



The Standards People

IoT Conference 2023

Secure and Scalable Digital Transformation of Secondary Substations

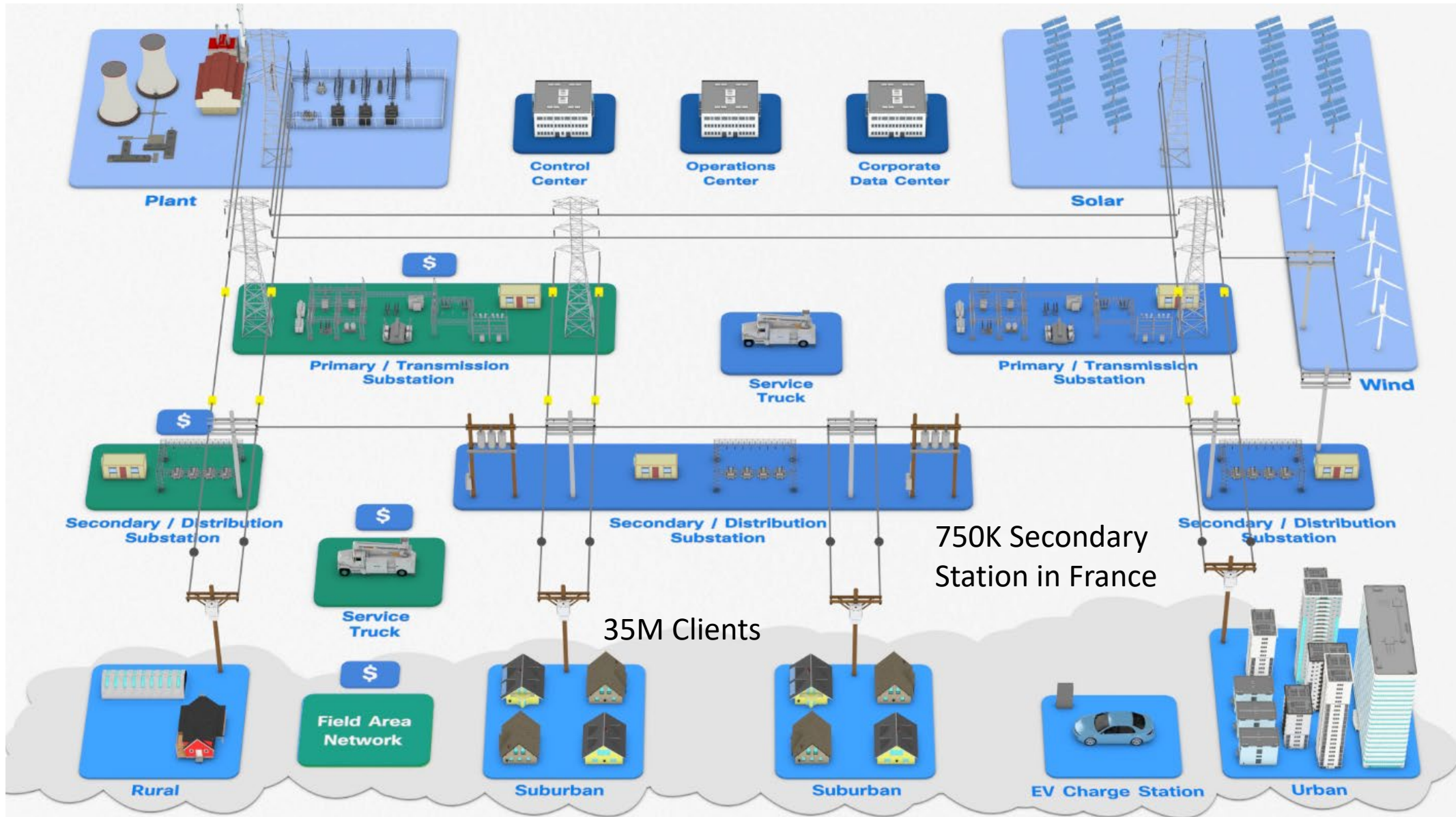
Presented by: Laurent Andriantsiferana



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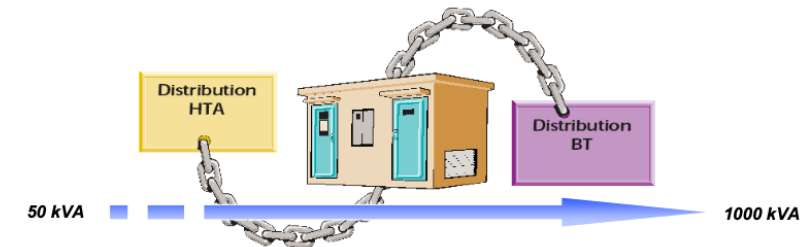


Power Distribution Overview



What is the secondary substation (poste HTA/BT) ?

