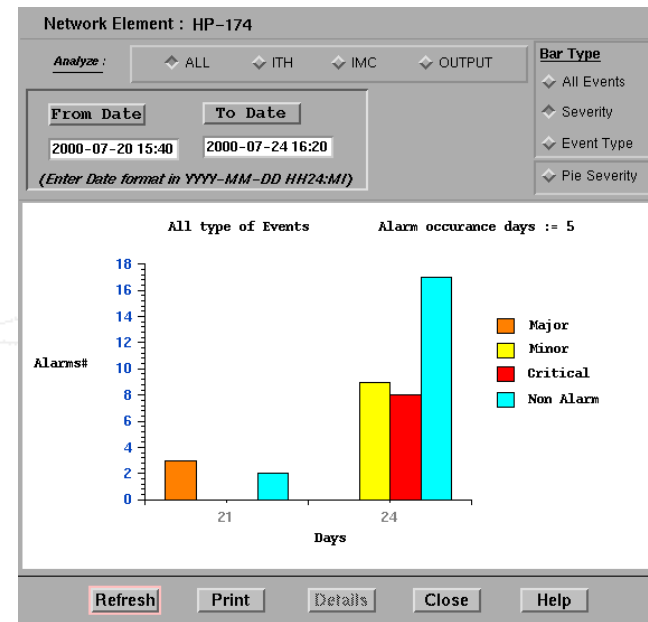
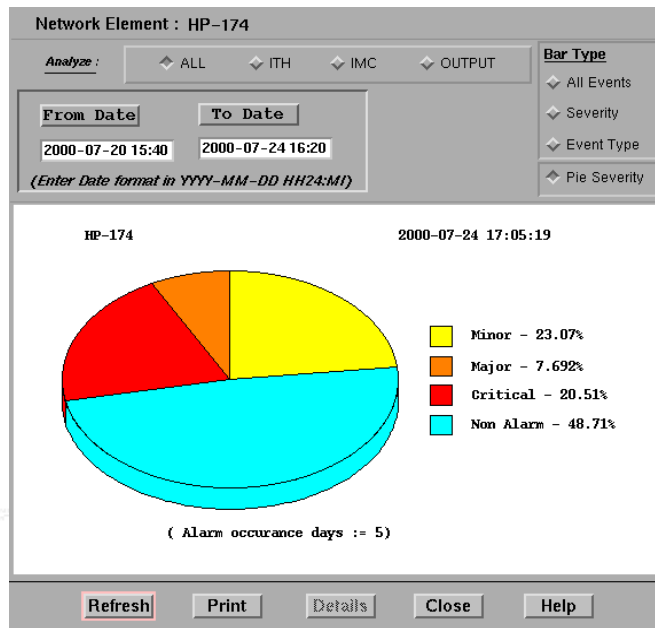
- Web Client System Requirements
- Web Client Setup
- Starting and Stopping Web-Based User Sessions
- Starting and Stopping X-Windows Based User Sessions



