



Assets server at LEPP

Inventory: OCSNG + GLPI

Monitoring: Zenoss 3



Inventory Management

- What are the systems?
 - Hardware
 - OS
 - BIOS
 - LEPP Pushed Packages (Windows)
- General Status of Computers
 - Did it check in today?
 - Where is it located?
 - Who purchased it
 - Who is the user or contact of record?



OCSNG

- Provides general “moment in time” Hardware and software inventory
- Can deploy software
- Limitations
 - Windows support is limited to 32 bit right now
 - Some issues with deployment on Windows 7
 - Note: new agent is planned for Windows 7 – in beta now
 - No manual data entry



GLPI

- Full lifecycle asset management
 - Tracks order
 - Supports product templates
 - Supplier suggested prices
 - Order placement
 - Delivery
 - Generation of item entries based on template and serial # once received
 - Tracks changes from OCSNG
 - Hardware changes
 - Specified license tracking
 - Supports manual entry
 - Location
 - User / contact of record
 - Notes
 - Status
 - Deployed
 - Storage
 - Computing Stock
 - Configurable



Monitoring

- Is the device pingable?
- Are specified services running?
- Graph performance metrics
 - CPU
 - Memory
 - HD I/O
 - Ping Response time
 - Custom information
 - Squid performance metrics
 - MySQL
- Custom monitoring
 - Is my script returning a 1?
 - Can I load index.htm from my web-server?



Zenoss

- Why Zenoss?
 - OSS
 - Company support
 - free in community forums and IRC
 - Active community
 - Agentless
 - Compatibility
 - Can talk many different “languages”
 - SNMP
 - WMI
 - SSH
 - Nagios Plugin
 - Cactai Plugin
 - Custom script / program
 - Targeted to run on RHEL5 and compatible – works great on SL5
 - Uses MySQL and ZOPE – two apps we already run for other services



Zenoss Limitations

- There are some limitations in Zenoss Core
 - No granular user access permissions
 - Major version upgrades (2.x to 3.x) are tricky
 - Currently much of the customization requires snippets (or more) of Python code.
 - Requires Apache reverse proxy to SSL the web interface
 - Agentless
 - If you've got a firewall between the Zenoss server and a host you want to monitor you'll probably need a VPN or to open ports



Zenoss CORE

DASHBOARD EVENTS INFRASTRUCTURE REPORTS ADVANCED

jmp242 SIGN OUT

Page Tips

Last updated 2010-11-01 23:59:24. [Configure layout...](#) [Add portlet...](#) [Stop Refresh](#)

Zenoss Issues			Device Issues		
Device	Daemon	Seconds	Device	Events	
No records found.			pc176.lepp.cornell.edu		
			pc221.lepp.cornell.edu		
			pc49.lepp.cornell.edu		

Zenoss Dashboard

Device issues gives a quick overview of events that are active

Also shows any internal Zenoss Issues

Portlets are configurable



Zenoss Events Display

The screenshot shows the Zenoss CORE interface. The top navigation bar includes 'Zenoss CORE', 'DASHBOARD', 'EVENTS', 'INFRASTRUCTURE', 'REPORTS', and 'ADVANCED'. The user 'jmp242' is logged in, and there is a 'SIGN OUT' button. Below the navigation bar, there are tabs for 'Event Console', 'History', 'Event Classes', and 'Event Manager'. The 'Event Console' tab is active, showing a list of events. The list has columns for Status, Severity, Device, Component, and Event Class. A red banner at the top of the event list indicates 'ip 192.168.1.243 is down'. The event details panel on the right shows the following information:

- Device: can243-p1
- Component:
- Event Class: /Status/Ping
- Status: 0
- Start Time: 2008/11/25 13:03:15.000
- Stop Time: 2010/11/02 00:01:07.000
- Count: 84023

Below the details is a 'Show more details...' link and a 'LOG' section with an input field and an 'ADD' button.

