



Network Management & Monitoring

NfSen



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What is NfSen

- Is a graphical (Web Based) front end to NfDump
- NfDump tools collect and process netflow data on the command line
- NfSen allows you to:
 - Easily navigate through the netflow data.
 - Process the netflow data within the specified time span.
 - Create history as well as continuous profiles.
 - Set alerts, based on various conditions.
 - Write your own plugins to process netflow data on a regular interval.

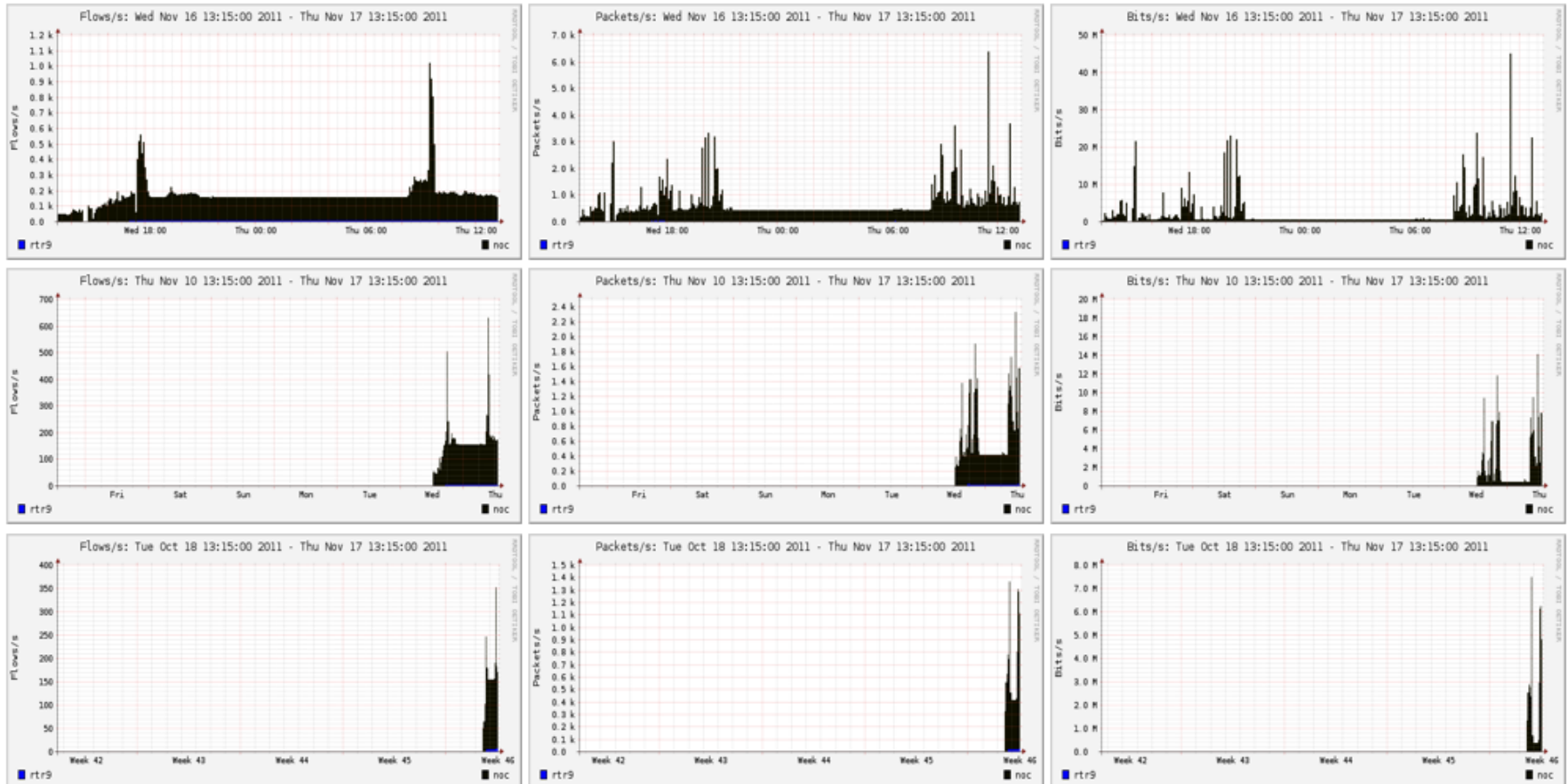
NfSen structure

- Configuration file - `nfsen.conf`
- NfDump files – Netflow files containing collected flows stored in ‘profiles-data’ directory
 - NB: It is possible for other programs to read NFdump files but don't store them for too long as they can fill up your drive
