Global Communications Newsletter

October 2000

European Commission Discloses Policy for Internet Management

By Paolo de Sousa, Belgium

The European Commission has set out several key recommendations to improve the future running of the Internet. These recommendations focus on the way the Internet's infrastructure — including the "dot.com" or "dot.gov" system of domain names, and the Internet Protocol (IP) addressing system — are coordinated internationally.

Several important developments concerning the organization and management of the Internet have taken place over the last two years at the initiative of the U.S. Department of Commerce in consultation with other international partners, including the European Union. These reflect the Internet's expansion from a U.S.-based network used mainly by universities, government, and military departments to the most significant global tool for communicating, obtaining information, and doing electronic business.

The Internet Corporation for Assigned Names and Numbers (ICANN), a globally representative, non profit-making body, has been set up to manage Internet numbers and domain names. Initially appointed for two years, the 18 members of the ICANN Board are now elected. Nine members are elected by private, self-regulatory bodies such as domain name supporting organizations (DNSO), address supporting organizations (ASO), and protocol supporting organizations (PSO); the other nine will be elected by Internet users at large, through a procedure currently being set up.

The European Commission and EU member states, as members of a government committee advising ICANN, play a key role in bringing public interest and government policy issues to bear that affect Internet usage.

Domain names are the tools through which individuals and businesses communicate across the Internet. Registration for "dot.com," "dot.net" and "dot.org" domains has been opened up to competition among a number of registrars. ICANN has also endorsed the World Intellectual Property Organization (WIPO) guidelines for resolving disputes relating to domain names and trademarks. Discussions between ICANN, the GAC, and National Country Code Top Level Domain (ccTLD) registrars are under way to clarify the formal relationships between the registries, governments, and ICANN, taking the public interest into account.

The Commission's key recommendations are:

- Elect members of the ICANN board through transparent, globally representative procedures.
- Bring the registration of gTLD and ccTLD into line with intellectual property and personal data protection principles.
- Introduce transparent and secure ICANN financing by the registries and registrars for domain names and IP addresses.
- Achieve consensus on ccTLD registration policies in line with the public interest and EU law.
- Shift from addresses based on numbers that are 32 bits long (IPv4) to an address protocol based on 128-bit numbers (IPv6) to make room for far more Internet addresses and users.
- Establish a new dot.EU domain name according to transparent criteria.
- Facilitate access to the Internet through appropriate EU leased-line pricing policies and unbundling of the local loop.

The Commission has launched a consultation process on these issues. This process has been highly successful, prompting a large number of substantive replies. The Commission is analyzing the replies and will soon decide how to proceed.

Report on DB&IS '00: Fourth Baltic International Workshop

By Algirdas Pakstas, England

The Fourth Baltic International Workshop on Databases and Information Systems was held May 1-5, 2000 in Vilnius, Lithuania (http://www.science.mii.lt/BalticDB&IS). It is a biannual workshop hosted by one of the Baltic States. The first workshop was organized in 1994 in Lithuania, the second in 1996 in Estonia, the third in 1998 in Latvia.

The third DB&IS Workshop was sponsored by the IEEE Communications Society's Technical Committee on Communications Software; the fourth received additional technical sponsorship from the Technical Committee on Enterprise Networking and Applications.

The venue of the Fourth Workshop was Vilnius Gediminas Technical University (VGTU). The Technical Program of the workshop included two half-day tutorials, a doctoral consortium, seven technical and three professional forum sessions, and one panel discussion. The Proceedings of the workshop are published by the VGTU in two volumes (569 pages) that include 39 research papers, 11 professional forum papers, and 10 doctoral consortium abstracts.

Papers in the technical sessions were from the following countries (with number of papers in parentheses): Belarus (1), Brazil (1), Estonia (3), Finland (3), France (1), Germany (8, including one paper written with co-authors from Sweden and the UK), Japan (1), Latvia (6), Lithuania (11), Norway (2), Poland (5), Russia (2), Spain (1), United Kingdom (2), United States (3), and Yugoslavia (1).

IEEE coordinator for the DB&IS Workshop was Dr. Algirdas Pakstas, who presented a talk on IEEE Communications Society activities and encouraged attendees to broaden their participation in the IT and communications activities of ComSoc and its technical committees.

