# Network Management & Monitoring

## NfSen

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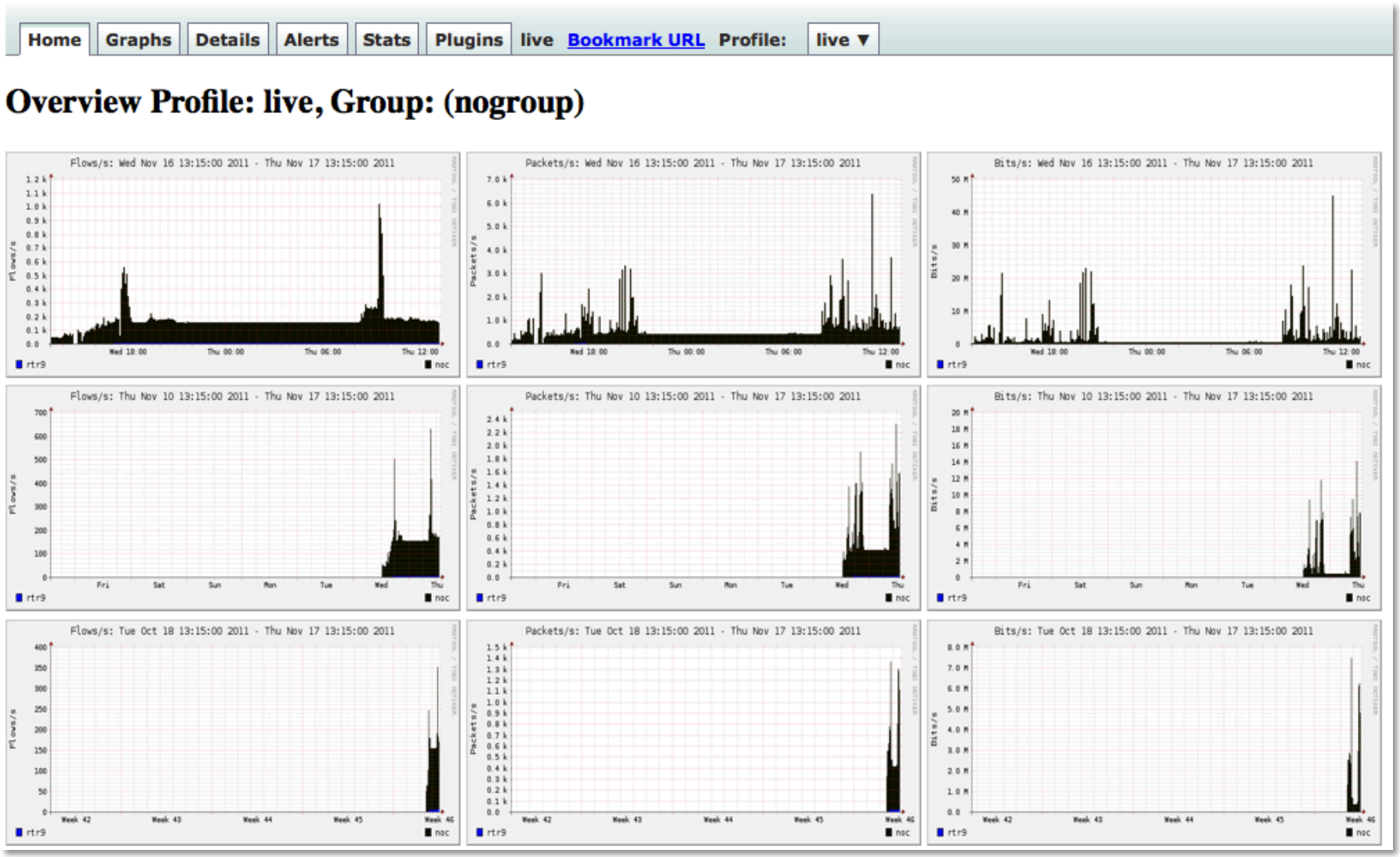
# What is NfSen

