



Smart Building Maturity Model

Building a Roadmap to Real Estate Optimization

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Dad & Husband



Business Owner



Nerd

cisco *Live!*



Andrew Lu

Director Product Management

Cisco



Carpenter



Tinkerer



Uncertified
Electrician

CISCO *Live!*



Webex App

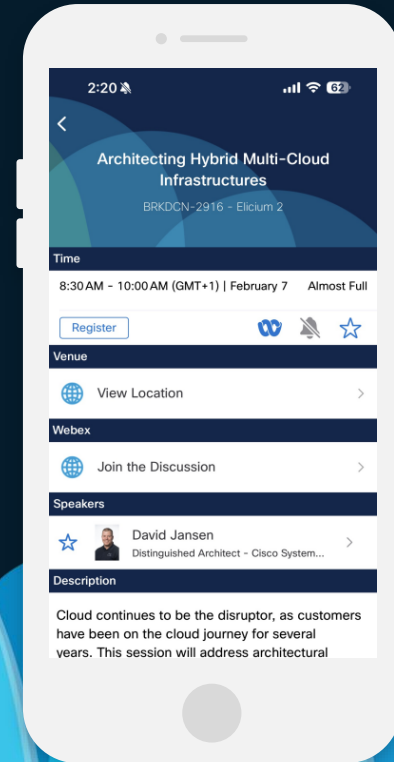
Questions?

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How

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- 2 Click “Join the Discussion”
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- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until February 28, 2025.





Agenda

- What is smart?
- Why does it matter?
- Maturity Model
- Outcome Alignment
- Foundational Technologies
- 150 Holborn Panel



**Gartner
IT Score**



 **C2M2**

Cybersecurity Capability
Maturity Model



Well established
industry frameworks

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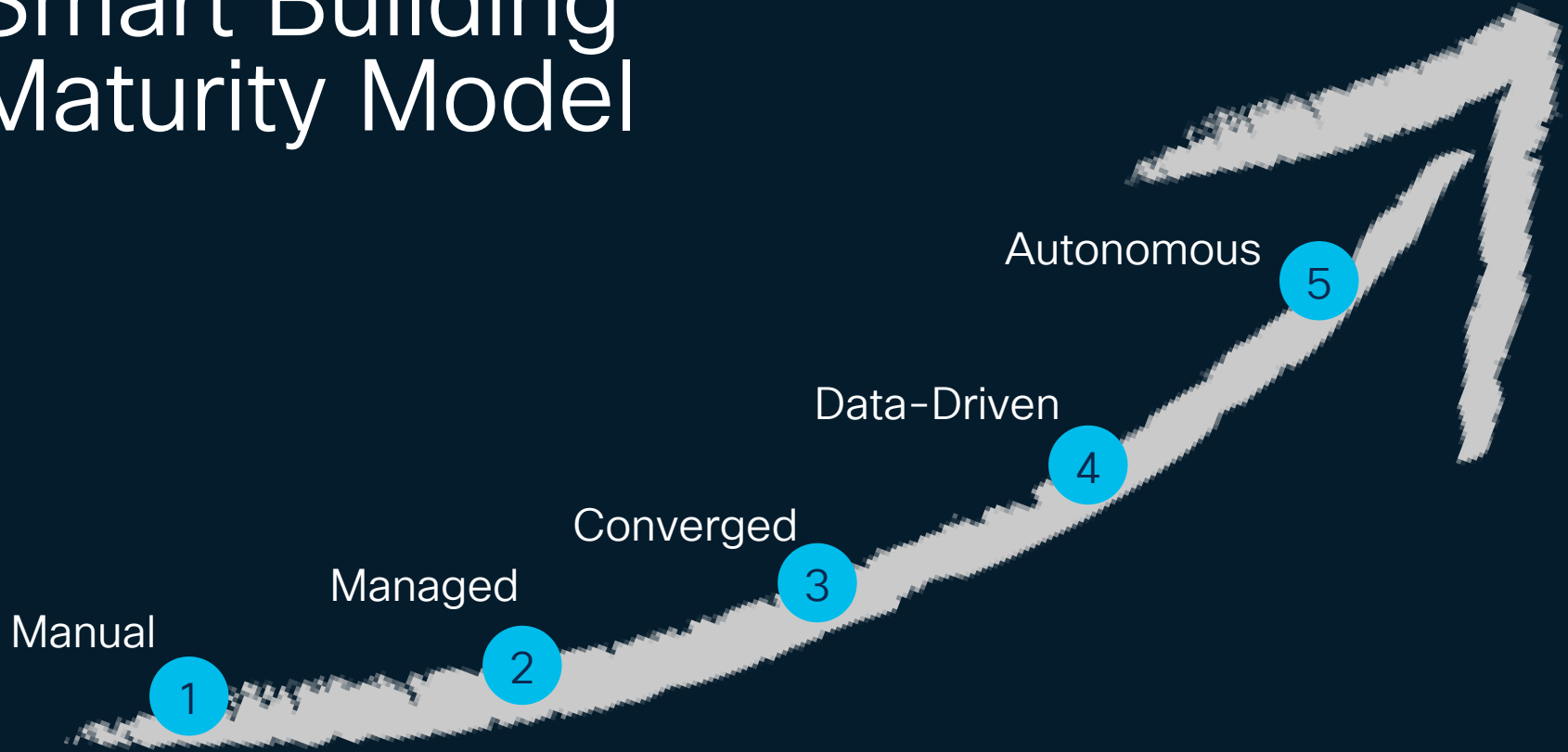
Buildings have Domain Fragmentation

Key Workplace Trends

We are seeing renewed investment in Workplace Transformation



Smart Building Maturity Model



Manual

Basic building systems operate independently with no integration.

- Manual control and monitoring
- Basic HVAC, lighting, and security systems
- Simple data collection



Managed

Systems have basic integrations enabling basic automation.

- Discrete IT & OT networks
- Automated control of isolated building systems
- Centralized monitoring of security systems
- Basic energy management practices
- Data collection and reporting



