

**ANIE**  
AUTOMAZIONE



  
**CISCO**

## IoT & IoE

**I principali motori di sviluppo dell'Industry 4.0  
rappresentano i business driver che consentiranno al  
"Made in Italy" di mantenere l'eccellenza acquisita anche  
nell'attuale panorama economico globalizzato**

Fabrizio Bozzarelli  
Strategic Sales, IoT

# Major Trends and Challenges Are Reshaping the Global Landscape



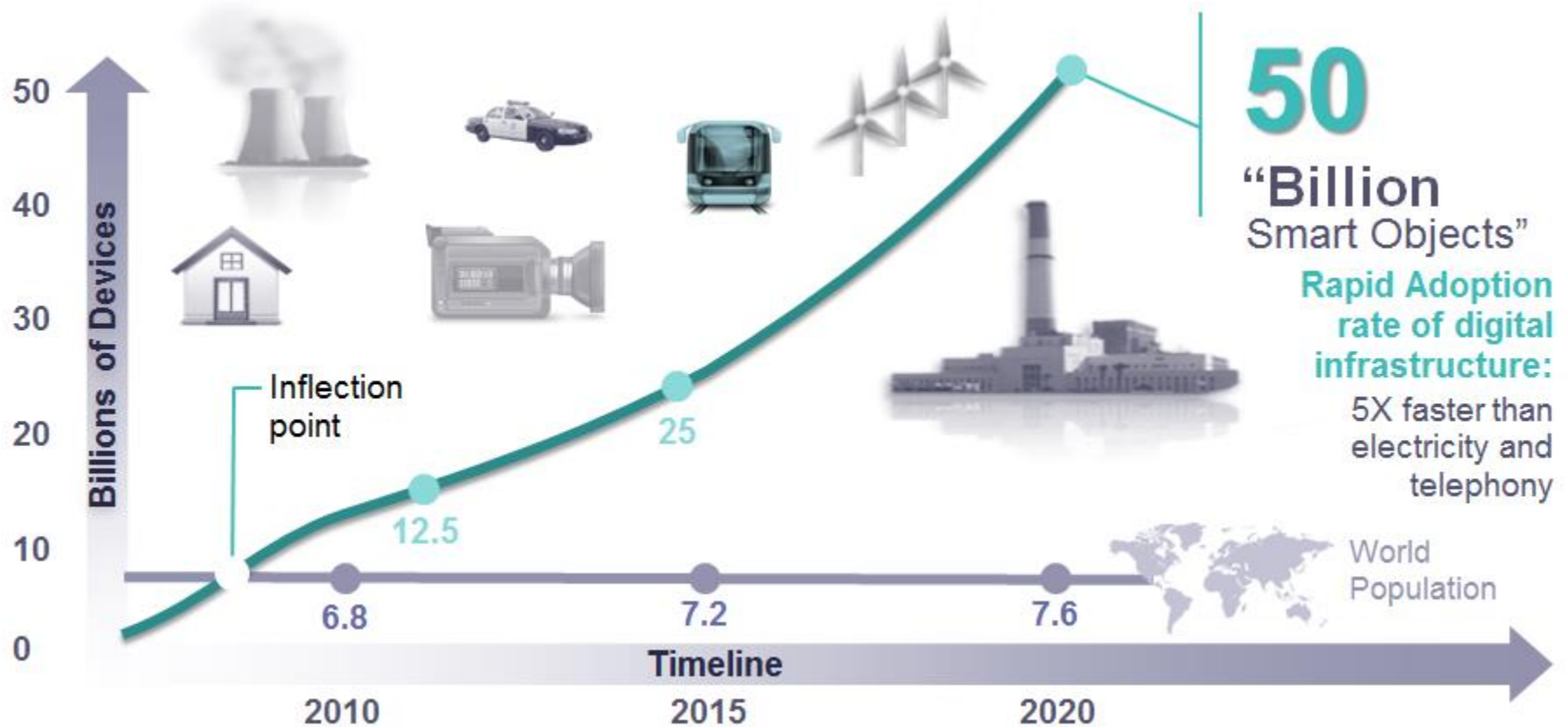
**New Value Creation  
/ Productivity  
Improvements**

