DELL Technologies

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A moment of remarkable opportunity

How 5G networks can play a critical role in manufacturing's next great productivity revolution.

Welcome to the Remarkable Factory

Data is revolutionizing manufacturing. Tools like AI, video analytics and machine learning already help forward-looking enterprises to supercharge throughput, optimize supply chains and accelerate innovation.

But manufacturing is now on the threshold of still greater change as operational technology on the factory floor is enhanced by the capabilities of modern IT. The combination of hyper distributed edge computing and ultra-high capacity real-time connectivity is making possible a future where factories are not just smart, they are remarkable.

For manufacturers facing increasing competition and growing pressure on margins, the remarkable factory offers hugely attractive benefits.

Intelligent control over production processes promises higher yields, fewer rejects, better quality control and less downtime.

Technologies like digital twins enable swifter innovation and the ability to respond promptly to changing customer demand.

Real-time control and intelligent decision making in automated machines, together with smart human interfaces like AR, VR and neuro-haptics, improve worker safety and efficiency.

And more frugal use of energy and raw materials can be a powerful ally in helping manufacturers meet growing' environmental impact commitments.

Today, communication service providers (CSPs) have a unique opportunity to help manufacturers achieve these benefits.

Inside the Remarkable Factory

Workers don't go looking for a part, the part finds the worker

Machines detect and schedule their own repairs when needed

Products can be easily reconfigured and customized to meet customer demands

Sub-assemblies arrive at a vehicle assembly exactly when needed

Production ramps down when energy is scarce, and prices are high

AR, VR and neuro-haptic communications empower workers, increasing safety and productivity

Digital twins enable unprecedented efficiencies and innovation

Blockchain enables factory owners to auction excess production capacity

Smart production lines minimize environmental impact by making best possible use of energy and raw materials

A moment of remarkable opportunity

5G opens up remarkable opportunities for CSPs and we can help make sure you are ready and able to seize the moment. You are in a unique position to go beyond connectivity by enabling enterprise manufacturing customers to make the Remarkable Factory a reality. In a sector where data usage is exploding but revenues are not, this offers exciting potential to create new income streams.

Firstly, it's worth emphasizing that, for manufacturers, 5G connectivity is genuinely transformative. It solves the major logistical challenge of gathering real-time data from thousands of sensors and devices in harsh industrial environments.

- **Its amazing bandwidth, network slicing capabilities, improved security makes possible massive real-time data flows**
- **5G's low latency makes it ideally suited to manufacturing applications where analytics drive real-time decision making**
- **It removes the cost and difficulty of hard-wiring connections – a single ethernet drop in an automotive factory costs $1500[1] and wiring remote or hazardous locations can be massively more expensive**
- **5G connections require only a simple radio and interface, saving power by reducing multiple compute endpoints – power supply, CPU, memory, storage, connectivity etc.**
- **A simple small radio connects to the massive scalable compute resources available everywhere inside the factory**

However, this is only part of the story. The real game-changer is that cloud-native 5G networks are software defined, running on industry standard servers with a software virtualization layer on top. This makes them vastly more flexible than legacy proprietary equipment:

Hyper-scaled distributed computing delivers any amount of compute capability, anywhere it is needed, on demand anytime

Edge Computing removes the cloud bandwidth bottleneck to smart manufacturing's real-time data processing needs – a major limiting factor to adoption, scale, performance and cost

HCI centralizes and consolidates compute resources, management and security

In other words, 5G's infrastructure provides exactly the enterprise edge computing infrastructure manufacturers will need to process real-time data from thousands of endpoints – from machinery, pumps and valves to plant, fleets and devices. But more than this, it gives CSPs the ability to run core network functions at the edge, offering on-demand or as-a-service customer workloads, all on the same infrastructure.

Moving compute and analytics closer to where data is generated and used, rather than sending the data to and from cloud servers makes sense for manufacturers, who need real-time results. And it makes sense for CSPs, who have the opportunity not only to sell equipment and connections, but to become critical enablers of the Remarkable Factory.

The big opportunities in telecommunications revenue creation are real-time services that require a combination of 5G and edge computing. Technologies like vehicle automation, precision robotics, mission critical AI, cybersecurity and mobile virtual reality all present opportunities to offer new high value smart manufacturing services.

Helping you move faster

We know that CSPs are the driving force behind 5G technology. You own the points of presence and licensed spectrum to deliver on the promise of 5G and edge. And while enterprise edge computing may be new territory for you, it's a field where Dell Technologies has maintained global leadership for many years.

Today, time is of the essence. Before you can realize 5G's potential to drive revenue growth, you will need to modernize your network to create an open, innovation-friendly cloud-native platform. We can help you to transform network operations, upgrade network technology, and enhance your services.

As the global leader in IT infrastructure, we have the scale to meet any CSP's needs, all powered by a secure global supply chain, and available in a variety of consumption models.

A partnership to realize this remarkable potential

We also stand ready to help you create the products and services manufacturers will need in a new era of hyper-connected factories interacting in real time with highly automated and distributed platforms.

To achieve this, we will help you go beyond connectivity to monetize network investments with new revenue streams. We can help you create new services, deliver those services with cloud-native solutions and continuously enhance your customers' user experience with modern OSS/BSS.

