The IoT Strategy & Practice

智慧聯網的策略及經驗

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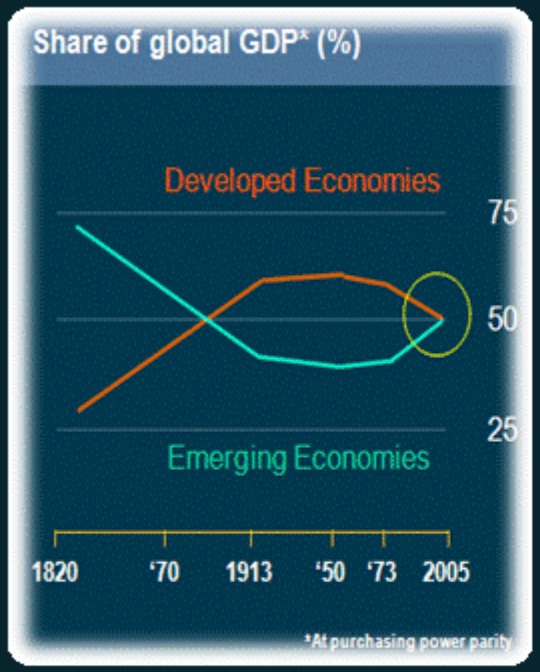
The World is Changing: Massive Rebalancing

Economic



Social

Environmental

Rise of the New Economic Powers

When did The Internet Of Things Occurred?

