



1.8

www.nedi.ch

REAL LIFE TEACHES...

7:00

12:00

18:00

- Don't rely on assumptions
- Cannot predict everything no matter how hard you try
- Collect information and look at it from different angles
- **Keep calm!**

ABOUT NEDI

- Network Discovery, management & monitoring
- Locate & Track Computers
- Security audits & more
- VM, DC management
- Printer management
- Manage Configs
- IT Inventory
- IT Reports



DISCOVERING THE NETWORK

Module Status

		Cat4k5	Linecard(slot 1)	WS-X4013+
		Cat4k5	Linecard(slot 2)	WS-X4248-RJ45V
		Cat4k5	Linecard(slot 3)	WS-X4248-RJ45V
		Cat4k5	Linecard(slot 6)	WS-X4306-GB
		Cat4k5	Power Supply 1	PWR-C45-2800ACV
		Cat4k5	Power Supply 2	PWR-C45-2800ACV

Power Supply, Active

12 Modules, Sort: slot, Limit: 250

Port Status per Fabric Extender

Fex-105 Nexus2248 Chassis	Fabric Extender Module: 48x1GE,	11 25 12
Fex-105 Nexus2248 Chassis	Fabric Extender Module: 48x1GE,	19 29
Fex-106 Nexus2200HP Chassis	Fabric Extender Module: 16x10GE	
Fex-106 Nexus2232 Chassis	Fabric Extender Module: 32x10GE	16 16
Fex-106 Nexus2248 Chassis	Fabric Extender Module: 48x1GE,	37 11
Fex-106 Nexus2248 Chassis	Fabric Extender Module: 48x1GE,	30 18
Fex-106 Nexus2248 Chassis	Fabric Extender Module: 48x1GE,	27 21
Fex-107 Nexus2200HP Chassis	Fabric Extender Module: 16x10GE	
Fex-107 Nexus2232 Chassis	Fabric Extender Module: 32x10GE	5 27

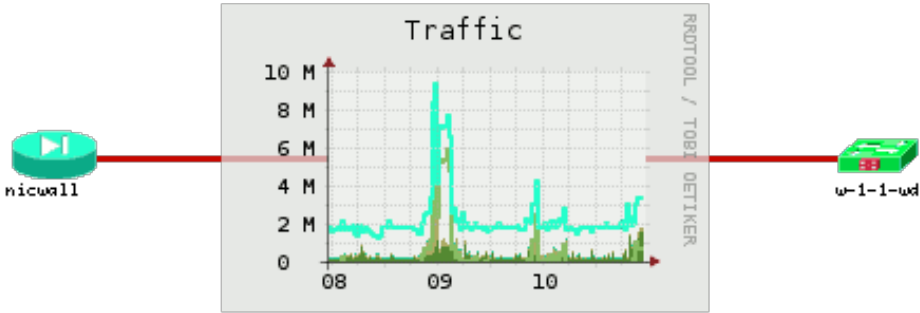
Active

LAG Ports

	23		23 LAG:Trk1
	24		24 LAG:Trk1
	Trk1		Trk1

3k5-Core2 IP:10.10.10.1
3500yl-24G, revision K.1
cubuildm/K_rel_memo

Dynamic Maps



OPTICAL MONITORING

.....

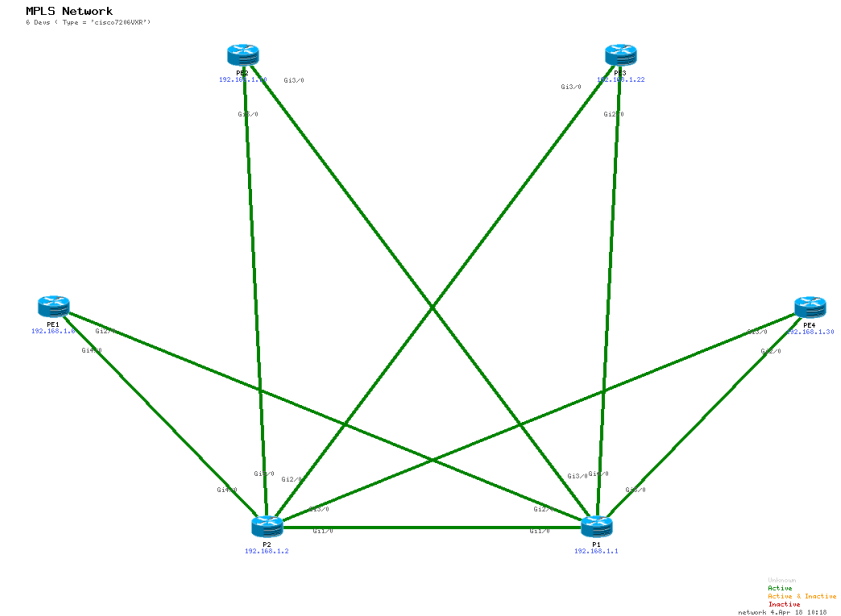
#	type	TX-hi	TX-lo	RX-hi	RX-lo	description (replaces module description)
dom-alert	default	3	-10	3	-12	default-settings

 Module

 Information		
	Eter1-14	LX2122IDR - RX: -6dBm TX: -8dBm
	Eter1-15	LX2122IDR - RX: -5dBm TX: -8dBm
	Eter1-16	LX2122IDR - RX: -5dBm TX: -37dBm
	Eter1-17	LX2502IDR - RX: -6dBm TX: -8dBm
	Eter1-18	LX2502IDR - RX: -6dBm TX: -15dBm
225 Module Total		

LINK MONITORING

- Forward syslog events
- Forward discovery events
- Dashboard maps
- STP maps
- “Smart” link monitoring in 1.9



Class LIKE 'ln%'

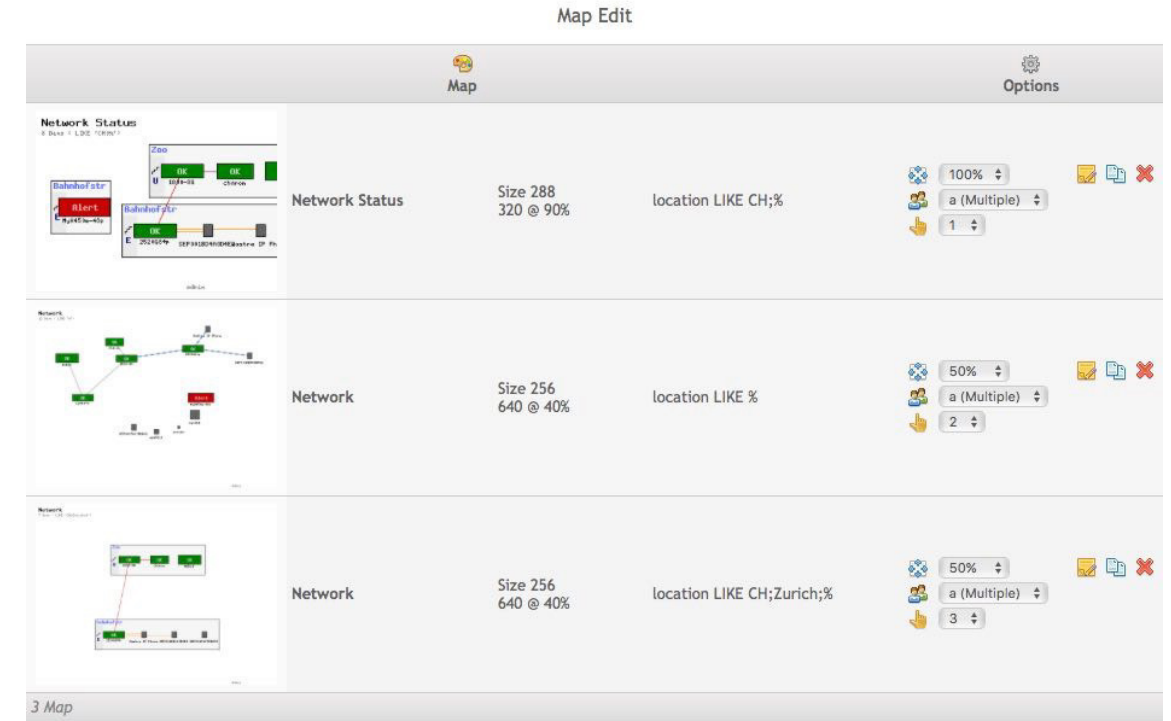
 Id	 Level	 Time	 Source	 Class	 Information
15301		3.Apr 18 13:15	C2940-8TT		Fa0/7 is CDPD link changed type to CDPD speed from 10M to 100M
15300		3.Apr 18 13:15	C2940-8TT		Fa0/5 is MAC link went down, previous status change on Thu Jan 1 01:00:00 1970
15299		3.Apr 18 13:15	C2940-8TT		Fa0/1 is MAC link went down, previous status change on Thu Jan 1 01:00:00 1970
14937		2.Apr 18 18:00	C2940-8TT		Fa0/5 is MAC link changed type from CDPD to MAC

MONITORING

MONITORING MAP

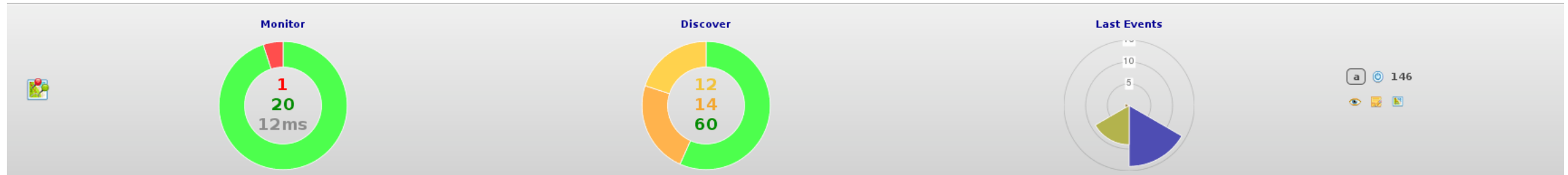


EDITOR



REPORTS IN MONITORING MAP

Monitor Map



Last Traffic Inbound

Devices	Interfaces	Traffic
ChB-priv	18 100M	101%
sw01-ab	22 1G	101%
sw01-ab	19 1G	101%
sw01-ab	21 1G	101%
sw01-ab	20 1G	51.7%

