



Role of Intelligent Sub Station Communication Gateway (SCG) in Distribution Substation

By:

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**In today's Volatile and rapidly changing Energy Markets
Power Producers and Distributors are looking for Partners
with Clear vision of future and imagination And High
Business Standards required to make that Vision a Reality.**



Generation



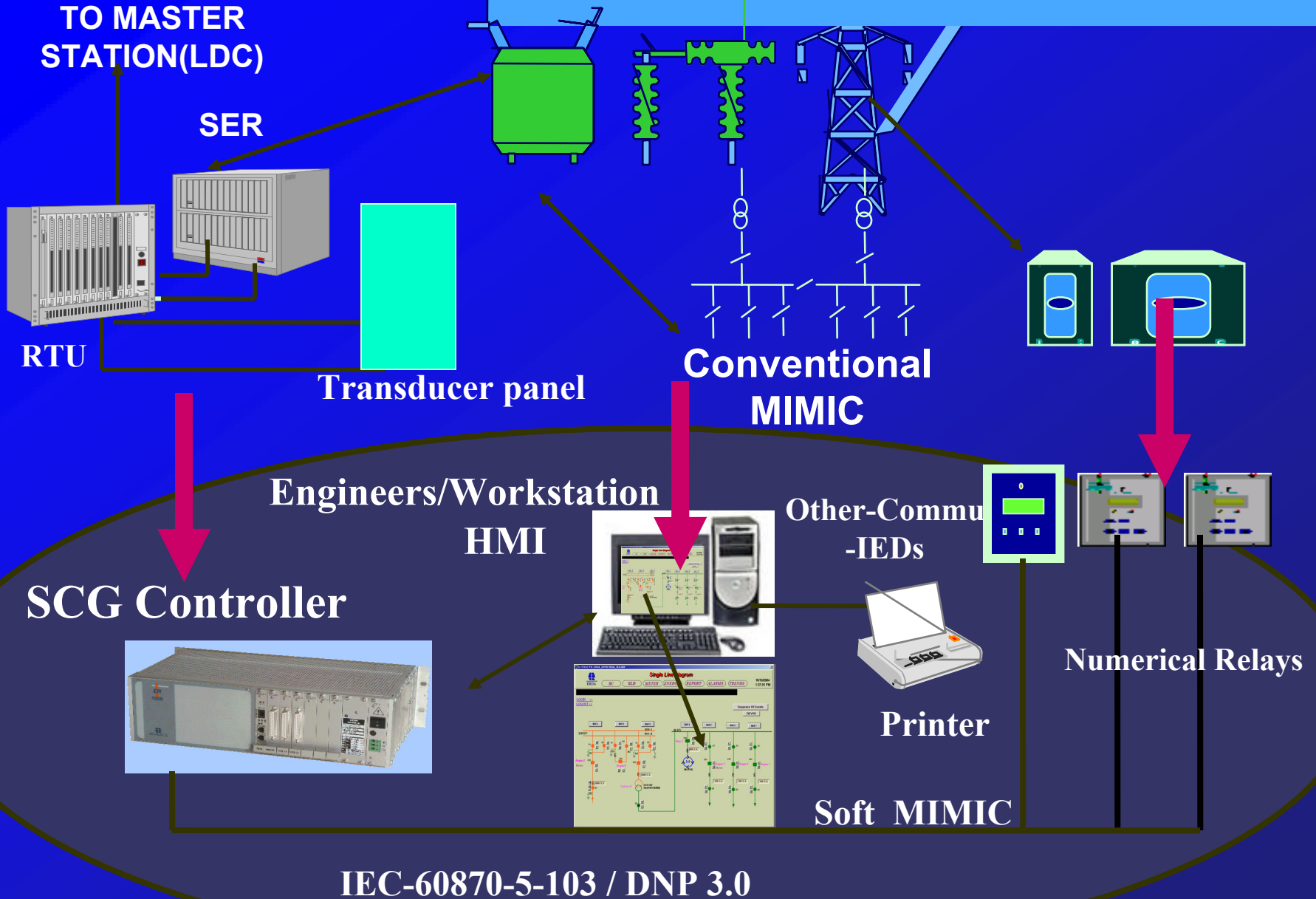
Transmission



Distribution

COMPLETE AUTOMATION SOLUTION

Today's SUBSTATIONS ARE NOT STATIC



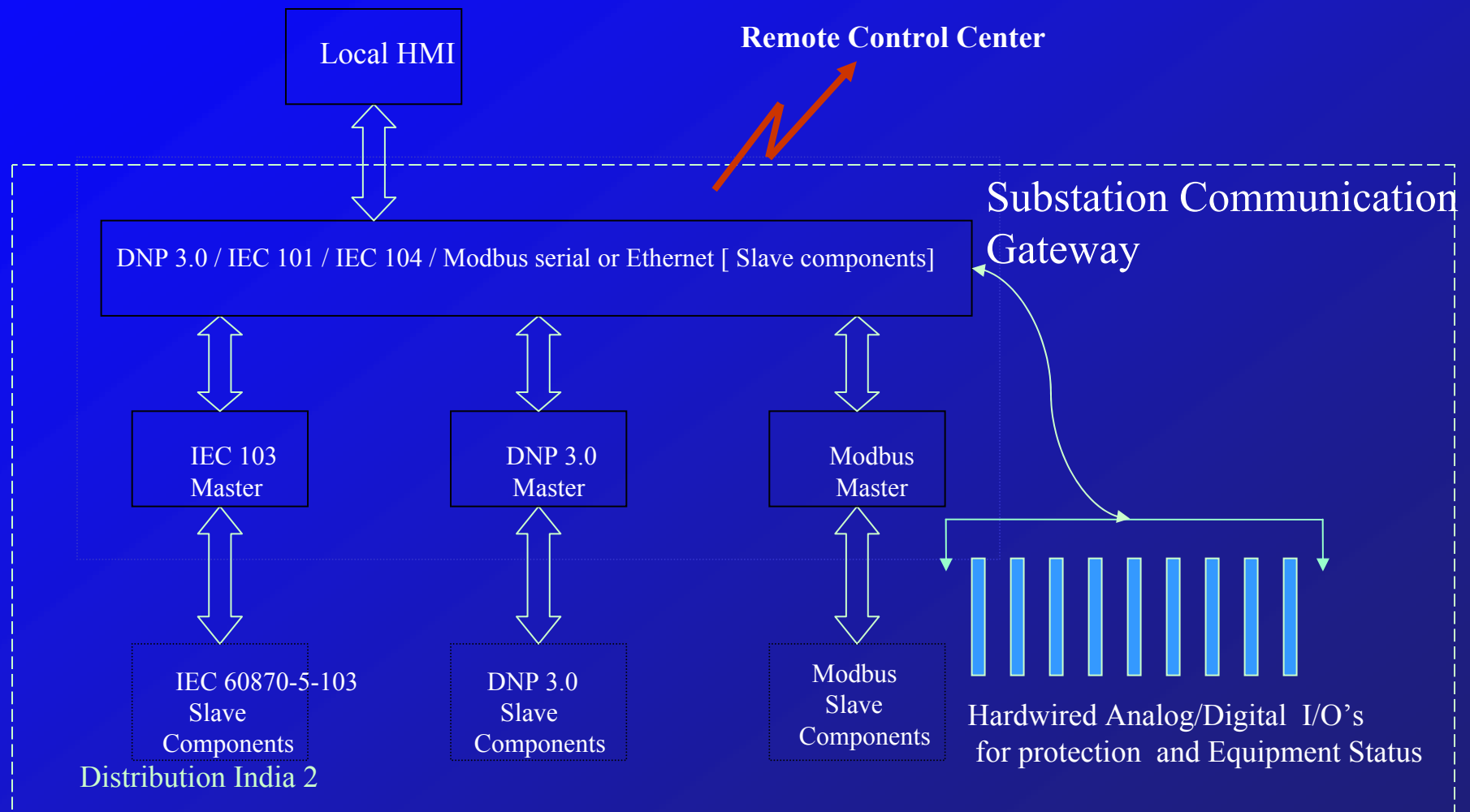


Why Intelligent SCG and not PLC/ RTU ?