**Talent Mismatch  
/ Competition  
for Talent**

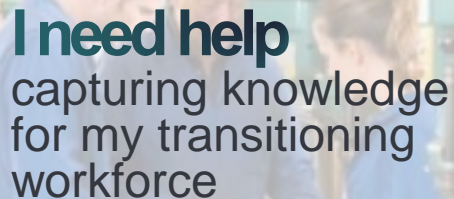
**Energy Mgmt  
/ Urbanization**

**Access  
to Healthcare  
& Education**

# Increasingly, Everything will be Connected to Everything



# Complexity of the Manufacturing Value Chain



I need help  
capturing knowledge  
for my transitioning  
workforce



How can  
**innovation**  
drive profits?



I need to  
improve  
**product**  
**quality**



I need to achieve  
**real-time visibility**



How do I  
improve  
workforce  
productivity?



How can I  
**reduce**  
**downtime?**



How can I  
introduce new  
products faster?



How do I achieve  
**sustainability?**



How can I  
better manage my  
**global supply**  
**chain?**

# What is The Internet of Everything IoE?

Networked Connection of People, Process, Data, Things

## People

Connecting people  
in more relevant,  
valuable ways



## Process

Delivering the  
right  
information to the  
right person (or  
machine) at the  
right time



## Data

Leveraging data  
into more useful  
information for  
decision-making



## Things

Physical devices  
and objects  
connected to the  
Internet  
and each other;  
often called  
Internet of Things  
(IoT)



