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ETSI NFV EVOLUTION AND ECOSYSTEM

Rajshree Char, ETSI NFV EVE rapporteur,

Principal Architect, Ericsson, CTO Office

NFV WORLD CONGRESS

Agenda

- ETSI NFV Use Cases
- NFV Physical Ecosystem
- Charging and Billing
- License Management

PART 1
ETSI NFV USE CASES
NFV001

ETSI NFV Use Cases

Scope

These service models and use cases are intended to clarify the roles and interactions of the various types of commercial entities acting in a marketplace for services delivered via VNFs.
The service models and use cases are intended to provide a commercial and technical context that is expected to be useful for discussions to be handled in further specifications to be developed by the NFV ISG.
Other Industry forums may also find these service models and use cases helpful as they consider implementation options for virtualisation of the network functions they have previously standardized.

NFV Use Cases GS NFV 001 published in 2013

NFV Use Cases GS NFV 001 Updated in 2017

Reference to the Official ETSI NFV Public Page
http://www.etsi.org/technologies-clusters/technologies/nfv

- Revision of the existing Use Cases
- New Use cases introduction in the context of virtualization that are related to emerging 5G features such as the Network Slicing concept, enhanced Security, IOT virtualization

What's new

ETSI NFV Use Cases

What's new

New Use Cases

- Crypto as a Service (CaaS)
- Network Slicing
- Virtualization of Internet of Things
- Rapid Services deployment
- DevOps/CI/CD
- A/B testing
- VNF Composition
- Security as a Service

Update of existing Use Case

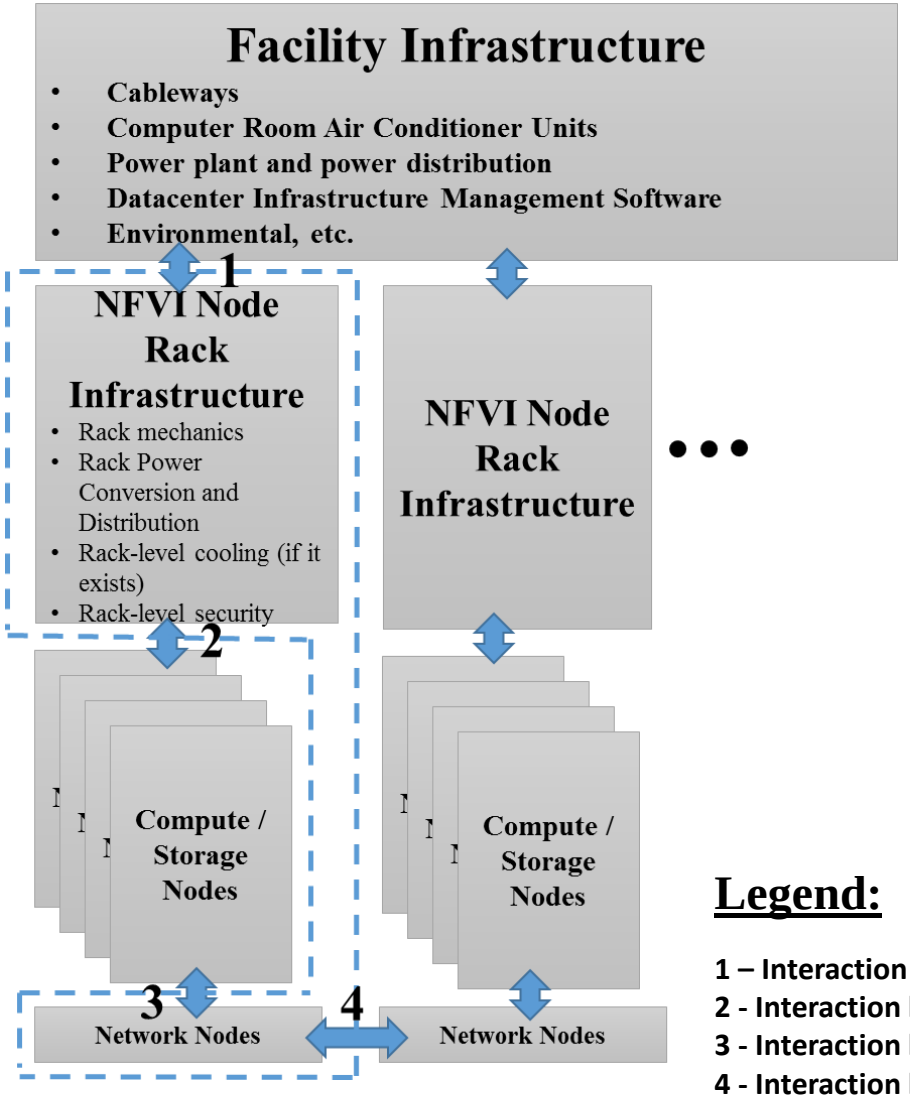
- Network Function Virtualization Infrastructure as a Service (NFVIaaS)
- VNF Forwarding Graphs
- Virtualisation of Mobile Core Network and IMS
- Virtualisation of Mobile base station
- Virtualisation of the Home Environment
- Virtual Content Delivery Network (vCDN) – Fulfillment
- Fixed Access Network Functions Virtualisation