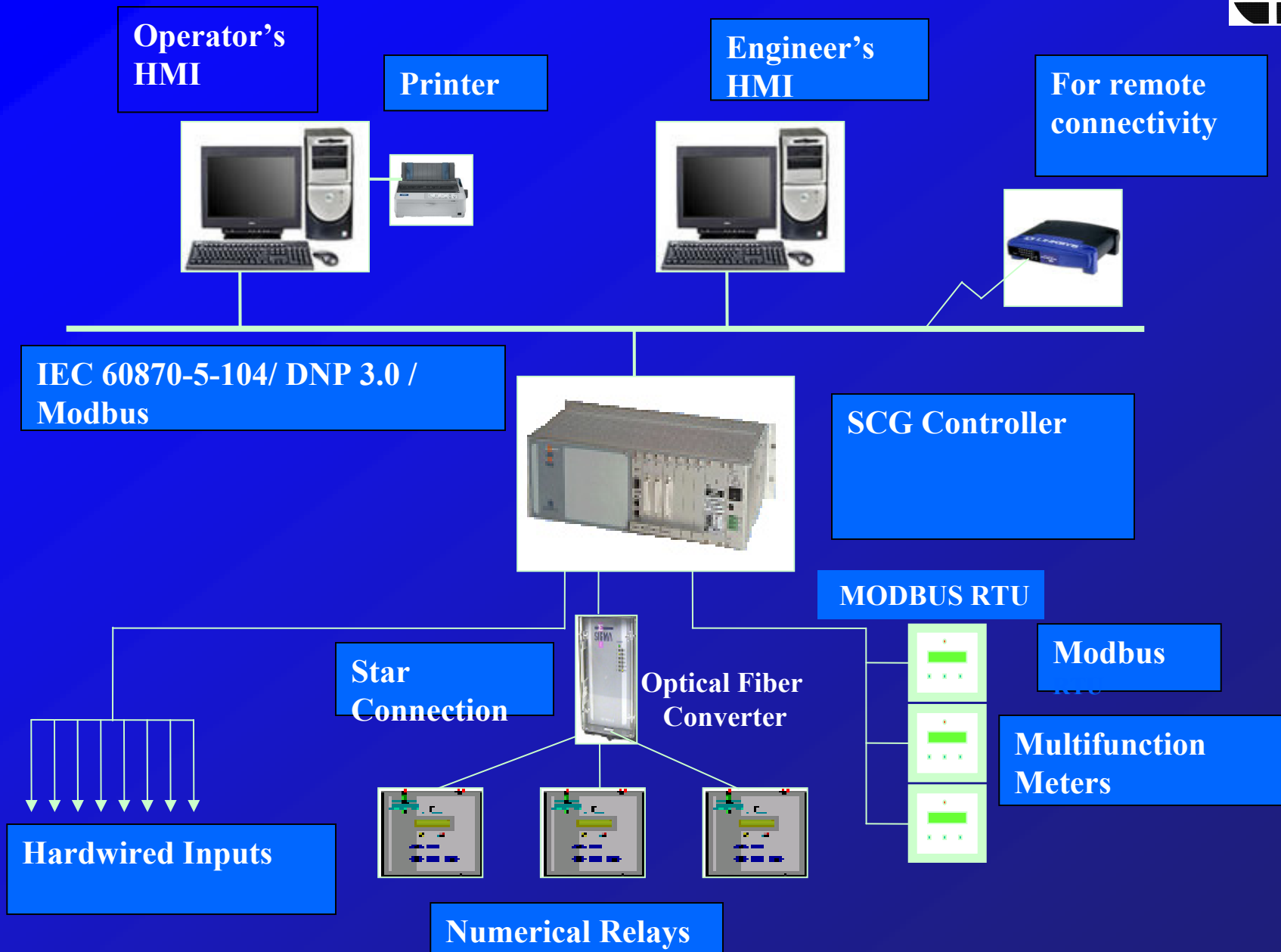
- Strong on Master/ Slave protocol
- Both for Hardwired and serial interface options
- Can build interlock (as PLC) or any other logic as per IEC 1131-3
- Integrated substation protection, control and monitoring equipment

Hence Vendor independent

SCG have open Protocol Library, justifying its use With Bay Level and Station level Equipment.



