# ICOIN 2015 Program at a Glance

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<th>TIME</th>
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<td><strong>January 11, 2015 (Sunday)</strong></td>
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<tr>
<td>16:00-18:00</td>
<td>Organizing Meeting</td>
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<td><strong>January 12, 2015 (Monday)</strong></td>
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<tr>
<td>08:30-09:00</td>
<td>Registration Open</td>
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<tr>
<td>09:00-10:45</td>
<td>Tutorial (Naga &amp; Rainbow)</td>
<td>Opening Ceremony/Keynote Speech (Naga &amp; Rainbow)</td>
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<tr>
<td>10:45-11:00</td>
<td>Coffee Break</td>
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<td>11:00-12:00</td>
<td>Lunch Break (Citadel Restaurant)</td>
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<tr>
<td>13:00-15:00</td>
<td>Oral 1: Ad hoc/sensor networks I (Naga)</td>
<td>Oral 2: Security and privacy I (Rainbow)</td>
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<td>Chair: Oh-Soon Shin, Soongsil Univ., Korea</td>
<td>Chair: Sunggee Cho, Chung-Ang Univ., Korea</td>
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<td>15:00-16:00</td>
<td>Post 1: Multimedia service (Halway) / Coffee Break</td>
<td>Post 2: WLAN, LTE, cognitive radio technology (Halway) / Coffee Break</td>
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<td>Chair: Sanghyun Lee, Koekmin Univ., Korea</td>
<td>Chair: Sunghee Lee, Koekmin Univ., Korea</td>
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<tr>
<td>15:30-17:30</td>
<td>Oral 3: Ad hoc/sensor networks II (Naga)</td>
<td>Oral 4: Security and privacy II (Rainbow)</td>
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<td>Chair: Osami Muta, Kyushu Univ., Japan</td>
<td>Chair: Januwai Mesi, Grambling State Univ., USA</td>
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<td>18:30-21:00</td>
<td>Welcome Reception (Poolsode)</td>
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<td><strong>January 13, 2015 (Tuesday)</strong></td>
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<td>08:30-09:00</td>
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<td>09:00-10:00</td>
<td>Poster 3: Information-centric Networking and Software Defined Networking (Halway) / Coffee Break</td>
<td>Poster 4: Internet of Things and Internet Applications (Halway) / Coffee Break</td>
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<td>Chair: He Young Hwang, Hantsung Univ., Korea</td>
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<td>10:00-12:00</td>
<td>Oral 5: Network modeling, monitoring and management (Naga)</td>
<td>Oral 6: Cellular networks (Rainbow)</td>
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<td>Chair: Hwasung Kim, KwangWoon Univ., Korea</td>
<td>Chair: Nam Tuan Le, Koekmin Univ., Korea</td>
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<td>12:00-13:00</td>
<td>Lunch Break (Citadel Restaurant)</td>
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<tr>
<td>13:00-15:00</td>
<td>Oral 7: Power, Localization, and Pricing in wireless networks (Naga)</td>
<td>Oral 8 Internet and web applications (Rainbow)</td>
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<td>Chair: SungKwon, Univ. of Ulsan, Korea</td>
<td>Chair: Teeshik Shin, Ajou Univ., Korea</td>
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<td>15:00-16:00</td>
<td>Poster 5: Network measurement, performance and security (Halway) / Coffee Break</td>
<td>Poster 6: Wireless, Multi-hop, Delay-tolerant Networks (Halway) / Coffee Break</td>
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<td>Chair: Song-Chul Kim, Koekmin Univ., Korea</td>
<td>Chair: Sung-Chul Kim, Koekmin Univ., Korea</td>
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<td>16:00-18:00</td>
<td>Oral 9: Communication technology (Naga)</td>
<td>Oral 10: Implementation, measurement and performance analysis (Rainbow)</td>
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<td>Chair: Sanghyun Ahn, Univ. of Seoul, Korea</td>
<td>Chair: Hoyoung Oh, SoongsilUniv., Korea</td>
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<td>18:30-21:30</td>
<td>Banquet (Philkeethra Ballroom)</td>
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<td><strong>January 14, 2015 (Wednesday)</strong></td>
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<td>08:30-09:00</td>
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<td>09:00-11:00</td>
<td>Oral 11: Software defined networks (Naga)</td>
<td>Oral 12: Routing, QoS and resource management (Rainbow)</td>
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<td>Chair: MyungSeok, Soongsil Univ., Korea</td>
<td>Chair: KuochengWang, National Chiao Tung Univ., Taiwan</td>
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- Welcome Reception — Date: January 12, 2015 / Time: 18:30 / Place: Poolsode
- Banquet — Date: January 13, 2015 / Time: 18:30 / Place: Phokeethra Ballroom
January 10, 2015 (Monday)
15:00 - 16:00

