MEDIALAB

User Guide for Quarterly Reporting

Quarterly Report #4 [*1.01.2009-31.03.2009*]

Project Name	PlanetLab NZ
Project Leader	Prof. K. Pawlikowski
Last Milestone Achieved	2 of 3
Project On Track?	Yes

The goals of the Capability Build Fund are to raise awareness and enable effective use of KAREN. REANNZ wants to promote the enabling potential of KAREN and its use through creating a community ethos of sharing knowledge.

Current Status (500 words max):

As reported, the second milestone of this project was reached on December 19, 2008. Since then, we have got four nodes of PlanetLab NZ operational: two of them operate at the University of Canterbury and two other at the University of Otago. Their operations are fully dependent on KAREN, which serves as an information highway between global PlanetLab and our nodes in Christchurch and Dunedin. Since early January 2009, our team has been involved in activities directly related with Milestone 3, i.e. the installation of PlanetLab NZ nodes in the Department of Computer Science at the University of Auckland.

In addition to these technical activities, we have begun research projects which use, or expected to use, PlanetLab as a tool of scientific investigations. The current research projects are on :

- "Distribution of Akaroa2 over PlanetLab".
Investigators: Greg Ewing, Krys Pawlikowski and Don McNickle.
- "Testbeds for large scale P2P systems".
Investigators: Adam Chang, Krys Pawlikowski and Harsha Sirisena.
- "IPv6 testbeds in wired or wireless networks".
Investigators: Yuxuan Tim Hong, Krys Pawlikowski and Harsha Sirisena.
- "VoIP: Measurements of End-to-End Quality of Experience on PlanetLab".
Investigators: William Liu, Krys Pawlikowski and Harsha Sirisena.

The material presented at our PlanetLab NZ Workshop, held in Dunedin in December 2008, has been placed on the wegpage of our project; see <http://planetlabnz.canterbury.ac.nz/workshop2008.html>. We have been also engaged in discussions with the participants of the workshop from other universities in New Zealand, exploring options for extending PlanetLab NZ to other New Zealand universities.

Successes (500 words max) specifically comment on the following:

Having reached the second milestone of this project, research students and scientists at the University of Canterbury and the University of Otago have gained access to currently the most sophisticated and advanced research tools for conducting cutting-edge research on future network technologies, such as Next Generation Networks (NGNs), Next Generation Internet (NGI), Future Internet, etc. Our PlanetLab NZ nodes have begun to be used by researchers both from New Zealand and from overseas.

The experience gained during installation of PlanetLab nodes at the University of Canterbury and the University of Otago will be useful for maintaining software and hardware

resources within PlanetLab. This experience will be also useful both for installing the nodes at the University of Auckland, and later, if installation of PlanetLab nodes at other universities become possible.

On the research front, we have successfully distributed Akaroa2, our universal controller of quantitative stochastic simulation, over PlanetLab. This enables us to run distributed quantitative discrete-event simulations of new communication protocols and network services over PlanetLab, using our unique methodology known as Multiple Replications in Parallel; see http://www.akaroa.canterbury.ac.nz This activities were summarized in a presentation during the IEICE General Conference (in Matsuyama City, Japan, March 17-20, 2009), given by Farzana Yasmeen, a Ph.D. exchange student from Japan who spent three months (September-November 2008) as a member of our research group. A copy of this presentation, on "Distributing Akaroa2 on PlanetLab", by F. Yasmeen, G. Ewing, K. Pawlikowski and S. Yamada, is available from our webpage on http://planetlabnz.canterbury.ac.nz/technical.html

Communications (500 words max)

An up-to-date information about this project on PlanetLab NZ and about our current activities have been available on the PlanetLab NZ website, at http://planetlabnz.canterbury.ac.nz

The recent activities included a presentation about the IEICE General Conference (in Matsuyama City, Japan, March 17-20, 2009), given by Farzana Yasmeen, a Ph.D. exchange student from Japan who spent three months   (September-November 2008) as a member of our research group. A copy of this presentation, on "Distributing Akaroa2 on PlanetLab", by F. Yasmeen, G. Ewing, K. Pawlikowski and S. Yamada, is available from our website, see http://planetlabnz.canterbury.ac.nz/technical.html Similarly, e-proceedings of our PlanetLab NZ Workshop, held in Dunedin in December 2008, has been placed on the PlanetLab NZ website, see <http://planetlabnz.canterbury.ac.nz/workshop2008.html>.
Our work on the website is continued.

Top Issues (500 words max)

The main issue is related with a possible extension of PlanetLab NZ to other universities in New Zealand. Research teams engaged in research on new networking technologies from the Auckland University of Technology, the University of Waikato, Massey University and the University of Victoria are very interested in establishing PlanetLab nodes on their locations. We have been engaged in discussions with these research teams, exploring various options. However, until now, no satisfactory source of funding for such an initiative has been identified.

So far, all goals of the current PlanetLab NZ project (involving the University of Canterbury, the University of Otago and the University of Auckland) have been achieved as planned, and the general timeframe of our activities has been followed up, despite that we had faced a number of additional challenges. The main problem was caused by the fact the University of Auckland did not agree to install our original computers, which were tower machines. Instead, they agreed to have rack-mounted machines installed only. To satisfy this requirement, we had to disconnect two rack-mounted machines already operating at our university. They were taken to Auckland, and two new tower machines (bought for Auckland) were installed at Canterbury.

Main technical problem which we faced at all three universities was the requirement that PlanetLab machines, which are connected to external world via KAREN, should be located outside firewalls of the participating universities.

Top Risks (500 words max)

None

What's Coming Up (500 words max)

We expect that the installation of two additional nodes of PlanetLab NZ at the University of Auckland will be finalized soon. This will be done when we receive a confirmation from Princeton University in the USA, from the administration office of the global PlanetLab, that PlanetLab NZ nodes at the University of Auckland have been registered. We will be able to declare them then as being fully operational.

If this is done, we will focus our further activities on applications of PlanetLab NZ in our research projects listed on http://planetlabnz.canterbury.ac.nz/technical.html