5 Interfaces, Sort: Traffic / Speed

Last Traffic Outbound

Devices	Interfaces	Traffic
ChB-priv	3 100M	101%
sw01-ab	20 1G	101%
ChB-priv	26 1G LLDP:chb-homeoffice	101%
sw01-ab	12 1G LLDP:IP232	101%
sw01-ab	4 1G	101%

5 Interfaces, Sort: Traffic / Speed

Last Bcast Inbound

Devices	Interfaces	Bcast
HP-2530-8G-PoEP	10 1G LLDP:sw-2-2-wdh	7.4/s 7k
virtual1	vmnic1 1G 03:00:1	5/s 4k
sw-1-2-wdh	12 100M	10.1/s 45
sw-2-2-wdh	23 1G LLDP:sw-2-1-wdh	6.7/s 6k
sw-1-3-wdh	A2 10G LLDP:sw-1-1-wdh	6.6/s 6k

5 Interfaces, Sort: Bcast / Traffic

Total Bcast Inbound

Devices	Interfaces	Bcast
sonicwall-cb	X2:V13 1G	1
sw-1-1-wdh	19 1G	3
sw-1-1-wdh	10 1G	4k
sonicwall-cb	X2:V1001 1G	2
sw-2-1-wdh	24 1G LLDP:sw-2-2-wdh	22M

5 Interfaces, Sort: Bcast / Traffic

Last Errors Inbound

Devices	Interfaces	Errors
sw01-ab	3 1G	23.8/s 21k
sw01-ab	14 1G	10/s 3
sw01-ab	6 1G LLDP:ap-AB_1	10.2/s 139
sw01-ab	7 1G	10/s 5

4 Interfaces, Sort: Errors / Traffic

Last Errors Outbound

No

Last Discard Inbound

Devices	Interfaces	Discard
VoIP-31-Se	1	303.2/s 273k
ClaviNet_AB	net 100Mbps_VPN IPsec tunnel	10/s 2

2 Interfaces, Sort: Discard / Traffic

Last Discard Outbound

Devices	Interfaces	Discard
sw01-ab	3 1G	13/s 12k

1 Interfaces, Sort: Discard / Traffic

LARGE SCALE

```
==> /opt/nedi/log/nedi-1.run <==
```

```
=====
1055 devices, retire:
END :Took 59 minutes
```

```
==> /opt/nedi/log/nedi-2.run <==
```

```
=====
1637 devices, retire:
END :Took 99 minutes
```

```
==> /opt/nedi/log/nedi-3.run <==
```

```
=====
1789 devices, retire:
END :Took 65 minutes
```

```
==> /opt/nedi/log/nedi-4.run <==
```

```
=====
2107 devices, retire:
END :Took 109 minutes
```

```
==> /opt/nedi/log/nedi-5.run <==
```

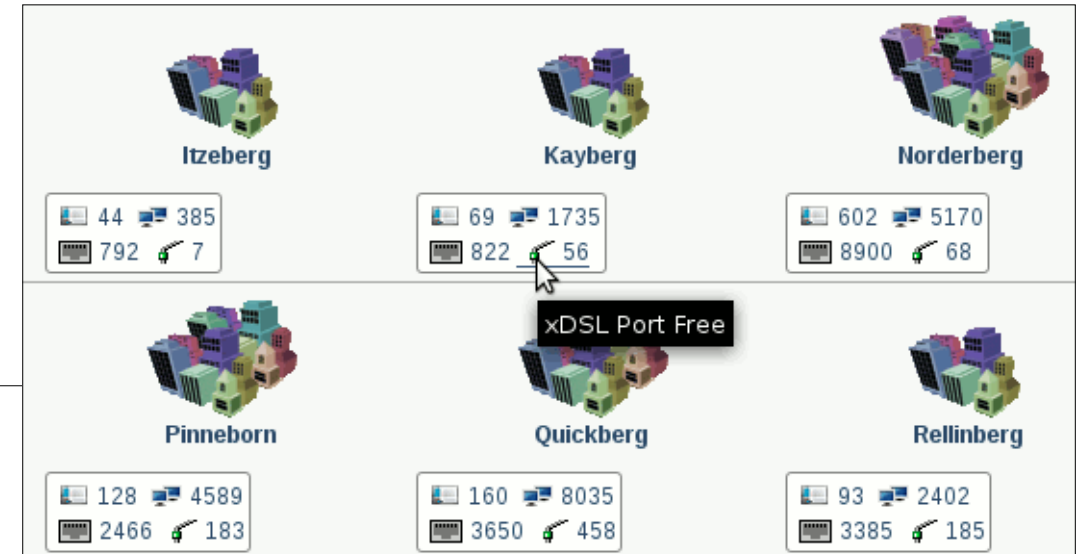
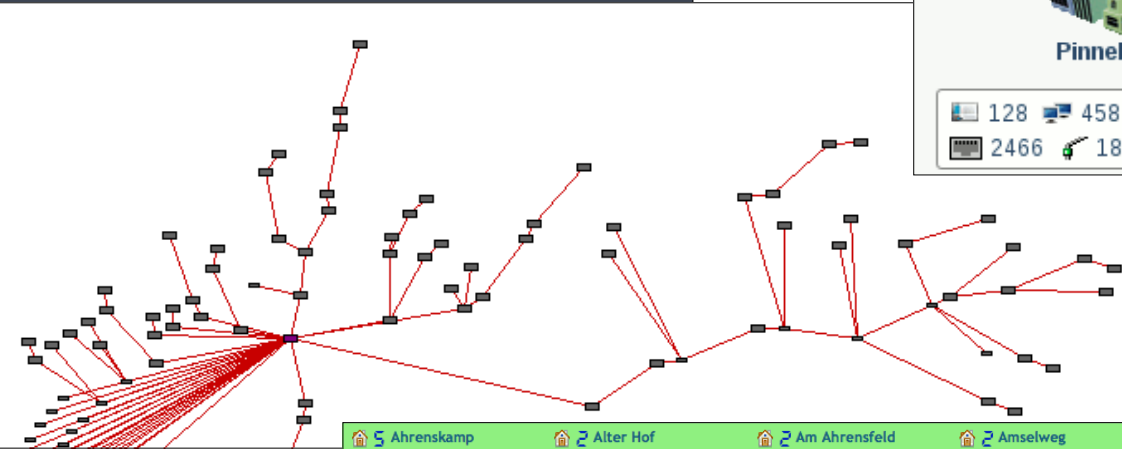
```
=====
1917 devices, retire:
END :Took 98 minutes
```

```
==> /opt/nedi/log/nedi-6.run <==
```

```
=====
856 devices, retire:
END :Took 74 minutes
```

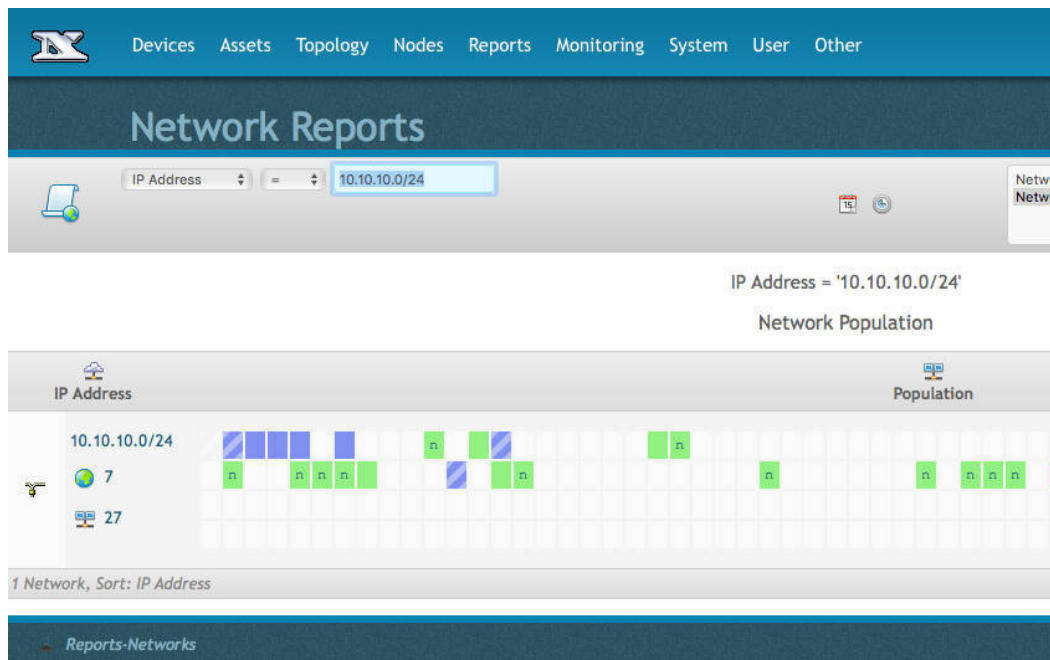
```
==> /opt/nedi/log/nedi-7.run <==
```

```
=====
304 devices, retire:
END :Took 10 minutes
```



5 Ahrenskamp	2 Alter Hof	2 Am Ahrensfeld	2 Amselweg	9 An der Retloh	1 Bahnhofstrasse	Boxholmstrasse
4 Dorotheenring	2 Ellerauer Strasse	3 Feldbehnkehre	2 Feldbehnstrasse	2 Friedlandstrasse	1 Gaertnertwiete	1 Harksheider Weg
3 Hermann-Loens-Weg	Herta Sponer Kehre	2 Hertha Sponer Kehr	2 Jahnstrasse	1 Justus-von-Liebig-	5 Kampstrasse	Kieler Strasse
3 Klingenberg	3 Kurzer Kamp	4 Marienhoehe	Markstrasse	2 Marktstrasse	2 Otto-Hahn-Strasse	8 POP
3 POP70 Bahnhofstr.	4 POP70 Berlinerstra	2 POP70 Birkenweg	2 POP70 Feldbehnstra	2 POP70 Friedlandstr	2 POP70 Harksheider	3 POP70 Heinrich-Hei
5 POP70 Max-Planck-S	POP70 Max-Planck-S	2 POP70 Schrank	POP70 Uhland Str.	POP70 Versorgung	POP70 Zeppelinstra	3 POP71 Am Freibad
3 POP71 Schrank	POP71 Versorgung	2 POP72 Schrank	2 POP73 Schrank	POP73 Switch	2 POP74 Schrank	POP74 Switch

