



The Internet of Things: What It Takes

GENKEY-04

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Cisco

Cisco *live!*



The Internet of Things

What it Takes

The Internet of Things: Technology Platform



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Kip Compton
Vice President, IoT Systems
and Software Group, Cisco

The Internet of Things: Power of Analytics



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Mike Flannagan
Vice President and General
Manager, Data & Analytics
Business Group, Cisco

The Internet of Things: Vertical Solutions

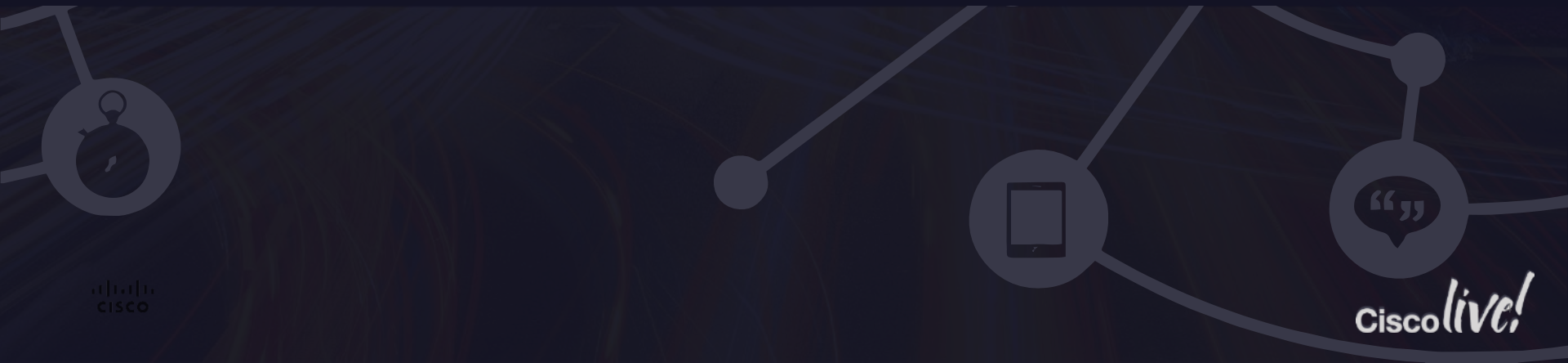


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Tony Shakib
Vice President, IoE Vertical
Solutions Group, Cisco



The Digital World. What's Ahead.





Point-of-Sale



Taxi



Hotel



Bookstore



Print Advertising



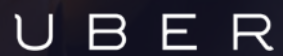
Car



Music



Square



U B E R



airbnb



Bookstore



Print Advertising



Car



Music

Digital Disruptors



Social



Mobile



Data



Cloud

Internet of Everything

39%
of the world
population
is connected

Technology
powers

80%
of **business**
processes

13B
connected
things

More **data** in
one year than
in previous

5000





IoT Technology Platform. What it Takes.

Cloud and Fog
Analytics
Security and Identity Management
Open and Programmability (APIs)
Ease of use and Management



Applications



App Enablement

Event Management

Workflow / Rules Engine

Video Sensing

Data Normalization and Modeling

Protocol Mediation

Enterprise App Integration



Infrastructure

Software Defined Networking
Network Compute Storage



Things

Cloud and Fog

Analytics

Security and
Identity Management

Open and
Programmability
(APIs)

Ease of use
and Management



Applications



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Video
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Protocol
Mediation

