Invited Talk	Future Internet Model and Services: Perspective, Challenges and Future Trends	
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Talk Summary

Current Internet has ossification, inflexibility, security, quality of service, and quality of management as well as many other issues. For tackling the problems of the current rigid layered network architecture, several initiatives are ongoing towards the development of the future internet architecture. There are many implicit dependencies (i.e. tight coupling) between existing mechanisms. However, the problem is not limited to specific protocols or mechanisms but it is an architectural issue. Therefore, we are proposing to rethink about the networks of the future from the scratch as a clean-slate approach. The rest of them have been going towards evolutionary approaches such as 5G, CCN, SDN etc. where they are providing a new architecture so that today's Internet can exist in that architecture as well until fully being evolve in the future networks. In the clean slate approach, the system is redesign from scratch to offer improved abstractions and/or performance, while providing similar functionality based on new core principles. The proposed architecture introduces the use of distributed framework to encapsulate the processed information from sensors to smart embedded system and semantic logic to semantic value based on Internet. However, distributed networks and IoT fusion model will infuse the capability of sensing to make the system intelligent. In this talk mainly focuses on hybrid network model for embedded systems to support the perspectives of new business models, service architectures, and application procedures as-well-as association with an emerging technology. In this talk I would like to emphasis following issues:

- What are the most appropriate distributed architectures to support smart city services?
- What are the most suitable ways to the management of Global e-Healthcare Monitoring Applications?
- What is the most appropriate way to improve establish a distributed networks of IoT services?

Finally, I will present test-bed and simulation scenarios for the smart city scenario and connected vehicle services.

Biography

Dhananjay Singh is an Assistant Professor in Electronics Engineering and the Director of ReSENSE Lab at Hankuk (Korea) University of Foreign Studies (HUFS), Seoul, South Korea. He received B. Tech. degree in Computer Science and Engineering from VBS Purvanchal University, India and M. Tech. degree in Wireless Communication & computing from IIIT-Allahabad, India. He received Ph.D. degree in Ubiquitous IT from Dongseo University, Busan, South Korea. Before joining the HUFS, he worked as a senior member of engineering staff with the division of Future Internet Architecture at ETRI, Korea and PostDoc research fellow with division of fusion and convergences of mathematical sciences for the developing future internet model at National Institute of Mathematical Sciences (NIMS), Daejeon, South Korea. He was also a Research Assistant in computer science and engineering dept. at MNNIT-Allahabad, India. Dr. Singh is the chief technical officer (CTO) at MtoV Inc. Daejeon, South Korea. He is a distinguished speaker of ACM and the Forum of Brazil-Korea on Science and Technology, deployment and Innovation at UNISINOS, Sao Leopoldo, Brazil. He is a senior member of IEEE & ACM. Dr. Singh is the author of 2 books, 5 chapters, 7 international patents and 100+ international conference and journal publications. He have delivered 50+ invited and keynote talks and participated TPC memebr in to the 100+ conferences especially in the field of Network and Communication. His research interests focus on the design, analysis, and implementation of algorithms and protocols based on network and communication with specialization in wireless and communications, embedded systems, mobile and cloud computing to solve real-world problems based on Internet-of-Things, Machine-to-Machine Communication, Smart City Technologies and Future Internet Architecture and services.

Invited Keynote speakers / Tutorial Talks
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- **Invited Speaker:** Enabling Internet of Things: Observation, Challenges and Sensing Communication Technology, International Conference on Information Communication Technology Convergence, Jeju Island, South Korea, Oct 18-20, 2017
- **Keynote Talk:** Distributed Network for IoT Services, The International Conference on Computational Sciences, Advanced Database and Computing (CSADC2017), Phuket, Thailand, October 11-12, 2017
- **Invited Speaker:** Intelligent Parking Lot System for Connected Vehicles, New Technology Fair - 2016 International Military Science and Technology Fair, Coex-Seoul, South Korea, July 20-23, 2017
- **Keynote Speaker:** Korean View and Solutions of Smart City Services, International Conference on Smart Innovations in Communications and Computational Sciences (ICSICCS-2017), North West Group of Institutions, Moga, Punjab, India 23-24 June 2017.
- **Invited Speaker**: Sensing Technologies for Smart City Services,12th International Forum on Strategic Technology (IFOST-2017), Ulsan South Korea, May 31 - June 2, 2017.
- **Keynote Speaker**: Machine-to-Machine Communication for Smart City Services, 2th International on Computer Science and Technology (CST-2017), Guilin, China, May 26-28,

2017.

