Trilliant at a Glance

Company Overview

- **Fully integrated Smart Grid networks for utilities**
- **200+ employees**
- **Headquarters in Redwood City, CA with offices in USA, Canada, and Europe**
- **20+ year history serving utilities in North America starting as Nertec in Quebec, Canada**
- **Acquired SkyPilot in May 2009**

Trilliant's Smart Grid Offering

- **Unified Networking…** secure multi-tier network
- **Broadband Capacity…** for current and future applications
- **Complete Coverage…** network tiers, geographies, and devices
- **Open Standards…** standard hardware and IP networking

Customer Base

- **1 million+ endpoints installed**
- **200+ utility customers in the Americas and Europe**

"…the first 'future-proof' communications solution… full broadband capacity is critical for the growth of the Smart Grid."
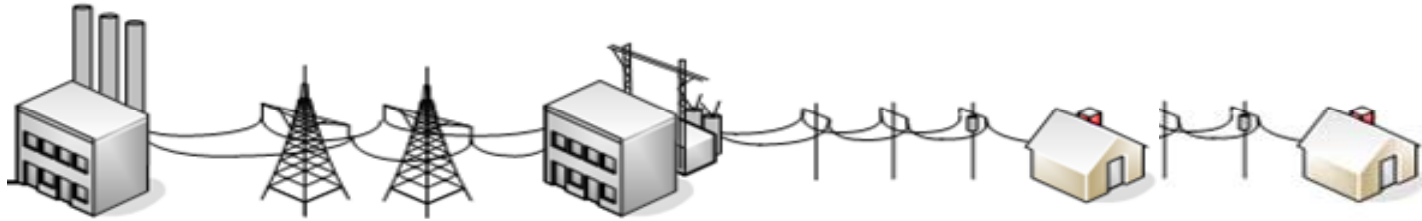-Jesse Berst, SmartGrid News
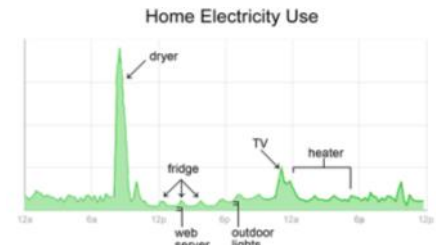
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Where is the Grid Headed?

Integrating renewables **Electrifying transportation** **Enabling energy efficiency**

All require dedicated communications networks

The Smart Grid Evolution...

Smart Grid v0.0
Networked Meters

Proprietary Meter Data

Proprietary Narrow Band Networks

Proprietary Advanced Meters

Isolated Networks

Smart Grid v1.0
Advanced Metering

Enterprise Ops.
- Meter Data Mgt
- Device Management
- TOU Billing

AMI Networks
- Standard Protocols
- Public/Private WANs
- Complete Coverage

Utility Managed
- Critical Peak Pricing
- Smart Meters
- Smart Thermostats
- Load Controls

Smart Grid v2.0
Consumer-Grid Connectivity
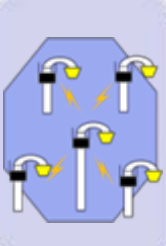
Smart Energy Services
- Enterprise Services
- Customer Operations Unified
- Multi Service Offerings

Multi-Service Networks
- Broadband
- Mobility
- Grid
- Community
- Home

Consumer-Oriented Grid
- Consumer Energy Efficiency
- Smart Appliances
- G2V (1-way PHEV charging)

Smart Grid v3.0
True Supply/Demand Integration

Renewables
- Supply Balancing
- Supply/Demand Integration
- Carbon Credits

Dynamic Capacity
- Matrix Grids
- Service Quality
- Local Load Balancing
- Energy Storage

Eco Community
- Micro Grids
- V2G (2-way PHEV)
- Retail services
- Affinity groups

