



## **NSW Vehicular Technology Chapter Lecture, 22 May 2015 at CSIRO Marsfield**

Professor Krishna M. Sivalingam is a Fellow of IEEE and an ACM Distinguished Scientist. He will give a seminar on Friday 11am in CSIRO Marsfield. Please attend if you are interested.

Time: 11-12:00, Friday, 22<sup>nd</sup> May 2015

Place: Lecture Theatre, CSIRO 30 Pembroke Rd, Marsfield(visitor parking available, report to the reception on arrival)

RSVP: Dr Wei Ni, [wei.ni@csiro.au](mailto:wei.ni@csiro.au), Ph.9372 4646

Cost: free

### **TITLE: Software Defined Networking based LTE Network Architectures**

#### **ABSTRACT:**

Cellular Network providers often selectively offload mobile data traffic to WiFi (IEEE 802.11) networks in order to balance the load and improve network performance. Several architectures based on Proxy Mobile IPv6 (PMIPv6) have been proposed to support seamless data offloading. The demerits of PMIPv6 include lack of flow mobility and single point of failure. In this talk, we propose the Seamless Internetwork Flow Mobility (SIFM) architecture that overcomes these drawbacks and provides seamless data offload supporting flow mobility. Both the PMIPv6 and the SIFM architectures have been implemented and evaluated incorporating salient LTE and WiFi network features in the ns-3 simulator.

The talk will also present an SDN-based Evolved Packet Core (EPC) architecture for LTE networks. The proposed EPC architecture centralizes the control plane functionality of EPC thereby eliminating the use of mobility management protocols and reducing mobility related signaling costs. The architecture utilizes the global network view feature of SDN for mobility management. The proposed architecture has been implemented in the ns-3 simulator framework and studied.

The ongoing efforts to implement these architectures in a testbed will also be briefly presented.

This talk is based on recent work (to be) reported in IEEE WoWMoM 2015 and IEEE NetSoft 2015.

#### **Speaker BIOGRAPHY:**

Krishna M. Sivalingam is a Professor in the Department of CSE, IIT Madras, Chennai, INDIA. Previously, he was a Professor in the Dept. of CSEE at University of Maryland, Baltimore County, Maryland, USA from 2002 until 2007; with the School of EECS at Washington State University, Pullman, USA from 1997 until 2002; and with the University of North Carolina Greensboro, USA from 1994 until 1997. He has also conducted research at Lucent Technologies' Bell Labs in Murray Hill, NJ, and at AT&T Labs in Whippany, NJ. He received his Ph.D. and M.S. degrees in Computer Science from State University of New York at Buffalo in 1994 and 1990 respectively; and his B.E. degree in Computer Science and Engineering in 1988 from Anna University's College of Engineering Guindy, Chennai (Madras), India. While at SUNY Buffalo, he was a Presidential Fellow from 1988 to 1991.

His research interests include wireless networks, wireless sensor networks, optical wavelength division multiplexed networks, and performance evaluation. His work has been supported by several sources including AFOSR, DST India, IBM, NSF, Cisco, Intel, Tata Power Company and Laboratory for Telecommunication Sciences. He holds three patents in wireless networks and has published several research articles including more than fifty journal publications. He has co-edited a book on Next Generation Internet Technologies in 2010; on Wireless Sensor Networks in 2004; on optical WDM networks in 2000 and 2004. He is serving or has served as a member of the Editorial Board for journals including ACM



Wireless Networks Journal, IEEE Transactions on Mobile Computing, and Elsevier Optical Switching and Networking Journal. He is presently serving as Editor-in-Chief of Springer Photonic Network Communications Journal and EAI Endorsed Transactions on Ubiquitous Environments.

He serves on the Steering Committee of IEEE Advanced Networks and Telecommunications Symposium (ANTS) and EAI/ICST Mobiquitous conferences. He is a Fellow of IEEE and an ACM Distinguished Scientist.

Contact: [skrishnam@iitm.ac.in](mailto:skrishnam@iitm.ac.in); [krishna.sivalingam@gmail.com](mailto:krishna.sivalingam@gmail.com)

URL: <http://www.cse.iitm.ac.in/~skrishnam>