Rittal – The System.

Faster – better – everywhere.

Edge Data Center – The Edge Is The Next Big Thing

The Friedhelm Loh Group A strong family
A successful family business for 60 years

10.000
employees worldwide

1,500
patents

Figures based on 2019

58
international subsidiaries

2.5 B €
revenue

Volume production at 13 sites on 3 continents

250,000

m² production space worldwide

200,000

cooling units per annum

15,000

enclosures each day

Busan (KOR)

Burbach
Herborn
Hof
Rennerod
Rittershausen
Wissenbach
(alle DE)

São Paulo (BRA)

Urbana (US)　　Plymouth (UK)　Valeggio (IT)　　Bangalore (IN)　　Shanghai (CN)
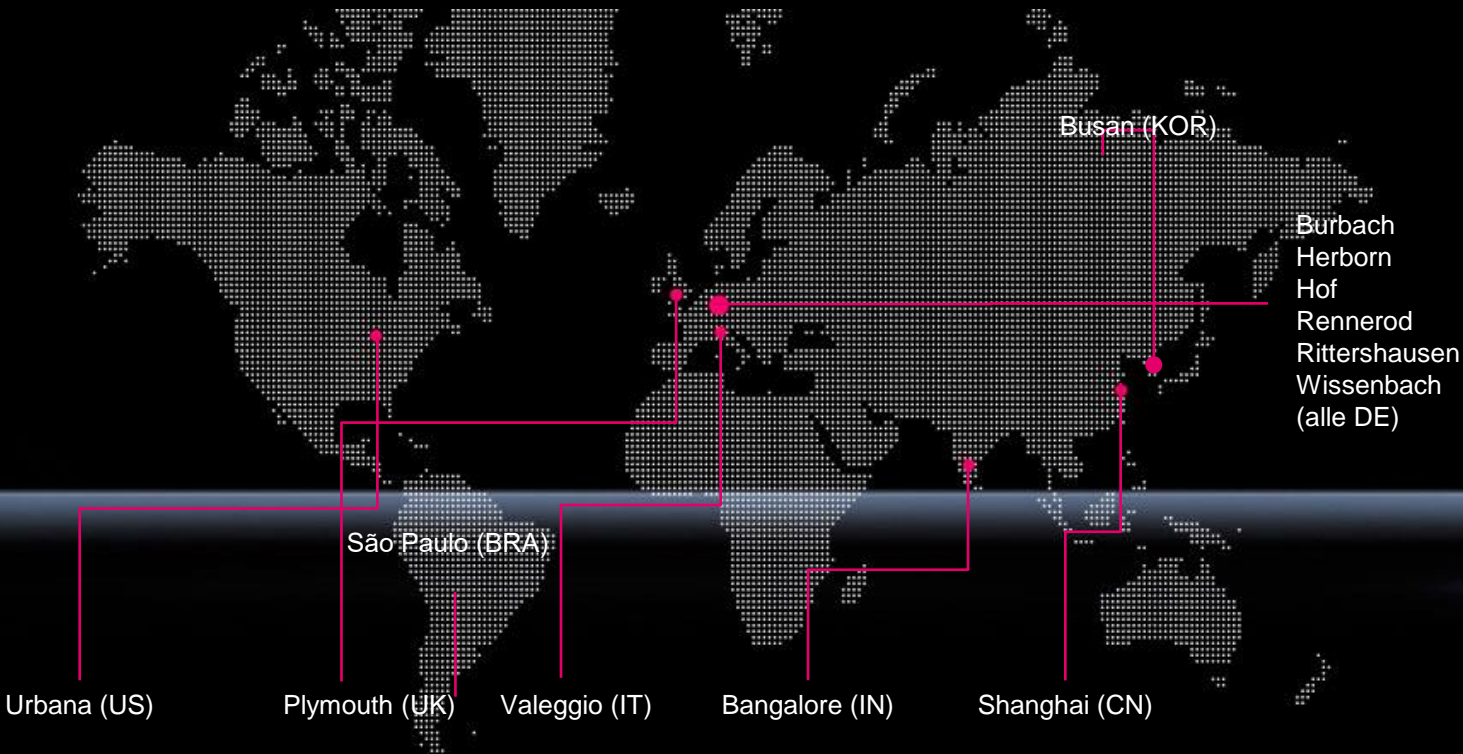
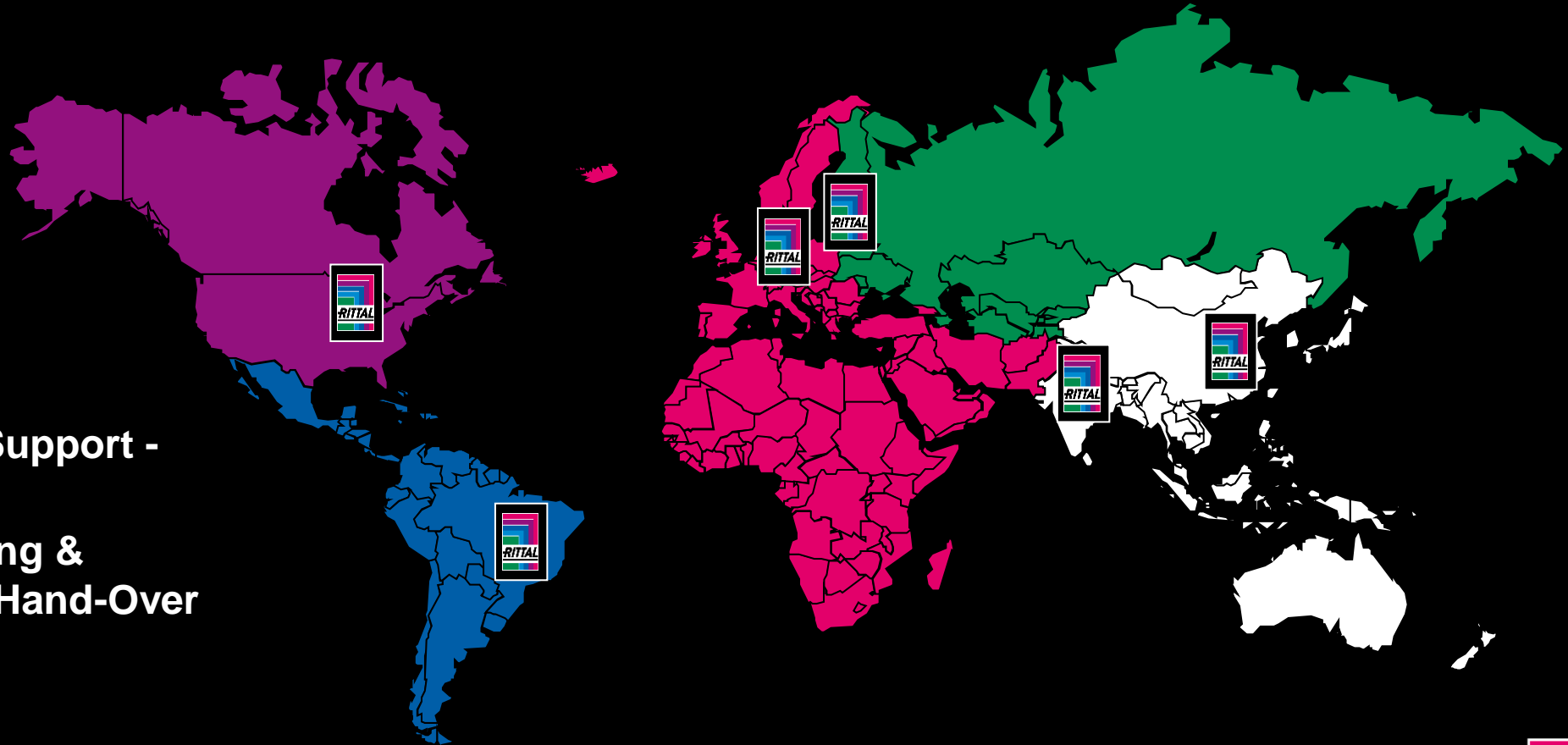ENCLOSURES　　POWER DISTRIBUTION　　CLIMATE CONTROL　　IT INFRASTRUCTURE　　SOFTWARE & SERVICES

