

VNF Benchmark-as-a-Service (VBaaS):

A Teaser

(draft-rorosz-nfvrg-vbaas-00.txt)

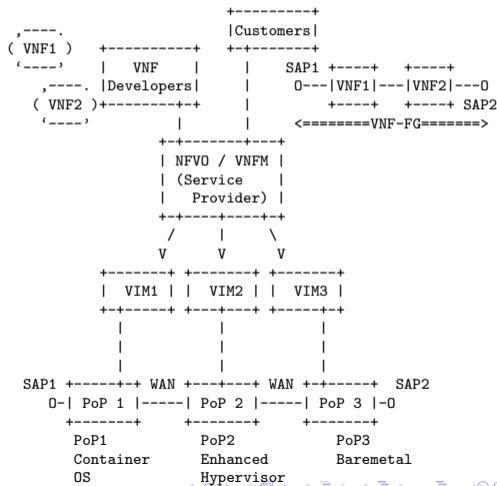
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[‡]FEEC/UNICAMP and [†]Ericsson Research Hungary

NFVRG, IETF 94
11/4/2015

VNF Benchmarking

- Different NFVI PoP/host may perform differently
- VNF development and NFVI upgrades are independent
- Orchestration needs to know how much resources (e.g., cpu, memory, storage) to allocate for given target KPI values (e.g., throughput, latency).

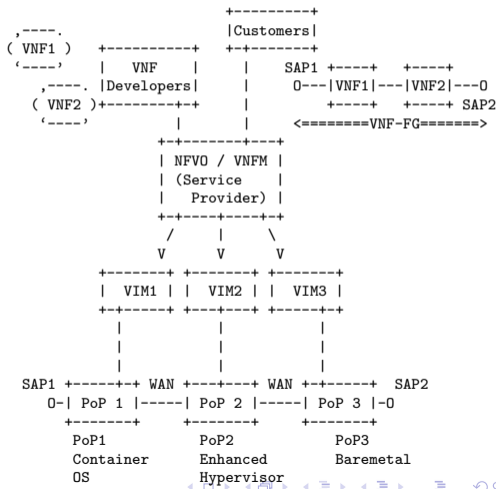


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Problem to be solved:

- Gain information *autonomously* about VNFs' benchmark metrics with given reserved resources at a "host" (execution environment).



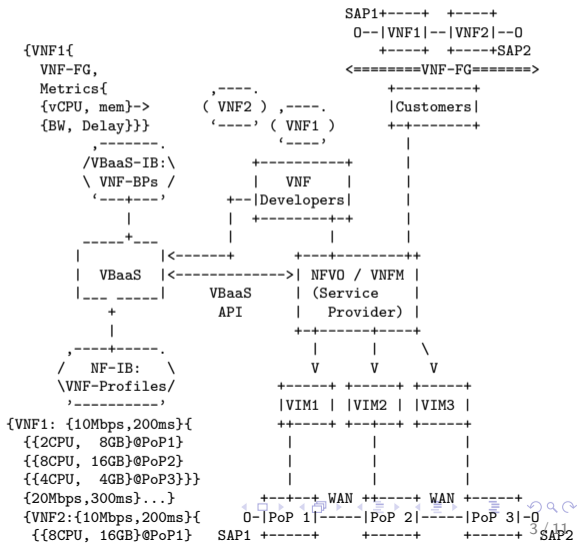
Highlights

Components

- VBaaS service function
- VBaaS Information Base for VNF Benchmark Profiles
 - structural
 - functional: manager, monitors and agents

Work-flows

- for ETSI NFVO and VIMs
- for recursive orchestration



Summary

VNF Benchmarking as a Service (VBaaS) aims at

- defining complementary functional components to ETSI NFV and other approaches;
- defining interfaces to the VBaaS service;
- defining possible VBaaS work-flows.

