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*– Shinji Yoshinaga
Senior Manager
Yahoo Japan*



Creating an Ultra-Fast, Low-Latency Video Delivery Infrastructure for “!” (Exciting) Services

Business Challenge

Yahoo Japan Corporation, operator of “Yahoo! JAPAN”, one of Japan’s largest Internet services, has deployed Fortinet’s high performance FortiGate 3700D high performance data center firewalls as part of its infrastructure renewal for “GYAO!”, the free video delivery service. The service infrastructure has been improved to handle the rapid growth in the number of people accessing Yahoo’s services via smart devices, and to provide video content in high definition format. These FortiGate 3700D appliances form the core of the ultra-fast, low-latency video delivery infrastructure’s security system.

The Increasingly Important Service Support Infrastructure

In April 2016, Yahoo! JAPAN will celebrate its 20th year anniversary since launching its first service. The Yahoo Group, with its core mission of being a “problem-solving engine” that solves the problems of people and society using information technology, will continue to provide the varied services

Details

Customer Name: Yahoo Japan Corporation

Head Office: Midtown Tower 9-7-1 Akasaka, Minato-ku, Tokyo

Established: January 1996

Employees: 5,439 (as of March 31, 2015)

Company Overview:

Engaged in Internet advertising, ecommerce, the provision of member services, etc. Yahoo Japan’s employees, whose average age is 35.0, are led by the Yahoo! Values of “Problem Solving is Fun!”, “Focus is Fun!”, and “Wild is Fun!” They strive to create and supply fresh and “!” (exciting) services to users.

Business Impact

- Capable of handling 1 million requests per second and 800Gbps traffic
- Network integration using 40GbE interfaces
- Enhanced security through loss-free log acquisition and analysis while handling massive amounts of traffic

users need while achieving sustainable growth. To accelerate this growth, their new concept is to always create new, “!” (exciting) services which users find fresh and surprising.

Their ability to create these “!” services will increasingly be underpinned by IT infrastructure. “We need an infrastructure which can handle massive levels of access from users while providing the high levels of stability and reliability required for business,” explains Shinji Yoshinaga, Senior Manager of Site Operation Division, discussing the importance of service infrastructure.

Yahoo! JAPAN’s daily unique browsers (DUBs) has grown by approximately 20% year-on-year over the past few years. The number of smart device users is growing particularly fast, accounting for over half of DUBs. In response to these changes in access levels and devices, Yahoo Japan in 2014 renewed its content delivery network (CDN) infrastructure. This renewal included the deployment of high-end FortiGate 3700Ds. The next infrastructure improvement project includes improvements to the network for “GYAO!”, a free video delivery service operated in conjunction with Yahoo’s subsidiary, GYAO Corporation.

GYAO! System for Handling User Access Growth and HD Content

GYAO! is one of Japan’s largest video delivery services, providing video content such as movies, TV series, animated features, variety shows, documentaries, sports programming, music videos, and more, free of charge. Unlike video sharing sites, copyrights have been cleared for all the video content provided by this video delivery service. It is integrated with Yahoo! video, and enhanced content such as delivery of TV programs users may have missed when originally aired have led to GYAO! being visited by 27 million unique users per month, for over 200 million views per month. In October 2014, GYAO! was rebranded, increasing the amount of popular, high quality content which meets user needs, while also making improvements to the user interface. The number of downloads of the “GYAO!” app has also risen rapidly, and there has been a surge in the number of users accessing the service via smart devices.

Yoshinaga explains the reason for renewing GYAO!’s network system, “The issue was that the existing infrastructure would become incapable of handling this number of users and video plays. There was a pressing need to create an infrastructure which could handle mobile access and the increasing volume of high-definition content while providing high levels of stability and reliability.”

1 Million Requests per Second, 800Gbps Traffic Processing Capacity

Yahoo’s content delivery is handled by two data centers, located in the Kanto and Kansai areas, but the new GYAO! network system required a high-speed infrastructure capable of handling 1 million requests per second and 800Gbps of traffic at each data center. To prevent bottlenecks at either of these Internet connection points, the firewalls which ensure network security also needed to offer high speeds and high processing capacities. Specifically, major firewall requirements included 5 key points: adding new sessions, the ability to acquire logs without loss, the ability to integrate the network using 40Gbps interfaces, high availability, and low power consumption and appliance footprint to ensure the best economy in data center performance.

Products from various firewall vendors were compared in the evaluation process. A major reason that the FortiGate 3700D was chosen is its operational track record in Yahoo’s CDN infrastructure which was renewed last year.

“The FortiGate 3700D provided the performance and stability we expected even in the face of traffic spikes, such as during major events like the World Cup, or when distributing disaster information,” said Yoshinaga.

Ryutaro Inoue, Manager of Site Operation Division, Yahoo! Japan, closely evaluated the firewall’s ability to meet requirements for enhancing security by reliably collecting logs.

“The user interface is easy-to-understand, and operation remains stable even under heavy loads. Logs are captured reliably, making it possible to assess traffic and security changes over short spans of time.”

40Gbps Connection Large-Scale Video Delivery Infrastructure

Five sets of FortiGate 3700Ds (10 units) were deployed in each of the data centers (the Kanto and the Kansai data centers) of the GYAO! network infrastructure. They used their 40GbE (4 ports) and 10GbE (28 ports) interfaces to provide two 40GbE uplink ports and eight 10GbE downlink ports, meeting the firewall requirement network integration using 40Gbps interfaces.

The new GYAO! network system, with its FortiGate 3700D firewalls, went into full-fledged operation in May 2015. Yoshinaga says, “Only a few months have passed since the network went into operation, but we have seen the performance and stability we expected for high capacity content and large numbers of sessions, without any increases in system usage rates.”

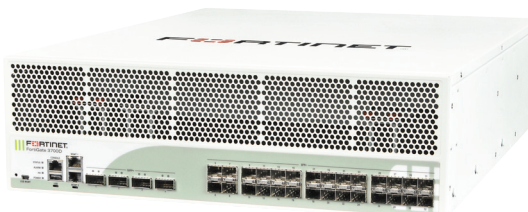
Led by the strategy of creating “!” services, the GYAO! renewal will expand to include providing even more exciting, high quality content and video to users. Promotional activities will be actively carried out in order to create awareness among new users and increase service usage, and streaming traffic is expected to continue to rise. The video delivery infrastructure security system, with its FortiGate 3700Ds, offers a high level of scalability to accommodate increased traffic, so they hold tremendous promise as part of the infrastructure which Yahoo! will use to expand the Internet video distribution market, one of Yahoo’s core business areas.



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FortiGate 3700D



“GYAO!” is a free video delivery service operated in conjunction with Yahoo’s subsidiary, GYAO Corporation.



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