Monitoring of Castor at RAL

Overview of current monitoring

- Nagios
- LSF monitoring – see Brian's talk later
- Statistical – TSBN / ganglia and cacti
- Diagnostic – checkreplicas
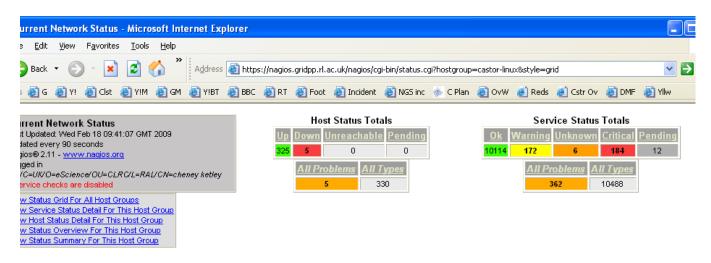- Of servers running castor

NAGIOS

Capabilities of Nagios

- Browser frontend
- API access – Mimic created by James Adams RAL
- Email alerting
- Structured around groups and services
- Scheduled downtimes for hosts / services / groups
- Acknowledgements of alerts
- Comments to alerts and scheduled downtimes
- Triggers to execute external scripts
- Dependencies between alerts
- User authentication
- Supports snmp, plugins to nrpe, nsca forwarding
- Supports pager and email alerts

Overnight callout

- Triggers
  - Detected errors will execute a script that bleeps a pager and sends a message
- Support person
  - refers to callout documentation on how to fix problems
  - Fixes castor from home
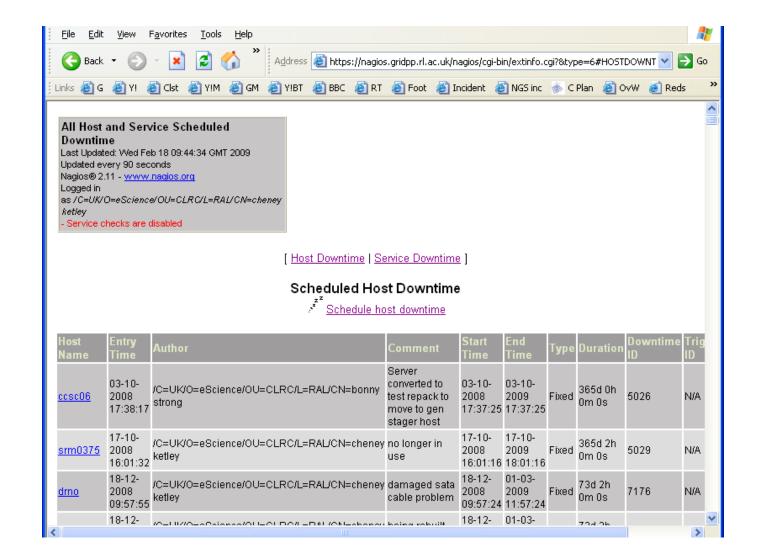 - logs actions in RT ticketing (helpdesk) system
- This works well !

Overview – grid format

Note the easy-to-see errors.
325 servers monitored in this view
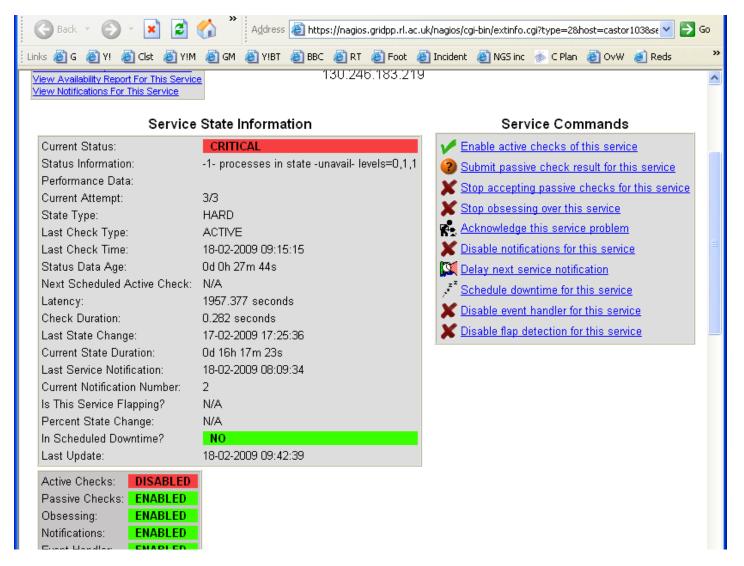
Scheduling of downtimes

