

End-to-end network slicing

Network slicing enables new business opportunities for communications service providers (CSPs) across a wide range of use cases and industry verticals, by making it possible to create fit-for-purpose virtual networks with varying degrees of independence.



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Monetization



Slice monetization makes it possible to collect the payments for the services that CSPs offer on top of the network slices, and to pay partners and suppliers. CSPs do not sell the slice, rather they sell a set of services on top of it.

Charging and billing manages the rating, charging and billing cycles and the partner, supplier and customer contracts. The product catalog takes care of commercial product offerings and their life cycles, while customer order management orchestrates the end-to-end product order life cycle.

Service assurance and SLA management



Service assurance and service-level agreement (SLA) management monitors performance and system health to secure the operational SLA, for example via closed-loop automation processes. SLA definitions and specifications are integrated with the service orchestration and assurance to ensure agreed KPIs are met.

Service design



Service design provides the necessary tools to design a network slice based on the available network components and models. Users have access to a template where they can define the slice type, characteristics and workflows. After the design phase, it is pushed to the slice orchestrator for deployment and activation. The slice is added to the service catalog to provide the network service "building block", which can be used to create commercial product offerings.

Service ordering and orchestration



Service ordering creates the network slice and orchestrates the end-to-end order life cycle process through automated fulfillment workflows and catalog-driven order decomposition.

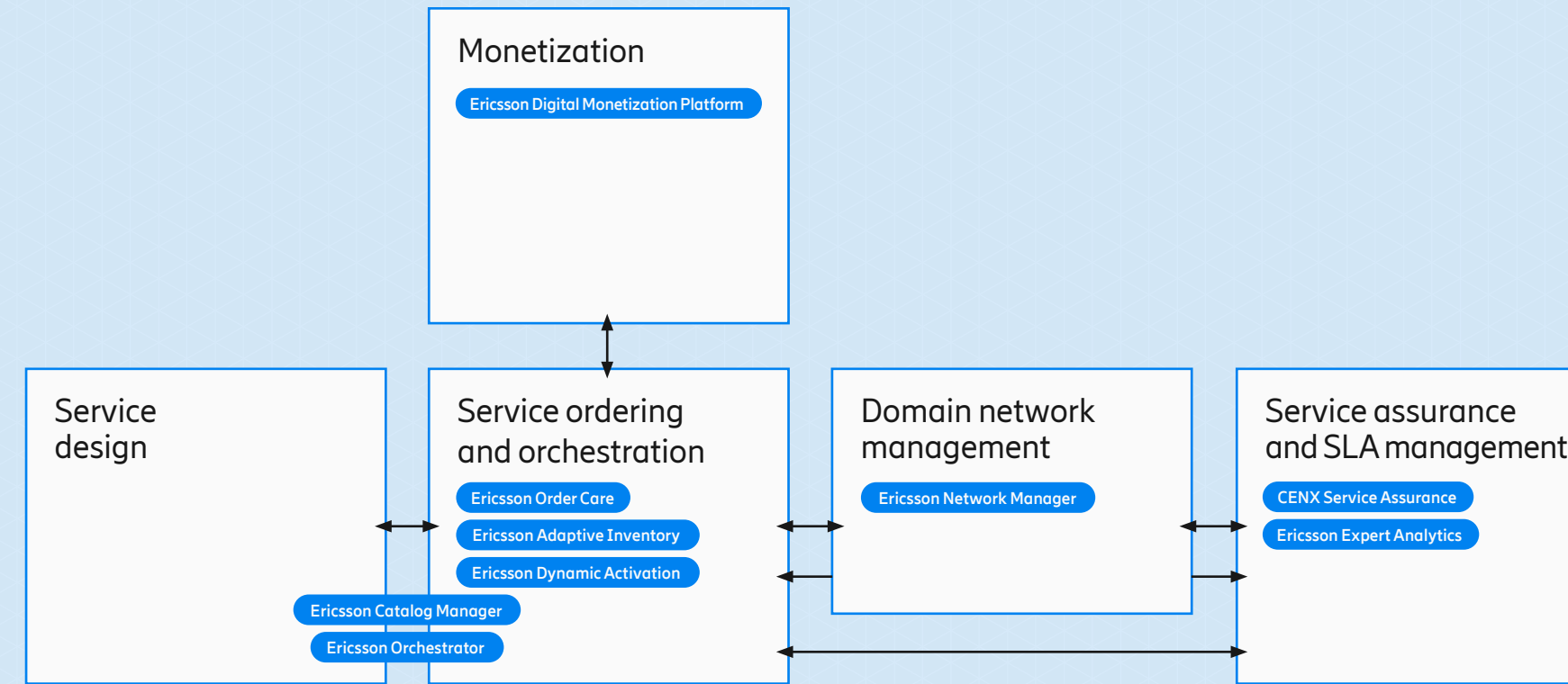
Slice orchestration is responsible for overall end-to-end deployment across the 5G network – working with the virtual network functions manager (VNFM), network management system (NMS), element manager system (EMS) and controllers in the domain management function to deploy the network service across hybrid and multi-vendor networks.

