Subscriber-aware Dynamic SFC

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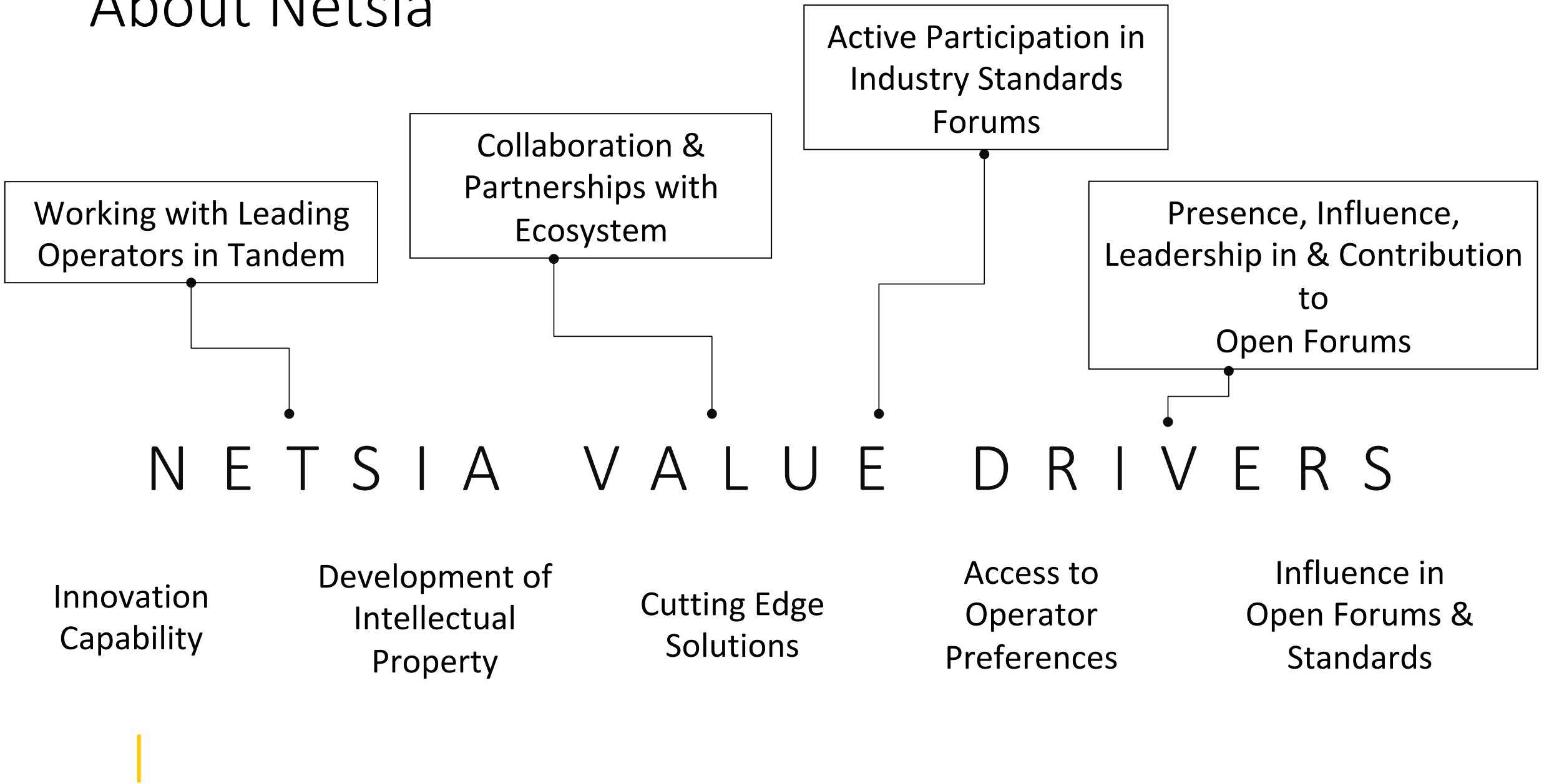
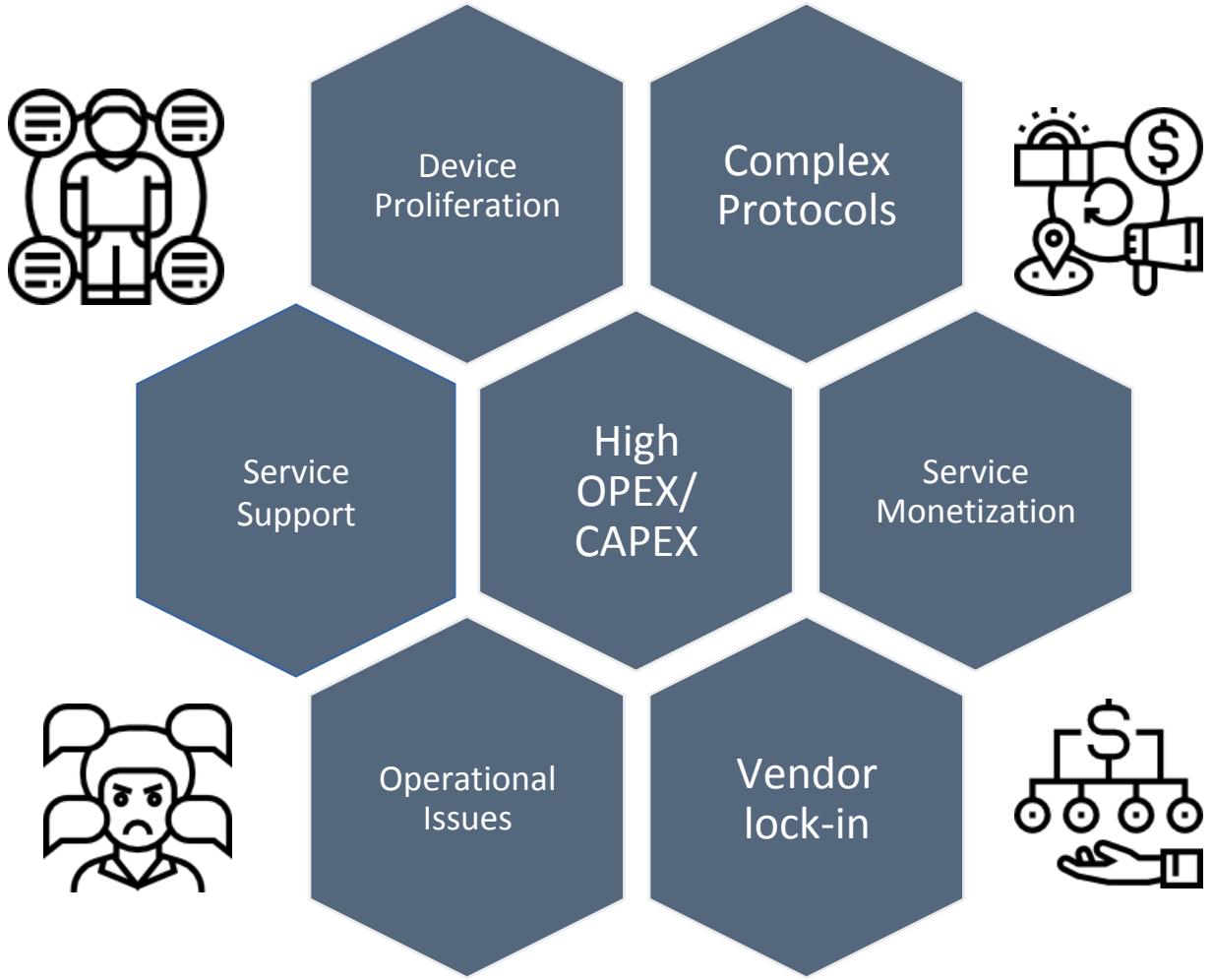
About Netsia



