

Various ABCCOM Approaches

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Role of the existing ABCCOM

- ANTCOM has unique ID for to and fro communication
- FSK Modulation and demodulation of data
- Forms data frame to be sending back to COMH-Online
- Talk to Servo System over serial line – RS422
- Talk to MCM 0,2,3,5,10,14 over serial line – RS485
- Provides reset to ABCCOM and MCM cards
- Supports voice communication
- Up converting Return Link telemetry signal to 205 MHz

The IP enabled MCM card, IP Phone, Intelligent Network switch with digital OF link makes above listed ABCCOM PIU/PC tasks redundant.

Hardware requirement for all Approaches

- Digital Optical Fiber link is required between CEB and all Antennas.
- An L2 network switch, with proper RFI Shield, is required at antenna base.
- An L3 network switch is required at central electronics building for implementing virtual LAN per antenna.
- IP enable devices like new MCM cards, PC-104 cards and IP phone etc.
- A PC (Miltec make) with proper RFI shielding may require at antenna base.

Approach 1 : Miltec PC as ABCCOM

• Pros

- Local Data Storage
- Local Test setup for New MCM Cards
- Gateway / Router for Antenna LAN
- Inter acting with Servo System
- For calculating the Azimuth and Elevation co-ordinates and sent to Servo system
- Useful for Serial Communication with Antenna subsystems

• Cons

- Need to have Interfacing software running on the ABCCOM PC
- The cost of ABCCOM PC is high (Miltec make PC ~1.2Lacs/unit)
- The PC maintenance will require time and manpower
- The periodic RFI measurements need to do to keep check on the radiation level

Approach 2 : Embedded Board as ABCCOM

• Pros

- The cost of the embedded board is ~20K which is cheaper than Miltec PC
- Local Data Storage
- Local Test setup for New MCM Cards
- Gateway / Router for Antenna LAN
- Inter acting with Servo System
- For calculating the Azimuth and Elevation co-ordinates and sent to Servo system
- Useful for Serial Communication with Antenna subsystems

• Cons

- The Hardware cost is involved in embedded board
- RFI Shielded box is required for the Embedded card (which will add to the cost)
- The periodic RFI measurements need to do to keep check on the radiation level
- We will need to implement ABCCOM software tailored for particular Embedded Board.

Approach 3 : No ABCCOM

• Pros

- This is a direct approach, Online directly talking to Antenna sub systems
- There is no need of PC, as L3 network switch will work as Gateway
- If necessary, new MCM card can calculates the Azimuth and Elevation Co-ordinates
- A laptop, during maintenance, can be used for local data storage and testing.
- No need of PC and RFI shielded box. This could be cost effective.

• Cons

- Can not log the data for long duration without laptop
- Test software will be required for testing MCM cards on Laptop
- Laptops will be required for testing and maintenance of MCM cards
- Difficult for New Online to talk with existing MCM over serial line.

Approach 3 : Updated on 12/02/2013

• Pros

- This is a direct approach, Online directly talking to Antenna sub systems
- An Intelligent L3 manageable Network switch will act as Gateway Router for implementing virtual LAN for antenna.
- At antenna shell an L2 switch for connecting devices like MCM cards, PC104 card and IP Phone. However There is no need of PC as gateway at antenna shell.
- If necessary, new MCM card can calculate the Azimuth and Elevation Coordinates
- A laptop, during maintenance, can be used for local data storage and testing.
- No need of PC and RFI shielded box. This could be cost effective.

