

Design and implementation of one-stop scientific data analysis platform: Torch (REMOTE)

Tuesday, 18 March 2025 17:00 (30 minutes)

The Torch computing platform aims to provide a one-stop scientific data analysis platform for light source discipline users, covering multiple computing service modes, supporting multiple access methods, integrating multiple data analysis methods, and facing multiple application scenarios.

The platform covers multiple computing service modes, including two types of desktop computing and analysis services: virtual machine remote desktop and physical machine remote desktop, web interactive computing and analysis services based on jupyterlab, command line analysis services based on ssh, remote interactive computing and analysis services based on vscode ssh-remote mode, self-organizing cluster computing and analysis services based on Ray/Spark framework, and HTC/HPC batch job computing services commonly used in the field of high-energy physics. Supports multiple service access methods such as windows remote desktop, browser, command line terminal, etc. At the same time, the Torch platform continues to expand and integrate various data analysis applications such as AI modeling, data reconstruction, image segmentation, etc., combined with the token-base user identity management module to achieve consistency of experimental data access rights for users in various application scenarios.

The Torch platform also relies on the big data operation and maintenance analysis platform to aggregate platform resources and application service monitoring indicators, and provides a rich application indicator display board based on the correlation analysis results, so that platform users can understand their current service status and historical resource usage information.

The Torch platform has been applied to the HEPS large scientific device to provide computing power support for HEPS's scientific experimental exploration.

Primary authors: Mr LI, Binbin; HU, Qingbao (IHEP); CHENG, Yaosong (Institute of High Energy Physics Chinese Academy of Sciences)

Presenter: HU, Qingbao (IHEP)

Session Classification: Virtual Research Environment (VRE)

Track Classification: Track 8: Infrastructure Clouds and Virtualizations