



Oncor Communications Strategy

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December 16, 2008

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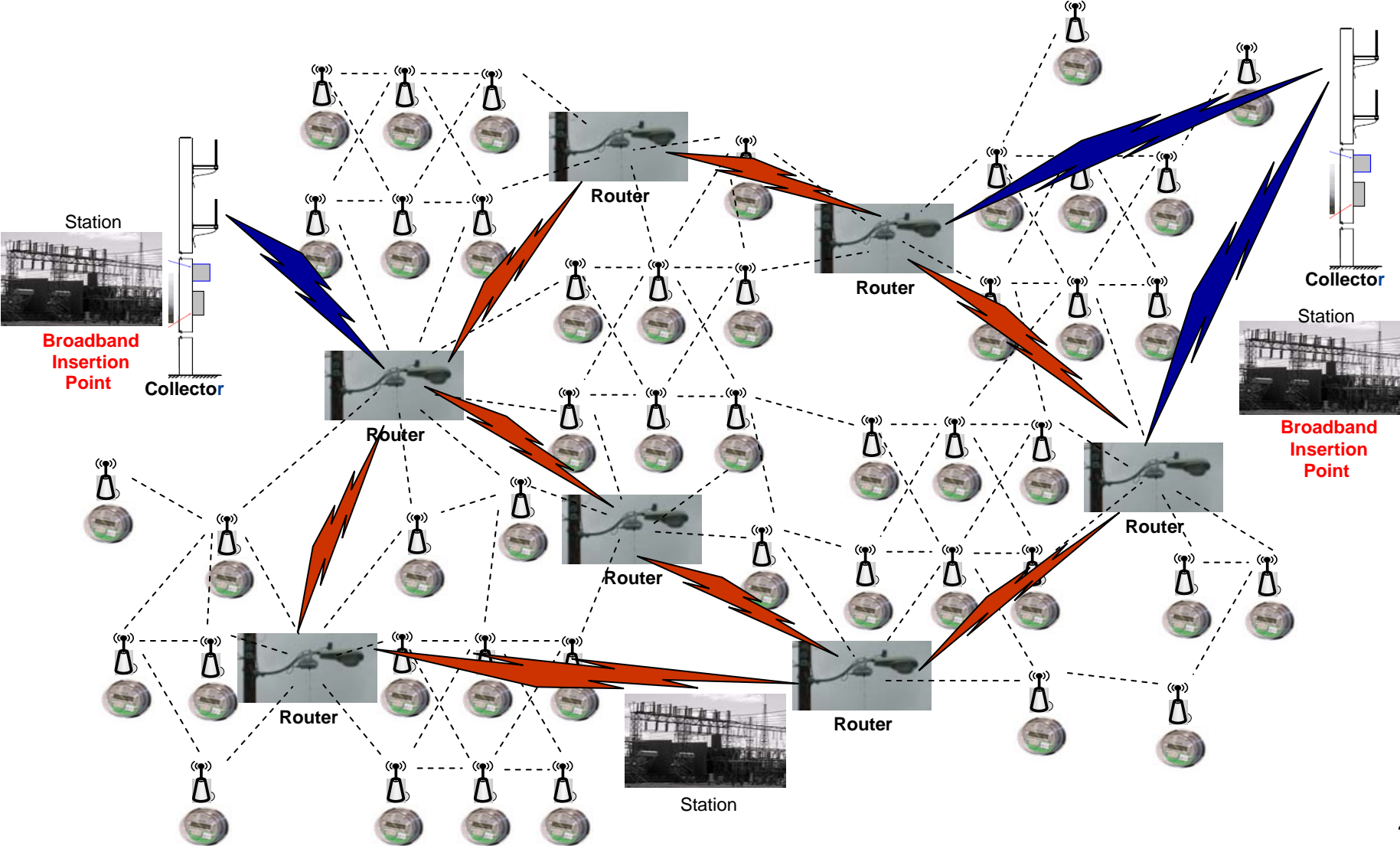
- **AMI Deployment**
- **Existing Backhaul Methods**
- **Substation Data Security**
- **Existing Communications Architecture**
- **Future Plans**

AMS (Advanced Metering System)