The number of registered attendees was approximately 100, plus 44 students from local universities such as VGTU (41), Vytautas Magnus

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AccessNova International Forum and TINA Consortium Tighten Their Future Collaboration

By Eduardo Vera, Chile, and Hendrik Berndt, USA

The first AccessNova Forum was held May 1-4, 2000 in Easter Island, Chile, to celebrate the fifth anniversary of AccessNova activities. Twenty-two participants from Chile, Japan, Malaysia, Brazil, and the United States attended the Forum. The participants reviewed past achievements and discussed future plans for AccessNova. In the past five years, the AccessNova Project, which started as a bilateral cooperation agreement between the University of Chile and NTT Laboratories, extended to a wider research collaboration program having new members from Chile, Japan, and other countries. For the next five years, AccessNova activities will broaden in scope and focus on the following research collaboration areas:

- Cross-cultural interactive remote education systems.
- Radio-astronomy systems using advanced information and communications technologies in the northern Chile desert region.
- Digital archiving technologies and their applications to modern archaeology in Easter Island, and astronomy in northern Chile and other places.
- Sensor networks and remote control systems.
- High-speed wireless data networks and other applications.

New AccessNova members will extend the geographical areas of activity mainly, but not exclusively, in Asia and South America. The Multimedia University of Malaysia has expressed its interest in becoming an active member of AccessNova. Participation from Brazilian and Korean universities has also been suggested. The planned collaboration with the Telecommunications Information Networking Architecture Consortium (TINA) will further extend the international scope and relevance of the newly restructured AccessNova program. TINA and the AccessNova Forum have participated in the past in each other's activities through joint member collaboration.

Through these activities TINA has become one of the driving forces in bringing the telecommunications and information technology industries together. Since the end of 1992, approximately 40 leading network operators, telecom vendors, and IT vendors have jointly set up a mature, implementable telecommunications-centered architecture. The accompanying specifications of components are based on the joint agreement of a broad majority of involved companies. The TINA-C motto, "A Cooperative Solution for a Competitive World," expresses this spirit. TINA has reached a mature state and its solutions are now appearing in the market. It has delivered the architecture, i.e., it has provided specifications for:

- TINA service architecture.
- TINA network resource architecture.
- Distributed Processing Environment (DPE) architecture.

The feasibility of key architectural concepts and relevant component specifications were proven by international trials and continuously presented to the public. Most recently new implementations were presented at Telecom '99. What still has to be achieved is the development of large-scale business-driven TINA applications. As a consequence, the focus within TINA-C has shifted from specifying the architecture to the provision of ready-to-implement component specifications and their implementation, targeted at selected business cases.

Here is where the collaboration between AccessNova and the TINA architecture hits home. The area of cross-cultural interactive remote education systems, distance learning, and tele-education will provide the business-case reasons for providing integrated services for all the information and information-exchange patterns that are being introduced by the industry.

These integrated services are designed to provide a variety of multimedia services, with a unique emphasis on management, i.e., they comprise management capabilities that allow every component involved to act as manager or to be managed. The solutions will be based on the idea of a uniform infrastructure for network services and network operation provided for by one common abstract platform, the Distributed Processing Environment.

One of the significant aspects of TINA is to literally provide within its architectural framework a set of common features that serve as a substrate for applications, enabling applications to be "plugged-in" later as separate components embodied by distributed objects. These common features are made available through a set of APIs, so called reference points, which make it possible for all parties involved, such as end users and service providers, to collaborate more closely and effectively.

Having successfully progressed in the cross-cultural interactive remote education systems, further areas of collaboration can be envisioned, including:

- High-speed wireless data networks.
- Digital archiving technologies and their applications.
- Computer-supported collaborative work (CSCW).
- High quality Internet information services.
- Electronic commerce.
- Video on demand (VoD).
- Virtual home environment/next-generation Universal Mobile Telecommunications Systems (UMTS).
- Virtual private network (VPN) customization and management in a global environment.

Ongoing projects in the AccessNova program and activities within the established TINA workgroups will also allow for further refinement of existing architectural frameworks that exhibit distinctive features, such as:

- Openness (with supporting interfaces having clearly defined semantics).
- Flexibility against regulations (by defining reference points according to market driven business roles).
- Uniform support of any kind of management.
- Support of new services with a focus on multi-party and multimedia service features.
- Inherent mobility support.
- Scalability.
- Reusability of software (to achieve a rapid service introduction).
- Separation of service delivery from network transport.
- Network technology independence.

Thus the mutual agreement of the not-for-profit AccessNova Forum and TINA-C to join forces in areas of common interest is expected to benefit both member groups and accelerate academic and scientific research activities in the area of advanced communication and information technologies, and more importantly its utilization in common business-case scenarios.

REPORT ON DB&IS'00/*(Continued from page 1)*

University (2), and Vilnius University (1). Attendees were from the following organizations (with number of attendees in parentheses): academic institutions (61), research organizations (26), the IT industry (6), and government departments and professional organizations (5).

The Workshop was covered in the local media (radio). The evening reception was hosted by the Vilnius Vice-Mayor at the Vilnius City Hall.

The next Workshop is tentatively planned for May-June 2002 in Tallinn, Estonia.

