

LibreNMS



All in one network
graphing and monitoring

Network Monitoring and Management

Network Startup Resource Center



These materials are licensed under the Creative Commons Attribution-NonCommercial 4.0 International license
(<http://creativecommons.org/licenses/by-nc/4.0/>)

LibreNMS

- SNMP-based auto-discover network monitoring
- Derived from Observium
- Written in PHP as a web application
- Includes support for a wide range of hardware:
 - Cisco, Linux, FreeBSD, Juniper, Brocade, Foundry, HP and many more
 - See http://www.observium.org/wiki/Supported_Devices

Available metrics

- CPU, memory and storage statistics
- Interface traffic, packet and detailed error statistics
- Temperature, fan speed, voltage, amperage, power humidity and frequency sensors
- Users, processes, load average and uptime statistics

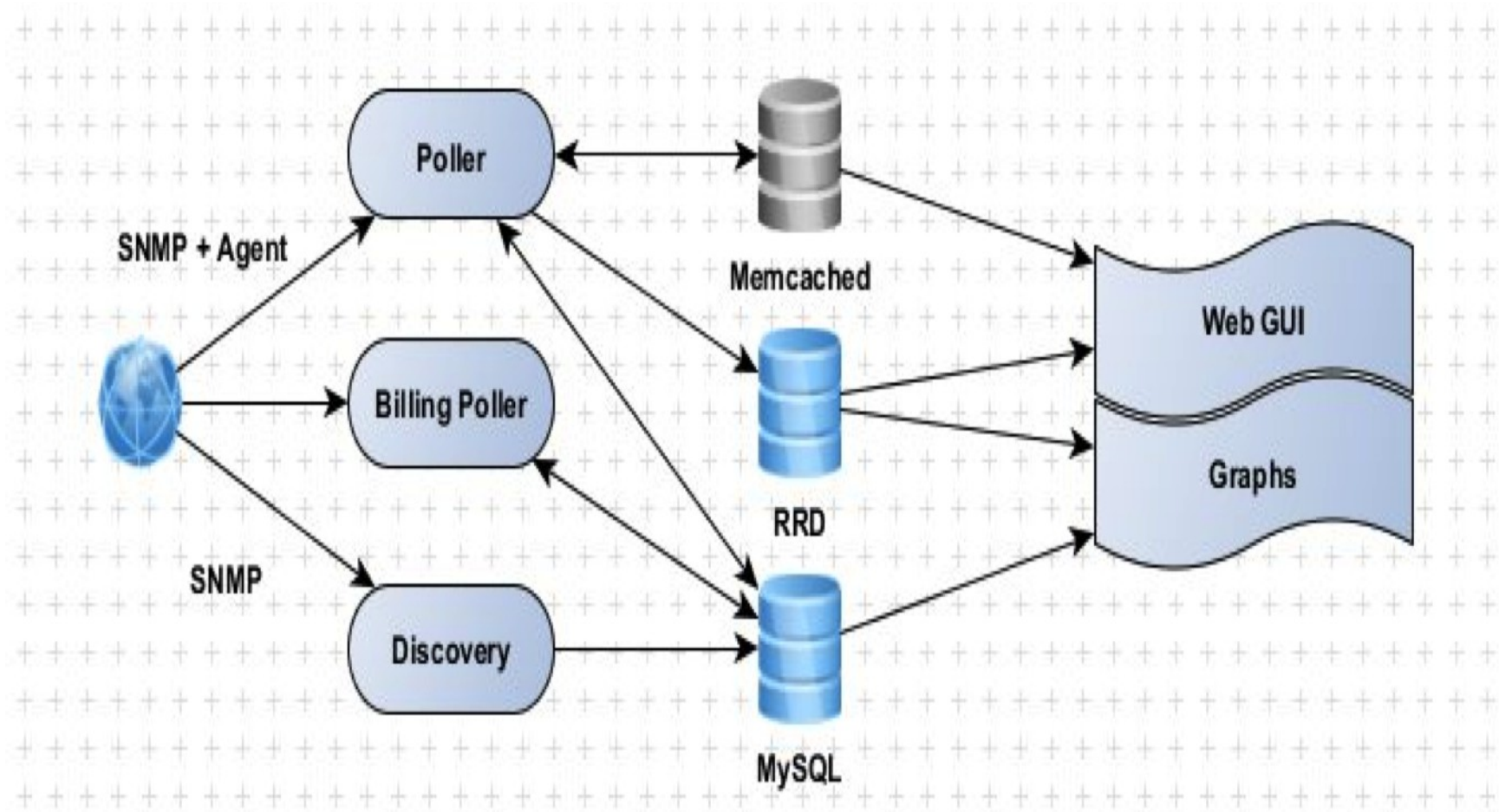
Available metrics cont.

