Fast IT

Accelerating Innovation in the IoE Era

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The Internet of Everything: An Imperative To Innovate Faster

Converging Digital Disruptions = Unique Inflection Point

The Nexus of Forces

Gartner

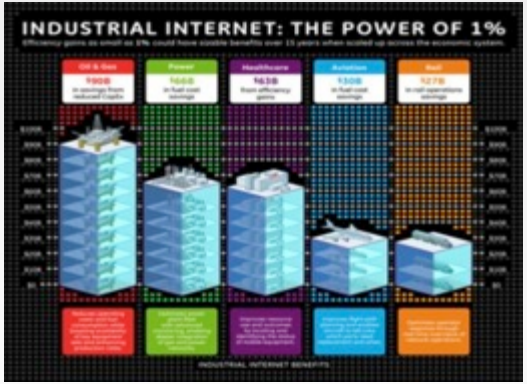
IoT = $1.9 trillion in 2020

The 3rd Platform

IDC

$462 billion in 2013 (22% of total ICT spending)

The Industrial Internet



GE

$10 trillion to $15 trillion over next 20 years

Sources: Gartner, 2013; IDC, 2012; GE, 2012

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

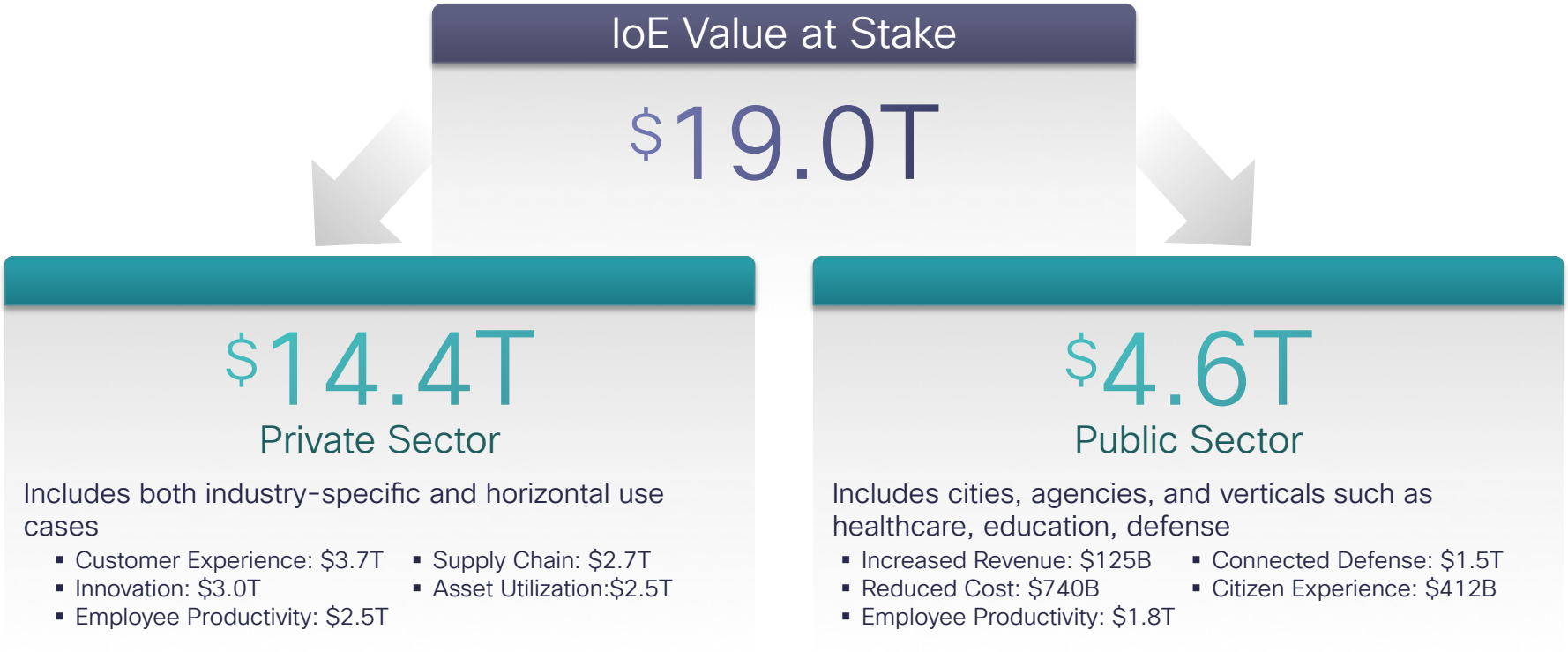
Data

Leveraging data into more useful information for decision-making

Things

Physical devices and objects connected to the Internet and each other for intelligent decision-making; often called Internet of Things (IoT)

Cisco's Earlier Research Showed IoE Represents $19 Trillion in Value over the Next Decade



