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Highlights from The Future of the Internet Conference (Bled, Slovenia, March 2008)

By Paulo de Sousa, European Commission, Brussels, Belgium

This meeting in Bled, Slovenia, on 31 March 2008 brought together around 300 representatives of European industry and the research community to discuss and share ideas on future Internet developments. The overall theme of the conference was "The Future of the Internet — Perspectives Emerging from R&D in Europe" and built on previous work in establishing the EIFFEL initiative. The conference was followed by a two-day technical workshop from 1 to 2 April attended by representatives of over 60 EU funded projects.

The Conference was hosted by the Slovenian Government, with an objective to offer a first opportunity to understand what is being researched in the European Union and worldwide in the area of the future Internet, to identify common problems and propose solutions to overcome barriers, and to present the key elements of a roadmap of action. It was also an open floor for a discussion of the conditions that must be created in order to help European enterprises become global leaders in tomorrow's networking and service infrastructures, and ensure that the markets are ready for emerging technologies and business models.

The first day of the Future Internet event in Bled was focused on general overall issues, with more detail being covered in the workshop of the next two days. Management level presentations focused on some very different challenges in the future Internet. The most recurring issue, especially in the discussions, was how to handle privacy in the future Internet. Further issues were the integration of sensors and, more generally, the Internet of things, the influence of Web 2.0 and getting players such as artists involved, and how to handle high-end 3D-enabled multimedia requirements.

The workshops included panel discussions on topics such as "Future Internet Socio-Economics," "Self-Management," "Communicating Objects," and "Content-Delivery Networks." It was seen as important to separate clean slate R&D from deployment issues. Identity management was taken up as a first priority for the future Internet from the security point of view. Further issues identified were how to define trust, and how to handle vulnerabilities and threats. It was also seen as critical to deal with legislative and economic links to security, and to take up requirements for society as a whole. The sessions stressed the need for experimental facilities for content and protocols.

Highlights from the Conference Program

Andy Wyckoff of OECD spoke on "The Internet Economy." Three trends are shaping the Internet economy: convergence, creativity, and confidence. There is also a strong trend toward a more ubiquitous network, seeing a shift from the PC to mobile.

Geert Lovink, founder and CEO, Institute of Network Culture, spoke on "Exploring Europe's Assets: Critical Concepts for the Future Internet." There is no European platform for artists and others who are very sensitive about intellectual property rights. He believes the free U.S. model is not a sustainable model, and that a future Internet platform should enable a living for such groups. This is what the new generation wants.

Diogo Vasconcelos, distinguished fellow, Internet Business Solutions, Cisco, spoke on new usages and trends, following with ideas on what the Internet will look like. He identified three principles: user participation, open systems, and the networking effect. Two essential needs in the future are neutrality, to prevent anti-competitive behavior, and appropriate quality of service (QoS). Innovation will be needed both in the core and at the edge. The Internet is a basic human right for the future, regardless of language, age, and disabilities.

Heidi P. Dempsey, GENI Project, pointed out that GENI was prompted by the frustration created by problems of the Internet. Several workshops and activities pointed to the need for a program on the design of a suitable infrastructure. Key issues were the sharing of resources and support of virtualization. GENI provides the infrastructure for other projects to develop key technologies for the next 20 years. The idea is to start with an achievable starting point toward an ultimate goal via a spiral development process.

Christian Grégoire, vice president and CTO, Alcatel-Lucent, spoke on Broadband: "What Impact on Future Internet Architectures?" Service providers and industry should move toward cognitive, immersive, one world communications. A network should become one that learns, from being a dumb pipe to being a user's intelligent partner with inherent, nonintrusive security. Such a network will be flat, not hierarchical. He stressed the need for increased EU funded experimentally driven research.

