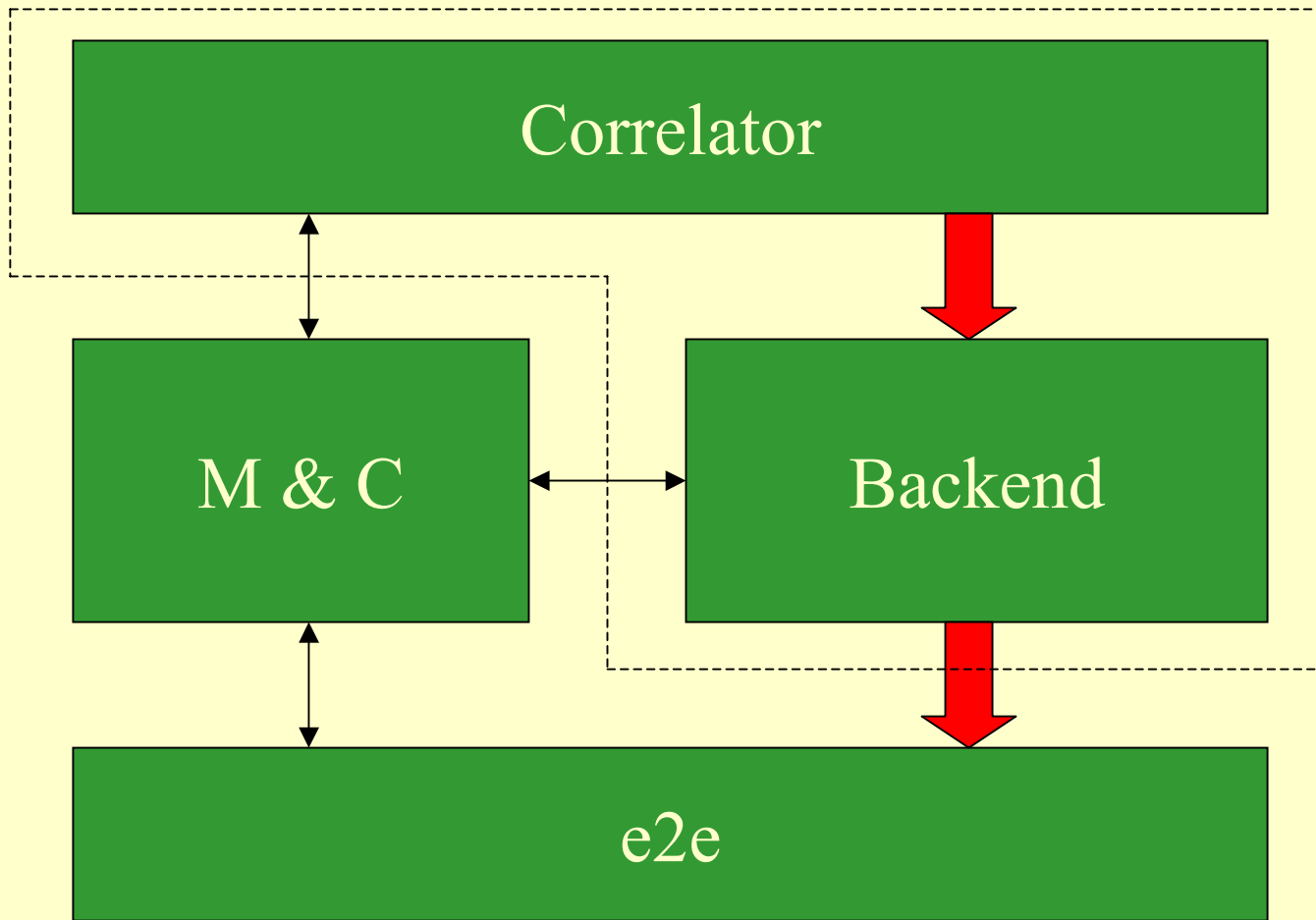
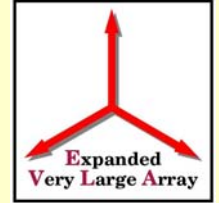


