STANFORD UNIVERSITY

Asia Technology Management in Energy
and Cleantech Series

Panel Session
Smart Grids in Asia: Progress and Prospects

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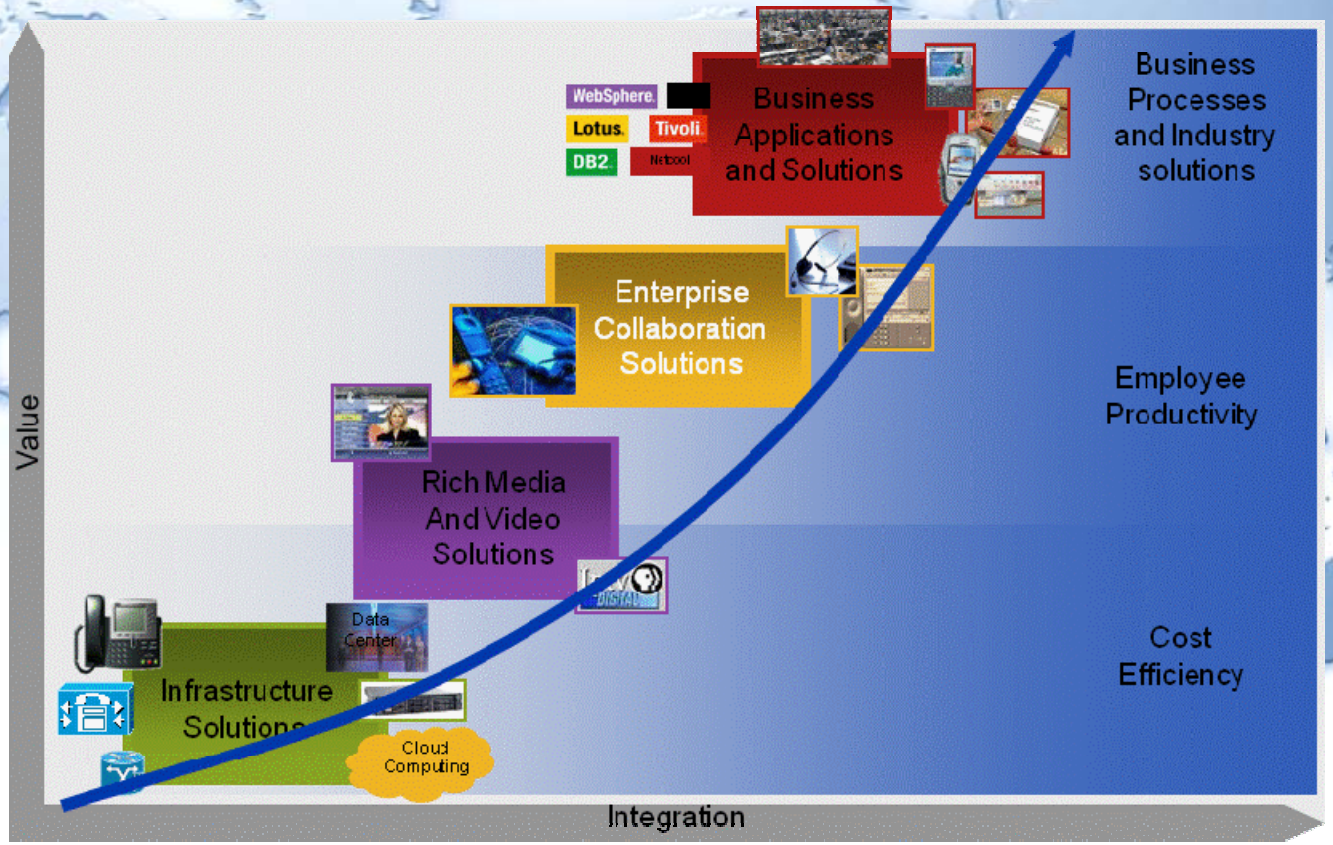
Cisco-IBM Alliance – Business Overview

Develop, Sell Joint Cisco-IBM Solutions Worldwide
Manage Cisco-IBM business relationship
Multi-Billion Dollar Revenues
Total Demo Center Labs 300+



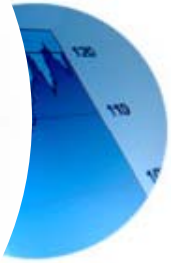
Market forces are impacting the landscape of utilities around the world, requiring the transformation of industry business models

