

## Summary Minutes of 10th Meeting of Study Group on Network Architecture

1. Time and date: 13:00 to 14:05, Tuesday, July 31, 2007

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

3. Attendees

(Members) (in Japanese alphabetical order; honorifics omitted)

Tomonori Aoyama, Youichi Isogawa, Naoyuki Iwashita, Gota Iwanami, Yoshiro Okamoto, Hideo Okinaka, Mitsuo Kawato, Hideshige Komatsu, Harushige Sugimoto, Yoshiyuki Takeda, Tetsuo Takemura, Toshitaka Tsuda, Hideyuki Tokuda (Chairperson), Takashi Hanazawa, Michitaka Hirose, Yayoi Hirose, Yoshihiro Fujita, Hiroshi Fujiwara, Motoo Matsuda, Takamichi Miyoshi, Tetsuya Yuge, and Makoto Yokozawa (Total: 22)

(Ministry of Internal Affairs and Communications)

Kazufumi Taniguchi (Parliamentary Secretary for Internal Affairs and Communications), Akira Terasaki (Director-General of the Telecommunications Bureau), Nobuhiro Takeuchi (Director-General of the Telecommunications Business Department), Tomohiro Ando (Director of General Affairs Division, Telecommunications Bureau), Yoshiaki Takeuchi (Director of the Telecommunications Systems Division), Yasuo Tahara (Director of the Research Promotion Office, Technology Policy Division), Yoshihiro Ohnishi (Assistant Director of the Telecommunications Systems Division), and Minoru Kubota (Assistant Director of the Research Promotion Office, Technology Policy Division)

4. Agenda

- (1) Report of the Study Group (Draft)
- (2) Other

5. Summary of discussions

[Report of the Study Group (Draft)]

- "Summary Report (Draft)" (Handout 10-2) was presented and explained.
- "Report (Draft)" (Handout 10-4) was presented and discussed (main points below).
- It was confirmed that the Chairperson was entrusted to make amendments based on the discussions that took place at this meeting.

[Main comments]

- The draft report looks at the situations in major countries. The Akari Project administered by the National Institute of Information and Communications Technology (NICT), an

independent administrative agency, has also started discussing next-generation network architecture. Wouldn't it better to mention this in our report also?

- I think that P2P (bidirectional, many-to-many) can be treated as one of the viable technologies for the next-generation network. I believe we are going to see more and more P2P technologies free from security and copyright problems, and would prefer that this be also included in our report.
- Wouldn't it be better to devote more space to the discussion about content? For example, with the ever-increasing amount of Internet content such as high-resolution images, the next-generation network will need to have the capacity to accommodate it.
- Chapter 4, titled "Gentle on users; simple to use," includes the line "so that the user can understand security and quality." Shouldn't we go one step further and emphasize the fact that the network will be easy for ordinary people to understand? Long term, it would be better to enable the network's state, operation, settings, and so on to be easily visualized in user-friendly formats.
- The draft summary report mentions on page 6 and so on "super-large capacity," whereas in the text stability and scalability, as well as large capacity, are given as keywords. "Large capacity" is already going on; in this sense it's a given and does not need special mention in the report.
- The section about "the network that does not stop" mentions bypassing to a different network, which is indeed one of the characteristics of the current Internet. However, there are a few problems remaining: for example, it cannot sufficiently handle failures on a grand scale (burst failures), as demonstrated during the Great Taiwan Earthquake. Such problems need to be addressed by the next-generation network.
- The convergence of the real and the virtual worlds requires a three-layered approach. While two of them, "delivery of services compatible with the user's needs" and "virtualization of the network" are covered in the draft report, the third, "layer for flexibly connecting the first two," has not been sufficiently dealt with.
- The phrase "new architecture beyond the telephone and IP" on page 9 of the draft summary report is a concept that belongs to NGN. We need something like architecture that goes beyond NGN.
- There remain some issues about particulars that have not been fully discussed, such as security and mode of use. We hope they will be looked into in a forum that will be created soon.
- When talking about architecture, it is very important to conduct research into interface design. This necessarily entails research into the network's layer structure and which functions should be included in it. We would like the interface to be a subject of future study.
- The most important thing for now is the approaches taken for realization. The strategy for the prioritization of themes and the collaboration among government, academia and industry

will be taken care of by the government. It should also be noted that international deployment and standardization call for collaboration with appropriate bodies abroad, especially in Asia.

- When it comes to the study of architecture, it is better to start with a framework with a certain degree of freedom. What is needed is a parallel trial-and-error approach such that for a given problem, we come up with more than one solution, and at the same time we start small-scale R&D. In this regard, it is important to provide an environment which nurtures out-of-the-box thinking. The next step would be to make a decision on the choice of technology for practical use based on the results of the R&D. To this end, the R&D should utilize a large-scale test bed such as JGN2.
- User care should cover a variety of users, from so-called IT-illiterates to IT-savvy users capable of making the most of ICT. We need to keep all sorts of users in mind.
- Because of the sheer diversity of user needs, it is very difficult even to decide on which direction to take. In addition, there are a number of ways to satisfy user needs, and as a result, there are an extremely large number of alternatives that can be taken, which we haven't had enough time to study during this project. It might be necessary in the next step to assess individual needs and ways to satisfy them and to then build a framework for prioritizing their satisfaction.