

Business Opportunities Enabled By Wireless Sensing, Remote Monitoring and Device Management

Interop

May 2005

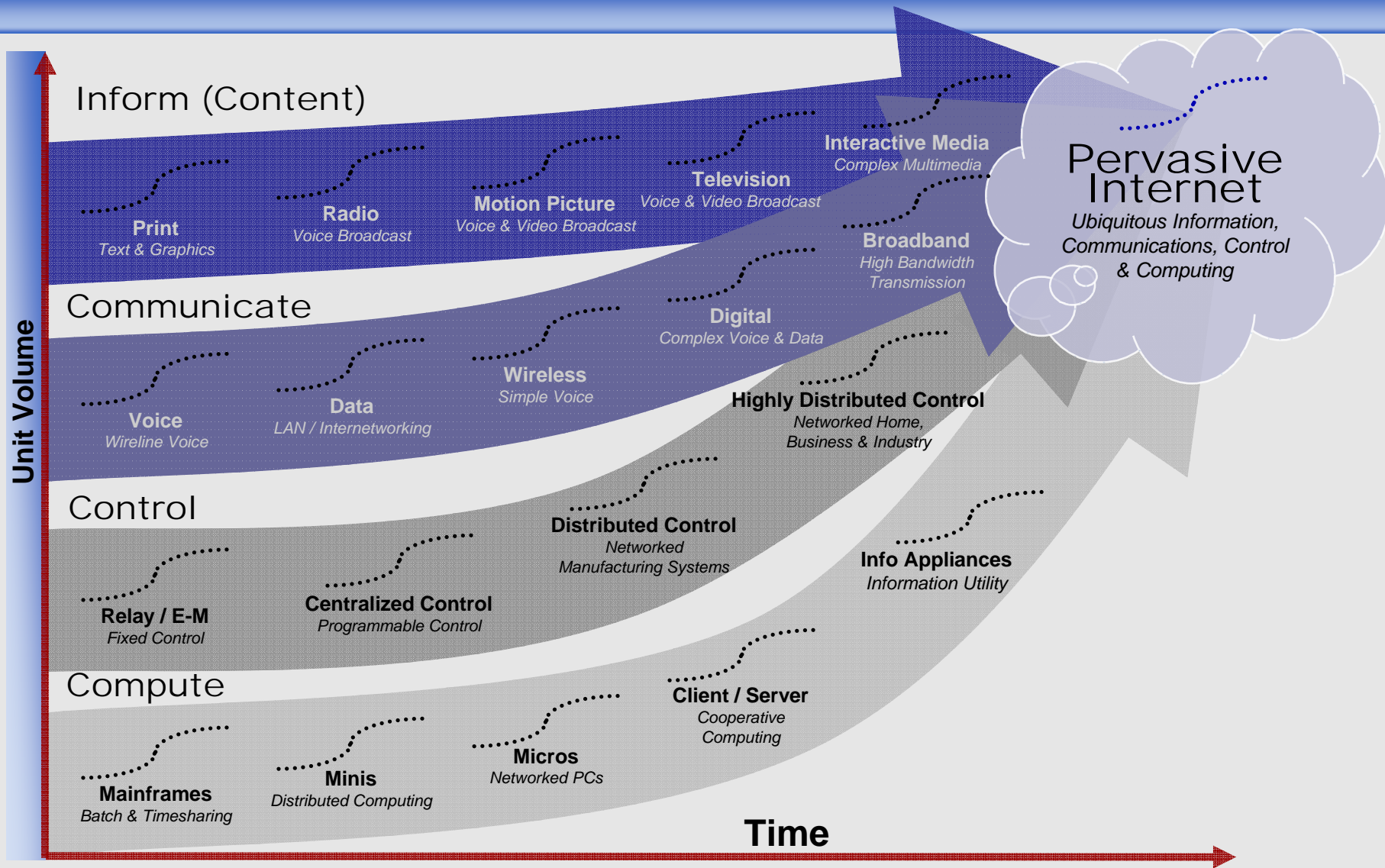
Presented By:

Glen Allmendinger
President
Harbor Research, Inc.
800.595.9368
415.615.9400 x 24
gallmendinger@harborresearch.com

The Viability of Wireless Sensor Opportunities

- **What do we mean when we speak of wireless sensor networks and related device networking – definitions, examples and context**
- **What profitable opportunities are opened up by connectivity? What applications and services will be changed or enhanced via wireless sensors?**
- **What are the evolving business models; specific business cases?**
- **What are the barriers and accelerators to growth? What can be learned from peer examples of adoption?**

Technological Convergence Drives Big Opportunities



Defining The Opportunity – All Devices Wired & Wireless

Intelligent Device Hierarchy

Mobile phones, PDAs, scanners, Web Tablets, GPS, etc.

PC's, servers, etc.

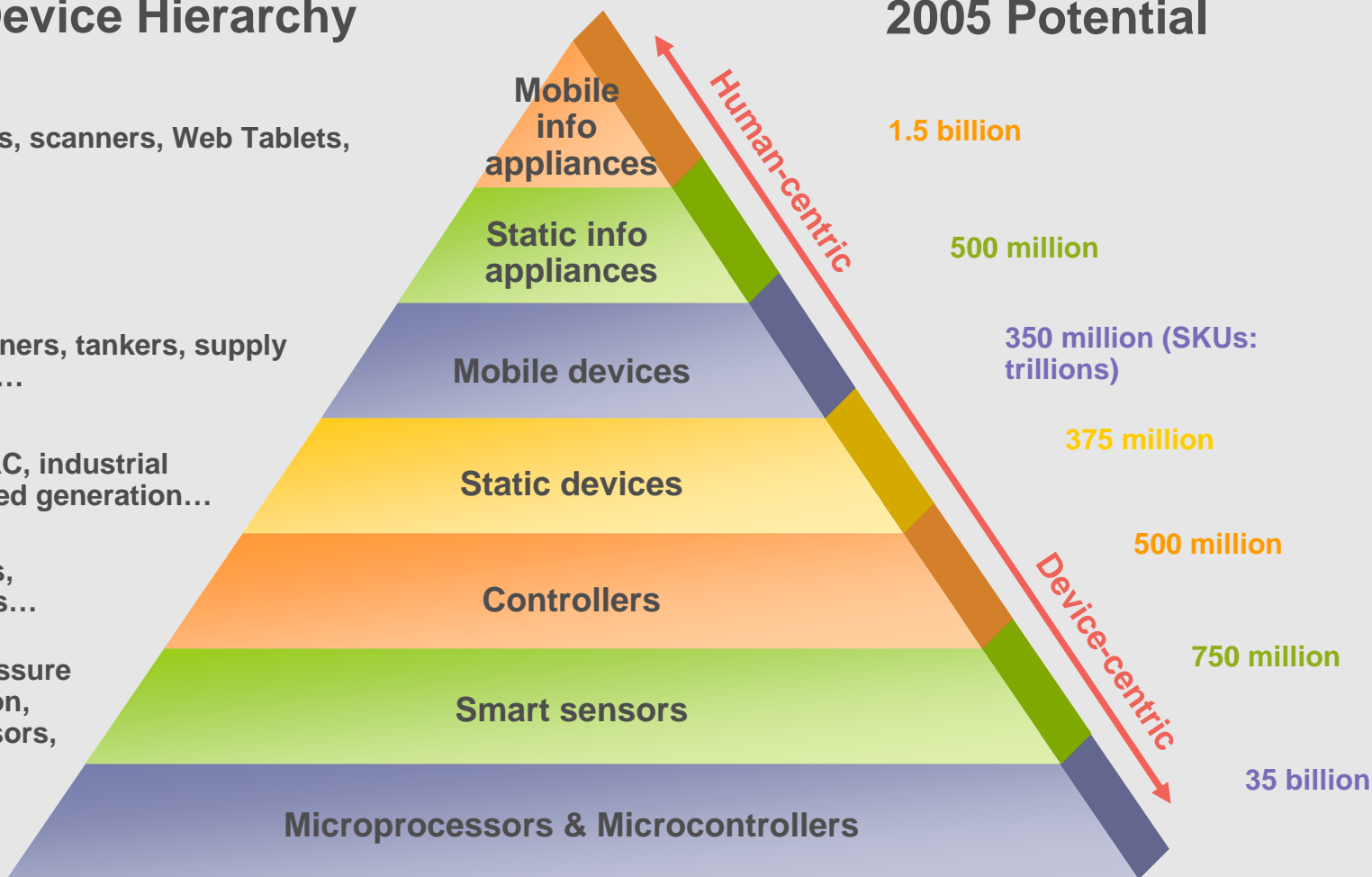
Vehicle cargo containers, tankers, supply chain assets (SKU)s...

