



# A new approach to harnessing manufacturing data



From the factory floor to the data center and the cloud

Exponential data growth is straining manufacturing IT. But those who can evolve their IT and embrace the influx can win big.



In 2017, manufacturers stored more data than any other sector

Discrete manufacturing

1072 petabytes

Process manufacturing

840 petabytes



Manufacturing

1912 petabytes



Government

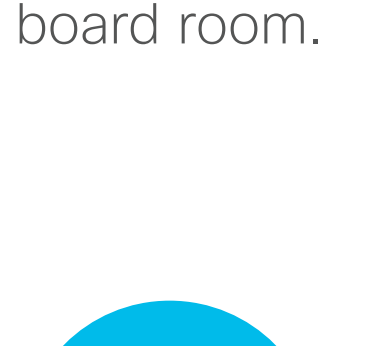
911 petabytes



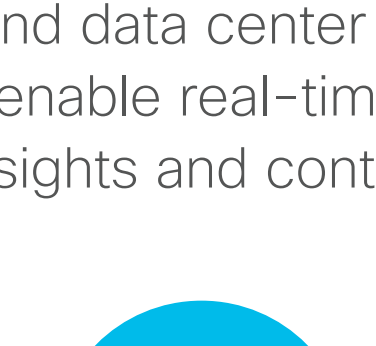
Retail

776 petabytes

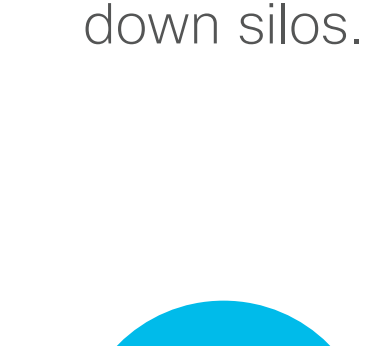
Where's it all coming from?



Increasingly connected factory floors



IT/OT convergence



Estimated 20 billion connected sensors and endpoints by 2020

## 6 requirements to evolve manufacturing IT

1

Fully connect the plant floor, control room, and board room.

2

Distribute compute power at the edge, fog, cloud, and data center to enable real-time insights and control.

3

Integrate data, apps, virtualization, and platforms; tear down silos.

4

Automatically identify anomalies and inconsistencies in data flow.

5

Prioritize traffic to provide data only to those who need it.

6

Deploy network-integrated, context-aware, intelligent security.

## See the difference connected manufacturing can make

Data center	
<b>Old model</b> Traditional, non-virtualized environments require manual processes and limit scalability.	<b>New model</b> Software-defined, hyperconverged systems deliver a simplified, adaptive solution with accelerated performance, independent scaling, and support for multiple hypervisors.

Factory floor (OT)	
<b>Old model</b> Traditional proprietary protocols limit visibility and connectivity, slowing operations and creating blind spots in manufacturing activity.	<b>New model</b> Standardized Industrial Ethernet (wired and wireless) drives interoperability and increases visibility.

Network (IT)	
<b>Old model</b> Manual processes and rigid architecture makes it difficult to adapt to change. Isolation from the OT network lowers operational insight.	<b>New model</b> The network converges with OT via IP-based standards, enabling automated, intelligent, and agile control over production.

Edge	
<b>Old model</b> Primarily, only networking devices are deployed at the edge, providing little compute power for analytics and less visibility.	<b>New model</b> New compute and analytics solutions enable edge devices to provide real-time actionable insights and make better, faster decisions with machines doing the work.

Security	
<b>Old model</b> Proprietary, unconnected systems are "islands of security," but integration can expose their security risks.	<b>New model</b> Integrated security at every layer—endpoint, network, data center—helps to prevent threats such as ransomware and identify risks.

Analytics	
<b>Old model</b> Team members painstakingly dig through historical data and disseminate manually.	<b>New model</b> Artificial Intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs, and perform human-like tasks.

Board room	
<b>Old model</b> Lack of visibility and real-time insight keep business decision-makers disconnected from plant-floor operations.	<b>New model</b> Real-time information and deeper operational understanding help optimize costs and productivity.

Cloud	
<b>Old model</b> Cloud resources are segmented from the ERP system, users, and other important applications, making them difficult to effectively leverage.	<b>New model</b> Multi-cloud infrastructures support new initiatives and extend their boundaries and sphere of operations to manage infrastructure resources at any location and at any scale.

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