Climate change and environmental concerns

Growth in renewable generation and distributed resources

New entrants and disruptive technologies

Industry pressures



Aging asset performance with increased expectations on reliability

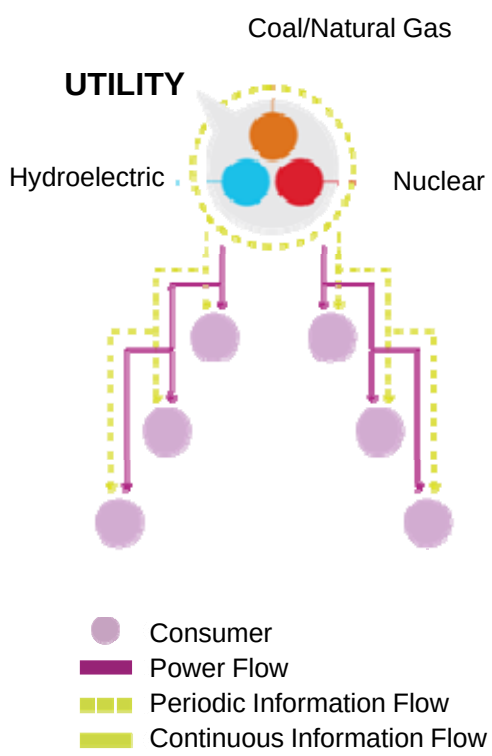
Increasing desire by consumers for a role in energy management and conservation

Increased pressure on operational efficiency and workforce productivity

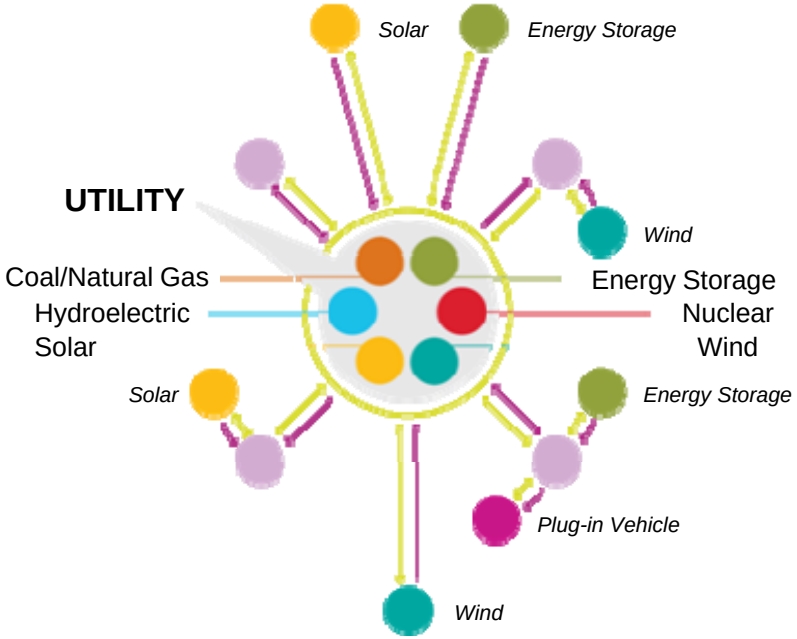
Energy and Utilities market forces are creating the need for an evolution in the energy value chain

Evolving Energy Value Chain

TRADITIONAL ENERGY VALUE CHAIN



TRANSFORMED ENERGY VALUE CHAIN



Smart Grid Market in China

- $7.3 billion in 2010 in the form of government stimulus loans, grants and tax credits in smart grid related projects, as compared to $7.1 billion by the United States government
- $99.6 billion investment on the Smart Grid and $586 billion on the power grids in the next decade
- State Grid Corporation of China (SGCC) announced "Strong and Smart Grid Plan" in 2009, aiming to establish a nation wide strong and smart Ultra-High-Voltage power grid

Case Study - State Grid Corporation of China
中国国家电网公司 - 统一坚强智能电网



坚强智能电网**以**坚强网架为基础，以通信信息平台为支撑，**以智能控制**为手段，包含电力系统的发电、输电、变电、配电、用电和调度六大环节，**覆盖所有**电压等级，实现**“**电力流、**信息流、**业务流**”的高度一体化融合。**



