Multimedia Messaging : Trends and Future Developments

Masashi Tsuboi

"Multimedia messaging" means a messaging service that works regardless of "time", "space" or "media". This approach is based on the concept of unified messaging, for combining several message types, which emerged in the middle of 1990s. Since then, the huge expansion of IP networks and broadband connections has led to dramatic progress in network infrastructure, meaning that multimedia communications including data, voice, images, and more besides, can now be used in both business and domestic settings. Future progress towards ubiquitous networks will mean IP links for all types of terminals, such as household information appliances, rather than just PCs. The upshot of this is that highly diverse types of messages will be communicated over IP networks by a wide variety of terminal devices, and hence the concept of multimedia messaging has become increasingly important. Here, I would like to look at some of the key features of multimedia messaging, giving an overview of the current trends and probable future developments in this field.

Unified messaging

"Unified messaging" is a concept which allows integrated management of various message types, such as voice mail, FAX, e-mail, and the like, in a system which can be accessed by standard operations from different kinds of terminals, be it a PC, telephone, FAX, or the like. By standardized management of the message storage destination in an electronic mail server, it is possible to access not only text mail, but also voice mail, video messages, and the like, from the mail inbox. Media converter technology is used to access the messages from any one of a number of terminals. For example, in order to listen to an email via a mobile phone, a text and speech synthesizer engine is required to convert the text data into speech data. Unified messaging requires integration of computer and telephone equipment, and ranks alongside call centre technology as one of the most typical applications of CTI (Computer Telephony Integration).

Of course, technology is a vital component in unified messaging, but the user's modus operandi is also a key element. Today, people are moving towards a more individual-focused style of working, and the way that jobs are performed is also changing. The number of mobile workers or home workers, who perform their occupation away from the office, is increasing.

Nowadays, "knowledge management" is the keyword – how to use individual skills to the advantage of the organization as a whole. Employees previously known as "white collar workers" are now being obliged to convert into "knowledge workers", with the capacity to make fast and accurate decisions from a huge information base.

These circumstances demand a new approach to communications and the systems used to provide communications. The rise in individual communications speeds is leading to increased "management speed" in the overall company.

VoIP (Voice Over IP)

In companies, voice and data communications have traditionally been constructed and managed by separate networks. From the mid to late 1990s, there were moves towards integration of voice and data, encouraged by reductions in IP network costs. The initial merits of integration are the enormous savings made in network outlay, and VoIP technology was developed in order to make this advance. Progressive standardization in this area has enabled speech compression which permits voice communications over narrow bandwidth, as well as interconnectivity between different VoIP products. At first, inter-site connections were made by VoIP gateways, but later, IP-PBX technology emerged, converting all connections, including telephony, to IP. IP-PBX not only cuts network costs, but in addition, by providing standard unified messaging functions which work in combination with email and directories, it has improved the productivity of knowledge workers. VoIP protocols have quickly progressed from H.323 to the SIP (Session Initiation Protocol) with its excellent Internet compatibility. In terms of multimedia messaging flows, the plan is to use SIP to integrate "multimedia messaging over IP" links which include video, chat, and the like, rather than just voice information, or VoIP. The latest version of the Windows operating system includes SIP as standard, and communications activity based on PCs and PDAs is set to increase yet further.

Broadband

Carriers have had to strengthen their network infrastructure in response to increasing demand for IP

networks. In the consumer market, ADSL links are spreading rapidly, and FTTH is also emerging, with high-speed 1.5 – 10 Mbps networks being available at the price of several thousand yen per month. The wide bandwidth is of course important, but more vital still is the fact that the connection is permanent. Having a permanent connection dramatically increases Internet use, as well as changing the way people view applications. In the past, there was a requirement for video delivery applications, but at 64 Kbps bit rates, these were not acceptable to customers. However, with a network of several Mbps coming into your own home, downloading videos is a piece of cake. We have also seen the appearance of MPEG-4 ASP (Advanced Simple Profile), the optimum video compression technology for broadband distribution, and streaming delivery of images at high quality equivalent to or exceeding MPEG-2 standards is now possible. In this way, subscription services can be set up which allow a user to obtain high-quality images in their own home network, and further wide-ranging headway in the merger of broadcasting and telecommunications can be expected.

One of the services currently being revolutionized by the conversion to broadband access in individual networks is the VoIP telephony system described above.

In business-to-business networks, on the other hand, the implementation of IP-VPN and wideband Ethernets has brought massive cost savings in networks providing fast connections between a large number of different points, in comparison to the dedicated line networks of the past. By unifying voice and data on these networks, multimedia messaging has come to fruition.

Most recently, the provision of wireless LAN services has become a prime issue. Increasing access points will allow mobile computing to be used in a more free and relaxed manner. The current operating speeds of several Mbps mean that voice and image-based communications can be made via notebook PCs or PDAs. Security technology has also advanced, and we are now in an age where a worker can access his or her exact desktop environment, from anywhere, at any time, without even going to the office.

The ubiquitous network

Future development in multimedia messaging is linked to "ubiquitous" networks. A ubiquitous network is similar to multimedia messaging in that it can be accessed from anywhere, any time, by any means, but in addition, this type of network can also handle types of terminal other than PCs and telephones. In this way, we really are moving towards "Everything over IP". As networks expand to cover non-PC terminals, such as household information appliances, cars, and vending machines, IPv4 addresses are running out. Therefore, the prospect of IPv6 is very important in the field of ubiquitous networks. Until now, multimedia messaging has centred on communications between people, but

the advance of ubiquitous networking will lead to person-to-object and object-to-object communications over IP networks. As environments are built to provide free and easy access to this type of communications, we can expect to see the emergence of new applications in both consumer and business sectors.

In this essay, I have touched on the current issues in multimedia messaging, taking a look at prevailing trends and future developments.

As an increasing number of different elements are merged in IP networks in the future, we can expect multimedia messaging to become an active and established part of our everyday lives.   ◆◆

Author

Masashi Tsuboi : President, Multimedia Messaging Company