INNOVATION

APC by Schneider Electric – **The Year of The EDGE**

Θανάσης Τσικόγιας : Data Center Solutions Architect,
Secure Power Division, Energy Management Solutions, Greece-Cyprus-Malta

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Life Is On

Our technologies ensure that **everywhere**, for **everyone** and at **every moment**.

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Life is on when it is…

POWERED

X2
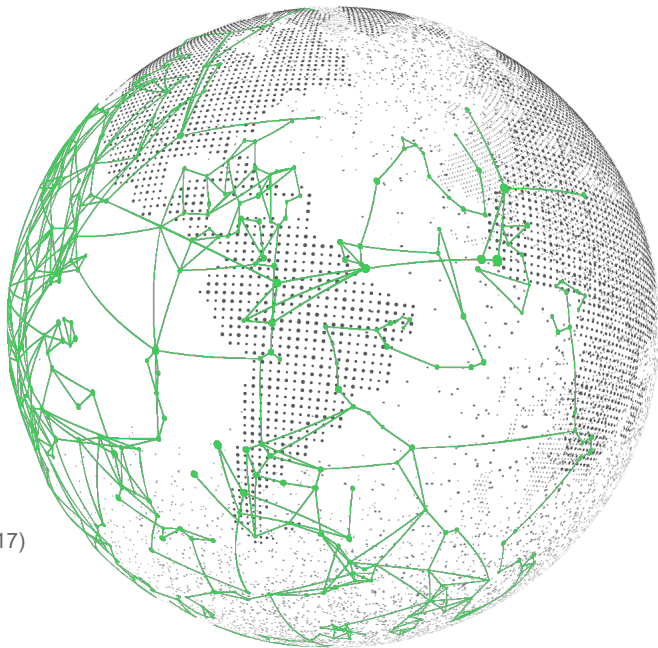worldwide power capacity by 2040
(BNEF, 2017)

+80%
new capacity additions in renewables
by 2040 (BNEF, 2017)

Power leads
global investment in electricity overtook
Oil & Gas for the first time in 2016 (IEA 2017)

30%
of vehicle stock running electric
by 2040 (BNEF)

DIGITAL

10X more
incremental connected devices than
incremental connected people by 2020
(IHS, March 2016; UN population stats)

+25%
CAGR YoY growth of IP traffic

+40%
productivity by 2035 thanks to new
automation techniques (EPSC 2018)

Schneider Electric is leading the digital transformation of energy management and automation

Key figures for 2018
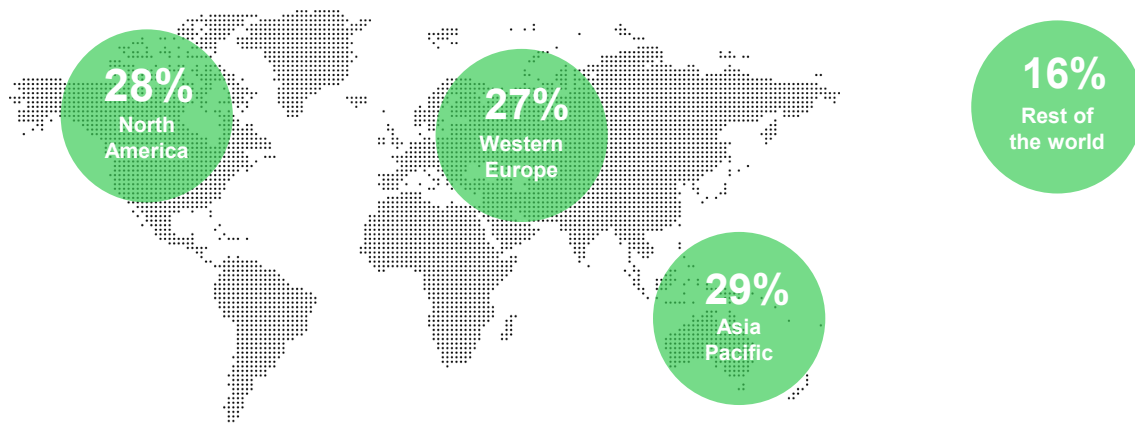
5%
of revenues devoted to R&D