POSTER SESSION 1
Multimedia service
Chair: Sanghwan Lee, Kookmin Univ., Korea

[P1-001] Considerations and Design on Apps for Elderly with Mild-to-moderate Dementia
Grantham Kwok-Hung Pang (The University of Hong Kong, Hong Kong); Emid Kwong (The Hong Kong Polytechnic University, Hong Kong)

[P1-002] Inter-symbol Interference Compensation for Bit Pattered Media Recording Storage
Seokgwan Jeong, Oh-Soon Shin, Chulhun Seo, Jaegyun Lee (Seogang University, Korea)

[P1-003] A Research on the QR Code Recognition Improvement using the cloud-based pre-generated Image Matching Scheme
Minsu Ahn, Seonghyun Hong, Sungwon Lee (Kyung Hee University, Korea)

[P1-004] Media Synchronization Model based on Relation Flow for Multi-Screen Service
Svekhan Kim, Yong-Bok Yoon (Seokmyung Women's University, Korea)

[P1-005] New Interpolation Method Based on Combination of Discrete Cosine Transform and Wavelet Transform
Ramesh Kumar Lamsa, Goo-Rak Kwon (Chosun University, Korea)

[P1-006] Multimedia Delivery Mechanism Framework for Smart Devices based on Mega Data Center and Micro Data Center in P2P Environment
Ayman Abdullah Altsaifat, Eui-Nam Huh (Kyung Hee University, Korea)

[P1-007] Practical Design of Screen-to-Camera based Optical Camera Communication
Trong Nguyen, Nam Tuan Le, Yeong Min Jang (Kookmin University, Korea)

[P1-008] Effective Bandwidth Measurement for Dynamic Adaptive Streaming over HTTP
Jong-Min Jeong, Jong-Dek Kim (Pusan National University, Korea)

Hyeong-Yoon Seo (Pusan National University, Korea); Byungjin Bae (ETRI, Korea); Jong-Dek Kim (Pusan National University, Korea)

[P1-010] A Synchronized Playback Method with Dynamic Buffering Time Awareness for Media Streaming
Kiwok Oh, Donghwa Kwon, Hyoewoo Ko, Huitang Je, Tae-young Kim, Hongtaek Ju (Keimyung University, Korea)

POSTER SESSION 2
WLAN, LTE, cognitive radio technology

Chair: Sanghwan Lee, Kookmin Univ., Korea

[P2-001] A Simulation Approach for Analysis of Multi-hop Connectivity in Cognitive Radio Ad-hoc Networks
La Tha Dung and Beongku An (Hongik University, Korea)

[P2-002] Power Allocation Scheme for D2D Communications in an OFDM-Based Cellular System
Gii-Mo Kang, Jaegyun Lee, Oh-Soon Shin (Seogang University, Korea)

[P2-003] Hybrid Cooperative Spectrum Sensing Scheme for Cognitive Radio Networks
Nhung Do, Beongku An (Hongik University, Korea)

[P2-004] Mitigation of the polarization sensitivity in OFDMA PON uplink transmission
Sang-Min Jung, Kyoung-Hak Moon, Sang-Kook Han (Yonsei University, Korea)

[P2-005] Power Control for Cognitive Users in Coexistence with CSMA-based Primary Networks
Kwanhee Jeong (Samsung Electronics Co., Korea); Hyuk Lim (GIST, Korea); Hyunheek Kang (ETRI, Korea)

