UCLan SDO Data Hub

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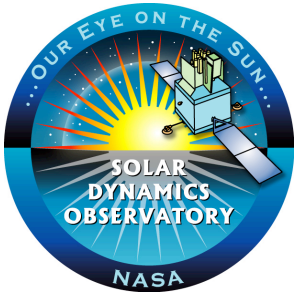
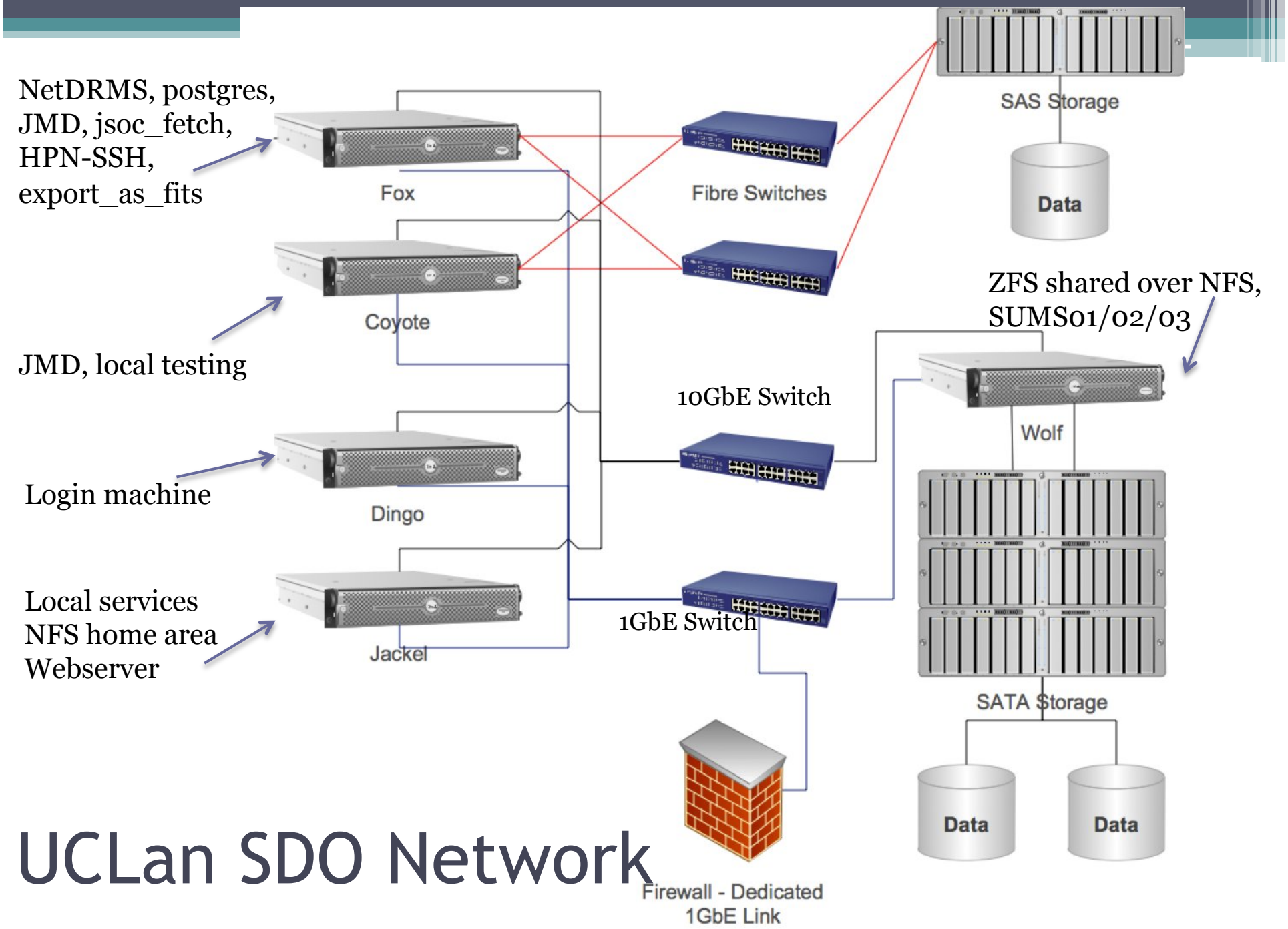


