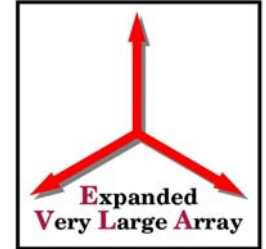


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# EVLA Monitor & Control



# Contents



- 
- Transition System & Final System
  - EVLA M&C Components
  - Carryover from Transition System to Final System
  - Architecture & Data Flows – Transition & Final System
  - Selected Subsystems
    - The Alert Subsystem
    - Correlator Backend, Fast Formatter, TelCal, Post-Processing
    - User Interfaces – Screen Shots



# 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



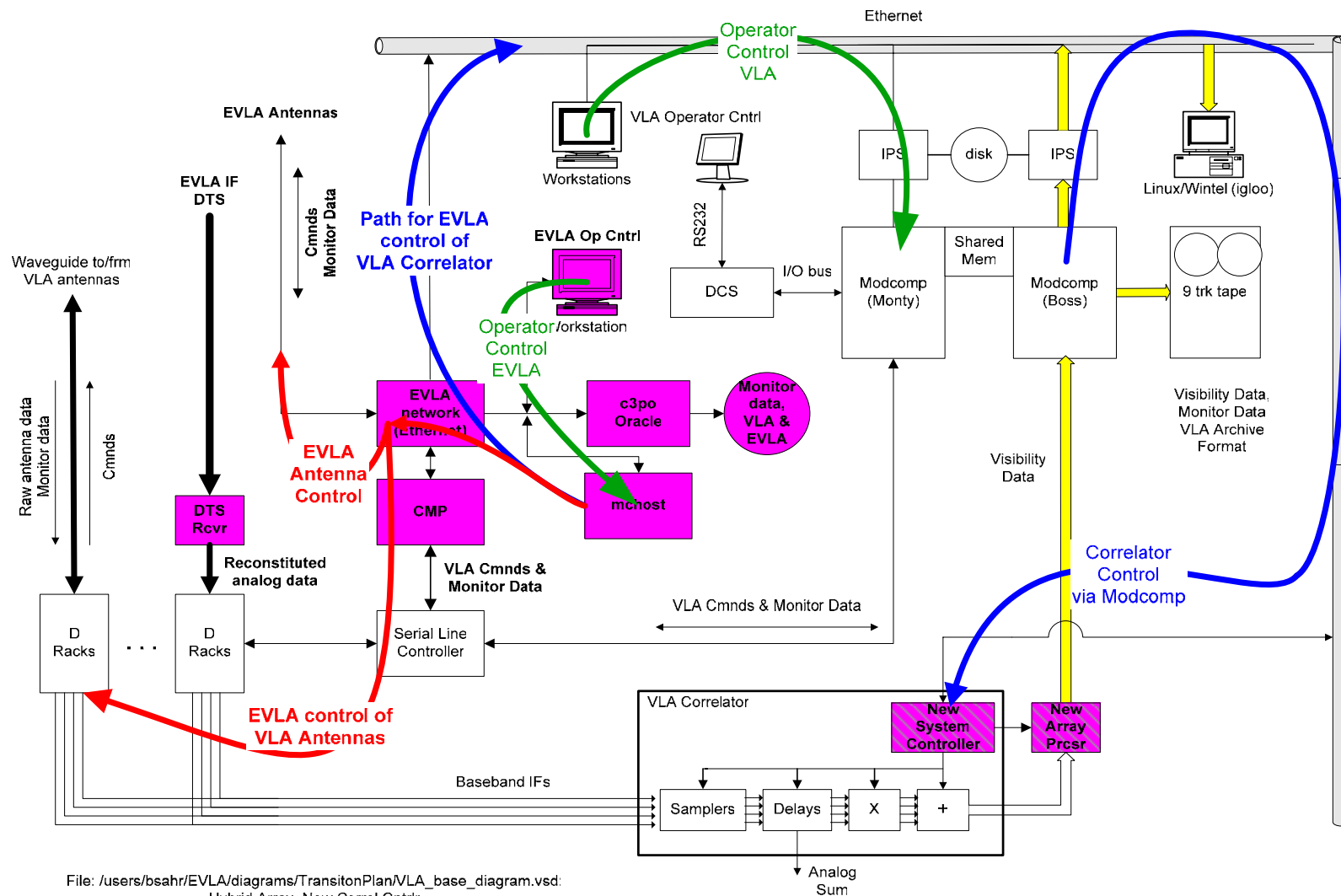
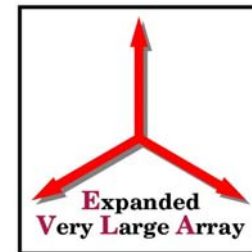
## Retirement of the Modcomp-based VLA control system