Acknowledgements

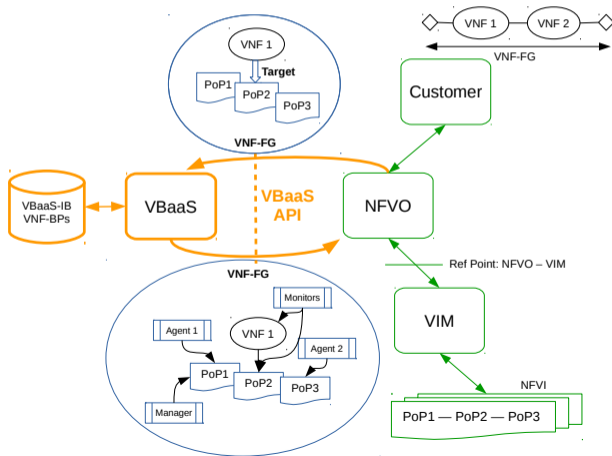
- This work is partially supported by FP7 UNIFY, a research project partially funded by the European Community under the Seventh Framework Program (grant agreement no. 619609). The views expressed here are those of the authors only. The European Commission is not liable for any use that may be made of the information in this document
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Outline

1 Teaser

2 Backup slides

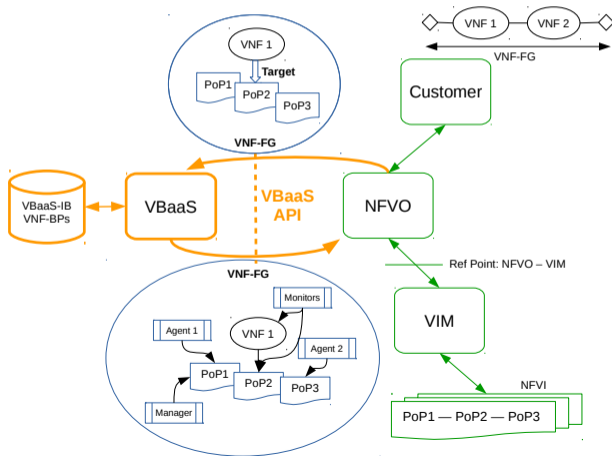
How? VNF Benchmarking as a Service (VBaaS)



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VBaaS objectives

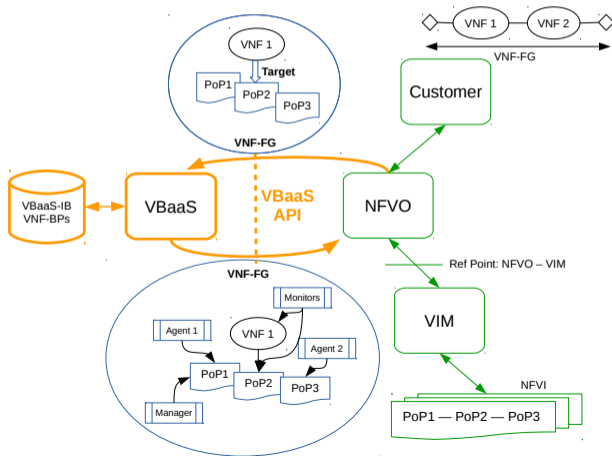
- “Black box” VNF benchmarking, with respect to the
 - NVFO
 - Benchmarking Service



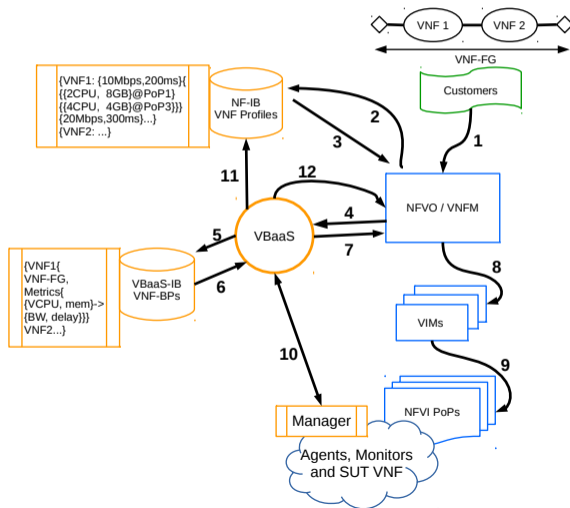
How? VNF Benchmarking as a Service (VBaaS)