Medical Device, HVAC, industrial machinery, distributed generation...

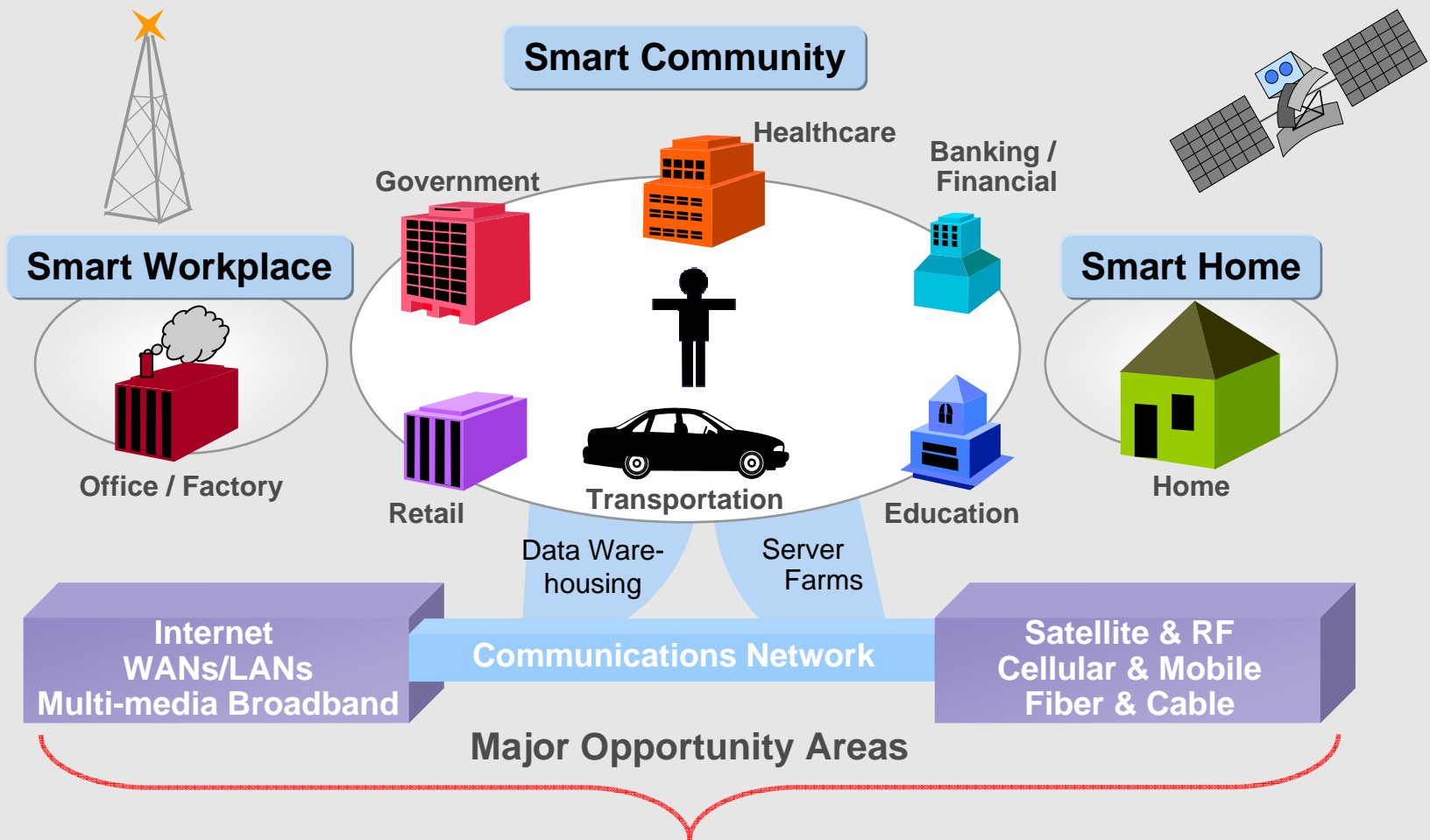
Industrial controllers, appliance controllers...

Accelerometers, pressure gauges, flow, position, speed, temp biosensors, etc.

8-, 16-, 32-, 64-bit chips, etc.

