Energy Automation Solutions

Missouri PSC Smart Grid Technical Conference

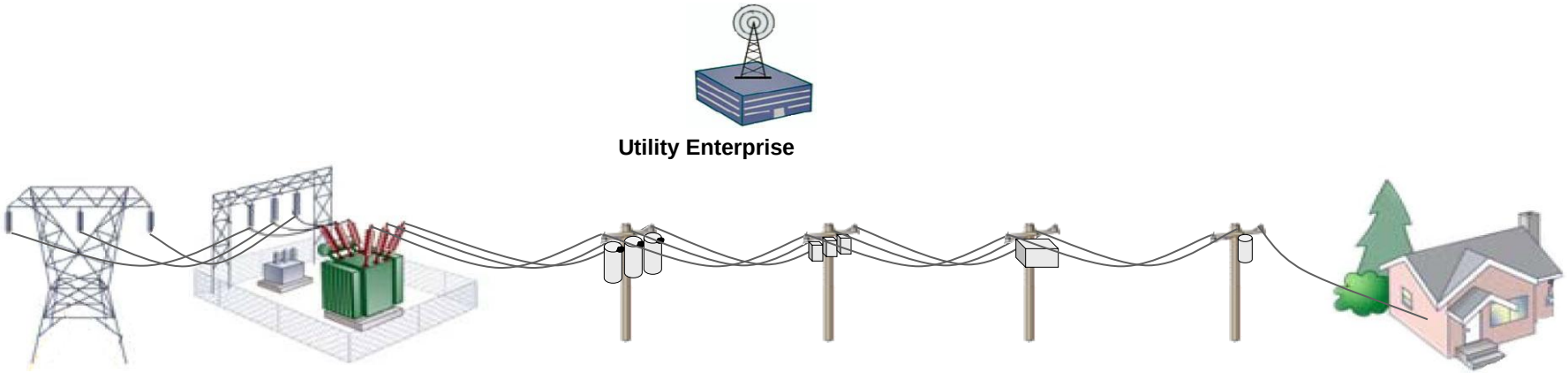
Jefferson City, MO

June 28, 2010

COOPER Power Systems

EAS Smart Grid Definition

The Smart Grid is the application of monitoring, communications, intelligence and action into integrated solutions that automate the electrical grid (from transmission to consumption) to improve reliability, productivity (cost) and efficiency



Utilities are facing significant challenges

Issues

- Aging of electric grid stressed by increasing electricity demand
- Retiring of utility skilled workforce (Linemen and Protection Engineers)
- Increasing scrutiny of power outages and service restoration

Drivers of Automation

- **Reliability -** outage prevention and restoration
- **Productivity -** operational and asset productivity
- **Energy Efficiency** – grid efficiency and demand management

Electric Utilities are looking for automation solutions to improve reliability, productivity, and energy efficiency

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Automation from Substation to End Customer

AMI – AMR/DR

Demand Response

PLC AMR

Yukon Software

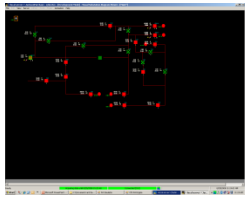
Yukon®

Feeder Automation

IEDs (relays and controls)

