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■ ITU Standardized Technology Set To Spawn New Era Web Broadcast

With the popularity of blogs, podcasting and web-based photo libraries, web content has become something much more accessible to the individual in the last few years. Now video looks set to be the next media to gain popularity with the new generation of home-based media moguls.

Work on a new protocol that may spawn a whole new generation of independent broadcasters is under way at ITU. Relayed Multicast Protocol (RMCP) being developed by ITU's [Study Group 17](#) uses something like a peer-to-peer model meaning that independent broadcasters no longer have to subscribe to a fat-pipe, instead relying on a collection of "peers" or "relay agents", in other words other people's computers. Peer-to-peer type traffic is reckoned to make up as much as 72 per cent of current Internet traffic. And this figure is predicted to rise.

RMCP allows the live broadcast of video or audio piggy-backing off other users (or servers). So in a scenario where 100 people are demanding a live broadcast, instead of serving each one of these clients their own video stream, only one stream has to be provided and each user will be served from another in the network. This has significant implications for instance for businesses broadcasting live events: where a previous scenario demanded 100 users be fed individual feeds, RMCP allows the broadcast of just one.

Juyoung Park, the editor of the ITU-T Recommendations, says that RMCP allows for the efficient serving of hundreds of thousands of simultaneous connection requests.

Park says that the need for this type of protocol was identified by content providers. Standardization means that a single client can receive content from any number of suppliers.

An alternative solution – IP Multicast – is not applicable in today's networks according to Park. For a start, the success of IP Multicast would mean router upgrades throughout a network, something that many operators would balk at, especially given the unclear benefits of IP Multicast to their revenue streams.

Park says that tests by his organization – ETRI – have shown that speeds of 2 Mbit/s are possible. This reflects standard broadcast rates. However, he says that typically users will experience something more like 640 kbit/s.

ITU-T has published one Recommendation (ITU-T Rec. X.603) on the topic outlining requirements, framework, etc. The next two Recommendations due in 2006 will focus on the technical specifications. One focusing on one broadcaster to many clients, and the other on many broadcasters to many clients.

■ Internationalized Domain Names Workplan Established

Among achievements at the recent meeting of [Study Group 17](#) was the establishment of a work programme on Internationalized Domain Names (IDN). An IDN expert (rapporteur) was appointed to head the work in the Study Group which takes the lead on security issues in ITU-T. The work follows direct instruction from WTSA, the quadrennial event that defines study areas for ITU-T ([WTSA Resolution 48](#)).

IDNs are domain names represented by local language characters. They have the potential to transform the Internet into a truly global and multilingual tool by enabling Internet users to navigate and communicate online in their preferred script. The Study Group rapporteur Andrzej Bartosiewicz said that IDNs are still awaiting broad deployment all over the world. "While IDNs are becoming popular in some countries like Germany, Poland and Japan, other countries are being slow to adopt. ITU as an international organization is seen as potentially the best body to facilitate safe deployment."

Contributions on technical issues had been received before the meeting, giving participants the opportunity to discuss these and the administrative fundamentals of IDNs. The meeting identified key issues to be considered, including the work programme and the action plan for upcoming months.

Study Group chair Herb Bertine said that there are some important security considerations to be taken into account in the study of IDN. For example, he said that unfamiliar characters used may make users believe that they are being directed to one place, when in fact they could be being directed to a site with malicious intent.

■ LSDI Set To Change Cinema Experience

ITU is working on technology with the potential to radically transform the large screen entertainment industry. While much of the work on large screen digital imagery (LSDI) is handled in ITU's Radiocommunication Sector (ITU-R), a meeting of ITU-T's [Study Group 9](#) has just consented a standard that completes a vital link in the chain, meaning that from a film being shot to its display in a cinema-like environment, all processes involved in the making of LSDI movies can be truly digital.

Large screen digital imagery (LSDI) is a family of digital imagery systems that includes very large screen presentation of programmes similar to the non-digital IMAX and OMNIMAX systems. LSDI is described as an optimal approach to the presentation of high-definition television (HDTV) programmes, to a collective audience on cinema-like screens in a cinema-like environment.

The ITU-T Recommendation defines how "super HDTV" images — up to four times the quality of standard HDTV — can be delivered to cinema-like venues, bypassing traditional distribution methods. It defines transport technologies for LSDI with resolutions 3840 × 2160 and 7680 × 4320 pixels.

Currently all movies, even those that are produced digitally, are distributed on film. This method is costly. Electronic distribution via satellite and/or fibre optics or cable television, will eliminate these costs and also allow a much more efficient distribution channel. In addition it could give cinema owners a much greater level of independence.

Traditional broadcast channels such as terrestrial transmission will not generally be used to deliver LSDI content. But the ability to broadcast in real-time means that live broadcast to LSDI-equipped theatres will be possible. This convergence between telecoms and broadcast permits the presentation of new types of content unavailable until recently to cinema audiences.

Sports, concerts, dramas, plays, cultural, educational and industrial events can now be presented to audiences alongside traditional features.

