



Service Function discovery in fog environments

draft-bernardos-sfc-discovery-00

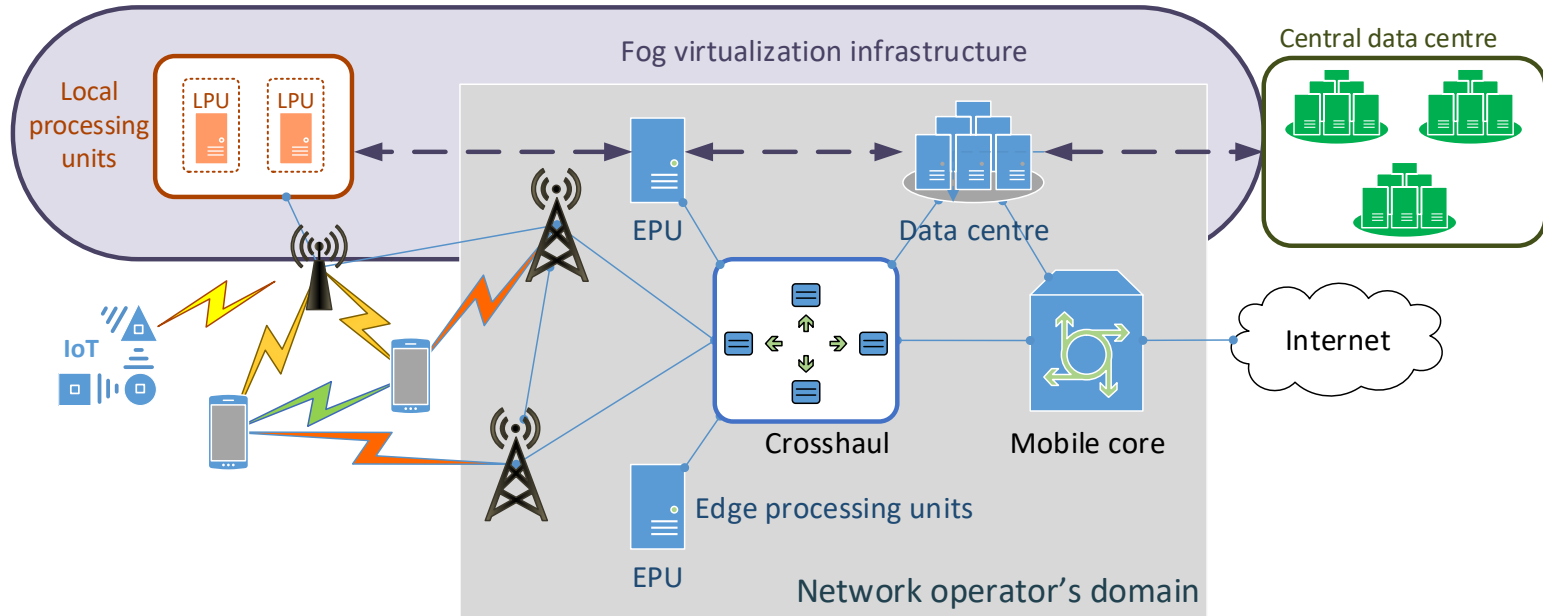
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Motivation

- Virtualization is becoming pervasive to all domains of E2E networking
- The edge virtualization substrate has been largely assumed to be fixed or stationary
 - But it is now being extended to scenarios where the edge computing substrate is on the move, distributed further down the edge, and even integrating resources from different stakeholders
 - This is referred to as *the fog*
- A mobile terminal can benefit from using service function chaining at the edge/fog to enhance existing applications or to enable new ones
 - **Discovery** of available service functions is required

Edge/Fog



- The fog is composed by virtual resources on top of heterogeneous resources available at the edge and even further in the RAN and end-user devices
 - Virtual networking functions (VNFs) may execute anywhere in the fog – cloud continuum