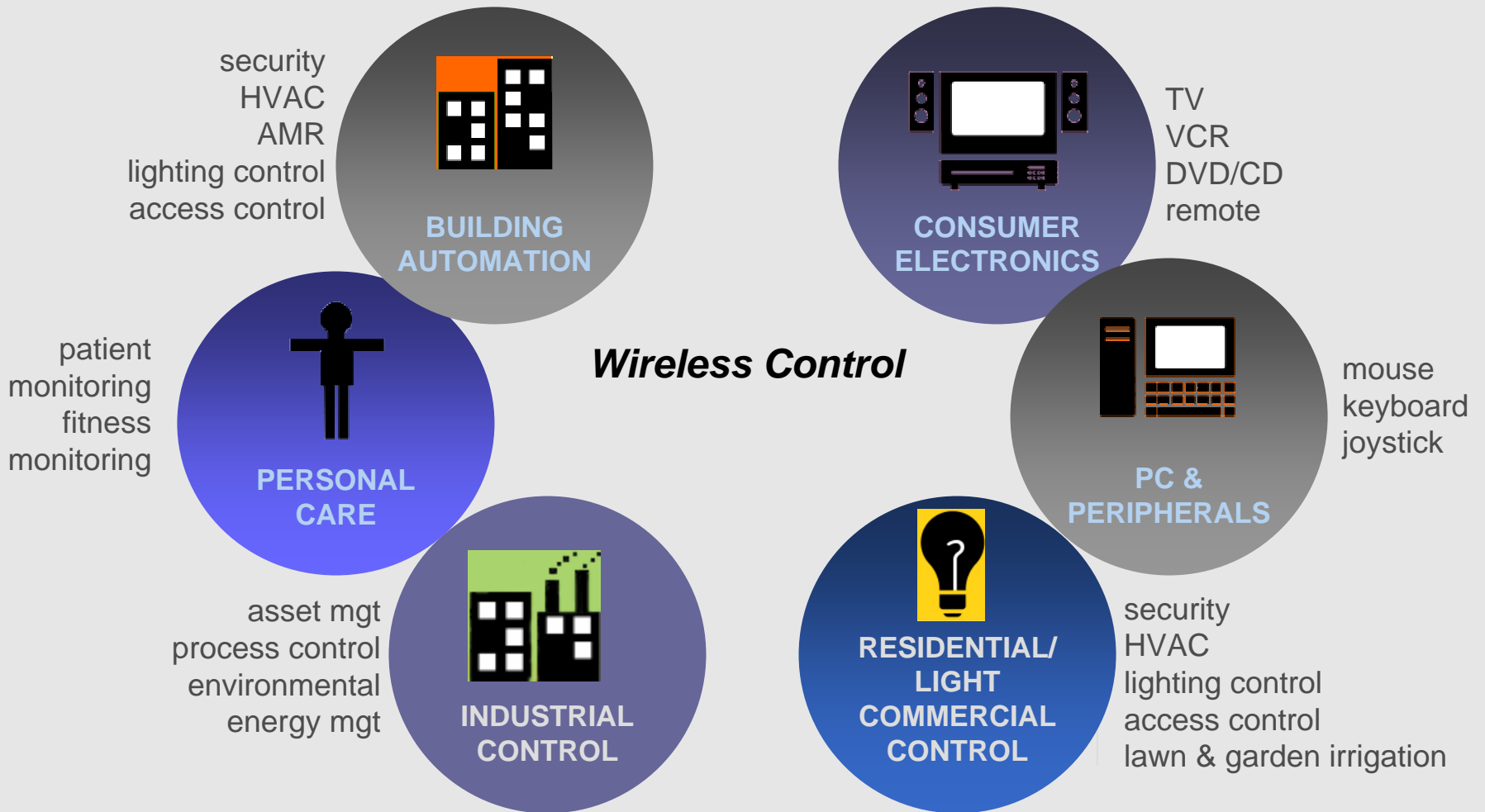


Sensors Will Play An Important Role In A Mobile World

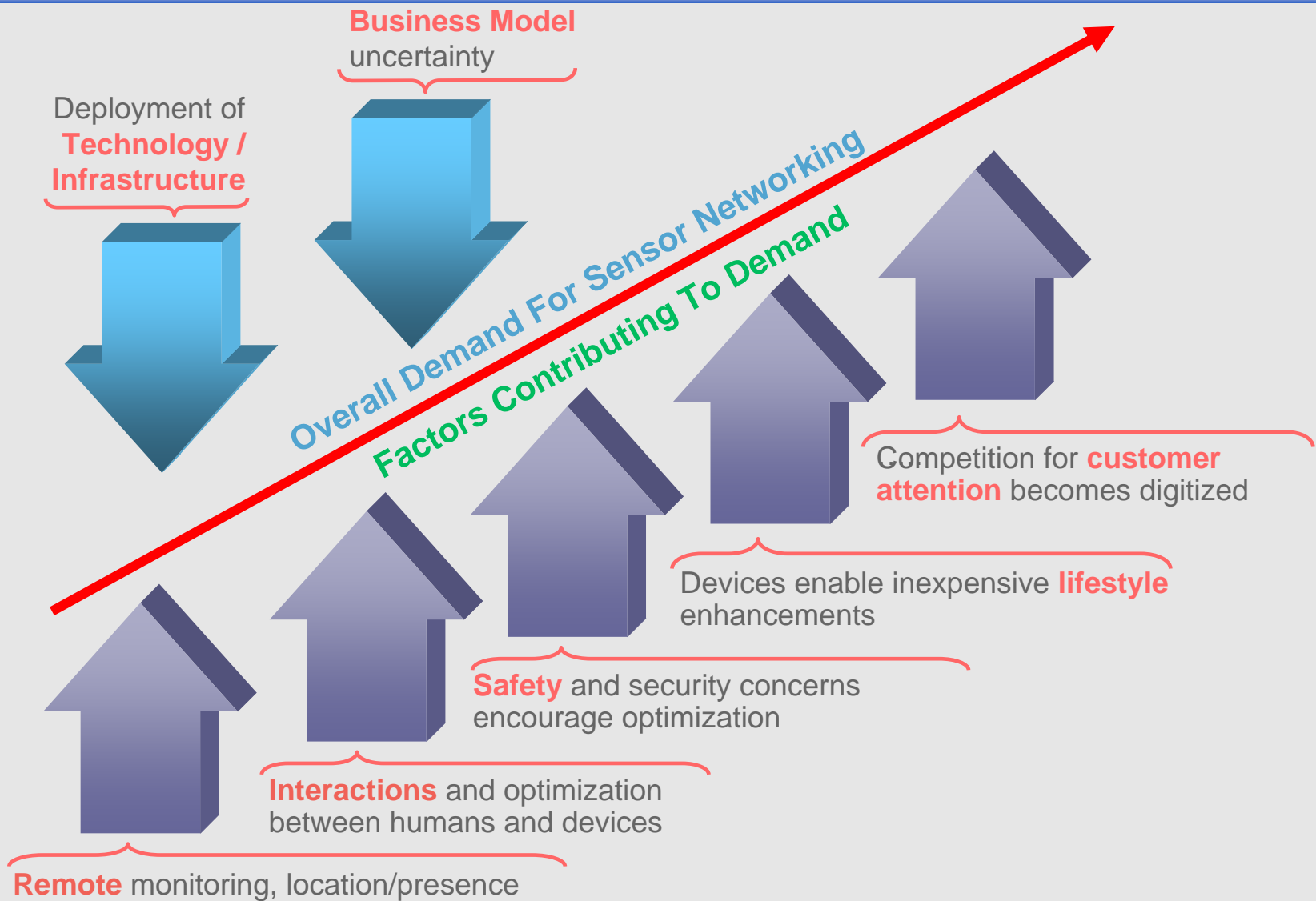


- Remote Customer Service
- Info & Entertainment
- Intelligent Transportation
- Supply-Chain Logistics
- Emergency Response & Repair
- Safety and Security

