

Special Edition on 21st Century Solutions

## 21st Century Network Solutions and the CANS Concept

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### Abstract

*It was Albert Einstein who said, "All things that human beings can imagine will eventually surely be realized." Looking back, we can see that things which people imagined at the beginning of the 18th century, which then seemed like dreams, appeared in the late 18th and early 19th centuries in the form of various basic products, thanks to the industrial revolution. By the 20th century, these products had reached new heights, becoming highly advanced and being applied to mass markets. Today, at the beginning of the 21st century, steps are being made toward a new industrial and cultural revolution.*

*With the appearance of the Internet on the world stage, computers, which thus far have developed significantly for the purpose of information processing, and communication systems, which have evolved primarily centered on voice, have melded together on a worldwide scale. Based on that, the melding together of a variety of business fields, cultures, technologies, and organizations is proceeding with amazing energy.*

*Through this melding, some traditional business forms have disappeared or undergone transformation into new forms, and new business models, which had not existed in the past, have started appearing in rapid succession. It is no exaggeration to say that this is a true industrial revolution.*

*The conventions and arrangements of human society that had reached a high level of development in the 20th century, today in the 21st century are achieving even higher levels within the "cyberculture." Just as today's stage of progress far exceeds even what people imagined at the beginning of the 20th century, the next 100 years will produce changes which we cannot even imagine today.*

### The Image of 21st Century Communication Which Oki Electric Has in Mind

Communication systems in the 21st century will be the social foundation which supports all of the activities of the cyberculture. We expect these systems will become collaboration systems, melding and harmonizing person to person, place to place, and system to system, and overcoming the traditional barriers of distance, national boundaries and time.

- **Multimedia:** Unified sound, moving images and data will be handled as easily as the telephone is today and will become the fundamental units of this kind of collaboration. Also, terminals appropriate to this trend will appear on the scene one after another. The next generation core network will be put in place on a global scale. It will make it possible to process the increased traffic with no stress.
- **Ubiquitous access:** Everyone will be able to get service access to networks from the environment of their choice, any time, anywhere, from any terminal, regardless of whether they are at home, at work or in motion. We believe that initially, the mainstream of access methods will be wireless and optical fiber.

### CANS-The Total Strategy

- The whole network is a computer: If one requests to the network the desired service, the network will search the

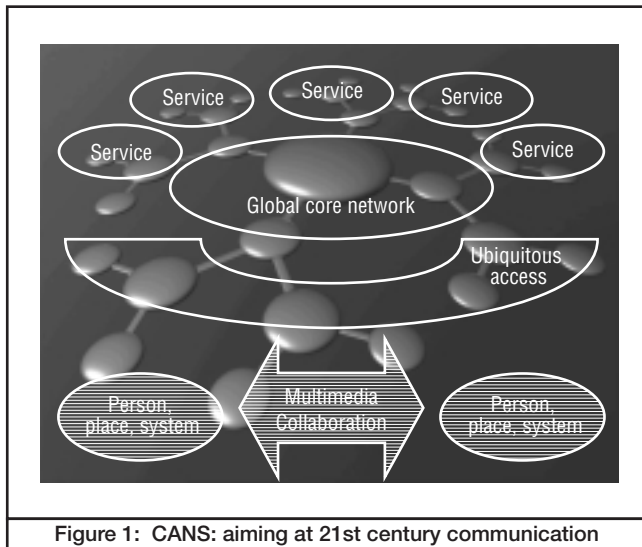
world and select the most appropriate service site, and will set up the collaboration. Also, if necessary, the network will automatically modify the set up into a form suitable to the user. Intellectual agents, running on the server network and acting as "incarnations" of the user, will perform various tasks on behalf of the user. In this way, networks will transition from the traditional functions of "lines" and "connections" to a setting for providing an interface function for the supplies services.

Also, it is necessary that the collaboration system described above be as simple as the telephone of today is, so that anyone can use it. Thus we believe that there will be rapid progress in the future to upgrade human interfaces.

### How Oki Electric is Tackling 21st Century Communication

At Oki Electric, from 1998, we have adopted the business concept of "Oki Network Solutions for a Global Society." We are working on product development designed to contribute to building the cyberculture of the 21st century. It is im-possible to predict what the shape of communications will be like at the end of the 21st century. However, here at NSC (Network Systems Company) which forms the core of Oki Electric's "network solutions," concentrating on the first decade of the new century, we have planned and are pursuing the project described below, calling it CANS (Converged Architec-

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ture for Network Solution.) (See Figure 1)

Figure 2 shows the overall configuration of CANS. Our company is putting efforts into [a] the network infrastructure business area and [b] multimedia messaging and network application services within the service bridge business area, and is working to develop businesses in these areas. In terms of products, we have divided them into two main groups: system solutions and service solutions.

- Marketing for “mutual value creation”  
In the communication market of the 21st century, it is not possible to satisfy customers truly just by providing solutions that respond promptly to customer needs. In the cyberculture, in order to actualize the new business models which are evolving one after the other, it is necessary to bring to reality as soon as possible the innovative services / functions for which there is latent customer demand. Proactive marketing which builds markets is essential. In the case of CANS, we define this kind of service as “business solution marketing” and we are making structural reforms to our company’s marketing programs to be able to achieve this.
- Network infrastructure  
The core networks for the 21st century will be pure-optical, high-speed, broadband “social arteries” which will enable multimedia communication (even including TV broadcast) to be achieved globally. To do this, seamlessness between carriers and across all countries is an essential requirement. That requires that products be provided according to specifications based on international standards, and provided with high reliability and in a speedy fashion.

