



## Cisco TS Advantage Provides POSCO ICT with Five Years of Uninterrupted Network Operation to Support POSCO Manufacturing Execution System

### EXECUTIVE SUMMARY

#### POSCO ICT

- Headquartered in Seongnam City, Gyeonggi Province, Korea

#### Challenges

- Increase uptime due to fewer incidents
- Ensure sustainable operations of POSCO's Manufacturing Execution System(MES)
- Improve product and corporate competitiveness with higher network utilization, availability and reliability

#### Solution

- Cisco Technical Services(TS) Advantage

#### Benefits

- Minimize response time in case of failure
- Institute best practices from vendor-partner collaboration
- Achieve best quality and highest productivity by keeping MES up and running 24x7
- Improve customer satisfaction by ensuring the manufacturing competitiveness
- Establish foundation for a successful Smart Factory

POSCO ICT is one of the leading IT companies in Korea, with solutions and services across three sectors – engineering, process automation, and IT services. It also has a presence in the convergence technology industry, providing system engineering and IT services for steel, energy, railway, transportation, and environmental industries while pursuing new growth businesses in LED lighting, cloud computing, and smart grid. The company's latest efforts are focused on creating new growth engines and continuing its energy business in Energy Storage Systems(ESS) and Energy Management Systems(EMS).

Since 2010, POSCO has ranked first on the World Steel Dynamics's global steelmaker competitiveness list for six consecutive years, securing its position as the world's most competitive steelmaker. POSCO has declared a new vision – "POSCO the Great" – to express its strong resolve for future growth. Under the vision, POSCO is expanding its business areas from steel to non-steel, from manufacturing to services, and from traditional to future – in a nutshell, from a steel-oriented to a future-oriented company, balancing and maintaining businesses old and new.

### Challenge: Non-stop Smart Factory operations

POSCO, the world's largest steelmaker with an annual production capacity of 38 million tons of crude steel, is creating a Smart Factory where machines control themselves. Sensors are installed in facilities and machines around the factory, collecting and analyzing data in real time. In addition, an IT infrastructure system enables employees to see the status of the factory in a single view.

Leveraging its experience in building and operating POSCO systems, POSCO ICT developed its own Smart Manufacturing Execution System(SmartMES) for operation of the POSCO Smart Factory. SmartMES is an integrated production management system that combines Business Compute(BC) with

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Kim Sang-jun, General Manager, POSCO ICT

Process Compute(PC) operational technologies, and it has been widely used at production sites across industries in Korea and abroad. The POSCO's smart system, in particular, connects actual tasks in the field with capabilities for production planning, work orders, material requirements, production tracking, facilities management, and production outcome analysis. In that sense, SmartMES plays the role of the brain of the factory.

“POSCO's MES provides a variety of approaches and solutions to improving availability, efficiency, and stability in key manufacturing areas,” said Seo Jeong-soo, General Manager, Pohang Infrastructure Operation, POSCO ICT. “The system has evolved to remove uncertainties in distribution and logistics through business analytics and big data and to share prediction methodology.”

If MES goes down, the factory comes to a halt, leading to losses of anywhere from hundreds of millions to tens of billions of won. Worse, just ten minutes of downtime of the MES-support network can create knock-on effects and take as long as two hours to fully restore. Previous system failures at POSCO, mostly the result of software bugs, resulted in service disruptions of at least one to two hours. That's what made the prevention of system failure such a top priority for network administrators.

With POSCO being the world's No. 1 steelmaker, unscheduled network downtime is to be avoided or all costs. Network outages can lead to not only massive losses but also business disruptions and even damage to its reputation. POSCO ICT's critical priority is to keep POSCO's complex network infrastructure up and running 24x7 without disruption.

### **Solution: Cisco TS Advantage minimizes the risk of failure and ensures business continuity**

POSCO ICT addressed these concerns by adopting Cisco TS Advantage and a Cisco Catalyst 6500 Virtual Switching System(VSS) for POSCO. This allowed the deployment of new optimal redundancy techniques that eliminated the legacy duplicated solution approach using HSRP or STP which required critical network downtime to resolve issues. The planning, design and review process began in 2009, followed by PoC(Proof of Concept) in early 2010. Eventually, in March 2010, the Cisco Catalyst 6500 VSS were introduced to POSCO's Pohang, Gwangyang, and Chungju steelworks.