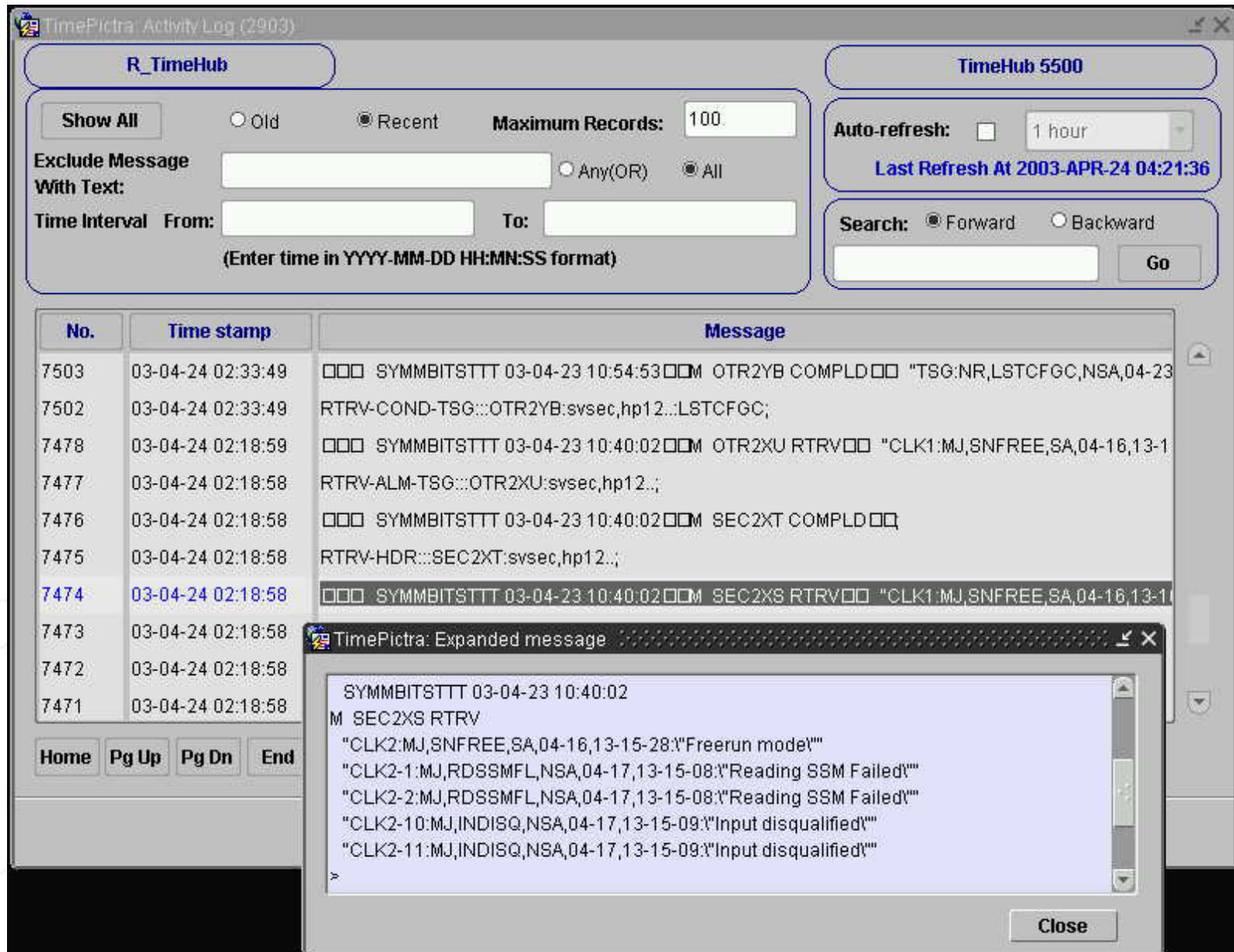


- **World-wide access with Web Interface**
  - Control the sync network via web browser
  - Net managers can take actions on their sync net while traveling or out of the office
  - web GUI interface requires low bandwidth (dial-up connections)
- reduces system cost - no HP-OV interface required
- **low bandwidth** - ideal for dial-up connections

# Pic: Trend Analysis



# Pic: Activity Log



The screenshot shows the TimePictra Activity Log (2903) interface. It features a control panel at the top with filters and search options, a main table of activity log entries, and an expanded message window.

**Control Panel:**

- R\_TimeHub** (selected)
- Show All** button
- Radio buttons:  Old,  Recent
- Maximum Records:** 100
- Exclude Message With Text:** [Empty text box]
- Radio buttons:  Any(OR),  All
- Time Interval From:** [Empty text box] **To:** [Empty text box]
- (Enter time in YYYY-MM-DD HH:MM:SS format)
- Auto-refresh:**  [1 hour dropdown]
- Last Refresh At:** 2003-APR-24 04:21:36
- Search:**  Forward,  Backward
- [Empty search text box] **Go** button