Mobile Operator challenges



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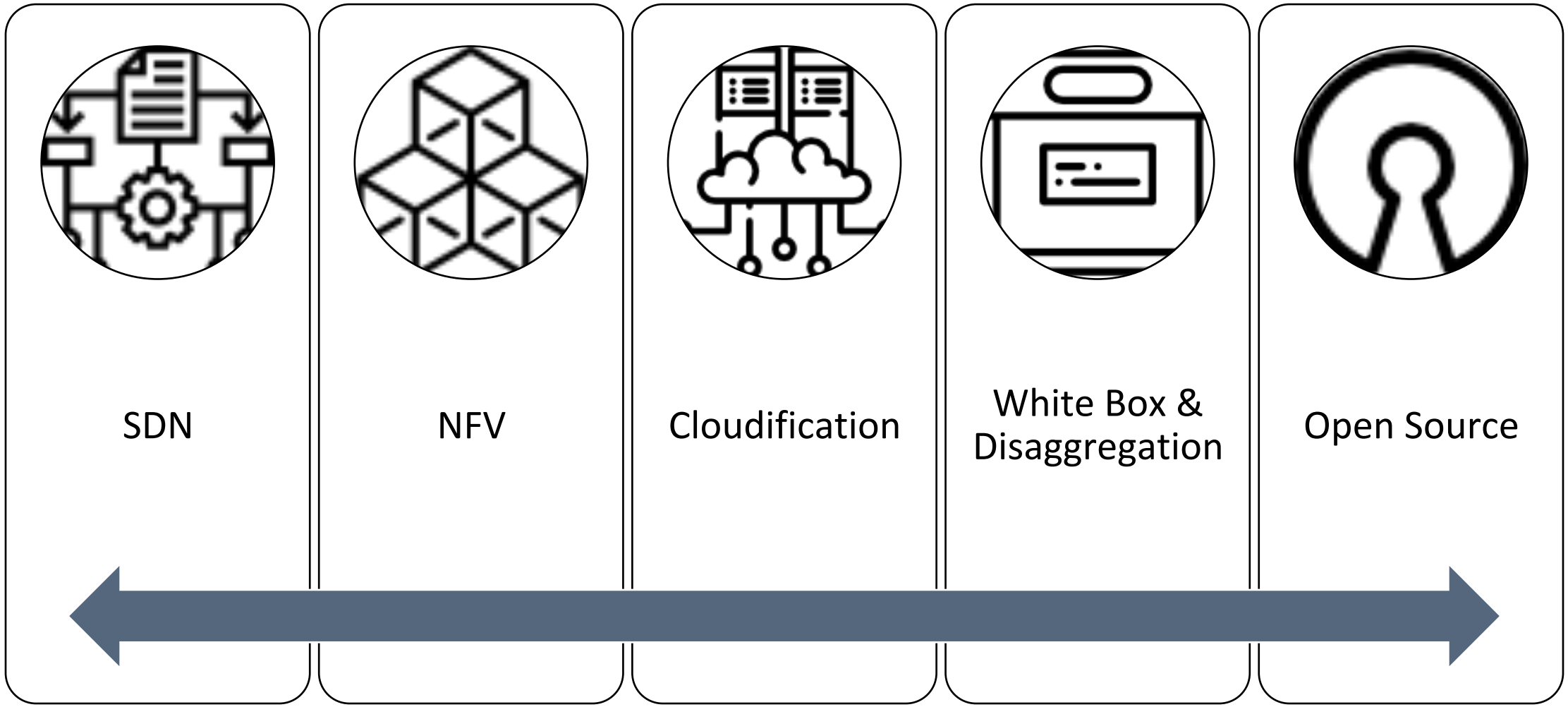
Operator – Next Gen Technology Adoption