It starts with our proven co-innovation program where you and your team work hand-in-hand with Dell Technologies experts to identify new business opportunities

You will then work with our technologists to architect solutions leveraging our comprehensive portfolio of edge products and solutions to meet customer needs

Finally, you will work with our team to develop a go to market strategy and campaign to drive revenue growth and partner with Dell's world-class sales team to gain access to and win business in enterprise accounts

About the author

Todd Edmunds is Global CTO and Director of Industrial IoT, Edge Computing and Digital Twin Strategy at Dell Technologies, where he helps the world's top manufacturers execute their digital manufacturing business objectives. Todd is an industry expert with 20+ years' experience in industrial IoT and Edge Computing, having worked for Cisco, Rockwell Automation and a nationwide IoT solution integrator.

Todd also chairs the Edge Computing Task Group at the Industrial Internet Consortium (IIC), and the Manufacturing Working Group at the Digital Twin Consortium.

Todd Edmunds
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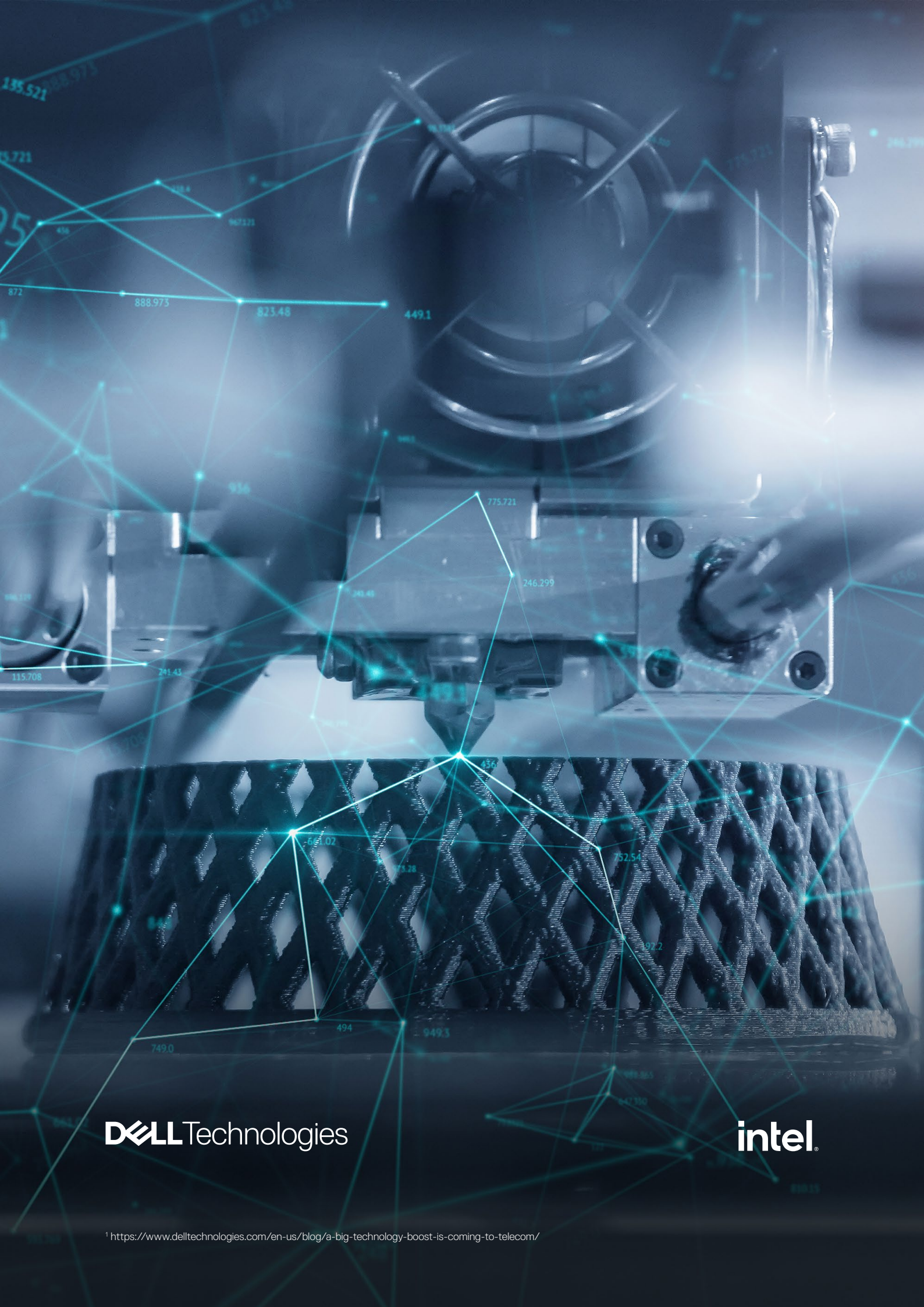
Act while you have the advantage

Manufacturing is at a turning point. It's clear that the combination of 5G and edge computing will enable a revolution in real-time data driven decision making that will shift factories from merely smart to remarkable.

The role 5G network providers will play in this revolution – and their new revenue opportunities – depends on the steps they take now. This is a time to think big and start developing compelling new services that go beyond connectivity.

Together, we can construct a network capable of delivering on the promise of the Remarkable Factory and, in doing so, unlock the massive revenue potential of 5G in the manufacturing sector.

Learn More



[1] https://www.delltechnologies.com/en-us/blog/a-big-technology-boost-is-coming-to-telecom/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