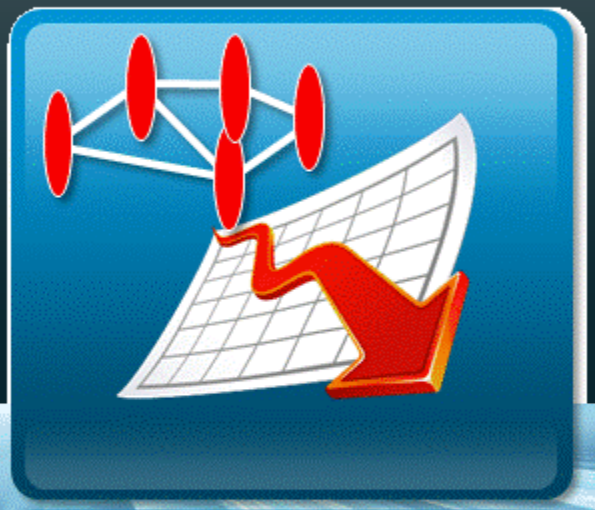
Challenges for IoT

Critical To Understand & Plan for New Industry

Evolution
Or Revolution

Mature
Or Early Stage

$ Billion Dollar or
Fragment Market



Architectural, Technical & Operational Implications

Sensor Network is not equal to IoT

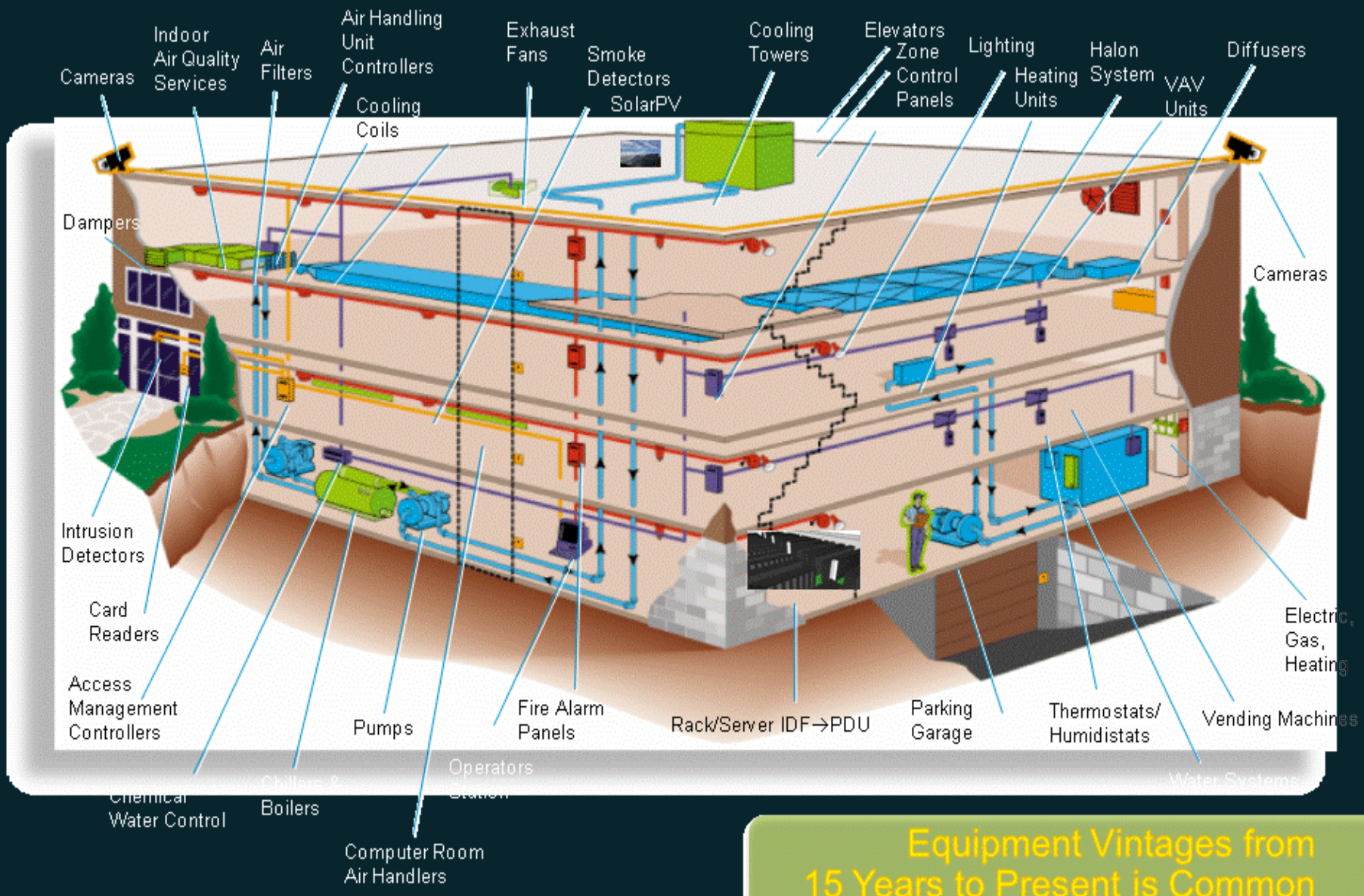
The Challenges of Sensor Network Technology

- *Proprietary or semi-closed* solutions: High Cost
- Zigbee, Z-Wave, Xmesh, SmartMesh/TSMP, at many layers (physical, MAC, L3) and most chip vendor claim to be compatible with their own *standard*

- Fragmental Market & Vertical Industry
  - Many non-interoperable "solutions" addressing specific problems ("*My application is specific" syndrome*)
  - Different Architectures & Protocols
  - Systems difficult to manage, maintain and install.

