Internet of Everything

Connected industries

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Strategy

Solve our **customers' most important business problems** by delivering intelligent networks and technology architectures built on integrated products, services, and software platforms

1/3	Sales
1/3	Engineering
1/6	Service
1/6	Other

67K+	165+	475+	$48.6B+	$5.9B+
Employees	Countries	Offices	Revenue	R&D

Source: FY13 Annual Results Announcement August 2013

The Impact the Internet has on our Life

“I cannot imagine a life without…”

- A mobile phone: 97%

% of 14 – 29 year olds

Source: BITKOM – Bundesverband Informationswirtschaft, Telekommunikation und neue Medien

The Impact the Internet has on our Life

“I cannot imagine a life without…”

- The Internet: 84%

% of 14 – 29 year olds

Source: BITKOM – Bundesverband Informationswirtschaft, Telekommunikation und neue Medien

The Impact the Internet has on our Life

“I cannot imagine a life without…”

- A car: 64%

% of 14 – 29 year olds

Source: BITKOM – Bundesverband Informationswirtschaft, Telekommunikation und neue Medien

The Impact the Internet has on our Life

“I cannot imagine a life without…”

- My current partner: 43%

% of 14 – 29 year olds

Source: BITKOM – Bundesverband Informationswirtschaft, Telekommunikation und neue Medien

Internet of Things Is Here Now – and Growing!

50 Billion
"Smart Objects"

The New Essential Infrastructure

Source: Cisco IBSG, 2011

Cisco Calls It The Internet of Everything (IoE)

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 for Intelligent Decision Making

Networked Connection of People, Process, Data, Things

Enablers/Drivers of IoT

More Innovation and Change than at Any Other Point in Our Lifetime

Technology Transitions

- BYOD
- CLOUD
- NEW BREED OF APPS
- SENSORS & DEVICES
- BIG DATA ANALYTICS

Network as the Platform

Business Transitions

- GROWTH & INNOVATION
- NEW BUSINESS MODELS
- EXPERIENCE EXPECTATIONS
- GLOBALIZATION
- SECURITY & PRIVACY

Connected Objects Generate Big Data

46 million in the U.S alone
1.1 billion data points (.5TB) per day

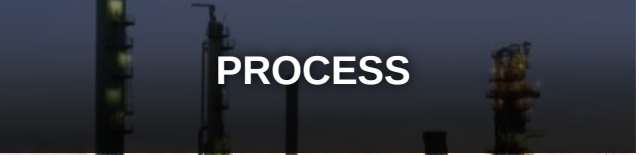
A single consumer packaged good manufacturing machine generates
13B data samples per day

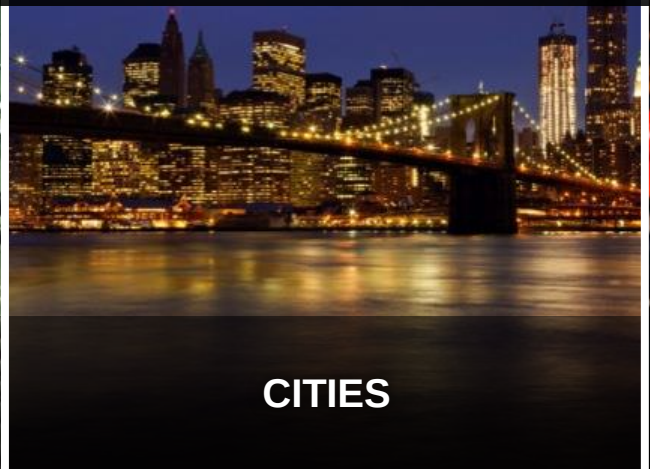
A large offshore field produces 0.75TB of data weekly
A large refinery generates 1TB of raw data per day

