INTERNATIONAL TELECOMMUNICATION UNION

ITU-T Workshop Report

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

ITU-T Workshop Multimedia in NGN

Geneva, 10-11 September 2007

CONTENTS

ITU-T Workshop on Multimedia in Next-Generation Networks

Geneva, 10-11 September 2007

Ahead of the ITU-T Next Generation Networks Global Standards Initiative (NGN-GSI) co-located rapporteurs group meetings in Geneva, 11-21 September 2007, a workshop was held on NGN and Multimedia, on 10-11 September, at the ITU Headquarters in Geneva. The meeting was chaired by Mr Pierre-André PROBST, OFCOM, Switzerland and Chairman of ITU-T Study Group 16. He described the purpose of the meeting as being two-fold:

- Investigating how Next-Generation Networks will support multimedia functionality;

- Identifying what further standardization work may be required in this domain.

The workshop materials are available at http://itu.int/ITU-T/worksem/multimedia/200709. Audio of the event was webcast and the recordings are archived at http://itu.int/ibs/ITU-T/200709multimedia. The event was attended by 134 participants, of which 36 provided a feedback with the workshop assessment form with an overall rating of 4.44 for the event.

Opening Session

The ITU-T Director, Mr Malcolm JOHNSON, welcomed the participants and announced that ITU Council had, during the previous week, agreed that the trial for making ITU-T Recommendations free of charge online that had been running since the beginning of the year would be made permanent; the meeting burst into applause. He highlighted the importance of this move for assisting ITU in its relationships with universities and in bridging the standardization gap (Resolution 123 of the ITU Plenipotentiary Conference, Antalya, 2006). He highlighted the previous multimedia standardization work done in ITU and encouraged experts to face the challenges to bring about the ubiquitous networked society that NGN will enable.

Figure 1: NTT's NGN Roadmap

Source: Presentation by Mr Takashi Hanazawa (NTT)
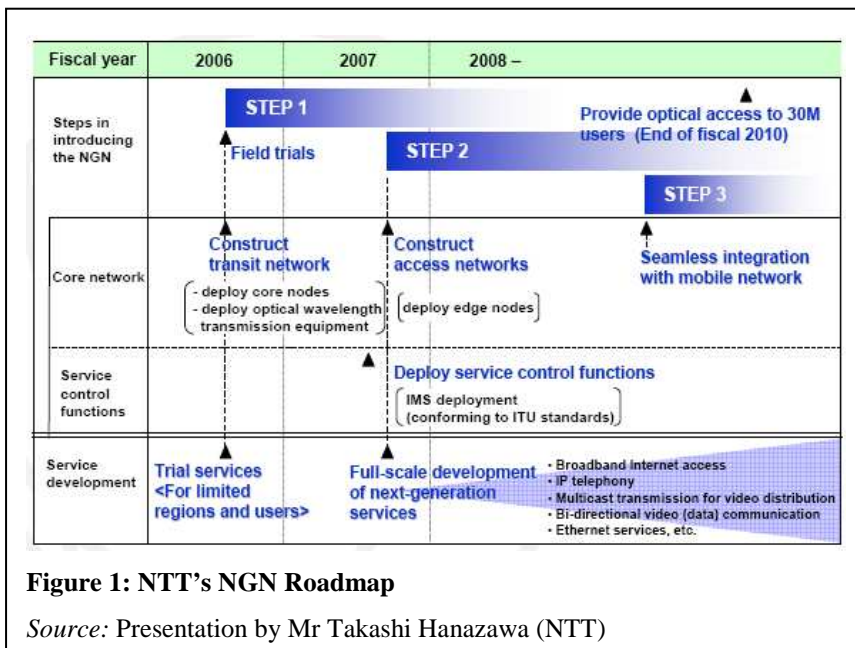
The keynote address, on "NTT's challenge: creating new businesses on NGN" was delivered by Mr Takashi HANAZAWA (Senior Vice President and Senior Executive Director of the Research and Development Planning Department, NTT, Japan). He outlined NTT's medium-term strategy for NGN, which had been announced in 2004 (see Figure 1). The strategy is based around the roll-out of a fibre optic network, to increase revenues from fixed broadband services. Japan's fibre-to-the-home (FTTH) subscribers reached around 8.5 million in March 2007, compared with around 14 million DSL subscribers in Japan. It is expected that FTTH will overtake DSL in March 2008. NGN field trials began in

December 2006 with around 500 users and 30 service providers. Step 2, the move to commercial NGN service, is expected to be announced in autumn 2007 and it is hoped that NTT's transition to NGN will be complete by 2010. The main drivers for NGN in Japan are expected to be a combination of:

- Home-based services, including emergency services and remote home monitoring as part of ubiquitous care services;

- Business-related services, such as telepresence videoconferencing, which is offered over a 15 Mbit/s NGN-guaranteed network;

- Content-related services, such as video on demand and delivery of high definition video.

For all of these activities, which involve multiple service providers, standardization is very important, in particular for applications and services.

An overview of NGN market and regulatory trends was given by Mr Tim KELLY (ITU-T). He began by looking at NGN migration strategies, distinguishing between those strategies which target NGN as a replacement of the core network (e.g., BT), of the whole network including the access network (e.g., KPN) or as an overlay (e.g., Deutsche Telekom). He noted that, in developing countries, NGN migration is more likely to be leveraged from mobile and new-build networks. The second part of the presentation dealt with market trends, in particular the continuing dependence of telcos on revenue from voice, and on pricing trends, towards flat-rate and bundled tariffs. The final part of the presentation focused on regulatory challenges (see Figure 2), including interconnection, privacy and data retention, and on the possible need for compensation for the stranded assets of co-located competitors to the incumbent.