Domain network management

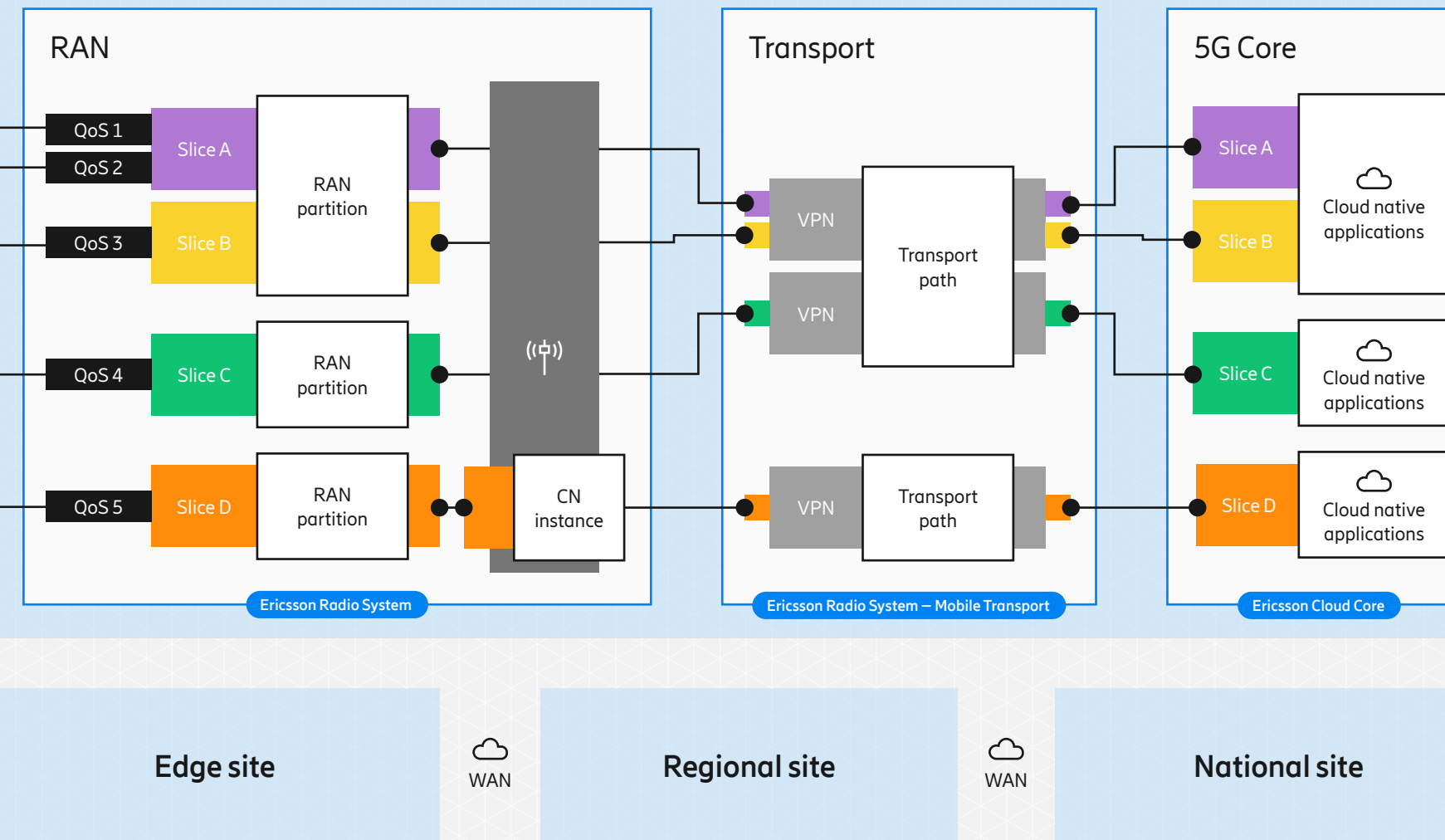


Domain network management works alongside orchestration during deployment of the network slice. It provides fault, configuration, accounting, performance and security (FCAPS) functions for the physical network functions (PNFs), virtual network functions (VNFs) and cloud native network functions (CNFs) across end-to-end multi-domain and multi-layer networks. It also provides zero-touch and self-healing capabilities for superior network performance.

End-to-end network slicing monetization and automation



End-to-end network slices



RAN



Built on a flexible and scalable architecture, the radio access network (RAN) dynamically optimizes radio resource allocation and prioritization across slices for securing SLA fulfillment of associated services and end users. 5G RAN slicing adds a range of new capabilities to the RAN, strengthening end-to-end slicing support for dynamic resource management and orchestration.

Transport



Traffic from a single or group of network slices should be mapped into transport resources that match the required SLA for the slice or group of slices. It is important to consider the capabilities and capacity of the transport infrastructure when selecting enablers. There are multiple enablers in the transport domains to support network slicing use cases.

5G Core



The core network makes it possible to define network slices with dedicated, or shared, user-plane, control-plane or data-plane network functions (NFs) during design. When a device or application requests to connect, subscription and policy controls determine the network slice instantiation of NFs to use. A dedicated user-plane function (UPF) is needed to provide optimal redundancy level, eliminate risk of interruption from other services and ensure low latency, allowing the user data traffic to stay on-premises. When the control-plane and data-plane functions are dedicated, the slice constitutes a fully independent logical network. The cloud native 5G Core enables some NFs, such as the UPF, to be deployed closer to the user for latency-sensitive applications.

Ericsson has a complete portfolio of business support systems (BSS), operations support systems (OSS), RAN, transport, core network functions and cloud infrastructure to unleash the full potential of network slicing.