

Summary Minutes of the 2nd Meeting of the Study Group on Network Architecture

1. Time & Date: 15:00 – 17:00, Tuesday, February 13, 2007

2. Place: Special Meeting Room #4, 4th Floor, Mita Kyoyo Kaigisho (Japanese Government Conference Building)

3. Attendees

(Members) (in Japanese alphabetical order, with honorifics omitted)

Tomonori Aoyama, Takashi Matsumoto (on behalf of Youichi Isokawa), Naoyuki Iwashita, Gota Iwanami, Yoshiro Okamoto, Yasuomi Misawa (on behalf of Hideo Okinaka), Toshifuku Yoshioka (on behalf of Mitsuo Kawato), Mikio Goto, Hideshige Komatsu, Harushige Sugimoto, Yoshiyuki Takeda, Tetsuo Takemura, Toshitaka Tsuda, Miwako Doi, Hideyuki Tokuda (Chairperson), Akihiro Nakao, Takashi Hanazawa, Michitaka Hirose, Yayoi Hirose, Yoshihiro Fujita, Masaki Fujihata, Hiroshi Fujiwara, Naruhito Kurata (on behalf of Motoo Matsuda), Takamichi Miyoshi, Ryuichi Yamamoto, Tetsuya Yuge, Makoto Yokozawa

(Total: 28)

(Ministry of Internal Affairs and Communications)

Kazufumi Taniguchi (Parliamentary Secretary for Internal Affairs and Communications), Kiyoshi Mori (Director-General of the Telecommunications Bureau), Shun Sakurai (Director-General of the Telecommunications Business Department), Katsuya Watanabe (Director of the Telecommunications Systems Division), Yasuo Tawara (Director of the Research and Development Office, Technology Policy Division), Naohiko Hagiwara (Assistant Director of the Telecommunications Systems Division), Manabu Nakazato (Assistant Director of the Research and Development Office, Technology Policy Division)

4. Agenda

- (1) Presentations
- (2) Other

5. Summary of Discussions

[Presentations]

- Member Tsuda presented “A Study in Research on New-generation Network” (Handout 2-2).
- Member Fujiwara presented “Network Architecture for the Near Future: Focusing on 10 Years from Now” (Handout 2-3).
- Member Yamamoto presented “Explosive Availability of Medical Information and the Network as Its Infrastructure” (Handout 2-4).
- Member Yuge presented “New-generation Network Architecture” (Handout 2-5).

6. Free Discussion

7. Next Meeting

The next meeting is scheduled for March 15. The Secretariat will announce the details at a later date.

[Main comments and remarks made during free discussion]

- A few important proposals were made, including that for the necessity of a national project on optical technology and that for the construction and application of a testbed for the new generation. We would like to reflect these in our policy, including a budgetary request for Fiscal 2008.
- One of today's presentations mentioned Web 2.0, which had been missing in our discussions. It is important to also examine what impact Web 2.0 is going to have on the network.
- During the Web 1.0 era, the direction of traffic was predominantly downward. In the Web 2.0 era, however, with the increasing use of P2P and file transfer services, upward traffic is gaining importance.
- We have been working hard to integrate various network services, with only limited success. NGN's aim seems to be to add something to the existing networks. However, as one of today's presentations pointed out, it is also of prime importance to make the system simple and easy to use.
- In general, huge systems tend to be complex. One of the approaches we can think of in order to make networks simple might be, as suggested in one of the presentations, to inter-connect networks by using border gateways and then to connect minor points directly with each other.
- The Internet is designed to have a lot of redundancy. If you are to push simplicity too far, you would end up losing the redundancy. An extreme example would be to end up providing only a one-way communication route, in which case a problem in this single route would immediately mean the end of everything, namely a solid down. We need to develop something simple, but equipped with redundancy.
- The network has two functions: to virtualize the network itself and to virtualize resources. I believe we can make it easier to simplify and virtualize networks by deepening the level of stratification down to the IP layer. In addition, from the viewpoint of further promoting the network, it would be a good idea to set various concrete targets using numbers, as in "By such and such date, we will be able to do such and such things." Setting such quantitative targets would make it easier for everyone to join forces.
- The use of a network generally enhances ease of operation, efficiency and reliability. Virtualizing the network itself improves ease of operation for users. The means for network virtualization will come from ideas in the field of computer science.
- Four kinds of VPN are currently in practical use in various combinations. The downside of VPN is that, if its use is geographically limited, the efficiency decreases. However, through

discussions in this Study Group, we have gotten a hint that computerizing servers may reduce the load of the network.

- During the Web 1.0 era, most of the comments and remarks were anonymous, thus irresponsible. With Web 2.0, as evidenced by SNS, the participants identify themselves and people can see their faces. Thus, they seem to be more responsible for what they say, which tends to guarantee the reliability of information to a certain extent.
- The United Nations runs the Internet Governance Forum. All sorts of people can participate directly in their meetings, and, as a result, it is becoming difficult to use spade-work tactics. I tend to think the world is moving in such a direction.
- Listening to discussions today, I found many of the arguments extremely technology-oriented. I think it might be necessary to discuss the distinction between “private” and “public.” The use of the Internet has been mainly passive so far, but it is now about to move toward active use. In the midst of this trend, it is of prime importance to consider how to convert the public space into a social space. Since Japan lacks a clear separation between “private” and “public,” I am concerned about the possibility that Japan may go in a different direction than Europe and the U.S.
- Devices are making remarkable progress recently, as evidenced by the emergence of post-mobile-phone devices or personal terminals. So far, I have heard a lot of arguments made from the service provider’s point of view. Now I would like to hear stories from people dealing with terminals and other devices.
- The starting point for development of a terminal is how it will be used by the user. It is directly visible and therefore easy to discuss. In contrast, the network is part of the social infrastructure. It is not directly visible and therefore not easy to discuss. While we believe that in respect to the use of the network, the development of software will gain more importance than that of hardware, we also find it difficult to draw a line between what is real and what is virtual. In thinking of the network architecture, we need to determine how far we should push the structure and how far we should drive other factors.
- We used to take an approach whereby somebody proposes a blueprint of the future and everybody strives toward that goal. In contrast, we now would like to incorporate the opinions of people in a variety of fields.