DC Topologies for NFV

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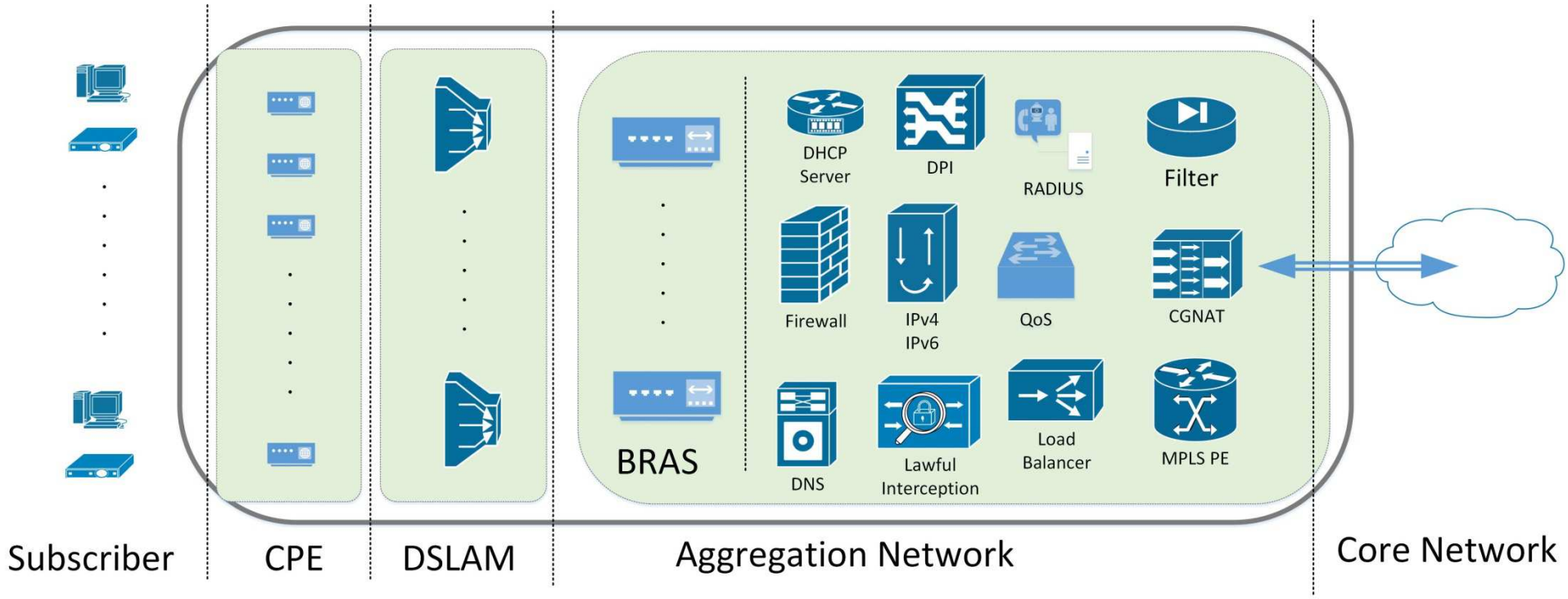
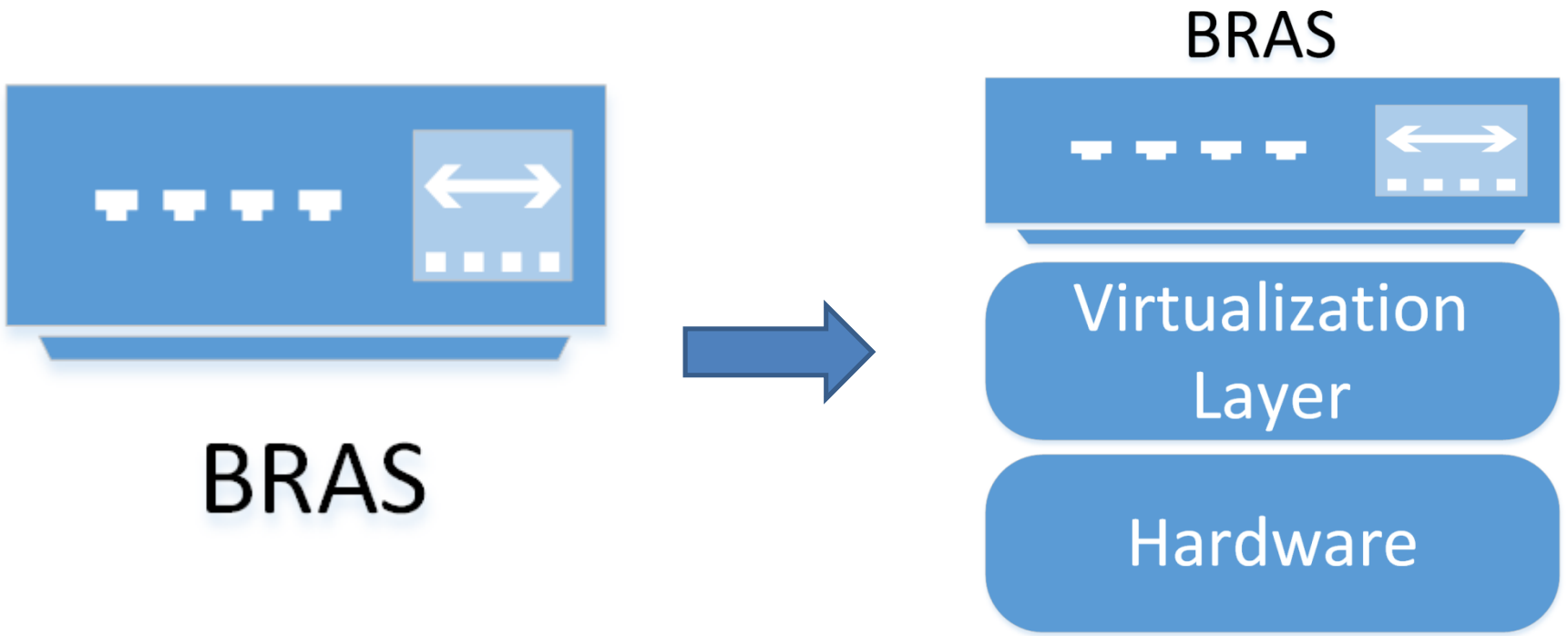
What are we going to talk about?



