Proposal Development (
UC *Cyber*Infrastructure (

UC Information Technologies (
Research and Development (
Jane E Combs, Associate Director (

January 25, 2018

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cyberinfrastructure

Noun
(*plural* cyberinfrastructures)

1.(computing) The research environment that supports advanced dataacquisition, storage, management, integration, visualization etc. over the Internet

Read more at http://www.yourdictionary.com/cyberinfrastructure#7ByRzHmooT5MuIQw.99

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*Cyber*infrastructure Resources +

UC ScienceNet (UCSN)

A High-Speed Research Network

UC ScienceNet (UCSN) is a high-speed academic research network that enables high-speed (10Gps-40Gps) data transfers. High speed connections can be made in your office, classrooms, or labs as long as certain security conditions are met. High-speed networking is available for on-campus transfers as well as connections made to endpoints on Internet 2 sites. Transfers to sites on the public Internet are not guaranteed to maintain high(er) speeds.

HPC

High-Performance Computing

High-Performance Computing (HPC) is available in a number of locations throughout campus. Whether you wish to work on a department cluster, a UC centralized facility, or in the cloud, UCIT R&D can assist you with your needs. We can also help with obtaining new clusters, co-location, and new cloud-based initiatives.

Grant Services & Support

Information & Resources

UCIT R&D is uniquely equipped to help you with your grant proposals no matter what agency you are submitting them to. We can help with original writing, references, providing technical resource information, and submitting your proposals.

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NSF Grants Awarded to UCIT S

- $ Grant: #ACI-1541410 National Science Foundation **CC*DNI ENGINEER: University of Cincinnati (UC) Cyberinfrastructure Engineer and Educator** (CI2E), $399,986.00 Awarded Level: Federal. Active. Investigators: Beck, Richard; **Burton, Bruce (PI), Combs, Jane (Co-PI)**; Wang, Xia.

- $ Grant: #ACI-1440539 National Science Foundation CC*IIE Networking Infrastructure: **UCScienceNet (UCSN) - A High Bandwidth Science DMZ** to Enable STEM Discovery, Collaboration, and Education**,** $499,741.00 Awarded Level: Federal. Closed. Investigators: Beck, Richard; **Burton, Bruce (PI); Combs, Jane (Senior Personnel)**; Ghia, Urmila; Kang, Lei; Sokoloff, Michael.

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UCScienceNet (UCSN) ,

Document	Description	When to Use
UCScienceNet (UCSN) Guidelines	UC ScienceNet (UCSN) is a high-speed academic research network that enables high-speed (10Gbps-40Gbps) data transfers. High-speed connections are available in your office, classrooms, or labs as long as certain security conditions are met. High-speed networking is available for on-campus transfers as well as connections made to endpoints on Internet2 sites.	Researchers would seek this document to find current locations, connectivity options, inquire about cost, policy and security information, and other related questions.