- 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

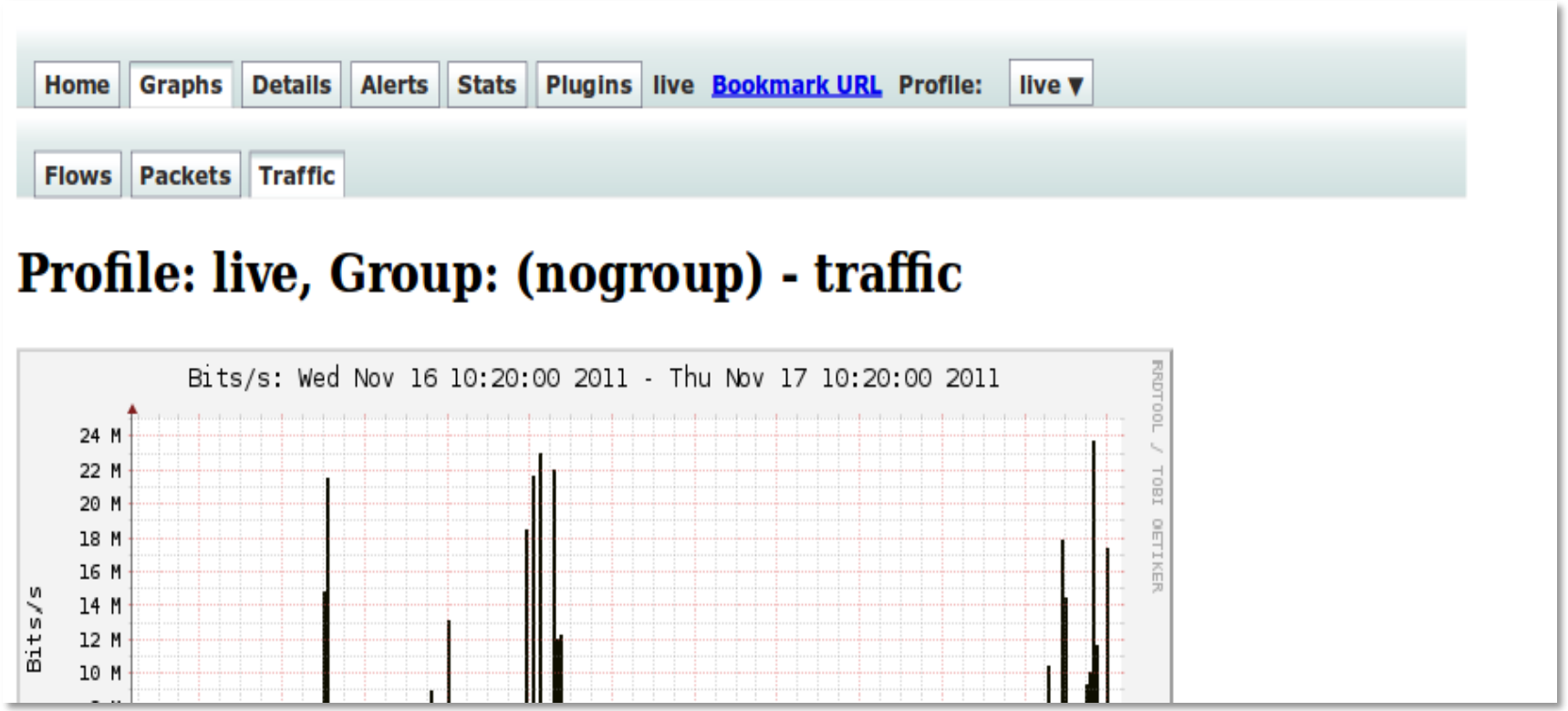
# NfSen Home Screen



# 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

Home
Graphs
Details
Alerts
Stats
Plugins
live
Bookmark URL
Profile:
live
Profile: live
TCP
UDP
ICMP
other
ProfileInfo:
Type: live
Max: unlimited
Exp: never
Start: Nov 16 2011 - 12:10 UTC
End: Nov 17 2011 - 10:25 UTC
Wed Nov 16 22:25:00 2011 Bits/s any protocol
Bits/s any protocol
Wed 12:00
Wed 18:00
Thu 00:00
Thu 06:00
rtr9
noc
$t_{start}$ 2011-11-16-22-25
$t_{end}$ 2011-11-16-22-25
Packets
Flows
Select
Single Timeslot
Display:
1 day
Lin Scale
Stacked Graph
Log Scale
Line Graph
Statistics timeslot Nov 16 2011 - 22:25
Channel:
Flows:
Packets:
Traffic:
all:
tcp:
udp:
icmp:
other:
noc
149.1 /s
29.3 /s
50.6 /s
69.2 /s
0 /s
393.2 /s
222.7 /s
52.2 /s
118.3 /s
0 /s
348.3 kb/s
226.4 kb/s
41.0 kb/s
80.9 kb/s
0 b/s
rtr9
5.1 /s
1.7 /s
3.0 /s
0.4 /s
0 /s
17.5 /s
8.6 /s
3.0 /s
6.0 /s
0 /s
13.7 kb/s
7.4 kb/s
2.2 kb/s
4.1 kb/s
0 b/s
All
None
Display:
Sum
Rate
Netflow Processing
Source:
Filter:
Options:
noc
rtr9
All Sources
List Flows
Stat TopN
Top:
10
Stat:
Any IP Address
order by
flows
Limit:
Packets
>
0
Output:
/ IPv6 long
and
<none>
Clear Form
process
Netflow traffic graphs organized by Protocol
Time period for flows being observed
Graph of Netflow traffic for all Protocols
Routers being monitored
Extended Netflow processing options

