FITCE Forum

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Newsletter of the Federation of Telecommunications Engineers of the European Union

December 2003

Evolving Communications: Making Human Dreams Real

This was the motto of the 42nd International FITCE Congress, which took place on 4–6 September in the Berlin Representative Office of Deutsche Telekom AG. Josef Brauner, Member of the Deutsche Telekom Board of Management, served as patron.

Over 350 participants from 18 nations were welcomed to the Congress. These included guests from Hungary, Romania and even Syria and the USA, in addition to those from the European member states of FITCE such as Belgium, the Netherlands, France, Italy and Greece.

Guntram Kraus, Chairman of the German FITCE association, opened the 42nd Congress in a festive ceremony, accompanied by a wind quintet from the Berlin Comic Opera. Berlin's Senate spokesman, Michael Donnermeyer, then presented the best wishes of Berlin's Mayor, Klaus Wowereit. Horst Hermann, Senior Executive Vice President, Management of International Shareholdings at T-Com, welcomed the guests on behalf of Mr. Brauner. Speeches by Hans-Jürgen Hühne, President of the VTP (The German Telekom Management Association), and Hartwig Bazzanella, IfKom President (IfKom: German Association of engineers for communications) followed, after which the President of FITCE, José Van Ooteghem, underlined the importance of FITCE in the field of international telecommunications.

Nikesh Arora, Member of the Management Board and CMO of T-Mobile International, highlighted the importance and future prospects of UMTS in his Congress keynote. His relaxed speech, peppered with bons mots, put the audience in the right mood for the further discussions of this topic. In addition to a market overview given by Peter Schneider of T-Mobile Deutschland GmbH, there was a report on the commercial transformation of mobile communications by Jos Gerrese from GANESHA Consult in the Netherlands. Further presenta-

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Above—the conference hall 'Atrium' during the speech of Matthias Kurth, President of the German Regulatory Authority for Posts and Telecommunications ((photo: Alexander Krause)

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Call for Papers

43rd FITCE Congress, Ghent, Belgium

Deadline for abstracts: 13 February 2004

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43rd FITCE 2004 September 8-11

For latest Congress information, visit www.fitce.org

Congress 2003: Internet café in the 'Historic Hall' (photo: Alexander Krause)

tions by Francis Pereira from the University of Southern California, Werner Irler of Lucent Technologies Germany and Michaelis Karagiozidis from Intracom S.A. in Greece examined the development and, above all, the profitable realisation of UMTS business.

Exciting presentations on prospective future developments for the UMTS generation were given by José Antonio Portilla from the University of Cantabria in Spain, Athanassios Avgeridis of T-Mobile Deutschland GmbH, Emmanual Djardin from R&D at France Telecom, and Ton de Liefde, a partner in Devoteam Columbi in the Netherlands.

The sometimes controversial viewpoints that were presented ensured a lively discussion at the evening 'get together', when sponsor Siemens invited the guests to the Museum of Telecommunications for the 'Berlin evening'.

The next day the guests were treated to a special highlight. After the presentation of Matthias Kurth, President of the German Regulatory Authority for Posts and Telecommunications, and a speech by Gerd Tenzer, advisor to the Deutsche Telekom Board of Management on regulatory issues, an extremely lively discussion ensued which completely overturned the rest of the day's schedule.

The topics of wireless LAN and hot spots came next and speakers from 2MM in Belgium, Siemens Mobile Communications in Italy, Wind S.p.A. in Italy and the University of Ghent in Belgium gave participants the benefit of their experiences.

The subsequent 'happy hour', sponsored by Lucent Technologies, allowed guests the opportunity to review the day's events.

The last day of the Congress focused on the competition of information and communication, IP and broadband communications, development and future prospects, and the dream or nightmare of modern technology.

The presentation by Mr. Atsushi Murase of DoCoMo Communications Laboratories Europe GmbH in Germany, in which he looked ahead to the fourth generation of UMTS, was deemed especially impressive. Joachim Claus, shortly retired head of Innovation Management at Deutsche Telekom, examined future developments in the telecommunications market in his speech entitled 'Vision 2010—Telecommunications—Dreamworld or Reality'. Dr. Gordon completed the picture with his presentation on the satellite services provided by Eutelsat.

In addition to the expert presentations, T-Online's Internet cafe, T-Com's WLAN display and the presentation of UMTS technology ensured that all divisions of Deutsche Telekom were on show. As remarked by Elvira Wieczorek the guests were particularly interested in the growth of the UMTS network, the terminal devices and, above all, the commercial start date.