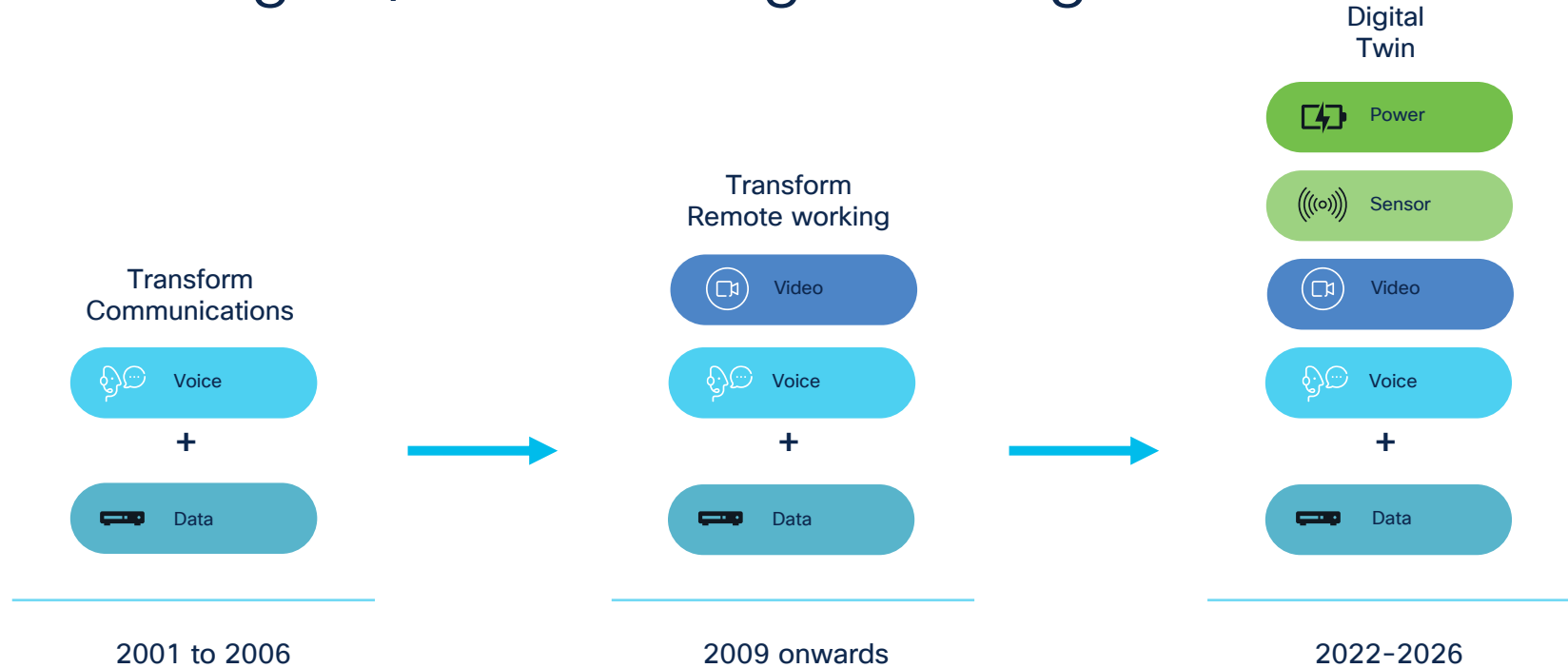
Converged

Building systems are interconnected with defined processes for optimization and energy efficiency.

- Connected IT & OT networks
- Integrated energy management with real-time monitoring
- Enhanced data analytics for building performance
- Convergence of standards & protocols
- Advanced automation and control systems



Embracing IT / OT convergence...again



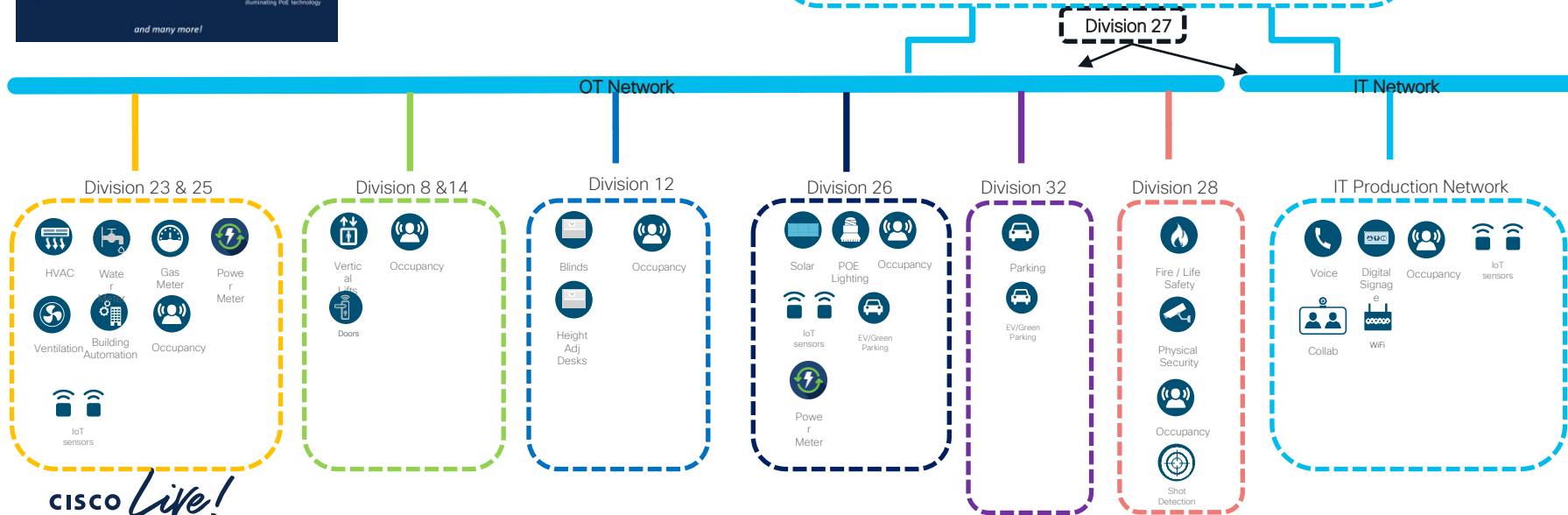
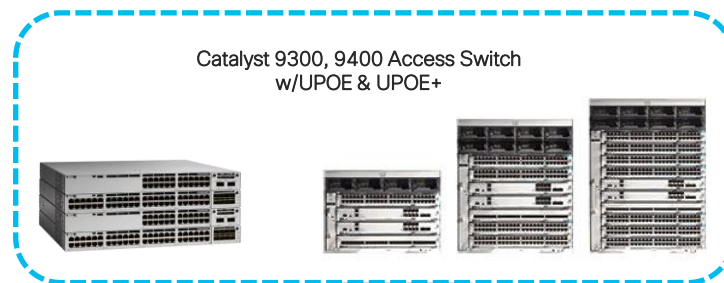
A common backbone breaks down data silos

Connected Devices by Construction Division



Largest ecosystem for solutions

- Industry's largest ecosystem, 30+ partners till date.
- Simplified onboarding using 'Cisco APIs' and 'End-point profiles'
- Two new solutions available for Pilot
 - Occupancy sensing
 - Right-now density metrics



