Crown Castle brings 5G to life with Juniper 400G

CROWN CASTLE

As the largest provider of shared communications infrastructure in the U.S., Crown Castle is on the forefront of building out the infrastructure that makes 5G a reality. Wireless carriers rely on Crown Castle's nationwide footprint of towers, small cells and fiber to deliver the exciting 5G services that subscribers crave and that will enable new, high-revenue business models.

To deliver on the 5G promise, Crown Castle upgraded its nationwide network with Juniper 400G routing and security that expands 5G safely and reliably to more people, businesses, and communities.

OVERVIEW

Company	Crown Castle
Industry	Telecommunications
Products Used	PTX Series, MX Series
Region	Americas

CUSTOMER SUCCESS AT-A-GLANCE

6,000

Cell tower networks connected using 400Gbps as of June 2023, with a continued rollout to tens of thousands of towers

400G

Transport and edge networks deliver massive capacity with investment protection

Overcame

Supply chain constraints to meet 5G buildout timelines for major U.S. mobile providers

~85,000

Route miles of fiber across the U.S.

CHALLENGE

Unprecedented supply chain constraints didn't stop enabling our customers' 5G rollout

Crown Castle was operating under a strict timeline to turn up 5G services to support the plans of its wireless carrier customers.

Supporting customers' ambitious 5G plans required Crown Castle to upgrade its network capacity. Crown Castle has relied on Juniper networking for more than a decade, and it wanted to move to 400G across their existing national backbone While facing worldwide supply chain shortages that affected network buildouts across the board, Crown Castle continued its massive network upgrade. This achievement was made possible through the exceptional efforts of our supply chain teams, who navigated the challenges with dedication and skill.

SOLUTION

Secure 400G that scales up and scales out

Crown Castle modernized its transport and edge networks to 400G. To meet the intense demands of 5G, the company deployed Juniper Network PTX10008 routers and Juniper PTX10001-36MR routers for its transport network. The 400G PTX routers are optimized for scale-up and scale-out architectures, so Crown Castle can continue to expand its network infrastructure with simplicity and efficiency.

"With PTX routers, we have a pay-as-you-grow approach to expanding throughput to meet customers' needs and new customer use cases," says Zach Francis, Director of Network Architecture and Strategy at Crown Castle.

Crown Castle added MPC10-E line cards to its existing Juniper MX480 Universal Routers to scale throughput at its towers. The high-scale, high-density MX480 router can deliver up to 9 Tbps throughput, with support for 15 400GbE interfaces and 75 100GbE interfaces for long-term investment protection.

Crown Castle protects its network—and its customers—against the growing sophistication and volume of DDoS attacks with the Juniper and Corero joint DDoS protection solution. Corero SmartWall Threat Defense Director (TDD) software running on its MX routers delivers real-time DDoS detection and line-rate mitigation.

OUTCOME

5G ready and poised for edge computing opportunities

Crown Castle scaled its network capacity to support its customers' 5G service rollouts despite tight timelines and supply chain challenges. With the Juniper PTX routers, Crown Castle is primed and ready for future demands of 800G and beyond. "We know Juniper routers are a safe and reliable investment for our national backbone and edge metros." says Francis.

The 400G network is also ready to support its edge computing strategy, as customers roll out innovations like augmented reality, virtual reality, IoT, and autonomous vehicles, which require the real-time transmission and processing of massive volumes of data.

"We expect to be unique in the edge world," says Francis. "We have the physical infrastructure that distributed computing requires - fiber, real estate, space & power and the right connectivity at 400G capacity to solve our customers workload needs."

> "With Juniper 400G routing, we can provide a secure, high-bandwidth communications infrastructure to support our customers' enterprise, operator and hyperscale network needs."
>
> Zach Francis
> Director of Network Architecture and Strategy, Crown Castle

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