ETSI NFV New Use Cases -- Summary

Use Case	Short Description
Crypto as a Service (CaaS)	A (serving) VNF providing services to other (client) VNFs as it applies to network functions and applications dealing with encrypted traffic
Network Slicing	Network slices across PNF and VNF within a single operator's domain and it addresses the lifecycle of the network slicing
Virtualization of Internet of Things	Interaction between cloud and network service providers and multiple enterprises, using devices that are deployed in huge numbers distributed over very large geographic areas.
Rapid Services deployment	Rapid service innovation through software-based deployment and operationalization of network functions and end-end services is a primary business objective of NFV
DevOps/CI/CD	Network services comprised of continuous testing, integration and deployment is then used to enable the latest service versions to be available.
A/B testing	Using A/B testing approaches the performance of the alternatives could determine which of the variants is the better.
VNF Composition	Orchestration of VNFs in different administrative domains for serving a specific customer request
Security as a Service	The NFV technology can provide solutions in terms of a specific type of VNF: vNSF or Virtual Network Security Function.

PART 2: NFV PHYSICAL ECOSYSTEM EVE007

NFV Physical Ecosystem: Scope of Interoperability Requirements



Scope of Document:

- Physical Architecture comprises:
  - Facility Infrastructure
  - NFVI Nodes/Racks
  - Compute/Storage Nodes
  - Network Nodes
- Interoperability Requirements developed to permit "plug and play"
- Scope of Requirements limited to (Dashed Lines on Figure):
  - NFVI Nodes/Racks
  - Network Nodes

Legend:

1 – Interaction between Facility infrastructure and NFVI Node Racks
2 - Interaction between NFVI Node Rack and Compute/Storage Nodes
3 - Interaction between Compute/Storage Nodes and Network Nodes
4 - Interaction between Network Nodes between racks