GridAdvisor™ Sensors

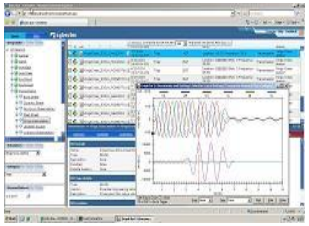
Feeder reconfiguration



Substation Automation & Cyber Security

Substation Gateways

Integration Software



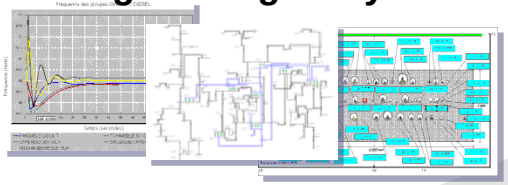
Cyber Security

Engineering Analysis

Engineering analysis software

CYME INTERNATIONAL T&D

Engineering analysis



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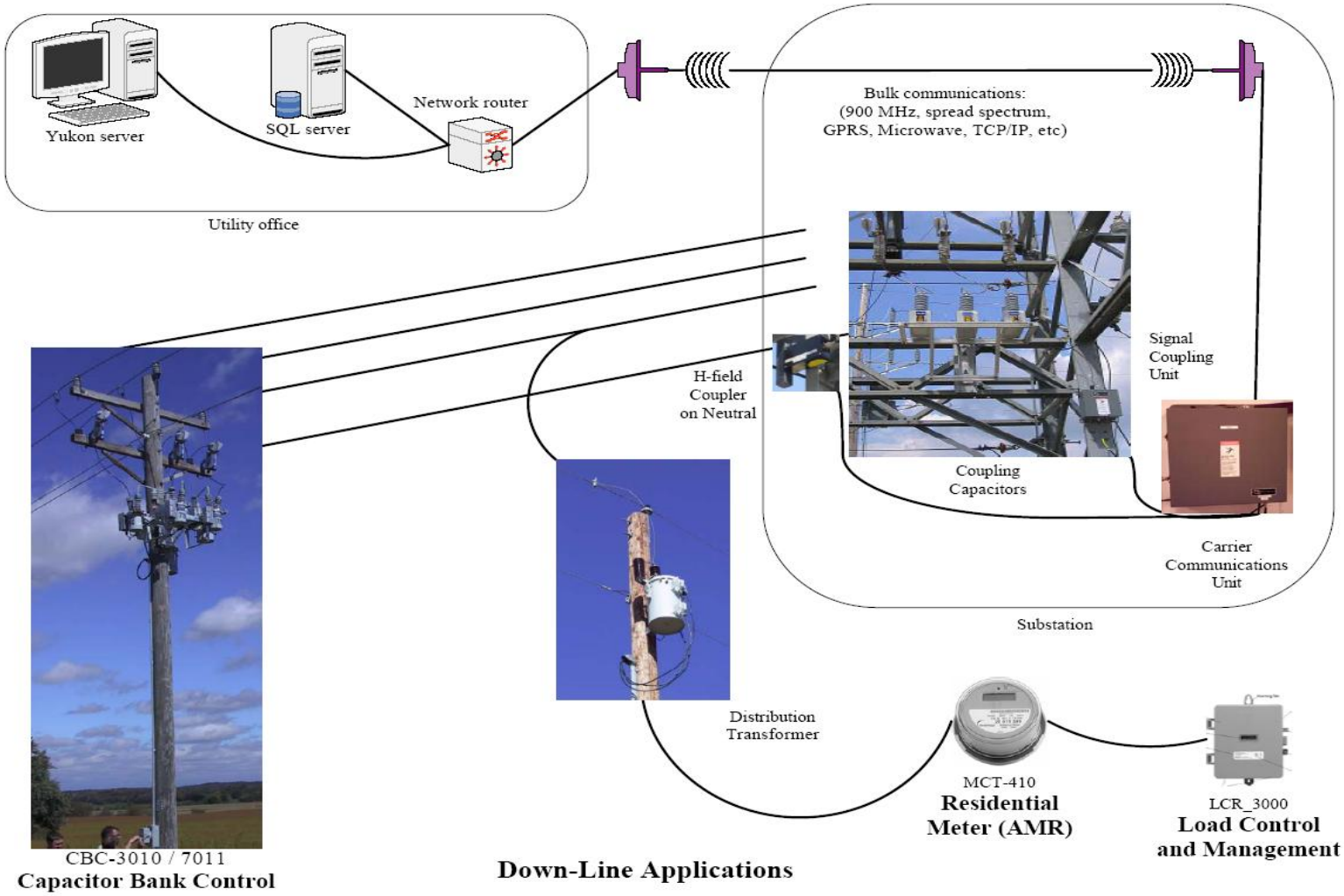
Power Line Carrier-Based AMI Solutions