Jan Uddenfeldt from Ericsson took on the topic of "Challenges of Future Internet." He agreed that the future Internet is a great opportunity for Europe, pointing out to the existing strength of Europe in the mobile phone area, and the fact that in the future most users will be mobile. In fact, we are quickly moving toward mobile broadband. He mentioned the Swedish initiative Ambient Sweden in this context. Its purpose is to introduce the personal Internet for both public and private services, and also make it a natural part of school and

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Highlights from the First ruSMART

By S. Balandin, Y. Koucheryavy, and D. Tkachenko, Russia

This year the first ruSMART (Smart Spaces, http://www.rusmart.org) conference was held in the city of St.Petersburg, Russia, on September 5, 2008. Around 90 participants attended the conference, 15 of them from industry. The ruSMART 2008 was collocated with the 8th NEW2AN (Next Generation Teletraffic and Wired/Wireless Advanced Networking) conference held on September 3–4, 2008. Joint proceedings were published by Springer, LNCS 5174. The program of the first ruSMART was very busy for a one-day event; it featured four keynote presentations, three invited talks, and seven technical papers accepted from an open call. Technical support of the conference was arranged by the IEEE Russia Northwest BT/CE/COM Chapter and Popov Society.

Recent advances in the field of wireless networks have moved them beyond their traditional areas of application to a much broader scope. They form a space where users can access a number of wireless technologies to interact with various services. Similarly, existent and future services form a space providing an unlimited set of possibilities ranging from browsing to interactive video conversations. All these layers form a smart environment that can harmonize a number of technologies at each architectural layer to provide the best user experience.

This conference aimed to explore and explain the scope and challenges of smart spaces. In this regard, the conference brought together research professionals from diverse fields including but not limited to wireless communications, ubiquitous networks, software development, multimedia, services, and business in both academia and industry. In recognition of the topic, the conference was initiated, founded, and supported by industrial leaders in the area, Nokia and Siemens. The conference was also supported by the city government of St. Petersburg .

The first ruSMART was opened by Dr. Sergey Balandin, who outlined importance and timeliness of the conference, highlighted its technical contents, and revealed statistics on the tremendous interest the topic of the conference initiated.

The first keynote speaker, Dr. Ian Oliver of Nokia Research Center (Finland), titled his presentation "Towards the Dynamic Semantic Web"; he outlined the way Web information is conceptually perceived in terms of its dynamicity, locality, persistence, access, and interpretation. It is true to say that the current information sets presented to users are relatively static in form, and this is typically true of "Web-wide" structures. As more users or agents have access to Web-wide information from both static and dynamic sources, interpretation will vary, and deeper representations of the semantics and the grounding of the semantics of the information will be required. Sophisticated conflict resolution, truth and belief revision, and search strategies will be required in order to successfully reason, interpret, gather and search this information. He summarized that the semantic Web future is arriving; however, it will be more dynamic and ubiquitous, encompassing everything from worldwide structures to local and personal structures, more than anyone has envisaged.

The next keynote speaker, Prof. Sajal K. Das of the University Texas at Arlington (United States), in his presentation "Designing Smart Environments: Challenges, Solutions and Future Directions" addressed the fundamental issues and challenges in the design and modeling of smart environments. He provided valuable insights on how to optimally track inhabitants' contexts (e.g., location and activity) by building profiles from sensory data as the inhabitants interact with the environment on a daily basis, efficiently learn from such profiles, and finally predict future contexts. He presented algorithms currently under development at the University of Texas at Arlington for context predictions leading to task automation, adaptive control of device operations, and proactive context-aware services such as resource management. The underlying algorithms will be based on information theory, game theory, online learning, text compression, and optimization techniques, among others. A prototype smart home was also presented. The talk concluded with open research problems and a summary of ongoing projects.

The next keynote speaker, Dr. Gerald Kaefer of Siemens (Germany), provided an industrial vision in a joint presentation with his colleague, Dr. Cornel Klein. "From Smart Homes to Smart Cities: Opportunities and Challenges from an Industrial Perspective" gave the business perspective of a large industrial supplier of infrastructures and solutions. This includes application scenarios for smart cities, and an outline of the involved business and research challenges. A particular focus was the setup and energy-efficient operation of smart infrastructures and data centers. He expressed particular concern regarding the incorporation of energy efficiency. This involves reduction of the rapidly rising IT energy costs, and concepts for making software applications and services more aware of their energy consumption. It is therefore the basis for the identification of IT energy hotspots in software and IT system architecture, and therefore for the sustainable development and operation of smart environments.