- **Chairman/Speaker:** Smart City-II-Transforming Future City Livelihood and Sustainability, Communicasia, Marina Bay Sands Singapore, May 23-25, 2017.
- Invited Talk: SenseEye: Internet of Vehicles for Driver's Seafty and Security, Electropenure park, DU Library Building, University of Delhi, Delhi, India Feb. 25-26, 2017
- **Keynote Speaker:** Internet of Vehicles for Driver's Safety and Security, SIAT Expo 2017, ARAI- Pune, India, Jan. 18-21, 2017
- **Keynote Speaker:** The Convergence of IoT and Sensing Technology for Smart City Services, WIoT2017, President Hotel, Pune, India, Jan. 12-13, 2017
- **Keynote Speaker:** Connectivity of IoT Networks for Smart City Services: Challenges e Trends, 6th Forum Brazil-Korea on Science and Technology, Advanced Technology for Tomorrow, UNISINOS, Sao Leopoldo, Brazil, August 23-27, 2016
- **Keynote Speaker:** Enabling Distributed Networks for Smart City Services, International Conference on Computer, Communication and Computational Sciences (ICCCCS- 2016), Ajmer, India, August 12-13, 2016

- **Invited Speaker:** IoT Technologies for Intelligent Military Services, Convergence New Technology Fair - 2016 International Military Science and Technology Fair, Coex-Seoul, South Korea, Aug. 4-7 2016
- **Invited Lecture:** SiTASENSE: Hierarchical 6LoWPAN and Sensing Model for Women Safety Services, 2016 World Congress in Computer Science, Computer Engineering, and Applied Computing, Las Vegas, Nevada, USA, July 25-28, 2016
- **Invited Speaker :** Development of Smart City: Connected Vehicles for Green Environment, Forum GG5: Smart Green City, BIT's 6th Low Carbon Green Growth Earth Summit (LCGGES-2016), (KINTEX), Goyang City, South Korea, June 30-July 2, 2016
- **Keynote Speaker:** Connected Vehicles for Smart Cities, 20016 IEEE International Workshop on Internet of Things for Smart Cities, Thiruvananthapuram, Kerala, Jan. 5-6, 2016
- **Invited Speaker:** Connected Vehicles for Safe and Smart Driving, 4th International Conference of Connected Vehicles and Expo, Shenzhen, China, October 19-23, 2015
- **Keynote Speaker:** Future Internet and Secure Cloud Networks for Safe and Smart Driving, National Institute of Telecommunications (INATEL), Santa Rita do Sapucaí, Brazil, August 17-19, 2015
- **Panel Discussion:** Future Internet and the Impact on Hospitals, 5th Forum Brazil-Korea on Science and Technology, Deployment and Innovation, UNISINOS, Sao Leopoldo, Brazil, August 12-14, 2015
- **Keynote Speaker:** Global Healthcare Monitoring Applications, 5th Forum Brazil-Korea on Science and Technology, Deployment and Innovation, UNISINOS, Sao Leopoldo, Brazil, August 12-14, 2015
- **Keynote Speaker:** Internet of Things and Their Enabling Services: Observations, Challenges and Possible Solutions, International Conference on Advanced in Computing, Communications and Informatics, Kerala, India, Aug. 10-13, 2015
- **Invited Speaker:** Mathematical Modeling and Algorithm for Internet of Things Services, The 8th Mathematical Society of Japan, Seasonal Institute Current Trends on

