

EVLA Monitor & Control



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EVLA Data Flow - Overview



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Transition System vs. Final System



- In broad terms, there will be two major versions of the EVLA Monitor & Control System – a Transition System and a Final System
- The Transition System bridges the gap between the old Modcomp-based VLA Control System and the final version of the EVLA Monitor & Control System, while maintaining operational capabilities
- The Transition System will be responsible for controlling a wide array of old and new hardware – EVLA Antennas, VLA Antennas, the VLA Correlator, and the prototype WIDAR correlator
- The Transition System will incrementally shift its software architecture toward the desired architecture of the final system



Selected Transition System Milestones



- ✓ Support for EVLA antenna hardware development
- ✓ Use of EVLA Antennas in scientific observations
 - Monitor and control of EVLA antennas
- Retirement of the Modcomp-based VLA control system
 - Monitor and control of VLA antennas (nearly done)
 - Monitor and control of VLA correlator
 - Distribution of VLA correlator output within EVLA M&C
 - Formation & writing of VLA format archive records
- Support WIDAR prototype correlator
- Implement target architecture of final system



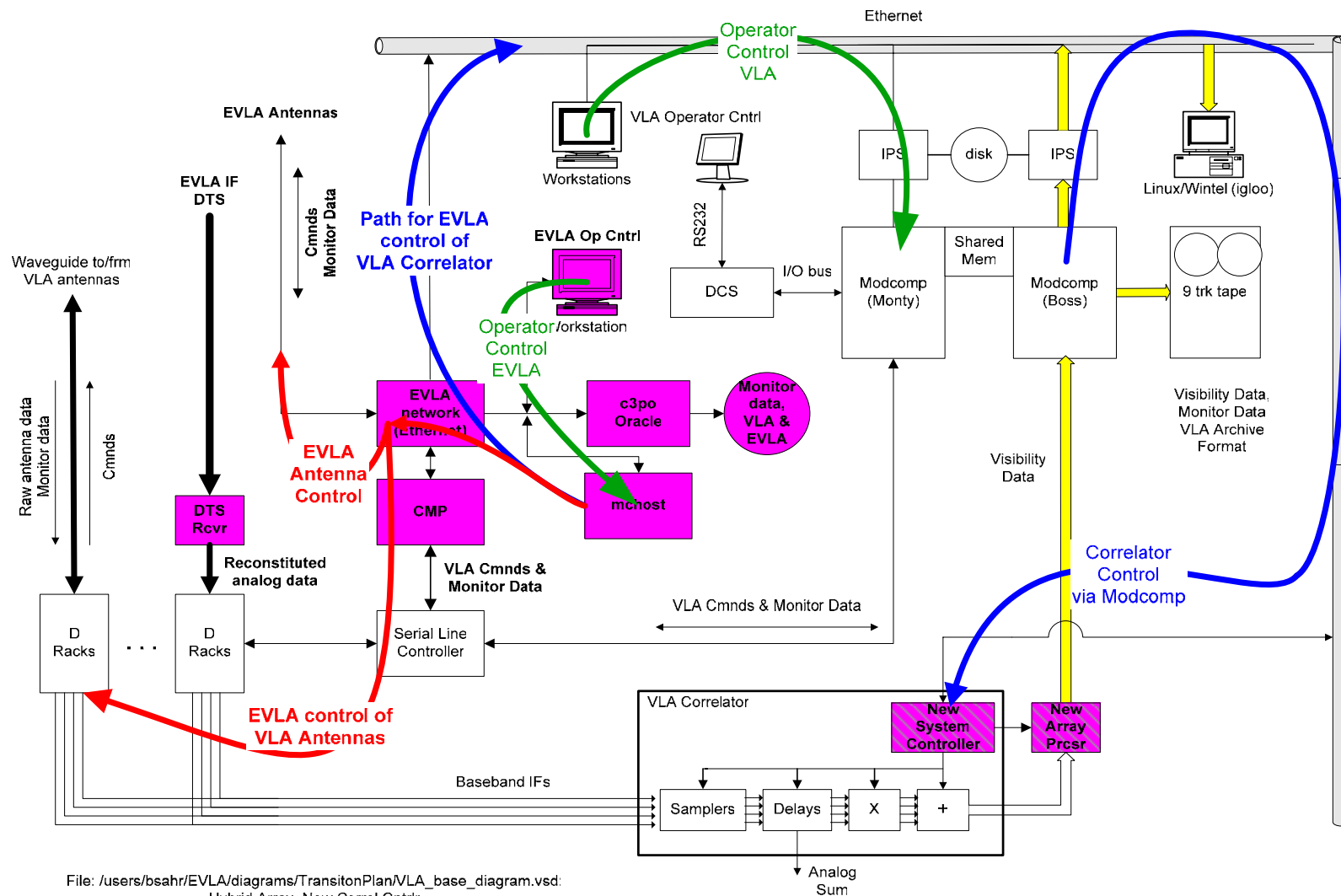
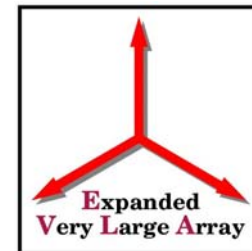
Retirement of the Modcomp-based VLA control system