RITTAL

Global Set-Up – IT Competence Centers

- **Technical Sales Support - Engineering**
- **Installation, Testing & Commissioning, Hand-Over**
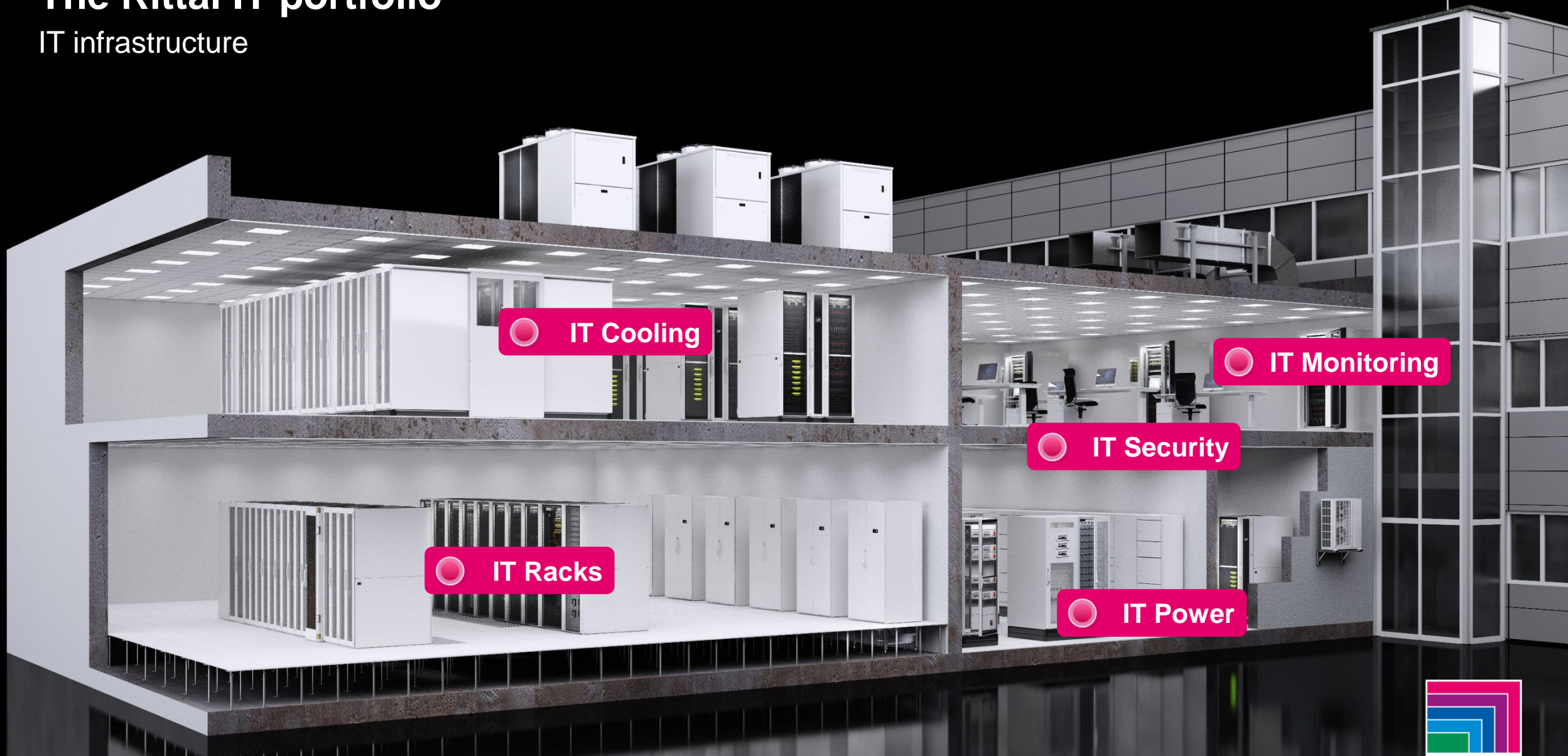- **Trainings**

What is Rittal mostly know for?

Rittal – market leader in the global OEM Market

- Successful partnership with major IT companies

- More than 2.5 m OEM racks shipped

- 25 years of experience & partnership with IT OEM customers

- Global manufacturing capabilities

- Global OEM Infrastructure
  (sales, logistics, support / service, design & engineering)

Hewlett Packard Enterprise | **NetApp** | **f** | **IBM** | **ORACLE®** | **CISCO** | **Google**