€26 bn
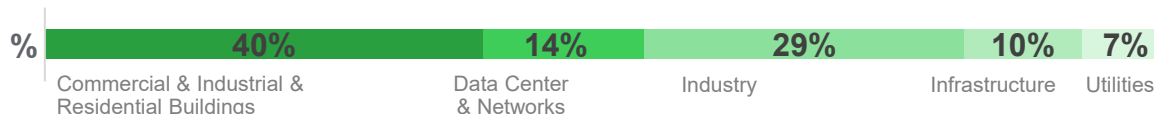2018 revenues

42%
of revenues in new economies

137,000+
employees in over 100 countries

A well-balanced global presence (2018 revenues breakdown)

28%
North America

27%
Western Europe

16%
Rest of the world

29%
Asia Pacific

Four end markets:

%	40%	14%	29%	10%	7%
	Commercial & Industrial & Residential Buildings	Data Center & Networks	Industry	Infrastructure	Utilities

Our technologies enable the digital transformation of industrial automation and energy management

Industrial automation ➡ **Process efficiency**

Energy management ➡ **Energy efficiency**

€ **6** billion

€ **20** billion
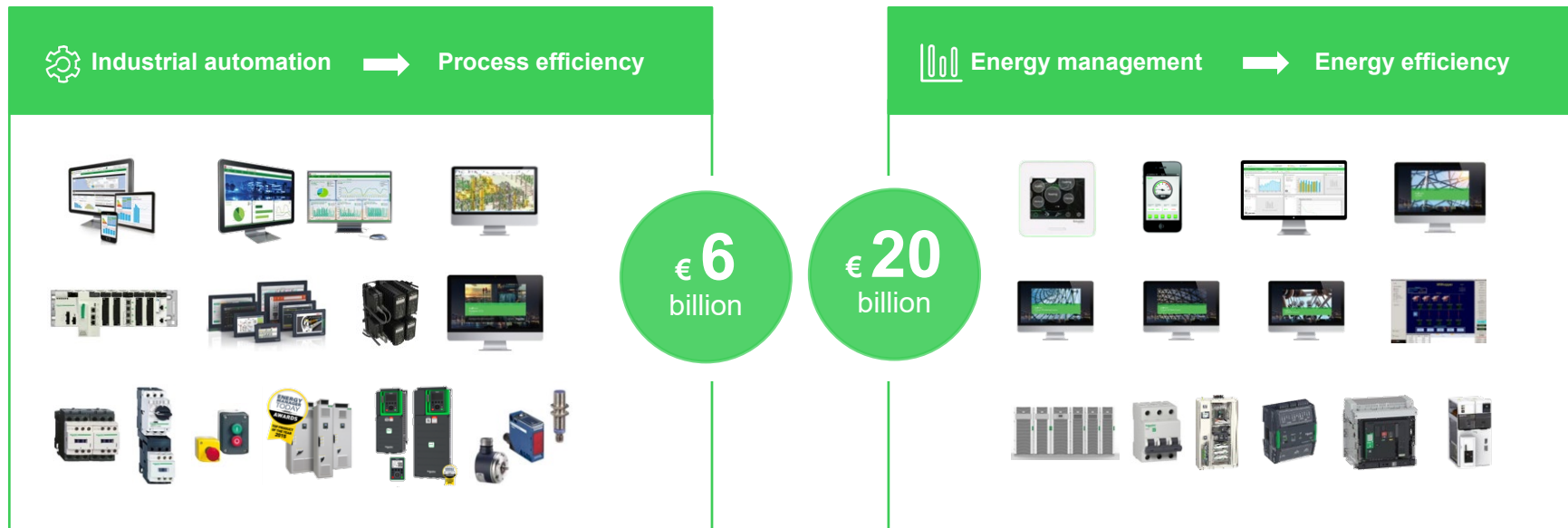
A portfolio of integrated digital solutions designed to increase customer efficiency
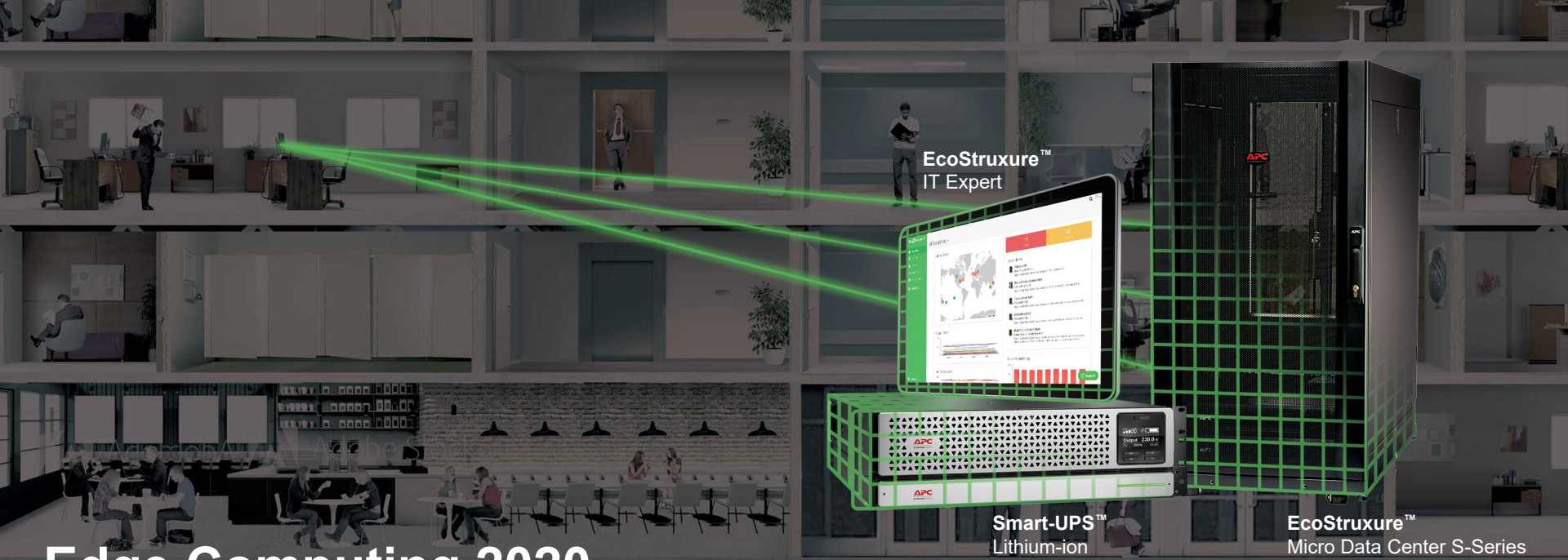
EcoStruxure™
Innovation At Every Level
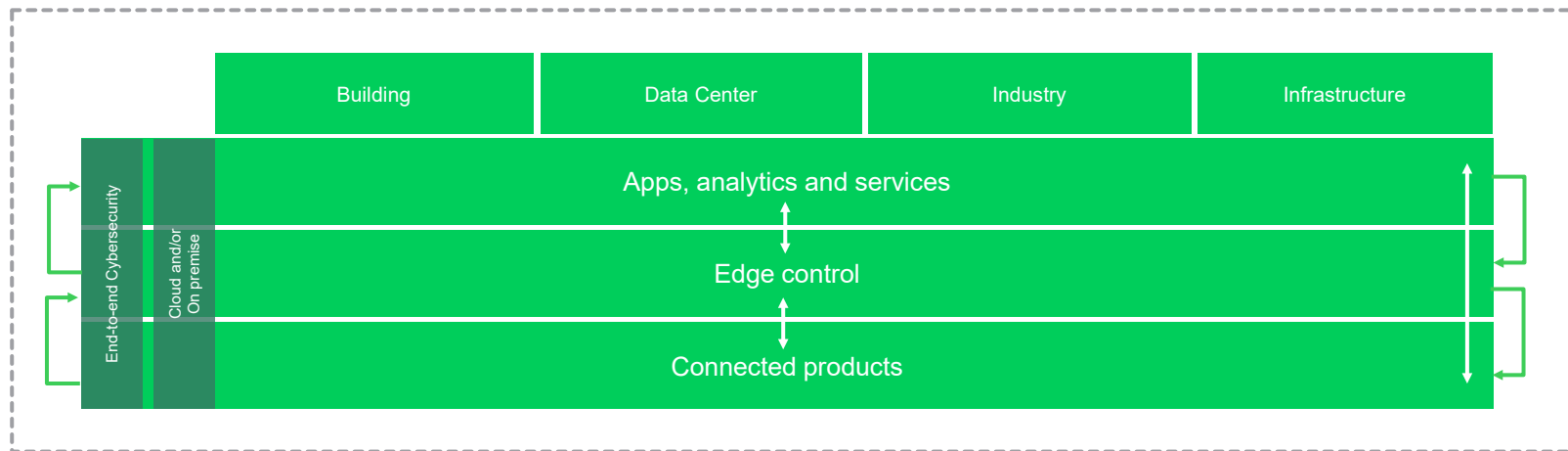
Building | Data Center | Industry | Infrastructure

