

*Technical Report*  
*on*  
*TELESET-ABCCOM*

**Document specifying current status and future development of**  
*TELESET-ABCCOM Software Chain*

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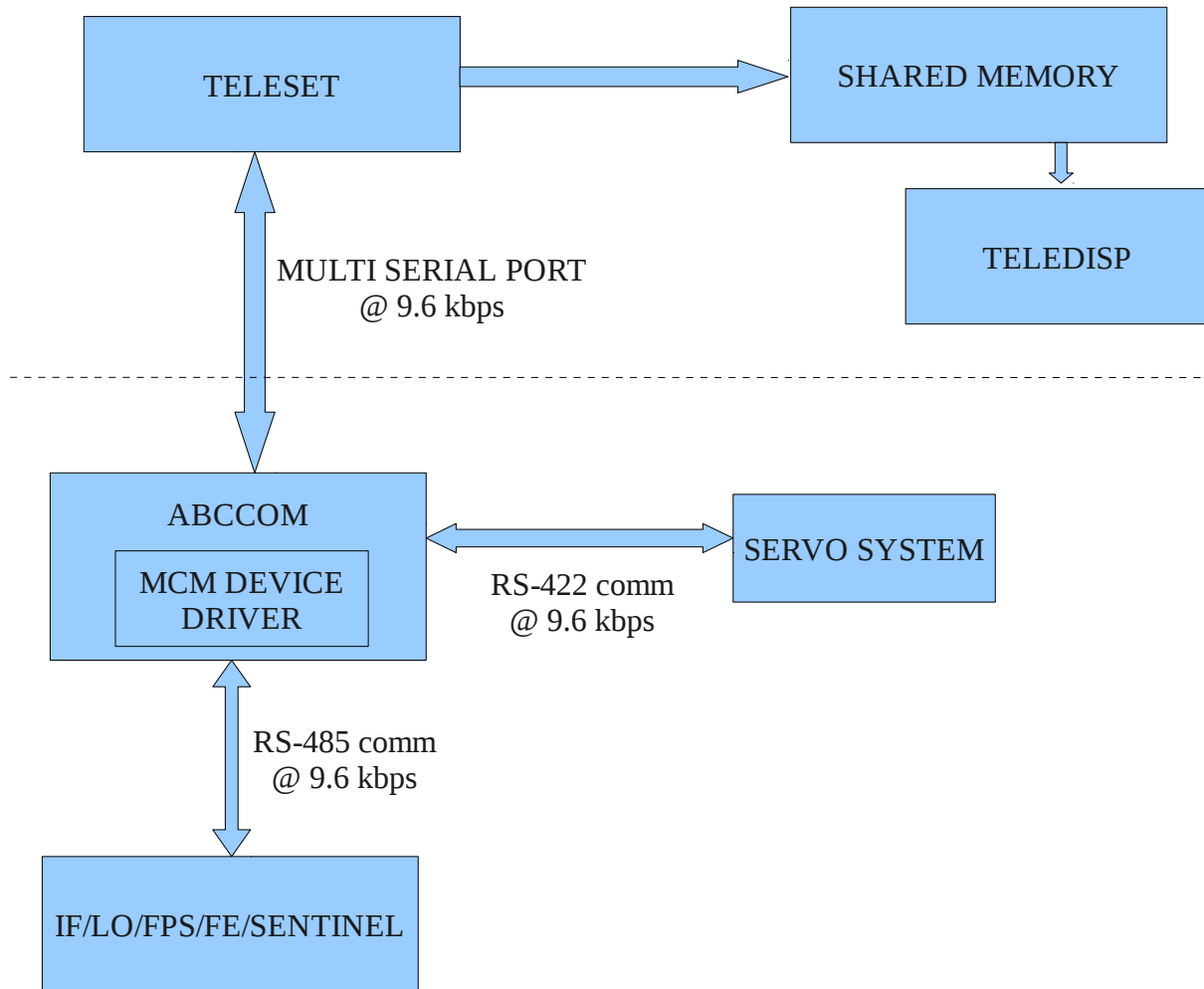
GMRT - TIFR

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- What was there
- What we did
- What needs to be done
- How we should proceed

