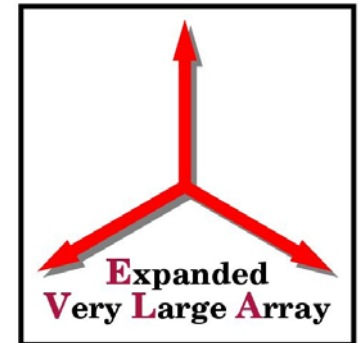




Correlator GUI



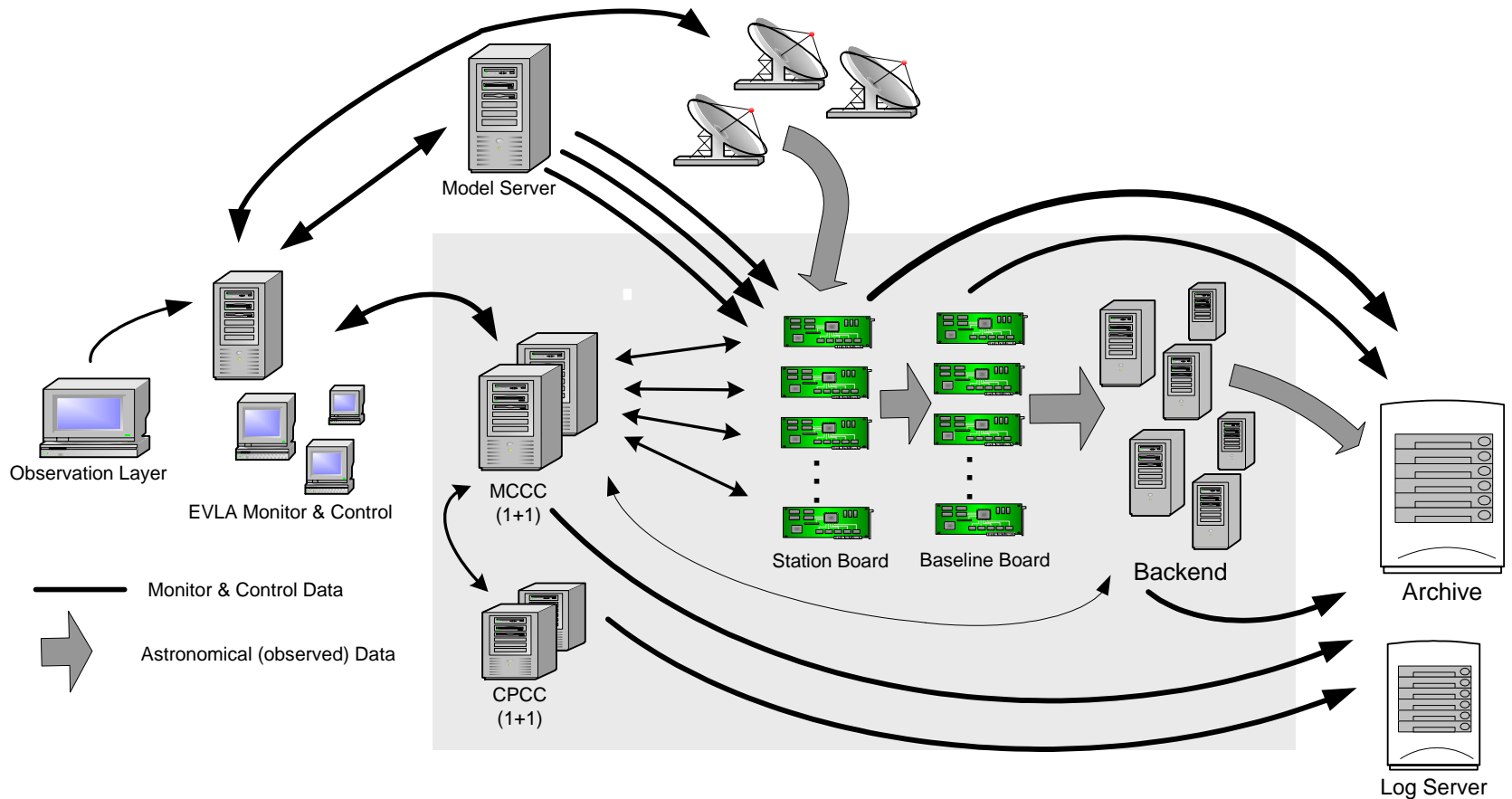
Sonja Vrcic



Outline

- Top level WIDAR Correlator GUI
- Requirements for the testing of the board prototypes
- Concept of the observation configuration
- Station Board GUI – Demonstration

