

50th FITCE Congress in Palermo On track.



Palermo FITCE 2011: www.fitce2011.org

Message from our President.

Dear Friends,

This 2011 will be really important for Fitce; we are going to celebrate our golden marriage, 50 years of life, a meaningful life and rich of the greatest successes. We decided to celebrate our birthday with a big event, our yearly congress will be held in Italy, in Palermo, starting on August 31st up to September 3rd.



Andrea Penza
FITCE President

Since the beginning, Fitce was and has represented a technical reference point within the European Union, trying to convey the interests of all the technological worlds, Universities, the business

world, the Government and the Institutional bodies. In the former 50 years Fitce committed itself in developing the Telco culture and stimulated the relationship between members and the stakeholders of the market. Every year Fitce organized an important Congress in a different European location and most of the reference people of the European telecommunications bodies attended and offered a great contribution to the development of the culture of the sector. For many years the yearly Fitce Congress represented the meeting point for exchanging info, ideas and opinions in telecommunications. For many years the yearly Congress was named "The European days of Telecommunications", outlining the great meaning and importance that this event represented in the Telco European community.

Now, after 50 years, we have the opportunity to meet all together, in order to celebrate our important birthday and, in particular, to give the awards to these people which distinguished themselves within the Fitce life. Furthermore we would like to make an exhausted summary on where we are now and create the conditions to develop a new Fitce, a future proof Fitce, a Fitce which feels with the new digital world.

We have to change, my friends, the world is becoming very fast competitive and global and we have to adapt our mission and goals to this new world, we have to identify means and instruments to offer a platform to the people, to exchange info, ideas, new landscapes.

(Continued on page 2)

Message from the Palermo Congress Chairperson.

Dear Friends,

This year the Italian Association for the Communications and Information technology (AICT), that represents the FITCE Italian branch, is in charge of organising the annual FITCE International Congress. It's a great responsibility because it falls in the 50th anniversary of FITCE foundation and also references the major success of the latest similar event that happened in Italy (Genova 2002).

At that time the Italian FITCE representative was the glorious Association of the Italian Telecommunications Engineers (AIIT) founded just one year after FITCE on the wave of the enthusiasm derived from the acceleration of the European integration process.



In more than forty years AIIT has been the undisputed reference for our profession in Italy and has effectively represented its instances in the European context.

At the end of the year 2003, in order to further strengthen its role, AIIT has decided to make a kind of "last phoenix flight" deliberating its end in order to be born again as AICT within the broader Italian Federation of the Associations dealing with Electrotechnics, Electronics, Automation, Informatics and Telecommunications (AEIT).

Since the beginning of this new era AICT has succeeded in giving a positive contribution to both the

Contents.

- [Palermo - a message.](#)
- [Presidents message.](#)
- [Palermo Program.](#)
- [FITCE Event reports.](#)
- [Technical Program](#)
- [Cloud Computing..](#)
- [Congress Fees.](#)

(Continued on page 2)

(Continued from page 1)

The future will never be like it was in the past...

The title of the Congress, "*ICT: bridging the ever shifting Digital Divide*" will create the opportunity to discuss the most up-to-date topics of the telecommunication market of today, with an always open eye to the future trends. Mobile and fixed Telco trends will constitute a top priority in the development of the strategic topics of the congress.

We will have a lot of attendees, coming from all the Telco bodies which influence the market and the future developments, people from Government, Regulatory Bodies, Universities, Operators and Vendors, will meet all together and trying to depict the right figures for defining the new Telco of the future. The interest in the topics of the Congress will be addressed forward in multiple directions: technological, economic, financial and strategic; all these aspects of the telecommunication world will obtain a large echo and will be sufficiently developed and synthesized during the days of the congress.

We will live a unique chance to discuss and analyze all together about our life of tomorrow.

Don't miss this opportunity; it is a too much of an important milestone for all of us, the biggest event, to catch the train which will introduce us in the multiple dimension of our innovative and marvelous future.

We still have to continue to guide our future, influence the critical choices which have to be taken by European Regulatory and Standardization bodies; we have to continue to value our presence in the telecommunication world. Our yearly Congress has still to represent a fixed step for people, friends, and also particularly for young enthusiasts fully aimed to improve their own knowledge, their own culture and be coached by expertise, competence and professionalism. Fitce has to continue to play that role, but with a special eye towards the new emerging borders of sustainability and green ICT, in order to offer its special contribution to the social well-being of all of us.

Andrea Penza
FITCE PRESIDENT

(Continued from page 1)

diffusion of the ICT culture in Italy and also to international FITCE activities.

As an example of the last point, we may quote the joint workshops with FITCE Greece organized alternatively in Greece and in Italy, in order to experiment with positive cooperation between National Associations operating in close countries under the common FITCE umbrella.

The strong AICT engagement has undoubtedly received a significant acknowledgment with the appointment of our colleague Mr. Andrea Penza as FITCE President for 2010-2011.

With all of the above in mind we therefore face the organization of the 50th FITCE International Congress putting in evidence three main points regarding the location, the theme and the technical co-sponsorship.

The location

The decision to locate the Congress in Palermo derives both from historical - cultural reasons and from telecoms related considerations.

Palermo is in fact an old and charming European capital city with its roots in the past Phoenician, Greek and Roman civilizations that has been also exposed to many different cultures, Arabic and Norman among them. Furthermore the location of the Congress will be itself a testimonial of this: in fact we will have the privilege to be hosted in the Chiaramonte Steri Palace which is the seat of the Palermo University Rectorate. Its history starts in the Middle Age and it has observed all the main episodes and transformations of its country. We deeply thank the Rector Magnificus for this privilege and for the High Patronage he has granted to the Congress.

But Sicily and Palermo are also placed in the middle of the Mediterranean sea that has been for thousands of years the most important communications means among all the people living around its basin. Nowadays sailing has been flanked by telecommunication networks over and under the sea that allow immediate personal and business interactions as well as the possibility to utilize a lot of IT applications and all kind of Internet services. And Sicily is one of the most important node of such infrastructures. We believe that Palermo choice will give us the opportunity to reflect on this and on the role that ICT may play in helping to improve the comprehension among people of different cultures and languages in this difficult age.

The theme

"*ICT: bridging an ever shifting digital divide*" is a challenging theme because it concerns the possibility that the technologies may fill the gaps that they themselves are creating.

And this has to be declined in terms of systems, architectures, applications, service solutions most appropriate to fasten the economical recovery and contribute to solve the social issues of both developed and developing countries. We expect that our community will give concrete answers to this during our Congress.

The technical co-sponsorship

But this Congress is characterized also by an important new condition not experienced in the past: in fact for the first time, the IEEE Communication Society (COMSOC), that is a FITCE Sister Society, has granted its technical co-sponsorship to the Congress.

This is an important result arising from the close relationships between COMSOC and IEEE with FITCE both at international and Italian level. The Congress will benefit not only from an audience much wider than in the past but also from the fact that **all the accepted papers will be indexed in the IEEE Xplore digital library besides the publication in the Conference proceedings**. Of this we have tangible evidence that many qualified persons, from various parts of the world, even outside Europe, have already submitted papers to the Scientific Committee.