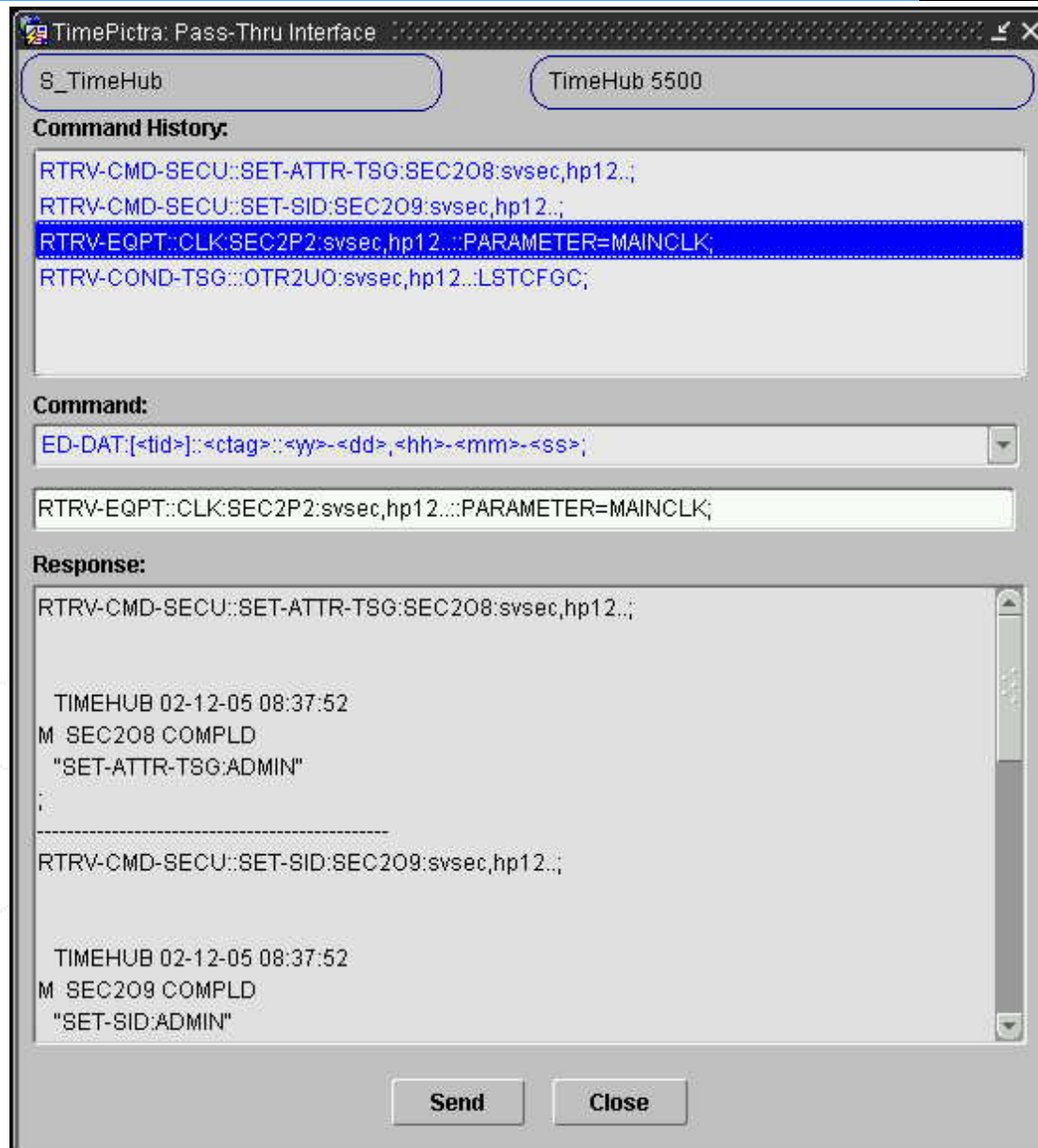
**Activity Log Table:**

No.	Time stamp	Message
7503	03-04-24 02:33:49	SYMMBITSTTT 03-04-23 10:54:53 OTR2YB COMPLD "TSG:NR,LSTCFGC,NSA,04-23
7502	03-04-24 02:33:49	RTRV-COND-TSG::OTR2YB:svsec,hp12.:LSTCFGC;
7478	03-04-24 02:18:59	SYMMBITSTTT 03-04-23 10:40:02 OTR2XU RTRV "CLK1:MJ,SNFREE,SA,04-16,13-1
7477	03-04-24 02:18:58	RTRV-ALM-TSG::OTR2XU:svsec,hp12.;
7476	03-04-24 02:18:58	SYMMBITSTTT 03-04-23 10:40:02 SEC2XT COMPLD
7475	03-04-24 02:18:58	RTRV-HDR::SEC2XT:svsec,hp12.;
7474	03-04-24 02:18:58	SYMMBITSTTT 03-04-23 10:40:02 SEC2XS RTRV "CLK1:MJ,SNFREE,SA,04-16,13-1
7473	03-04-24 02:18:58	
7472	03-04-24 02:18:58	
7471	03-04-24 02:18:58	

**Expanded Message Window:**

```
SYMMBITSTTT 03-04-23 10:40:02
M SEC2XS RTRV
"CLK2:MJ,SNFREE,SA,04-16,13-15-28:"Freerun mode""
"CLK2-1:MJ,RDSSMFL,NSA,04-17,13-15-08:"Reading SSM Failed""
"CLK2-2:MJ,RDSSMFL,NSA,04-17,13-15-08:"Reading SSM Failed""
"CLK2-10:MJ,INDISQ,NSA,04-17,13-15-09:"Input disqualified""
"CLK2-11:MJ,INDISQ,NSA,04-17,13-15-09:"Input disqualified""
>
```

# Pic: Pass Thru



The screenshot shows the 'TimePictra: Pass-Thru Interface' window. At the top, there are two input fields: 'S\_TimeHub' and 'TimeHub 5500'. Below these is a 'Command History' section with a list of commands. The third command, 'RTRV-EQPT::CLK:SEC2P2:svsec, hp12...:PARAMETER=MAINCLK;', is highlighted in blue. Below the history is a 'Command:' section with a dropdown menu showing the selected command. Below that is a 'Response:' section with a scrollable text area containing the output of the commands. At the bottom, there are 'Send' and 'Close' buttons.