- The secondary substation is ensuring the link between the high voltage (HV) and low voltage (LV) grid networks, it is composed of:
 - Device to connect to high voltage grid
 - A HV/LV Transformer
 - Sensors and Circuit Breaker
 - RTU using IEC 61850/104 to monitor/control



Secondary Substation Transformation



Existing Substation are using legacy connectivity services (i.e. PSTN) and migration to new services is required



Large number of stations and highly distributed in remote outdoor areas : Cellular and IPv6



Smart devices in substations (power/current meter, fault detection, environmental sensor) need to be connected to remote Monitoring and Control Systems : Industrial Router deployed in Substations

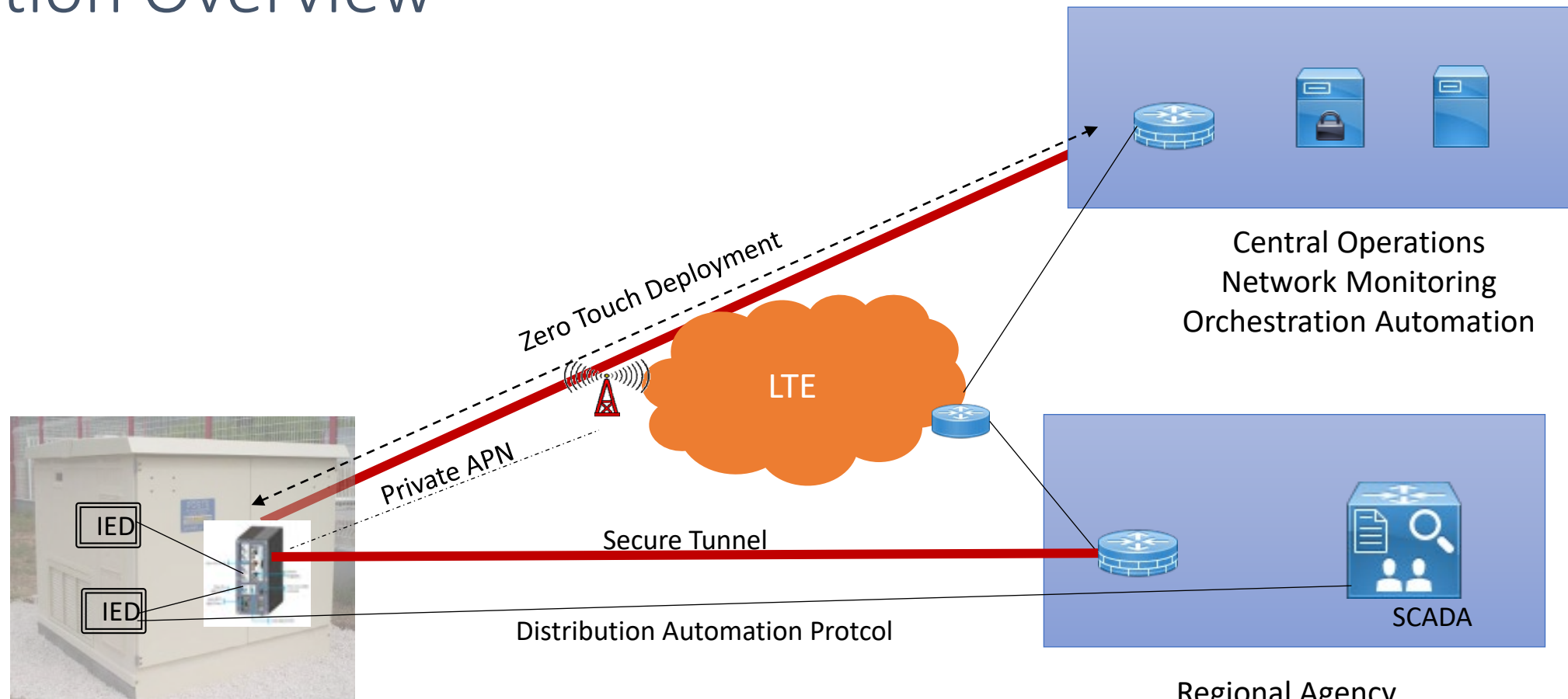


Critical Infrastructure mandate strong security : segmentation, strong authentication, encryption, etc: Private APN, IKEv2 VPN, AAA, PKI



