

# JFE Steel Corporation

## Backup Time Reduced Dramatically with Incremental-Forever Backup and Deduplication

**Reducing the burden on server operation and management to ensure there is enough time to extract effective information to formulate management strategy from the company's big data—an important mission for the IT Innovation Leading Department**

In 2003, NKK and Kawasaki Steel Corporation merged to form JFE Steel Corporation. Since then, it has developed into a steelwork company with world-class production scale and high technological development capabilities. The company is working to become a “young and vibrant company” and believes the source of its technological strength lies in the “people,” so it has been nurturing younger employees and transferring technical skills from one generation to the next. The company's IT Innovation Leading Department is responsible for providing the IT that supports such people. The department provides a wide variety of support ranging from the construction of enterprise systems, information systems and information infrastructure with analyzing tools, to system operation and management. The company also considers information that was collected from business operations to be important corporate resources, and has maintained a complete backup environment for more than a decade since the two companies merged. In 2015, this backup system is upgraded to Veritas NetBackup, dramatically increasing the system's usability and speed.

### Operational reform and protection of information assets by the IT Innovation Leading Department

The IT Innovation Leading Department at JFE Steel, which has adopted Veritas NetBackup™, not only serves as the IT department for the company, but is also in charge of its operational reforms. Akira Nitta, Executive Assistant General Manager of the department explains the department's strengths and mission.

“Our department has about 40 staff, consisting not just of engineers specializing in IT, but also staff from the company's sales, production management, accounting, and other departments. Staff from each business department come to our department in rotation. As a result of having such diverse talents, we carry the mission of ‘promoting operational reforms through IT.’”

The history of the IT Innovation Leading Department dates back to the establishment of JFE Steel. After NKK and Kawasaki Steel Corporation merged, the information system of the two companies were integrated. A New Integrated System Promotion Team was established and the result was J-Smile, an ERP system for the steel industry that integrates business processes and management developed in-house by JFE Steel. Once J-Smile is fully operational, the New Integrated System Promotion Team became the IT Innovation Leading Department, driving the company's operations with the use of IT and developing into a department that promotes innovation by working together with the company's businesses.

“The whole company is now using a unified business intelligence (BI) tool, including J-Smile. Having a large amount of data stored in the management database is crucial to the use of BI. The Smile-Port groupware, which is used to promote the sharing of information between employees, also accumulates a large amount of data every day. To manage such information asset safely, data backup operation is fundamental,” Mr. Nitta said, emphasizing the importance of backup.

### Increased data volume extends the backup time and affects operations

IT is indispensable to the daily execution and reform of operations and the amount of data has increased steadily in proportion to the growth of its utilization and application. Ken Sakata, the Enterprise System Group Leader of the IT Innovation Leading Department, recalled some of the issues he faced.

“By 2014, the amount of data per server had increased to almost 100 GB compared to five years ago. As a whole, there was an average of around 60% increase. As a result, each backup job we designed in 2009 took a long time to complete. The load to the backup server from batch processes also increased.”



JFE Steel Corporation  
Executive Assistant  
General Manager of the IT Innovation  
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Mr. Akira Nitta



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#### Company overview

JFE Steel Corporation  
<http://www.jfe-steel.co.jp/>

- Number of employees (consolidated): 43,874 (As of March 2016)
- Industry: Steelworks
- Business: Production and sales of steel products

#### Installation overview

J-Smile® (JFE Strategic Modernization & Innovation Leading System)

#### Challenges

There is a large amount of data so it takes a long time to complete the backup. BI and other tools cannot be used on-site until the backup process is completed, disrupting business operations.

#### Solution

Veritas NetBackup was adopted and the backup time was reduced dramatically using incremental-forever backup and deduplication (Accelerator developed in-house).

#### Benefits

- The system does not need to be stopped during online backup anymore, so business operations are not disrupted.
- No need to worry about backup time at all; increased the number of virtual servers; and achieved better centralization.
- Cost reduction from standardizing operations for large-scale system innovation application.

For the backup operation of the department, the full backup amount of the virtual machine exceeded 2 TB in total in 2014. This means that when a full backup was run on Sunday, each virtual machine would take more than three hours to complete. In addition, the differential backup run from Monday to Saturday also required one hour to complete.