- Linux distribution detection
- Real-time interface traffic graphing
- Device inventory collection (useful!)
- Detailed IPv4, IPv6, TCP and UDP stack statistics
- BGP And OSPF information
- Mac and IP address information

Features

- Concept of enabled vs. ignored
- Many already supported devices
- Host monitoring well supported using check_mk and support scripts
- Application monitoring using SNMP
- Billing module
- Integration with other tools:
 - Smokeping, collectd, syslog (receive logs from devices)

Architecture



Availability

Librenms

- Fork of Observium. Open Source, Free and GPL
- <https://github.com/librenms/librenms>
- <https://github.com/librenms/librenms/blob/master/doc/General/Welcome-to-Observium-users.md>

Screen shots

These are from LibreNMS. This is the version we will use in class and in our labs.



n1c1.lab.lpnz.org

AM408

Overview

Graphs

Health

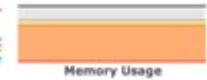
Ports

Inventory

Logs

Alerts

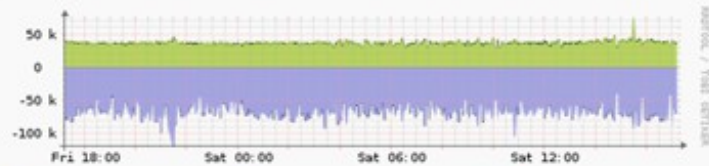
Alert Stats



Linux n1c1 3.2.0-4-amd64 #1 SMP Debian 3.2.68-1+deb7u2 x86_64

Hardware	Generic x86 64-bit
Operating System	Linux 3.2.0-4-amd64
Contact	dean@nsrc.org
Location	AM408
Uptime	29 days, 20h 47m 56s

Overall Traffic



9 9 0 0

lo, eth0, eth1, eth1.201, eth1.202, br1, br2, br101, eth1.101

Processors

Intel Xeon 5160 @ 3.00GHz	2%
Intel Xeon 5160 @ 3.00GHz	2%
Intel Xeon 5160 @ 3.00GHz	1%
Intel Xeon 5160 @ 3.00GHz	1%

Memory Pools

Physical memory	76%
Virtual memory	38%
Swap space	0%

Storage

/	94%
/boot	10%
/srv/archip	42%
/tmp	3%
/usr	22%
/var	30%

Recent Events

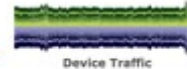
26/Aug/15 16:10:12 Memory pool added: type hrstorage index 3 descr Virtual memory



Memory Usage



CPU Usage

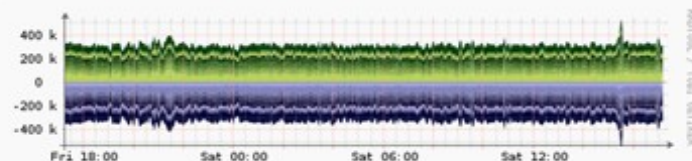


Device Traffic

Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE2, RELEASE SOFTWARE (fc1) Technical Support: <http://www.cisco.com/techsupport> Copyright (c) 1986-2013 by Cisco Systems, Inc. Compiled Tue 05-Feb-13 12:41 by prod_rel_team

Hardware	catalyst2960G24
Operating System	Cisco IOS 15.0(2)SE2 (LANBASEK9)
Contact	NRL, VUW
Location	AM408
Uptime	33 days, 3h 52m 44s