https://www.uc.edu/ucit/services/research-development/ucsn.html /

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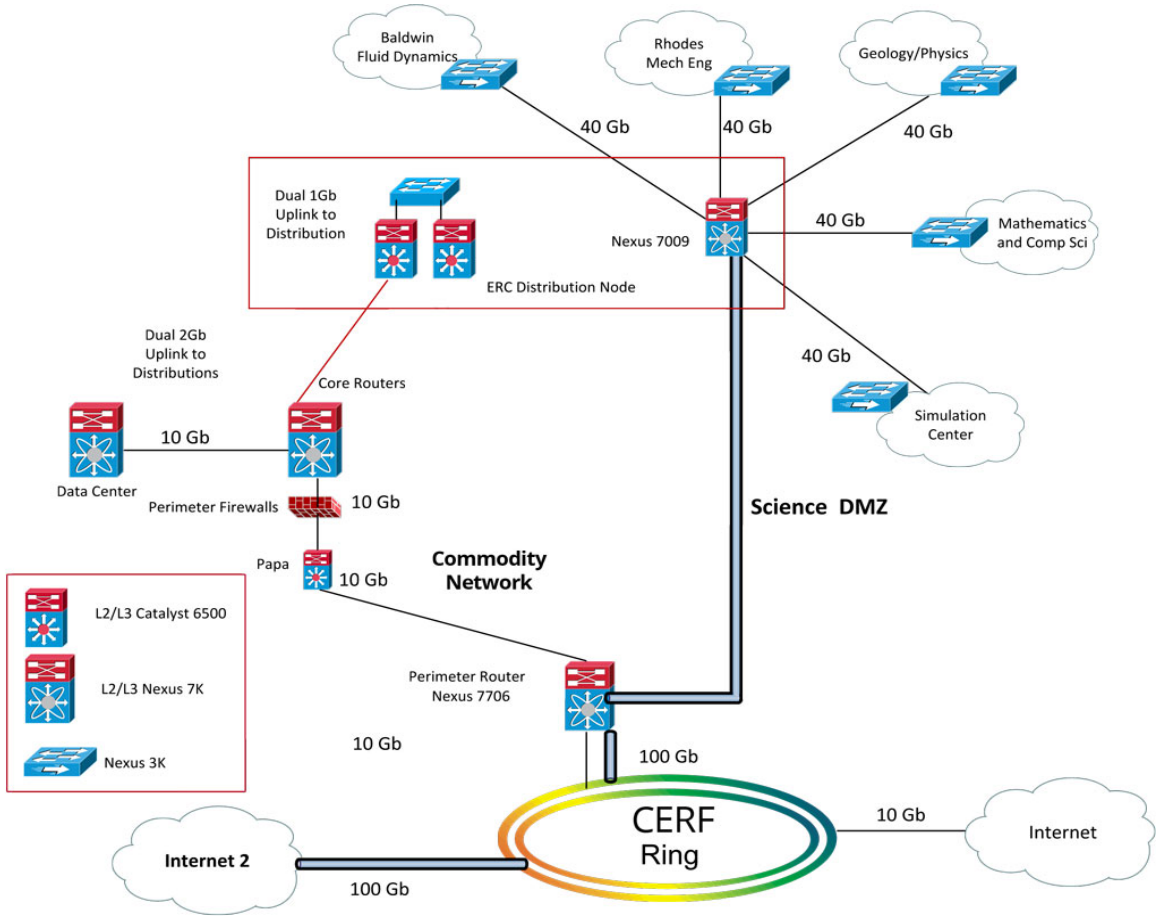
UCSN Friction-Free Science % DMZ Architecture %



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High Performance Computing (HPC) %
Resources %

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Ohio Supercomputer Center % (OSC) %

- Owens Cluster: A 23,392-core HP Intel Xeon E5-2680 v4 machine
  - 28 cores per node and 128 GB of memory per node
  - 16 nodes have 1.5 TB of memory and 48 cores, for large Symmetric Multiprocessing (SMP) style jobs
  - 160 nodes have NVIDIA Pascal P100 GPUs
  - Theoretical system peak performance 750 teraflops (CPU only)
- Ruby Cluster: A 4,800-core HP Intel Xeon machine
  - 20 cores per node and 64GB of memory per node
  - One node has 1 TB of memory and 32 cores, for large SMP style jobs
  - 20 nodes have NVIDIA Tesla K40 GPUs
- Oakley Cluster: An 8,300-plus core HP Intel Xeon machine
  - 12 cores per node and 48 GB of memory per node (8 nodes have 192 GB of memory)
  - One node has 1 TB of memory and 32 cores, for large SMP style jobs
  - 64 nodes have 2 NVIDIA Tesla M2070 GPUs
- GPU Computing: All OSC systems now support GPU Computing.
  - Oakley: 128 NVIDIA Tesla M2070 (two each on 64 nodes)
  - Ruby: 20 NVIDIA Tesla K40
  - Owens: 160 NVIDIA Pascal P100

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NSF XSEDE Resources $

- $ **XSEDE** is a single virtual system that scientists can use to interactively share computing resources, data and expertise. People around the world use these resources and services — things like supercomputers, collections of data and new tools — to improve our planet.

- $ These resources include **multi-core and many-core high-performance computing (HPC) systems, distributed high-throughput computing (HTC) environments, visualization and data analysis systems, large-memory systems, data storage, and cloud systems.**

- $ **Science Gateways**

  Gateways are independent projects, each with its own guidelines for access. Most gateways are available for use by anyone, although they usually target a particular research audience. XSEDE Science Gateways are portals to computational and data services and resources across a wide range of science domains for researchers, engineers, educators, and students. Depending on the needs of the communities, a gateway may provide any of the following features:

  - High-performance computation resources
  - Workflow tools
  - General or domain-specific analytic and visualization software
  - Collaborative interfaces
  - Job submission tools
  - Education modules

- $ https://www.xsede.org/web/site/ecosystem/science-gateways/gateways-listing

NSF Jetstream $
A National Science and Engineering Cloud $

Jetstream, led by the Indiana University Pervasive Technology Institute (PTI), adds ***cloud-based, on-demand computing and data analysis resources*** to the national cyberinfrastructure.