The Congress ended on Saturday evening with a boat trip on the *Wannsee* and towards Potsdam. Iris Posth, Regional Manager (Eastern Region) at T-Mobile Deutschland GmbH, then welcomed the guests to the T-Mobile evening with the words 'Bonsoir, Bona Sera and Good Evening'. The guests in turn praised the highly interesting Congress with its impressive speakers and presentations and thanked the hosts for a successful organisation.

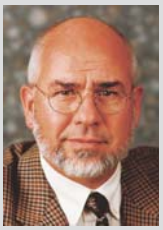
Guntram Kraus, Chairman of the German FITCE association, gave particular mention to the sponsors and all those who provided their assistance, particularly from T-Com and T-Mobile Deutschland GmbH. Their commitment played a key part in the success of the 42nd FITCE Congress.

Said Guntram: 'It was a great challenge for all of us to organise the Berlin FITCE Congress. We built a special team which was working virtually in different cities. Thanks to this team we could achieve a great success. Many thanks to all members of our team.'

Helga Krey
FITCE Organisation Office

Kernel organisational team of the FITCE Congress 2003 (from left–right): Guntram Kraus (Congress chairman), Hans-Otto Ehmke (conference chairman), Helga Krey (registration), José Van Ooteghem (FITCE President), Bettina Stein (chief hostess), Klaus Schenke (chairman of the organising committee), Susanne Büttner (conference assistant), and Reinhard Lauer (Web support) (photo: Alexander Krause)

Congress Awards 2003



The award for Best Paper went to Jos Gerrese of Ganesha Consult, The Netherlands—'The Mobile Commercial Challenge'

The award for Best Presenter went to Wouter Franx of Lucent, The Netherlands. Wouter co-authored 'Voice over Broadband: Need to Re-evaluate End-to-End Packet Voice Strategies' with Bob Smeets, Dieter Schuler and Tom Anderson.

The award for Best Young Presenter went to Caroline Dessauvages of Alcatel Bell, Belgium. Caroline co-authored 'Evaluation of a DWDM-Upgraded PON for FTTBusiness' with Christèle Bouchat, François Fredricx, Wim Troch, Brecht Stubbe and Peter Vetter.

Letter from the President

Carlos González Mateos (Spain) is FITCE's new President. Here he writes his first letter for the Forum.

Facing the new year 2004, we as an association of experts in ICT are facing at least three major changes.

The first is in relation to the future change in the higher education area in the EU. The second is the change in the telecommunications sector and the launch of the new technologies. Finally, the number of member countries of the EU is increasing and there is the possibility of a common European Constitution.

The convergence in degrees in the EU to facilitate professional mobility between countries and the reduction in the number of different degrees are of course important changes which can affect the membership of FITCE. Today in many countries exist two different university degrees; in future perhaps there will be only one. Even the name and competence of the new engineers possibly will be different.

At last the telecommunications sector is starting to improve again—this is really good news. This year is the year of UMTS and services based on mobile technologies; we have the opportunity to start with new infrastructure and services.

Finally one of the major changes arising in Europe is the new Constitution. If it is approved this will be an important change in social life. I sincerely think that this can be one of the most important events in the 21st century.

All these events go in the direction that our Federation chose many years ago—to improve the professional and human relations between people living in Europe. This is one of the strengths of our Federation—we must continue in this direction.

Happy New Year

Brighton Beach

by **Helen Moulsley**, UK

It all started one evening in Brighton in the UK, at one of those idle after-dinner conversations. We'd been taking part in **the communications network**'s* conference in Brighton, in February—lots of energy and discussion fuelled by the syndicate working we'd been doing. My table talked about FITCE and the annual Congress, and how FITCE was looking for papers wider than the purely technical. Perhaps fuelled by the wine, I expressed doubts as to whether, in practice, FITCE really would select non-technical papers, and of course was challenged to put forward an abstract. Safe in the belief that I was right, and that my abstract would be rejected as not having sufficient technical substance, I duly submitted my abstract. You've guessed what happened next ... it was accepted, and so I had to put my money where my mouth was, knuckle down, write the paper, produce the slides, travel to Berlin, and present the paper.

This whole exercise took sweat, toil and tears (well nearly!). But it was enormously rewarding personally and professionally, and I made a lot of friends along the way. My paper was intended to be challenging and thought provoking, taking the title of the Congress: 'Evolving Communications—Making Human Dreams True', with me asking the question: 'whose dream is it anyway?'—the technologists, the customers, the marketers, regulators, governments? It's possible to argue the case for all of these, each sounding equally plausible to me.

