infinera

CORIANT IS NOW PART OF INFINERA

Hyperscale Carrier Architecture Unleashes the Power of 5G

Enabling Transport Networks to Support 5G Innovations While Lowering Costs

The evolution to 5G progressed with the clear goal to address demands of new industry segments including automotive, manufacturing, and entertainment IT and to provide fiber-like residential broadband access. New types of latency-sensitive applications such as Augmented Reality/Virtual Reality (AR/VR) and self-driving cars are propelling significant changes in transport and aggregation networks. Figure 1 summarizes a few major aspects in mobile and transport networks impacted by 5G, including types of applications, challenges for network requirements, and network architecture characteristics.

	Next-generation 5G Mobile Network and Transport	
Applications	IoT (Internet of Things)	Virtual/Augmented Reality
	Industry Automation	3D Videos and Ultra-high Quality
	Mission Critical Applications	Self Driving Cars
Network Requirements	High Backhaul Capacity	Increased User Experience Data Rate
	Ultra-low Latency	High Connectivity
	Energy Efficiency	Mobility
	Scalability	Programmability
Network Architecture	SDN/NFV Enabled Network	Large Number of Cells/Micro Cells
	Dynamic Network Slicing	Next-generation Radio
	Mobile Edge Computing	Fiber-based MHF
	Disaggregation	Cloud RAN

Figure 1 - 5G and Transport Network Characteristics

Internet Content Providers (ICPs) already rely on scalable data center architectures that provide high efficiency, programmability, and agility. Now telco service providers are reevaluating their network infrastructure due to the increasing amount of video traffic and cloud-based services and the upcoming rollout of 5G together with new advanced applications in the areas of IoT and industry automation.

BENEFITS OF CORIANT HYPERSCALE CARRIER ARCHITECTURE FOR 5G EVOLUTION

- **Transforms** carrier networks into data center centric architecture that leverages 5G functionalities
- **Enables** one flexible network, which can be dynamically sliced to support various applications
- **Delivers** multi-layer optimization and coordination through intelligent SDN control and NFV technologies
- **Offers** network agility by providing the flexibility to place network functions where needed
- **Improves** Quality of Service (QoS) and minimums latency for an enhanced service experience

In this evolving landscape, service providers must transition toward an integrated IT/telco network that adopts technologies and concepts of highly automated hyperscale data centers. An integrated network enables the flexibility to add economically efficient capacity and functionalities in network domains where needed. The typical 5G infrastructure evolves from a central Evolved Packet Core (EPC) toward a cloud-based micro EPC at the network edge. It shifts applications closer to the Radio Access Network (RAN), which enables the retrieval of network data and the allocation of user-specific network resources and functionalities. Furthermore, 5G introduces new network functions like Dynamic Network Slicing and Mobile Edge Computing. These functionalities require a cloud and data center based infrastructure that provides flexible, high-capacity, and scalable connectivity across the entire network domain.

HYPERSCALE ARCHITECTURE ENABLES 5G

Coriant Hyperscale Carrier Architecture (HCA) design principles enable the transformation from a traditional transport design into a converged (fixed and mobile) data center centric network to leverage the full scope of 5G. HCA enables a hyper scalable, efficient, software programmable, and agile transport network that ensures fast service provisioning and supports the development of new business models. Based on the Coriant solutions portfolio, including the Coriant® hiT 7300 Multi-Haul Transport Platform, Coriant® mTera® Universal Transport Platform, Coriant® 7100 Nano/Pico Packet Optical Transport Platforms, Coriant Groove™ G30 Network Disaggregation Platform, Coriant® 8600 Smart Router Series, and standard white box platforms, HCA provides data center centric architectures for access, aggregation, and core domains of the network. Various types of network elements are configured within the site architecture independent of the required functions and Layer 0 to Layer 3 technologies. Higher layer network functions are predominantly performed by Virtual Network Functions (VNFs) running on a standard server.

The Coriant Transcend™ SDN Solution and Network Functions Virtualization (NFV) technologies offer the management and control that enables programmability, automation, and simplified operation, which ensure the agility and efficiency of the network. The principle of separating hardware and software functions, in combination with intelligence control, offers a highly agile network operation that ensures an easy extension of site capacity together with flexible management and provisioning of VNFs and resources.

KEY ADVANTAGES OF CORIANT HYPERSCALE NETWORK ARCHITECTURE

- Highly scalable network architecture relying on separated software functions and universal white box based hardware
- One flexible network, which can be dynamically sliced to support various applications
- Fully integrated into Transcend SDN/NFV enabling 5G principles such as Network Slicing and Mobile Edge Computing
- Reduced vendor lock-in due to open source software
- Efficient resource management to allocate functionalities and resources only if and where needed

infinera®

www.infinera.com