Source: Cisco Consulting Services, 2013-14

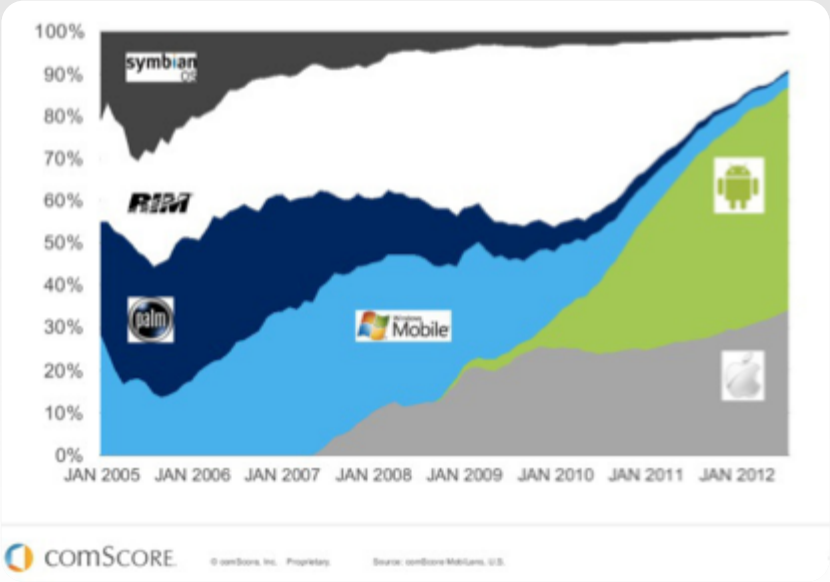
The Hallmark of IoE Is Disruption

New connections leveling the playing field, eliminating incumbent advantage

Market disruptions happening faster, and "winners take all"

Constant reinvention and faster innovation a matter of survival

Smartphone OS Market Share, 2005–12



Key Attributes of the IoE-Ready Organization

Hyper-Aware

- Sense the location, status, and context of company assets, customers
- Monitor customer sentiment and behaviors in real time
- Identify market and competitive changes

Predictive

- Anticipate market transitions
- Optimize performance of assets, operations
- Foresee and proactively address emerging security threats

Agile

- Achieve competitive differentiation by responding faster than rivals
- Foster disruptive innovation, build “platforms” for sustainable advantage
- Respond to rapidly evolving threats

Fast Innovation

Fast IT: The Solution for CIOs in the IoE Era

What Is Fast IT?

Fast IT is the IT operating model for the IoE era. It is what the CIO needs to do to drive true business transformation.

What CIOs Are Asking Cisco

A Three-Pronged Research Approach

1. Surveyed 1,400+ IT leaders in five countries
2. Conducted in-depth interviews with IT industry luminaries – analysts, academics, execs, practitioners
3. Drew upon lessons learned from IoE customer engagements to develop in-depth Fast IT economic model

Quantitative Survey: A Global Sweep of IT Leaders

- Questionnaire fielded by Global Market Insite (GMI), a division of Lightspeed Research
- 1,414 IT decision-makers interviewed across Brazil, Germany, India, U.K., and U.S.
- Data collected during March and April 2014
- Approximately half of respondents were executives (VP+), the remainder directors and senior managers
- 62% of companies interviewed were enterprises (1,000+ employees globally); the remainder were midsize firms (500-999 employees)
- Representative mix of industries

Expert Perspectives on Fast IT Dynamics

Jaime Capella
Managing Director,
Corporate Executive Board

Rebecca Jacoby
SVP and Chief Information Officer, Cisco

Zeus Kerravala
Principal Analyst,
ZK Research

Bob Laliberte
Senior Analyst,
ESG

Steve Lucas
President,
SAP Platform Solutions

Padmasree Warrior
Chief Technology and Strategy Officer, Cisco

Dr. George Westerman
Research Scientist, MIT Sloan Initiative on the Digital Economy

J.B. Wood
President and CEO,
Technology Services Industry Association

Watch the highlight reel of our interviews with Fast IT experts.

Key Challenges for the CIO

IoE Supercharges IT Complexity – and IT Challenges

- 89% of IT leaders consider complexity a key challenge
- Business wants to innovate, faster “time to capability”: BYOD, XaaS
- IT supplier relationships / value chain unbundling
- Business outcomes now the end goal
- **Implication: the old ways of doing things won’t work anymore**

Apps Are the Oxygen of Business (but They Can Smother IT)

- Application criticality, proliferation, interdependence all increasing – application health is key to competitiveness
- Mobility deepens the challenge: 138 billion apps downloaded in 2014
- IT organizations struggle to deploy enterprise applications at scale (rated challenge 7.5 / 10) – cumbersome processes, inflexible infrastructure
- **Implication: IT's inability to deploy and manage applications effectively is stifling innovation; businesses lack agility**

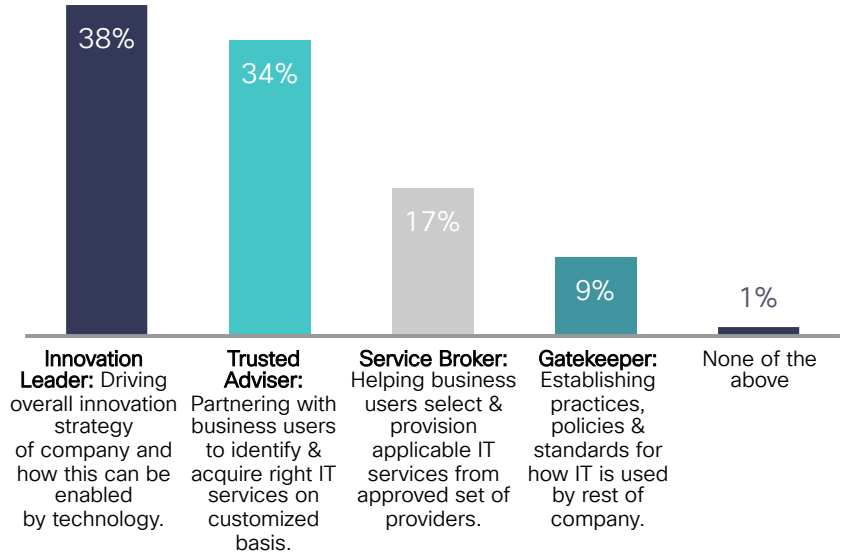
Lines of Business Take IT into Their Own Hands

