



Pandora FMS Success Story Rakuten

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Sr. Yoshinori Nemoto, Group Manager, Shared Infrastructure Development & Operation Group

COMPANY PROFILE

Why your company needs a monitoring system like Pandora FMS?

Internet service provided by Rakuten Inc. is for anyone, anytime, and anywhere. In order to optimally operate a huge Internet service with more than 73.6 million members (as of September, 2011) at low cost.

Rakuten has adopted Pandora FMS Enterprise and has established an integrated monitoring framework which flexibly responds to service expansion for the future.



Rakuten Inc. has introduced Pandora FMS Enterprise provided by Rworks, Inc. for the shared monitoring infrastructure of Internet services and has achieved a low-cost monitoring infrastructure which is best suited for operation.

Background: Rakuten Inc. (hereinafter called Rakuten) is aiming to be the "World's number one

Internet service company," and is developing various businesses ranging from "Rakuten Ichiba," the representative of EC business and the biggest Internet shopping mall in Japan, "Rakuten Travel," traveling business, "Infoseek," the portal media business, "Rakuten Securities" and "Rakuten Card," financial businesses to operation of a professional baseball team, the "Tohoku Rakuten Golden Eagles" and planning and sales of that team's related goods.

The company has established the "Rakuten economic bloc" where more than 73 million members (as of September) enjoy various one-stop Internet services. It is needless to say that services provided by Rakuten should be of a high-level.

"Rakuten, which is developing the largest class of Internet service in Japan, has established a highly reliable and low-cost shared monitoring infrastructure through Pandora FMS Enterprise."

Taking Rakuten Ichiba as an example, it offers a large-scale service where 37,000 shops



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participate and register more than 88 million items (as of December, 2011).

Mr. Yoshinori Nemoto, Group Manager, Shared infrastructure development & operation group talks about the operating environment of these services. *"In order to deliver services to customers at the best level, we operate services on the strong common infrastructure consisting of thousands of servers. The common infrastructure ensures flexibility, robustness and optimal performance so that the service never goes down. Therefore, customers can use our services at their ease."*

What was the problem?

Rakuten built a powerful integrated monitoring framework in May 2001. Since then Rakuten has maintained optimal operation. The integrated monitoring framework covers a number of Rakuten's services, provides monitoring of services and items to operators based on each duty and has workflow for unforeseen situations. In case of a server going down, appropriate responses can be taken promptly.

Main operation in the existing monitoring system is live monitoring, but the number of targets and items being monitored increases every time a new service is added. They have been increased by 20 to 30% each year in the past. At present there are more than 10,000 targets and items. However, there is no end seen to the addition of services.

Furthermore, according to ongoing virtualization and a shift to a cloud system of the common system infrastructure, the number of targets and items is expected to increase more than ever. Cost increases became a big business challenge.

The new system was required to respond to business expansion at a low cost. That's why renovation of the 10-year-old monitoring system was considered.

The following five evaluation points were focused on for renovation of the system:

"Providing stable service requires both strong system infrastructure and operating a system that can respond to failure quickly".

/ Sr. Shigema Takeda Development
& Operation Group

Cost of introduction and operation

- Ease of data migration.
- Feasibility of redundant configuration.
- Continuity of operation process in the existing environment including determined monitoring items.



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- Application of monitoring items to be added in the future.

In addition to cost reduction, redundant configuration was a must for the monitoring infrastructure. Easy migration to a new environment was also indispensable in order to lighten operators' burden.

Evaluating the new tool

A deciding factor of adoption of Pandora is that the product is superior to other products in all requirements. Mr. Nemoto highly appreciates the effect of cost reduction. "We considered Open Source products and other commercial products as well. We concluded that TCO (Total Cost of Ownership) including the Pandora license was the best. In fact, we can control enhancement of the system due to the increase of monitoring items and the cost has decreased by 40% of the existing system cost. Initially, the cost was expected to be double. So I believe that the introduction of the new system has a significant cost reduction effect."

Concerning other technical evaluation points, Mr. Shigema Takeda, who is a member of Shared Infrastructure Development & Operation Group and in charge of considering a new system says, "If a new system doesn't have the same monitoring functions, the service level goes down. So we put emphasis on monitoring

items covered by products. For products of other companies, a data migration program has to be created from scratch, or data has to be re-entered.