VERIFY YOUR IPAM



Subnet List					
	Network	Start	End	Bcast	Total Population
0	10.10.0.0/24	10.10.0.1	10.10.0.254	10.10.0.255	254
1	10.10.1.0/24	10.10.1.1	10.10.1.254	10.10.1.255	508
2	10.10.2.0/24	10.10.2.1	10.10.2.254	10.10.2.255	762 1
3	10.10.3.0/24	10.10.3.1	10.10.3.254	10.10.3.255	1016 1
4	10.10.4.0/24	10.10.4.1	10.10.4.254	10.10.4.255	1270 1
5	10.10.5.0/24	10.10.5.1	10.10.5.254	10.10.5.255	1524 1
6	10.10.6.0/24	10.10.6.1	10.10.6.254	10.10.6.255	1778
7	10.10.7.0/24	10.10.7.1	10.10.7.254	10.10.7.255	2032
8	10.10.8.0/24	10.10.8.1	10.10.8.254	10.10.8.255	2286
9	10.10.9.0/24	10.10.9.1	10.10.9.254	10.10.9.255	2540
10	10.10.10.0/24	10.10.10.1	10.10.10.254	10.10.10.255	2794 25 23 25
11	10.10.11.0/24	10.10.11.1	10.10.11.254	10.10.11.255	3048 1
12	10.10.12.0/24	10.10.12.1	10.10.12.254	10.10.12.255	3302 1
13	10.10.13.0/24	10.10.13.1	10.10.13.254	10.10.13.255	3556 1
14	10.10.14.0/24	10.10.14.1	10.10.14.254	10.10.14.255	3810
15	10.10.15.0/24	10.10.15.1	10.10.15.254	10.10.15.255	4064

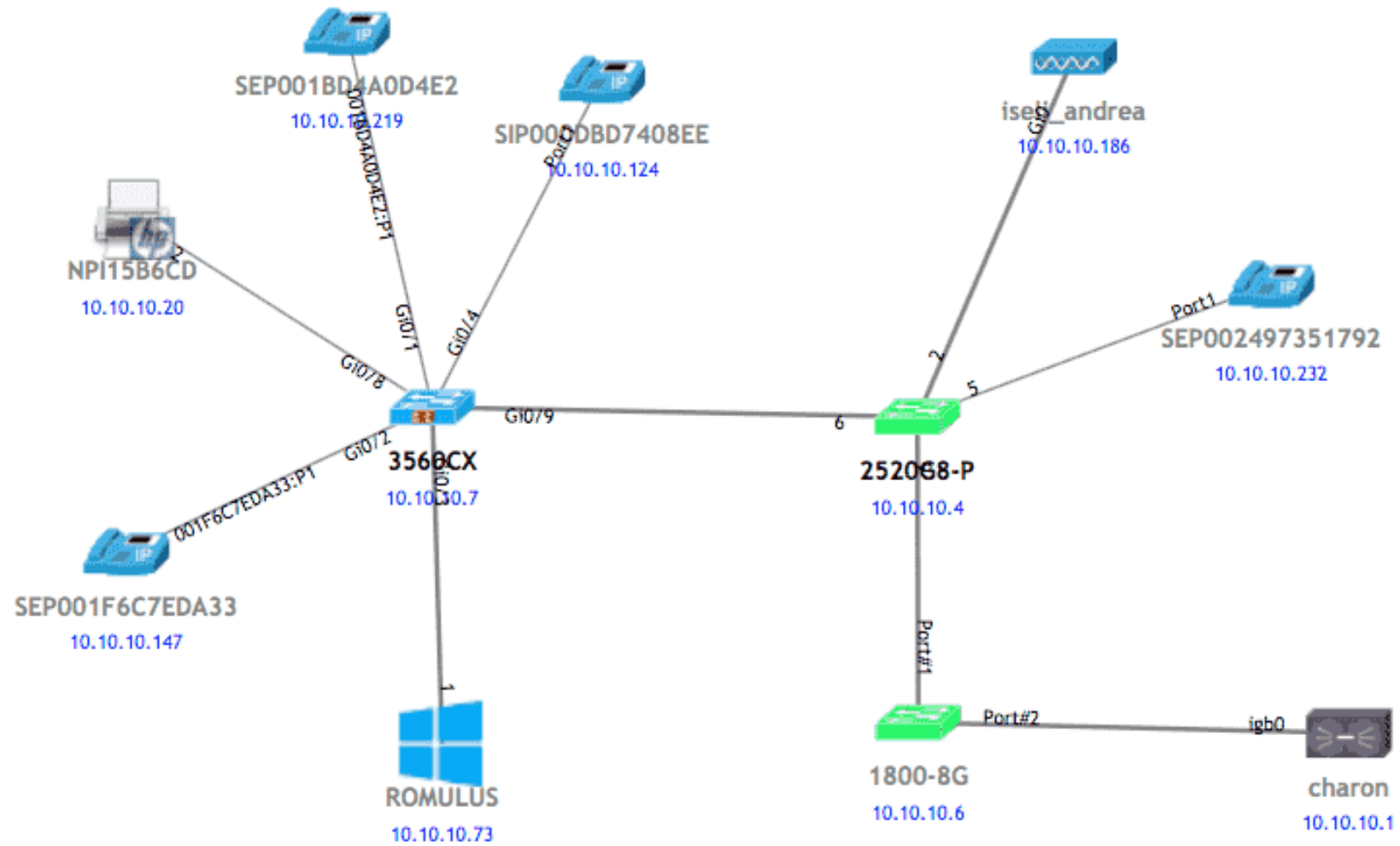
ROUTING TABLE DISCOVERY

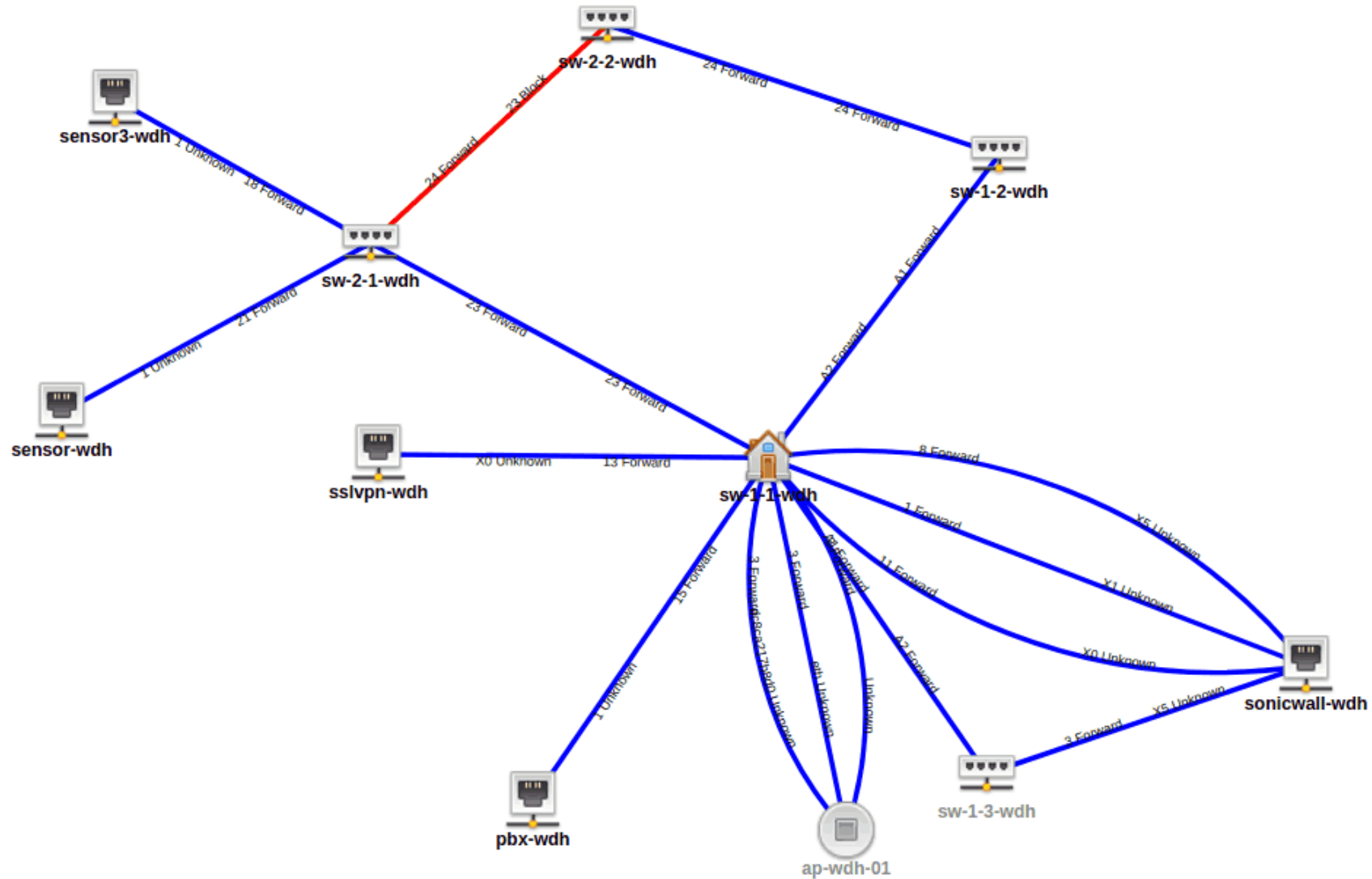
- Discover routes
- Store routes in DB
- Alert on route policies
- Alert on major route changes