- 46% of total IT spend originating outside corporate IT org – “shadow IT” is coming out of the shadows
- In IoE era, every company must now be a “tech company”; information technology is everybody’s business
- But …“sometimes the business doesn’t understand the risks it’s actually taking”
- **Implication: IoE demands a reimagined IT-LoB partnership in which innovation is a shared responsibility**

Service Orchestration Has Been the CIO's 'White Whale'

- Service orchestration is an elusive quest: aspiration of 90% of IT leaders, especially higher value-added roles …
- … but enabling business innovation is #1 area where IT leaders concede they are falling short of expectations
- **Implication: Despite best efforts, most IT orgs have a long way to go. Why?**

Envisioning IT's Service Orchestrator Role



N=1,414 Source: Cisco Consulting Services/GMI, April 2014

Fast IT – The Way Forward

IoE Demands a New Operating Model: Fast IT

- IT organizations *still* spend upwards of 80% “keeping the lights on”
- That is because IT infrastructure today is too complex, unwieldy, expensive
- As a result, innovation is pushed to the edges of the portfolio
- **Implication: Fast IT liberates IT from the management and financial burdens that stand in the way of transformation**

Fast IT: The Key Principles

SIMPLE

Simplify your infrastructure and integrate across silos

SMART

Create intelligent capabilities and services that fuel growth

SECURE

Defend against attacks and mitigate threats dynamically

A ‘Fabric of Clouds’ Provides the Platform for Change

- Hybrid IT architectures will predominate: public and private cloud, on- and off-prem, bare metal and hosted virtualization …
- … but organizations are not ready – 68% not deriving maximum value from cloud today
- Now, policy-based construct for cloud resources enables companies to unite clouds, shift workloads dynamically, keep data safe
- **Implication: The best IT orgs will leverage a diverse ecosystem of clouds to gain the right mix of scale and capability**

Intelligence ‘at the Edge’ Enables the Real-Time Business

- Striving for the “single source of truth” can actually handcuff IT organizations in driving insights
- But how best to harness information for “disruptive advantage”?
- IT must access two types of data: “data at rest” and “data in motion”
- Implication: Data in motion represents next competitive frontier in IoE era – intelligence “at the edge,” fog computing

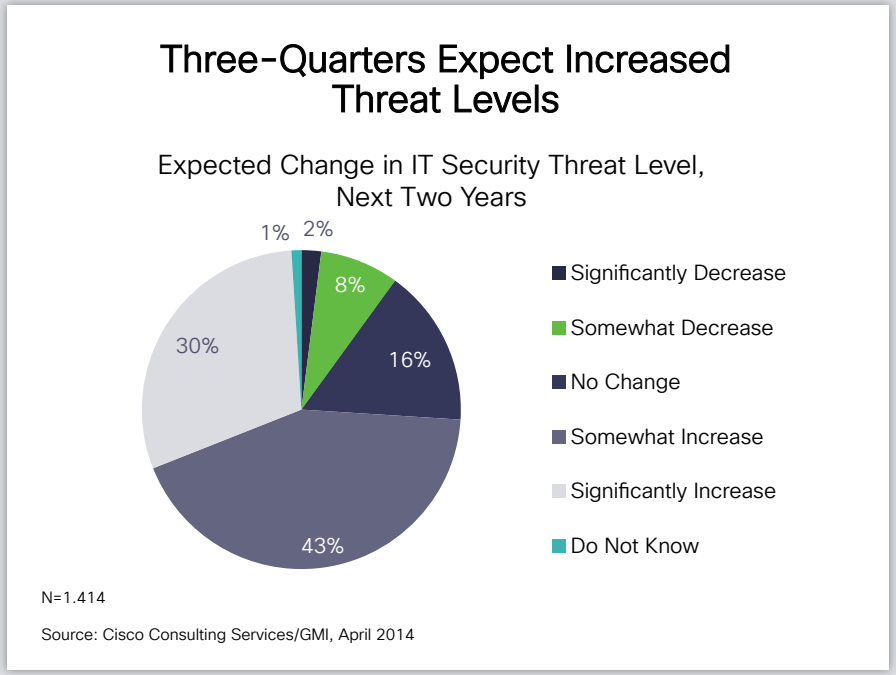
Seamless Mobility Will Create Exciting New Experiences for Users

- Users today expect a completely mobile experience where applications meet their needs on their devices
- Yet IT is still focused on a desktop-first, IT controlled model.
- Identity, location, context and access method are the underpinnings for customized services and experiences, combined with cloud for flexibility.
- **Implication: IT must treat mobile and fixed assets as one, and must begin to realize the opportunities of connected experiences as a key differentiator for the business**

