



# NSF Campus Cyberinfrastructure and Cybersecurity Innovation for Cyberinfrastructure PI Workshop

October 3-4, 2017 Albuquerque, New Mexico

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**Project Title: SANDIE: SDN-Assisted NDN  
for Data Intensive Experiments**



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## CC\* Integration: *SANDIE: SDN Assisted NDN for Data Intensive Experiments*

### CHALLENGES

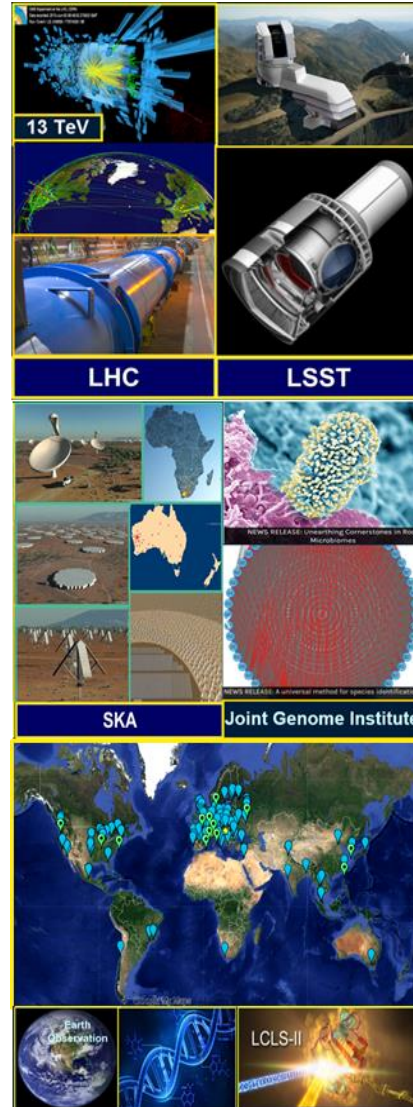
- LHC program in HEP is world's largest data intensive application: handling One Exabyte by ~2018 at hundreds of sites
- Global data distribution, processing, access, analysis; large but limited computing, storage, network resources

### APPROACH

- Use Named Data Networking (NDN) to redesign LHC HEP network; optimize workflow

### SOLUTIONS + Deliverables

- Deploy NDN edge caches with SSDs & 40G/100G network interfaces at 7 sites; combine with larger core caches
- *Simultaneously optimize caching ("hot" datasets), forwarding, and congestion control* in both the network core and site edges
- Development of naming scheme and attributes for *fast access and efficient communication in HEP and other fields*



### SCIENTIFIC and BROADER IMPACT

- Lay groundwork for an NDN-based data distribution and access system for data-intensive science fields
- Benefit user community through lowered costs, faster data access and standardized naming structures
- Engage next generation of scientists in emerging concepts of future Internet architectures for data intensive applications
- Advance, extend and test the NDN paradigm to encompass the most data intensive research applications of global extent

### TEAM

- Northeastern
- Caltech
- Colorado State
- In partnership with other LHC sites and the NDN project team