

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: Improving VoIP Call Quality using Predictive Relay Selection

Speaker: Venkat Padmanabhan
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Venue: SR@LT19

Chaired by: Dr Gilbert, Seth Lewis, Dean's Chair Assistant Professor, School of
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Abstract:

Internet telephony, or VoIP, places stringent demands on network performance in terms of latency, jitter, and packet loss. The best-effort Internet often falls short of meeting these requirements. In the PinDrop project at Microsoft Research, we are developing the networking substrate for supporting high-quality real-time streaming. After providing an overview of PinDrop, we will focus on one line of investigation, centered on selectively relaying calls through a managed overlay network, with a view to improving performance. The challenge, however, is in picking from a myriad of relay choices for traversing the overlay network. We present an architecture called Via, which combines call performance history-based filtering with an online exploration-exploitation strategy for relay selection. We evaluate Via using trace-drive simulations based on over 400 million Skype calls and show that it can cut the incidence of poor network conditions for calls by up to 45%. We also present results from the deployment of Via on a small-scale testbed.

Biodata:

Venkat Padmanabhan is a Principal Researcher at Microsoft Research India, where he founded the Mobility, Networks, and Systems group. He was previously with Microsoft Research Redmond, USA for nearly 9 years. Venkat's research interests are broadly in networked and mobile systems, and his work over the years has led to highly-cited papers and paper awards, technology transfers within Microsoft, and also industry impact. He presently serves on the SIGCOMM Industrial Advisory Board and was recently a recipient of the inaugural ACM SIGMOBILE Test-of-Time paper award. Venkat holds a B.Tech. from IIT Delhi and an M.S. and a Ph.D. from UC Berkeley, all in Computer Science. He has

been elected a Fellow of the Indian National Academy of Engineering (INAE), a Fellow of the IEEE, and a Distinguished Scientist of the ACM. He can be reached online at <http://research.microsoft.com/~padmanab/>