
Executive Summary

ChatGPT has caused major waves since its release by OpenAI in November 2022. As its name suggests, ChatGPT is a type of chatbot. Chatbots have been used in all sorts of scenarios over the years. ChatGPT, however, has more advanced capabilities than conventional chatbots. For instance, it can respond naturally to questions in a wide range of fields, remember past conversations, and compose well-formed prose and computer programs.

When I tried it myself, I was nothing but astounded by these features. We often start by consulting a search engine when investigating something we have little knowledge of, but I have a feeling that one might obtain meaningful results even more efficiently by asking ChatGPT and then digging in deeper and asking it more questions based on the answers it provides. Some point out that ChatGPT will quite nonchalantly provide incorrect information at times, but the same can be said of search engines, so I think that, as always, we still need to be able to assess the veracity of the information we receive. That much remains the same.

We have for many years looked to search engines to sift through the vast seas of information on the Internet and make it easier for us to get at what we need. AI has played a part behind the scenes, but it is quite refreshing that we now have an AI chatbot as the actual user interface, and that it is even capable of summarizing information when needed. With search engines that provide a chat interface using OpenAI's GTP-4 already appearing, I sense real potential for change in the long-entrenched user experience that has so far characterized the search for information on the Internet.

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

Chapter 1 presents our SOC Report, our periodic observation report for this edition. IJJ's SOC analyzes data obtained through the operation of IJJ's services, data that it collects independently, and data from external sources. Our report in this edition looks back on major security topics in 2022 and discusses those that were of particular interest to IJJ's security analysts, namely Emotet, VPN device vulnerabilities, and four other vulnerabilities frequently observed by our SOC in 2022.

The focused research report in Chapter 2 looks at electric power, something that is indispensable to the information & communications industry. As data transfer and compute volumes rise precipitously alongside the advance of information & communications technology, we naturally face a very real need from an environmental preservation perspective to keep the amount of power the industry consumes in check. The report here discusses challenges facing the electricity market in Japan and IJJ's efforts as a data center operator that consumes electric power.

The focused research report in Chapter 3 introduces IJJ Studio TOKYO, IJJ's video streaming center, and goes over the technologies involved. As networks and devices have evolved, video streaming has become part of our world in all sorts of areas. Internet-based video streaming represents a convergence of the video and ICT industries. I am pleased to present this report on the challenges IJJ has tackled in video distribution, including our efforts at IJJ Studio TOKYO.

And to coincide with IJJ's 30th anniversary, Chapter 4 presents a focused research report on the way the IJJ backbone network, which sits at the heart of our business, has transformed over the years. Since IJJ was founded, the Internet has continued to expand, and not only has IJJ's network grown but demands for availability, quality, and security have also risen incredibly. We wanted to use this edition of the IIR to chronicle how we have evolved our network over the years to adapt to these changes.

Through activities such as these, IJJ 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 IJJ. His interest in the Internet led to him joining IJJ in September 1996. After engaging in the design and construction of the A-Bone Asia region network spearheaded by IJJ, as well as IJJ's backbone network, he was put in charge of IJJ 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, and in June 2021, he became a vice-chairman of the association.