Dear friends as you may have seen the program is very rich of contents, challenges and charms, and you may be sure that we will put in place all kind of attentions to make your participation to the Congress not only interesting from the scientific and technical point of view but also pleasant and memorable.

It will be my privilege and pleasure to welcome each of you next August 31st in Palermo.

Maurizio Mayer
AICT President



50TH FITCE INTERNATIONAL CONGRESS

The 50th International Congress promises to be an exciting Congress for a number of reasons. Firstly it is the 50th Congress and as such there will be celebrations to mark this historic event. Secondly FITCE Italy have put enormous effort into ensuring that the location of the Congress, the Accompanying Persons Program and the general Social program are even better than the normal high standard set by FITCE, to welcome Congress Participants and their accompanying partners.

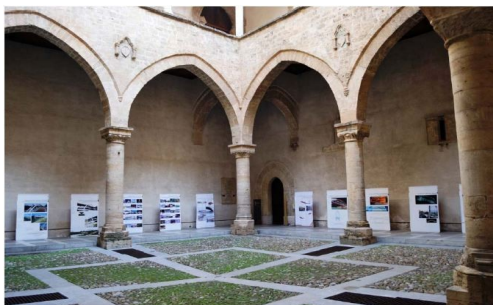
There will be 5 events common to all. This includes,

- Welcome cocktails in the Steri Palace and two lunchtime tours of the Steri Palace.
- A 50th Anniversary Celebration in the Normanni Palace.
- The Gala Dinner in the Solanto Castle.
- Two guided tours of Palermo and its surrounds for Accompanying Partners.

Aug 31	19:00	Welcome cocktail	Steri Palace
Sep 1	Lunch time	Guided visit	Steri Palace
Sep 1	20:00	FITCE 50th Anniversary Celebration	Normanni Palace
Sep 2	Lunch time	Guided visit	Steri Palace
Sep 2	21:00	Gala Dinner	Solanto Castle

The Social Programme.

The locations of the Congress and the Palaces and Castles are of high historic value.



Steri palace.

The Normanni Palace will host the 50th celebrations.



Normanni Palace

The Solanto Castle will host the Gala Dinner.



Solanto Castle.

Technical Program.

The Technical Program will consist of 35 to 40 Presentations, keynote Speeches and also Poster presentations on the topic "*ICT: bridging the ever shifting Digital Divide*". Of particular importance is that all Presentations will have been approved by both FITCE and the IEEE, and we expect one of the highest standards yet in Technical Papers. ([Detailed technical program on Page 6](#)).

	Wednesday August 31 st
18:00	Registration and Welcome Cocktail
	Thursday September 1 st
09:30	Opening Ceremony.
10:50-12:30	Sessions
	Lunch
14:30-18:10	Sessions
19:00	<i>FITCE 50th Anniversary Celebration</i>
	Friday September 2 nd
9:00 – 12:30	Sessions
	Lunch
14:30-18:10	Sessions
21:00	<i>Gala dinner</i>
	Saturday September 3 rd
10:00	Conclusions & Technical Summing Up
12:00	Closing Session
13:00	FITCE General Assembly
14:00	Lunch

Congress Fees.

FITCE Italy have taken particular care to pitch Congress Fees at a level where they can have an excellent Technical program, while creating a social program that suitably marks the 50th Anniversary Celebration. They are also pleased to announce that there will be no VAT on Congress Fees for FITCE, AICT and IEEE members.

REGISTRATION FEES (EURO) (*) 20% VAT INCLUDED FOR NON AEIT / FITCE / IEEE MEMBERS		BEFORE JULY 15 TH 2011	BEFORE AUGUST 15 TH 2011	ON SITE
FULL CONGRESS	AEIT / FITCE / IEEE member	500,00	600,00	700,00
	Non AEIT / FITCE / IEEE member (*)	720,00	840,00	960,00
DAY ONLY	AEIT / FITCE / IEEE member	200,00	250,00	300,00
	Non AEIT / FITCE / IEEE member (*)	300,00	360,00	420,00
STUDENT	Two days	120,00	170,00	220,00
	One day	80,00	130,00	180,00
ACCOMPANYING PERSON	with member AEIT / FITCE / IEEE delegate	200,00	250,00	300,00
	with non member AEIT / FITCE / IEEE delegate (*)	300,00	360,00	420,00
ADDITIONAL OPTIONS	NORMANNI CEREMONY extra invitation	88,00	143,00	198,00
10% VAT INCLUDED	GALA DINNER extra invitation	110,00	165,00	220,00

FITCE 2011 registrations are open from 8th June.

In the Congress site www.fitce2011.org under the tab "Registrations" / "Congress" you will find all the instructions, the fees and the form to be filled, signed and returned to the Congress Secretariat, while under the tab "Registrations" / "Hotel" you can find out how to book the rooms that we have reserved at reduced rate for Congress participants.

ICT : bridging an ever shifting digital divide



Organized by
 **AICT**
 Associazione per la Tecnologia
 dell'Informazione e delle Comunicazioni
 della Federazione  **AEIT**

under the High Patronage of
 **UNIVERSITÀ
 DEGLI STUDI
 DI PALERMO**

and  **IEEE
 COMMUNICATIONS
 SOCIETY** technical co-sponsorship



Workshop—The Evolving Connected World.

On March 31th, FITCE.be organised its first symposium for 2011, gathering about 80 people around the theme of the **evolving connected world**.

Five speakers addressed the topic from various angles.

As a first speaker, **Herman Konings** – trendwatcher – provided us his freshest views regarding the evolving technology needs from 5 generations. He talked about the digital aboriginals, the generation slash, the flexis-tentialists, the master boomers and the silent generation, each having their specific expectations and behaviours.

His presentation was followed by a view from **Frank Van Steenwinkel** from Cisco explaining how cities now have the opportunity to fundamentally change the way they interact with their citizens thanks to advanced technology– the smart communities’ concept. He highlighted the benefits of these smart communities in terms of GDP growth, energy efficiency and job creation. Concrete examples were given with the cities of Barcelona and Amsterdam creating a sustainable economical, environmental and social advantage.

Marc Roelands from Alcatel-Lucent and European coordinator from the ITEA2 project DiY gave us a deep dive into the barriers of the development of the ‘Internet of Things’, and what should be done to overcome those, enabling a mass-scale Internet of Things ecosystem business, linking device vendors, service providers, service operators and user communities. He gave concrete examples from the ITEA DiY Smart Experiences project.

Renaat Leuridan from NSN added another angle to the increasing connected world focusing on vertical services and Machine to Machine innovative business models. He addressed the requirement for a highly efficient architecture to enable cost-effective delivery of M2M services and provided a detailed example on smart traffic in Finland.

Finally, **Peter Vandermaesen** from Belgacom provided his view on Belgacom’s most compelling innovation initiatives. His talk highlighted the importance of the cloud, leading to the explosion of new services and changing the way we use business and mobile applications, entertainment and education.