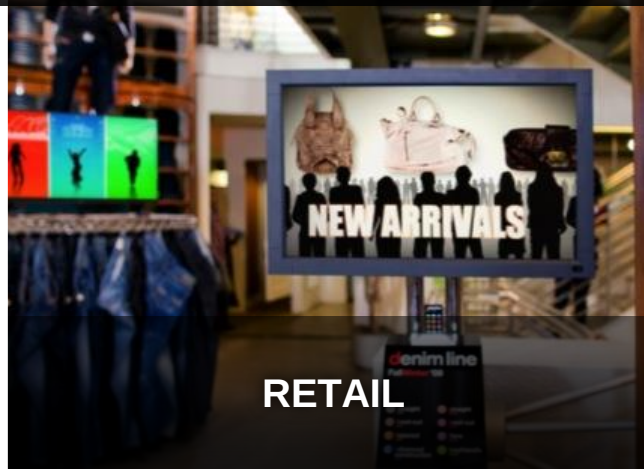
10TB of data for every 30 minutes of flight
With >25,000 flights per day, petabytes daily

The World Generates More Than 2 Exabytes of Data Every Day

Cisco in the Business of Connecting Industries







A good example is the communication Ports in an typical Brown Field Oil rig

On the average, there is a ratio of 15:1 industrial devices to enterprise within a manufacturing plant

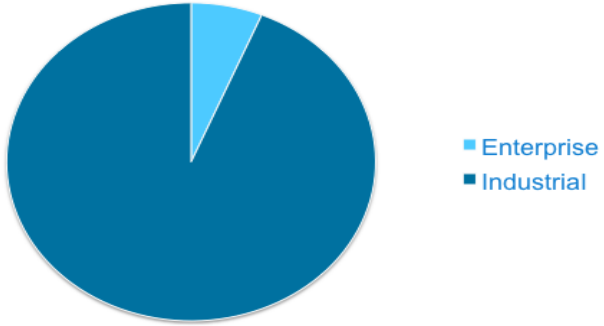
1

Enterprise Devices

15

Industrial Devices

Ethernet Ports in a Plant



Internet of Things Enable the Connected Oilfield

IoT technologies Enables use cases that earlier was hard to fulfill

Asset Management

Health, Safety Environment

Field Communication

Incident Management

Remote Expert

Remote Operations

Process Control

Industry Partnerships

Enterprise Wide Connectivity

Security

Health Care

Expert Collaboration

Mobility

Multiple Device

Entertainment

Executive Communication

Emergency Response

Sensors

Education / Best Practice Sharing

Sensor networks are key to enable new value for Oil and Gas

Integrated Operations demands Integrated networks across disciplines.

Electro

- Electrical power
- Emergency power
- Distribution systems
- Protection systems
- Lighting systems
- Switchgear
- Cabling

Instruments

- Secure Access Solution
- Alarm Management
- Conditioning Monitoring
- Field Device Management
- Information Management
- Fire & Gas detection
- Emergency Shutdown System
- Process control system x y z
- Meetring system x y z
- Marine System
- Instrument devices
- Cabling

Telekom

- Public address and general alarm
- Office data network
- Telephony
- Entertainment
- Network management
- Radio links
- Satellite links
- General radio
- Meteorological observation
- Telecommunication Management System
- Real Time clock
- Marine radar
- Optical network
- Cabling

5 Requirements for Successful IoT Implementations

Converged, Managed Network

Resilience at Scale

Security & Privacy

Distributed Intelligence

Application Enablement

Foundation… Trusted Leadership, Innovation, and Reliability

Why Cisco for IoT?

