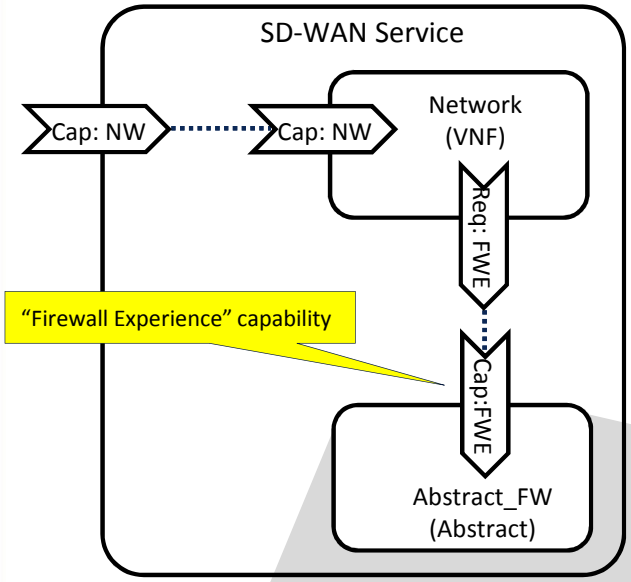
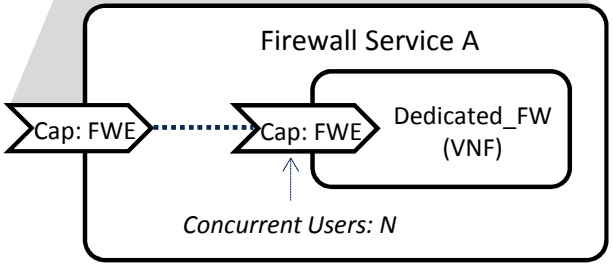
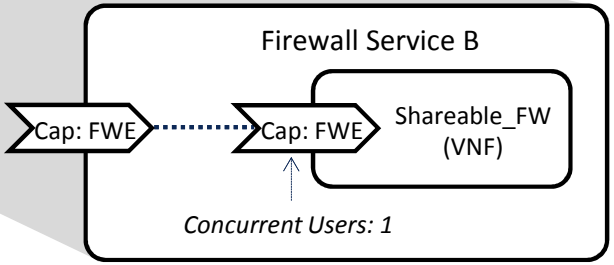


Problem Statements:

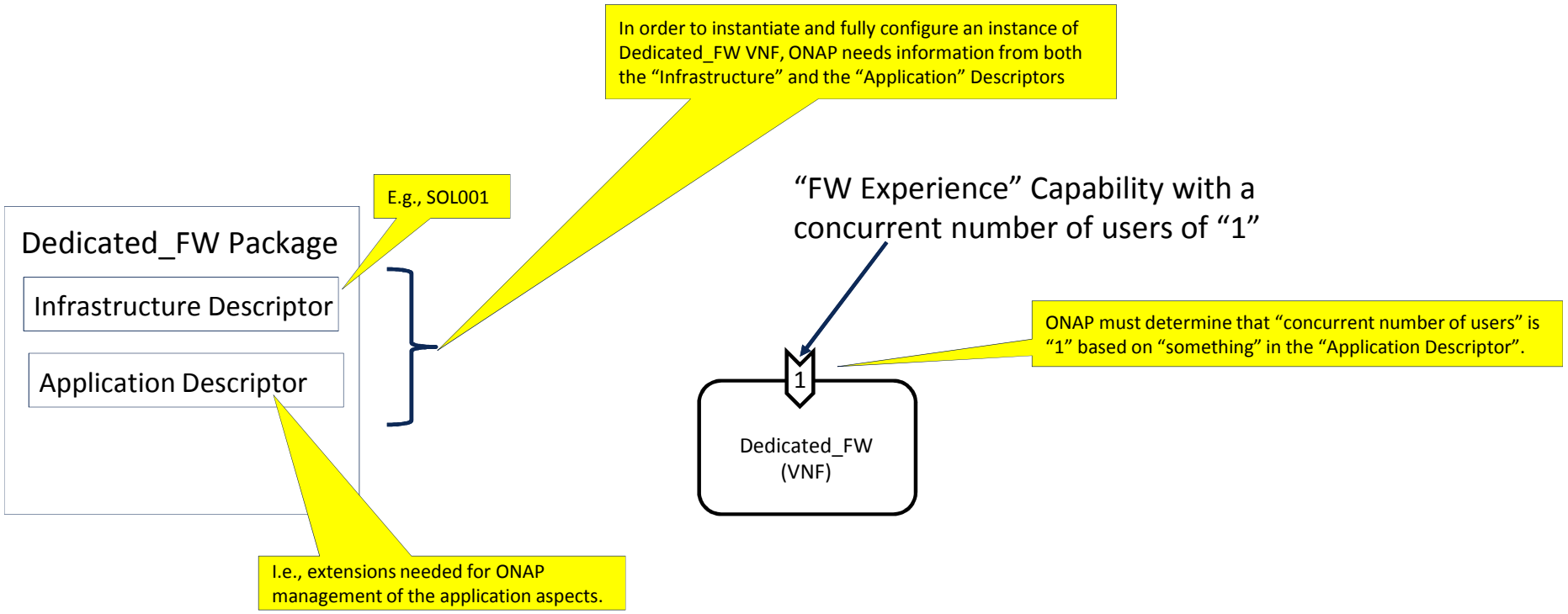
1. How To Model (Onboarding and Design Time) a *Dedicated* VNF (e.g., Dedicated_FW)
2. How to Model (Design Time) a Service with *Dedicated* VNF (e.g., Firewall Service A)
3. How To Model (Onboarding and Design Time) a *Shareable* VNF (e.g., Shareable_FW)
4. How to Model (Design Time) a Service with *Shareable* VNF (e.g., Firewall Service B)
5. How to Model (Design Time) a "consuming" Service that doesn't care whether it gets a Shareable or Dedicated VNF (e.g., SD-WAN Service)?

This deck does not address this question



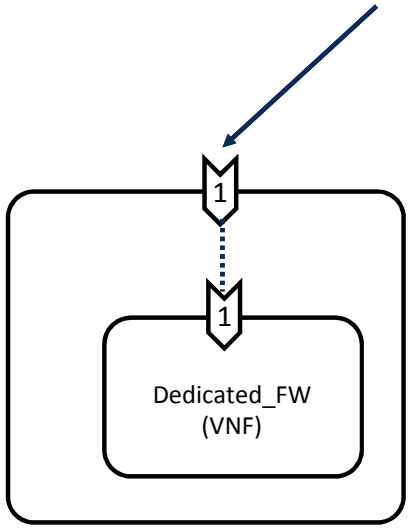


Problem Statement 1: Onboarding a “Dedicated VNF”