The presentation session was followed by a panel discussion and a visit to Belgacom’s new innovation lounge, where the audience was given the opportunity to experience the latest technical innovations to come.

HELLENIC FITCE ORGANIZATION: Mini Workshop Title “Telecommunications: New Trends-Advancements-Challenges”

The Greek FITCE Charter organized a one day workshop on Wednesday March 16th 2011 with title ‘Telecommunications: Advancement-Challenges-New Trends’. The workshop was held in the Athens Institute of Technology (A.I.T.) and was sponsored by the Intracom Telecoms Company.

The scope of the workshop was to bring presentations and discussion on current trends in the ICT field, such as mobile backhauling for 4G, IPv6, cloud computing, IMS and an open table on current market financial situation.



The speakers were selected from the Academic and the research sectors of the scientific community. The workshop was divided in three thematic areas. The workshop started with a brief salute

from the Greek FITCE president Mr. K. Sidiropoulos.

The 1st session of the event started with a presentation from Dr. Yovanof, Professor at AIT with a talk on current trends in the mobile sector and its applications and gave an insight for the future internet and web2.0. The second presentation was given by Dr. G. Athanasoulas, Principal Product Manager of the Intracom Telecom Company who presented wireless systems for transmitting traffic of 4G systems. Mr. Theodoropoulos from Vodafone presented smart solutions for measuring remotely through mobile base stations power dissipation of residential customers. A Ph.D. student from the Technical University of Athens presented broadband wireless transmission systems working at frequencies above 10 GHz. The session was closed by Dr. Chochliouros from OTE SA whose presentation was focused on self – managed, healed and configurable systems with emphasis on a research FP7 project named SELFNET.

The 2nd session was devoted on advanced services for mobile networks. Mrs. Apostolaki, Marketing Manager of Intracom Telecom, presented the latest advances on cloud computing with focus on public and private networking. Next talk was given by Dr. Apostolou, marketing manager of Intracom telecom, who analyzed the needs for moving to IPv6 protocol and presented various scenario for transformation from IPv4 to IPv6 and explained the need for incorporating it in smart phones. Next presentation was given by Dr. Kabilafkas from OTE SA, who referred to the role of IP Multimedia Subsystem (IMS) as a base architecture that targets the unification and interoperability of all networks and services. The session was closed by the Managing Director of OTEAcademy, who presented in a unique way the current business crisis and suggested as a solution the ‘adult training tool’ and simple steps for the knowledge improvement.

The 3rd session was devoted on the ‘Financial crisis and the means for doing telecoms investments’. Mr. Aravatinos, the Managing Director of Exelixisnet, presented the trends of the global market in 4G technologies; he showed studies with statistical results and concluded with the importance of the risk factors in the business of investment. The session was closed by Mr. Kolokotsas, General Director of the Greek Industry in semiconductor, who stressed the importance for investing abroad and the opportunities that are born from such investments.

The last session consisted of a round table conversation on the current risks of investment, the financial crisis and the ways to become a company winner. The attendees admitted for the success of the event that covered a broad spectrum of thematic areas that highly attracted their interest.

The workshop was finished with a closing talk from the President of the FITCE Hellenic Organization Mr. K. Sidiropoulos.

Detailed Preliminary Program FITCE 2011.

Wednesday August 31st, 2011

18:00

Registration cloister 1st floor

19:00 – 21:00

Welcome cocktail cloister ground floor

Thursday September 1st, 2011

08:30

Registration cloister 1st floor

09:30

Opening ceremony Room: A – "Magna"

Session A1: Access infrastructures and networks

Room: A – "Magna"

10:50 Keynote speech

Deployment of NGAN in Italy

Gianfranco Ciccarella (Telecom Italia) [tbc]

11:10 *A complete enabling solution for FTTx network infrastructure*

Nicola Di Buono (Sirti SpA, Italy); Edoardo Cottino (Sirti S.p.A., Italy)

11:30 *Performance evaluation of WDM-PON RSOA based solutions in NGAN scenario*

Mariangela Trotta (SITE SpA, Italy); Marco Leo (RadioLabs & Università di Roma "Tor Vergata", Italy)

11:50 *An Analysis of NGAN Deployment in Rural Areas*

Rafael Coomonte (Universidad Politécnica de Madrid & CEDINT, Spain); Claudio Feijoo (Universidad Politécnica de Madrid, Spain); Jose-Luis Gomez-Barroso (Universidad Nacional de Educación a Distancia, Spain); Sergio Ramos (Universidad Politécnica de Madrid, Spain)

12:10 *Hellenic Telecommunications Organization Infrastructure*

John Hatzinikolis (Hellenic Telecommunications Organization, Greece); Katerina Avloniti (Hellenic Telecommunications Organization, Greece); Barbara Rizou (Hellenic Telecommunications Organization, Greece); Marilena Papageorgiou (Hellenic Telecommunications Organization, Greece)

Session B1: Internet and Next-Generation Networks

Room: B - Weapons

10:50 Keynote speech

11:10 *Experimental investigation on the operating systems to improve the bandwidth exploitation in Gigabit Passive Optical Networks*

Paolo Bolletta (Fondazione Ugo Bordonì, Italy); Alessandro Valenti (Fondazione Ugo Bordonì, Italy); Sergio Pompei (Fondazione Ugo Bordonì, Italy); Luca Rea (Fondazione Ugo Bordonì, Italy)

11:30 *On the Quality of Service of fixed-line broadband access network: the Italian experience*

Luca Rea (Fondazione Ugo Bordonì, Italy); Paolo Bolletta (Fondazione Ugo Bordonì, Italy); Elena Mammi (Fondazione Ugo Bordonì, Italy); Alessandro Valenti (Fondazione Ugo Bordonì, Italy)

11:50 *SWAD: Secure Watermarking for Authentication of scanned Documents*

Fernando Martín-Rodríguez (University of Vigo & Signal Theory and Communications, Spain); Juan Fernández-Montenegro (University of Vigo, Spain)

12:10 *GirControl. Manufacturing Process Control via Internet*

Luis Miguel Marias (PACKAGING INDUSTRY & GIRO GH, Spain)

12:30 lunch **Buvette**

Session A2: Business models

Room: A – "Magna"

14:30 Keynote speech

14:50 *Can a synergetic cooperation between telecom and utility network providers lead to a faster roll-out of fiber to the home networks?*

Jan Van Ooteghem (Ghent University - IBBT, Belgium); Koen Casier (University of Ghent, Belgium); Bart Lannoo (Ghent University - IBBT, Belgium); Sofie Verbrugge (Ghent University - IBBT, Belgium); Didier Colle (IBBT - Ghent University, Belgium); Mario Pickavet (Ghent University, Belgium)

15:10 *A new technical and economical approach for new business model enabling broadband provisioning in DD areas*

Marco Vari (University of Tor Vergata- Rome, Italy); Giuseppe Braccini (Rai Way, Italy); Marco Leo (RadioLabs & Università di Roma "Tor Vergata", Italy); Luigi Maria Aliberti (Rai Way, Italy)

