# iGENI Presentation for ORCA Cluster Meeting, GEC 11
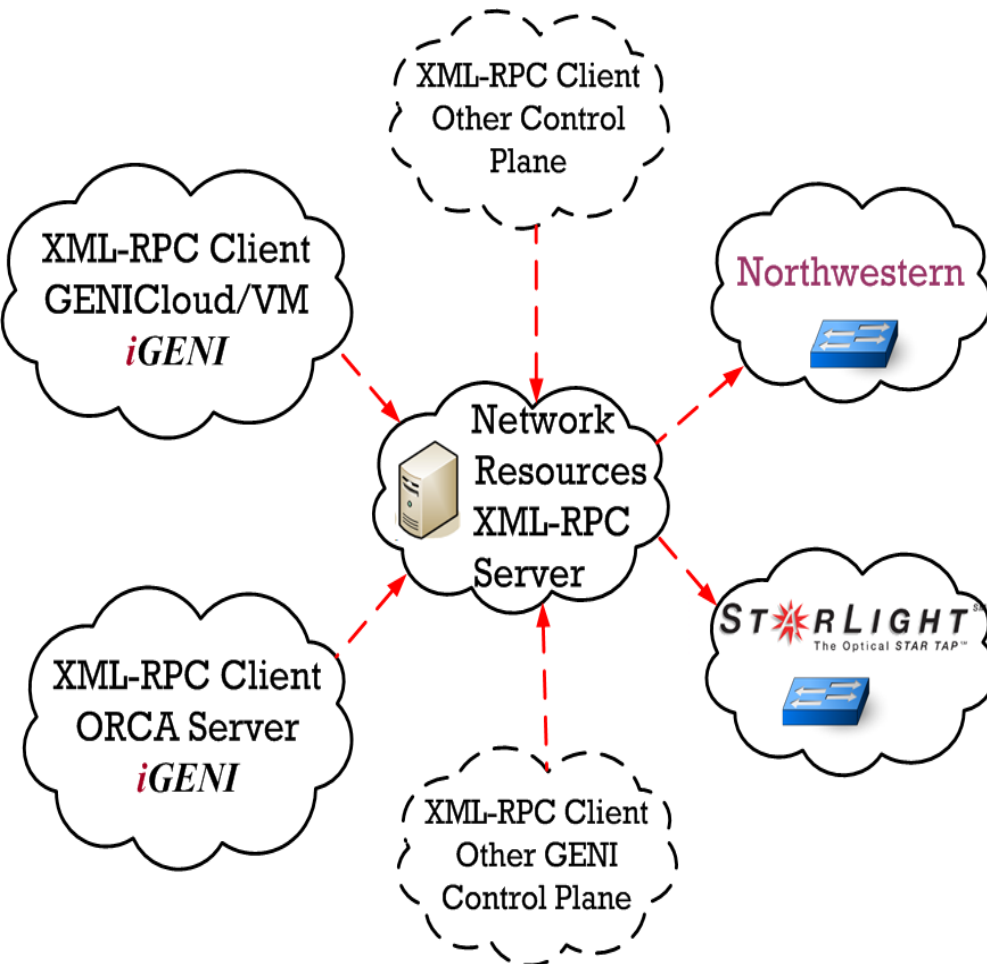
**Presented By**
**iGENI Consortium:**
**International Center for Advanced Internet Research,**
**Northwestern University et al**

# GENI Engineering Conference 11 (GEC 11)
# July 25-28, 2011
# Denver, Colorado

# iGENI Dynamic Provisioning with ORCA 3.0

Status of Functions and Features Planned:



- **Status of Integration of These Resources with ORCA :**
  **(a) XML-RPC Network Resources Server Can Control iGENI Switches at iCAIR/SL
  (b) ORCA XML-RPC Client and GENICloud VM client Can Connect To
    (a) Control Arista Switches At iCAIR/SL
    (b) Provide Options for Support From Several Control Frameworks**

- **Resources Available to Outside Experimenters**
  **(a) Network Paths Can Be Shared With Outside Experimenters.
  (b) Compute Processes: VMs/End Nodes Can Be Shared with Project Partners.
  c) Frameworks/Integrated Frameworks**

