

# Building CNGrid As a HPC Application Cloud Service Provider

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Public grids (WLCG, OSG, XSEDE2) provide huge computing resources to scientific users all around the world, those services are continuously and constantly evolving for the last 20 years. In the mean while, recently public clouds show great interest in HPC besides its traditional IaaS/PaaS/SaaS market. Companies like Amazon, Microsoft, Google and Ali all have their own HPC cloud solutions. As one of the biggest computing grid in the world, China National Grid (CNGrid) integrates top HPC resources all over China, including Tianhe, Tianhe2 and Shenwei. It has been providing grid computing services for scientific user for more than 15 years. CNGrid has developed its own grid software SCE, as the kernel middleware to link all the HPCs and schedule job requests. Based upon SCE, there is a RESTful wrapper called SCEAPI, enabling rapid development of a dozen of science gateways for specialized domain communities or easy-to-use mobile apps. A very successful example is that CERN ATLAS simulation jobs are running in CNGrid, by connecting ARC-CE middleware and SCEAPI.

## Summary

In conclusion, CNGrid becomes a HPC application cloud service provider, it's a very good practice of fusion between grid and cloud technologies.

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