15:30 *Techno-economic Comparison of Next Generation Optical Access Network Architectures*

Ioannis Tomkos (AIT, Greece)

15:50 *How to measure the success rate of fiber-based access networks? Evaluation of the Stokab case and comparison with other European cases*

Marlies Van der Wee (Ghent University, Belgium); Crister Mattsson (Acreo, Sweden); Anand Kishore Raju (IBBT & VUB, Belgium); Olivier Braet (Free University of Brussels - IBBT, Belgium); Alberto Nucciarelli (Eindhoven University of Technology, The Netherlands); Bert Sadowski (Eindhoven University of Technology, The Netherlands); Sofie Verbrugge (Ghent University - IBBT, Belgium); Mario Pickavet (Ghent University, Belgium)

Session B2: Multimedia application and services

Room: B - Weapons

14:30 Keynote speech**14:50 *An Online Scheduling Algorithm for Variable Bit Rate Interactive Video Streaming in UMTS Networks***

Domenico Striccoli (Politecnico di Bari, Italy); Raffaele Fama (Politecnico di Bari, Italy); Pietro Camarda (Politecnico di Bari, Italy)

15:10 *Backhauling and access means through a 60 GHz developed prototype*

George Agapiou (Hekkenique Telecommunications Organization, Greece)

15:30 *A semantic-driven Integer Programming Approach for QoS-aware Dynamic Service Composition*

Federica Paganelli (National Inter-University Consortium for Telecommunications & Research Unit of Firenze, c/o Dept. of Electromics and Telecommunications, Italy); Dino Giuli (CNIT - University of Firenze, Italy); David Parlanti (National Inter-University Consortium for Telecommunications (CNIT), Italy); Terence Ambra (Dept. of Electronics and Telecommunications, Italy)

15:50 *An MHP Based Solution for Assistive Home Automation*

Ennio Gambi (Università Politecnica delle Marche, Italy); Fabrizio Borioni (Università Politecnica delle Marche, Italy); Susanna Spinsante (Università Politecnica delle Marche & ArieLAB Srl, Italy); Giorgio Rascioni (ArieLAB Srl, Italy)

Session A3: Network development

Room: A - "Magna"

16:30 Keynote speech**16:50 *A Paradigm for the Development of Self-Growing Energy-Aware Networks***

Ioannis Chochliouros (Hellenic Telecommunications Organization S.A., Greece); Anastasia Spiliopoulou (Lawyer, Hellenic Telecommunications Organization SA (OTE), Greece)

17:10 *An Approach to Self-Aware Systems in the Context of Future Internet*

Ioannis Chochliouros (Hellenic Telecommunications Organization S.A., Greece); Evangelia Georgiadou (Hellenic Telecommunications Organisation OTE S.A., Greece); Evangelos Sfakianakis (Hellenic Telecommunications Organization S.A., Greece); Maria Belesioti (Hellenic Telecommunications Organization S.A. (OTE), Athens, Greece)

17:30 *Agent-based Modelling as a Tool to Investigate the Viability of Next-Generation Networks*

Alessandro Neri (University of ROMA TRE, Italy); Mauro Ugolini (Roma Tre University, Italy); Marco Allegretti (Roma Tre University, Italy)

17:50 *A novel algorithm for bandwidth assignment*

Franco Blanchini (Università di Udine, Italy); Daniele Casagrande (Università di Udine, Italy); Pier Luca Montessoro (University of Udine, Italy)

Session B3: Reliability and Performance Modeling

Room: B - Weapons

16:30 Keynote speech**16:50 *Network Performance in Managed Networks***

Edward Smith (British Telecom, United Kingdom)

17:10 *Performance evaluation of standard power grid communications*

Giovanna Dondossola (RSE, Italy); Fabrizio Garrone (RSE, Italy); Judit Szanto (RSE, Italy)

17:30 *An Innovative Uplink Scheduler for Enhancing Multirate Fairness in WiMAX*

Alessandro Andreadis (University of Siena, Italy); Sandro Rizzuto (University of Siena, Italy); Riccardo Zambon (University of Siena, Italy)

17:50 *A method for copper lines classification*

Elena Mammi (Fondazione Ugo Bordon, Italy); Anna Del Grosso (Fondazione Ugo Bordon, Italy)

19:00 – 23:00

Palazzo dei Normanni

FITCE 50th anniversary celebration**Friday September 2nd, 2011****08:30 Registration cloister 1st floor****Session A4: Quality of service**

Room: A - "Magna"

09:00 Keynote speech**09:20 *Valuing Quality of Experience: A Brave New Era of User Satisfaction and Revenue Possibilities***

Christos Tselios (University of Patras, Greece); Michail Tsagkaropoulos (University of Patras, Greece); Ilias Politis (Technological Educational Institute of Messolonghi, Greece)

09:40 *QoS in VDSL2-based NGA networks: Measurements of noise impairments and mitigation strategies*

George Agapiou (Hekkenique Telecommunications Organization, Greece); George Heliotis (Hellenic Telecommunications Organization S.A., Greece)

10:00 User centric QoS standards and challenges for the future

Oodan (Telecommunications Quality Consultancy, United Kingdom)

10:20 Which way to QoS in future networks: distributed or centralised decision logic?

Antonio Manzalini (Telecom Italia, Italy); Roberto Minerva (Telecom Italia, Italy); Corrado Moiso (Telecom Italia, Italy)

Session B4: Communication Systems & Signal Processing - I

Room: B - Weapons

09:00 Keynote speech**09:20 High Rate Puncturing of LDPC Codes**

Marco Manfredi (Ericsson Telecomunicazioni SpA, Italy); Stefano Chinnici (Ericsson Telecomunicazioni S.p.A., Italy)

09:40 xDSL and OFDM systems equalization using Volterra series

Diamantis Kotoulas (OTE SA, Greece); George A Maragakis (Hellenic Telecommunications Organization, Greece)

10:00 An Online Fast Wavelet Denoising Method

Ehsan Khadem Olama (Petroleum University of Technology, Iran); Hooshang Jazayeri-Rad (Petroleum University of Technology, Iran)

10:20 Optical Amplification Performance of Stackable ROADM with Optical Amplifier in IP-over-CWDM Networks

Yutaka Katsuyama (Osaka Prefecture University, Japan)

11:00 Round table Room: A – “Magna”**12:30 lunch Buvette****Session A5: Security and applications****14:30 Keynote speech**

Jos Dumortier (Belgian Cybercrime Center of Excellence) [tbc]

14:50 Analysis of Web-based Video Delivery

Florian Metzger (University of Vienna, Austria); Albert Rafetseder (University of Vienna, Austria); David Stezenbach (University of Vienna, Austria); Kurt Tutschku (University of Vienna, Austria)

15:10 Network neutrality from an innovation research perspective

Bernd Beckert (Fraunhofer Institute Sytems and Innovation Research (ISI), Germany)

15:30 Scam and Fraud Detection in VoIP Networks: Analysis and Countermeasures using User Profiling

