



楽天 + A10 Networks

Striving to Reduce Equipment and Power Consumption to a Third of Previous Levels, Rakuten Achieves Increased Functionality and Consolidation of Equipment with AX Series

Rakuten, Inc. launched its "Rakuten Ichiba (market)" as a pioneering online shopping mall in 1997 based on a strong commitment to "enable people with business acumen to readily open a shop." Rakuten adopted A10 Networks' AX Series, and reinforced its network infrastructure to better cope with the increased number of users and diversified services.



76
Million
Number of Members
(as of March 2012)

Over
39,000
Number of Stores Opened
(as of March 2012)



Over
90 Million
Number of Products
(as of March 2012)



24 Hours
13 Billion Yen
Achieved 13 Billion Yen
Total Distribution Value
within 24 Hours. (March 2012)



Total Annual
Distribution Value Tops
One
Trillion Yen
(as of December 3, 2011)

Company That Empowers Individuals and Society



Increase in Load Balancing Consolidation to Cut TCO, Including Managerial Costs

Rakuten operates an Internet shopping mall that hosts over 39,000 stores. Throughout the site, over 90 million products are offered, the membership has already topped 76 million, and these numbers have led to 13 billion yen in total distribution value (all statistics as of March 2012). Fifteen years after launching its site, a wide variety of services, such as travel, portal, and finance are now provided centered on electronic commerce (EC), and this has developed into a one-stop system offering the many necessities of our modern-day lives.

Absolute trustworthiness is demanded of a network infrastructure that offers such services, as many of them are closely linked to the actual economy. Additionally, a swift and comfortable environment must be provided, to ensure repeat customers.

According to Yoshimasa Suzuki at Rakuten, "We expanded the system in accordance with the growth in traffic, and the load balancing requirements also increased each time. This increase not only applied to equipment cost, but also various other costs related to the amount of equipment involved. Management costs due to increased man-hours for maintenance, power supply

costs, and rack space, etc. have all increased, which has become an issue."

Accordingly, Rakuten set about optimizing their network integration by introducing high performance load balancers. At the same time, enhanced network functionality, optimization of downtime through increased stability, and support for IPv6, etc. were included as project goals.

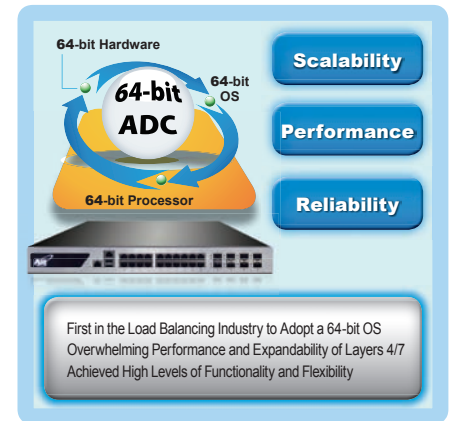


Overwhelming 64-bit Power Equipped with 24 Ports for SFP; Significantly Less Equipment and Electricity Usage

Selection of load balancers for the next term began around the end of 2009. After verification using different vendors' models for several months, the conclusion was to adopt A10 Networks' AX 2600-GF. Load balancers for each service have sequentially

been replaced with AX 2600 GF units since July 2010. The main factor was that stable and high performance could be maintained despite integration into less equipment as AX's core performance as a load balancer is so efficient. Mr. Suzuki added, "The performance demonstrated by the AX Series 64-bit platform is overwhelming. There was no other equipment that could output this level of performance from a 1U product in the same price range. There is also room for CPU usage and the performance impact is small, even though additional functions, such as session synchronization is used." In order to avoid suspension of service for maintenance, being able to use the session synchronization regularly is an important point for EC sites.

Of course, there is other functionality to



Features and Superiority of 64-bit OS

About Rakuten, Inc.

Rakuten, Inc.
 Stock market: JASDAQ standard
 Stock code: 4755
 Head Office: Shinagawa-ku, Tokyo
 CEO: Mr. Hiroshi Mikitani
 Main business: EC, credit cards, banking, electronic money, portal media, travel, stocks, professional sports, and communication services

Evaluation Point

Generous Technical Support in Japan Even for Overseas Vendors



Rakuten, Inc.
 Mr. Yoshimasa Suzuki

"Rakuten has been developing its business worldwide, even though it is based in Japan. We appreciate A10 Networks' support system that provides reliable and quick technical support with many engineers in its Japanese subsidiary. Follow-up service is provided even when escalated to A10's headquarters in America. We

have received enthusiastic support from A10, for example, their participation in regular pre-installation meetings, and preparation of a quick support system just in case there are any problems while switching. Thanks to this support, switching was successfully completed on schedule."

