

Security Requirements

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Control Plane

❑ Authentication

Control plane need to authenticate to defend network attacks, each device could use Access control list to achieve whitelist.

❑ Encryption

Control plane protocol encryption could use IPSec or MACSec, control place usually use IPv4 or IPv6 to manage the network, and control plane run on CPU platform, so IPSec is better than MACSec.

Data Plane

❑ Authentication

Data plane need match extra data plane fields defined by 5G fronthaul.

❑ Resource limit

5G will import Massive clients, Data plane should define the action after the resource has exhausted, the device should notify control plane, and the control plane should refuse new client.

Clients number limit should per slice or globally.

❑ Client isolations

Slicing can isolate the client from different slice, but security need more strictly isolation, the clients could be isolated in one Slice.

❑ Encryption

Data plane need strictly latency requirement, so data plane need to use MACSec (AES256/GCM) to encrypt the packets, MACSec will add extra 500ns latency.