



DISTINGUISHED LECTURE TOUR

Advancement of Technology and Use in Managing Events and Enriching Attendee Experience: Preparing the GLOBECOM 2014 IT Infrastructure

DLT/DSP Event, Dec. 2014, New Orleans

By Fawzi Behmann, Austin Chapter Chair, USA

After a successful IEEE GLOBECOM 2014 conference held in Austin (December 8-12, 2014), I was invited by Richard Miller, the New Orleans COMSOC chapter chair and also the Social Program Chair at GLOBECOM 2014, to go to New Orleans and share my experience with the New Orleans Chapter and section, as current Chair of the IEEE COMSOC chapter in Austin and Local Arrangement & Marketing Chair for GLOBECOM 2014.

The event at New Orleans was held December 22 in one of the local restaurants. The event started at 6 pm with one hour for networking followed by dinner and then the presentation. There were 17 attendees (five non-IEEE members). Some of the IEEE members came from a long distance to be part of the event, such as R5 Director Francis Grosz. Many of the members are technology savvy and asked many interesting questions. This made it the talk interactive and interesting.

I had the opportunity to deliver a presentation on the topic

“Advancement of Technology and Use in Managing Events and Enriching Attendee Experience.”

The presentation presented an overview of technology advancement, and focused on several use cases, including conference IT Infrastructure and the conference mobile app. Examples were provided that covered events such as GLOBECOM 2014.

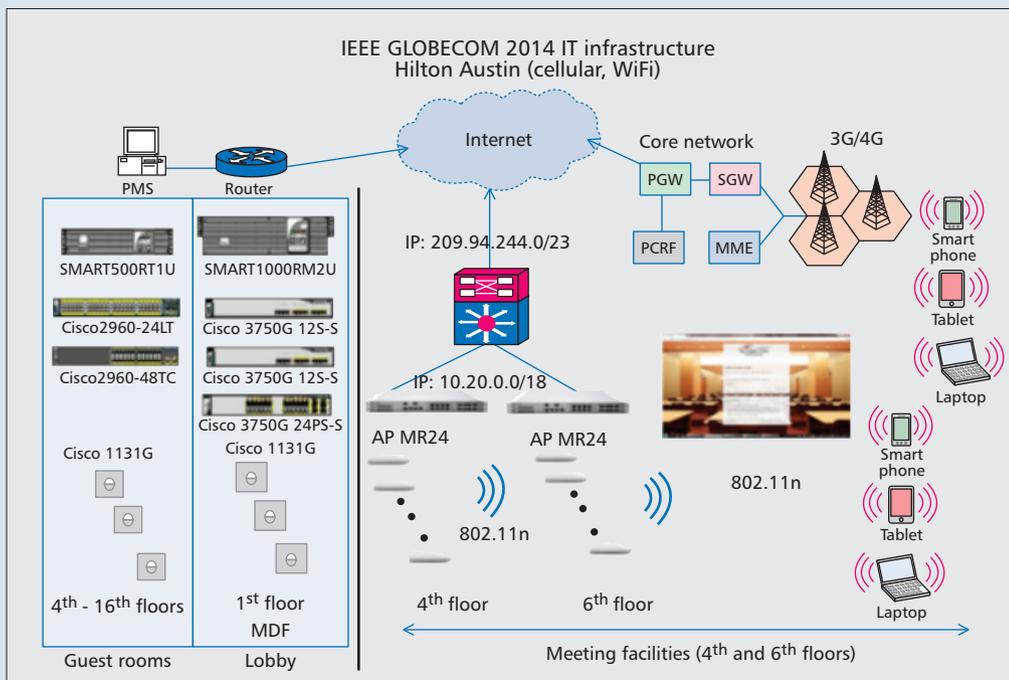
The core of the presentation focused on the preparation and complexity related to the GLOBECOM 2014 IT Infrastructure. The key objective was to provide a sustainable WiFi/cellular signal and coverage at all meeting facilities, common areas, and guest rooms.