- Monitor and control of VLA antennas – end of Q2 2006
- Monitor and control of VLA correlator – Q4 2006
- Distribution of VLA correlator output – Q4 2006
- Formation & writing of VLA format archive records – Q1 2007
- Parallel operation & testing – Q2 2007



Current State of the Transition System





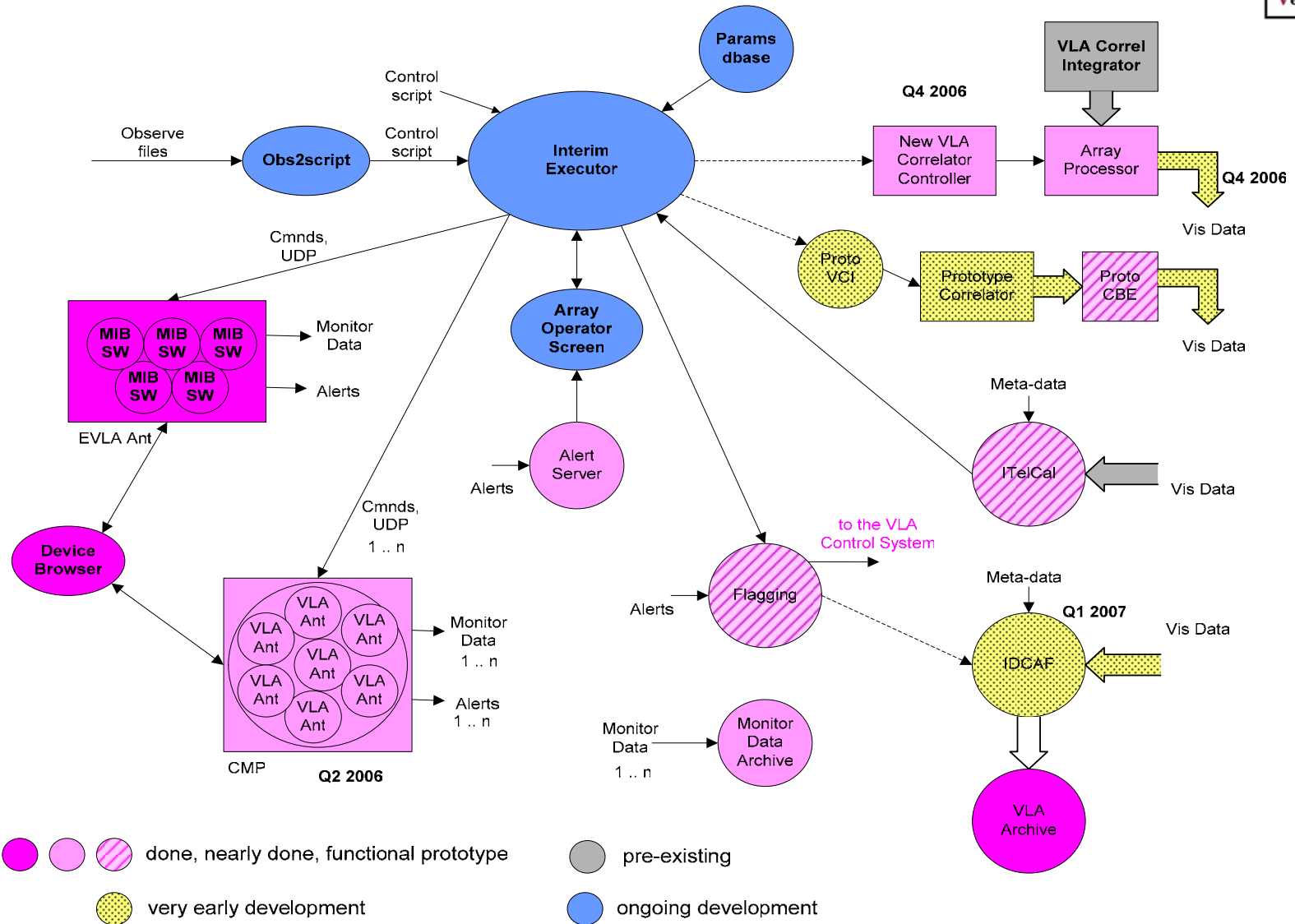
Transition vs. Final System Components & Carryover