George Polyzos (TEI of Messolonghi, Greece); Tasos Dagiuklas (Technological Educational Institute of Messolonghi, Greece); Theodoros Kapourniotis (TEI of Messolonghi, Greece); Panagiotis Alefragkis (T.E.I. of Messolonghi, Greece)

15:50 Disease Management, what a gold mine health data really can be

Griet Verhenneman (Katholieke Universiteit Leuven, ICRI, IBBT, Belgium)

Session B5: Communication Systems & Signal Processing - II

Room: B - Weapons

14:30 Keynote speech**14:50 Low Complexity Soft-Input Soft-Output Hamming Decoder**

Benjamin Müller (Helmut-Schmidt-University, Germany); Martin Holters (Helmut-Schmidt-University, Germany); Udo Zölzer (Helmut-Schmidt-University / University of the Federal Armed Forces, Germany)

15:10 Efficient Simulation of Orthogonal Multicarrier Transmission over Multipath Fading Channels

Giovanni Garbo (Università di Palermo, Italy); Stefano Mangione (Università di Palermo, Italy); Vincenzo Maniscalco (Università di Palermo, Italy)

15:30 Space Time Turbo Codes Assisted by Fast Forced Symbol Method

Zeeshan Sattar (King Saud University, Saudi Arabia); Youssouf Ould-Cheikh-Mouhamedou (McGill University, Canada); Abdulhameed Alsanie (King Saud University, Saudi Arabia); Ahmed Iyanda Sulyman (King Saud University, Saudi Arabia)

Session A6: User experience

Room: A – “Magna”

16:30 Keynote speech**16:50 IP telephony shifts from Unified communications to Social media**

Dick Marle (Capgemini Netherlands, The Netherlands)

17:10 Small Scale Living for the elderly through Information and House Automation (Domotica)

Frans Heitkamp (RVS Networks, The Netherlands); Jacques Aarts (CENCOR, The Netherlands)

17:30 Digital Home Health and mHealth: Prospects and Challenges for Adoption in the United States

Francis Pereira (University of Southern California, USA); Elizabeth Fife (University of Southern California, USA)

17:50 Telework: at the crossroads of social demand and technology offer

Marco Vari (University of Tor Vergata- Rome, Italy); Kristina Ter-oganesova (University of Rome Tor Vergata & Krupter srl, Italy); Guelfo Tagliavini (NextiraoOne, Italy)

Session B6: Wireless and Mobile Networks

Room: B - Weapons

16:30 Keynote speech**16:50 *Building the Business Case for Wireless Sensors in a Factory Setting***

Koen Casier (University of Ghent, Belgium); Lieven Tytgat (University Ghent, Belgium); Sofie Verbrugge (Ghent University - IBBT, Belgium); Mario Pickavet (Ghent University, Belgium); Ingrid Moerman (Ghent University, Belgium)

17:10 *IEEE 802.11p: Laboratory Measurements and Analysis*

Claudio Cicconetti (Intecs S.p.A., Italy); Francesco Galeassi (Intecs S.p.A., Italy); Raffaella Mambrini (Intecs S.p.A., Italy)

17:30 *An Efficient Multiple Relay Selection Scheme for Wireless Sensor Networks under Global Power Constraint*

Amir Piltan (K.N.Toosi University of Technology, Iran); Soheil Salari (K.N. Toosi University of Technology, Iran); Meysam Mirza'ee (K. N. Toosi University of Technology, Iran)

17:50 *Diffusion of mobile telecommunications services in Europe and Japan*

Dimitrios G Xenikos (Hellenic Telecommunications Organization, Greece)

21:00 – 24:00
Sòlanto Castle
Gala dinner

Saturday September 3rd, 2011**10.00 Technical summing up**

Room: A – “Magna”

12.00 Closing session – awards

Room: A – “Magna”

13.00 FITCE general assembly

Room: A – “Magna”

14:00 lunch

Buvette

Converging Telecom Clouds

Huib EkkelenkampAtos

Origin, Papendorpsweg 93, 3528 BJ Utrecht,
The Netherlands

1. INTRODUCTION

The focus of the Telecom industry was in the period 2006-2008 on Next Generation Networks (NGN). In 2008-2009 every development was followed by 2.0 like Telco 2.0. Now in the year of Charles Darwin 2010 it seems that network technologies get Evolved: HSPA+ (HSPA Evolution) and Long Term Evolution (LTE) with Evolved Packet Services (EPS) and Evolved Packet Core (EPC).

To get some guidance in these Converging Telecom Clouds, the metaphor of Jacob's staff, an old navigation tool, can help us here in Santiago de Compostela to find our position. With one eye on the future demand horizon and one eye on the technology stars we should be able to predict some trends.

The total Telecom revenue in Europe in 2009 of about 350 b€, was 43% for fixed voice & data (consumer & business), 47% mobile voice and data (consumer & business) and 10% for TV.

Over 20% of mobile revenue is data (of which 4% is mobile internet) and 80% is voice. Mobile data traffic has already exceeded mobile voice traffic.



Figure 1 Jacob's staff navigates between the demand horizon and technology stars

Main developments are: increasing bandwidth (faster access to information), increasing processing power and performance (more high quality services) and increasing power efficiency (longer use). Telecom development will be affected by the following trends further elaborated hereafter:

1. Convergence
2. Cloud computing / outsourcing
3. Increasing the value chain, social networks

2. Convergence everywhere.

Converged service offering means fixed, mobile, flexible bandwidth, network and location independent provisioning of services and applications. Figure 2 shows some important convergence areas. With the bandwidth extension and capacity growth of mobile networks, differences between fixed and mobile access tend to become so small that the network is no distinguishing factor anymore.

Telco's should support with their services their business customers with strategic goals as growing market share, productivity partnerships and faster time to market. They should support with their solutions cost efficient operations with high levels of security.

This requires a customer-centric approach by access flexibility, service uniformity and unified communications. For Telco's this means bandwidth optimisation and network simplification (IP-based).

The following trends determine the role of the Telco's:

- Convergence of infrastructures, services and applications
- Availability, versatility and price of mobile user terminals
- Growth of the Intelligent web (read, write, execute, semantic)
- Adaptation of outsourcing and Cloud computing (infrastructure / application / platform as a service)
- Use of Ubiquitous computing (fast, grid)
- Human-ICT convergence (decision support, nomadic use)
- Evolution of social networks
- Use of virtual worlds and artificial intelligence

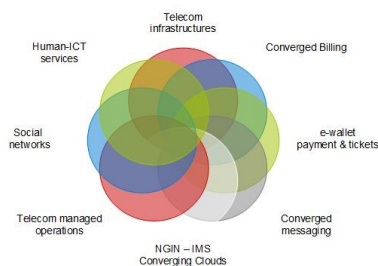


Figure 2 Convergence everywhere

Some of these trends have as effects:

Convergence: raises quality of service and increases use and thus telecom traffic

Cloud computing and outsourcing: decreases cost of ICT investment, increases demand for services

Intelligent web, virtual world and social networks: stimulate innovative services and platforms

The trends are influenced by the following factors:

- Replacement of fixed by wireless technologies
- Ownership and control of infrastructure
- Effect and speed of standardisation
- Open versus closed technologies (security, proprietary, reliability, exclusivity aspects)
- Availability of capital for funding of infrastructure
- Stimulus by government through funding or regulation
- Effect of energy prices and environmental constraints
- Flexible and future proof solutions
- Use of embedded sensors and RFID
- Digital storage capability and decreasing cost
- Stimulating or restraining socio-economic environment

Mobile network developments have shown a faster growth in subscribers, services and traffic than fixed networks. In particular data traffic grows fast requiring new mobile access networks.