- **Pricing: Will NGN offer prices that are significantly lower than those available today?**
- **Bundling and billing: How to distinguish the real price of services when they are bundled?**
- **Interconnection: Will current interconnection models (based on per-minute settlement) work in an NGN?**
- **Security: If much greater capacity is available at the edges of the network, how to guarantee security?**
- **Investment: Will unbundling discourage new infrastructural investment? Infrastructure sharing?**
- **Traffic prioritisation: Is the Net really "neutral"?**
- **Emergency services: What level of universal service obligation to impose?**
- **Competition policy: Significant market power will not disappear in an NGN environment**
- **Consultation: compensation for stranded assets?**
- **Identity management and privacy: What rules for data retention?**

Figure 2: Some regulatory challenges of NGNs

Source: Presentation by Mr Tim Kelly (ITU-T)

Session 1: Service Scenarios I: Broadcasting, Multicasting

The first session, chaired by Mr Ghassem KOLEYNI (Nortel, Canada), looked at the support offered by NGN for streaming type services, traditionally associated with broadcast media.

Mr Daniel O'CALLAGHAN, (Verizon, USA), and Chairman of the ATIS IPTV Interoperability Forum) presented on the topic: "Multicast and Unicast: each in its place". He argued that the two forms of information delivery are complementary, and that it is not necessary to assume that, on IPTV or NGN networks, unicast will automatically replace multicast. He introduced the concept of data carousels, a cyclic transmission technique that allows users to join a live broadcast at intervals, to achieve "near video on demand". This enables multicast solutions to scale to larger audience bases and to deal with service interruptions, for instance caused by power outages. By contrast, unicast works better when the user needs to control directly the selection of content, for instance, for true video on demand or movies with alternative endings.

Mr Christian JACQUENET (France Telecom) presented on "Authentication, authorization and accounting (AAA) issues in multicast-enabled environments". The motivation for this work comes

from the need to track and bill users on a multicast network, such as for IPTV applications. There is also a requirement for security and data protection (for instance, for use of pay-per-view content), as well as to maintain quality of service (QoS). AAA issues need to be environment agnostic and to interwork both with legacy and NGN environments.

Mr Xu HEYUAN (Ministry of Information Industry, P.R. China), presented on "The present and future of visual surveillance services". Visual surveillance is a particular class of multimedia services that covers the capture and processing of video signals, for instance from closed circuit television cameras. Applications include crime detection, traffic management (e.g., speeding fines), and location-based services,

Figure 3: Technical issues to be standardized for Visual Surveillance

Source: Presentation by Mr Xu Heyuan
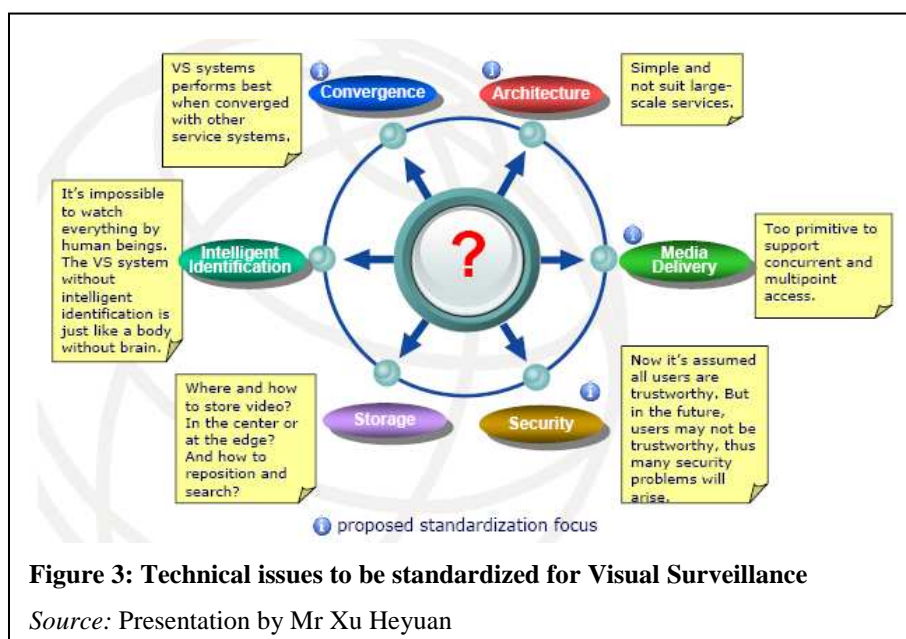
as well as those geared towards personal users, such as baby monitoring or home security. The four main areas of future standardization work are architecture, media delivery, security and convergence (see Figure 3). He reported that ITU-T Study Group 16 has active work items for the definition of video surveillance services, targeted for completion in late 2008.

Mr Masahito KAWAMORI (NTT, Japan), presented on "Multimedia Applications for IPTV". He argued that IPTV terminals will become as ubiquitous as today's telephones or fax terminals, if a low-cost terminal model can be developed. IPTV has been included in NTT's NGN trial (see Figure 1), and he showed a number of examples of navigation and e-commerce. Key areas for standardization include metadata and multimedia applications, and these will be addressed at the meeting of the IPTV Focus Group to take place in Tokyo, Japan, 15-19 October 2007.

Session 2: Service Scenarios 2: Person to person communications

The second session, chaired by Mr Sakae OKUBO (Waseda University, Japan), looked at person-to-person communications over NGNs, focusing in particular on bandwidth requirements, QoS and security.

