Cumulus Linux revolutionizes networking infrastructure management for Japan's largest digital advertising platform.

www.microad.co.jp

A leading company in the digital advertising industry, offering wide-scale advertising networks and cutting edge ad platforms, including MicroAd Blade (DSP) and MicroAd Compass (SSP) for aggressively expanding its business overseas.

Corporate size (as of Dec. 2015):
185 employees (Japan),
245 employees (overseas)

Established in 2007

"We needed to find a better way to manage our network"

Mr. Masaaki Motoi
MicroAd, System Development Department Manager

MicroAd is a fast-growing company developing digital advertising platforms for the country's largest Internet advertising network. MicroAd has been expanding its network infrastructure to cope with rapidly growing business needs. The expansion has made it difficult and complex to manage their IT infrastructure. To address the growing crisis, MicroAd elected to deploy bare metal switches running Cumulus Linux, a native Linux network OS that helps to increase network efficiency and infrastructure manageability while lowering overall cost.

Overcoming Issues Managing Network Infrastructure Expansion

MicroAd manages nationwide digital advertising networks. Its solutions include MicroAd Blade (DSP) for advertisers and MicroAd Compass (SSP) for online publishers. In recent years, MicroAd has expanded its footprint and started offering solutions overseas.

These large-scale advertising networking platform services require high performance and redundancy to handle the massive amount of traffic in real time. Failsafe monitoring and management of the network is essential to their success. The network infrastructure must also be scalable to accommodate the rapid growth of the business needs. "We have been operating using a layer 2 network design. However, as we expanded the infrastructure and added more servers, the time came to find a better way to manage our network," says Mr. Masaaki Motoi, Manager of System Development for MicroAd.

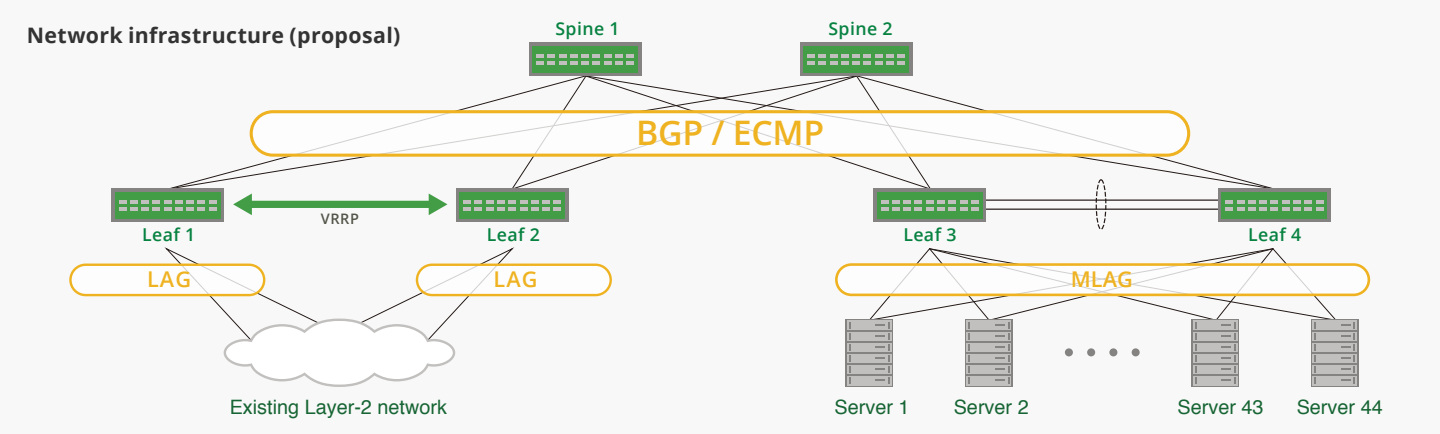
It was evident that the cost and complexity of managing a layer 2 network would mount as the infrastructure grew. Troubleshooting layer 2 loops in the network would further complicate things and disrupt the entire service. MicroAd was looking for a new system that provided better efficiency and redundancy.

An increasing number of data centers worldwide are adopting Clos architecture to address layer 2 network design limitations; MicroAd was also considering it for their new data center fabric when they discovered Cumulus Networks. Cumulus Networks develops Cumulus Linux, a native Linux network operating system that runs on industry-standard bare metal network switches.

With his system development background, Mr. Kota Hada knew the potential of a native Linux network OS and knew MicroAd could take advantage of it.

Cumulus Linux Brings Operational Advantages and Cost Efficiency

Mr. Hada and his colleagues were still exploring the benefits of Open Networking and bare metal switches when they were visited by a Cumulus Networks engineer. Their initial skepticism soon turned into optimism as they understood the benefits web-scale customers have realized by deploying bare metal switches and a Clos/IP network design. They were equally excited to learn that Cumulus Networks offers support for both their network OS and the underlining hardware.



Upon getting his hands on a bare metal switch running Cumulus Linux, Mr. Hada was impressed with the user experience and convenience the solution offered. "It was refreshing to see a network switch actually running Linux. I could operate the switches using standard Linux commands I am already familiar with, just like I do on our servers. I was very confident of the operational benefits," said Mr. Hada.

MicroAd developed a multi-dimensional database system that collected and analyzed user behavior based on their interaction with the advertising platform. The database system was built as a large in-memory database search engine running on a cluster of servers that required high-throughput network.

To address this challenge, they decided to choose bare metal switches built by a leading original design manufacturer (ODM), which further helped to reduce the cost.

> ***"It was refreshing to see a network switch actually running Linux."***
>
> **Kota Hada**
> MicroAd, System Development Department

Mr. Motoi said, "Cumulus Networks offers a network OS that is disaggregated from the underlying hardware, making it easy to replace hardware in case the hardware fails. Compared to a full-coverage hardware maintenance service, which is often very costly, it is far more reasonable to purchase a backup replacement switch along with the basic maintenance service. The maintenance cost for network devices can be high in general, but Cumulus Linux totally changes the economics."

The primary benefit of bare metal switches is the low CapEx when compared to traditional networking vendors' switches. MicroAd further lowered the OpEx by taking advantage of hardware and maintenance service choices.

Expanding the New Network to Increase Performance and Lower Costs

In December 2015, MicroAd completed the deployment of a multi-dimentional database system with a network consisting of ten 10G switches running Cumulus Linux. Overseeing the in-house testing of MicroAd's various services, Mr. Hada sees a promising future with Cumulus Linux.

"We currently have ten switches in the new network. I am seeing the benefits of Linux-based network switches every day. I can manage them easily with Cumulus Linux. It is even possible to use our existing server management tools to automate our network."

Mr. Motoi also believes that Cumulus Linux has a big advantage when taking into account his data center engineers' skill sets. "At MicroAd, our infrastructure engineers are responsible for managing servers, networks, middleware, operating systems and everything else within our data center but with so many proprietary technologies, it is hard to keep up and master everything. With Cumulus Linux, our engineers don't have to learn anything new as they can extend their existing Linux knowledge from servers to the network, reducing the learning curve."

In order to expand the benefits, MicroAd is planning on deploying additional switches running Cumulus Linux. This will include expanding their multi-dimentional database system and spares for the entire infrastructure. The management of the entire network infrastructure will then be far more efficient as every switch will be centrally managed using the Linux interface.

"In theory, the more switches we deploy, the more hardware/operational cost reduction we can achieve. Of course, we cannot disrupt the networking services so there must be careful planning for replacing the switches. We will find an appropriate time and the Cumulus Linux switches will roll out gradually," says Mr. Motoi.

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