With a focus on ease of use and broad accessibility, Jetstream is ***designed for those who have not previously used high performance computing and software resources.***

Core capabilities

- Interactive virtual machines (VMs) – both a public library of preconfigured VMs and a private library with saved, personalized versions
- Secure data movement using Globus Transfer
- Virtual desktops for access from a tablet or laptop over a cellular network
- Reproducible data analysis using digital object identifiers (DOIs) stored and published via IU's digital archive

https://youtu.be/ktSiXeLMCX8)

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Documents for Proposals *
NSF Cyberinfrastructure Plan *

Document	Description	When to Use
Cyberinfrastructure (CI) Plan 2017–2022	To address the changing needs of the academic and research communities, this plan outlines a comprehensive *cyberinfrastructure* (the connected cyber resources of networks, storage, and computing and research communities) framework that has the potential to revolutionize science, engineering, and other research disciplines across the University of Cincinnati.	The CI Plan may be required for grant proposals. CI is necessary for the academic enterprise, and critical to UC achieving its goals and fulfilling its teaching, research, outreach, and economic development missions

https://www.uc.edu/content/dam/uc/ucit/docs/services/research-development/UCIT%20R&D%20Cyberinfrastructure%20Plan%20June2016.pdf

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Documents for Proposals *

Facilities and Resources *

Document	Description	When to Use
Facilities, Equipment * & Other Resources *	This document outlines existing facilities, equipment and other resources available at UC that serve as boilerplate language. For NSF, this section of the proposal is used to assess the adequacy of the organizational resources available to perform the effort proposed. Proposers should describe only those resources that are directly applicable. Proposers should include an aggregated description of the resources that the organization will provide to the project, should it be funded	This document is required for various federal grant proposal submissions. **NSF** see GPG Chapter II.C.2.i for further information **NIH** see Facilities & Other Resources

https://www.uc.edu/content/dam/uc/ucit/docs/services/research-development/UCIT%20R&D%20Facilities,%20Equipment%20&%20Other%20Resources%20June2016.pdf

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Data Management Planning

http://guides.libraries.uc.edu/c.php?g=222496&p=1472557

A **data management plan** is a formal document that outlines what you will do with your data during and after you complete your research. It describes the data that will be created, the standards used to describe the data (metadata), who owns the data, who can access the data, how long the data will be preserved (and/or made accessible), and what facilities and equipment will be necessary to disseminate, share, and/or preserve the data. Several funding agencies require or encourage the development of data management plans for research.
(Source: http://www.lib.ncsu.edu/guides/datamanagement/index.html)

http://dmptool.org/ $

Need help preparing a Data Management Plan for a grant submission? Need help organizing, documenting, and sharing your data? Contact **AskData@uc.edu**.

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Data Security $

Office of Information Security $

https://www.uc.edu/infosec.html $

- Policies
  - $ Policy 9.1.1: Data Governance & Classification Policy
  - $ Policy 9.1.3: Acceptable Use of Information Technology Policy
  - $ Policy 9.1.10: HIPAA Information Security Policy
  - $ Policy (draft): Infrastructure, Platform, and Software as a Service Policy
- Standards
  - $ Data Center Hardening Standard
  - $ Electronic Media Sanitization Standard
  - $ Third-Party Access to University IT Resources Standard
- Guidelines
  - $ Cloud Computing Guideline (CCG)
  - $ Checklist for Protecting Information Guideline
  - $ International Travel Data and Device Guideline

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Restricted Data & Box@UC)

Restricted Data&Box at UC

-) Use the "Restricted Data" folder in your Box at UC account to store and share sensitive data with collaborators inside and outside of the university.
-) Sensitive data (e.g. social security numbers, credit card numbers, and/or medical records information) are classified as “restricted” per the university’s Data Governance and Classification Policy.
-) We will automatically move files containing sensitive data to the "Restricted Data" folder in your Box at UC account.
-) **Please note:** Your "Restricted Data" folder does not sync to mobile devices. Use a web browser or Box App to access it with a mobile device. No export controlled data can be stored in Box at UC.

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Questions? -

Contact Jane Combs

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