Utility Operations

2009

Subscriber Services

Smart Grid is a Multi-Tier Network

Enterprise Integration ➡️

Grid	Metering	DSM

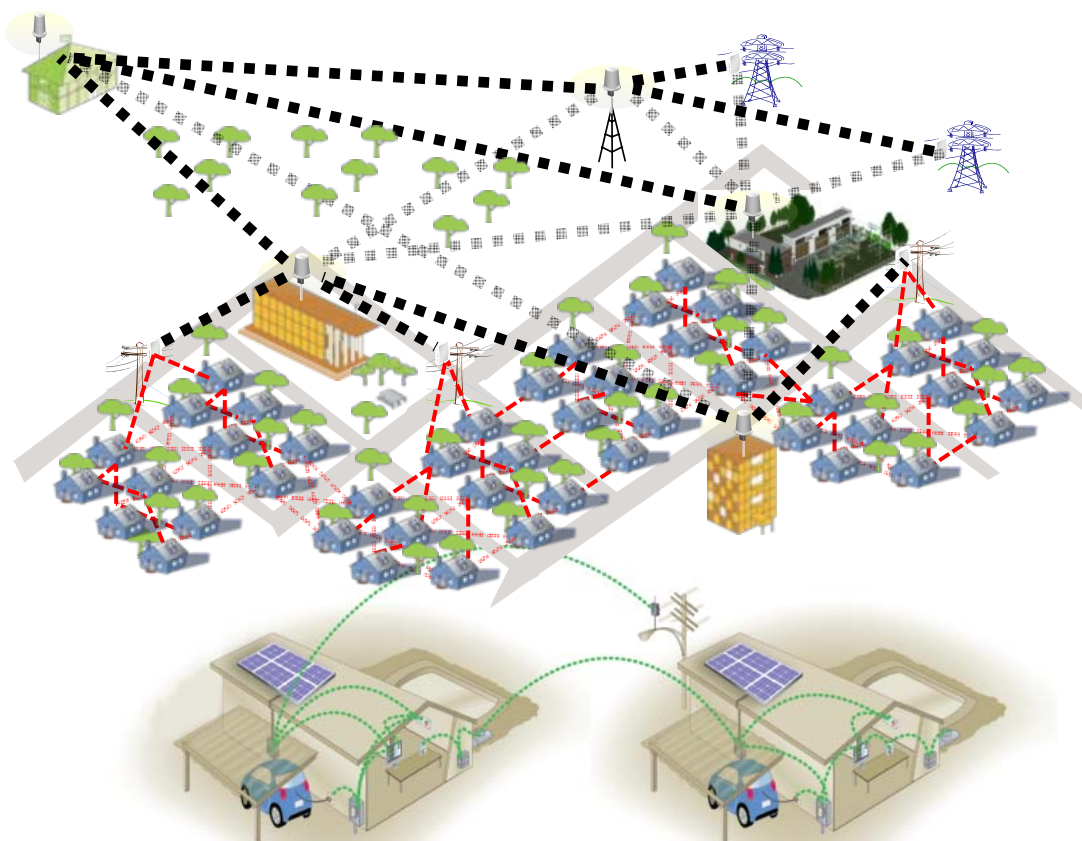| Network Operations / Management |
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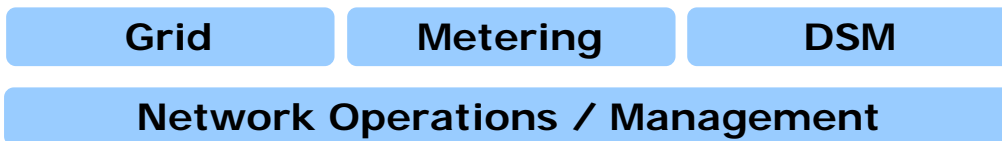
Broadband Network Tier (WAN) ➡️
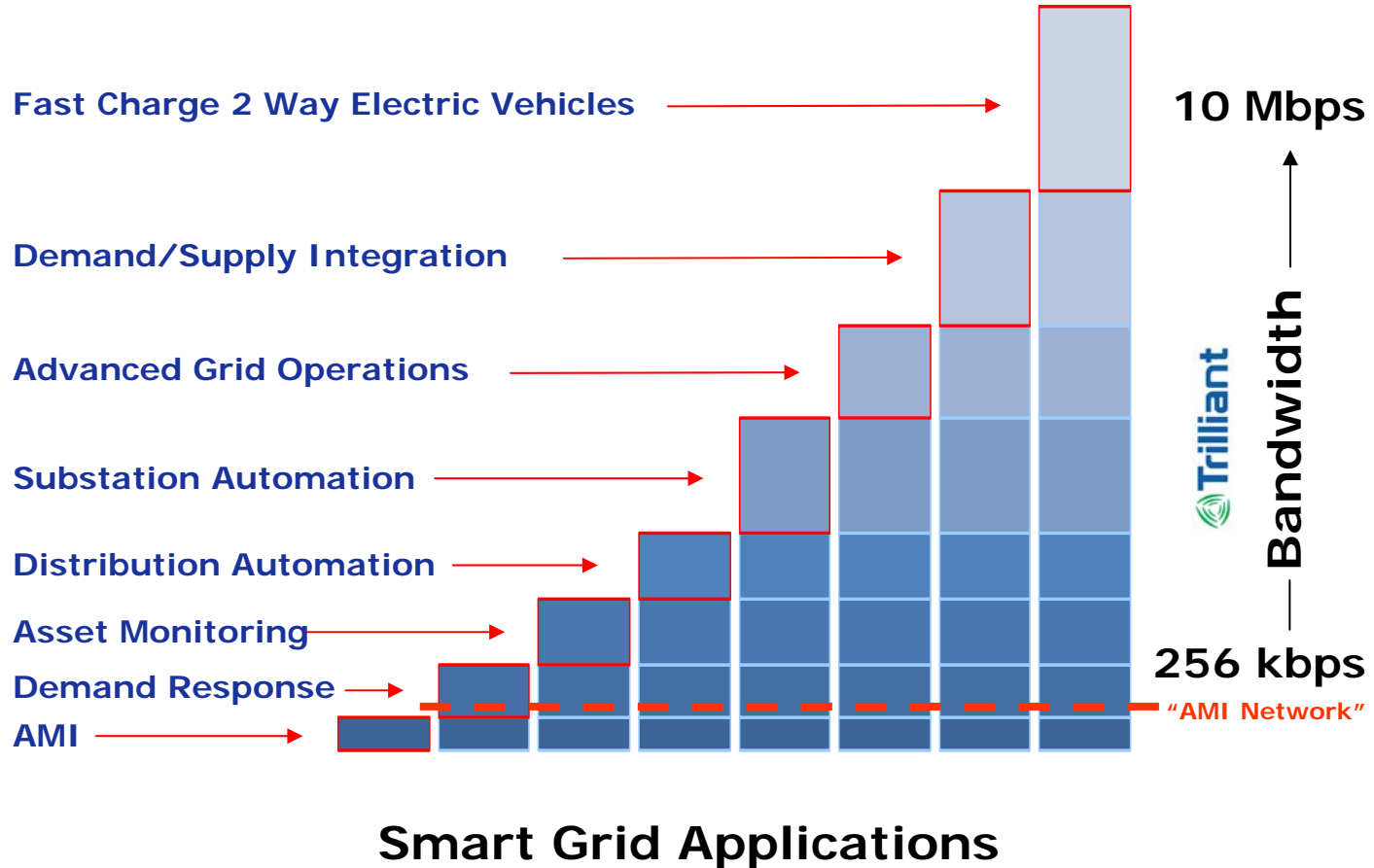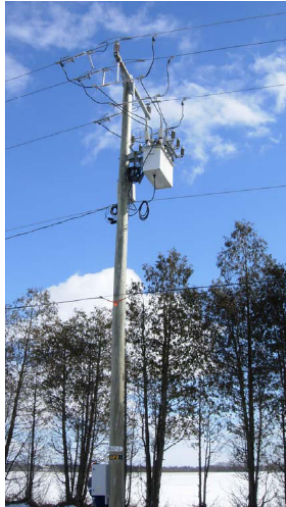
Neighborhood-Area Network (NAN) ➡️

Home-Area Network (HAN) ➡️

Multiple technologies and levels are necessary for performance and security

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Bandwidth is Critical

Fast Charge 2 Way Electric Vehicles ⟶

10 Mbps

Demand/Supply Integration ⟶

Advanced Grid Operations ⟶

Substation Automation ⟶

Distribution Automation ⟶

Asset Monitoring ⟶

Demand Response ⟶

256 kbps

AMI ⟶

"AMI Network"

Bandwidth

Smart Grid Applications

High bandwidth and low latency to support current and future applications

Smart Grid Radio Frequencies

Radios Use standards based radios (IEEE certified) for efficient use of bandwidth, assure reliability, and to minimize interference

Public Bands Should remain an option with or without private spectrum

Private Bands 1.8Ghz is emerging as a North American standard. Use a continent-wide standard

Private Band Allocation Non exclusive registration based on use class (utility smart grid networking). Do not sell to individual owners