**IoE**

# The Journey of IoE

Internet of Things



Make IoE a reality and opportunity



Today's technology trends



With an opportunity to accelerate growth

Capture new value & deliver new experiences

Enabling new business outcomes

## The Main Focal Points in IoE



Key Tenets of IoE

# IoE Connections: M2M, M2P and P2P



## Machine-to-Machine (M2M)



Flexible  
Production



Remote Asset  
Monitoring



Predictive  
Maintenance



## Machine-to-Person (M2P)



Operations  
Analytics



IT and Physical  
Security



Real-Time Supply  
Chain



## Person-to-Person (P2P)



Remote Expertise



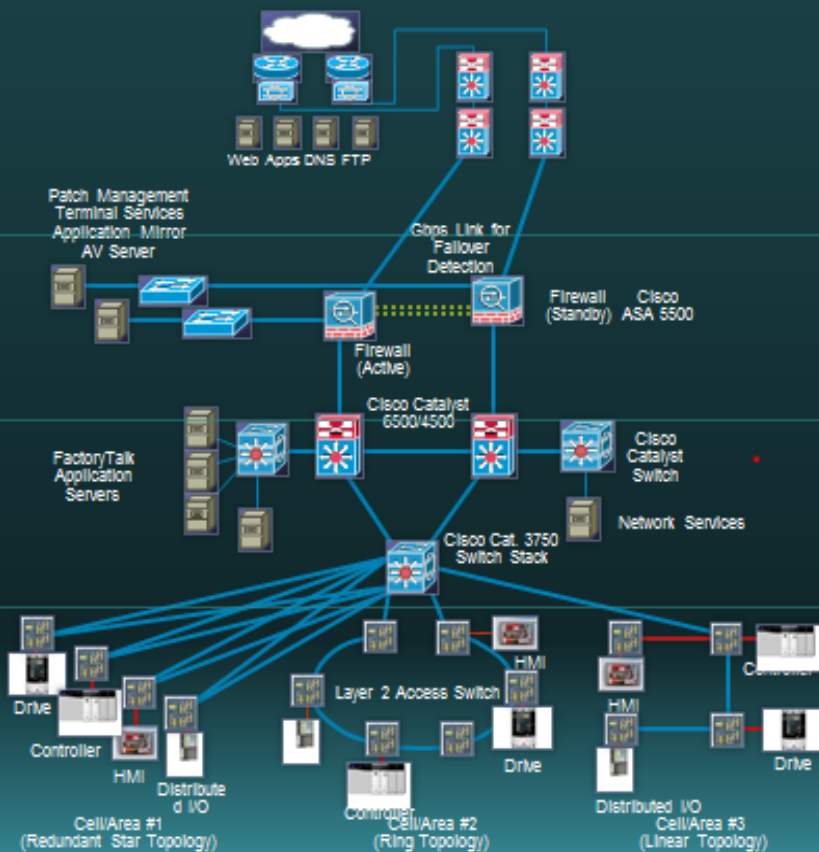
Collaborative Product  
Development



Mobile Collaboration  
on Factory Floor



# Converged Plantwide Ethernet Architecture



Enterprise Network  
Levels 4-5

Enterprise/IT Integration  
Collaboration  
Wireless  
Application Optimization

Demilitarized Zone  
(DMZ) Firewalls

Application and Data share  
Access Control  
Threat Protection

Manufacturing Zone  
Level 3  
Distribution and Core

Site Operations and Control  
Multi-Service Networks  
Network and Security Management  
Routing

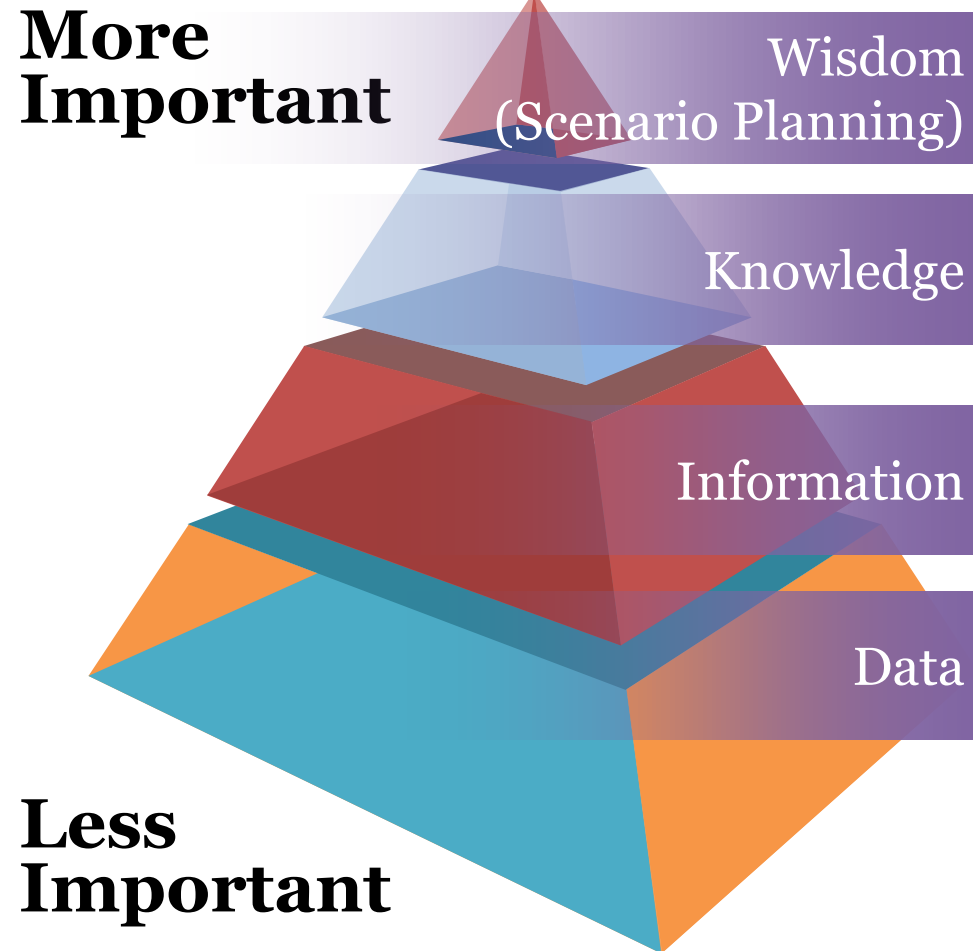
Cell/Area Zone  
Levels 0-2  
Layer 2 Access

EtherNet/IP (Industrial Protocols)  
Real-Time Control  
Fast Convergence  
Traffic Segmentation and Management  
Ease of Use

