



Legend



Control plane	Control plane includes signalling protocols to control the functionality of the mobile network, such as session management, mobility and authentication.	Network Function	Network function in RAN or core network. Only some of the network functions are shown.
User plane	User plane includes the protocols to carry user's data (applications) over the mobile network to the applications domain.	Protocol	Protocol specified by 3GPP.
Application layer	Application layer includes the application protocols carried over the mobile network from the device to the applications domain.	Protocol	Protocol specified by IETF.
Device domain	Device domain includes the devices that use the mobile network to reach applications in the applications domain.	SeGW	Security gateways can be used to terminate IPsec between security domains in a network. SeGWs are shown as an example in the serving network.
Access network domain	Access network domain connects the devices to the core network domain.	—	User to network security includes authentication of subscribers and protection of signalling and user data between the device and the network.
Core network domain	Core network domain is divided into serving and home network domains. It includes services such as mobility and session management, authentication and charging.	- - -	Network domain security includes protection of signalling and user data between the access network and core network, between network functions within core network domain, and between core networks over the interconnect network. (Network domain security within the home network is not shown.)
Interconnect network domain	Interconnect network domain connects the core networks of different operators together, and as such enables also roaming.	—	Application layer security includes the protection of application protocols between the device and the applications in the applications domain. Application layer is outside the scope of mobile network and interoperability is up to the applications to guarantee. Figure shows the example of HTTP over TLS (i.e. HTTPS).
VNF/CNF	Core network control plane functions as well as some RAN functions can be realized as virtualized network functions (VNF) or cloud-native network functions (CNF) over a cloud infrastructure. PNF is a physical network function.		
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