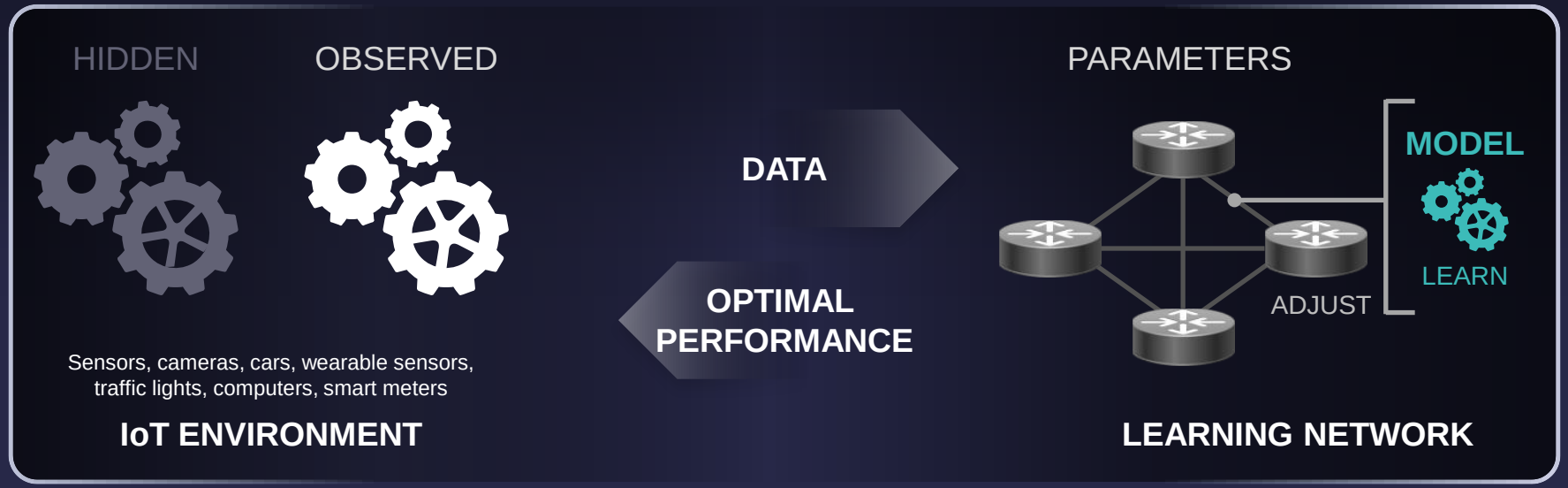
Scalable, Flexible, Secure

Converged, Managed Network

- End-to-end network architecture
- Resilient, scalable, manageable
- Open standards based
- Proven network security and identity management
- Greater mobility (even in harsh environments)
- Enables new business models and services

Delivers End-to-End Monitoring and Network Control

Learning Networks Enable Scale



PREDICTIVE PERFORMANCE ANALYSIS

ANOMALY DETECTION

ADAPTIVE SECURITY

Why Cisco for IoT?

Resilience at Scale

Resilience at Scale

- Proven end-to-end architecture
- Application-aware infrastructure
- Flexibility for management
- Complete lifecycle services
- Distributed computing capabilities