Overall Traffic



27 15 0 12

Vlan1, Vlan42, Gi0/1, Gi0/2, Gi0/3, Gi0/4, Gi0/5, Gi0/6, Gi0/7, Gi0/8, Gi0/9, Gi0/10, Gi0/11, Gi0/12, Gi0/13, Gi0/14, Gi0/15, Gi0/16, Gi0/17, Gi0/18, Gi0/19, Gi0/20, Gi0/21, Gi0/22, Gi0/23, Gi0/24, Null0

Processors

Processor 1 6%

Memory Pools

Processor 78%
I/O 57%
Driver text 0%

Recent Events

26/Aug/15 16:05:07	Device status changed to Up
26/Aug/15 16:00:06	Device status changed to Down
25/Aug/15 17:05:15	GigabitEthernet0/11 ifVlan: -> 666
25/Aug/15 17:05:15	GigabitEthernet0/11 ifTrunk: -> dot1Q
25/Aug/15 17:05:14	GigabitEthernet0/10 ifVlan: -> 108
25/Aug/15 17:05:14	GigabitEthernet0/9 ifVlan: -> 108
25/Aug/15 17:05:14	GigabitEthernet0/8 ifVlan: -> 108
25/Aug/15 17:05:14	GigabitEthernet0/7 ifVlan: -> 108
25/Aug/15 17:05:12	GigabitEthernet0/6 ifVlan: -> 108
25/Aug/15 17:05:12	GigabitEthernet0/5 ifVlan: -> 108

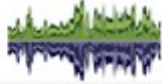
sw1.lab.lpnz.org :: Total Traffic

Bits

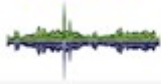
6 Hours



24 Hours



48 Hours



One Week



Two Weeks



One Month



Two Months



One Year



Two Years



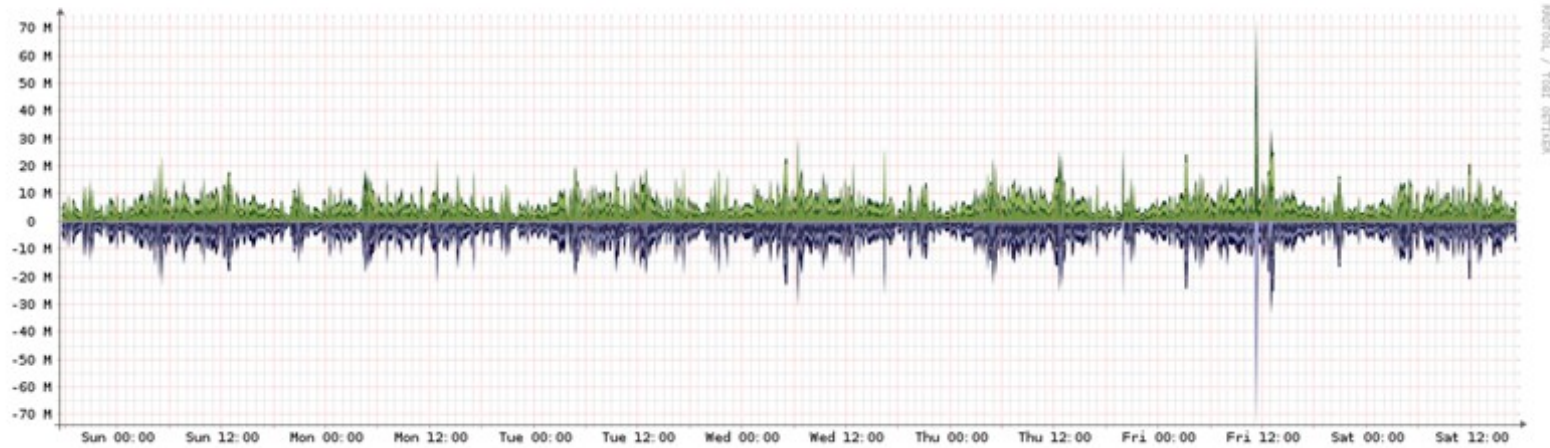
From 2015-08-29 17:17

To 2015-09-05 17:17

Update

[Show Legend](#) | [Show Previous](#)