## IoE acceleration: Big Data

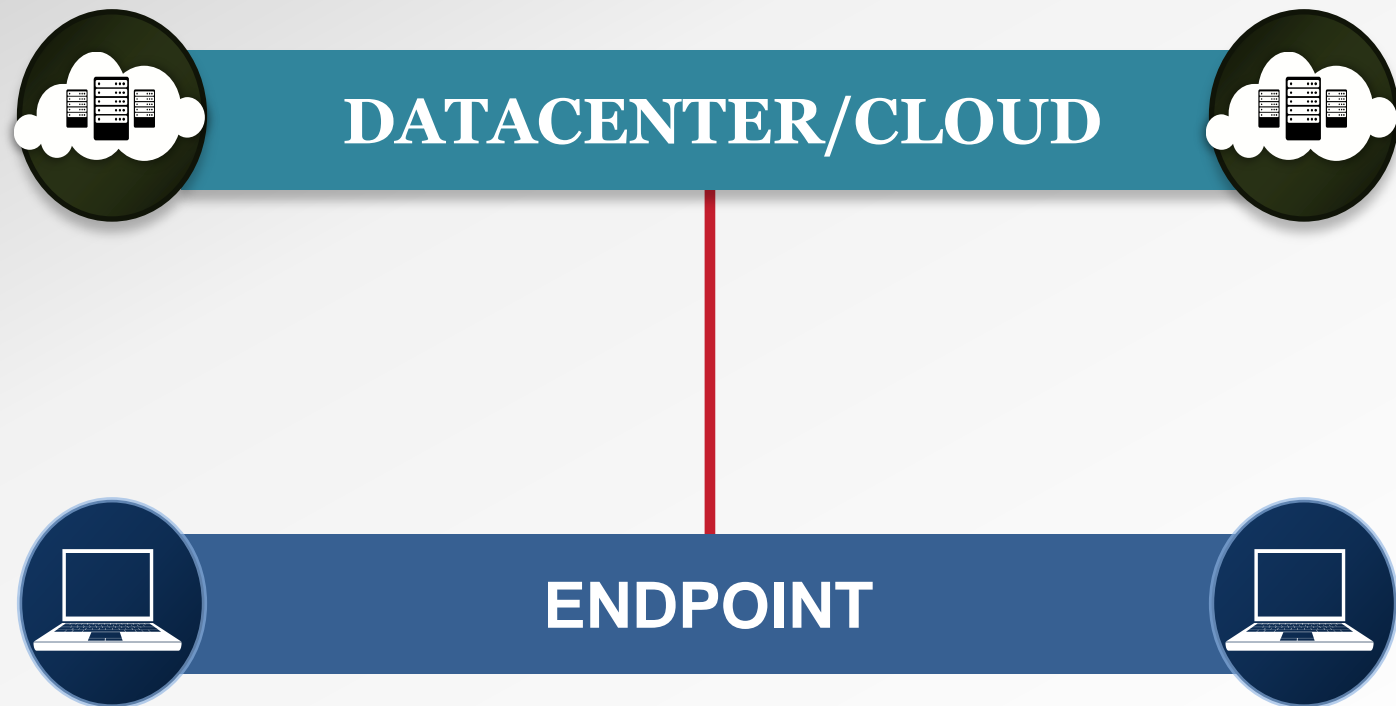
### Big Data Doubles Every Two Years

- 90% of world's data created in last 2 years
- More new data generated in 2012 than prior 5,000 years
- By 2020, 40% of data will come from sensors
- WalMart collects 2.5 petabytes of data hourly from customer transactions



