

Challenges Facing the Information Society, the Information and Communication Technology (ICT) Industry, and Iskratel



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The development of telecommunications over recent decades has followed a fairly unpredictable path. In 1987, Phoenix, Arizona hosted a world telecommunications congress, the International Switching Symposium, with all the great names of that time participating. After an extremely interesting and illuminating technology conference, it was agreed that a group of major visionaries should draw up a document that would predict what telecommunications would look like in 2000, and keep it sealed until the year 2000 actually arrived, when it would then be opened.

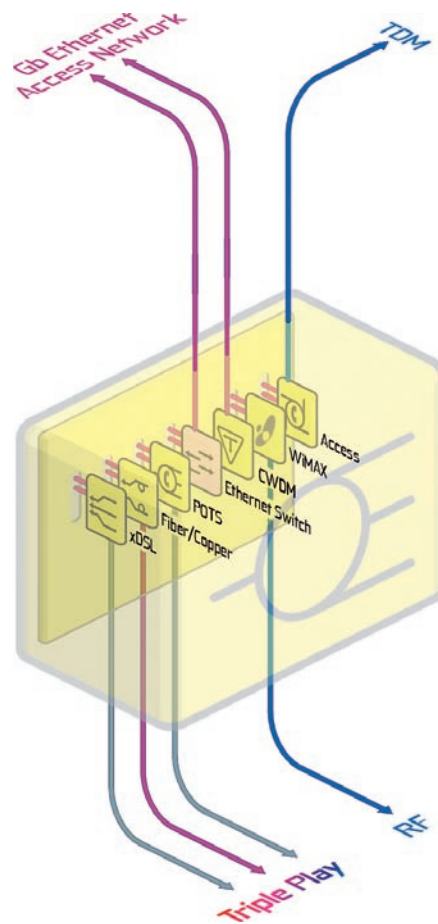
In 2000, the event took place in Birmingham, England. We awaited the opening of this 13-year-old prediction with interest and were astonished to discover that in 1987 even the best of the experts had not been able to forecast either the tremendous development of digital mobile telephony or the Internet. This finding brought all the forecasters back down to earth, and we became aware that the development of telecommunications networks is no longer directed by available technology, but rather by sociological change, global trends, new buying habits and, above all, the fact that the thinking of our children will be different from anything we can imagine.

In this dynamic environment we are always keeping an eye on the development of telecommunications or, to put it another way, ICT development, which is the result of the convergence of telecommunications, broadcasting and information technologies. Iskratel is focused on this development in Europe, and in particular in Eastern Europe, which is not only our largest market, but also among the most dynamic markets in the world.

The year 2006 was marked by several turning points. For one thing, the development of conventional digital telecommunications networks virtually stopped. This technology, which was on the rise just a few years ago, is only used to patch holes in the existing network. The British operator, BT, anticipates disconnecting the digital network by the beginning of the next decade. According to most estimates, digital and packet networks will co-exist for some ten years.

Now, 2G (GSM) mobile telephony is spreading rapidly, and mobile subscribers already outnumber fixed subscribers. Mobile telephony is more than just mobility – it also represents the individualization of voice communications. UMTS, i.e. the third generation, is approaching, to be followed by fourth-generation technologies such as WiMAX, WiFi and others. The development of first-generation broadband networks based on ADSL and ATM technologies has virtually

ceased, while the second generation, based on Ethernet, ADSL2+, VDSL and optical technologies, with the full support of triple-play services, i.e. viewing TV and HDTV channels via the telecommunications network, is spreading rapidly. So we are on the brink of the convergence of broadcasting and ICT networks. For the time being this network will mostly be used to broadcast a large number of fixed TV channels, but in a short time we will be able to use video on demand, thus individualizing multimedia content. The required speed of the broadband network will be around a thousand times the speed of the first-generation Internet. Interactivity and the simple use of multimedia set-top boxes with TV sets will considerably increase the number of users and will also involve those people who do not use personal computers, thus increasing the time that users will spend in a virtual environment. A multimedia set-top box will become as familiar and invisible as a water tap or an electric light bulb. The new infrastructure will radically change education, entertainment, shopping and other areas where people interact. The decade that lies ahead will, there-



fore, be a decade of new challenges, but not for everyone. In the information era, the digital divide, about which sociologists have already warned us, will stimulate certain nations and social classes to develop faster, while others who are not able to compete will be pushed even further away from the rapid development.