Areas of Interoperability: Applicable Requirements & Guidance

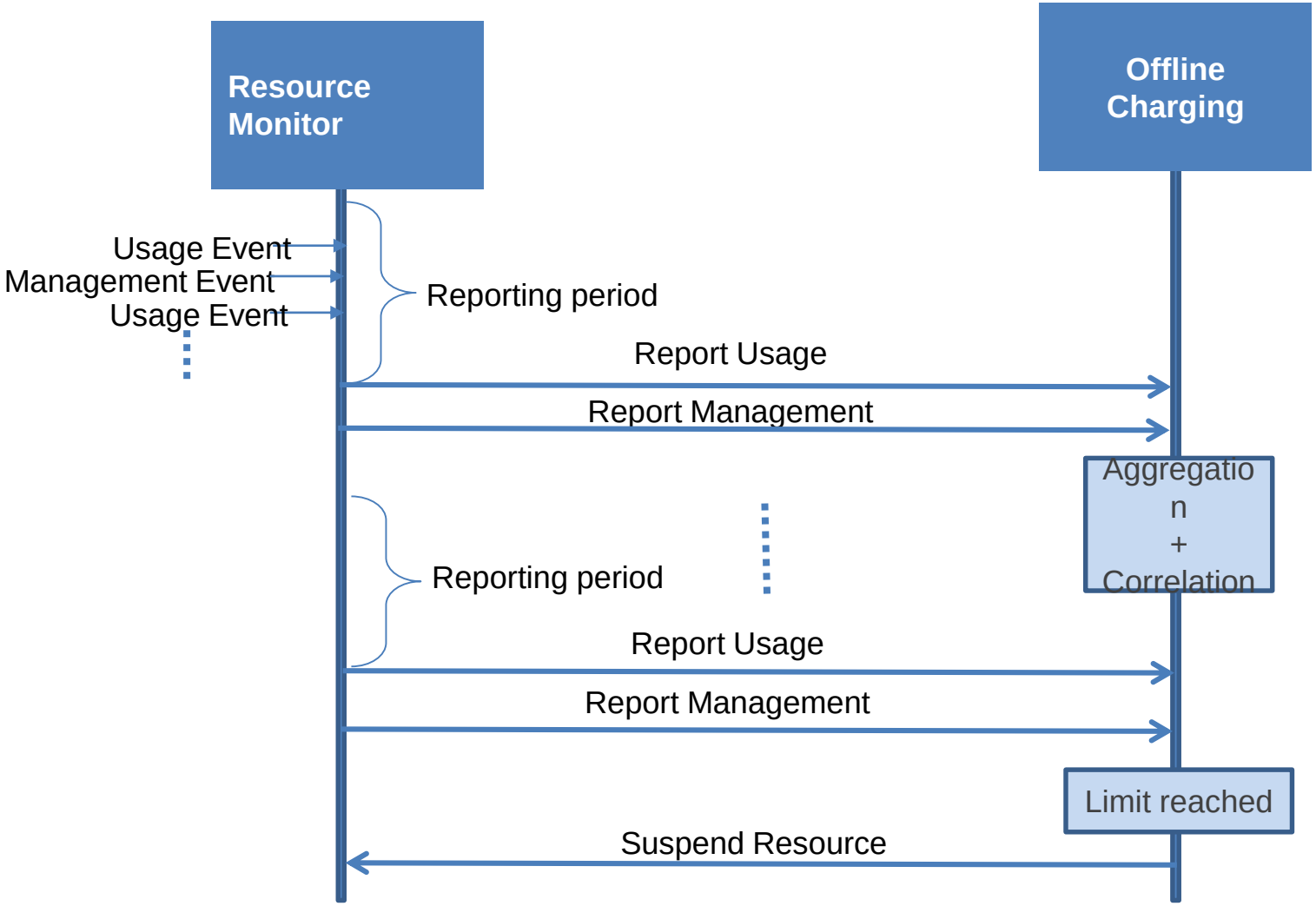
Areas of Interoperability	Applicable Requirements (Marked as Bullets) or General Guidance (No Bullets)
Racks/Frames	➢ Physical Dimensions ➢ Deployment Considerations ➢ Safety Considerations
Processors and Storage	General Guidance
Power	➢ Distribution and Conversion ➢ Subsystem Architectures ➢ Local Energy Storage
Interconnections	➢ Compute and Infrastructure Domain Interconnections
Cooling	➢ General Cooling ➢ Rack Level Cooling ➢ Compute/Storage/Network Node Level Cooling
Hardware Platform Management	➢ General Platform Management ➢ Interface Protocol ➢ Hardware Platform Representation ➢ Logging Representation
Hardware Security Measures	
Radiated Emissions and Electromagnetic Compliance	General Guidance
Climatic and Acoustic Considerations	General Guidance
Timing and Synchronization	➢ Requirements
Reliability	General Guidance
Lawful Intercept	➢ Requirements