Finally, Prof. Arkady Zaslavsky of Luleå University of Technology (Sweden) gave a keynote talk on "The Smartness of Pervasive Computing Systems through Context Awareness." First, he provided deep insight into context-aware systems. Then the developed context spaces model was presented in detail. The model overcomes some of the shortcomings of logic-based modeling and the lack of unifying properties in sensor data fusion approaches for context awareness. Context spaces aims at a general context model to aid thinking and describing context, and to design operations for manipulating and utilizing context. The concepts use insights from geometrical spaces and the state-space model, hypothesizing that geometrical metaphors such as states within spaces are useful to support reasoning about context. The model provides a unifying way to represent context and enables effective reasoning to be applied over the modeled information. As a conclusion, he showed that a range of applications, including healthcare and intelligent transportation systems, demonstrates the usefulness, validity, and practicality of the context spaces approach.

A copy of keynote abstracts and the majority of presentations are available for download at http://www.rusmart.org/2008/program.html

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7th Asia-Pacific Symposium on Information and Telecommunication Technologies (APSITT 2008)

By Ichiro Inoue, Motonori Nakamura, Noriaki Kamiyama, Keisuke Ishibashi, Takashi Miyamura, Kou Miyake, and Hiroshi Saito, Japan
Co-Chairs and Members of Organizing Committee

The IEEE Communications Society technically cosponsored the 7th Asia-Pacific Symposium on Information and Telecommunication Technologies (APSITT) held at Bandos Island, Maldives, on April 22–24, 2008, which was sponsored by Japan's Institute of Electronics, Information, and Communication Engineers (IEICE). This article gives a brief history of past APSITTs and the contents of the 7th APSITT.

The aim is to raise the prosperity of the Asia-Pacific region by presenting opportunities for academic fora for mutual understanding and friendship among researchers and leaders in the information and telecommunications field. APSITT has been technically co-sponsored by IEEE ComSoc and was established by volunteers mainly from the IEICE Communications Society's Technical Committees on Information Networks (IN) and Network Systems (NS). The 7th APSITT followed the six conferences shown below.

History of APSITT
1st: Nov. 1993, Bangkok, Thailand
2nd: Mar. 1997, Hanoi, Viet Nam
3rd: Aug. 1999, Ulaanbaatar, Mongolia
4th: Nov. 2001, Atami, Japan / Kathmandu, Nepal (held by videoconference)
5th: Nov. 2003, Noumea, New Caledonia
6th: Nov. 2005, Myanmar Info-Tech, Myanmar

In total, 44 papers were accepted from 79 submitted papers from Asian countries as well as some European countries and Latin American countries. The key facts and statistics on APSITT 2008 are as follows:

Conference date: April 22–24, 2008
Conference Venue: Bandos Island, Maldives
Participants: 65 excluding participants from Maldives; 22 from Maldives

The Opening Session had four speeches. The first speech was the welcome and opening remarks by His Excellency Mr. Mohamed Saeed, Minister of Transport and Communications. The second speech was the opening remarks by Prof. Yoshiaki Tanaka, General Co-Chair, Waseda University. The third speech was the program committee overview by Prof. Miki Yamamoto, Co-Chair of the Technical Program Committee, Kansai University. The last speech was the keynote speech by Prof. Tomonori Aoyama, Keio University.

His Excellency Mr. Mohamed Saeed stressed the importance of the information and telecommunication technologies, and welcomed all participants. Figure 1 shows His Excellency making his speech.

Prof. Yoshiaki Tanaka touched on the concept and brief history of the conference, and expressed gratitude to the host country on behalf of the conference organizer, in addition to the importance of international and regional promotion of the technology from the viewpoint of academia.

Prof. Miki Yamamoto summarized the review process of the conference, and announced the number of submitted and accepted papers.

Prof. Tomonori Aoyama, who is a member of the International Advisory Board of the conference, outlined the concept and progress of the new generation network.

Opening session in the main hall.

APSITT Committee members and Maldives local government officials.