A committee of 26 members (with representation from AT&T, Hilton, and IEEE) was formed and led by Fawzi Behmann. The committee members worked diligently and professionally for close to two years with more than 10 meetings conducted. The milestones of the project were:

- Conduct on-site feasibility assessment (Q3 2013).
- Test the upgraded infrastructure against SXSW event (Q1 2014).
- Address other remaining items such as one-level authentication, security branding, and reliability (Oct. 2014).

This is the first time the GLOBECOM conference was supported by a state of the art WiFi/cellular IT infrastructure spanning the conference meeting areas, common areas, lobby, and guest rooms for a sustainable signal and coverage. Over 3,100 client devices used the WiFi/cellular network with intensive usage (180 Mbps bandwidth), which is equivalent to 7,500 client devices used during SxSW, a major event held in March 2014. This comparison shows that GLOBECOM 2014 attendees are more savvy and heavy users of the network. The infrastructure easily handled the intensive concurrent download of conference proceedings.

After the talk, I received positive feedback by many, who commented that the subject was interesting and the delivery made the content easily understandable. To many attendees, especially those retired, the topic brought them up-to-date on the advancement of technology and use cases. Others, were able to ask several technical questions about the network that was put in place and the cloud based management tools for monitoring the performance of the network in real time identifying congestion and responding to abnormal situations.



IEEE GLOBECOM 2014 IT infrastructure, Hilton Austin (cellular WiFi).

Highlights from the 6th International Workshop on Reliable Networks Design and Modeling (RNDM 2014)

By Jacek Rak, Poland; James P.G. Sterbenz, US/UK; Gangxiang Shen, China; Dimitri Papadimitriou, Belgium; Krzysztof Walkowiak, Poland; and Boris Bellalta, Spain

The 6th International Workshop on Reliable Networks Design and Modeling (RNDM 2014), technically co-sponsored by the IEEE Communications Society and endorsed by its Technical Committee on Computer Communication (TCCC), was organized in Barcelona, Catalonia, Spain on November 17-19, 2014. The host university was Universitat Pompeu Fabra (UPF), one of the most prestigious technical education institutions in Spain.

Established in 2009, this annual single-track event has rapidly become one of the leading workshops on network resilience and dependability, each time gathering world-class researchers from both academia and industry. Other technical co-sponsors of RNDM 2014 included: IFIP TC6, the IEEE Spain Section, the V.A. Trapeznikov Institute of Control Sciences of RAS, and the Russia (Northwest) Section BT/CE/COM Joint Chapter.

RNDM also offered two co-located half-day workshops: the 1st International Workshop on Survivable Content-Oriented and Cloud-Ready Networking (S2CN), and the 2nd International Workshop on Understanding the Inter-play between Sustainability, Resilience, and Robustness in Networks (USRR).

The main goal of the S2CN workshop was to stress the importance of survivability aspects in the context of increasingly growing content-oriented networks and cloud computing services. S2CN is intended to provide an international forum for both academia and industry on the topic of survivable content-oriented and cloud-ready networking. The S2CN workshop was supported by ENGINE, the European research centre of Network IntelliGence for INnovation Enhancement, and the European Commission under the 7th Framework Programme, Coordination and Support Action, Grant Agreement Number 316097 (<http://engine.pwr.edu.pl/>).

As technical networks exhibit many inter-dependencies that are complex to measure and model but also lead to multi-objective decision/robust optimization problems where uncertainty becomes the transversal notion to capture, the aim of the USRR 2014 workshop was to develop a better understanding of the fundamental interplay between sustainability, resilience, and robustness essential to rejuvenate and improve current design and evaluation methods that are unable to cope with this fundamental dimension. USRR 2014 was supported by the EINS project, the FP7 European Network of Excellence (NoE) in Internet Science funded by the European Commission DG CONNECT.

A significant increase in community interest in RNDMs has been observed over the years. Despite being located near the European research community, RNDM has so far attracted many attendees and presenters from non-European countries, including the USA, Canada, Japan, China, and Uruguay. This year's edition was no exception.

A total of 66 regular submissions authored by researchers from over 30 countries were extensively reviewed by 70 TPC members and over 40 external reviewers. As a result, each



Prof. Eusebi Calle (left), Prof. Jose L. Marzo (middle), and Prof. Bart Lannoo (right) delivering their keynote talks.