[P2-006] A Novel Medium Access Scheme for Cluster Based Device-to-Device Broadcast Communications
Jae-Hak Kim, Jaehoon Oh, Min Young Chung (Sungkyunkwan University, Korea); Hong-June Seok (Kyungpook University, Korea)

Youngrok Lee (Korea Gas Corporation, Korea); Younghan Kim (Sungkyunkwan University, Korea)

[P2-008] The Performance Evaluation of K-means by Two MapReduce Frameworks, Hadoop vs. Twister
Yunhee Kang (Bansook University, Korea); Young B. Park (Dankook University, Korea)

Yoon Kim, Ki-Hyung Kim, Taehik Shon and Kim Jin-Hoon (Graduate School of Ajou University, Korea)

[P2-010] Critical-path Aware Broadcast Scheduling in Duty-cycled Wireless Sensor Networks
Giyeol Im, Dae Joo Lee, Hyunseung Choo (Sungkyunkwan University, Korea); Dongsoo S. Kim (Indiana University-Purdue University, USA)

January 11, 2015 (Tuesday)
09:00 - 10:00

POSTER SESSION 3
Information-centric Networking and Software Defined Networking
Chair: Ho Young Hwang, Hansung Univ. Korea

[P3-001] A Research on Transmission of Message and Voice using CCNx
Cheolhoon Kim, Sangjoon Han, Sungwon Lee (Kyung Hee University, Korea)
[P3-002] Content verification in Named Data Networking
SunWook Nam (Sungkyunkwan University, Korea), Dohyoung Kim (KAIST, Korea), Hyung Yeon (Sungkyunkwan University, Korea)

[P3-003] ICN-OMF: A Control, Management Framework for Information-Centric Network Testbed
Hyunwoo Lee, Donghyun Kim, Junho Suh, Ted "Taekyoung" Kwon (Seoul National University, Korea)

[P3-004] Autonomous Handoff Management of Heterogeneous Wireless Links Using SDN
Yuhi Oh, Sungwoon Lee (Kyung Hee University, Korea)

Huep Tuan Nguyen Tri, Kyungbaek Kim (Chonnam National University, Korea)

[P3-006] RAON: A Recursive Abstraction of SDN Control Plane for Large-Scale Production Networks
Myungchul Kwak, Hyunwoo Lee (Seoul National University, Korea); Jisoo Shin (ETRI, Korea); Junho Suh, Ted "Taekyoung" Kwon (Seoul National University, Korea)

[P3-007] Cloud-based Service Function Chaining with Distributed VMs and its Underlay-aware Improvement
Taehyun Na, Jun Won Kim (GIST, Korea)

[P3-008] A Refinement Algorithm for Rank Aggregation Over Crowdsourced Comparison Data
Narae Hwang and Sanghoon Lee (Kookmin University, Korea)

[P3-009] Phoneme based realtime taboo words similarity
displaying system of new words using multi-lingual taboo words databases in web environments
Saim Shin, Dalwon Jung and Jong-Seol Lee (KETI, Korea); Da-Hee Kim (Yon-Sei University, Korea); Sukhan Yoon (Sogang University, Korea)

POSTER SESSION 4
Internet of Things and Internet Applications
Chair: Ho Young Hwang, Hansung Univ., Korea

[P4-001] Efficient Bloom Filter Design for Information Hiding in Peer to Peer Social Networks
Narae Hwang and Sanghwan Lee (Kookmin University, Korea)

[P4-002] A Measurement Model for Trustworthiness of Information on Social Network Services
Yukyong Kim, Eun-Wha Jee (Seongguk University, Korea); Jongwon Choe (Sookmyung Women's University, Korea); Jong-Seok Choi, Yongtae Shin (Seongguk University, Korea)

[P4-003] Prediction Model for Mental and Physical Health Condition using Risk Ratio EM
Yueiae Jung and Yongik Yoon (Sookmyung Women's University, Korea)

[P4-004] Behavior Tracking Model in Dynamic Situation using the risk ratio EM
Yueiae Jung and Yongik Yoon (Sookmyung Women's University, Korea)