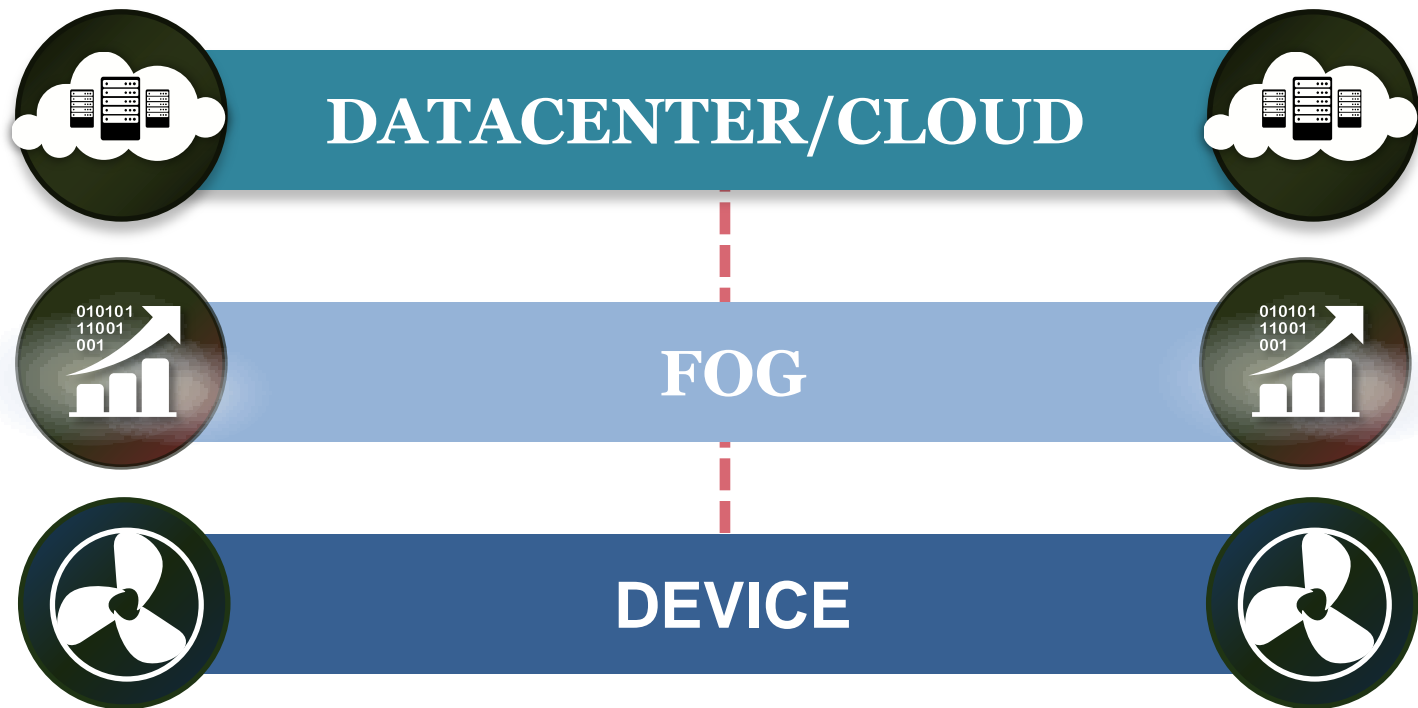
# IoE Requires Distributed Computing

## TRADITIONAL COMPUTING MODEL (TERMINAL-MAINFRAME, CLIENT-SERVER, WEB)

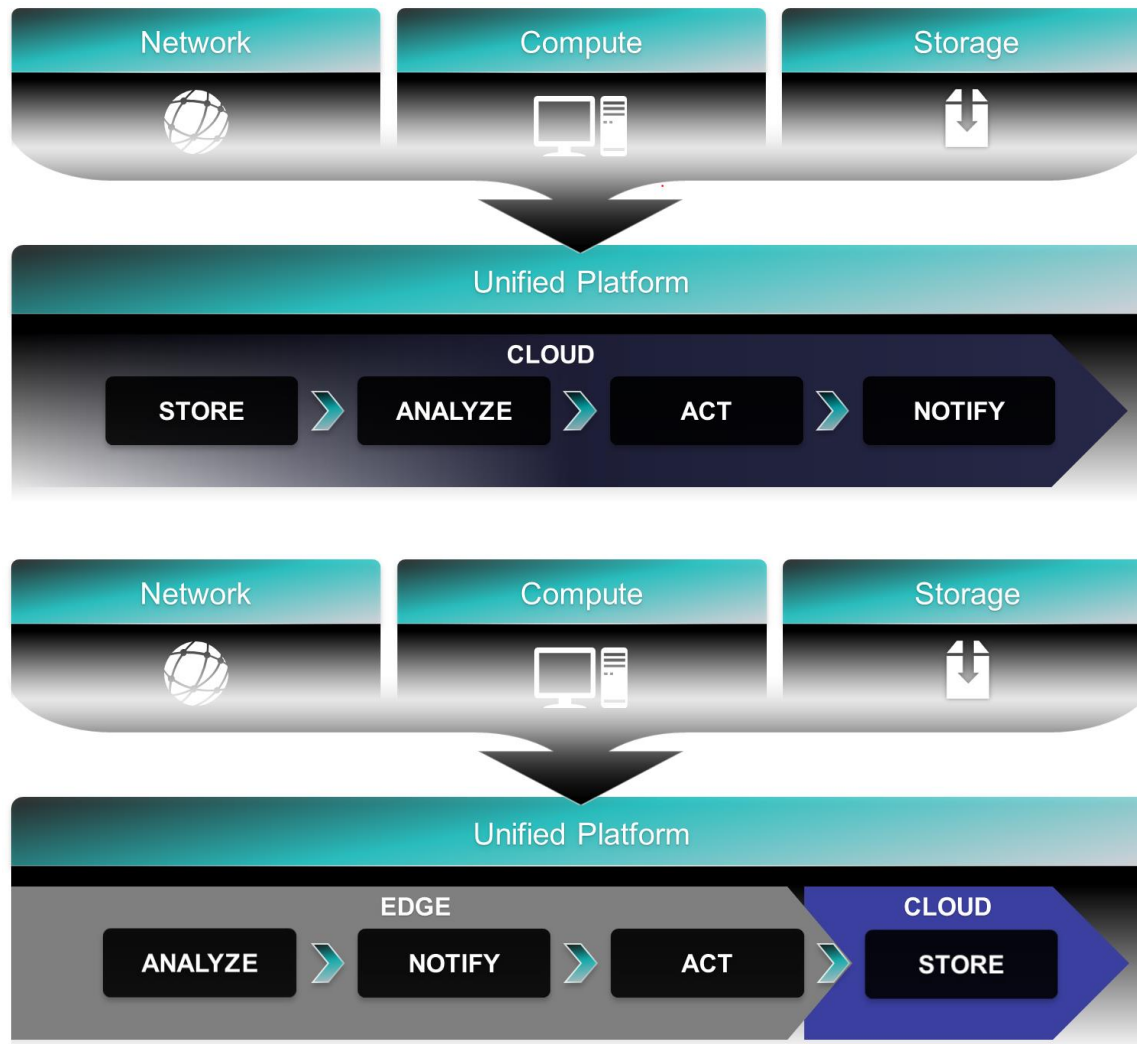


# IoE Requires Distributed Computing

## IoT COMPUTING MODEL (DATA VOLUME, SECURITY, RESILIENCY, LATENCY)



# IoE Requires Distributed Computing



# IoT, ROI nel Manufacturing

- ✓ I produttori possono fornire servizi in outsourcing in caso di diminuzione delle attività
- ✓ Le stampanti 3D possono soddisfare una richiesta immediata senza appoggiarsi a stock esistenti