SCG controllers are superior and cost effective because of the impending future reality in HV/MV Substations

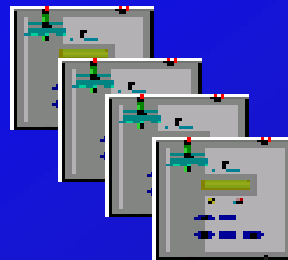


Communication protocols from bay level equipment.



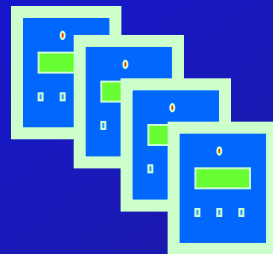
The usage of Multifunctional communicable IEDs like

Numerical Relays



**IEC60870-5-103/DNP3.0 -
Standard for protective
information interface.**

Multifunctional Meters



**RS-485 on MODBUS
RTU - Standard for
metering information
interface**

By virtue of its open type interfaces and its wide Ranging Communication Facilities, the SCG permits connectivity of Bay level Devices & Station level Devices in a equal way.

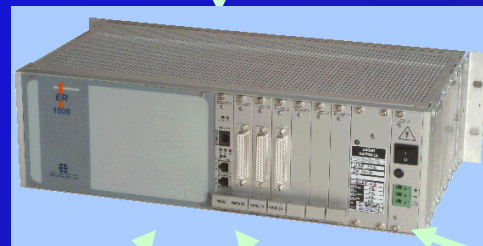


Station Level



IEC -61870-5-101

IEC-60870-5-103 / DNP 3.0



Bay Level

Multi-vendor Bay level IEDs



2



Importance of network configurations



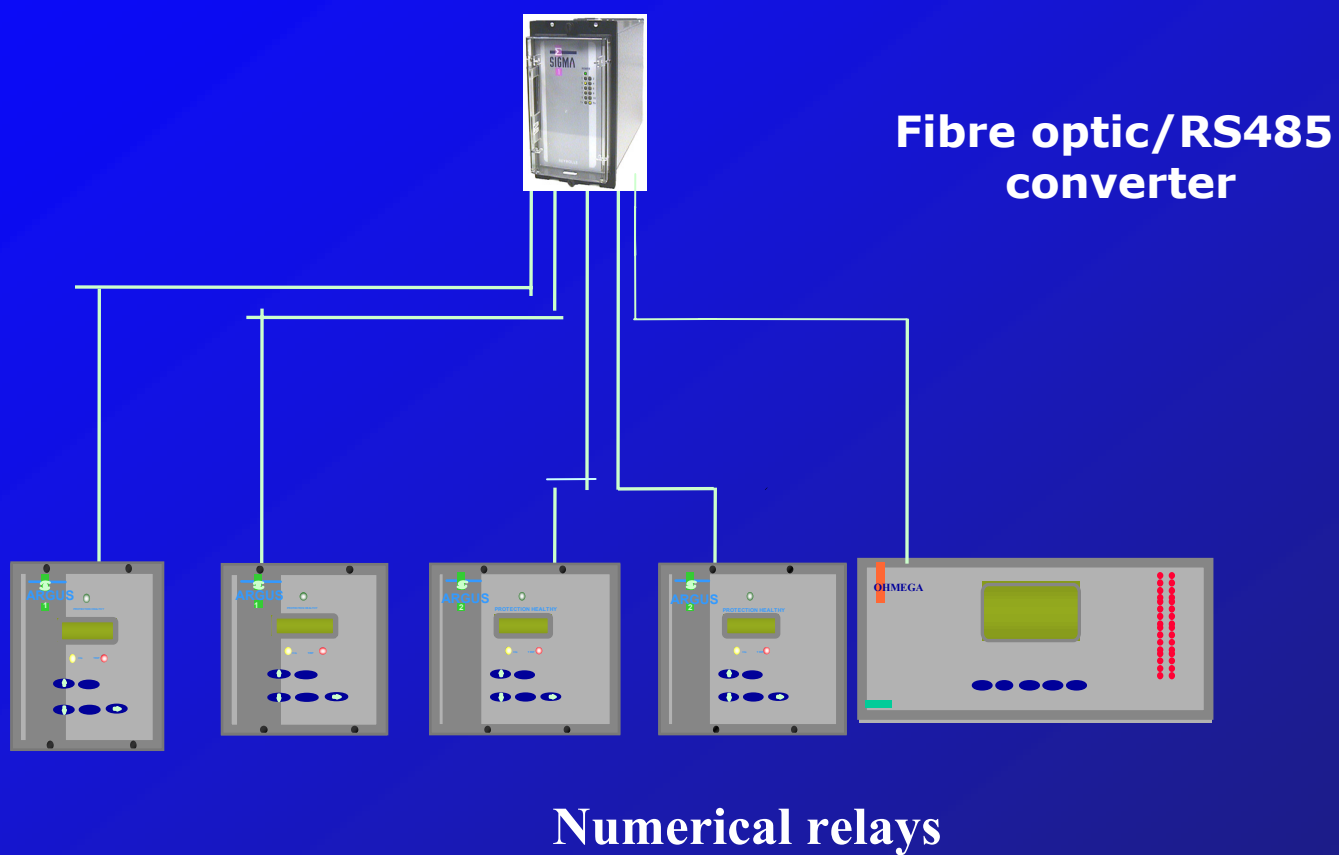
The two main protection networks being proposed are