The Rittal IT portfolio
IT infrastructure

IT Cooling

IT Monitoring

IT Security

IT Racks

IT Power

Rittal – Complete IT infrastructure for data center

Nowadays – Number of data center is on rise

The concentration of data centres is increasing every year
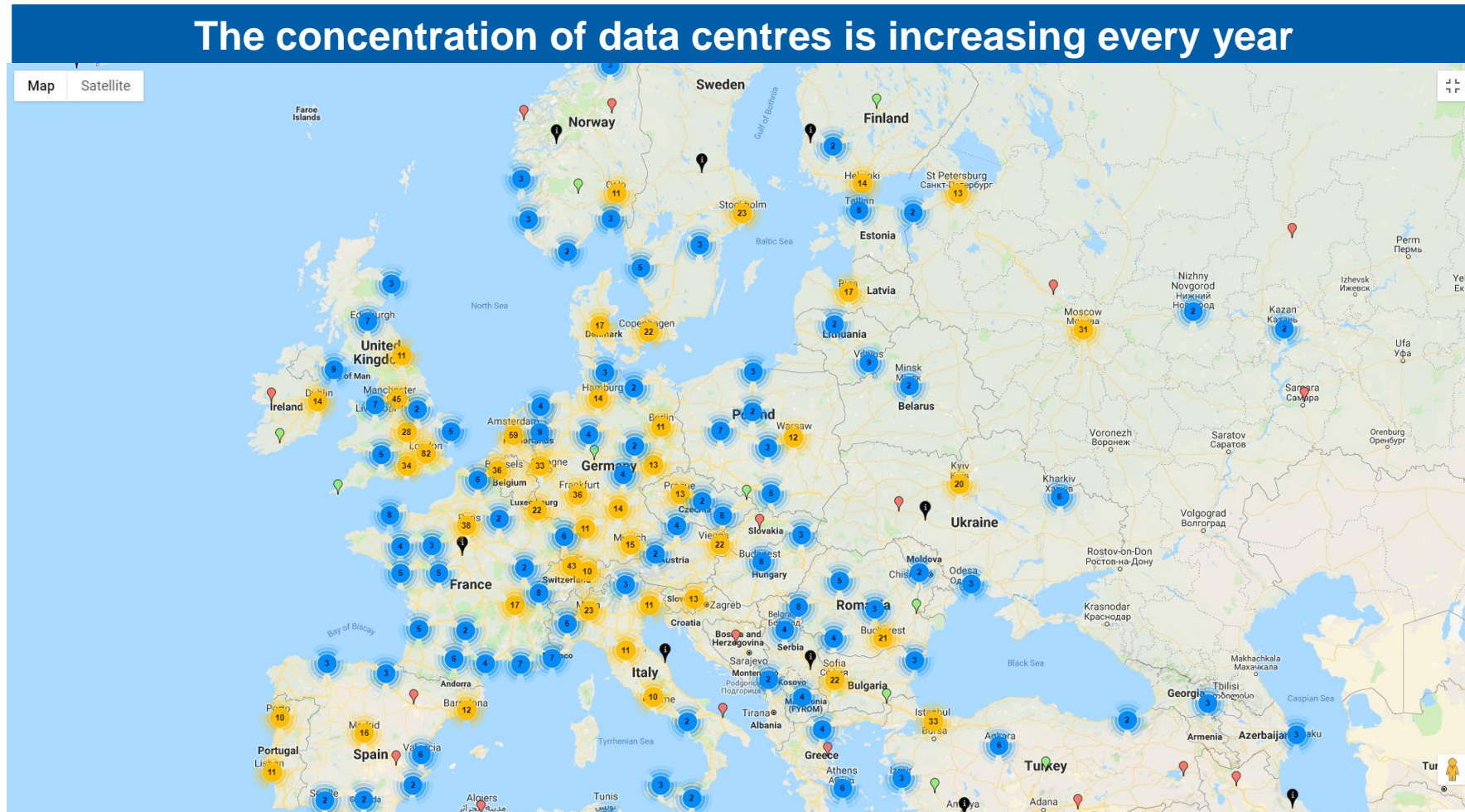
Additional information:
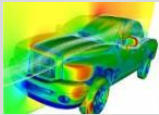http://www.datacentermap.com
© 2019

Technology driving new business models and market trends – data explosion

The amount of IP-capable devices and their data volume is increasing

search engines
Google

Cloud Computing

simulation

Intelligent buildings

Industrial automation

big data

Intelligent transportation

Global IP Traffic Growth / Top-Line
Global IP traffic will increase 3-fold from 2015–2020

22% CAGR
2015–2020

Exabytes per Month

- 2015: 72.5
- 2016: 88.7
- 2017: 108.5
- 2018: 132.1
- 2019: 160.6
- 2020: 194.4
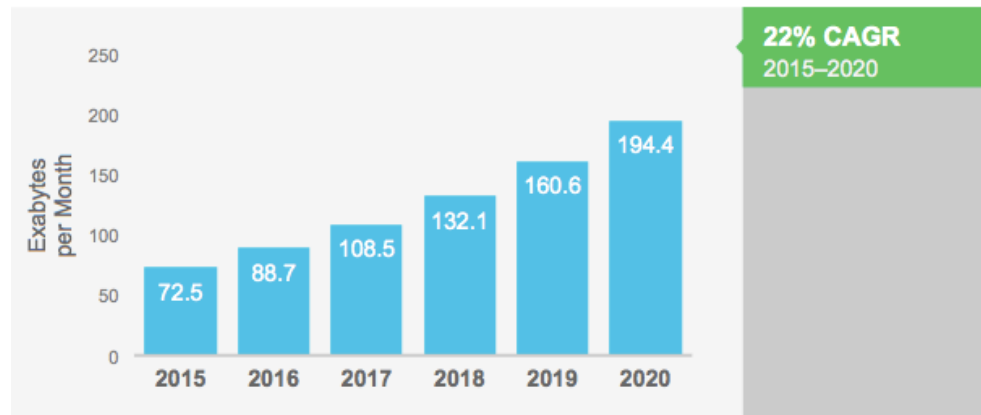
Source: Cisco VNI Global IP Traffic Forecast, 2015–2020

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Mobile Apps

Email

Mobile messaging
WhatsApp

social media
facebook
YouTube
Instagram

That's why your data need a home

- Data volumes are increasing exponentially

- Data has to be analyzed, managed and stored

- Greater need for scalable and modular data center spaces in the future

- Growth of requirements in safety, cost efficiency, flexibility and sustainability
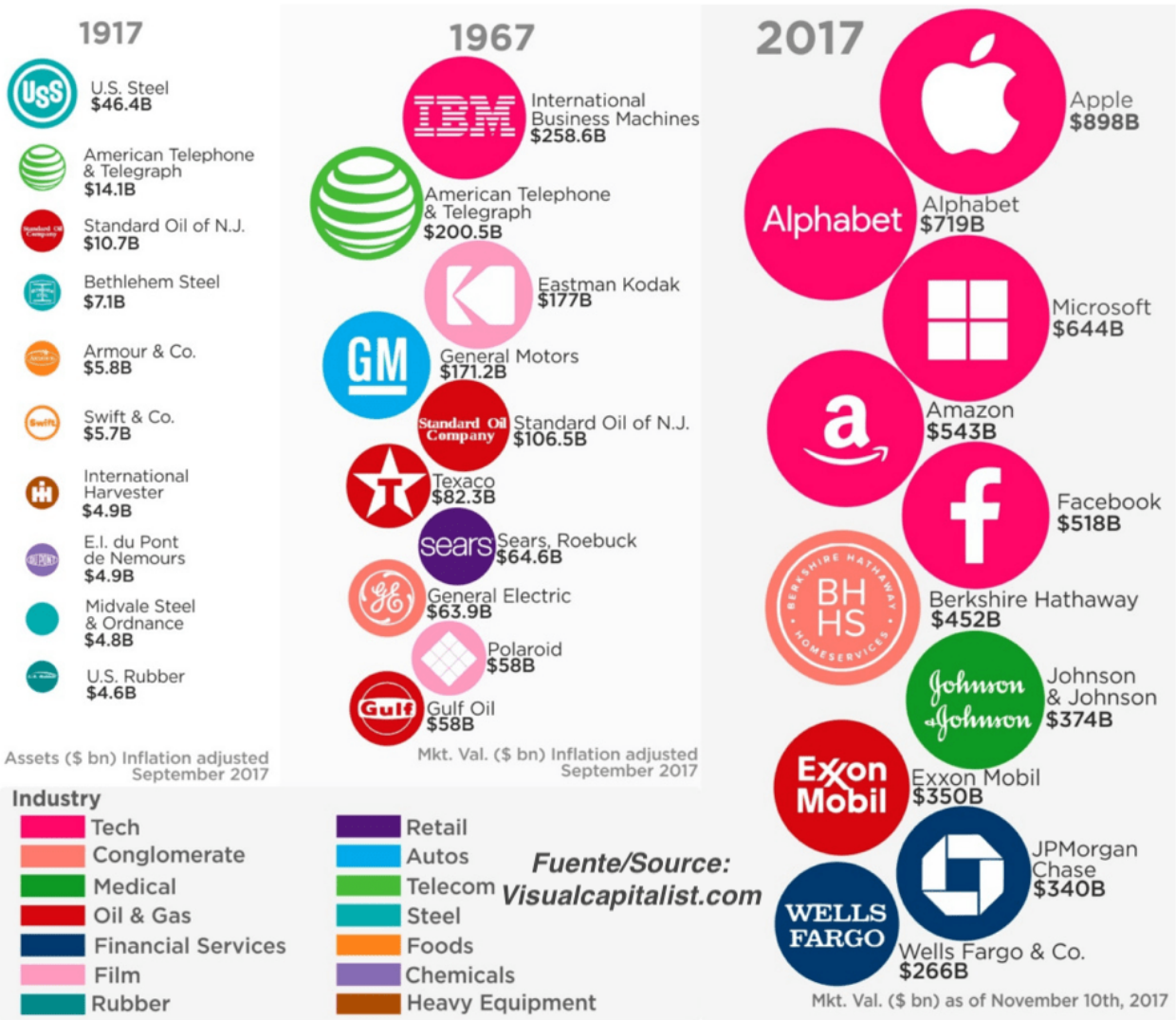
Data is new oil !!!