Always On and Always Ready

IoT Expands Security Needs

Increased Attack Surface

Threat Diversity

Impact and Risk

Remediation

Protocols

Compliance and Regulation

Converged, Managed Network

Resilience at Scale

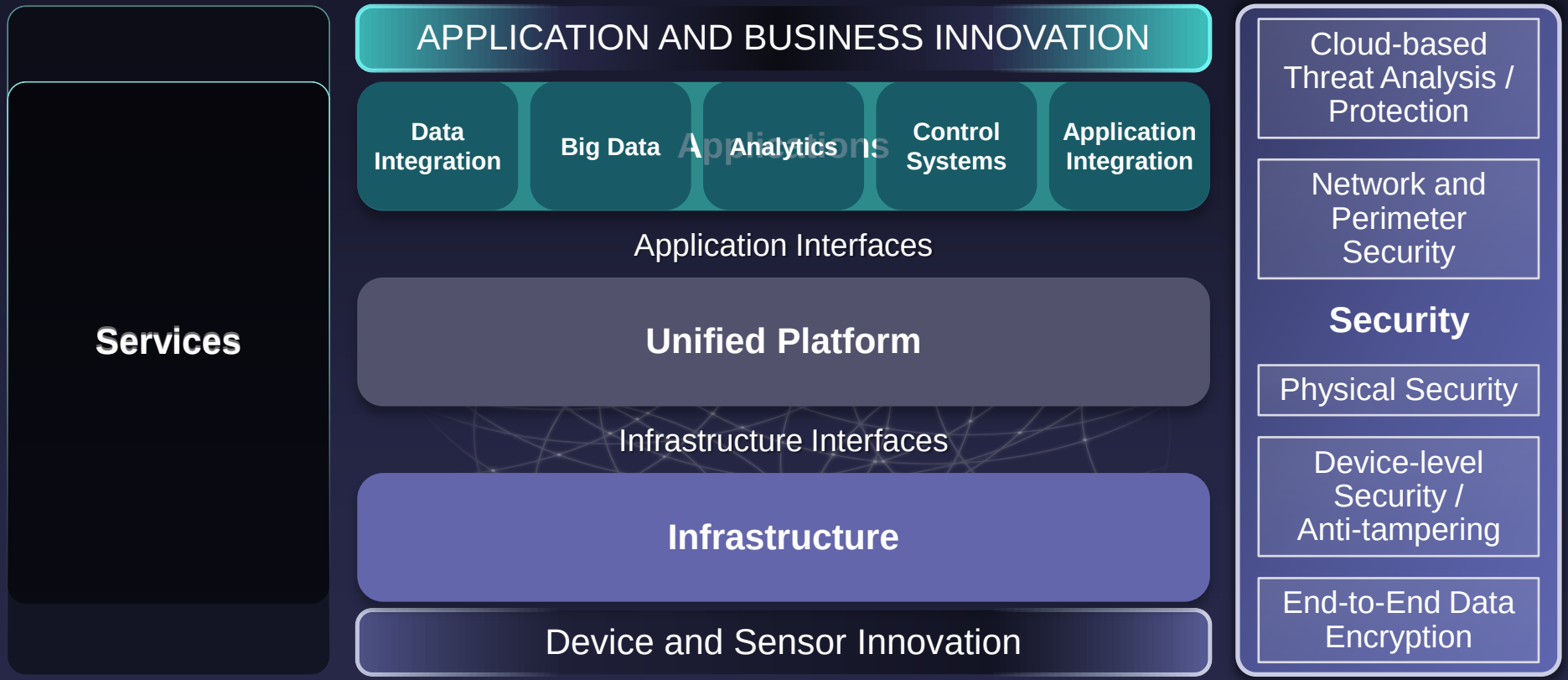
Security

Distributed Intelligence

Application Enablement

IoT CONNECTIVITY

The Secure IoT Architecture



Why Cisco for IoT?

Deep Security Controls

Security and Privacy

- Unmatched visibility and consistent control
- Pervasive and adaptive
- Situation-aware
- Functional and flexible
- Rapidly Scalable
- Built in, not bolted on
- Tested and validated

Delivers Security Across the Extended Network – Before, During, and After An Attack

Why Distributed Intelligence?

