

iGENI Presentation for ORCA Cluster Meeting, GEC 10

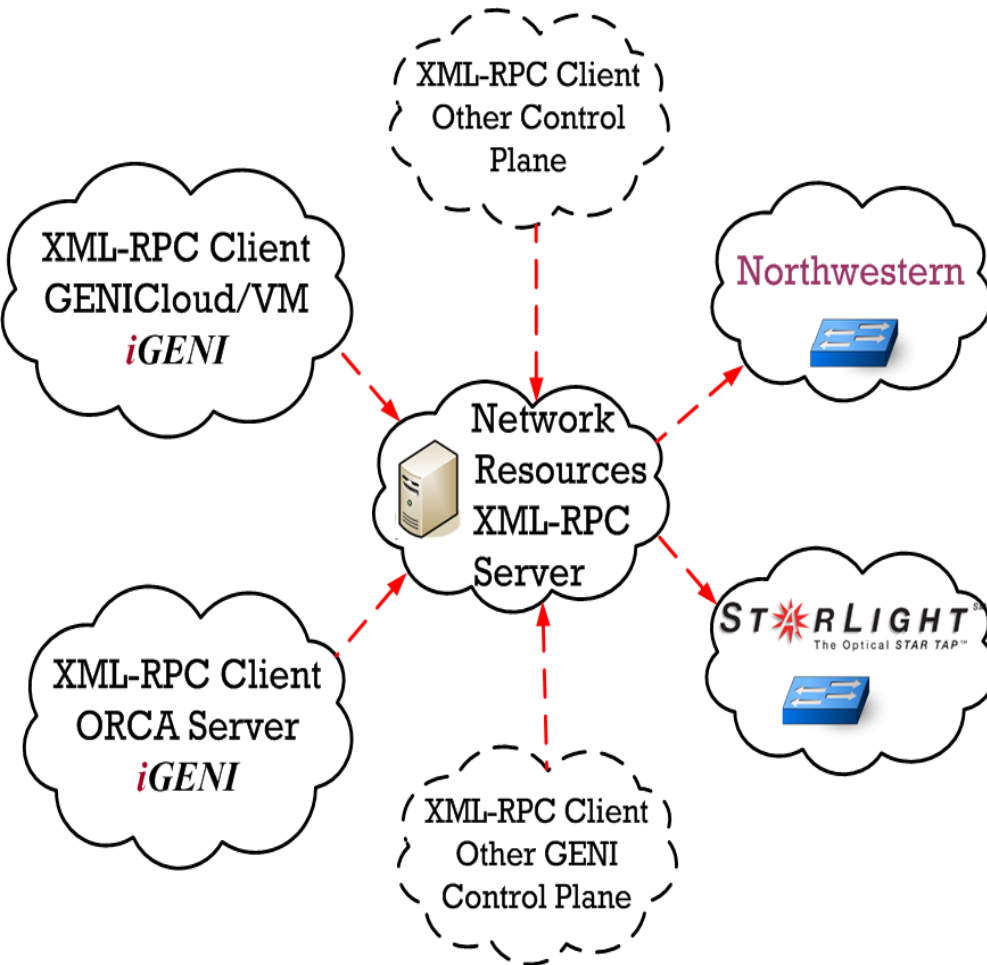
**Presented By
iGENI Consortium:
International Center for Advanced Internet Research,
Northwestern University et al**

