



9th IFIP Networking
10-14 May 2010, Chennai, India

IFIP Networking 2010 Programme



CONFERENCE AND GENERAL INFORMATION

Networking 2010 Registration

The registration desk is located in the ground floor of the ICSR building, IIT Madras.

Monday, 10 May: 08:30-17:00

Tuesday, 11 May: 08:30-17:00

Wednesday, 12 May: 09:00-16:30

Thursday, 13 May: 09:00-16:15

Friday, 14 May: 08:30-17:00

Social Event

Light music show by Flute maestro Shri. K. Baskaran and party is being arranged on 12th Evening from 6PM to 8PM. This is followed by Conference dinner at 7.30PM.

TABLE OF CONTENTS

Organizing Committee.....	4
Technical Programme Committee.....	5
Programme at a Glance.....	8
Keynote Speakers.....	9
Technical Sessions.....	11
Workshop 1.....	19
Workshop 2.....	21
Tutorials.....	23
Instructions for Presentations.....	25
Venue Map.....	26

Executive Committee

General Chair

S V Raghavan,
IIT Madras, Chennai, India

Technical Program Co-Chairs

Mark Crovella, Boston University, USA
Laura Feeney, SICS, Sweden
Dan Rubenstein, Columbia University, USA

Steering Committee

George Carle, TU Munich, Germany
Marco Conti, IIT-CNR, Pisa, Italy
Pedro Cuenca, Univ. Castilla-la-Mancha, Spain
Guy Leduc, Univ. of Liège, Belgium
Henning Schulzrinne, Columbia Univ., USA

Organising Committee Co-Chairs

Mr.S.Mahalingam, TCS, India
Dr. Govind, DIT, India

Members

Mr. S. K. Nair, TCS, India
Mr. S. Ramanathan, CSI Chennai chapter
Mr. H.R. Mohan , CSI Chennai Chapter
Mr. S. Ramasamy, CSI Chennai Chapter
Mr. K. Jayaramakrishnan, CSI Chennai Chapter
Mr. K. Adhivarahan, CSI Chennai Chapter
Dr. P. Sakthivel, CSI Chennai Chapter
Wg Cdr M Murugesan (Retd.), Director Edn, CSI

TECHNICAL PROGRAMME COMMITTEE

Technical Programme Committee Members

Rui Aguiar	University of Aveiro
Aditya Akella	University of Wisconsin-Madison
Ehab Al-Shaer	University of North Carolina Charlotte
Kevin Almeroth	University of California
Fan Bai	General Motors
Ernst Biersack	EURECOM
Olivier Bonaventure	Université catholique de Louvain
Raouf Boutaba	University of Waterloo
Torsten Braun	University of Bern
Fabian Bustamante	Northwestern University
Georg Carle	Technische Universität München
Claudio Casetti	Politecnico di Torino
Augustin Chaintreau	Thomson
Marco Conti	IIT-CNR
Mark Crovella	Boston University
Jun-Hong Cui	University of Connecticut
Jaudelice de Oliveira	Drexel University
Edmundo de Souza e Silva	Federal University of Rio de Janeiro
Jordi Domingo-Pascual	Technical University of Catalunya (UPC)
Constantine Dovrolis	Georgia Institute of Technology
Lars Eggert	Nokia Research Center
Laura Feeney	Swedish Institute of Computer Science
Anja Feldmann	TU-Berlin
Wu-chi Feng	Portland State University
Daniel Figueiredo	UFRJ
Luigi Fratta	Politecnico di Milano
Timur Friedman	UPMC Paris Universitatis and CNRS
Zihui Ge	AT&T Labs - Research
Erol Gelenbe	Imperial College London
Brighten Godfrey	University of Illinois at Urbana-Champaign
Timothy Griffin	University of Cambridge
Minaxi Gupta	Indiana University
Guenter Haring	Universität Wien
Markus Hofmann	Bell Labs/Alcatel-Lucent
David Hutchison	Lancaster University
Gianluca Iannaccone	Intel Corporation
Ping Ji	John Jay College of Criminal Justice
Holger Karl	University of Paderborn
Peter Key	Microsoft Research

Kimon Kontovasilis	NCSR Demokritos
Aleksandar Kuzmanovic	Northwestern University
Guy Leduc	University of Liege
Patrick Pak-Ching Lee	The Chinese University of Hong Kong
Kenji Leibnitz	Osaka University
Douglas Leith	Hamilton
Jorg Liebeherr	University of Toronto
Benyuan Liu	University of Massachusetts Lowell
Yong Liu	Polytechnic University
John Chi Shing Lui	Chinese University of Hong Kong
Gaia Maselli	University of Rome La Sapienza
Laurent Mathy	Lancaster University
Martin May	Thomson
Ketan Mayer-Patel	University of North Carolina
Michael Menth	University of Wuerzburg
Jelena Misic	Ryerson University
Vishnu Navda	Microsoft Research
Erik Nordström	Uppsala University
Ilkka Norros	VTT Technical Research Centre of Finland
Philippe Owezarski	LAAS
Maria Papadopouli	University of Crete
Christos Papadopoulos	Colorado State University
Marcelo Pias	Cambridge University
Ana Pont	Politechnich University of Valencia
Konstantinos Psounis	University of Southern California
Ramon Puigjaner	UIB
Guy Pujolle	University of Paris 6
Raj Rajendran	Columbia University
Sanjay Rao	Purdue University
James Roberts	France Telecom
George Rouskas	North Carolina State University
Dan Rubenstein	Columbia University
Sambit Sahu	IBM Research
Theodoros Salonidis	Thomson Technology Paris Laboratory
Henning Schulzrinne	Columbia University
Aruna Seneviratne	NICTA
Krishna Sivalingam	Indian Institute of Technology Madras
Robin Sommer	ICSI and LBNL
Otto Spaniol	RWTH Aachen University
Cormac Sreenan	University College Cork
David Starobinski	Boston University
Ioannis Stavrakakis	National and Kapodistrian University of Athens
Yutaka Takahashi	Kyoto University
Phuoc Tran-Gia	University of Wuerzburg