Welcome to the Age of Digital Disruption

Small companies with minimal resources were able to enter a market and displace the established system…

…and creating a market where none existed before.

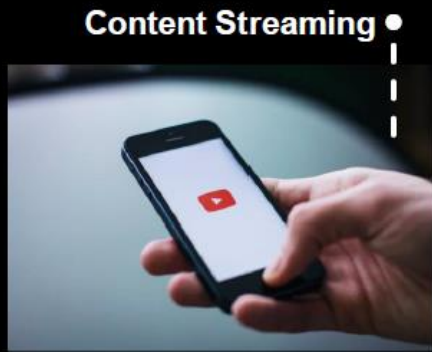# Business drivers today and beyond – Major Technology Trends

Edge Data Center, Dejan Dokmanović, 4.10.2021.

Common technological prerequisites

Low Latency

System-wide Security
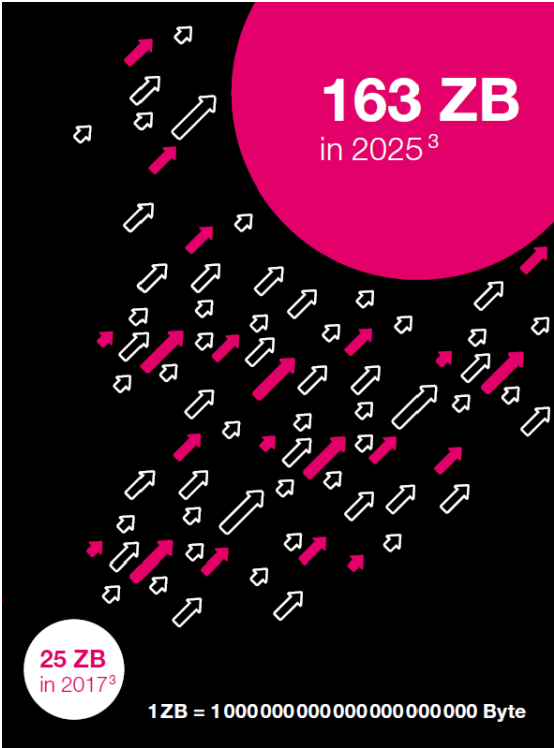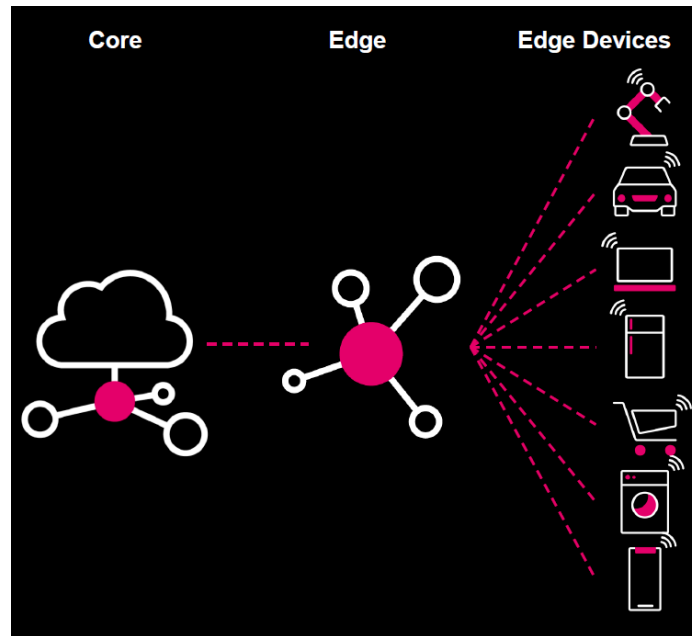
High Availability

Local Data Processing

Scalable systems that adapt on demand

The New IT MUST support all requirements.

163 ZB in 2025 [3]

25 ZB in 2017 [3]

1 ZB = 1 000 000 000 000 000 000 000 Byte

Edge is the Next Big Thing

Gartner

The Edge is where things and people connect and start to converge with the digital world […]. Edge computing provides processing, storage and services for things and people far away from centralized cores, and physically close to things and people.
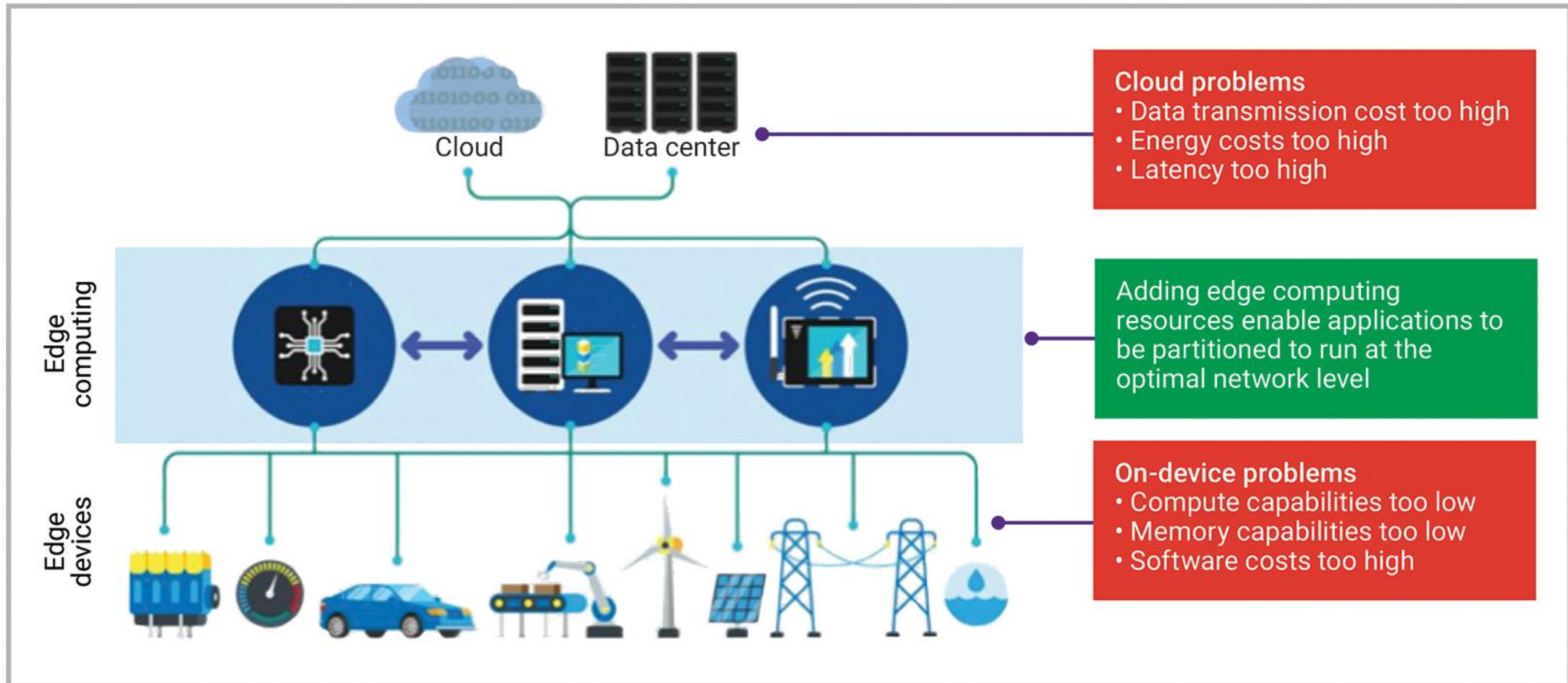
IDC