Enterprise App
Integration



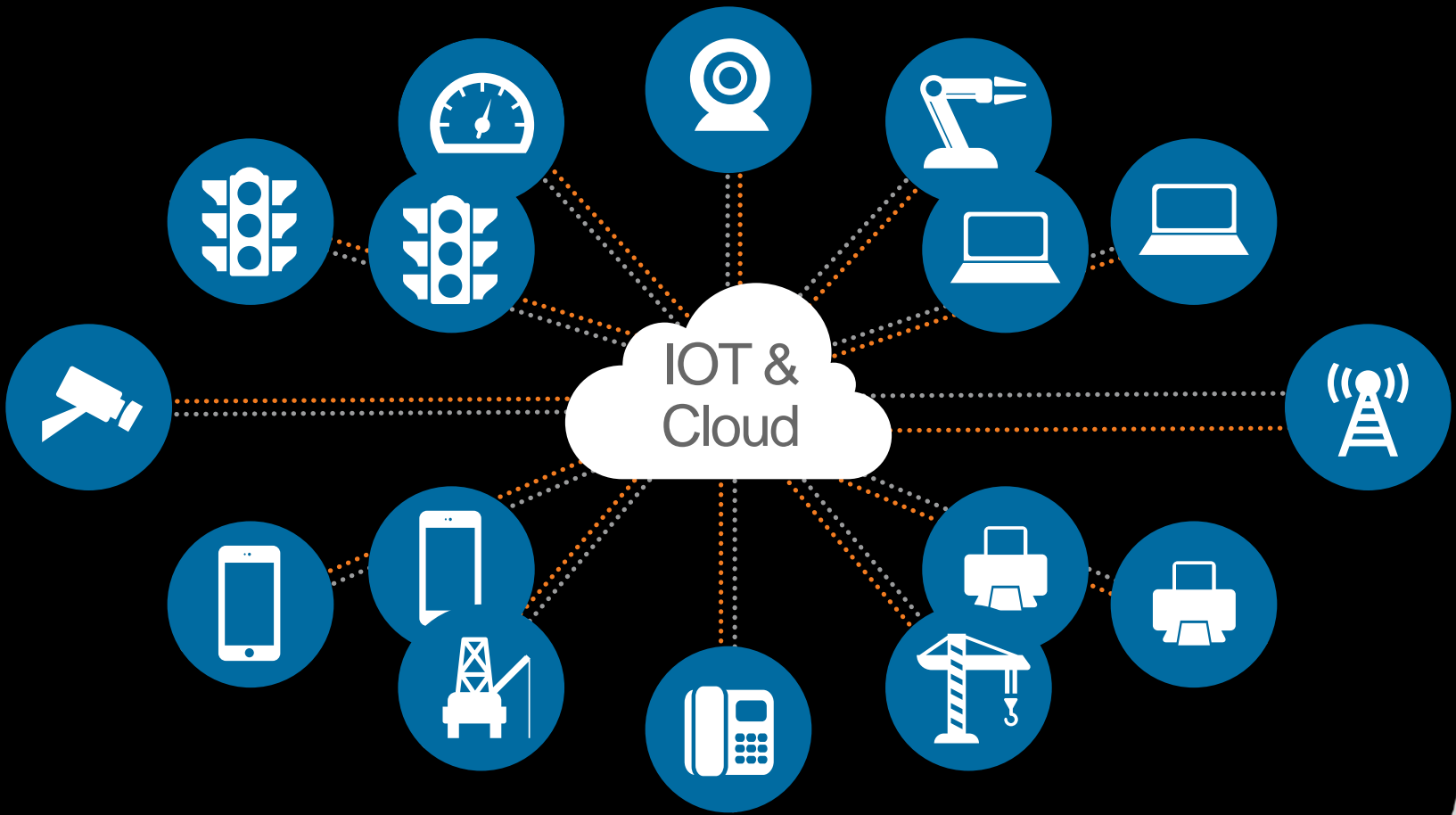
Infrastructure

Software Defined Networking
Network Compute Storage



Things





IoT Cloud Challenges



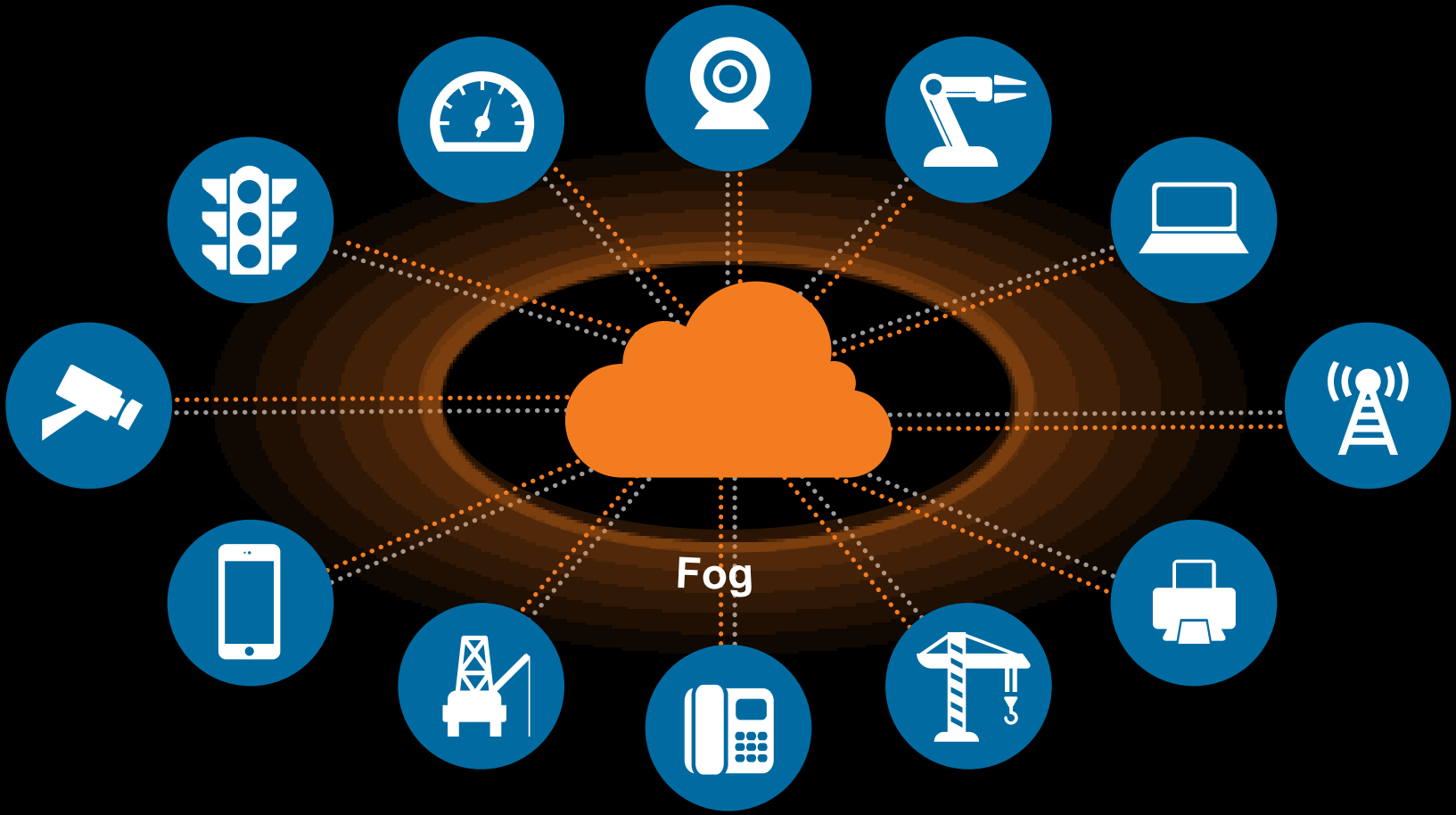
Oil
Platform
Limited Bandwidth



Manufacturing
Robot
Latency



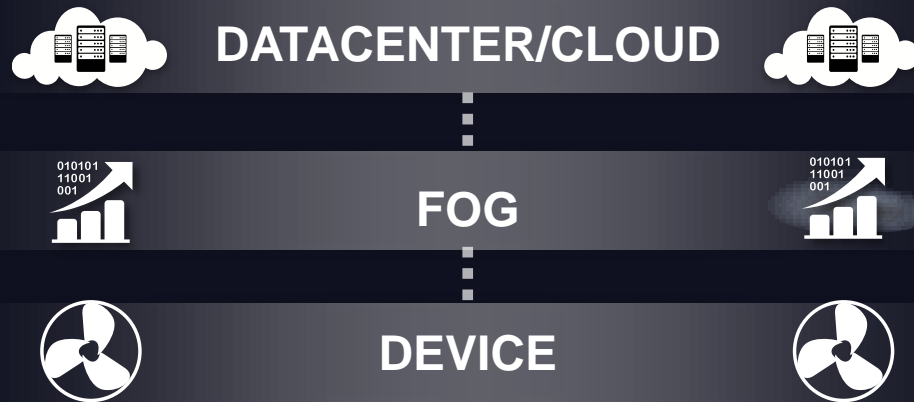
Construction
Crane
Network Reliability



Fog

IoT Requires Distributed Computing

IoT Computing Model (Data Volume, Security, Resiliency, Latency)



Solutions for Cloud Challenges



Oil
Platform

Limited Bandwidth



Manufacturing
Robot

Latency



Construction
Crane

Network Reliability

Cloud and Fog

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Security and
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Open and
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Ease of use
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Applications



