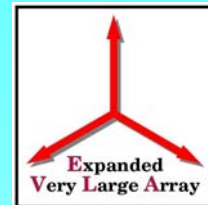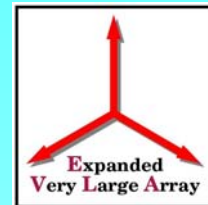# Overall Data Processing Architecture Review

EVLA Monitor and Control Interfaces

EVLA Monitor and Control Interfaces

- Nature and number of interfaces
- Observation Scheduling Interface
- Monitor Data Interface
- Data other than monitor data
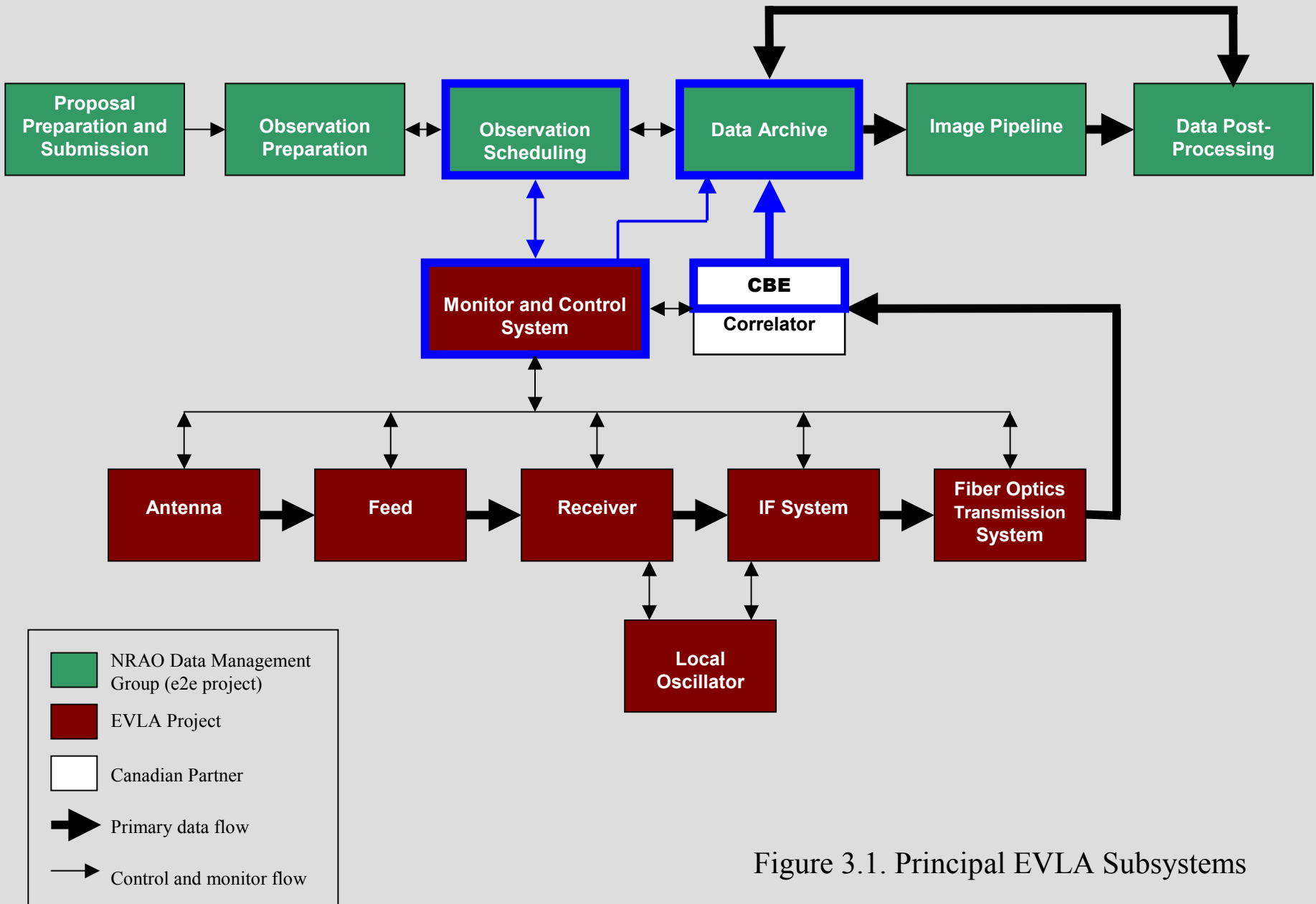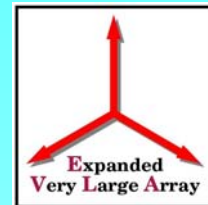- Visibility Data
- Remote Observing Toolkit