- 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

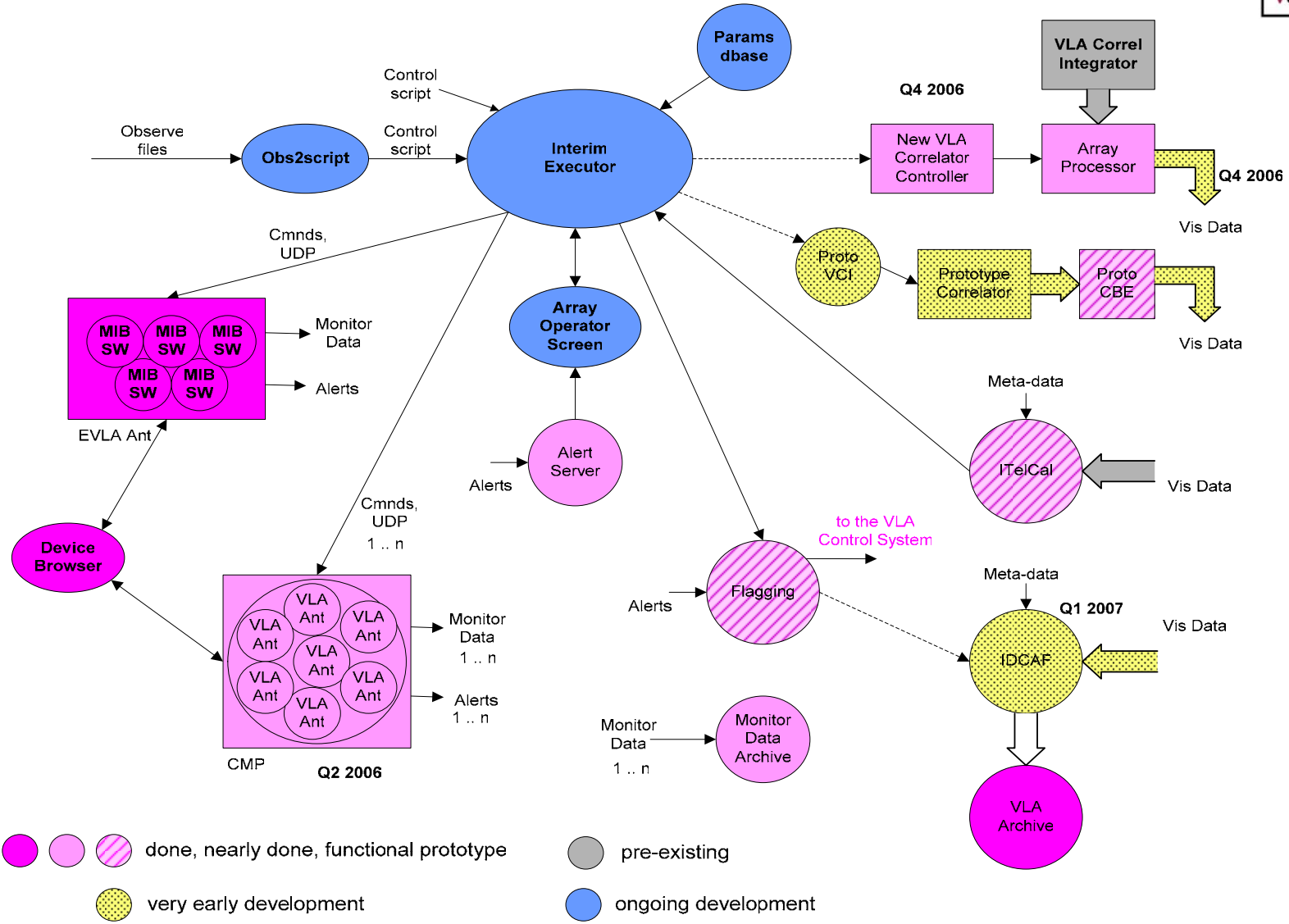


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PowerPoint Presentation