POSCO's network system consisted of three levels: electrical machinery was controlled at level 1; tasks were processed at level 2; and IT resources, such as MES and ERP, operated at level 3. Maintaining and upgrading the three-tier network system was a significant and ongoing challenge.

GM Kim Sang-jun of POSCO ICT believes that Cisco played a critical role in installing the Cisco Catalyst 6500 VSS first at Pohang. No issues were found with the system during testing, but it unexpectedly failed during the implementation phase. The Cisco team immediately went to work identifying the problem through a maintenance window and was able to pinpoint a problem stemming from a multi-VLAN environment. The team quickly resolved the issue and completed the migration successfully.



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Network infrastructure is key mission-critical business applications that can process voice, video, and even data beyond text. As a result, collaboration with network vendors is a must. Cisco TS Advantage combines the existing High-Touch Engineering(HTE) and High-Touch Operations Management(HTOM) with new comprehensive network operation support to help organizations prevent and recover from disruptions before they happen, going beyond just fixing them.

TS Advantage supports management and maintenance across the network infrastructure, helping to advance the existing network infrastructure with strategic approaches. This is made possible through a dual approach based on IT service management(ITIL) and a focus on operational outcomes delivered to customers.

Cisco TS Advantage is available in four packages: Bronze, Silver, Gold, and Platinum. The Bronze package focuses on increasing operational efficiency, while the Silver package provides technical support services to help reduce time to restoration to ensure business continuity. The Gold package provides more powerful services, including Continuous Services Availability Management (CSAM) experts, to minimize downtime at the network level and to increase satisfaction among users. The Platinum package agilely responds to IT changes through a dedicated team of IT experts who deliver customized technical services.

### Benefit: 24 hours a day, 365-day operation providing exceptional business continuity

When POSCO's MES or network fails, on-site employees inform the command center, which is responsible for incident management. Cisco members have been added to its contingency team since POSCO ICT has deployed Cisco TS Advantage. Whenever a disruption occurs, the Cisco team minimizes downtime by identifying the problem and resolving it quickly.

Before Cisco TS Advantage was implemented, POSCO ICT was in a race against the clock. Utilizing Cisco's internal resources required time for communication and time to resolve the problem. That time translates to downtime. With Cisco TS Advantage, dedicated Cisco engineers skilled in network and server technologies are resident at POSCO, leading to huge increases in business efficiency and reduced business and financial risk.

Indeed, Cisco and POSCO ICT's Network Operation team have established a system of close and efficient cooperation, and as a result, accuracy and timeliness have improved dramatically across the entire process ranging from early detection to cause analysis to follow-up troubleshooting. To date, every problem related to MES operations has been swiftly resolved, and in addition, POSCO ICT is receiving on-site support, including Maintenance Window and IOS upgrades, and extensive technical evaluations by qualified engineers on everything from simple network equipment to the broader network infrastructure.



With the collaboration system, POSCO has operated its MES 24x7 without a single major disruption for the past five years. POSCO Gwangyang Steelworks' MES has never experienced a downtime that hampered production. "Everything is made possible because of our close cooperation with Cisco," said Lee Kun-hoon, General Manager, Gwangyang Infrastructure Operation, POSCO ICT. "Investment in network services is not a simple investment in infrastructure, it's about bringing higher levels of ROI. It should not be viewed merely from a cost perspective."

Even when network devices or security issues occur at overseas production sites, POSCO ICT can diagnose and address the issues quickly by cooperating with Cisco's overseas experts through Cisco TS Advantage.

As the world's No. 1 steelmaker, POSCO is pursuing Smart Factory initiatives that combine Big Data, Cloud Computing, and the Internet of Things under the vision of "Industry 4.0," bringing about the fourth Industrial Revolution.

And on POSCO and POSCO ICT's journey to realize that vision, Cisco TS Advantage, which enables its undisrupted operations, is their best partner.

### Additional information

For more information about Cisco TS Advantage, please visit [www.cisco.com/go/tsadvantage](http://www.cisco.com/go/tsadvantage).

For more information about POSCO ICT, please visit [www.poscoict.co.kr](http://www.poscoict.co.kr).



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