So what did I personally get out of the experience? Well, it caused me to bring myself up to date with developments in the industry, read those many 'latest' business books looking at the industry (how quickly they date—only a couple of years ago the dot com boom was seen as creating new business paradigms), decide what arguments I wanted to put forward, structure, write and edit the paper, proof read it, write my profile, get my picture taken, sort my travel and hotel arrangements (not for me staying at those expensive corporate hotels—this was coming out of my own purse!), produce my slides, sit through the other papers and make the links with mine, and at last, stand up there and give the paper!

As an independent consultant, I hoped that this would help me with my business. So far no work has come through as a result of this, but that's down to me to exploit the contacts I made (although I have since used them to benefit others). Writing and giving the paper certainly lends weight to my CV/profile, and I find that clients are impressed when I tell them that I was presenting to a large, pan-European audience in Berlin, and that the paper is being published and disseminated to 14 000 people through the membership of FITCE and **the communications network**. I have made some good networking contacts, so that if I need to find something out, or want to find my way into an organisation, I now have more ways to do that.

The Congress itself was efficiently and professionally organised, and a credit to our German hosts and the sponsors, whose generosity made it all possible. I certainly came away with a highly favourable view of those companies. What I hadn't expected was the friendship, laughter and fun which I found there, and the involvement of all the participants and their partners. There was a real effort to make sure that everyone was included and made welcome—something which is so often lacking in today's pressurised and geographically dispersed world of work. My husband decided to join FITCE and attend all three days; he was impressed by the standard of the papers, and actively participated throughout.

I was pleased to meet up unexpectedly with an old colleague from the days when I worked in Paris, Guy Bullen. Guy is currently studying for an engineering doctorate (a new postgraduate work-study programme, where full-time employees of companies can make the activities of their day jobs the subject of a 'practical' doctorate thesis). His supervisor, Professor Andy Valdar, who chaired the session in which I gave my paper, suggested that Guy put forward a paper related to his research: decision-making in a complex and uncertain environment. So there were at least two non-techies presenting! Guy told me that he was using the Congress as a way to test out some of the ideas which he was developing as part of his doctorate. He hadn't heard of FITCE before this, and was pleased to get to know the FITCE community. He also confided that he was enriched by the 'techie' perspective on life and his work!

For me, I was pleased to be able to experiment with some ideas on how human dreams are in fact realised, and how technology contributes to changing how people live and work. When one whole edition of the *Guardian* supplement can be produced by the editorial team sitting on Brighton beach using Wi-Fi technology, I have to revise my own jibe at technologists made at Brighton last February—I was, I'm pleased to say, wrong.

* **the communications network** is the host organisation for FITCE in the UK.

Navigation: Building Block for New Telecom Services

by Prof. dr. ir. Leo Van Biesen
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Introduction

Automated and assisted navigation is rapidly evolving, driven by the global success of the GPS satellite system, the newly-conceived positioning systems in cellular networks and the improvement in dead reckoning navigation using miniaturised motion sensors. The regional or even worldwide coverage of (some) satellite systems, combined with increased availability and upgraded performance, will assure better accuracy in the localisation of a moving object. The latter can be quite diverse: nearly static (pedestrian), in motion (cars, trucks, trains, buses, ships, aircraft) or, in contrast, very dynamic; that is, moving at very high velocities (spacecraft and satellites).

Also, cellular networks (mobile networks, 2.5G and future 3G networks such as UMTS) offer and will offer enhanced positioning and location services to their customers, so that navigation based on cellular phones or handsets will open new segments in this very large market.

This article is based on a synthesis of four lunch sessions organised by FITCE Belgium in cooperation with SITEL to introduce the attendants to the broad range of new concepts associated with these fast emerging telecommunications systems, which undoubtedly will have a major impact on society for the next 10–20 years. For the *Forum*, an abbreviated version was produced. The full report can be found at http://www.fitce.be/lunch_sessions_2002-3.pdf.

Prof. dr. ir. Leo Van Biesen, moderator and author of the report

Enhancements in satellite navigation

At present, positioning using satellite communication, is mainly based on one of the following systems (in descending order of importance):

- GPS (Global Positioning System with Differential operation mode),
- SBAS (Space Based Augmentation Systems), and
- GLONASS (Global Navigation Satellite System).

In the near future several new satellite navigation systems will be made operational:

- Galileo (EU),
- GPS III (USA),
- GAGAN (India), and
- Beidou (China).

