NF Taxonomies in the IETF

MAMI Project Meeting

Berlin, July 2016

mami

measurement and architecture for a middleboxed internet

measurement | architecture | experimentation

Two Ongoing Taxonomic Initiatives

- NFV OAM support
  - As result of a proposal discussed at the last OPS Area meeting
  - Two work items
    1. An NFV taxonomy, with an IETF focus
    2. A gap analysis to determine any NFV management parts are missing in OPS
  - Initial proposal discussed in a set of conference calls
  - Rough consensus in exploring the definition of a WG on these aspects
- The I2NSF capabilities model
  - A definition of the functionalities a security function can provide
  - Applied at different interfaces to register and manage them

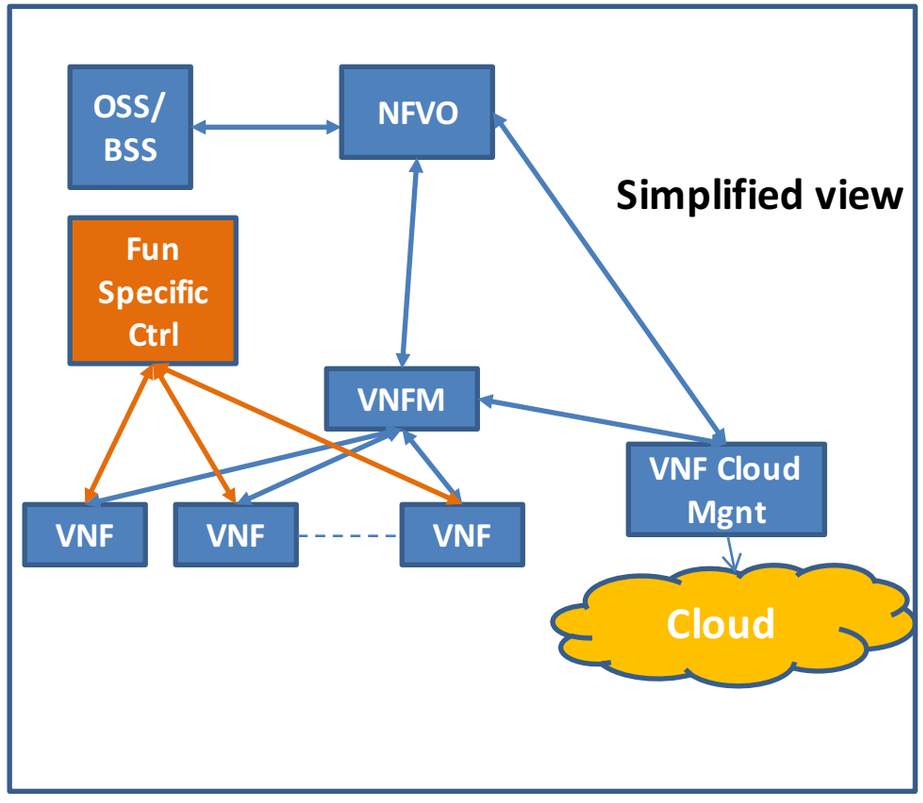
NFV Taxonomy

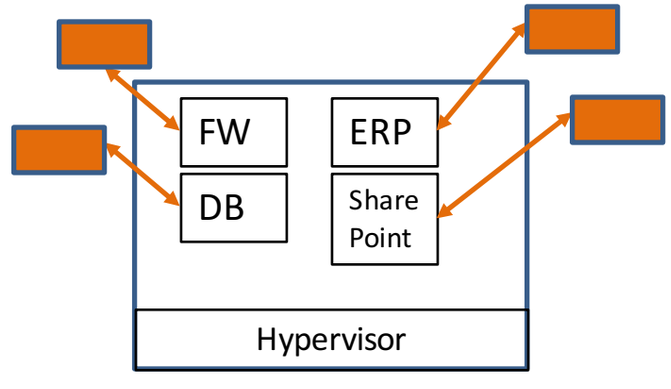
- Very high level and much oriented to nodes and not functions (yet)
- An opportunity for direct contribution and/or reuse

Many Types of Network Functions	Likelihood of virtualization	
Optical transport equipment,	L	Packet forwarding
Layer 2 switches	M	
Layer 3 routers	M	
Core router	L	
PE	M	Packet forwarding
CPE	H	
BNG	H	
Layer 4 – 7 functions	H	Middle boxes, Network Appliances
Flow based network security functions: Firewall, IPS/IDS, DPI, NAT, etc Optimization functions: Acceleration functions: TCP acceleration, Video acceleration, Caching, AAA,	H	
IMS, VoIP, VoLTE, ..	H	
Wireless EPC		
eNB, Cell Gateway EPC: MME, S-GW, P-GW, GGSN,	M-H	