At this moment the last generation mobile LTE (Long Term Evolution) is introduced.

(Continued from page 10)

This broadband mobile network is in particular designed for transport of data. Voice is supposed to be handled over IP. Interaction with existing 2G and 3G (circuit switched) mobile networks as well as with the fixed network will require some further adaptation of the 3GPP standards. It is expected that the standardisation progress will enable fast introduction of voice services over LTE in 2011. In particular the network handling capabilities of combined voice and data traffic (including the peak traffic loads) will lead to considerable cost savings in infrastructure investments. This All-IP network should be capable to handle all different services, originated in legacy or in the most advanced packet based sources.

LTE provides mobile broadband connectivity to 75 Mbit/s uplink and 300 Mbit/s downlink, depending on availability and capacity of the radio network. As shown in Figure 3, the Evolved Packet Core (EPC) is designed for seamless integration with IP-based networks. LTE has lower latency than 3G HSPA (High Speed Packet Access) and is capable to handle more channels or users per frequency band. This is a.o. attractive for gamers. The flexibility in the use of spectrum is a major advantage of LTE. Voice services will grow after voice standardisation and terminal availability for combined 2G/3G/LTE use has been solved. The IP Multimedia Subsystem (IMS) will enable the connectivity between different mobile and fixed networks. It will speed up the initial set-up of data connections. On top of HSPA, LTE gives Telco's an increase of ARPU for data based services. The business case of LTE is therefore supported by increased revenue, due to increased usage like online gaming and video/TV, lower cost per unit of traffic and larger customer base. This will result (depending on network coverage) in a positive business case for Telco's in Western Europe and the US. For network coverage there is an optimum to be determined by urban coverage, business support, heavy data users etc. LTE is based on shared and broadcast channels and is therefore a most efficient converged mobile communication system. It is often positioned as a further enhancement of the mobile network enabling broadband mobile connectivity.

The next step for LTE evolution is LTE Advanced and is currently being standardized in 3GPP Release 10. LTE started in 2010 commercial in operational networks in Scandinavia with data based services. LTE handsets are expected to become available in Q1 2011. It is expected that further roll-out will follow from Q2 2011 onwards. The availability of mobile frequency bands both in the network and the handset is a key element in the coverage and roll-out. Frequency bands differ between countries and could pose restrictions on international roaming.

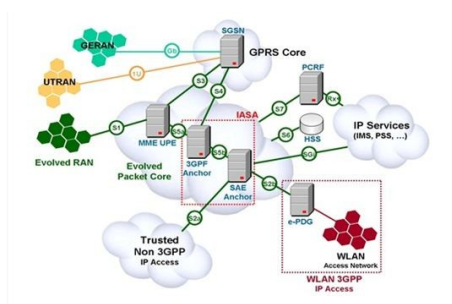


Figure 3 LTE mobile broadband connected to existing networks

mobile WiMAX, based on the 802.16e standard provides to 40 Mbit/s (theoretical) and with the IEEE 802.16m update expected to offer up to 1 Gbit/s fixed speeds. WiMAX can therefore be considered as a wireless broadband access technology complementary to LTE in niche markets.

The enormous growth of mobile broadband stimulated by the smart phones, in particular the Apple iPhone and Google Android phones has increased mobile data traffic considerable. This results in network congestion, leading to a lower quality of service. Mobile video calling might result in another overload of the network. Flat rate has stimulated the use of mobile broadband as well. Telco's are reconsidering their tariff strategy as one size fits all is not the right approach. Flat rates will be changed in pricing models which are personalised, flexible and dynamic. This means that customers will pay for what they use.

Video is the key driver for new mobile Internet business models. The possibility for users to select (temporarily) their own bandwidth and related tariff to get the desired video quality might result in a different revenue structure for the operator.

Fixed broadband on operator local loops is growing from ADSL2+ (now 12 Mbit/s) via VDSL2+ (now 24 Mbit/s on local pairs of 1 km from the exchange), to hybrid FttH with VDSL2+ and FttH (now 100 Mbit/s on new local connections).

For cable and Hybrid Fibre Coax (HFC) Networks DOCSIS 3.0 and HFC Next Generation provides 100 Mbit/s to 1 Gbit/s. Of all services video and High Definition TV with 8 Mbit/s per channel (minimal 2 channels per household) are dominating the bandwidth demand.

It is expected that the growth in Europe in data for consumers will be 50% per year on fixed connections and 100% per year on mobile connections. The average download rate demand for 2020 is expected to be at least 75 Mbit/s to 400 Mbit/s which requires optical fibre in the local loop. In general it can be stated that the fixed network can provide an order (x10) faster access than the mobile wireless network.

As answer to the cable TV companies, IP TV has become a serious alternative of Telco's on their existing DSL networks. It provides an attractive enhancement of the services portfolio for the three main screens TV, PC and Smartphone. Here again, the required capacity will determine the used access technology. For the fixed network this will lead to faster roll-out of fibre networks.

For mobile TV, LTE could provide the required bandwidth in the future. However, a separate TV overlay network like DVB-H is considered more efficient. Also 3GPP Multimedia Broadcast Multicast Services (MBMS) or the



Figure 4 IP TV for all screen formats

The growth of WiMax is unclear at this moment. The

(Continued on page 12)

(Continued from page 11)

combination of DVB-H & MBMS is possible.

For user acceptance the following aspects are important: watch everywhere, affordable pricing, excellent quality, high-quality content, easy handling, no frills, low latency and click-through access, multiple devices. Interactivity stimulates TV usage.

For operators important aspects are spectrum availability, seamless combination of unicast and broadcast service.

In The Netherlands a relative high demand for mobile and fixed communication is seen.

The mobile telephony penetration is in 2010 about 130% of the population (50% prepaid, 50% post-paid) and the costs are the lowest in Europe. Data / Internet on fixed broadband connections are now covering 40% of the population (90% of households) with about 50% via DSL and 50% cable / fibre. TV reached 100% of the households (55% digital, 45% analogue). FttH reached 700,000 houses (10% of the households). Bundling is mainly with fixed telephony + internet + TV; mobile services are separate and seldom in bundles.

3. Clouds for Telecom, IaaS, PaaS, SaaS

Cloud Computing for Telco's is still in its infancy. Most Telco's have their own networks and supporting IT systems and are in the process of considering outsourcing of non-core parts.

