

Case Study >>> mixi, Inc.

Challenges that need to be addressed

- Achieving a high performance network capable of processing huge amounts of traffic
- Reducing the initial and maintenance costs of the edge switches



Adopting the Arista switches for “mixi”'s service infrastructure Achieving stable service operation and improved response time

mixi, Inc. which runs one of Japan's largest social networking services “mixi”, has recently replaced the edge switches that support their service network. Their previously adopted switches were unable to process the burst traffic that occurred during the access peak time, potentially impairing the stability of their services. Their goal in replacing the edge switches was to achieve a high-performance and reliable network environment that can accommodate their future growth. “Arista Networks switch series” was their product of choice. Developed for the state-of-the-art cloud data center environments, the Arista switches have demonstrated superior performance under harsh environments that require enormous amounts of traffic to be processed. In this project, the Arista switches have also contributed greatly to improving mixi's service quality.



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Kazuki Nakano

Providing a comfortable communication platform that connects 24 million users

mixi is an Internet service operator providing a wide array of online services including “mixi”, Japan's leading social networking service and “FindJob”, a popular IT recruitment website. “Our mission is to ‘connect’ our users and provide them with a comfortable communication space,” says Neil Sato, mixi's CTO. “We always strive to provide our services from the users' viewpoint.”

With a user base of approximately 24 million, mixi has a strong presence as a new medium of advertisement. For example, a joint advertising campaign with a global sport brand is said to have proved 16 times more effective than ordinary Internet advertisements. In response to the surging popularity of smart phones in recent years, mixi is also proactively implementing actions to support smart phones on their existing services.

“After the huge earthquake disaster that struck Japan earlier this year, we received feedback from our users telling us they were able to contact their family and friends thanks to mixi's messaging service,” Sato says. “We would like our users to continue utilizing our services as a convenient, near-at-hand information infrastructure. We will be continuing our efforts to further strengthen and improve our services in the future,” he firmly continues.

Challenge: Performance drop due to burst traffic

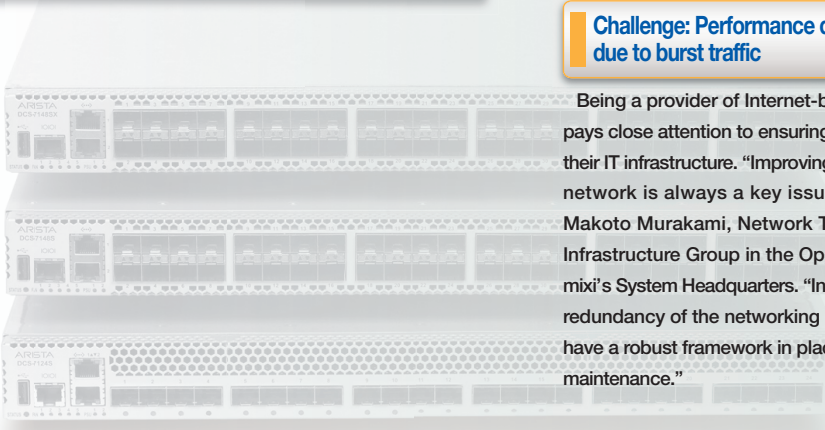
Being a provider of Internet-based services, mixi pays close attention to ensuring stable operation of their IT infrastructure. “Improving the reliability of our network is always a key issue for us,” explains Makoto Murakami, Network Team Leader of the Infrastructure Group in the Operations Division of mixi's System Headquarters. “In addition to ensuring redundancy of the networking equipment, we also have a robust framework in place for operation and maintenance.”

mixi, however, came to face one technical difficulty. “The operation team responsible for monitoring our servers pointed out that there were performance issues in some of the servers. We looked into the problem and discovered that, as pointed out, the server throughput was maxing out at peak time,” says Kazutaka Nakano, Network Team Member of the Infrastructure Group in the Operations Division of mixi's System Headquarters. “So we decided to investigate and verify the matter further,” he recalls.

As a result, they identified that the culprits of this problem were the cache servers installed within the system. Normally, cache servers have an important role of alleviating the load on DB servers. At access peak time, however, a large number of servers responding simultaneously were causing burst traffic to occur. “The switches still had available capacity but we were getting drops in the throughput. Something was obviously wrong,” Murakami says. “We examined our cache servers and found the cause of the problem there as expected.”

Of course, it was possible to get through this problem by means such as modifying the server configuration. mixi, however, chose a different option. “Our services are expanding rapidly each year. Superficial solutions are likely to result in us facing the same problem again in the future,” Nakano says. “Since the grand design of our network infrastructure was also getting obsolete, we decided to replace the edge switches altogether.”

mixi spent one month testing a wide variety of network switches available on the market in search of a product capable of processing data accurately under extremely harsh environments requiring huge amounts of traffic to be processed. In the end, they decided to adopt the Arista Networks switch series, including the “Arista 7048T series”. “Arista switches, featuring high-capacity buffer and processing performance, were the only products that withstood our extremely strenuous tests to the end without packet drops,” Murakami says.