 Metric 1	 Protocol	 Age
0	 local	0
2	 ospf	36015
2	 ospf	36015
0	 local	0

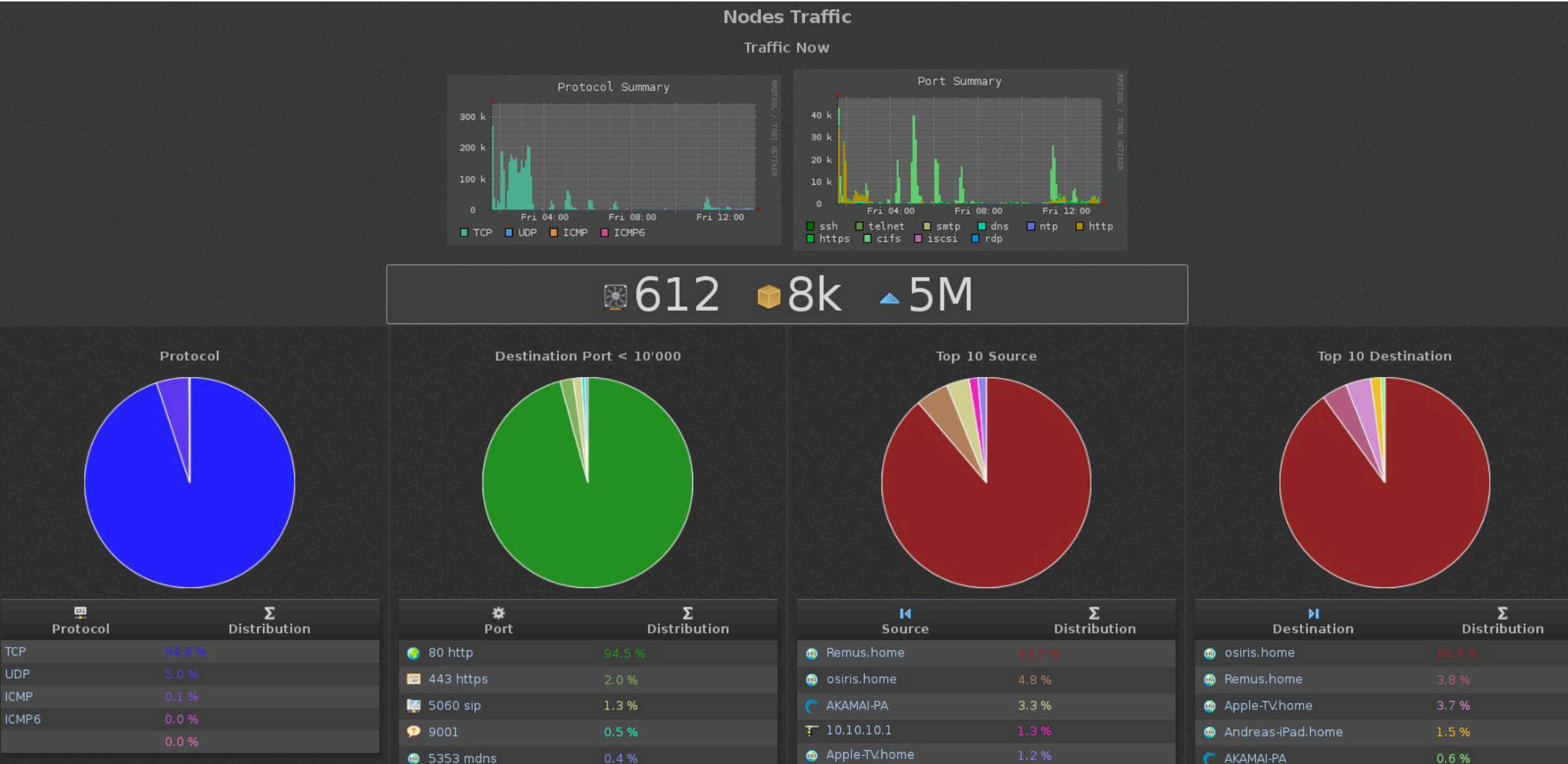
	19.Jun 17 11:41	charon		# of routes changed from 100 to 2
	19.Jun 17 11:40	charon		Policy 11: Route Destination is missing 10.129.10.10  test-destination not found
	19.Jun 17 11:40	charon		Policy 8: Route Destination matches 10.129.10.0  test-destination found

MAP ENHANCEMENTS

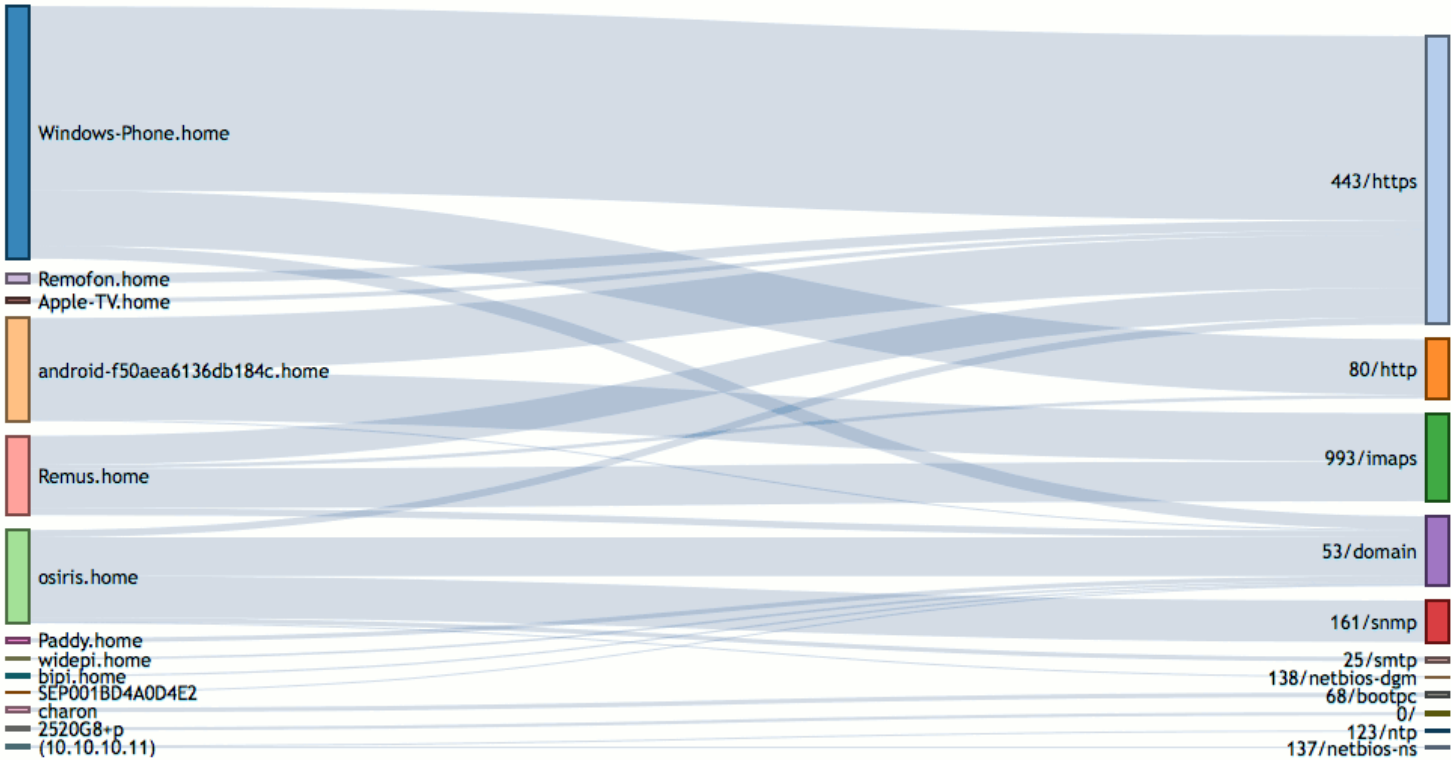
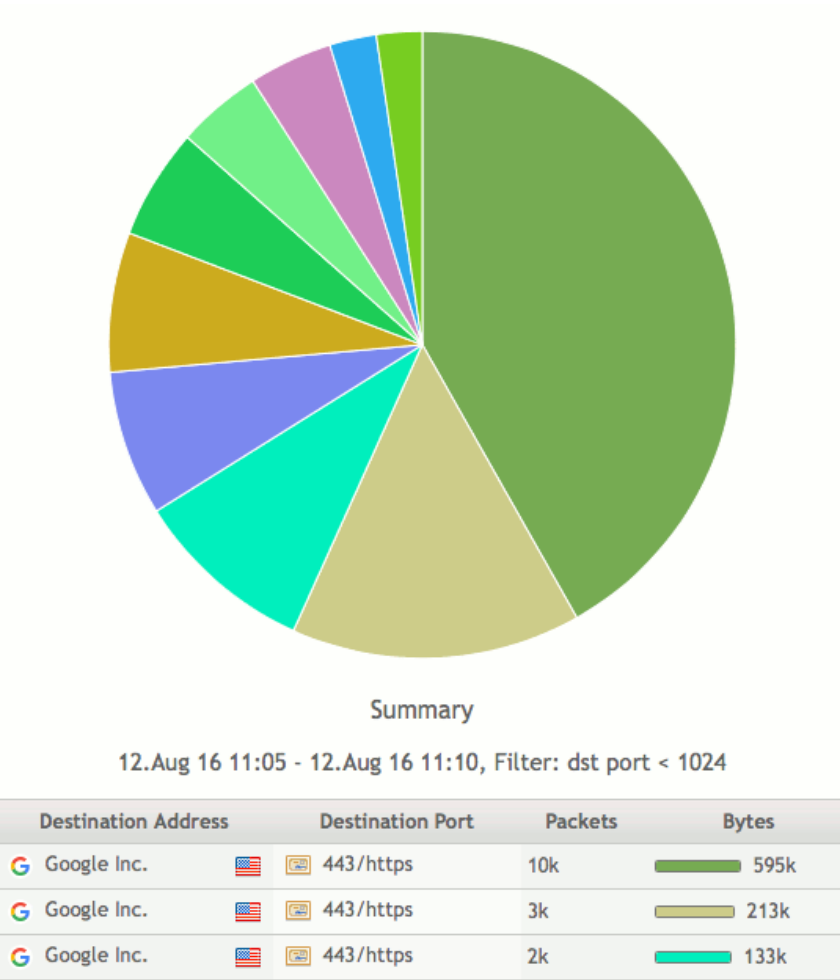