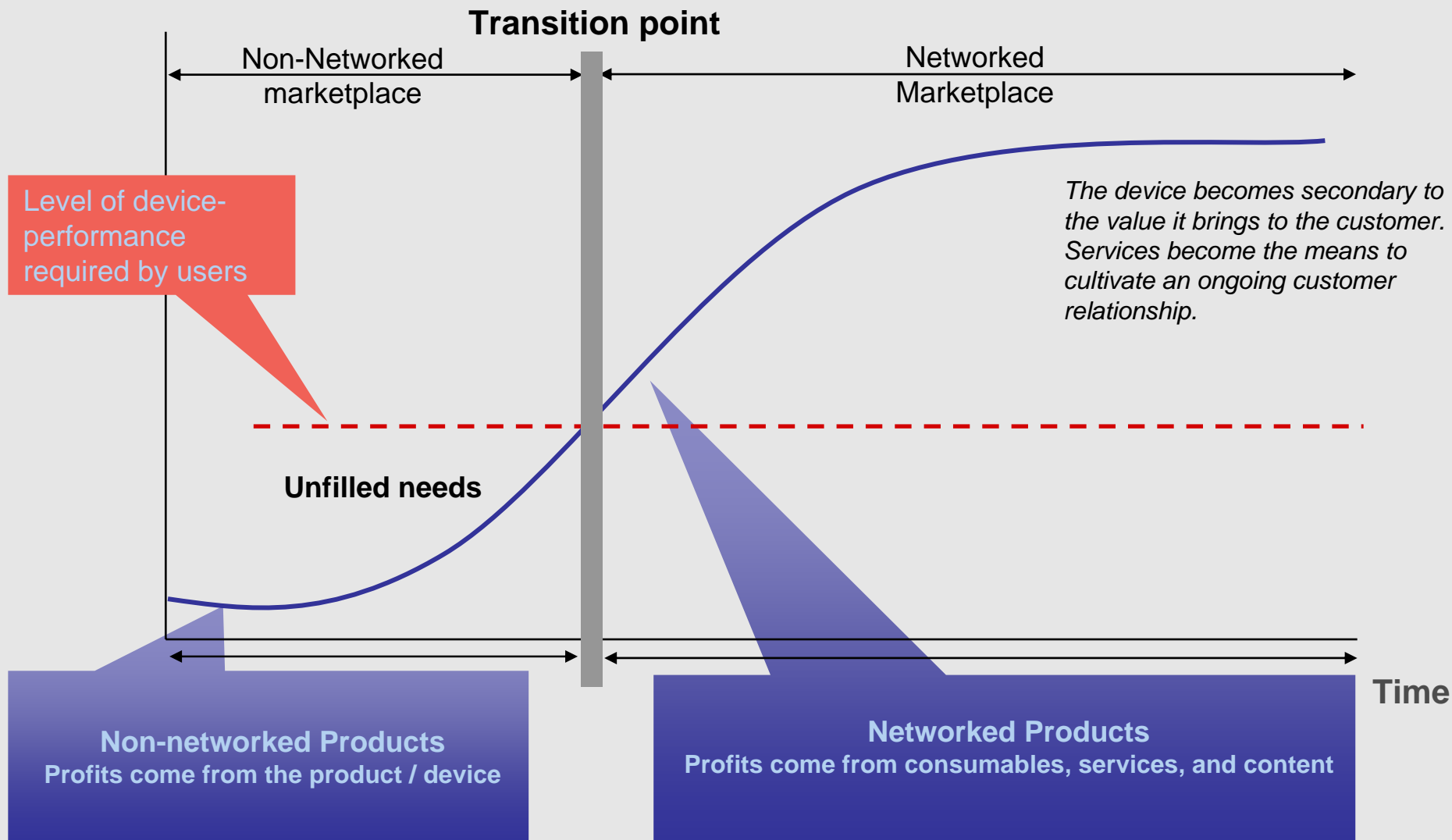
Emerging Applications In The ZigBee Space



