

NSLS2 IT Infra & Deployment

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General Central Infra

- DNS / DHCP / TFTP
- LDAP for User Account Management
- Proxies (Reverse & Forward)
- Monitoring (Splunk & Cacti & Nagios)
- Central Provisioning & Configuration (Forman & Puppet): ~60 automation modules
- Virtual Machine Infra (7 virtual servers + 100 vms)
- Ticketing System (Trac)
- Asset Management (GLPI)
- SMTP Mail Relay (sendmail)
- Gateway Systems

Services

- Anaconda : Licensed Repo Management
- Gitlab & Mecerual : Version Control Management
- CMS : Joomla Content Management
- Jupyterhub : Online Data Analysis
- Ansible : Central Deployment / Configuration Tool
- Web Services : 30 websites including backend web servers.

Application Deployment

- CS-Studio
- Olog Framework
- MongoDB
- Conda framework for BlueSky - Data Acquisition Tools
- Standardized EPICs package deployment
- GPFs Client deployment (Soon)

Variations of Computing Nodes

(Total of ~550 as of 1/30/2018)

- Accelerator : 150+
- Beamlines : 250+
- Infra & Misc : 100
- 80% Servers + 20% Workstations
- Debian 7 & 8 & 9 (few Debian 6)
- Demand for Ubuntu Support
- *Windows 7/10*
- *Redhat detector systems*

Future Development

(Infrastructure)

- Add powerDNS layer to DNS to allow the integration with frontend DNS tools
- LDAP Complete redo, separate from DNS, resolve miscellaneous bugs
- Ticketing redo, replace with better tools / solutions
- Monitoring tools complete redo, existing ones are outdated and buggy, and possible integration with Puppet Framework to allow auto monitoring.
- Add Virtual Machine live migration to allow the controls of VMs with no downtime
- User account program development to allow greater management & flexibility. Integrate to ITD PASS system
- SUDO management transit from file based to LDAP based to remove the security hole
- SMTP mail redo & Possibly enable IMAP for various service integration
- Add Ubuntu Support
- SAMBA Support for GPFS file sharing

Future Deployment

(Service & EPICs)

- Accelerator EPICs from Central model to a Distributed model to avoid melt-down and add tolerance.
- Enable AWX (Ansible Tower) for Ansible Deployment, further integration with existing Provision & Configuration Framework
- Enable container technology
- Container integration to Gitlab CI/CD workflow to speed up DevOps process
- Jupyterhub revisit to isolate beamline individual for ACL control
- More and more....