# EVLA M&C Transition System

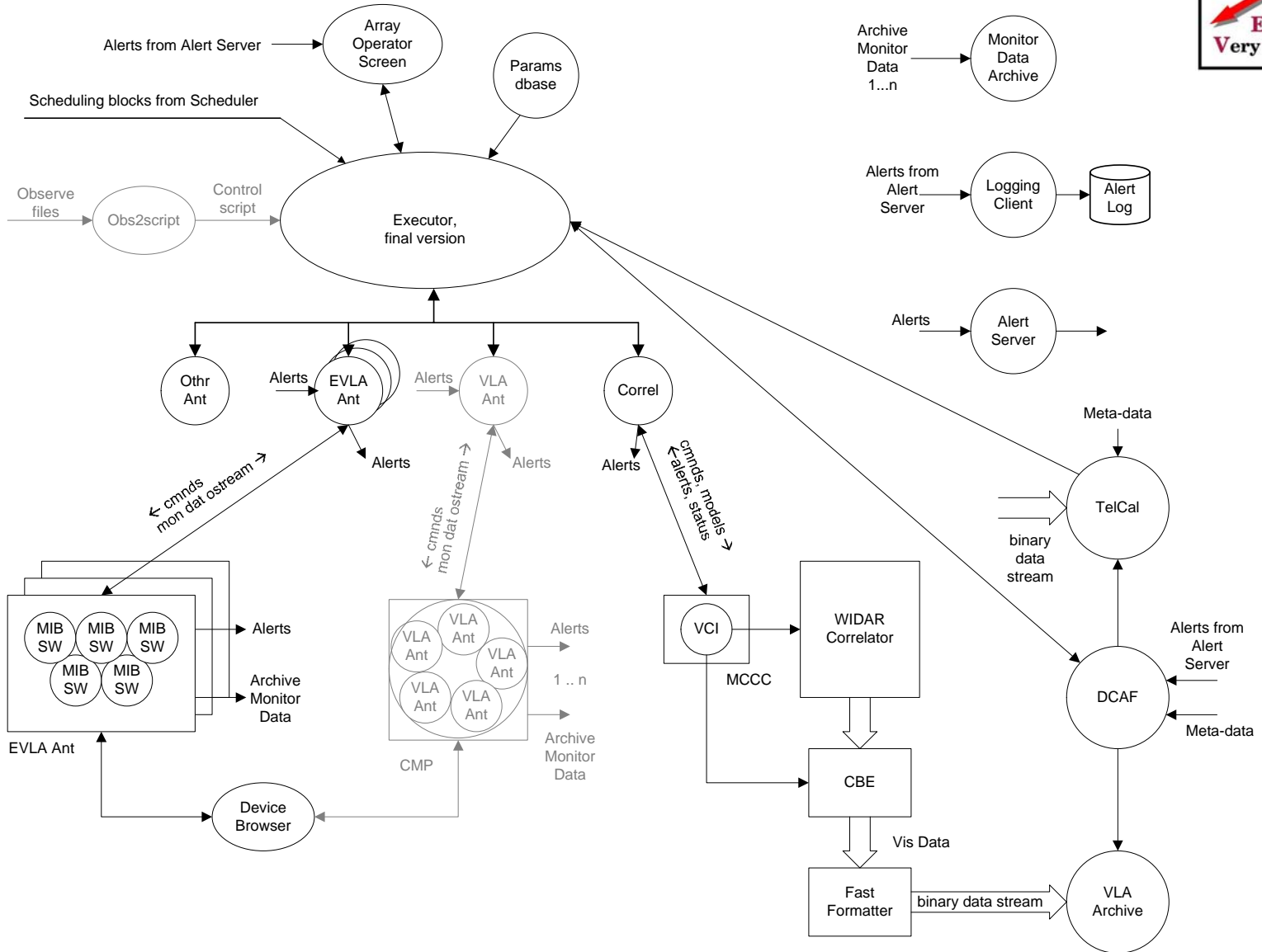
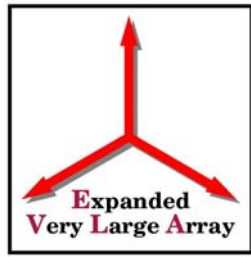
## Data Flows & Status