The concept Cloud Computing incorporates combinations of the following:

- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)

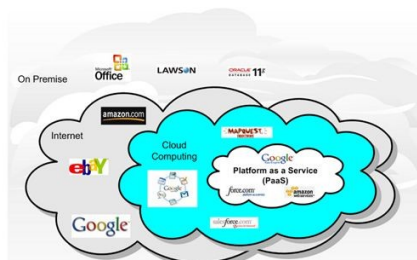


Figure 5 Converging Clouds

Infrastructure as a Service (IaaS)

IaaS is at the lowest layer and is a means of delivering basic storage and compute capabilities as standardized services over the network. Servers, storage systems, switches, routers, and other systems are pooled (through virtualization technology, for example) to handle specific types of workloads — from batch processing to server/storage augmentation during peak loads.

Platform as a Service (PaaS)

The middle layer, or PaaS, is the encapsulation of a development environment abstraction and the packaging of a payload of services. PaaS offerings can provide for every phase of software development and testing, or they can be specialized around a particular area, such as content management.

Software as a Service (SaaS)

SaaS is at the highest layer and features a complete application offered as a service, on demand, via multi-tenancy — meaning a single instance of the software runs on the Cloud Computing provider's infrastructure and serves multiple client organizations. The most widely known example of SaaS is Salesforce.com, but there are now many others, including the Google Apps offering of basic business services such as e-mail.

Cloud computing is a paradigm of computing in which dynamically scalable and often virtualized resources are provided as a service over the Internet. Users don't need to have knowledge over the technology infrastructure in the "cloud".

The first step for small to moderate size Telco's is virtualisation leading to IaaS. The subsequent step is using SaaS. This can start with office applications, testing services, database services and lead to gradual further transfer of BSS and OSS applications. Also the use of PaaS but than also by the Telco herself is very probable.

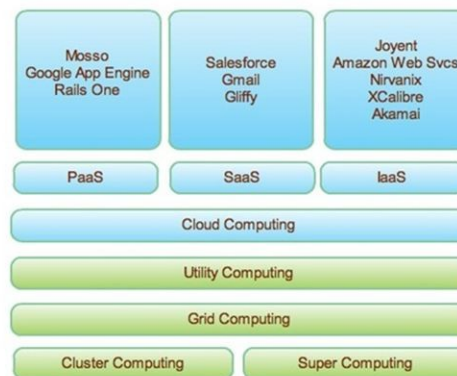


Figure 6 Cloud computing PaaS, SaaS and IaaS

4. New orientation, how to participate in the value chain

Telco's are reconsidering their core business. They focus on service provisioning mostly but not necessary via their own telecom networks. With a shift from fixed to mobile communication (or wireless access) new challenges emerge. Customer self support using web portals for ordering, complaint handling and billing reduce the number of Business Support Systems (BSS) and Operational Support Systems (OSS). Telco's realise that IT systems are crucial for efficient operations but see IT not as part of their core business. Even the Telecom network itself is nowadays not always considered as an asset they should own. This means network design, procurement and maintenance are than not considered as core activities of the Telco anymore but are shifted to or stayed with the network system supplier. The supplier of telecom equipment can manage his own network systems on behalf of the Telco. Here we see a shift of activities of telecom suppliers from hardware to services.

Telecom Network outsourcing becomes more attractive for Telco's because:

1. Services are more complicated as more devices have to be supported
2. Telecom networks heavily rely on IT elements both software and hardware and are therefore more related to the IT world than to the traditional Telecom world, requiring different knowledge and skills
3. End-user devices or terminals are more complicated than ever and require much IT knowledge
4. Networks are growing in complexity due to the large number of devices to be supported and the interworking with legacy networks and systems
5. Standardisation is a major issue. The large number of standards produces by the large number of standardisation organisations requires considerable effort to follow and translate to operational environments.

(Continued on page 13)

New business models are required to support the new role and orientation in the Telecom sector. For example instead of SLA contracts based on performance and time spent, a fixed cost for IT support per subscriber per year (e.g. 5 €) could lead to a different approach. Other business models for innovation support in terms of revenue sharing and risk taking could also change the cooperation with Telco's.

Platform services support two-sided business models, acting to wholesale and communities (developers, retailers, government etc.) on the one side and users (and user segments) on the other side.

For the Telecom Sector the following business models and payment methods apply:

- Sales once or per separate unit (macro and micro payments)
- Advertising based payment (content can be free of charge)
- Pay per click (under user control)
- Revenue sharing (like Amazon and Google)
- Usage based payment (like mobile prepaid) or transaction based payment
- Subscription based (can be combined with advertising or usage based)
- Licensing (for applications and platforms)
- Free donations (like Wikipedia)

This flexibility will support partnerships for Telco's with IT companies and enable other positions in the value chain. As shown in Figure 7 this can be a linear or non-linear value chain between content providers, aggregators, application & platform providers, service providers and end users.

The IT support will change when different business

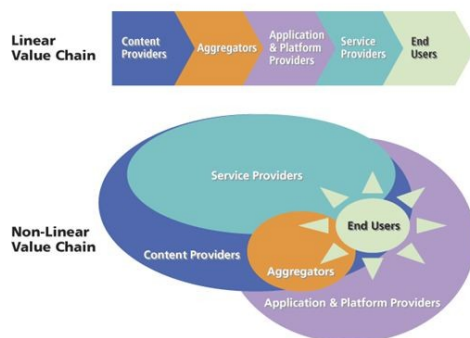


Figure 7 Telecom Linear and Non-Linear Value Chain

models are used. Instead of implementing projects based on investments by Telco's, Systems Integrators might do the investments and let the Telco's pay for the usage. It is also a result from Cloud Computing where usage-based payment is a key element.

5. Apps stores, SDPs, M2M

The fast growing market for mobile smart phones is stimulated by the mobile applications which can be downloaded from Application Stores using Service Delivery Platforms. Mobile application downloads are expected to grow from 9 billion in 2009 to 50 billion in 2012, a year-on-year growth of over 90%. This is expected to become an additional revenue generator for Telco's. For Europe alone the total revenue in 2009 was 1 billion € and is estimated for 2012 on about 5 billion €.

On a global scale these figures are 3 billion € and 12 billion € respectively. It is therefore expected that every Telco will assess the opportunities of SDPs and Application Stores. The main players are Telco's or Communication Service Providers (CSPs), device manufacturers, OS suppliers, and Apps Store platform providers. IT companies like Atos Origin have capabilities to support this development and generate new revenue in this innovative area. This can be the delivery or hosting of a platform (PaaS). It will require partnerships with suppliers.

A still moderate, but fast growing area is Machine-to-Machine (M2M) communication via mobile networks. Machines with built-in SIMs can exchange their status or instructions instantaneously with back-office systems. This will lead to large volumes in transaction-based communication.

In particular in healthcare the largest volumes and growth are expected. Here the key words are now e-health and m-health as most of these transactions are mobile-based.

To develop this portfolio further, close cooperation between a Telco, an applications developer in the medical sector a systems integrator and a users group is required. Here also health insurance companies play a role.

