



Building Korea's first university-based supercomputing center with Backend.AI at Sungkyunkwan University

See how Sungkyunkwan University transforms
HPC infrastructure with Backend.AI



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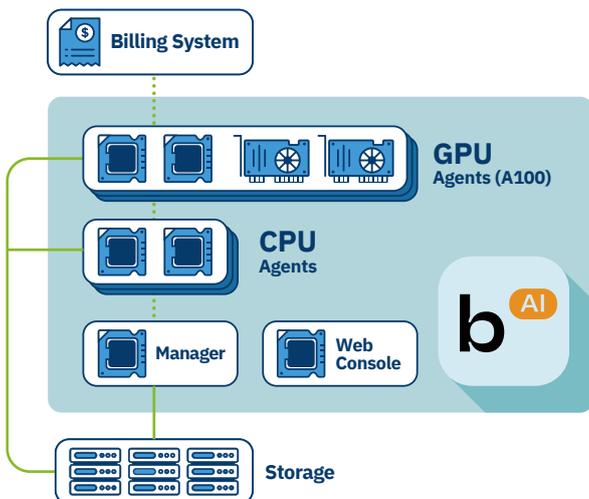
"Running a university supercomputing center prevents redundant spending and, with ongoing upgrades, will greatly boost research and hands-on learning across campus."

SKKU
Director, Supercomputing Center
Hyoungkee Choi

Sungkyunkwan University (SKKU) is widely recognized for its strong capabilities in computer science and engineering. SKKU aimed to build an independent high-performance computing (HPC) infrastructure capable of processing large-scale computations efficiently. The centralized infrastructure is equipped with multiple accelerators including 40+ NVIDIA A100 GPUs, high-density compute nodes with numerous CPU cores per node, and offers a storage capacity of approximately 2000 terabytes, sufficient for handling intensive data-driven research workloads.

A way to manage scalable HPC infrastructure

While the university secured groundbreaking hardware, managing such high-end computing resources posed significant challenges. Budget constraints and the complexities of resource allocation across diverse research groups made it essential to monitor usage. SKKU faced hurdles in operating and maintaining such as cost duplication, operational inefficiencies, and a lack of flexible resource management. Furthermore, providing fair access to computing power for individual researchers required a scalable approach to resource procurement, usage monitoring, and cost allocation.



Backend.AI: Centralizing resources for easy management

To overcome a wide range of challenges, SKKU adopted Backend.AI to streamline GPU cluster management. Backend.AI facilitated automated resource allocation, comprehensive usage tracking, and billing processes tailored to individual researchers' consumption. Backend.AI's session-based architecture also enabled researchers and students to configure and deploy their preferred machine learning frameworks on demand. Through Backend.AI, SKKU successfully enhanced research productivity by granting seamless access to HPC resources while maintaining financial and operational control. Supercomputing center opened in 2022, SKKU became the first university to independently operate a supercomputing center.