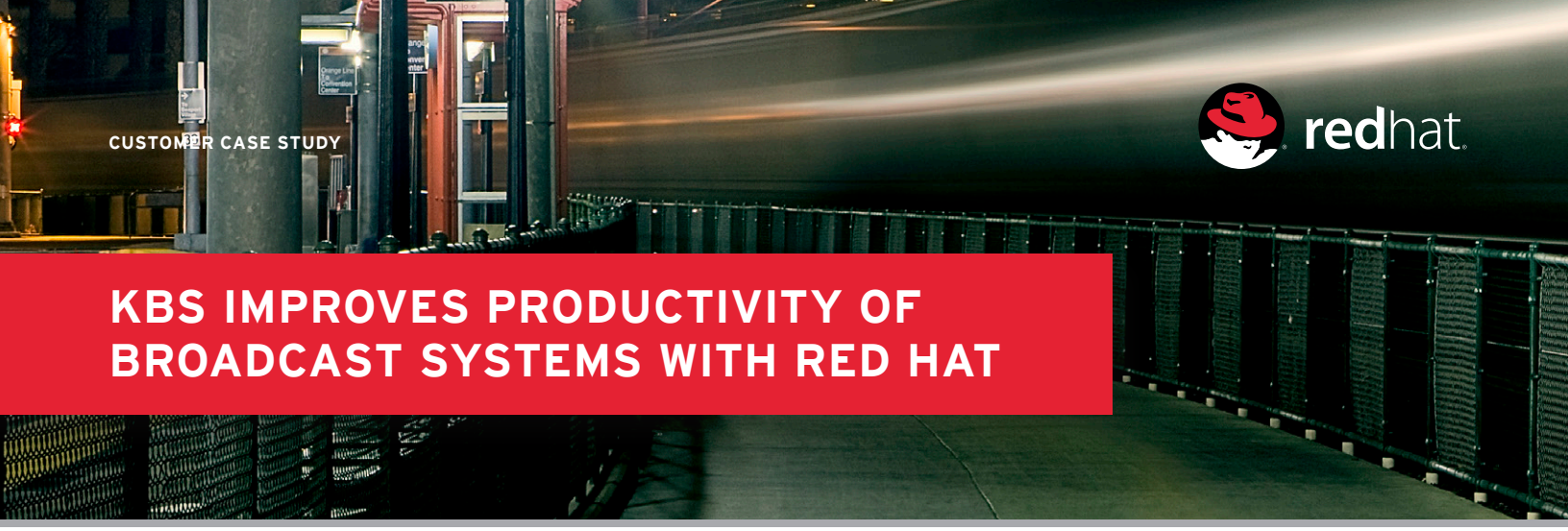


CUSTOMER CASE STUDY

KBS IMPROVES PRODUCTIVITY OF BROADCAST SYSTEMS WITH RED HAT

Korean Broadcasting Station (KBS), one of Korea's biggest broadcast media institutions, relied on analog tapes for video editing and subtitle production for the KBS World channel. KBS upgraded to a digital system by implementing an OpenStack private cloud. Using Red Hat Enterprise Linux OpenStack Platform, KBS reduced total cost of ownership (TCO) by more than 40%, improved productivity, and decreased production time by 50%.

SOFTWARE AND SERVICES

Red Hat® Enterprise Linux®

Red Hat Enterprise Linux OpenStack® Platform

GlusterFS

Nginx

Tomcat

MogileFS

HAProxy

Cubrid

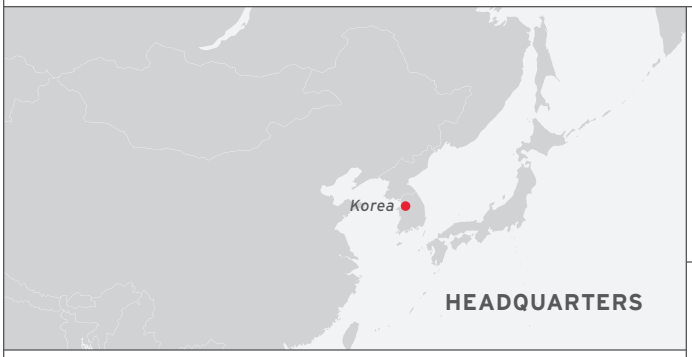
Memcached

HARDWARE

HP DL 360/380

Hitachi HUS150

Juniper EX4550



HEADQUARTERS

"We successfully implemented an OpenStack-based cloud system, which is still new and unfamiliar technology in Korea, thanks to Red Hat's full support. Our initial deployment has been so successful that we are considering adopting Red Hat Enterprise Linux OpenStack Platform for other systems throughout KBS."

