

Quarterly Status Report

YR 1 Q 2

Control, Measurement, and Resource Management Framework for Heterogeneous and Mobile Wireless Testbeds

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Major Accomplishments

We have achieved the following deliverables in this quarter:

- a) Extend OMF to support multiple heterogeneous testbeds, anticipating GENI control framework structures where possible, and integrate into your testbeds. (6mo)
- b) Extend OMF interfaces and software to support mobile testbeds by: distributing experiment scripts to mobile nodes; providing local caching of experiment results during disconnection; and by executing experiment actions at predefined points in time (time-based orchestration). (8 mo)
- e) Establish OMF operating environment for your stationary and mobile testbeds, verify with experiments, and demo at a GEC. (6-12mo)

Deliverable b) was achieved early, in time for the GEC demo.

Activities and Findings

Work on the three milestones listed above culminated in a demonstration of a wireless throughput measurement experiment on a vehicular testbed at the recent GEC. The experiment measures throughput between a Wifi interface inside the vehicle and a stationary access point located inside the Winlab building as the vehicle moves. A second Wifi connection is used for control (experiment configuration and measurement data). The experiment script is installed over this control link in the vehicle at the start of the experiment. When the control connection becomes disconnected during the experiment, results are cached in the vehicle, and the experiment proceeds as governed by the time-orchestrated experiment script. When the control connection is reestablished, the cached data is uploaded into the OMF measurement repository.

The same experiment script can also be executed on the stationary ORBIT testbed or the stationary testbed at NICTA. Thus, this demonstration showed OMFs capability to support multiple heterogeneous testbeds.

We have also made progress towards the following deliverables:

Integrating OMF with WIMAX Basestation

The GEC demonstration also included a preliminary integration with the Wimax project, by showing a video transmission over a Wimax link within the same experiment. We are now working to provide direct OMF interfaces to control basestation settings from OMF experiment scripts.

Providing L2 connectivity to ORBIT

The missing fiber link between the Rutgers Food Science building and the Route 1 fiber corridor (~1 mile) will be provisioned by Jun 30. We will be creating a 1 Gig lambda for Winlab in July to our current location at 401 Broad Street in Philly on the 9th floor. From what we've heard to date GENI is not using the 10Gig Wave, but are using the general Internet2 network so we should be able to hand off directly to MAGPI in our current location.

In the meantime, we are ready to test L2 connectivity using a VPN over the excess capacity of 400Mbps on Rutgers University's existing commodity feed to L2, if another testbed is available for connection.

Support and Collaboration

We provided input for the GENI security architecture draft, provided examples of ORBIT O&M data and our current data format in use, and are continuously supporting external experimenters on the stationary ORBIT testbed.

We have also

- Released an external website dedicated to OMF, its user community and its installation, utilization, and ongoing development.. This website is located at: <http://www.mytestbed.net/> This website features an advanced traffic monitoring system (i.e. Google Analytics), which allows to monitor its impact. For example within the past 8 weeks, this website received an average of 75.4 (+/- 17.1) unique visits per week from an average of 31.9 (+/- 3.8) countries.

- Released a stable version of OMF (v1.2), available from the above website

Project Participants

Marco Gruteser

Max Ott

Thierry Rakotoarivelo

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Tripti Singh

Publications

None to report.

Collaborations

The collaboration with UMass (ie. Deployment of OMF components on DieselNet 'bricks') is ongoing. Most of our resources in this quarter had been allocated to the realization of the abovementioned committed deliverables (i.e. milestones Year1-b, and GEC4 demo). During the

next quarter we plan to port OMF to this platform and then run OMF on the moving DieselNet testbed.

Outreach

We have involved Tripti Singh, a Rutgers graduate student from an under-represented group, in the design and development of the demonstration experiment shown at the recent GEC. Specifically, she has lead the development of a Google Earth interface that visualizes the experiment progress for demonstrations.

Other Contributions

None to report.