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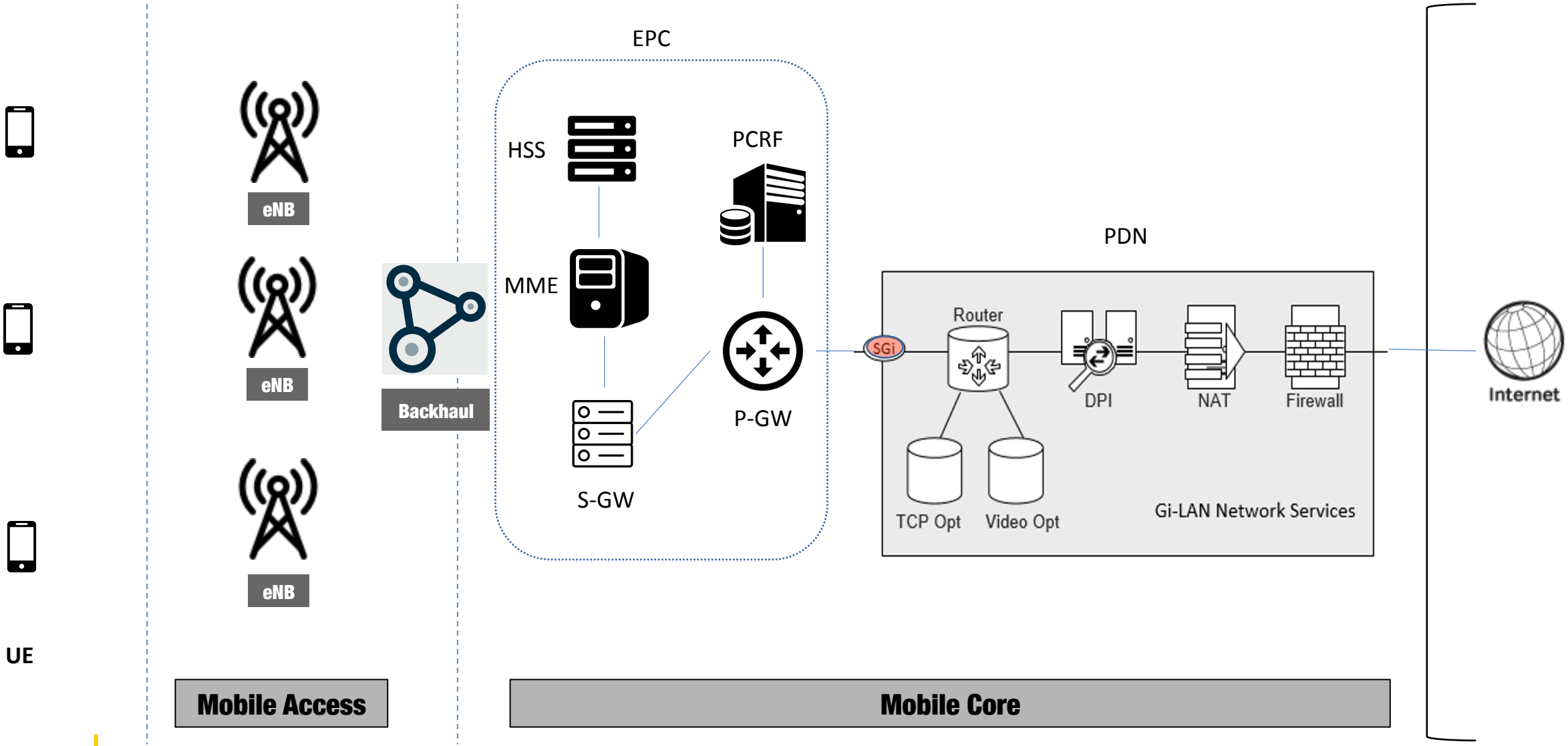
Use Case: S/Gi-LAN in 4G LTE network



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Static SFC drawbacks

Today's static Gi-LAN SFC deployments limits the CSPs' ability to scale, innovate, and monetize new services.

