

ETHERNET MULTICAST NETWORKING FOR RADIO ASTRONOMY: THE GOOD, THE BAD AND THE UGLY

Jason Manley, *South African Radio Astronomy Observatory*.

MeerKAT has been successfully operating at full scale for over a year now, leveraging a multicast ethernet L3 network to distribute data between processing elements. Until recently, all of these components have been under internal control (designed and developed in-house). However, we are now in the process of deploying and commissioning the first User Supplied Equipment, which integrates into the existing network. This 3rd-party equipment is not under our control. We provide an Interface Control Document to explain the network's limitations and how to use it correctly and fairly. However, it is difficult to accurately document all possible use-cases and it is possible, under certain conditions, for these users and detrimentally affect streams to other equipment. Care needs to be taken to ensure proper operation of the network. This talk will discuss the advantages and challenges of interconnecting radio astronomy instrumentation using a large-scale multicast ethernet network, and some of the pitfalls of equipment selection, network architectures, protocols and configuration, and external equipment connections.