=> Deployments are limited in scope *and* scale,

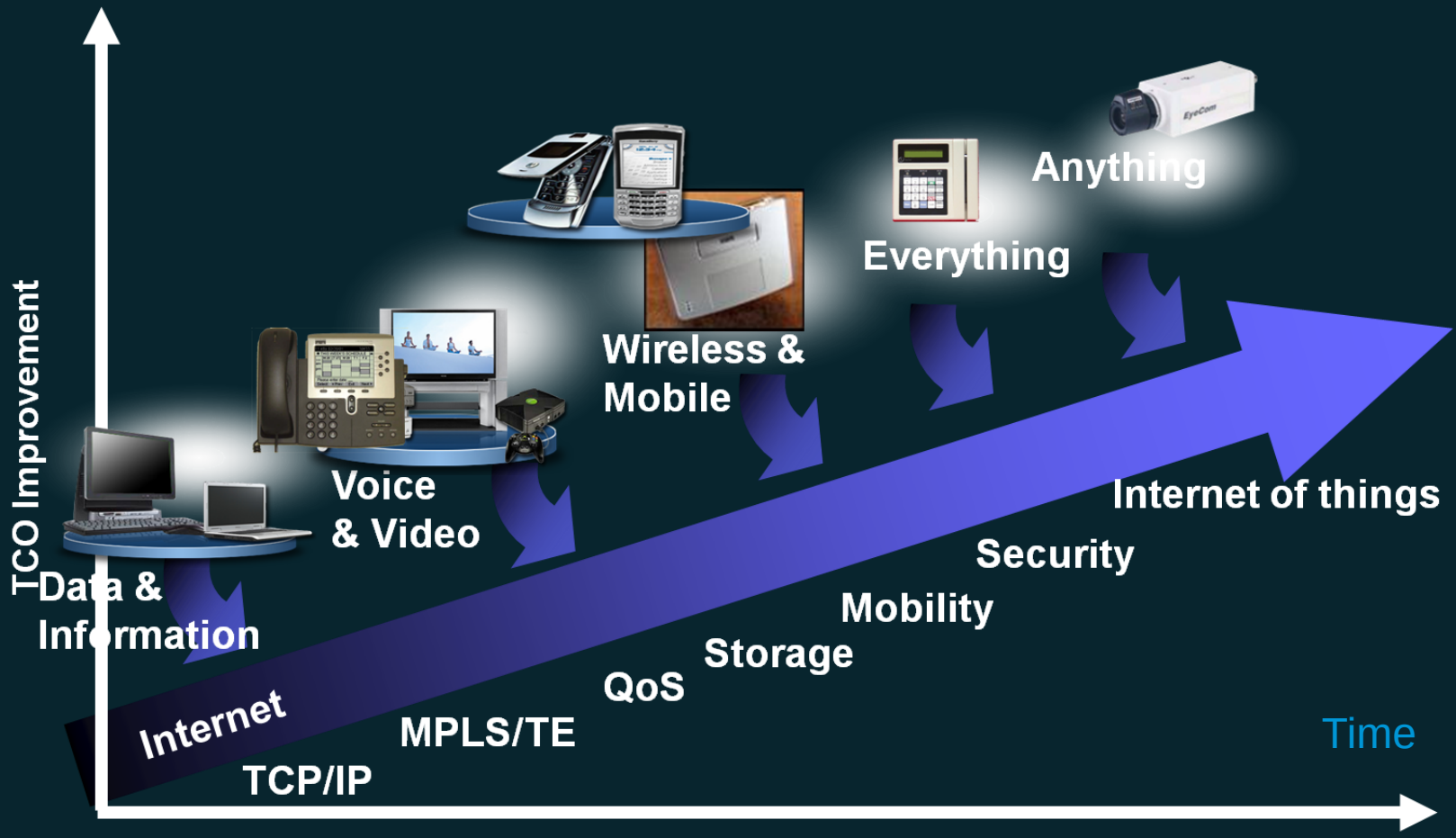
One building, Multiple Industries & Technologies