Next to new-generation satellite systems, improvements to the already widely used systems will be provided globally. An example is the Global Navigation Satellite System (GNSS-1), to which the European Geostationary Navigation Overlay System (EGNOS) is Europe's regional contribution. The EGNOS transponders will broadcast GPS-like signals, increasing the number of satellites available for navigation. Hence, it is hoped that at least six satellites will be in view at all times whereby wide-area differential corrections will be made available, allowing better accuracy (5–10 m). Full operational capability is expected in 2004.

Satellite-based constellation systems are considered to become worldwide the primary means for navigation. In that respect, the EC and ESA started cooperating in 1995 on the definition and implementation of a European strategy for GNSS in two stages:

- *first stage*: EGNOS (1995–2004), and
- *second stage*: GALILEO (1999–2008).

The full operational capability of the GALILEO program is planned for 2008. The number of simultaneously visible satellites will thereby increase significantly in the next 5 years, so that even in canyon urban navigation situations, satellite position fixes might be facilitated. Figure 1 indicates the forecast of visible satellites using the combined GPS-Galileo system. The Galileo and the combined Galileo-GPS system will further enhance the geometrical accuracy of the positioning for navigation purposes. This is indicated in Figure 2. Hence, the impact of the new generation of satellite-based navigation systems on terrestrial and inland nautical navigation for the next decade can be expected to be of very large magnitude.

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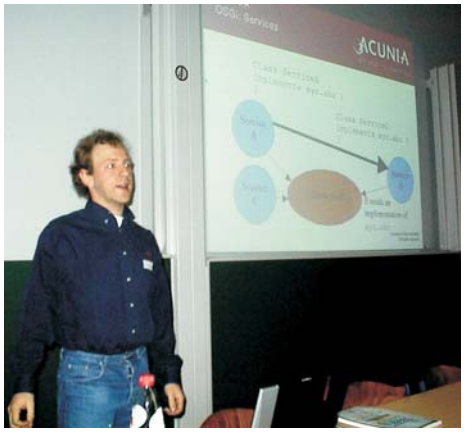


Johan Vos, Director New Technology at Acunia, speaker at one of the FITCE Belgium lunchtime sessions

Figure 1—Forecast of visibility of satellites when GPS and Galileo systems are combined (source: GMV GALILEO and GPS Performance Analysis Report)

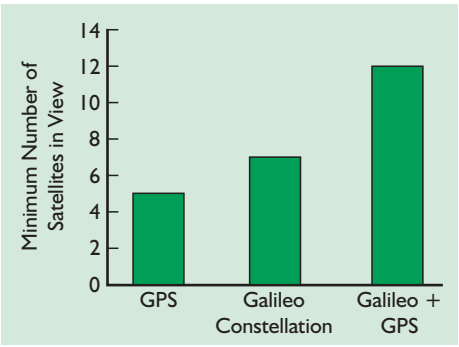
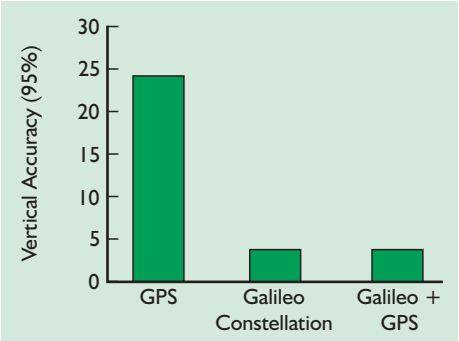


Figure 2—Forecast of increased geometrical accuracy when GPS and Galileo systems are combined (source: GMV GALILEO and GPS Performance Analysis Report



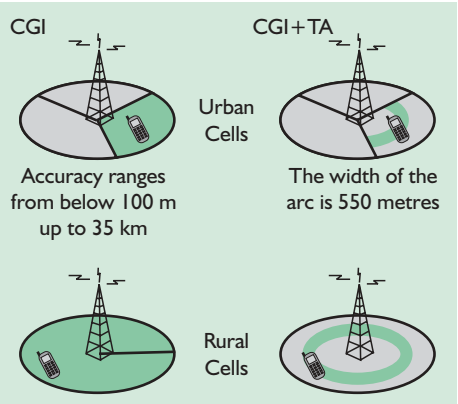


Figure 3—Location methods in current GSM: cell global identity (left) and the combined cell global identity with timing advance measurements (right)

Table 1: Expected future positional accuracy related to cellular radio-based localisation

Technology	Network Impact	Handset Impact	Accuracy	Time to Fix
Cell Global Identity	None	None	250 m–20 km	< 1 s
TOA	Medium Additional measurement units needed	None	40 m–150 m	< 1 s
E-OTD	Less than TOA	Changes to firmware	40 m –150 m	< 1s
GPS	None for standalone Low for Assisted GPS	High	3 m–50 m	40 s for GPS < 5 s for Assisted GPS

Location using cellular networks

In cellular radio, both in Europe and in the USA, needs do exist to provide positioning and location-based services. In the USA, the requirement is driven by the FCC E-911 mandate:

- *Phase 1*: to provide the cell ID;
- *Phase 2*: to locate a caller within 300 m accuracy.