So alerts are not sent during downtime.
Note comments.
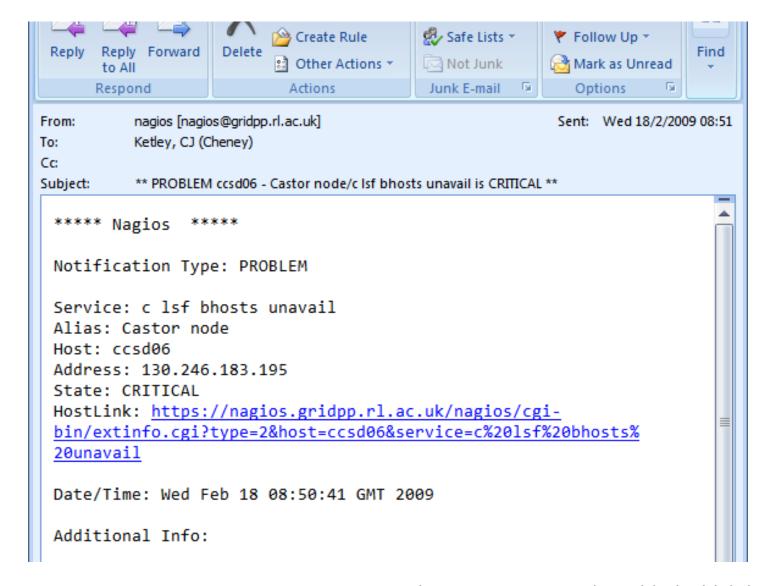Multiple servers put into downtime via hostgroup.

Red alerts only

Nagios can show only the errors if desired
Useful for easy monitoring

Dealing with an alert Note that acknowledgement is not the only way
Note a comment is also displayed but not shown here

Example of an email alert

Note that extra text can be added which is useful for explaining the problem.
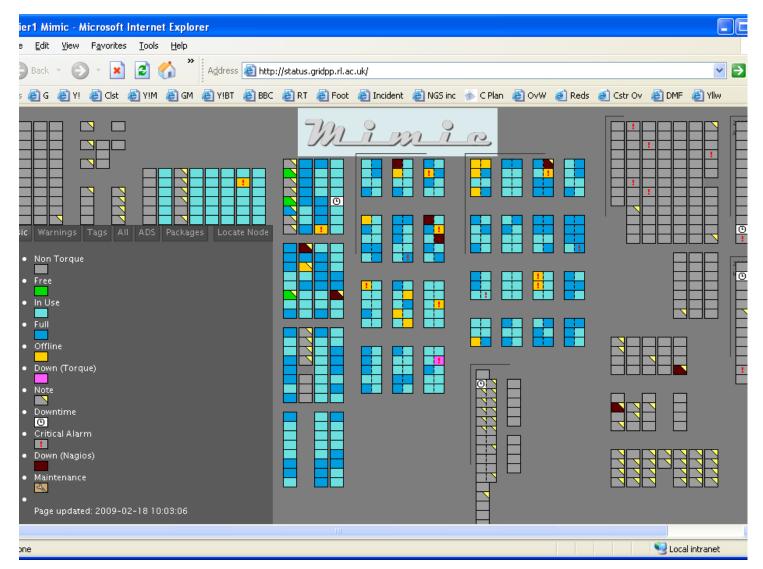
Methods of detecting problems

- NRPE
  - Custom plugins can be written
  - Standard plugins cover very many situations
- SNMP
- NSCA
  - Send a message from a user-written script with an alert code
  - Useful where nrpe cannot be installed

Mimic – created by RAL

Server room layout at a glance

Summary of Nagios experiences

- Overall – very positive
- Plus points
  - Supports overnight callout via pager alerts
  - A powerful tool
  - Scales well – into hundreds of servers so far
  - Supports many architectures / OS's – besides castor
- Negative points
  - Re-configuration to add server requires restart
  - Dependency checks not fully functional

OTHER MONITORING TOOLS

TSBN

- Extract from tape server logs with analysis by MS Excel pivot tables
- Perl extract written by Tim Bell (Cern)
- MS Excel analysis written by Cheney Ketley (RAL) cheney.ketley@stfc.ac.uk

TSBN – analysis by tape server Filters can be used to select particular data and ranges