Nuovi  
modelli di  
business

Real-time  
Supply  
Chain

Gestione  
degli asset e  
degli  
impianti

Rete di  
automazione  
convergente

Produttività

Gestione  
dell'energia

Introduzio  
ne di  
nuovi  
prodotti

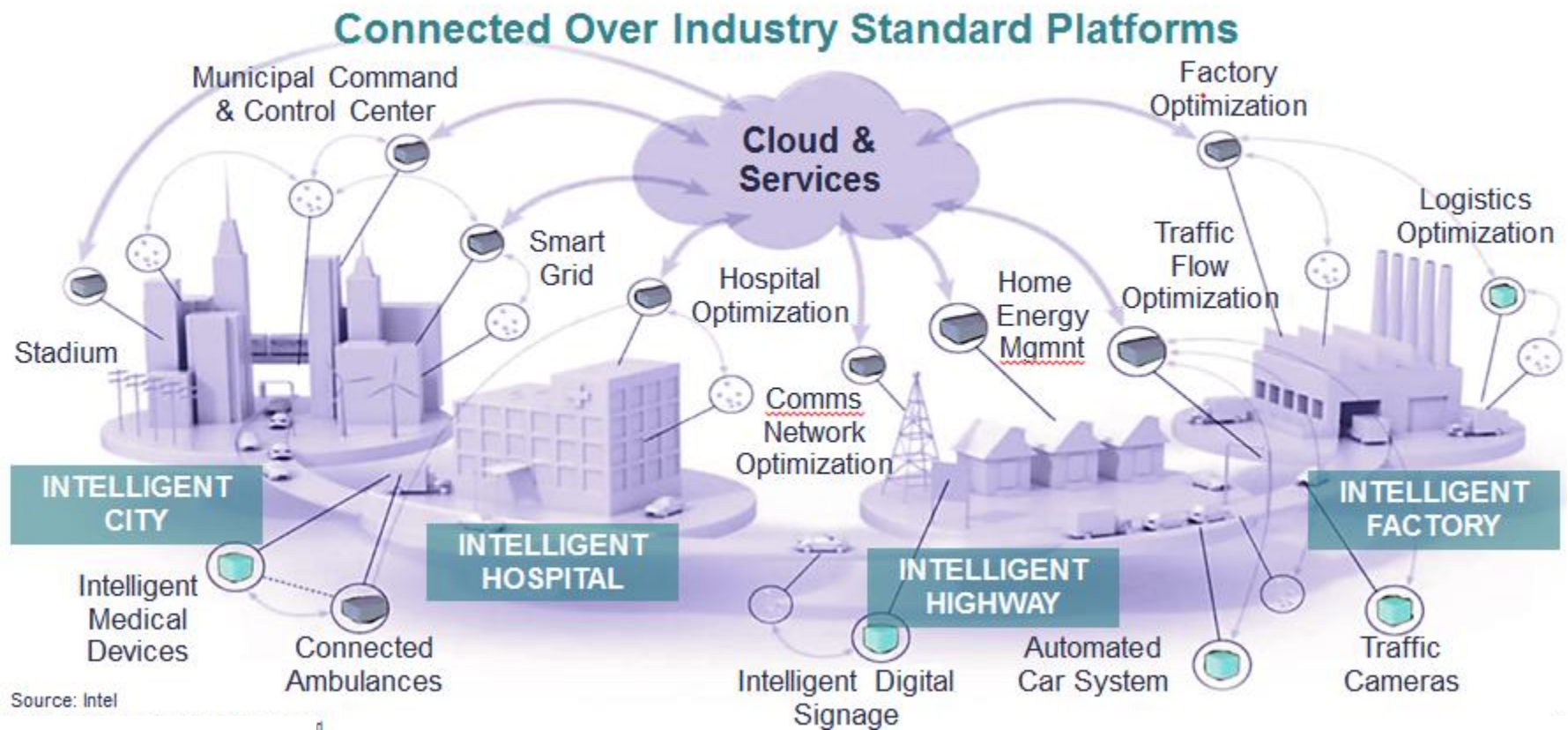
Cose

Persone

Processi

Supply Chain

# A City, A country, A Company with a Digital Overlay

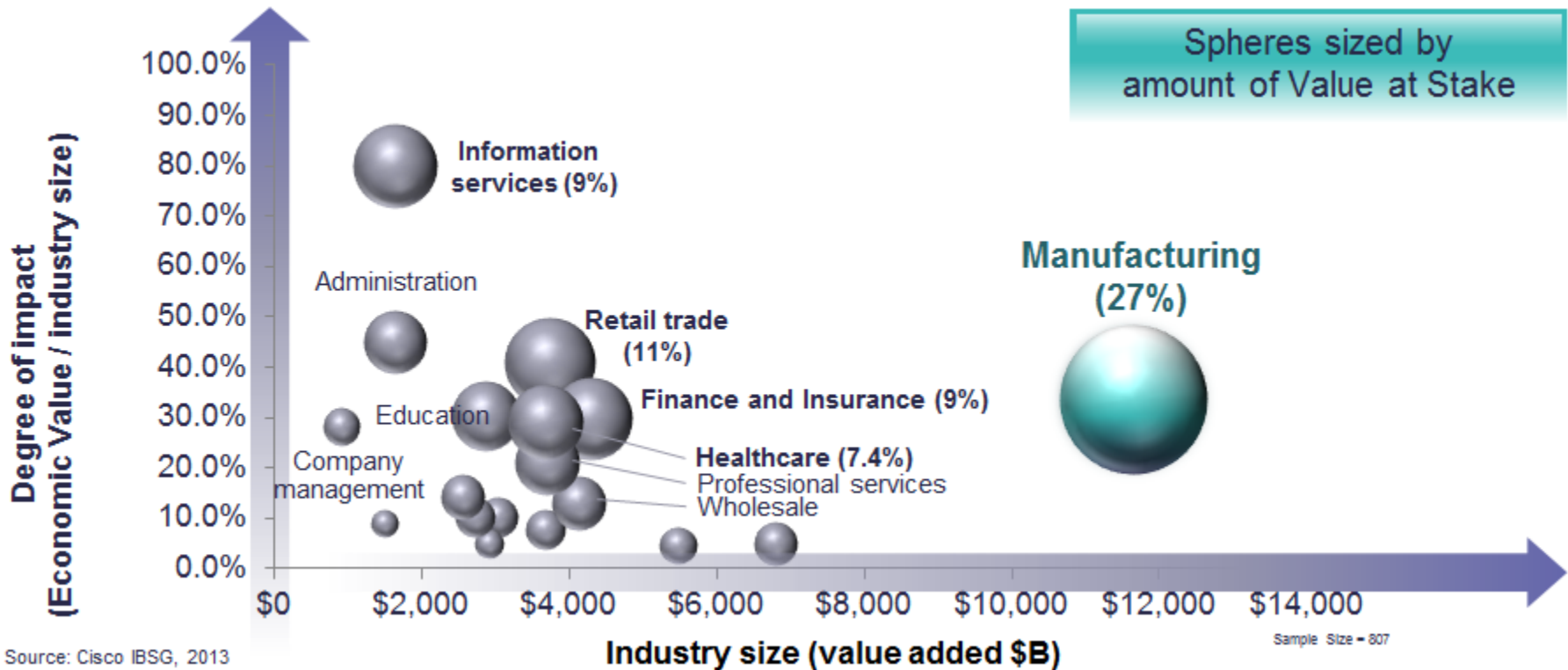


# Seizing the Opportunity: Economic Value of the IoE





# Economic Value by Industry: Manufacturing Represents 27% of the Private Sector



# The Growing Workforce for the Next Industrial Revolution

Industries Reinventing  
their Business with IP

IP Traffic will Increase  
**20x**  
by 2017



**2 Million  
Jobs by  
2022**

New Partnerships and  
Education Alliances - STEM



Talent Gap  
**220,000**  
New Engineers/Yr 2014-2022

New Jobs Are Being Created – Thousands in Each Industry Today

STEM: Science, Technology, Engineering, and Mathematics