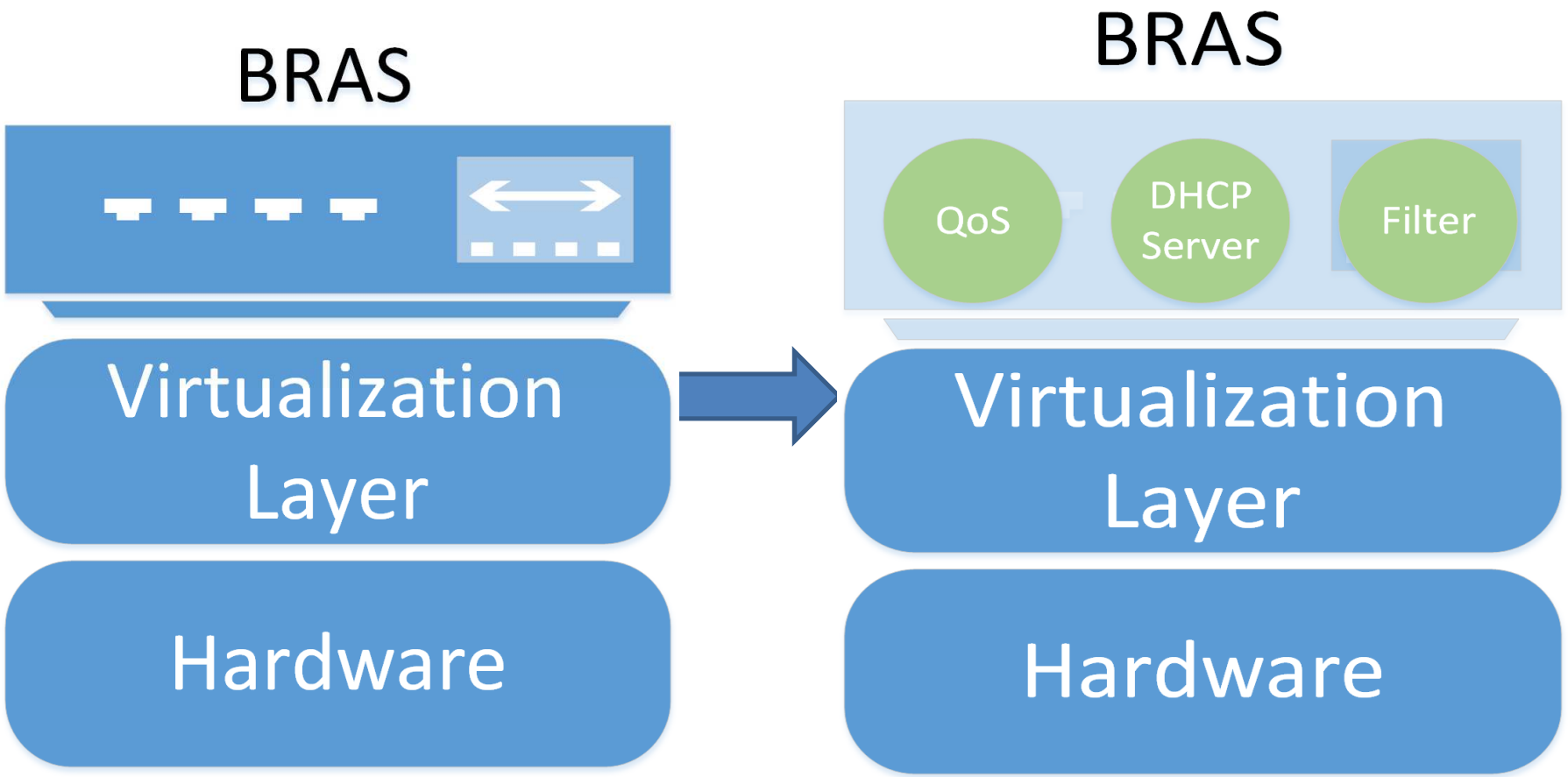
How is NFV going to affect the traffic?