IDC defines edge infrastructure as a multitiered set of locations where businesses can perform essential data gathering and analytics functions. The edge infrastructure is essentially an intermediate between the core and connected edge devices.
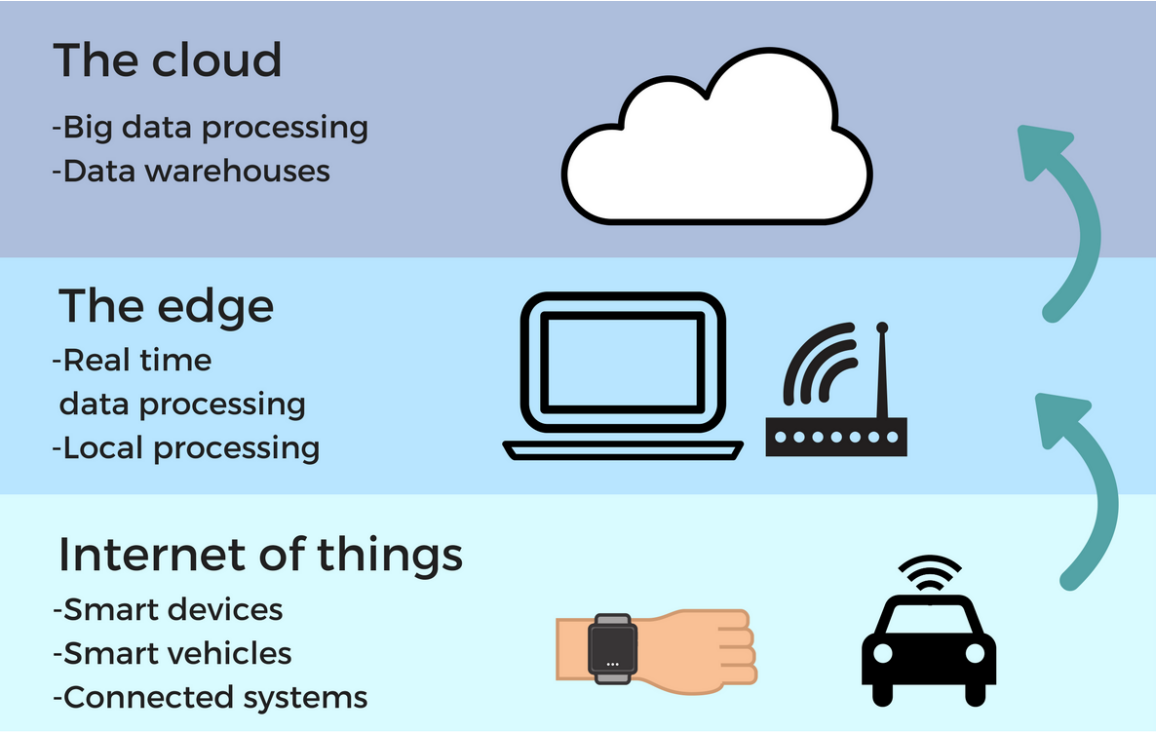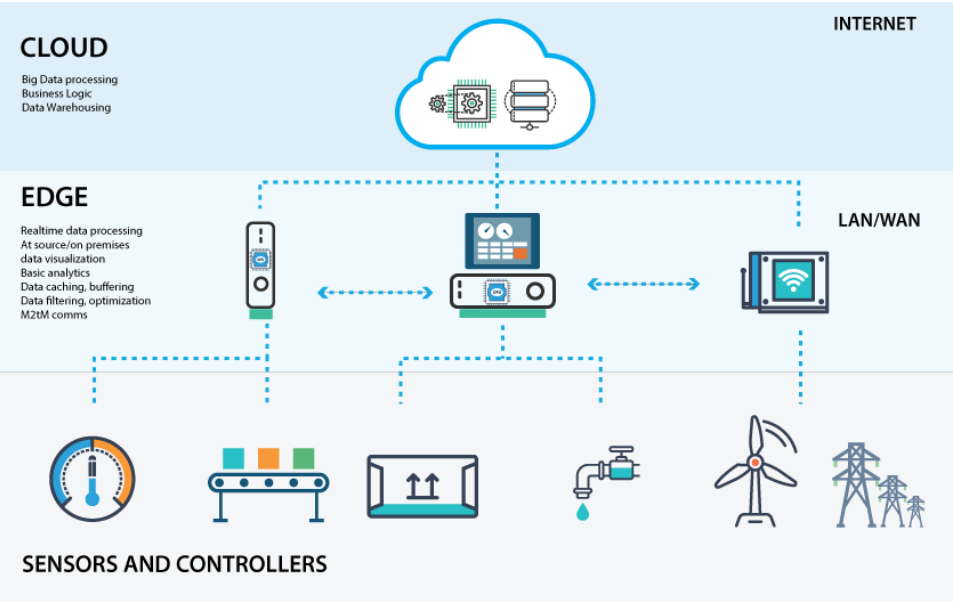
Uptime Institute

Edge computing is just that: Distributing computing and storage capabilities to the very edge of the network, be it the edge at an enterprise factory floor or a carrier point of presence, a cell tower or smart building.

How and where does Edge fit in?