Discovery of SF at multi-provider edge

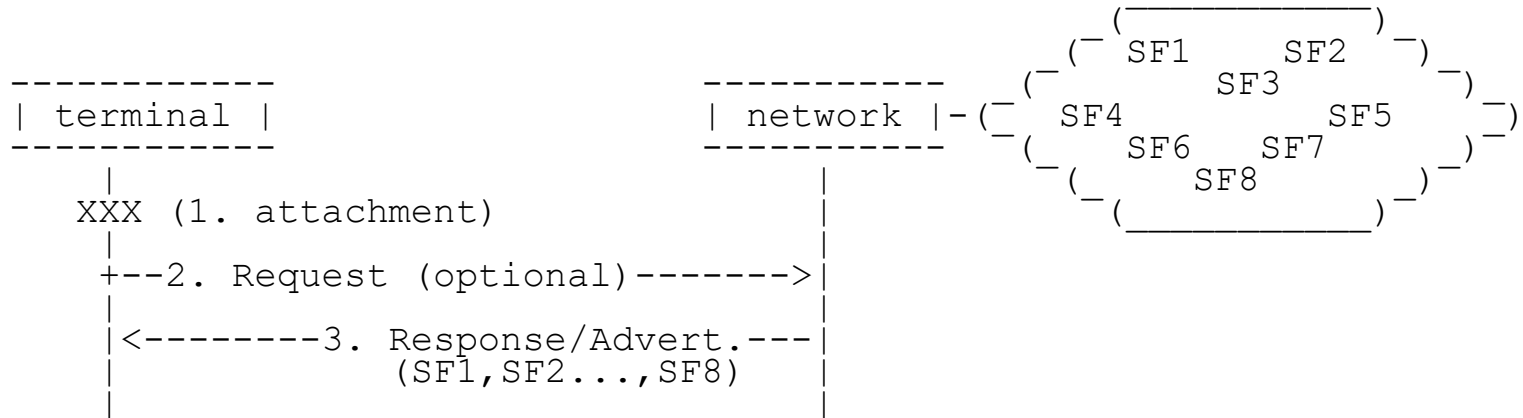
- A mobile terminal can benefit from using SFC at the edge/fog to enhance existing applications or to enable new ones
 - Some examples: privacy enhancement by local anchoring, opportunistic local breakout, etc.
- The mobile terminal might look for function hosting opportunities at the edge for various reasons such as:
 - to increase battery life in critical situations by offloading energy demanding operations;
 - to reduce communications latency (e.g., by using local breakout at the edge for selected applications demanding low latency);
 - to enable new functions which demand additional intelligence/resources at the network;
 - to benefit from context information available at the edge.

Network-based SF discovery

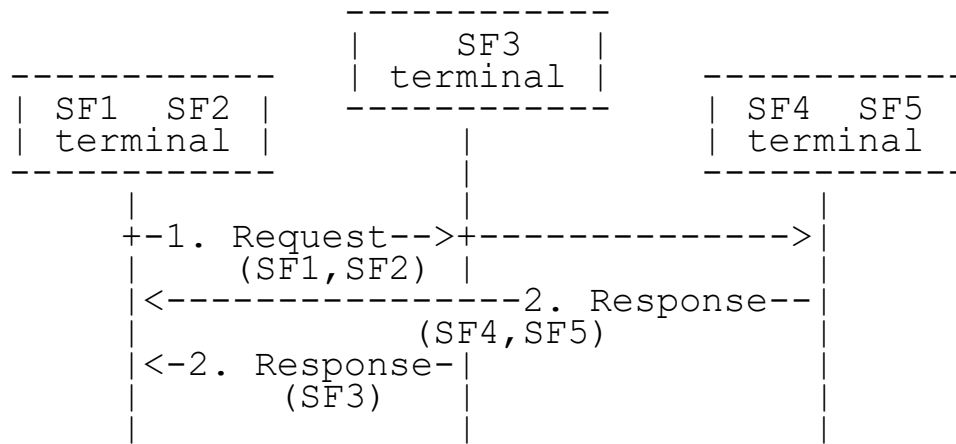
Enabling the mobile node to obtain the following information per SF available:

- Service Function Type, identifying the category of SF provided
- SFC-aware: Yes/No. Indicates if the SF is SFC-aware
- Route Distinguisher (RD): IP address indicating the location of the SF(I)
- Pricing/costs details
- Migration capabilities of the SF: whether a given function can be moved to another provider
- Mobility of the device hosting the SF, with e.g. the following sub-options:
 - Level: no, low, high
 - Current geographical area (e.g., GPS coordinates)
 - Target moving area (e.g., GPS coordinates)
- Power source of the device hosting the SF

Network-based SF discovery



SF (network) discovery



SF (mobiles) discovery

Next steps

- Describe some solutions enabling SF discovery in fog environments
- Collect feedback from the WG

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