- Star on Fibre optic medium
- Multi drop/daisy chain on FO medium or RS485

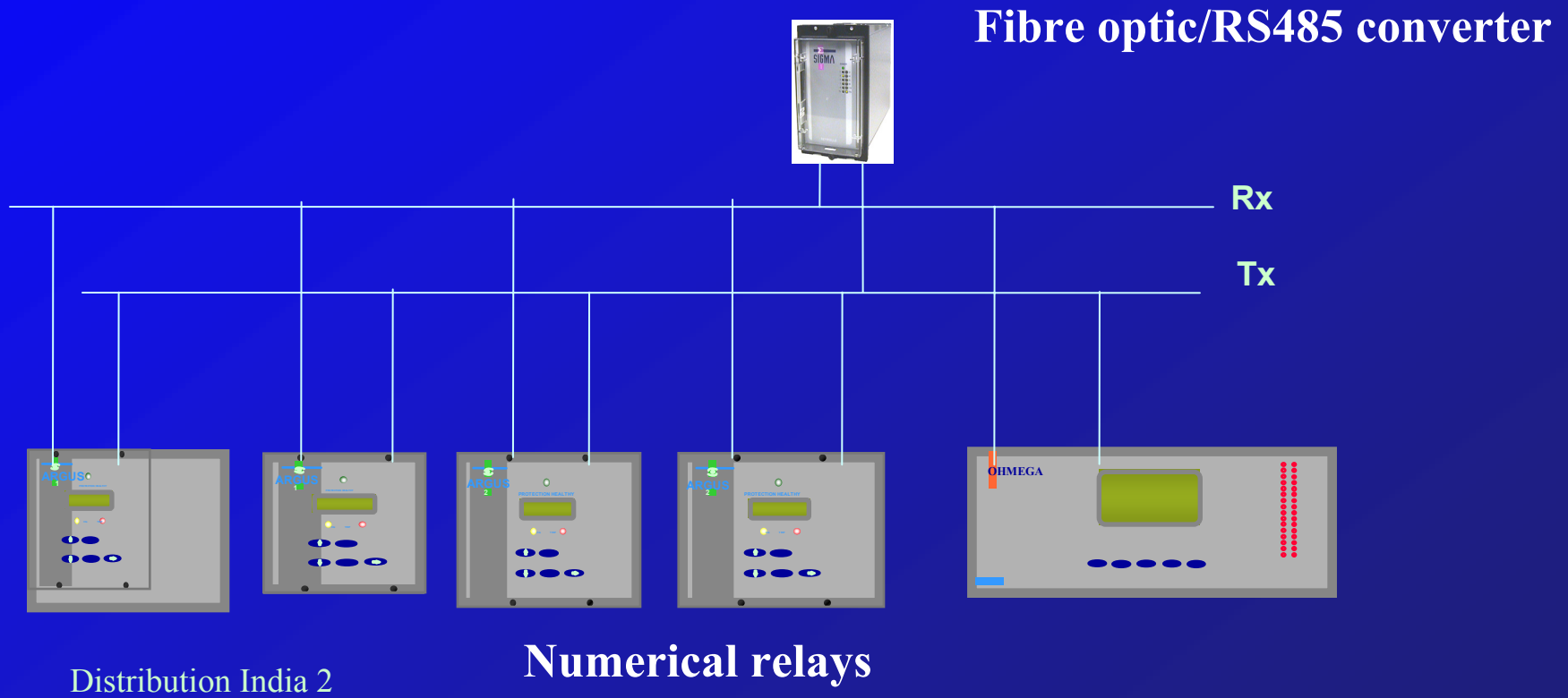
In general Fiber optic is more superior form of Communication from Relays .