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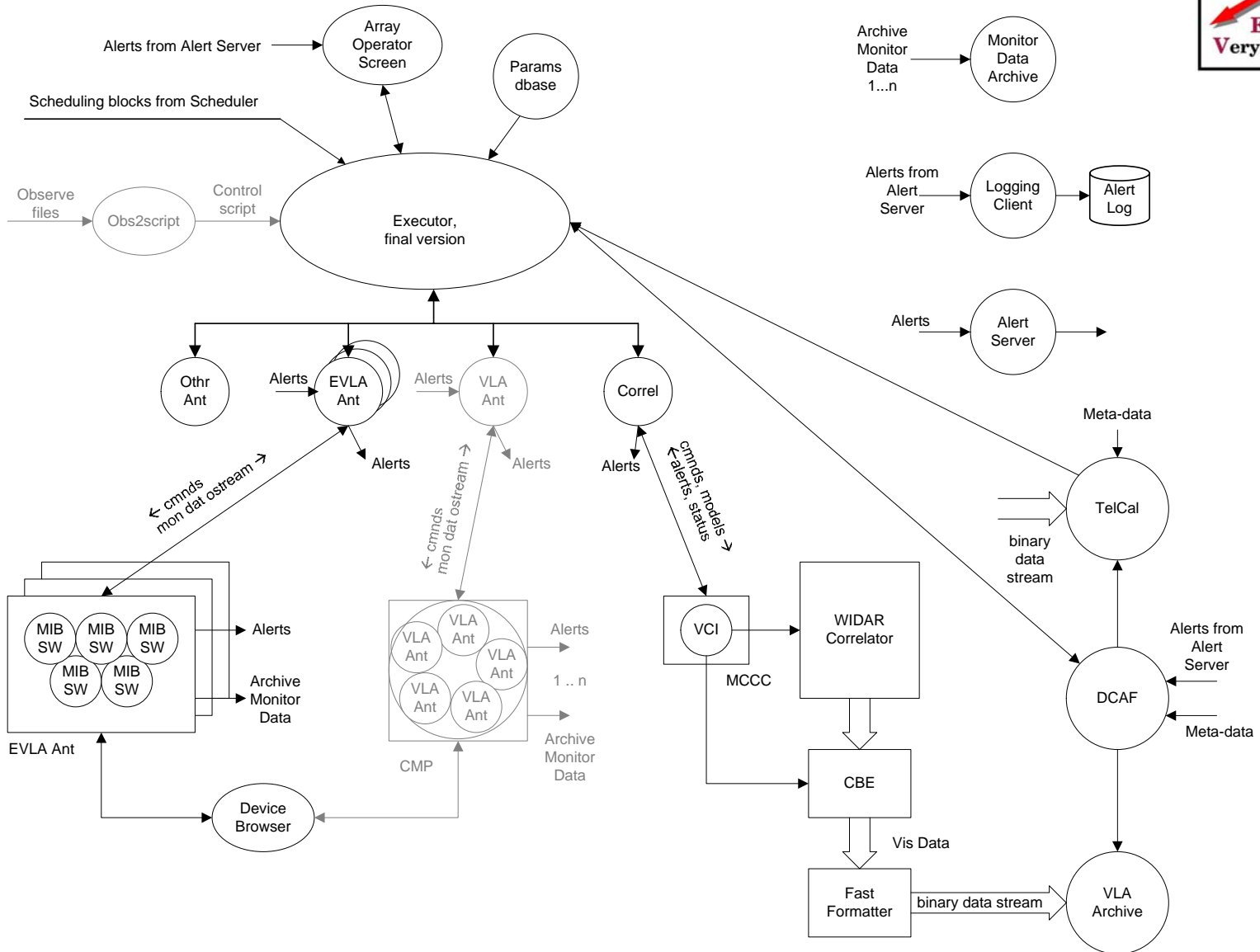
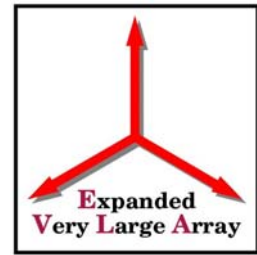
EVLA M&C Transition System

