Internet2 CINO (IoT) Working Group Community Meeting

14 March 2016

Chairs
Ed Aractingi, Marshall University
Brian Stengel, University of Pittsburgh
Raj Veeramani, U Wisconsin-Madison

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1

Meeting Objectives

- Presentation from Cisco's Steve Domski: Connected Lighting
- Update on the DARPA RADICS proposal
- Update on the IoT Sandbox
- Introducing the IoT Risk Task Force

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Cisco Digital Ceiling
Smart, Secure, Seamlessly Connected Buildings

The New Digital Business/City/Country

Transform Processes and Business Models

Empower Workforce Efficiency & Innovation

Personalize Customer / Citizen Experience

Journey to Digital Business

Culture & Talent

Connect

Secure

Automate

Analyze

Top-Down

Hyper-Distributed IoT
Everything a Data Source

Expanded Attack Surface
Hacker Economy

Speed & Agility
New Operating Model

Actionable Data
Broad Visibility
Business Innovation

A Perfect Storm

New Workforce Experience

Intelligent Building

Technology Convergence

Smart Lighting Disruption

The Internet of Things

Lighting as a First Step to Creating a Digital Ceiling

Separate Building System Networks

Single Converged IP Network

Light Fixture Becomes a Data Source;
Broken Silos Enables Analytics

Single Converged IP Network for Building and IT Systems
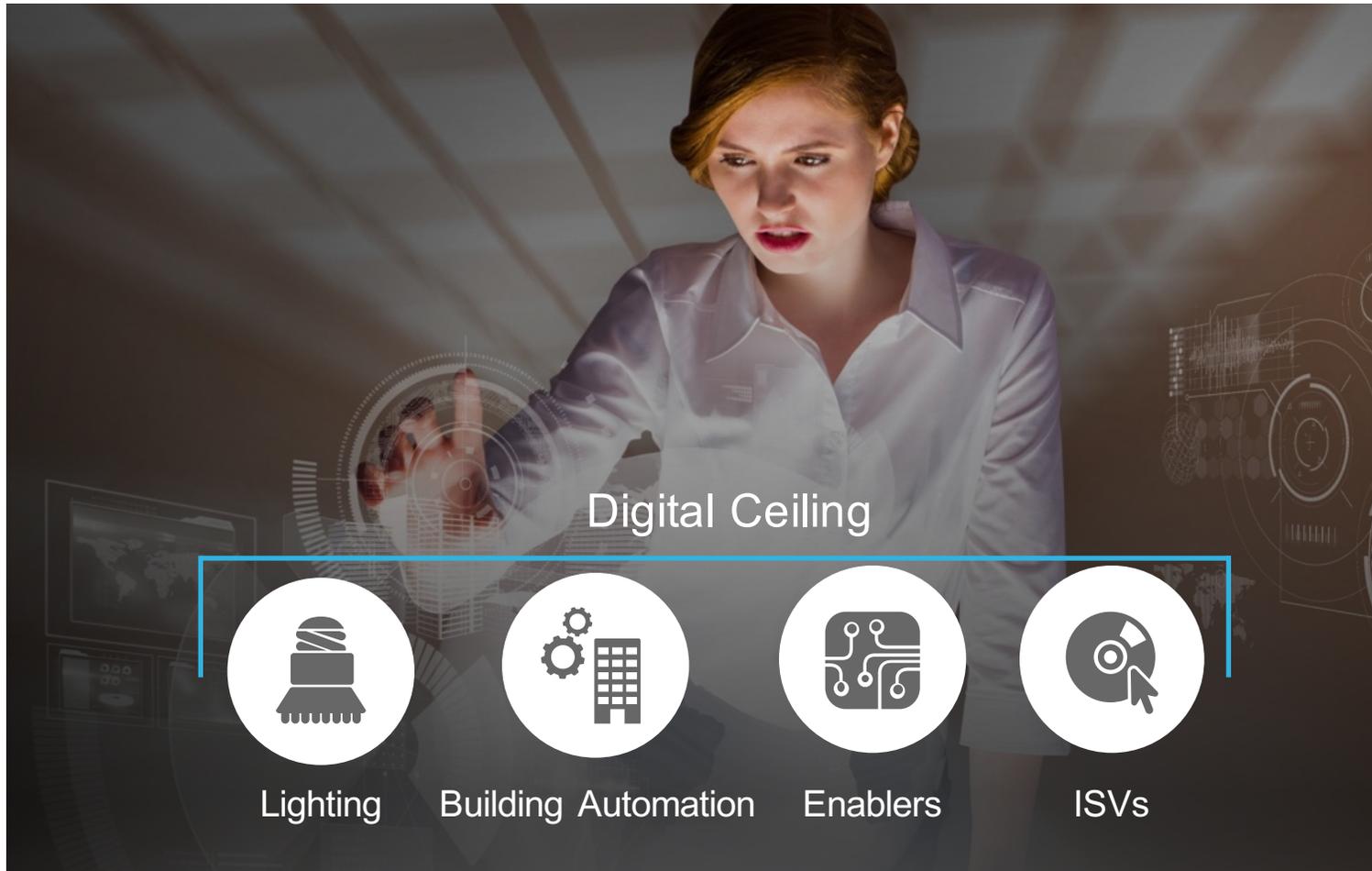
Digital Ceiling