According to the Draft New Report on Large Screen Digital Imagery produced by ITU-R: "In North America, the transition to LSDI is proceeding at a rapid pace and as of now, there are over 9000 LSDI theatre screens in daily operation with more being planned and installed this year... LSDI is a reality in North America." In Asia, China, according to the report, is taking the lead supported by high-level government commitment, and in Europe there are numerous implementations.

■ Work on Home Networking Progressed at Geneva Event

A workshop on home networking will move standardization work in the area to a crucial new stage according to participants. The event held 13-14 October by ITU in Geneva followed a similar 2004 Tokyo [workshop](#), and closed with agreement on how to move forward in a number of key areas. Meeting concurrently was the Home Networking-Joint Coordination Activity (HN-JCA), a group of ITU-T experts aiming to coordinate standardization efforts on home networking across ITU-T Study Groups.

Home networking is the linking of all types of electronic devices for applications such as entertainment, telecommunication, home automation systems and telemetry (remote control and monitoring systems); see below for the official ITU definition. It has become an increasingly important topic for standardizers, partly because of the disparate nature of the items to be networked and partly because of market pressure. US organization CTAM (Cable and Telecommunications Association for Marketing) estimates that 40 per cent of broadband customers want to share audio over the home network and 36 per cent want to share video.

One of the key conclusions of the workshop is that there needs to be better collaboration between the various groups involved in the work. Ralph W. Brown, Chief Technology Officer, CableLabs, and presenter at the event: "Through better coordination and closer working relationships, we can avoid the proliferation of incompatible standards." It is critical for ITU to facilitate working relationships and open the door to referencing the specifications of other organizations from international standards, it was agreed. To this end, Reinhard Scholl, Deputy to the Director of ITU's Telecommunication Standardization Bureau, gave a presentation highlighting the various ways that ITU can accommodate the work of other bodies. Participants welcomed the degree of flexibility offered by ITU.

One option outlined by Scholl and discussed as a possible next step is the formation of an ITU-T Focus Group to work on some of the technical issues. The Focus Group concept allows urgent standardization needs that are not addressed within the existing ITU-T structure to be addressed quickly and with the minimum of red tape. Currently a group, the Home Networking-Joint Coordination Activity (HN-JCA), exists to harmonize work going on across ITU-T Study Groups but its mandate does not extend to technical work. (Full story: <http://www.itu.int/ITU-T/news/hnart.html>)

■ ITU Powers the iPod Generation

Apple's new [video iPod](#) launched in the first half of October uses the ITU-T [H.264 video codec](#).

Apple's support for the standard goes back some years. As early as 2002, Tim Schaaff, vice president of the interactive-media group at Apple Computer Inc., speaking at industry event [IBC](#), said H.264 is "no doubt the best codec there is, offering a great coding efficiency."

The video compression standard (full name H.264 or MPEG-4 pt.10/ AVC) jointly developed by ITU-T and the Moving Picture Experts Group ([MPEG](#)) is now being deployed in products from companies including Apple, Sony, BT, France Telecom, Intel, Motorola, Nokia, Polycom, Samsung, Tandberg and Toshiba.

H.264/AVC is the first truly scalable video codec, delivering excellent quality across the entire bandwidth spectrum — from high-definition television to videoconferencing and 3G mobile multimedia. The dramatically increased compression performance of H.264 will enable existing applications like videoconferencing, streaming video over the Internet, and digital television on satellite and cable to offer better quality video at lower cost. It will also allow new video applications such as high-definition TV (HDTV) broadcasts, high-definition films on DVD, video on mobile phones, and videoconferencing over low bandwidth connections that were previously impractical because of economics or technology.

■ Spam on the Menu for Study Group 17

On the agenda at the [Study Group 17](#) meeting was spam.

The Study Group's response to a call from WTSA, the quadrennial event that defines study areas for ITU-T, is the development of a work programme on countering spam by technical means. Chair Herb Bertine said that he has seen a significant number of contributions in this area.

With spam having grown into one of the major plagues affecting the digital world, causing additional costs and loss of revenue to Internet service providers, telecoms operators and business users, measures to combat it have taken on an added sense of urgency. Technical measures are an important way to counter spam.

Key objectives of the work programme will be to identify and examine the telecommunication network security risks introduced by the constantly changing nature of spam and produce a comprehensive and up-to-date resource list of the existing technical measures for countering spam in a telecommunication network. The Study Group will examine issues including: what risks does spam pose to the telecommunication network, what technical factors associated with the telecommunication network contribute to the difficulty of identifying the sources of spam, how can new technologies lead to opportunities to counter spam and enhance the security of the telecommunication network, and do advanced telecommunication network technologies (for example, SMS, instant messaging, VoIP) offer unique opportunities for spam that require unique solutions?

Jianyong Chen, who is the ITU-T expert leading the work (SG 17 Vice Chair): "The fight against spam is being fought on many fronts: policy, regulatory, legal and technical. Fighting spam by technical means will mean an examination of how those that send out spam operate, but also we will seek to cooperate with other relevant standards developing organizations (SDOs) and reference their works in the field, rather than duplicating any of the good work that has gone before."