- **Between now to end of 2012, Oncor will deploy 3 million advanced meters**
- **Features**
 - **900 MHz RF mesh network communication**
 - **Integrated remote disconnect capability**
 - **Integrated Zigbee communications (for Home Area Network (HAN) access)**
 - **Last gasp capability (outage management)**
- **Allow customers greater visibility into their energy usage**
- **Enable capabilities like real time pricing and remote load shed**
- **Meter level resolution may enable network management capabilities**

Advanced Metering System (AMS) Network



Data Backhaul from Substations

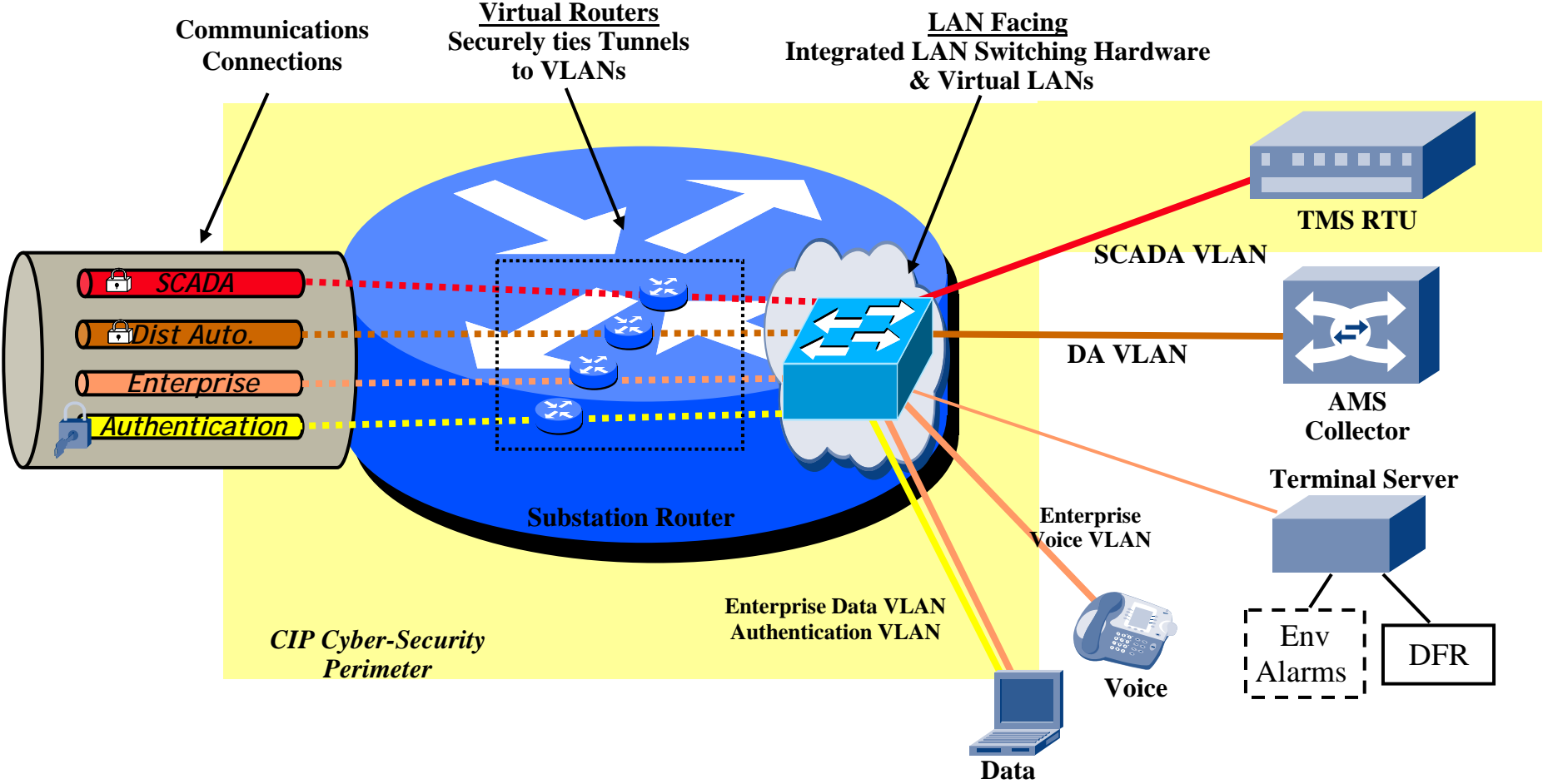


- **Methods**
 - **Digital phone circuits**
 - **Fiber**
 - **Satellite**
 - **Digital cellular**
 - **Microwave**
 - **WiMax**
- **Communications into stations must be secure**

