

KanseiGenie:
GENI-fying and Federating
Autonomous Kansei Wireless Sensor Networks

Spiral 2 – Quarter 2 Report

Technical Contact:

Anish Arora

Professor, Department of Computer Science and Engineering

Co-founder, Institute of Sensing Systems

Ohio State University

anish@cse.ohio-state.edu

www.cse.ohio-state.edu/~anish

395 Drees Laboratories

Columbus, OH 43210-1277

+1 (614) 264-8771

+1 (614) 292-2911 (fax)

1. Major accomplishments

- GENI-fied NetEye testbed at Wayne State University using the KanseiGenie installer.
- Extended Researcher Portal to support basic federated use of both Kansei and NetEye testbeds
- Successfully demonstrated the Kansei and NetEye federation at GEC7
- Refined KanseiGenie installer
- Completed plan for connecting Kansei and NetEye to Internet2
- Refined the definition of Wireless Sensor Network (WSN) RSpec
- Assisted OKGem project in using KanseiGenie installer
- Worked with cluster D and GPO to identify strategies for GENI resource specification

2. Milestones achieved

- KANSEI: S2.a Remote access
 - Done
- KANSEI: S2.b Cluster plan for VLANs between testbeds
 - Done
- KANSEI: S2.c Extend researcher portal to support workflow management
 - Done
- KANSEI: S2.d Extend researcher portal for use with Kansei and NetEye
 - done
- KANSEI: S2.e Bring up NetEye testbed at WSU
 - done
- KANSEI: S2.f Connections from Kansei and NetEye to Internet2
 - done
- KANSEI: S2.g Import extended ORCA v2.1 (Due 07/20/10)
- KANSEI: S2.h Demo experiment using Kansei and NetEye (Due 07/20/10)
- KANSEI: S2.i Collaborate with GMOC (Due 08/31/10)
- KANSEI: S2.j POC to GENI response team
 - Done

- KANSEI: S2.k POC to GENI security team
 - Done
- KANSEI: S2.l Contribution to GENI outreach (Due 08/31/10)
 - Work in progress

3. Deliverables made

- KanseiGenie researcher portal for federated use of Kansei and NetEye
<http://kansei.cse.ohio-state.edu/KanseiGenieFed>
- GENI-fied NetEye
<http://neteye2.cs.wayne.edu>
- Version 1.1 of KanseiGenie installer
<http://kansei.cse.ohio-state.edu/KanseiGenie/downloads/index.php>

4. Description of work performed during last quarter

- Summary of accomplishments related to GENI-fying NetEye using KanseiGenie installer:
 - Cloned the stargate aggregate manager on linux-featured laptops in NetEye
 - Cloned the KanseiGenie server directors on NetEye server
 - Customized the KanseiGenie webportal to support outside user's experiment request on NetEye
 - Cloned the KanseiGenie aggregate manager
 - Customized the KanseiGenie measurement tools to generate the visualized link quality figures in NetEye
 - Deployed the four ORCA actors at three different sites: Kansei broker running in RENCi clearinghouse; Kansei and NetEye site authority running at OSU and WSU; Kansei service manager running at OSU
 - Ported the Kansei handler and controller to NetEye

- Summary of accomplishments related to extending KanseiGenie researcher portal for federated use of Kansei and NetEye:
 - Redesigned Portal to make it site independent and reconfigurable at run time. Portal can connect and manage any Site running KanseiGenie software specified in a 'config' file
 - Automatic reformatting of the display, based on number of Sites specified in the Portal
 - Portal keeps track of federated slice, resources and experiment status
 - Portal Keeps track of common 'user files' available across multiple Sites

- Summary of accomplishments related to refining KanseiGenie installer
 - A new module called UserTools created which is platform dependent
 - A new aggregate manager for Linux PCs created (which has been tested on Fedora and Ubuntu systems)
 - Stargate aggregate manager restructured for more clarity
 - Reported the KanseiGenie installation bugs to trac site and provided the fix to all the known bugs/problems
 - Provided the feedback to enhance the KanseiGenie cloned system

- Summary of accomplishments related to refining KanseiGenie RSpec
 - Identified the principles and mechanisms for WSN RSpec
 - Developed basic ontology and NDL extensions for WSN RSpec
 - Presented our results on WSN RSpec at the RSpec workshop of GEC7

- Summary of accomplishments related to assisting OkGems project to use KanseiGenie installer
 - OkGems porting effort supported through many weekly and on-demand conference calls to clarify KanseiGenie design
 - Porting bugs resolved through email and online 'trac' bug tracking system
 - Created or modified documentation for more clarity
 - Aggregate Manager customization for OKGems aggregate.

5. Activities and findings

The following tasks are ongoing:

- Import ORCA Bella
- Implement fine-grain resource description and discovery for Kansei and NetEye
- Federated demo of Kansei and NetEye with cross-site data exchange
- GENI outreach

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 paper on KanseiGenie has been accepted by TridentComm'10.

8. Outreach activities

- Presented KanseiGenie and NetEye to visitors from GM Research, Feb. 2010 (Wayne State University)
- Presented KanseiGenie and NetEye to visitors from Carnegie Mellon University, Feb. 2010 (Wayne State University)
- Presented KanseiGenie and NetEye to visitors from Ford Research, March 2010 (Wayne State University)

9. Collaborations

- Collaborate with Cluster-D projects on GENI RSpec
- Help the team from Oklahoma State University to port KanseiGenie software package to their testbed

10. Other Contributions

- Collaborate with Oarnet and Merit Networks for connecting Kansei and NetEye to Internet2