The current work programme includes standards (ITU-T Recommendations) on topics such as: Guidelines on countering e-mail SPAM; Requirements on countering SPAM; Technical framework for countering e-mail SPAM; Overview of countering SPAM for IP multimedia applications; Technical means for countering SPAM. The first two Recommendations are aimed for approval in the second half of 2006.

■ Web Document Gives NGN Management Roadmap

A roadmap identifying NGN management specifications has been published on the ITU-T SG 4 [website](#).

The roadmap will provide an insight into how NGN management will differ from the management of traditional telecommunication. And as specifications are added, this picture will become clearer, experts said.

The NGN Management Specification Roadmap is an output of the NGN Management Focus Group, a group sponsored by ITU-T SG 4. The document identifies the various existing, or work-in-progress specifications relevant to NGN management. These specifications are not all ITU-T Recommendations, but also come from other standards-making bodies with expertise in defining management interfaces. For example, the roadmap tags the 3GPP (3rd Generation Partnership Project) specifications for mobile telephony relevant to the IMS (IP Multimedia Subsystem) management. IMS is expected to be a key building block for NGN specifications.

An additional and important feature of the document is that it provides gap analysis, identifying areas where standards are still needed, and also identifies overlapping specifications requiring harmonization.

The aim is for the roadmap to be a living document at this time, which is part of the reason that it hasn't been turned into an official ITU document – like a Recommendation. Another reason for not giving the document "normative" status is so that non-members can enjoy free access to it.

■ Three New Standards for IP Performance

Three new Recommendations related to IP Performance have been consented by ITU-T's [Study Group 12](#).

G.1030 provides a framework of tools to estimate end-to-end IP network performance for some user applications. User perception of application performance in packet networks is dependent on many factors, including network end-to-end performance, performance of terminals and other devices beyond the purview of the network operator. The application's dependency on the communications network, and the user's task and the extent of user interaction with the application need also to be taken into account.

All these factors are used to estimate end-to-end performance levels. At this stage, the framework includes a perceptual model for web browsing. Future versions will focus on multimedia conferencing and other applications. The Recommendation is designed to be helpful for people designing networks, enabling them to know what applications can be realistically supported.

G.1040 defines a new performance metric in IP networks for short transactions, such as trading of stocks, automated banking, and credit card point of sale transactions. The nature of such exchanges is that they need to be quick and reliable.

This Recommendation gives the ability for the network provider to either flag a problem based on their network measurements interpreted with this metric, or to say that – if a problem exists – it isn't attributable to the network. The Recommendation allows the network service provider to see how much of the transaction time can be attributed to the network. The metric can also be useful in drawing up service-level agreements.

G.1050 addresses Network Model for Evaluating Multimedia Transmission Performance Over Internet Protocol. The need for such a model is driven by new challenges for multimedia applications in IP. Impairments that in typical data transfers are of little consequence may be much more serious in video or VoIP for example. The model is based on statistical models of a broad range of known deployed network configurations. This way a manufacturer of networking testing solutions can avoid speculation in configuring test scenarios.

■ Home Networking Challenge Met by Study Group 9

[Study Group 9](#) has consented a Recommendation that establishes the concept of a digital rights management (DRM) bridge on a home network. DRM has been identified as a key issue to deal with in home networking, as well as an important driver for the technology (see story on home networking workshop). With standards in place, it is felt that many more key manufacturers may enter the market.

DRM is a term that refers to technical methods used to control or restrict the use of digital media content on electronic devices. So, for instance, a music file purchased from the Internet may be embedded with DRM to ensure that it is only used by the purchaser. Essentially it gives the service provider the assurance that its content is not used in a manner that is a violation of service agreements or legal requirements.

DRM in home networking is seen as a particularly important issue to resolve where a user can store and distribute content among various home-networked devices. A bridge will mean that from a user's perspective their digital purchases can be played on all networked devices without trouble.

Experts said that key goals for the implementation of a DRM bridge are ensuring that it is sufficiently robust from the content provider's point of view, but also equally important is that it is non-intrusive from the subscriber's point of view.

The Recommendation is ITU-T J.197 (formerly J.drm), High level requirements for a digital rights management bridge to a Home Network.

■ Upcoming Events

■ ITU-T Meetings:

- [6-15 December 2005](#)
[Study Group 2](#) – Operational aspects of service provision, networks and performance, Geneva
- [12-16 December 2005](#)
[Study Group 5](#) – Protection against electromagnetic environment effects, Geneva
- [12-16 December 2005](#)
[Study Group 6](#) – Outside plant and related indoor installations, Geneva

■ Workshops and Seminars:

- [18 November 2005](#)
[NGN Industry Event](#), Gatwick, London
- [23-24 November 2005](#)
[Reform of technical regulation: International experience of standardization in the field of communication](#), Almaty, Kazakhstan