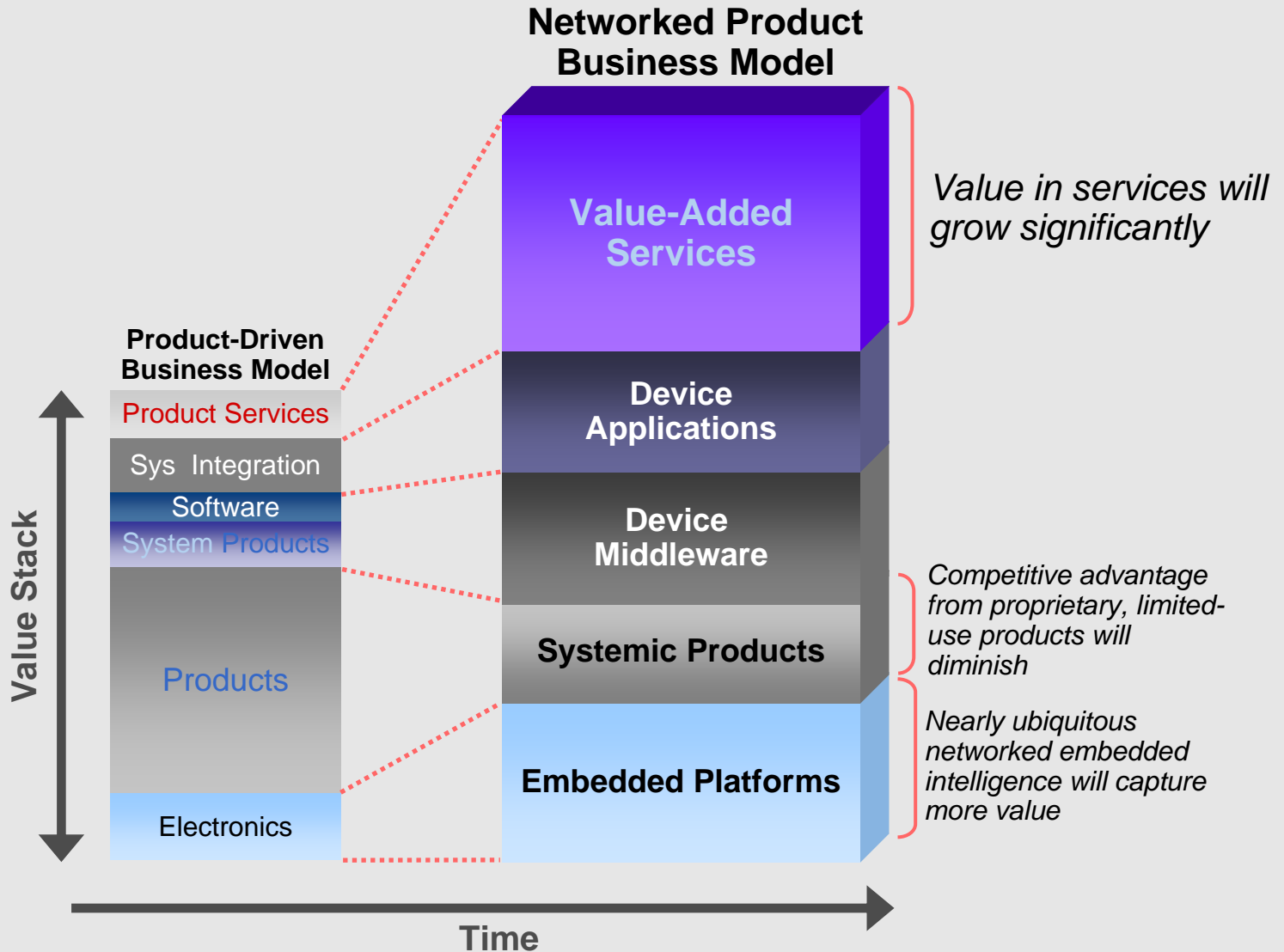
What Are The Key Adoption Forces



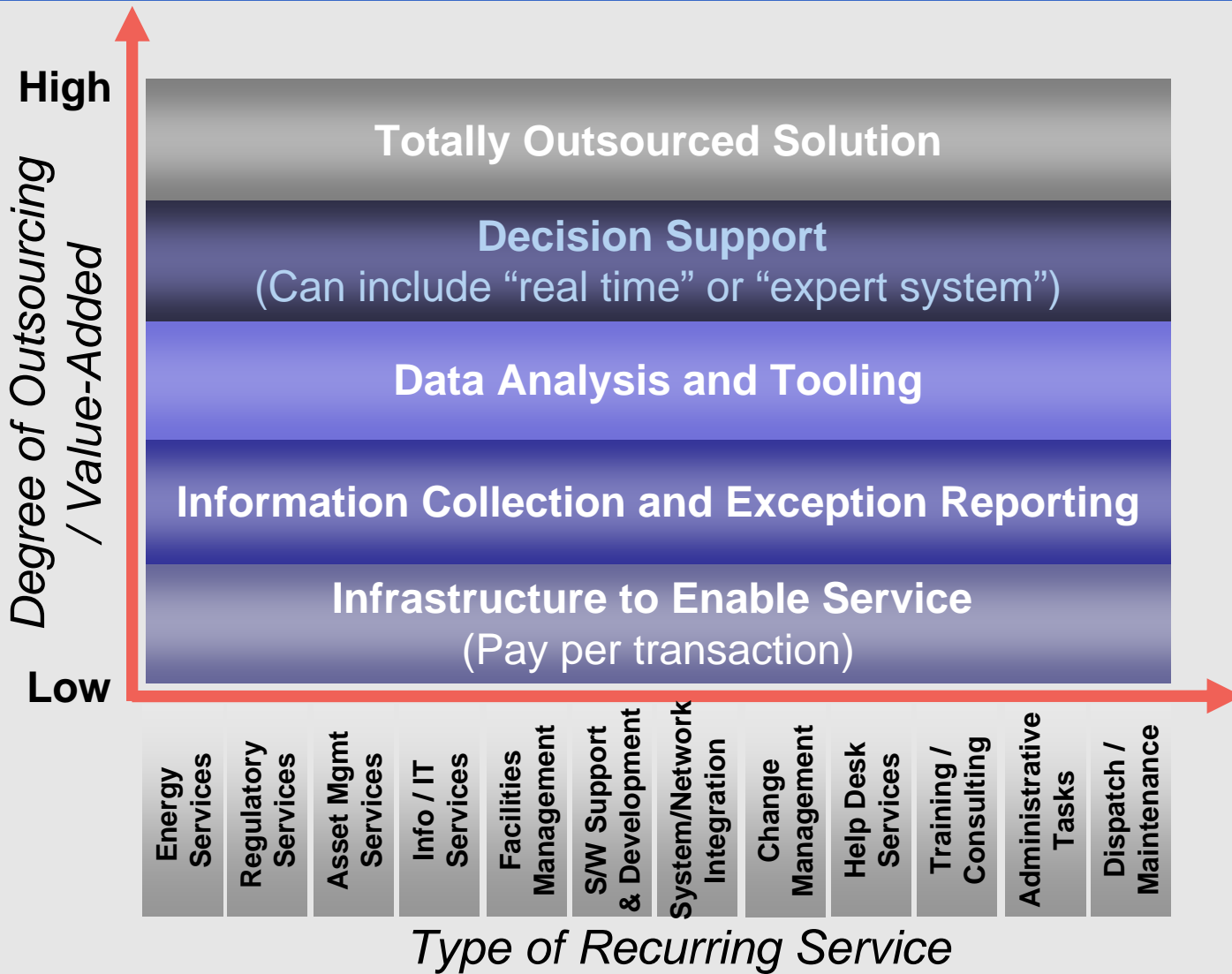
Vast Profits from Value-Add, Not From Devices



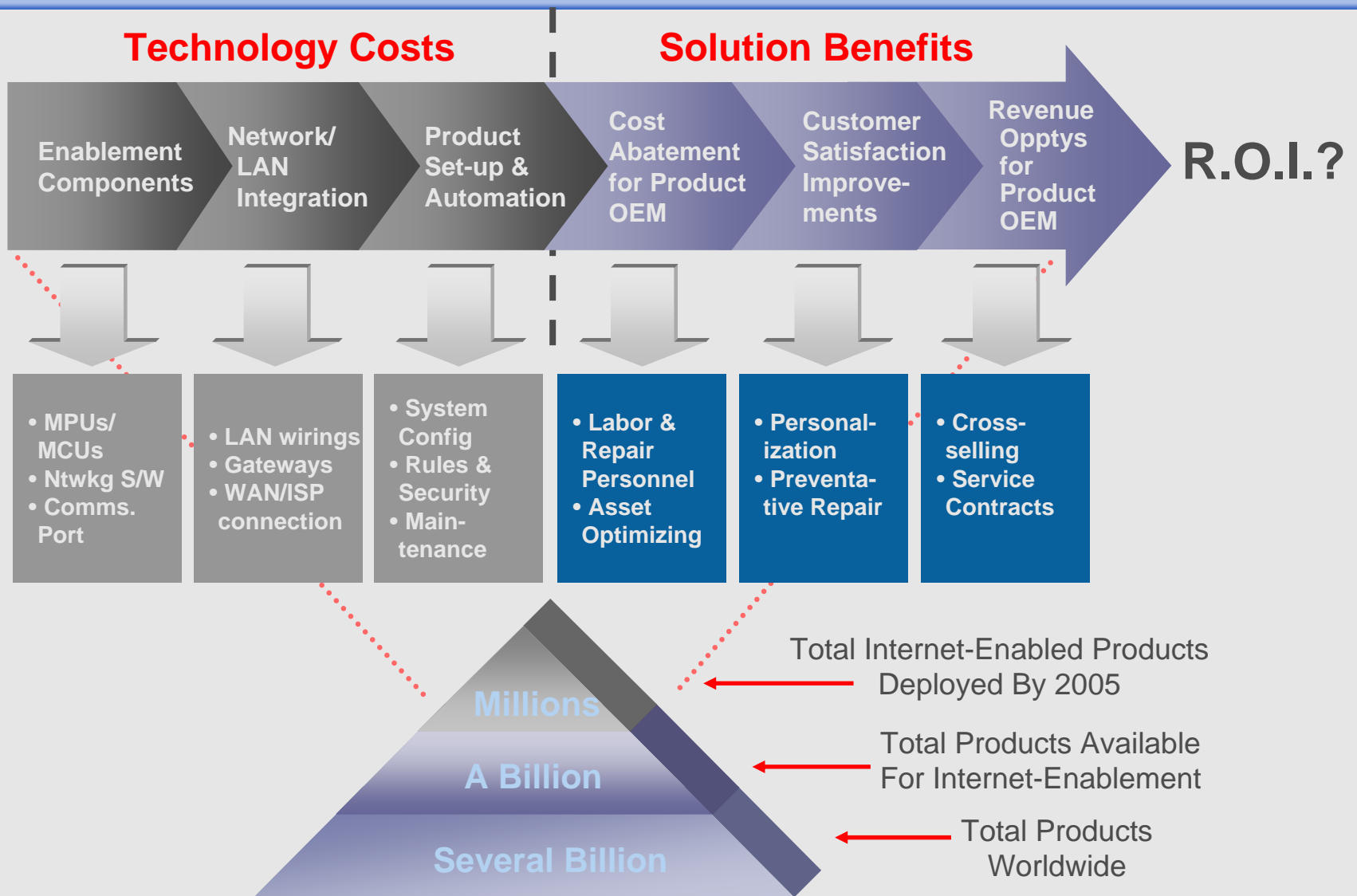
What Is The Value-Add Opportunity And Impact