The opening presentation was made by Mr Håkon DAHLE (Tandberg, Norway), who spoke on "Videoconferencing trends: high definition, telepresence and beyond". The adoption of videoconferencing is increasing rapidly, but one of the keys to future deployment, in addition to simpler use, is the guaranteed QoS and bandwidth availability that would be offered by NGN. This would enable videoconferencing to be used outside the meeting room and will underlie the future service of "telepresence", or high-performance video-conferencing. PC-based video-conferencing is being adopted as an add-on service to instant messaging or Skype, and a similar model is being used in the workplace by IBM, Microsoft and others. Current service quality tends to be poor but can only improve as more powerful PCs and higher bandwidth networks become available (for instance, high quality TV, at 720 lines progressive scan, would need a PC with the equivalent of a 12 GHz processor). But even HDTV may not be enough to communicate a genuine telepresence (see

Figure 4). Instead, it may be necessary to go towards standards used for digital cinema video technology (e.g., ITU-T T.802 | ISO/IEC 15444-3 Motion JPEG 2000). Bandwidth is a critical requirements for multipoint meetings. Beginning with H.261 in 1988, ITU-T has provided codecs for video-processing, culminating in 2003 in H.264/AVC and its subsequent extensions. Nevertheless, work towards the next generation of video coding should continue
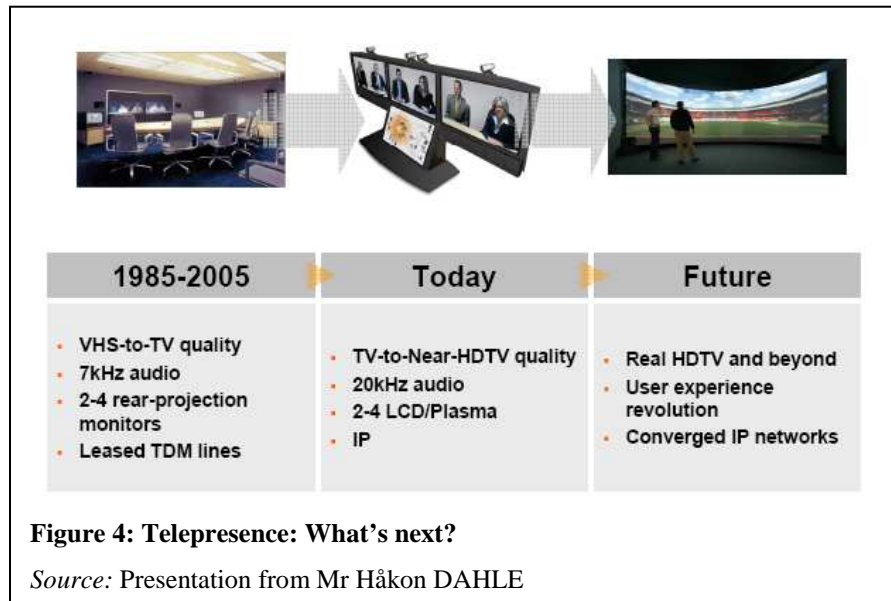

Figure 4: Telepresence: What's next?

Source: Presentation from Mr Håkon DAHLE

(H.265) as improved compression and quality performance may be required within 3 to 5 years. Mr Dahle argued that videoconferencing suppliers like Tandberg will use all of the bandwidth that telcos can provide and all of the processing power that chip suppliers can offer, and will still want more!
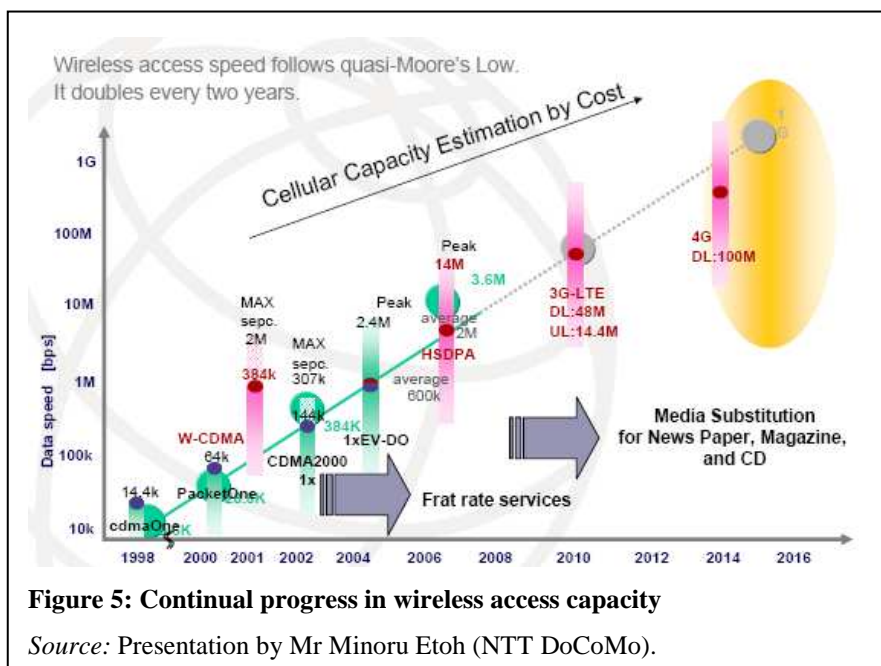
Mr Paul JONES (Cisco, USA and Rapporteur for Q2/16) presented the plans for "Advanced multimedia systems (AMS)", which is a forward-looking system initiated by SG 16. He posed a series of scenarios that AMS may want to address: Imagine making a call and:

- having application-sharing available, *effortlessly*, as part of a voice conversation;
- sending a file to the other user simply by right-clicking and choosing "Send to" the person's name;
- sending text alongside voice or video, with ease;
- turning a flat-screen TV into a video display device.