Gröbner Bases, Osaka University, Osaka, Japan, July 6-10, 2015

- **Tutorial Lecture:** Future Internet Model and Services, 18th IEEE International Conference on Advanced Communications Technology (ICACT) in Phoenix Park, Pyeong Chang, Korea, July 1-3, 2015
- **Keynote Speaker:** The Convergence of Future Internet Architecture and the Internet of Things, Internet of Things Asia (IoT Asia), Singapore Expo, April 8-10, 2015
- **Invited Speaker:** Enabling Architecture for Internet of Things, The IEEE 10th International Conference on Intelligent Sensors, Sensor Networks and Information Processing (IEEE-ISSNIP), Singapore, 7th - 9th April 2015.
- **Invited Speaker:** Service Oriented Architecture for Internet of Things: Observation, Challenges and Future Trends, Number Theory and Cryptography Conference", Daejeon, South Korea, Aug. 05-06, 2014.
- **Tutorial Lecture:** The Convergence of Content Centric Networks and the Internet of Things: Prospective, Challenges and Opportunities, 16th International Conference on Advanced Communications Technology (ICACT-2014), Phonix Park, South Korea, Feb. 16-19, 2014.
- **Tutorial Lecture:** The Convergence of Future Internet and the Internet of Things: Technologies, Opportunities, Challenges, The Fifth International Conference on the Applications of Digital Information and Web Technologies (ICADIWT- V), PRIST University, Chennai, India, Feb. 17-19, 2014.
- **Keynote Speaker:** Service Oriented Sensor Networks and Applications, The International Conference on Advances in Information Technology & Networking (ICATN'14), Dr G R DAMODARAN COLLEGE OF SCIENCE COIMBATORE, January 22, 2014.
- **Tutorial Lecture:** Future Internet Architecture and Services: e-Healthcare monitoring applications, Second International Conference on Advances in Computing, Communications and Informatics (ICACCI-2013), Mysore, India, August 22-25, 2013
- **Keynote Speaker:** Internet of Things: Perspective, Challenges, Services and Applications, International Conference on Control, Computing, Communication and Materials (ICCCCM), Allahabad, India, August-03-04,2013
- **Tutorial Lecture:** Future Internet Services: Global Healthcare Monitoring Applications, Advances in Biomedical Engineering, 2011 International Conference on Control Automation and System, (ICCAS 2011), KINTEX, Gyeonggi-do, Korea, October 26-29, 2011 with Robot World, 2011
- **Invited Speaker:** Future Internet Technology for Ubiquitous Healthcare Monitoring, Future Technologies for Health Care, IIIT-Allahabad, India, September 18-20, 2011.
- **Tutorial Lecture**: Future Internet Issues and Possible Solutions: Humans, Machines and Other Constrained Devices,13th International Conference on Advanced Communication Technology (ICACT2011), Phoenix Park, Republic of Korea, February 13-16, 2011
- **Invited Speaker:** Future Internet Services: Machine-to-Machine Communication System, First International Workshop on Future Internet Model and Services, NIMS, Daejeon, Korea, December 16 – 18, 2010

Invited Talks

- Secure Cloud Computing and IoT, Gautam Buddha University, Greater Noida, India, Feb. 2015
- Introduction of Perspective Architectures for Internet of Things (IoT) Services, Dongseo University, Busan, South Korea, Oct. 22 2014.
- An Architectural Model for Machine -to-Machine Communication System, IIIT-Allahabad, India, Feb. 28, 2014.
- Internet of Things: Architecture, Challenges and Current Research Issues, Gautam Buddha University (GBU), Greater Noida, India, 29 Aug. 2013.
- Future Internet Architecture: Defining Protocol and Model, Electronic and Telecommunication Research Institute, ETRI Daejeon, Korea, July 22, 2011
- Internet of Things: Issues, Challenges and Services, United Group of Institutions, Greater Noida, India, Feb. 12, 2011.
- How to write an effective research proposal and paper, United Group of Institutions, Allahabad, Feb. 7 & 9, 2011.
- Developing Future Internet Networks: IPv6 WSN approach, IIIT-Allahabad, September, 2010
- Machine-to-Machine Communication for Social Benefit, in a workshop at KAIST, Daejeon, Korea, August, 2010.
- Machine-to-Machine Communication System: IPv6-based WSN, Alcatel-Lucent Bell-Labs Seoul Ltd., Seoul, Korea, July 2010.
- Innovation of Future Internet and its Applications: IPv6-based WSN, NIMS-workshop in Human Valley, Tae-an, Korea, June 2010.
- Future Internet for Wireless Sensor Networks, DSU-Busan, Korea, May 2010.
- Applications of 6lowpan as Future Internet, NIMS-Daejeon, Korea, February 2010.
- Secure Global Healthcare Monitoring Applications, London Metropolitan University, London, UK, and August 2009.
- Simulation and Implementation of Ubiquitous Sensor Networks, IIIT-Allahabad, India, June, 2009.
- IP-Based Ubiquitous Sensor Networks for Global Monitoring System, IIIT-Allahabad, India, February 2008.
- Security issues in Wireless Sensor Networks,23rd APAN meetings, Manila, Philippines, January 2007.
- Connectivity of Ad-hoc Sensor Networks with Fixed Networks, 22nd APAN meetings, NUS, Singapore, July 2006.