Programmability and Automation Free IT from Costly Complexity

- Respondents believe infrastructure must (and will) evolve to a more agile model (83% agree) – programmable, automated, intelligent, analytics-based …
- … but organizations are not ready – Average enterprise application deployment time is now 4 months–far too long, far too expensive.
- Software based automation, with pool of infrastructure resources that can be moved and changed as needed, will become a priority to address this
- **Implication: Software-defined IT is a requirement for application agility and as an underpinning for cloud, security, and mobility**

In the IoE Era, the Security Perimeter Is Ever Expanding



- IT security has been governed by two key ideas: best-of-breed solutions and the security "perimeter"
- But new connections (expanding "attack surface"), IT-OT integration, and complexity of IoE render these approaches untenable
- Implication: IT must evolve to platform-based model for security where the network can detect and quarantine attacks across domains – automated threat detection

IT Can't Afford To Be Seen as the 'Department of No'

- IT leaders must focus on people and process – not just data and things (infrastructure)
- Move beyond siloed team model: #1 change management challenge is "IT is currently organized around technology areas rather than business outcomes"
- New IT workforce skills: business acumen, collaboration, service partner mentality
- Implication: IT transformation is a journey that CIOs must lead – cultural change is paramount


Security Perimeter Is Ever Expanding
‘Fabric of Clouds’
Applications Are the Oxygen of Business
‘Department of No’
IoE Demands a New Operating Model:
Fast IT
Seamless Mobility
Lines of Business Take IT into Their Own Hands
Intelligence ‘at the Edge’
Programmability and Automation

Cisco ACI – Enabling Fast IT!

Box-by-Box

Manual configuration

Security

QoS

Collaboration

Link Selection

Application Optimization

Operating

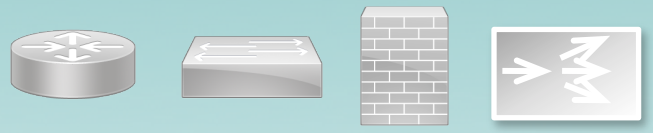
80%

Innovating

20%

Two Types of Languages

Infrastructure Language



- VLAN
- IP Address
- Subnets
- Firewalls
- Quality of Service
- Load Balancer
- Access Lists