# 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

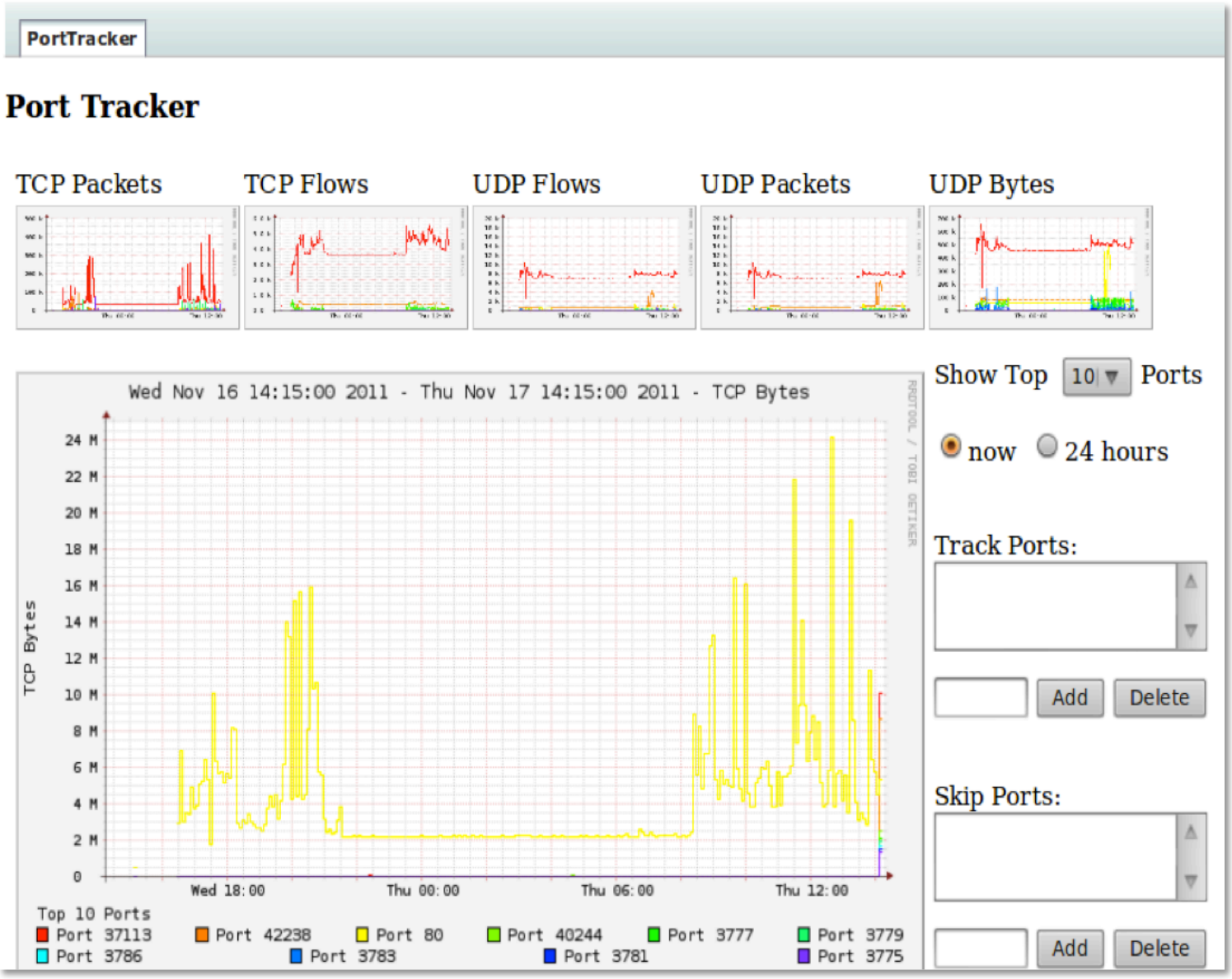
# Plugins

**Several plugins available:**

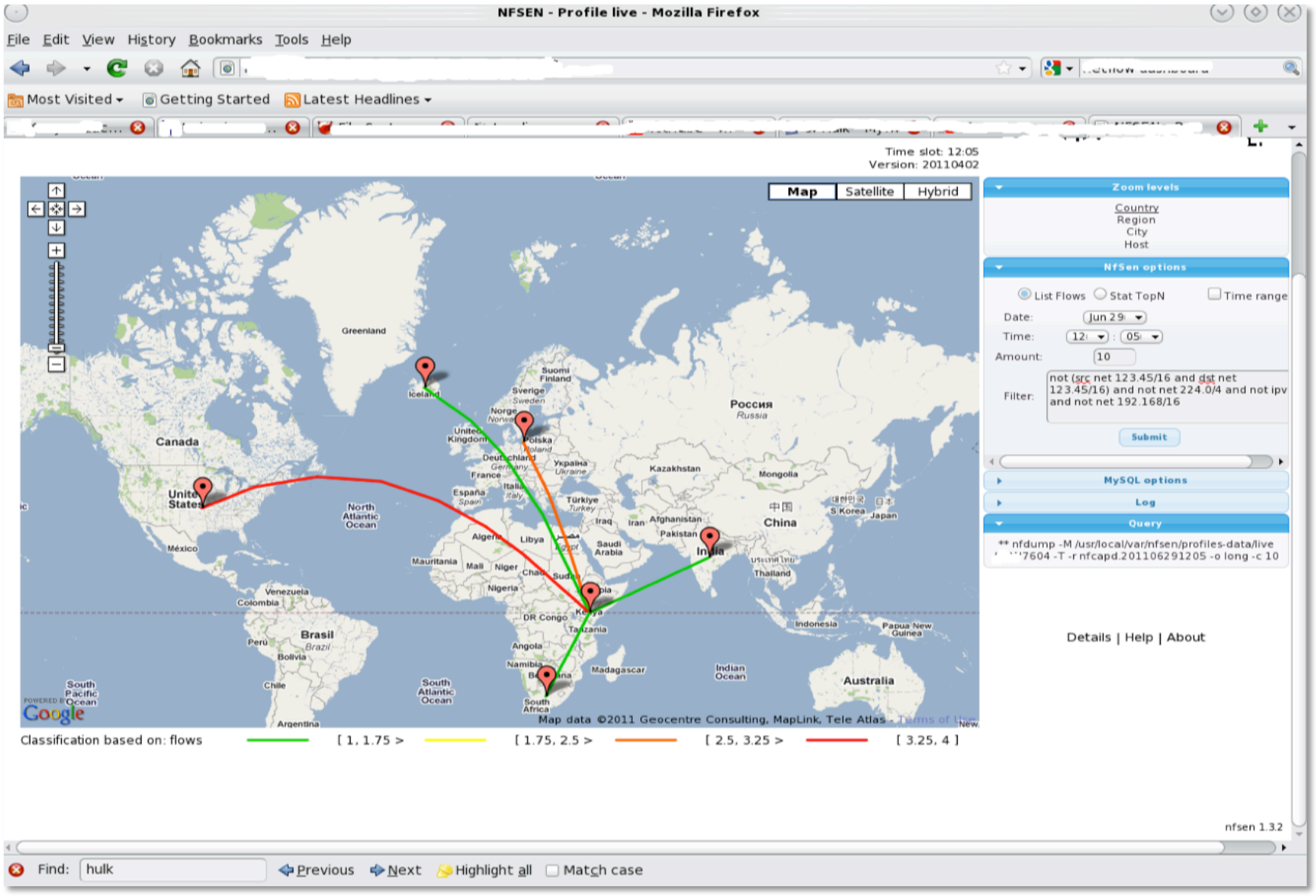
- **Portracker** tracks the top 10 most active ports and displays a graph
- **Surfmap** displays country based traffic based on a Geo-Locator