TimePictra: Pass-Thru Interface

S\_TimeHub TimeHub 5500

**Command History:**

```
RTRV-CMD-SECU::SET-ATTR-TSG:SEC208:svsec, hp12.;  
RTRV-CMD-SECU::SET-SID:SEC209:svsec, hp12.;  
RTRV-EQPT::CLK:SEC2P2:svsec, hp12...:PARAMETER=MAINCLK;  
RTRV-COND-TSG::OTR2UO:svsec, hp12...LSTCFGC;
```

**Command:**

ED-DAT:[<tid>]:<ctag>::<yy>-<dd>, <hh>-<mm>-<ss>;

RTRV-EQPT::CLK:SEC2P2:svsec, hp12...:PARAMETER=MAINCLK;

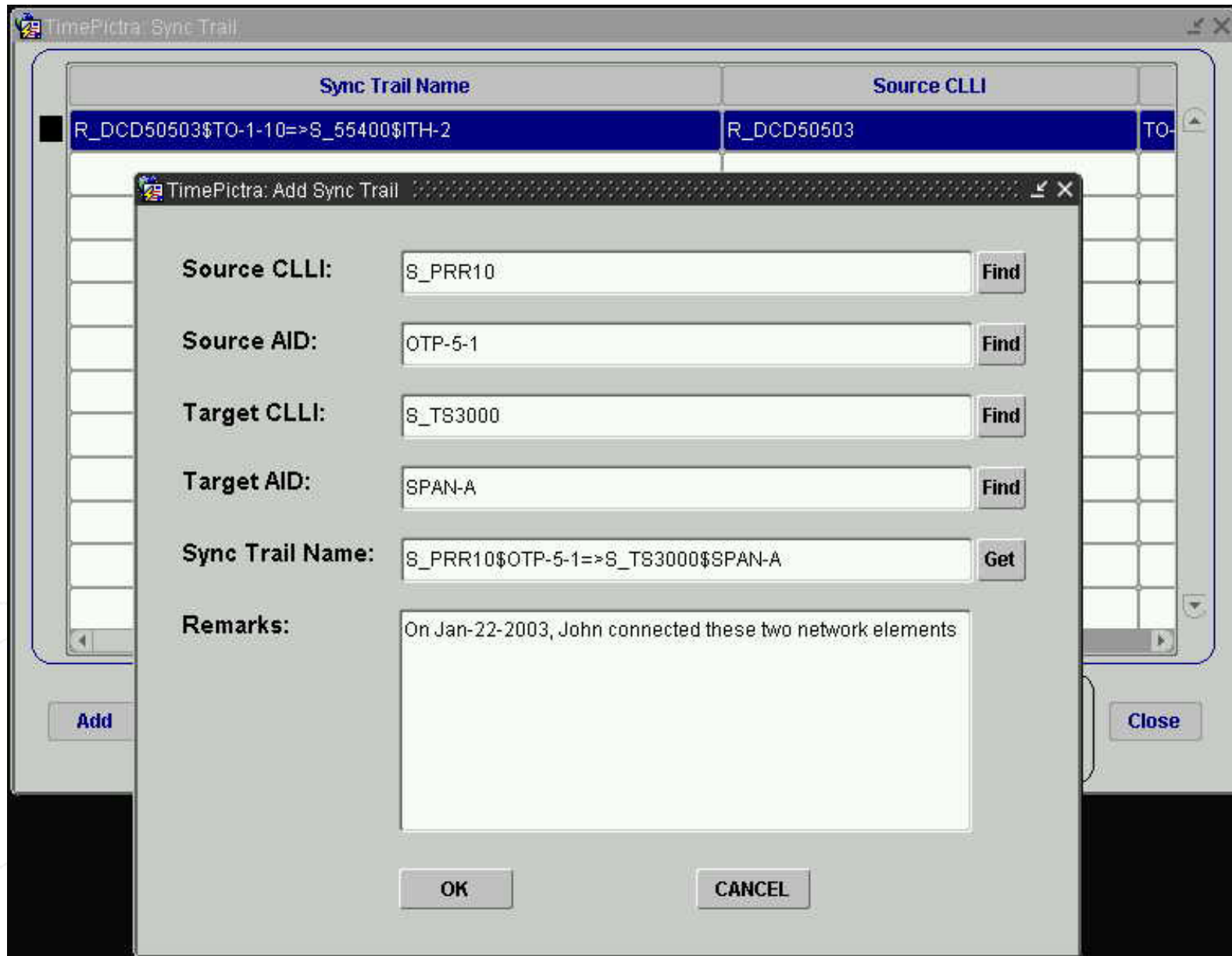
**Response:**

```
RTRV-CMD-SECU::SET-ATTR-TSG:SEC208:svsec, hp12.;  
  
TIMEHUB 02-12-05 08:37:52  
M SEC208 COMPLD  
"SET-ATTR-TSG:ADMIN"  
.  
-----  
RTRV-CMD-SECU::SET-SID:SEC209:svsec, hp12.;  
  
TIMEHUB 02-12-05 08:37:52  
M SEC209 COMPLD  
"SET-SID:ADMIN"
```

