

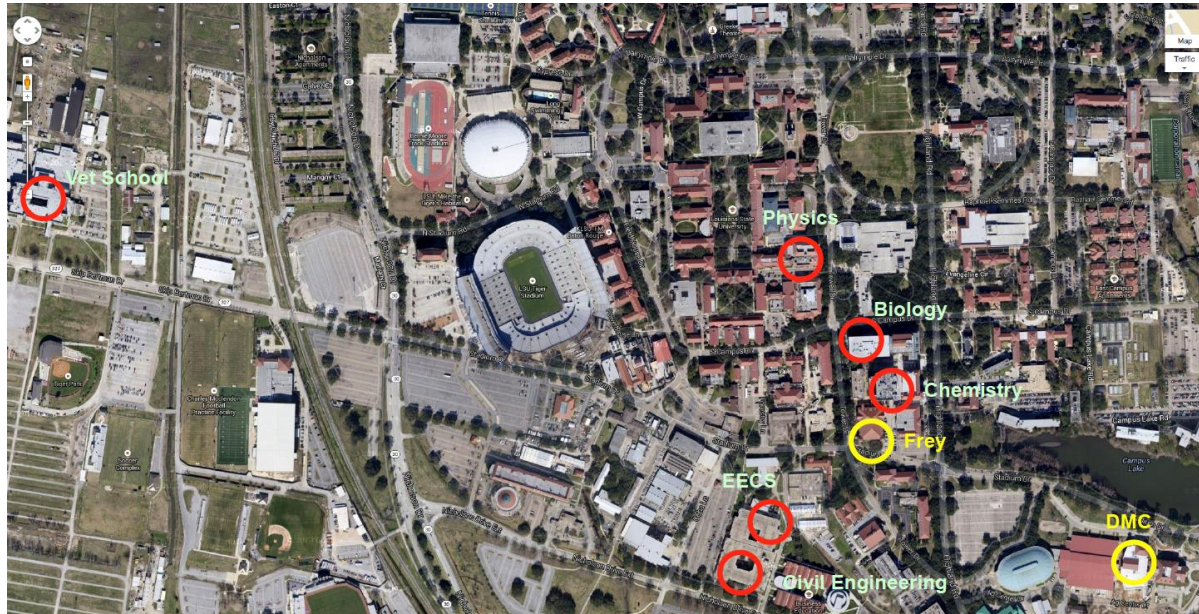


**CC-NIE Integration: Bridging, Transferring and  
Analyzing Big Data over 40Gbps Campus-Wide  
Software Defined Networks  
(NSF Award #1341008)**