In these examples, the phone (whether real or virtual) may be the control tool but may not necessarily be the user's input or display device. The work in SG 16 has been formalized with the recently created Question 12/16 and is expected to bring first results by 2010.

Mr Ning ZONG (Huawei Technologies, P.R China) presented on "Peer-to-peer (P2P) telecom solutions". Peer to peer moves away from the traditional server-client model towards a different model in which network nodes can be both servers and clients, thereby reducing the burden on the original server, and thereby reducing bandwidth requirements. P2P is at the root of music file-sharing systems, as well as VoIP services such as Skype. Although P2P applications may cannibalise revenue streams, Mr Zong is proposing a system of "Telecomm P2P" in which telcos harness the technology, and provide an improved user experience. P2P standardization is currently taking place in IETF (P2PSIP) and the DSL Forum (ARCH).

In the final presentation in this session, [Mr Minoru ETOH](#) (NTT DoCoMo Research Laboratories, Japan) presented on "[Enhanced Multimedia User Experience beyond 3G](#)". Although most of the mobile world is dominated by the 2nd generation GSM standard, Japan has followed a different path with PDC, and now almost three-quarters of the market has shifted to 3G terminals. As a result, Japan has the world's highest level of Internet use from mobile phones, and is a good test bed of new

Figure 5: Continual progress in wireless access capacity
Source: Presentation by Mr Minoru Etoh (NTT DoCoMo).

applications. It is possible to forecast, with a high degree of confidence, the likely future trend in bandwidth available over wireless systems, which is following a quasi-Moore's Law model in which the performance-to-price ratio has been doubling every two years or so (see Figure 5). He gave a number of examples of likely future applications, including use of satellite navigation on mobile phones linked with context-aware information, and camera and motion sensors on mobile phones that would enable enhanced game playing (e.g., using a mobile phone like a Wii terminal).

Session 3: Service Scenarios III: Object-to-object communications

The third session, chaired by [Mr Tony RUTKOWSKI](#) (Verisign, USA), looked at object-to-object communications, with particular attention to networked identification and digital identity management.

Mr Rutkowski opened the session with a presentation on "[Toward a coherent framework to support global identity management (IdM) requirements](#)", which explained the work of the ITU-T [Focus Group on IdM](#). The Focus Group, established by SG 17 in December 2006, has held five meetings to date involving some 139 participants. It has produced four reports (on requirements for global interoperability, user cases, IdM framework and an IdM ecosystem and lexicon), and other reference materials. The Group has identified seven "pillars" for a globally interoperable IdM (see Figure 6), and is now launching a

Figure 6: The "seven pillars" of Identity Management
Source: Presentation from Mr Tony Rutkowski.

second phase of its work aimed at completing the framework, assessing implications, dealing with objects and facilitating the transfer of work to SGs and other Forums. However, there is a requirement for greater coordination as many different SGs are currently pursuing new IdM action items.
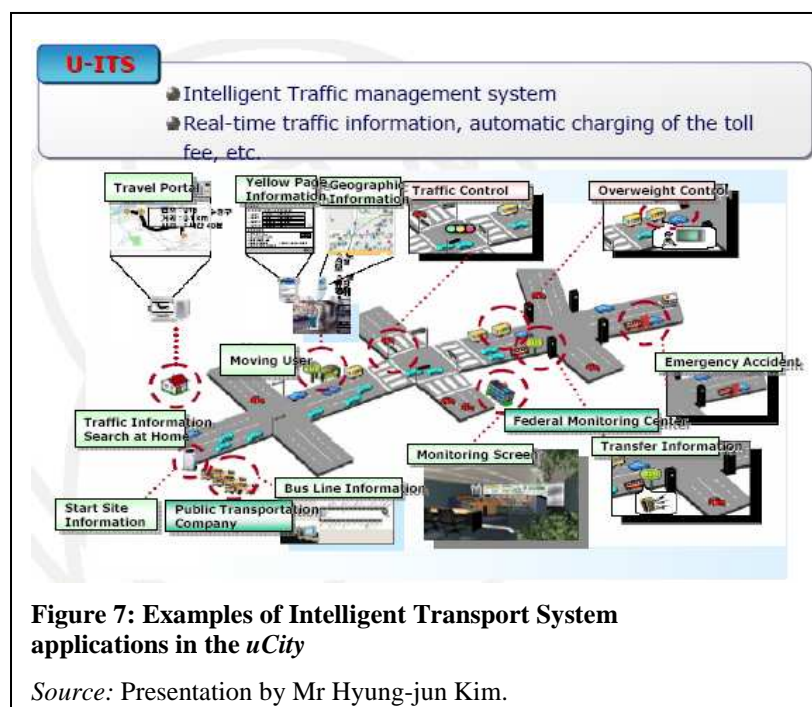
The second presentation in this session was delivered by Mr Noboru KOSHIZUKA (YRP Ubiquitous Networking Laboratory, Japan) on "Multimedia delivery services triggered by object and places in the real world". Networked ID triggered multimedia information delivery service addresses a particular type of multimedia information service whereby users can acquire rich multimedia information regarding an object, place or person to which a tag, such as RFID, barcode and infrared marker, is attached. A user terminal reads the tag and obtains the ID there, and then retrieves relevant multimedia information stored in the server by sending the ID to the server, namely by using the ID as a trigger. The presentation gave examples based on the uCode tag-based identification system and presented a number of different applications, including:

- food information communication between farmer and consumer;

- a multimedia educational guide in a botanical gardens and an art museum;

- a walking tour for urban art; and

- the Tokyo Ubiquitous Technology Project in Ginza.

This issue is currently being handled in SG16 in the context of NGN.