Tape library stats

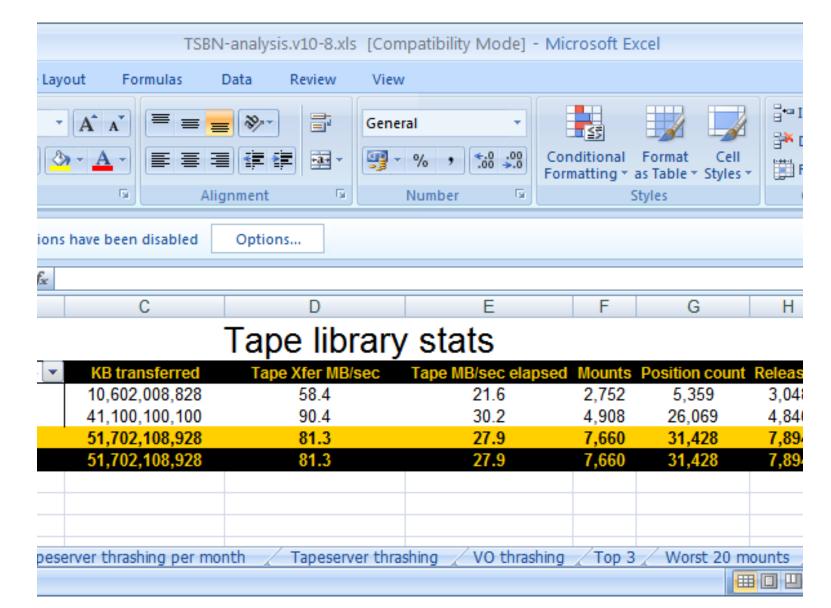| KB transferred	Tape Xfer MB/sec	Tape MB/sec elapsed	Mounts	Position count	Releas
10,602,008,828	58.4	21.6	2,752	5,359	3,04
41,100,100,100	90.4	30.2	4,908	26,069	4,84
51,702,108,928	81.3	27.9	7,660	31,428	7,89
51,702,108,928	81.3	27.9	7,660	31,428	7,89

peserver thrashing per month / Tapeserver thrashing / VO thrashing / Top 3 / Worst 20 mounts
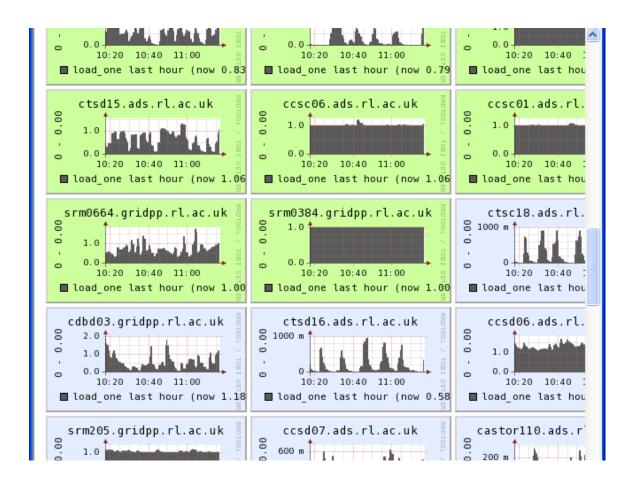
TSBN - overview

Note there are many tabs at page bottom for different views on data
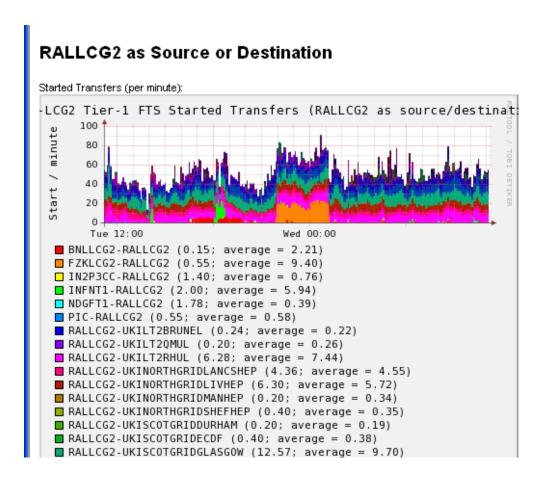
Provided by Excel pivot tables

Ganglia, Cacti, Gridview

- Ganglia monitors server performance, Cacti is for the network.
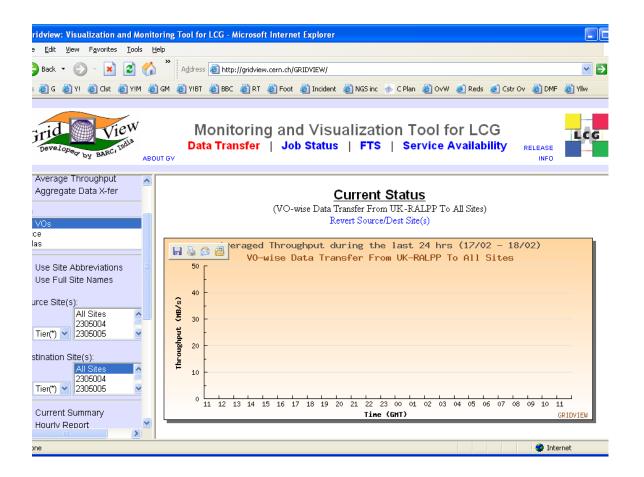- Ganglia also shows feeds into Castor e.g. FTS
- Gridview gives a broad view