- 
- done, nearly done, functional prototype
- very early development
- pre-existing
- ongoing development

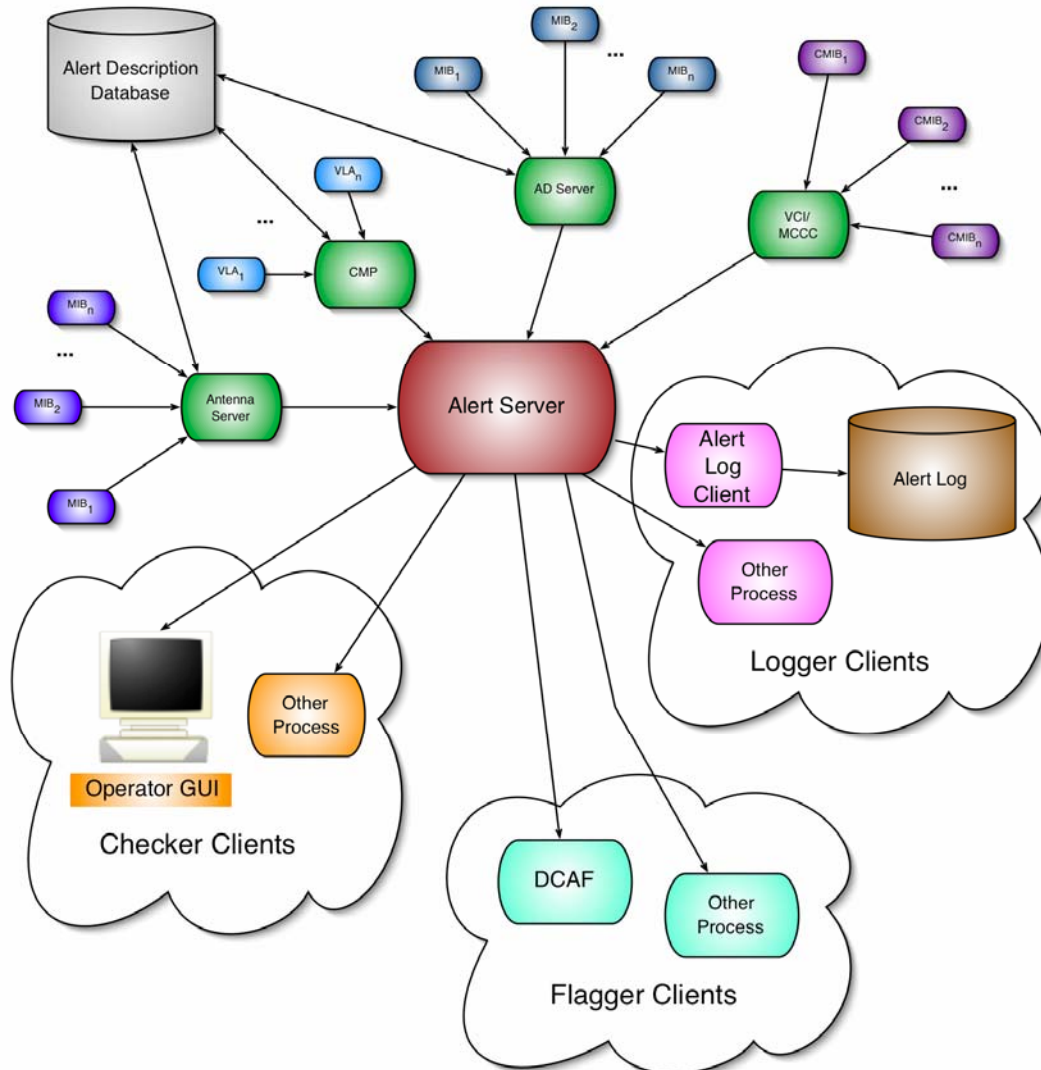
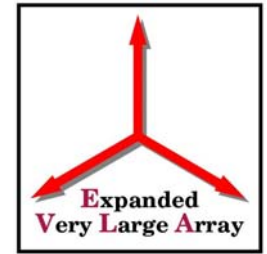
# EVLA M&C Final System