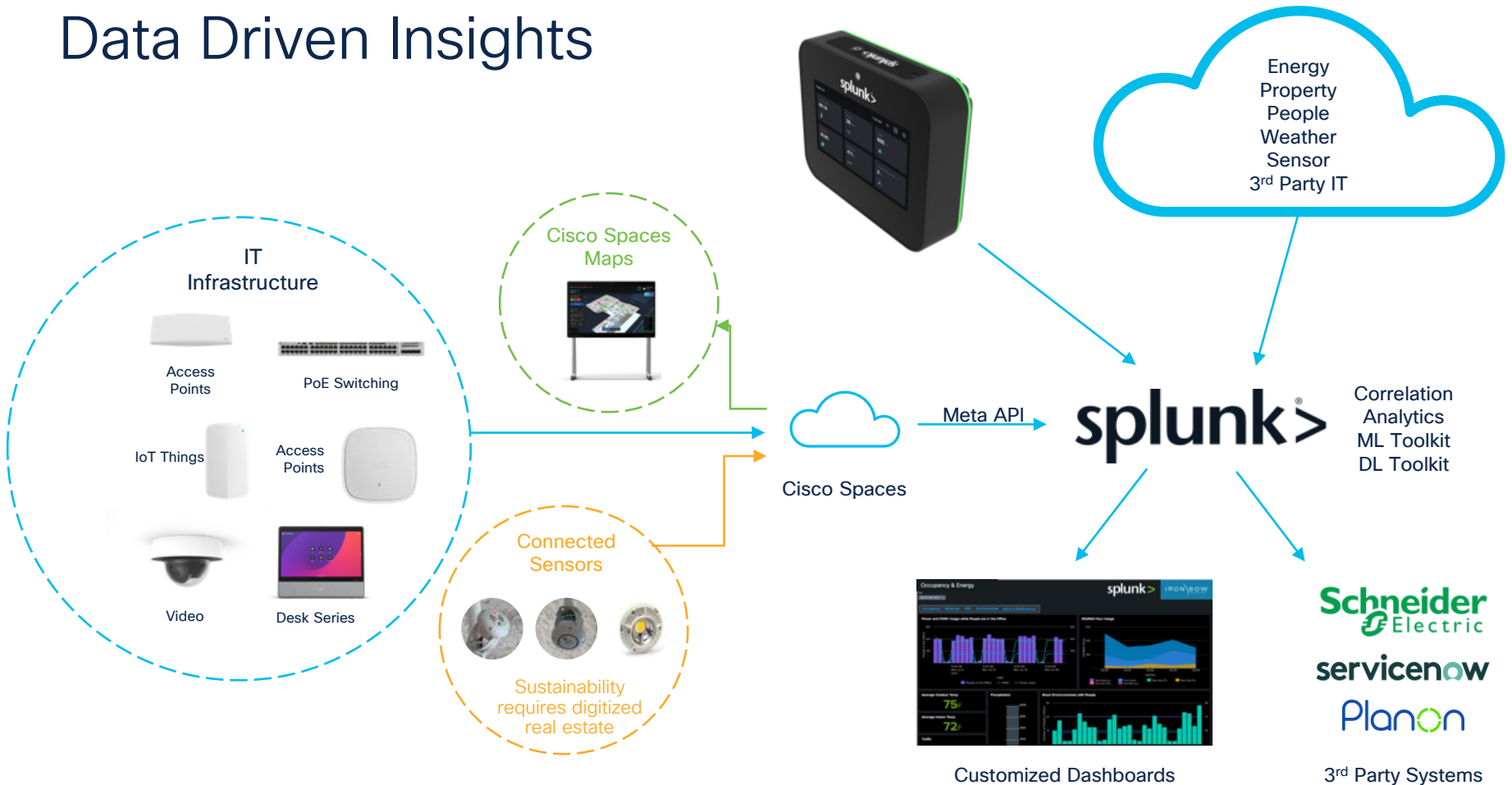
Data-Driven

Building performance is quantitatively managed with extensive use of data analytics and IoT devices.

- Comprehensive building management system
- Integration of IoT sensors for real-time data collection
- Advanced energy optimization and sustainability practices
- Predictive and prescriptive maintenance
- Enhanced user experience through smart interfaces



Data Driven Insights



CISCO Live!

UTILITIES

Power - Usage

119Kwh ↑5

Water - Usage

82ltrs ↑1

INFRASTRUCTURE

HVAC - Status

Status

Warming

Lifts - Availability

99%

Toilets - Availability

99%

NETWORKING

Network - Availability

99% ↑1

Wifi - Availability

95% ↓3

ENVIRONMENTAL

Temperature

23°C

Co2

821ppm

Humidity

60%

TVOC

15pmu

PM2.5

37µg/m³

LIGHTING

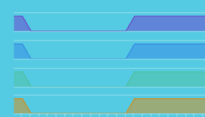
Availability

85%

Faulty

5

Per floor Lighting



OCCUPANCY

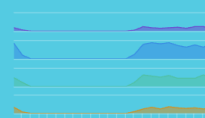
Total occupancy

59

Total occupancy

70

Per floor Occupancy



Uptime
98%



Uptime
99%



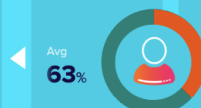
Uptime
96%



Avg
85%



Avg
85%



Avg
63%

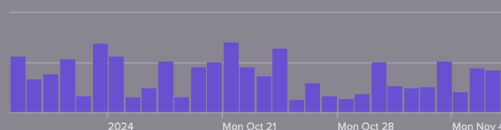
Monthly Cost - Total

11,374\$

Daily costs

1.0K

0.5K



Incidents

4

Incidents

07-11-2024 15:55:54

07-11-2024 16:42:19

07-11-2024 16:24:16

07-11-2024 16:12:45

Level 2 - Wifi AP outage

Critical

Reception - Door unlock event

Warning

Level 4 - Lighting faulty

High

HVAC outage

Resolved

Autonomous

Building operates at peak efficiency with fully integrated systems and automated continuous improvement processes.

- Fully autonomous building operations
- AI-driven energy management and sustainability practices
- Reinforcement learning and adaptation from all building systems
- Personalized user experiences through adaptive interfaces
- Holistic integration with smart grid and external systems



slido

Please download and install the
Slido app on all computers you
use



Where are your buildings today?

ⓘ Start presenting to display the poll results on this slide.

Manual

1

Managed

2

Converged

3

Data-Driven

4

Autonomous

5

Model Domains

Battery of questions per domain

Furniture



HVAC



Communication



Physical Security



Lighting



Window
Coverings



Electrical



Does your organization have a strategy for workspace flexibility?

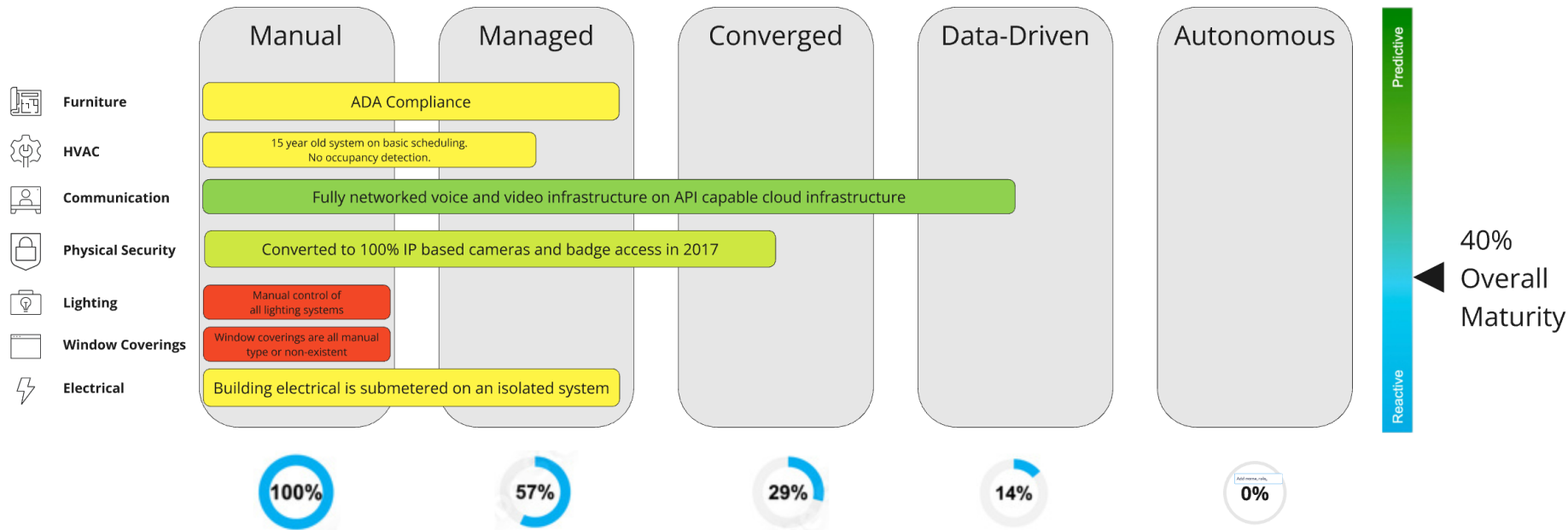
- a) Workspaces are 100% fixed
- b) Manual adjustment on request to meet EAA requirements
- c) Workspaces provide adjustability and height adjustable desks and ergonomic chairs may be provided by default.
- d) Workspaces evolve based on utilization data and spaces understand occupancy.
- e) Workspaces are assigned based on individual user preferences or requirements.
- f) Work environment reconfigures itself based on individual user preferences or last configuration.

