Short Reports

Deployment of NTT's Open Source Software GoBGP in INTERNET MULTIFEED's JPNAP Service Achieves Automation of Operation and Vast Improvement in Efficiency

1. Introduction

NTT and INTERNET MULTIFEED CO. have partnered to apply GoBGP [1], an open source Internet routing control software provided by NTT, to JPNAP, an Internet exchange (IX) point provided by INTERNET MULTIFEED. They have achieved commercial deployment. GoBGP enables INTERNET MULTIFEED to automate the operation of JPNAP's RouteFEED service* and reduce the lead time under the new RouteFEED service contract to 1/10th the time required previously. The time needed to process customers' existing configuration change orders is reduced to 1/30th of that previously. Automating the operation means that problems due to human errors in previous manual configuration changes can be prevented. Operational loads are also reduced to 1/10th of their previous amounts. JPNAP is the world's first IX point to introduce the commercial deployment of GoBGP for IX providers.

2. Background

IX services are becoming more and more important for stable operation of the Internet. An IX is an Internet exchange connection point between Internet service providers (ISPs) and content providers. More than 600 IX points are in operation around the world. JPNAP is one of the largest IX points in Asia in terms of exchange traffic volume. As the amount of Internet traffic and the number of routes continue to increase

annually, operational efficiency and costs are becoming serious issues.

NTT has engaged in open source software (OSS) projects such as the development of the Ryu SDN (software-defined networking) Framework, which was released as open source in 2012, and OpenStack. Through this participation, NTT has gained technological expertise in network software and OSS development know-how. INTERNET MULTIFEED operates one of the largest IX points in Asia, and has gained advanced knowledge in Internet routing control technologies and operational experience. By working together closely to advance OSS development, NTT and INTERNET MULTIFEED have succeeded in achieving the deployment described above.

3. Features of the technology

GoBGP efficiently leverages the features of modern-day hardware architecture such as a multicore CPU (central processing unit), enabling it to achieve the scalability necessary for processing the current number of Internet routes and connection points required by IX services (**Fig. 1**).

GoBGP uses a design premised on software control instead of conventional manual operation. GoBGP provides application programming interfaces (APIs)

---

* RouteFEED service: Service provided for JPNAP users that automatically carries out routing exchanges with numerous connection points.
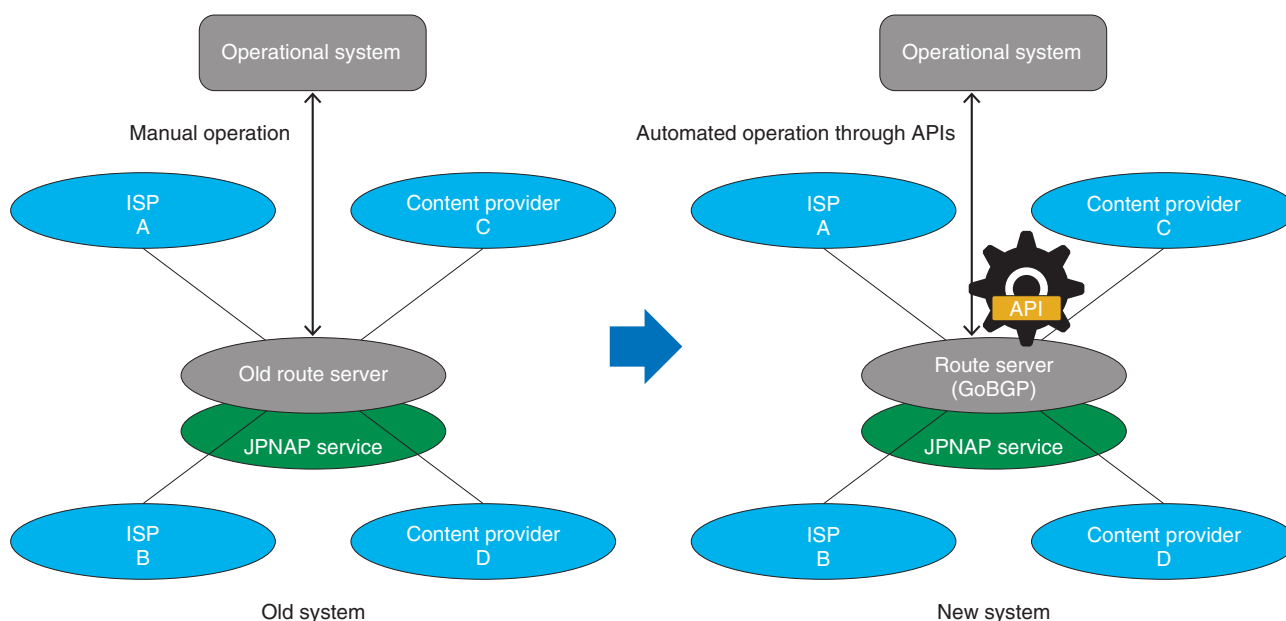
Fig. 1.   Overview of RouteFEED Architecture.

and software for configuration changes and other purposes, resulting in a design that can rapidly handle frequent API requests and that makes it easy to automate operational processes. Connections to processes such as data analysis and event notification to external systems can also be easily realized by utilizing these APIs.

4.   Future plans

Going forward, NTT is seeking to not only expand the GoBGP open source community and promote the spread of the technology, but also to apply GoBGP to use cases beyond IX services such as datacenter networks and commodity network hardware. It is also seeking to further accelerate the expansion of GoB-GP's functions and performance. Furthermore, NTT is seeking to expand the business market with OSS and energize the business and technological development of software networking infrastructure. INTER-NET MULTIFED is engaged in providing pioneering IX services that contribute to improving the reliability of IX points as social infrastructure. It seeks to increase its operational knowledge of GoBGP's RouteFEED service and provide feedback to other IX providers in order to continue to expand the Internet quickly and soundly.

Reference

[1]   GoBGP, http://osrg.github.io/gobgp/

For Inquiries
PR Department, Planning Division
NTT Service Innovation Laboratory Group
Email: randd@lab.ntt.co.jp