VBaaS objectives

- “Black box” VNF benchmarking, with respect to the
 - NVFO
 - Benchmarking Service
- VBaaS uses NFVO (or VIMs) to deploy benchmark measurements
 - e.g., by VNF-FG



VBaaS Process Walk-through



Usage: Benchmarking, Dimensioning and Verification

Benchmarking

To measure VNF's throughput, latency, jitter parameters for given cpu, memory, storage reservation at given VIM.

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Dimensioning

To determine cpu, memory, storage reservation parameters for given VNF at given VIM for target throughput, latency, jitter parameters.

Usage: Benchmarking, Dimensioning and Verification

Benchmarking

To measure VNF's throughput, latency, jitter parameters for given cpu, memory, storage reservation at given VIM.

Dimensioning

To determine cpu, memory, storage reservation parameters for given VNF at given VIM for target throughput, latency, jitter parameters.

Verification

To assess if given throughput, latency, jitter parameters of a VNF is met with given cpu, memory, storage reservation at given VIM.

Usage: Benchmarking, Dimensioning and Verification

Benchmarking

To measure VNF's throughput, latency, jitter parameters for given cpu, memory, storage reservation at given VIM.

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Observation

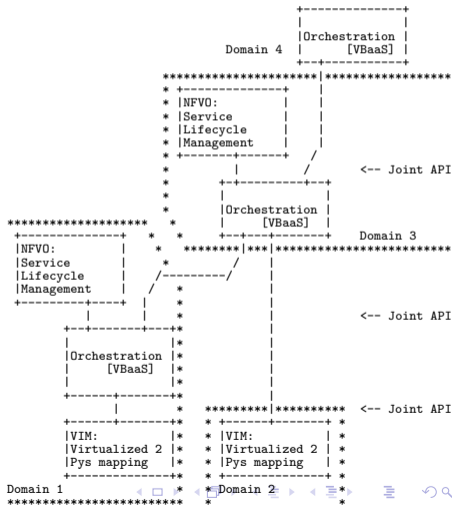
Dimensioning and verification boil down to benchmarking operation(s).

Recursive Orchestration with VBaaS

UNIFYing carrier network and cloud resources

- Recurrent joint software and networking control API^a

^adraft-unify-nfvrg-recursive-programming-02

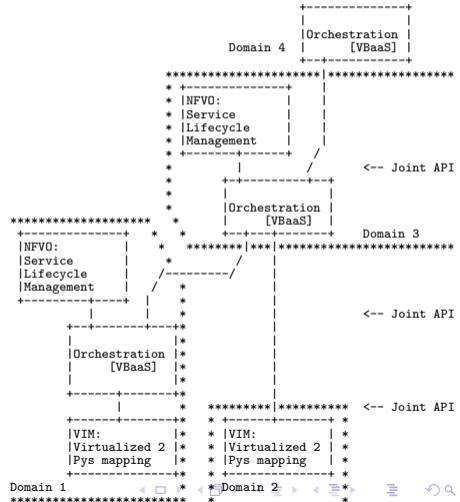


Recursive Orchestration with VBaaS

UNIFYing carrier network and cloud resources

- Recurrent joint software and networking control API^a
- Flexibility in resource virtualization with Big Switch with Big Software

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Recursive Orchestration with VBaaS

