Global University
First IT Conference

Adnan Kassar Edifice for Arab Economy
5th and 6th of November, 2008

Telecom Networks: Integration Challenges & Solutions

Dr. Malek Haroud

Topic:
Unified Communication Challenges

Abstract:
Technology advances are enabling us to consolidate disparate networks such as telephone, TV broadcast and traditional data networks onto one platform - a platform defined as a converged network. Such network will carry traffic with very different characteristics like voice, video and bulk traffic. This talk is about the integration challenges on the core network architecture to provide a suitable Quality of Service to the end-users. In addition, this presentation will introduce the research line at Global University namely the integration between Open source and proprietary networked applications within the Unified Communication paradigm.

Bio:
Dr Malek Haroud is the head of IT and Computer science department at Global University. He holds a PhD degree in computer science from Ecole Polytechnique Fédérale de Zürich and a Master's degree in Electrical Engineering from Ecole Polytechnique Fédérale de Lausanne and has more than ten years experience in mobile telecommunication systems like GSM, EDGE and TETRA. He worked as R&D engineer in large companies like STMicroelectronics and BOSCH Telecom.
His domain of experience spans communication protocols, wireless local/personal area networks, Real-time embedded systems C/C++ RTOS, System-On-Chip Transaction-Level Modeling with SystemC and protocol design and verification as well.
In addition, Malek Haroud invented and implemented a new verification technique of SDL compilers within the MDA framework.

Global University
First IT Conference

Adnan Kassar Edifice for Arab Economy
5th and 6th of November, 2008

Telecom Networks: Integration Challenges & Solutions

Dr. Walid Dabbous

Topic:
Evolution of Networking: Integration challenges and future directions

Abstract:
The architecture of the Internet is approaching 30 years of age. In that time, it has succeeded beyond the wildest dreams of its designers in changing the way people throughout the world live, work, and play. The increasing, and implicit, reliance on the Internet has stimulated a major debate amongst experts as to whether the current architecture and protocol can continue to be patched, or whether it will collapse under the demands of future applications. There are signs that the current suite of protocols and solutions are becoming inadequate to cope with some common Internet trends: mobility of users and devices, unusual but legitimate traffic load (e.g. flash crowds), large heterogeneity in terms of devices capabilities and service features, delivery of real-time high-bandwidth video services, requirements for episodic connectivity, scalability in terms of number of nodes and users, complexity related to network, service and security management. In this talk, we discuss some of the architectural limitations of the Internet and present current trends in networking research to address this problem. The interest of an example "data centric architecture" based on information dissemination is shown and the role of experimental platforms serving as a global evaluation environment for networking innovations is highlighted.

Bio:
Dr Walid Dabbous is a senior researcher at INRIA and professor at the Ecole Polytechnique. His research interests include: Future Internet Architecture and Protocols, Networking Experimental Platforms and Simulators, Securing Internet coordinate systems, Large scale virtual environments, Large scale reliable multicast protocols, Internet Satellite Networking, Flexible protocol architecture, High performance communication protocols, Audio and video conferencing over the Internet.
He graduated from the Faculty of Engineering of the Lebanese University in Beirut in 1986 (Electrical Engineering Department). He obtained his DEA and his Doctorat d'Université from the University of Paris XI in 1987 and 1991 respectively. He joined the RODEO Team within INRIA in 1987. He is a staff researcher at INRIA since 1991, and leader of the RODEO (then Planète) team since 1996.

Global University
First IT Conference

Adnan Kassar Edifice for Arab Economy
5th and 6th of November, 2008

Telecom Networks: Integration Challenges & Solutions

Dr. Reda al Hajj

Topic:
Two-way Mapping for Relational DB, OODB and XML. Mapping strategies & integration challenges.

Abstract:
Two-way Mapping for Relational Databases, Object-Oriented Databases and XML Relational. Object-oriented and XML are the two most common models for representing data. However, there are semantic gaps between the three models and the transformation of data from one model to the other is not a trivial task. Some engineering process is required to consider the characteristics of each of the three models and how they could be carefully handled while moving to the other models. This talk will described some mapping strategies between the three data models. For each model, I will discuss the basic characteristics to be considered in the mapping. I will present some intermediate representation that captures the required information.