Ganglia plots

This shows performance graphs by server or by service

RALLCG2 as Source or Destination

Started Transfers (per minute):

-LCG2 Tier-1 FTS Started Transfers (RALLCG2 as source/destinat

Start / minute — Tue 12:00 — Wed 00:00

■ BNLLCG2-RALLCG2 (0.15; average = 2.21)
■ FZKLCG2-RALLCG2 (0.55; average = 9.40)
■ IN2P3CC-RALLCG2 (1.40; average = 0.76)
■ INFNT1-RALLCG2 (2.00; average = 5.94)
■ NDGFT1-RALLCG2 (1.78; average = 0.39)
■ PIC-RALLCG2 (0.55; average = 0.58)
■ RALLCG2-UKILT2BRUNEL (0.24; average = 0.22)
■ RALLCG2-UKILT2QMUL (0.20; average = 0.26)
■ RALLCG2-UKILT2RHUL (6.28; average = 7.44)
■ RALLCG2-UKINORTHGRIDLANCSHEP (4.36; average = 4.55)
■ RALLCG2-UKINORTHGRIDLIVHEP (6.30; average = 5.72)
■ RALLCG2-UKINORTHGRIDMANHEP (0.20; average = 0.34)
■ RALLCG2-UKINORTHGRIDSHEFHEP (0.40; average = 0.35)
■ RALLCG2-UKISCOTGRIDDURHAM (0.20; average = 0.19)
■ RALLCG2-UKISCOTGRIDECDF (0.40; average = 0.38)
■ RALLCG2-UKISCOTGRIDGLASGOW (12.57; average = 9.70)

Another ganglia plot

Useful for analysis by feed e.g. FTS

Gridview

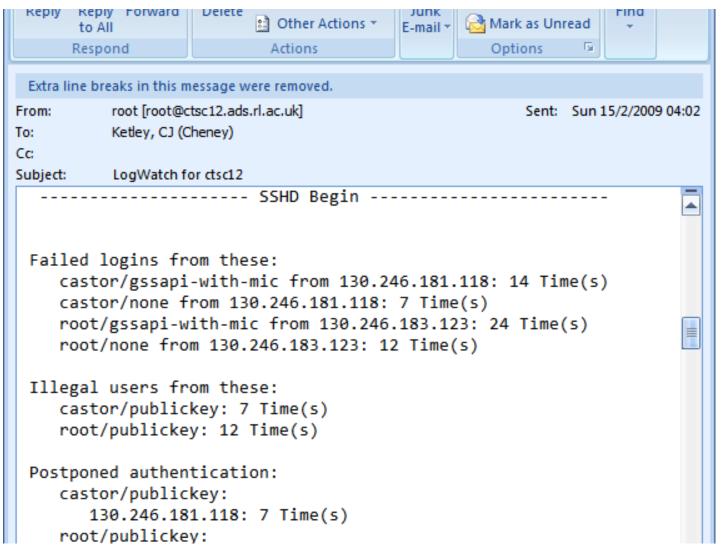This gives an overview of site performance

DIAGNOSTICS

Diagnostics

- Cern checkreplicas.pl (perl script)
  - https://cern.ch/castor/DIST/checkreplicas
- Webmin wrapper to checkreplicas with hyperlinks to drill down into data
  - Broken at the moment !
  - Contact is cheney.ketley@stfc.ac.uk
- Other ad hoc tools exist – sql scripts written by Bonny
  - Contact is chris.kruk@stfc.ac.uk

SERVER-SIDE

Operating system and environment

- Logwatch – covers diskspace, logins, email usage, cron usage, packages updated, and other messages not recognised by logwatch

- IPMI being rolled out (for server physical alerts and remote control)

- Nagios also monitors the operating system components

- Backups – email messages from Amanda

Logwatch message

Shows key information regarding operating system
But causes problems with email overload…

FUTURE

Future direction

- More Nagios plugins
- Performance metrics
- More diagnostic tools

Contacts

- Jonathan Wheeler is main Nagios administrator but not responsible for Castor
    - Jonathan.wheeler@stfc.ac.uk
- Cheney Ketley is secondary Nagios administrator and supports Castor
    - Cheney.ketley@stfc.ac.uk
- James Adams wrote Mimic
    - James.adams@stfc.ac.uk