**GENI Engineering Conference 10 (GEC 10)
March 15-17, 2011
San Juan, Puerto Rico**



iGENI Dynamic Provisioning

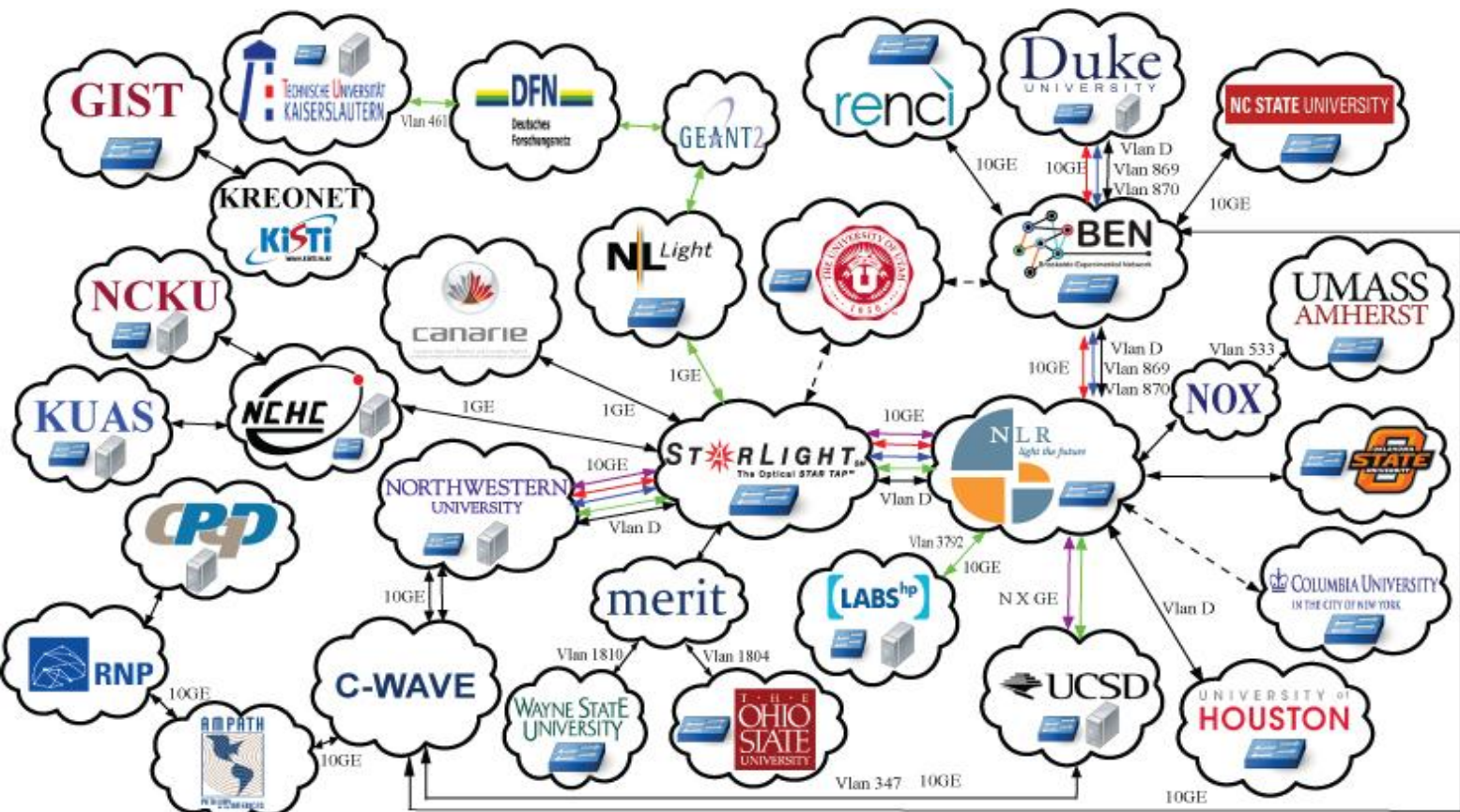
1) Status of Functions and Features Planned for Spiral 3:



- **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

Ref: Vlan & System Details On Next Slide

GCDnet + iGENI Partner Resources



Additional Spiral3
iGENI Lnks to :

International:
China
Singapore
Netherland
Poland
Canada
United Kingdom
Et Al

In US:
Washington
Kansas
Utah
Et Al

2) Connectivity planned for Spiral 3:

- Component programming? Tools/SSH?
XML-RPC
- VLAN connectivity to NLR/Internet 2? How many VLANs?
Yes. Ref Diagram Above
- Ability to control setup of VLANs As Part of Experiment?
Yes. Ref 1st Slide



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

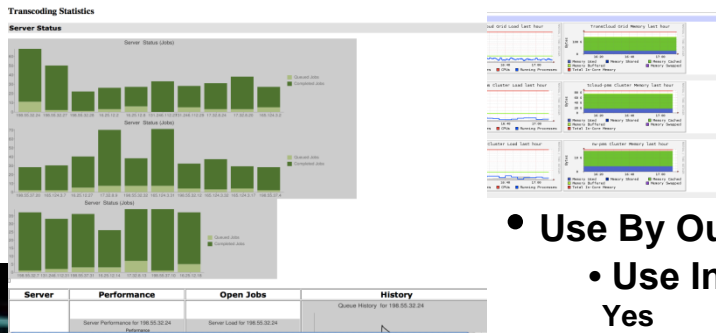
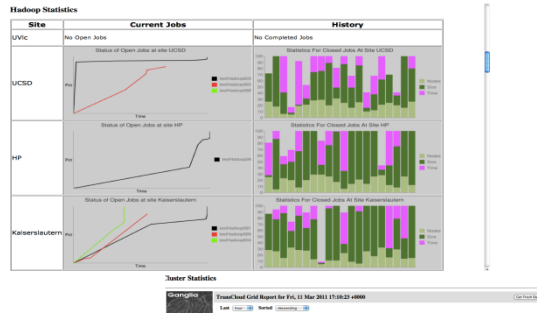
Example of working in the TransCloud

[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