In Europe, the emergency call number E-112 has been in use since 1999, whereas the localisation capability for emergency purposes has been mandatory since July 2003.

In GSM (2G mobile communication), it is possible to obtain a rough estimate of the location of a subscriber. This feature is depicted in Figure 3.

The ETSI standard ETSI TS 101 724 v8.1.0 [2001-04] describes different localisation methods, based on following measurement principles:

- timing advance (TA),
- time of arrival (TOA),
- enhanced observed time difference (E-OTD), and
- GPS.

With these methods, it will be possible in the near future to obtain more accurate estimates of the location of the subscriber in a cellular phone network. The methodology is depicted in Figure 4.

The expected future positional accuracy for the different measurement methods is listed in Table 1.

Telematics in terrestrial navigation

The car navigation systems of today are based on static maps stored on a CD or a DVD, which result in a 'stand-alone' navigation functionality. The present navigation systems offer route guidance with symbols and/or maps, and may include traffic information capabilities using RDS-TMC. This semi-dynamic RDS-TMC concept is free of charge, but limited to the major roads.

On the other hand, the user's desire is to reach his/her destination quickly and without hassle. Therefore, there is a need for up-to-date maps and real-time traffic and road condition information in a format directly usable by the navigation system and linked to the routing function to propose alternative route(s). Also high on the list of expectations are a better human–machine interface and the possibility to use the equipment out of the vehicle (pedestrian mode).

Several actors play in the navigation field. Their combined interests push navigation towards integration with telematics. The actors are:

- the driver/user,
- the car and systems manufacturers,
- the authorities, and
- business in general.

The expectations of the (car) industry are for car-embedded systems allowing for telematics. Therefore, a gradual replacement of CD and DVD by hard disk or by flash memory is expected to be the next step, as well as the introduction of a wireless connection: GPRS and 3G, possibly WLAN and WWAN for local fleets (taxi, local post, etc.). The concept can be based on either a thin or thick client of an automotive service provider (ASP) server.

But some customers want a mobile solution usable also outside the vehicle, without being tied to a service provider with the inherent recurrent costs. Hence, low-cost entry systems based on a personal digital assistant (either unconnected, connected to a phone or wireless) are

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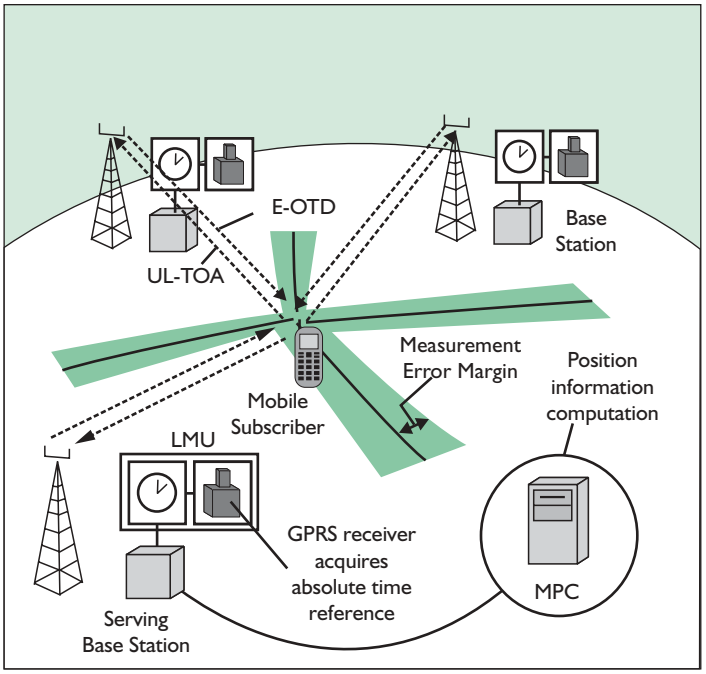

Figure 4—Position fix (estimate of the location of a subscriber) in mobile radio can be obtained using hyperbolic line of positions, such as is the case in radio beacon based Decca and Loran-C navigation

5 gaining popularity in the market sector at the moment. However, the advances in GPRS and 3G will bring much cheaper smartphones (with GPS, many additional functions and a colour display) due to the very large economy of scale. Actually, the PDA can only compete thanks to a larger display and a slightly easier human–machine interface.