PART 3: CHARGING AND BILLING EVE008

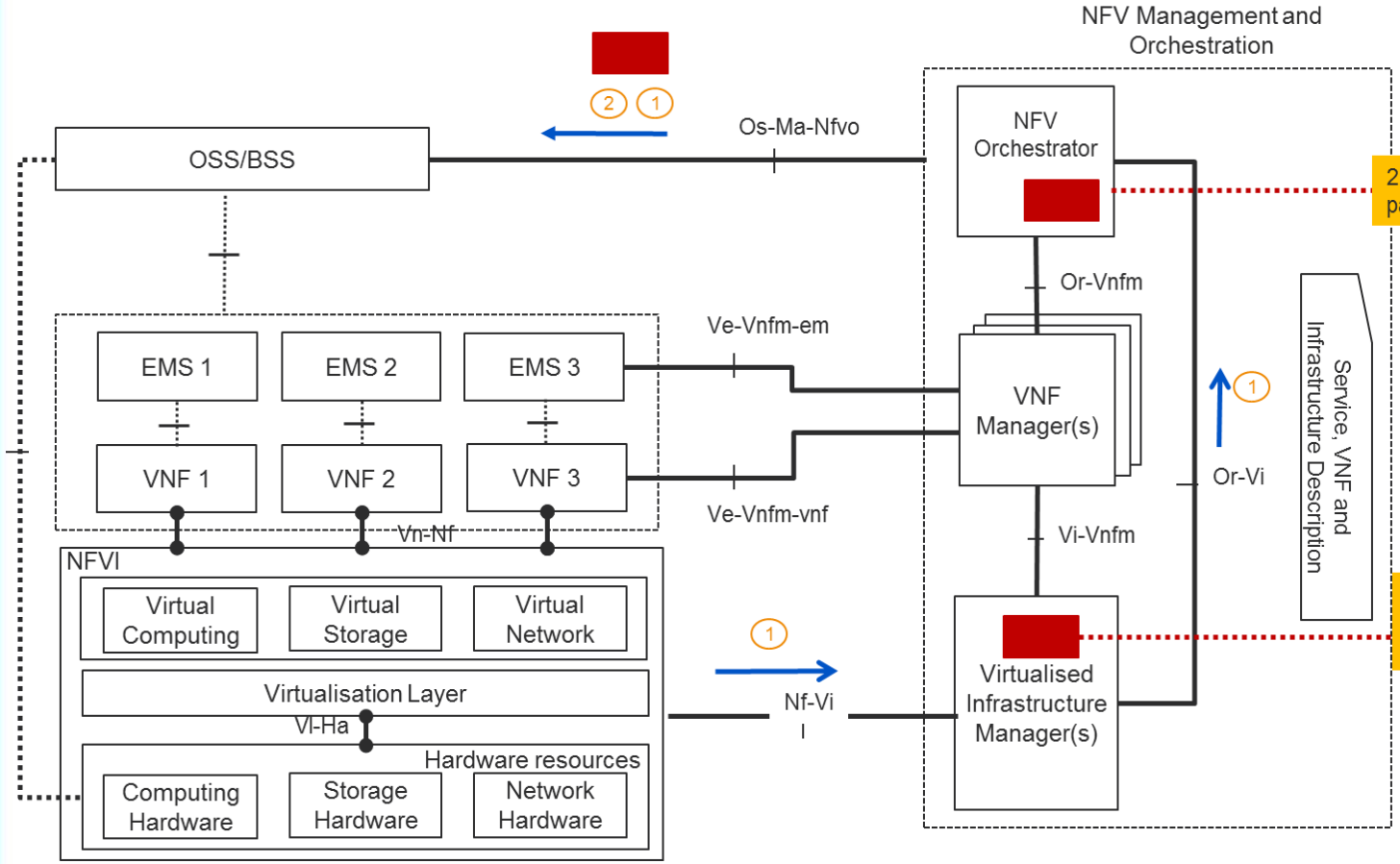
Charging and Billing: Concepts

- What is Offline Charging
  - Charge after service delivery; collect event records and then charge/bill
- What is Real-time Charging?
  - It doesn’t occur after service delivery
  - Charge in real-time as the service is being rendered
  - Supervise and control the service such that it is possible to stop/halt/pause the service when the customer/user uses up their service quota

