

CI Systems PYIV Accomplishments and PYV Planned Activities

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OSU Data Center

- Provide a low-risk and cost-effective OOI Data Center.
- Introduce large increases in compute power, modernize storage solutions, and improve backup and disaster recovery.
- Provide a secure data store with multiple layers of redundancy to significantly reduce system downtime.
- Achieve a seamless transition from the OOI-CI operations at Rutgers University to OSU in Year 1.
- Focus on extensibility in Years 2 & 3 by considering • both bare-metal and/or cloud-like solutions based on OOI usages and needs.









OSU Data Center

- OOI system of record on July 30, 2021
- Isilon Storage: 3.81PB
- VxRail Compute: 360 Cores in 9 nodes;
 8.4TB RAM (being increased to 9.9TB RAM); 684TB Storage 194 Virtual Machines (Prod, UAT, Dev1, Dev2)
- DataExplorer / JupyterHub: 640 Cores;
 3.8TB RAM; 128TB Storage
- Prod. Cassandra Cluster: 896 Cores;
 5.4TB RAM; 360TB Storage
- 2 x Palo Alto Networks Next-Gen Firewalls
- 14 x Dell 100GbE PowerSwitches





The Weather

all in all

NSF

CI Systems PYIV Accomplishments

Cybersecurity

- Member of Trusted Cl's (TCI) first Framework cohort. \bullet
- Worked with TCI to adopt and implement the TCI Cybersecurity Framework.
- Participated in TCI study of Operational Technology \bullet security at NSF facilities.
- Submitted a Cybersecurity Strategic Plan to NSF.
- Implemented Duo MFA for CI VPN connections to Pal \bullet Alto firewalls.
- Applied CIS (Center for Internet Security) v8 IG1 Critical Security Controls.
- Implemented internal and external vulnerability scanning using Tenable.io



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The Trusted CI Framework

	About	The Trusted CI Framework is a minimum standard
	Framework Core	cybersecurity guidance focused narrowly on cybersecurity controls, the Trusted CI Framework
	Implementation Guidance	provides a more holistic and mission-focused standard for managing cybersecurity.
	Templates and Tools	The menu options on this page provide more information on the Framework Core and
	Share Your Feedback	implementation guidance, as well as access to templates and tools and options to provide the Framework Team feedback.
	Let us know you're using the Framework by entering your email below.	NOIR GAGE OOI OCEAN DESERVATOR
lo	SUBMIT DOWNLOAD THE FRAMEWORK IMPLEMENTATION GUIDE	NRAO







CI Systems PYIV Accomplishments

System Monitoring

- Zabbix, Grafana, and Nagios for overall data center monitoring.
- Quest Toad Edge and Foglight for DB management and monitoring.
- InsightIQ for Isilon performance \bullet monitoring and reporting.
- VMware vSphere for VxRail management and monitoring.
- Panorama for firewall management lacksquareand monitoring.







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Last Update: 04/29/2022, 10:55 am









CI Systems PYIV Accomplishments

Kubernetes JupyterHub POC

- Created a 3-node Kubernetes cluster running JupyterHub. lacksquare
- Implemented CILogon to provide an identity and access \bullet management platform for research collaborations.
- Variety of server sizes based on project requirements.
- Local, read-only access to raw data and NetCDF lacksquarefiles (Gold copy THREDDS server).

Data Protection

- Incremental, differential and full tape backups. \bullet
- Copied all OOI raw data (~250TB) -- except for HDCAM \bullet data (~500TB) -- to the NSF supported Texas Advanced Computing Center (TACC).











CI Systems PYV Planned Activities

Keeping to Enhance Cybersecurity

- Continue working with Trusted CI.
- Apply appropriate CIS (Center for Internet Security) v8 IG2 controls.
- Endpoint management solution (e.g. BigFix) to help us to efficiently patch, manage, and secure our system.
- Log monitoring and analysis.
- Develop Incident Response (IR), Disaster Recovery (DR) and Acceptable Use (AU) policies.

Releasing the JupyterHub beta

Completing NOAA-NCEI and TACC deep store data archiving

Upgrading Cassandra to version 4.x

Adding Virtualized Data Explorer development environment

Continuing System maintenance and support











Questions?

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