App Enablement

Event
Management

Workflow /
Rules Engine

Video
Sensing

Data Normalization
and Modeling

Protocol
Mediation

Enterprise App
Integration



Infrastructure

Software Defined Networking
Network Compute Storage



Things

Security Challenges

Traditional Security Challenges

Increased Attack Surface
Information Breach
Data Privacy

Smart Objects

6 Devices
Per Person
130 Sensors
Per Person

IoT Security Challenges



Superior Visibility

Advanced video analytics, remote management, and multi-site event correlation



Granular Control

Differentiated policy enforcement across the extended network



Advanced Threat Protection

Comprehensive cyber security threat detection and mitigation



Actionable Intelligence

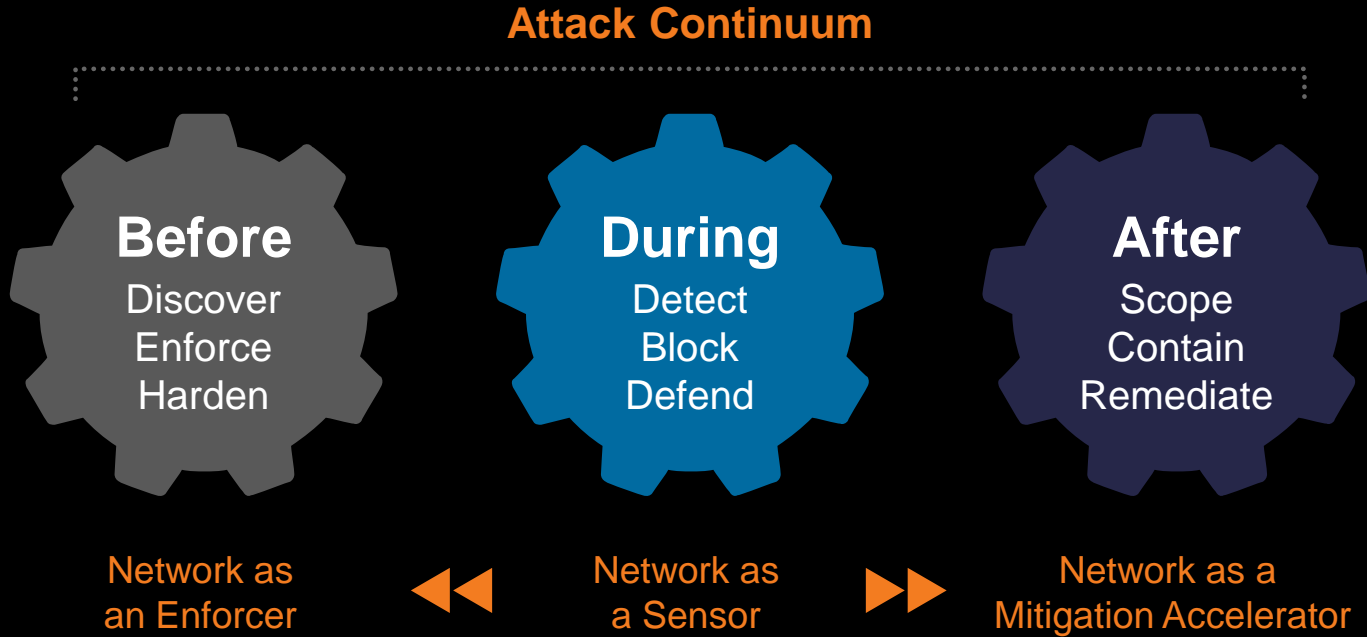
Internetworked security solutions for superior intelligence and rapid response