More plugins available here
http://sourceforge.net/apps/trac/nfsen-plugins/

# PortTracker



# SurfMap


NFSEN - Profile live - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Most Visited
Getting Started
Latest Headlines
Time slot: 12:05
Version: 20110402
Map
Satellite
Hybrid
Zoom levels
Country
Region
City
Host
NfSen options
List Flows
Stat TopN
Time range
Date:
Jun 29
Time:
Amount:
10
Filter:
not (src net 123.45/16 and dst net 123.45/16) and not net 224.0/4 and not ipv and not net 192.168/16
Submit
MySQL options
Log
Query
** nfdump -M /usr/local/var/nfsen/profiles-data/live
'''7604 -T -r nfcapd.201106291205 -o long -c 10
Details | Help | About
Map data ©2011 Geocentre Consulting, MapLink, Tele Atlas
Classification based on: flows
[ 1, 1.75 >
[ 1.75, 2.5 >
[ 2.5, 3.25 >
[ 3.25, 4 ]
nfsen 1.3.2
Find:
hulk
Previous
Next
Highlight all
Match case

# When to use NfSen

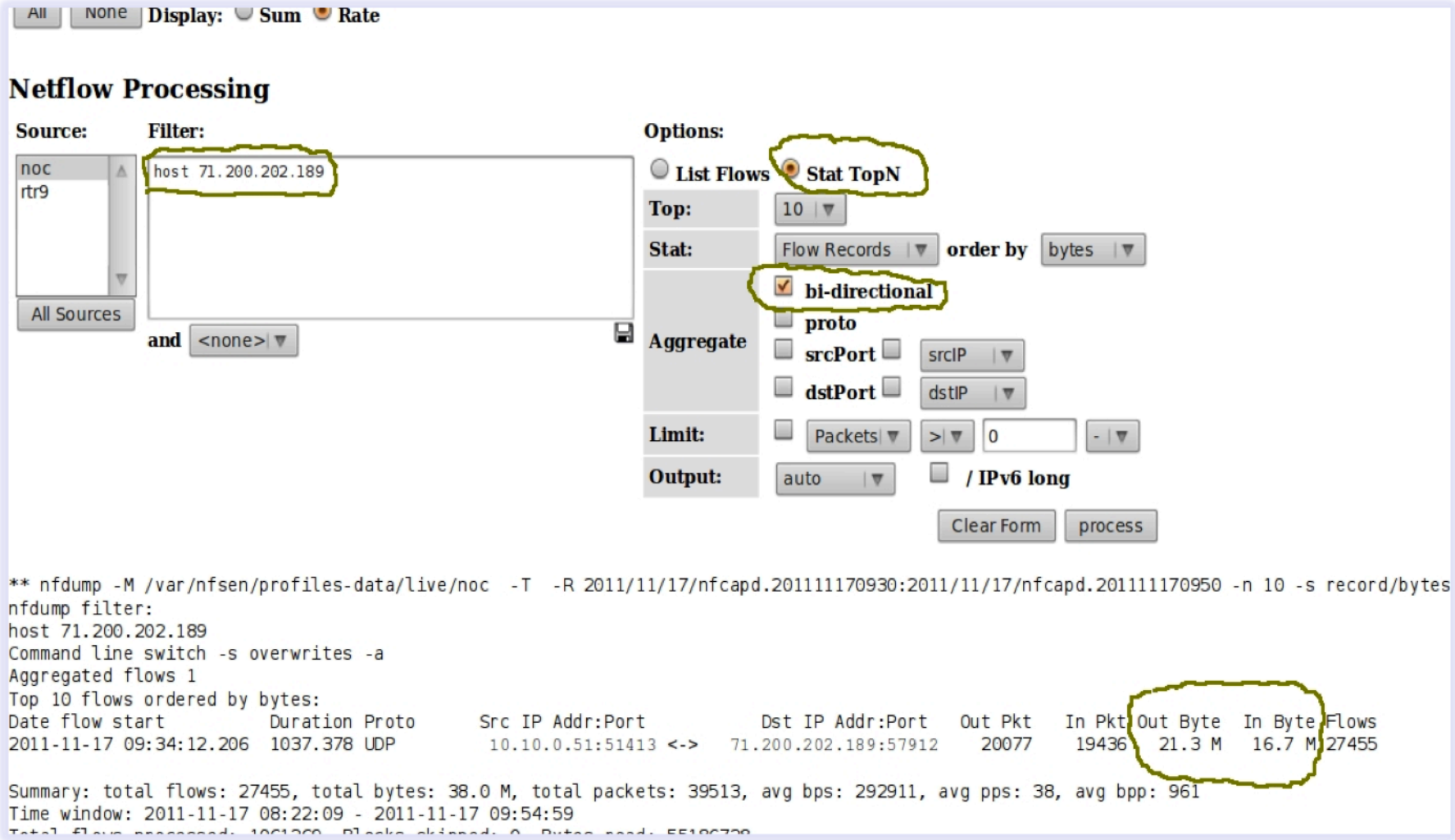
- Can be used for:
  - Forensic work: which hosts were active at a specific time
  - Viewing src/dst AS traffic, src/dst port/IP traffic among many other options
  - Identifying most active IPs or Protocols
- It is a tool to complement Cacti so that you can have more detailed info regarding the traffic
- 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