Evaluation Point

Achieved the Next



Rakuten, Inc.
 Ms. Chihiro Momose

A10 Networks Innovative Technology Leader

minimize downtime for both the hardware and software, such as hot swapping of power units, and many functions support IPv6 as well. There are also 24 optical fiber ports, which afford flexibility in terms of handling continuously increasing traffic.

Another notable point is its high ecological performance. Ms. Chihiro Momose at Rakuten explained, "Cutting down on power consumption and CO2 emissions is considered a corporate responsibility these days. In order to assist with the selection of equipment from that perspective, the performance-per-watt index provided by A10 Networks was really helpful."

Benefits
Obvious Installation Benefits
Accentuate Green Credentials of Entire Service through Further Consolidation

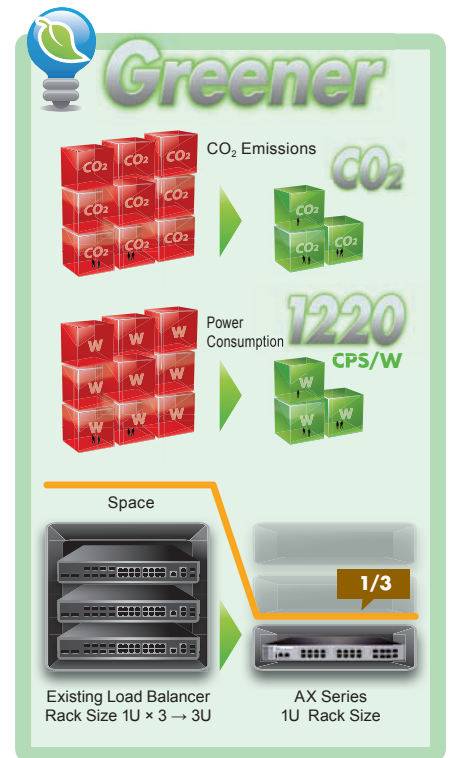
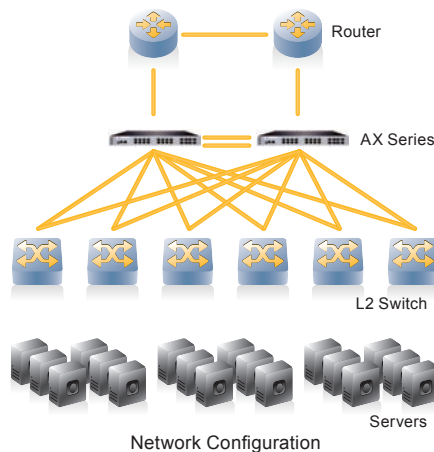
As of June 2012, dozens of AX 2600-GFs are used for Rakuten's services to handle over 20 gigabits per second of traffic. Even if there is an unexpected traffic surge due to a large-scale event, trouble-free services have been provided without the need for any special support.

According to Mr. Kazunori Nakayama at Rakuten, "Access was concentrated on several events that we may not have been able to handle with the products before replace-

ment. We are tremendously relieved with the replacement by the AX series whenever such things happen."

The management load was significantly reduced as the integration led to us using less than half the amount of equipment compared to before. This reduction in the amount of equipment also had a positive impact on rack and electricity costs. Contraction into 1U sizing from 6U was achieved for some services, and contributed to attaining Rakuten's goals for reducing its power consumption.

Mr. Suzuki describes future AX Series project prospects optimistically in saying, "Currently, this consolidation has reduced the size to about half, but the final goal is consolidation down to a third of the peak amount. Realiza-



Performance Image per Watt

tion may be possible as planned if we continue at this pace. There is no need to worry as high performance AX Series platforms can be installed reliably for high traffic segments. We expect it will be useful in order to integrate load balancers for Rakuten's wide range of services."

Evaluation Point

Essary Performance in a 1U Appliance

"We are very satisfied with the integration to much less equipment while achieving the expected performance. The costs of operating a data center, such as for racks and power supplies increase along with time required for maintenance as the amount of equipment increases. All of these costs can be cut if the

amount of equipment can be reduced. Moreover, despite being a 1U appliance, A10 products achieve performance levels equivalent to much larger products from other manufacturers, such as in 2U and 3U platforms, so A10 offers excellent cost performance in terms of space and power consumption."