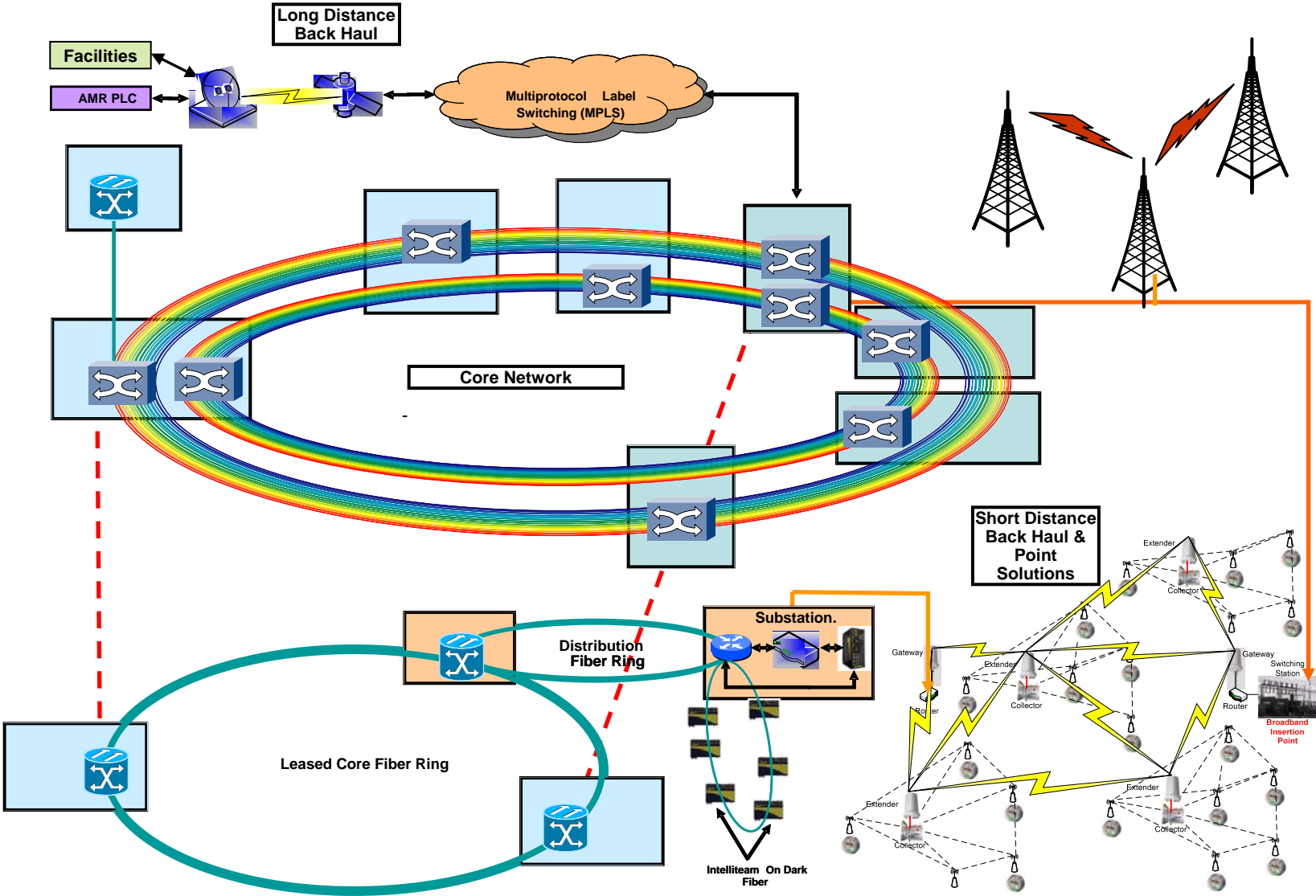
Substation Communications



Oncor Substation Architecture – VLANs

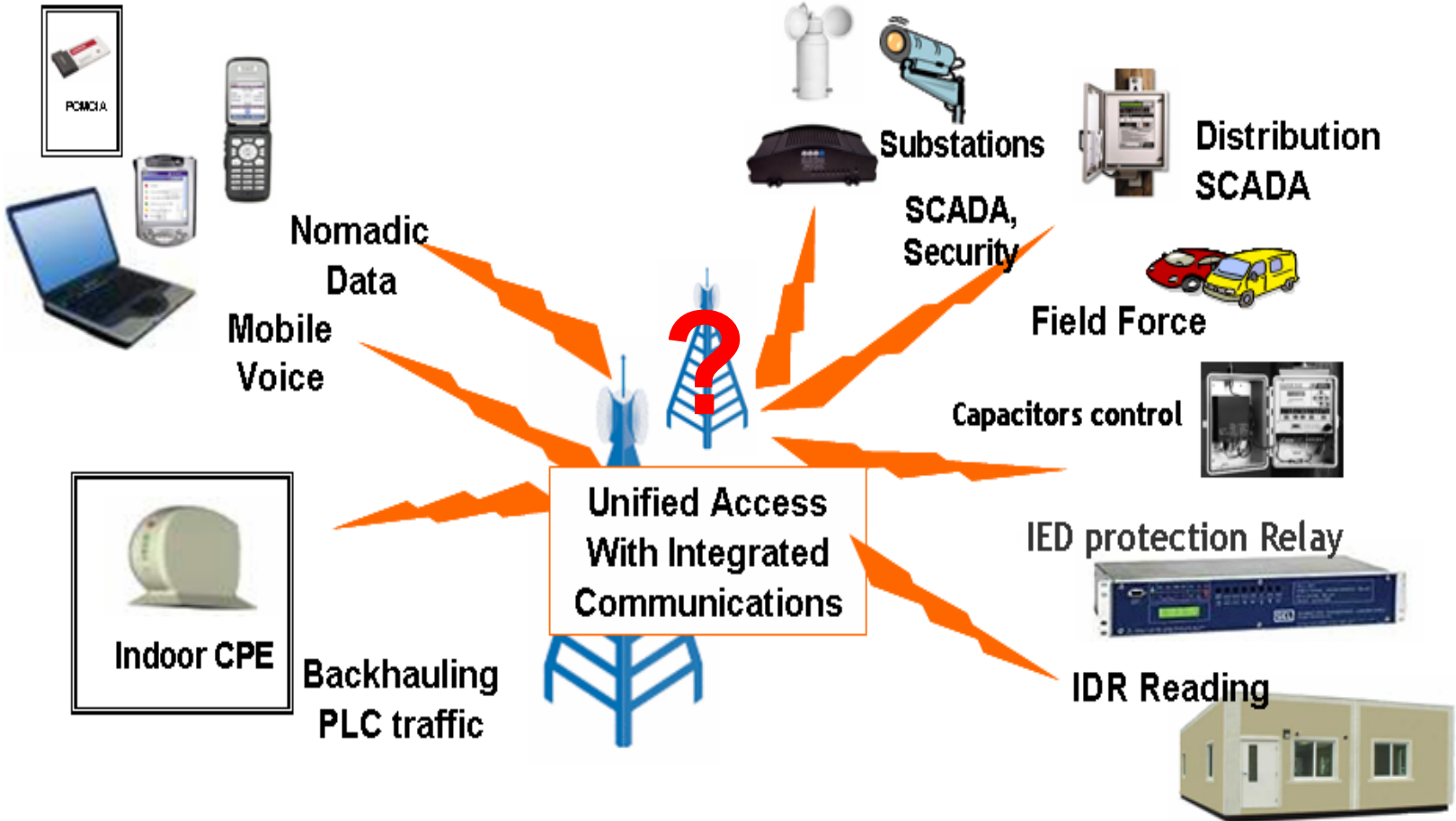


Oncor Communications – Near Future



Create a "Unified Access Network"

- Use the same technology to connect to all voice and data access devices, mobile and fixed, to the greatest extent possible



Basic Elements of Oncor's Telecom Roadmap

- Transform fiber core network into robust MPLS based IP Network
- Refresh microwave backhaul network into Ethernet based IP network
- Implement a unified access network for all mobile and point to point wireless communications (data and voice)
 - 700 MHz
 - 1.4 GHz WiMAX
 - 2.5 GHz WiMAX
 - 3.65 GHz WiMAX
- Utilize unified access network to communicate with RF mesh AMS network and many other field points (switches, cap banks, ...)