

Managing Optical Networks Using Cisco Information Center



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MICROMUSE[™]
NETCOOL[®] SOLUTIONS

Realtime. Uptime. All the Time.[™]

Netigy Info

- > Netigy is a Global Consulting and Services firm focused on eBusiness Infrastructure
- > Founded in 1990 as Enterprise Networking Systems (ENS).
- > Netigy launched to market March 2000.
- > Netigy delivers eBusiness performance by architecting reliability, scalability and security into our clients infrastructure

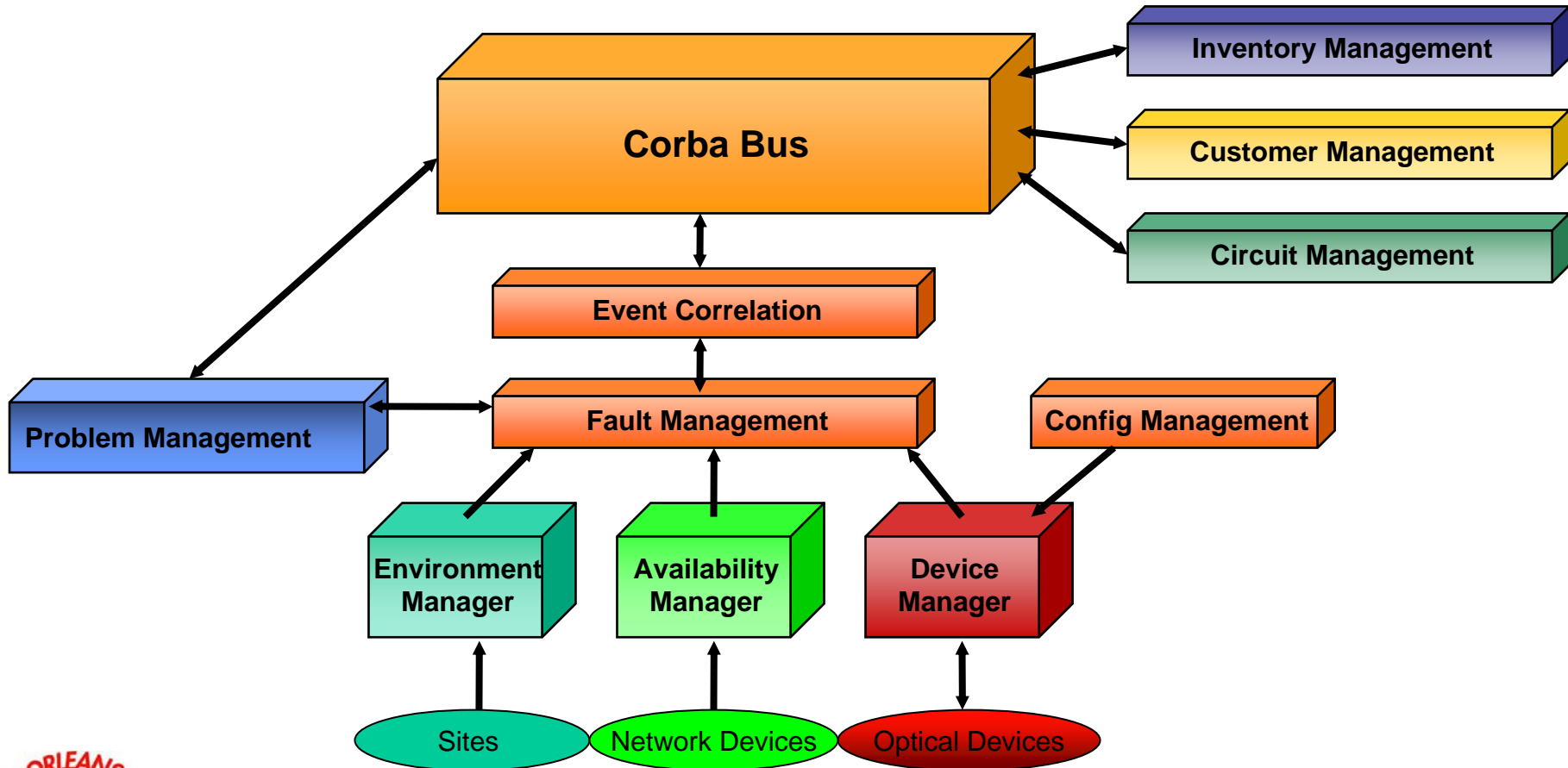


Building MANs

- > Building Metro Area Fiber Networks Requires a Differentiator in this Fiber Glut
- > Our Client Spent One Year Building their OSS
- > OSS is Supporting 10 High-Speed Optical Networks Across the Country
- > Fault Management? Cisco Info Center



OSS Architecture



The Infrastructure

- > **Fiber Ring**
- > **Colocation Sites and POPs**
- > **Cisco ONS 15454**
- > **AIscout for Environmentals**
- > **Managed from the Dallas NOCC**