Apps, analytics and services

Edge control

Connected products

End-to-end Cybersecurity

Cloud and/or On premise

EcoStruxure
Building

EcoStruxure
Power

EcoStruxure
IT

EcoStruxure
Machine

EcoStruxure
Plant

EcoStruxure
Grid

Edge Computing 2020

Edge Computing

EcoStruxure™
IT Expert

Smart-UPS™
Lithium-ion

EcoStruxure™
Micro Data Center S-Series

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by Schneider Electric

Defining Edge Computing

Edge Computing

The edge is where things and people connect with the networked digital world.

Edge computing is a part of a distributed computing topology that has depth and where information processing is located close to the edge.

Processing can take place at any or all of the layers between the cloud (or central enterprise data center) and the edge.

— Source: Gartner –"The Future Shape of Edge Computing: Five Imperative, 28 June 2018"

It's Real and It's happening!!!

Internet of THINGS
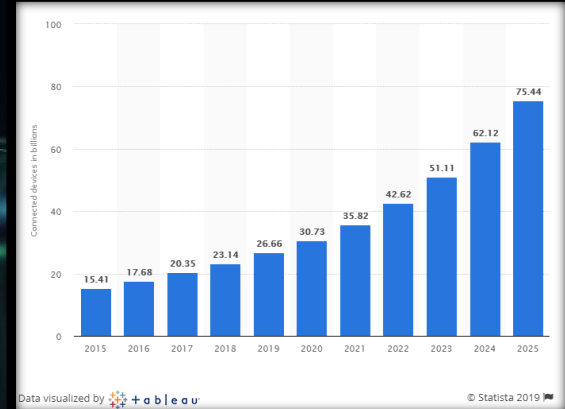
75.4B

connected things by 2025

Edge COMPUTING

75%

By 2025, 75% of enterprise data is expected to be created and processed at **the Edge**. (Gartner)

Data visualized by +ableau

© Statista 2019

Chart values:
- 2015: 15.41
- 2016: 17.68
- 2017: 20.35
- 2018: 23.14
- 2019: 26.66
- 2020: 30.73
- 2021: 35.82
- 2022: 42.62
- 2023: 51.11
- 2024: 62.12
- 2025: 75.44

Certainty in a connected future

Semi Conductor Market Growing at 15.3% CAGR though 2025 and…
…processing power doubling every 2 years

Where there is compute there is a need for to provide a combination of power, networking, and security

"Leveraging digital technologies is more than just good business—it's crucial to staying relevant and profitable"

a three part equation that will result in end to end compute architectures

| End Point | LAN | Local Compute | WAN | Cloud |
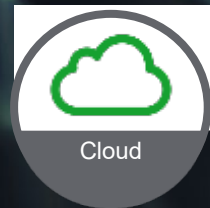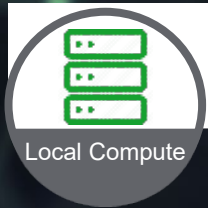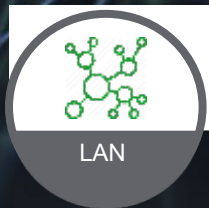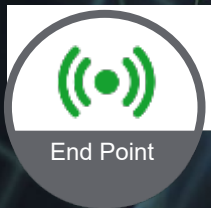
Edge Compute Components

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Larger demand for data in **smaller IT spaces**