Data Flows & Status



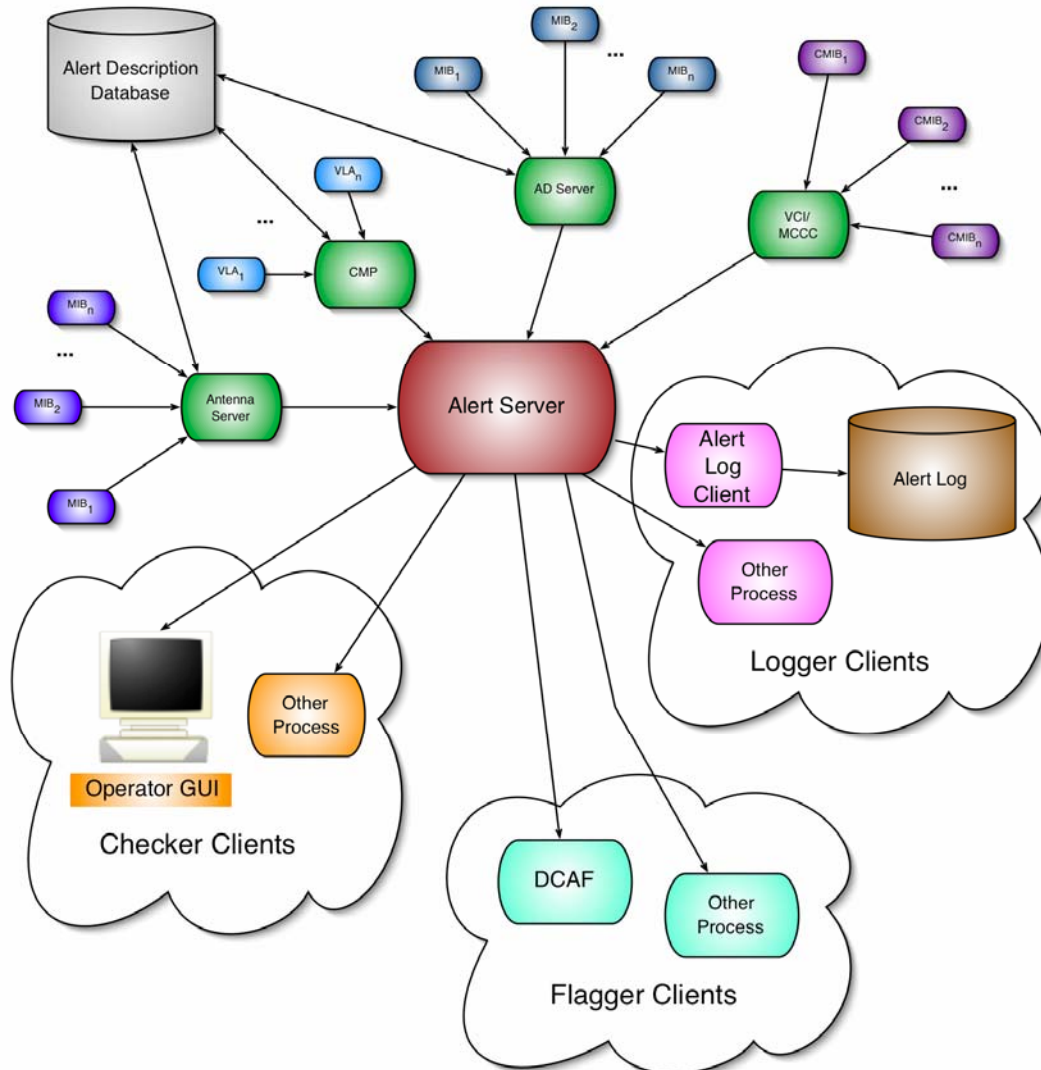
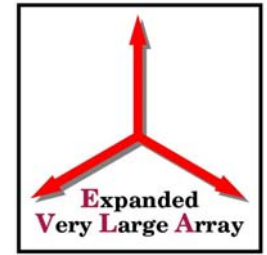
EVLA M&C Final System