Automated Decisions

Machine-to-machine enabled security control with no human intervention required

Required Security Model for IoT



Enabling Business Outcomes



Enhanced Quality
of Products
and Services



Reducing Costs
with OpEx Savings



Accelerating
Innovation



Improved
Decision-Making
with Data Analytics

A New Approach is Needed to Reach and Analyze That Data

Structured Data



Unstructured Data



Data Streaming at the Edge



Analytics 1.0

Days/Hours

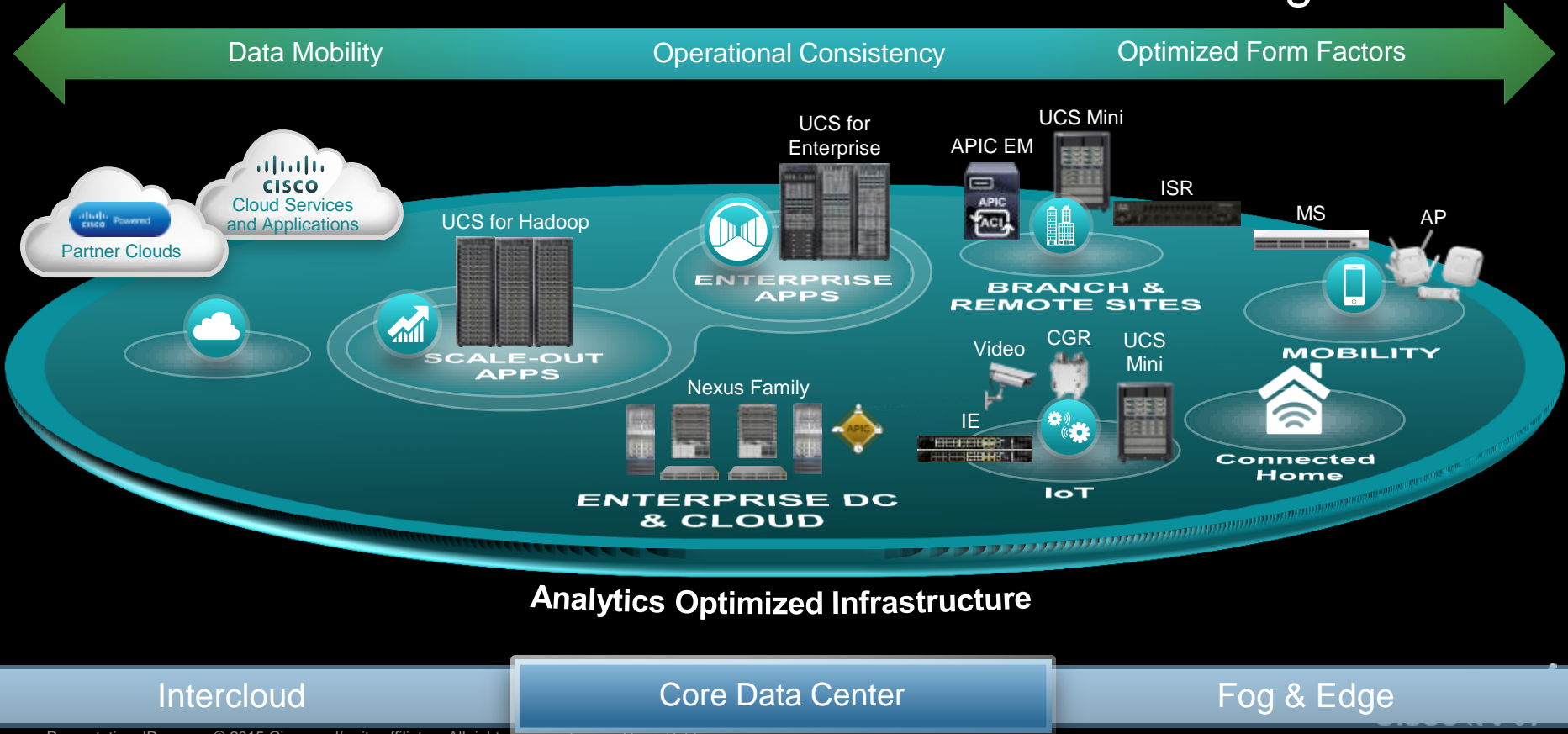
Analytics 2.0

Hours/Minutes/Seconds

Analytics 3.0

Seconds/Milliseconds

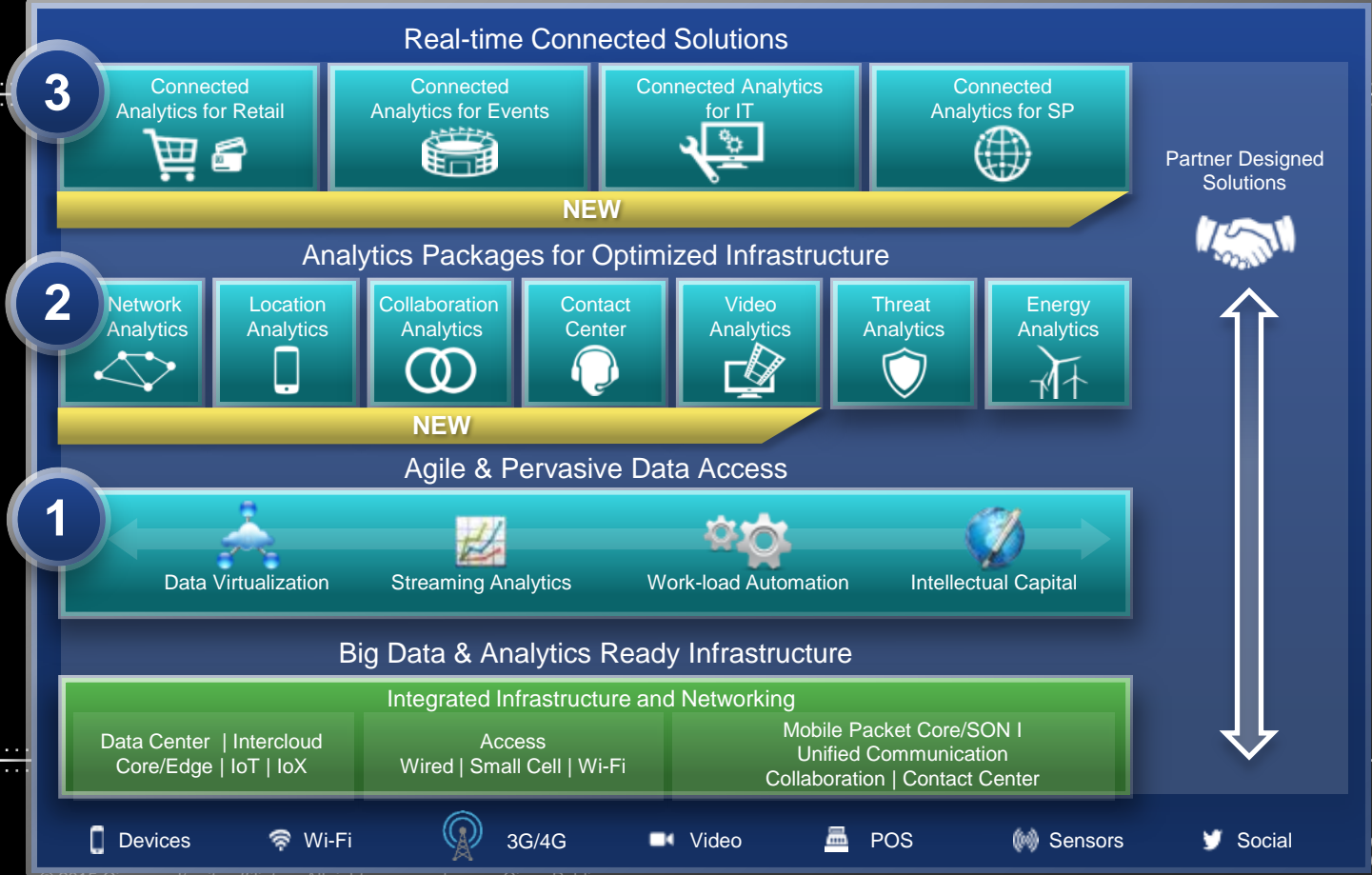
Only Cisco Delivers the Connected Infrastructure You Need to Reach from the Data Center to the Edge