[illegible]

TRAFFIC SUMMARY



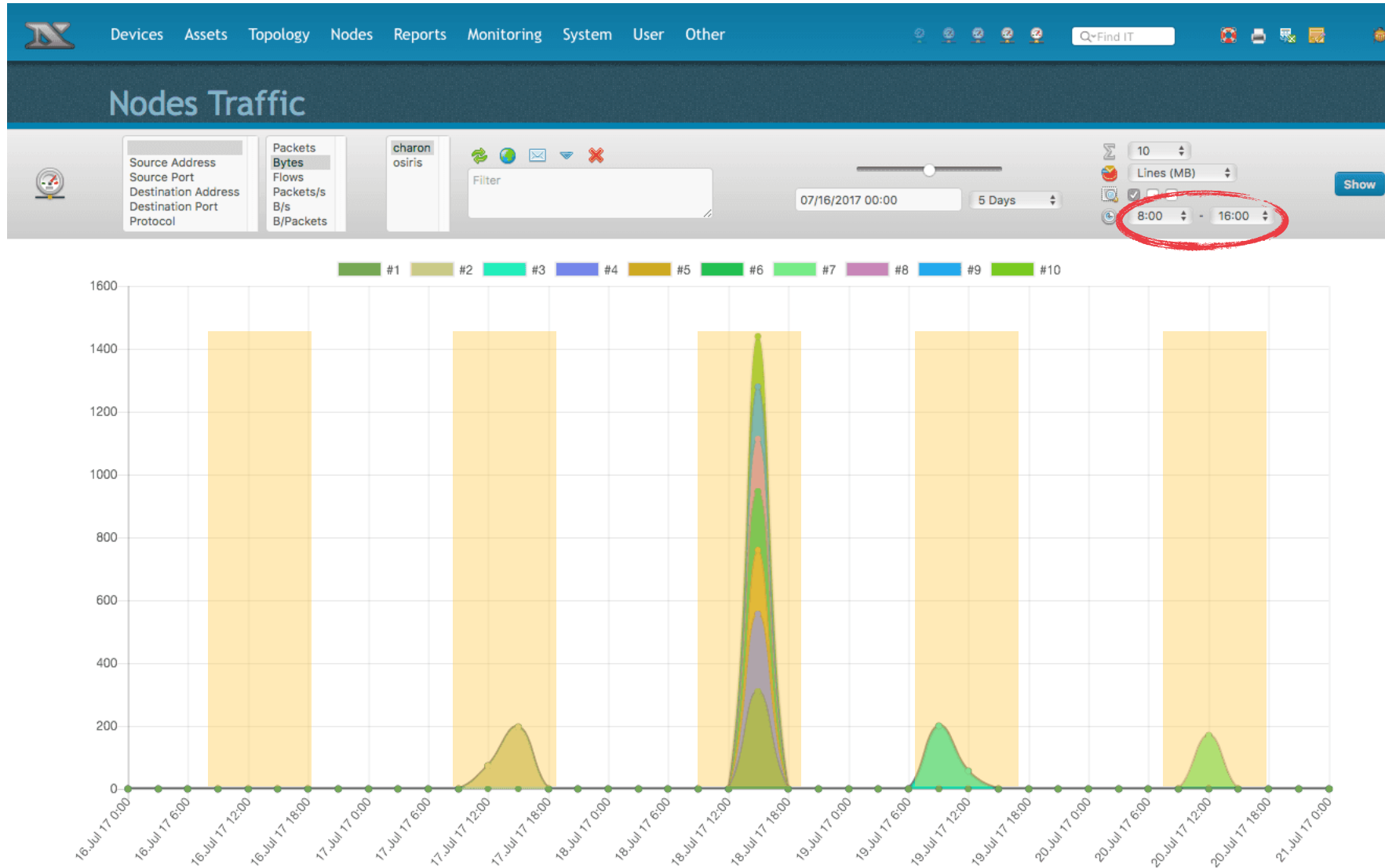
TRAFFIC ANALYSIS



Source Address, Destination Port Summary

26.Jul 16 16:35 - 26.Jul 16 16:45, Filter: dst port < 1024

SKIP BACKUP TRAFFIC



NETFLOW & SFLOW

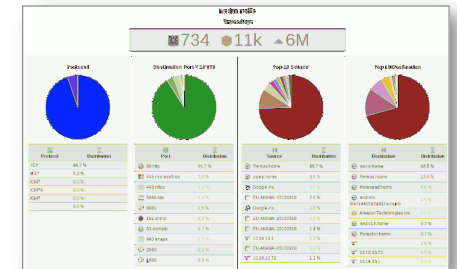
Device



Collector



UI



LATENCY ANALYSIS



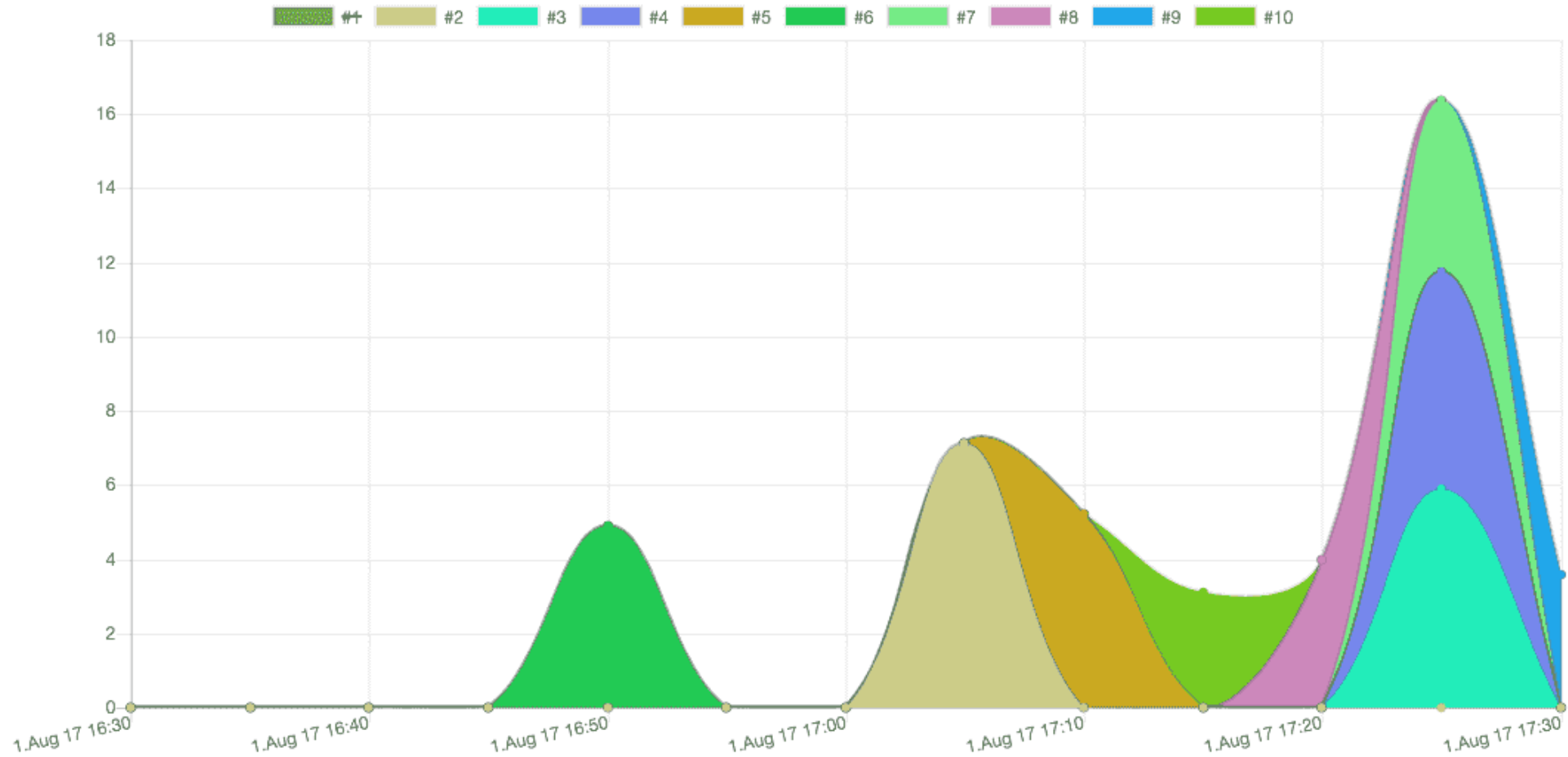
Nodes Traffic

Summary

23.Nov 16 16:50 - 23.Nov 16 16:55

Source Address	Source Port	Destination Address	Destination Port	Protocol	Packets	Bytes	Flows	Packets/s	B/s	B/Packets	Client Latency	Server Latency	App Latency
osiris	3000/	10.10.10.109	49863/	tcp	128k	187M	2	426	5M	1k	96.987 ms	3.133 ms	2.243 ms
10.10.10.109	65295/	osiris	445/microsoft-ds	tcp	11k	2M	2	38	58k	187	1.963 ms	0.465 ms	2508.337 ms
osiris	38720/	C2960-8	23/telnet	tcp	50	1k	2	203	36k	22	0.026 ms	1.270 ms	2.212 ms
10.10.10.101	36201/	osiris	445/microsoft-ds	tcp	42	28k	2		816	666	1.347 ms	0.066 ms	0.833 ms
osiris	51275/	2520G8-P	161/snmp	udp	19	1k	2	59	25k	52	-	-	-
osiris	53193/	2520G8-P	161/snmp	udp	18	1k	2	253	117k	57	-	-	-
osiris	59811/	C2960-8	161/snmp	udp	18	951	2	94	40k	52	-	-	-
osiris	5060/sip	212.117.203.32	5060/sip	udp	16	10k	2		267	596	-	-	-
osiris	50597/	charon	161/snmp	udp	16	842	2	355	150k	52	-	-	-
osiris	36130/	C2960-8	161/snmp	udp	16	880	2	175	77k	55	-	-	-

