

Turning the world
on to cleaner and
safer power.

*"Our contribution to society
is the generation of energy
for all our needs through
the operation of increasingly
efficient plants."*

Digital Solutions Team,
Doosan Heavy Industries & Construction

Situation Analysis

The need to produce energy more efficiently is greater than ever.

Over the last 50 years, Doosan Heavy Industries & Construction (Doosan) has contributed to the growth of the Korean economy, providing leading solutions ranging from the manufacturing of castings and forgings, power generation systems and desalination facilities, to the construction of power plants in more than 40 countries worldwide.

As a total solution provider, Doosan has served customers in various sectors such as thermal power, nuclear power, renewable energy and water. The company is now pursuing digital transformation to promote growth of its existing businesses and support its customers' innovation strategies.

Anomaly detection and diagnosis.

With demands for energy increasing and customers looking for more efficient ways to generate power, Doosan looked for an answer.

It created PreVision, a fault-detection and diagnostic solution, to reduce maintenance and equipment replacement costs as well as unexpected shutdowns while improving power-generation safety.

Real-time views of plant health and performance.

With PreVision, customers could overcome the limited accuracy of existing process monitoring and control systems to meet the world's power needs. With PreVision's machine learning and Internet of Things (IoT) technologies, plant managers would access graphical data on the real-time performance of machinery from sensors on the equipment. At the first sign of a potential issue, they could take action before failures disrupted production or put people at risk.

Design Partnership

Doosan leverages OEM Solutions to accelerate the release of PreVision while reducing the cost of development.

Doosan needed to take its PreVision idea off the drawing board and put it into production. By partnering with Dell Technologies OEM Solutions, Doosan could focus entirely on developing its software. It avoided the expense and possible delays from designing, building and testing a hardware platform for its product.

It chose Dell EMC PowerEdge R640 and R740 servers as the platform—a highly reliable hardware that would give PreVision customers worldwide peace of mind. Plus, Doosan could accelerate shipment processes with OEM Solutions ensuring PreVision software was installed before the servers left the Dell Technologies factory, saving time and

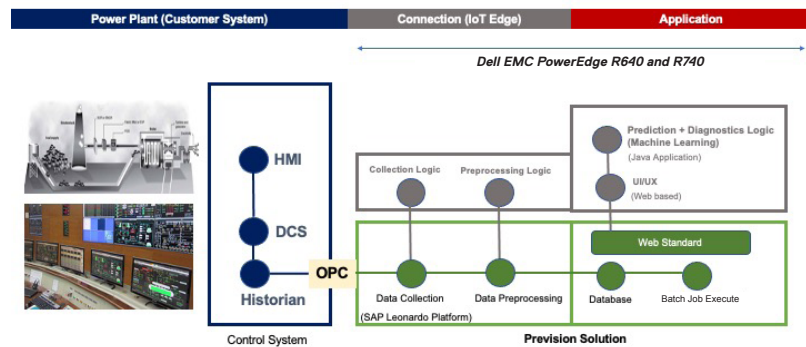
effort when the hardware arrived at Doosan's offices. Finally, Doosan wouldn't have to invest in a network of support to assist customers once the servers were in the field, thanks to the availability of Dell Technologies global support system.

Doosan engages OEM Solutions to deliver its global goals.

- Doosan works with OEM Solutions to plan the hardware platform design.

- Doosan has the option of using debranded hardware when it's required.
- OEM Solutions integrates PreVision software with the appliance prior to delivery.
- Customers across South Korea gain enterprise-grade support services.
- OEM Solutions will scale up support services once the PreVision appliance goes global.

Standard Solution Architecture



Outcome

Doosan is evolving as a manufacturing and services company—offering customers a reliable, cost-effective and more secure way to meet the power needs of the planet.

Doosan enables customers globally to meet the energy needs of local populations by building more efficient and safer power plants. All PreVision customers are guaranteed the same high level of support around the world to ensure optimal performance. Plus, no matter the size of the power plant nor the needs of the individual customer, Doosan can tailor the PreVision appliance as required.

Using PreVision, customers in South Korea are avoiding unexpected shutdowns—and potentially catastrophic failures—helping

them meet their production targets to support the economy. Machine maintenance and replacement costs are lower with potential issues identified early, so engineers aren't called out to make expensive emergency repairs.

After its triumph in the South Korean market, Doosan is now planning the launch of PreVision worldwide.

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