Cloud problems
- Data transmission cost too high
- Energy costs too high
- Latency too high

Adding edge computing resources enable applications to be partitioned to run at the optimal network level

On-device problems
- Compute capabilities too low
- Memory capabilities too low
- Software costs too high

Cloud Data center

Edge computing

Edge devices

Edge computing – real time data processing on network's edge

Edge Computing – Foundation for Smart EVERYTHING IoT ecosystem
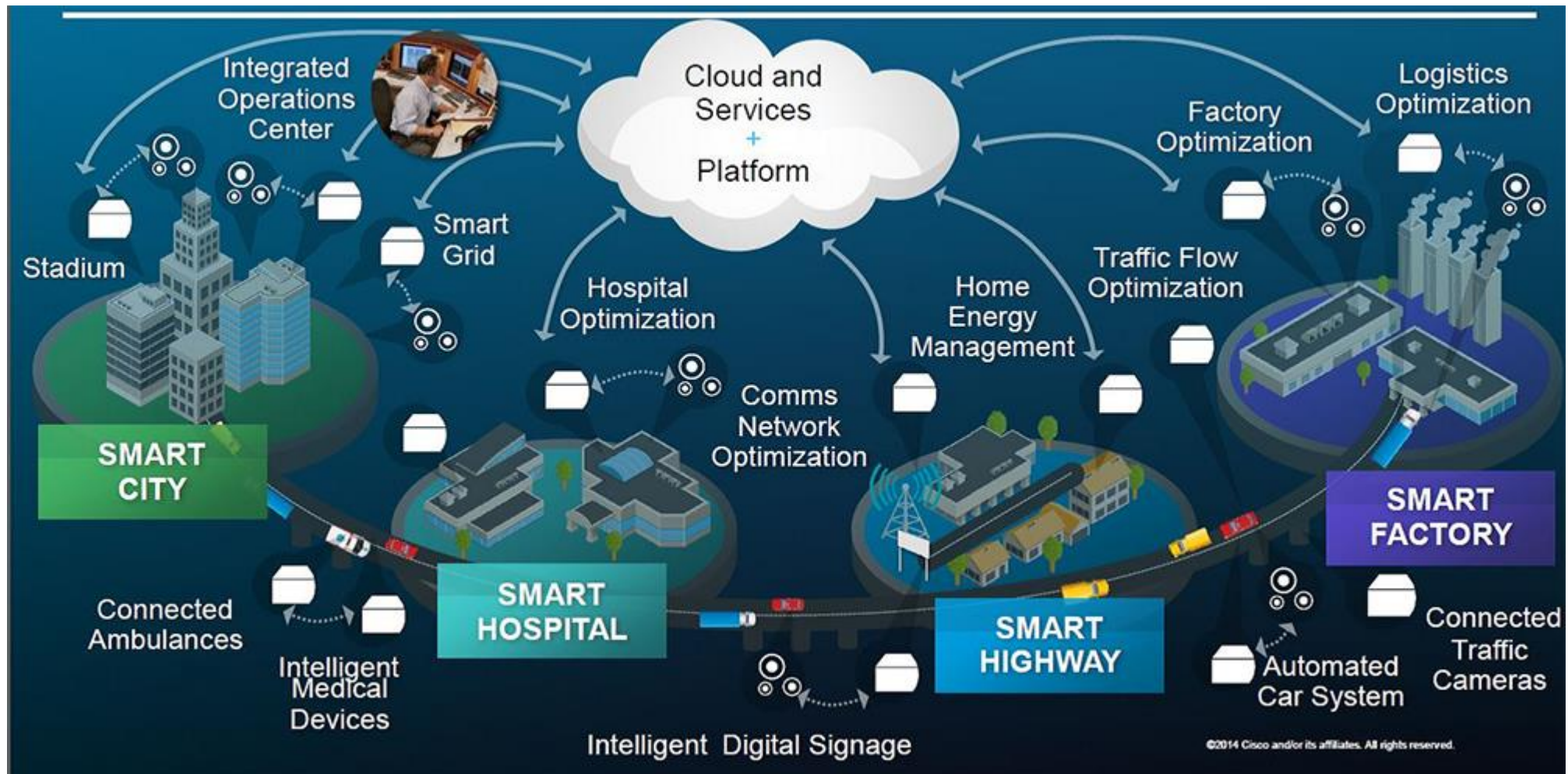
5G → IoT, IIoT → Edge → Smart
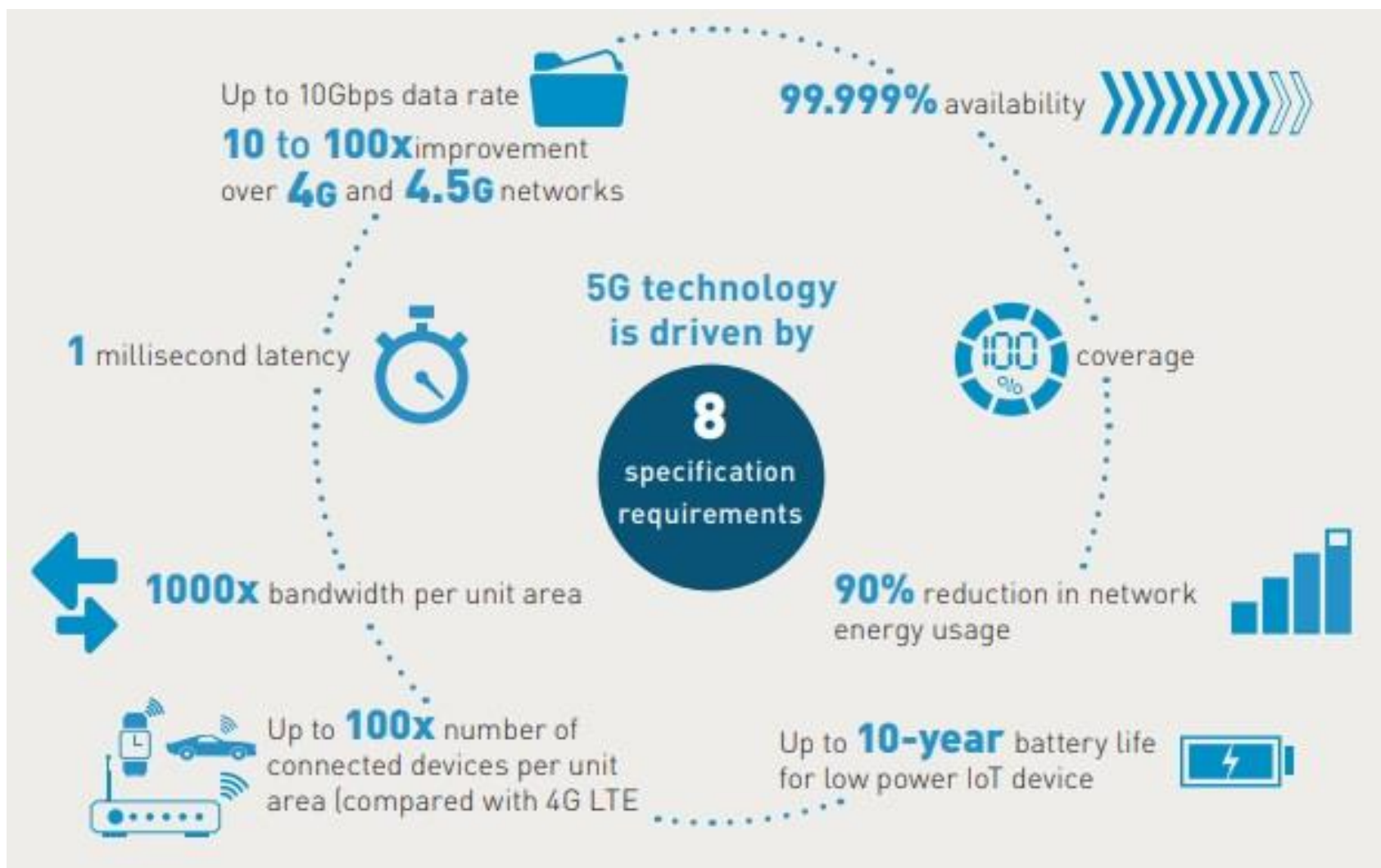
Smart Industry / Industry 4.0