Cisco ONS 15454

- > Mix and match service interfaces that enable a unified data, voice, and video network
- > Supports all metro topologies (point to point, linear add/drop, rings, and mesh)
- > Support multiple service interfaces
 - > TDM (DS1, DS3, DS3 transmux, EC1/STS-1)
 - > Data (10/100/1000-Mbps Ethernet)
 - > Optical (OC-3, OC-12, OC-48, OC-192)
- > Allows termination of multiple rings or linear systems on a single chassis



Cisco ONS 15454 Management

- > Cisco Transport Controller (CTC) provides scalable bandwidths, easy switching and grooming, A to Z circuit provisioning, auto network element discover with network topology, and custom bandwidth management
- > Each 15454 device can be a head node or a subnode
- > CTC on head node Communicates with Cisco Transport Manager (CTM) via TL1 Gateway



Cisco Transport Manager

- > Provides capabilities in the functional management areas of configuration, faults, performance, and security
- > Based on a client/server architecture that scales to support up to 1000 network elements and 100 simultaneous clients



CTM Functionality

- > **Configuration of the 15454s**
 - > **Circuit Building**
- > **Event Collection**
- > **Event Forwarding**



CTM Drawbacks

- > **Fail-Over -> None**
- > **Client -> Bulky Java, Slow**
- > **Scalability -> Clusters of CTMs not an option**



Fault Management

- > Cisco Info Center will Manage all Faults
- > Why CIC?
 - > CTM Probe (Fancy TL1 Probe)
 - > Cisco Product
 - > Policy Manager and Reporter Integrate



CIC Versus Omnibus/Netcool

- > CIC one or more versions behind**
- > CIC has extensive Cisco Add-ons**
 - > Database (Include Database Fields for Cisco)**
 - > Probes**
 - > Actions/Automations**
- > Installing Script**
- > Naming Conventions...**



A CIC to Netcool Dictionary

CIC	Netcool
Info Server	Object Server
Mediators	Probes
Gateway	Gateway
Desktop	Desktop
Policy Manager	Impact
Reporter	Reporter