The final presentation in Session 3 was given by Mr Hyung-jun KIM (ETRI, Republic of Korea) on "Universal Sensor Network (USN) Applications and Services". USN differs from wireless sensor networks (such as RFID) in that it goes, beyond just networking of sensors, into an intelligent information infrastructure deploying higher-level applications to interact directly with users. A number of different examples of USN in operation were provided, including:

- Monitoring the stability of structures, such as bridges or old buildings;

- Managing the luminosity of street lights;

- Agricultural monitoring (e.g., to promote plant growth);

- Disaster surveillance;

- Health monitoring, especially for an ageing population.

Figure 7: Examples of Intelligent Transport System applications in the *uCity*

Source: Presentation by Mr Hyung-jun Kim.

A number of different "*uCity" trials* are in operation or are planned in Korea to build futuristic ubiquitous cities. One of the applications is for intelligent transport systems (ITS) (see Figure 7). It is forecast that the world market for USN will reach US$1 billion by 2012 when it will make up around one-quarter of the overall market for networked identification (including RFID).

Wrap-up session I

The first day concluded with a wrap-up of Sessions 1, 2, and 3 in which each of the session chairs provided a review of the main outputs from their session.

This session was followed by a reception, kindly offered by Cisco.

Session 4: Using NGN capabilities to deliver multimedia services

This session, chaired by Mr Leo LEHMANN (OFCOM, Switzerland), looked at the use of NGN capabilities to deliver multimedia services, on different platforms including fixed and mobile. The focus was on new developments and progress in NGN standardization work.

Mr Marco CARUGI (Nortel Networks, France) addressed "Towards a Service Oriented Architecture (SOA)/Web Services-enabled NGN Open Services environment". He began by looking at the shift, implied by NGN, from vertically integrated networks to flexible service creation and provisioning. The ITU-T approach, as exemplified by ITU-T Recommendation Y.2201 on Release 1 of NGN Requirements and Capabilities, approved in April 2007, is based on "capabilities" that are reusable blocks available to application developers (see Figure 8). The main service enablers are IP Multimedia Subsystem (IMS) and Open Mobile Alliance (OMA) web service specifications. A number of different scenarios have been developed for third-party applications, such as Managed Delivery Services (MDS), the Open Service Environment (OSE). However, there is a need also to get to grips with the new wave of web-based services that come from the IT world. The major standards development forums include OASIS
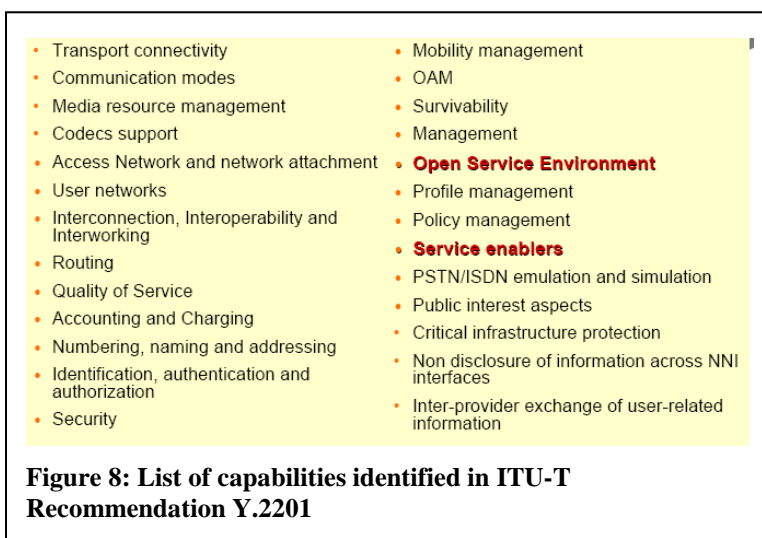
- Transport connectivity
- Communication modes
- Media resource management
- Codecs support
- Access Network and network attachment
- User networks
- Interconnection, Interoperability and Interworking
- Routing
- Quality of Service
- Accounting and Charging
- Numbering, naming and addressing
- Identification, authentication and authorization
- Security

- Mobility management
- OAM
- Survivability
- Management
- **Open Service Environment**
- Profile management
- Policy management
- **Service enablers**
- PSTN/ISDN emulation and simulation
- Public interest aspects
- Critical infrastructure protection
- Non disclosure of information across NNI interfaces
- Inter-provider exchange of user-related information

Figure 8: List of capabilities identified in ITU-T Recommendation Y.2201

and the World Wide Web Consortium (W3C). There are now also some attempts to develop "carrier grade" web services, such as the Parlay X standards. Ongoing work is focused on draft ITU-T Recommendation Y.ngn-openenv.

The second presentation was made by Mr Brody KENRICK, on behalf of Mr Marwan JABRI (Dilithium (USA), on "Multimedia Services for NGN mobile multimedia services". Video telephony services have been available on UMTS 3G mobile systems for some time now, but with fairly low resolution. Perhaps surprisingly, while today the audio and video channels of conversational services use UMTS 3G's circuit-switched mode, packet-switching (IP) connections are used for non-conversational streams (e.g., video clip downloads), which actually account for more than 80% of the video traffic of most mobile operators. Lower latency and increased bandwidth (above the 64 kbit/s currently used) are key to improved service quality. High-Speed Packet Access (HSPA) offers an obvious path for this additional bandwidth, though it has not yet been fully tested "in the wild". However, what is really needed is a killer application that will drive the market. Possible candidates include video blogging and video push. The NGN limitations will define the boundaries of the mobile services we can provide over NGN. The proposed AMS standard (H.325) could provide the possibility for mobile phones to act as endpoints for NGN services.

