

Campus Network Design Workshop

Introduction to 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.

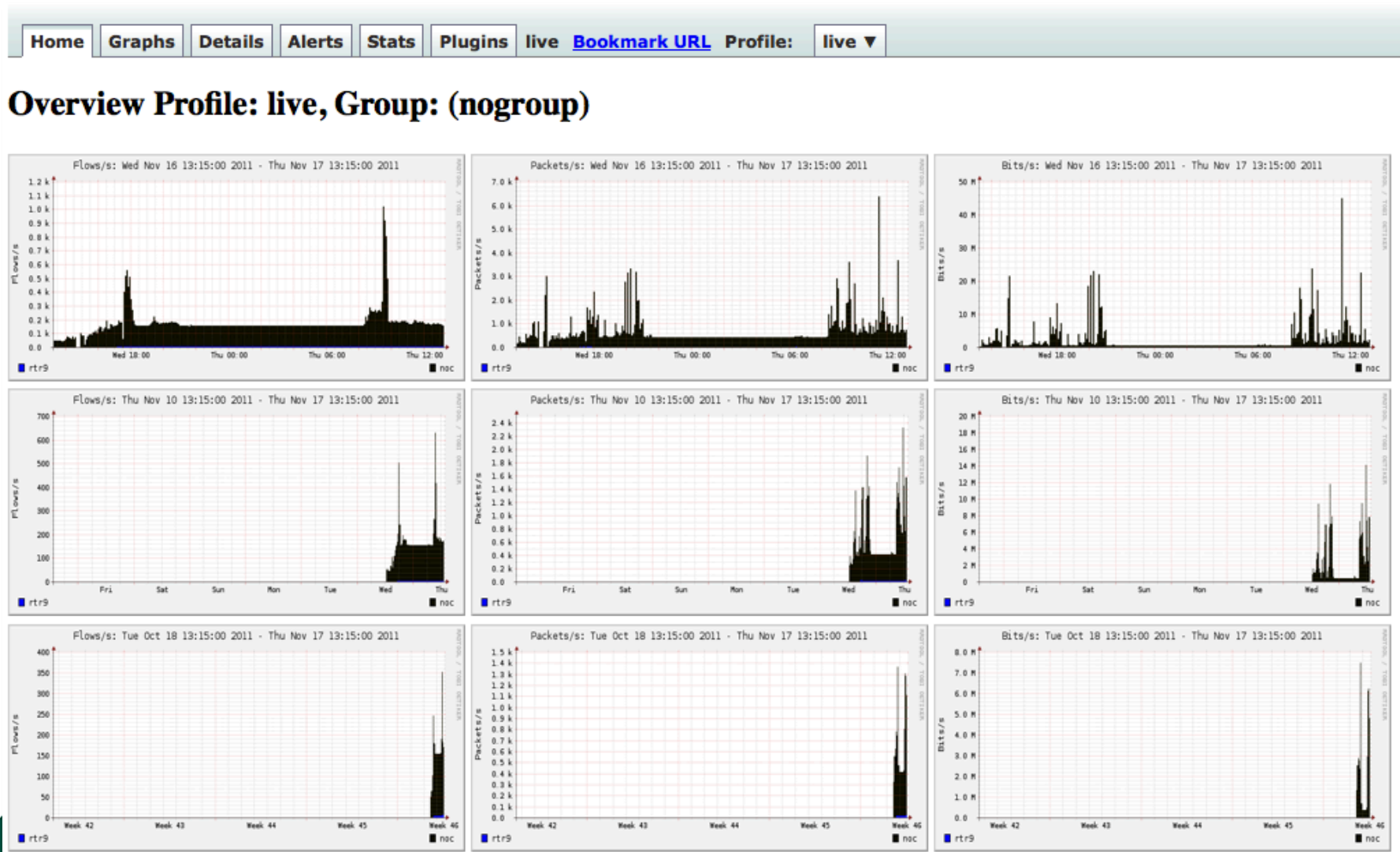


NfSen structure

- 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

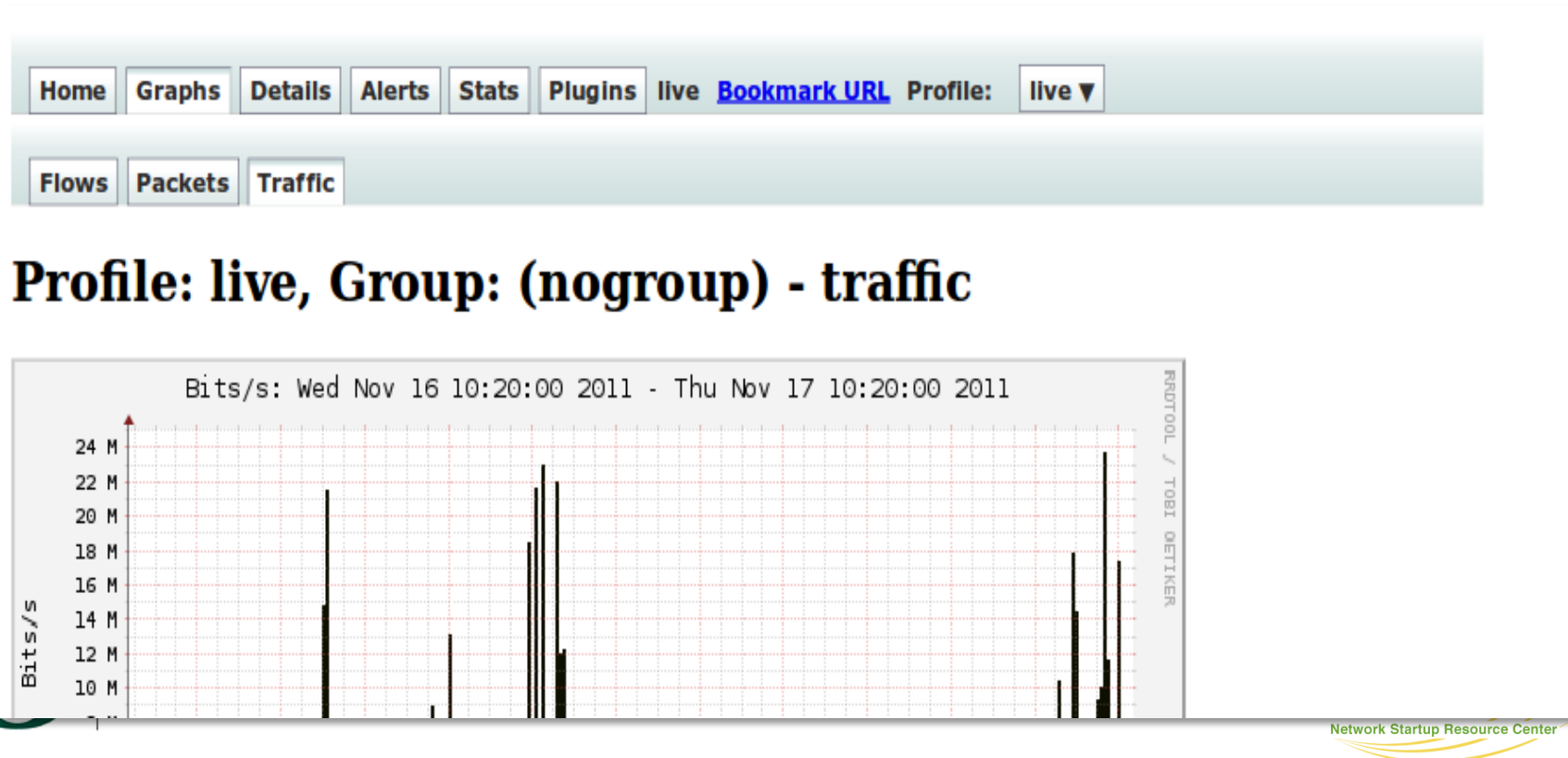


NfSen Home Screen



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



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/>



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PortTracker