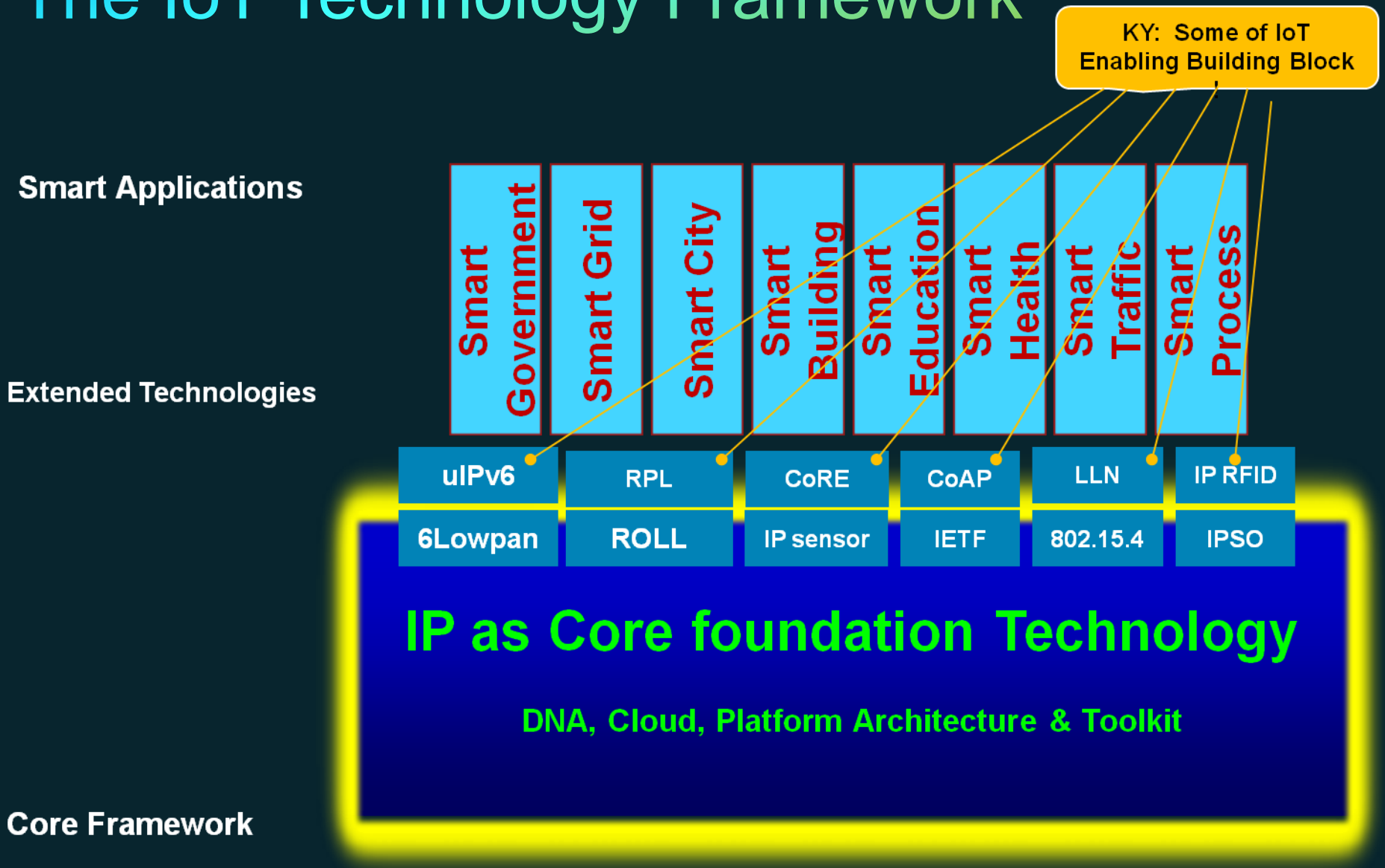
Equipment Vintages from 15 Years to Present is Common