[Show RRD Command](#)





sw1.lab.lpnz.org

AM408

Memory Usage

CPU Usage

Device Traffic

[Overview](#) [Graphs](#) [Health](#) [Ports](#) [VLANs](#) [Map](#) [Inventory](#) [Logs](#) [Alerts](#) [Alert Stats](#) [Config](#)

[Expand All Nodes](#) [Collapse All Nodes](#)

WS-C2960G-48TC-L (1)

WS-C2960G-48TC-L

Serial No. FOC1302V0CN

1. WS-C2960G-48TC-L - Fixed Module 0

WS-C2960G-48TC-L - Fixed Module 0

2. WS-C2960G-48TC-L - Power Supply 0

WS-C2960G-48TC-L - Power Supply 0

Serial No. AZS125207BS

3. WS-C2960G-48TC-L - Fan 0

WS-C2960G-48TC-L - Fan 0



sw1.lab.lpnz.org

AM408

Memory Usage

CPU Usage

Device Traffic

Overview

Graphs

Health

Ports

VLANs

Map

Inventory

Logs

Alerts

Alert Stats

Config

Tools

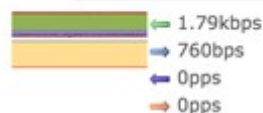
Help

About

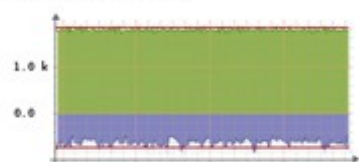
Feedback

10102. GigabitEthernet0/2

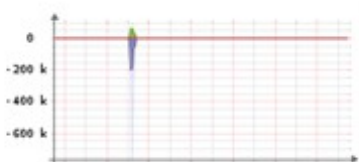
Link to SDN1-ge-1/1/28 - VLAN50

1Gbps Ethernet
fullDuplex -
VLAN 5000:24:50:bd:2f:02
MTU 1500[Graphs](#) | [Real time](#) | [ARP Table](#) | [Eventlog](#) | [VLANs](#)[Create Bill](#)

Interface Traffic



bps	Now	Ave	Max	95th %
In	1.79k	1.79k	1.93k	1.83k
Out	752.84	601.92	977.72	714.03
Total	25.83M	(In 19.33M Out 6.50M)		



bps	Now	Ave	Max	95th %
In	1.79k	2.52k	96.21k	1.80k
Out	616.36	2.50k	767.57k	670.51
Total	379.88M	(In 190.59M Out 189.28M)		



bps	Now	Ave	Max	95th %
In	1.79k	249.21k	203.32M	38.60k
Out	593.76	750.47k	609.95M	482.40k
Total	242.92G	(In 60.56G Out 182.36G)		

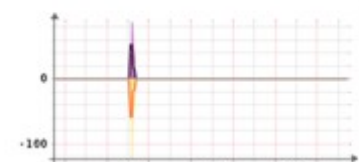


bps	Now	Ave	Max	95th %
In	1.75k	119.67k	203.32M	4.32k
Out	596.65	357.99k	609.95M	14.38k
Total	340.48G	(In 85.30G Out 255.18G)		

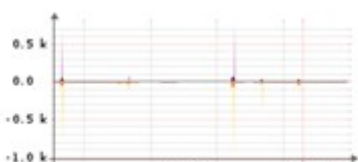
Interface Packets



Packets	Now	Ave	Max
In	0.00	0.00	0.00
Out	99.88m	99.94m	103.87m



Packets	Now	Ave	Max
In	0.00	551.96m	87.26
Out	99.77m	664.94m	123.52



Packets	Now	Ave	Max
In	0.00	1.12	782.29
Out	99.94m	1.46	1.03k



Packets	Now	Ave	Max
In	0.00	1.05	844.42
Out	99.95m	1.47	1.44k

Interface Non Unicast

Online LibreNMS demo

Is available at:

<https://demo.librenms.org/>

Workshop installation is at:

<http://librenms.ws.nsrc.org/>

Questions

?