Status	Severity	Device	Component	Event Class
!!		can243-p1		/Status/Ping
!!		can216-p1		/Status/Ping
!!		can247-p1		/Status/Ping
!!		hps69-p214		/Status/Ping
!!		lnx83	/mnt/vm	/Perf/Filesys
!!		pc176.lepp.cornell	C:\Label: Serial H	/Perf/Filesys
!!		lnx186cipmi	192.168.8.22	/Status/IPMI
!!		localhost	RRD	/Status/Perf
!!		can217-p1	23	/Unknown
!!		pc176.lepp.cornell	http	/Status/IpSe
!!		pc49.lepp.cornell	W3SVC	/Status/WinS
!!		pc49.lepp.cornell	http	/Status/IpSe
!!		can245-p1	DOT11	/Unknown
!		pc49.lepp.cornell	zeneventlog	/Status/Wmi

- Shows all events, on the right is event details



Zenoss Infrastructure

The screenshot shows the Zenoss Core Infrastructure page. The top navigation bar includes 'Zenoss CORE', 'DASHBOARD', 'EVENTS', 'INFRASTRUCTURE', 'REPORTS', and 'ADVANCED'. The user 'jmp242' is logged in. The left sidebar shows 'Infrastructure' with a search bar and a tree view of 'DEVICE CLASSES (106)'. The main content area displays a table of devices with columns for Device, IP Address, Device Class, Production State, and Events. The table shows several devices in 'Production' state, each with 0 critical, 0 warning, and 0 error events.

Device	IP Address	Device Class	Production State	Events
accfs	128.84.46.2	/Server/Linux	Production	0 0 0
accserv	128.84.46.209	/Server/Linux/Web/Apa	Production	0 0 0
can192-x	192.168.214.192	/Network/Wireless/Airo	Production	0 0 0
can193-x	192.168.214.193	/Network/Wireless/Airo	Production	0 0 0
can194-x	192.168.214.194	/Network/Wireless/Airo	Production	0 0 0
can195-x	192.168.214.195	/Network/Wireless/Airo	Production	0 0 0
can196-x	192.168.214.196	/Network/Wireless/Airo	Production	0 0 0
can197-x	192.168.214.197	/Network/Wireless/Airo	Production	0 0 0
can198-x	192.168.1.198	/Network/Wireless/Airo	Production	0 0 0

- Devices is the major point of working with Zenoss for us
 - Device Classes are used to set monitoring templates
 - A Monitoring Template defines what is monitored and how it is monitored



How LEPP uses Zenoss

- The Web Interface is primarily for configuration and maintenance
 - You can use events right in the web view, but then you don't get quite as much filtering as easily
- Alerts are sent via e-mail
 - LEPP users usually don't have Zenoss up
- Zenoss can be configured to remediate selected events automatically
 - We have used this in the past to restart processes
 - We use this to pass off alerts to in-house systems via other methods than e-mail
 - You can get far more creative



Example event lifecycle

- A monitored server goes down
- Zenoss runs a ping cycle every 60 seconds
- Zenoss notices the server is down
 - Marks as down in web UI
 - Generates an internal Event
 - May generate events for other monitored services on that server
- Zenoss polls new events every 60 seconds
 - Notices new critical server down event
 - Checks against user and group alerting rules (act like filters)
 - One matches this event
- Zenoss generates an e-mail
- User fixes problem, server back up
- Zenoss notices server is up
 - Generates a CLEAR event which closes out the existing critical event
 - Marks as up in web UI
- Zenoss e-mails user the event is CLEARed - resolved



Zenoss Scalability

- Zenoss is quite scalable
 - Multiple Daemons – one for each step of the process
 - Central zenhub daemon can be configured to use multiple threads ($n-1$ where n = number of cores on Zenoss server)
 - Can support distributed collectors so you can spread out perf monitoring on multiple servers



Zenoss Daemons

Zenoss CORE DASHBOARD EVENTS INFRASTRUCTURE REPORTS ADVANCED jmp242 SIGN OUT

Settings Collectors Monitoring Templates MIBs Page Tips

Settings
Commands
Users
ZenPacks
Jobs
Portlets
Daemons
Versions
Backups

Zenoss Daemons

Zenoss Daemon	PID	Log File	Configuration	State	Actions
zeoctl	32167	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zopectl	32172	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenhub	32212	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenjobs	32245	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenping	32316	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zensyslog	32359	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenstatus	32358	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenactions	32392	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zentrap	32493	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenmodeler	32498	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenperfsnmp	32533	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zencommand	32568	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenprocess	15229	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenwin	32648	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zeneventlog	32690	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>
zenperfwmi	32733	view log	view config edit config		<input type="button" value="Restart"/> <input type="button" value="Stop"/>