❑Topological dependencies

❑Configuration complexity

❑Constrained high availability

❑Traffic selection criteria

❑Limited end-to-end service visibility

❑Classification and reclassification per service function

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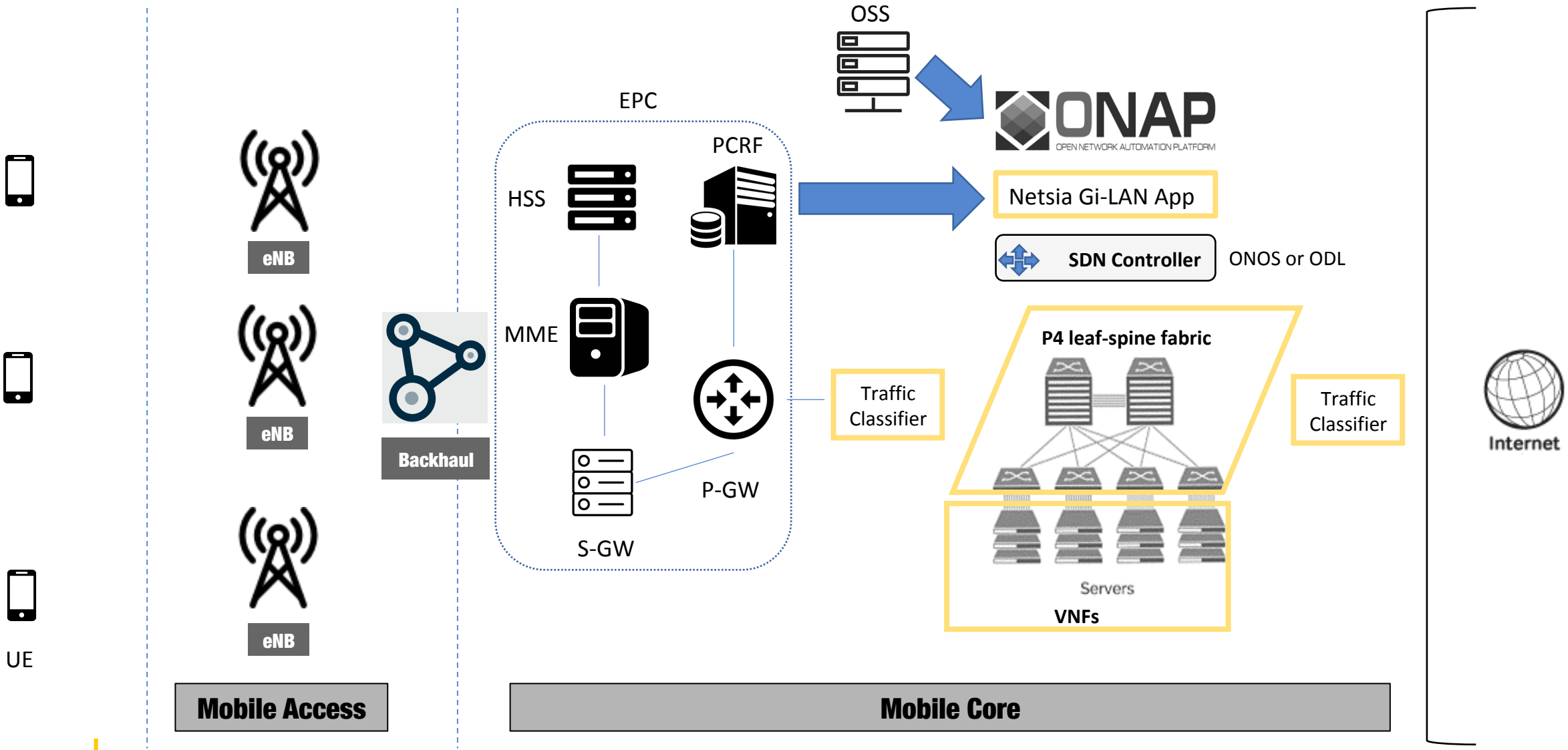
Netsia - Subscriber-aware Gi-LAN



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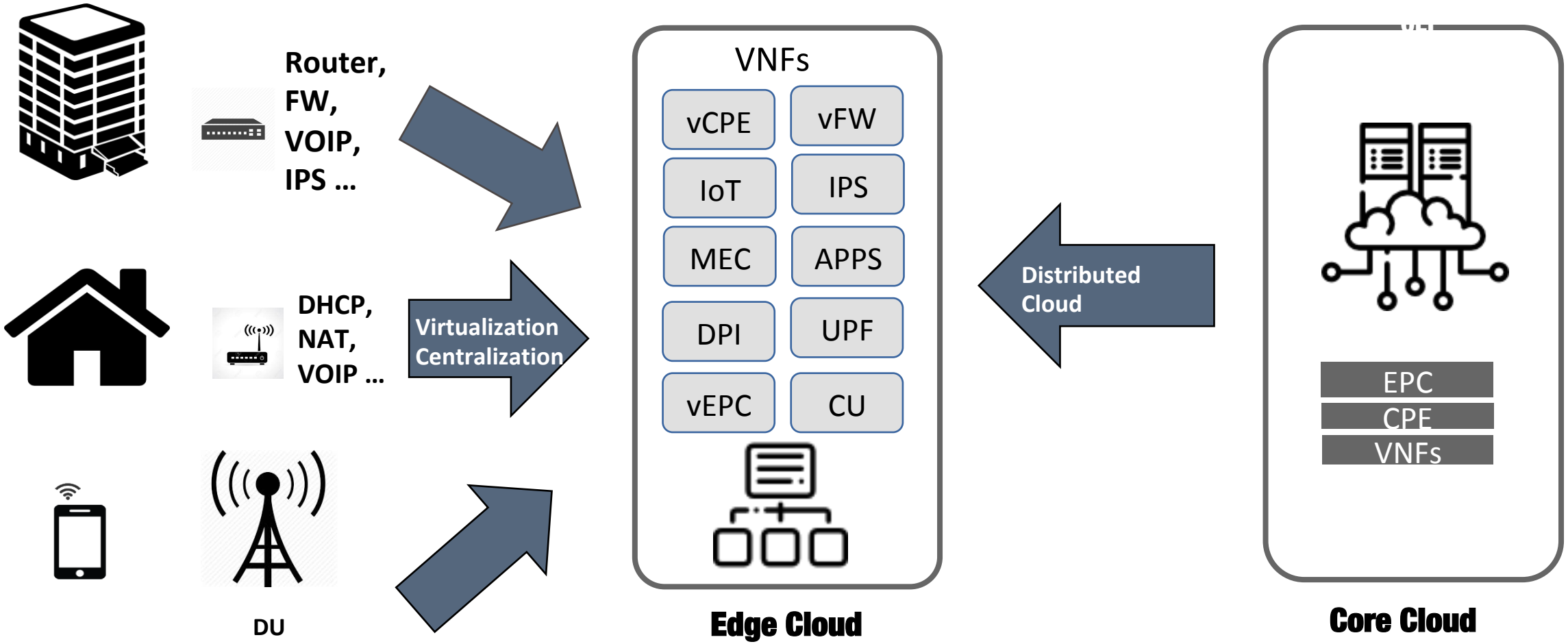
Edge Cloud evolution