Human Translator

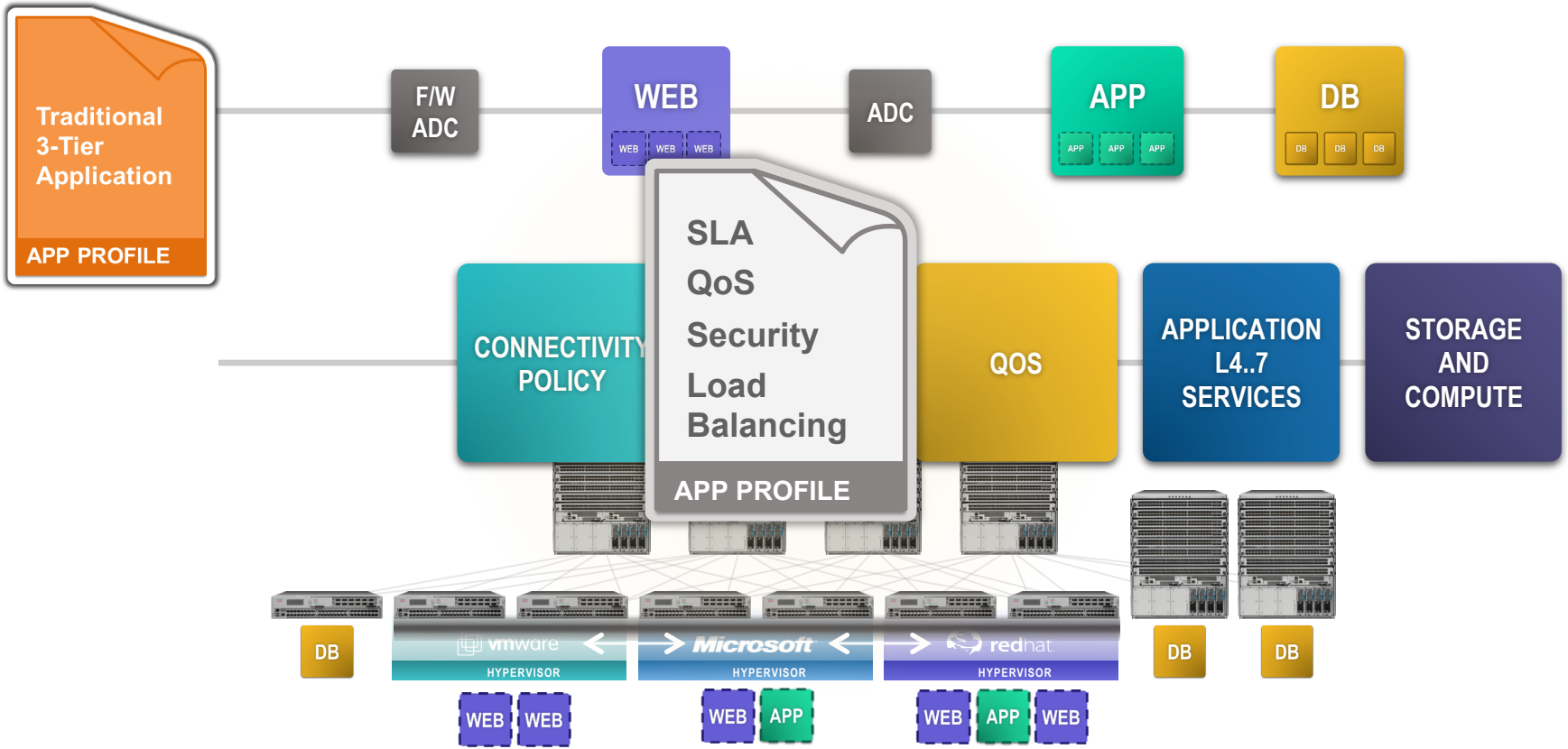
Application Language

Exchange hadoop SAP SharePoint

- Application Tier Policy and Dependencies
- Security Requirements
- Service Level Agreement
- Application Performance
- Compliance
- Geo Dependencies

Cisco ACI - Application Centric Infrastructure

Any Application, Anywhere–Physical and Virtual



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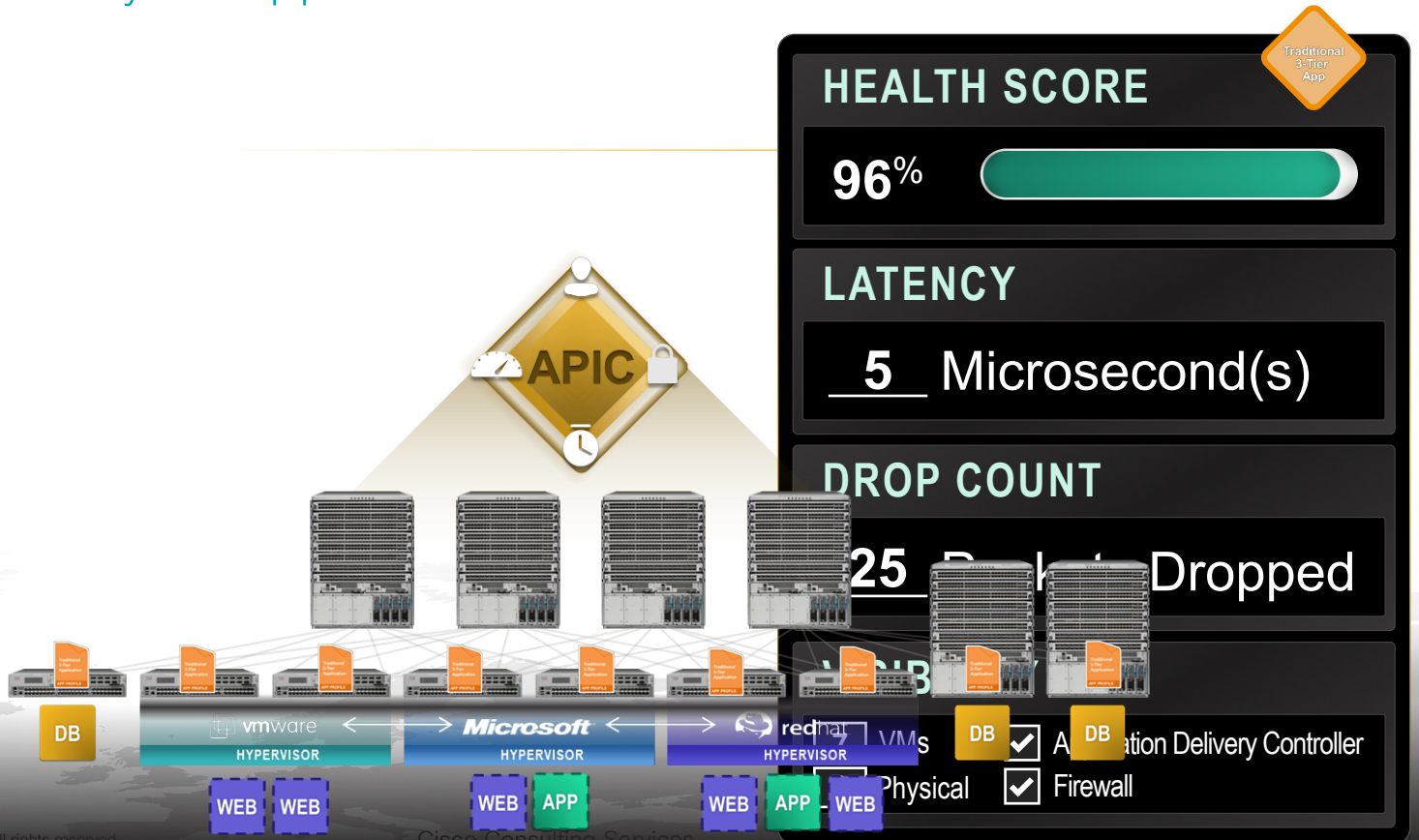
Cisco ACI – FULL Application visibility