The final presentation is this session was made by Ms Hui-Lan LU (Alcatel-Lucent, USA) on "Enabling NGN QoS through Policy-Based Resource and Admission Control". Resource and Admission Control Functions (RACF) are defined in NGN Release 2 as the solution for handling network requirements while ensuring that only legitimate requests are fulfilled. There are requirements both in unicast and multicast environments. Release 1 of RACF has defined the basic constructs and interfaces and work on Release 2 is now underway, including explicit consideration of multicast environments. The eventual outcome will be ITU-T Recommendation Y.2111 (Y.RACF), though there are at least ten other related Recommendations of which only one (Y.2701) has thus far been adopted.

Session 5: The future of NGN

The final session, chaired by Mr John VISSER (Nortel, Canada), examined the future of NGN, covering the main themes of convergence and mobility. Convergence is closely linked to the evolution of enabling access technologies, including emerging broadband mobile wireless access technologies ("4G").

The opening presentation was given by Mr Stephen HAYES (Ericsson, Sweden, and Chairman of 3GPP-SA) on the "Evolution of IP Multimedia Subsystem (IMS)". IMS development started in 2000 as a way of exploiting the higher bandwidths becoming available on mobile networks and utilizing IP transport. It offers full support for mobile roaming, and is based on the principle that the users' home operator (rather than the operator with whom they are roaming) should control the services offered. 3GPP specified IMS as part of Release 5 (2002) and there have been subsequent improvements in Releases 6 (2004) and 7 (2007). IMS has been adopted outside 3GPP including extensions to the protocol made inter alia by ITU-T, ETSI

Figure 9: "Common IMS" vision

TISPAN and Cable Labs. This has caused concerns about the possible fragmentation of IMS, which would lead to interoperability and end-to-end connectivity problems. The solution proposed to avoid this has been to concentrate all core IMS development in 3GPP for the so called "Common IMS" (see Figure 9), and to support other standards development organizations (SDOs) in developing requirements for extensions to the protocol under the "Open IMS Initiative" hosted by 3GPP. Timelines for different aspects of IMS functionality have been defined, with a goal of completion before the end of the decade. He highlighted the involvement of ITU-T during these discussions and that both organizations should continue the dialogue to prevent fragmentation of IMS.
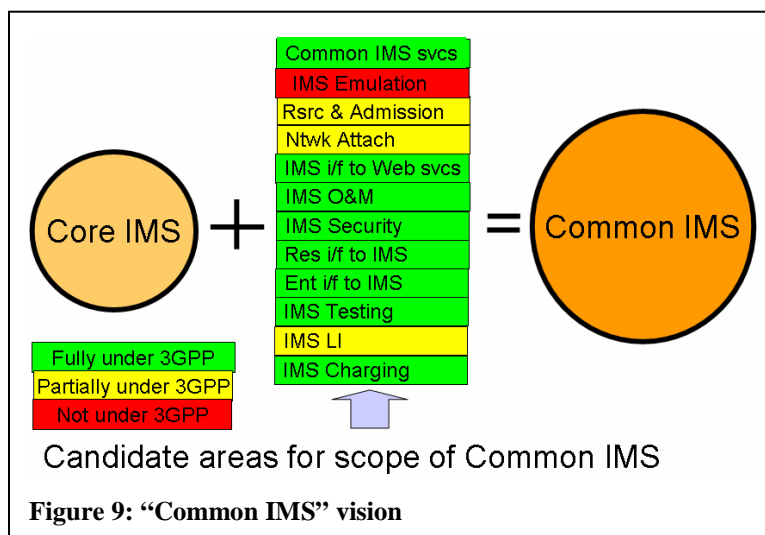
Mr Visser gave the next presentation on "The Converged Office". The converged office is an example of an application enabled by NGNs that may involve, for instance, being "always available" to respond to calls, accessing email even without a PC, and facilitating on-demand video-conferencing and reducing telephone tag. This will require simplification, collaboration and access. Features should include enhanced presence (for instance, through instant messaging and telephony), click-to-call functions, close coupling and integration of telecommunications with office

applications, and multimedia support. The ultimate goal is advanced unified communications which boosts user productivity and satisfaction.

The final presentation, given by Mr Paul SIMMONS on behalf of Ms Caroline CHAN (Nortel, Canada), addressed "The impact of multimedia applications on 4G networks and enhancements", notably WiMAX (IEEE 802.16 d and e). The key drivers for WiMAX are likely to be VoIP, internet access, email and business applications, and the market is expected to be led by the huge increase in networked devices (rather than people) connected in a next-generation telecom world. Compared with 3G mobile and Wireless LAN, WiMAX is more likely to be used at the regional level, where user speeds are typically between 1-10 Mbit/s and where flat-rate pricing is used. A key element in reducing latency is the use of Multiple-Input Multiple-Output (MIMO) technology. WiMAX will support video applications as well as multicast broadcast service (MBS). As such, it compares favourably with other technologies for handling video on mobile devices, like MediaFlo or DVB-H.

Wrap-up session II and Closing

The final session wrap-up, chaired by Mr Brian MOORE (Alcatel-Lucent and Chairman of ITU-T SG 13) and Mr Probst, proceeded with the presentation of the summaries of Sessions 4 and 5 by the respective session chairs, followed by a general questions and answers.

In concluding the workshop, Mr Probst pointed out that all of the proceedings are available on the website at: http://www.itu.int/ITU-T/worksem/multimedia/200709/programme.html.