STAR CONFIGURATION USING FIBER OPTICS



Multi drop configuration using Fiber optics

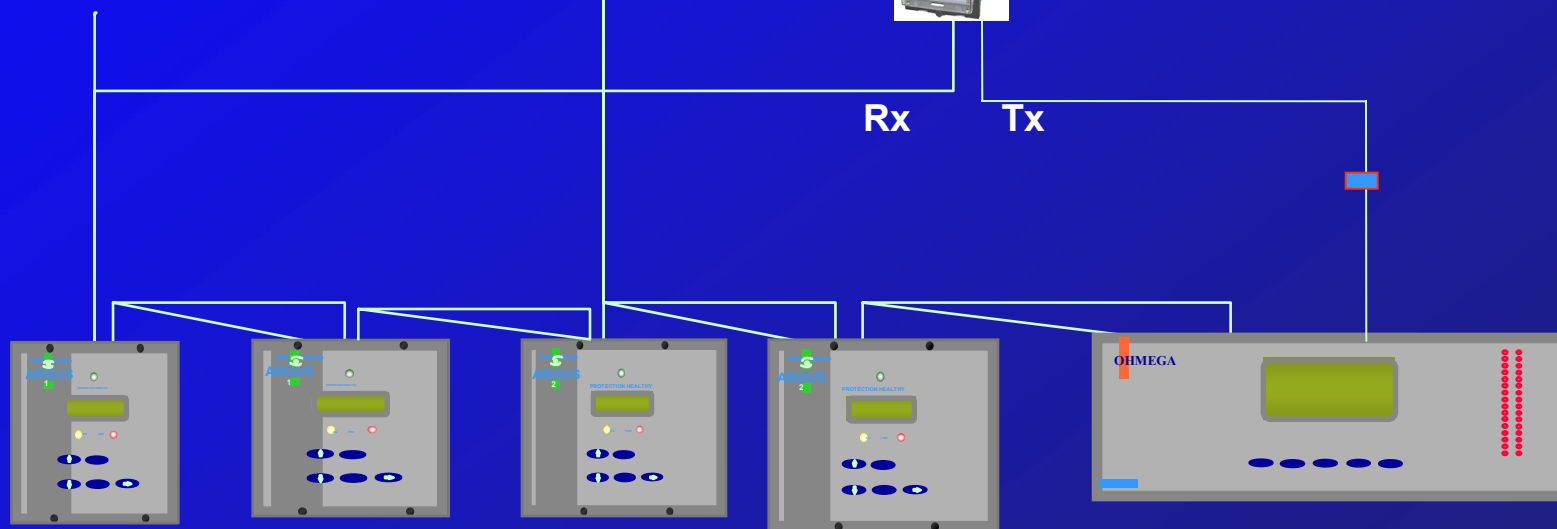




Daisy chain configuration using RS485

RS232/RS485 converter

Rx Tx



Distribution India 2

Numerical relays

Conclusion



- * **The outstanding qualities of modern automated systems is their distributed intelligence and futuristic approach.**
- * **The challenge is often in choosing the most beneficial & cost effective design for automating the substation.**



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Thank You !

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