



**Substrate Working Group Meeting**  
**Tuesday, July 21, 2009**  
**3:30pm – 5:30pm**

**GENI Engineering Conference 5**  
**Seattle, WA**

**July 21, 2009**  
**[www.geni.net](http://www.geni.net)**



- **Welcome and introduction of new co-chair(s), effective GEC6**
  - Patrick Crowley, Joe Evans and Peter O'Neil, WG co-chairs

## **Review of recent Spiral 1 vertical and horizontal integration examples:**

- **ORCA integration with BEN (20 min)**
  - Yufeng Xin - RENC1
- **ORBIT (OMF) integration with a WiMAX base station (20 min)**
  - Ray Raychaudhuri - WINLAB/Rutgers
- **PlanetLab GENI integration with DRAGON resources in MAX (20 min)**
  - Chris Tracy - MAX, incoming co-chair
- **Introduction to UltraScience Net (15 min)**
  - Nagi Rao - Oak Ridge National Laboratory
- **WG Goals for Spiral 2 (10 min)**
  - Joe Evans and Peter O'Neil, WG co-chairs
- **Wrap up, review of action items and issues for plenary**
  - Christopher Small - GPO (standing in for Harry Mussman, WG SE)

- **Welcome**
  - Patrick Crowley, Joe Evans and Peter O'Neil, WG co-chairs
- **Introduction of new WG co-chairs**
  - Effective with GEC6
  - Ivan Seskar – WINLAB/Rutgers
  - Chris Tracy – MAX
- **Thanks to current co-chairs!**

# Recent Spiral 1 Integration Examples

- **Spiral 1 goal: “vertical integration”**
  - Between Control Framework and Substrate, via Aggregate Manager
  - Allows Researcher to discover resources; authorize and reserve resources; and use resources in a Substrate
- **Spiral 1 goal: “horizontal integration”**
  - Setup connections for data plane between Components in a Substrate, and between Substrates.
  - First goal: VLAN connections, utilizing NLR or Internet2 backbone network.
- **ORCA integration with BEN (20 min)**
  - Yufeng Xin – RENCI
- **ORBIT (OMF) integration with a WiMAX base station (20 min)**
  - Ray Raychaudhuri - WINLAB/Rutgers
- **PlanetLab GENI integration with DRAGON resources in MAX (20 min)**
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- **Introduction to UltraScience Net (15 min)**
  - **Nagi Rao - Oak Ridge National Laboratory**

# Accomplishments during Spiral 1

- **Spiral 1 goal: “vertical integration”**
  - **Between Control Framework (CF) and Substrate**
  - **Via Aggregate Manager (AM)**
  - **Allows Researcher to discover resources; authorize and reserve resources; and use resources in a Substrate**
  - **Well underway for most substrates**
  - **Each CF has a different approach and implementation for AM**
- **Spiral 1 goal: “horizontal integration”**
  - **Setup connections for data plane between Components in a Substrate, and between Substrates**
  - **First goal: End-to-end VLAN connections, utilizing NLR or Internet2 backbone network**
  - **Starting now for some substrates**
- **Spiral 1 goal: catalog all GENI substrates and resources**
  - **First Substrate Catalog compiled with input from substrate projects**

## WG Goals for Spiral 2

- **Improve ease of “vertical integration”**
- **Extend “horizontal integration”**
- **Extend and improve catalog of all GENI substrates and resources**
- **Others?**



- **Improve ease of “vertical integration”**
  - **Look for commonality among Aggregate Manager (AM) approaches?**
  - **Work towards fully defining all “use cases” involving a Substrate?**
  - **Work towards fully defining all interfaces to Substrate via AM (plus any other necessary entities)?**
  - **Who is willing to help?**



- **Extend “horizontal integration”**
  - **Work towards structures and methods to easily setup end-to-end VLAN connections between substrates?**
  - **Define VLAN connection service?**
  - **Define ways to specify connections between substrates?**
  - **Who is willing to help?**

- **Extend and improve catalog of all GENI substrates and resources**
  - **Maintain Substrate Catalog? Move on line? Evaluate scope?**
  - **Define centralized registry for all GENI Spiral 2 resources? Build?**
  - **Explore approaches to resource description, both short form and long form?**
  - **Who is willing to help?**

- **Wrap up, review of action items and issues for plenary**
  - **Christopher Small – GPO**