Promoting the Information Society in Spain

By Joan Garcia-Haro, Spain

There is no easy explanation of all the factors contributing to the major changes in the economies of the so-called developed countries. But it is clear that an important and growing part of these economies is centered around the information technology sector. Some people refer to this change as the "Digital Revolution" and compare it to the Industrial Revolution. There are many articles linking it to the development of the Internet and trying to measure its impact on production processes and society in general. New terms such as the Information Society, the Knowledge Society, and the Global Village have appeared. Information becomes a new resource and its transformation produces added value and generates wealth. Perhaps it is too early to predict to what extent this new technological and economic revolution will influence society.

National markets and their products become totally visible, and economies and consumption become global. In such a framework, national competitiveness is a central issue. Those countries who face the new situation early, who are ready to adopt technological and social changes, investing in them and producing innovative products, will be in good position to increase their wealth and overtake their competitors.

In Spain many early initiatives have been private, spontaneous, and focused on banking, electronic commerce, and audio-visual entertainment. However, the central government, autonomous regional governments, and town councils are assuming responsibility and developing strategies to support actions to achieve full adaptation to the Information Society. These actions are diverse, ranging from the modernization and growth of telecommunication infrastructures, especially broadband ones, to sponsoring computer acquisition by small and medium sized enterprises and even families. Also, telecommunications is being deregulated and laws are being developed to encourage competiton among several operators.

Governments are also promoting universal access to the Internet, trying to avoid social discrimination and to achieve a fair territorial balance between urban and rural areas. The public administration itself is introducing new technologies, creating intranets and using telematic tools. Citizens are allowed to communicate and to access (in a secure way by using a citizen's card and guaranteeing the user's privacy) all services that an open administration gives to them. Some other common points among the strategic plans of all administrations relate to the improvement of the quality of life of their citizens, especially regarding areas such as:

- Employment (teleworking).
- Environment.
- Health care (i.e., telediagnosis, aid to handicapped people, etc.).
- Education (deployment of telecommunication infrastructures among educational centers, encouraging tele-education, distant-continuous learning programs, etc.).
- Logistics and transportation.
- Democracy (teledemocracy to involve citizens in all decisions).
- Business (digital commerce and helping companies to incorporate new technologies).
- Culture (promoting the creation of multimedia products and national content on the Web and giving increased importance to the diffusion of the language).

There are reasons to be optimistic. For example, access to the Internet in Spain is growing at a rate faster than in other neighboring countries. In addition, inside Spain this rate is even faster in some autonomous regions than it has occurred in Catalonia or Madrid. However, there are also some weaknesses that need to be fixed, including:

- Tariffs and taxes of telecommunications services are higher

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INFOCOM 2000: A Conference to Remember

By Bhaskar Sengupta, USA

INFOCOM 2000 was held in Tel Aviv, Israel on March 26-30, 2000, and by all accounts this will be a conference to remember for a long, long time. INFOCOM is sponsored by the Communications and Computer Societies of IEEE and it brings together researchers from universities and corporate research laboratories who present the latest research results in the area of computer communications.

The conference started on a high note with an exciting keynote speech, "Nomadic Computing and Smart Spaces," by Prof. Leonard Kleinrock, who is currently the chairman and founder of Nomadix, Inc. Prof. Kleinrock is the author of a two-volume textbook on queueing theory and more than 200 research papers, which have influenced several generations of researchers. In his keynote, he emphasized the fact that inexpensive and high-performance computing devices have enabled us to become nomads because we are no longer tied to our desks for our computing and communication needs. As a next step, our environment will become replete with devices (in walls, watches, belts, appliances, etc.) in which Internet technology will become available in an almost invisible manner.

A total of 250 people attended the nine tutorials presented at the conference, with topics ranging from optical networks to satellite IP networking. There were also two panel discussions, on the future of networking research and on nomadic computing. Finally, 192 refereed papers were presented over 48 technical sessions. These papers had been selected from 717 submitted papers, resulting in an acceptance rate of 27 percent. It is a testament to the high quality of research presented at INFOCOM that the acceptance rate is so close to some of the best refereed journals. The review process introduced a new innovation in which authors could provide a short rebuttal of reviews of their papers. This helped to reduce the "noise" that is inherently present in the review process of any large conference. The sessions themselves covered a broad range of topics in computer communications such as mobility, routing, switching, differentiated services, network architecture, multicast, quality of service, queueing, and traffic engineering. As is customary, two other meetings were held in conjunction with INFOCOM: the conference on open architectures and the workshop on gigabit networking.