To achieve ubiquitous access, it is also necessary to provide a variety of access means with timing and costs

that are based on market principles. Initially we are focusing our efforts particularly on optical access, wireless access, and metropolitan systems.

- Multimedia messaging solutions  
At present, starting from a base of VOIP / CTI product technology which is now being developed into commercial products, we plan to develop that further into collaborative systems based on linkage of sound, moving images, and data. Also, we are working to achieve scalability and high reliability because they enable development of carrier class network computer systems, not just those for company and home use.
- Network application services  
In the 21st century, almost all the services required for present day intra-company networks will be provided by carrier networks with highly reliable support. Users will be able to log on quickly, at any time, anywhere, and in the environment they wish. To achieve this, at our company’s ISP, @PTOP, we are developing ASP capability. As soon as possible we want to provide customers with leading edge services, such as VOIP, multimedia collaboration, information delivery, and agents, achieving the “market creation” strategy described above. We plan to develop @PTOP into a 21st century type network service provider.
- Core technology  
In order to respond speedily to the multi-faceted product requirements which can be expected at the beginning of the 21st century, it is necessary to devote efforts toward continual development of core technologies. We will make focused investments in our areas of competence and in doing so we are expecting to enter into global alliances.
- Development of leading edge network services using agent technology which has self-regulating (autonomous) functions.
- Collaboration technology which melds sound, moving images, and data.
- Putting continual efforts into the development of light systems aimed at ultra high-speed communication.
- Technology for achieving high reliability; security technology

## Conclusion

We have described above, Oki Electric’s thinking regarding the image of communication in the 21st century and we have introduced the CANS concept to explain how we plan to make achievements in these business areas. We will explain our activities in more detail in the following chapters.

In the 21st century, networks are a service in themselves. We have entered the stage of breaking out from the old conception that “communication means connection.”

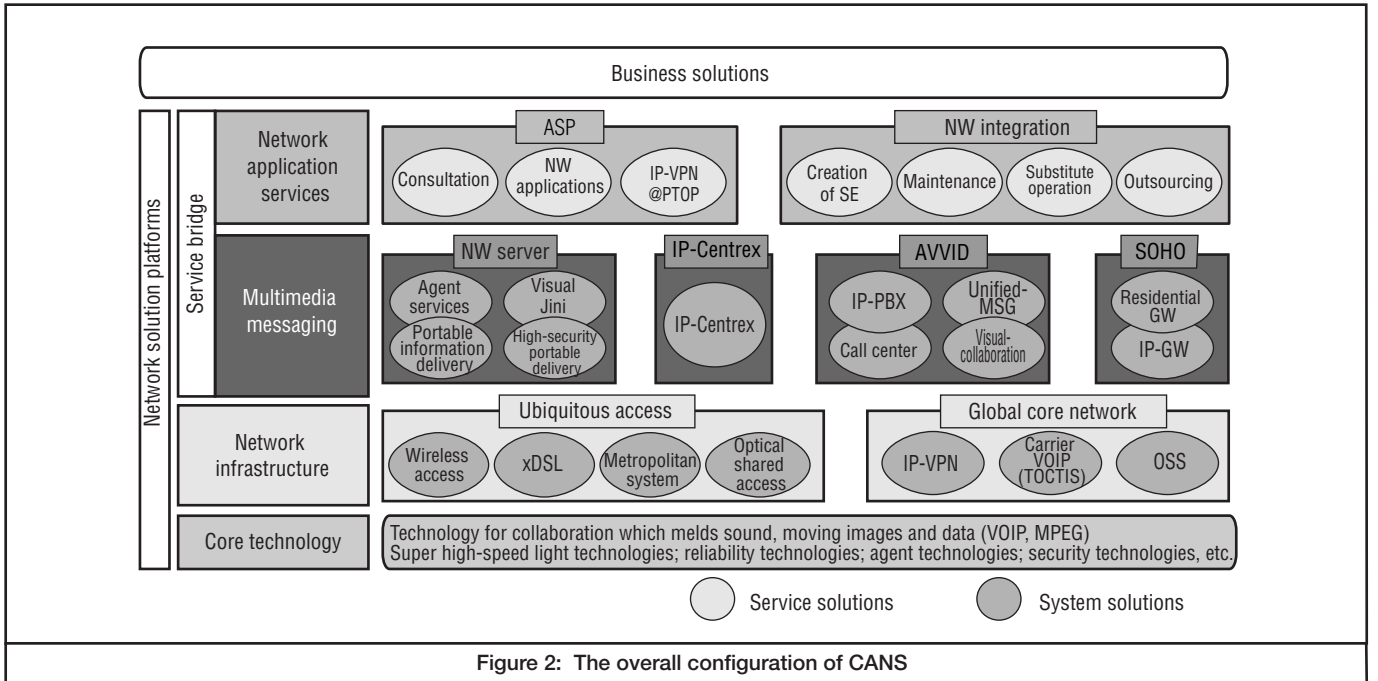


Figure 2: The overall configuration of CANS