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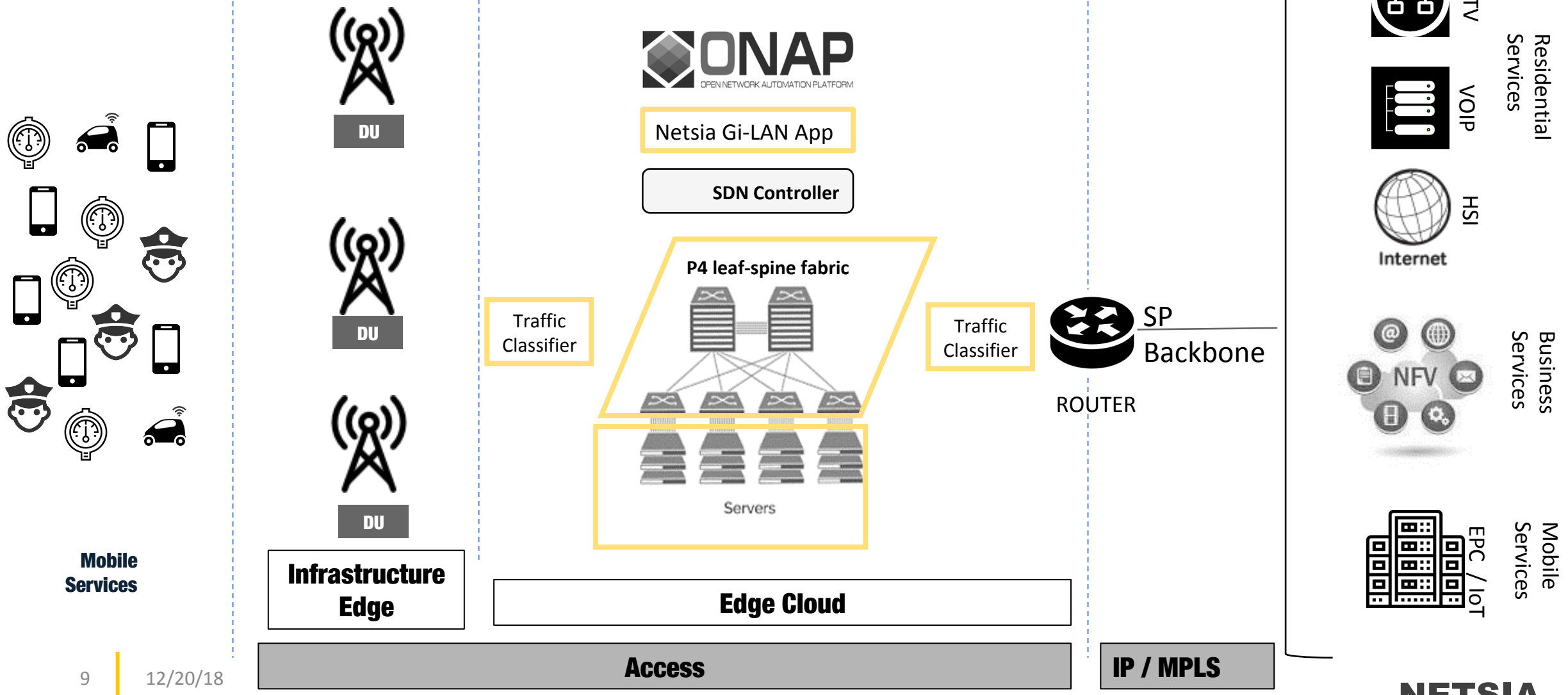
Dynamic SFC in Virtualized & Disaggregated 5G networks