## Data Flows



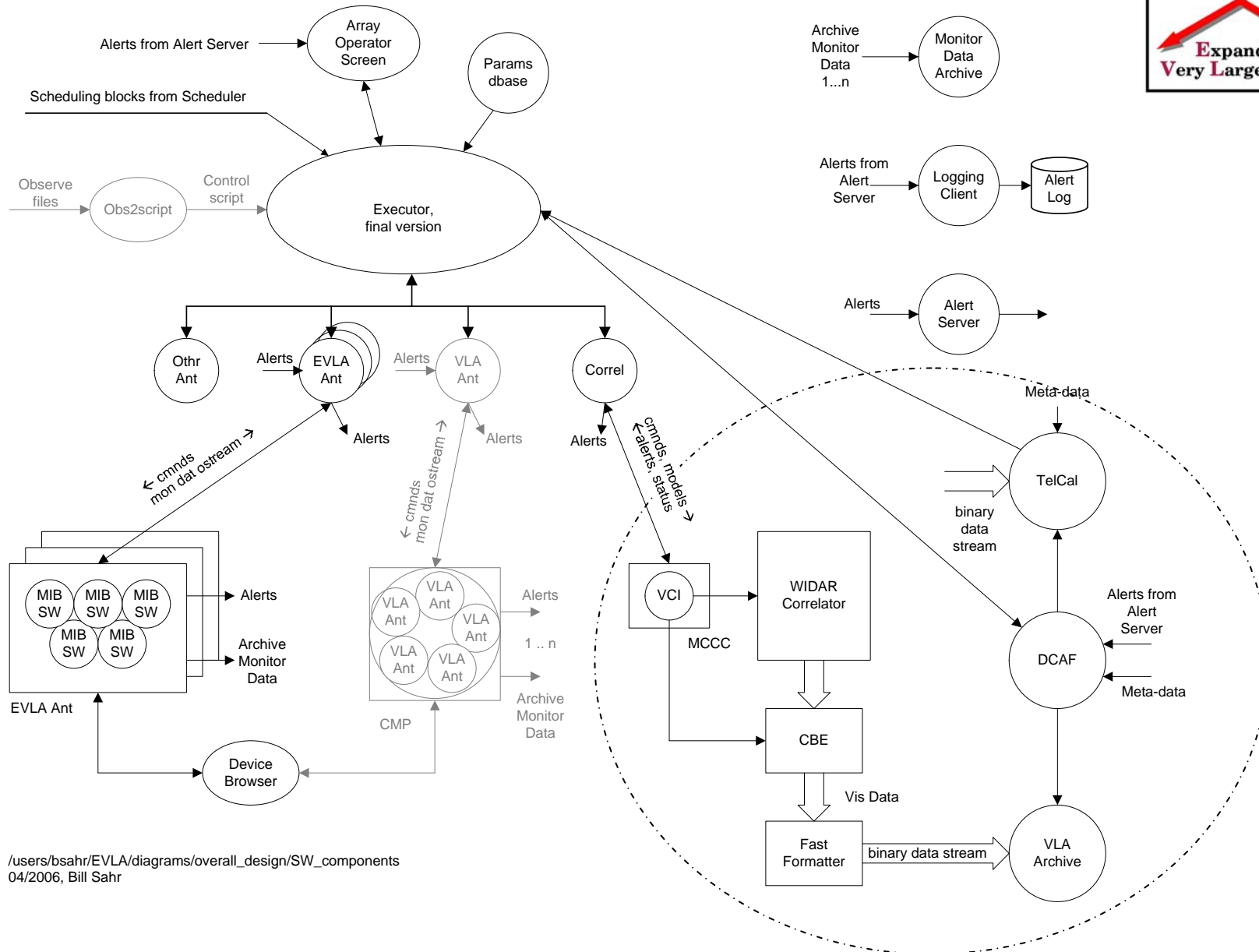
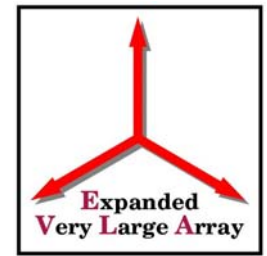