Presentation of the Best Paper Award (left to right: Jacek Rak, RNDM 2014 General Chair, Boris Bellalta, RNDM 2014 Organising Chair, Rein Houthoofd - recipient of the award, and James P.G. Sterbenz, RNDM 2014 Co-chair).

RNDM 2014 paper received at least four reviews, while the average number of delivered RNDM 2014 reviews was 4.27. The 35 accepted manuscripts were organized as full and short papers into five RNDM 2014 technical sessions, entitled: Resilient Routing Strategies; Theory of Resilient Routing; Network Optimization; Resilience of Converged Services; and Network Reliability Assessment. There were two technical sessions of S2CN 2014: Survivability of Elastic Optical Networks; and Optimization of Survivable Content-oriented and Cloud-ready Networks. There were also two other sessions for the USRR 2014 workshop.

The technical program of RNDM 2014 was enriched by two keynote talks: "Robustness Analysis of Networks under Large-scale Failures: Drawing Robustness Surfaces" by Prof. Jose L. Marzo and Prof. Eusebi Calle (University of Girona, ES); and "What is the Impact of Network Protection on the Energy-Efficiency?" by Prof. Bart Lannoo (Ghent University-iMinds, BE). There were also three invited talks: "Power Efficient Service Differentiation Based on Traffic-Aware Survivable Elastic Optical Networks", "Fragmentation-aware Survivable Routing and Spectrum Assignment in Elastic Optical Networks", and "Modeling and Impact of Flexible WDM Grid with Variable Channel Rates on Multiple Network Layers" by Ioan Turus (Technical University of Denmark, DK), Çiçek Çavdar (KTH, SE), and Achim Autenrieth (Adva Optical Networking, DE), respectively.

In addition, RNDM offered a panel discussion, "SDN – Revolution or Evolution in Network Reliability", addressing emerging resilience issues of software defined networking chaired by James P.G. Sterbenz with three panelists: Achim Autenrieth (Adva Optical Networking, DE), Krzysztof Walkowiak (Wroclaw University of Technology, PL), and Paul Smith (Austrian Institute of Technology, AT).

The RNDM 2014 Best Paper Award ceremony took place during the closing session. Four papers were nominated. The final decision was based on two factors: average overall scores of submitted manuscripts (based on recommendations of reviewers), and presentation quality (scored by chairs of RNDM technical sessions). This year the award was given to two papers: "Fault-tolerant Greedy Forest Routing for Complex Networks" by Rein Houthoofd, Sahel Sahhaf, Wouter Tavernier, Filip De Turck, Didier Colle, and Mario Pickavet from Ghent University – iMinds, BE (presented by Rein Houthoofd); and "Region-Based Fault-Tolerant Distributed File Storage System Design under Budget Constraint" by Anisha Mazumder, Arun Das, Chenyang Zhou, and Arunabha Sen from Arizona State University (US) (presented by Arunabha Sen).

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Participants of RNDM 2014.

Amateur Radio Lectures In India, September 2014

By Miroslav Skoric YT7MPB, IEEE Austria Section

Many IEEE members are 'hams' (radio amateurs), and as Doug Zuckerman W2XD, 2008-2009 President of the IEEE Communications Society, pointed out in an email correspondence: "many of these [members] had ham radio as the launching point for their careers". That is one of the reasons I have been volunteering by promoting amateur radio communications.

My travels are usually connected to conference lectures, but to make this self-funded voyage more cost-effective, I decided to start with a two-day session on "Amateur Radio Digital Information and Communication Technologies", organized with the Surdar Vallabhai National Institute of Technology in Surat (known as NIT Surat), which is one of the most prestigious institutions of its kind in the Indian state of Gujarat. Thanks to Prof. Mrs. Upena Dalal and her associate Mrs. Shweta Shah, several female students were in the audience. In contrast with western countries, it seemed that Indian schooling in technology does not suffer from decreasing interest by girls and women.