A Single View of your Application in a distributed environment



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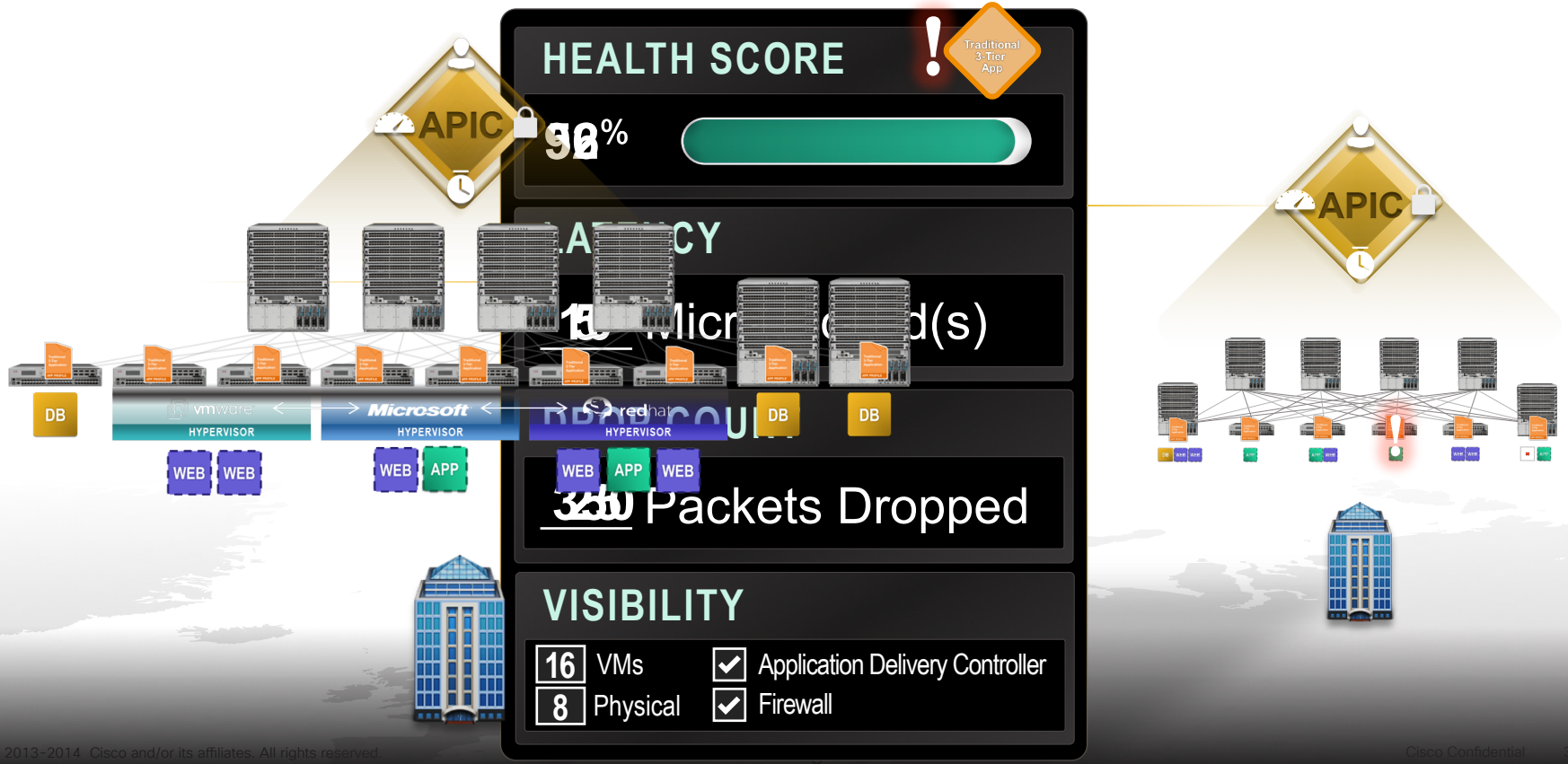
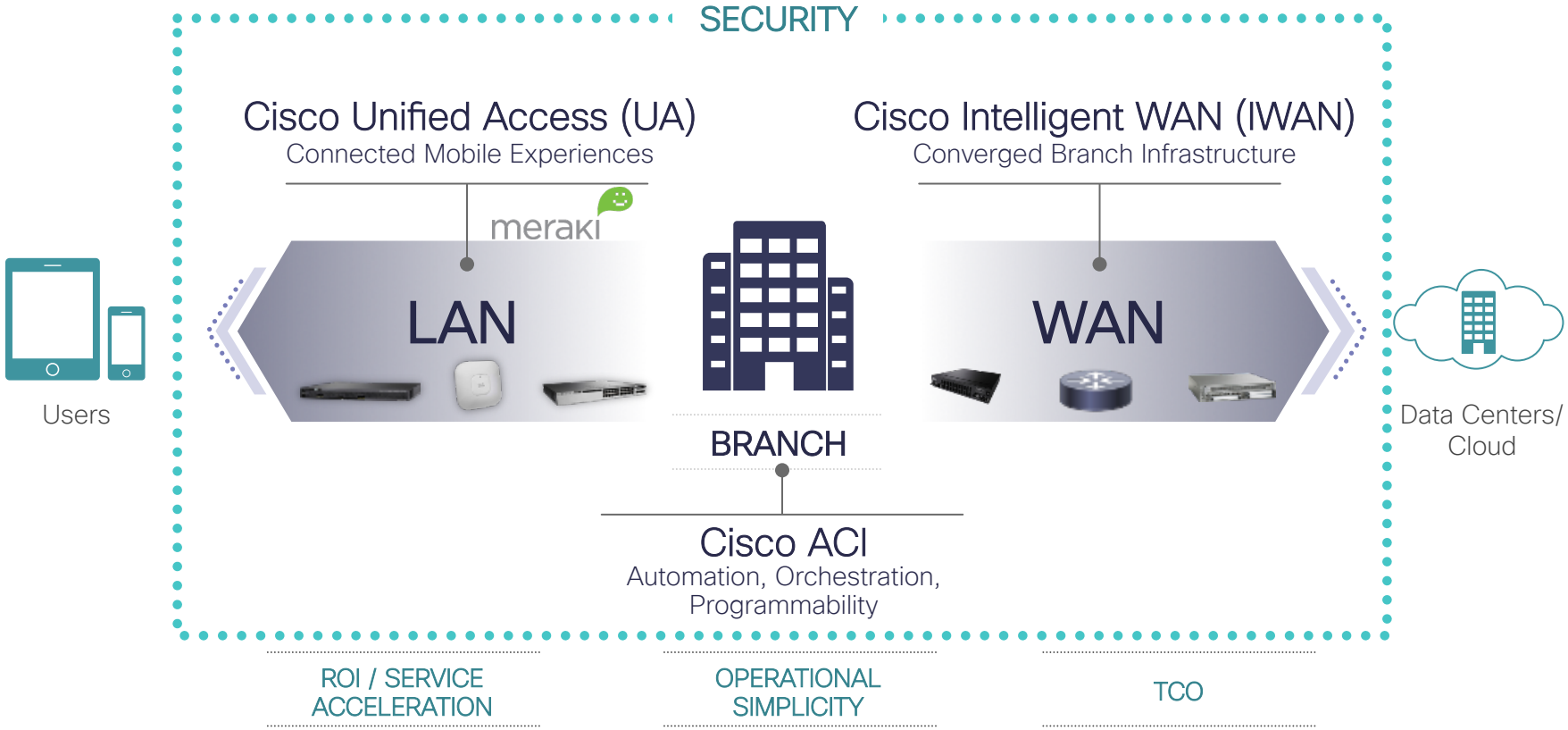