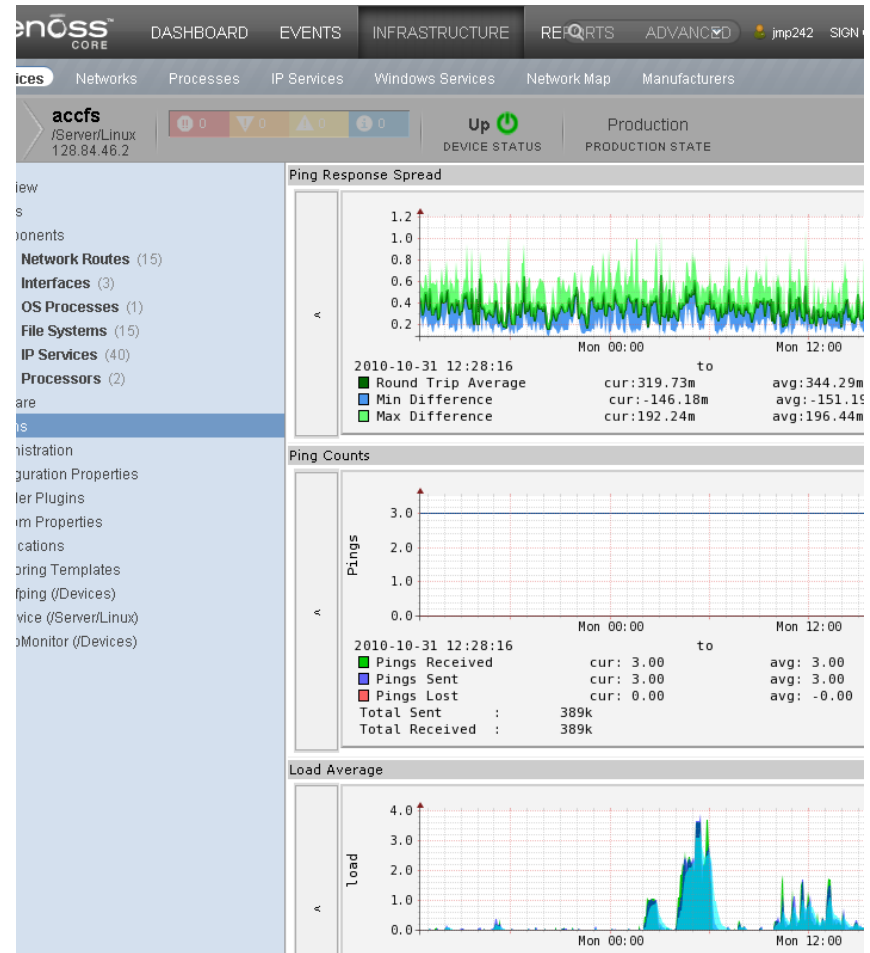
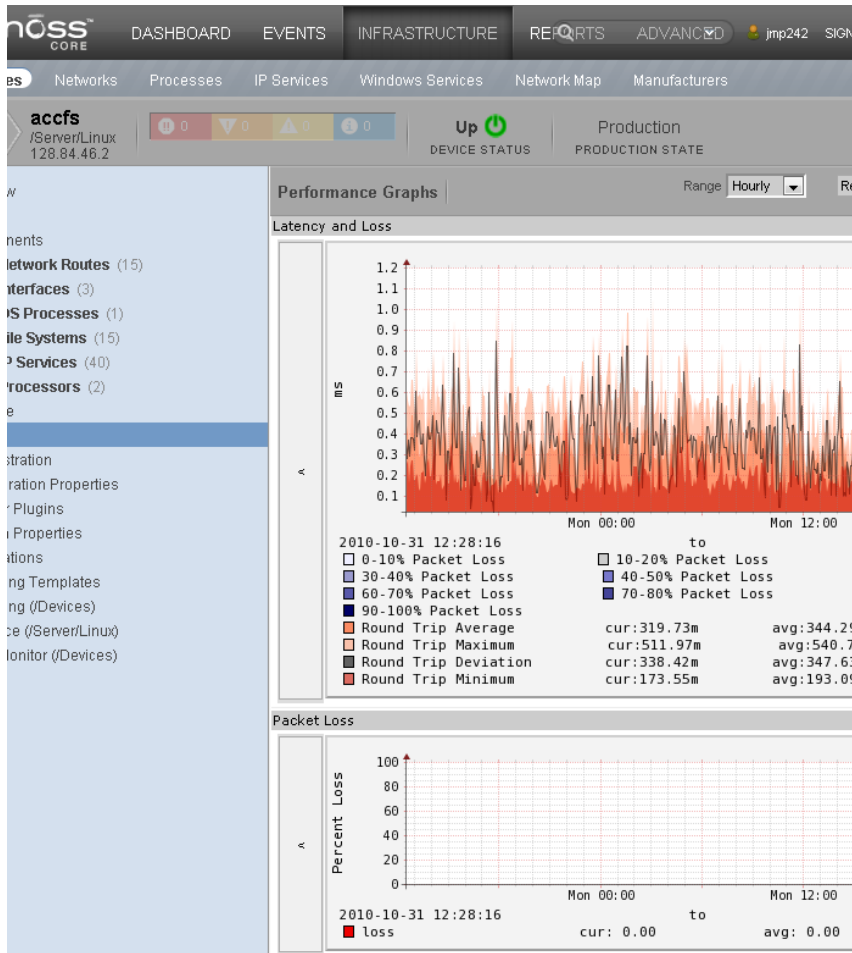