First Step : Virtualize the whole equipment as one Virtual Machine



How is NFV going to affect the traffic?

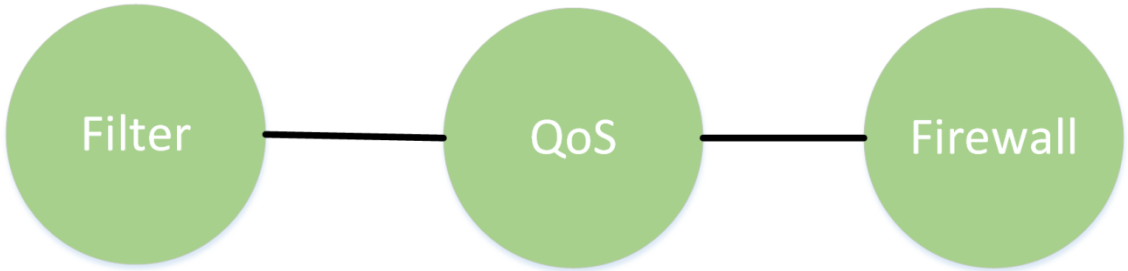
Second Step: Split the VM in independent VM representing the different functions



How do this VM functions interact?

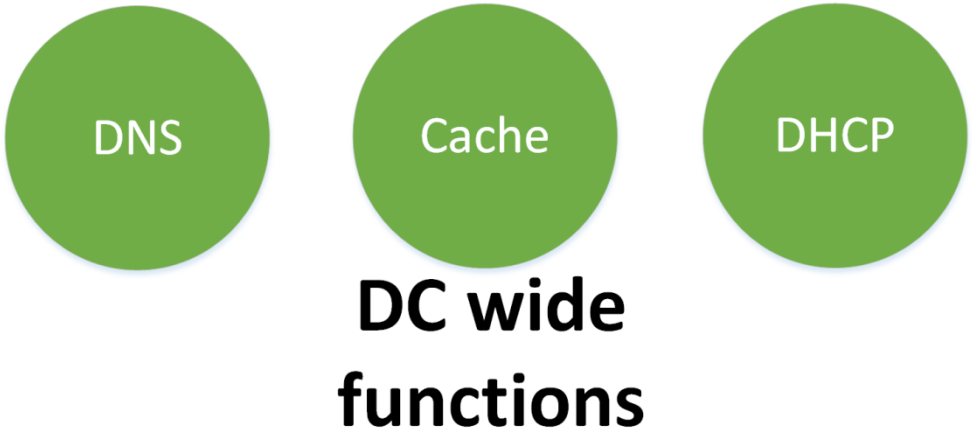
We consider that most of the functions are executed in the same order every time, generating sequences of functions.