In addition to an excellent technical program, the 500 conference attendees had a chance to socialize with one another everyday over breakfast and lunch. Many attendees took advantage of the side trips to visit the ancient city of Jerusalem, the Dead Sea, Haifa, the Sea of Galilee, and the Massada fortress. The conference itself was held at the Dan Panorama Hotel in Tel Aviv, which overlooks the Mediterranean Sea. A short walk away is the port city of Jaffa, which is filled with studios, art galleries, restaurants, and eerily lighted alleyways. In the evenings, it was not uncommon to hear the echoes of an animated discussion on networking in these narrow alleyways and then to see the looming shadows of the conference participants who were engaged in this debate.

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IPtel2000: The First IP-Telephony Workshop in Berlin

By Michael Smirnov, Germany

Does IP telephony represent the killer application for the Internet? What is the magic glue between security, Quality of Service, call processing, etc.? Will Internet telephony users in the future be able to program on their own how the Net should handle their calls? Why SIP? Is TIPHON the answer? How to make money with Voice over IP? Is it possible to provide network services without networks? Is MGCP a good approach? All these and many other questions were debated during IPtel2000.

The first IP-Telephony Workshop (IPtel2000) took place in Berlin on the joint premises of GMD-Fokus and Deutsche Telekom T-Nova on April 12-13, 2000. The workshop's scope included topics related to Internet telephony such as signaling services, QoS support, audio encoding and transmission, security, PSTN internetworking, etc. The workshop brought together researchers, vendors, developers, and network providers. Presentations and active discussions demonstrated interesting aspects of research, development, and deployment in this area. Commitments to SIP (Session Initiation Protocol), an emerging IETF standard, were clearly revealed by most participants.

Program

Four keynote talks — by Henning Schulzrinne (Columbia Univeristy, New York), Stefan Gessler (NEC CCRLE, Heidelberg) and Herwart Wermescher (INFONOVA, Austria), Wilhelm Wimmreuter (Siemens AG, München), and Henry Sinnreich (MCI Worldcom, Richardson, Texas) — facilitated lively discussion among more than 80 participants.

There were 32 submissions, with 15 of them accepted, resulting in an acceptance ratio of 47 percent. All accepted submissions were related to Internet telephony and included problem and vision statements, descriptions of novel solutions, implementation and deployment reports, scientific contributions, and standardization reports. The workshop presentations were structured in five technical sessions: Service Platforms, Tools and Interworking; Business, Applications, and Products; QoS; QoS and Enhanced Service; and Architecture and Implementations.

The proceedings, printed by GMD (Report Nr. 95, ISSN 1435-2702) were distributed at the event. They are also available electronically at http://www.fokus.gmd.de/events/iptel2000/pg.php3. All papers are referenced in the network bibliography (http://www.cs.columbia.edu/~hgs/netbib). Selected papers will be printed in the *PIK Journal*.

Participants

Eighty-seven delegates from around the globe participated in this event. Participants from universities, research organizations, major vendors, and network operators were present.

Siemens, Nortel Networks, and Tedas, demonstrated that Internet telephony is approaching its deployment stage by showing their recent products. Siemens and Nortel also successfully demonstrated interoperability of their products.

The workshop was jointly organized by GMD Fokus, the University of Karlsruhe, NEC CCRLE, SIG on Communication and Distributed Systems (KuVS) of the German Informatics Society (GI), and the German Society for Technical Informatics (ITG). Support was kindly granted by Deutsche Telekom T-Nova.

Outlook

IPtel2000 organizers committed to continue with this event in 2001. Columbia University was proposed as a host of next year's workshop.

Henry Sinnreich of MCI stated that IP telephony is the QoS enabler for the Internet. It is no surprise that after the successful IPTel Workshop, a relevant workshop on the quality of future Internet services was organized in Berlin, scheduled for September 25-27. For information about this workshop go to http://www.fokus.gmd.de/events/qofis2000.

INFORMATION SOCIETY IN SPAIN/*(Continued from page 3)*

in Spain than in other countries.

- Coordination among different administrations needs to improve, as does their use of resources.
- The awareness of individuals and companies needs to be improved.
- There is a need for more favorable financial conditions to invest in new technologies and to innovate.

To learn more about the progress Spain is making in advancing toward the Information Society, go to http://www.gencat.es/csi This site details objectives and actions encouraged by the Catalonian Autonomous Government. Links to other country initiatives can be found as well.

INFOCOM 2000/*(Continued from page 3)*

The conference was executed flawlessly by the untiring efforts of Moshe Sidi (who was the General Chair) and two very capable Technical Program Chairs, Raphael Rom and Henning Schulzrinne. Lack of space prevents me from naming the many others who played pivotal roles in making this conference such a success. In keeping with the location of the conference, its theme was "Reaching the Promised Land of Communications." Having participated in this conference, I felt that it had reached my promised ideal of what a really successful conference should be!

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