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Edge, 5G, and IoT
Connecting people and machines to data

Welcome to the **Digital Future**

Every organization needs to be a digital organization, powered by data, running in a multi-cloud world.

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Edge and IoT will **fuel the Digital Future** by transforming the physical world into data

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The Digital Future demands **edge computing**

1 **Volume:**
The amount of data generated at the edge is growing at massive rates. Gartner predicts edge data will comprise 75% of enterprise data by 2022, up from 10% today

2 **Speed:**
Many use cases cannot accept the inherent latency in sending data over a network

3 **Uptime:**
Network downtime is a non-starter for use cases in which business continuity and safety are paramount

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Your things can **tell you things**

Operational efficiency

Mitigate risks (safety)

Customer experience

New revenue models

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Edge and IoT create value but also **challenges**

Business case

Stakeholder alignment

Interoperability

Scale

Analytics

Security and manageability

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Mobile connectivity has fueled human progress

Changed work

2G

Cellular voice communications

Voice calling, text and email messaging

1998

Changed business

3G

Voice, data & applications

Web browsing applications

2001

Changed culture

4G

Data at scale, more users & bandwidth

Rich media, video & voice

2009

Change the world

5G

Digital world, massive broadband, massive machine & ultra-reliable low latency

Billions of connected things, mobile broadband AR/VR & 4K Video

> 2019

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Digital Era is being fueled by the interwoven fabric of technologies…

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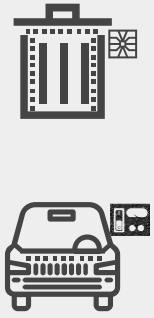
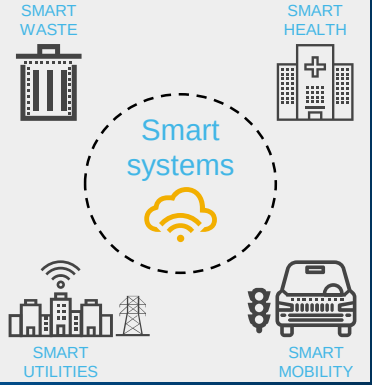
Assets are getting connected and transformed

Into scalable smart systems….

Physical asset	"Smart" asset	"Smart" connected asset	Connected system	System of systems
				

…which scale up to create an intelligent world

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5G requires several industry-wide investment points

Subscriber ecosystems
- 5G Enabled Devices
- Consumer Electronics
- Laptops / Smartphones
- IoT Gateways
- Indoor Access / Small Cells
- Access (uCPE, SD-WAN)

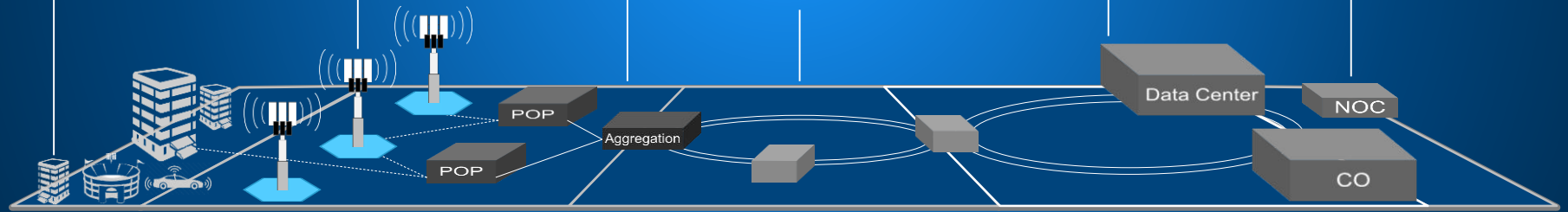
Radio access
- 5G Spectrum
- 5G NR NSA / SA
- Small Cells / Densification
- 4G LTE Marco Cell
- Deep Fiber Investments
- Microwave / Fiber BH

Far Edge & Edge
- Fronthaul Switching / CSR
- C-RAN and vRAN
- MEC Platforms w/ VNFs
- Edge NFV-I / vEPC / NGC
- Edge Ready Facility (MDC)

Metro transport
- IP Everywhere
- Carrier SDN
- MPLS / CE / DWDM

Network core
- NFV-I Platforms w/ vEPC / vIMS / SGi-LAN
- Evolved to 5G Core (NGC)
- SDN Controllers
- Open Networking

Service operations
- MANO
- BSS Modernization
- OSS Modernization
- Analytics & Data Lakes
- Infra Monitoring, AI, ML
- IT Infrastructure