Piet Van Mieghem
Wenye Wang
Bing Wang
Carey Williamson
Tilman Wolf
Adam Wolisz
Guoliang Xue
Daniel Zappala
Rong Zheng
Gil Zussman

Delft University of Technology
NC State University
University of Connecticut
University of Calgary
University of Massachusetts
Technical University of Berlin
Arizona State University
Brigham Young University
University of Houston
Columbia University

PROGRAMME AT A GLANCE

Time/Day	10 May	11 May	12 May	13 May	14 May
09:00-09:15	Opening	Conference Opening	Keynote 2	Session 7 Regular	Tutorial
09:15-10:00		Keynote 1			
10:00-10:15			Break		
10:15-10:30	Break	Break	Break	Break	Break
10:30-10:45					
10:45-11:45	Workshop	Session 1 Regular	Session 4 Regular	WIP Session B	Tutorial
11:45-12:00			Lunch		
12:00-13:15	Lunch	Lunch	Lunch	Lunch	Lunch
13:15-13:30					
13:30-14:15	Workshop	Session 2 Regular	Session 5 Regular	Extra Session/ Indian Students	Tutorial
14:15 -14:20				Break	
14:20-14:45					
14:45-14:55	Break	WIP Session A	Break	Session 8 Regular	Break
14:55-15:15					
15:15-15:45	Workshop	Break	Session 6 Regular	Session 6 Regular	Tutorial
15:45-16:00		Session 3 Regular			
16:00-16:15					
16:15-16:30					
16:30-17:00					

KEYNOTE SPEAKER NETWORKING 2010

Prof. S. Keshav, School of Computer Science, University of Waterloo, Canada

Date Tuesday, 11th May, 09.15 – 10.15, ICSR Auditorium

Title How the Internet can Green the Electrical Grid

Abstract Several powerful forces are gathering to make fundamental and irrevocable changes to the century-old grid. The next-generation grid, often called the 'smart grid,' will feature distributed energy production, vastly more storage, tens of millions of stochastic renewable-energy sources, and the use of communication technologies both to allow precise matching of supply to demand and to incentivize appropriate consumer behaviour. These changes will have the effect of reducing energy waste and reducing the carbon footprint of the grid, making it 'smarter' and 'greener.' In this talk, I will demonstrate that the concepts and techniques pioneered by the Internet, the fruit of four decades of research in this area, are directly applicable to the design of a smart, green grid. This is because both the Internet and the electrical grid are designed to meet fundamental needs, for information and for energy, respectively, by connecting geographically dispersed suppliers with geographically dispersed consumers. Keeping this and other similarities (and fundamental differences, as well) in mind, I propose several specific areas where Internet concepts and technologies can contribute to the development of a smart, green grid. I hope that our work will initiate a dialogue between these two communities. (joint work with Catherine Rosenberg, University of Waterloo)

Biography S. Keshav is a Professor and Canada Research Chair in Tetherless Computing at the School of Computer Science, University of Waterloo, Canada and the Editor of ACM SIGCOMM Computer Communication Review. Earlier in his career he was a researcher at Bell Labs and an Associate Professor at Cornell. He is the author of a widely used graduate textbook on computer networking. He has been awarded the Director's Gold Medal at IIT Delhi, the Sakrison Prize at UC Berkeley, the Alfred P. Sloan Fellowship, a Best Student Paper award at ACM SIGCOMM, a Best Paper award at ACM MOBICOM, and two Test-of-Time awards from ACM SIGCOMM. He is a co-founder of three startups: Ensim Corporation, GreenBorder Technologies, and Astilbe Networks. His current interests are in the use of tetherless computing for rural development, and for gaining efficiency in energy generation, transmission, and consumption. Keshav received a B.Tech from the Indian Institute of Delhi in 1986 and a Ph.D. from the University of California, Berkeley, in 1991, both in Computer Science.

KEYNOTE SPEAKER NETWORKING 2010

Samir R. Das, Computer Science Department, Stony Brook University, Stony Brook, NY 11747, USA

Date Wednesday, 12th May, 09.00 – 10.00, ICSR Auditorium

Title Multiple Access Protocols for Multi-Gigabit Wireless Networks

Abstract Wireless local and personal area networking at multi-gigabit speeds presents a tremendous opportunity to deploy exciting futuristic applications. They include, for example, wireless high definition video streaming of unprecedented quality across a room, ‘wireless’ docks and instantaneous backups from laptops, and high-speed wireless interconnects for multi-computer systems replacing wired backplanes and switches. The latter aspect can have tremendous impact on the design of future data centers – lowering capital cost by eliminating cabling and lowering energy budget by improving airflow. However, while the radio layer technology is now mature, designing efficient multiple access protocols in the multi-gigabit regime is fraught with challenging problems. These challenges must be overcome to realize the full potential of multi-gigabit speeds. In this talk, I will describe these challenges and potential solutions in connection with two different frequency bands (<6 GHz and 60 GHz), where multi-gigabit technologies are to be deployed in the foreseeable future. I will also describe relevant standardization efforts in this space.