The main event of my journey started a couple of days later. With the organizational support of Mohan Ram VU2MYH, Director of the National Institute of Amateur Radio (NIAR), one of the most influential amateur radio unions in India, I conducted a tutorial session with the 11th International Conference on Wireless and Optical Communications Networks (WOCN 2015), organized at Koneru Lakshmaiah University (KLU) in Vijayawada, the newly appointed capital of Andhra Pradesh state, and supported by the IEEE Hyderabad Section. Although the KLU campus is located in Vaddeswaram village, nearly half an hour by car from Vijayawada city center, it possesses enough telecommunication equipment and has a good location for constructing an amateur radio relay facility.

After returning to Hyderabad, the main city of Telangana state, NIAR organized two lectures. The first was held at Gokaraju Rangaraju Institute of Engineering and Technology (also known as GRIET), where Jose Jacob VU2JOS, Deputy Director of NIAR, performed practical parts of the session. The second lecture was held at the Department of Electronics and Communication Engineering at Vardhaman College of Engineering. The overall logistics for both sessions was provided by N. Venkatesh, vice chair of the IEEE ComSoc/SPS Hyderabad Joint Chapter. After opening words by Prof. Zafar Ali Khan of the Indian Institute of Technology Hyderabad (Fig. 1, second from the right), Mr. Ram (Fig. 1, at the lectern) and I presented the rest of the lecture. The room was fully occupied by students and staff. Unfortunately, that part of India suffers from electrical blackouts, so the program was interrupted several times.



Fig. 3: Lecture at Indian Institute of Information Technology and Management (IIITM), Gwalior, Madhya Pradesh state.



Fig. 1: Lecture at Department of Electronics and Communication Engineering at Vardhaman College of Engineering, Hyderabad.



Fig. 2: Workshop with Department of Telecommunication Engineering at BMS College of Engineering in Bangalore.

A couple of days later, another two-day workshop was scheduled with the Department of Telecommunication Engineering at BMS College of Engineering in Bangalore, thanks to joint efforts of Dr. Srinivas Talabattula, chair of the IEEE ComSoc Bangalore Chapter, and Munir Mohammed, program specialist at the IEEE India office in Bangalore (Fig. 2, standing on the left).

The next stop on my journey was Chennai (formerly Madras). The first day I was a special guest of the IEEE Madras Section, by having a lecture introduced by Prof. Rama Rao from SRM University. The next morning the main event was a lecture at the huge SRM campus, located some 45 minutes by car outside the city. Approximately 100 people participated.

The final portion of this travel included three educational institutions in Gwalior, Madhya Pradesh state. Thanks to Jayant Bhide VU2JAU, the local amateur radio leader (Fig. 3, sitting second on the right), the first session was conducted with students and staff of the Indian Institute of Information Technology and Management (IIITM Gwalior). The next morning session we presented in front of a younger audience at Gwalior Glory High School. The afternoon's session was presented at the Department of Electronics & Communication Engineering at IPS College of Technology & Management. Once again, it was encouraging to see many female students in the rooms. The future seems to be bright.

Having good impressions, I can say that Indian education is eager for novelties and challenges of many kinds. They are not reluctant to ask for more. It is obvious that there will be more amateur radio tutorials and workshop sessions in years to come. The plans include establishing an "international conference on the amateur radio in education", as well as local events in the form of "summer schools". In that direction, people mentioned in this report, and some others who were not listed here, have addressed open calls for prospective participants in such events. Should you want to collaborate as a ham radio instructor, please do not hesitate to contact me (skoric@ieee.org).

5th International FOKUS FUSECO FORUM: Smart Communications Platforms for Seamless Smart City Applications

By Thomas Magedanz, General Chair, Fraunhofer FOKUS/TU Berlin, Germany

The FOKUS FUSECO FORUM (FFF) 2014 was the fifth event in the successful series of FFF and attracted approximately 230 academic and industry telecommunication specialists from 31 countries. Two full days with technical tutorials, interactive workshops, conferences, booths, and live demonstrations were offered. For the first time it was preceded by the First FUSECO Forum Asia, held in Bali, Indonesia in June 2014.