Data Flows



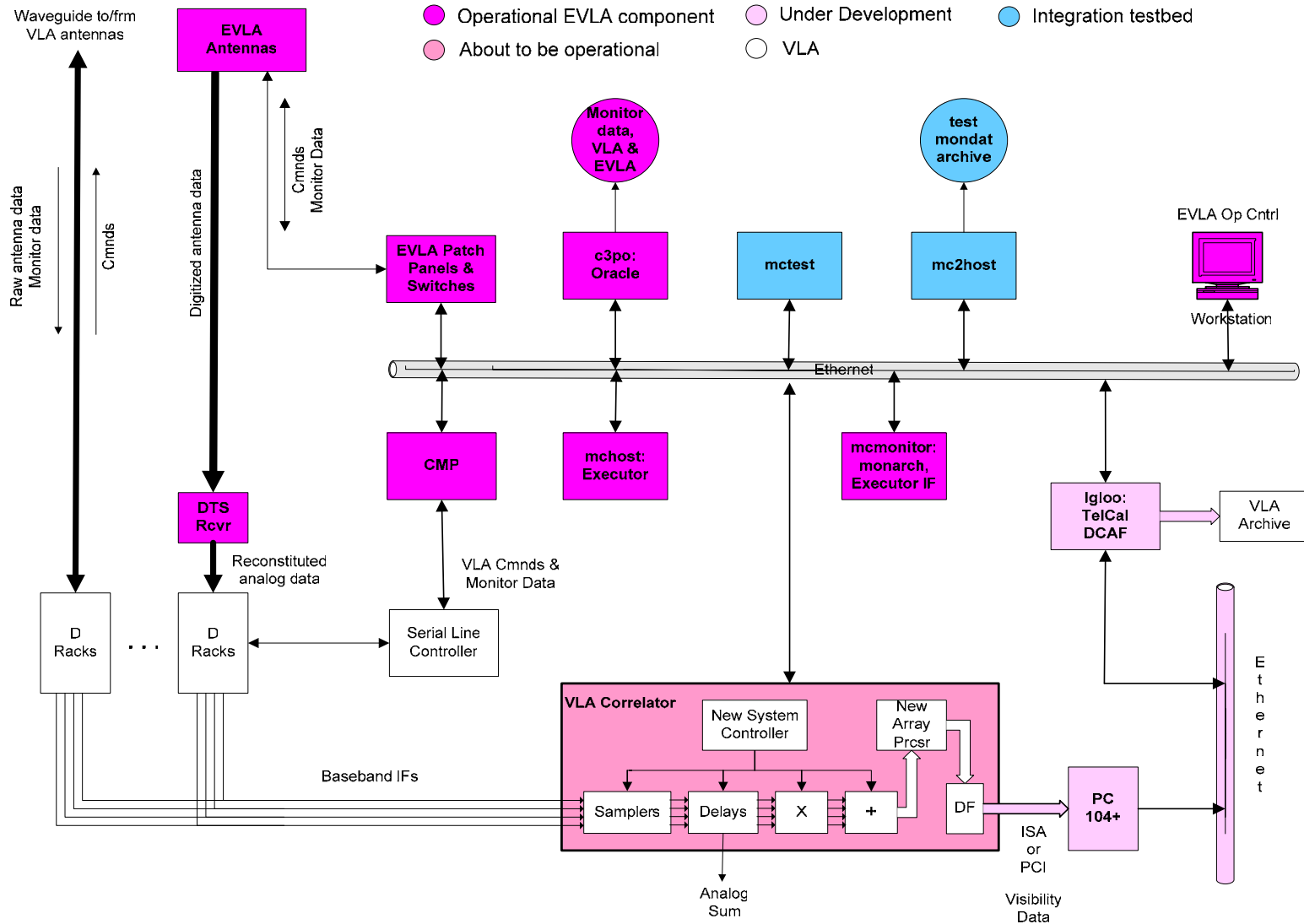
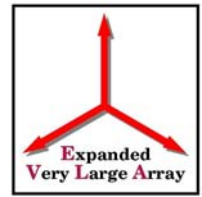