Biography Samir Das is currently a Professor in the Computer Science Department in the State University of New York at Stony Brook. He also serves as one of the directors in the NY State Center of Excellence in Wireless & Information Technology (CEWIT) in Stony Brook. Professor Das received his Ph.D. in Computer Science from Georgia Institute of Technology, Atlanta, in 1994. His research interests are in wireless networking and mobile computing, focusing on protocols, systems and performance evaluation. He received the NSF CAREER award in 1998 and the best paper award in ACM MobiSys conference in 2007. He has been a speaker in the Distinguished Visitor program of the IEEE Computer Society during 2001-03. He co-chaired the technical program committee for the ACM MobiHoc Symposium in 2001 and ACM MobiCom Conference in 2004. He currently serves or has previously served on the editorial board of the IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, ACM/Kluwer Wireless Networks Journal and Ad Hoc Networks journal.

TECHNICAL SESSIONS – Tuesday, 11 May 2010

Session 1 Regular: 10:45 - 12:00

P2P and Overlay Networks

Using Torrent Inflation to Efficiently Serve the Long Tail in Peer-assisted Content Delivery Systems; Niklas Carlsson (University of Calgary, Canada); Derek Eager (University of Saskatchewan, Canada); Anirban Mahanti (NICTA, Australia)

Network Distance Prediction Based on Decentralized Matrix Factorization; Yongjun Liao (University of Liege, Belgium); Pierre Geurts (University of Liege, Belgium); Guy Leduc (University of Liege, Belgium)

Topology-Awareness and Reoptimization Mechanism for Virtual Network Embedding; Nabeel Butt (University of Waterloo, Canada); Mosharaf Chowdhury (University of California, Berkeley, USA); Raouf Boutaba (University of Waterloo, Canada)

Session 2 Regular: 13:30 - 14:20

Performance measurement

A Longitudinal Study of Small Time Scaling Behavior of Internet Traffic; Himanshu Gupta (IBM India Research Laboratory, India); Vinay Ribeiro (Indian Institute of Technology, India); Anirban Mahanti (NICTA, Australia)

Measurement Study of Multi-party Video Conferencing; Yue Lu (Delft University of Technology, The Netherlands); Yong Zhao (Delft University of Technology, The Netherlands); Fernando A. Kuipers (Delft University of Technology, The Netherlands); Piet Van Mieghem (Delft University of Technology, The Netherlands)

TECHNICAL SESSIONS – Tuesday, 11 May 2010

WIP Session A: 14:20 - 15:15

Work in Progress

Server Guaranteed Cap: An incentive mechanism for maximizing streaming quality in heterogeneous overlays; Ilias Chatzidrossos (KTH, Royal Institute of Technology, Sweden); Gyorgy Dan (KTH, Royal Institute of Technology, Sweden); Viktoria Fodor (KTH, Sweden)

End-to-End Throughput with Cooperative Communication in Multi-channel Wireless Networks; Zheng Huang (Fudan University, P.R. China); Xin Wang (Fudan University, P.R. China); Baochun Li (University of Toronto, Canada)

Cost Bound of Multicast Light-trees in WDM Networks; Fen Zhou (IRISA / INSA Rennes, France); Miklos Molnar (INSA Rennes / IRISA, France); Bernard Cousin (IRISA, University of Rennes 1, France); Chunming Qiao (State University of New York at Buffalo, USA)

Session 3 Regular: 15:45 - 16:30

Quality of Service

Passive Online RTT Estimation for Flow-Aware Routers using One-Way Traffic; Damiano Carra (University of Verona, Italy); Konstantin Avrachenkov (INRIA Sophia Antipolis, France); Sara Alouf (INRIA, Sophia Antipolis, France); Alberto P Blanc (I.N.R.I.A. Sophia Antipolis, France); Philippe Nain (INRIA, Sophia Antipolis, France, France); Georg Post (Alcatel-Lucent France, France)

A Flow Scheduler Architecture; Dinil Mon Divakaran (ENS Lyon, INRIA, France); Giovanna Carofiglio (Bell Labs, Alcatel-Lucent, France); Eitan Altman (INRIA, France); Pascale Vicat-Blanc Primet (INRIA, France)

Stateless RD Network Services; Maxim Podlesny (University of Calgary, Canada); Sergey Gorinsky (Madrid Institute for Advanced Studies in Networks (IMDEA Networks), Spain)

TECHNICAL SESSIONS – Wednesday, 12 May 2010

Session 4 Regular: 10:30 - 11:45

Wireless Networks

Multicast in Multi-Channel Wireless Mesh Networks; Ouldooz Baghban Karimi (Simon Fraser University, Canada); Jiangchuan Liu (Simon Fraser University, Canada); Zongpeng Li (University of Calgary, Canada)

Ambient Interference Effects in Wi-Fi Networks; Aniket Mahanti (U. Calgary, Canada); Niklas Carlsson (University of Calgary, Canada); Carey Williamson (University of Calgary, Canada); Martin Arlitt (University of Calgary, Canada)