Pervasive Internet Technologies Drive New Value

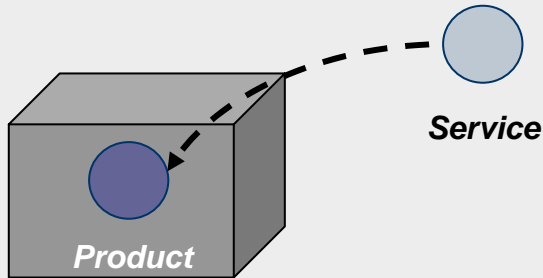


What Is The Business Case for Solutions



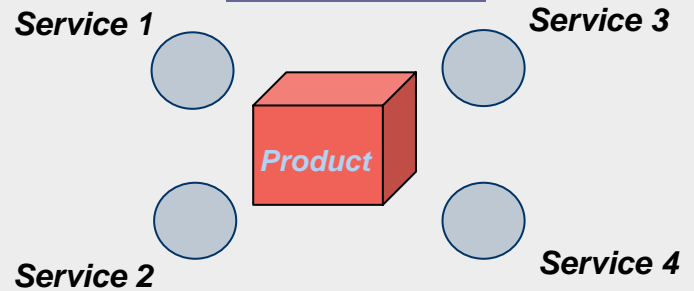
What Are The Adopter Business Models

Embedded Innovator



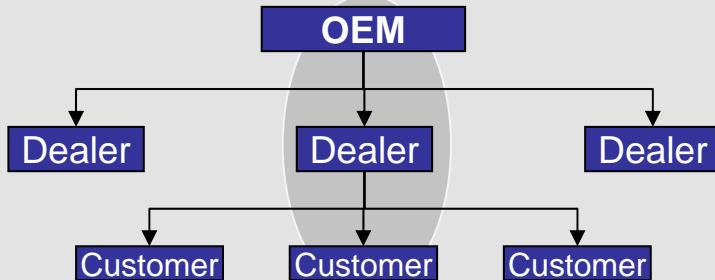
Embedded Innovators allow traditional stand-alone services to be embedded directly into the product.

Solutionist



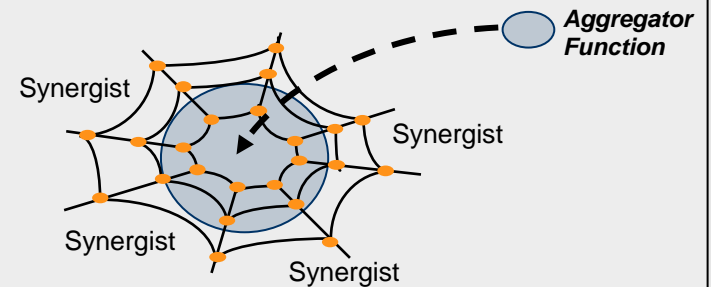
Solutionists provide many or all of the services around the total lifecycle of a product

Aggregator



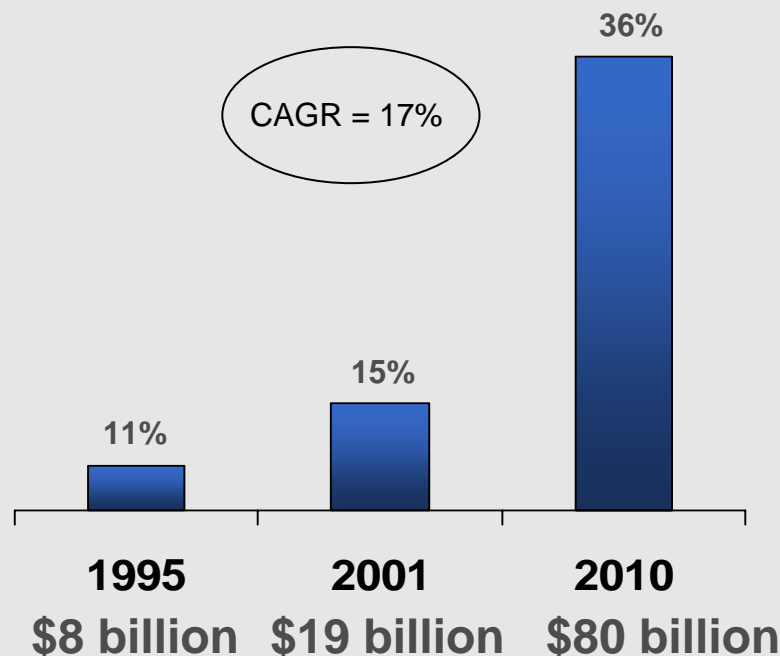
Aggregators integrate the sales and service of the product, as well as the interaction with the customer

Synergist



Synergists are contributors and participants in an alliance web where no single company "owns" the aggregator function

GE Product-Related Services Growth (not GE Capital)