DO-SUB SHIM
PRODUCTION FACILITY OFFICE DIRECTOR,
BROADCAST FACILITY DEPARTMENT, KBS

MEDIA

4,800 EMPLOYEES

BENEFITS

- Built a flexible, agile cloud to meet evolving business needs
- Enhanced competitiveness through efficient resource management and innovative work improvements
- Simplified broadcast content production and transmission process
- Reduced system TCO by more than 40% and increased expected return on investment (ROI) by more than 50%

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TEDIOUS SUBTITLE AND VIDEO PROCESSING

KBS, one of the biggest broadcasting companies in Korea, runs three TV channels, including KBS World. As KBS World broadcasts top programs worldwide, most of its content requires multilingual subtitles.

In the past, subtitling was tedious and time-consuming. KBS broadcast signals were received by KBS N, a subsidiary company, which would record the content onto analog tapes. Next, the tapes were sent to external subtitle producers for file conversion and multilingual subtitling. KBS World then reviewed and approved the completed content. Finally, KBS N received the approved tapes and broadcast the content via satellite.

This complicated, lengthy process risked content leaks and delayed global content re-transmission for at least three weeks after the original air date. To simplify both in-house and outsourced production and editing, provide system access at any time or location, and integrate systems, KBS chose to use an OpenStack cloud.

"We had limited IT resources, so we needed to be able to reallocate available resources to management and operation," said the project's supervisor, Do-Sub Shim, production facility office director of the Broadcast Facility Department at KBS.

ADOPTING RED HAT'S OPEN SOURCE SOLUTION

KBS sought a solution that could convert their existing database management system (DBMS) and other systems into an open source platform.

"Open source technology was proven through in-house autonomous studies, broadcast technology contests, and numerous tests for our network file-based caption production system [NCPS] project," said Shim.

The NCPS subtitle project is the first implementation of an OpenStack cloud system among Korean broadcasting companies. The project uses Red Hat Enterprise Linux and Red Hat Enterprise Linux OpenStack Platform, as well as a subtitle correction system developed by the KBS Technical Research Institute and a cloud-based content management system (CMS) developed jointly by KBS and SJ Technology, and other open source software.

Multilingual subtitling is now done directly on video content that is stored on a cloud-based archive. The CMS runs on a Tomcat application server, where video—shared on GlusterFS—is streamed using Nginx web servers. Subtitle producers stream the video online to complete editing and subtitles that are stored by the Cubrid DBMS. Small video clips—such as filler and advertisements—are transmitted directly from the system using MogileFS.

HAProxy provides load balancing and high availability. IT resources are applied flexibly to processes, including transmission, conversion, metadata input, and video playback, with Red Hat Enterprise Linux OpenStack Platform.

"With commercial software, we risk depending on a particular vendor and becoming dissatisfied with pricing and support. Like competitive businesses, open source software keeps evolving as it's tested by communities," explained Shim. "We had to gradually adjust to open source software, but tackling problems ourselves gave us a great sense of fulfillment as developers. Red Hat's full support, from the architecture design phase to the implementation phase, helped our implementation succeed through shared knowledge."

COMPETITIVENESS THROUGH INNOVATIVE ENHANCEMENTS

With Red Hat Enterprise Linux OpenStack Platform, KBS gained the system agility and efficient processes and resource use to respond to a rapidly changing business environment and enhance its competitiveness and leadership in broadcast service.

Drastically simplified broadcast production and transmission eliminated the need to relay content externally via physical tapes and shortened production time—previously more than three weeks—by 50%.

The environment improved work efficiency by providing integration with other KBS systems and simultaneous online access to more than 50 users, in any location, for subtitling, video editing, supervision, review, archiving, and rebroadcast transmission preparation.

