Conference on Computing in High Energy and Nuclear Physics



Contribution ID: 455

Type: Talk

Revolutionising Radio Astronomy: The UK's Role in SKA's SRCNet Deployment

Thursday 24 October 2024 16:15 (18 minutes)

The Square Kilometre Array (SKA) is set to revolutionise radio astronomy and will utilise a distributed network of compute and storage resources, known as SRCNet, to store, process and analyse the data at the exoscale. The United Kingdom plays a pivotal role in this initiative, contributing a significant portion of the SRCNet infrastructure. SRCNet v0.1, scheduled for early 2025, will prototype the movement and management of data, demonstrating both ingestion and dissemination processes (using Rucio and related tools from HEP). It will also demonstrate access to data through science platforms and interactive analysis tools, building on synergies with discussions in the HEP community with Analysis Facilities.

Azimuth, a self-service portal optimised for high-performance computing in scientific applications, will be integral to this effort. It simplifies the complex management of cloud resources, making it an ideal tool for the heterogeneous compute environments provided by UK HPC sites. Federating access to UK and SKA members across these resources, and ensuring efficient use of network and storage placement will be critical for science exploitation by enhancing the experience and productivity of researchers. This work outlines the UK's architectural vision and roadmap, detailing implementation strategies for SRCNet v0.1 and beyond.

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Session Classification: Parallel (Track 7)

Track Classification: Track 7 - Computing Infrastructure