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Easy CCNx experimentation on PlanetLab

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Abstract

Realistic experimentation on top of Internet-like environments is key to evaluate the feasibility of world wide deployment of CCNx, and to assess the impact of existing Internet traffic conditions on CCN traffic. However, deploying live experiments on the Internet is a difficult and error prone task, specially when performed manually. To address this issue, we extended NEPI, a framework for managing network experiments, to support easy design, and automated deployment and control, of CCNx experiments on PlanetLab. Among other features, NEPI enables the deployment of user modified CCNx sources on arbitrary PlanetLab nodes, and the creation of tunnels to enable the use of multicast FIB entries between CCNx daemons over the Internet. By supporting easy CCNx experimentation on PlanetLab, NEPI can help to explore the co-existence of CCN and TCP/IP architecture.

Keywords: Experiment management, evaluation, testbed

1 Demonstration

We will demonstrate how NEPI [1] can be used to automate the deployment of CCNx experiments on PlanetLab from a regular laptop computer. To this end, we present a use case scenario where we observe the effects of CCNx caching when simultaneously retrieving a video stream along about ten PlanetLab nodes, associated in series though UDP unicast FIB entries. CCNx source code is obtained from a user specified location, allowing code customization, and is automatically compiled and installed at each node. Nodes are provisioned following user specified criteria, and all CCNx configuration is performed without user intervention during deployment. We are interested in presenting both a poster and a video demonstration on the subject. Further information regarding the described scenario, including a video demo, can be found at:

<http://nepi.pl.sophia.inria.fr/wiki/nepi/CCNxOnPlanetLabEurope>

Regarding the topics of the program, we are particularly interested in “*Use cases*”, “*Testbed collaboration*”, and “*CCN-related research issues such as naming, routing, security, resource management, etc.*”

References

- [1] Quereilhac, A. et al.: NEPI: An Integration Framework for Network Experimentation. *Software, Telecommunications and Computer Networks* 19, 1–5 (2011)