[P4-005] IoT Service Framework based on Mega Data Center and Micro Data Center in PMIPv6 Environment for Smart Devices
Aymen Abdullah Alsaif and Eui-Nam Huh (Kyung Hee University, Korea)

[P4-006] E-government Service The case of e-tax filing In Thailand
Nakanya Chumsonbat (Assumption University, Thailand)

[P4-007] Design of A Compact UWB Antenna for Multi-band Wireless Applications
Mirtan C. Ezuma, Santosh Subedi, Jae-Young Pyun (Chosun University, Korea)

[P4-008] Designing Multi-level Connectivity for IoT-enabled SmartX Boxes
Jongwon Kim (GIST, Korea)

[P4-009] DLNA Protocol Analysis Tool for Smart Device Interoperability Test
Yong-Suk Park, Se-Ho Park, Kyung-Tae Lee, Myung-Hyun Yoon (KAIST, Korea)

[P4-010] Research about relation of music preference and brain-wave
Dalwon Jung; Yoon Jung Park; Saim Shin; JongSeol Lee; Sei-Jin Jung; Tae-Beom Lim (KETI, Korea)

15:00 - 16:00
POSTER SESSION 5
Network measurement, performance and security
Chair: Sang-Chul Kim, Kookmin Univ., Korea

[P5-001] Deanonimizing Schemes of Hidden Services in Tor Network: A Survey
Subita Nepal, Sourav Dahal and Seokjoon Shin (Chosun University, Korea)

[P5-002] Potentials and challenges of VLC based outdoor positioning
Trong-Hop Do, Myungskik Yoo (Seogang University, Korea)

[P5-003] An Improved NLOS Detection Scheme Using Stochastic Characteristics for Indoor Localization
Masato Horioba, Eiji Okamoto (Nagoya Institute of Technology, Japan); Toshiko Shinohara, Katsuhiko Matsuura (Daifuku Co., Ltd., Japan)

[P5-004] Prediction technique for resource allocation in Micro Data Center
Cong-Thinh Huynh, Eui-Nam Huh (Kyung Hee University, Korea)

[P5-005] Ethernet Switch/terminal Simulators for Novices to Learn Computer Networks
Yasue Kanada (Kogakuin University, Japan)

Maya Leuk, Hyeokuck Lim (Dongseo University, Korea)

[P5-007] Cryptanalysis of An Anonymous Multi-Server
Abstract—Now days, big data (e.g. multimedia content, document, data in social network, etc) is growing fast and requiring more big storage area which is capable to process all that data efficiently in short time as well as having efficient delivery system to deliver that data to diversity of devices when they access the internet anytime from anywhere.

Keywords—component; mega data center; micro data center; pmipv6; smart devices; big data; cloud computing

I. INTRODUCTION

Now days Wireless Network Technology is rapidly developing and adding more capabilities to it [1]. Variety of smart devices (e.g. smart phones, smart TV, smart tablets, etc) are able to connect to wireless network to perform diversity of services (e.g. shopping, receiving and sending multimedia, etc) [2]. Most of the services are preformed wirelessly outside user’s resident (e.g. vehicle, airplane, walking, etc) [3]. Most of these services are accomplished by continuously sending and receiving small/big size of data to centralized data storage which might lead to long respond delay, long data delivery delay, long overhead to the network and limited data storage because of continuously re-sent data [4].

As a result, close by Micro Data Centers that is geographically located nearby user location and connected to Mega Data Center which is capable to process that data is an efficient approach to overcome above mentioned issues. The mega data center will act as a storage area for a diversity of multimedia contents as well as software. Software-led infrastructure will be the foundation of mega data center where network function, computer and storage will be provided by layers of control software running on commodity hardware [5]. Mega data center reduces the cost of IT management, ability to access limitless amount of internet and internet industrial internet data [5]. Micro data center is a versatile combination of software, hardware and cabling that servers as an end-to-end network hub which is similar to telecommunications network [6]. Micro data center can act as standalone system that can run application such as 1) process and monitoring event, 2) manage and control network, 3) IoT tracing and manage assets, and 4) scheduling [6]. In wireless network, mobility management and security protection are very critical and important issues that must be considered for users and service provider. Most of the services are done using wireless network. Mobility management is achieved by implementing Proxy mobile IPv6 which was developed by Internet Engineering Task Force (IETF) [7].