Bio:
Reda Alhajj received his B.Sc. degree in Computer Engineering in 1988 from Middle East Technical University, Ankara, Turkey. After he completed his BSc with distinction from METU, he was offered a full scholarship to join the graduate program in Computer Engineering and Information_Sciences at Bilkent University in Ankara, where he received his M.Sc. and Ph.D. degrees in 1990 and 1993, respectively. Currently, he is Professor in the Department of Computer Science at the University of Calgary, Alberta, Canada. He published over 275 papers in refereed international journals and conferences. He served on the program committee of several international conferences including IEEE ICDE, IEEE ICDM, IEEE IAT, SIAM DM; program chair of IEEE IRI 2008, OSIWM 2008, SONAM 2009, IEEE IRI 2009. He is editor in chief of International Journal of Social Networks Analysis and Mining, associate editor of IEEE SMC- Part C and he is member of the editorial board of the Journal of Information Assurance and Security; he has been guest editor for a number of special issues and edited a number of conference proceedings. He recently received the Grad Studies Outstanding Achievement in Supervision Award. Dr. Alhajj's primary work and research interests are in the areas of biocomputing and biodata analysis, data mining, multiagent systems, schema integration and re-engineering, social networks and XML. He currently leads a research group of 7 PhD and 9 MSc candidates. Dr. Alhajj recently received with Dr. Jon Rokne donation of equipment valued at $5 million from RBC and Teradata for their research on Computational Intelligence and Bioinformatics research.

Global University
First IT Conference

Adnan Kassar Edifice for Arab Economy
5th and 6th of November, 2008

Telecom Networks: Integration Challenges & Solutions

Dr. Mamdouh El Tabach

Topic:
Optical Wireless Communication for home Access Networks: Integration challenges

Abstract:
The future Internet will require an extremely high-bandwidth "core" and "access" network, along with the associated developments in transmission and switching that are required to achieve this. However, this development alone is not sufficient to deliver the benefits of the future Internet to the citizen. Home access networks play a critical role in achieving broadband penetration, as they act as a communications segment that enables end-to-end services. Extending access into the home and to individual devices is the only way to ensure the success of the future Internet.

The future Home Access Networks should also enrich the lives of consumers, for example by allowing visual communications with their friends or relatives, by enabling interactive experiences through entertainment, by assisting the consumers in maintaining their independence as they age, for example by offering remote healthcare and by allowing them to communicate with their family to reduce any sense of isolation they may have. In essence, they must have the ability to control their virtual as well as their physical environment.

Home networks at gigabit speed are a pivotal technology to be developed if the optimal vision of the future Internet is to be realised. Consumers will require such networks to be simple to install, without any new wires, and easy enough to use so that information services running on the Home Access Network will be just another utility, as, for instance, electricity, water and gas are today.
The European Home Gigabit Access project (OMEGA, EU FP 7-1) OMEGA project is centred on the needs of the user: gigabit radio frequency and optical links, combined with more robust wide-area radio and visible-light communications will provide wireless connectivity within the home and its surroundings. Combined with power-line communications this provides a home backbone "without new wires." A technology-independent MAC layer will control this network and provide services as well as connectivity to any number of devices the user wishes to connect to it in any room of a house or apartment. Furthermore, this MAC layer will allow the service to "follow the user" from device to device. In order to make this vision come true, substantial progress is required in the fields of power line, optical wireless and radio frequency physical layers, in protocol design, and in systems architectures.

It is known that optical wireless benefits from a number of characteristics qualifying it as a serious complementary solution to radio frequency transmission. First, optical wireless takes advantage of the unregulated and unlicensed optical spectrum. Also, we do not have any kind of interference with existing radio systems. Since optical waves are stopped by walls, transmission security is ensured and frequency reuse is much easier. Under good conditions, optical wireless should support high bit rates needed for home services.

In fact, a significant part of the OMEGA effort is devoted to two areas of optical wireless communications.
First, high-speed line-of-sight systems can provide data rates limited by the system components, rather than any spectrum allocation, and the project aims to demonstrate Gbit/s wireless transmission in the near-infra-red region of the optical spectrum.
Second, visible-light communications is an area of growing research interest, and a system that uses white light LEDs for both illumination and data broadcasting is under development. Its role will be mainly to serve as broadcast backup for the 1-Gbit/s point-to-point link, with target data rates of 100Mbit/s in typical room environments.
In this talk, we discuss the basic characteristics of the system, as well as the challenges in providing high data rates for users.

Bio:
Dr. Mamdouh El Tabach received his engineering diploma and the M.S. degree in Signals and Communications from the Ecole Nationale Supérieure des Télécommunications de Bretagne (TELECOM Bretagne, Institut TELECOM) in 2006. He was ranked the first among his Master's graduating class. Since April 2006, he has been with France Telecom R&D (Orange Labs), Rennes, France. In his Master thesis, he proposed new OFDM/OQAM systems associated to Multiple Input Multiple Output techniques and iterative receivers. In collaboration with the French Brittany regional project Techim@ges and the European project under the seventh framework programme Omega, he is currently working towards his PhD, on the physical layer optimization of optical wireless networks. His research interests include wireless optics, home networks, digital communications and signal processing.