CENTRALIZED CLOUD

Massive compute and storage located in remote areas

Bandwidth heavy & Latency intolerant applications

Multi-site deployments with limited or no IT Staff

Data Regulations - GDPR

Increased physical & network security risks

LOCAL EDGE

Compute and storage where data is generated and consumed

REGIONAL EDGE

Large compute and storage located in urban areas

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Best Practices that are being followed on **Data Centers...**
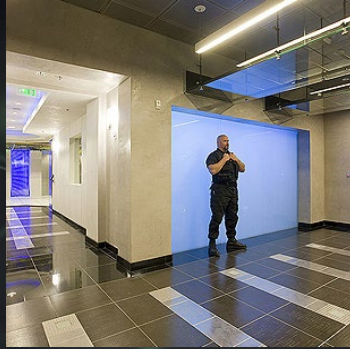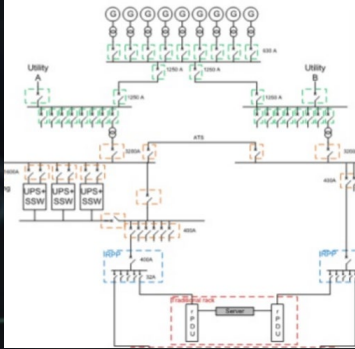
✔ Redundancy ✔ Monitoring ✔ Staffed ✔ Organized ✔ Security

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… Must be followed in **smaller Computer Rooms**
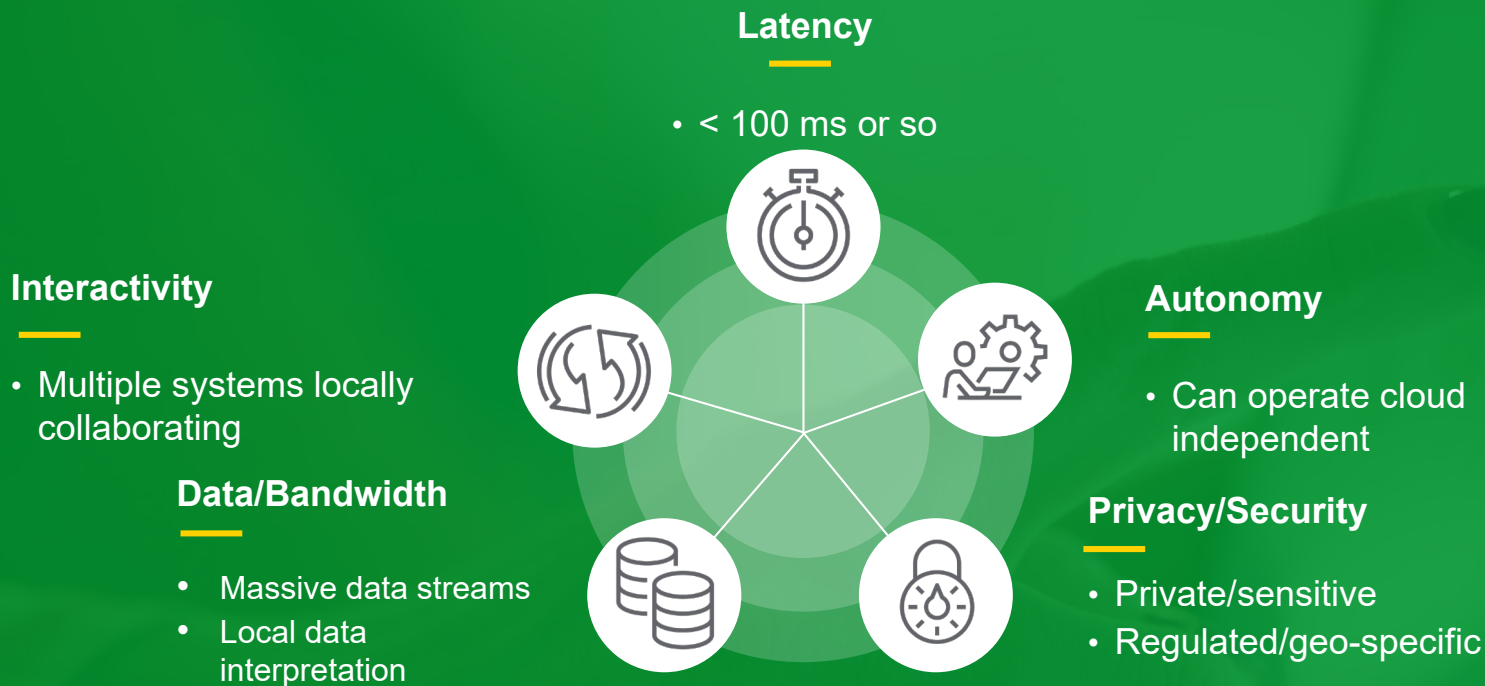
IoT & Data
Aggregation

On-Premise "Edge" Cloud
(Compute, Storage, Networking)
+
Micro Datacenter

Analytics,
Storage &
Monitoring

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What's driving customers to the edge?