Charging and Billing: Offline Charging



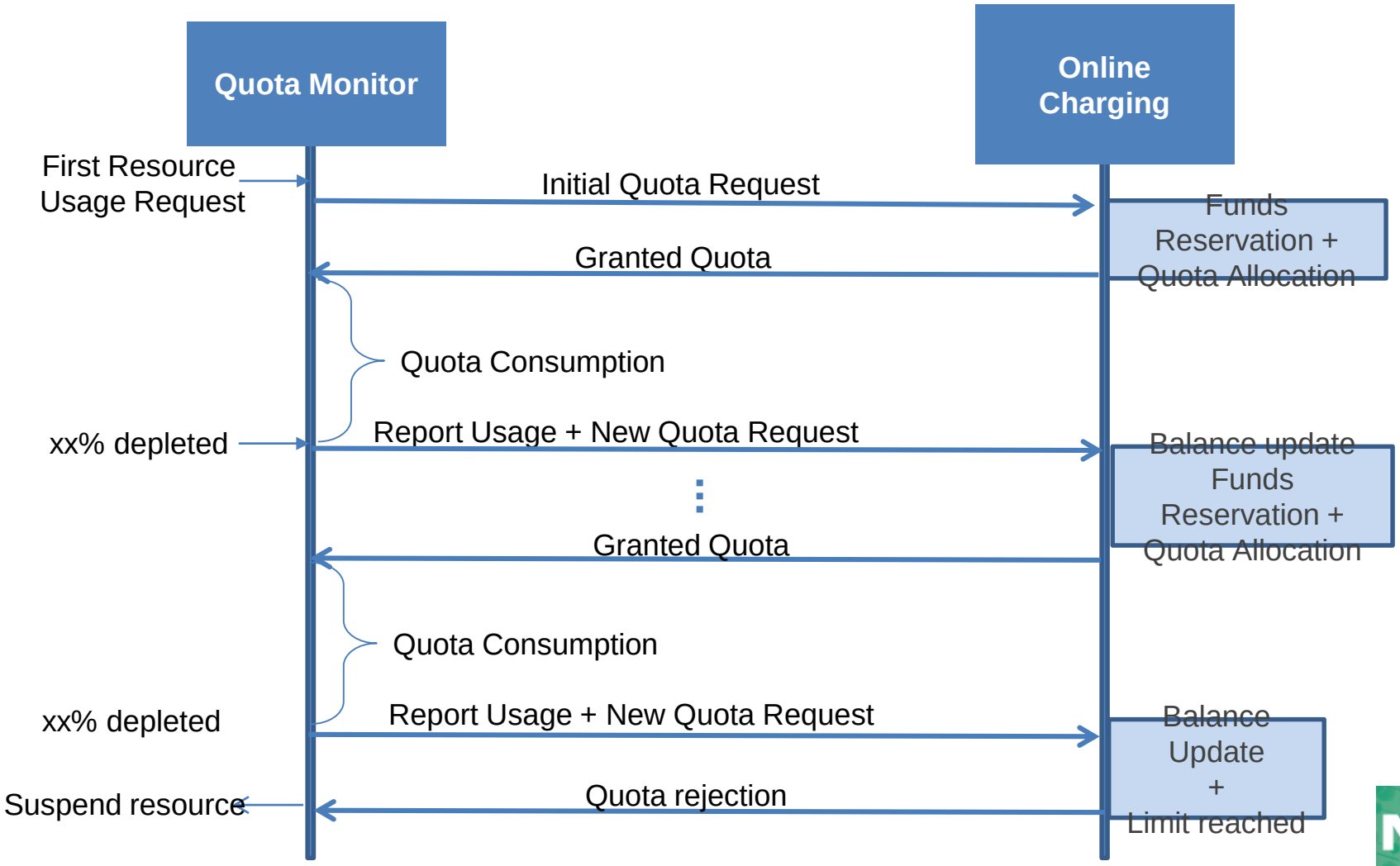
Charging and Billing: Offline Charging Architecture



