

Executive Summary

In this final IIR issue for 2023 (Vol. 61), I would like to reflect on the year that has been.

Generative AI was, without a doubt, a massive topic for the Internet and for IT in general in 2023. The rate at which generative AI is evolving and percolating through society is startling. At the same time as it inspires hope for the huge promise it offers, it also evokes a certain fear. Ethics and governance as they relate to the correct and proper use of this technology that we call AI will no doubt become increasingly important ahead.

On the governance front, the 18th annual meeting of the IGF was held in Japan in 2023. The issue of AI certainly did come up, but the 10,000-odd stakeholders from 178 countries also discussed such broad-ranging issues as Internet fragmentation and cybersecurity.

The Internet is now part of our social infrastructure, and as such it cannot be divorced from the issue of economic security. In Japan, preparations are underway for the Economic Security Promotion Act to take effect in 2024. As a provider of core infrastructure, the telecommunications sector has a key role to play in ensuring this security.

The IIR introduces the wide range of technology that IIJ researches and develops, comprising periodic observation reports that provide an outline of various data IIJ obtains through the daily operation of services, as well as focused research examining specific areas of technology.

Our periodic observation report in Chapter 1 presents our look at Internet trends as seen from IIJ's infrastructure. Every year, we present trend analyses based on data related to BGP and routes, DNS query analysis, and IPv6 traffic obtained from IIJ's servers and other equipment. The figures all indicate that the broad-based rollout of IPv6 is progressing well. IPv6 support on smart devices is one of the driving forces behind IPv6 uptake, and the high IPv6-enabled rates of US manufacturers leave quite an impression.

In our focused research report in Chapter 2, titled "The Latest SIM Developments—Evolving from Hardware to Software Profiles", we take another look at the SIM (Subscriber Identity Module) technology used in mobile phones. The report gives some background to the development of GSM standards and the birth of SIM cards, covers the history of SIM card miniaturization, and looks at developments that took us from physical SIM cards to virtual SIM technologies like eSIM. Against that backdrop, the report also describes solutions developed by IIJ and the future outlook for standards in this area.

The focused research report in Chapter 3 continues our series commemorating IIJ's 30-year history, this time with a look at security. IIJ regards attack safeguards as vital for anyone using the Internet and began providing firewall-based protection as a service immediately after launching its own Internet connectivity services. IIJ's security business differs considerably from that of other security providers in that IIJ runs it as a company that is also involved in Internet operations and not just as a narrowly focused security specialist. The article looks at how IIJ has thought about and dealt with the issue of Internet security over the past 30 years.

Through activities such as these, IIJ strives to improve and develop its services on a daily basis while maintaining the stability of the Internet. We will continue to provide a variety of services and solutions that our customers can take full advantage of as infrastructure for their corporate activities.



Junichi Shimagami

Mr. Shimagami is a Senior Executive Officer and the CTO of IIJ. His interest in the Internet led to him joining IIJ in September 1996. After engaging in the design and construction of the A-Bone Asia region network spearheaded by IIJ, as well as IIJ's backbone network, he was put in charge of IIJ network services. Since 2015, he has been responsible for network, cloud, and security technology across the board as CTO. In April 2017, he became chairman of the Telecom Services Association of Japan's MVNO Council, stepping down from that post in May 2023. In June 2021, he also became a vice-chairman of the association.