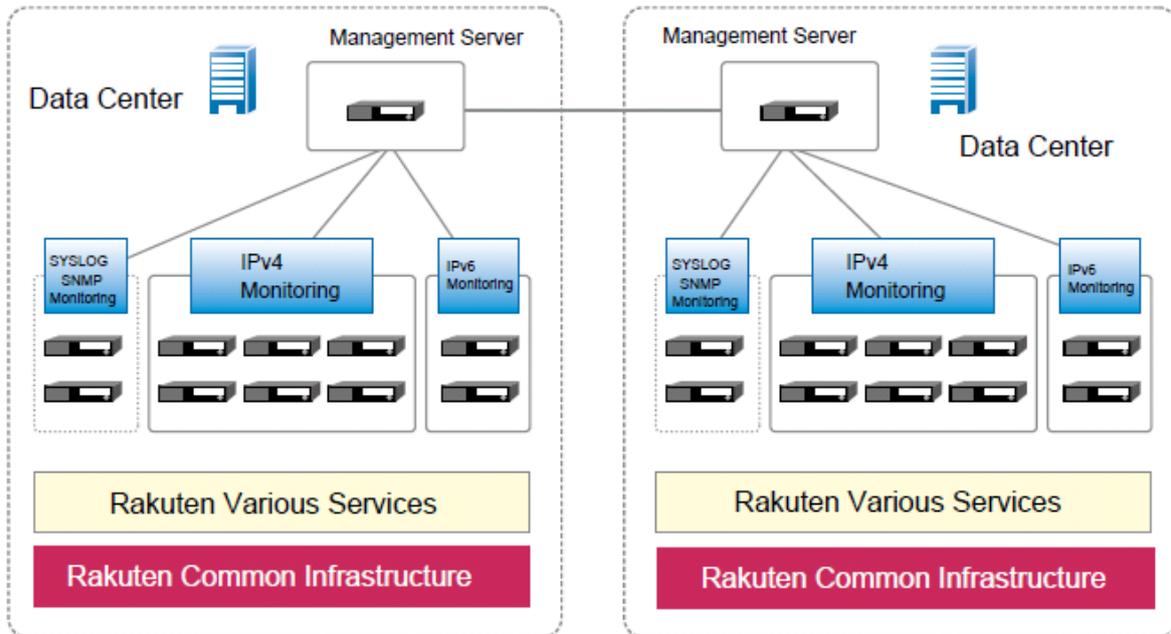
Manually entering more than 10 thousand monitoring items is impractical. Since Pandora provides various APIs and Plug-Ins, migration and addition of monitoring items is easy. After we validated the redundancy of the monitoring system, we found that Open Source products didn't achieve redundant configuration and commercial products required additional expensive cluster systems, resulting in a more expensive system than the existing system. On the other hand, for Pandora, it is easy to build a redundant configuration which is superior to commercial products."

"Rakuten goes beyond system migration. Rakuten has a customization plan to increase operation efficiency and to make it easy to add monitoring by utilizing the API of Pandora FMS"

The project started in August, 2011. Four months later, from December, operation of the new system was moved to a production environment. During the first quarter of 2012, we will fully shift to the new system. In addition to a monitor server in the data center, the configuration of the new integrated monitoring



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framework for which Pandora was adopted, is divided into the following three groups:

- SYSLOG/SNMP monitoring of HA configuration.
- IPv4 service monitoring of 5+1 redundancy.
- IPv6 service monitoring of 1+1 redundancy.

Since this configuration is also built in another data center, the system has redundant configuration over two data centers. In addition, its configuration is easy to be enhanced by adding a server in the future. As for the introduction effect of Pandora, Mr. Kazuhito Fujimaki, a manager of Group Manager, EC Infrastructure group in charge of operation of Rakuten Ichiba, and

participates in this project says, "From the viewpoint of those who use the monitoring service on site, the greatest merit is that the product can be introduced with the same configuration as the existing monitoring system and there is no change in the operation processes. I highly appreciate the product because it realizes seamless system migration despite many operation processes and offers various functions."

Pandora received a high evaluation on site as well. It is because of success in data migration and high flexibility. In that regard, Mr. Takeda says, "We developed a data conversion program on our own utilizing the API of Pandora. By exporting the existing data and entering necessary



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set values, we migrated several tens of thousands of monitoring items in one day. The high flexibility of Pandora allowed us to migrate system smoothly. Although Pandora is commercial software based on Open Source, it provides highlevel service and ensures monitoring system redundancy. It is an innovative product. For Rakuten, redundancy and flexibility is very important and the product is very suitable for us."

"A deciding factor of adoption of Pandora is that the product is superior to other products in all requirements"

FUTURE DEVELOPMENT

In addition, to pursue a higher service level, Rakuten is considering adding higher monitoring functions..

Mr. Fujimaki talks about future prospects. *"By introducing Pandora, functions not previously implemented or uniquely developed can be incorporated in the integrated monitoring system. For the next step, in addition to the current live monitoring, we want access to a lot more user-level monitoring such as time until a web page is displayed and content monitoring."*

Rakuten places high confidence in Rworks. Mr. Takeda says that *"Rakuten is satisfied with Rworks' prompt response. Rworks fixes failures in two days at the earliest and gives feedback on function addition requests in about one week"*.

Furthermore, since Rworks created the base of procedures, Rakuten could reduce man-hours. Based on support from Rworks, Mr. Nemoto says, *"We highly appreciate Rworks' prompt response. Full-scale introduction starts now, and we place a lot of expectations for Rworks' support. In particular, we want Rworks to support us with what we cannot handle by ourselves."*

In order to achieve Rakuten's goal of being the "World's number one Internet service company," building a flexible monitoring framework is indispensable. Rworks' Pandora FMS Enterprise is taking an important role in this.



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ÁRTICA ST Y PANDORA FMS

Artica ST is an innovative company that develops its own solutions and is also the company behind the development of Pandora FMS, as well as other software solutions such as Integria IMS or Babel Enterprise.

Pandora FMS is one of the most flexible solutions on the market for monitoring systems and networks. Pandora FMS is used in data centers of different organizations and companies, including universities in USA, Europe and Latin America, as well as multinational companies in the sector of communications and IT. It has thousands of users and customers on five continents.