

# A new mass-market realm for cellular communication services

**Video Information Systems (VIS), which inform large numbers of people in public areas, are quickly spreading around the globe. Intellect Telecom OJSC CEO Yury GROMAKOV (photo) explains how VIS and mobile phones can work together to create new cash flows for mobile providers.**



Photo: STANDARD

One of chief trends in IT&T is to build seamlessly integrated systems combining cellular, wireless and land communications, digital TV and radio broadcasting systems, satellite communication and navigation systems and telematic systems that “talk” to each other via a common IP network. [1-3].

For the most part, the global community has by now defined the ground-level concept for the construction and advancement of telecom infrastructure in the next 10 or 15 years. It is centered around the idea of integrating cellular communications with wireless broadband access by the year 2015 on the basis of a set of fourth-generation (4G) standards. However, the concept overlooks the services that involve the use of new-generation interactive multi-display Video Information Systems (VIS).

Interactive VIS will for the first time provide outdoor TV and multimedia broadcasting of 3D/2D images

in high or ultra-high definition on differently sized displays placed in populous locations, both outdoors (city squares, streets and stadiums) and indoors (conventions, shopping centers and subway stations). The content for VIS will include bits of traditional TV or multimedia shows, specially designed programs, sport clips, advertisements, public service announcements, security alerts and much more. VIS can provide any services that involve the mass broadcasting of visual information to be viewed any time, in any weather, and in any climate.

In most cases, it makes no sense at all to use loudspeaker systems in VIS due to the limited collective coverage, and because only one sound channel can be broadcast.

Russia has introduced pioneering innovations into VIS design. Three Russian scientists have come up with a new VIS that will provide individual interactive services with multilingual sound

channels to the audience through the use of the usual cell phones [4]. This idea lays down the groundwork for the mutual enrichment and eventual merger of VIS and cellular communication. This has allowed VIS to go beyond the mere information transmission as they can now provide personalized interactive service, communicating all kinds of aural and other information. At the same time, the economic benefits will be much improved for both these services, and for many other info-communication media.

Interactive service via VIS multi-screens will require the involvement of numerous information sources, located both near and far from each other. As millions of VIS displays are about to go live, eventually replacing most ads, billboards and similar carriers, and interactive communication will be effectuated by billions of cell phone users, a dramatic surge in data traffic can be expected in both cellular and other networks, which will

naturally translate into much higher earnings for the operators. A multi-screen interactive VIS with sound channels, transmitted via a UMTS/HSPA 3G cellular network [4], was first demonstrated at Expo’2010 in Shanghai, China with the participation of China’s Huawei (Fig. 1) [5].

Prof. M.I. Krivosheev, Doctor of Engineering, Chief Scientist at the Radio Research Institute, and the paterfamilias of modern interactive Video Information Systems, was in 2009 elected to lead the VIS Group of ITU-R Study Group 6 (SG 6). Top specialists from many countries and international associations are also members of the Group. Their joint work was summarized in the ITU-R Report 6C/515 (dated 16 September 2011) and 6/415 (dated 6 October 2011), which analyzes the specific nuances and development vistas of VIS, including international standardization issues. The Report was approved at a general meeting of SG 6 in October 2011.

Since VIS provides the benefit of interactivity, it should be noted that their advancement in TV and radio broadcasting was preceded by several landmark decisions. On the initiative of the Chairman of ITU-R Study Group 11 (on TV broadcasting), studies began in 1993 for the international standardization of interactivity. [6].

Interactive broadcasting requires two-way channels on a mass scale, so prospective solutions were immediately linked to the use of the Internet. This was reflected in the Concept of the first ITU TELECOM INTERACTIVE in 1997. Since both direct broadcast signals, and reverse interactive signals may be transmitted via different operators' environments in different languages, the concept of "worldwide (international) roaming" was for the first time applied to TV and radio broadcasting at the convention, borrowed from the cellular communication service. In this case, the concept of "roaming" first of all implies the possibility of work in different operator environments even when dissimilar standards are used. [6,7].

At least two solutions are currently under consideration as regards the implementation of worldwide roaming. Due to the multiplicity of standards in TV and radio broadcasting, one of the ways to harmonize and align the standards on different levels (international, regional, etc.) would be to devise a powerful, universal subscriber terminal that would automatically adapt itself to receive the signals of the diverse known broadcasting standards in areas covered by multiple operators.

The second proposed solution is to tap the information environment of the Internet. In this case, numerous TV and radio programs and other visual content would be localized in blogs, on media portals, and so on. This information would be available to all Internet users, as access to cyberspace is effectuated via a uniform set of worldwide standards.

ITU-R SG 6 has recently formulated a new question for study: worldwide broadcasting roaming (ITU-R Doc. 6/411, September 2011).

Currently under study are the opportunities to use both the said implementation options for worldwide broadcasting roaming in interactive VIS, merged with cellular communications, as well as the prospects of worldwide information roaming [7].

usage in public video information systems.

- When the principles of network architecture are designed, traffic estimates are made, and rates are set on mobile and other communication, it is important to make provisions for the new public interactive visual communication services based on a merger of VIS and cellular communication.

«Three Russian scientists have come up with a new VIS that will provide individual interactive services with multilingual sound channels to the audience through the use of the usual cell phones»

#### Conclusions:

- Information displays will become a ubiquitous part of everyday life in an "information society." The merger of VIS and cellular communication will pave the way for a new, highly efficient branch of mass-market services.
- In the design of cellular terminals, it is important to take into account the new area of their massive

- All-round international studies on VIS and cellular communication are imperative in light of their imminent merger. 

#### References

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Fig.1 Interactivity between VIS displays and cellular terminals