He highlighted the need to focus on the needs of developing countries, and on bridging the Standardization Gap. This is the subject of a new Circular No. 166 from the Directors of the ITU-T and ITU-D. Each Study Group has an action plan for assisting developing countries and there will be a need to take into account the outcomes from this meeting, which will also feed into the upcoming Regional Forum in Kigali, Rwanda, on 2-4 October 2007. He also urged the Rapporteurs of the Questions in the ITU-T Study Groups dealing with Multimedia and NGN to examine the material presented in this workshop and take it into consideration as they progress their work.

He closed the meeting thanking the steering committee, the session chairs, the speakers and the secretariat for their contributions to bring about this event.

Annex A: Conclusions and Recommendations of the workshop sessions

Session 1 conclusions and recommendations

- AAA helps reliable user and source traceability.

- Multicast and unicast are both needed, each is used for a particular purpose

- Visual surveillance not only can be used for public safety but also can have applications for teleeducation and telemedicine

- Low-priced and standards compliant terminals are the key ingredients for promotion of NGN and multimedia

- To be successful, there is a need for good sets of applications and services.

- Availability of product and services compliant to globally recognized standards is the key factor in success for broadband multicast

- Expedite development of globally accepted standards on all multimedia aspects. This requires collaboration and involvement of all related SDOs. ITU-T, as the global standardization body can and should play an important role.

Session 2 conclusions and recommendations

- Ever increasing demand for higher bandwidth and lower latency to allow better user experience -- both for the network and the endpoint

- NGNs must be built to support the requirements of multi-megabit, multi-party interactive multimedia sessions

- Ease of use should be achieved for the videoconferencing system

- AMS will enable true multimedia beyond just voice and video in the endpoint

- P2P technology is not yet a part of NGN architecture or study items

- Mobile specific applications are expected that capitalize on broadband and always-on connectivity

Session 3 conclusions and recommendations

- Task Focus Group IdM in Phase 2 work to study and develop updated lexicon, use-cases, gaps, and requirements capable of supporting :
  - All object-object work and coordination with JCA-NID and others forums involved in this subject
  - The needs and potential IdM implementations for Developing Countries, including outputs from ITU-D Study Groups and Cybersecurity Workshop
  - The needs of the Mobile community including the new IMS Open forum and relating to the implementation of WiMAX
  - Using IdM capabilities, facilitating
    - QOS and related RACF capabilities
    - IPTV and other multicast capabilities
    - Peer-to-Peer telecom solutions

- Task Focus Group IdM in Phase 2 work to develop a mapping of its requirements to the various questions of ITU-T and ITU-D Study Groups and other forums and consortia, especially SG13, and suggest means of enhancing collaboration on developing necessary solutions for the requirements

Session 4 conclusions and recommendations

- With regard to SOA/WS the appropriate standardization of application/network interfaces (network capabilities to applications) and applications/application interfaces (open interfaces at the application level) has to be initiated, expedited. Standards adaptation to Telecom requirements, as well as standards alignment and harmonization are essential. Complexity of NGN and components require stepwise approach towards full NGN OSE and an appropriate roadmap

- The NGN limitations will define the boundaries of the mobile services we can provide over NGN. Design of mobile endpoints plays a significant role in pushing up to these limits. The standardization of AMS (H.325) complements the NGN standardization and has to be expedited

- With regard to RACF Release 1 has specified the basic constructs and interfaces. Open Gaps like explicit multicast considerations, optimal scoping and distribution of RACF, coordination between RACF instances (inter- and intra-domain or access to the latest network state information will be covered by RAFC Release 2

- Collaboration and involvement of all related SDOs, Forums, and Consortia

Session 5 conclusions and recommendation

- A great deal of effort is going into NGN standardization

- Effort is paying off and is yielding real results: the future is bright

- Seeing essential activities and technologies:
    - Widespread adoption of IMS (fixed and mobile convergence); coalescence of IMS work in 3GPP

    - Converged office: integrated desktop applications and telecoms enabling enhanced workforce productivity, efficiency, effectiveness

    - High capability access and network technologies are turning the vision into reality

- It is fundamental that the management of 3GPP and ITU-T continue the dialogue on ways for their concerned technical committees to better work together in the definition of the common IMS to ensure that it meets the needs of all parties concerned and that the existing gaps are bridged.

Annex B: Steering Committee

Chair: Pierre-André Probst (OFCOM, Switzerland), also Chair, Opening Session; Co-chair, Closing Session [SG 16]

Members:

Brian Moore (Alcatel-Lucent, UK)	[SG 13] Co-chair, Closing Session
Ghassem Koleyni (Nortel, Canada)	[FG-IPTV] Organizer and Chair, Session 1
Sakae Okubo (Japan)	[SG 16]; Co-organizer and Chair, Session 2
Noah Luo (Huawei, China)	[SG 16]; Co-organizer, Session 2
Chae-Sub Lee (ETRI, Korea)	[SG 13]; Organizer, Session 3
Tony Rutkowski (Verisign, USA)	Chair, Session 3
Leo Lehmann (OFCOM, Switzerland)	[SG 16]; Organizer and Chair, Session 4
John Visser (Nortel, Canada)	[SG 19]; Organizer and Chair, Session 5
Chuck Dvorak (AT&T, USA)	[SG 12]
Charles Sandbank (UK)	[SG 9]
Helmut Schink (Siemens, Germany)	[SG 13]
Naotaka Morita (NTT, Japan)	[SG 13]
Yoichi Maeda (NTT, Japan)	[SG 15]
Yukio Hiramatsu (Japan)	[SG 11]

TSB support team:

− Simão Campos, Stefano Polidori, Paolo Rosa, Leslie Jones, Antonella Maffi.