Figure 3.1. Principal EVLA Subsystems

Monitor & Control Interfaces

- A bi-directional interface between the Observation Scheduling System and the EVLA Monitor & Control System

- Monitor data from the EVLA Monitor and Control System to the Data Archive

- Data other than monitor data from the EVLA Monitor and Control System to the Data Archive

- Visibility data from the correlator backend to the Data Archive

- Integration with Remote Observing Toolkit

Observation Scheduling Interface
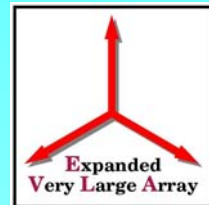
- The Observation Scheduling Interface will pass observing blocks to the M&C system, and status and state information from the M&C system to the observation scheduling software.

- An observing block will account for some duration of observing time, perhaps 20 minutes.

- The concept of scans will be retained. A block will contain scans for only one project.

Observation Scheduling Interface
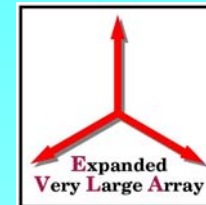
- All scheduling will be treated as dynamic, with fixed time scheduling treated as a special case of dynamic scheduling.

- E2e will supply to M&C a list of the information needed to do dynamic scheduling.

- M&C system must raise events for all observing blocks – at a minimum successful completion or failure.

- M&C system must raise events for conditions affecting scheduling – antennas stowed due to wind, critical hardware failures, etc

Observation Scheduling Interface
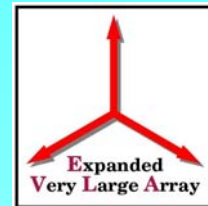
- Subarrays ?
  - E2e has suggested that there will be a separate stream of blocks and a separate dynamic scheduling process for each subarray. Since subarrays are dynamic entities, this suggestion needs refinement and further discussion between the M&C group and e2e.

- A set of default blocks will reside in the M&C system for troubleshooting.

- Targets of opportunity require further discussion. We all agree that scheduling and the M&C system must respond to targets of opportunity on timescales of minutes or less.
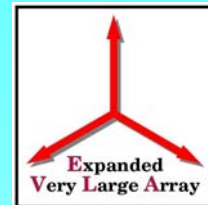
Monitor Data Interface
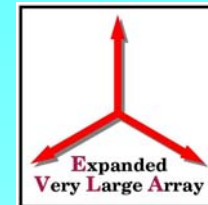
- Monitor data will probably be stored in the Data Archive as AIPS++ tables.

- We anticipate a requirement to store array wide monitor data values into the Archive on a periodic basis for engineering support.

Non-Monitor Data

In fact, it would be more accurate to describe this data as monitor data that is not well integrated into the monitor data stream of the current VLA.

- Operator Logs
- Atmospheric Phase Interferometer
- Water Vapor Radiometers
- Error messages, warnings, alarms
- A complete catalog of all data sources has not yet been compiled
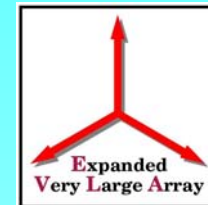- Format is TBD

Visibility Data
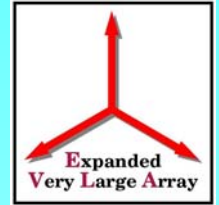
- Visibility data will be stored as AIPS++ measurement sets with extensions for header data contained in the lag frame sets.

Remote Observing Toolkit

- All EVLA M&C GUIs will be inherently remoteable.

- EVLA M&C sees the Remote Observing Toolkit as a desirable supplement to the EVLA M&C GUIs.

- Will require integration with EVLA M&C GUIs, and with whatever method is used to communicate data to the GUIs.

- Remote Observing Toolkit includes not only display of real-time telescope data, but also Image Pipeline and Data Archive access.