JFE Steel Corporation  
IT Innovation Leading Department  
Enterprise System Group Leader Mr. Ken Sakata

"Since the daily data was increasing, we were unable to complete the data backup within the specified time sometimes. We had cases where we exceeded the backup time, which then affected the DB update process that was supposed to run after that. We also had to stop running the backup at night a few times because we were unable to complete it in time for the launch of a service such as disclosing the data, orders received, product information, history, etc., for BI tool. The steps for error recovery also became complicated," added Mr. Sakata. To resolve such issues, the department accepted a proposal from Exa Corp., an integrated solution provider for IBM Japan and JFE Steel, and adopted Veritas NetBackup in 2015. Mr. Sakata explained the main points in choosing this service.

"We were attracted to the incremental-forever backup and deduplication offered by Veritas NetBackup. Its scalability also means that we will be able to manage newly added servers centrally going forward."

The incremental-forever backup of NetBackup begins by taking a full backup and only scans new blocks after that. Data is stored and merged with the same snapshot as the full backup. It is only during the initial full backup that a large amount of data is taken; the amount for subsequent backups decreases significantly, which makes it possible to reduce the backup time forever. In addition, by deduplicating data on the client-side and server-side, data storage can be utilized effectively and backup time can be reduced even further.

Mr. Sakata said, "In tests run by Exa for an incremental-forever backup on a virtual machine, the time it took to complete a full backup for 1.8 TB of data was reduced from around five hours to about three hours for the initial backup and it only took about 35 minutes for the second backup after updating 200 GB worth of data."

"Compared to the old physical environment, we were able to achieve an almost tenfold increase in speed. Before installing NetBackup, I was always worried that the backup we were running at night would not finish by morning. We were able to work around it with our operations, but our backup speed has improved after installing NetBackup and that makes us feel secure," he added regarding the benefits.

### Operational burden for backup dramatically reduced with Veritas NetBackup

"Another expectation we had with installing Veritas NetBackup is the centralized management of servers using its scalability. Even back when the IT Innovation Leading Department was still known as the



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New Integrated System Promotion Team, we had been working on centralizing the servers that were scattered all over the company. During the merger, the team focused on system operation through specific optimization, which resulted in many dispersed servers, not just in the headquarters, but also in factories and offices, and the data backup was done individually for each server. To resolve this issue, the dispersed servers were integrated physically and a virtual environment was created with a backup configuration that uses a combination of SAN storage and BackupExec. However, with this operation, the backup management server is decentralized, making management more complicated," Mr. Sakata said as he recalled the operational burden under the previous setup.

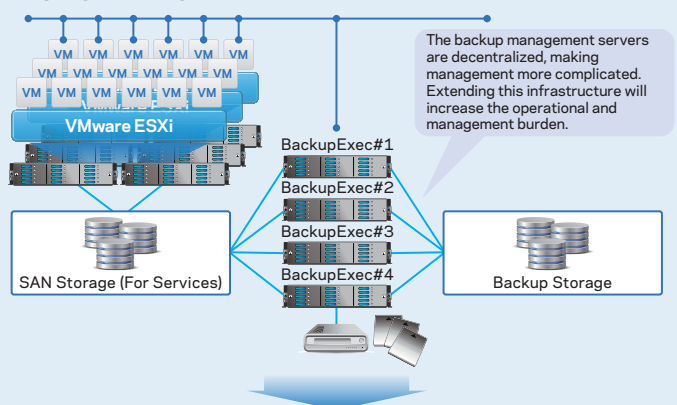
In addition to shortening the backup time, the installation of Veritas NetBackup also improved the backup operation in the virtual environment dramatically. With the help of Veritas NetBackup, the backup management server was integrated, which made centralized management possible and significantly reduced the operational burden. "As a result of installing Veritas NetBackup, we were able to suppress increases in the number of servers used, in addition to reducing the time spent and operational burden. We were also able to reduce the backup amount due to the incremental-forever backup and deduplication," Mr. Sakata said as he summarized the benefits.

### Utilizing Veritas NetBackup in system innovation for IoT and big data

"The IT Innovation Leading Department conducts a disaster recovery training once a year using the production sites in both East and West Japan. The performance of Veritas NetBackup when restoring the data during the training was also satisfactory," Mr. Sakata said after evaluating the test results of restoring the incremental-forever backup in full.

"We've already started an extremely large-scale system innovation project with J-Smile. In this project, we are rebuilding the system in anticipation of utilizing IoT and big data. It is likely that the data volume will increase even more going forward. At the same time, there is a greater need to backup and save such information assets. We expect to continue using the fast and stable data backup provided by Veritas NetBackup to ensure the continuity of our business," said Mr. Nitta with regard to future development.

#### BACKUP CONFIGURATION IN VIRTUAL ENVIRONMENT PRIOR TO NBU INSTALLATION



#### BACKUP ENVIRONMENT CONFIGURATION AFTER NBU INSTALLATION

