**Modular Digital Infrastructure for Radio Telescope Arrays**
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The ngVLA and ALMA 2030 designs of the digitizers, local processing, data transmission and crossbar switching to the correlator are converging to the same general architecture with focus on modularity and upgradability. These architectures include optically multiplexing the digitizer data from each FE module to a local processor, an antenna based processor to frequency slice the data prior to data transmission, the use of internet protocols between the antennas and the correlator, and the use of commercial networking equipment to perform the crossbar switching before the correlator.

The modular design will allow for partial deployment or upgrade of each subsystem with minimal effect on the other subsystems. For example, deployment of the currently ALMA correlator is by quadrants, and one quadrant processes the data from one baseband signal from each antenna. By performing coarse channelization in the antenna, the correlator can be designed in smaller, less expensive pieces, each piece processing one channel. The channelization can be scaled to the bandwidth that allow for the best performance for gain equalization and other DSP requirements. Since the routing to each piece of the correlator will be performed by standard network hardware, each piece of the correlator will listen to UDP broadcasts of the channel it is processing from each antenna, and the network will route the appropriate data to the processor. This also means that each piece of the correlator can be easily repurposed to operate on a different channel on demand, and multiple processors can work on the same channel when necessary.