



NSF Campus Cyberinfrastructure PI and Cybersecurity Innovation for Cyberinfrastructure PI

Workshop

October 3-4 | Albuquerque, New Mexico

NSF Program (either CC or CICI): CC

Program Area: CC-DNI

Award Number: 1541442

PI: Byravamurthy Ramamurthy

co-PIs: Brian Bockelman, David Swanson

Project Title: CC*DNI Integration: Innovating Network Cyberinfrastructure through Openflow and Content Centric Networking in Nebraska



Byravamurthy Ramamurthy
Professor
Computer Science & Engineering
University of Nebraska-Lincoln
ramamurthy@unl.edu



Brian Bockelman
Research Assistant Professor
Computer Science & Engineering
University of Nebraska-Lincoln
bockelman@unl.edu



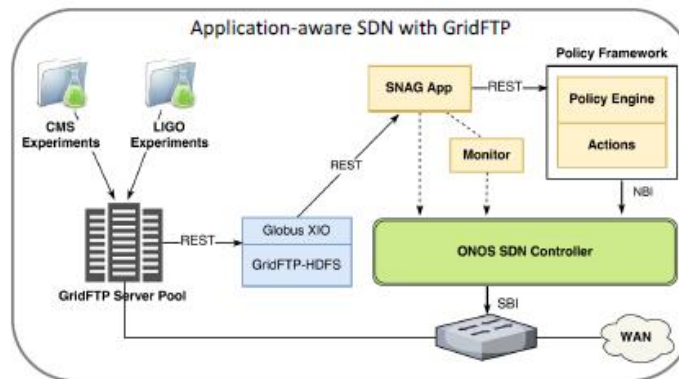
David Swanson
Research Professor
Computer Science & Engineering
University of Nebraska-Lincoln
david.swanson@unl.edu



Quad Chart for: CC*DNI Integration: Innovating Network Cyberinfrastructure through Openflow and Content Centric Networking in Nebraska

Challenges:

- Integration of research and campus networking
- Improve performance and manageability of GridFTP transfers
- Bridge CMS data caching model with NDN distribution architecture
- Openflow hardware support

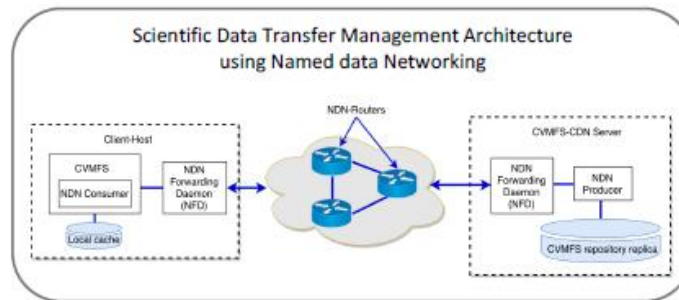


Scientific Impact:

- Application aware networking
- Policy driven resource management
- Improved flexibility enabling campus and research networks to coexist securely
- Improved data caching architecture for CMS and CernVM-FS projects

Solutions:

- Globus XIO plugin enabling SDN approach to GridFTP transfers
- Combining CernVM-FS filesystem with Named Data Networking
- Framework for large-scale data-intensive science using SDN and NFV



Metadata tag:

- *Conference paper published: **SNAG: SDN-managed Network Architecture for GridFTP Transfers***
- *Need continual collaboration with campus network team to benefit researchers end-to-end*