Service Function Chaining Use Cases
draft-liu-service-chaining-use-cases

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Introduction

- Two use cases will be addressed, there are more others
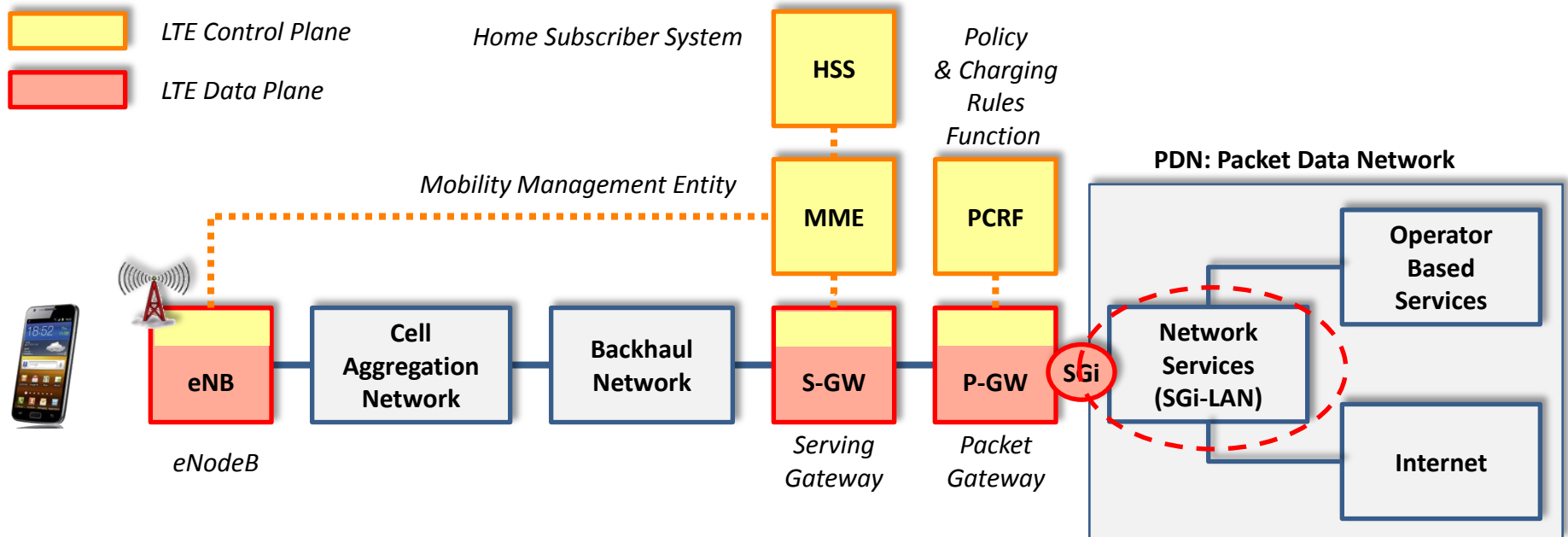 - (S)Gi-LAN
  - NFV

(S)Gi-LAN

Figure source: Network Based Services in Mobile Networks, IETF 87, Walter Haeffner

- ❑ SG-interface is the 3GPP reference point between P-GW and PDN, such interface is called G-interface in 3G network
- ❑ PDN(Packet Data Network) includes Internet and operators' service enablers, which reside in SGi-LAN
- ❑ Typical network services functions here includes: firewalls, DPI, video optimization, TCP optimization, HTTP header enrichment, NAT, load balancers, caching, etc.

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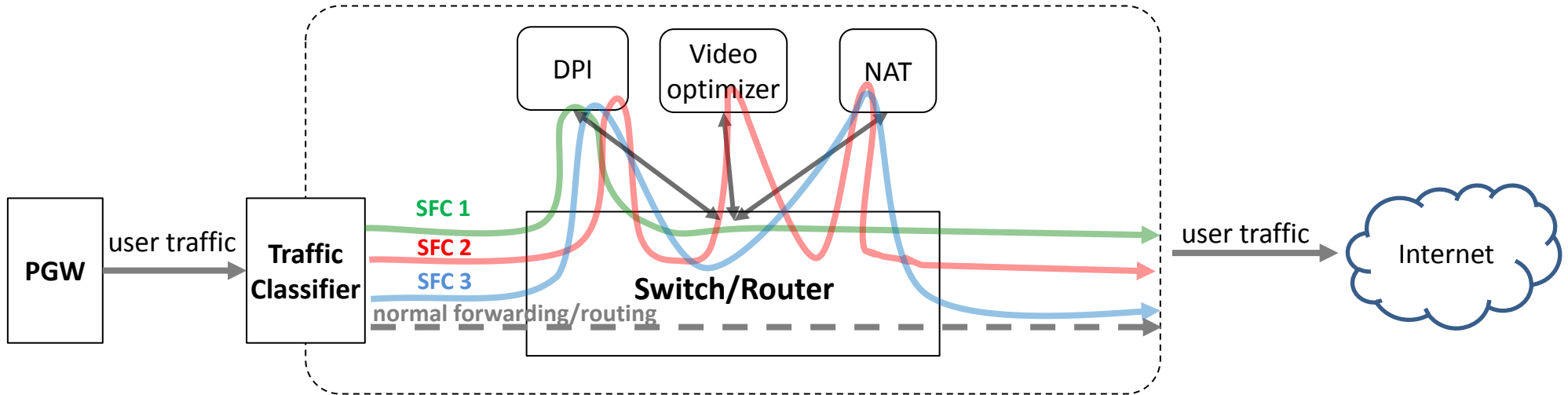
- A service function chain is a different path from normal forwarding or routing, where traffic is steered according to service characters
- Traffic must be steered through service functions in a specific sequence
  - Service function chain1: default path
  - Service function chain2: http video traffic
  - Service function chain3: https