Current State Score

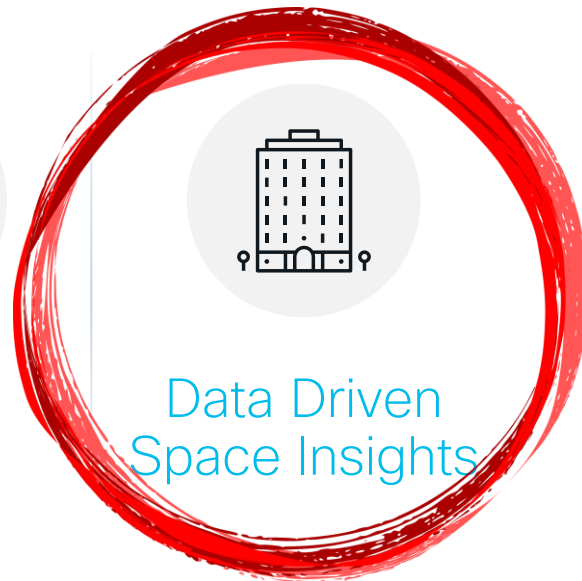
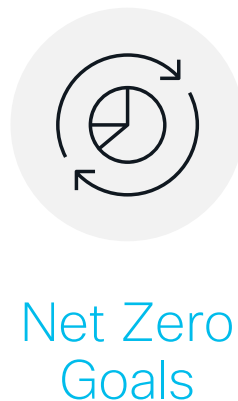
Cisco Smart Building Maturity Model for Lumon Industries



Current state as of Jan 14, 2025



Customer Outcomes.

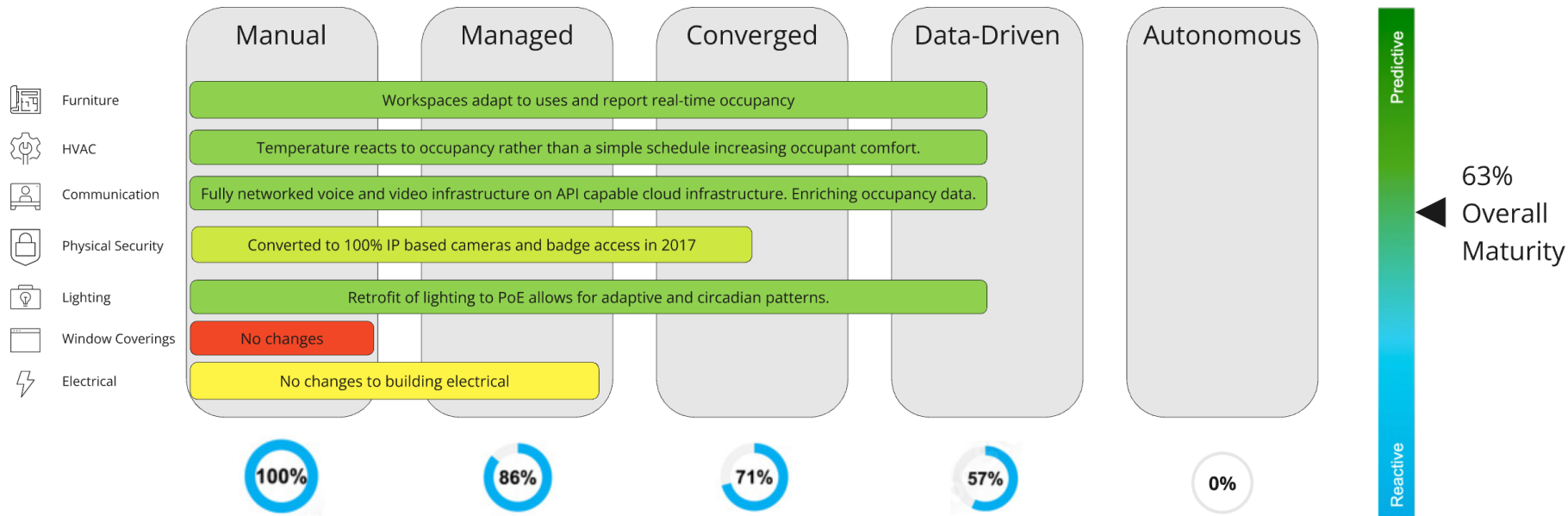


Future State

Cisco Smart Building Maturity Model for Lumon Industries



Future state to meet business goals



Technology Gap Assessment



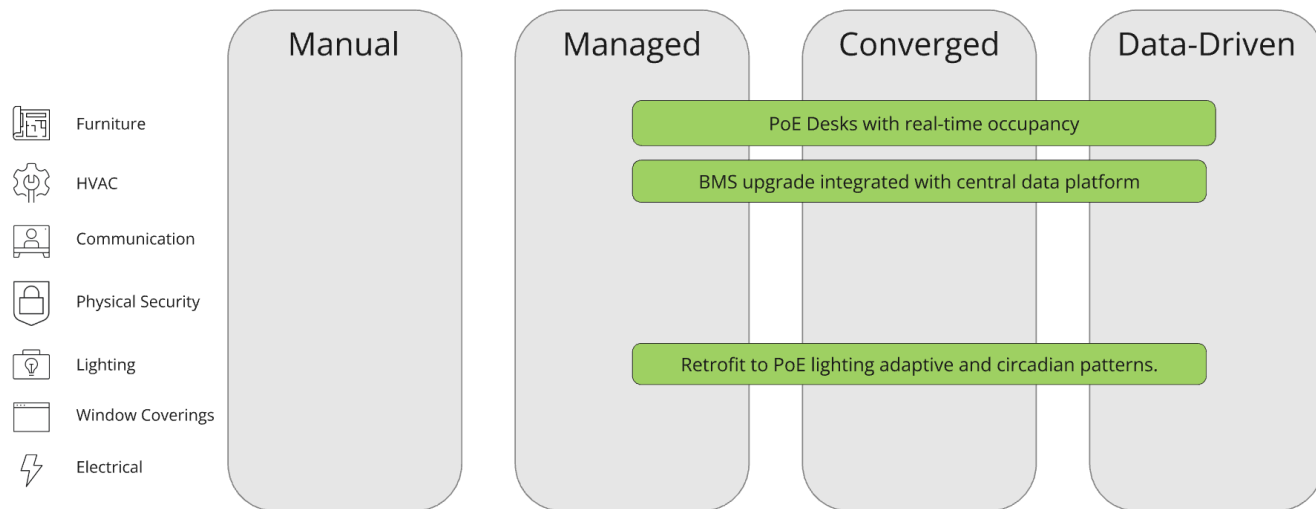
Frictionless
Experiences



Data Driven
Space Insights

Cisco Smart Building Maturity Model for Lumon Industries

LUMON



Foundational Technologies

The Power of PoE

Cisco is a leader in PoE innovation for over twenty years

By deploying 90W Power over Ethernet (PoE) through the Cisco Catalyst portfolio, organizations can consolidate power and data networks, reduce embodied carbon from the use of steel conduits and copper wiring and improve energy conversion efficiency.