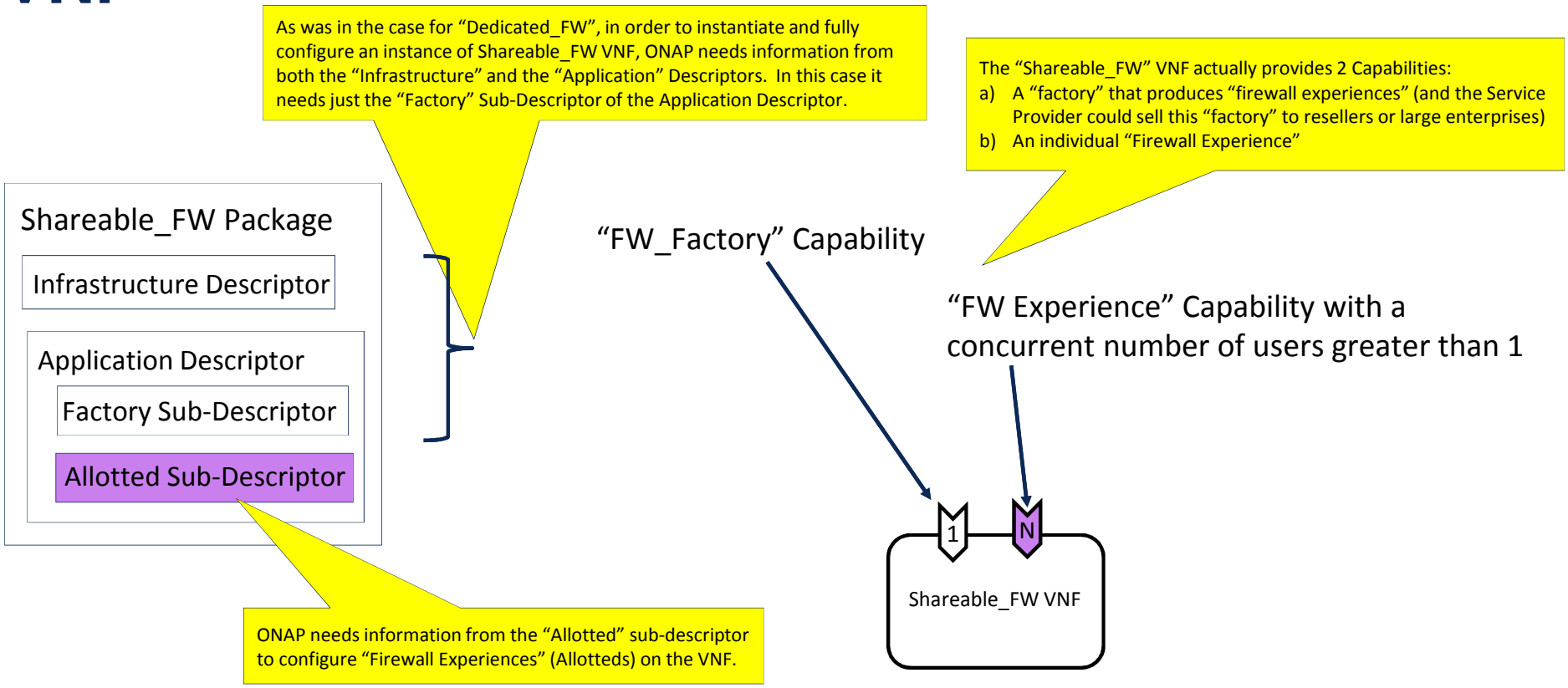
Problem statement 2: Modeling a Service Containing a Dedicated VNF

"FW Experience" Capability is also exposed at the Service level with a concurrent number of users of "1"



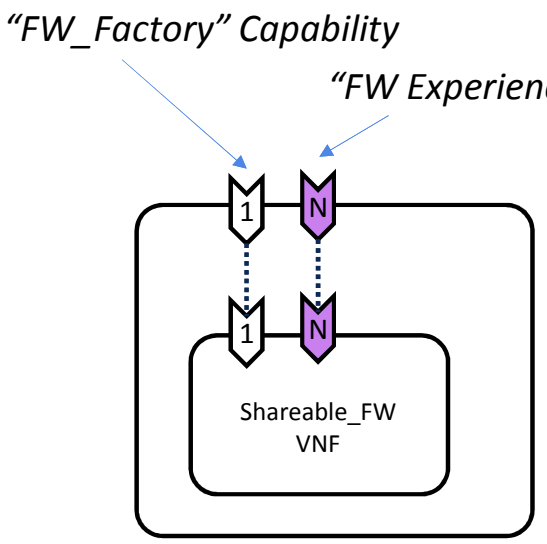
Firewall Service A
Service Topology Template

Problem Statement 3: Onboarding a "Shareable VNF"



Problem Statement 4: Modeling a Service Containing a Shared VNF: Option A

Option A: Wrap Shareable_FW in a single Service that exposes both the "FW_Factory" and the "FW Experience" capabilities.