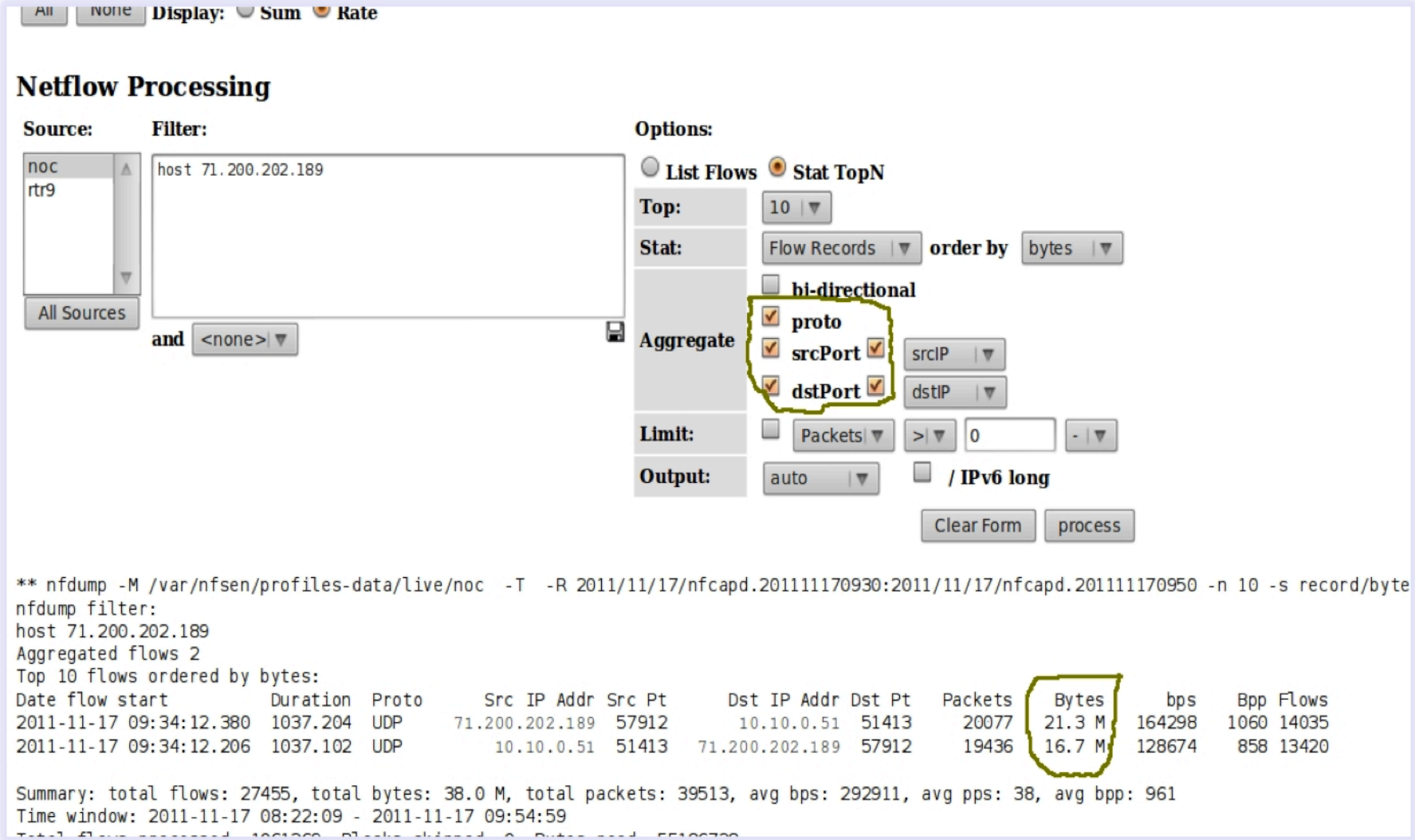
# Unidirectional and Bidirectional

- 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



# Unidirectional



# References

NfSen

http://nfsen.sourceforge.net

NfDump

http://nfdump.sourceforge.net/

# Exercises