Simple Cabling, Less Materials and Cost



On Par with AC in Overall Energy Efficiency



More Efficient with Renewable Energy

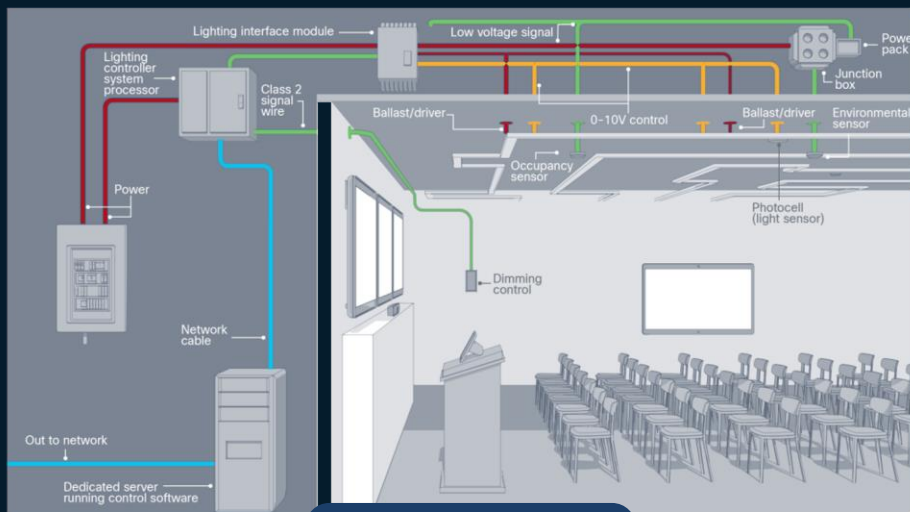


Granular Visibility and Control

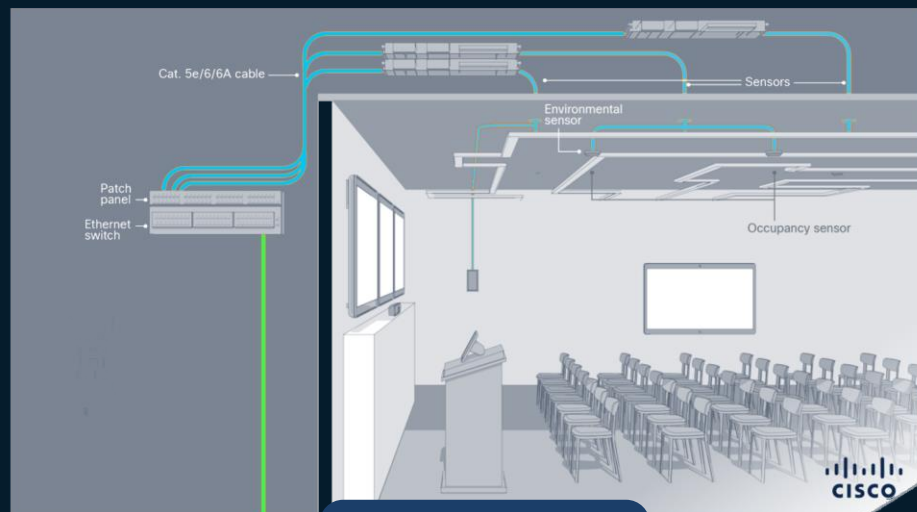


Large and Growing Eco System

The Simplicity of PoE



BEFORE



AFTER

Meraki MT sensors

ThinLabs 43" PoE
Display

ThinLabs PoE
Computer

Cisco C9200CX
Switches Powered
by FMP

Panduit FMP
Receiver

Panduit FMP
Transmitter



POE lighting

PoE Blinds

ThinLabs PoE
Monitors + Compute
(1 link for all three)

PoE Desk

Cisco C9300 Switch



Engineering Alliances

Accelerating Technology Innovation Ecosystems

Get More Information Here

Technical Validation for Solutions | Standardization & Scale | Integrates SolutionsPlus

Retrofit for Air-Cooled Data Centers

Options for liquid cooling solutions without data center layout changes

Immersion Cooling for Data Centers

Options to solve data center hot spots or enable new high-efficiency facilities

Touch Safe High-Voltage Power Backhaul

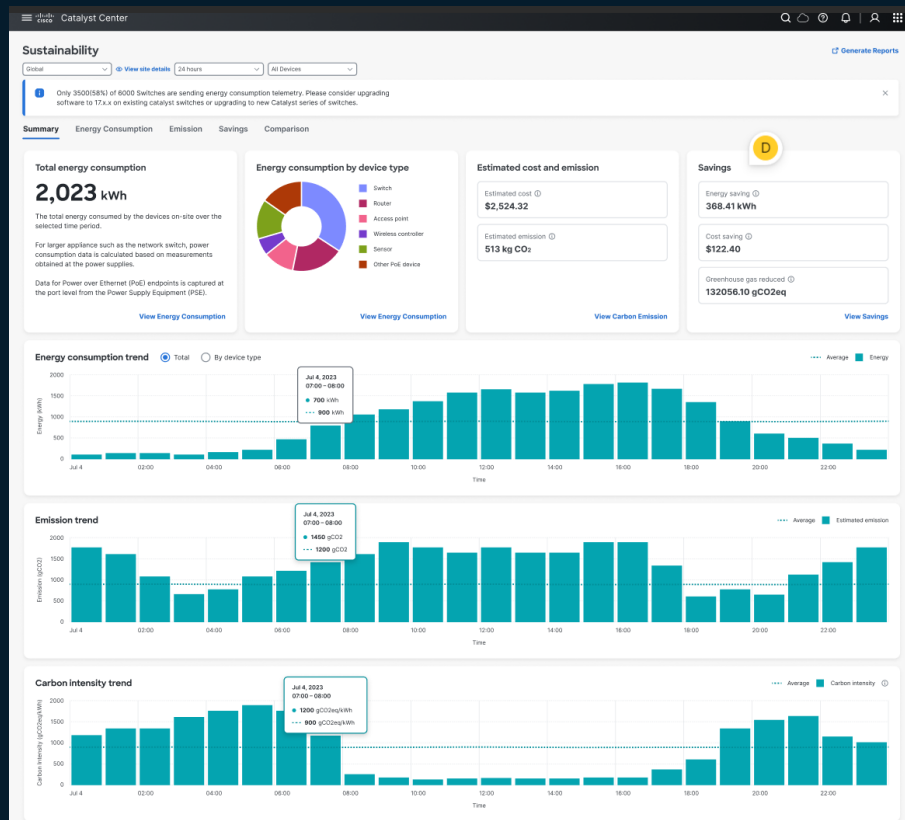
Options to reduce cost (energy, labor, material) while increasing safety in smart buildings

Low-Voltage Last Mile Power Distribution

Using PoE for lighting, signage, and office equipment through last-mile infrastructure