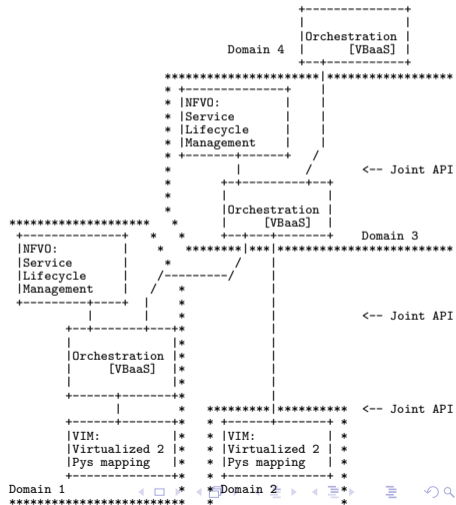
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VBaaS

is part of each orchestration component; options:



Recursive Orchestration with VBaaS

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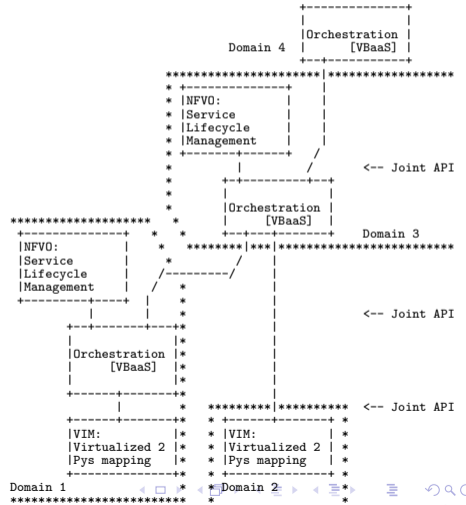
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VBaaS

is part of each orchestration component; options:

- request VNF profiling from the virtualization provider;



Recursive Orchestration with VBaaS

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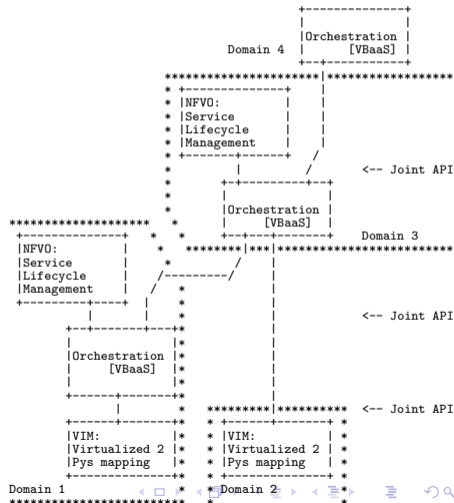
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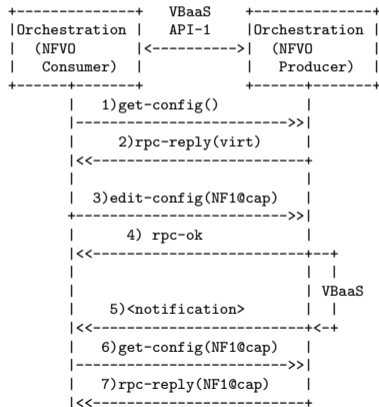
- request VNF profiling from the virtualization provider;
- do it on your own “transparently” over the underlying substrates.



VBaaS Request and Reporting as Capabilities

Capability reporting

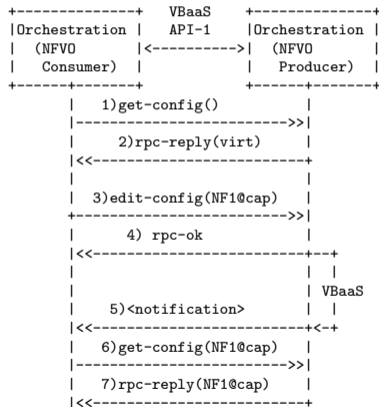
- Based on a virtualization yang model each execution environment can report VNF benchmarking results.



VBaaS Request and Reporting as Capabilities

Capability reporting

- Based on a virtualization yang model each execution environment can report VNF benchmarking results.
- Consumer can request a capability report by defining partial capability entries
 - Providing only performance KPI means a dimensioning request
 - Providing only resource allocation means a benchmarking request
 - Providing both mean verification



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