# The Alert Subsystem



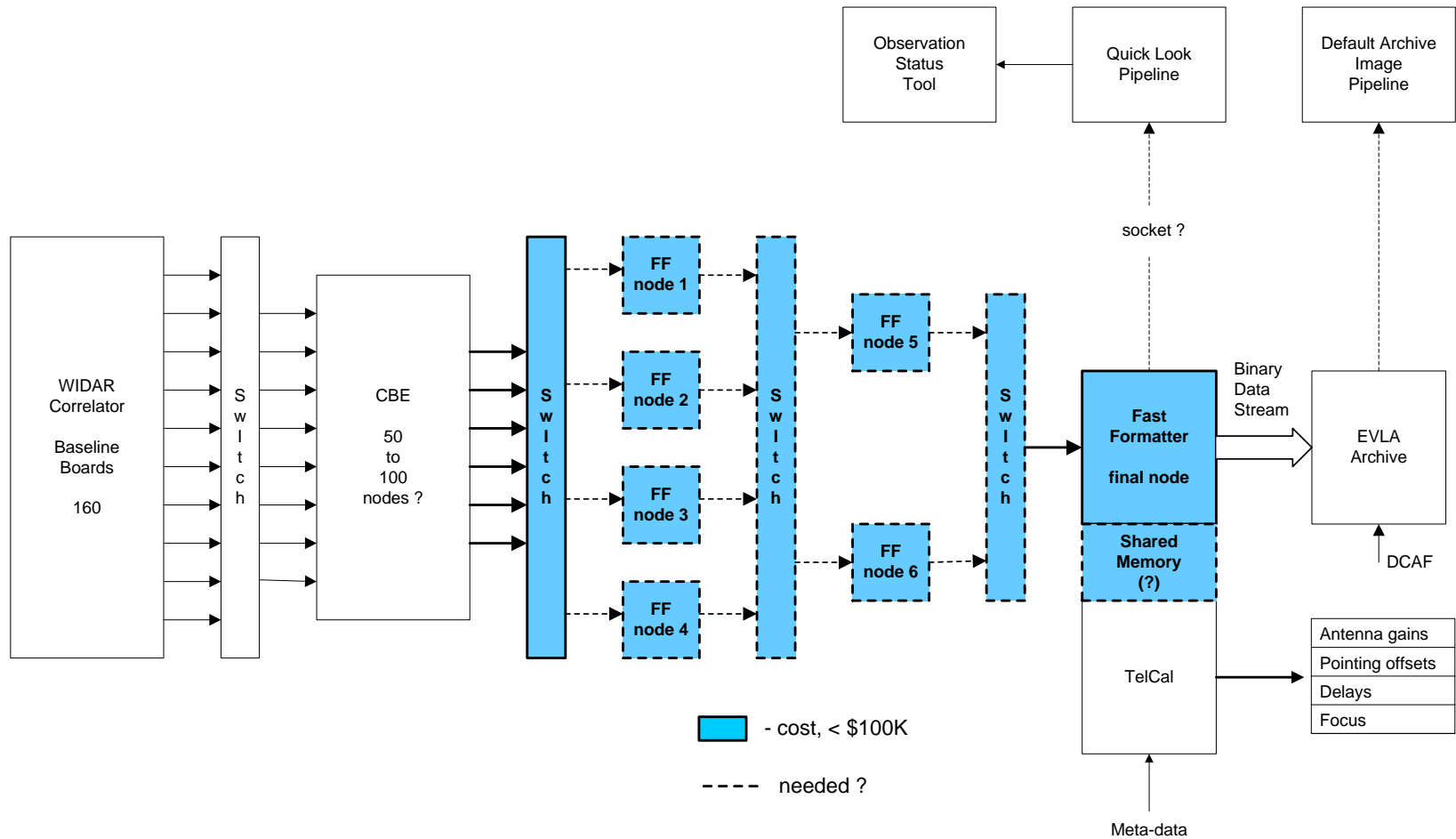
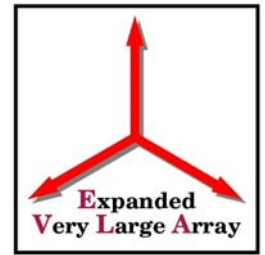
# EVLA M&C Final System