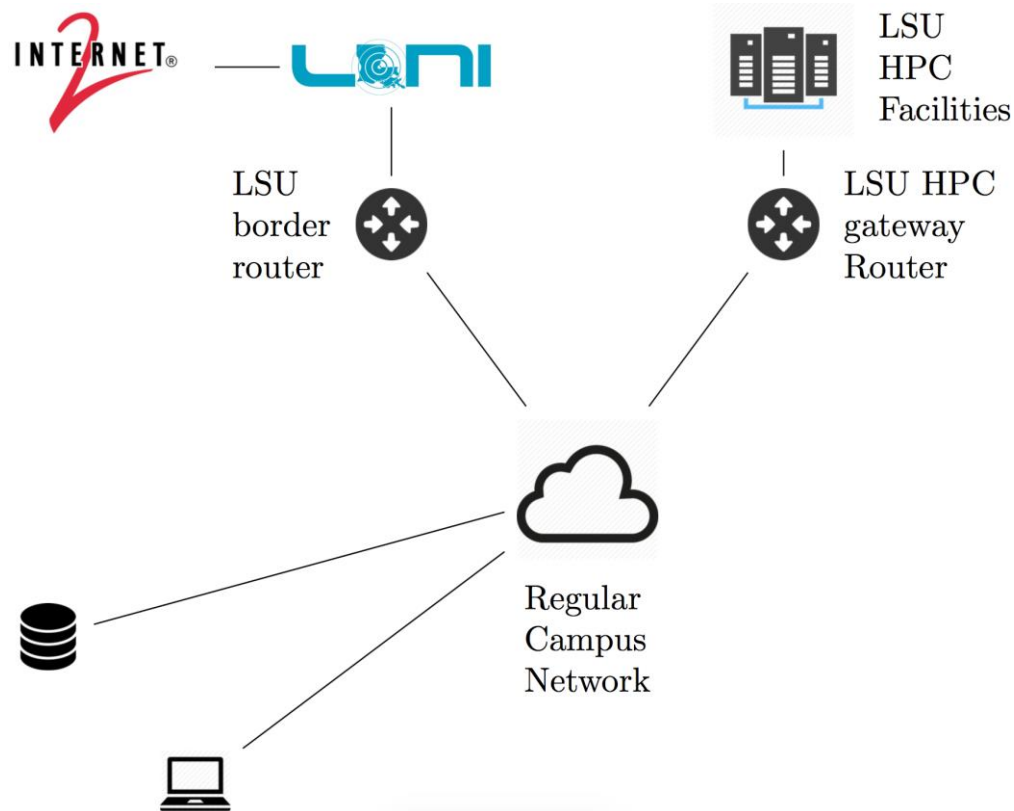
**Seung-Jong Jay Park**

Computer Science and Engineering  
Center for Computation and Technology  
Louisiana State University