A Zone Assignment Algorithm for Fractional Frequency Reuse in Mobile WiMAX Networks; Michael Einhaus (NEC Laboratories Europe, Germany); Andreas Maeder (NEC Laboratories Europe, Germany); Xavier Pérez Costa (NEC Laboratories Europe, Germany)

Session 5 Regular: 13:15 - 14:55

Addressing and Routing

Handling Transient Link Failures Using Alternate Next Hop Counters; Suksant Sae Lor (University College London, United Kingdom); Raul Landa (University College London, United Kingdom); Redouane Ali (University College London, United Kingdom); Miguel Rio (UCL, United Kingdom)

Efficient Recovery from False State in Distributed Routing Algorithms; Daniel Gyllstrom (University of Massachusetts Amherst, USA); Sudarshan Vasudevan (University of Massachusetts Amherst, USA); Jim Kurose (University of Massachusetts at Amherst, USA); Gerome Miklau (University of Massachusetts at Amherst, USA)

IP Fast Reroute in Networks with Shared Risk Links; Yan Li (The University of Texas at Austin, USA); Mohamed Gouda (University of Texas at Austin, USA)

EAU: Efficient Address Updating for Seamless Handover in Multi-homed Mobile Environments; Yuansong Qiao (Athlone Institute of Technology, Ireland); Shuaijun Zhang (Athlone Institute of Technology, Ireland); Adrian Matthews (Athlone Institute of Technology, Ireland); Gregory Hayes (Athlone Institute of Technology, Ireland); Enda Fallon (Athlone Institute of Technology, Ireland)

TECHNICAL SESSIONS – Wednesday, 12 May 2010

Session 6 Regular: 15:15 - 16:30

Applications and Services

Speculative validation of web objects for further reducing the user-perceived latency; Josep Domènech (Universitat Politècnica de València, Spain); José A. Gil (Politechnic University of Valencia, Spain); Julio Sahuquillo (Universidad Politecnica de Valencia, Spain); Ana Pont (Universitat Politècnica de València, Spain)

Adaptive Service Placement in Dynamic Service Hosting Environments; Qi Zhang (University of Waterloo, Canada); Jin Xiao (University of Waterloo, Canada); Eren Gurses (University of Waterloo, Canada); Martin Karsten (University of Waterloo, Canada); Raouf Boutaba (University of Waterloo, Canada)

Evaluating the impact of a novel warning message dissemination scheme for VANETs using real city maps; Francisco J. Martinez (University of Zaragoza, Spain); Manuel Fogue (University of Zaragoza, Spain); Manuel Coll (University of Zaragoza, Spain); Juan Carlos Cano Escriba (Universidad Politecnica de Valencia, Spain); Carlos Tavares Calafate (Technical University of Valencia, Spain); Pietro Manzoni (Universidad Politécnica de Valencia, Spain)

TECHNICAL SESSIONS – Thursday, 13 May 2010

Session 7 Regular: 09:00 - 10:15

Ad hoc and Sensor Networks

Resource Optimization Algorithm for Sparse Time-Driven Sensor Networks; María Luisa Santamaría (Universitat de les Illes Balears, Spain); Sebastià Galmés (Universitat de les Illes Balears, Spain); Ramon Puigjaner (UIB, Spain)

Routing protocol for anycast communications in a wireless sensor network; Nancy El Rachkidy (Blaise Pascal University, France); Alexandre Guitton (Clermont University, France); Michel Misson (Equipe REPLIC, IUT Clermont-Fd, France)

Fault-tolerant Power-aware Topology Control for Ad-hoc Wireless Networks; Harichandan Roy (Bangladesh University of Engineering and Technology, Bangladesh); Shuvo De (Bangladesh University of Engineering and Technology, Bangladesh); Md. Maniruzzaman (Bangladesh University of Engineering and Technology, Bangladesh); A K M Ashikur Rahman (University of Alberta, Canada)

WIP Session B: 10:45 - 12:00

Work in Progress II

Bidirectional Range Extension for TCAM-Based Packet Classification; Yan Sun (Washington State University, USA); Min Sik Kim (Washington State University, USA)

Estimating the Economic Value of Flexibility in Local Loop Unbundling; Koen Casier (University of Ghent, Belgium); Mathieu Tahon (Ghent University, Belgium); Sofie Verbrugge (Ghent University - IBBT, Belgium); Didier Colle (IBBT - Ghent University, Belgium); Mario Pickavet (Ghent University, Belgium); Piet Demeester (Ghent University, Belgium)

Intercarrier Compensation between Providers of Different Layers: Advantages of Transmission Initiator Determination; Ruzana Davoyan (University of Mannheim, Germany); Wolfgang Effelsberg (University of Mannheim, Germany)

Application of Secondary Information for Misbehavior Detection in VANETs; Ashish Vulimiri (IIT Kharagpur, India); Arobinda Gupta (Indian Institute of Technology,

Kharagpur, India); Prमित Roy (IIT Kharagpur, India); Skanda N Muthaiah (General Motors India Science Labs, India); Arzad Kherani (General Motors India Science Lab, India)

Path Attestation Scheme to Avert DDoS Flood Attacks; Raktim Bhattacharjee (IIT Madras, India); Sanand Sasidharan (Indian Institute of Technology Madras, India); Serugudi Venkataraman Raghavan (IIT Madras, India)