## Data Flows



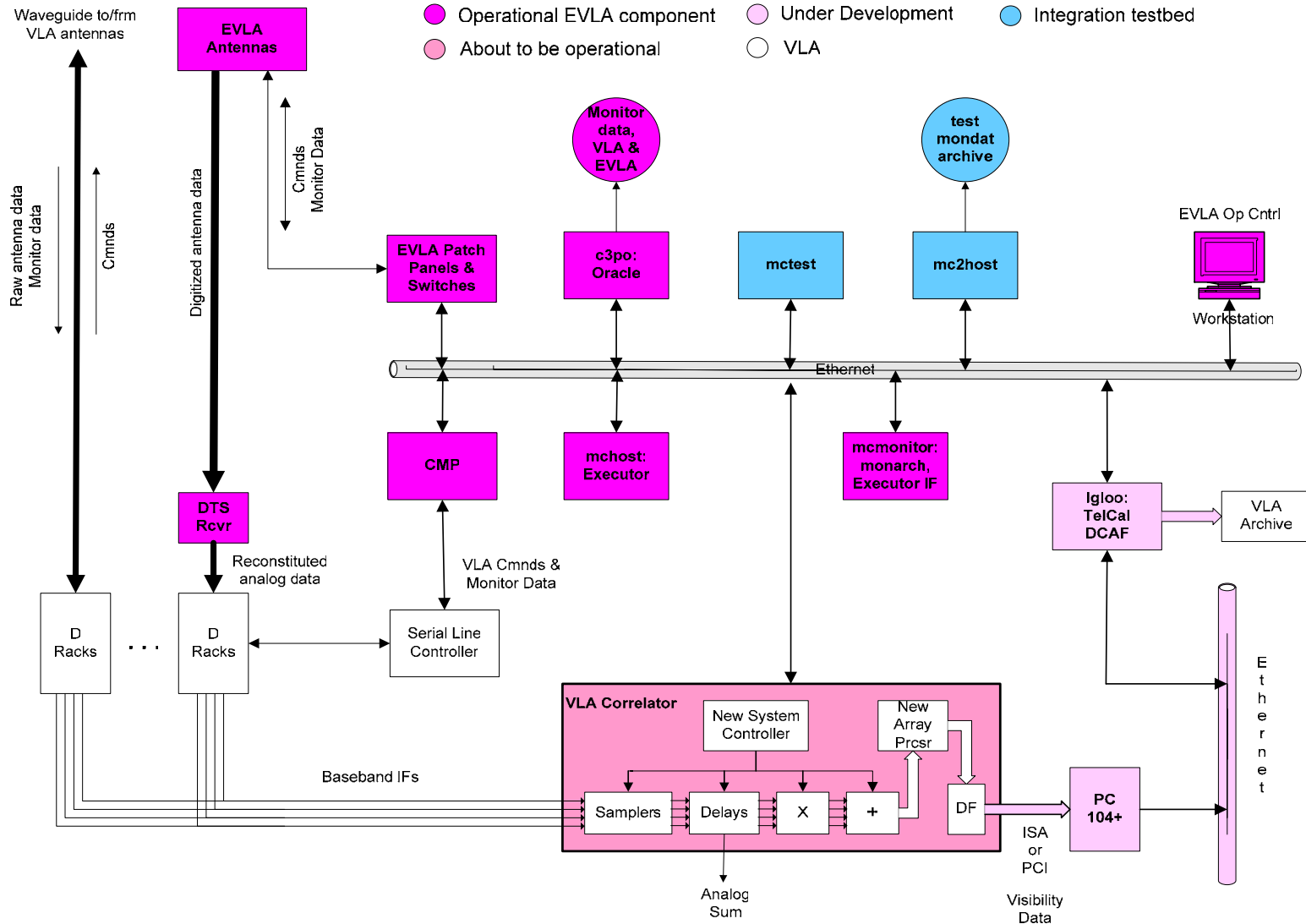
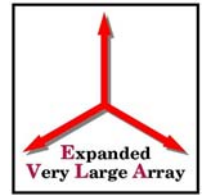


# Fast Formatter, TelCal, Post-Processing Worst Case Scenario





# 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

Antenna	RA	Dec	Flags
ea13	260.870	92.812	☐ ✖
ea14	379.001	92.819	☐ ✖
ea16	319.867	88.844	☐ ☀ ✖
ea18	378.967	88.004	☐ ☀ ✖

### VLA

The diagram shows the VLA antenna layout with concentric circles representing the array geometry. Antennas are labeled from va01 to va28. A central cluster of antennas is labeled ea13, ea14, ea16, and ea18.