Case Study - State Grid Corporation of China
Strong and Smart Grid



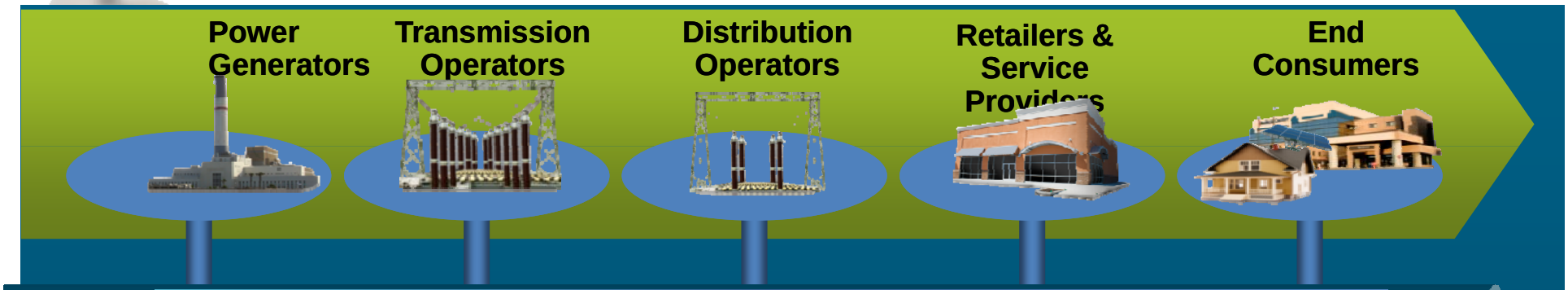
Strong and Smart Grid –

- Robust grid infrastructure, communication and information platform, intelligent control system
- Power generation, transmission, substation, distribution, consumption, and scheduling
- Power flow, information flow, business flow