Session 8 Regular: 14:45 - 16:00

P2P and Overlay Networks II

Survivable Virtual Network Embedding; Muntasir Raihan Rahman (University of Waterloo, Canada); Issam Aib (University of Waterloo, Canada); Raouf Boutaba (University of Waterloo, Canada)

Toward Efficient On-demand Streaming with BitTorrent; Youmna Badr Borghol (National ICT Australia, Australia); Sebastien G Ardon (National ICT Australia, Australia); Niklas Carlsson (University of Calgary, Canada); Anirban Mahanti (NICTA, Australia)

Synapse: A Scalable Peer to Peer Protocol for Interconnecting Heterogeneous Overlay Networks; Luigi Liquori (INRIA Sophia Antipolis, France); Cedric Tedeschi (University of Rennes I / INRIA, France); Laurent Vanni (University Nice Sophia Antipolis, France); Francesco Bongiovanni (INRIA Sophia Antipolis, France); Vincenzo Ciancaglini (INRIA Sophia Antipolis, France); Bojan Marinkovic (Mathematical Institute of the Serbian Academy of Sciences and Arts, Serbia)

WORKSHOPS – Monday, 10 May 2010

WORKSHOP 1 - High-Bandwidth + Low-Latency + Grid =?

Timings: 9:00 - 12:00 Hrs

Abstract:

Latest applications in scientific as well as academic area such as, collaborative applications, distributed research experiments, grid-based data analysis and social networking are very bandwidth-intensive and require low latency, high bandwidth data transfers even on campuses to ensure quick delivery & acceptable end-to-end performance. The deployment of dynamic, innovative and cost-effective optical network infrastructure provides next-generation production network services as well as a platform for the development of new and experimental networking ideas and protocols. Currently, at least ten 10 Gbps links are provisioned on each segment of the optical fiber cable (OFC) deployed for many high-bandwidth networks worldwide, which can be further scaled to 20 or 40 or 100 G or more.

Users have benefited from 'Grid Computing' technology, which allowed sharing and aggregation of a wide variety of geographically distributed networked resources - like computational power, data, storage, large scientific instruments etc by effective integration of geographically distributed resources through Internet technology. The main emphasis of Grid technology was to ensure seamless & secure access of the resources present anywhere on the grid. However grid computing has moved to Utility Computing - a software as a service model- to the latest - Cloud computing, the idea of relying on Web-based applications and storing data in the "cloud" of the Internet. This has tilted engineers towards a trend to house more computing, storage and software services in data centers and connect these data centers through ultra high speed networks. This computing revolution has enabled huge improvements in computer networks, creating the ability to harness the power of linked computers and shared storage. With the idea of Cloud, there is no need for the user to own the IT infrastructure, it can be merely accessed or rented, by paying for the actual use thus saving huge cost & headaches of IT management. Many vendors such as Amazon, IBM, Google, Yahoo, Gogrid, and Microsoft etc are offering such Cloud computing services.

This presentation will describe few latest optical Networks, Grid and Cloud Computing technologies and the tools used today worldwide. The Cloud Computing has gained a lot of momentum in India with the launch of National Knowledge Network (NKN) – broad overview of NKN will be given.

Conducted By: P. S. Dhekne

About P. S. Dhekne

P.S. Dhekne is Raja Ramanna Fellow; in Bhabha Atomic Research Center (BARC), Associate Director and a Scientific Consultant to Principal Scientific Adviser to the Government of India. He is a member of technical advisory committee for setting up National Knowledge Network (NKN). NKN is an initiative of Government of India to bring together all the stakeholders in Science, Technology, Higher Education, Research and Development, GRID Computing, e-governance with speeds scalable eventually up to the order of 10s of gigabits per second.

Running Applications on GARUDA - The National Grid Computing Initiative of India

Speaker: Subrata Chattopadhyay and Mangala N

About Subrata Chattopadhyay

Subrata Chattopadhyay is currently head of System Engineering and Networking Group at C-DAC, Bangalore and Chief Investigator of Garuda. He was involved in setting up the PARAM Padma, Supercomputing facility and address the challenges of high performance computing. He has also contributed for setting up of high speed communication fabric of GARUDA and deploying grid middleware across various platforms of supercomputers. From C-DAC, he is technical lead for the EUIndia Grid project that interconnect Indian grid project – Garuda with the European grid initiatives – EGEE.

About Mangala N

Mangala N presently working as a Coordinator of System Software Development Group in CDAC, leading and managing System Software projects in Grid Computing and High Performance Computing. Worked in several domains which include system software, compilers, debuggers, real time systems - SCADA, and Grid Computing. She presented tutorials in E-Science 2007 and ADCOM 2009.

Abstract:

The current day applications have interrelated demands of data storage, computing, instrumentation-intensive services, and have higher needs for collaborations among various specialists and communities.

GARUDA - the Pan Indian Grid connects 45 R&D organizations and academic institutions across 17 cities of India aggregating heterogeneous HPC compute clusters, storage, satellite terminals; and scientific instruments and aims to provide the technological advances required to enable intensive science for the 21st century.

