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Cisco Converged Core

Enabling 5G Opportunities

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The emergence of 5G has ushered in a new era of innovation and advanced services, leveraging unparalleled speed, connectivity, and capacity for multiple devices. However, the transition from 4G to 5G has presented challenges for service providers seeking to adopt Non-Standalone (NSA) and Standalone (SA) models. These challenges include integrating technology, restructuring operations, addressing security, and making substantial financial investments.

The 5G Core rethinks past approaches yet maintains backwards compatibility with 4G LTE while adding profound 5G benefits. Adopting a converged core approach not only optimizes operations and scalability, but also enables diverse revenue streams through a unified infrastructure. Moreover, it establishes a future-ready network capable of satisfying the evolving demands of the digital ecosystem.

Cisco's Converged Core—The Most Innovative 5G SA Core Solution

The Cisco® Converged Core is a powerful and innovative solution that can optimize your networking infrastructure as you adopt new technologies. Cisco's Converged Core is also the most innovative core solution in the industry. It brings together the past, present, and future by supporting 4G, 5G NSA, and 5G SA capabilities as a single, converged platform. The Cisco Converged Core represents a monumental leap forward in simplifying the architecture and capabilities of mobile networks and, in collaboration with service providers, enterprises, and industries, facilitates a seamless transition into the 5G era. This innovation solution delivers scalability across diverse environments, catering to organizations and networks of all sizes, from private to public, and bridging the gap between legacy and modern systems.

Cisco's Converged Core is fundamentally based on:

- **Cloud-Native Architecture:** Cisco's Converged Core embodies a cloud-native approach, leveraging containerization, microservices, and advanced automation capabilities. This architecture enables Cisco's service provider partners to achieve unmatched scalability, agility, and operational efficiency. With easily consumable APIs and cloud-native principles, Cisco's Converged Core facilitates rapid service introduction, seamless migration of existing services, and simplified operations.
- **Continuous Integration and Continuous Delivery (CI/CD) Pipeline:** Cisco's Converged Core incorporates a robust CI/CD pipeline, revolutionizing service enablement, testing, and deployment. With an automated build, test, and deployment process attached to Cisco's development pipeline, operators can rapidly and reliably introduce new capabilities, features, and service upgrades without disruption.
- **DevOps Principles:** Cisco's Converged Core embraces DevOps, fostering collaboration between development and operations teams and synergies across partners. By integrating development, testing, and operations processes, Cisco's Converged Core accelerates feature development, improves operational efficiency, and enhances the quality of service that customers demand.

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- **Automation and Orchestration:** Cisco's Converged Core empowers service provider and enterprise customers by equipping them with innovative automation and orchestration capabilities. Leveraging the power of APIs, Cisco's Converged Core streamlines operations and seamlessly integrates with existing systems, facilitating optimal utilization of resources. Through automated provisioning, simplified configuration management, and closed-loop automation, customers and partners alike can effectively enhance network reliability while simultaneously reducing operational costs.

Through our collaboration and partnership with T-Mobile, we have developed the world's largest cloud-native converged core deployment for 5G SA and 4G/5G NSA and the first global 5G SA deployment at scale outside China. This deployment highlights the transformative capabilities of Cisco's Converged Core in rapid service introduction, innovation, scale, and operational efficiency.

At Cisco, we are committed to continuous innovation, investing in R&D, and closely collaborating with our key service provider partners. Through our unwavering commitment to excellence, we deliver significant value to our service provider partners, enabling them to offer new and innovative services to consumers and enterprises alike.

Cisco's Converged Core is a testament to our dedication to innovation and partnership with service providers. By leveraging cloud-native principles and a strong focus on automation, we empower our service provider partners to deliver exceptional user experiences, accelerate innovation, and drive global growth and adoption of 5G connectivity.