Smart Grid

End to End Network Architectures



Reliable, Secure and Standards-Based

Transmission Distribution & Substation

Operations Center

Data Center

Utility and Regional

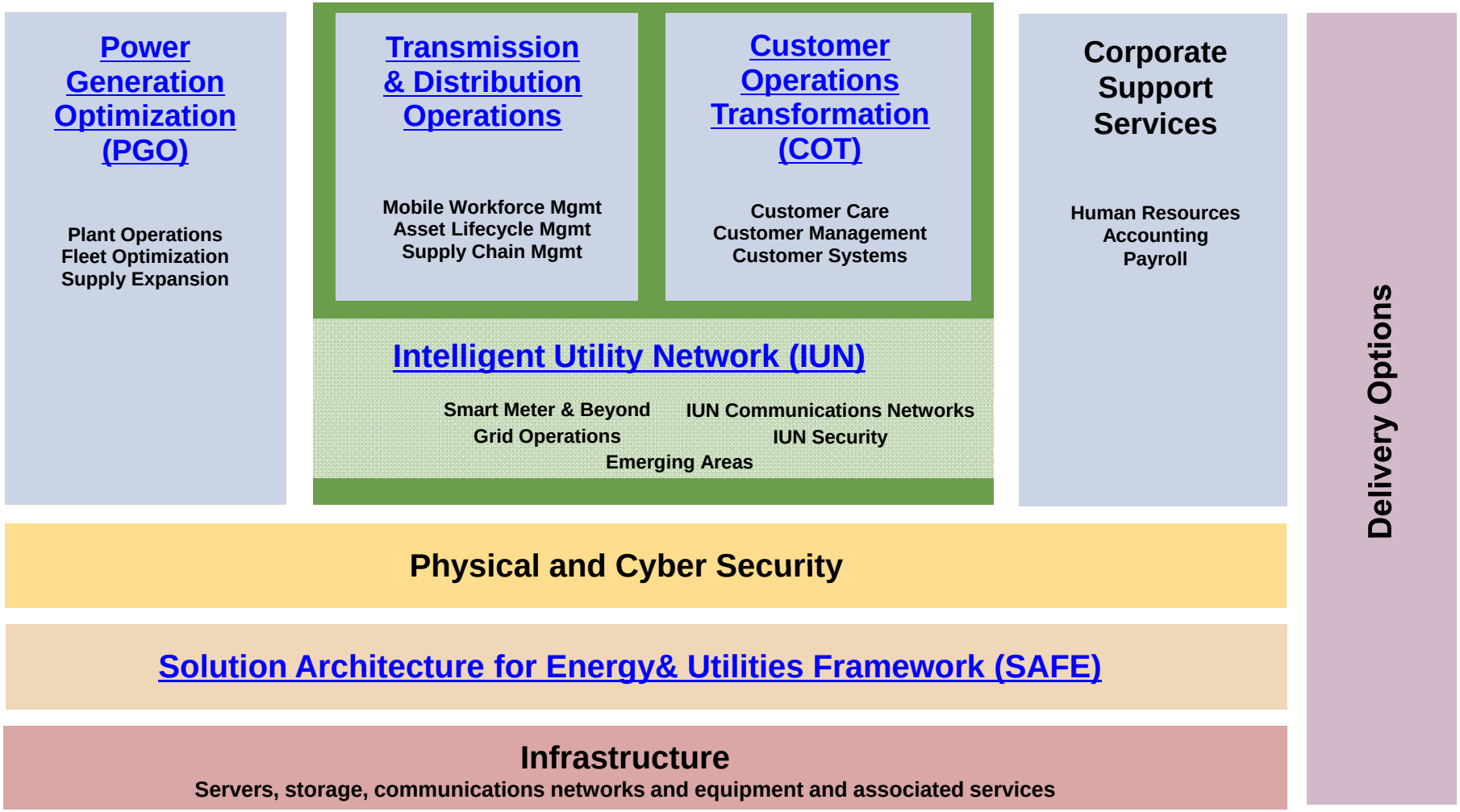
Field Area

Customer Premise

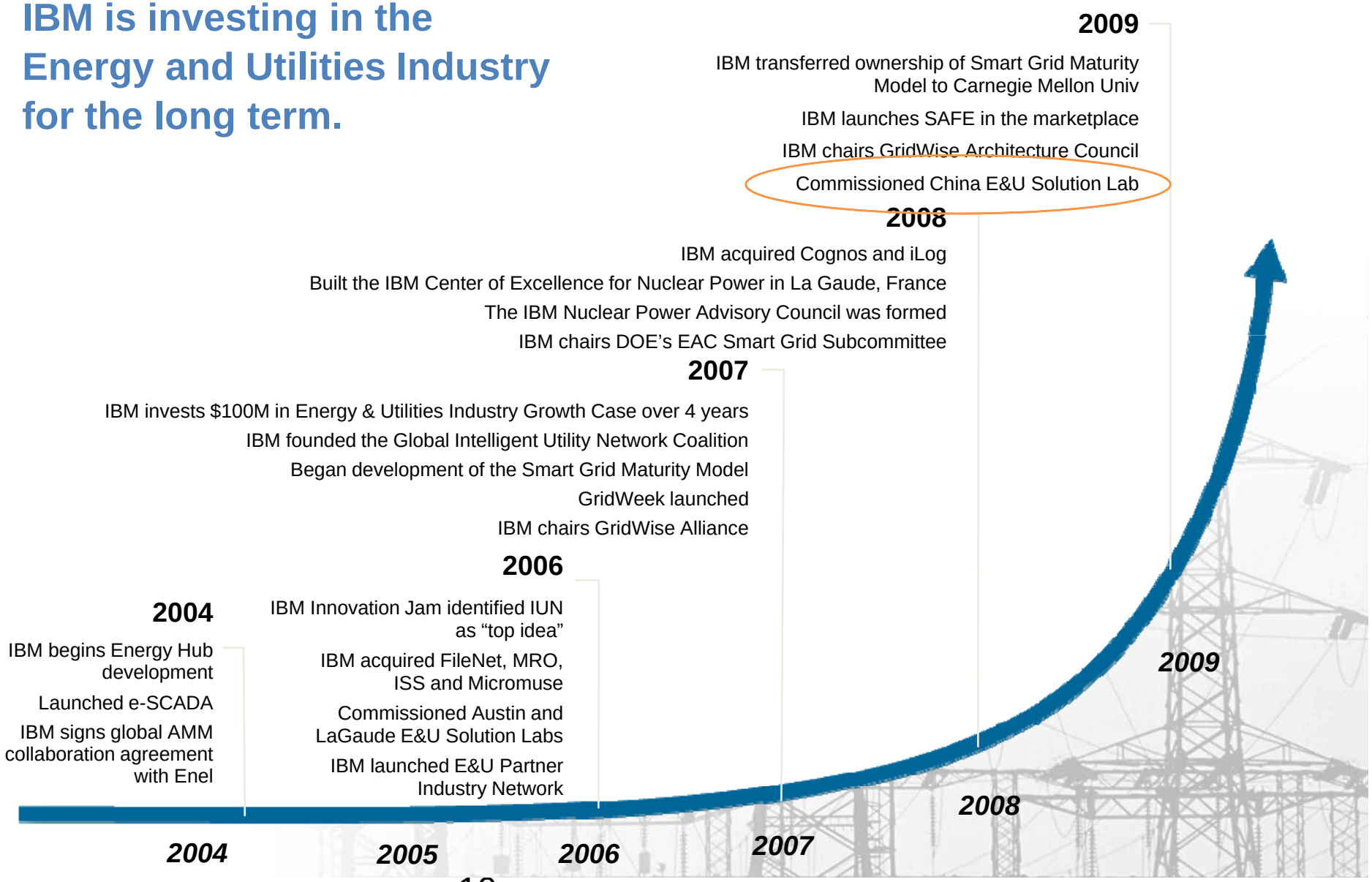
(BAN / HAN)