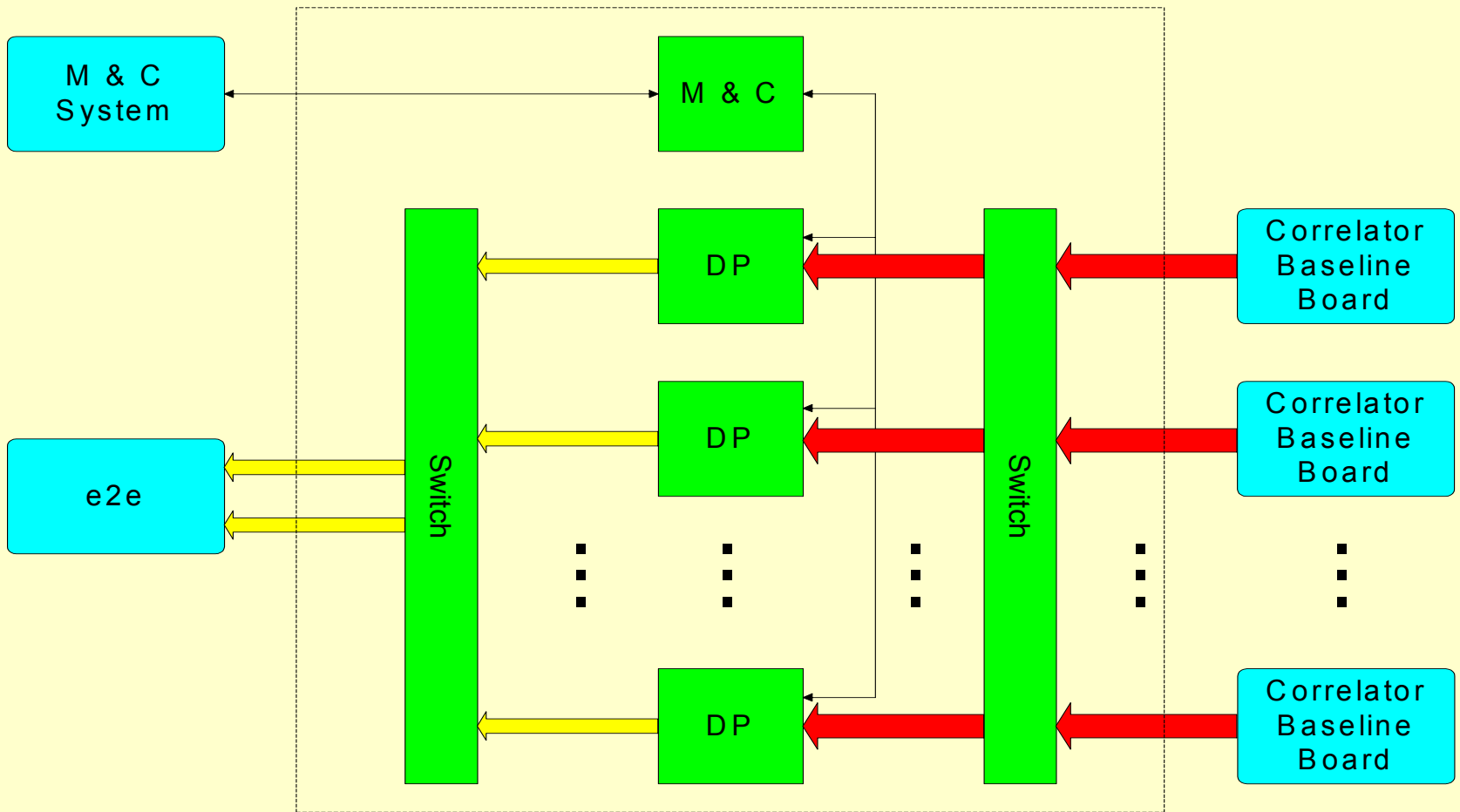
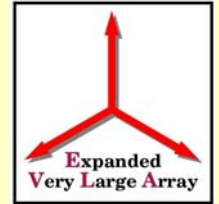


Correlator – Backend System Overview



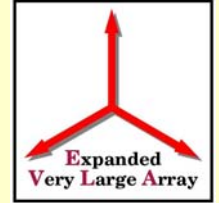
Major Components







Correlator-Backend Network



- 160 (27-32 Antennas) Minimum to 336 (48 Antennas) Correlator Connections
- ~50 Backend Connections
- Maximum Aggregate Transfer Rate of 1.6 Gbytes /sec
- Gbit / sec switch



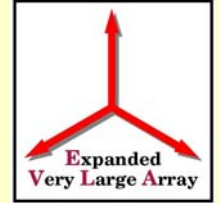
Backend to e2e Network



- Maximum Aggregate Transfer Rate of 25 Mbytes / sec
- ~ 50 Backend Connections
- Network vs. Direct Channel Attached to Archive System



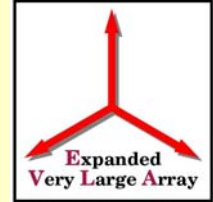
Observational Modes



- Continuum
- Spectral Line
- Pulsar
- Bursting
- Sub-array



Output Data Frames



- 266, 32-Bit Words (1064 Bytes)
- 1 or More Frames per Packet
- Frames Include all Data Needed For Lag Set Assembly
- All Frames From Same Baseline go to One BE Processor



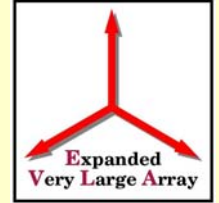
Direct Correlator Data Products



- Antenna ID
- Baseband ID
- Sub-band ID
- Recirculation Block Number
- Frame Count
- Status Bits



Direct Correlator Data Products



- Phase Bin Number
- Sample Valid Count
- Time Stamp
- Checksum
- Correlation Lag Values



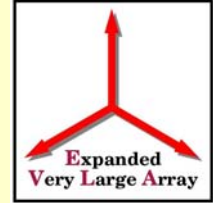
Correlator Lag Values



- In-phase and Quadrature
- Stored as Real And Imaginary Pairs
- 32-bit, 2's Complement Integers



Indirect Data



-
- State Counts (Correlator Produced)
 - Correlator Configuration
 - Integration Rate
 - Processing Applications and Parameters
 - Meta Data Needed for Formatting