



Panel on Smart Cities

November 7, 2016

Venue: Indian Institute of Science, Bangalore

Smart Cities: Technological Challenges and Opportunities

Smart Cities are the future of urban life where people, resources, services and cultures will work together for better future in an integrated way. The concept of Smart Cities is not only applicable for metropolitan cities across the world but also for the smaller cities and suburbs and eventually to any small or large communities. In the context of Smart City features emerging technologies play an enormous role as those features essentially depend on communication across thousands of devices and systems over network exploiting the patterns of internet of things and big data analytics.

However, currently there are no established frameworks and technologies available in the industry which can be used as blueprint and best practices for the Smart City implementers with least risk and predictable results. This panel targets addressing this issue and seek for proposals and ideas which can help Smart City architecture to move towards a predictable implementation patterns and best practices.

Innovations in the next generation of network systems, together with explosive growth of the Web, Cloud and Mobile Computing, Big Data Science and Social Networking as well as Internet of Things, have resulted in a plethora of new applications and services. Various organizations, government agencies and city planners are coming up with ambitious goals to create Smart Cities that utilize the emerging technologies. Analyzing various types of publicly available city data with different use cases across various user groups, ensuring data lineage and veracity, security and data privacy are some of the key challenges every city is trying to address in their individual stage of creating Smart City projects. Hence modeling and analysis of these kinds of large complex data sets to achieve reliability, performance guarantee, robustness and security will be extremely important for both city officials and end users.

In this panel, we will delve into details of the challenges of technical infrastructure based on the analysis of open data platform. The goal of this panel is to discuss the current problems and challenges of smart cities. Although it is quite difficult to address all aspects of smart cities, we will attempt to cover as much as possible. We aim to discuss the emerging framework to address these challenges with a holistic proposition. We will explore various technologies including smart sensors, smart cameras, smart meters and smart lighting, which can be potentially used to realize the patterns of Smart Cities for the future.

The goal is to build highly scalable architecture for Smart Cities for the future. The broader impact will be improved public safety, security, emergency services, environment and quality of life for citizens. Hence this will be beneficial to city planners, government agencies and industries that are involved in Smart City projects.

This panel will serve as a platform to bring together leading researchers and eminent scientists from academic institutions, R&D organizations, national and government labs and practicing professionals from India and abroad for exchange of ideas and to discuss state-of-the-art approaches to important problems and challenges related to smart cities and disseminate results of current research.

Panel Speakers:



Subhankar Dhar, San Jose State University (Panel Chair)

Subhankar Dhar is a Professor in the School of Information Systems & Technology at San José State University. He is also an affiliate faculty member of the Silicon Valley Center for Entrepreneurship and Center for Smart Technology, Computing, and Complex Systems (STCCS). Dr. Dhar's research interests are big data analytics, mobile computing, wireless networks and ICT for Smart Cities. In addition, he is also interested in smart ICT platform for smart cities. He teaches a variety of courses including computer networks, distributed systems and web based computing. His publications have appeared in reputed international journals and gave presentations to various international conferences. He serves as a member of the editorial board of International Journal of Business Data Communications and Networking. He is a reviewer of papers for various international journals, conferences and scholarly publications. He also served as a member of the organizing committee of various international conferences like International Conference on Broadband Communications, Networks and Systems (BroadNets), Workshop on Large Scale Complex Network Analysis and International Workshop on Distributed Computing (IWDC). Subhankar has several years of industrial experience in software development, consulting for Fortune 500 and high-tech industries including product planning, design, and information systems management. Subhankar received Ph.D. in Mathematics from the University of South Florida.



Mukesh Taneja, Cisco

Mukesh is a Principal Engineer with Cisco Systems and has been working in the areas of Wireless Systems and Internet of Things. He has held systems engineering, software engineering, technical leadership and product management positions in the wireless / IP, IoT and software industry for 20+ years. He has authored 40+ patent applications and research papers, and has worked on multiple products / PoCs. Mukesh received PhD (Computer Engineering) from the University of California San Diego and has completed an Executive General Management Program from IIM Bangalore.



Bipin Pradeep Kumar, Gaia Smart Cities

Bipin is the CoFounder and Director at Gaia Smart Cities, a start up in the IoT space aimed at city scale solutions. Just prior to founding Gaia, he was with Reliance Jio heading its Products & Platforms. Earlier, Bipin has been part of 2 Mobile telecom related start-ups. He has provided solutions and worked in new products with several mobile related companies in India and SE Asia.

Bipin is also the Chairman of the Smart City Group for TEC, DOT (Department of Telecom, Ministry of Communication and IT, Government of India) and the Co-Chair of the IoT for Smart Cities Task Force under Deity (Dept of Electronics and IT, Government of India)). He is a member of the National Working Group on International Telecommunication Union (ITU)'s SG on Smart Sustainable Communities and a permanent member of the panel on Smart Infrastructure at BIS (Bureau of Indian Standards, Government of India). He had formed and also lead the group on Smart Cities for Telecom Standards Development Society of India (TSDSI). Academically, Bipin has a dual MBA from Georgetown University's School of Foreign Service & School of Business and ESADE Business School and a MSc from University of Wales.