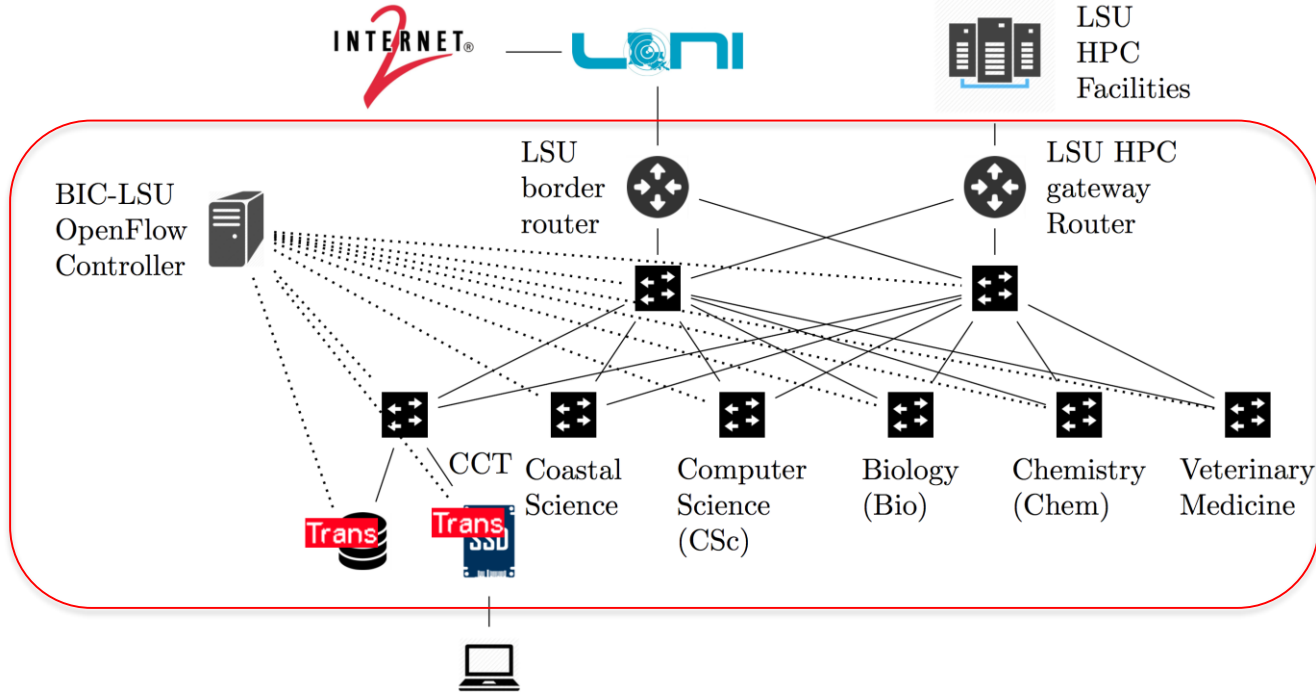
# Past Distributed Research Labs @LSU



# Past Cyberinfrastructure on Campus



# Current BIC-LSU Architecture Overview



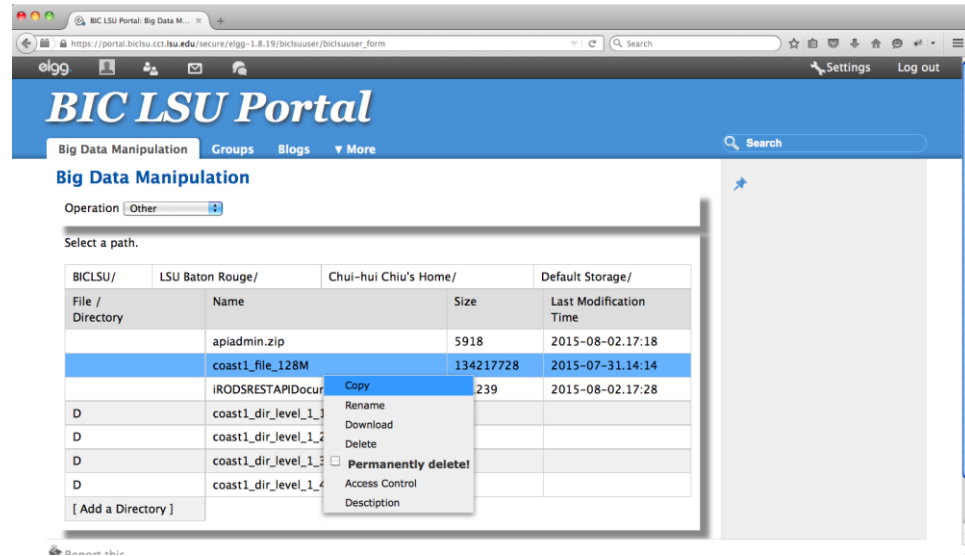
2 core HP 40G switches

6 edge HP 40+10G switches

8 100TB SSD servers

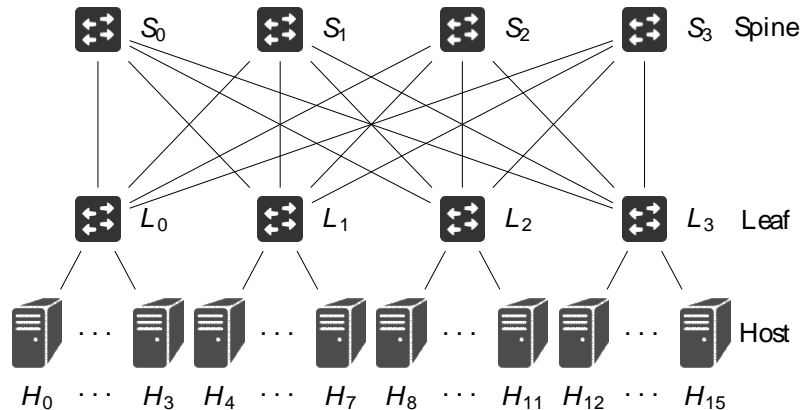
# Current Project Web Portal

- ❑ Internet2 Shibboleth single sign-on (SSO).
- ❑ Based-on Elgg.
  - Big data transfer module
    - Achieved 39Gbps disk-to-disk
  - Big data analysis module.



# Technical Outcomes

- ❑ Coflourish: An SDN-Assisted Coflow Scheduling Framework, IEEE Cloud 2017
- ❑ Minimal Coflow Routing and Scheduling in OpenFlow-based Cloud Storage Area Networks, IEEE Cloud 2017



# Sustainability Issues

- ❑ Transition from a research project to a production network
  - ✓ Openflow is not yet ready for production level from the perspectives of security, operation, etc.
  - ✓ Compatibility issues, how to merge traditional campus networks with new research networks
  - ✓ Needs more engineering projects
- ❑ New users
  - ✓ Geology projects to connect to NOAA
  - ✓ Smart Manufacturing projects