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- Current common approach
  - Hard-wired, static IP routing, policy routing etc. are used
  - Continuously increase of manual configuration complexity
  - Tightly coupled service function chain and underlying LAN topology
- What are expected from operators
  - Automatic service provisioning
  - Simple, instant and flexible chain configuration
  - Expandable service functions and chains
  - Supporting virtualized service functions
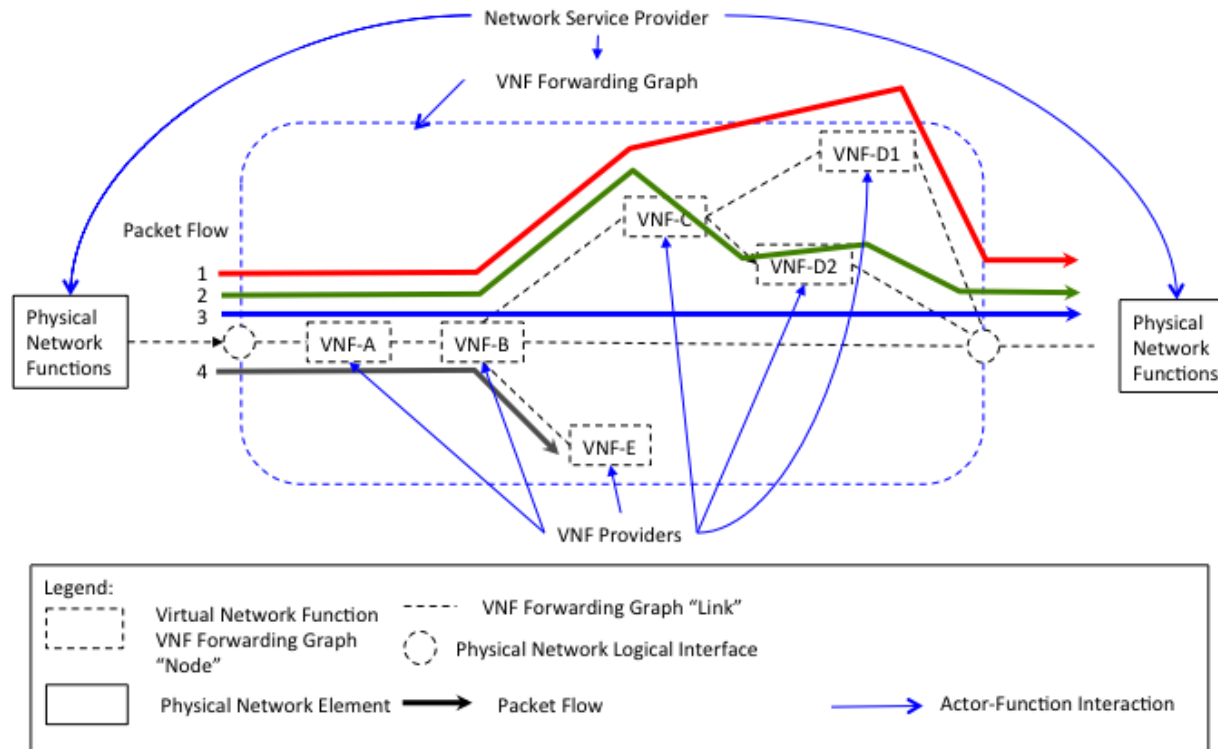
NFV -- Virtualized Service Functions

Figure source: ETSI GS NFV 001, Network Functions Virtualisation (NFV) Use Cases

- NFV requires chaining service functions (VNFs) in a certain sequence
- Each colored line identifies a service function chain
- SFC must be decoupled with underlining network topology, to support VM migration and inter-location deployment
- One service function may be reused for different SFCs, where identifying each SFC coming from the same service function by the forwarding plane is prerequisite

Summary

- We presented two representative use cases to illustrate the high level motivation for the work
  - There are many more other use cases
- Propose to have a set of representative use cases driving problem statement