IP Network Extends, Expands & Evolves

From something to everything and anything



The IoT Technology Framework

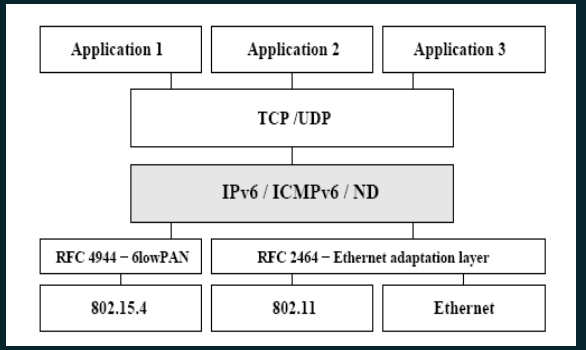


Some Major Progress for IoT

- µIPv6

  Joint project of Cisco, SICS, and Atmel

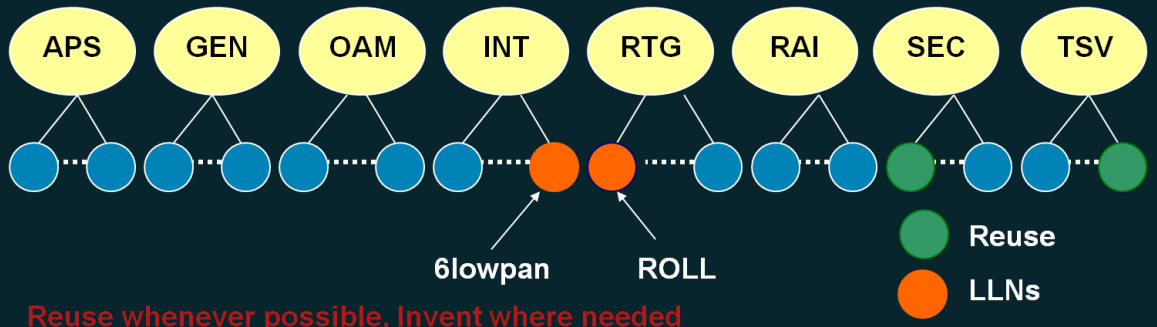
  The smallest (≈11.5 KB), open-source, IPv6 stack



- Industry Alliance – IPSO

  The IP for Smart Object alliance

- 6Lowpan & RPL Technology



The IoT Strategy & Direction

- Penetrate IP - put IP DNA in all objects
- Consolidate Network Infrustructure - Reliable & capable
- Construct Cloud – Efficient & flexible Service
- Expand Smart Connected Community & Business Model