The development of Iskratel is taking place in this dynamic environment. Over the past 10 years Iskratel has been experiencing constant, organic growth. In this period, the company has turned from a fast-follower into a regional innovator. In telecommunications, the globalization process is so rapid that followers no longer exist: a one-year delay results in the loss of customers. Many firms were unable to cover the extremely high development costs, and as a result are no longer present in the market; at the same time a number of smaller companies with innovative products have entered the market. Multinational companies such as Alcatel, Siemens, Ericsson and others underwent drastic changes, too. Under the pressure of a price war triggered by Chinese manufacturers and the struggle for the domination of key



segments of new multimedia telecommunications networks, mergers such as Ericsson-Marconi, Alcatel-Lucent, Siemens-Nokia and others went ahead. In the face of these changes Iskratel is carefully mapping out its regional and product strategies in order to ensure its survival and growth. Its strategy is based on the development of products that are explicitly tailored to the needs and possibilities of its customers. The countries of Central and Eastern Europe, which is Iskratel's major market, fall into the category of emerging markets. They endeavor to bridge a telecommunications development gap of several decades with ambitious projects, while having an end-user base with a purchasing power several times smaller than developed countries. Owing to these limitations, Iskratel is developing products based on state-of-the-art technology, but still providing outstanding economy in the initial stages of development. During this stage, a low initial price and the largest possible re-use of the existing digital network is required. Advanced technology, scalability and connectivity to existing networks are features with which we wish to be at the very top of available solutions, thus becoming a specialist for the evolutionary development of emerging networks. The requirements of multimedia networks are met with two products: the SI3000 MSAN and the SI3000 MSCN.



The SI3000 MSAN (Multiservice Access Node) was launched on the market about a year ago, and offers a combina-

tion of ADSL, VDSL, optical, wireless WiMAX and narrowband connections between users and the network. It connects a variety of interfaces built into diverse cabinets and chassis for indoor and outdoor installation to a uniform, high-capacity Gigabit Ethernet architecture. This approach simplifies the planning of networks. The MSAN is entirely ready for the transmission of data at the extremely high speeds required for IPTV and video-on-demand services, with each user being able to view standard TV channels as well as high-definition channels.