Lighting Building Automation Enablers ISVs

Enables New User Experiences

Lower Total Costs

Enable Business Analytics

Cisco Digital Ceiling:

Smart, Secure, Seamlessly Connected Building Systems

Many Factors at Play
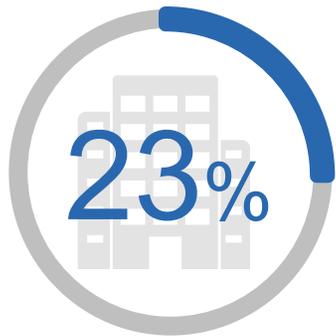
23%
Of All Global Electricity Use is Commercial Buildings (~60% HVAC, 15% lighting)

40%
Of Building Operational Expense is Keeping the Lights On
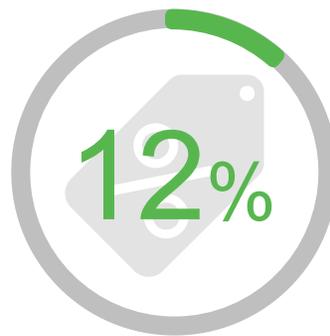
12%
LED Prices Dropping 12% YOY

20%
Power Efficiency Improving ~20% YOY

50%
LED Share of Fixtures in Offices Will Grow to >50% by 2020

More Building Services Are Moving to IP Networks

Digital Ceiling Experience: Corporate Workplace

Enhance
User
Experience

Lower
Total Costs

Enable
Business
Analytics

Bright, Productive Workplace

Enhance User Experience

Custom User Experience

Light Intensity and Color

Room Temperature

Preset Phone & Video Profile

Adapt Environment to Personal Preferences
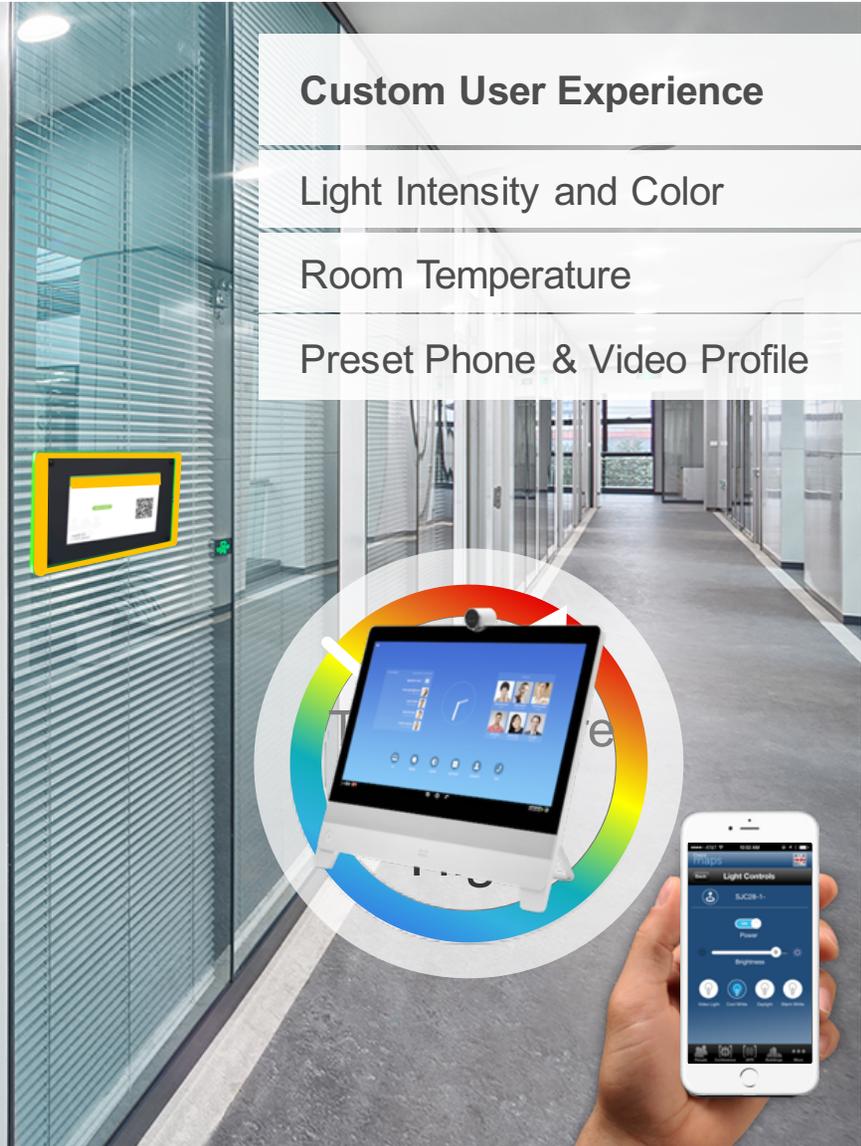
Lower Costs

