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Alps: cloud-native HPC at the Swiss National Supercomputing Centre

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The Swiss National Supercomputing Centre (CSCS) is commissioning the future multi-region flagship infrastructure codenamed Alps, an HPE Cray EX system based on NVIDIA GH200 Grace-Hopper superchip. The Centre has been heavily investing in the concept of Infrastructure as Code, and it is embracing the multi-tenancy paradigm for its infrastructure. Alps will serve multiple partners, characterised by different development and operational requirements, through the use of versatile software-defined clusters (vClusters). Exemplified by the collaborative partnership with the Paul Scherrer Institut, CSCS is also able to deliver Infrastructure-as-a-Service solution on Alps, enabling organisations to construct and manage vClusters tailored to their specific demands. Furthermore, in close collaboration with the Swiss Institute for Particle Physics, CSCS has met the computing requirements of the WLCG project with cutting-edge resources via a Tier-2 Grid site vCluster. This baseline is also exploited by other projects such as the Cherenkov Telescope Array and the Square Kilometre Array.

Leveraging modern approaches and technologies borrowed from the cloud, CSCS is now empowered with enhanced flexibility to deliver first-class High Performance Computing to a variety of users and partners.

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