The Alert Subsystem





EVLA M&C, Deployment



Screenshot of the Array Operators Screen

Array Operator Page [build date: 02.16.2006]

File View Screens

SCRIPTS

Active

Queued

History

- ✓ POLCAL_000 558polc-000.evla
- ✓ 558evt.OBS 558evt-000.evla
- ✓ sysptc2h-part.evla sysptc2h-part.evla
- ✓ **557m858.OBS 557m858-000.e...**
- ✓ AM857_002 557m857d-000...
- ✓ robtest7 Xband

Job ID 557m858.OBS

Submitted By evlaops@10.80.100.253

Script 557m858-000.evla

Status Normal Completion

Source 0137+331

RA 01:37:41.299

Dec 33:09:35.133

Next Source

Frontend 10GHz

Antennas ea13 ea14 ea16 ea18

ANTENNAS

ea13	260.870	92.812	☐	✖
ea14	379.001	92.819	☐	✖
ea16	319.867	88.844	☐	☀ ✖
ea18	378.967	88.004	☐	☀ ✖

VLA

D C B A

TIME

Year.Day 2006.105

MJD 53840.037697

UTC 00:54:17

IAT 00:54:50

LST [60559] 07:16:00

WEATHER

Wind Speed 7.08

Wind Direction 253.80

Temperature 20.00

Barometer 784.40

Dew Point -1.26

RMS Phase 5.38

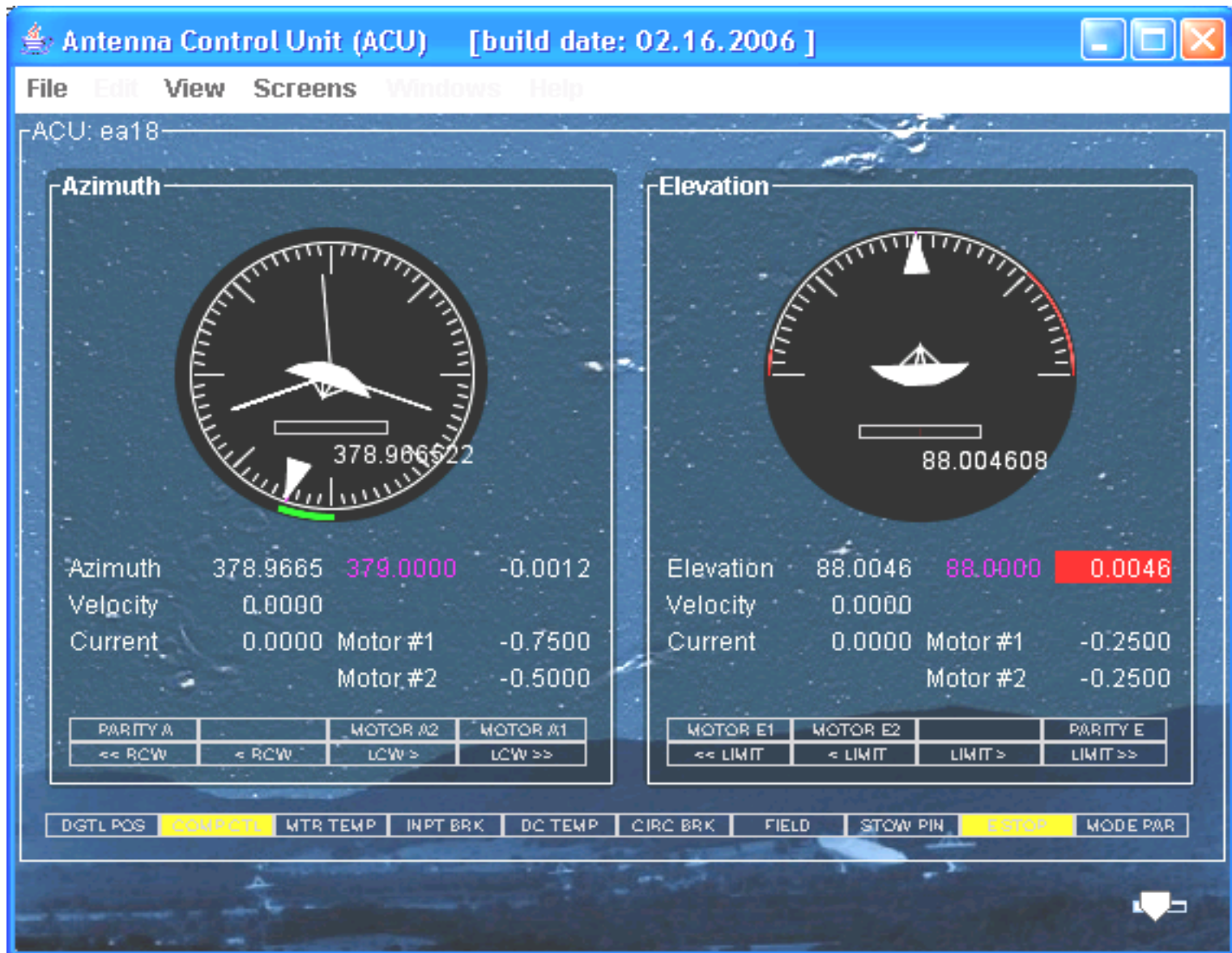
ALERTS

- 20:07:49 99 I301 refpwr
- 00:00:00 99 I301 m_lock
- 00:00:00 99 I302 c_lock
- 00:00:00 99 I302 m_lock
- 15:42:59 99 I301 m_lockh
- 20:34:45 99 I302 heartbeat
- 00:00:00 98 I302 refpwr
- 17:01:58 99 I302 refpwr
- 18:54:28 99 mib softwareresets
- 18:35:02 98 mib softwareresets
- 00:00:00 16 I302 heartbeat
- 23:23:20 98 I302 m_lockh
- 23:54:16 99 I302 m_lockh
- 20:19:52 99 I301 heartbeat
- 00:00:00 99 I301 c_lock
- 20:34:47 99 I302 c_lockh
