Executive Summary

On August 17, 2009, the Ministry of Internal Affairs and Communications published the "International Comparative Evaluation Report on ICT Platform in Japan." According to this report, Japan was ranked overall as the top country out of 24 evaluated. A closer look reveals that Japan ranked at the top for broadband affordability, optical fiber installations, and broadband speeds. Indeed, Japan has developed a technological infrastructure that supports high connections speeds at low costs.

In regard to indices representing the advancement of social infrastructure, however, Japan ranked only 11th with respect to the number of Internet hosts and 13th with respect to ICT investment. This leads one to conclude that, despite having established an infrastructure for the network, Japan is lagging in server infrastructure as well as service development and related ICT investment which need well-deployed server infrastructure. Cloud computing infrastructure and related business services leveraging Japan's cheap, fast networks must be developed before one can say that Japan's ICT infrastructure and competitive ability are world-class.

As exemplified in some of the cloud computing models introduced last year and throughout this year, the Internet is an amalgamation of networking and computing. A wide variety of elements come together to comprise the Infrastructure of the Internet, which operates as a complex system built upon many different layers. Monitoring and analysis of the behavior of these various elements and layers—as well as continued technological development in pursuit of new usage models—is an indispensable part of ensuring the development of ICT infrastructure and stable operations of this complex system.

This whitepaper discusses the various monitoring and analysis activities in which IIJ engages to contribute to the perfection and growth of Internet infrastructure. We also offer information related to new and developing technologies.

Addressing Internet security and safety, we will report statistics and analyses of security incidents observed for the three months from July 1 through September 30, 2009 in the "Infrastructural Security" section. Our observations and analyses on DDoS attacks targeted multiple websites in the United States and South Korea, TCP vulnerabilities, and attacks on VoIP services exploiting SIP are also reported as focused researches on issues observed or revealed during this period. Under the heading of "messaging technology," we will report on our analysis of the state of spam, and activities related to the adoption and trends in the advancement of sender authentication technologies.

Addressing technological development, we will offer overall description about "NHN", project to migrate IIJ service infrastructure to the cloud environment. We will also address experiments and verification test results regarding our work to adapt Mobile IP technologies for migrating guest computers in a server virtualization environment on a network basis.

IIJ continues to offer solutions for the stable, secure, and innovative use of the Internet as an infrastructure supporting corporate activities. This whitepaper is one example of how we provide timely updates and information to our clients.

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