- Actual graphs – stored in ‘profiles-stat’ directory

NfSen Home Screen

Home Graphs Details Alerts Stats Plugins live [Bookmark URL](#) Profile: live ▼

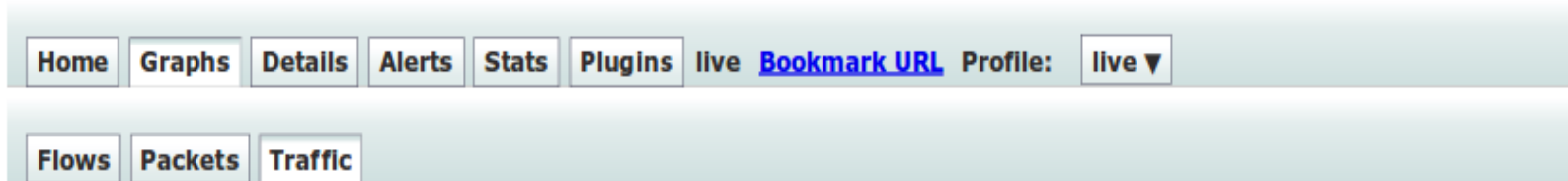
Overview Profile: live, Group: (nogroup)



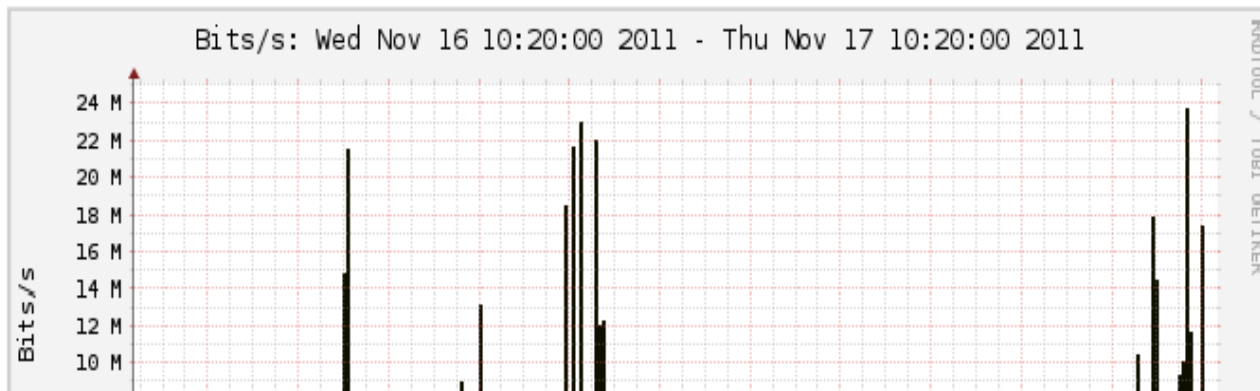
Graphs Tab

Graphs of flows, packets and traffic based on interface with netflow activated

NB: What is seen under Traffic should closely match what is under Cacti for the same interface



Profile: live, Group: (nogroup) - traffic



Details Page

- Most interesting page
- Can view present flow information or stored flow information
- Can view detailed Netflow information such as
 - AS Numbers (more useful if you have full routing table exported on your router)
 - Src hosts/ports, destination hosts and ports
 - Unidirectional or Bi-directional flows
 - Flows on specific interfaces
 - Protocols and TOS