- 00:00:00 14 I302 heartbeat

CONSOLE

```
18:13:13 Apr14:Executor->Job '558pevlb.OBS' completed.
558pevlb.OBS 53839 181312 Exit Array
558pevlb.OBS 53839 181312 Ending execution
558pevlb.OBS 53839 181312 Class edu.nrao.evla.observe.Array in File Array.java at 454
558pevlb.OBS 53839 181312 Class org.python.util.PythonInterpreter in File PythonInterpreter.java at -1
558pevlb.OBS 53839 181312 Class org.python.core.Py in File Py.java at -1
```

A module subsystem screen – the ACU Screen



Screenshot of the Device Browser

The screenshot displays the 'Device Browser' application window. The title bar indicates the build date as 02.16.2006. The menu bar includes File, Edit, View, Screens, Windows, and Help. The main area is titled 'DEVICE BROWSER' and shows a connection to 'ea16-I301-1.evla.nrao.edu'. A tree view on the left lists various device components, with 'AGCV' selected under the 'L301' node. The right pane shows the 'Properties' for 'ea16-I301-1.evla.nrao.edu->L301->AGCV'.

Property	Value
lo_alert	0
engr_unit	
s_period	50
o_period	600
alert	0
type	analog
msg	
conv_type	LINEAR
hi_alert_arm	0

Below the properties table is a 'MONITOR POINT' plot for 'ea16-I301-1.evla.nrao.edu I301.agcv 1.158'. The plot shows a red line graph of the AGCV value over time, with the y-axis ranging from 1.157 to 1.163 and the x-axis showing time from 18:59:40 to 19:01:00. The plot shows a fluctuating signal with several peaks and troughs.