This session will provide participants exposure to:

1. Overview of GARUDA grid
2. Globus Middleware and Garuda architecture
3. Applications on Grid with case study
4. Grid Enabling Your Applications on GARUDA

WORKSHOP 2 - Emerging trends and challenges in Fibre Optic Transmission

Timings: 10 May, 13:30 - 17:00 Hrs

Optical transport networks, which form the backbone of all telecom networks, have undergone a revolution in the last decade. The most well-known aspect of this revolution that virtually annihilated the cost of long-distance communication is Dense-Wavelength Division Multiplexing (DWDM) which enabled multiple, high-speed (10Gbps+) wavelengths to be optically multiplexed over a single fiber, optically amplified, and transported without regeneration over transoceanic and intercontinental distances. Today, due to advancements in modulation, coding and detection, as well as enhanced error correction (FEC/EFEC) mechanisms, the per-wavelength bit-rates are increasing to 100 Gbps, further reducing the cost of long-distance communication. Another driver of transmission cost reduction is the availability of reliable photonics integrated circuits (PIC) that combine multiple functions at the unit level. At the same time, the increasing dominance of data in network traffic has led to the development of Packet Transport Network (PTN) architectures based on connection-oriented Ethernet that combine the benefits of statistical multiplexing with SDH/SONET-like traffic engineering, OAM and reliability. Paradoxically, renewed interest in TDM is noticed world-wide as the SDH/SONET hierarchy transitions to the Optical Transport Network (OTN) hierarchy that enables sub-wavelength multiplexing, grooming and bandwidth-management capabilities over DWDM backbone networks. As traffic growth is inherently becoming unpredictable, it is advantageous for the add/drop capability to be reconfigurable at the wavelength level. Thus reconfigurable optical add/drop multiplexers (ROADM) are enabling dynamic network services while providing the operational advantage of remote wavelength-reconfigurability. Further, multi-degree ROADMs are beginning to be used for cost-efficient, shared-mesh restoration at the optical layer. Recent developments in a unified, multi-layer control plane based on ASON/GMPLS technology provide many significant benefits such as rapid and accurate provisioning, dynamic restoration, greater network efficiency in terms of bandwidth sparing and resource utilization, and seamless inter-operability across multiple vendors. All of the above technologies are coming together in a single "Packet Optical Transport Platform" (POTP) which is laying the foundation for a dynamic optical network.

In this talk, we will start with an overview of Packet and Optical Transport Networks. Then we will delve deeper into DWDM, ROADM, OTN, PTN and ASON/GMPLS technologies. We will end the talk with some speculations on the future of transport networks over the next decade.

Conducted by: Dr. Kumar Sivarajan

About Dr. Kumar Sivarajan

Dr. Kumar Sivarajan is Chief Technology Officer of Tejas Networks. Prior to Tejas Networks, Dr. Sivarajan was an Associate Professor in the Electrical Communication Engineering Department, at the Indian Institute of Science, Bangalore. Prior to that he worked with IBM Thomas J.Watson Research Center, Yorktown Heights, New York. Dr. Sivarajan is co-author of the textbook 'Optical Networks: A Practical Perspective' published in February 1998. He is a Fellow of the Indian National Academy of Engineering, an Associate of the Indian Academy of Sciences, and a recipient of the Swarnajayanti Fellowship from the Department of Science and Technology, and the 2004 Global Indus Technovator Award from the India Business Club at the Massachusetts Institute of Technology. He is also a recipient of the Institute of Electrical and Electronics Engineers, Inc Fortescue Fellowship and Institute of Electrical and Electronics Engineers, Inc. Baker Prize Paper Award. Dr. Sivarajan holds a Bachelor's Degree in Technology in Electrical Engineering from the Indian Institute of Technology, Madras and a Doctorate from the California Institute of Technology.

TUTORIALS – Friday, 14 May 2010

Tutorial 1: Next Generation Networks

Timings: 9:00 - 12:15 Hrs

9:00-10:00 Hrs: “Metro Optical Networks” by Prof. **Ashwin Gumaste**, IIT Bombay

10:15-11:15 Hrs: “IP Harmonization in Heterogeneous Networks” by **R. S. Mani**, NIC, India

11:15-12:15 Hrs: “GPON Technology” by **Vipin Tyagi**, Director, C-DOT, India

Tutorial 2: Network Forensics

Tutorial Organizing Chair

Dr. P. Venkat Rangan, Vice-Chancellor, AMRITA

Fellow of ACM and Former Professor of Computer Science at University of California, San Diego

Tutorial Coordinator

Mr. Prashant R.Nair, Vice-Chairman – Information Technology, AMRITA

Secretary, Computer Society of India, Coimbatore chapter

Assisted by: Mr. Arun Kumar C, Faculty, AMRITA

Timings: 13:30 - 17:00 Hrs

Network Forensics Tutorial Speakers

Mr. Kandasamy Muniasamy, Symantec

Assisted by Mr. Rajesh Sethumadhavan and Mr. Deepayan Chanda, Symantec

Profile: Mr. Kandasamy (Kanda) Muniasamy is Senior Director of Services Development at Symantec center in Chennai, where he leads Consulting and Managed Security Services teams. Prior to Symantec, he was with VeriSign and Netscape/AOL 5+ years each where he led Secure Payments, Authentication and Enterprise PKI and SSL projects. His interests include raising consumer awareness on safe Internet usage

and applying security technologies to solve Authentication and Network and Application Security problems for Enterprises, FIs and Governments.