Summary of UCLan Resources

- 96TB of usable storage on Solaris ZFS for AIA/HMI data, approx 200 days capacity.
- 7TB of FC connected SAS storage using IBM's GPFS for the postgres database and general storage.
- 4 linux servers and 1 solaris servers.
- 10GbE local network.
- Dedicated 1GbE connection to JANET backbone.

UCLan SDO Network



Current Status

- Data store is currently 50% full, available capacity for another ~100 days.
- Version 1.4 of the JMD is running on two machines with the latest 1.4.8 patch. Retention time is currently set to 100 days.
- Transfers are now running smoothly since clearing out old SUNUMs.
- We have not yet upgraded to NetDRMS 2.4b.

Current Status cont…

- Thanks to David Boyes' CGI scripts, as local users can now download FITS data directly to their desktops from our facility. We are concerned about how this mechanism would cope with a heavy load, as there is no queuing system.
- Looking at setting up the VSO software on a virtual test machine, but not been able to start installing it yet.
- We have Ganglia monitoring the systems, but it would be nice to have this linked with the JMD to show the status of the queues.
- Undergoing development of UCLan's SDO website.

Subscribed Series

```
aia_test.lev1
aia_test.synoptic2
hmi_test.Lw_45s
hmi_test.M_45s
hmi_test.ic_45s
hmi_test.ld_45s
hmi_test.s2_720s
hmi_test.v_45s
```

Current problems/issues

- We've had an I/O write performance with the shared storage device used for the database, this was due to a bug in the RHEL's GFS filesystem, we upgraded to IBM's GPFS which has solved this issue.
- We've also notice a slight delay when communicating with the postgres server with the NetDRMS commands, which is probably due to the low specs of the server.
- When attempting to shutdown the SUM_SVC, it reports that there is an active user. In order to shutdown, I have to killing the SUM_RM and SUM_SVC processes and as a result the counter file gets out of sync, which needs a manual edit to restore. Is there a better way to do this?

Current problems/issues cont…

- As mentioned in the last teleconference, we have a lot of old SUNUMs in the JMD which ROB no longer had in their cache. These SUNUMs were effectively preventing new SUNUMs from being retrieved. All the SUNUMs less than 60,000,000 were cleared out from the JMD and it all started to flow very smoothly; we soon caught back up.

- A suggestion has been made to Igor to include an option in the JMD to allow the download of several SUNUMs in one TCP connection to increase the efficiency of the transfers of the smaller files, e.g. AIA synoptic data.

- Other JMD ideas: would be nice if the JMD could have an option to download selected series. We've had a problem fetching HMI data as ROB are not subscribed to all the HMI sub-series, therefore I setup JMD to fetch from ROB and SAO.

Future work / upgrades

- We are trying to secure University funds to enhance our facility/network. To provide network, server and service resilience, and additional server resources for services (JMD, VSO, helioviewer etc..).
- To effectively do this we would like to know what kind of equipment/technology is being used at the different sites and what works for them or wishes they had used.
- Setup the VSO on test VM server.
- Setup helioviewer. Need an idea of the resources required for this; disk space, server specs etc.

Activities

- We ran a small workshop on working with SDO data, which was part of a STFC funded Summer School.
- Early discussions with people in Glasgow about using SDO data for automated prominence detection.

European Data Centre Resilience

- To increase the resilience in the distribution of the data, we could try something on the lines of:

  ROB fetches from UCLan; NSO; SAO
  UCLan fetches from ROB; SAO
  IAS fetches from UCLan; ROB; NSO(?)

- This would help to distribute the data more efficiently, and would avoid prevent the sites down the chain from suffering.