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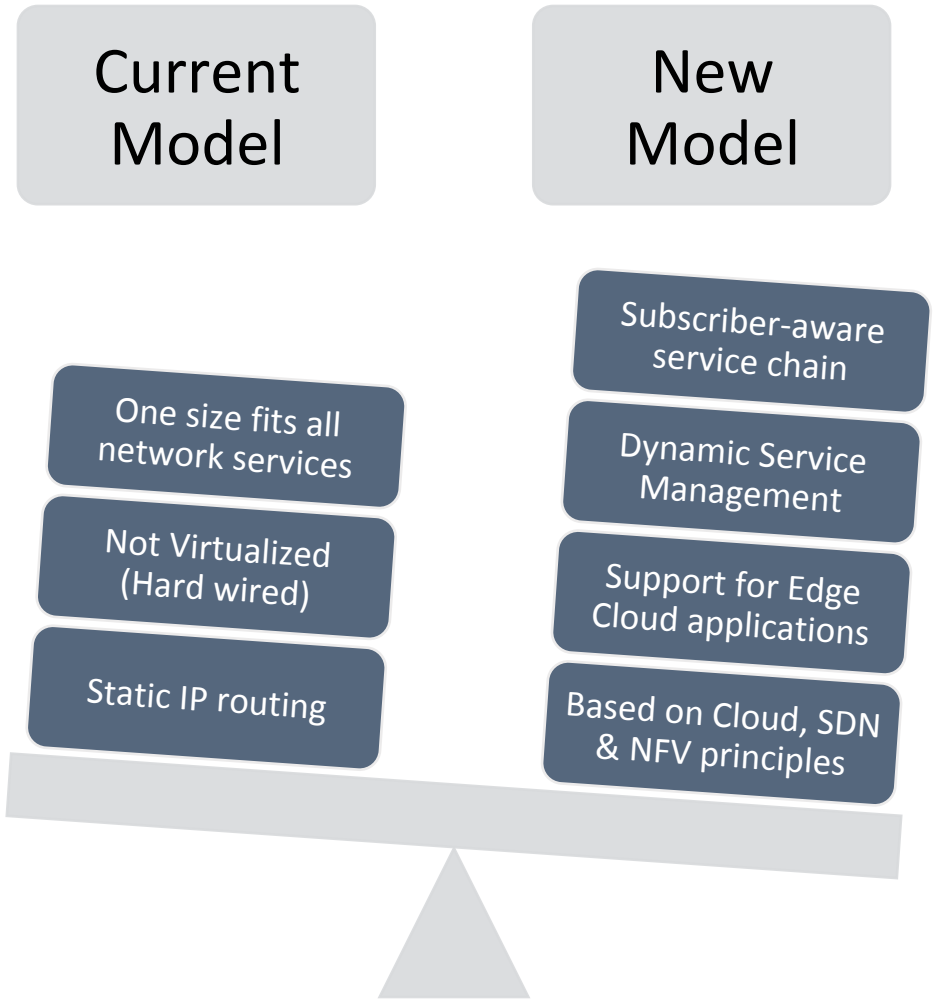
Netsia Dynamic SFC

Support of Different NFV & SDN Framework	• Provides generic interfaces for NFV Orchestrators • Pre-integrated with ONAP • Works with ONOS or ODL SDN Controllers
Cloud Native and standards-based architecture	• Provides generic interfaces for NFVI integration • Pre-integrated with Kubernetes
Subscriber Data Integration	• PCRF integration • Radius integration • Probing integration
Multi-SFC Selection Parameters	• IMSI – MSISDN, IMEI- Device Type, Location, APN, Slice ID • Service Application Type (Video, IM etc.), Protocol (HTTP), Application (Facebook, YouTube, etc.)
Support Slicing or Services and Service Chains	• VNF and PNFs can be Sliced • Dedicated internet capacity, VNF/PNF, number of flows capacity • SLA controls (RTT, RTO) for a Slice and Self Healing of SLAs

Next gen Gi-LAN



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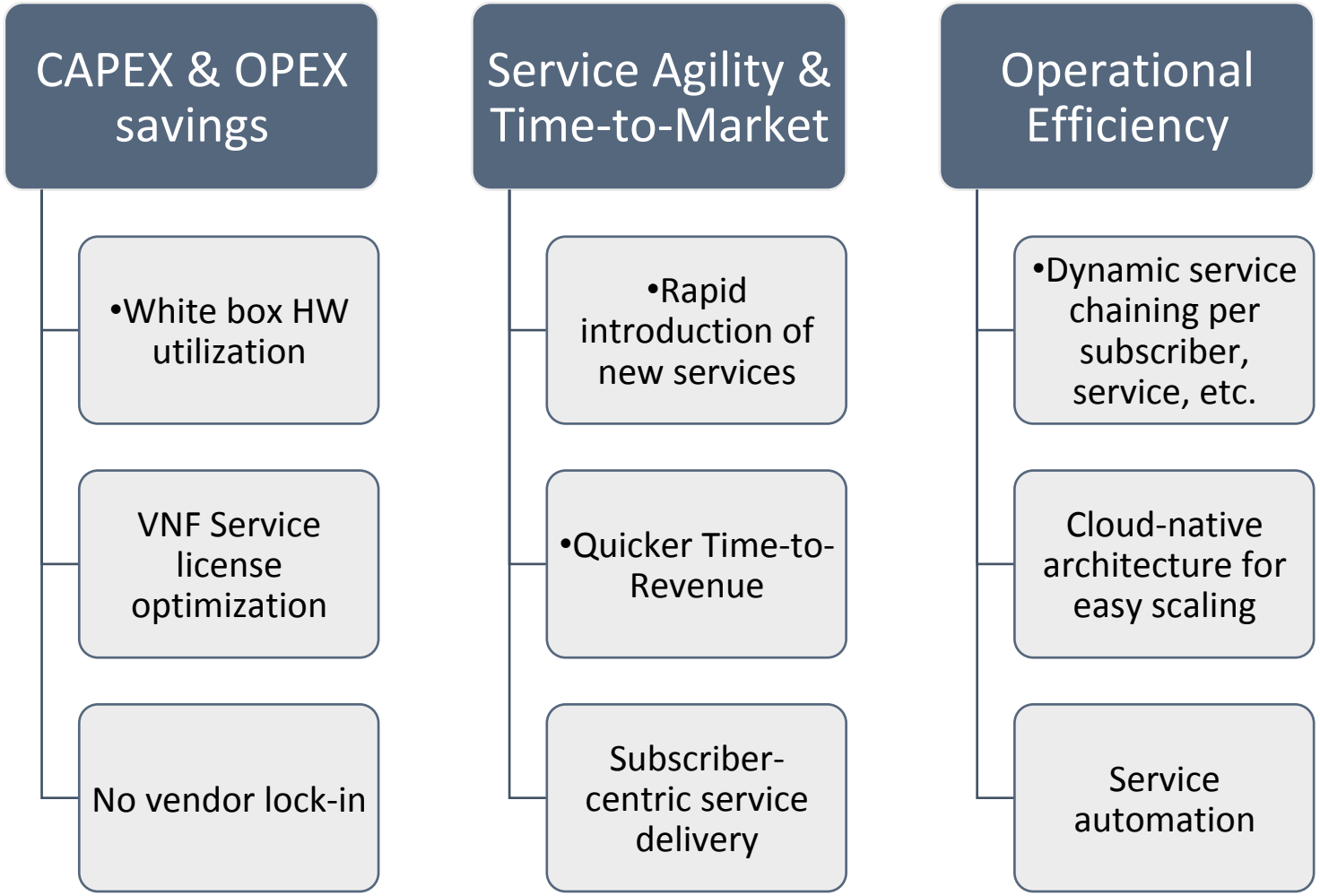
Benefits