Topic	Summary
Technical Capabilities	• Unified mobility core to anchor 4G and 5G devices at the same time • Integrated Serving Gateway Control (SGW-C) capabilities along with Session Management Function (SMF) and supported in conjunction with unified User Plane Function (SGW-U and UPF) • 5G SA enabled for supporting policy via new service-based architecture • Policy and charging via new service-based Architecture • Allows for handover across 4G, 5G NSA, and 5G SA for seamless device migration • Network slicing enabled • Multiple deployment models supported—4G only, 4G+5G NSA or 4G+5G NSA and SA mode

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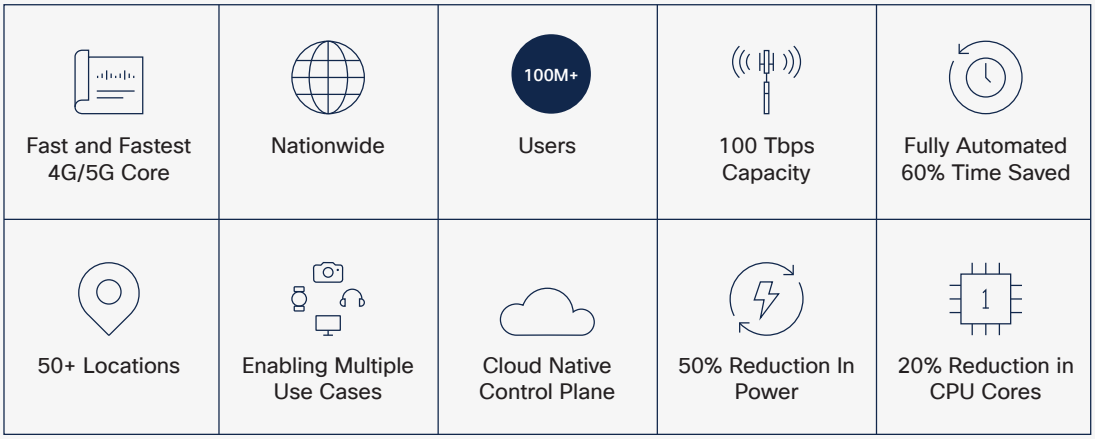
Topic	Summary
Deployment Capabilities	• Cloud-native architecture with industry-proven software stack components • Cloud-native cluster management layer that ensures consistent software and tunings across all layers • Cluster management layer that provides access via CLI, REST, and NETCONF interfaces • Enables automation via Cisco automation suite (e.g., Network Service Orchestrator (NSO) or service providers existing automation capabilities) • Visibility into key performance metrics using industry-proven toolsets—Prometheus Monitoring, Grafana • High-availability design and flexible architecture for scaling with clear state separation • Geo-redundant deployment model within traditional service provider data center architectures • Enables on-premises and Cisco Cloud-delivered models • Multiple redundancy modes supported; 1:1 and N:M on user plane
Performance Proof	 **Reference[1]:** T-Mobile and Cisco Launch World's Largest Cloud Native Converged Core Gateway

[1] https://newsroom.cisco.com/c/r/newsroom/en/us/a/y2022/m12/t-mobile-and-cisco-launch-world-largest-cloud-native-converged-core-gateway.html

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Topic	Summary
Key Advantages	• Delivers on call models and use cases familiar for service providers • Provides service parity for service providers migrating from existing Cisco 4G deployments • Reduces learning curve for service provider operations teams • Enables new enterprise deployment models and opportunities • Simplifies management and operations by unifying policy and service offerings • Automation CI/CD pipeline enhancements reduce the time required for upgrades, increasing network uptime, and improves end-user experiences • Economizes investments in the architecture of the future
Solution Links	• www.cisco.com/c/en/us/products/wireless/packet-core/index.html • https://www.cisco.com/c/en/us/solutions/service-provider/5g-network-architecture.html

For more information

Cisco's Converged Core gateway is a powerful and innovative solution that can optimize your networking infrastructure as you adopt new technologies. Built on a cloud-native architecture, Cisco's 5G Converged Core allows network operators to deploy and manage network functions more efficiently.

Find out more about how Cisco can help you improve network efficiency, reduce operational costs, and enable new revenue streams.

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