## *What was there*

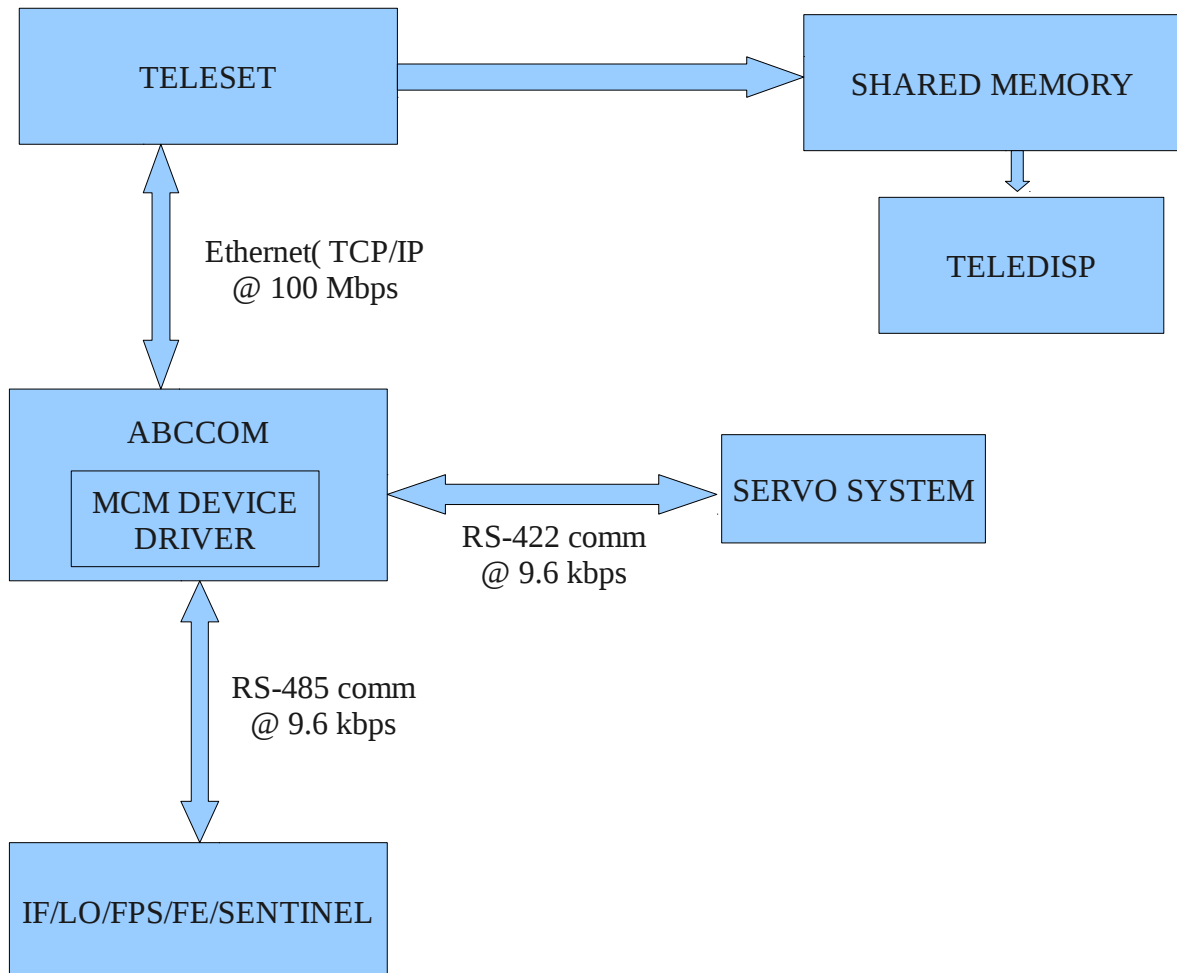
TELESET - ABCCOM was developed by Mr. Lorrent Pommier along with Mr. Pramesh Rao



*Figure shows what was developed earlier*

- TELESET-ABCCOM is developed using C++ and C which is very tightly coupled code.
- All communications were @ 9.6 kbps.
- Whole software was developed on Fedora Core – 3 ( kernel version 2.6.9)

## *What we did*



*Figure shows what modification and development we did*

## *Work done on TELESET – ABCCOM software chain*

- Communication link between TELESET-ABCCOM changed from serial to Ethernet (TCP/IP @100Mbps).
- Whole software chain including MCM device driver ported to FC9, FC16 and Ubuntu 11.04.

- Alternate Server design and Bit extraction code written for TELESET.
- Modified Teleset and Abccom for Sentinel System (Temperature Monitoring).
- Testing of all software in Telemetry Lab, Servo Lab, FE Lab ,ABR Lab and at Antenna Base.
- Successfully tested whole software chain at C00,C04 And C12 during maintenance period.
- Had problem with LO Monitoring, modified the software,now can fully control and monitor all Antenna sub-systems.
- Software fine Tuning And Optimization:

DOMON time prior modification:

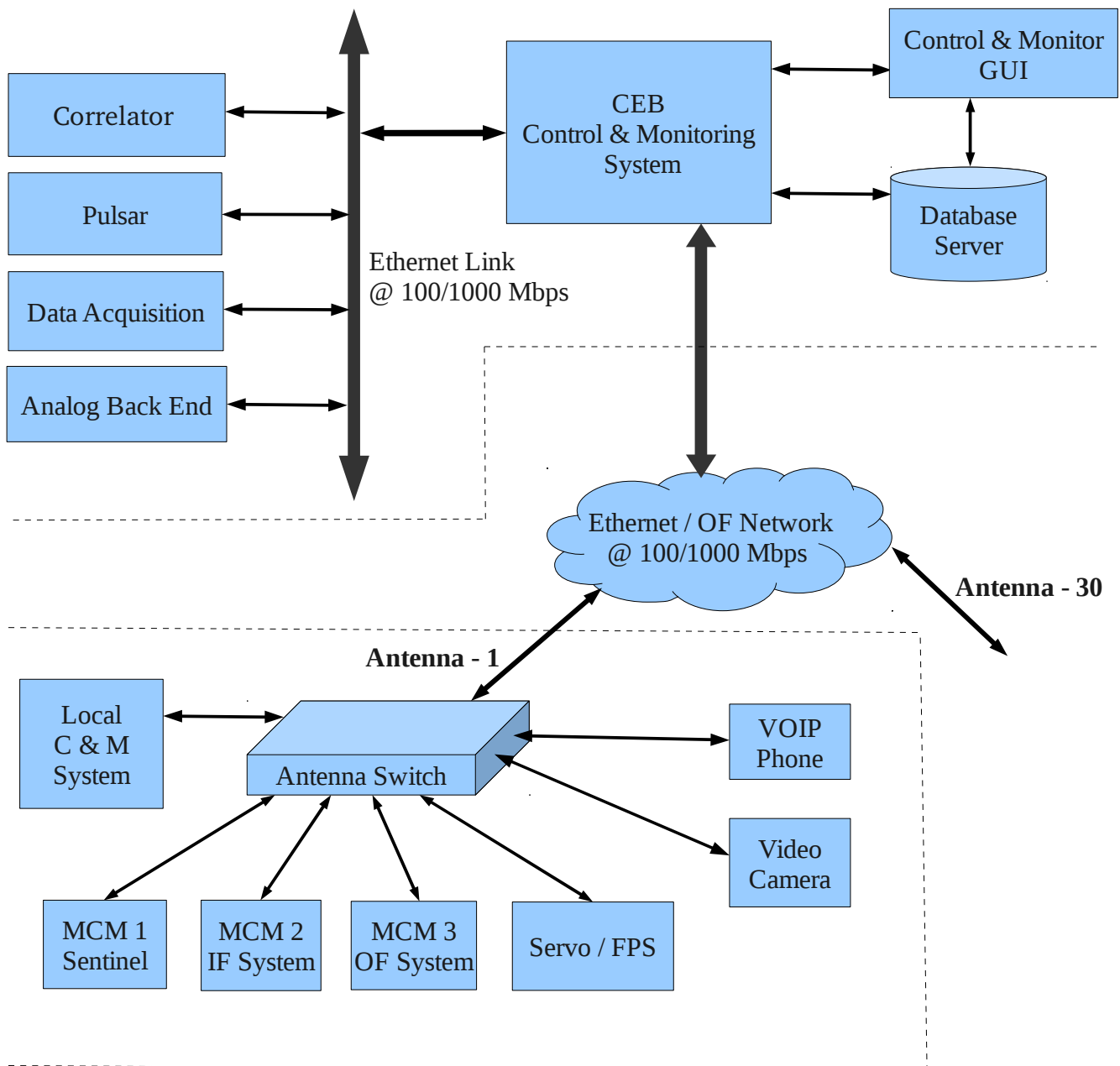
LO Domon ( Not working)	
IF Domon	30 sec
FE Domon	20 sec
FPS Domon	10 sec

DOMON time after modification:

LO Domon (Working)	15 sec
IF Domon	20 sec
FE Domon	10 sec
FPS Domon	5 sec
SEN Domon	5 sec

- Successfully tested Teleset and Abccom at C12 Antenna after software fine tuning & optimization.
- Mr. Madhav Mishal build combined RS- 485 & RS-422 converter card which is driven by taping power from USB port, successfully tested the circuit in C00, C04 and C12 antennas.
- We have tested the USB to Serial port interface card in C00, C04 and C12 by sending commands to servo system and getting the required acknowledgment.
- Teleset and Abccom software tested successfully in Lab with rabbit program on serial communication.

## What need to be done



*Figure shows final full fledge TELESET-ABCCOM software chain*

*There are certain things which we need to do for final system like :*

- Ethernet communication between ABCCOM and MCM/SERVO.
- Final design and development of GUI ( Control and Monitor ).
- Interaction with other system like Data acquisition, Correlator, Pulsar, Baseband and MCM analog receiver system.
- Development of Multi-user and Multi-Subarray features in Teleset.
- Some error is there in MJD calculation of ABCCOM program which needs to be sorted out.
- Designing Astronomical display.
- Through testing with performance tuning and software optimization.

### *How we should proceed*

- *All requirement has to be gathered from all users like astronomers, engineers operators etc.*
- *All requirement specifications has to be properly documented.*
- *After finalizing system requirement document, overall system architecture has to be drawn.*
- *Proper distribution of functionality between different architectural blocks.*
- *Communication protocol between different architectural blocks.*
- *Through testing with performance tuning and software optimization.*