In the future, the car manufacturers may use a PDA or a small tablet PC as the removable display of their embedded systems to satisfy the 'pedestrian mode' wish of many users.

Car manufacturers focus today on 'safety' and comfort features to sustain car prices (for example, ADAS). In the future, it is likely that they will offer additional services to differentiate from the others, and to retain customers' loyalty. These telematics services could include emergencies, breakdowns, routing (vs. classic embedded navigation systems), car function monitoring and logging (servicing), car door unlock, vehicle location (theft, fleet management), and other services (voice communication, information, etc.).

Location-based services

Location-based service applications, including telematics, are principally systems that inform drivers/pedestrians of their current location, that can help organise assistance if users are involved in accidents and that inform about nearby hotels, shops, petrol stations, car parks and the like. The common factors in this broad spectrum of applications are that they know the user's exact location and transmit data entirely or partly without wires via radio and/or mobile telephone.

As an example, to illustrate the power of the possibilities of new to-be-provided location-based services, one could think of a typical navigation usage in a city:

A man drives his car into a city. His car navigation system is updated when entering the town (most recent maps, traffic information, etc.) using location-based services (LBS); for example, via UMTS. He is fond of exotic, spicy food and he simply asks his navigation system to propose a restaurant serving his needs, at that very moment, near his actual position (also using LBS). He makes a selection between all proposed solutions and is guided to a parking lot near the restaurant. Although navigating in an urban skyscraper area, creating urban canyons for his satellite position sensors, and into tunnels (no satellite fix possible), his positioning remains accurate, since sensor fusion and enhanced dead reckoning are performed. At the parking lot entry, space reservation and payment have been tackled too using LBS. Leaving his car, he removes his PDA from the holder and continues his way, navigating as a pedestrian, until arriving at the restaurant…

Telematics services are specifically designed to improve safety and traffic information in relation to the car. These systems were initially devised to be used in cars but are increasingly being applied in small handheld computers (PDAs) and in third-generation telephones.

In the telecom branch, these services are locating mobile phones or terminals by using the mobile network. The mobile network could be a GSM (2G), GPRS (2.5G) or UMTS (3G) network with positioning functionality. Ericsson demonstrated live the first form of LBS in 1995 at Security 95. In 2001, operators launched the first attempts of services. Now, very restricted, and rather expensive, services are available.

In Belgium, Proximus, a leader in mobile telephony, has been offering since 2003 a *finder* function in LBS using SMS or WAP. From a very restricted list of 10 items only, a user can make a selection to query for the most appropriate location including an estimate of the distance to cover to the aimed target. The limited list consists of: hospitals, night shops, gas stations, pizza, French fries, chemists, supermarkets, hostels, bakeries and florists.

The crisis is over!

All things have their good sides and their bad sides. One of the good things of the ICT and more specifically the telecommunications crisis that we just went through is that the guru's kept silent. That looks logical because no one of them predicted the crisis. Those who did never became gurus anyway. Gurus who cannot predict the future fall of their position and you can only feel sorry for them. The same is, perhaps to a somewhat lesser extent, true for the professional future-tellers like Gartners and IDC. I found it quite a challenge to try to make business plans without the help of their services.

But, it really looks as if the crisis is over. The guru's are back explaining how wonderful the world will be when we just implement another unpronounceable abbreviation or acronym. In every magazine you can now read that the volume of sales in a certain type of equipment in 2006 will be 193,458 million €. Even on our own FITCE Congress the future was back!

Suddenly you realise what these firms and Gurus really are selling. It is like the cosmetics producer who was asked to describe the products he was selling. He simply answered: I sell hope.

In our business we know how uncertain things are but apparently find it almost unbearable to admit that we have to work and plan in uncertainty. So as soon as our short memory allows, we go back to the leaders who tell us what the world will be and fill our reports with very precise market predictions. My plea is let us be more critical towards predictions, we should know by now how reliable they are. I know this is in vain because it is too tempting to believe them. My consolation is that if we allow them back it can only be because the crisis is over!

Ton de Liefde
The Netherlands

IEE Events

The two events listed below are available to FITCE Members to attend at IEE Member rates. Please state that you are a member of FITCE when you register.