Send Close



# Pic: Sync-Trails



The screenshot displays the TimePictra Sync Trail application. The main window, titled "TimePictra: Sync Trail", contains a table with the following data:

Sync Trail Name	Source CLLI	
R_DCD50503\$TO-1-10=>S_55400\$I1H-2	R_DCD50503	TO-

An "Add Sync Trail" dialog box is open in the foreground, containing the following fields and values:

- Source CLLI: S\_PRR10
- Source AID: OTP-5-1
- Target CLLI: S\_TS3000
- Target AID: SPAN-A
- Sync Trail Name: S\_PRR10\$OTP-5-1=>S\_TS3000\$SPAN-A
- Remarks: On Jan-22-2003, John connected these two network elements

Buttons for "Find", "Get", "Add", "Close", "OK", and "CANCEL" are visible.

# Pic: Transaction Log



TimePictra: Transaction Log

Cli:   All NEs

Cli	Type	Aid	Keywords	Old Values
S_DCD50402	U	TO-3	TROUBLECODE	ALW
S_DCD50402	U	DCIM-1-1	FRAMING,PRIORITY,REF_TYPE,SIG	D4,1,,DIGITAL,ALW,MN,MN,MN,MN,MN,.....
S_DCD50402	U	DCIM-1-1	FRAMING,PRIORITY,REF_TYPE,SIG	D4,1,,DIGITAL,ALW,MN,MN,MN,MN,MN,.....
S_DCD50402	U		MANAGED	Y
S_DCD50402	U		AVAILABLE	Y
S_DCD50402	U		MANAGED	Y
S_DCD50402	U		MANAGED	Y
S_DCD50402	U		MANAGED	N
S_DCD50402	U		MANAGED	Y
S_DCD50402	U		MANAGED	Y

Refresh Pg Up Pg Dn Exit

- ▶ **Alarm Viewer**
- ▶ **Event History Log**
- ▶ **Fault Analysis**
- ▶ **Network Element Status**

# Pic: Alarm Viewer

TimePictra: Alarm Viewer (2768)

Total: 51 (out of 51)

Unacknowledged: 7 critical, 27 major, 17 minor

Auto-refresh:  1 minute

Last Refresh At 24-APR-2003 00:58:04

ID	Severity	Srv	Source	Sub-unit	Condition	Time	ACK
58	Major	NSA	S_55400	ITH2-5	INDISQ	04:50:27 23-Apr-03	<input type="checkbox"/> D
57	Major	NSA	S_55400	ITH2-4	INDISQ	04:50:27 23-Apr-03	<input type="checkbox"/> D
56	Major	NSA	S_55400	ITH2-1	INDISQ	04:50:27 23-Apr-03	<input type="checkbox"/> D
55	Major	NSA	S_55400	ITH2-0	INDISQ	04:50:27 23-Apr-03	<input checked="" type="checkbox"/> D
54	Major	SA	S_55400	ITH2	SNFREE	04:50:27 23-Apr-03	<input type="checkbox"/> D
53	Minor	NSA	S_TS3000	SPAN-A	LOS	02:10:27 09-Jan-03	<input type="checkbox"/> D
52	Minor	NSA	S_TS3000	GPS	ERROR	21:27:47 07-Jan-03	<input type="checkbox"/> D
51	Minor	NSA	S_TS3000	TS3000	ANTENNA	18:25:30 07-Jan-03	<input type="checkbox"/> D
50	Major	SA	S_TS3000	TS3000	STATE	18:27:50 08-Jan-03	<input type="checkbox"/> D
49	Critical	SA	S_PRR10	OSC-B	OSC-L.O. REF B	04:41:40 23-Apr-03	<input type="checkbox"/> D
48	Critical	SA	S_PRR10	OSC-A	OSC-L.O. REF A	04:41:40 23-Apr-03	<input type="checkbox"/> D

Legend:  
CRITICAL MINOR  
MAJOR ACK

Alarm Details Preferences Sort  
Filter  Hide Acknowledged Alarms

Home Pg Up  
End Pg Dn

REFRESH Print... Close



- ▶ **Centralized: Saves time, effort and money**
- ▶ **Total command abstraction, no need to know TL/1**
- ▶ **No need to know which vendor or version of TL/1 command**
- ▶ **Easy-to-use, point and click, intuitive user interface**

# Pic: Configuration

TimePictra : Modify Configuration - TimeHub(Remote)

CLLI Code :  Management Status :

Location :  Address : Port

Last Communication Time  Last Alarm Sync Time

Model No : 1  2  Firmware Rev : 1  2

Rack :  Master  One  Two  Three  Four Card :

AIS :  In Service :  PG Types :

Holdover :  Quality Level :

Manual SSM :

Expected Driver Card :  Expected Protection :