Machine to Machine communication is expected to

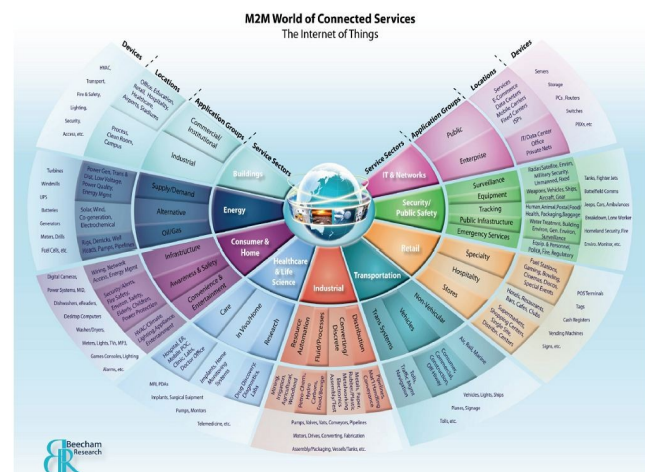


Fig 8: M to M Market Evolution.

grow fast: with over 200 million mobile connected devices estimated in 2011 (Cisco even expects over a billion) and soaring revenues a large market potential is available. Figure 8 gives some focus areas, application groups and service sectors.

6. Changing IT support

The BSS/OSS market is now supported by a wide range of pre-integrated, out-of-the-box products. Application vendors have extended their position by providing also professional services like consulting, architectural guidance and system integration. The recent acquisitions of packages and suites by software vendors have extended their scope in the BSS/OSS domain, leaving less room to external system integrators. Telco's keep investing in BSS/OSS to improve customer experience, preventing churn, increasing revenue and reducing costs. In particular fulfilment and assurance get their full attention. The three main areas for improvement are: better service delivery, outsourcing / SaaS and (pre-paid post-paid) convergence. The focus is on end-to-end solutions driven by business values. With the cloud services as IaaS and SaaS more opportunities for complete outsourcing and offshoring of BSS/OSS chains are created. Strategic partnerships with equipment and software vendors lead to combined proposals.

The last 10 years have shown a considerable consoli-

(Continued from page 13)

dation of IT applications in the BSS and OSS domain. Companies like Oracle, IBM and Amdocs have acquired suppliers with packages for CRM, Billing and Service Management, integrating them into one suite. The required System Integration using EAI and SOA is part of the offered solution. This leads to offerings of larger IT blocks and complete suites covering large parts of the BSS / OSS functionalities. The result is that now three different approaches for the BSS/OSS domain are followed:

1. Complete integrated suites, covering most of the required functionality
2. Separate applications in a standard fulfilment, assurance and billing architecture like TMF eTOM
3. Selected best of breed applications for separate BSS/OSS functions

Implementation and system integration of separate BSS/OSS IT applications will require a different approach than implementation of complete suites. Integration with legacy and migration will become the main activities. The system integration will take place at a higher level. Interaction with ERP systems like SAP and data warehouses of Oracle could be the core activities. Other tasks are setting of the suite parameters so that the service and business requirements are met. This means configuring the suite so that fulfilment, assurance and billing processes are customised and products, customer care and pricing plans are supported.

For System Integrators this means a different navigation and orientation; instead of focussing on individual packages, knowledge of complete solution suites becomes more important. For the Telecom sector this will require close cooperation and partnerships with the suppliers of these suites. The own development of bespoke solutions will be minimised. Even Adaptive Maintenance will be minimal as functional changes will be integrated in next releases of the suite suppliers.

IT maintenance can be reduced to parameterisation and operational technical management of the suite and

tomoter is located, including locations that are not part of the provider's network

- Seamless, affordable access on any device, including PCs, TV displays, PDAs, mobile devices etc.
- More (and more varied) "over the top" services from the Cloud, in its widest sense. In time, the very term "over the top" is likely to lose its meaning as the distinction between Telco and third party services blur
- Targeted advertising and commerce as the commercial underpinning for more and more new services—replacing or augmenting direct payment for services
- Shortening shelf-life for certain categories of services, as the range of services widens and services come in and out of fashion
- More mash-ups and service blending, in the widest sense, blurring all existing service boundaries, including: launching one kind of service from another service, combining elements from one into another service
- Switching in session from one service to another, or adding service elements
- More services developed by end users, as well as adaptation of existing services to suit end user needs
- More machine to machine services sharing information among a network of devices.

7. Conclusions

Jacob's staff has navigated us in the direction of future demand based on the emerging star technologies. Mobile broadband data growth has surpassed mobile voice. Convergence of Telecom Clouds is stimulated by demand but also by new technologies like LTE and FttH. TV and Video determine the required network capacity and access technology. Flat data rates will be limited so that the user will pay for what he needs. Outsourcing and Cloud computing become gradual more important for Telco's. To participate in the value chain apps stores and SDPs play an important role. M2M provides new opportunities with fast growing sectors. In particular healthcare, transportation and payments are promising areas. New two-sided business models with shared risks and partnerships create new opportunities. The required IT support for BSS/OSS will change; larger integrated suites provide all required functionality, only customisation and connection with legacy will be needed. This all requires new navigation and orientation for Telco's and IT suppliers. The reduced differences between IT and Telecom will lead to converging telecom clouds.



Figure 9 Navigation & Orientation

platform. Partnership with the supplier of the suite should reveal the distribution of main tasks in managing the IT.

The result is more focus on Consultancy and Professional Services for the Telecom sector.

Important developments in the Telecom sector which have direct impact on IT support are:

- More video content, including more one-to-one or one-to-many video communications, more live video (e.g. concert and sport feeds), more niche content.
- Everything on demand, including all available video, music, gaming, corporate and personal content.
- Ubiquitous access, equating to seamless, affordable access on any access network, wherever the cus-



Huib Ekkelenkamp graduated at Delft University of Technology in 1978 in the field of telecommunications. He joined KPN, with research on digital optical fibre transmission systems. He worked for the international consulting organisation of KPN in several countries. He spent many years in the Far East and worked in Indonesia in the area of telecom network planning. After his return

to Europe he headed a KPN consulting team for telecom business customers.

He managed telecom consulting projects in Central and Eastern Europe and was involved in international acquisitions of KPN. In 2001 he became in KPN responsible for ICT business development. Currently he is in Atos Origin as Telecom Sector Manager with a team responsible for business and solutions development.

huib.ekkelenkamp@atosorigin.com

FITCE Forum

© 2011. The Federation of Telecommunications Engineers of the European Union, an Association of Belgium

<http://www.fitce.org>

Editor: Barry Reynolds E-Mail: news@fitce.org

Editorial Board: FITCE Marketing Group.

The opinions expressed in this publication are those of the Authors and are not the responsibility of FITCE.

FITCE values and Aims

1. Keeping in touch with leading edge ICT developments.
2. Ensuring that our Members benefit from the experience acquired by other Members in all ICT fields.
3. Building strong cultural and business ties between European ICT Professionals.
4. Ensuring that Young Professionals are able to use FITCE as a valued resource in their career development.