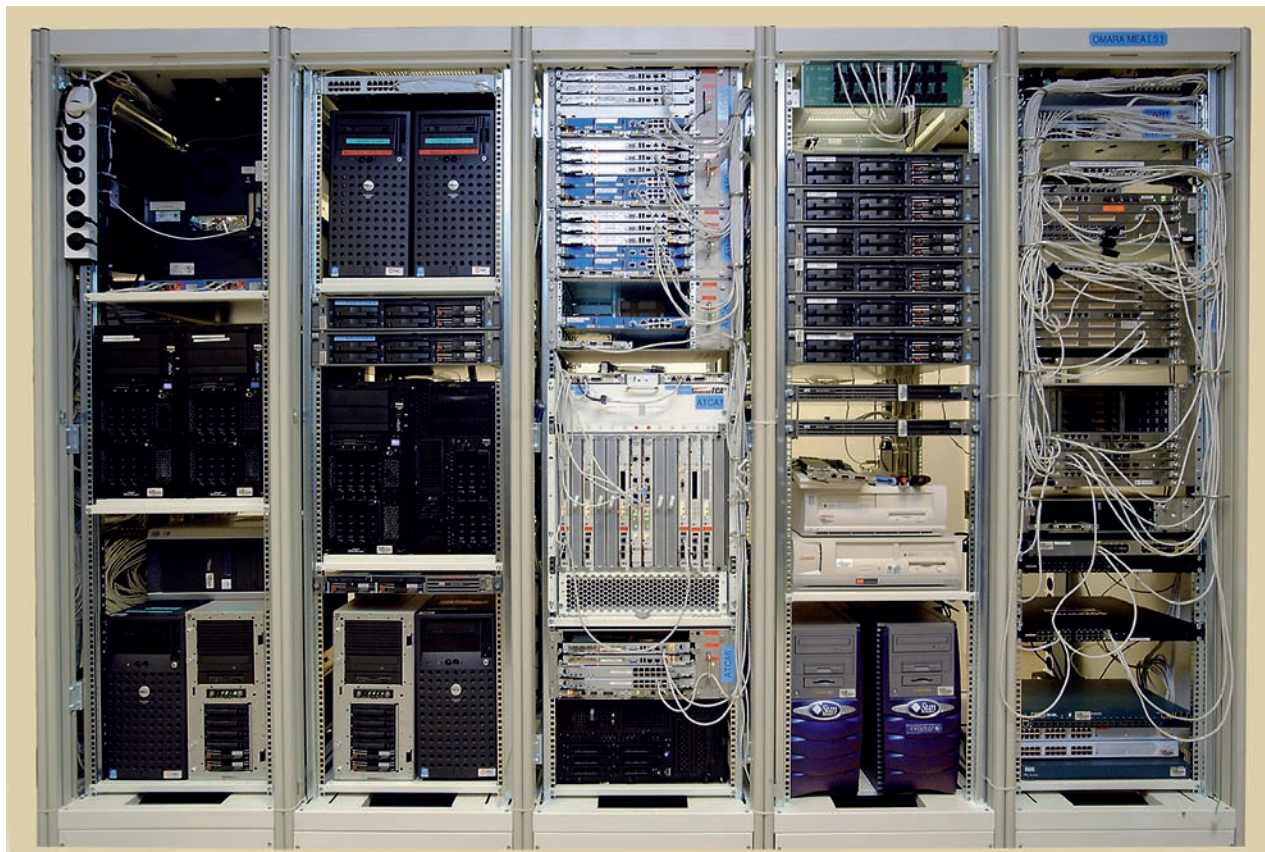
The SI3000 MSCN (Multiservice Control Node) combines the functions of a call server (CS), a media gateway (MG) and an application server (AS). This is an architecture that provides rich functionality both when connected to an existing network as well as on new ports using SIP. The MSCN is moving toward IMS architecture. IMS (IP Multimedia Subsystem) is a unified architecture used to control fixed and mobile networks, and implies the convergence of these networks. IMS has been adopted as the basic strategic and development concept by most operators and equipment vendors.

Investing in a single product, the MSCN allows the operator to make several improvements: provide new services to existing subscribers, connect new SIP users, implement an optimal gateway and transition between the

two networks, and set up infrastructure for the transition to IMS, when in a few years time this technology matures for mass use.

The SI3000 MSAN and MSCN are interconnected via open interfaces, thus also providing links to products from other manufacturers. Both products are managed by a uniform management node, the SI3000 MN. The SI3000 MN supports the centralized management of several thousand network elements, and several million new telecommunications ports.

The exceptional reliability that telecommunications networks have featured





so far is a major challenge facing next-generation products. At Iskratel we pay close attention to this issue. A blend of reliability, flexibility, a variety of functions and exceptional economy are the key advantages that must assure our products a competitive position on a global scale. Iskratel has developed the SI3000 MSAN and MSCN during the past five years, and has invested over 50m of its own funds in the process. The project involves more than 350 of Iskratel's employees as well as several Slovenian research institutions and companies. The staff include experts in the system, application and test software, and hardware and network management, who test the systems in a test center with top-quality equipment, in which nearly 20m has been invested. The staff are constantly aware of the demands placed on them by the uncompromising competition. Most of Iskratel's competitors are multinational companies with a much larger development potential than ours, so we have to focus on product differentiation and the efficiency of our processes. Thus we have returned to the ideas expressed at the beginning of this article. We expect that the unpredictability of the coming decade will reward manufacturers

that make decisions quickly and are flexible in adapting to their customers, determined to provide top quality, and innovative when selecting technology and architecture. We are doing our best

to concentrate all these features in our small country, and thereby place Slovenia on the global ICT map.