Cisco Confidential 35

Cisco ACI – Enterprise Networks: APIC-EM



Mask network complexity, Expose network intelligence

Cisco
Application Policy
Infrastructure Controller

Agile

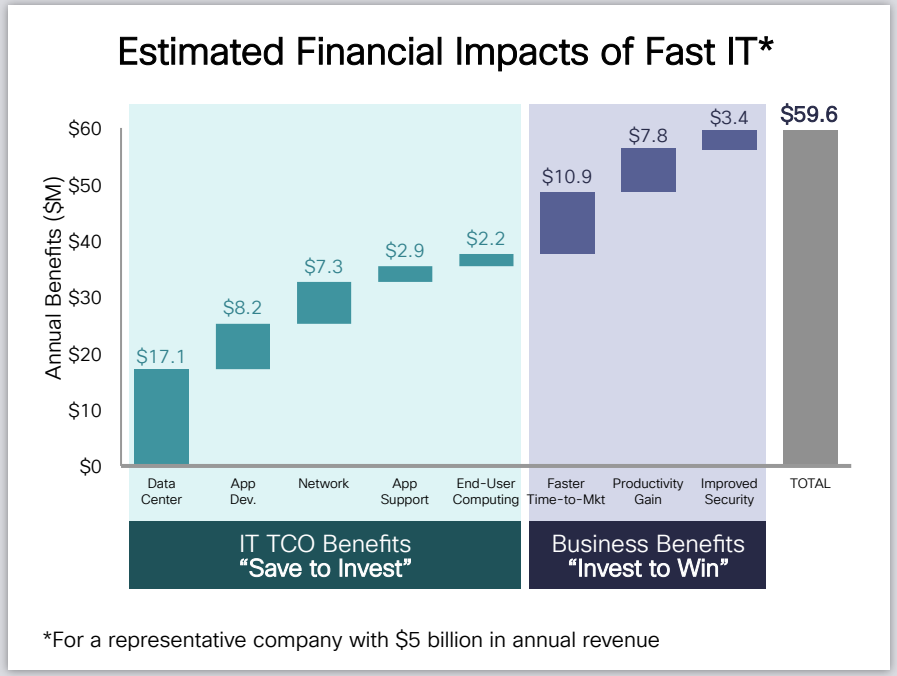
Simple

Investment Protection

Conclusion

Fast IT Promises Twice the Savings, Double the Innovation

- Substantial TCO gains in past 10 years, driven by automation, outsourcing, virtualization
- Now, next wave of savings is at hand with Fast IT: 20–25% TCO reduction
- < 20% of IT spend currently devoted to innovation
- Implication: Fast IT creates an "IoE dividend" — savings can be reinvested for innovation, doubling what IT spends on transformation



*For a representative company with $5 billion in annual revenue

Simple: Reduce Complexity To Lower Costs

1 Unify

Converge and optimize discrete IT domains (network, security, storage, compute) to manage as a “pool” of physical/virtual, mobile/fixed, on- and off-premise resources