Our contribution in this paper are to 1) provide mobility management, 2) provide security protection for wireless communication, 3) provide unique methods to deliver and receive data, and 4) provide new communication protocols between MN, mega data center, micro data center and 3rd party mega data center in order to retrieve and send data in short time, and 5) guarantee Quality of Service (QoS) not only from user home mega data center but also from 3rd party mega data centers.

The rest of this paper is organized as follow; in section II we explain our system architectures and scenarios. In section III, we explain possible multimedia delivery scenario and present our new communication protocols. In section IV, we present our conclusion and future.

II. PROPOSED SYSTEM ARCHITECTURE AND SCENARIO

A. System Architecture

Fig.1 illustrates our system architecture and system components. It consists of Proxy Mobile IPv6 domain component (e.g. MN, MAG, AAA Server, and LMA), Micro data center, Mega data center, Broker server, MDC location server and 3rd part Mega data center. Micro data center will act as a huge cache storage area which also capable of computation located near user’s location. Mega data center will act as main storage area. Broker server will act similar to service provider where it receives requests and provide the service to users (e.g. Multimedia, data, voice, etc). Micro Data Center Location Server (MDCLS) will store all micro data center location for fast retrieval/obtain information about stored data current location and finally delivery to user locations.
B. Service Scenario

The user request any services (e.g. video on demand, etc) by sending request to broker server in cloud computing. The broker will request it from nearest micro data center. Upon authentication, the user receive the services from nearby micro data center. The issues here, is how to create efficient methods (e.g. new communication protocol, fast authentication mechanism, fast handover etc) in order to provide a variety of services. In case the user home service does not have the requested MIPTV service, the broker will request the service from nearby 3rd party mega data center which in return will forward the service to micro data center. The issue here is how the 3rd party know the location of micro data center to send the service.

III. MULTIMEDIA DELIVERY CASES AND COMMUNICATION PROTOCOLS

Fig. 1 illustrates our system architecture which consists of many network areas.

A. Multimedia Delivery Possible Cases

Multimedia delivery can be divided into inter domain multimedia delivery and intra domain multimedia delivery and the same apply to user authentication. In both domains, we can have many micro data centers connected to each other. The user can request multimedia from nearby micro data center or from mega data center. The user request can be obtained from multiple data centers as well. The issues here are; 1) How can we guarantee the existence/searching of multimedia in these location or not, 2) How can micro data center contact other micro data centers as well as mega data center to request multimedia, 3) How can we delivery multimedia content efficiently in short time without long delays, and 4) How can we protect service, user and multimedia content from other security threat.

B. New Communication Protocol for Multimedia Delivery

Communication protocol is need between mobile node, mobile access gateway, micro data centers and mega data center. This will allow all these entities to efficiently communicate with each other’s in order to deliver data efficiently which will reduce delivery time, efficiently use the resource and bandwidth, provides quality of service and quality of experience for users. Multimedia content will be delivered from 1) Mega data center to micro data center and finally to user device or from Micro data center to another one and final to user devices. It is also possible that multimedia content can be delivered from more than one micro data center. As a result, we have three possible cases of delivering multimedia content to user’s devices.

IV. CONCLUSION

In this paper, we have proposed multimedia delivery mechanism framework for smart devices based on mega data center and micro data center in pmipv6 environment. We presented possible case for delivering multimedia content or any other services to smart devices from mega data center, micro data center, and 3rd party mega data center. The developed method will overcome the following issues long hand over, long authentication, long overhead in the network and long delay for data delivery.

ACKNOWLEDGMENT

This work was supported by ICT R&D program of MSIP/IITP. [10041891, Development on Community Broadcast Technology based on MaaS (Media as a Service) providing Smart Convergence Service] and This research was supported by the MSIP (Ministry of Science, ICT&Future Planning), Korea, under the ITRC (Information Technology Research Center) support program (NIPA-2014(H0301-14-1020)) supervised by the NIPA (National IT Industry Promotion Agency) The Corresponding Author is Eui-Nam Huh

REFERENCES