LABOR COST SAVINGS

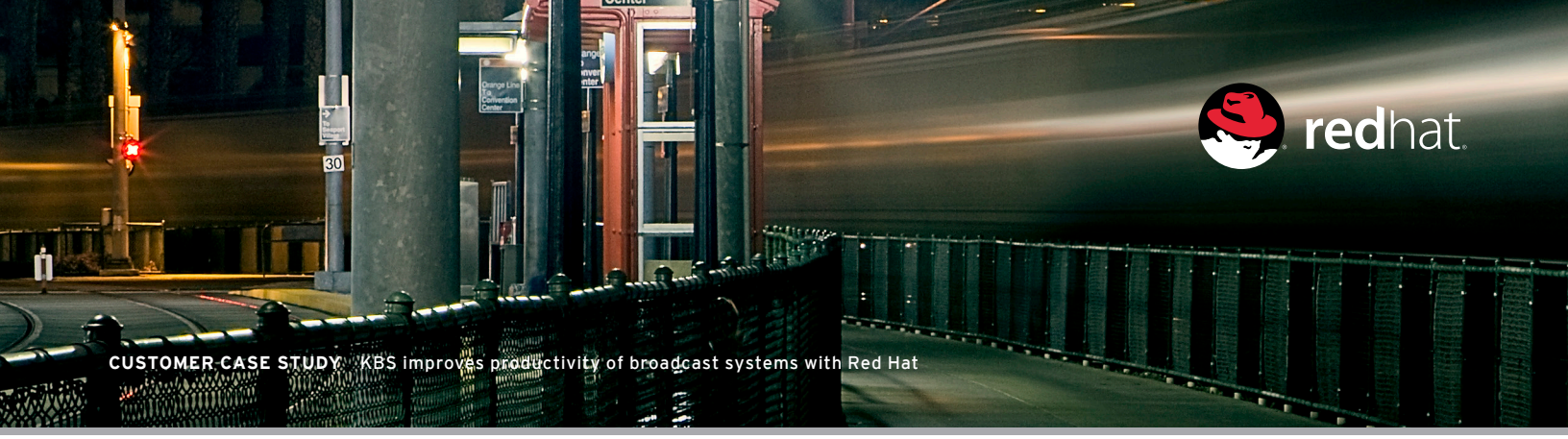
KBS anticipates a 50% increase in ROI, as well as savings of more than ₩700 million (about US$618,842) annually in labor cost and a 40% decrease in TCO over five years. When comparing initial adoption, monthly communication, and technical and operational storage costs over five years, a private cloud storage service could save up to ₩2.8-3.2 billion (about US$2,475,000-2,829,000) compared to public cloud storage service.

AN OPEN SOURCE LEADER IN BROADCAST MEDIA

KBS has been using their OpenStack-based cloud system, after completing user training, since March 2014. The system is gaining recognition from other broadcasting companies as a benchmark for broadcast IT.

KBS wants to achieve and showcase many more successful deployments to encourage adoption of open source technologies. KBS plans to test Red Hat Ceph Storage and is researching and testing open source software-defined networking (SDN) solutions.

"Because of our current success, we are also considering adopting Red Hat Enterprise Linux OpenStack Platform for other KBS systems," said Shim.



CUSTOMER CASE STUDY: KBS improves productivity of broadcast systems with Red Hat

ABOUT KBS

Initially established as Kyeongseong Broadcasting Corporation in 1927 as the first radio broadcasting company in Korea and renamed as Seoul Central Broadcasting Station, a state-owned broadcasting organization, in 1947, KBS commenced its first TV broadcast on Channel 9 in 1961. Since its reformation into a public broadcasting system and renaming as Korean Broadcasting System in 1973, KBS has remained the most representative national broadcasting organization of Korea.

KBS currently runs seven radio channels and four terrestrial DMB channels in addition to three TV channels including KBS1, KBS2, and KBS World. It also provides new media services such as data broadcasts and Internet broadcasts. Celebrating their 42nd anniversary this year, KBS has announced "Creative Media You Trust" as its mission and "Beyond TV! Rock the World!" as its vision.

ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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