Executive Summary

Recently, terms such as DDoS attacks, cyber security, CSIRT, and SOC have begun to be used in the news, and it feels as if the variety of phenomena, events, and incidents that occur on the Internet as social infrastructure have become more familiar to us. While I am glad that it is becoming more common to place importance on understanding these factors to make effective use of IT, I am once again feeling the gravity of our responsibilities as a communications provider. This report discusses the results of the various ongoing surveys and analysis activities that IIJ, as a service provider, carries out to support the Internet and cloud infrastructure, and enable our customers to continue to use them safely and securely. We also regularly present summaries of technological development as well as important technical information.

In Chapter 1, we analyze the incidents that took place between April and June, 2016, and examine the trends that were observed. In Japan the new fiscal year begins in April, and attacks targeting this vulnerable period, along with those carried out by Hacktivists since last year, show no signs of settling. In fact, you could almost say they have become a routine occurrence. Meanwhile, there were no incidents that interfered with meetings during the international conferences related to the Ise-Shima Summit in May, perhaps due to measures implemented by both the public and private sectors. In our focused research we discuss the Volatility Framework, and explain techniques for analyzing memory images during forensic investigations. I would also encourage readers to take a look at the section about hardening Windows clients to prevent malware infections.

In Chapter 2, we analyze the growth in broadband traffic compared to that of last year. Broadband traffic has grown at a faster rate than last year, and although the growth of mobile traffic has slowed over the past year, it has still more than doubled. This trend is expected to remain unchanged going forward. We must continue to analyze trends in broadband and mobile traffic so we are able to respond to future changes in traffic patterns.

In Chapter 3, we discussed software-defined container-based data centers under technology trends. Until now the IT resources and facility resources at data centers were controlled and operated separately. However, by implementing functions for abstracting these resources and controlling them via software, we were able to use power efficiently according to the changes in load associated with the operating status of IT resources. The core of this research began from the development of software for controlling facility equipment, and is now expanding to incorporate the control of IT resources as well. This development is opening up new horizons for Internet infrastructure.

The Internet has moved on from the age when it was a network that simply linked computers together via Internet protocol. It is now an accumulation of intelligence that encompasses a variety of interconnected computers, as well as the connection of people to each other. It may be that it is the responsibility of management to continue to talk to future generations while constantly reviewing the status quo, both to bolster security and ensure that the social infrastructure that the Internet has become is not misused in the coming years.

Through activities such as these, IIJ continues to strive towards improving and developing our services on a daily basis, while maintaining the stability of the Internet. We will keep providing a variety of services and solutions that our customers can take full advantage of as infrastructure for their corporate activities.

Yoshikazu Yamai
Mr. Yamai is an Executive Managing Officer of IIJ and Director of the Service Infrastructure Division.
Upon joining IIJ in June 1999, he was temporarily transferred to Crosswave Communications, Inc., where he was engaged in WDM and SONET network construction, wide-area LAN service planning, and data center construction, before returning to his post in June 2004. After his return he was in charge of IIJ's Service Operation Division. From April 2016 he joined the Infrastructure Operation Division, and now oversees the overall operation of corporate IT services at IIJ. He also heads IIJ's data center operations, and he played a key role in the establishment of the modular "Matsue Data Center Park," which was the first in Japan to use outside-air cooling.