Smart Solutions. Real Business.
Smart Industry

Edge data centers are a key technology for a streamlined I4.0 production
Digitalization optimizes production processes
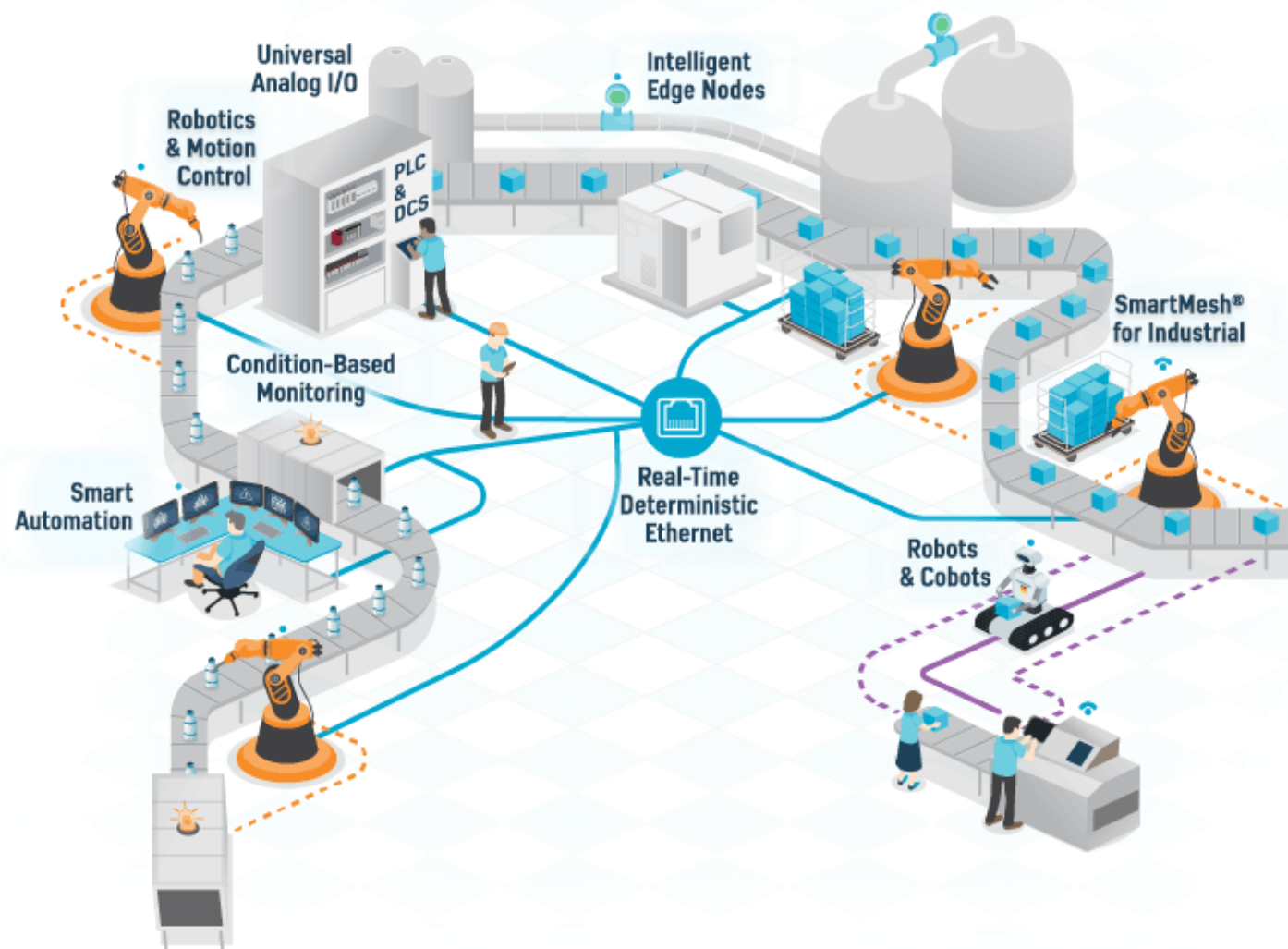New business models will emerge e.g., learning machines, predictive maintenance
Communication occurs within a network of machines, applications, and components
Production processes are constantly improved by real-time data processing

DATA VOLUME · AVAILABILITY · LATENCY · SECURITY · STANDARDIZATION

Smart Factory – Industry 4.0

Smart Factory – Industry 4.0
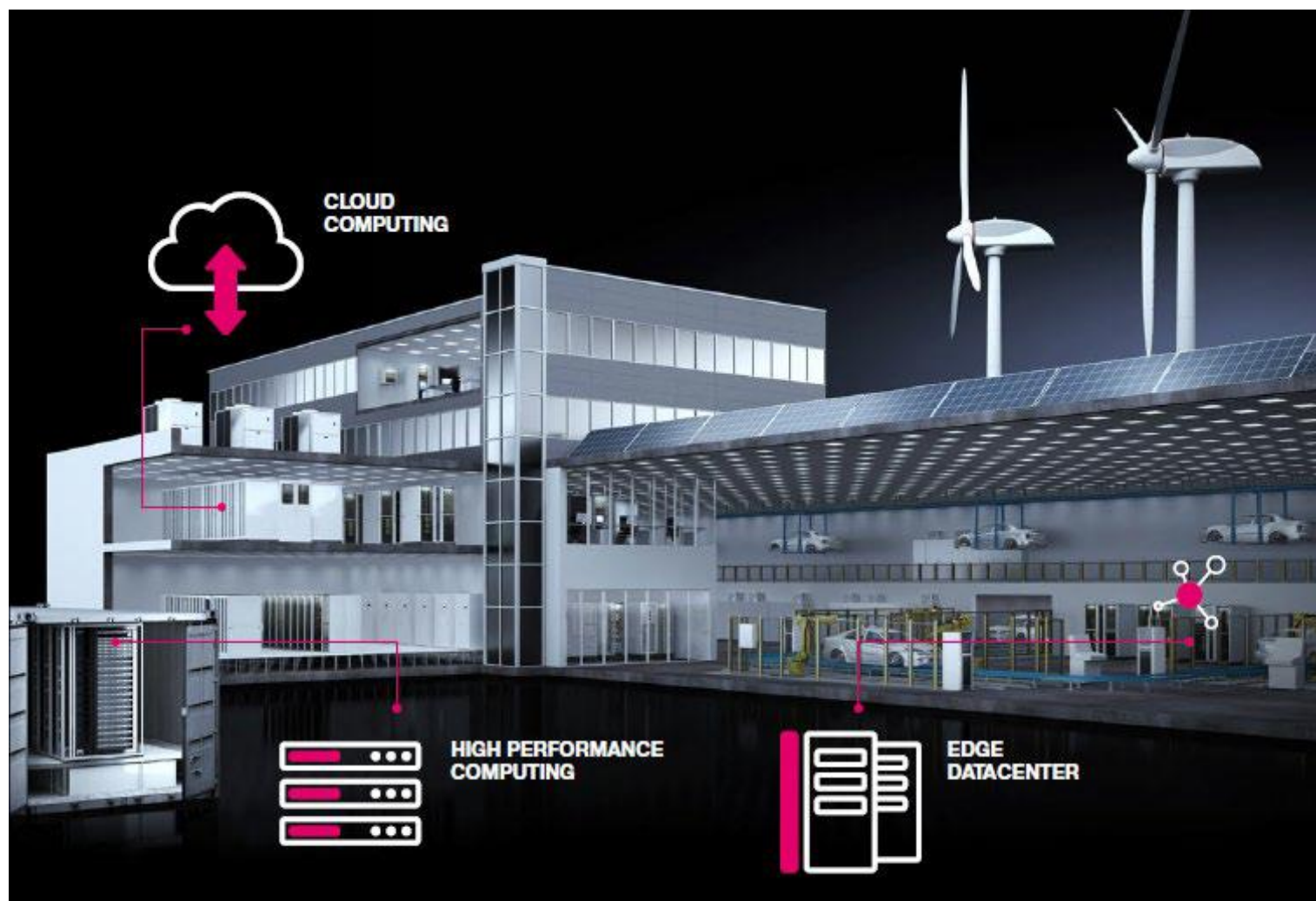
Edge Data Center for Industrial IoT (Industry 4.0)