Harvest Daylight

Granular, Fixture-level Visibility and Control

Centrally Manage Lights Via the Network

>50% More Energy Saving Over Traditional Methods

Over **50%** Energy savings

Save Energy, Lower Costs

Enable Business Analytics

Analyze Traffic Patterns

Reallocate Space

Improve Security

Workspace Optimization with Presence Sensors

Cisco Digital Ceiling Building Blocks

Growing Eco-system

Solution being tested to work with leading manufacturers' solutions:

- LED Lights
- Applications
- HVAC
- Security
- Building Control Systems
- Sensors… and more

Protocols/APIs

- CoAP
- IP/UDP/TCPIP
- LLDP
- Open Standards for Maximum Interoperability
- … and more

Validated Architecture

- Supported by Cisco Validated Design

Optimized Cisco Switches

- Easy Configuration
- Perpetual PoE
- Cisco UPOE
- Cisco Enterprise Security
- … and more

Open Information Model

- Establishes a Common Language for Things to Communicate over CoAP

Cisco Digital Ceiling

Applications

Control Systems

Network Infrastructure

Sensors

Intelligent Driver

LED fixtures/ Components

Smart Spaces

API

API

Building Management

Energy Management

Lighting Control

Network Infrastructure
Cisco Switches
- CoAP, PoE, PoE+, UPOE
- Security with ISE
- Converge disparate networks (HVAC, metering, lighting) into one IP network

Digital Ceiling

Lighting

Sensors (Light, Motion, CO_2, BTLE)

Building Automation

HVAC

IP Video Surveillance Camera

Wi-Fi Access Point

Common Phases of IoT Journey

Phase 1

IP

IP Convergence of
Building Infrastructure

Phase 2

Smart
HVAC

Smart
Lighting

......

IoT – enabled Smart
Control and Applications

Smart Services with Analytics

Phase 3

Smart
Space

Smart
Meeting

......