# IoT System Development in an Industrial Environment



# Internet of Things Cisco Industrial Networking Product Portfolio



Manufacturing



Mining



Energy-Utility



Oil and Gas



Transportation



City



Defense



SPM2M

Connected Factory • Connected Train • City Safety and Security • Energy Distribution Automation

**Industrial Switching**

IE 2000  
IE 3000  
OGS 2000

IP 67

IE 4000

IE 6000

**Industrial Routing**

OGR 2000

ASR 903

**Industrial Wireless**

Field AP - 1662

Field AP - IW 3700  
B02.11ac

**Field Network**

OGR 1000

B10H

IR 910

IR 800

B10H

B00H

**Embedded Networks**

6800 ES R,  
ESS 2020  
Switches

6921 ES R  
Software  
Router

**Connected Safety & Security**

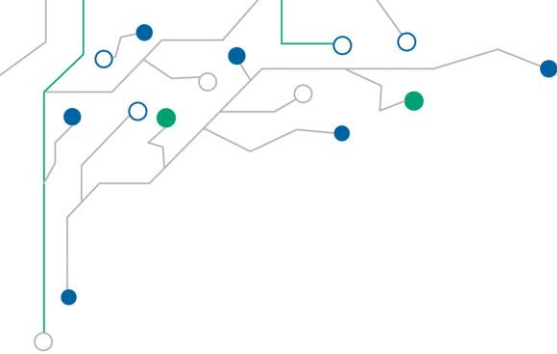
Video Surveillance  
Manager and  
IP Cameras

Physical Access  
Manager

IoT Security

Application Enablement [Fog Computing/IOx]

Management



**Thank you**