Edge Data Center

Production

=
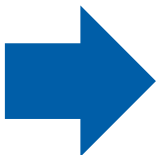
**IT capacities near production site
=
Lowest latency and maximum availability**

Smart Cities and Smart Government

Smart Solutions. Real Business.
Smart Government

Digitalized services interconnect public authorities more efficiently
Digitalization helps improve communal life
Edge data centers support flexible networking and end-to-end monitoring
Government security services like fire departments can react faster
and more efficiently with real-time data analysis

Smart Cities and Smart Government

SMART CITY USE CASES

SMART PARKING · WEATHER SENSORS · DIGITAL SIGNAGE · ACOUSTIC SENSORS · WATER & GAS METERING · TRAFFIC LIGHTS & CONTROLS · ELECTRIC VEHICLE CHARGING · SOLAR INVERTERS · SECURITY AND SURVEILLANCE · WASTE MANAGEMENT

Smart Mobility


Smart Solutions. Real Business.
Smart Mobility

In the future, autonomous driving will increase
Highly-networked traffic systems will be safer and more efficient
(vehicle-to-vehicle, vehicle-to-infrastructure)
Transportation and logistics will be optimized by new technologies and business models

Smart Mobility

Direct vehicle communication

V2N vehicle to network

V2I vehicle to infrastructure

V2P vehicle to pedestrian

V2V vehicle to vehicle

V2P vehicle to pedestrian
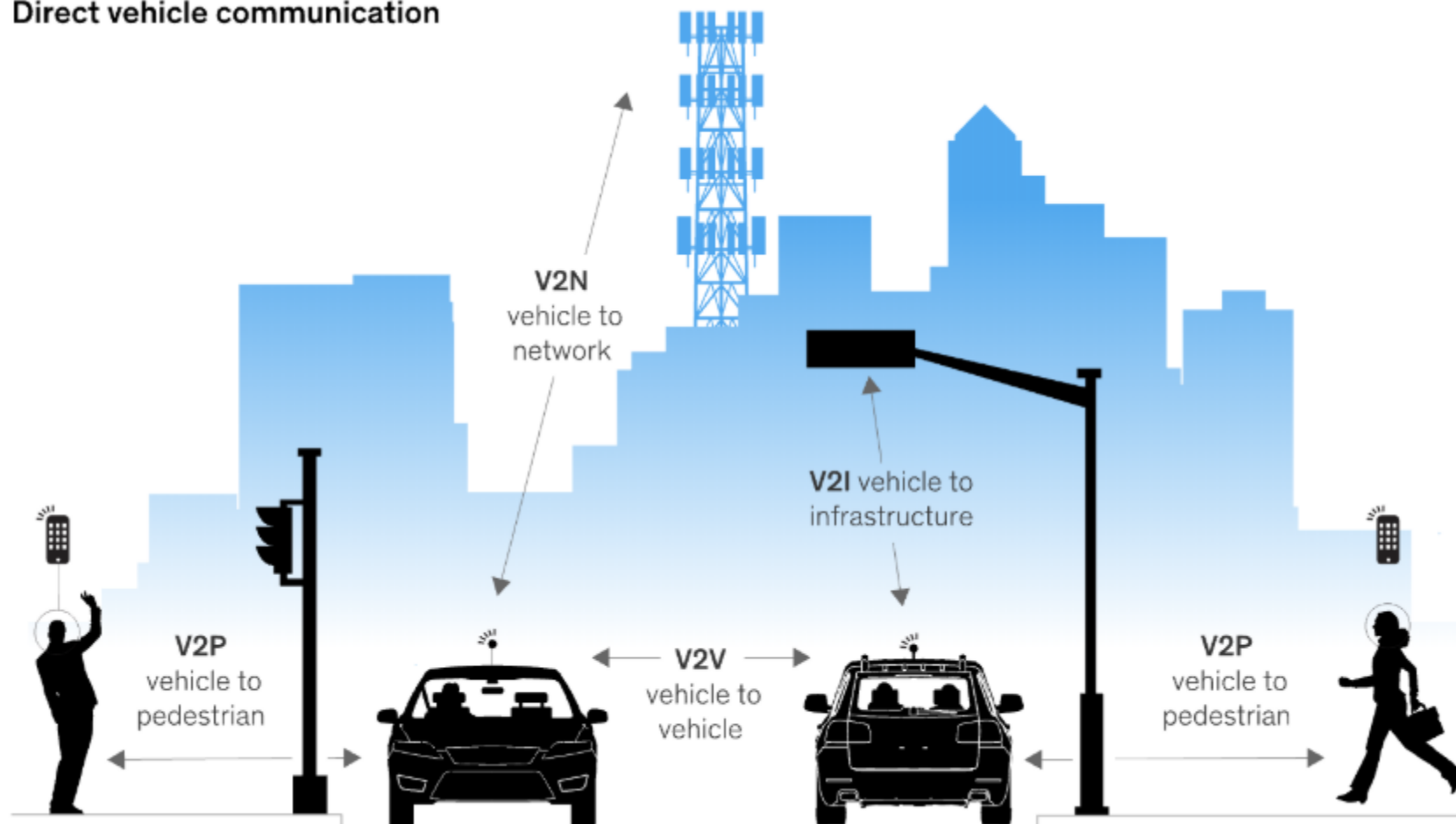
Solution? Edge Data Center

Product & Solutions

- RiMatrix Edge DC as part of Edge-, Spine-, HQ-DC concept)
- TS IT rack & TS IT Compartment rack
- LCP DX 20kW
- PDU (power distribution) & UPS (protection)
- CMC Monitoring

Customer benefits

- Edge Data Center tailored for retail business concept
- Simple deployment
- Scalable and expandable

Edge Data Center for harsh environments

Product & Solutions

- MDC (Micro Data Center – shelter against physical threads)
- TS IT Rack
- LCU DX (single or redundant cooling)
- PDU (Power Distribution)
- CMC Monitoring & DET-AC (Early Fire Detection & Extinguishing)

Customer benefits

- Physical security (data security)
- Reliability
- Scalability

Thank you.