

GE
Digital Energy

Substation Automation and Enterprise Data Management to Support Smart Grid

Georgia Tech Clean Energy
Speakers Series Program

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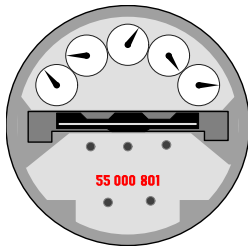
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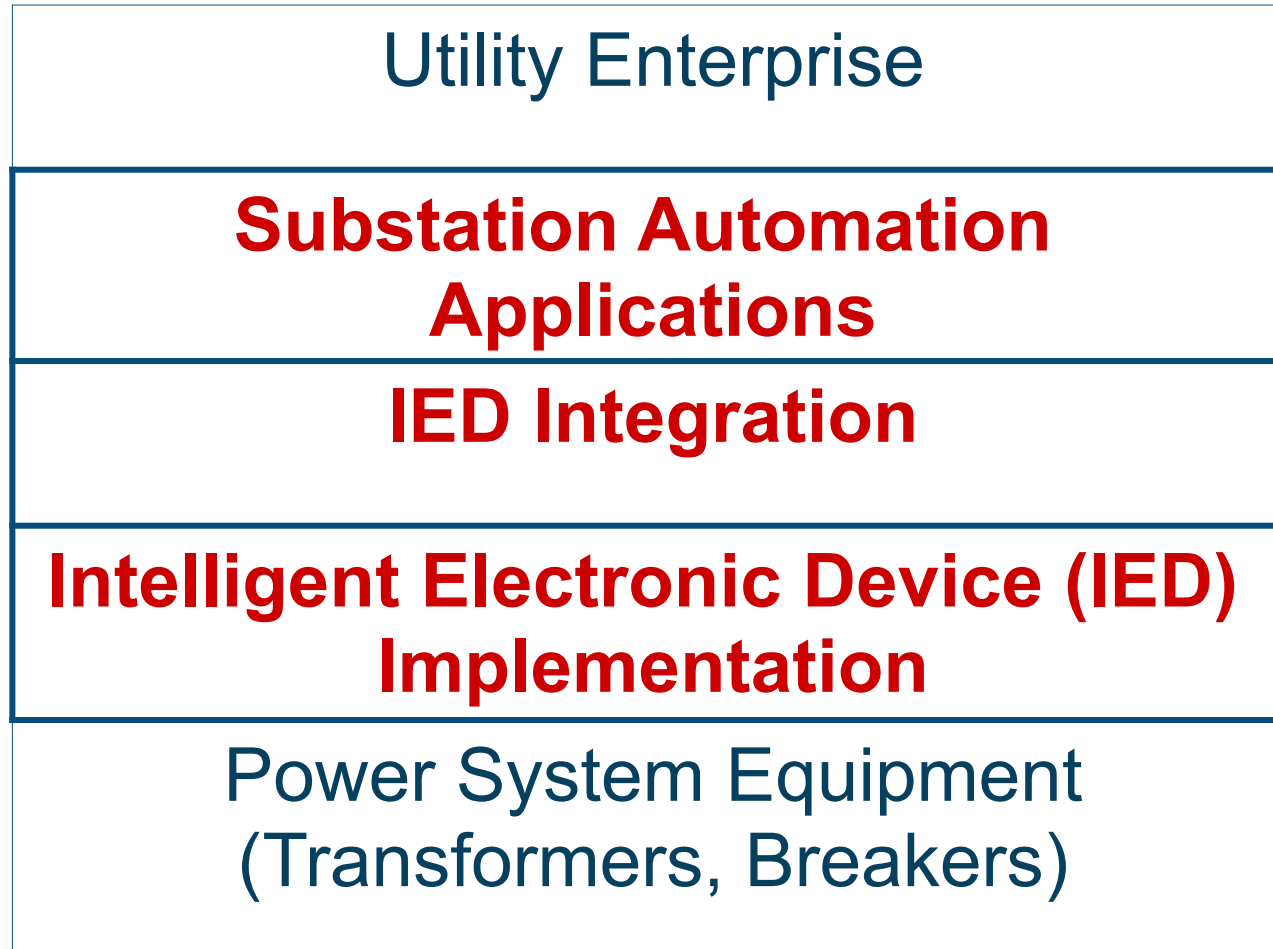


