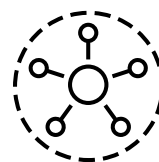


Reinforcing productivity and competitiveness through the automation of the semiconductor manufacturing process



Securing the efficiency, convenience, and agility of IT system management



Securing business scalability and availability by implementing a user-oriented modern platform

SK hynix Leads the Global Semiconductor Industry by Proceeding with Digital Transformation Based on Cloud Infrastructure

SK hynix is a leading global semiconductor company with operations in South Korea and beyond. Since 1983, SK hynix has been pushing the limits of innovation, with the ambition of becoming the world's best semiconductor manufacturer. Apart from its domestic plants in Icheon and Cheongju, it runs operations globally, including production stations in China, 4 R&D subsidiaries, and 10 global sales subsidiaries.

To stay ahead of evolving trends and developments within a dynamic Information and Communications Technology industry, as well as overcome internal IT infrastructural challenges, SK hynix decided to introduce a modernized cloud infrastructure leveraging VMware's Software-Defined Data Center (SDDC), including VMware Cloud Foundation™, VMware vRealize Automation™, VMware vRealize Log Insight™, VMware vRealize Network Insight™, VMware vRealize Operations™, and VMware HCX™, to improve the agility of its manufacturing process and meet growing customer demands.

With the stability provided by VMware's end-to-end solutions, SK hynix innovated production processes and empowered employees to engage in higher value-added production activities. SK hynix aims to continue leading the global semiconductor industry and spearheading the future of technological innovation by accelerating employee-centered digital transformation through expanded IT services to meet their demands and ultimately drive accelerated customer success.

Driving workforce transformation with IT infrastructure

SK hynix recognized the importance of enhancing its digital infrastructure and this formed the foundation for employee experience and innovation. To improve its overall organizational competitiveness, SK hynix decided to strengthen its IT department's capabilities and elevate its role within the organization to be a strategic partner that proactively creates business value. This resulted in the establishment of information headquarters and subdivisions, including SDDC, Infrastructure, Mobile, and Application to support individual divisions.



SK hynix with over three decades of expertise in semiconductor manufacturing is leading the world's semiconductor industry. SK hynix introduced cloud-based infrastructure leveraging VMware's SDDC to improve the agility of its manufacturing process and empower employees to engage in higher value-added production activities. Looking ahead, SK hynix aims to continue leading the global semiconductor industry and spearheading the future of technological innovation by accelerating digital transformation.

INDUSTRY

Manufacturing

HEADQUARTERS

Seoul, South Korea

PARTNER

Dell Technologies
Goodmorning Information Technology Co., Ltd.

VMWARE FOOTPRINT

VMware Cloud Foundation™
VMware vRealize Automation™
VMware vRealize Log Insight™
VMware vRealize Network Insight™
VMware vRealize Operations™
VMware HCX™



SK hynix also understood that it needed a flexible and stable digital infrastructure for its strategic projects and ensured that they could respond to new possibilities and stay relevant with the latest technologies.

Upon inspection of its internal IT system, SK hynix realised that its semiconductor fabrication plants (FAB) were operated continuously for 24 hours a day, which required engineers to manually monitor processes and respond to events around the clock, as a single event could compromise the entire semiconductor production line.

However, this was nearly impossible for its lean engineering team to respond to an average of 2 million events a day in a single plant. This challenge was compounded by its legacy IT system environment, which meant that these limitations were inevitably encountered more often. This was especially due to applications being siloed into their individual workstations, which made it difficult for SK hynix's team to respond quickly to issues and alarms that co-occur in the process.

To address these challenges and effectively respond to intensifying nano process competition within the industry, SK hynix decided to partner with VMware to introduce a cloud-based infrastructure, leveraging VMware's SDDC. As a long-time customer of VMware for the past 15 years, SK hynix trusted VMware's offerings and benefited from deployments that improved business processes and outcomes.

Harnessing automation for a robust digital strategy

To embark on SK hynix's deployment, VMware partnered with Goodmorning Information Technology Co., Ltd, to lead in key technical tests, and critical SDDC design groundwork that identified how the private cloud should allocate or automate resources to SK hynix's engineers. Dell Technologies also came on board as a reseller for this project.

With the support of its partners, the VMware team developed over 50 automation workflows to implement an IT infrastructure optimized for SK hynix. By switching to a software-defined server, storage, and network environment with VMware Cloud Foundation, SK hynix's IT department now had access to an enhanced cloud management platform. This meant that they no longer needed to check ten or more screens manually but had a more effective response in real-time on devices, anytime, and anywhere.

With SDDC-based cloud infrastructure, this also improved employee access to resources through a self-service portal. Now, resources could be

retrieved in just 5 minutes for implementation in 2 to 3 days, when it used to take at least 2 weeks or longer.

The SK hynix team improved and simplified resource recovery and budget maximization with more accurate forecasting of resources and future demands.

“SK hynix's digital transformation started with the belief that IT will create countless possibilities in the future. With the introduction of cloud-based infrastructure, supported by VMware, the company now has a strong foundation to innovate and achieve its ambitions to become a global leader in the semiconductor industry.”

Byungsun Kim
Vice President, Software-Defined Data Center, SK hynix

Looking toward people-centered innovation

With a renewed digital infrastructure supported by VMware, SK hynix now had an optimal environment to accelerate manufacturing and business automation within a short period.

Following the success of its cloud-based infrastructure implementation, SK hynix plans to accelerate its digital transformation journey, beginning with improving the employee experience. SK hynix believes investing in people-centered digital innovation would not only improve their efficiency but ultimately, their eventual outcomes and performance. SK hynix introduced data analysis, a software development environment, and infrastructure to provide an intuitive and seamless experience for employees to use digital tools.

To help in-house developers adapt to the new cloud environment, SK hynix is conducting a pre-Quality Assurance (QA) assessment of VMware Tanzu to standardize Cloud Native.

SK hynix is also committed to introducing the latest open source technology. The Data Lake, a Kubernetes-based platform, would effectively manage data generated within the company, including its individual plants. The implementation of the Data Lake would not only accelerate more efficient utilization of big data but, more importantly help SK hynix lay the groundwork for data-based innovation.

Looking ahead, VMware hopes to continue working closely with SK hynix to realize its vision to become the world's best semiconductor manufacturer through new opportunities uncovered by technological innovation, including the possibility of introducing VMware vSphere 7 Bitfusion™ to provide on-demand support for the development of artificial intelligence (AI) and machine learning (ML) applications.