Abstract: Network monitoring for anomalous behaviors at the edges as well as at end points is critical to identify security incidents pro-actively. Once an incident is suspected to have occurred then the logs inspected as part of monitoring form the basis for network forensics for gathering evidence and reconstructing the attack sequence. These logs could be from fire walls, IDS/IPS devices or host IDS. Finally the compromised end point itself will have to be inspected using trusted tools to collect and record evidence. In this tutorial, we present a few case studies of cyber attacks, show how the anomalous behavior could be detected at network level and traced back to the point of compromise.

Prof. Sandeep Kumar, AMRITA

Profile: Prof. Sandeep Kumar is a faculty in the computer science department at Amrita University in Coimbatore, attached to the Center for Cyber Security. Prior to joining the university in July 2009, he was with RSA Security in Bangalore. Sandeep has a Ph.D. in Computer Science from Purdue.

Abstract: The tutorial will describe DNS, the Internet's name resolution system in some detail and cover threats on it ranging from the early attacks pointed by Steven Bellovin to the recent attack in 2008 by Dan Kaminsky that fundamentally broke security in DNS. If equipment is available, we will also demonstrate the easy cache poisoning attacks that exploit the race condition between a DNS request and its response. Time permitting, we will also provide an overview of DNSSEC. The tutorial is intended for people unfamiliar with the details of DNS and the attacks possible on it.

Prof. M. Sethumadhavan, AMRITA

Profile: Prof. M. Sethumadhavan is a PhD in Number Theory from University of Calicut and is a faculty in Centre for Cyber Security of Amrita University, Ettimadai, Coimbatore. He is credited with starting the first Post Graduate programme in Cyber Security in India at AMRITA. He is also pursuing several research projects with various government agencies.

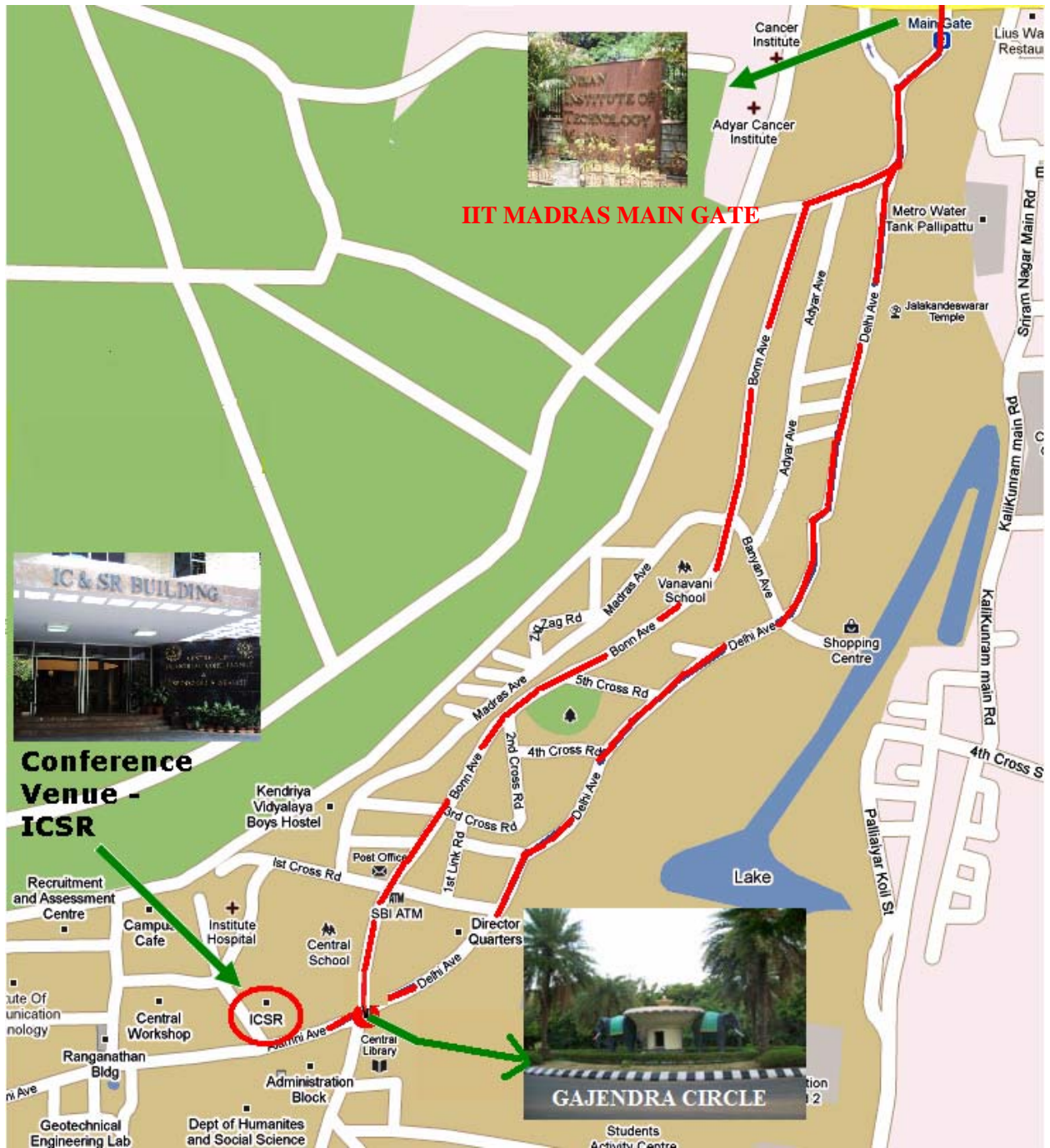
Abstract: Any communication system consists of a number of entities such as people, companies, computers, phones, and the like that communicate using a variety of communication channels and increasingly over open networks. Protocols are the rules that govern these communications. Between these entities, which communicate over untrusted medium, a sufficient level of security and confidentiality must be established. The design and analysis of cryptographic systems and security protocols that process confidential information are important tools for attaining this goal. In this tutorial we propose to discuss some of these methods.