### 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

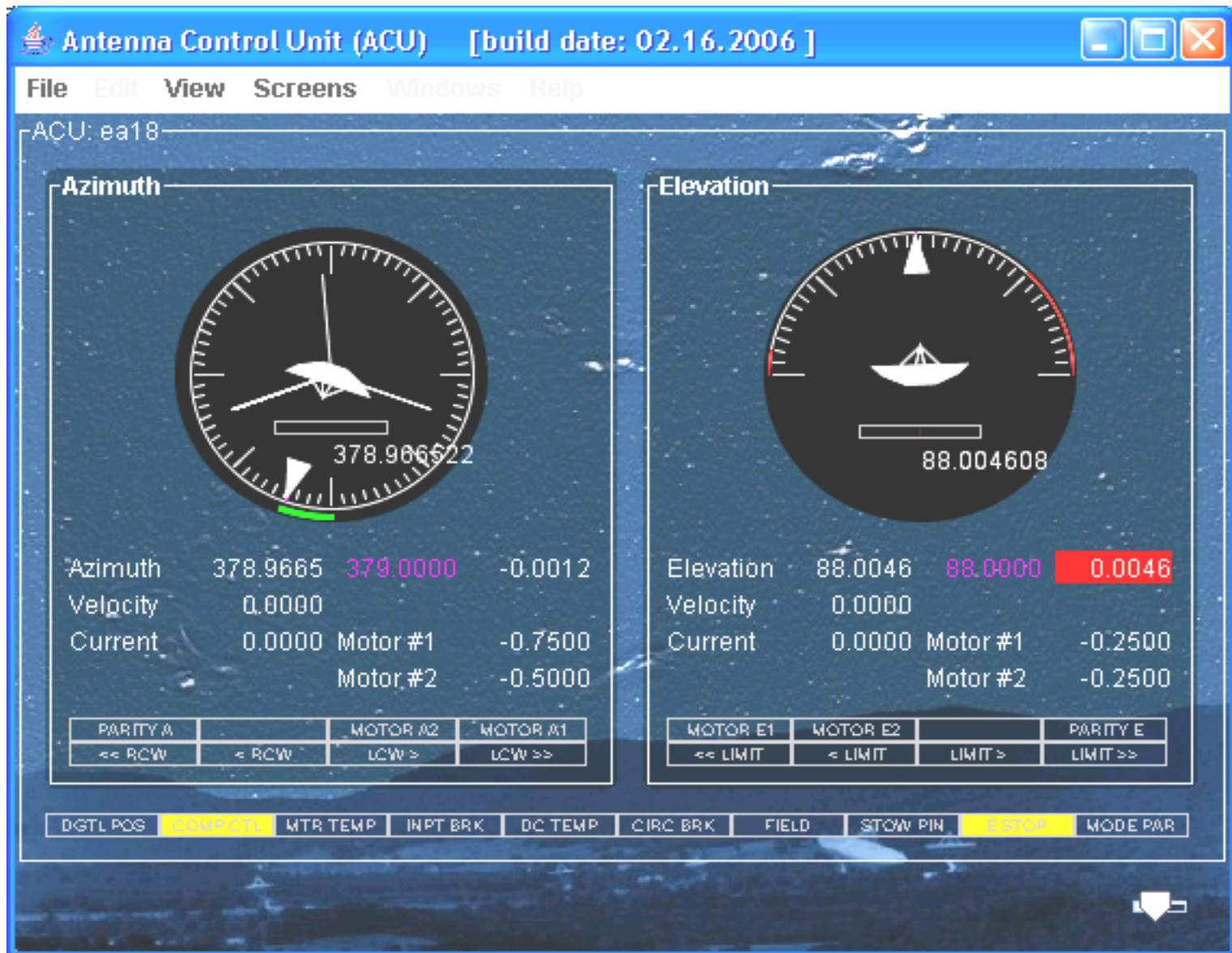
### ALERTS

🚨	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'. On the left, a tree view lists various device components under 'L301', with 'AGCV' selected. The right pane shows the 'Properties' for 'ea16-I301-1.evla.nrao.edu->L301->AGCV' in a table format. Below the table is a 'MONITOR POINT' plot showing the value of 'ea16-I301-1.evla.nrao.edu I301.agcv' over time, with a current value of 1.158.

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

MONITOR POINT  
ea16-I301-1.evla.nrao.edu I301.agcv 1.158

The plot shows a red line graph 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 graph displays a fluctuating signal with several peaks and troughs.



# Latest software releases



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