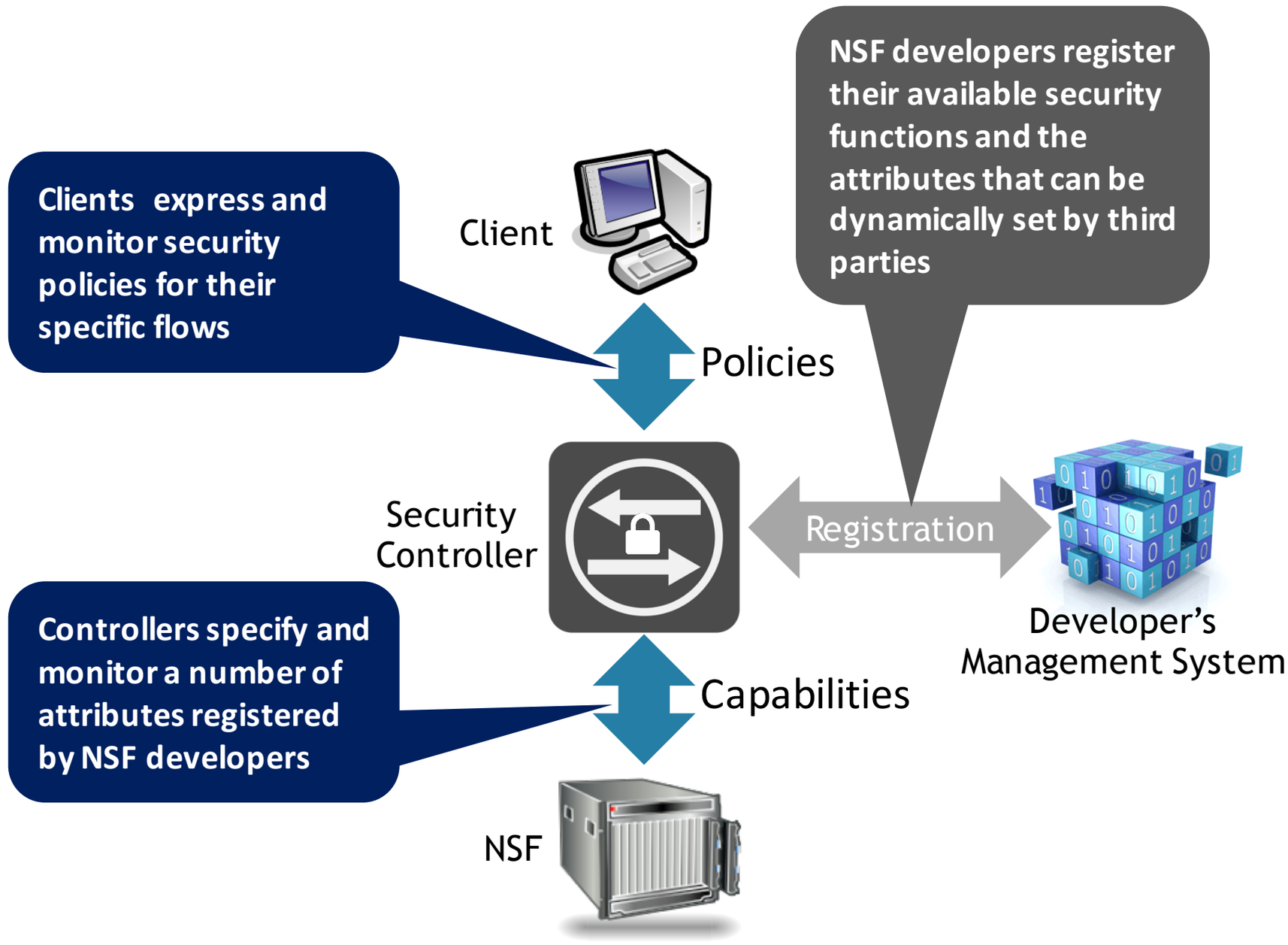
Functional OAM

- Configuration and policy
- Monitoring for consistency across multiple virtual instances
- Validation of composite policies
- Could this be an opportunity for the C in MCP?





The I2NSF Model



I2NSF Capabilities

- Not yet a stable model
  - Data and information models, a capability algebra, extensibility…
  - IETF96 expected to bring consensus on (most of) these aspects
- But a general agreement on the way to go
  - A more general way for modeling functionality
  - Open to extension and mix-and-match
  - Well aligned with the efforts around model-driven networking (YANG, I2RS, SUPA…)
  - Suitable to be applied to other efforts in taxonomy
- Another opportunity for direct contribution and reuse
  - (Most) NSFs are middleboxes
  - And the model sounds like suited for generalization