KanseiGenie:

GENI-fying and Federating

Autonomous Kansei Wireless Sensor Networks

Spiral 3 – Status Report: GEC9 - GEC10

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1. Major accomplishments

- experiment workflow management for federated slices
- KanseiGenie extension that enables resource management and ontology reasoning with Language of Embedded Network System (LENS) and the latest ORCA release
- Kansei Doctor that monitors and visualizes health information on heterogeneous devices
- Layer 2/3 connection switch between Kansei and NetEye
- Operational support for experimenters using Kansei and NetEye

2. Milestones

- KANSEI: S3.a Demonstration at GEC9 and experimenter outreach
  - Done
- KANSEI: S3.b Documentation
  - Done
- KANSEI: S3.c Demonstration at GEC10 and experimenter outreach
  - Done
- KANSEI: S3.d Documentation
  - Done
  - KanseiGenie workflow/tutorial
    - http://kansei.cse.ohio-state.edu/KanseiGenieFed/Doc/tutorial.php
  - LENS/resource specification:
    - http://neteyesa.cs.wayne.edu/rspec
    - http://groups.geni.net/geni/attachment/wiki/Gec8Workshops/KanseiGenie-RSpec-GEC8.pdf
    - http://groups.geni.net/geni/attachment/wiki/Gec7ResourceRepresentationWorkshop/KanseiGenie-RSpec.pdf
  - KanseiGenie Doctor
    - http://ceti.cse.ohio-state.edu/siefast/group/publications/bapat2007tridentcom.pdf
    - http://portal.acm.org/citation.cfm?id=1462190

- KANSEI: S3.e Demonstration at GEC11 and experimenter outreach
    - In progress
- KANSEI: S3.f Final report and code release
    - To be completed

3. Deliverables made

- Kansei Doctor

  http://kansei.cse.ohio-state.edu/KanseiGenieFed/KDoctor/kanseiDoctor.php
- L2/L3 switch

  One extra options that researchers can choose from during experiment scheduling
- LENS specification

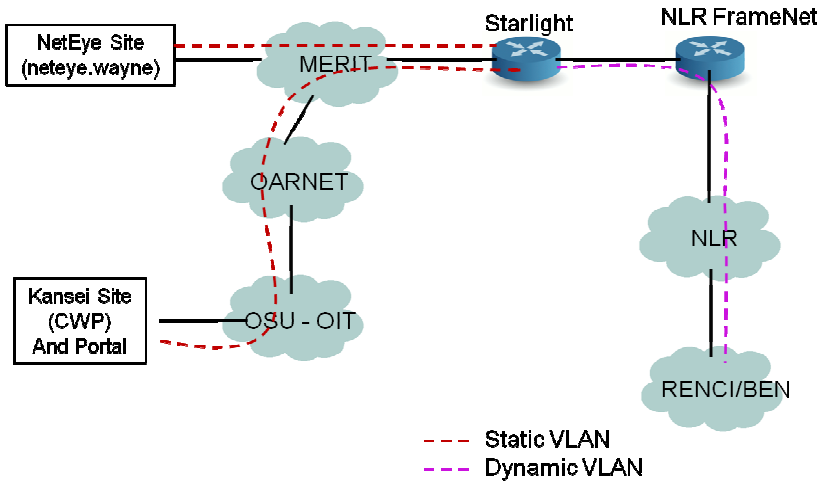
  LENS Ontology Definition: http://neteyesa.cs.wayne.edu/rspec

4. Description of work performed during last quarter

- KanseiGenie extension that enables resource management and ontology reasoning with Language of Embedded Network System (LENS) and the latest ORCA release
    - LENS schema and substrate instances implementation
    - KanseiGenie resource request converter (from raw request to LENS slice request)
    - ORCA plug-ins: resource allocation policy based on the LENS

- Kansei Doctor that monitors and visualizes health information on heterogeneous devices
    - Distributed solution that monitors over 100 XSM devices
    - Centralized solution that monitor over 300 TelosB devices

- L2/L3 connection switch
    - Extends the experiment configuration page in the KanseiGenie portal to allow researchers to choose Layer 2 or Layer 3 connection for their federated experiments



5. Activities and findings

The following tasks are ongoing:

- Advanced WSNDL-based resource management
- KanseiGenie experiment specification and control
- ORCA-based identity management
- 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)

- "LENS: Language for Embedded Networked Sensing", in preparation

8. Outreach activities

- Demonstrate KnaseiGenie to minority students of the NSF BPC Information Management and Systems Engineering (IMSE) program at Wayne State University, January 22, 2011

9. Collaborations

- Collaborate with GMOC, exported KanseiGenie health meta data

10. Other Contributions

- Operational support for experimenters using Kansei and NetEye
- Coordinated with RENCI/Duke in contributing to ORCA control framework the LENS language for wireless sensor network resource specification