Smart Connect City

Smart Home

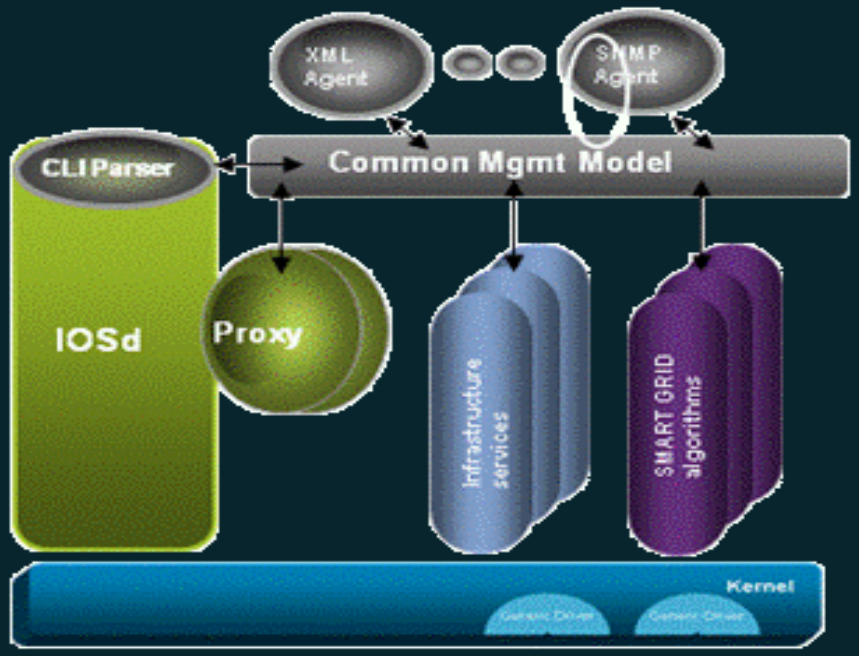
Smart Education

Smart Grid

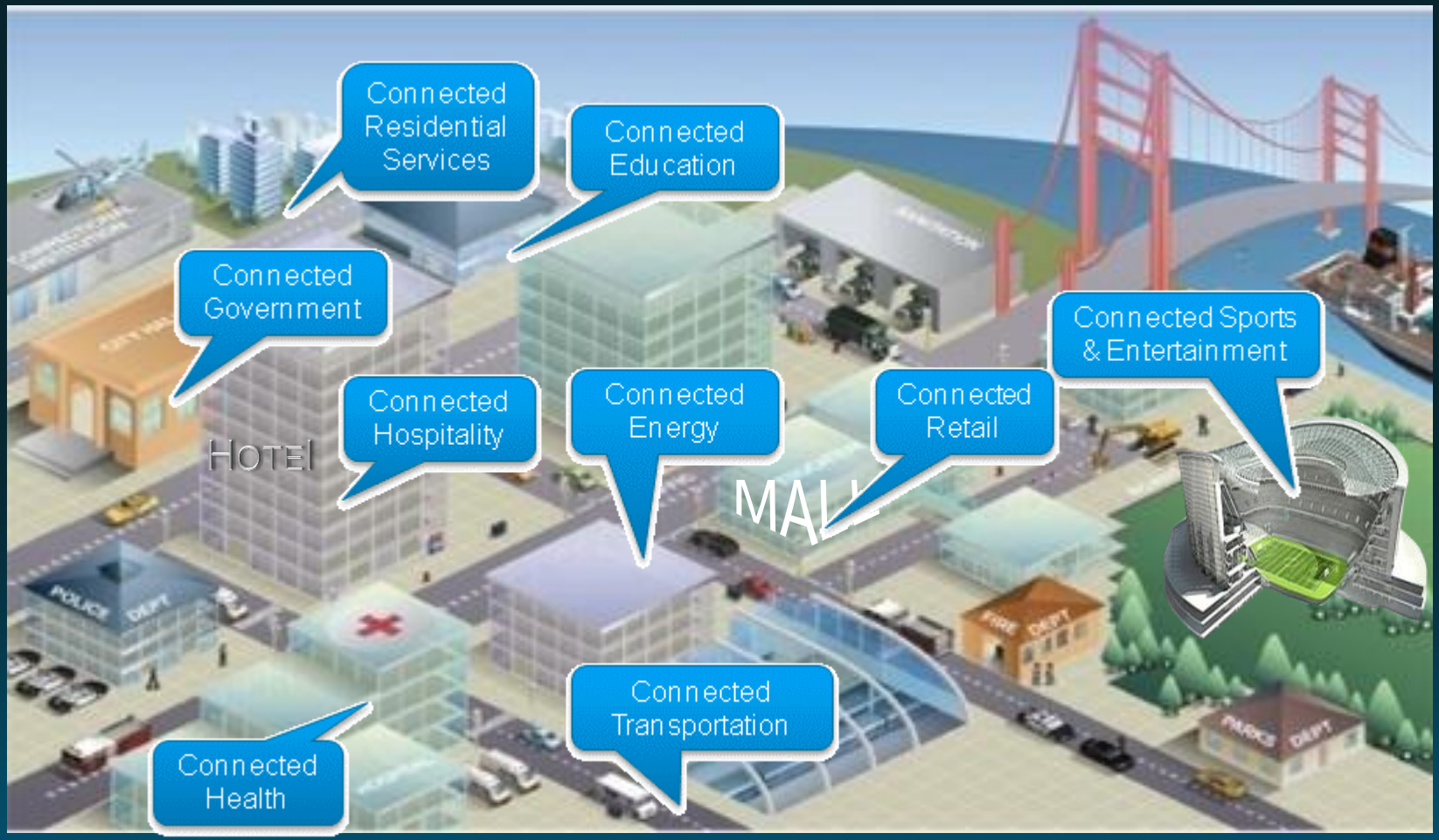
Building automation