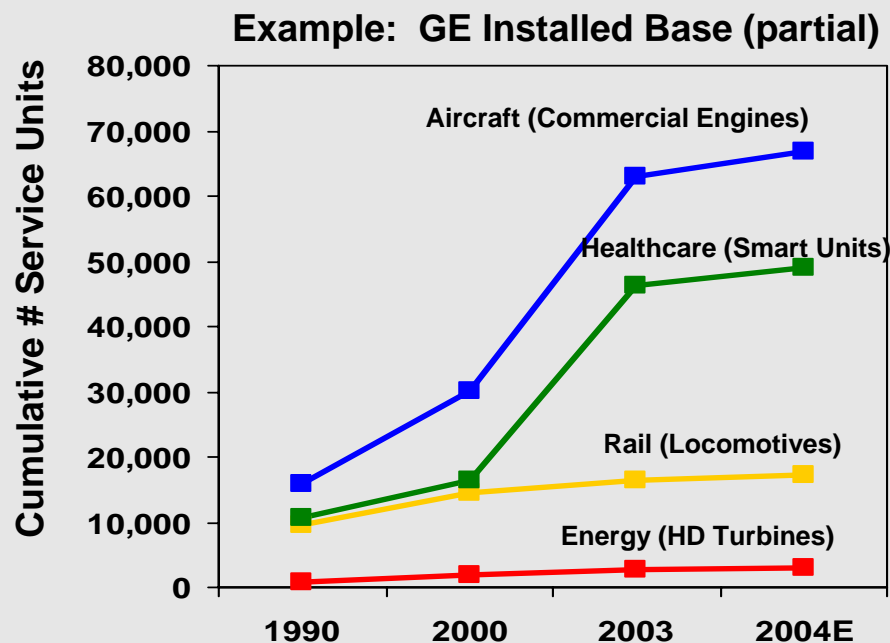


Example, GE Energy Services*:

- 58% of Segment Revenue
- 95% of Segment Profits
- 70% Service Attach Rate (from 25% in 1998)

* Monitoring and diagnostics, asset management and performance optimization, remote performance testing and tuning.

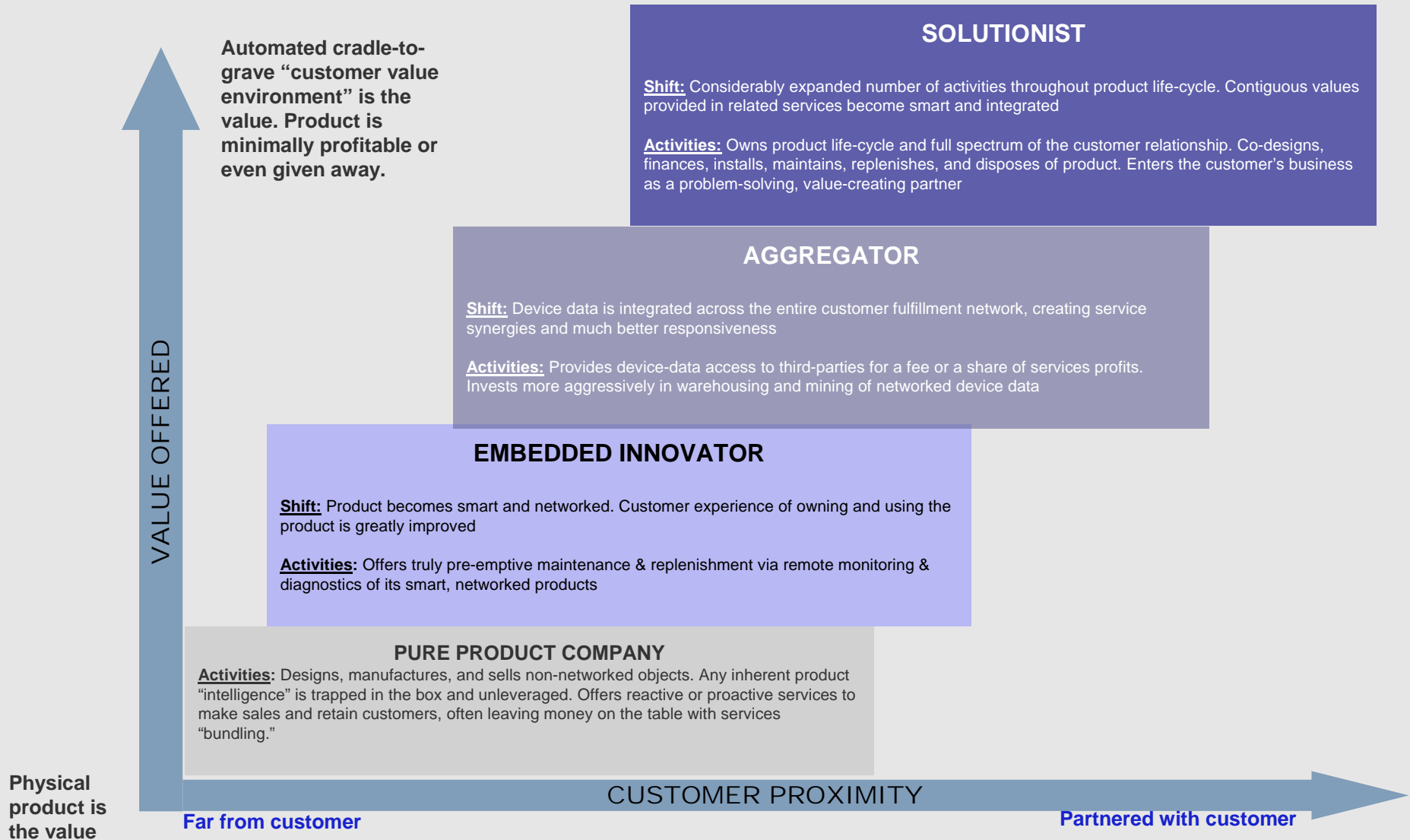
Service Opportunities Made Possible By Pervasive & Wireless Sensors