Latest software releases



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- Stable builds web page:
<http://www.aoc.nrao.edu/asg-internal/jnlp/>



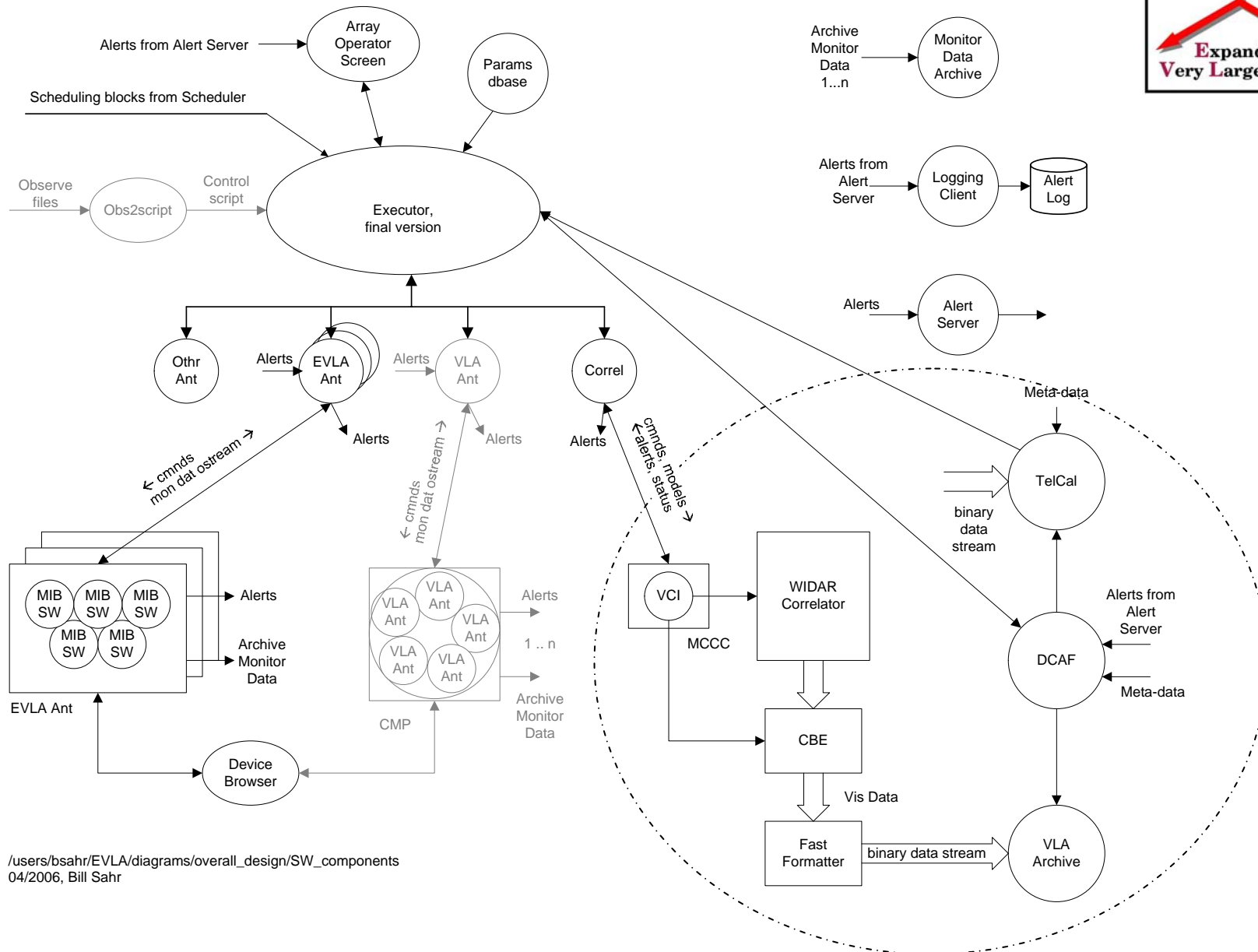
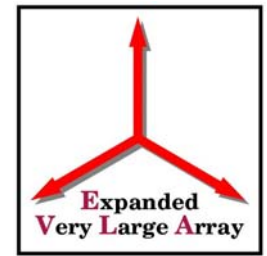
Backup Slides



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- Fast Formattter, TelCal, Post-Processing

EVLA M&C Final System

Data Flows





Fast Formatter, TelCal, Post-Processing Worst Case Scenario