Smart Entertainment

Personal Area Network



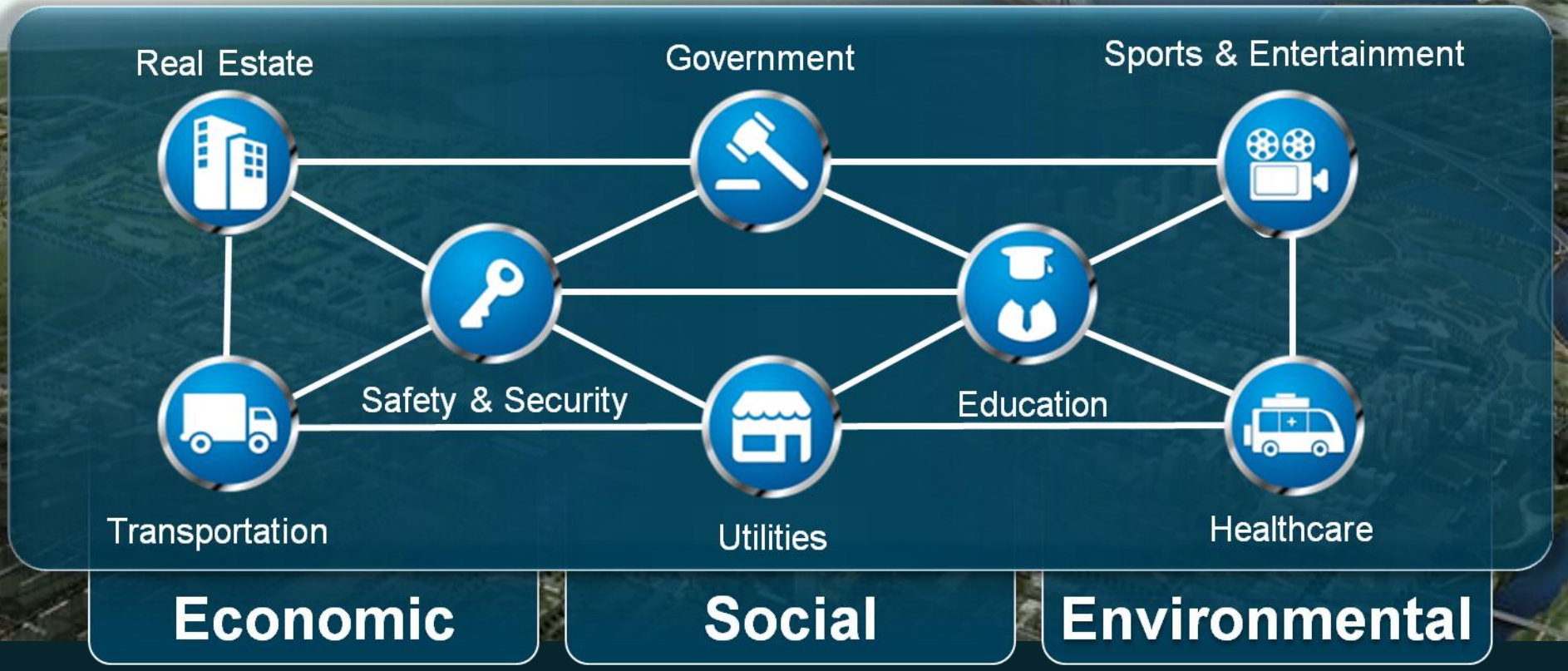
The World on Networked Information
A Country, City, Community