10 Values, Sort: Packets, Limit: 10

[illegible]

TRAFFIC INFO

1	 Amazon Technologies Inc.		 443 https	 Remus.home
2	 Google Inc.		 443 https	 android-44005e8124817138.home
3	 charon		 63150	 osiris

	216.58.207.46/24
Network	 1e100.net
Customer	Google Inc.
Mail	 google.com
Phone	+1-650-253-0000
Address	 1600 Amphitheatre Parkway, Mountain View, CA
Description	GOOGLE
Origin AS	AS15169
Update	15.Jul 17 8:44

CONFIG TRANSLATOR

Configuration Translate



Source: 2520G8-P

- Target Group -
2960H

Write

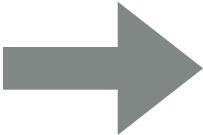
2520G8-P-1522831238

```
1 no service pad
2 service timestamps debug uptime
3 service timestamps log uptime
4 no service password-encryption
5 sysname 2520G8-P
6 interface Fa0/1
7   description "RuckusAP"
8 interface Fa0/3
9   description "test"
10 interface Fa0/4
11   description "PS4"
12 interface Fa0/5
13   description "Lounge Phone"
14 interface Fa0/6
15   description "Up"
16 interface Fa0/8
17   description "TV1"
18 interface Fa0/9
19   description "Down"
20 interface Fa0/10
21   description "test"
22 snmp-server contact Remoo
23 snmp-server location CH;Kloten;Bahnhofstr;E;Studio;Wall
24
```

SIMPLE TRANSLATIONS

 Id	 Source Type	 Target Group	 Context	 Source	 Destination	 User	 Execute
1	2520-8G-PoE	test		*		A admin	    
2	2520-8G-PoE	test		/hostname.*	hostname "newname"	A admin	  
2 Values							

Hostname OldFart-I23

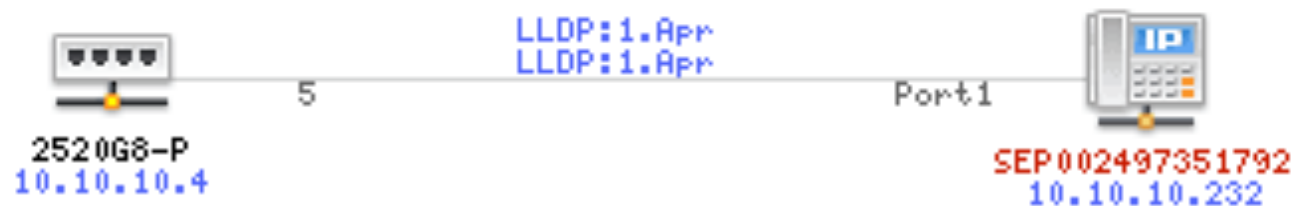


Hostname NewGuy-I23

SECTOR NORD AG
OPEN SOURCE BASED ENTERPRISE SOLUTIONS

3P
 4P
 5P
 6P
 7P
 8P
 9P
 10P
 11P
 12P
 13P
 14P
 15P
 16P
 17P
 18P
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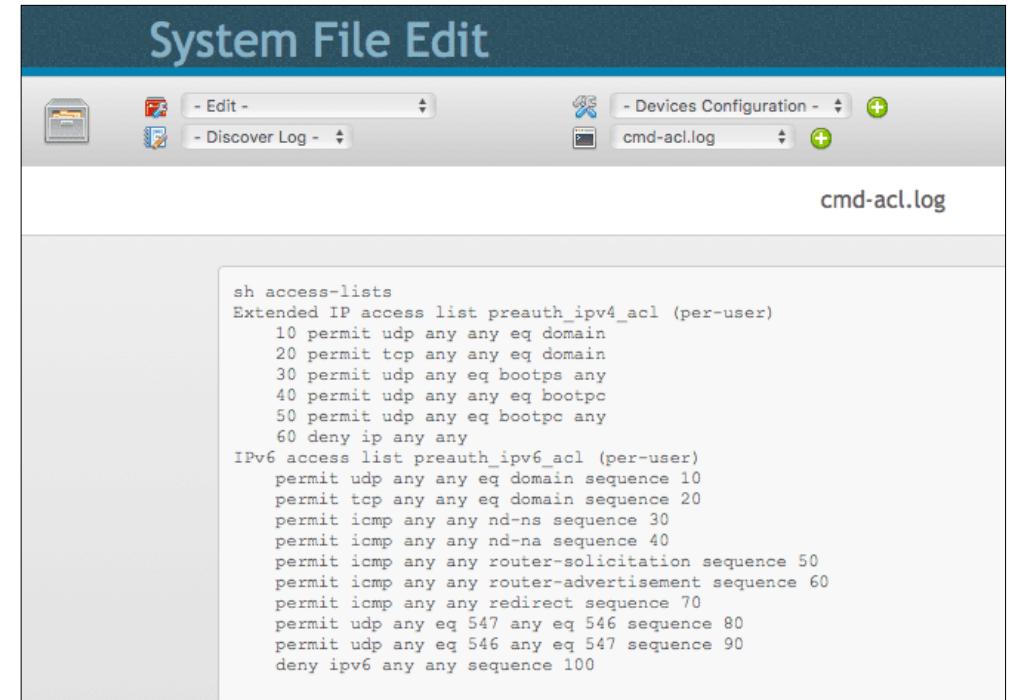
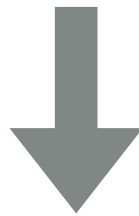
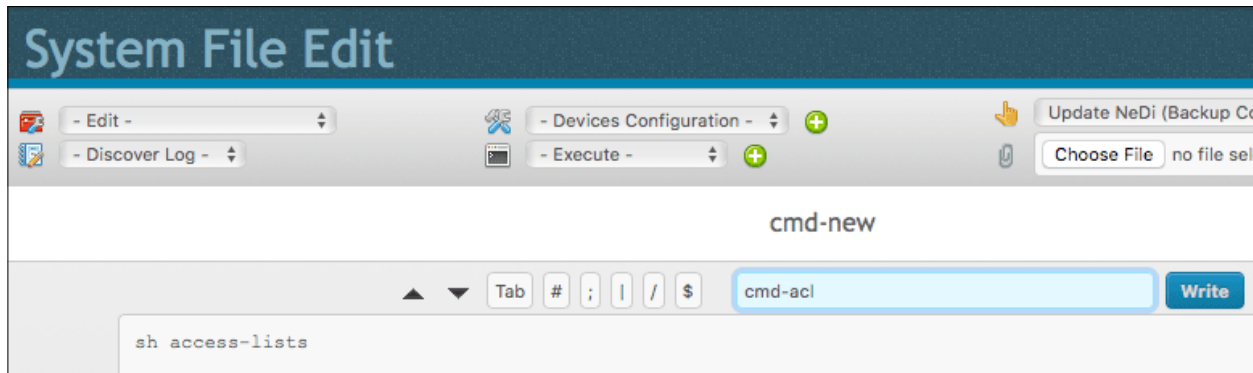
ITSM-SUMMIT 2018



1333122		19.Jun 17 17:26	C2960-8		Policy 7: Portconfig is missing switchport mode trunk on Fa0/7 Tagged voice
1333121		19.Jun 17 17:26	C2960-8		Policy 7: Portconfig is missing switchport mode trunk on Fa0/3 Tagged voice
1333120		19.Jun 17 17:26	C2960-8		Policy 1: Config matches community public
1333119		19.Jun 17 17:26	C2960-8		Policy 3: Config matches contact Remo

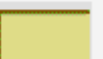
Id	Status	Class	Target	Devices	Port	Vlan	Action	Information	User	Time	Execute
1		Configuration	community public						admin	7.Feb 17 15:07	
3		Configuration	contact Remo						admin	7.Feb 17 15:11	
7		Port Configuration	switchport mode trunk	2960				Tagged voice	admin	19.Jun 17 17:26	
3 Values											

ACL MONITORING



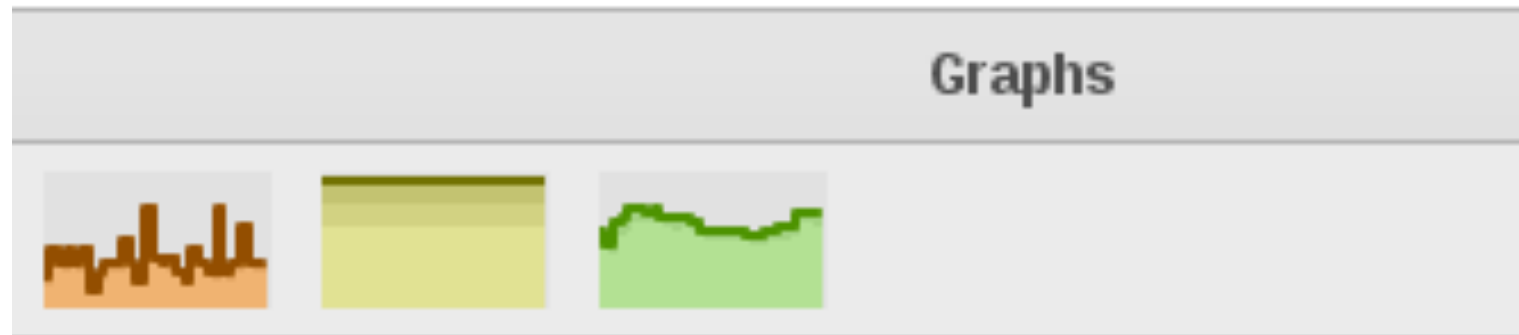
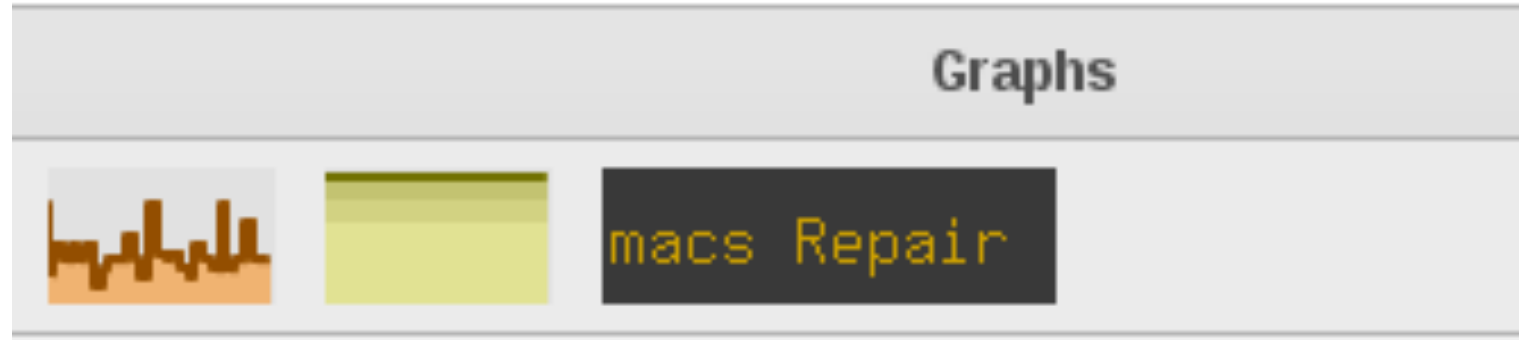
`/var/nedi/nedi.pl -SAFGgadobewitjumpvs -a 10.10.10.7 -c diff-cmd-acl`