Security | Network Management | Distributed Intelligence

IBM's Energy and Utility Solution Portfolio addresses a utility's business and technology needs across the full energy value chain



IBM is investing in the Energy and Utilities Industry for the long term.



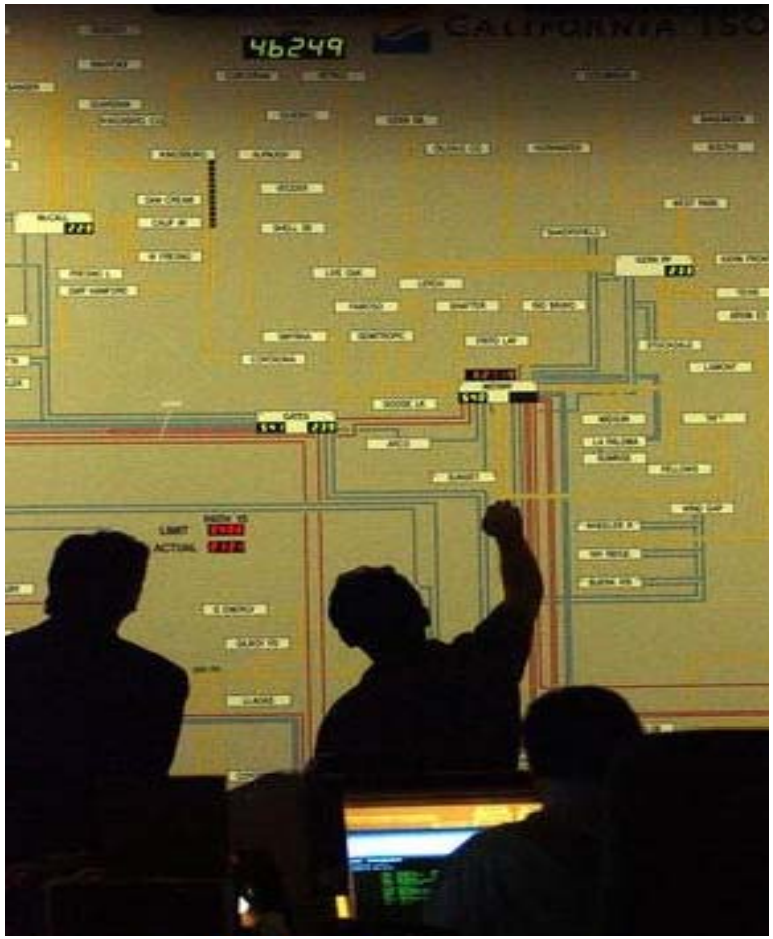
Cisco Smart Grid Vision

- Design and architect end-to-end communications infrastructure integrated with the power grid
- Open standards and interoperable IP communications
- Secure, reliable, and resilient network operations
- Integration of grid intelligence into the network
- Bring partners to deliver world-class, interoperable Smart Grid offerings

Smart Grid as a platform for innovation

End-to-End Communications Network

Cisco Customer Case Study



Challenge

- Create a 21st-century electrical delivery system
- Reduce separation b/w customers and grid
- Lower costs and carbon footprint

Solution

- End-to-end (two-way), secure, IP-based communications architecture
- Home energy management
- Distribution automation to improve grid efficiency and reliability

Expected Results

- Optimize energy usage – give users more control over power consumption
- Improved efficiency and system reliability
- Easier integration of renewable energy

Questions?

Thank You!