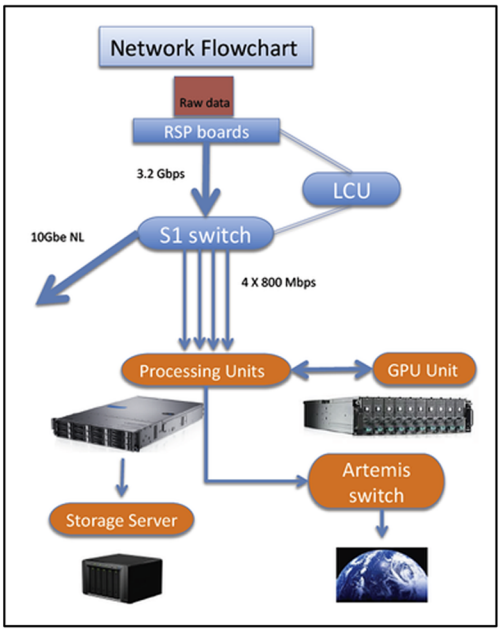
LOFAR-UK STATION

ARTEMIS

Advanced Radio Transient Event Monitor and Identification System



ARTEMIS is a versatile CPU-GPU telescope backend for use with a single station. Data flow is shown in the diagram (left). The blue components are part of the the station hardware and the orange components are part of ARTEMIS *(storage servers optional)*.

Hardware:

~ Dell PowerEdge C6100 with 4 dual socket motherboards and a total of 8 Intel Xeon 5650 CPUs.

~ Dell PowerEdge C410x PCIe expansion box with 4 Nvidia Tesla M2050 graphics cards.

AMPP

Artemis Modular Pelican Pipelines

The ARTEMIS software is made up of data receptors, processing modules and output streamers. The PELICAN framework manages data communications (memory and network).

The diagram to the right shows the sequential processing and asynchronous tasks carried out by AMPP.

Current Modules:

~ Chanelisation of raw complex data using a polyphase filter.
~ Generation of stokes parameters.
~ Real-time RFI excision in total power.
~ Integration.
~ Dispersion searching for fast transients using GPUs