2 Create Programmability

Enable open and programmable infrastructure, ready to respond intelligently to application requirements; accelerate provisioning of needed resources

3 Automate

Use abstraction and programmability of resources across domains to automate and orchestrate manual, error-prone, and labor-intensive IT tasks and workflows and to drive down costs

Smart: Capitalize on Intelligence for More Agile Operations

1 Drive Policy

Create centralized policy and management to streamline infrastructure changes, reduce errors, and drive repeatability

2 Tap Intelligence

Use infrastructure analytics to optimize operations end to end so the infrastructure can respond intelligently and automatically to changing application and security demands

3 Harness Data in Motion

Push compute and analytics capabilities to the network “edge”; correlate data in real time to respond to fast-moving changes

Secure: Defend Against Attacks Dynamically

1 Expand Security Perimeter

Protect against advanced malware and threats across all infrastructure and the entire security continuum; detect and quarantine cyberattacks

2 Improve Visibility

Through analytics, increase visibility around threats, users, behavior, and infrastructure

3 Respond Faster

Use identity- and context-based information and behavior to improve security response

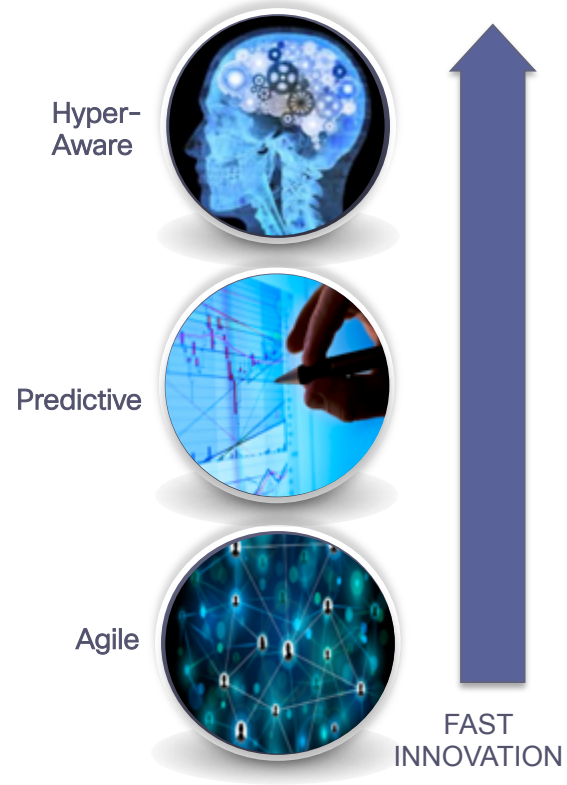
IT Transformation for Fast Innovation

IT Infrastructure Change (Data, Things)

- Simple
- Smart
- Secure

Organizational Change (People, Process)

- IT as a service / orchestration
- Business outcome focus
- Keep the lights on → innovation engine



Fast IT for Fast Innovation

Applications

Secure & nimble application lifecycle

POLICY DRIVEN

Fast IT

ANALYTICS

New intelligent experiences

PROGRAMMABILITY ABSTRACTION AUTOMATION VISIBILITY ORCHESTRATION

CLOUD MOBILITY

VIRTUALIZATION

Network Storage Compute Security

IoE Is Prompting IT to Support the Innovative Enterprise

New Business Models | Growth | Simple, Smart, and Secure

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Director, Enterprise Solutions

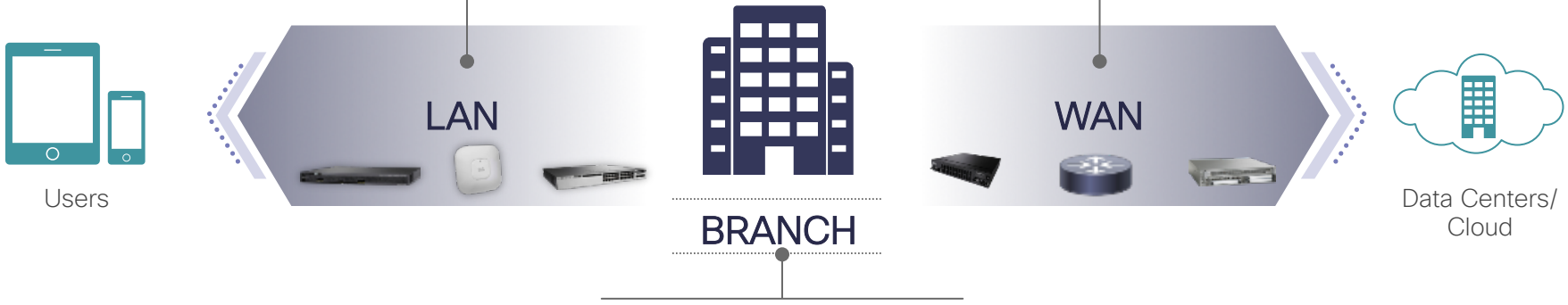
Latin America and The Caribbean

CISCO

Enabling a Next Generation Branch

High Density/High Performance Mobility
Location Based Service
Quality Voice and Video

High performance cloud apps
Direct Internet access, 3G/4G
App optimization over thin pipes



Automation, Orchestration
Business Intelligence/Analytics
Pervasive Security & Policy Enforcement