

Performance Engineering for the SKA Telescope

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ABSTRACT

The SKA radio telescope will be a massive world class scientific instrument, currently under design by a worldwide consortium, to progress to full operation in South Africa and Australia in the mid 2020's. The capabilities of the telescope are expected to enable major scientific breakthroughs. At the center of its data processing sits the Science Data Processor, a large HPC system with specialized software. In this lecture we will give a high level overview of the project and progress to the computing and data related architecture. Then we will discuss the work of the SDP design consortium to understand and achieve the many performance requirements leveraging hardware and algorithms. Among these is a requirement for memory bandwidth exceeding 100 PB/sec.

BIO

Peter Braam is a scientist and entrepreneur focused on large scale computing. After obtaining a PhD in mathematics under Michael Atiyah at Oxford, he was an academic at several universities including Oxford, CMU and Cambridge. Peter created the Lustre file system, which has become a key product for large scale HPC. From 2013, Peter has been contributing to architecture for data processing in the SKA telescope, and is researching and designing other solutions for data intensive computing.



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