Intelligent Electronic Device (IED)

- Any device incorporating one or more processors with the capability to receive or send data/control from or to an external source (e.g., electronic multifunction meters, digital relays, controllers)



Substation Integration and Automation Levels



Integration

- Integration of protection, control and data acquisition functions into a minimal number of platforms to reduce capital and operating costs, reduce panel and control room space, and eliminate redundant equipment and databases



Automation

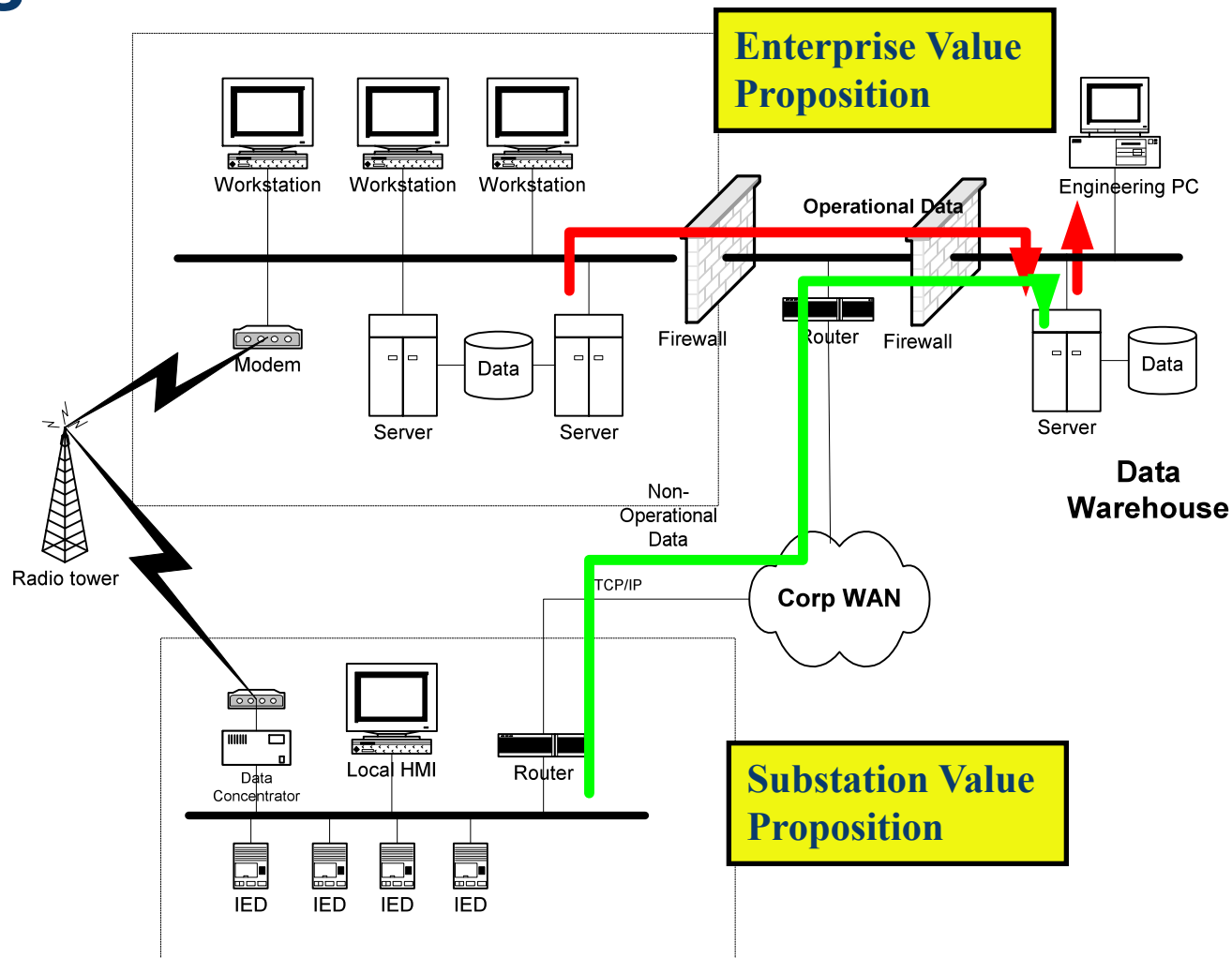
- Deployment of substation and feeder operating functions and applications ranging from SCADA and alarm processing to integrated volt/Var control in order to optimize the management of capital assets and enhance operation and maintenance (O&M) efficiencies with minimal human intervention