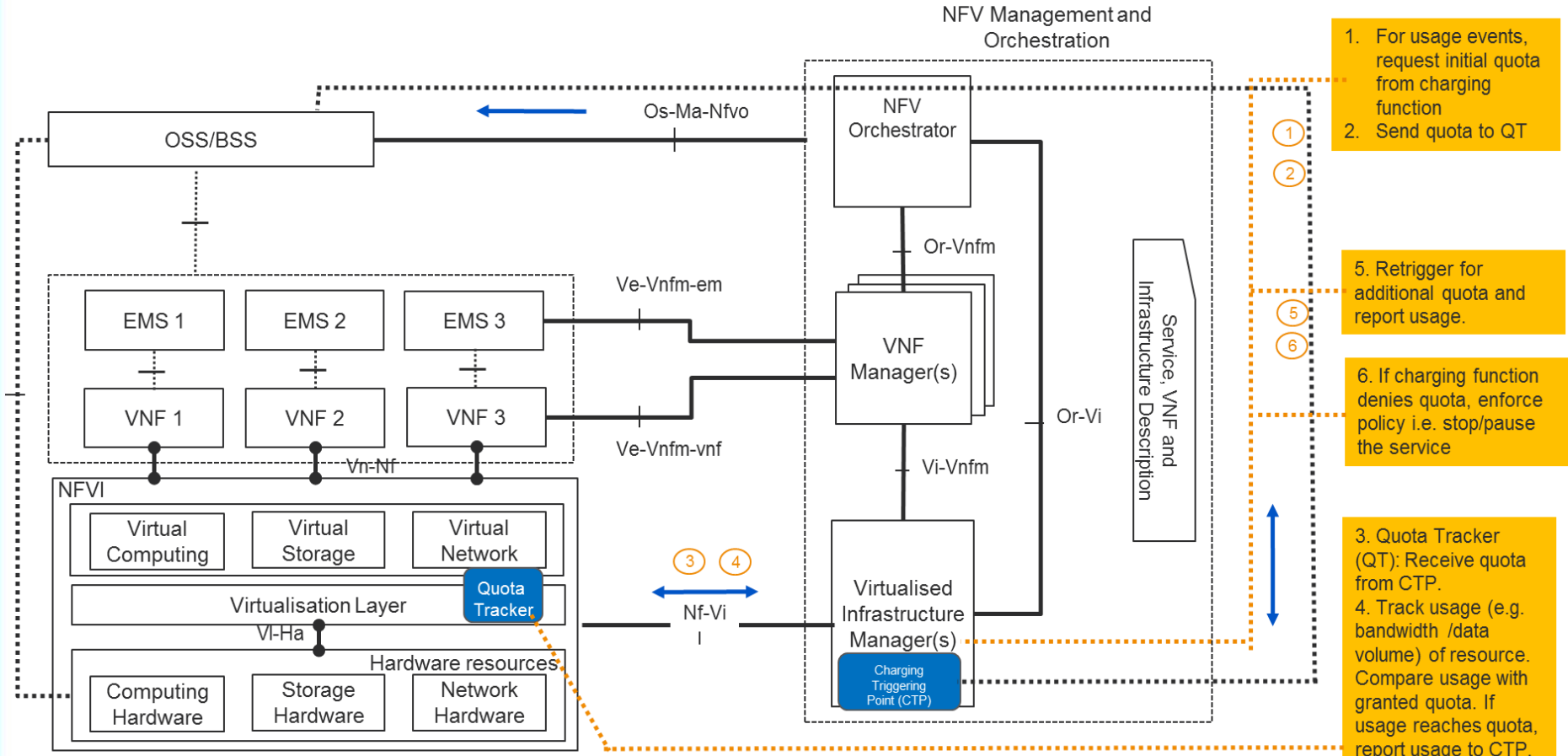
Suspend resource

Work in Progress

Charging and Billing: Real-time Charging



Charging and Billing:
Real-time Charging Architecture



Work in Progress

PART 4: LICENSE MANAGEMENT
EVE010

Challenges

- Dynamic scaling makes tracking licenses a complex issue
  - New Licensing models need to be adopted by Service Providers to accommodate elasticity of NFV
  - No Service disruption due to lack of licenses while scaling out for performance
  - Should enable renewal of licenses on demand
- Complex Ecosystem with multiple actors
- Introduction of innovative business models
- Changes to Business Processes

Scope of the LM Work Item (EVE010)

- Develop Use Cases
- Describe architecture impacts to MANO to support LM
- Interwork with OSS/BSS and MANO
- Provide usage information to Charging and Billing (C&B)

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More information:

NFV Technology Page (information)
http://www.etsi.org/nfv

NFV Portal (working area)
http://portal.etsi.org/nfv

NFV Proofs of Concept (information)
http://www.etsi.org/nfv-poc

NFV Plugtest (information & registration)
http://www.etsi.org/nfvplugtest

Open Area:

Drafts http://docbox.etsi.org/ISG/NFV/Open/Drafts/

Issue tracker http://nfvwiki.etsi.org/index.php?title=NFV_Issue_Tracker