Remarks :

Port Group	Framing	CC Delay	Connector Card	Remarks
1	<input type="text" value="ESF"/>	<input type="text" value="0"/>	<input type="text" value="Don't Care"/>	
2	<input type="text" value="ESF"/>	<input type="text" value="0"/>	<input type="text" value="Don't Care"/>	

Port	Squelch	Enable	Remarks
1	<input type="text" value="No"/>	<input type="text" value="No"/>	To MUX_33
2	<input type="text" value="Yes"/>	<input type="text" value="No"/>	
3	<input type="text" value="Yes"/>	<input type="text" value="No"/>	Feed to Atlanta_Switch
4	<input type="text" value="Yes"/>	<input type="text" value="No"/>	
5	<input type="text" value="Yes"/>	<input type="text" value="No"/>	connected to NE_76
6	<input type="text" value="Yes"/>	<input type="text" value="No"/>	
7	<input type="text" value="Yes"/>	<input type="text" value="No"/>	
8	<input type="text" value="Yes"/>	<input type="text" value="No"/>	
9	<input type="text" value="Yes"/>	<input type="text" value="No"/>	



- ▶ **Track all hardware**
  - Master racks
  - Output cards
  - Rack inventory
  
- ▶ **Track warranty information**
  
- ▶ **Customer specific serial numbers**
  
- ▶ **All information stored in database**



# Pic: Inventory Management

TimePictra:Ne Inventory

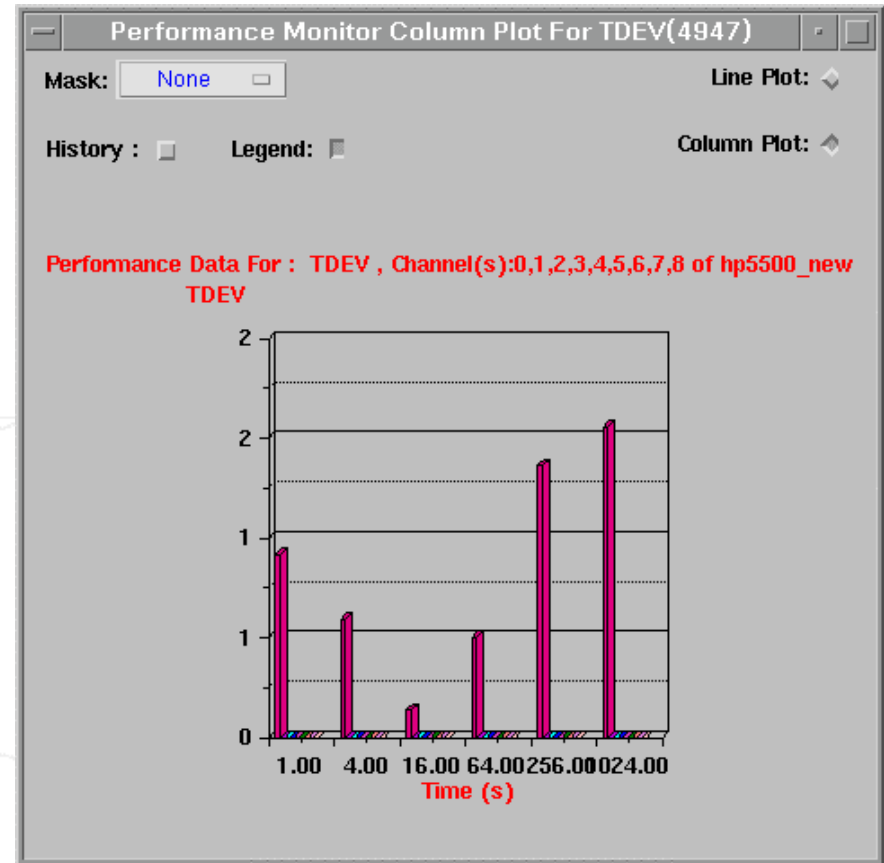
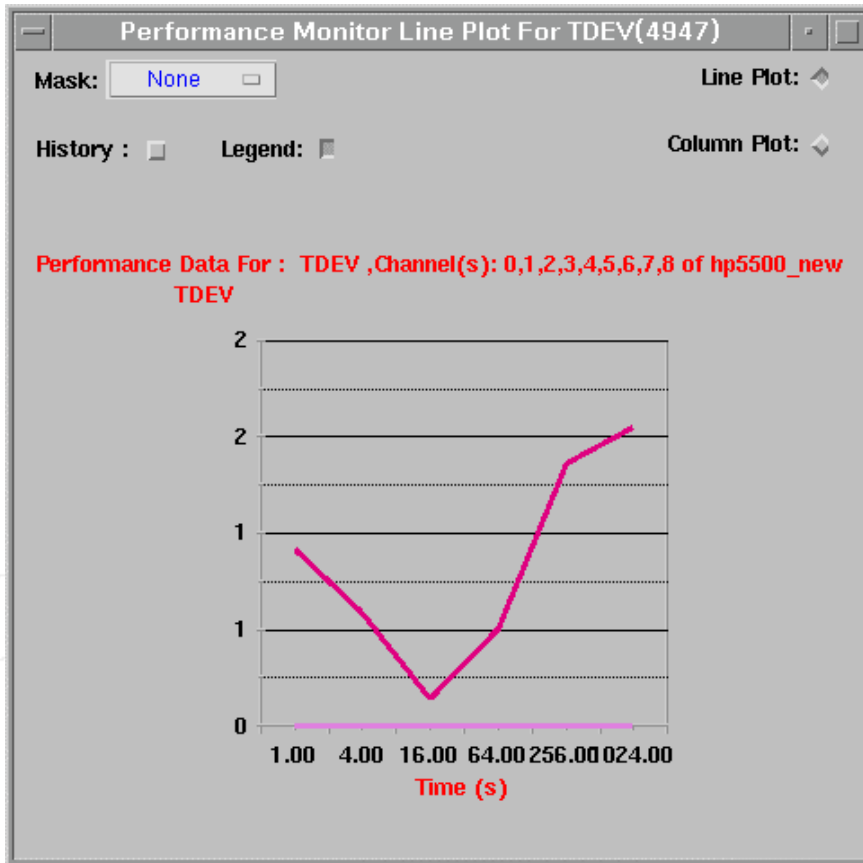
CLI:   All Nes NE Type:  Equipment:

Selection Name	Aid	Serial No	Model No	F/W Revision	Equipment Type
R_TimeHub	OUT3B	00000000	090-55581-01-A	R4114C	Output Card
R_TimeHub	OUT1A	00J43233	090-55581-01-A	R4114C	Output Card
R_TimeHub	OUT7D	00J43292	090-55581-01-A	R4114C	Output Card
R_TimeHub	OUT2A	00J43384	090-55581-01-A	R4114C	Output Card
R_TimeHub	CLK2	J21599	090-55512-01-A	R4142A	Clock Card
R_TimeHub	IMC	J44558	090-55542-01-A	R4209C	IMC Card
R_TimeHub	CLK1	serial2	090-55512-02-A	R4142A	Clock Card

Total Records :

- ▶ **Performance monitoring graph**
  - Displays the performance data snapshot at a certain time for MTIE, TDEV, etc.
  - Detailed analysis available via optional TimeMonitor interface
  
- ▶ **Compare performance data to standards masks**

# Performance Plots



- ▶ **VERTICAL - User CLASSES**
  - User, Admin, Sec
  
- ▶ **HORIZONTAL - Management DOMAINS**
  - NEs can be assigned to a domain; this is a physical partitioning of the network
  
- ▶ **User administration - add/delete users**

## *TimePictra manages:*

- ▶ **DCD 50402, 50502, 50105**
- ▶ **TimeHub 5500**
- ▶ **TimeSource 3000/3100 3500/3600**
- ▶ **TSG 3800 (Ver D & E)**
- ▶ **PRR10**
- ▶ **NetSync 55400/55409**
- ▶ **SSU 2000**

- ▶ e-mail notification
  - Fully Customisable
- ▶ GSM phone and Pager notification
  - Via Email SMS gateway
- ▶ External Programs
  - Can Run any Unix script or Program
- ▶ Command Bundles
  - Send TL1 commands / Bundles to one or more SSU's



- ▶ Humanly not possible to compare thousands of attributes in a NE
- ▶ 'Audit' (for a NE) compares TimePictra database values with actual values residing on NE
  - May take some time (around 30 seconds) as TL1 commands are sent to NE directly
  - No differences after a recent manage operation
- ▶ Store good (or standard) NE configuration in a 'Default'
- ▶ At a particular time, 'Default' used to store a snapshot of NE attributes
- ▶ 'Audit' compares attributes between NE and 'Default'
  - Very fast (around 1 second), as no TL1 commands sent to NE

- ▶ Multi-vendor connector
- ▶ High availability with resiliency & fail-over
- ▶ SNMP north-bound interface
- ▶ Performance analyzer ( TimeMonitor™ )