Extending Zenoss

- Custom scripts
- Python code edits
- Writing your own daemon
- Zenpacks
 - Community
 - Zenoss, Inc
 - Internal



Screenshots





Screenshots

enOSS CORE DASHBOARD EVENTS INFRASTRUCTURE REPORTS ADVANCED jmp242 SIGN OUT

Networks Processes IP Services Windows Services Network Map Manufacturers

dc2.classe.cornell.edu
/CIM/VM1
128.84.45.150

Up **Up**
DEVICE STATUS PRODUCTION PRODUCTION STATE

HardDisk [Settings] [Select]

Events	Name	Monitored	Status
✓	PHYSICALDRIVE0	true	Up

Display: Graphs

Performance Graphs Range: Hourly

IO Bytes

2010-10-31 12:40:06 to Mon 00:00 to Mon 12:00

Read	Write
cur: 1.45k	cur: 6.84k
avg: 847.08	avg: 9.35k

Disk Queue

enOSS CORE DASHBOARD EVENTS INFRASTRUCTURE REPORTS ADVANCED jmp242 SIGN OUT

Networks Processes IP Services Windows Services Network Map Manufacturers

webdb
/Server/Linux/MySQL
128.84.45.248

Up **Up**
DEVICE STATUS PRODUCTION PRODUCTION STATE

Interfaces [Settings] [Select]

Events	IP Interface	IP Address	Descriptor	MAC Address	Status
✓	eth0	128.84.45.248/22		00:14:5E:46:3C:EE	Up
✓	lo				Up
✓	sit0			00:00:00:00:3C:EE	Up

Display: Graphs

Performance Graphs Range: Hourly

Throughput

2010-10-31 12:42:06 to Mon 00:00 to Mon 12:00

Utilization 75 perc	Inbound	Outbound
cur: 89.53k	cur: 60.40k	cur: 60.40k
avg: 53.15k	avg: 86.02k	avg: 86.02k

Packets



Links

- OCSNG
 - <http://www.ocsinventor-y-ng.org/>
- GLPI
 - <http://www.glpi-project.org>
 - English Forum:
 - <http://www.glpi-project.org/forum/viewforum.php?id=6>
- Zenoss
 - <http://community.zenoss.org/index.jspa>
 - <http://community.zenoss.org/community/documentation>
 - My community FAQs:
 - <http://community.zenoss.org/docs/DOC-2445>
 - <http://community.zenoss.org/docs/DOC-4724>