Analytics Optimized Infrastructure

Cisco Connected Analytics for the Internet of Everything

Cisco Consulting Services



Data Science Services

Cisco Solution Support Services

Cisco Advanced Services





Big Box Retailer



37%
Increase
in Sales



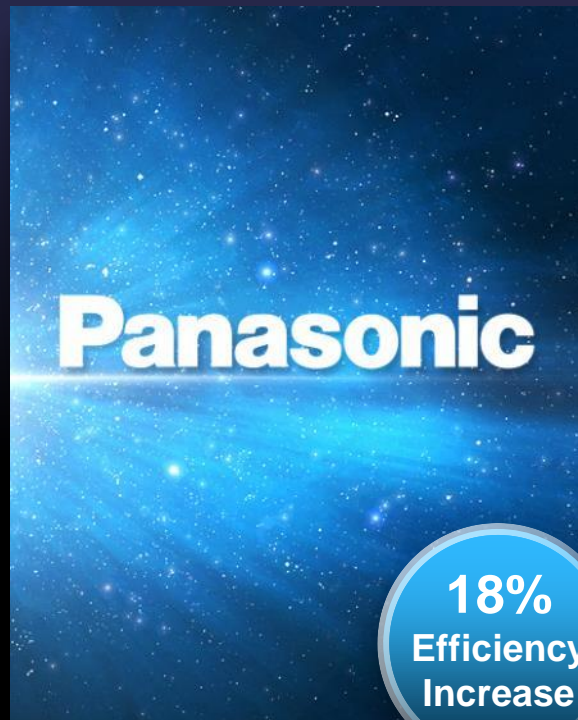
Norsk Toppfotball
League



20%
Reduction
in Waste



Panasonic



18%
Efficiency
Increase

From **Insight** to **Impact**

Your **Edge** is **Cisco**

**Agile
Pervasive
Data Access**

**Leverage
Existing
Infrastructure**

**Intercloud
Integration of
Public/Private
Cloud**

**Real-time
Streaming at
the Edge**

**Deep Domain
Infrastructure
Expertise**

**Broad
Ecosystem
of Partners**

Major industries are at a turning point

Manufacturing



46%

predict increased
near-shoring

Transportation



\$9B

lost by city of San Paolo
due to traffic, congestion,
lot productivity

Retail



21%

enter store but
are not able find their
target item

Smart Cities



2.4B

additional city
dwellers

Smart Connected



SCC Wi-Fi



SCC Parking



SCC Smart
Traffic



SCC Lighting



IoE Digital Fabric

Collect | Analyze | Visualize



Leach Heads
Mgt.



Traffic
Mgt.



Edge

Public
Transport

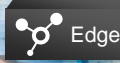


Street
Lighting



Edge

Security
Cameras



Edge

Parking



\$28M

in value over
10 years with
smart buses



City of
Barcelona

\$53M

in value over
10 years with
smart parking








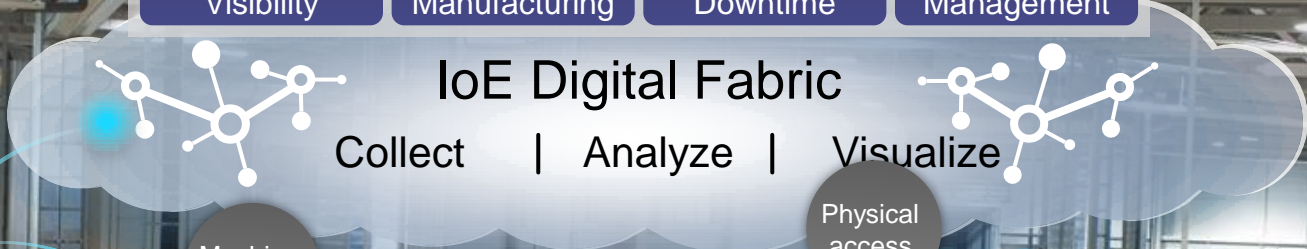
Port of Hamburg

44,000


new jobs created
with startup
innovation

Manufacturing

-  Business Visibility
-  Flexible Manufacturing
-  Near Zero Downtime
-  Energy Management



Onsite Machine as a Service



Machine health

Safety curtain

Physical access

Asset tracking

PLC

HMI

20x faster reconfiguration



50% reduced inventory



10% higher OEE

Transportation


Seamless
Connectivity


Train Control


Fleet
Management



Efficient
Maintenance

IoE Digital Fabric

Collect | Analyze | Visualize


Ticketing


Edge


Passengers


Train


Trackside
Signals


Bus


Trackside
Sensors


Traffic
Light


Edge

10-12% improved MTBF



20% higher ridership



21% lower CapEx

Transportation

Seamless Connectivity

Train Control

Fleet Management

Efficient Maintenance

IoE Digital Fabric

Collect | Analyze | Visualize

Bus

Train

Edge

Trackside Sensors

Trackside Signals

Traffic Light

Edge

Ticketing

Edge

Passengers

Edge

Edge

10-12% improved MTBF



20% higher ridership



21% lower CapEx

Retail

Omni-channel
Personalization

Employee
Productivity

Minimize
Out-of-stock

Shopper
Analytics

IoE Digital Fabric

Collect | Analyze | Visualize

Cameras

Suppliers

POS

Warehouse
Inventory

Shelves

Employees

Shopper
Paths

Edge

Edge

17% more store traffic



20% increase in
revenue/sq ft



15% higher productivity

Internet of Things Here. Now



Thank you.