The total of 10 technical sessions had 44 papers presented covering various areas on information and telecommunication. Below is the list of the technical sessions and the numbers of presentations in each session.

* Next Generation Network (4)
* Wireless (9)
* Routing and Traffic Engineering (6)
* Ubiquitous (9)
* Traffic and QoS (5)
* Optical Networking (3)
* Network Architecture (4)
* TCP and Flow Control (4)

The Maldives local government has regarded information technology as important, and has promoted international technical exchanges in the IT field. They highly honored the conference with many top officials attending, and the local TV station covered the conference in the same day's evening news.

We made sure to continue the exchange of academic progress on information and telecommunication technology to fulfill the aim of the conference.

Further information on APSITT 2008 is available at the following URL:
http://www.ieice.org/cs/in/APSITT/2008/

Portability in Mexico: Part II

By Carlos Hirsch, IUSACELL, Mexico

Mexico has finally started to offer portability to telecom users. It is now possible for customers to keep their telephone numbers when they change carriers in the same local area and within the same type of number or service. The four types of telephone numbers in Mexico are fixed, mobile calling party pays, mobile receiving party pays, and non-geographic (i.e., 800 or 900). Portability is not permitted between fixed and mobile services on purpose to allow the caller to know in advance the price of the call.

In June 2007 the portability schedule was officially approved, and the Portability Technical Committee (PTC) started the difficult process of reaching agreement on the rules. The Committee, integrated by all the telephone carriers, should decide every issue by unanimity; when that is not possible, COFETEL, the Mexican Regulatory Authority, arbitrates for final resolutions.

As explained in our previous report, the chosen Mexican solution was "all call query" using a central database administrator (DBA) with technical and administrative functions. There is no direct connection between carriers, and all transactions are managed through the DBA. Technically, the DBA is in charge of preparing a daily file with all the changes, and telecom companies must update their networks every night.

On January 2008, COFETEL published the final version of the portability rules prepared by the PTC. Since then, the PTC wrote the Request for Proposals to select the DBA. On March 2008 Telcordia Techologies Inc. was selected over three other companies as the DBA with an exclusive three-year contract. In the administrative field the DBA must validate customers' requests and solve simple disputes between carriers.

The requirements for users to port a number are minimal: in the case of postpaid (fixed and mobile), the customer must present personal identification and the last bill paid (valid up to 10 days after due date); for prepaid, only the personal identification number (PIN) is needed. To obtain the PIN, the prepaid customer who wants to port a number should contact the desired carrier, who requests the PIN from the DBA; the DBA sends a secret short message (SMS) with a four-digit random PIN to the user's phone, valid for 10 days. Normal changes will take two business days.

The DBA made a remarkable effort to put all the systems in place and start an intensive testing process with all the carriers ready in a record time of three months.

The toughest change to implement portability was the signaling procedure, and it was not perceived by customers. The previous method of settlement between carriers was based on the origination number (A number). To implement portability a new signaling format was designed to include on each call, as part of the B number, a network origination code (IDO) for billing and a network destination code (IDD) for routing.

After two days of minor technical inconveniences, since July 2008 Mexico is the first country in Latin America to have portability. It is still too soon to measure the impact on the competitive environment or comment on winners and losers.

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BLED INTERNET CONFERENCE/*continued from page 1*

education at all levels. The challenge will be to upgrade the Internet while in full operation.

The Bled Declaration

The most visible outcome of the event was the endorsement of the Bled Declaration, "Toward a European Approach to the Future of the Internet," by the European Technology Platforms eMobility, NESS, NEM, ISI, and EPOSS, and by over 70 EU-funded research projects related to the Future Internet.

The central message of the Bled Declaration is a call for concerted action at the EU level and by the EU member states, given the urgent need to redesign the Internet. The European Union is investing more than €400 million in collaborative research projects dealing with issues related to the Future Internet, showing a strong political and industrial commitment to achieving significant results.

Another outcome of the Bled conference was the launch of the European Future Internet Assembly as the vehicle for discussion amon concerned R&D projects and the European Technology Platforms.

Further information, including the presentations from the Bled Conference and the Bled Declaration, is available on the European Future Internet Portal at www.future-internet.eu