Deepak Kataria, IP Junction



Deepak Kataria has over 25 years' experience in telecom and networking industry having worked in varied roles in the entire ecosystem comprising of service provider, system OEM, silicon vendor and system integrator. Currently he is a Principal Consultant on SDN/NFV-based OpenStack Cloud initiatives for a Tier 1 Operator in the US. His areas of expertise include 5G, IoT, Video and Analytics for telco, mobile and cable operators, and he consults on new solution opportunities, target markets, key differentiators, product management consulting and creating ecosystem partnerships for the successful execution of identified opportunities.

Prior to starting his consulting career, he spent 8 years in the silicon and software industry working for Agere Systems and LSI. He spearheaded efforts to build competitive value propositions by acquiring and developing hardware, software, and development tools necessary to integrate Agere Systems & LSI's network processor, switching and storage products into both existing and emerging application platforms.

He spent 7 years with System OEMs working for Fujitsu and Lucent Technologies. His work included system engineering requirements and system architectures for the packet-optical systems (P-OTS) and G.709/OTN systems, and switching and routing products to deliver on the value proposition of best in class voice/data integration via QoS, routing services and traffic management.

He spent 3 years at AT&T Bell Labs (service provider) where he worked on tele-traffic engineering issues and supported the development the first prototype build of ATM terminal adaptor for voice, video and data over ATM at 155 Mb/s.

He led the Telecom & Network Practice for 2 years at HCL America (system integrator) where he consulted on development of forward-looking solution prototypes such as cloud-oriented video-centric network architectures (caching, analytics, and managed content delivery), enterprise mobility solutions, SMB gateway leveraging cloud services and policy-based networking.

His experience working in the entire ecosystem have led to strong expertise both in wireline and wireless networks and systems to include: SMB/Enterprise gateway, DSLAM, MSAN, xPON, XG-PON, NG-PON2, DOCSIS 2.0/3.0/3.1, CMTS, EQAM, SONET/SDH ADMs, MSPP, Carrier Ethernet, multi-service edge routers (IP/MPLS), packet-optical systems (P-OTS), G.709/OTN, ROADM, MPLS-TP, GMPLS/ASON, IMS Core, video CDN, SDN/NFV-based transformations, Small cells, radio access network (RAN), mobile backhaul, mobile core for 3G/4G (EVDO/WCDMA/LTE), including policy controllers, IMS and back-office OSS/BSS systems; deep expertise with machine-to-machine (M2M), WPAN, WLAN, WiMAX, Cellular/Wi-Fi, Spectrum analysis, FMC, Femto, Pico, data offload and signaling offload technologies, mobile CDN, VoLTE, C-RAN, SDN/NFV-based transformations

He holds 10 US patents and has several others in pending status and has published extensively in industry and IEEE publications. He serves as the Secretary of IEEE Princeton Central Jersey Section (Region 1) and was the General Chair of IEEE Sarnoff Symposium held in 2015 and General Co-Chair for the same event in 2016. He served as the General Co-Chair for IEEE Advanced Networks and Telecommunication Systems (ANTS) Conference held in 2012 and 2014. He served as Guest Editor for IEEE Communication Magazine Special Issue on Femto Cells (Sept. 2009 & Jan. 2010).

He holds a B.S. in Electronics and Communications Engineering, and pursued M.S. and Ph.D. degrees in Electrical Engineering from Rutgers University, NJ. He has completed Harvard's Emerging Leader's professional program on virtual leadership covering strategy, customer focus, corporate governance, and innovation.

Ravikumar Annaswamy, Innohabit Technologies

Ravikiran Annaswamy is Founder and CEO of Innohabit Technologies. He is working on various innovations enabling proximity marketing in real world. As Founder Director of Deccan Center of Innovation and Design (DCID), he works with young entrepreneurs helping them to get started and achieve market success with focus on impact innovations. He works closely with global programs like Founders Institute (Fi.Co) and Unreasonable Institute as Mentor and Coach for early stage startups.

He has over 20 years of business experience as Entrepreneur and as Business Leader at Nokia Siemens Networks and Siemens AG. He was Business Head for Indian market, led Global Product Management and was General Manager for Asia Pacific Solutions.

He is an engaged Professional volunteer, was the Chairman for IEEE Bangalore section (2014-2015) and Industry Relations for IEEE - Asia Pacific (2014-15). He is currently the Secretary for IEEE R10 and Newsletter Editor for IEEE TEMS. He has done his MBA from Indian Institute of Management, Bangalore and has graduated from UVCE Bangalore.