Full Configuration



WIDAR Correlator - Top level system view (40 stations configuration)

Main

MCCC 1 Active MCCC 2 Standby CPCC 1 Standby CPCC 2 Active Backend

Log Server Boot Server

Rack 001 Rack 002 Rack 003 **Rack 004** Rack 005

Rack 006 Rack 007 Rack 008 Rack 009 Rack 010

Rack 100 Rack 101 Rack 102 Rack 103 Rack 104

Rack 105 Rack 106 Rack 107 Rack 008 Rack 109

Rack 110 Rack 111 Rack 112 Rack 113 Rack 114

Rack 115

Power Systems Heating and Cooling

	TGM 0	TGM 1
Board	101-1-7	110-1-7
Status	Running	Running
Time 0	2007-123-09:45:34.010	2007-123-09:45:34.010
Time 1		
Time 2		
	Details	Details

Observation	Start Time	Status
V013Q22	2007-123-09:30:00.000	In progress
V013Q23	2007-123-10:35:30.000	Accepted
V021A90	2007-123-09:45:34.000	In progress
V014Q01	2007-124-11:05:00.000	Rejected
V01V22	2007-122-23:30:00.000	In progress
V01V23	2007-123-10:15:00.000	Accepted
Test21	2007-123-09:30:00.000	In progress

Antenna	Quad	#Boards	Board1	Board2
EVLA01	01	4	001-0-0	001-0-1
EVLA02	02	4	001-0-4	001-0-5
EVLA03	03	4	001-1-0	001-1-1
EVLA04	04	4	001-1-4	001-1-5
EVLA05	05	2	002-0-0	002-0-1
EVLA06	05	2	002-0-2	002-0-3
EVLA07	06	2	002-0-4	002-0-5

Components

- Some subsystems, such as MCCC, CPCC, Backend, Log Server, should be always present in the system, and are always shown in the GUI.
- The number of racks that contain Station, Baseline, and Phasing Boards may vary.
- Racks that contain Station, Baseline and Phasing Boards may be added as they are detected.
- A new rack is added to the GUI screen when a newly detected board is located in a rack that does not already exist on the screen.
- A new rack can be added manually. For example, when user wants to configure in advance boards that are not currently not active, or not yet installed.

Functionality

- Color is used to indicate component status.
- Double click on the component opens a window with configuration parameters and status for the selected component.
- Time: When M&C GUI (and system) is fully implemented, time on the main screen should be read-only. For testing purposes, user may be allowed to change time via the main Correlator GUI.
- Observation builder will be used to configure observations.
- Antenna to Station Board connections: In the fully implemented system, antenna table in the Correlator GUI should be read-only.

Rack

WIDAR Correlator - Rack

Main

Rack 001

Crate 0

0	1	2	3	4	5	6	7
●	●	●	●	●			●
●	●	●	●	●			●
Station Board	Station Board	Station Board	Station Board	Baseline Board			TIMECODE Gen

Crate 1

0	1	2	3	4	5	6	7

Board	Status	IP	Type
0	OK	123.23.1.1	STB
1	OK	123.23.1.9	STB
2	OK	123.23.1.17	STB
3	Initializing	123.23.1.25	STB
4	OK	123.23.1.34	BLB
5	---		
6	---		
7	OK	123.23.1.60	TGM
8	---		
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		

Operator Log

```

2007-90-11:15 Replaced STB1
2007-89-13:45 Initial installation
    
```