# GCDnet + iGENI Partner Resources

# iGENI-Taiwan Integrated Research Network
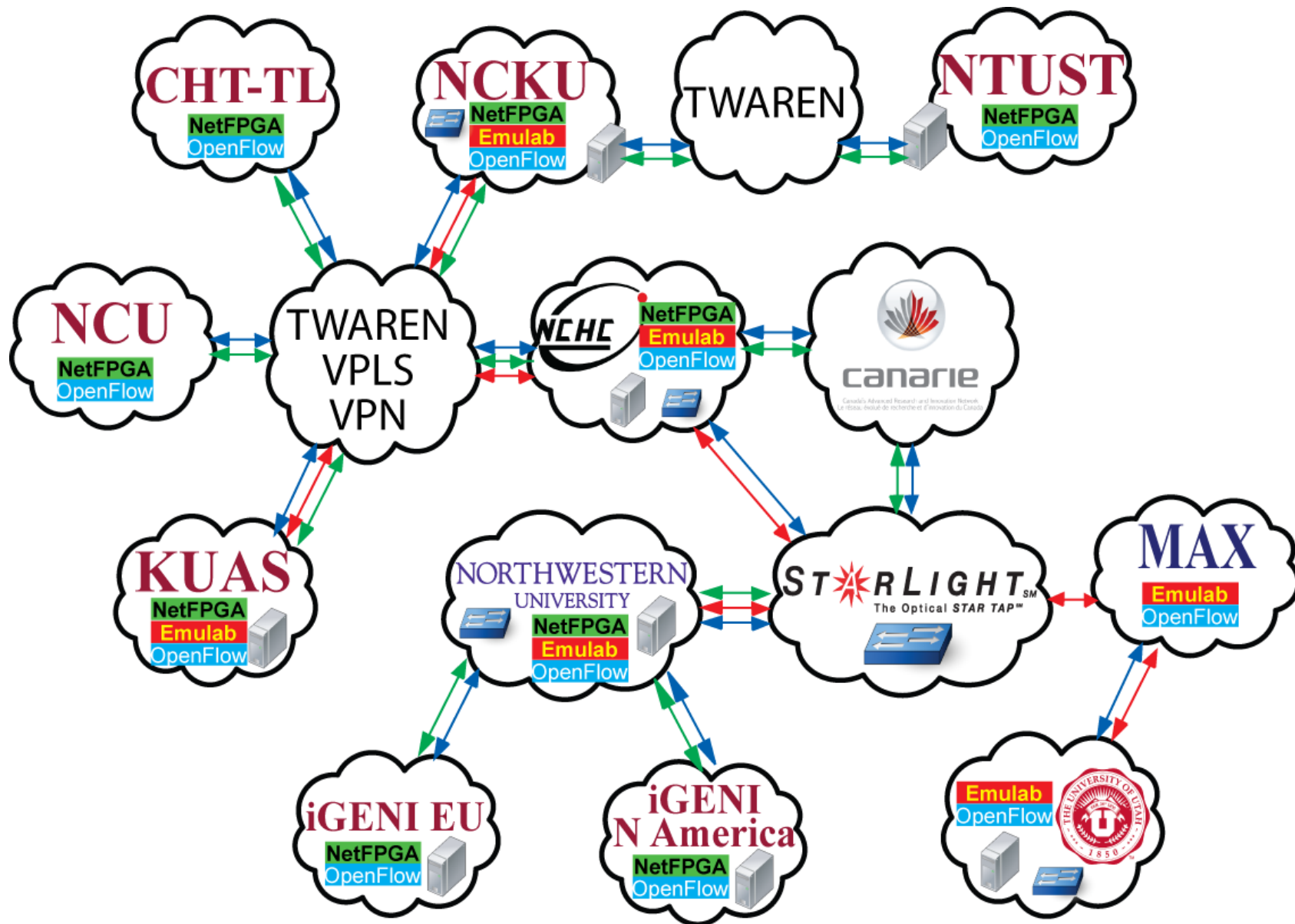
# Experiments Planned For S3 = Many Ref For Example -- TransCloud

Alvin AuYoung, Andy Bavier, Jessica Blaine, Jim Chen, Yvonne Coady, Paul Muller, Joe Mambretti,Chris Matthews, Rick McGeer, Chris Pearson, Alex Snoeren, Fei Yeh, Marco Yuen

## TransCloud Today



## TransCloud: Based on iGENI and GENICloud

- Transcontinental Federation of Cloud Systems
- Slice-Based Federation Architecture for sign on and trans-cluster slice management
- SFA cluster manager at each site
  – Currently, enhanced Eucalyptus
- Private 10 Gb/s transcontinental network linking sites
  – Thanks to GLIF, NLR, NetherLight, CAVEWave, StarLight, DFN

## Roadmap

- Accept experimenters *now*
- Federation expansion
  – TU Amsterdam immediately
  – Brazil, Asia by July
  – All interested parties at any time
- Full integration with PlanetLab Control Framework (July)
- High-level programming environment based on RePy and NaCl
- High-level distributed query environment

**Example of working in the TransCloud**

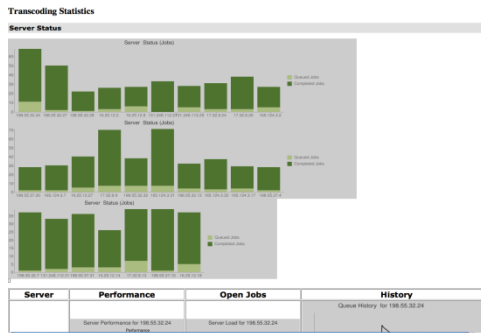**[1] Build trans-continental applications spanning clouds:**
- **Distributed query application based on Hadoop/Pig**
- **Store archived Network trace data using HDFS**
- **Query data using Pig over Hadoop clusters**

**[2] Perform distributed query on TransCloud, which currently spans the following sites:**
- **HP OpenCirrus**
- **Northwestern OpenCloud**
- **UC San Diego**
- **Kaiserslautern**
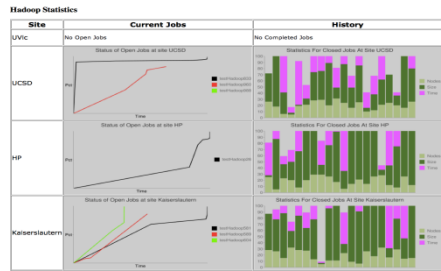


- **Use By Outside Researchers? Yes**
  - **Use Involving Multiple Aggregates?** Yes
  - **Use for Research Experiments? Yes**
    **Also Ref: Experiments in High Perf Transport at GEC 7**

# iGENI Network+MyPLC/GENICloud(GEC11)