As a design hipotesis we say that a significant amount of the traffic transverses this function sequences. IE it is worth to optimize this kind of traffic

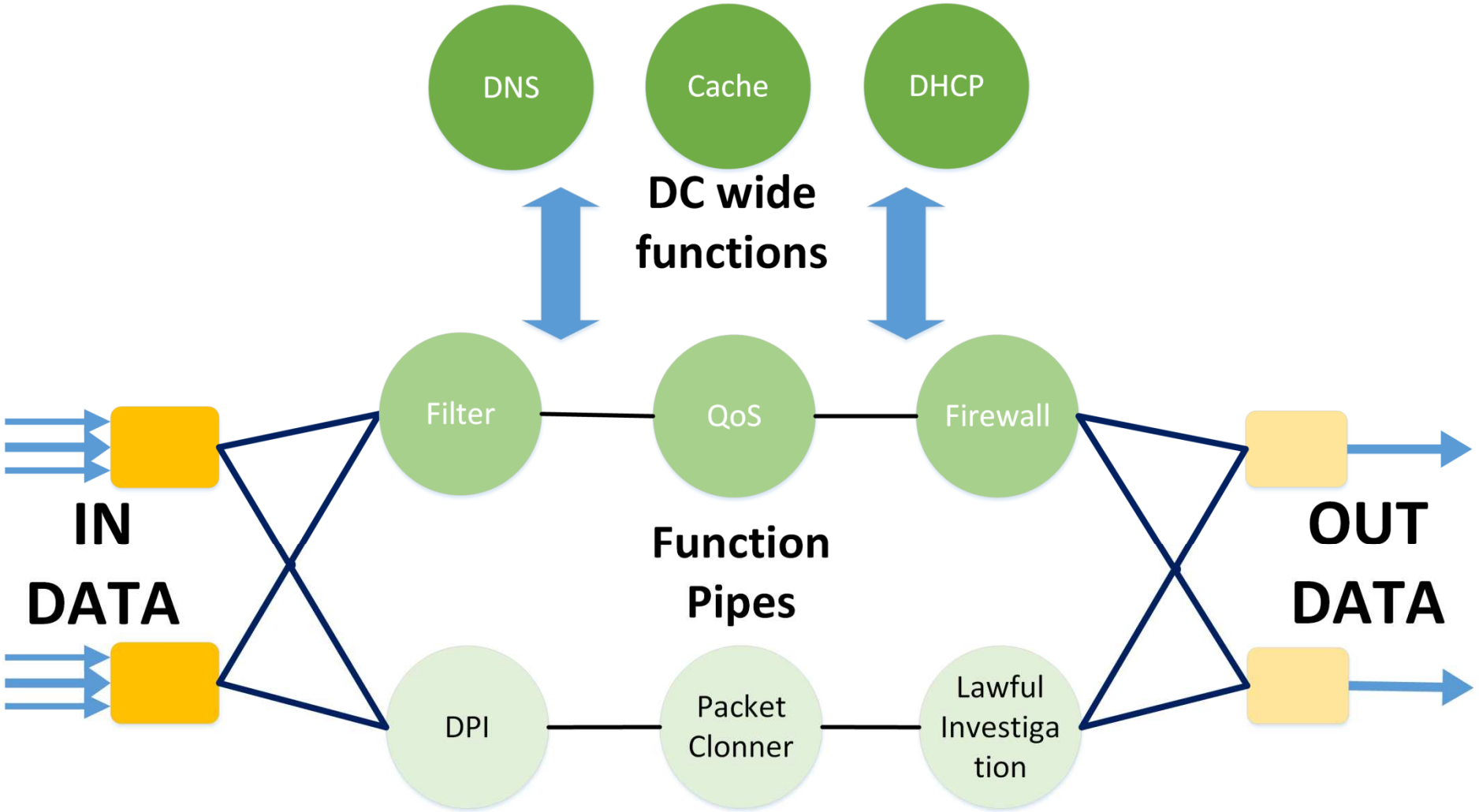


DC Wide Functions

Besides the functions that build the sequences, we consider there are some other functions to be modeled.