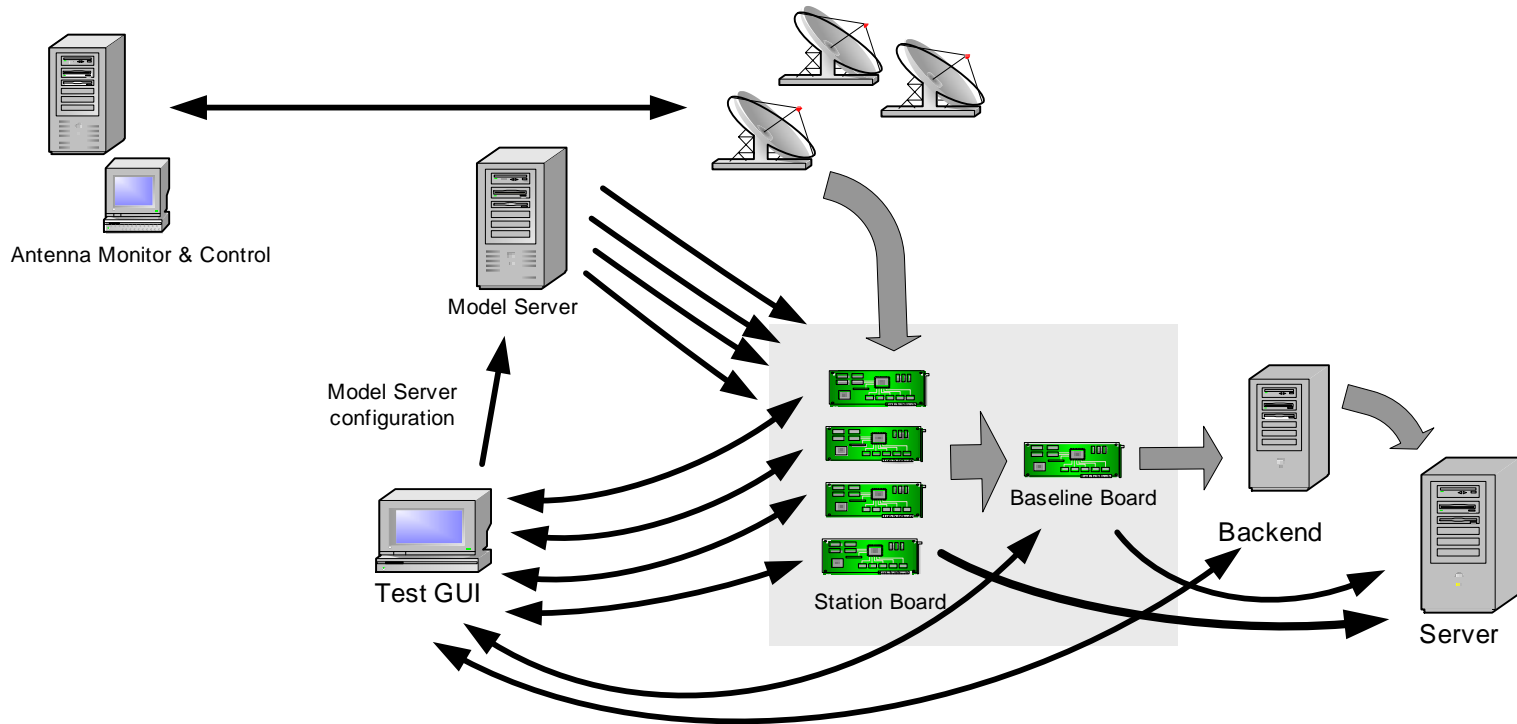
IP address:
x.y.rack.crate+slot+type

For this example:

```

STB_1 00 000 001
STB_2 00 001 001
STB_3 00 010 001
STB_4 00 011 001
BLB_1 00 100 010
TGM_1 00 111 100
    
```

Test Configuration



Single Rack Configuration

WIDAR Correlator - Top level system view (configuration for the on-the-sky prototype testing)

Main

MCCC 0
Not present

MCCC 1
Not present

CPCC 0
Not present

CPCC 1
Not present

Backend

Log Server

Boot Server

Rack 001

Power Systems

Heating and Cooling

Time	TGM 0	TGM 1
Board	001-0-7	
Status	Running	Not present
Time 0	2007-95-09:45:34.010	
Time 1		
Time 2		
	Details	Details

Observation	Start Time	Status
Test4SAllSame	2007-95-09:45:33:20.000	Unknown
Test4SAllSame	2007-95-09:43:20.000	Unknown
Test4SAllSame	2007-95-09:10:32.000	Unknown
Test8S1GBB4SB	2007-94:16:53:13.000	Unknown
Test16S2GBB4SB	2007-94:16:30:34.000	Unknown
Test16S1GBB4SB	2007-94:16:30:55.000	Unknown
Test2S2GBB4SB	2007-94:15:45:12.123	Unknown