Building
systems

IT System

Workspace
Zone

Digital Workplace
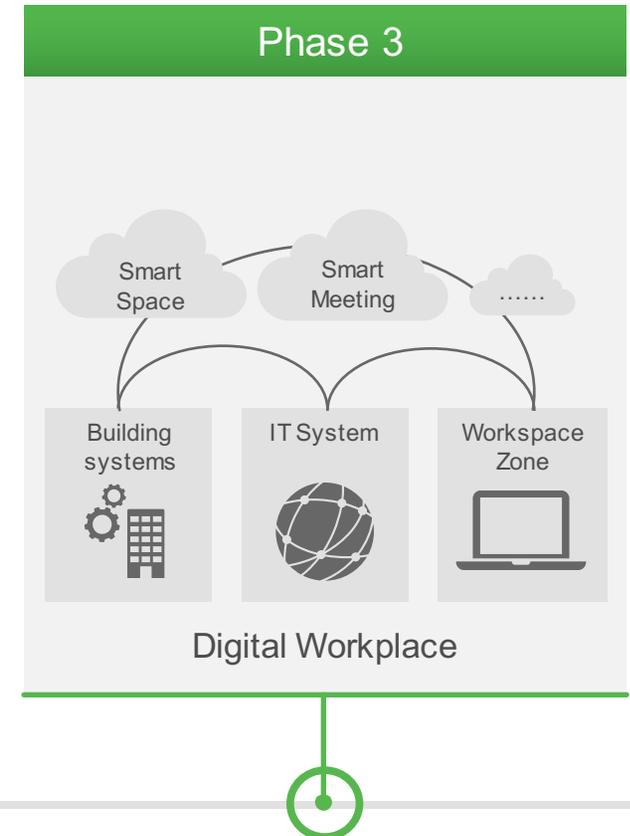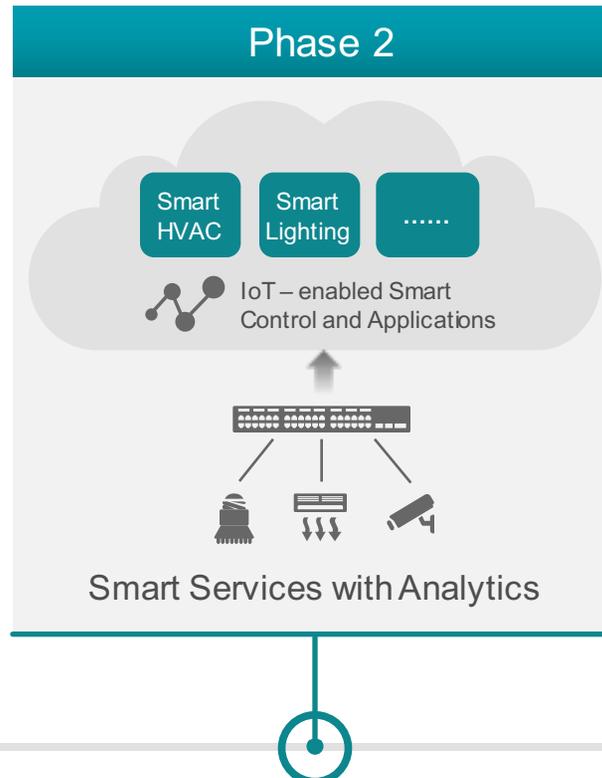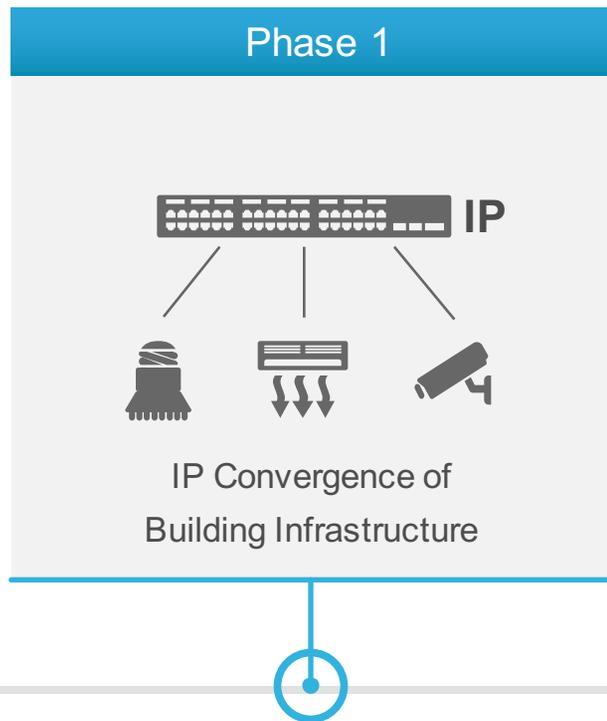
Digital Ceiling

Lighting

Building Automation

Enablers

ISVs

Building Systems are Moving to an IP Network

Enabling New Use Cases and Higher Levels of Efficiency

Act Now!
Stay ahead embracing the new paradigm

Cisco Digital Ceiling:
Smart, Secure, Seamlessly Connected Building Systems

Contact us at digitalceiling@cisco.com or
Visit http://www.cisco/go/digitalceiling

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Questions & Answers…
Thank You
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