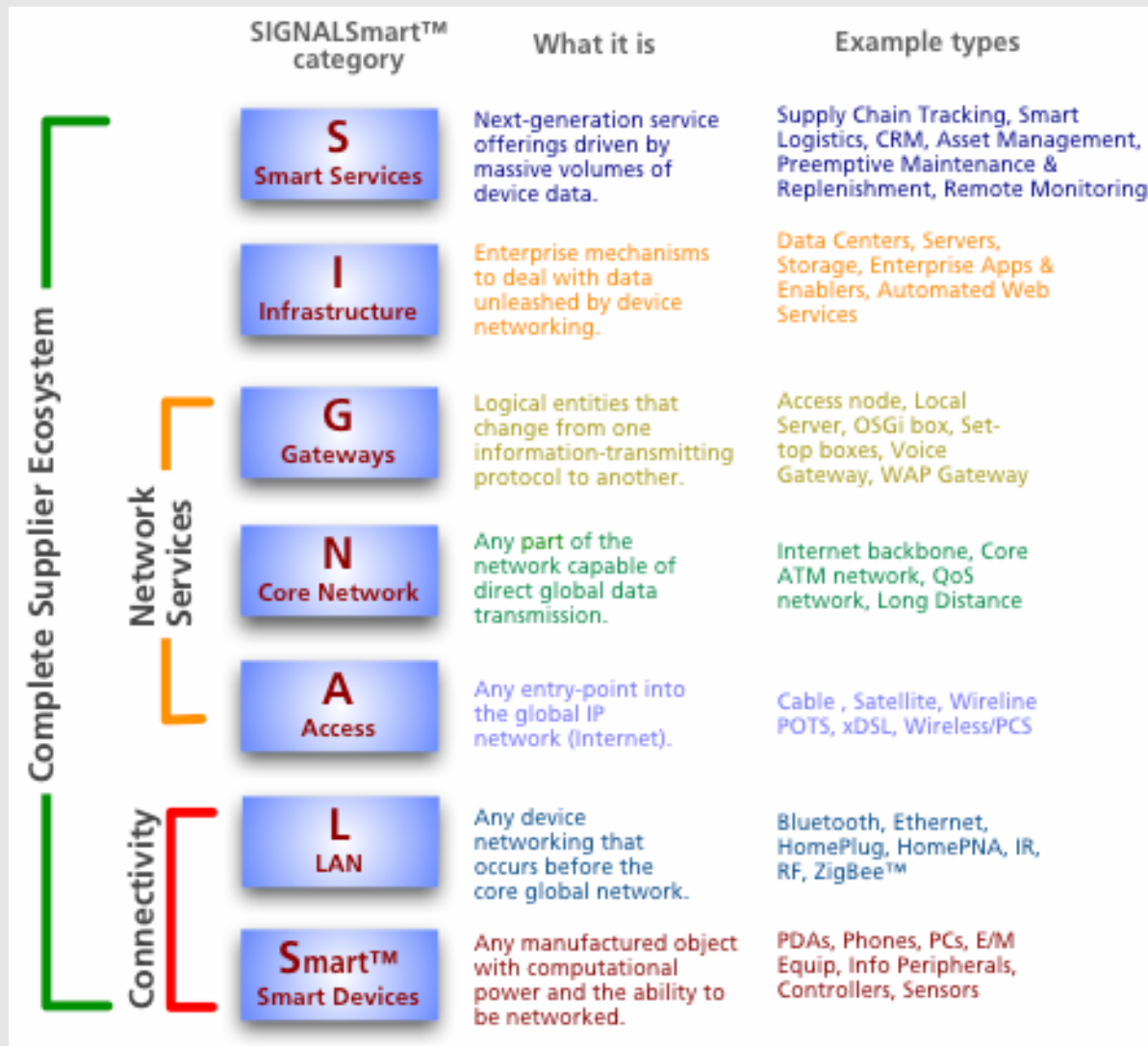
- Total installed base = 67K units
- Average revenue stream per unit = \$3 M
- \$200 billion service opportunity over the next 6 year
- 10% growth expected

Source: CIBC World Markets (Dec 15, 2004)

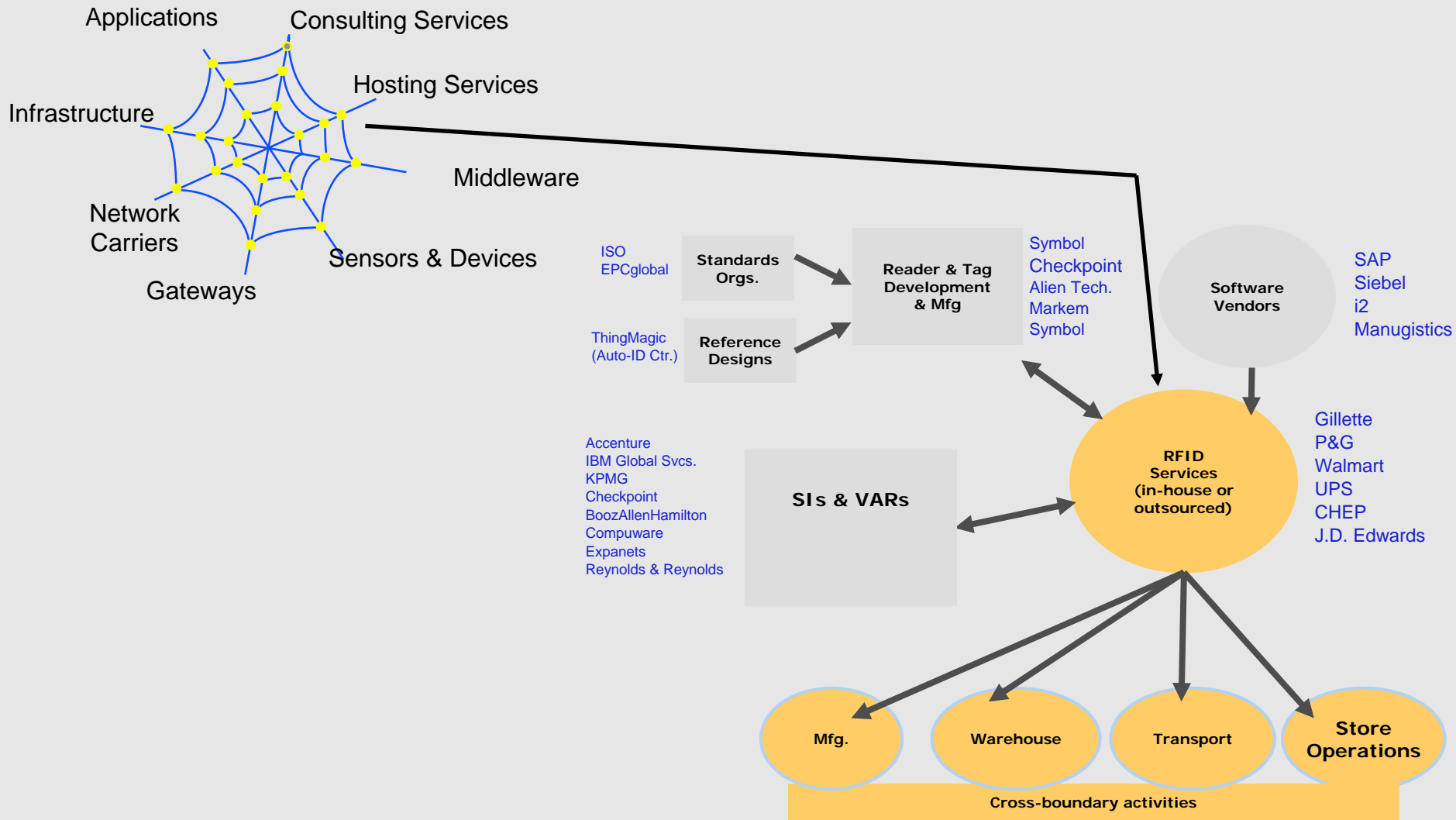
Business Models Are Progressive



Pervasive Internet, M2M & Wireless Sensor Value Chain



RF ID And Related Sensors / Devices Are Part Of The Larger Eco-System



Pervasive Market Landscape