Catalyst Center Energy Management Dashboard

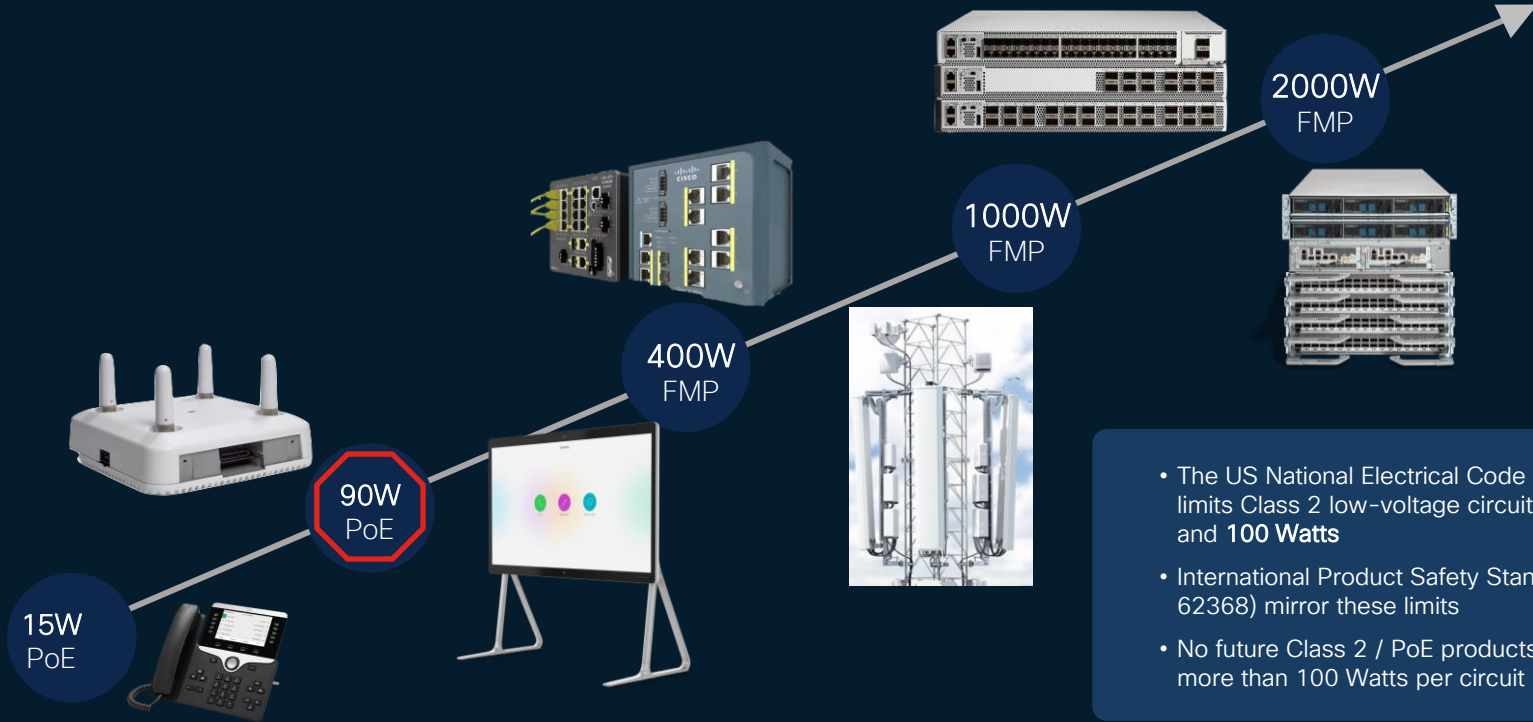


- Metrics: Energy Consumption, Estimated Cost, Emissions, Carbon Intensity and Energy Mix
- Coverage: Network Switches and PoE devices*
- Roadmap:
 - Data & Visibility ✓
 - Insights & Analytics**
 - Control**
 - Automation**

** Not committed roadmap items, subject to delays & cancellations

Thinking Beyond PoE with Fault Managed Power

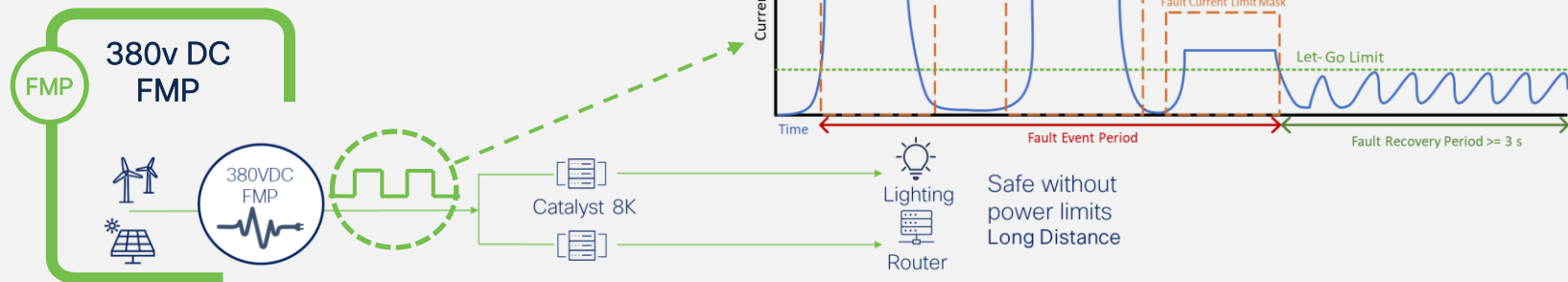
90W PoE Brings Us To The End Of the Road



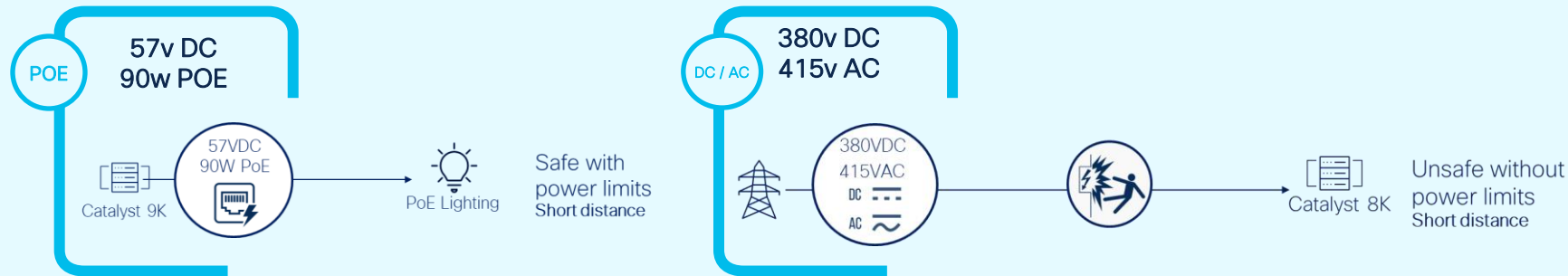
- The US National Electrical Code (NEC) in limits Class 2 low-voltage circuits to **60 Volts** and **100 Watts**
- International Product Safety Standards (IEC 62368) mirror these limits
- No future Class 2 / PoE products possible at more than 100 Watts per circuit

FMP /Class 4 Power: High Power Safe Transmission

Long Distance / Touch Safe Power - FMP



Short Distance / Unsafe Power



How FMP is Deployed Today

Current AC Deployment

Utility Grid



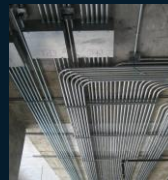
Distribution Switches in Electrical Room



Conductors in Riser Conduits thru Building



Sub-Panels and more Conduits



Electrical Load



Current FMP deployment

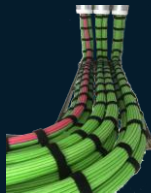
Utility Grid



FMP Server in Electrical Room



Structured cables throughout the building (0.75 mm2 twisted pairs)