TUTORIALS, INTERACTIVE WORKSHOPS, AND DEMONSTRATIONS

Three main technical directions were addressed by a series of tutorials and workshops: cloud-based smart communication platforms; 5G and core network evolution based on SDN and NFV; and Internet of Things and machine to machine (M2M) solutions and services. Specifications, technical aspects, and practical use cases of these directions were thoroughly reviewed.

As in prior years, Fraunhofer FOKUS demonstrated the new advances in its Future Seamless Communication (FUSECO) Playground (www.fuseco-playground.org) testbed and its latest FOKUS OpenXXX toolkits, namely OpenSDNCore, Open5GCore, and OpenMTC, which address each of the main technological directions in telecom today: mobile broadband, 5G, cloud, SDN, NFV, and M2M/IoT.

Fraunhofer Fokus was particularly happy to announce the new End-to-End 5G Research Laboratory together with the Fraunhofer Heinrich Hertz Institute. 5GBerlin (www.5g-berlin.de) is an initiative for collaborative research toward 5G to be tested in one place, including 5G core, access and photonics technologies.

INTERNATIONAL FI-PPP WORKSHOP

In conjunction with the FOKUS FUSECO Forum 2014, XiFi (www.fi-xifi.eu), the capacity building part of the FI-PPP program, organized an international FI-PPP workshop, a full day interactive session for the regional and international promotion of the European Future Internet – Public Private Partnership (FI-PPP) program on November 13, 2014. With participation of more than 50



Conference Opening/Keynote Session with Prof. Magedanz (TU Berlin) and Guru Parulka (Stanford University).

guests and speakers, the international FI-PPP workshop successfully provided a comprehensive overview of worldwide Future Internet programs and the status of the FI-PPP program in particular.

KEYNOTE, CONFERENCES, AND PANEL DISCUSSIONS

The FFF14 Conference Day was opened by a short welcome note given by Prof. Dr. Manfred Hauswirth, the new director of Fraunhofer FOKUS and a globally known expert on the Internet of Things and data analytics research communities.

Mr. Guru Parulka from ONF/Stanford University gave a keynote on software defined networking (SDN), network functions virtualization (NFV), cloud principles, and the role of open source software for driving innovation in the Internet and telecom world.

Five sessions followed, with representation from experts from the leading operators, vendors, consulting companies, and academia. Topics were: broadband access convergence in smart cities; evolution path to 5G based on SDN and NFV; human to human (H2H) communications in smart cities, an interesting comparison between virtualized solutions and WebRTC/OTT communications; cloud-based telco platforms enabling competitive smart city applications; M2M in smart cities and IoT as a key driver for innovative smart cities. Afterward there was a session on best practices from around the world for smart cities as Future Internet showcases.

CONCLUSION

Throughout the extensive review, discussion, and demonstration of the new technological advances in Telecom, it was confirmed that based on global Future Internet research activities, the ongoing virtualization and “cloudification” of service and network infrastructures is globally progressing rapidly and that new application domains beyond voice and video communications are emerging mainly based on Machine-to-Machine communications under the banner of smart cities and the Internet of Things.

OUTLOOK: 2ND FUSECO FORUM ASIA AND FOKUS FUSECO FORUM 2015

Based on the global relevance of the addressed topics and technologies, and following the continued success of the FOKUS FUSECO Forum series in the last decade, the 2nd FUSECO Forum Asia is planned for the end of May 2015 in Bali, Indonesia. The next FOKUS FUSECO Forum will be held in Berlin in the middle of November 2015. Key topics addressed by FFF15 will be 5G, SDN/NFV, IOT/M2M, and data analytics.

For more information, including more detailed event minutes, pictures, and presentations, or more information about the events to be held in 2015, please refer to: www.fuseco-forum.org/ and www.fusecoforum.asia.

RNDM 2014/Continued from page 2

As a tradition of RNDMs, in addition to IEEE Xplore publication, participants were also provided with printed as well as electronic proceedings. Authors of the top analytical RNDM 2014 papers were invited to submit the extended versions of their contributions to a special issue of *Networks Journal* (Wiley).

The next edition, RNDM 2015, will be held in Munich, Germany, on October 5–7, 2015. More information on RNDM 2015 is located at <http://www.rndm.pl>.

GLOBAL COMMUNICATIONS NEWSLETTER

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