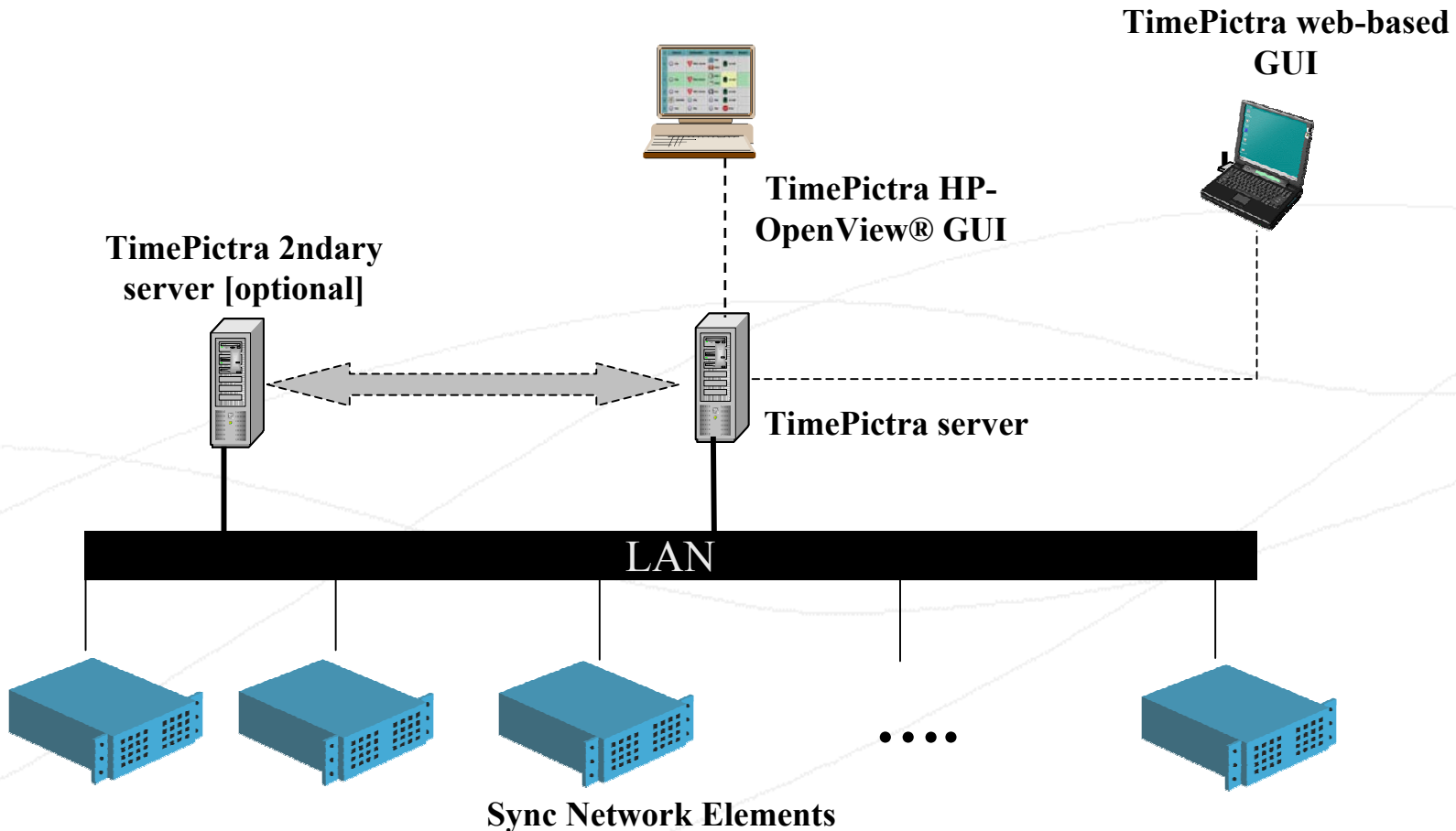
- ▶ Integration into existing NMS
  - Integrate EMS into existing NMS systems
- ▶ Patent-pending generic SNMP MIB
  - All NEs have a single MIB!
- ▶ Proven in the market
  - Integration to Netcool, HP-NNM already done with customers

- ▶ Option delivering a high system availability solution
- ▶ Fully functional redundant design in addition to redundant hardware
- ▶ Transactions applied to both “primary” and “secondary” systems
- ▶ Control can be switched from one to the other

# Resiliency System Diagram



HP-OpenView GUI works on any X-windows capable system, Web-based GUI works on a browser capable system



## **Key Value Proposition**

# What does it solve?



- ▶ TimePictra does not need 24/7 supervision by an operator to provide 24/7 monitoring of the network.

TimePictra shouts for help, when the sync network needs attention

- ▶ TimePictra gives the customer an easily evolvable platform

Modular architecture supports multi-vendor platform

- ▶ TimePictra can be integrated into other management platforms extremely quickly.

SNMP is field proven to integrate into other systems within a few hours

- ▶ TimePictra allows the Sync Engineer to monitor and configure the network from anywhere.

Use of the low bandwidth Web interface allows access from everywhere.

# Customers & Partners



DoT India

Telekom Austria

Hutchison 3G

O<sub>2</sub>



**Thank you!**

**Contact Information:**

**Dilip Dhanda**

**[ddhanda@symmetricom.com](mailto:ddhanda@symmetricom.com)**

**408.428.7989**

**Questions?**