KanseiGenie:

GENI-fying and Federating

Autonomous Kansei Wireless Sensor Networks

Spiral 1 – Quarter 3 Report

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1. Major accomplishments

- o We further refined the KanseiGenie design to integrated KanseiGenie with ORCA
- o We completed the design of integrating KanseiGenie with ORCA, implemented the baseline integration of KanseiGenie with ORCA, and demonstrated the integrated, ORCA-fied KanseiGenie at GEC5

2. Milestones achieved

- KANSEI: 1a Import a GENI-compliant control framework based on ORCA
  - o Done (note: on time and by 04/01/2009.)
- KANSEI: 1b Establish Kansei testbed clearinghouse (Due 10/01/09)
  - o Work in progress
- KANSEI: 1c Refactor Kansei researcher portal
  - o Done
- KANSEI: 1c2 Integrate Kansei researcher portal (Due 10/01/09)
  - o Work in progress
- KANSEI: 1d1 Refactor Kansei component and aggregate managers
  - o Done
- KANSEI: 1d2 Integrate Kansei component and aggregate managers- (Due 10/01/09)
  - o Work in progress
- KANSEI: 1f Demo basic virtualization and experiment control functions
  - o Done. Demonstrated at GEC5
- KANSEI: 1g Open Kansei testbed to GENI users
 - o Done. KanseiGenie is ready for public access.

3. Deliverables made

1. Documentation on the refactored Kansei. See:
   http://sites.google.com/site/siefastgeni/documents-1/KanseiGENIfication.doc
2. Deployed KanseiGenie system at the following site:

   http://kansei.cse.ohio-state.edu/KanseiGenie/

3. Implemented KanseiGenie handlers for ORCA site authority and service manager.

4. Pursuer-evader demo made ready for the new KanseiGenie platform.

5. Basic researcher-testbed communication enabled through a JMS service.

4. Description of work performed during last quarter

- o Refined the second version of the KanseiGenie architecture. The new architecture better support the ORCA-specific integration issues.

  The new ORCA-fied architecture is as follows:
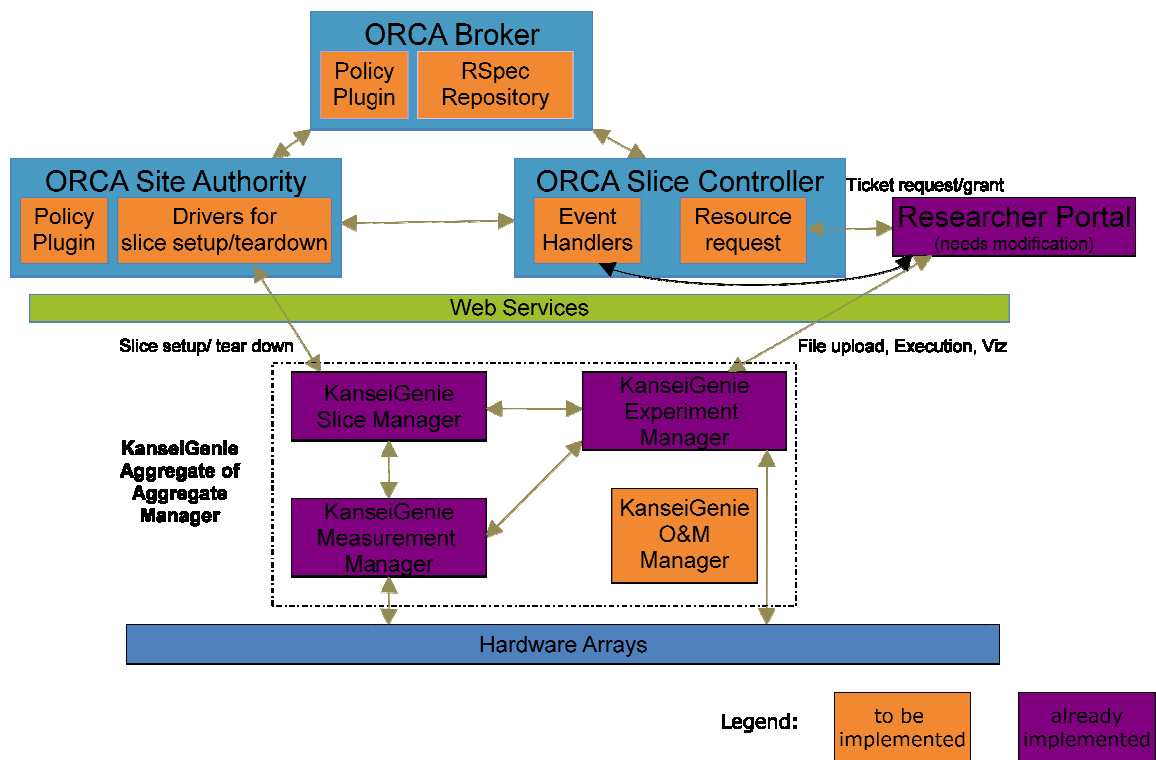
- o Completed baseline integration of KanseiGenie clearinghouse with ORCA broker
- o Completed baseline integration of KanseiGenie research portal with ORCA slice controller
- o Completed baseline integration of KanseiGenie slice manager with ORCA site authority
- o Finished design of refactoring KanseiGenie injection service based on SMS etc.
- o Finished refactoring the pursuer-evader demo based on new Kansei design and implementation

5. Activities and findings

The following tasks are ongoing:

- Integration with ORCA
  - Refine KanseiGenie clearinghouse, research portal, and site authority to support fine-grained resource management

- KanseiGenie software package

We have identified the following risks as well as risk mitigation approaches.

- Risk: limited documentation on ORCA support for fine-grained resource management

    Mitigation:

    - Close engagement with other ORCA implementers, such as RENCI

- Risk: Uncertainty in wireless RSpec (Our first draft of RSpec is at: http://sites.google.com/site/siefastgeni/documents-1/Kansei-RSpec.doc)
    - This is a critical risk since a defined RSpec is essential for our future development and the RSpec definition is to a limited extent outside our control, as it is influenced by the Clearinghouse implementation groups.

    Mitigation: Close engagement with Clearinghouse implementation groups.

6. Project participants

Investigators:

Anish Arora

Rajiv Ramnath

Hongwei Zhang

Vipul Gupta

Sami Ayyorgun

Staff:

Mukundan Sridharan

Wenjie Zeng

Xi Ju

7. Publications (individual and organizational)

A book chapter describing KanseiGenie will appear in the book "Next-Generation Internet Architectures and Protocols".

8. Outreach activities

o Presentations to a delegation of female Ph.D. students from the mideast, may 2009 (Wayne State University)

9. Collaborations

o Collaborate with Cluster-D projects to identify integration strategies with ORCA control framework

10. Other Contributions

We have contributed to the following GENI Working Group activites:

o Providing feedback to the GENI Control Framework Requirements

o Giving presentations and demos at GEC5