Intuitive and Clear Operation Environment Thanks to Command Line Interface (CLI)



Rakuten, Inc.
Mr. Kazunori Nakayama

"A10 products are also highly evaluated internally as maintenance is easier with AX Series, even though the setting details must be changed daily for Rakuten's network. Of particular note, opinions such as, "CLI is easy to use," are often heard. The industry standard CLI is familiar to those who work with network

equipment. For example, "?" and supplementing commands using the TAB key are prepared as per industry-standard specifications. If those details are not carefully considered, minor operational errors accumulate, and can lead to human error. A user-friendly interface is a pretty important point for an operational site."



Rakuten, Who Established a Private Cloud Platform for New Service Development and Operation, Described the Compatibility of Its Cloud with the Latest Models in A10 Networks' AX Series

The adoption of cloud computing has been a major trend in IT regardless of industry type, but many new technologies must be input, so it is no straightforward task to establish a dedicated cloud environment by oneself. What sort of concept did Rakuten use for its design, and what kinds of technologies were used to achieve the goal?

– What kind of private cloud did you establish?

We established a cloud environment specifically for our own services and development.

Adoption of the cloud has also accelerated throughout the company, and an infrastructure-as-a-service (IaaS) environment is already provided for internal use. New private cloud platforms that have recently been established contain a platform as a service (PaaS) using open source software (OSS) known as Cloud Foundry and an advanced type of conventional IaaS environment. New services to be started up will be operated on this platform.

All networks are interconnected at 10 Gbps, so no additional expansion of band frequency needs to be considered for the time being. Twenty gigabits per second has been adopted between the load balancer and router only bearing in mind redundancy. The load balancer in question is of course the latest 10-Gbps model from A10 Networks.

It might be designed based on consolidation of expertise and cutting-edge technologies



Rakuten, Inc.
Mr. Yoshimasa Suzuki

accumulated while configuring and operating numerous A10 products over the last several years.

– You have mentioned that an important platform for developing and operating those services has been established. Why did you select A10 products?

The point is to have performance that enables a network configuration based on 10 Gbps, and Application Delivery Partition (ADP) function. Many load balancers of different environments or configurations are configured within an enclosure by combining a virtual network with an ADP. The AX Series adopts a redundant configuration, but Active-Standby is set the other way around for partitions in production environments and in development environments to operate within it. The impact on the production environment can be restrained to a minimum even if a problem arises with the development environment by separating the Active device in the load balancers for the respective production and development environments.

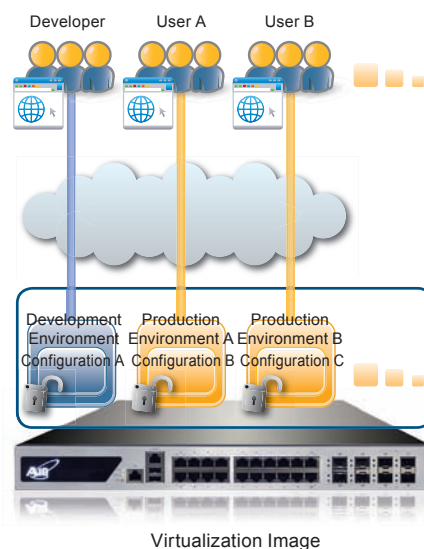
This type of configuration can be simply achieved thanks to ADP and Virtual Router Redundancy Protocol (VRRP)-A (HA configuration function per partition). As redundancy can be ensured with N+1, there is no need to add two devices as a set for future expansion.

– This appears to be a far-sighted design that successfully utilizes the AX Series virtualization function, doesn't it? Would

you please tell us about your future usage and expansion as well?

We plan to adopt the AX Series management function to our cloud management portal using aXAPI. Once a self-service portal that can be used by people other than a network manager is created, the operational load will be reduced, and faster provisioning of the load balancer function may be possible.

The cloud platform may spread across a wider area in the future, so we must consider about verification and installation of Global Server Load Balancing (GSLB) as well. Our dream is to further develop the cloud environment throughout more regions around the world in association with the globalization of Rakuten.



Any App



Any Cloud



Any Size

For All Applications, Cloud Services, and Customers

About A10 Networks

A10 Networks was founded in Q4 2004 with a mission to provide innovative networking and security solutions. A10 Networks makes high-performance products that help organizations

accelerate, optimize and secure their applications. A10 Networks is headquartered in Silicon Valley with offices in the United States, United Kingdom, France, The Netherlands, Germany, Spain, Brazil, Japan, China, Korea,

Taiwan, Hong Kong, Malaysia and Singapore.

For more information, visit:

<http://www.a10networks.com>



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