The IoT Services deliver over Cloud

City Cloud Architecture

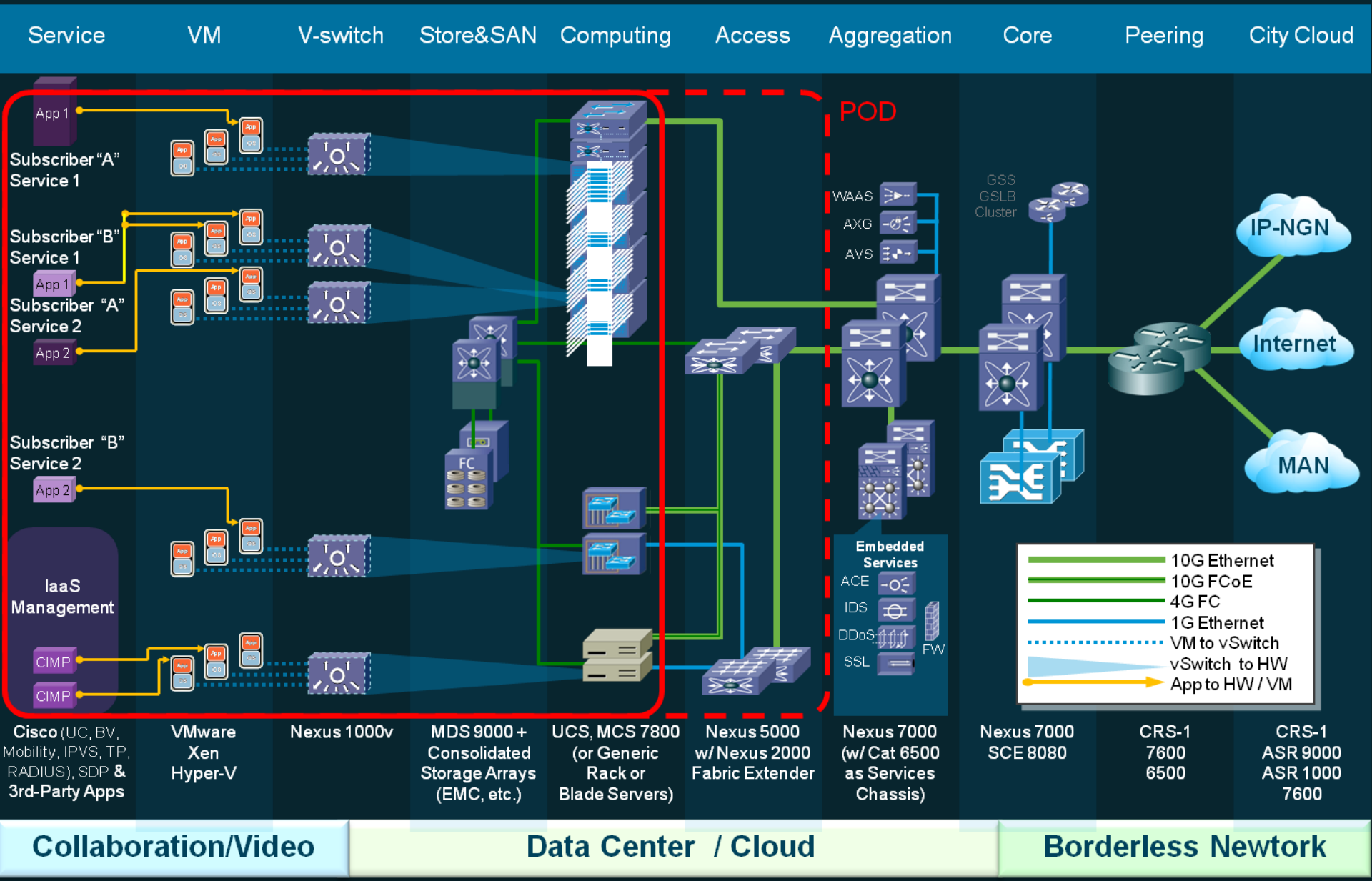
S+CC: Smart Connected Community
"One of the World's Greenest Cities"



Commercial	40 million SF
Residential	35 million SF
Retail	10 million SF
Hospitality	5 million SF
Public Space	10 million SF

- Six design goals for sustainability
- Mandate for LEED Certification on all new buildings
- Neighborhood Development Pilot Program
  (emphasizes neighborhood connectivity, access to transit, energy efficiency in building design, efficient infrastructure)

Solution Deployment Architecture



Citizen Service

Relevance to Countries, Cities, Communities

Disaster Management & Response

City Management
& Operation Center

Smart Traffic
Alerting, Route & Toll
Conotrol

Dispatch the mobile TP
Medial Vehicle

City Cloud

UC
Digital Media
Video Monitor
Mobile Communication
Location Service
Building Management
Interconnected, Interactive

Medical Response
Mobile TP Vehicle

Emergency Response &
Disaster Control Center

Public Safe & Video
Monitor

The Rise of New Industry

Add Billions of Smart Objects to IP Network

Smart Connected communities

in every car

Millions of electrical substations

Billions of homes & buildings

Internet of Things

... All green applications

... in the huge healthcare system

... any industrial plants

What Will it Take?

Visionary Leadership	Global Open Standards	Smart Regulation	Private Public Partnerships	New Ecosystem
				

Creation of a New Industry

Summary

Mega-Trend: Sustainability & Efficiency

Framework: Extension, Evolution, Expansion

S+CC: New Creation of Industry

Global Leadership, Win-Win via Partnership

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Thank you.