PALOALTO SUPPORT

 palo		
Main Address	10.10.10.22	
Services	Bridge Router	
Discover	8.Feb 18 15:19 9.Feb 18 13:11	
Bootimage	8.0.5 (PANOS)	
Serial#		
Description	PA-VM Palo Alto Networks VM-Series firewall	
Location	CH;Zurich;Zoo;U;DC;R2;10	
Contact	Remo	
Group	- Mode: SNMP	
SNMP	public 2c-64bit	
CLI	admin;1 Port 22	CLI Send >
Configuration	Backup 9.Feb 18 13:11 Size 9kB	
Graphs		
Status	2% 8 0 Days 21:54	

 Id	 Level	 Time	 Source	 Class
4735		9.Feb 18 12:57	palo	 Node 000db9433b48 has new IP
4733		9.Feb 18 12:12	palo	 Config changed by 2151 characters: no;, 97+ }, 98+ }, 99+ }, 100+ ndp-pr

AUTO RRD FIX



UPDATE NODE VENDORS

● Discover ● Name ● Services ● .def File ● Information ● Reset

Source -> oui Version -> ☒ Not Quiet ☐ No DNS ☐ FQDN ☐ Install

Configuration -> Skip ☐ Protocol ☐ OUI ☐ Route

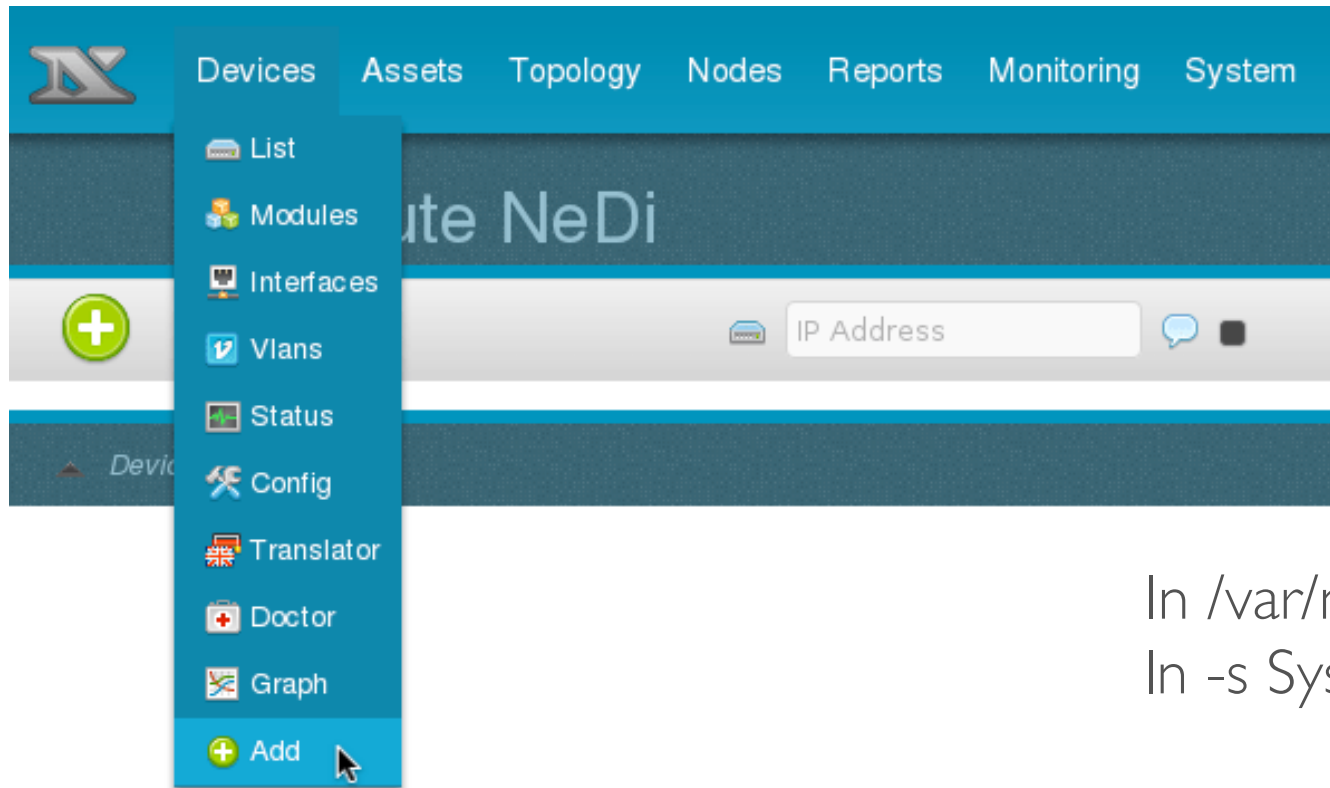
Ping -> Test -> CLI Send -> ☐ Read ☐ Write ☐ SSH

updatedb Execute

/var/nedi/nedi.pl -vdb -N oui

```
CLI :IO-Pty loaded
WEB :LWP-UserAgent loaded
OUI :32962 NIC vendor entries read
NOUI:Updated 000c290f9b8b OUI from VMware, Inc. to VMware
NOUI:Updated 000c29140ff7 OUI from VMware, Inc. to VMware
NOUI:Updated 000c2924bd27 OUI from VMware, Inc. to VMware
NOUI:Updated 000c292a6198 OUI from VMware, Inc. to VMware
NOUI:Updated 000c2932053f OUI from VMware, Inc. to VMware
NOUI:Updated 000c293fda55 OUI from VMware, Inc. to VMware
NOUI:Updated 000c2956e211 OUI from VMware, Inc. to VMware
NOUI:Updated 000c2965de04 OUI from VMware, Inc. to VMware
NOUI:Updated 000c2968913e OUI from VMware, Inc. to VMware
NOUI:Updated 000c296e7f6a OUI from VMware, Inc. to VMware
NOUI:Updated 000c2971bd23 OUI from VMware, Inc. to VMware
NOUI:Updated 000c297226f1 OUI from VMware, Inc. to VMware
NOUI:Updated 000c29765320 OUI from VMware, Inc. to VMware
NOUI:Updated 000c298d26e4 OUI from VMware, Inc. to VMware
NOUI:Updated 000c29a42bfb OUI from VMware, Inc. to VMware
NOUI:Updated 000c29a66980 OUI from VMware, Inc. to VMware
NOUI:Updated 000c29b80148 OUI from VMware, Inc. to VMware
NOUI:Updated 000c29bce99c OUI from VMware, Inc. to VMware
NOUI:Updated 000c29c24215 OUI from VMware, Inc. to VMware
NOUI:Updated 000c29c97e7f OUI from VMware, Inc. to VMware
NOUI:Updated 000c29d0026f OUI from VMware, Inc. to VMware
NOUI:Updated 000c29e33948 OUI from VMware, Inc. to VMware
NOUI:Updated 000c29fe62e4 OUI from VMware, Inc. to VMware
NOUI:Updated 000e587c35bc OUI from Sonos, Inc. to Sonos
NOUI:Updated 000e58cbefe2 OUI from Sonos, Inc. to Sonos
NOUI:Updated 001c42984689 OUI from Parallels, Inc. to Parallels
NOUI:Updated 00206ba2763c OUI from KONICA MINOLTA HOLDINGS, INC. to KONICA MINOLTA HOLDINGS
NOUI:Updated 00270dbc275a OUI from CISCO SYSTEMS, INC. to Cisco Systems
NOUI:Updated 00db70caf949 OUI from ? to Apple
NOUI:Updated 0452f3a3436d OUI from Apple, Inc. to Apple
NOUI:Updated 104f385bc798 OUI from Sony Computer Entertainment Inc. to Sony Corporation
```


CUSTOMIZATIONS



In /var/nedi/html:

In -s System-NeDi.php Devices-Add.php

Edit nedi.conf:

module Devices Add add mgr

MORE CUSTOMIZATIONS

 flash

SNMP Queries

11.6/26.7 MB Free

77.9/116.5 MB Free

15.8/26 MB Free

 flashdir

SNMP Queries

c3560-ipbase-mz.122-35.SE5/
c3560-ipbase-mz.122-35.SE5/c3560-ipbase
mz.122-35.SE5.bin
c3560-ipbase-mz.122-35.SE5/info
c3560-ipbasek9-mz.122-46.SE.bin
config.text