Telecommunications Quality of Service: the business of success (QoS 2004)

2–3 March 2004
The IEE, Savoy Place, London, UK

For full Conference details, please visit http://conferences.iee.org/qos/

Conference organisers—Tel: +44 (0) 1438 765647; Email: qos04@iee.org

XVth International Symposium on Services and Local accesS 2004 (ISSLS 2004)

21–24 March 2004
Edinburgh Conference Centre, Heriot-Watt University, Scotland, UK

For information, and to register, please visit http://conferences.iee.org/ISSLS2004/

Conference organisers—Tel: +44 (0) 1438 765 649; Email: issls2004@iee.org.uk

FITCE is an Associated Society of
QoS 2004 and ISSLS 2004)

Users' quality-of-service criteria for Internet access in Europe

by **Antony P Oodan,** Telecommunications Quality Consultancy, UK

Under the European Commission (EC) eEurope initiative to promote wider access to the Information Society a project was funded by the European Commission to identify the users' quality-of-service (QoS) criteria for Internet access in Europe. This project was undertaken under the auspices of the European Telecommunications Standards Institute (ETSI) as a Special Task Force (STF) project and this brief summary gives the findings of the work carried out together with plans for the future.

Introduction

The Internet is here to stay. Despite its continued growth in both range and sophistication of applications the basic structure of the Internet is here to stay for some time. It was considered useful to identify a set of quality-of-service (QoS) criteria of concern to the users with a view to specifying these as measurable parameters for Internet service providers (ISPs) to report delivered quality. The benefit to users would be to enable them to choose ISP who offer a level of performance most suited for their particular communication needs. The ISPs can concentrate on the segment/s of the population to offer their services. A project was undertaken to carry out the task of arriving at a set of QoS criteria which the ETSI can use for the specification of parameters, recommend methods of measurement and presentation of results.

Methodology

Work carried out in this field was evaluated. Two important studies had already been completed[1, 2]. However, these were not quite enough for ETSI to proceed with the specification of parameters. A possible set of 37 QoS criteria was derived from these works and by the application of the ITU-T Recommendation G1000[3]. This set formed the basis of discussion with seven countries selected for their geographic 'representation' of Europe. Scandinavia was 'represented' by Denmark, the East European by Poland, Mediterranean by Italy and middle Europe by Ireland, UK, France and Germany.

Discussions were carried out in person with representatives of the ISPs, user groups and regulators in each of these countries between November 2002 and April 2003. Based on these discussions the starting set of QoS criteria was reduced to 17. A questionnaire was prepared and sent to all members of the FITCE in the spring of 2003 for user validation. Members were asked to rate the importance of the criteria in relation to others. Based on the analysis of the returns and some regrouping the following four categories of QoS criteria are being recommended to ETSI for conversion into parameters and subsequent specification of methods of measurement and presentation of results.

Category A: Mainly 'technical' criteria—of interest to most segments of Internet usage population:

1 Number of attempts required to achieve connection (login) *(Quantitative + Qualitative)*
2 Frequency of connectivity loss while using service after login (also to include partial service loss) *(Quantitative + Qualitative)*
3 Downstream speed achieved *(Quantitative + Qualitative)*
4 ISP outages (including partial outages) *(Quantitative + Qualitative)*
5 Number of attempts to connect (login) during busiest hour of the week *(Quantitative + Qualitative)*

The five criteria are to form the core set. All ISPs may be encouraged to report these for the benefit of all customers.

Category B: Technical and mainly of interest to telecommunication managers of large networks (typically networks of corporate and large organisations who have their own telecommunication managers managing the network and complex communications):

1 Latency *(Quantitative)*
2 Packet loss *(Quantitative)*
3 Jitter *(Quantitative)*

These technical criteria are of use only to users of large networks; for example, large organisations that use specialised terminal equipment to achieve sophisticated communication. These may be reported only on a bilateral basis with those organisations with which the ISP has a service level agreement (SLA). The points of the network at which measurements are to be carried out are to be undertaken in the next phase of the work.

Category C: Mainly 'operational' criteria—of interest to most segments of Internet usage population:

1 Ease of commissioning of service *(Qualitative)*
2 Professionalism of help line *(Qualitative)*
3 Quality of billing promise + delivery *(Quantitative + Qualitative)*
4 Complaints and resolution time *(Quantitative + Qualitative)*

These criteria considered 'non-technical' are more of organisational nature and give an idea of the managerial competitiveness of the ISP.

Category D: Mainly for pre-subscriber consideration. A list of service features and conditions of service. This list could include:

1 Conditions of customer membership, including tariff and options.
2 Number of email addresses.
3 Size of email, storage size, storage time and other relevant details.
4 Availability and conditions for web space.
5 Help line availability + tariff details.
6 Data protection practices.
7 Availability and conditions for control of 'spam'.
8 Availability and conditions for control of 'virus'.
9 Availability and conditions for parental control.
10 Availability and conditions for security offerings.
11 Interaction with other ISPs.
12 Residues after uninstallation of ISP software.