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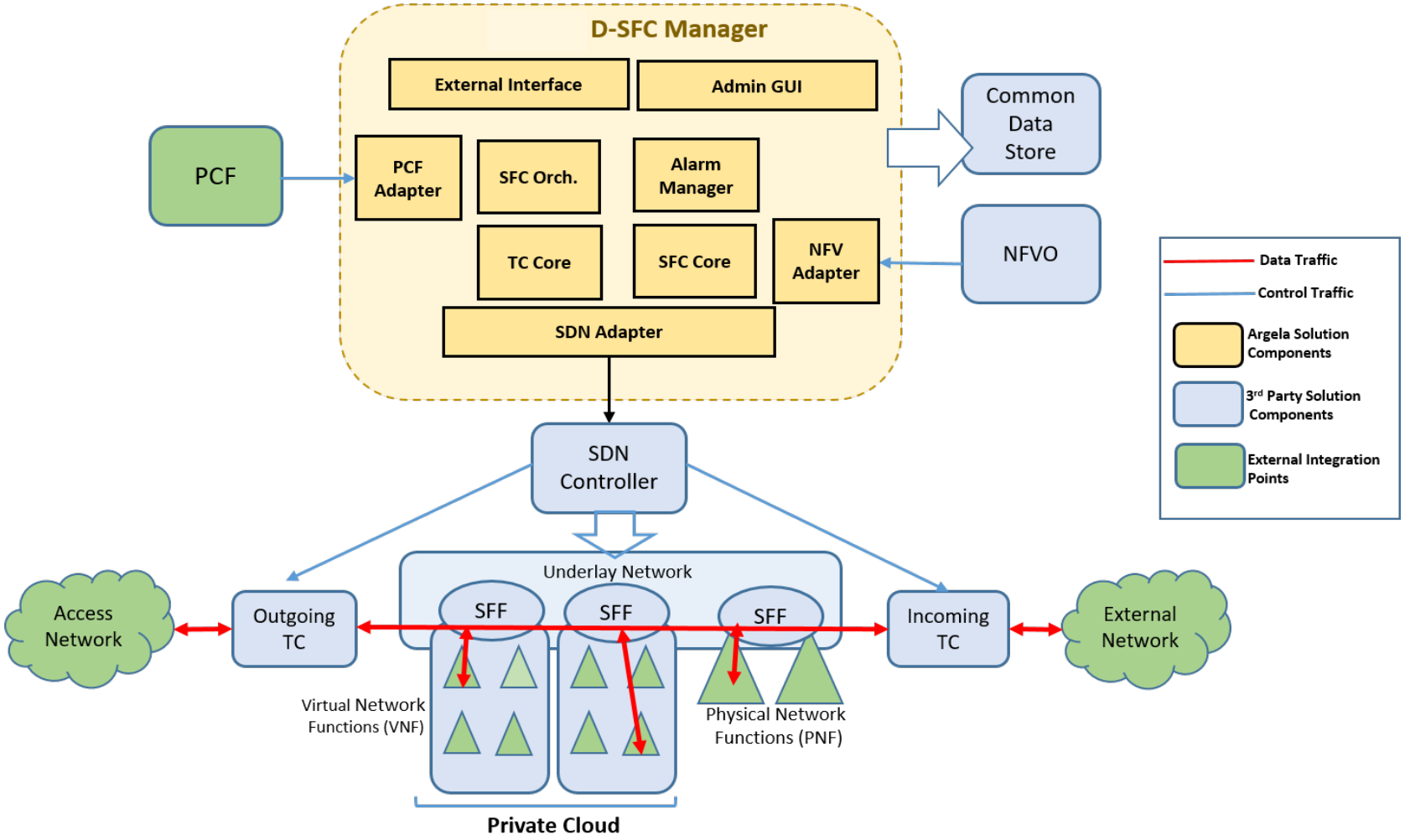
Functional Blocks