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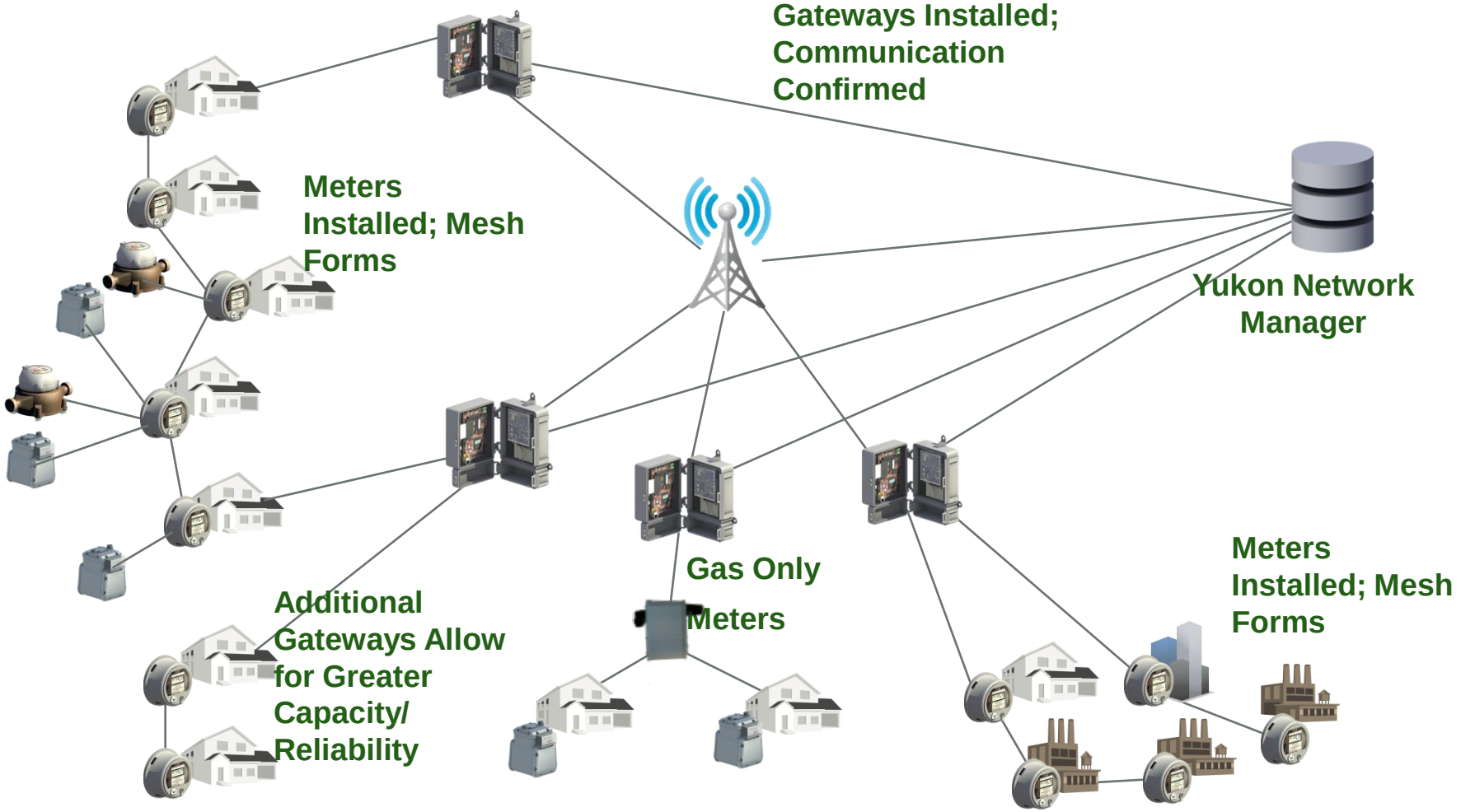
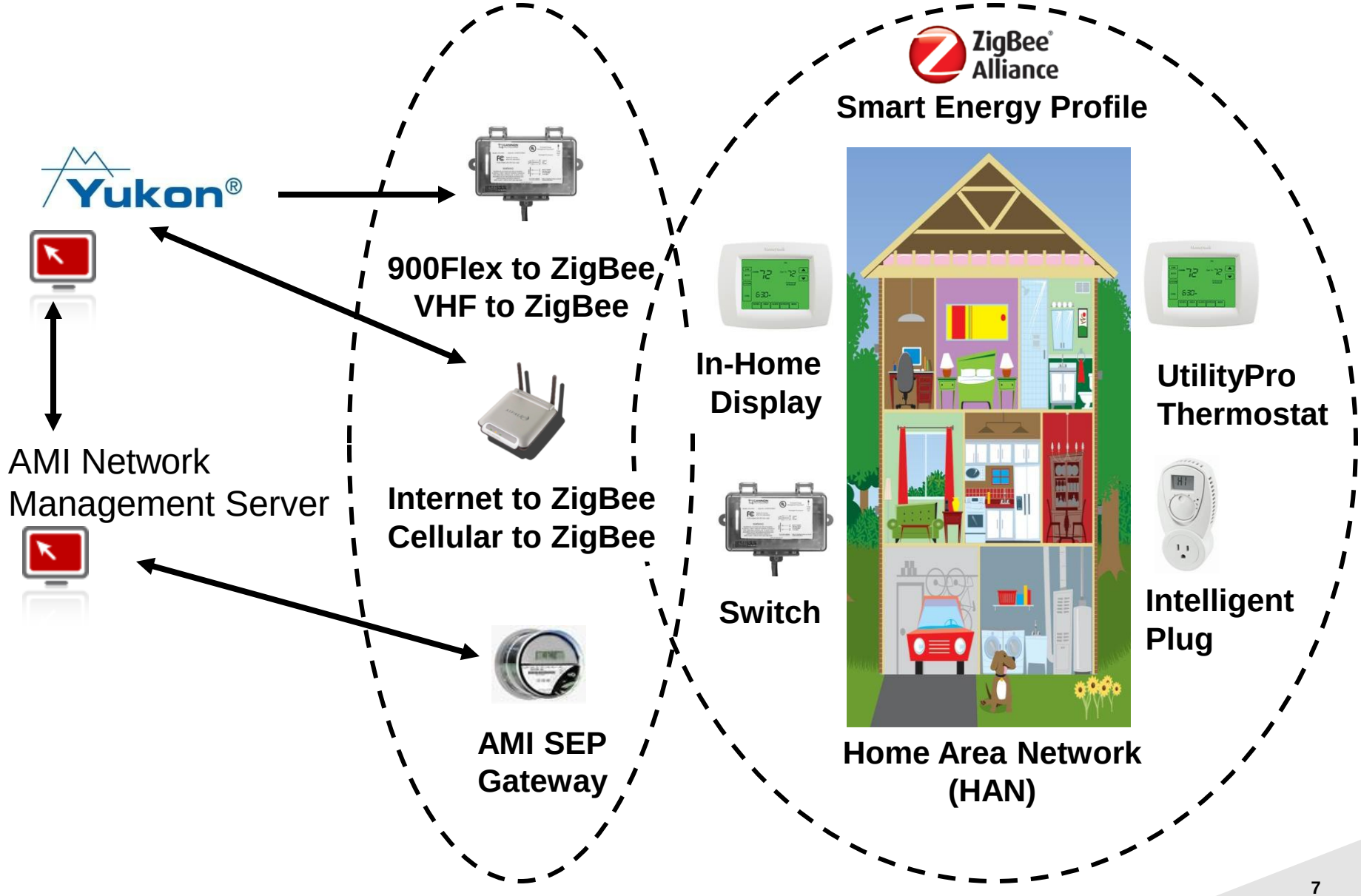
Eka RF Mesh Communications



Vision for the Smart Grid HAN



Sample Road Map

- **Communications, Sensors, & Software Applications offering better information and improving grid performance**
  - **This is the foundation of EAS…**

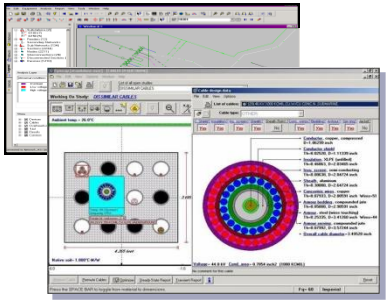
Representative Intelligent Grid Road Map

Phase 1

Smart Meters/AMI
2-way communications
Demand Response

Phase 2

Fault location
Volt/VAR management
Outage detection
Distributed generation
Consumer portal

Phase 3

Automated restoration
Predictive maintenance