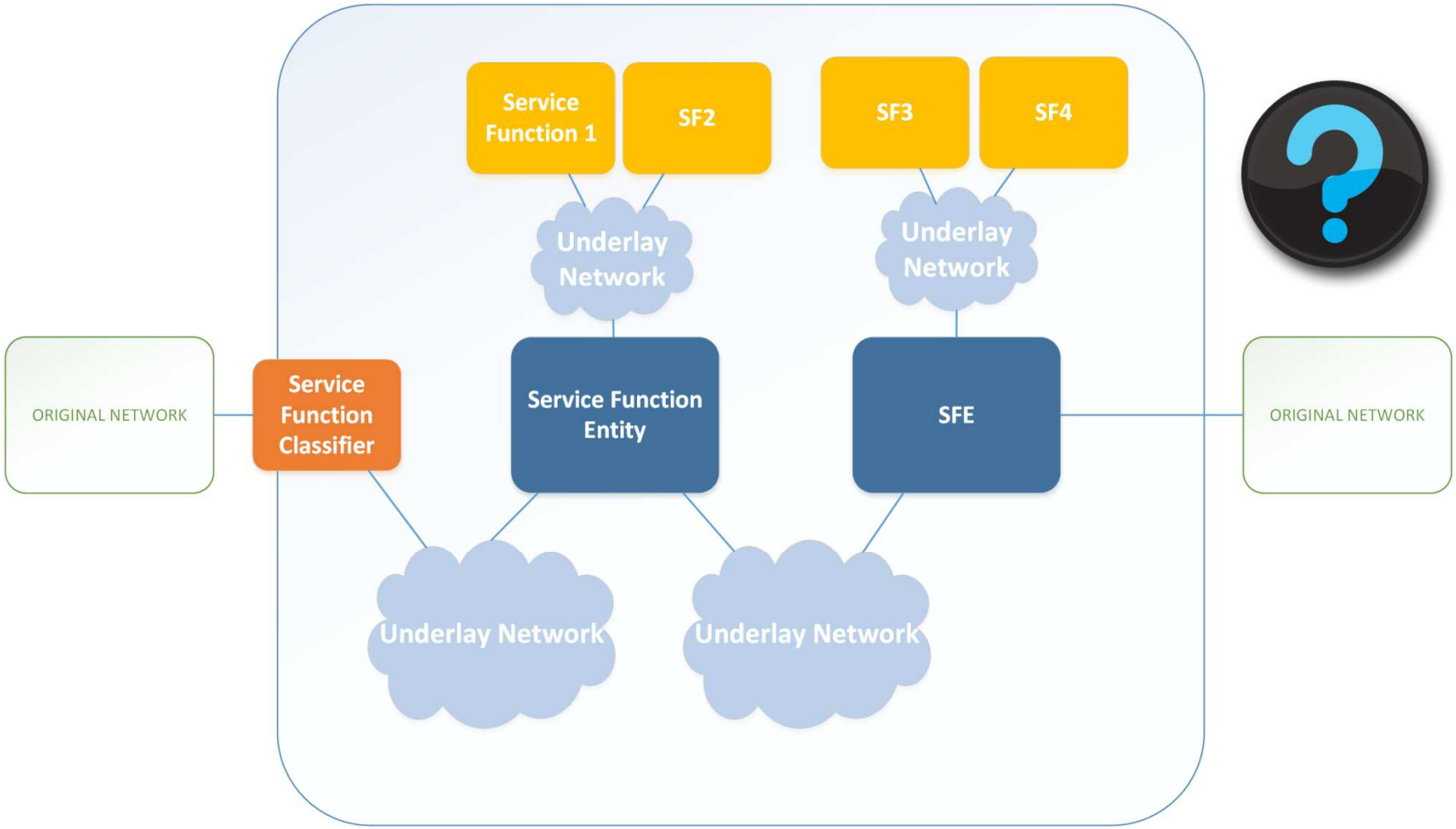


Data Center Model

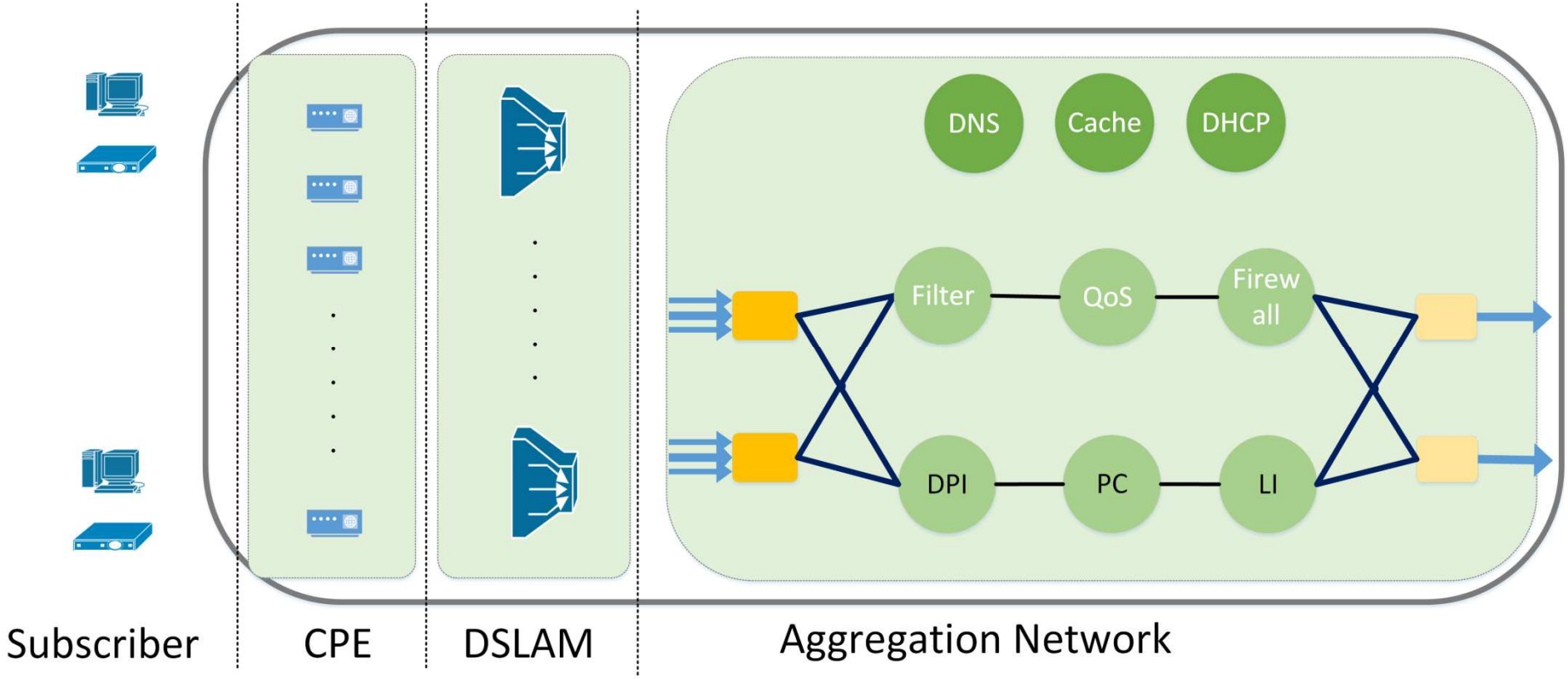


Service Function Chaining (SFC)

Packet Encapsulation for service integration



Including the model in the Architecture



Are current topologies efficient for the new constraints?

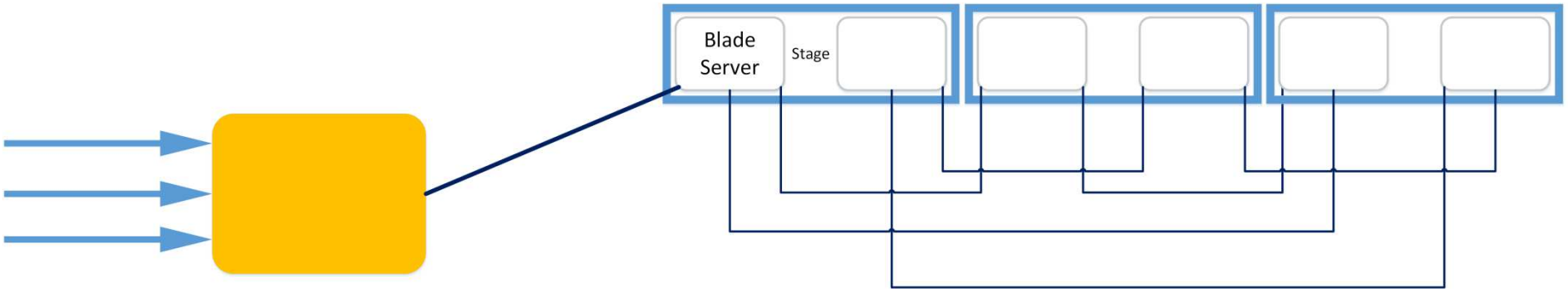
We argue that current topologies are not efficient to handle the linearity of the new traffic pattern.

New topology constraints

- 2 Different structures with different requirements:
  - A sequential structure, to couple with the linearity of the function chains.
  - A non sequential structure, to access the functions that are outside the pipes, communicate between chains and to allow stage jumps.

Sequential structure constraints

- All in all out.
- Capacity reutilization.
- Easy to grow stages.
- Stage redundancy



Key Questions - Chains

Which are the key functions and which are the main service chains ?

Key Questions - Scalability

Scale Horizontal vs Vertical ?

Which are today requirements ?

Key question – user cache

1 VM per user or 1 thread per user?