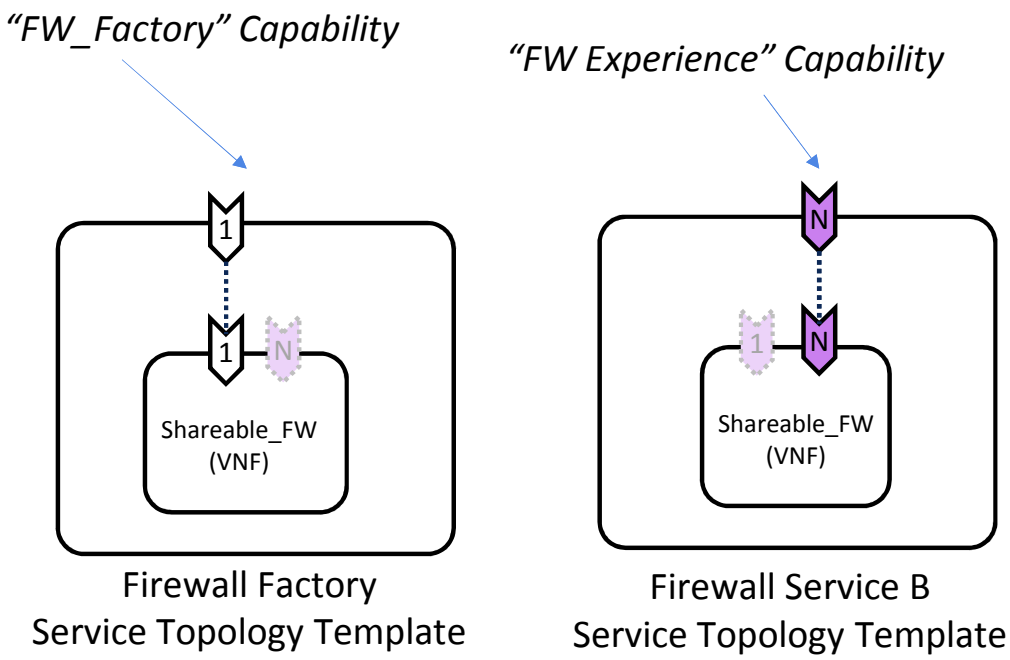
Firewall Service B
Service Topology Template

Observations:

- The two capabilities that Firewall Service A exposes are quite different from each other, and it seems "unnatural" to combine them into a single "Service".
- This would be akin to putting "I want a car" and "I want a pizza" in the same Service, and the person placing the order has to specify which they want.
- Such an approach could also get quite complex if there were other VNFs in Firewall Service A, one set which supported this Service in providing its "FW_Factory" capability and another set which supported this Service in its "FW Experience" capability.

Problem Statement 4: Modeling a Service Containing a Shared VNF: Option B

Option B: Wrap Shareable_FW in two separate Services, one of which exposes only the "FW_Factory" capability and the other which exposes only the "FW Experience" capability



