



Accelerating Network Function Virtualization and Service Function Chain Processing for Emerging 5G Services and Edge Computing

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Network Function Virtualization (NFV), coupled with Software Defined Networking (SDN), promises to revolutionize networking by allowing network operators to dynamically modify and manage networks. Operators can create, update, remove or scale out/in network functions (NFs) on demand, construct a sequence of NFs to form a so-called service function chain (SFC) and steer traffic through it to meet various policy and service requirements. In the emerging 5G technologies – besides innovations in radio technologies such as 5G new radio (NR), NFV will be a key enabling technology underpinning the envisioned 5G “Cloud RANs” (radio access networks), MECs (mobile edge clouds) and packet core networks for support of network slicing and diverse services ranging from enhanced mobile broadband (eMBB) to massive machine type communications (mMTC) and ultra-reliable low latency communications (URLLC). For example, upon a request for a service (e.g., from a mobile user or a machine, say, an autonomous vehicle or an industrial controller), a SFC will be dynamically constructed using a series of virtualized network functions (vNFs) such as firewalls, mobility managers, network address translators, traffic shapers and so forth that are deployed on demand at appropriate locations within a (dynamic) network slice to meet the desired service requirements.

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