Topics in this list may be considered essential information to potential subscribers to enable them to make an informed choice for their particular communication needs. This list need be updated only to record amendments.

Future work

ETSI is working on converting the above performance criteria into parameters and specifying recommended methods of measurements. Current plans are to publish this in spring 2004.

The ranking of QoS criteria is not expected to remain stationary for more than a few years and is likely to be reviewed in 2008.

It is not the function of ETSI to recommend ISPs to report delivered quality on a mandatory basis. The European Commission and/or the national regulatory authorities may decide whether to recommend the reporting of delivered quality by the ISPs to be on a mandatory or voluntary basis. It is felt that the industry would benefit if reporting were made on either basis.

1 Report of work carried out by Bannock Consulting in a contract awarded by the European Commission and published in August 2000.
2 Report of work carried out on Quality of Internet Services—Final report published in July 2001 of workshop under CEN/ISSS.
3 ITU-T Recommendation G 1000: Communications Quality of Service: A Framework and Definitions.

43rd FITCE Congress
8–11 September 2004 — Ghent, Belgium

Call for Papers

Contributors are invited to address the theme:

'To boldly go …on-line any time, anywhere. A vision for the future of ICT services'

Papers from across Europe as well as other countries are invited for the 43rd European Telecommunications Congress of FITCE. We are looking for papers that address the three main themes from one or more different angles.

- **Mobility**
- **Corporate and Carrier Services**
- **Residential Services**

- **Vision**
- **Technology/Infrastructure**
- **Services/Applications**
- **Marketing/Socio-Economics/EU Legal Requirements**

Topics suggested (but not limited to) are listed below (more topics can be found at www.FITCE.org):

	Themes		
	Mobility	**Corporate and Carrier Services**	**Residential Services**
Vision	• Where will mobility take us x years from here?	• What will corporate customers expect in 2005? 2010?	• Customer expectations in 2005? 2010?
Technology/ Infrastructure	• 3.5G and beyond • Handheld devices • High bitrate access in vehicles	• Intelligent bandwidth/ wavelength management • Next-generation routing • Reliability/resilience	• Home gateways • New trends in access (silica, etc.) • VDSL
Services/ Applications	• Instant Messaging (IM) – Unified Messaging Service (UMS) – Multimedia Messaging Service (MMS) • Field trials • Location-based services	• ASP services • Lambda on-demand • Grid computing	• Interactive digital television – video on demand – pay per view • Home/teleworking • Home healthcare
Marketing/ Socio-Economics/ EU Legal	• Models for m-services • Spectrum trading	• New pricing models • E-content business models	• Impact of home services • E-government • E-services

Key messages from the previous Berlin conference were:
- UMTS can only succeed by a large variety of high-value services.
- The regulatory model used for 2G will not be able to handle the development of mobile Internet.
- WLAN developments will provide valuable add-on's to cellular operators.
- Internet traffic will double every 1.25 to 2.5 years instead of the Moore's law prediction of 0.83 years.
- Huge investments in fibre optics will be necessary in the access networks to grow above the bandwidth available with today's ADSL.
- Although voice-over-packet has reached technological maturity, transition to NGN requires careful planning.
- The arrival of 3rd generation handsets will strongly influence the mobile market.

Your contributions should help us generate a new set of messages for 2004!

Submissions

Submissions should be sent by email to PAPERS@FITCE.BE and should contain the following:
- An abstract of 200 words (in English).
- A brief biography of the author(s).
- A high level outline describing how the paper will be structured (Table of Contents + short 'bulleted' overview of the actual contents that will be developed; limited to 2 pages).
- Full contact details (email, telephone, fax and address).
- The name of the national association.

The papers will be selected on relevance and originality of their content.

Contact details

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Vremdesesteenweg 120 - B-2530 Boechout - Belgium
Tel: +32 3 454.43.49 - Fax: +32 3 611.18.15
PAPERS@FITCE.BE

Timeline

- **Deadline for the abstracts is Friday 13 February 2004.**
- Authors will be advised of the outcome of the paper selection before the end of March 2004.
- The full text of the selected papers (maximum 10 A4 in English) is required by Friday 28 May 2004.
- The presentation material is required by Friday 16 July 2004.

The presentations will be strictly limited to 20 minutes and there may be time for questions. All contributors selected will be requested to follow the 'Instructions for Authors and Speakers'.

Awards will be presented at the Congress for quality of presentation and for the best written paper.

FITCE looks forward to receiving your abstracts!

For information about FITCE's 2004 Congress in Ghent: www.FITCE.org

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