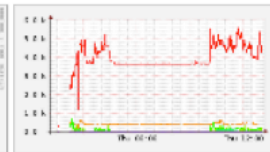
PortTracker

Port Tracker

TCP Packets



TCP Flows



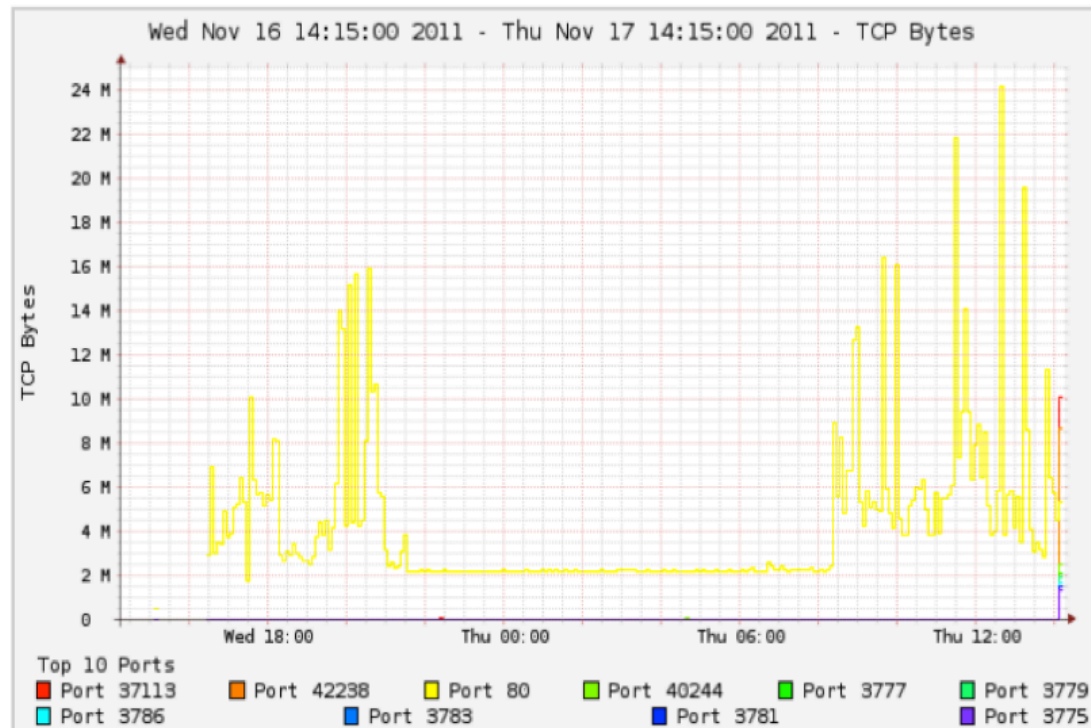
UDP Flows



UDP Packets



UDP Bytes



Show Top 10 Ports

☒ now ☐ 24 hours

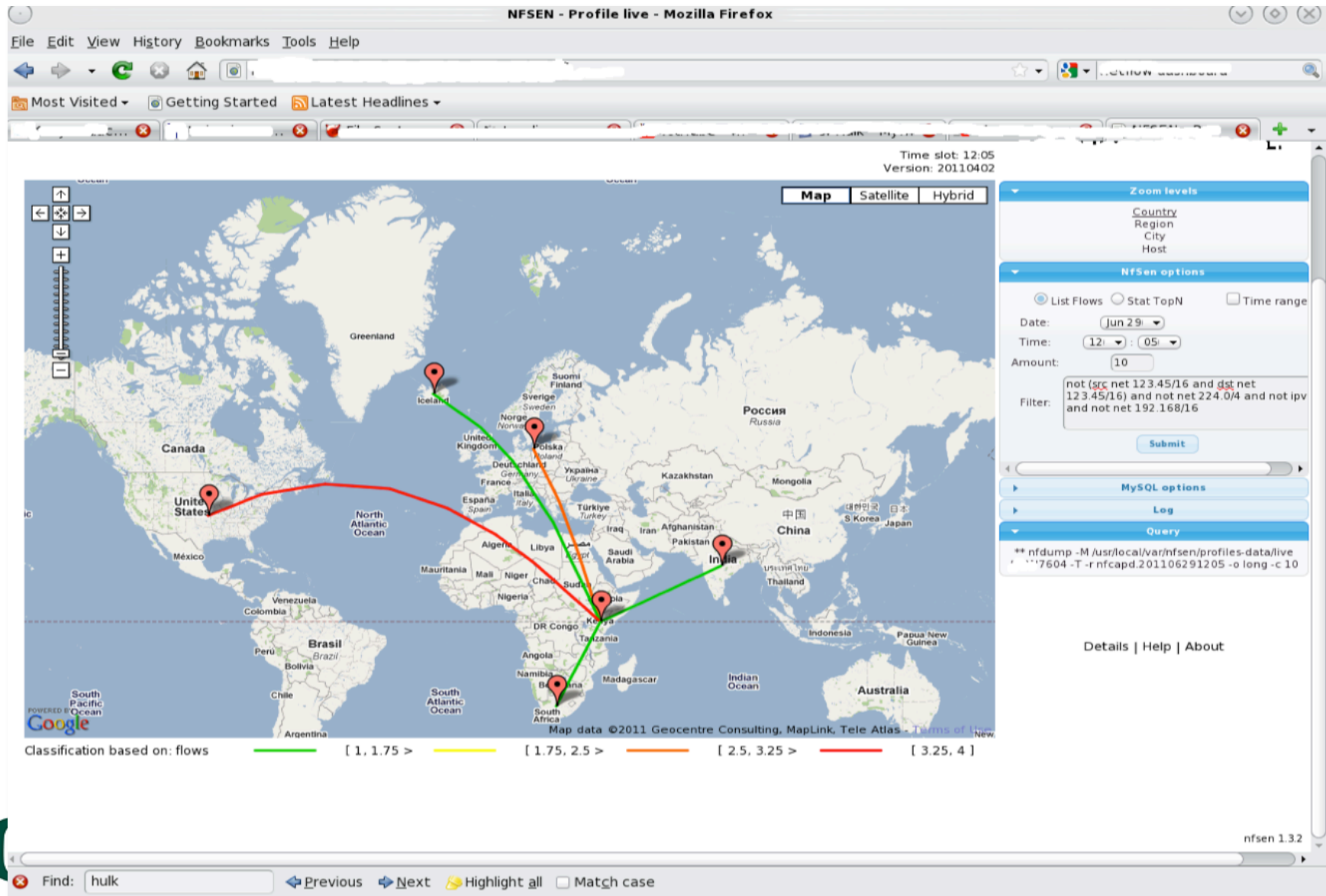
Track Ports:

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



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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

Options: ☐ List Flows ☒ Stat TopN

Top: 10

Stat: Flow Records order by bytes

☒ bi-directional

Aggregate

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: 1861260, Flows 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
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
```


References

- NfSen
 - <http://nfsen.sourceforge.net>
- NfDump
 - <http://nfdump.sourceforge.net/>

Questions?

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