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Mr. Bae Suk Ho, Chief Information Officer, Daehan City Gas

## Business Profile

Company Name:

Daehan City Gas Company

Headquarters: Seoul, Korea

Industry: Energy and safety management consulting

Revenues: US \$800 million in financial year 2008

Employees: 400

Implementation Team:

Daehan City Gas IT team, working jointly with Vision Solutions and BA Solutions

Products:

EchoStream™ for AIX  
Orion Solutions

## Critical issue

Daehan needed to ensure continuous supply of energy from its underground gas pipeline to its customers and to be able to respond and re-route supply quickly if one of its pipelines was affected by a disaster or construction work. But that required their IT systems, including their AIX-based Geographic Information Systems (GIS), to be always available, without question. An able and reliable disaster recovery system was vital for maintaining access to detailed information about affected pipelines in response to service calls, repairs or emergencies.

## Results

- Smooth and speedy "dial back" of any application or database
- Minimum data loss with fast, reliable recovery
- Ability to reverse data corruption or accidental deletion of single files or transactions
- Robust DR capability via continuous replication of data to a remote backup server

## Technologies

- EchoStream™ for AIX
- Orion Solutions
- IBM System i™ Model 570,
- IBM pSeries 670, and IBM System i™ Model i550 data and storage backup server
- DB/400, Oracle and ArcGIS

## Business environment:

Energy and safety management enterprise Daehan City Gas has been in business since the 1980s. The company began as a small operator and grew into one of the major providers of petroleum products and liquefied petroleum gas to industrial estates and corporate customers in Seoul and the Kyungki-do province. Daehan has two branch offices and a geographic reach that extends to an estimated 25% of enterprises in Seoul and 20% in Kyungki-do province.

Healthy growth in petroleum and liquefied petroleum gas sales fueled a steady rise in revenues that touched US\$800 million in 2008. Furthermore, diligent and innovative management of its general and administrative costs also contributed to Daehan's positive bottomline. Most recently, modernizing Daehan's IT infrastructure was critical to ensuring that the company could meet the growing demands of its savvy customer base while fending off the competition.

## Unique Data Requirements/Server Types

The IBM mid-range System i™ 550 and i™ 570 are powerful and versatile enterprise server units based on POWER6 processor technology. Designed for housing mission critical applications, both the servers are modular yet flexible with multiplatform management features to scale to 16-way symmetrical multiprocessing capability with the IBM i570 supporting advanced virtualisation technologies with high system utility.

Daehan's production system includes the i570 and p670 servers housing Orion and DB/400 for MIS applications and EchoStream and Oracle for ArcGIS applications. Daehan's IBM i550 server is housed in their disaster recovery centre as back up. It is partitioned with the first partition hosting DB/400 with Orion Solutions and the second partition running Oracle and EchoStream.



## Business Challenge

To stay ahead of increasing demand for energy and to minimise disruptions to customers, the Daehan management charged the IT team to scout the market for suitable disaster recovery solutions. Ensuring continuous supply of energy from its underground gas pipeline to its customers was vital, as any disruption in supply would mean loss of business for the customer and would impact Daehan’s reputation as a reliable energy provider. A disaster recovery solution that was able to support its billing, customer service, GIS and a host of MIS applications was vital for business continuity.

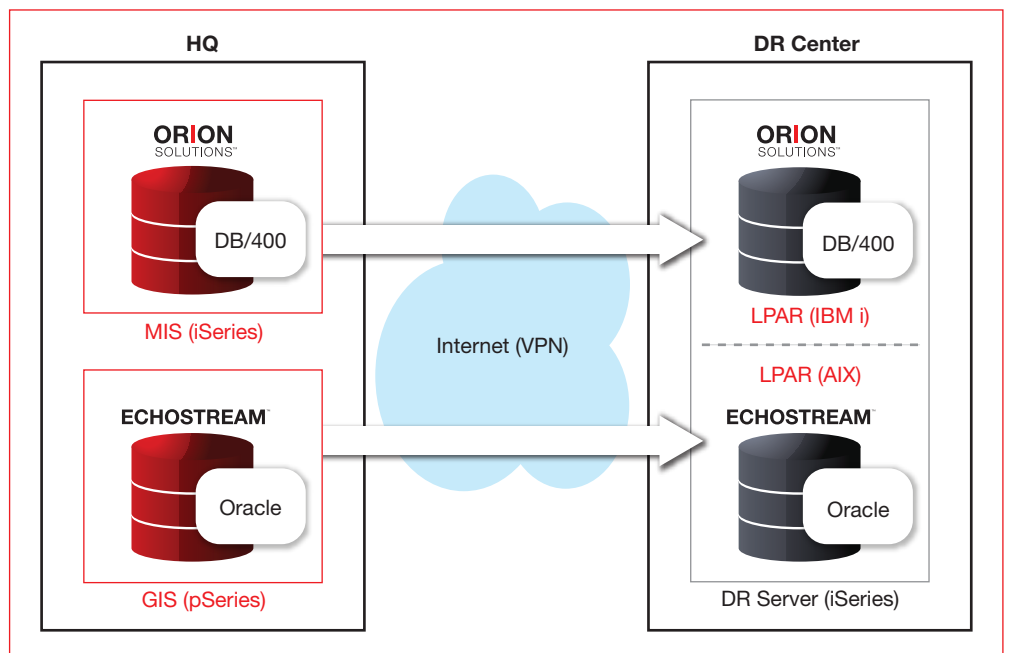
Daehan relies on both Oracle and DB2/400 application databases to serve the needs of its business units. This dual production system is powered by the i570 server, with Orion and DB/400 for its MIS application, and EchoStream and Oracle for its ArcGIS applications running on the i670 server.