Instructions for Presentations

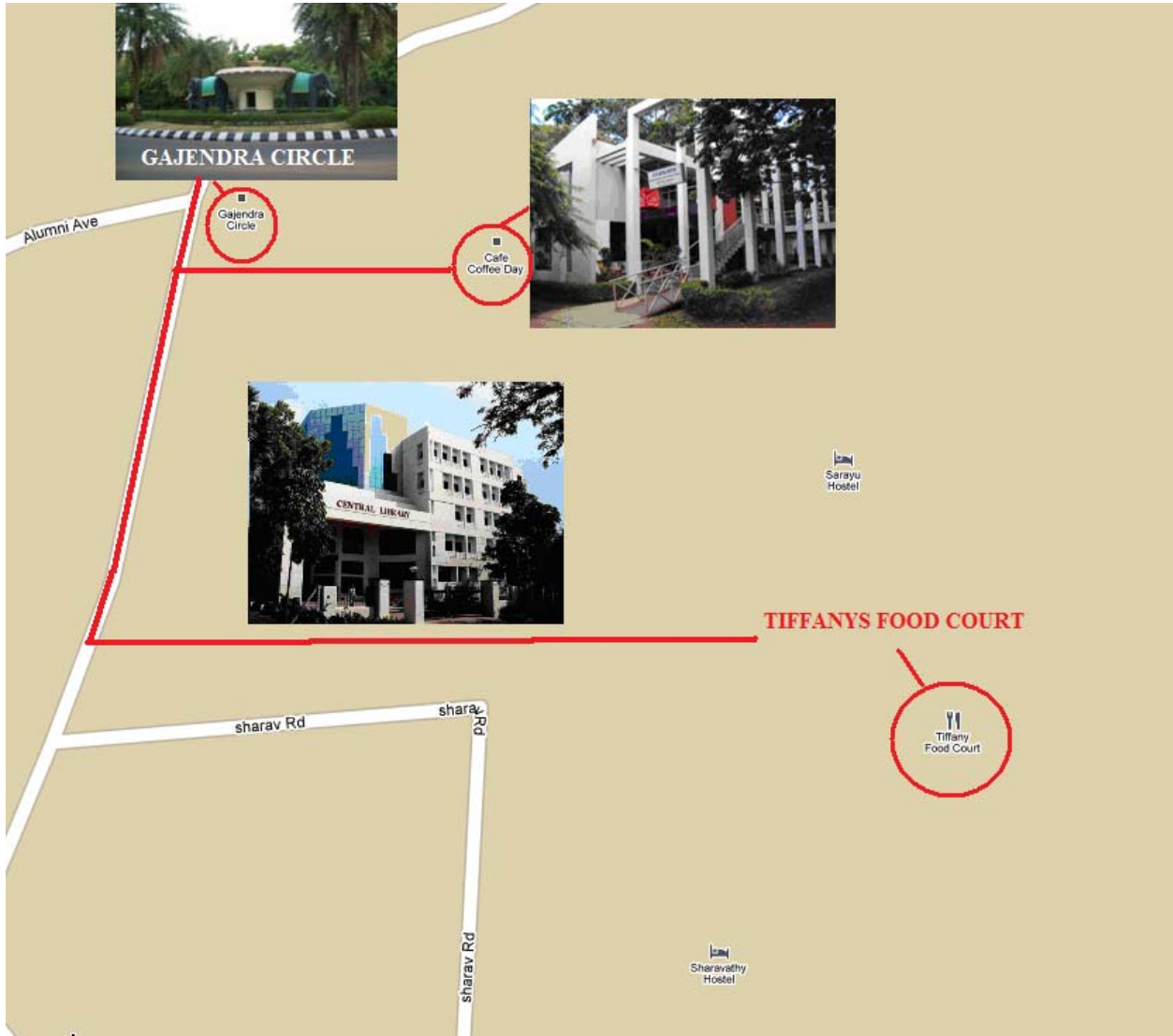
Oral Presentation

Authors presenting "Full Papers" will have 20 minutes for presentation and 5 minutes for discussion. Authors presenting "Work in Progress Papers" will have 15 minutes for presentation and 3 minutes for discussion. Each oral session room will be equipped with an LCD projector, laptop, microphone, and laser pointer. All you need to bring is a USB drive or a CD with your presentation (.pdf, or .ppt format). Please prepare a short biography (3-5 lines); this will enable your session chair to introduce you. To be fair to all presenters, and to give the audience enough time for questions, please observe the time limit for your presentation. Be at the appropriate room no later than 15 minutes before the start of the session in which you are presenting, and introduce yourself to the Session Chair.

CONFERENCE VENUE MAP



RESTAURANTS IN CAMPUS



SPONSORS

Networking 2010 is sponsored by the IFIP Technical Committee on Communication Systems (TC6). We are pleased to acknowledge the generous support provided by these organizations.