• Cons

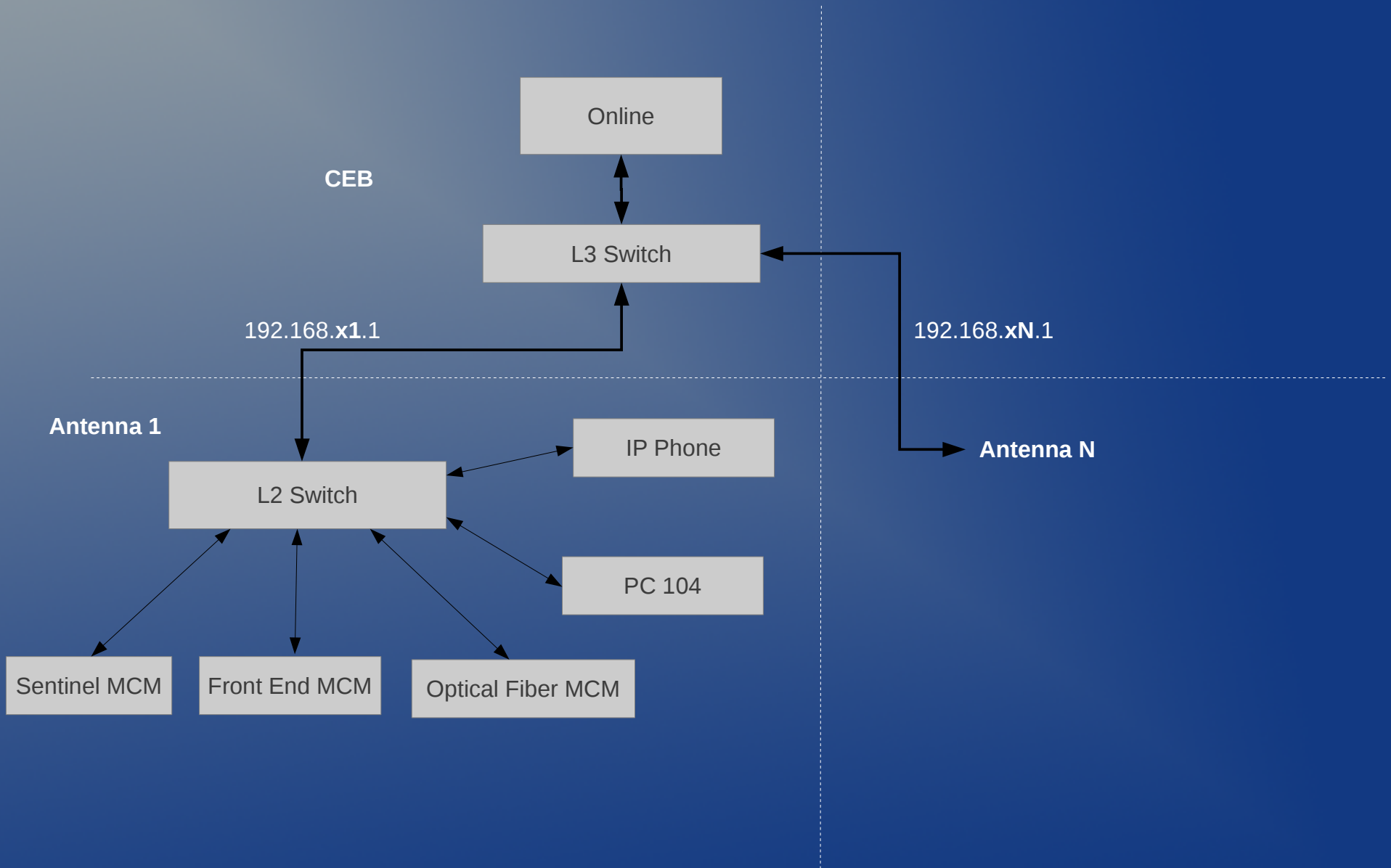
- Can not log the data for long duration without laptop
- Test software will be required for testing MCM cards on Laptop
- Laptops will be required for testing and maintenance of MCM cards
- Difficult for New Online to talk with existing MCM over serial line.

Conclusion

No need of ABCCOM PIU / PC and software running on PC at antenna site

- Basically, duplication of code is avoided in this scheme.
- There is more benefit in terms of Lower RFI at antenna site.
- Lowers Hardware cost. Each Miltec PC cost is around INR ONE lac. The cost saved is around INR 35 lacs for 35 such PCs.
- The PC maintenance, RFI measurement is not needed.
- New Online System can calculate Azimuth and Elevation Coordinates and send to Servo system with time information after every 30 seconds
- If necessary, new MCM can do step no. 5 as a back up plan.

Block Diagram for all approach



Thank You ...