However each time when the IT team had to crunch data, it had to halt the replication process, which required temporarily disconnecting customer access. Although the interruption lasted less than five minutes, it proved costly and, at times, prompted calls from irate customers. A solid and reliable data back-up system that could run smoothly in the background, without interruption, was critical.

“We have around a million customers and so the most important business process is to meet the due date of the billing batch job at the end of each month. If we fail to meet that deadline, our customers will be upset and we could incur potential losses of up to US \$500,000 a day,” said Daehan’s chief information officer Mr. Bae Suk Ho.

Daehan evaluated the offerings of various disaster recovery solutions proposed by several vendors over a six-month period before choosing Vision Solutions’ EchoStream for AIX for disaster recovery on its IBM p670 and i550 enterprise server, to complement the Orion Solutions already in place for the i570.

Vision’s EchoStream™ for AIX delivers true continuous data protection. Users can count on almost instantaneous recovery of applications and data at the push of a button. Unlike traditional backup solutions, EchoStream™ for AIX can recover data from any point back in time, not just the last backup point. This means that users have the power to reverse accidental damage or deletion, or even malicious data corruption, even after that damage has been replicated to the backup servers. With EchoStream, it is simple to “dial back” the server and retrieve an older but correct copy of the data.



Daehan’s dual production system includes an IBM iSeries server for MIS and a pSeries server for GIS to manage underground pipeline mapping information.



## Solution

In the first quarter of 2008, Daehan embarked on an ambitious project to locate an infallible disaster recovery solution. Its IT team of 14 persons scoured the state and reviewed every possible software and hardware product available in the market before it struck gold in Vision Solutions' EchoStream product.

"We tested every disaster recovery system available in the market, but none were as reliable in mirroring the data or offered a clone function to test data integrity. We always had to stop the mirroring engine to check the target volume. EchoStream allowed us to clone the data without stopping mirroring, and we could even bring up the Oracle application database using the clone," said Bae.

The testing period took another six months before the system was finally deployed late December 2008. EchoStream for disaster recovery was set up on the IBM p670 server with data back up stored on the IBM i550 server. The team found that EchoStream ensures that data recovery time and activation can be accomplished in less than four hours with a recovery point of under an hour. EchoStream also accelerates recovery, cuts costs and does not disrupt the performance of the application.

Data loss from software corruption, security breaches, virus attacks or accidentally deleted files can be minimised. Other winning features included the dial-back feature and intra-system replication (within the same computer) that is not available from other vendors' solutions. Furthermore, deploying EchoStream was smoother as it could be easily integrated with Orion Solutions that was already being used by Daehan.

Bae said that Vision's partner, BA Solutions, knew it had to ensure seamless integration because, in the past, the AIX recovery server, running a different DR product, had posed numerous problems during the data replication process. "The service team studied our environment in complete detail from the investigation stage right up to the implementation stage. They carefully applied the requirements that we had set out and implemented EchoStream after multiple testing procedures to ensure smooth roll-out and use of the system."

With the new solution in place, Daehan had an enhanced business continuity and disaster recovery plan to mitigate potential crises and ensure a steady revenue stream. Although the disaster recovery roll-out is barely a year old, Daehan's IT team is diligent in testing the system to ensure it is in tip top working condition. Furthermore as EchoStream allows testing of the replicated volume on the target disk using a clone, Bae's team is testing the target almost daily, without impact on the customers!

"EchoStream is simple, easy to use and a very stable solution with powerful features. It is an ideal solution for Daehan," he concluded.



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High Availability Disaster Recovery Systems and Data Management