Executive Summary

We touched briefly on COVID-19 at the beginning of the previous IIR issue's executive summary, and not a day has passed since that COVID-19 has not been on our minds. Many countries have gone into lockdown as the world continues working to contain the spread.

The use of information and communication technology (ICT) has come into the limelight under these circumstances. It is playing a major role underpinning our way of life amid the pandemic. ICT provides leisuretime in our homes while we are forced to stay in and stream videos, for instance; it lets people keep on working even while opportunities for interacting with others in person are diminished; it facilitates distance learning for students unable to physically attend a classroom due to school closures; and it helps to smoothly deliver assistance to people experiencing financial distress. Meanwhile, some issues have been raised, including the question of how we should approach the balance between individual privacy and the public interest when it comes to, for example, public institutions using ICT to monitor infected people via devices and surveillance cameras. And as we noted here in our previous issue, the reliability of the information coursing through the Internet is another issue. People are working to address these concerns from across many sectors, including government, healthcare, energy, transport, and distribution. The information and communications industry is a key part of the infrastructure that underpins our society, and we will continue striving to develop technology as we look to play an even greater role than ever before.

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.

Chapter 1 is our periodic observation report. These reports cycle through four topics over the course of each year. In this edition, it is time for messaging technology. IIJ's email services provide SPF, DKIM, and DMARC sender authentication when emails are received, and we constantly monitor the authentication results. Our observational results show that, while use of SPF and DKIM continues to spread, DMARC deployment rates are still low, which tells us that we need to continue advocating for increased use of DMARC. The report also looks at the use of sender authentication technology on phishing emails and goes over the JPAAWG 2nd General Meeting.

The focused research report in Chapter 2 discusses IIJ's use of LoRaWAN® in agricultural IoT. LoRaWAN® is a type of LPWA (low-power wide-area) wireless network for IoT devices that is gaining attention as it allows people to build and run networks without having to rely on communications carriers. The report describes the knowledge we gained and challenges we faced through our real-world efforts to install base stations and IoT devices in paddy fields, and I think you will find it an intriguing read.

The focused research report in Chapter 3 examines the role that information and communications has played amid the COVID-19 situation. At different times from February onward, people in Japan were asked to observe restrictions on their activities, which included the government requesting schools be closed, prefectural authorities urging people to stay indoors, and the government declaring a state of emergency. Analyzing changes in fixed-line broadband traffic patterns around the time each of those requests were made provides insight into how the requests affected Internet usage. These data will no doubt be a valuable impetus for reaffirming the importance of developing Internet infrastructure.

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 MVNO Council.