Annex C: Final Workshop Programme

	Day 1, 10 September 2007
0930 - 1015	**Opening Session** Chairman: **Pierre-André PROBST** (Chairman, ITU-T SG 16) **Objectives:** The opening session will give a view of NGN today, and provide an overview of the regulatory frameworks affecting NGN deployment. ▪ Welcome address: **Malcolm JOHNSON** (TSB Director) ▪ Keynote address: NTT's challenge: create new business on the NGN: **Takashi HANAZAWA** (Senior Vice President, Senior Executive Director, Research and Development Planning Department, NTT) ▪ NGN: Market trends and Regulatory issues: **Tim KELLY** (TSB)
1015 - 1045	**Coffee break**
1045 - 1245	**SESSION 1: Service Scenarios I - Broadcasting, multicasting** Session Chairman: **Ghassem KOLEYNI** (Nortel) **Objectives:** The support of streaming type services over NGN is an important and challenging issue. Offering currently available services over NGN, in addition to entirely new services, will bring additional value to subscribers and providers. This session will identify the various challenges and important issues relating to broadcast, multicast, QoS, security, digital rights management (DRM), middleware, applications and content platforms. ▪ Multicast and unicast: each in its place: **Daniel O'CALLAGHAN** (Verizon) ▪ AAA Issues in Multicast-Enabled Environments: **Christian JACQUENET** (France Telecom) ▪ The Present and Future of Visual Surveillance services: **Xu HEYUAN** (CATR, MII, P.R. China) ▪ Multimedia Application for IPTV: **Masahito KAWAMORI** (NTT)
1245 - 1400	**Lunch break**
1400 - 1530	**SESSION 2: Service Scenarios II – Person-to-person communications** Session Chairman: **Sakae OKUBO** (Japan) **Objectives:** Real-time conversational multimedia services have been a challenge to packet networks, but NGN promises great opportunities for this type of service with respect to bandwidth, QoS and security. This session will explore what new features can be created for real-time conversational type of multimedia services by capitalizing on the NGN and also seeks to understand what additional network capabilities are desired for the NGN from the user perspective. ▪ Videoconferencing trends: high definition, telepresence and beyond: **Håkon DAHLE** (Tandberg) ▪ Advanced multimedia system: **Paul JONES** (Rapporteur Q2/16) ▪ Peer-to-peer (P2P) telecom solutions: **Ning ZONG** (Huawei Technologies) ▪ Enhanced Multimedia User Experience beyond 3G: **Minoru ETOH** (NTT DoCoMo Research Laboratories)

1530 - 1600	**Coffee break**
1600 - 1730	**SESSION 3: Service Scenarios III - Object-to-object communications** Session Chairman: **Tony RUTKOWSKI** (Verisign, USA) **Objectives:** The extension of IP connectivity and the increasing integration of IT technologies into devices are leading the demand for object-to-object communications. This demand is now extending to cover more diverse applications using NGN, especially in fixed/mobile converged environments. In this context, special attention must be given to identity management (IdM). This session will discuss identity modalities for each specific communication type as well as their handling mechanisms. Scenarios and their requirements for network functions and capabilities will be identified considering the evolution of interactive communication between objects. - Toward a coherent framework to support global IdM requirements: **Tony RUTKOWSKI** (VeriSign) - Multimedia delivery services triggered by object and places in the real world: **Noboru KOSHIZUKA** (YRP Ubiquitous Networking Laboratory, Japan) - USN Applications and Services: **Hyung-jun KIM** (ETRI)
1730 - 1745	**Short break**
1745 - 1900	**WRAP-UP SESSION I** **Review and Discussions of the conclusions of Sessions 1,2 and 3**
1900	**Reception** (Kindly offered by Cisco Systems)

	Day 2, 11 September 2007
0900 - 1030	**SESSION 4: Using NGN capabilities to deliver multimedia services** Session Chairman: **Leo LEHMANN** (OFCOM, Switzerland) **Objectives:** Due to an increasing demand to deploy advanced multimedia applications like interactive (video) conferencing, whiteboarding and collaboration across a number of networks and access methods, the importance of service aspects has significantly increased. Service requirements and service architecture must also consider quality, service security and service mobility from an end-to-end perspective. MM applications are typically subject to application-specific security and QoS needs that could be best fulfilled by security measures at the application layer and by complementary network security means, as appropriate. This session will concentrate on new developments and progress in the area of NGN capabilities concerning QoS, security and service mobility in order to support multimedia applications and systems. - Towards a SOA/WS enabled NGN Open Service Environment: **Marco CARUGI** (Nortel) - Multimedia technologies for NGN, mobile multimedia services: **Marwan JABRI** (Dilithium) - Enabling NGN QoS through Policy-Based Resource and Admission Control: **Hui-Lan LU** (Alcatel-Lucent)
1030 - 1100	**Coffee break**
1100 - 1210	**SESSION 5: The future of NGN** Session Chairman: **John VISSER** (Nortel) **Objectives:** NGN includes the major themes of convergence and mobility. This session

	will look at the convergence of fixed and mobile services within telecoms, and more broadly the convergence of telecoms, IT and broadcast. This convergence is closely linked to the evolution of enabling access technologies, and especially what emerging broadband mobile wireless access technologies ("4G") mean to the evolution of NGNs and the services they support.
	- Fixed-mobile convergence: Evolution of IMS: **Stephen HAYES** (Ericsson, Chair 3GPP-SA) - The Converged Office: **John VISSER** (Nortel) - Impact of multimedia applications to 4G networks and enhancements: **Caroline CHAN** and **Paul Simmons** (Nortel Networks)
1210 - 1220	**Short break**
1220 - 1300	**WRAP-UP SESSION II AND CLOSING** Review and Discussions of the conclusions of Sessions 4,5 and overall conclusions of the workshop.

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