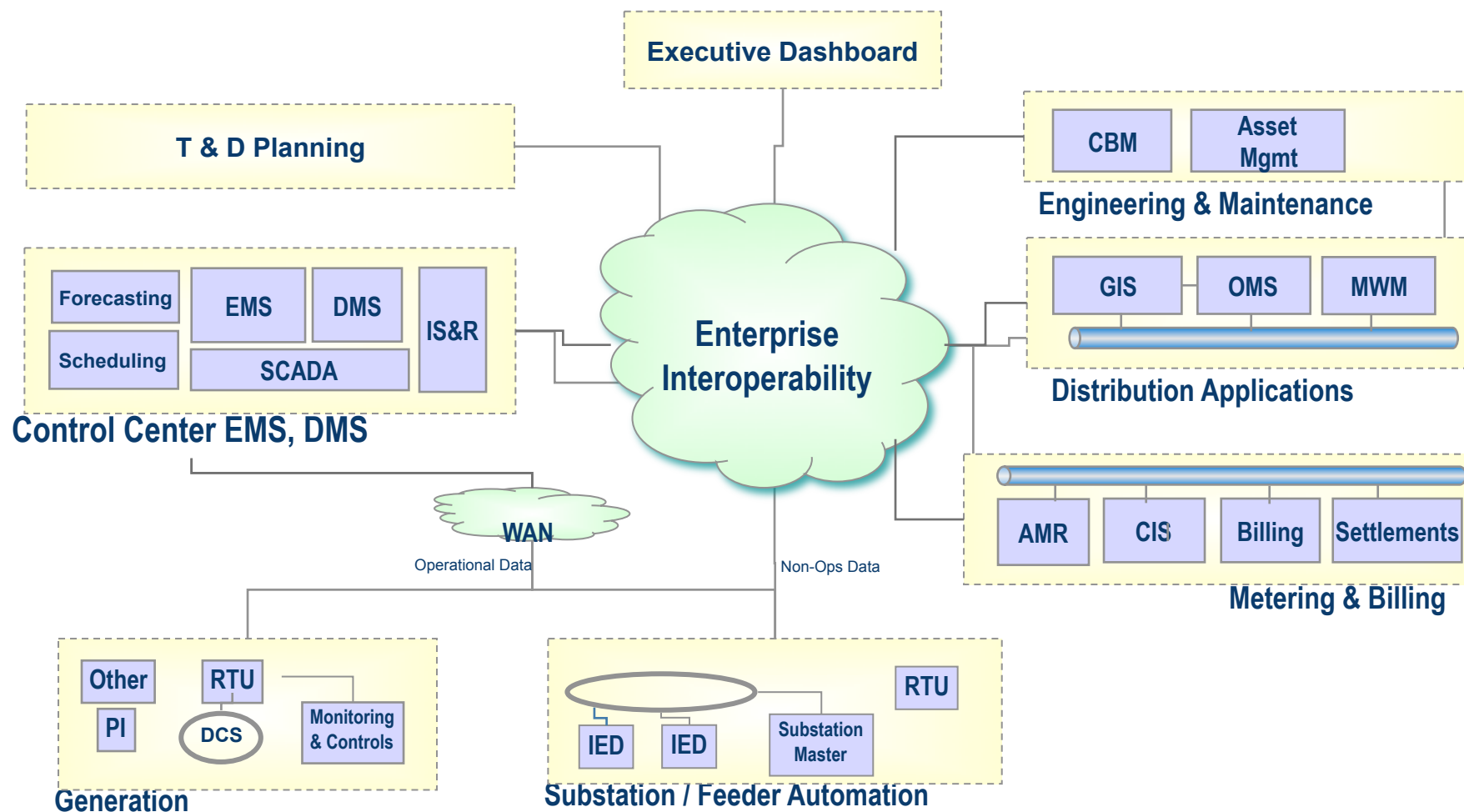
Communication Paths From Substation

- Two second data to SCADA system
(**operational data** – extracted using industry standard protocol such as DNP3)
- On demand data to utility information server or data warehouse (**non-operational data** – extracted using IED vendor's proprietary ASCII commands)
- **Remote access** from remote site to isolate a particular IED (also called “pass through” or “loop through”)