Five Business Issues Driving Compute to the Edge

Latency

- < 100 ms or so

Interactivity

- Multiple systems locally collaborating

Data/Bandwidth

- Massive data streams
- Local data interpretation

Autonomy

- Can operate cloud independent

Privacy/Security

- Private/sensitive
- Regulated/geo-specific

Source: Gartner – "The Future Shape of Edge Computing: Five Imperative, 28 June 2018"

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Practical Examples of Edge Computing

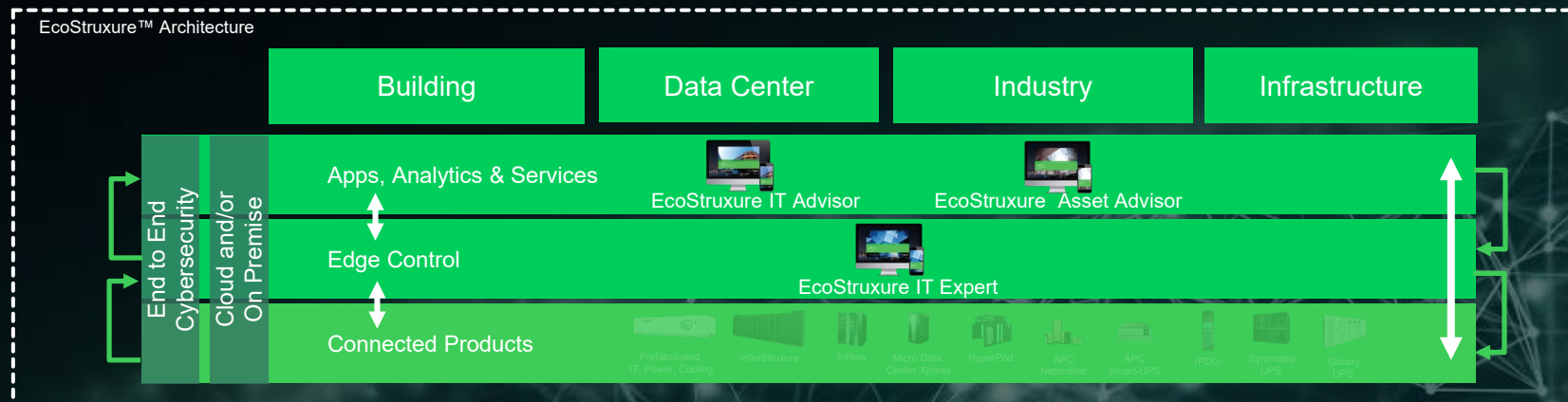| Yesterday	Tomorrow
Warehouse with forklifts	Warehouse with robots
Grocery store with a cashier	Grocery store with self-checkout
Surgery with a doctor	Robotics surgery with remote diagnostics

Human Intensive
Yesterday

IT Intensive
Tomorrow

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EcoStruxure IT Software & Services

EcoStruxure™ Architecture

| Building | Data Center | Industry | Infrastructure |

End to End Cybersecurity

Cloud and/or On Premise

Apps, Analytics & Services

EcoStruxure IT Advisor   EcoStruxure Asset Advisor

Edge Control

EcoStruxure IT Expert

Connected Products

Prefabricated IT, Power, Cooling | InfraStruxure | InRow | Micro Data Center Xpress | HyperPod | APC Netshelter | APC Smart-UPS | rPDU | Symmetra UPS | Galaxy UPS

EcoStruxure Building **EcoStruxure Power** **EcoStruxure IT** **EcoStruxure Machine** **EcoStruxure Plant** **EcoStruxure Grid**

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EcoStruxure IT…

…simplifies local edge and distributed IT monitoring with EcoStruxure IT Expert

Centralized monitoring

Vendor agnostic

Benchmarking

Assessments

Alarm consolidation

Data remains secure and private
at every step of the user journey

CONNECTED

Success Stories

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