Users 1,000,000's | Access & network Edge 10,000's | Aggregation & metro 100's | Core 10's | OPS 1-2

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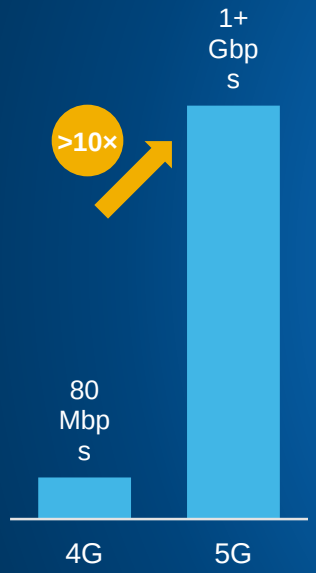
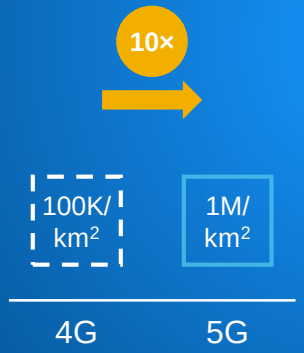
5G expected performance improvements vs 4G

Faster data rate



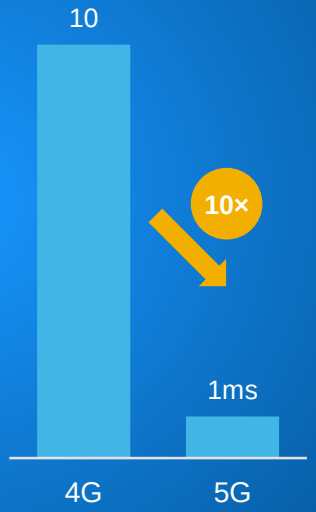
Makes wireless peak speeds potentially competitive with fiber

Higher device density



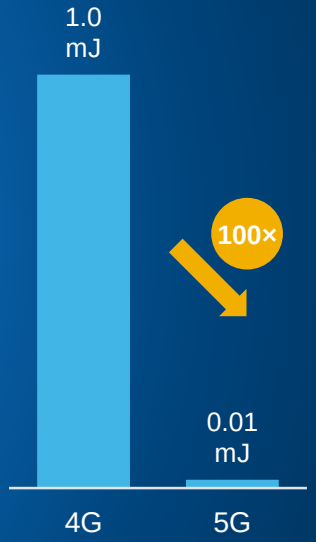
Enables pervasive IoT (e.g., “every light bulb can be a smart light bulb”)

Reduced latency



Enables real-time applications (e.g., cloud-based computation for driverless cars)

Lower energy



Enables high-speed data to battery-powered devices (e.g., cordless VR headsets)

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Sources: 3rd Generation Partnership Project; IEEE; Bain & Company analysis

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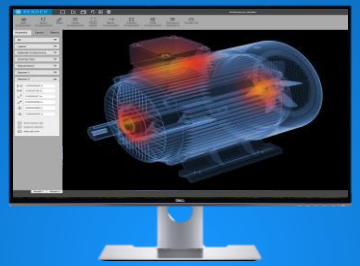
The Dell Technologies 5G experience

Enabling a wide range of end user use cases

Always ready, immersive productivity



Expansive media

Gaming supremacy

IoT & indoor solutions

Advanced networking

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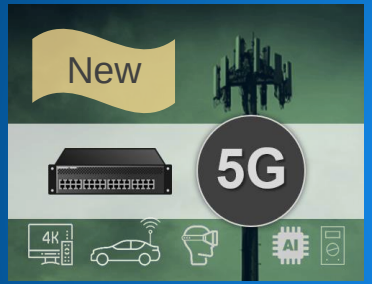
Dell EMC Ready Offers Accelerate the 5G Journey

uCPE & SD-WAN ENTERPRISE EDGE	DISTRIBUTED NETWORK EDGE	MICRO & MODULAR DATA CENTERS	TELCO CLOUD NFV SOLUTIONS	SP ANALYTICS SOLUTIONS
				
Branch to Data Center form factors validated, integrated and delivered globally with choice of software to meet any use case.	Transform how people and machines interact with digital services at the edge with infrastructure that can go wherever data demands.	Modernize edge and on premise infrastructure at a fraction of the time & cost for vRAN, Edge Compute, and NFV / SDN deployments.	Deliver lower risk, faster NFV deployments with Dell EMC pre-validated Ready Solution with VMware or RHOS Ready Architectures.	Accelerate digital transformation via advanced and modular network and business driven use cases on a unified data platform.

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