300-W
FMP

FMP Receiver close to the load



10VDC
200VAC
200VDC

Electrical Load



FMP Value to the Customer



Higher Voltage

Lowers Amperage for the same power

- Smaller Conductor
- Low Transmission Loss
- Further Reach



Direct Current

Reduced conversion loss with local generation / storage



Intelligent

- Self-healing distribution network
- Enhanced telemetry & control vs. traditional AC



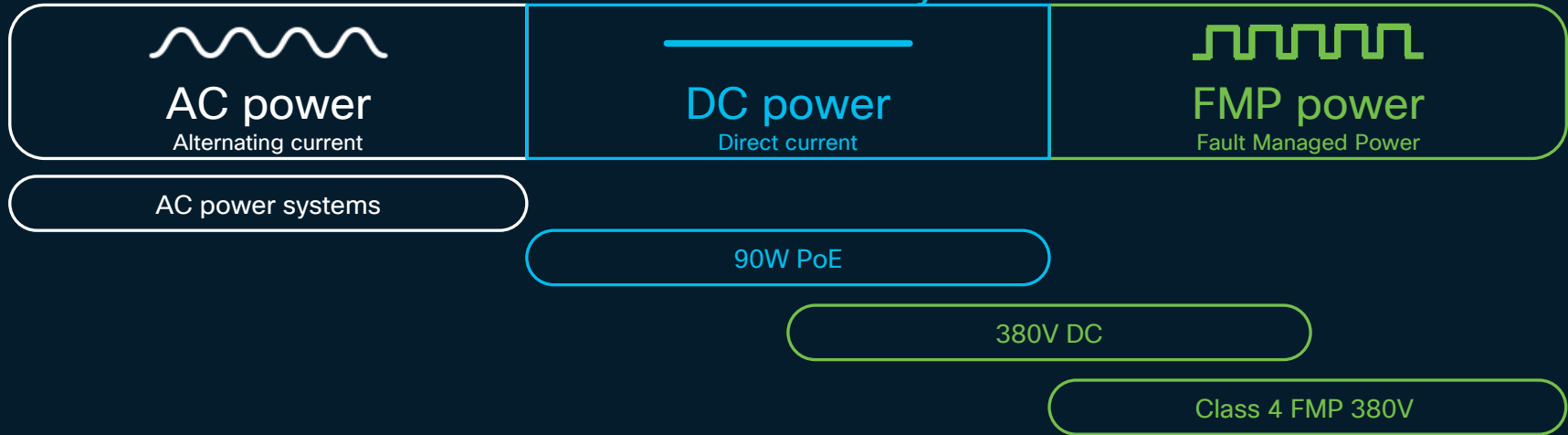
Touch Safe

- CAPEX Neutral with AC Infrastructure*
 - Low Voltage structured cabling practice
 - 5~20% faster to install with no conduits
- Safer and cheaper to maintain and work with

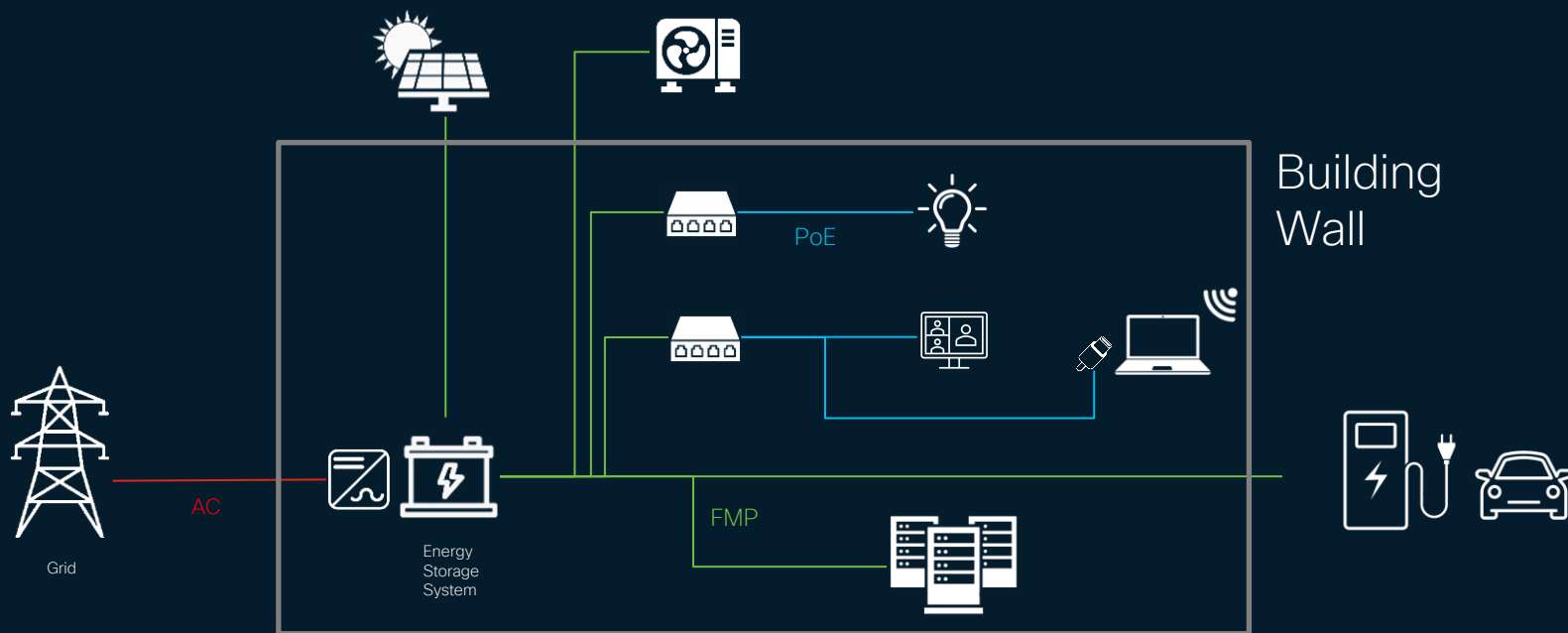
* Based on early case studies

Evolution of Energy Networking

Creating networks that connect and distribute energy more simply, safely, and sustainably