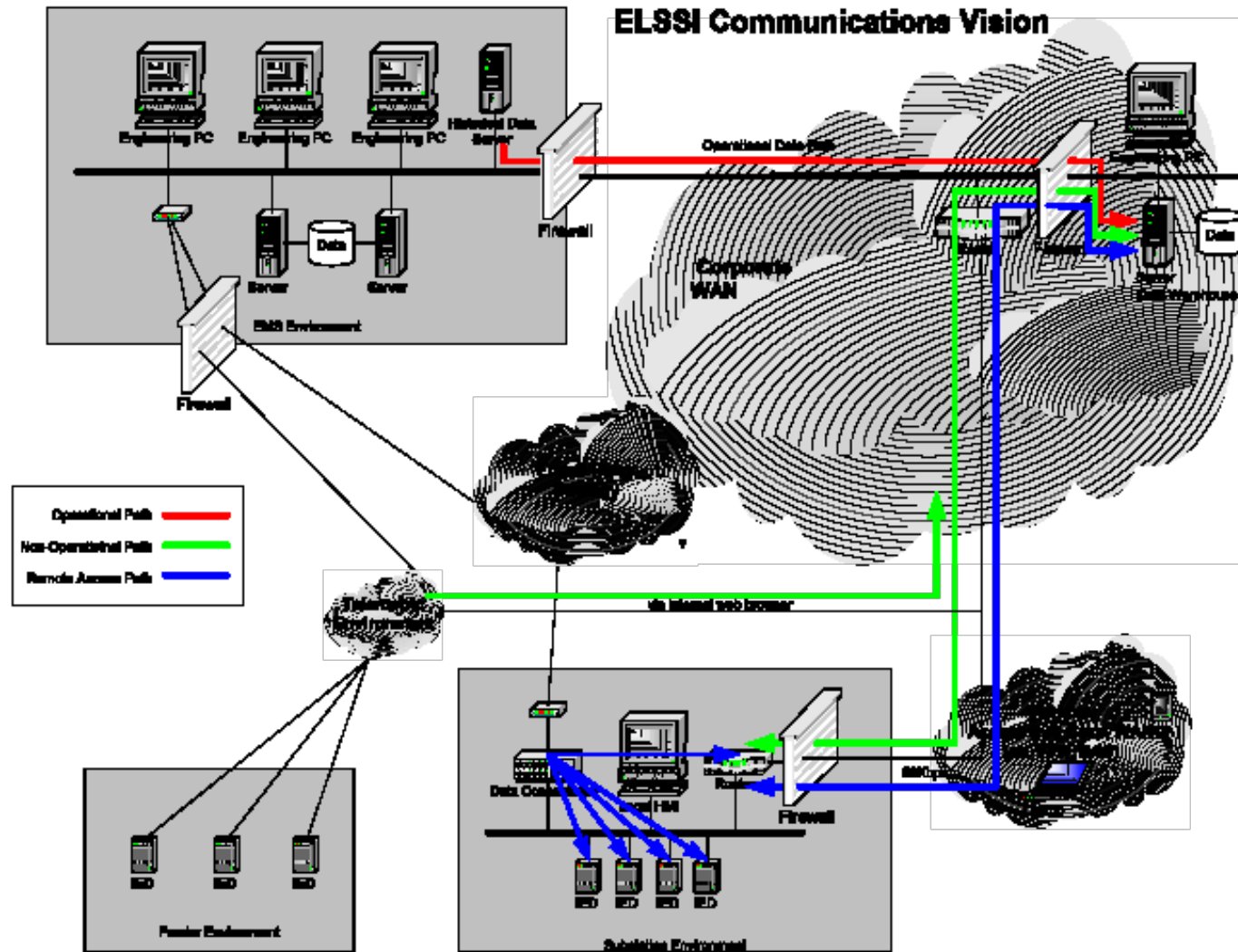
Operational and Non-Operational Data Paths



Enterprise Interoperability



ELSSI Communications Vision



Data Mart Vision

The *Virtual* Data Mart Links Users and Applications to Data from Multiple Sources of Record

