From Roadblocks to Runways: How the University of Cincinnati overcame obstacles and leveraged the NSF-supported ScienceDMZ to develop Advanced Cyberinfrastructure resources

Presented by

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March 7, 2019
The University of Cincinnati

• Major, comprehensive, state-supported public research and teaching university with an enrollment of more than 44,000 students. Engineering, Humanities, Medicine, Criminal Justice
• UC is ranked at **75 among top public universities**.
• Institution with a rich history in discovery and innovation (first electronic organ, antihistamine, heart-lung machine and oral polio vaccine), UC is frequently ranked as one of America’s top public research universities with over $200M in research funding
• Founded Co-Operative education
• Largest employer in the Cincinnati region, with an economic impact of more than $3 billion.
• 9 – Fortune 500 companies headquartered in Cincinnati

Next Lives Here……
Overview

- About Us
- Roadblocks to CI/Runways to CI
- Leveraging NSF Funding and Resources
- Development of Cyberinfrastructure Department
- Developing a CI Community
- High Performance Computing Cluster (Pilot)
Brian Verkamp
Assistant Vice President for Enterprise Shared Services, IT@UC

• Assistant Dean for Innovative Technology, College of Education, Criminal Justice, Human Services (CECH)
• Director IT, CECH
Jane Combs, PMP
Associate Director, IT Research & Development, Innovation and Partnerships

• Cyberinfrastructure Facilitator and Concierge
• Senior Personnel, Co-PI and PI on NSF CC* grants (in that order)
• NSF Reviewer
• Volunteer, SC16-19 (SCinet team, Vendor Relations and Project Management)
Road Blocks to CI

• Lack of Central Funding and Services
  (Network, Compute, Storage, Support)

• Limited, distributed research IT Support and Talent

• Culture: ‘Nobody has asked for it so we must not need it’
Runways to CI

• Leverage NSF Funding and Resources

• Develop Cyberinfrastructure Department

• Create CI Community – Faculty, Students and Staff

• HPC Pilot: University-wide partnership, led by faculty champions
Leveraging NSF funding and Resources

$900K NSF + $1M Internal ➡ $1.9M +

2013: IT Research & Development dept - strategic focus to facilitate IT-enabled research and knowledge creation by connecting researchers to technical expertise, resources, training, and services

2014: Submitted - NSF CC*NIE (partnership UCIT/faculty)

2015: Award! NSF CC*IIE 1440539 ($499,741): High-bandwidth distributed Science DMZ UCScienceNet (UCSN)

2016: Internal Award! UCSN Expansion ($250,000) partnership UCIT/ Office of Research

2016: Submitted - NSF 16-567 CC* Campus Compute: Bridging the HPC Gap to Maximize Investments in UCSN, the OSC and XSEDE

2017: Award! NSF CC*DNI 1541410 ($399,986) – Cyberinfrastructure Engineer and Educator

2017-2018: Internal Award! Universal Providers Award ($35,000) – Data and Computational Science Series of Seminars/Symposia and Workshops

2018: Internal Award! Advanced Research Computing Center ($500,000)

Pilot funded. Projected 8-year investment $20M.

2019: Submitted NSF MRI 19-533 ($980K) – 30% Cost Share

‘There are 2 types of grants – Submitted and Awarded’ … Dr. Nelson Vincent
Leveraging NSF (and regional) Resources

- **HPC Resources**
  - Ohio Supercomputer Center (OSC) – workshops, research facilitators
  - Jetstream – NSF’s Cloud Computing Resource
  - Bridges - Bridges is a uniquely capable resource for empowering new research communities and bringing together HPC, AI and Big Data.

- **HPC Pilot**
  - Indiana University partnership – HPC Chief Systems Architect
  - XSEDE Capabilities and Resource Integration (XCRI) staff

- **Advanced Networking**
  - OARNet
  - NSF EPOC: Engagement and Performance Operations Center, dedicated to improving data transfers between collaborators, advancing discovery
Developing a Cyberinfrastructure Department

- Server administrators
- Storage administrators
- Network engineers
Developing a CI Community

- Multidisciplinary Grant Proposals
- Workshops, Seminars, Symposiums
- R-TAG – Research Technical Advisory Group
High Performance Computing Cluster (Pilot)

- Central and local IT, Regional/National Partners
- Division unity
- One central resource
- Scalable
- New Grants
What’s Next? Research Storage

Questions?