FMP + PoE Completes an End-to-End Safe DC Microgrid



Today

End of CY25

LVDC



Catalyst 9K switches and IE switches

HVDC

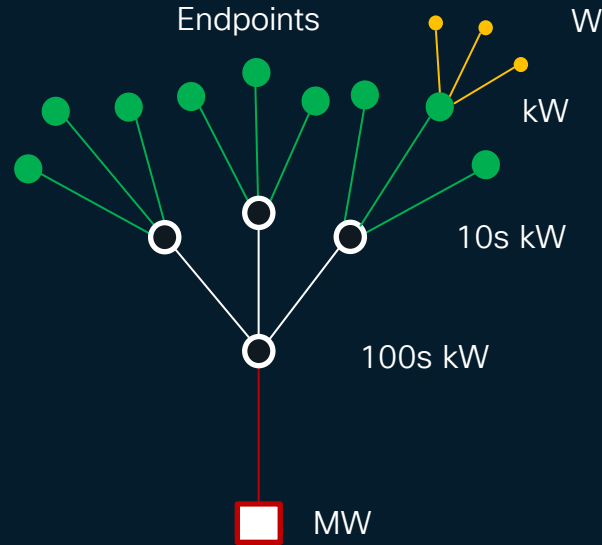


Catalyst 9200CX
Compact Switches

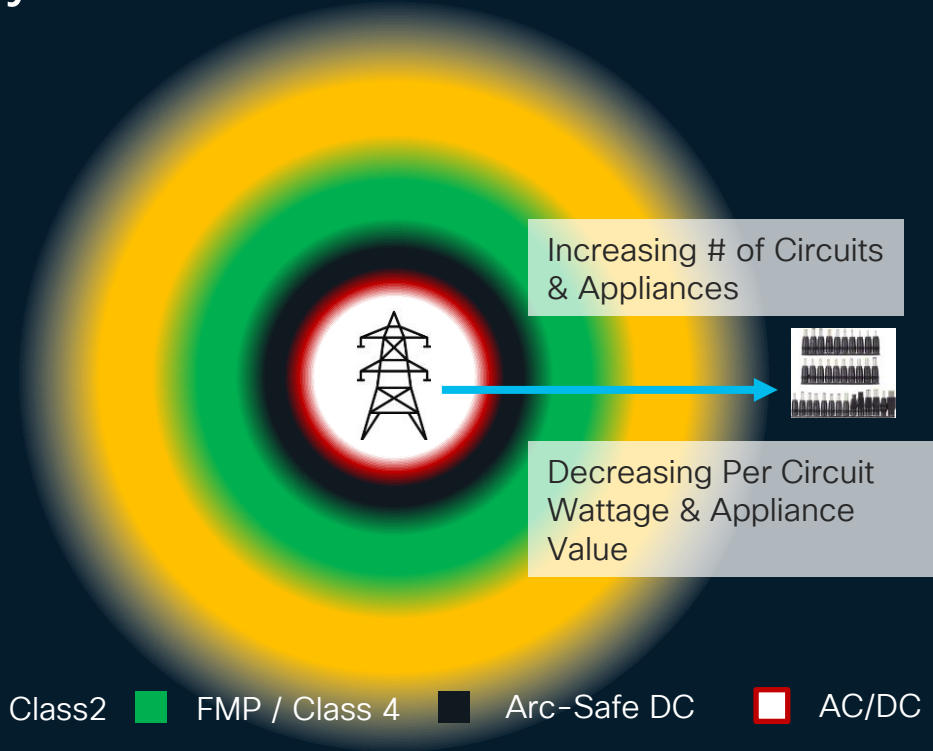


Catalyst 9300/9300X Switches

DC Tech Donut of Viability

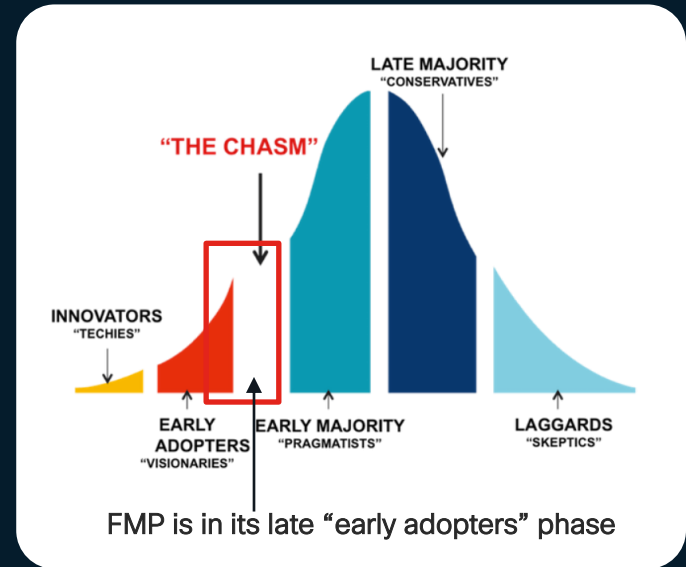


Power distribution network




Fault Managed Power Current Landscape

- Select high-profile deployments
- Many vendors are still privately held, leading to lack of tracking / reports
- Large Cisco customers are starting to deploy and ask for proof-of-concept / pilot projects related to energy efficiency and data center systems (power and cooling)
- Cisco holds 52 Patents in Fault Managed Power with additional 35 pending.
- Cisco holds President position on FMP Alliance and Board seat for National Electrical Manufacturing Association



Design & Construction Process

Where we typically
engage with IT



Move technology preference



Accelerating Net Zero Journey
Digitize Real Estate
Attract and Retain Top Talent
Health & Wellbeing

} Real Estate
Facilities
HR
ESG



Moto Shakoory
CEO



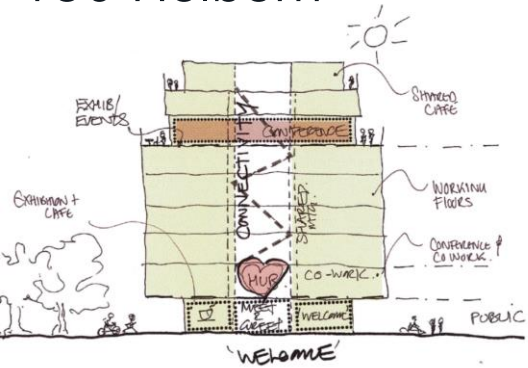
Daniel Cope
Senior Smart Building Consultant



Westley Thurley
European Real Estate Segment Leader



150 Holborn



Client, Architect,
Consultant and Occupier



MEP Engineering OT
& BMS Partner



Secure CNS
Systems Integrator



Data Visualisation
& Digital Consulting



Secure, Converged
Connectivity Platform



Project 150: Market-Leading Players



Team of Industry Leading Specialists in
Their Field Delivering:

INTELLIGENT READY BUILDINGS (IRB)



- Secure Converged Network Infrastructure
- New Solutions (e.g. POE Applications, Energy Networking, Cisco Spaces, Wi-Fi 7)
- Lifecycle Support



- OT Infrastructure & Products
- Building Technology & System Integration
- Lifecycle Support



- Smart Digital Building Consultancy
- Unified Data Platform(s) - PARA & PARA-Lite
- Lifecycle Managed Services



- Consultancy Services (IT) Cisco Partner
- IT Network Design & Delivery
- Lifecycle Support



- Multifaceted AEC, Design and Consulting Services
- Wider Digital Advisory
- Route-to-Market (UK & Global)

Webex App

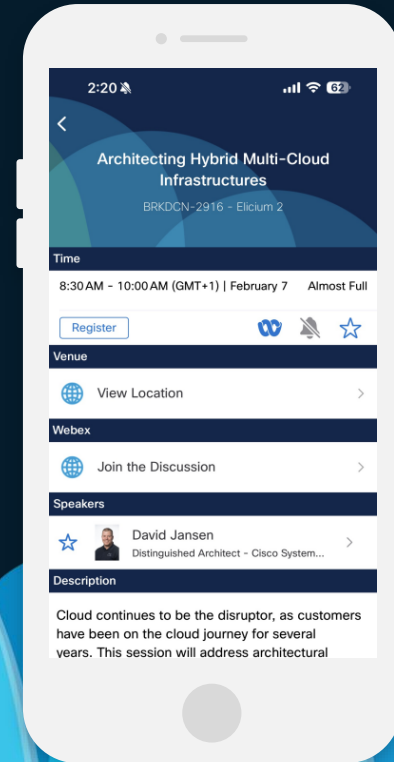
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(from 11:30 on Thursday, while supplies last)



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<https://www.linkedin.com/in/jasonshearer>



Thank you



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GO BEYOND

The background of the slide is white. On the right side, there is a series of overlapping, teardrop-shaped elements in various shades of blue, ranging from a light sky blue to a deep navy blue. These shapes are layered, creating a sense of depth and movement, and they partially obscure the text 'GO BEYOND'.