Antenna	Quad	#Boards	Board1	Board2
EVLA01	01	1	001-0-0	
EVLA02	01	1	001-0-1	
EVLA03	01	1	001-0-2	
EVLA04	01	1	001-0-3	

Boards

- GUIs for the Baseline Board and Station Board are in the final phase of development.
- Station Board and Baseline Board GUIs are not included in this document - the actual implementation will be demonstrated.
- Similar interface will be (*should be*) provided for the other correlator subsystems.

Prototype Testing: Configuration

- In fully implemented system, the correlator will receive configuration as a series of messages that define:
 - basebands / subbands, and
 - required products.
- Sophisticated software will be provided to translate high-level observation description to correlator configuration. Translation may be performed in two (or more) steps.
- For the testing of the prototype boards (including on-the-sky test) each Station and Baseline Board must be configured individually.
- To expedite configuration process GUI interface allows user:
 - to copy configuration from one board to the other.
 - to copy configuration from one component (chip) to the other.
 - to save board configuration as an XML file.
 - to re-load configuration from the file and modify it.

Observation

- Observation may be defined as a list of parameters and files that contain configuration for the boards and other elements of the system.
- In addition to the Station Board and Baseline Board configuration, observation may contain the time setting, models, antenna to Station Board connections, etc.
- Observation can be saved as an XML file.
- Observation file is a repository that contains references to *all* the files that are needed to configure and run an observation.
- Observation file may include references to files that are not created and interpreted by the Correlator GUI.

Observation File

- For each file user must specify:
 - File name (path)
 - IP address (or name) of the target system and
 - Type.
- When “*save observation*” is selected, an XML element is created for each specified file, as follows:
 - <File destination=“123.23.1.009” type=“StationBoard” fileName=“stb3.xml” />
 - <File destination=“123.23.200.001” type=“AntCfg” fileName=“ant3.xml” />
- If GUI does not recognize file type, it does not read the content of the file. When “configure” command is selected, the file name is forwarded to the target system.
- This scheme does not require the GUI to be updated each time when a new file type is introduced by one of the correlator subsystems.

Test GUI: Observation Configuration

WIDAR Correlator - Observation Configuration (for testing)

Main

Observation ID:

TGM Time :

Start Time :

Comment
This text is added to the output XML file as comment.

File list

Type	Board ID	Dest. IP Address	File Name
StationBoard	1-0-0	192.139.1.1	myFirstObs/Stb2BB16Sb-0.xml
StationBoard	1-0-1	192.139.1.9	myFirstObs/Stb2BB16Sb-1.xml
StationBoard	1-0-2	192.139.1.17	myFirstObs/Stb2BB16Sb-2.xml
StationBoard	1-0-3	192.139.1.25	myFirstObs/Stb2BB16Sb-3.xml
BaselineBoard	1-0-4	192.139.1.34	myFirstObs/Blb2BB16Sb1prod64lags.xml
TIMECODE Gen	1-0-7	192.139.1.60	myFirstObs/Tgm-0.xml
AntennaCfg	n/a	192.139.200.4	corrProto/AntennaToStb-4Ant.xml
BackendCfg	n/a	192.139.200.4	myFirstObs/Cbe4St2Bb16Sb1prod.xml

StationBoard
BaselineBoard
PhasingBoard
TIMECODE Generator
BackendCfg
AntennaCfg
CoefficiensFile-12

Main Menu:
Save to file
Read from file
Configure
Close this window

Status

- Top level GUI and configuration of observation – design proposal
- Baseline Board - to be completed in April 2006
- Station Board - to be completed in April 2006
- TIMECODE Generator (test version) – Completed
- Phasing Board – board development postponed
- Graphical representation of the correlator output – design completed
- Monitor & Control functionality for the following subsystems has not been integrated:
 - Station Board Fiber Optic Receiver Module (FORM)
 - Backend
 - Model Server (not part of the correlator, will be needed for on-the-sky testing)
- FORM and Backend provide each own CLI.
 - To allow for automatic re-configuration, CLI commands could be specified in the text file and added to the observation file.

The End