Vast Amounts of Data

Local Control Loops

Detached Applications

Expensive Bandwidth

Low Cost of Edge Compute

Scale

Converged, Managed Network

Resilience at Scale

Security

Distributed Intelligence

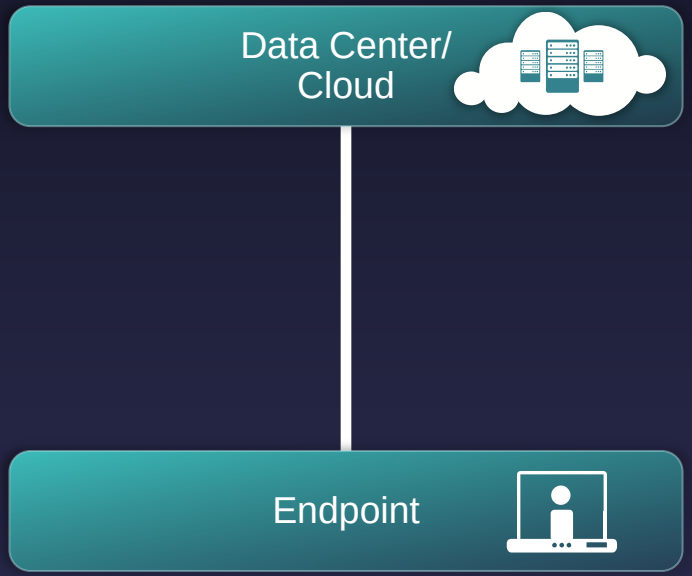
Application Enablement

IoT CONNECTIVITY

IoT Requires Distributed Computing

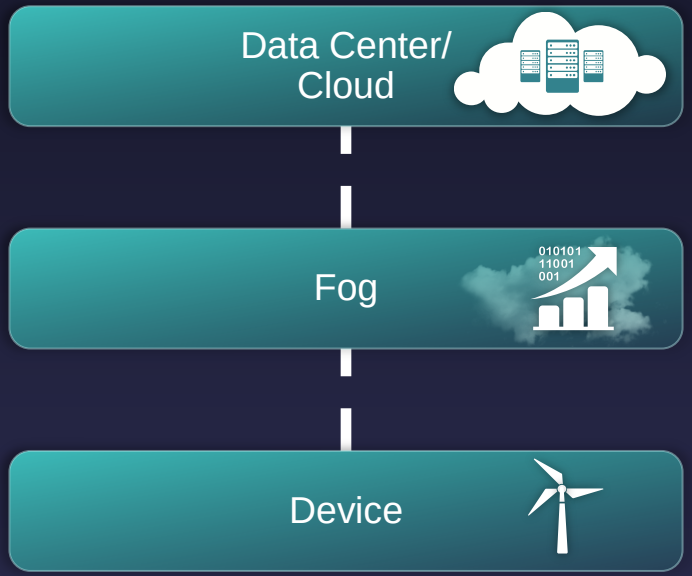
Traditional Computing Model

(Terminal/Mainframe, Client-Server, Web)



IoT Requires Distributed Computing

IoT Computing Model



Why Cisco for IoT?

Distributed Intelligence

Distributed Intelligence

- Converged computation, storage, and communication at network edge
- Purpose-built networked devices
- Open standards based framework
- Proven end-to-end architecture
- Deep security controls

Why Application Enablement?

Open and Standards-Based

Ease of Management

Flexibility

Ease of Integration

Automation

Converged, Managed Network

Resilience at Scale

Security

Distributed Intelligence

Application Enablement

IoT CONNECTIVITY

Why Cisco for IoT?

Application Enablement

Application Enablement

- Open standards based framework
- Flexibility in management and control
- Network-aware applications

Cisco IoT Leadership

IoT Network Platform

Cloud

Intelligent Network

Data Center

Fog

IoT Solutions Portfolio

Routing

Switching

Security

Wireless

Embedded

Network Management

IoT Investment Fund

IoT Innovation

Internet of Things

Global Partner Ecosystem

Standards Development

Cisco Internet of Things Portfolio


Manufacturing


Mining


Energy-Utility


Oil and Gas


Transportation


City


Defense


SP/M2M

Plantwide Ethernet, Intelligent Transportation, Smart Cities, S&C Refinery, Smart Connected Vehicle, Smart Grid

IE 2000
IE 3000
CGS 1000
CGS 2500

Plant Switching

CGR 2000

ASR 903

Plant Routing

1552
Rugged
Wireless

CGR 1000

819H M2M ISR
Gateway Router

Field Network

5915 + 5921 +
5940 Rugged
Embedded
Services
Routers

ESS2020
Rugged Switch

Embedded Networks

Video Surveillance
Manager and IP
Cameras

Physical
Access
Manager

IPICS

Physical Security

Network Management and IoT Security

Fog Computing; Cisco IOx

Data Center/Virtualization

Thank you.