Firewall Factory
Service Topology Template

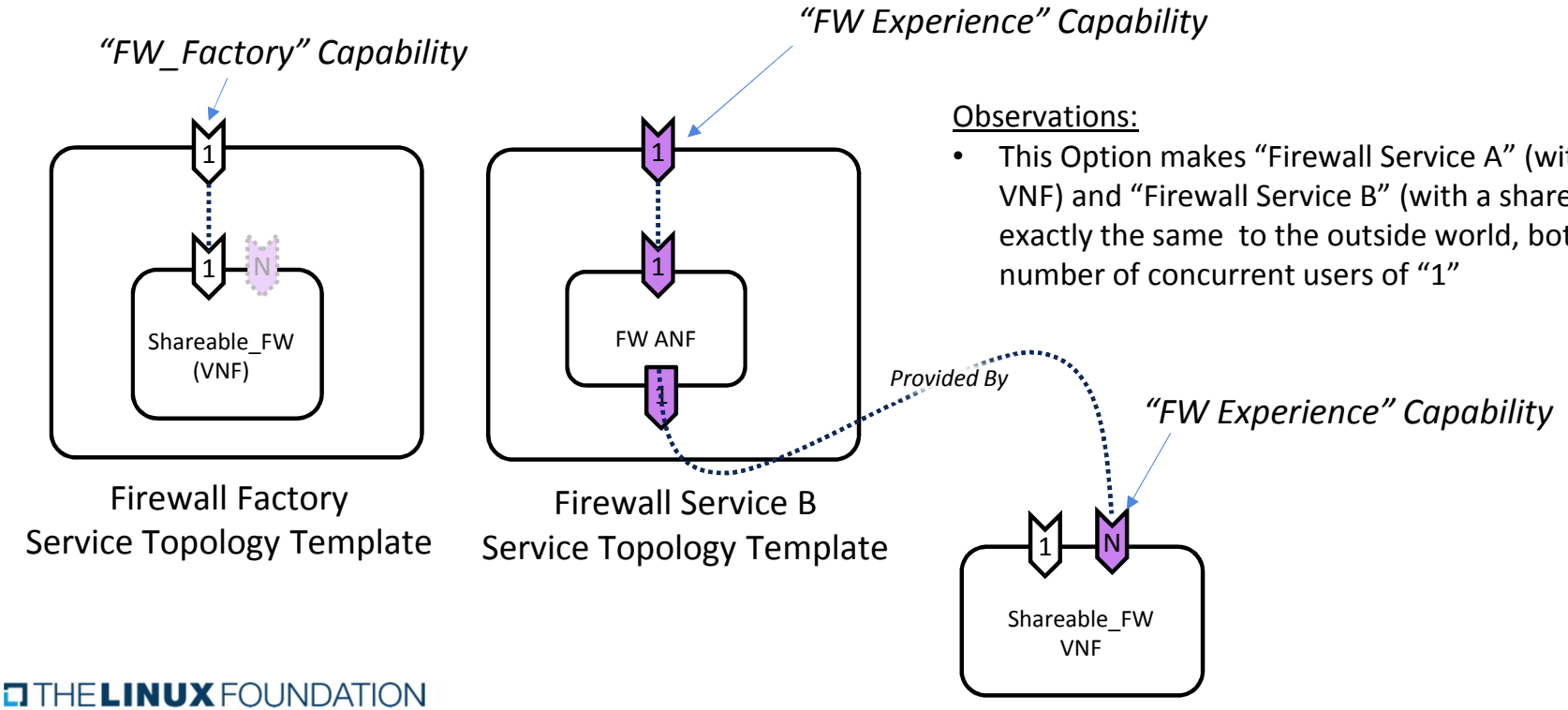
Firewall Service B
Service Topology Template

Observations:

- Thinking back to slide 1, "SD-WAN Service" will know that Firewall Service A has a concurrent number of users value of "1", whereas Firewall Service B has a concurrent number of users value of "N".
- Is exposing the fact that "Firewall Service B" can support a concurrent number of users value of "N" exposing "too much information"?
- Imagine that "Firewall Service B" were offered by Service Provider X, and "SD-WAN Service" (from slide 1) were offered by Service Provider Y. Would Service Provider X have a business reason to expose their Service as having concurrent number of users "N"?
- I.e., does a concurrent number of users of "N" mean that the Service Designer is implicitly exposing the shared, or otherwise, nature of the firewall contained therein"

Problem Statement 4: Modeling a Service Containing a Shared VNF: Option C

Option C: We could model a Resource Type referred to as an "Allotted Network Function" (ANF) that represents a single "use" of an underlying Resource. The ANF would support a concurrent number of users value of "1", having a relationship to the "Shareable_FW" VNF.



Observations:

- This Option makes "Firewall Service A" (with a dedicated VNF) and "Firewall Service B" (with a shareable VNF) look exactly the same to the outside world, both exposing a number of concurrent users of "1"

Summary of Problem Statement 4: Options B and C

In some ways, Option B can be seen as a particular implementation of “ANF”, whereby the “ANF” is represented as a particular capability of the “shareable VNF” itself.