Telecom Networks: Integration Challenges & Solutions

Dr. Ahmad Hammoud

Topic:
Integrating Microsoft Office Communication Server 2007 with different PBX packages.

Abstract:
VoIP is a promising technology. It is expected to dominate in the following decade. Many VoIP products using different technologies are currently in the market. Dr. Hammoud will present two different products, namely, Microsoft Office Communication Server 2007 and Asterisk, a free PBX software package. Dr. Hammoud will describe the capabilities of each and present the challenges that one needs to confront when he integrates them. He will also present OpenSER, a third freeware package that will be used to allow OCS2007 and Asterisk to integrate. Such integration is a real challenge due to the nature of both products. Dr. Hammoud will present an efficient solution by providing a complete strategy to integrate multi-vendor products, including Asterisk, SwitchVox, Trixbox, OCS2007, OpenSER, TDM Cards, IP phones and softphones.

Bio:
Dr. Ahmad Hammoud had a BS in computer sciences from the Lebanese American University (LAU) in 1995. Since then, he worked in the field of development. He is a professional specialist in designing, securing and implementing applications for Web and hand held devices. He has an excellent experience in rule-based engines. He developed enterprise applications for many international institutions, including UN. He also worked as a consultant for the World Bank. He is a certified ethical hacker. His experience in working with different RDBMS packages exceeds13 years.
In 2005, he got his Master's degree in computer sciences from LAU. In his Mater's thesis, he focused on securing web applications. His published articles deal with web applications and databases security. He taught advanced computer courses in many universities, including Beirut Arab University and Global University.
His PhD research work is about integrating VoIP products. He is currently continuing his research work in ENST | France. He is the head of the IT research unit at Global University. Recently, he decided to establish his own IT institution. He is the chairman of Scope for IT services.

Telecom Networks: Integration Challenges & Solutions

Mr. Ziad Shaaban

Topic:
Operational vs. Academic IT unit in relation to integration

Abstract:
Mr. Shaaban will state the difference between the operational IT unit and the Academic IT Unit in relation to integration. He will present the role as well as the objective of each unit.
He will also describe his personal experience and present a brief description of the FEA IT Unit and one of its new initiatives.

Bio:
Ziad Shaaban received his BS in computer science in 1996 from the Lebanese American University, LAU, (previously known as Beirut University College). He directly joined the UNDP in Saudi Arabia to work as a programmer for the Ministry of Foreign Affairs. His work involved imaging data management, visa issuing, black list, payroll, and personnel systems. Within one year, he was promoted to System Analyst and then to Team Leader in 1998. In 1999 he moved to the UAE to accept a position as an IT Specialist with Al-Mousawe Trading and Contracting, a company working in the field of oil industry supplements.
In 2000, he joined AUB as a system administrator in the Faculty of Engineering and Architecture. In 2005, he founded an Information Technology Unit in the FEA and became the IT Manager. As a manager, he supervises six IT employees and as many as ten student employees. The Unit currently handles all the IT matters in the Faculty. Mr. Shaaban has worked on many initiatives to enhance the use of technology in the Faculty, both for the educational programs and the administrative operations.
Mr. Shaaban also works as a consultant on IT projects through the AUB Regional External Program (REP).

Telecom Networks: Integration Challenges & Solutions

Mr. Mohammad Boukhari

Topic:
Integrating different technologies for video communication over IP and ISDN

Abstract:
Mr. Boukhari will present the latest technologies and the technical challenges for the video communication over IP and ISDN. He will lead a video conferencing session with a guest speaker talking from abroad through an internet connection. The speaker will present some integration issues and describe the approach followed by Smart Solutions to deal with such challenges.

Bio:
Mr. Mohamad Boukhari is a professional video conferencing specialist. He is currently the Business Development Manager at Smart Solutions, where he can participate in teamwork and add value in IT business solutions development.
He has an excellent experience in the telecom field. His technical knowledge and managerial skills made him capable of solving many of the challenges he had to face when integrating different technologies.
In 2006, he obtained a Certified Document Imaging Architech CDIA+, CompTIA.
In 2004, he got an Information Technology Management Postgraduate Certificate from University of Sunderland UK.
In 2003, he had a B.S. in Administrative Sciences and Politics from Lebanese University.