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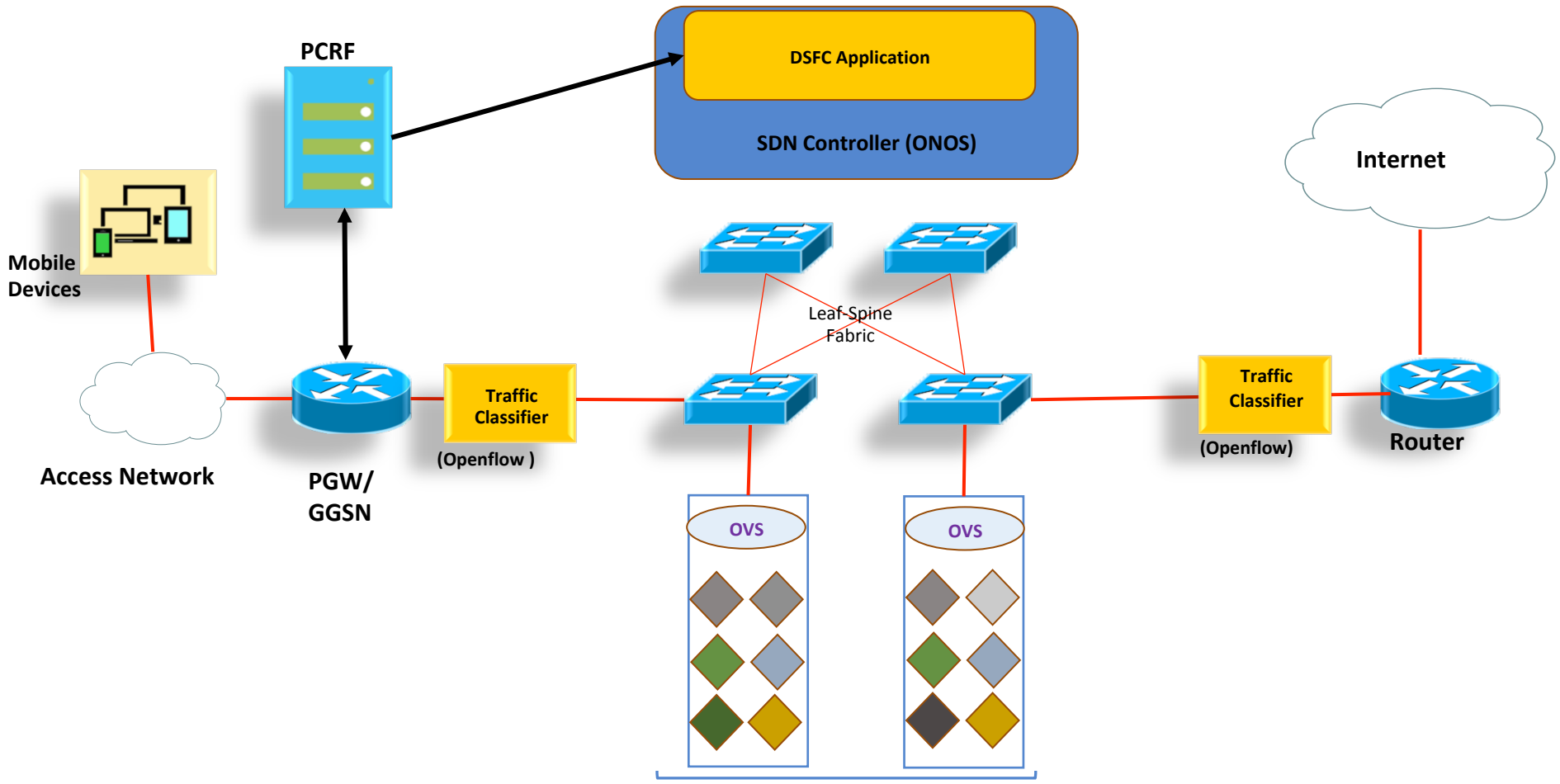
Lab Trial @TT



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P4 test results

Scenarios	Ingress (Gbps)	Egress (Gbps)	Max Packet Latency (µs)	Avg Packet Latency (µs)	Lasted (s)
01-poc_l3_exact	*40*	*39,93*	*11*	*5*	*156,2*
02-poc_l3_ternary	*40G*	*39,93*	*11*	*4*	*156,2*

Using ipv4_host table with single exact criterion

Test Scenario	Maximum Entry Size
01-poc_l3_exact (SRAM)	2.200.000
02-poc_l3_ternary (TCAM)	147.250
03_poc_l3_alg_tcam (SRAM+TCAM)	983.000

Using ipv4_host table with etherType criterion added

Test Scenario	Maximum Entry Size
01-poc_l3_exact (SRAM)	2.211.000
02-poc_l3_ternary (TCCAM)	72.000
03_poc_l3_alg_tcam (SRAM+TCAM)	980.000

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SDN Controllers Test Results

Controller Type	Total number of flow rules	Modify requests per second	Controller CPU usage	Result
 ONOS	1M	500-ADD	30%	OK
	1M	500-DEL	%55-70	OK
	1M	1500-ADD	%75-80	OK
	1M	1500-DEL	%95-100	OK
	1,2M+	250-ADD & 250-DEL	%45-55	Not stable
 RYU	1M	500-ADD	45%	OK
	1M	500-DEL	40%	Not responding
	1M	1500-ADD	63%	OK
 Floodlight	1M	500-ADD	23%	OK
	1M	500-DEL	23%	OK
	1M	1500-ADD	%20-25	OK
	1M	1500-DEL	%25-30	OK
	1M	250-ADD & 250-DEL	%15-20	OK
	1M	750-ADD & 750-DEL	25%	OK
	5M	2000-ADD & 2000-DEL	37%	OK

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Thank you