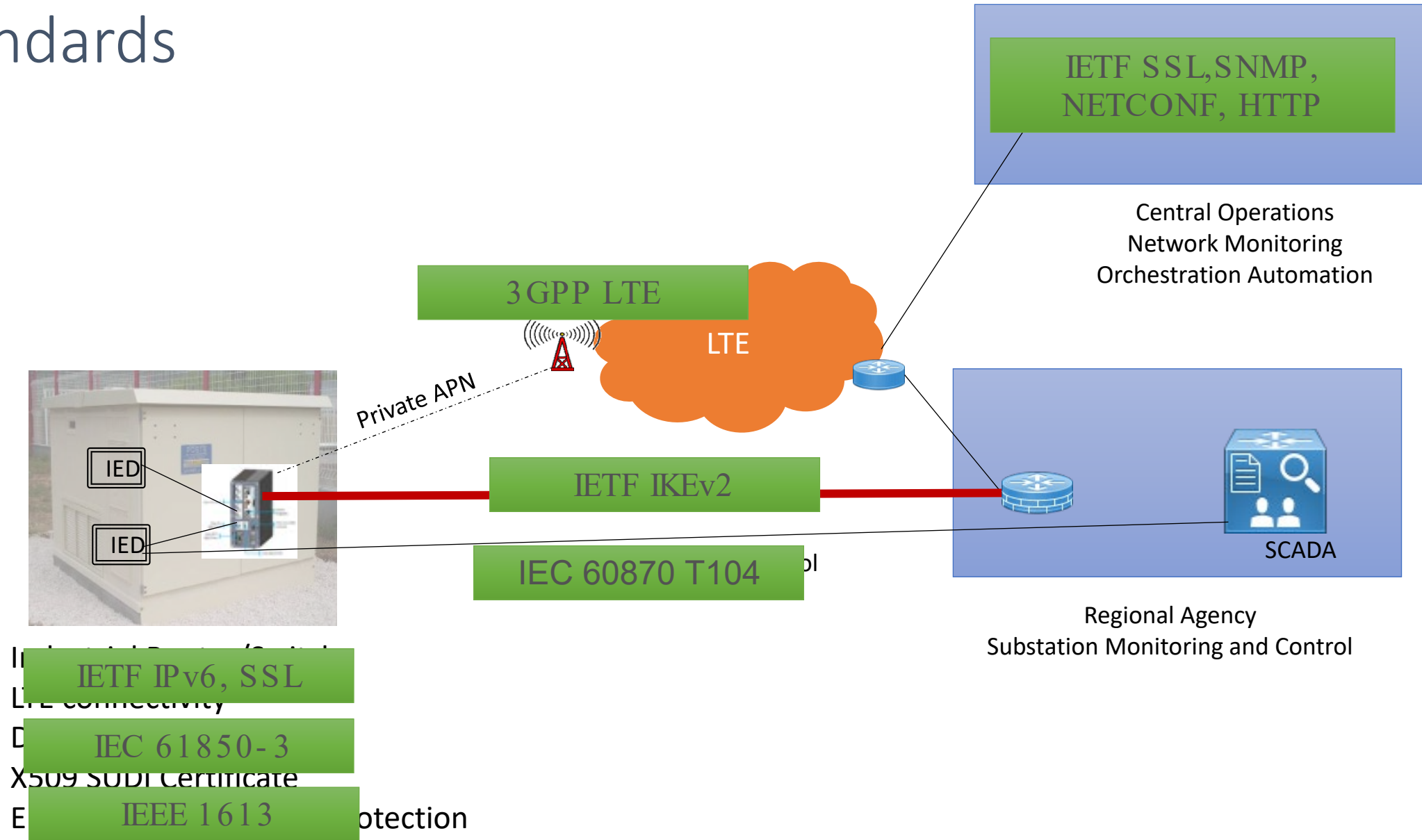
Large Number of substation to transform with non-IT staff : automation, zero touch deployment

Solution Overview



Industrial Router/Switch
LTE connectivity
DIN RAIL
X509 SUDI Certificate
Environment/Electrical Protection

Standards



Summary

- Power Grid are going thru a digital transformation worldwide
- Providing Secure Connectivity in Secondary Substations allows ENEDIS to
 - Collect data allows to optimize power distribution
 - Optimize the maintenance of the grid
- Standards at different level (environment, electrical, networking, security,) are essentials in this transformation
- Zero Touch operations and automation accelerate the deployment of the solution at large scale