11.6/26.7 MB Free

c3560cx-universalk9-mz.152-3.1.66.E.bin
c3560cx-universalk9-mz.152-3.2.93.E.bin
config.text
crashinfo_ext/
vlan.dat

77.9/116.5 MB Free

cat4000-i9k91s-mz.122-18.EW5.bin
cat4500-ipbasek9-mz.150-2.SG8.bin
vlan.dat

15.8/26 MB Free

Devices Status

 2520G8-P -- Filter Port Status

 2520G8-P

 **SNMP Change**

 **Database Update**

Main Address 10.10.10.4  10.10.10.4

Services Bridge Router

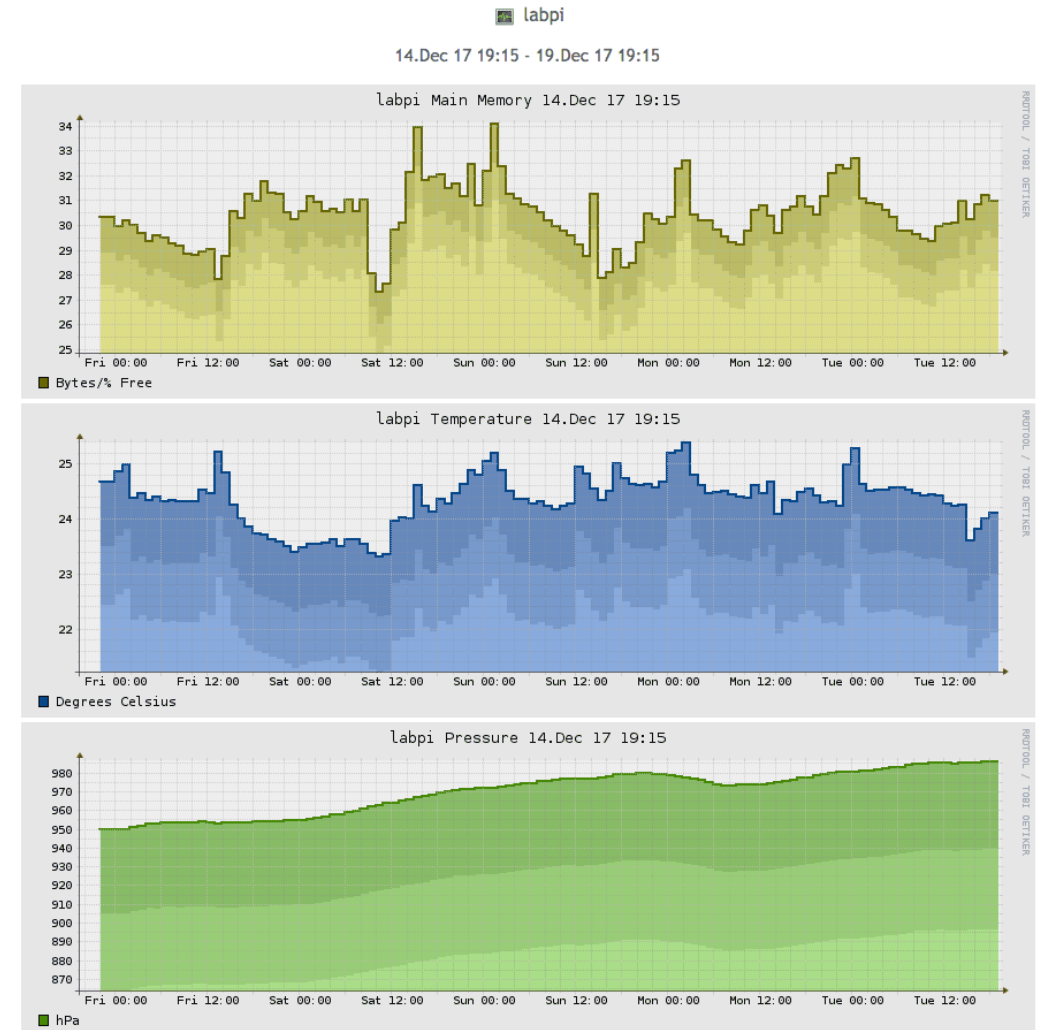
 **Address**

002561e0ea1f   1

002561e0ea1e  1

002561e0ea1d  1
2
53
1717

ENVIRONMENT MONITORING



CABLE MANAGEMENT

Cable Edit

Start

rk1515182433

5

RJ45

New

Cat 6a

Len

Description

End

Devices

Nodes

Panel

palo

Port

RJ45

Room Zoo U DC

R1

rk1515182433

rk1515182458

charon

rk1515626048

1800-8G

R2

rk1515854352

palo

End

rk1515182433

palo

Port	Building Cable	End	Information
1	rk1515508320 1 servie2	1	Cat 6a - 5m 30.Jan 18 12:09
2	rk1515508320 2 charon	igb0	Cat 5e - 3m FW 31.Jan 18 15:35

Port	Alias	Neighbor	Last	End
mgmt			-	
Et1/1			-	
Et1/2			-	rk1515182433 4
Et1/3			-	

CABLE MANAGEMENT

Kabel Editieren

 **Verbindung 1800-8G - 3560CX**



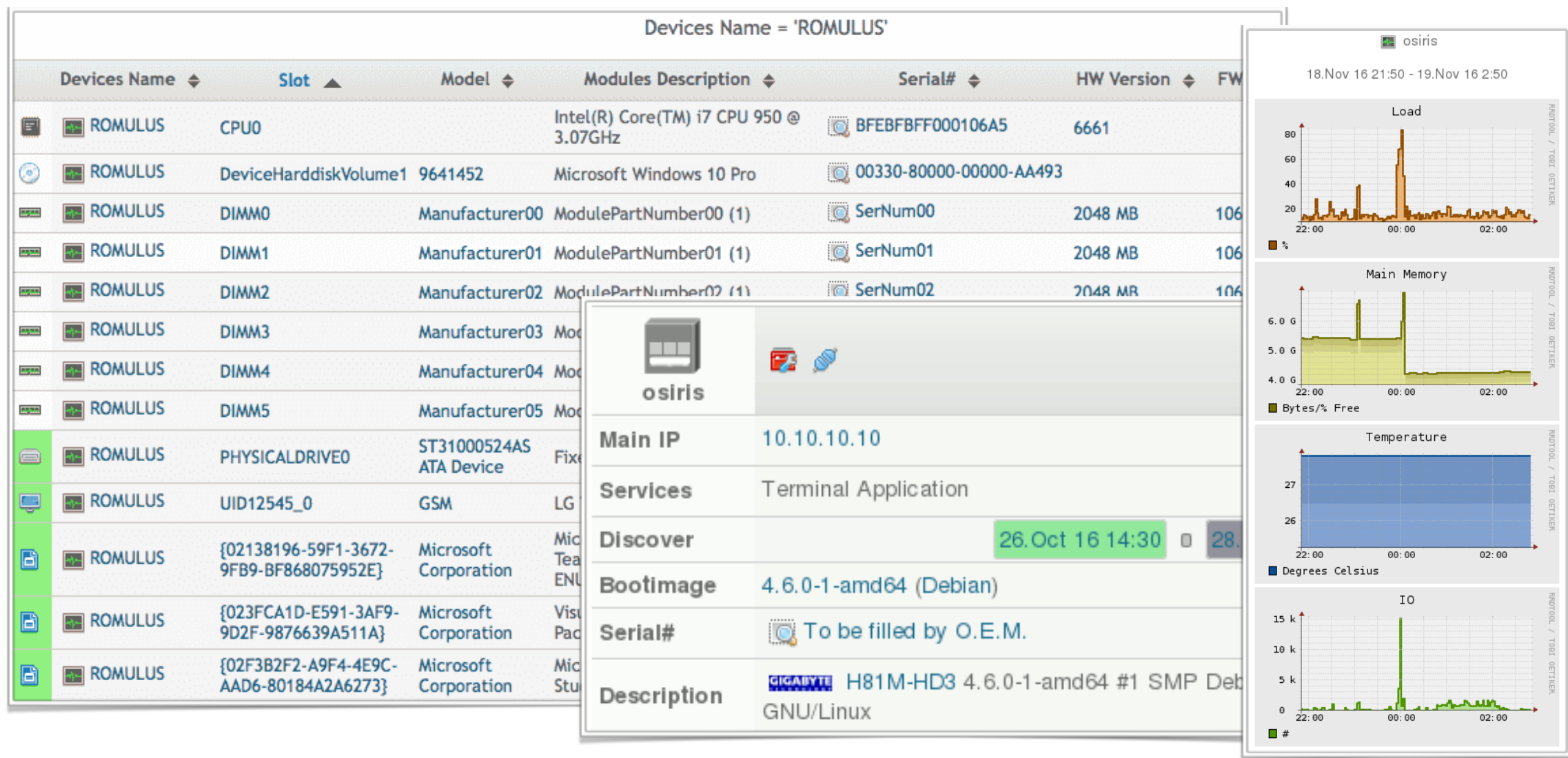
Panel Voll

 Panel	 Gebäude	 Kabel	 Gebraucht
rk1515241617	6	9	Kabel Fehler 102
pnl2	0	6	Kabel Fehler 101
rk1515501382	0	7	Kabel Fehler 101
pnl1	0	6	Kabel Fehler 101
rk1515182458	6	2	33 %

Änderung Zuletzt

 Start	 Ende	 Optionen
rk1515241617	 1 C3560G-24PoE	 Gi0/28  OM3 50µ 2000MHz - 5m Test
rk1515241617	 9 rk1515501382	 7  Cat 1 - 0m
rk1515241617	 8 rk1515501382	 6  Cat 1 - 0m
rk1515241617	 7 rk1515501382	 5  Cat 1 - 0m
rk1515241617	 6 rk1515501382	 4  Cat 1 - 0m

NODE DISCOVERY



- Network infrastructure discovery & lifecycle management
 - Topology discovery & visualisation
 - IP address and subnet verification
 - Monitoring & network policies
 - Traffic analysis
-
- Endnode discovery with WMI & SSH
 - Cable Management combined with optical monitoring

THANKS!