Adopting the Arista switches based on their superior performance and reliability

Since maintaining a steady and reliable network environment is of paramount importance for mixi, they tend to choose products with a proven track record when upgrading their network equipment. In such a sense, adoption of the Arista switches, which were a relative newcomer in the Japanese market, was an unusual decision for them.

"To be honest, we were a little anxious at first," Nakano says. "After conducting the tests, however, our prior concerns about the products' performance and reliability were wiped out completely." Sato, mixi's CTO, says, "In fact, we believe it is the emerging vendors such as Arista that can develop new products that are free of conventional constraints." He continues, "I personally felt that the concept of 'Arista EOS', a dedicated OS designed for data centers, was extremely open and unique."

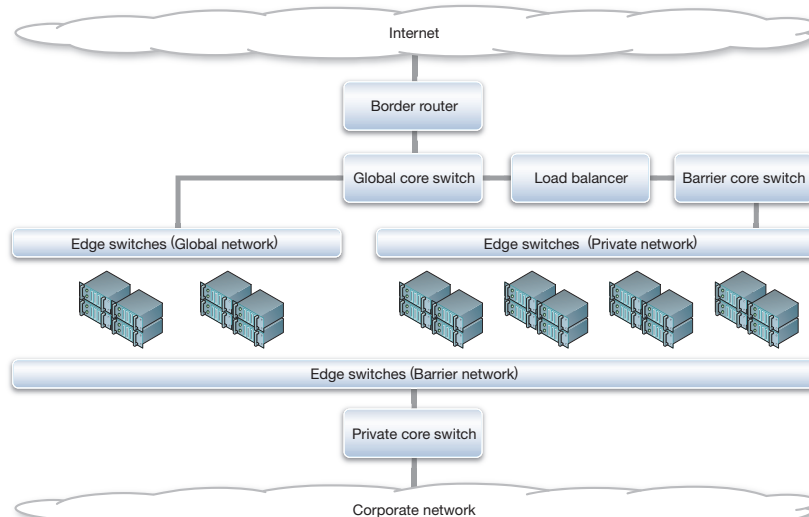
The superior cost/performance of the Arista switches was also highly regarded by mixi. "We need to purchase a large number of edge switches, so keeping their initial and maintenance costs low is important to us," Murakami says. "The Arista switches were very reasonably priced compared to the competitors' products belonging to the same performance range."

mixi replaced the existing switches with the Arista switches in multiple phases, in sync with the upgrading of their cache servers. At the time of this interview, Arista 7048T and Arista 7100 series have already been introduced; and approximately 500 servers, including cache and other business servers, are now operating under the new switches. mixi is also planning to introduce the large-sized "Arista 7508 Series" chassis switches in the near future.

"Since the official start of the operation at the beginning of 2011, there has been no equipment failure or trouble," says Murakami satisfyingly. "Power supplies and fans only had a single configuration in our old switches, but they are now redundant and offer much improved reliability."

Moreover, the fan airflow direction is configurable in the Arista switches, i.e. front to back or back to front. mixi has chosen the latter option, as they have the Arista switches mounted backward on the rack in order to align them with the LAN ports on the rear panel of the server units. Obtaining the same airflow direction for servers and switches is straightforward using the Arista switches. "I believe such a function should be incorporated in all switch products, considering their usage in data center

Network Configuration Diagram



operations. Yet, no other products actually do," says Nakano. "I actually find it rather surprising."

Ensuring improved service stability and future expansibility

mixi has successfully eliminated the burst traffic problem by adopting the Arista switches. "The uplink has been upgraded to 10GbE, so we have available capacity even at peak time," Murakami says. "The introduction of the Arista switches has proved extremely effective in making our services more stable and achieving better response time."

Nakano says, "At present, we are only utilizing the L2 functions. In the future, we are eager to better utilize the Arista switches' characteristic functions such as automatic software installation and 'MLAG', which achieves link aggregation between different chassis."

mixi has managed to address the immediate problem, but there is no end in their efforts to make their services more stable and reliable. With servers, storages and I/O becoming faster at a rapid rate, their network load is expected to grow significantly heavier in the future. "We will always strive to look one step ahead to build and maintain a network environment that will not become a bottleneck to our services," Murakami and Nakano say. The Arista switches are expected to be implemented for wider applications by mixi in the future.

"Our businesses are only of value when our customers are able to use our services without stoppage or failure. We obviously have very high

expectations for the products and vendors that comprise our system. We expect continued strong support from Arista as well," Sato says.



User Information

mixi

mixi, Inc.

Headquarter address : 1-2-20 Higashi, Shibuya-ku, Tokyo, 150-0011, Japan

Founded : November, 1997

Capital : JPY 3.76 billion (as of March 31, 2011)

Employees : 351 (Consolidated)

URL : <http://mixi.co.jp/>

Businesses

Online services including social networking service "mixi" and IT recruitment website "FindJob". Launched in 2004, mixi has acquired almost 24 million registered users to date.

Developer

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