Alerts and Stats

Alerts Page

- Can create alerts based on set thresholds eg, increase or decrease of traffic
- Emails can be sent once alarm is triggered

Stats page

- Can create graphs based on specific information
 - ASNs,
 - Host/Destination IPs/Ports
 - In/Out interfaces
 - Among others

Plugins

Several plugins available:

- **Porttracker** tracks the top 10 most active ports and displays a graph
- **Surfmap** displays country based traffic based on a Geo-Locator

More plugins available here

<http://sourceforge.net/apps/trac/nfsen-plugins/>

PortTracker

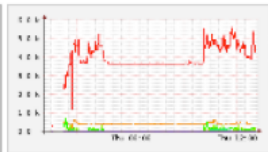
PortTracker

Port Tracker

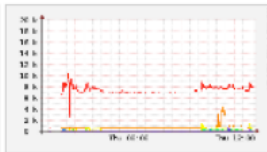
TCP Packets



TCP Flows



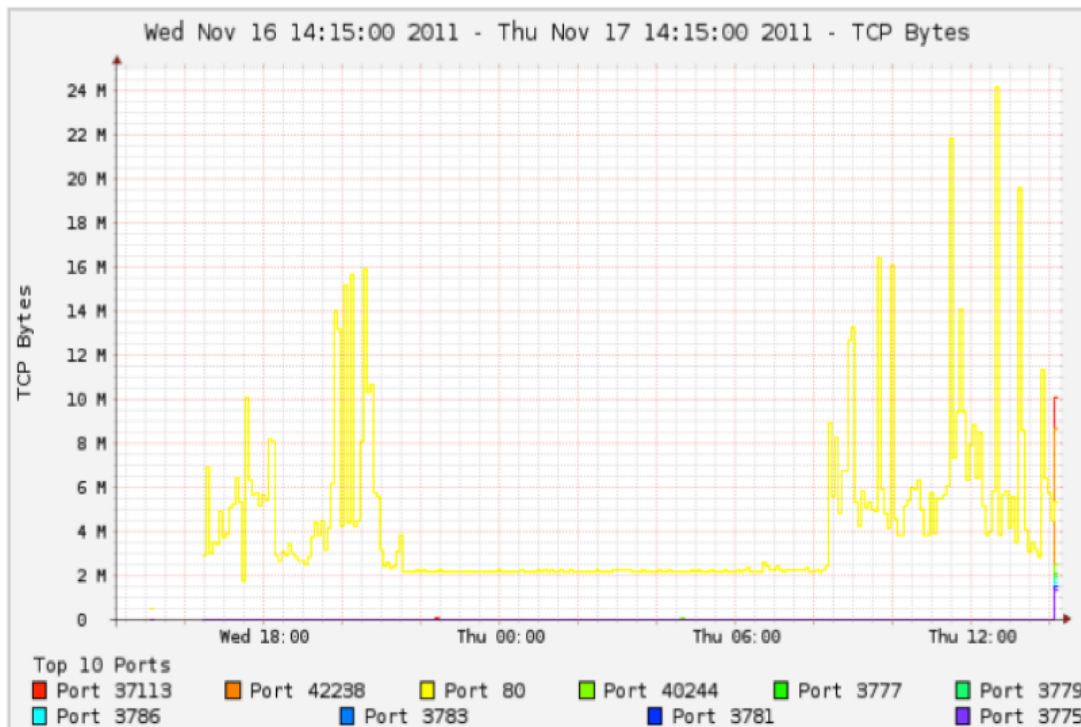
UDP Flows



UDP Packets



UDP Bytes



Show Top 10 Ports

☒ now ☐ 24 hours

Track Ports:

Add

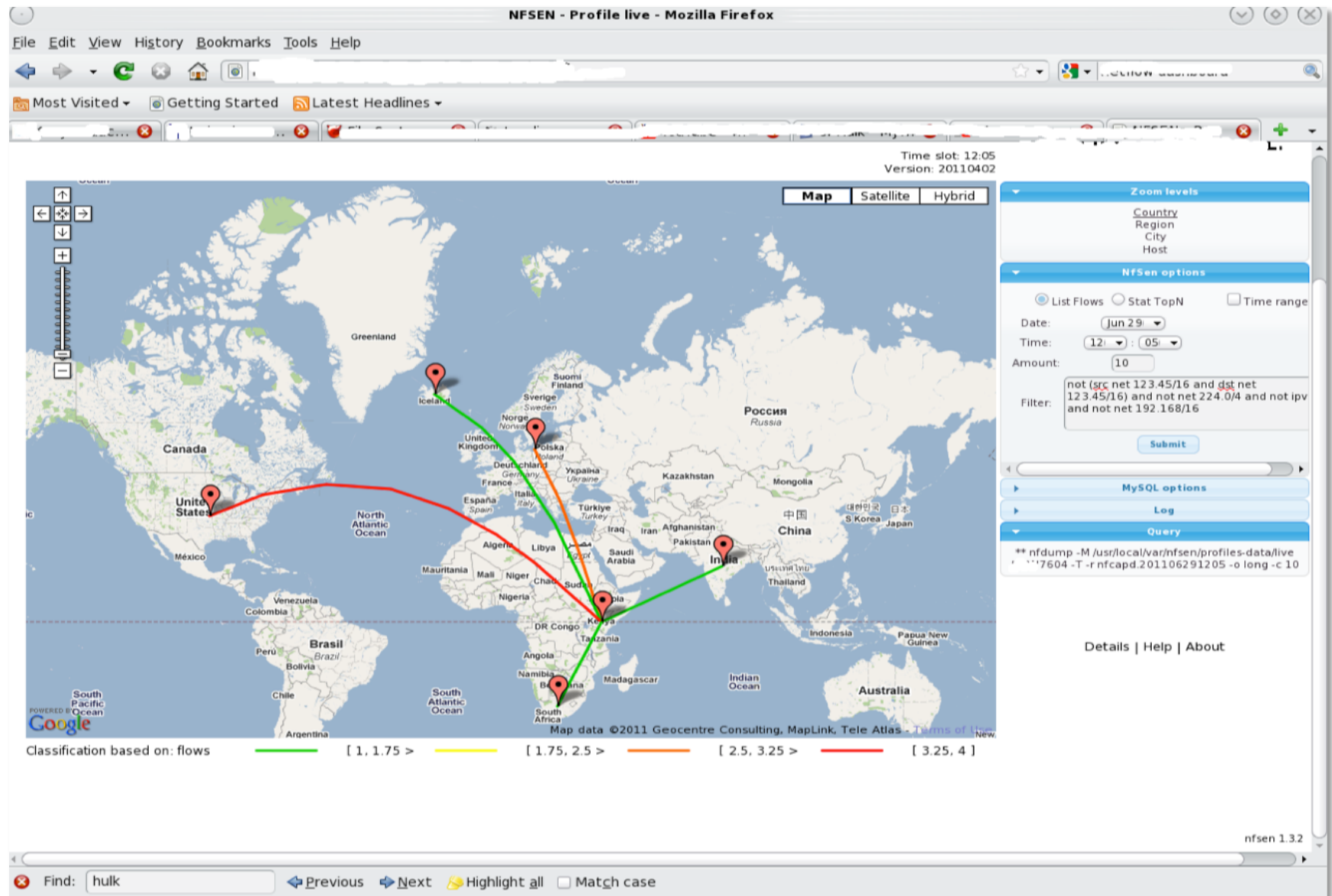
Delete

Skip Ports:

Add

Delete

SurfMap



When to use NfSen

- Can be used for:
 - Forensic work: which hosts were active at a specific time
 - Viewing src/dst AS traffic, src/dst port/IP traffic among many other options
 - Identifying most active IPs or Protocols
- It is a tool to complement Cacti so that you can have more detailed info regarding the traffic
- With this information, you can make an informed decision eg:
 - You have a high amount of SMTP traffic, some machines could be sending out spam
 - 80% of your traffic is to ASN X. Perhaps its wise to connect directly with that network and save costs

Bidirectional vs Unidirectional traffic as seen via NfSen

Unidirectional and Bidirectional

- Unidirectional shows flows from host A to B and then host B to host A
- Bidirectional shows flows between Host A and B combined
- Can be used with any of the other filters (src port, src host plus many more)
- List of filters can be found here:
 - <http://nfsen.sourceforge.net/#mozTocId652064>

Bidirectional

All None Display: ☐ Sum ☒ Rate

Netflow Processing

Source: noc
rtr9

Filter: host 71.200.202.189

and <none>

Options:

☐ List Flows ☒ Stat TopN

Top: 10

Stat: Flow Records order by bytes

☒ bi-directional

Aggregate

proto

srcPort srcIP

dstPort dstIP

Limit: Packets > 0

Output: auto / IPv6 long

Clear Form process

```
** nfdump -M /var/nfsen/profiles-data/live/noc -T -R 2011/11/17/nfcapd.201111170930:2011/11/17/nfcapd.201111170950 -n 10 -s record/bytes
nfdump filter:
host 71.200.202.189
Command line switch -s overwrites -a
Aggregated flows 1
Top 10 flows ordered by bytes:
Date flow start      Duration Proto      Src IP Addr:Port      Dst IP Addr:Port      Out Pkt   In Pkt   Out Byte   In Byte   Flows
2011-11-17 09:34:12.206 1037.378 UDP        10.10.0.51:51413 <-> 71.200.202.189:57912 20077    19436    21.3 M    16.7 M    27455

Summary: total flows: 27455, total bytes: 38.0 M, total packets: 39513, avg bps: 292911, avg pps: 38, avg bpp: 961
Time window: 2011-11-17 08:22:09 - 2011-11-17 09:54:59
Total flows processed: 1061360, Blocks skipped: 0, Bytes read: 55186738
```

Unidirectional

All None Display: ☐ Sum ☒ Rate

Netflow Processing

Source:

noc
rtr9

All Sources

Filter:

host 71.200.202.189

and <none>

Options:

☐ List Flows ☒ Stat TopN

Top: 10

Stat: Flow Records order by bytes

☐ bi-directional

Aggregate

☒ proto
☒ srcPort
☒ dstPort

srcIP

dstIP

Limit: ☐ Packets > 0

Output: auto ☐ / IPv6 long

Clear Form

process

```
** nfdump -M /var/nfsen/profiles-data/live/noc -T -R 2011/11/17/nfcapd.201111170930:2011/11/17/nfcapd.201111170950 -n 10 -s record/byte
```

```
nfdump filter:
```

```
host 71.200.202.189
```

```
Aggregated flows 2
```

```
Top 10 flows ordered by bytes:
```

Date flow start	Duration	Proto	Src IP Addr	Src Pt	Dst IP Addr	Dst Pt	Packets	Bytes	bps	Bpp	Flows
2011-11-17 09:34:12.380	1037.204	UDP	71.200.202.189	57912	10.10.0.51	51413	20077	21.3 M	164298	1060	14035
2011-11-17 09:34:12.206	1037.102	UDP	10.10.0.51	51413	71.200.202.189	57912	19436	16.7 M	128674	858	13420

```
Summary: total flows: 27455, total bytes: 38.0 M, total packets: 39513, avg bps: 292911, avg pps: 38, avg bpp: 961
```

```
Time window: 2011-11-17 08:22:09 - 2011-11-17 09:54:59
```

```
Total flows processed: 1061260, Flows skipped: 0, Bytes read: 55186700
```

References

NfSen

<http://nfsen.sourceforge.net>

NfDump

<http://nfdump.sourceforge.net/>

Exercises