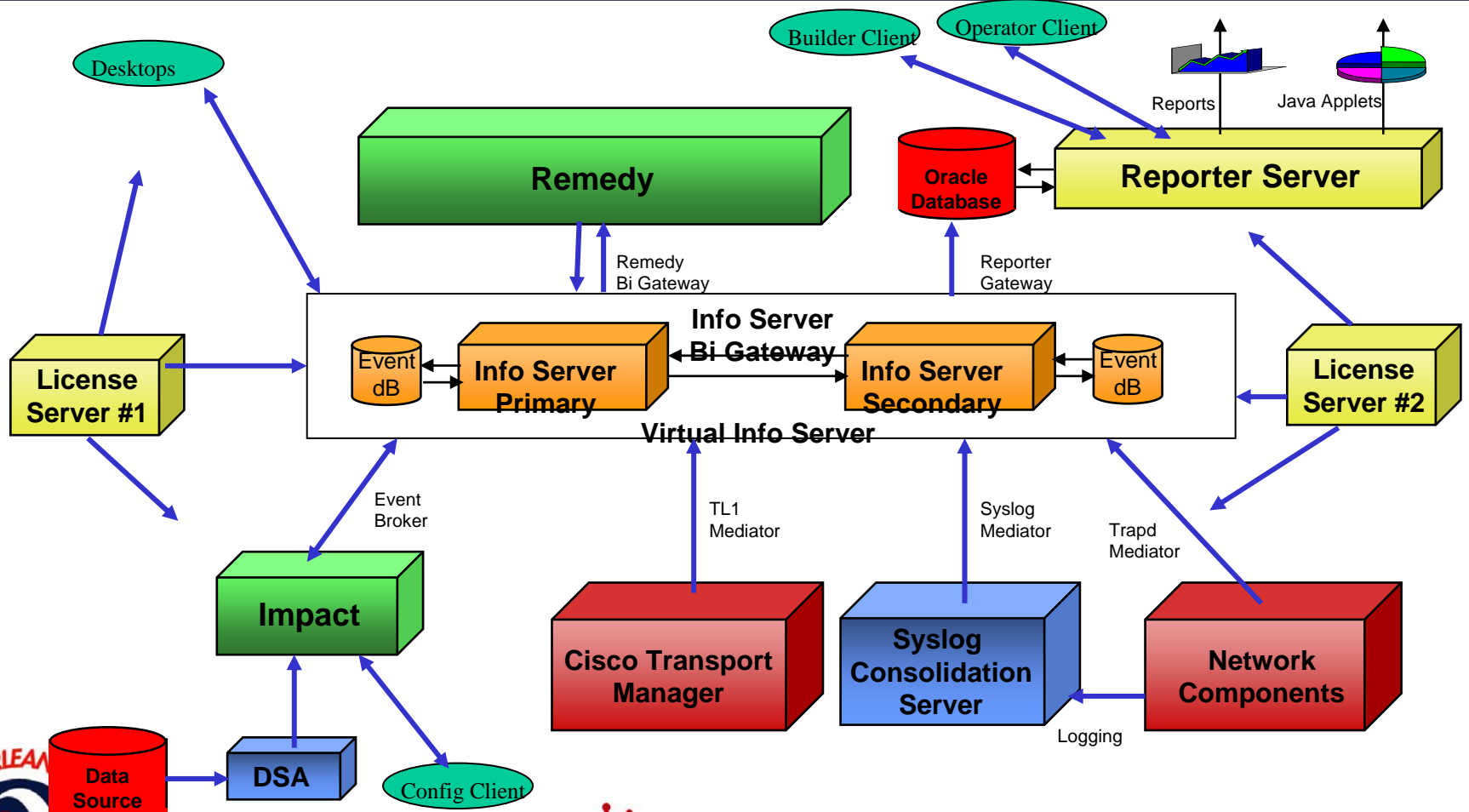


CIC Installation Scripts

- > **Overwrites interfaces files and other conf files if you run it a second time**
- > **Be careful using it!**



Fault Management Architecture



CTM Mediator

- > **Just a TL1 Probe with a few Extras:**
 - > **Auto-Parsing of the TL1 events**
 - > **Rules File to Handle CTM events**



CTM Mediator Uncovered

- > CTM Mediator Issues**
 - > Auto-Parsing of TL1 Events Doesn't Work All the Time!**
 - > Rules File is extremely complex**
 - > No Easy Way to Test (True of all TL1 Probes)**
 - > Reliance on Seven (7!) Lookup Tables**
 - > TL1 Data from CTM is in Flux – No clear source for current format**



TL1 Mediator Licensing

- > TL1 Mediator is licensed by the device managed
- > Does not matter if you manage all devices “through” CTM



Testing a TL1 Rulesfile

- > Utility available to simulate TL1 device
- > Data file can be customized with appropriate msgs
- > TSM is connected to socket to receive test msgs



Naming Conventions

- > All 15454 Have a Standard Naming Convention for TID:
- > **DLLSTXBD01020304AAA**

DLLS	City
TX	State
BD	Building
01	Floor
02	Bay
03	Rack
04	Shelf
AAA	Ring ID



Benefits

- > All CTM Events are Pinpointed by the TID
- > Events can be Sorted Easily
- > TID plus Port, Slot, and STS defines the Event
- > Objective View and Event Lists are Easy to Build for each Location



NOCC Requirements

- > Lose No Data!**
- > Events Clearly Assigned; No Loss at Shift Change**
- > Automatic Clears of Events**
- > Clear Categorization of Events**



Objective View

- > Top Level USA
- > Icon for each MAN
- > MAN leads to City Loop Diagram
- > All POPs and Colos Link to Event List for Building
- > Easy to do because all events can be sorted by Building!
- > Easily Scalable as the Number of Cities and Buildings Increase



Reporter

- > **The Extensively Modified Database Makes the Gateway Mapping Difficult**
- > **Asked for a Build Script from Cisco**
- > **Problems with build script**
- > **No Cisco-Specific Reports**
- > **Default reports had some problems also**



Environmentals

- > All 15454s have AIS cards
- > Each Colo has an AIScout Box



*AI*Scout

- > Where's the Probe?
- > Using SNMP Instead. No way to Guarantee it!
- > 60 Statepoints
- > 30 Box Traps
- > Single Lookup Table to map IP to City and Building Codes



Automation and Actions

- > Delete all Clears after 12 Hours -> NOCC is anti-clutter
- > Automatic Clear of all CTM and Scout Events
- > Historical Archive
- > Operator Action to Open Tickets from Event List
- > Paging on Critical Events – NOCC pages on all Criticals – Refining this over time
- > Launch Customer and Inventory Systems
- > Tie to CTM Alarm Manual



JEL

- > NOCC Uses Motif Event List
- > Field Engineers Use JEL
- > View Location Events
- > Open Tickets -> CGI script to trigger Remedy Open Action



Remedy Gateway

- > **Client Devised Customized Ticket Fields!**
- > **Built Custom CIC->ARS mapping**
 - > **Must send all Required Fields**
 - > **Must Patch the Remedy Notification Server**
 - > **Make Sure Field Types Match**
 - > **Hire a Good Remedy Engineer!**
- > **Added Field to CIC db for action to open ticket**



Remedy Mappings

- > Used Hidden Fields on Remedy Side for Key Fields
- > Used Logic to Stuff Remedy Fields
- > For Instance, Severities Didn't Match Up
- > CIC Severity Came into Temp Field
- > Remedy Mapped it to Remedy Criticality



Future?

- > **Business Alarms/View (Impact)**
- > **Network Management (Precision?, Openview?)**
- > **System Management (Sysedge?, Patrol?)**
- > **Application Management**



Summary

- > **CIC is a Perfect Choice to Manage Events in a Large Service Provider**
- > **The Cisco Extension, though with their own quirks, Effective Tie the Cisco Devices into the Management Platform**
- > **CIC includes all the important features of Omnibus, making it the best tool for a state-of-the-art OSS**

