

## Executive Summary

The Internet is a network that continues to grow on a daily basis. The Ministry of Internal Affairs and Communications announced that the volume of download traffic within Japan had reached 1.3Tbps in November 2009, which is approximately 1.4 times higher than the previous year. According to other data from the Ministry of Internal Affairs and Communications, the number of users in 2009 also increased 3,170,000 over the previous year to 94,080,000, which may be minor when expressed as a percentage, but it demonstrates that the upward trend is still continuing. Furthermore, comparing the growth rates for traffic volume and users, we can see that the traffic per user increased an average of approximately 30% over the course of a year. This increase can be attributed to factors such as the diversification of Internet usage and the enrichment of the content in circulation.

Consequently, the state of the Internet infrastructure is also changing by the minute every day. Security issues may be discovered in Internet usage methods that were considered safe until the day before, and unexpected pitfalls may lie hidden in the implementation of new functions or measures for improving user-friendliness. IIJ and other Internet providers investigate and analyze problems continuously and develop technologies for dealing with them in order to identify and implement countermeasures for these problems and pitfalls as swiftly as possible.

This report discusses the results of the various ongoing surveys and analysis activities that IIJ carries out to maintain and develop the Internet infrastructure and enable our customers to continue to use it safely and securely. We also regularly present summaries of technological development as well as important technical information.

In the “Infrastructure Security” section, we report on the results of our ongoing statistics gathering and analyses for security incidents observed during the three months from January 1 to March 31, 2010. We also present our focused research for this period, including a detailed report on the ru:8080 malware that uses a Gumblar-type attack scheme, an explanation of the “Operation Aurora” targeted attacks that were disclosed in January 2010, and an overview of the anti-malware activities of the MITF (Malware Investigation Task Force) that IIJ operates.

In the “Internet Operation” section, we summarize the behavior of the BGP routing protocol used among ISPs, and touch on current route numbers and the problem of “advertisement without authority.” We also look at initiatives within Japan for detecting anomalous routes, and the development of the RPKI (Resource Public Key Infrastructure) architecture for identifying whether or not routing information received by routers is valid.

In the “Messaging Technology” section, we report on the state of spam trends for the 12 weeks between January 1 and March 31, 2010, and the implementation status of sender authentication technology. We also introduce the EAI (Email Address Internationalization) initiative for the internationalization of email addresses, and shed some light on issues with the approach it takes.

Under “Internet Topics,” we give a quick overview of proof-of-concept tests for the modular eco-data center that IIJ has been operating since February 2010.

IIJ will continue to publish periodic reports covering information such as this, and provide customers with a variety of solutions for the stable, secure, and innovative use of the Internet as an infrastructure for supporting corporate activities.

Author:

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President and CEO, IIJ Innovation Institute Inc. Mr. Asaba joined IIJ in its inaugural year of 1992, becoming involved in backbone construction, route control, and interconnectivity with domestic and foreign ISPs. Asaba was named IIJ director in 1999, and as executive vice president in charge of technical development in 2004. Mr. Asaba founded the IIJ Innovation Institute Inc. in June 2008, and became president and CEO of that organization.