INTRIG INFORMATION & NETWORKING TECHNOLOGIES RESEARCH & INNOVATION GROUP

VBaaS: VNF Benchmark-as-a-Service

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Rosa, Raphael V.
Rothenberg, Christian E.
Szabo, Robert

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FEEC/UNICAMP and Ericsson Research Hungary

FEEC Faculdade de Engenharia Elétrica e de Computação UNICAMP

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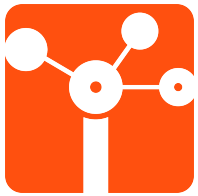

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VBaaS

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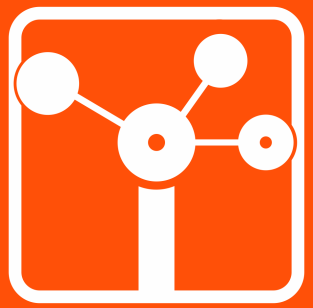
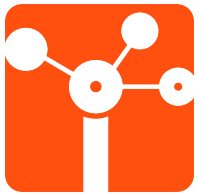
INTRODUCTION





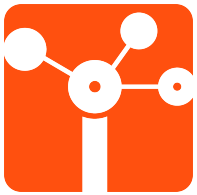
Motivation
VNFs and performance metrics

NFV Performance and portability requirements

- Customers Key Quality Indicators (KQIs)
- Dynamic workloads, infrastructure failures, etc
- Service Assurance/Continuity (IT – Telco)

DevOps

* Repeatable and reliable processes
* Modular applications in production-like systems
* Monitor and validate operational quality of services (after and before deployment)



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

Assist orchestration manager (e.g., NFVO) decisions

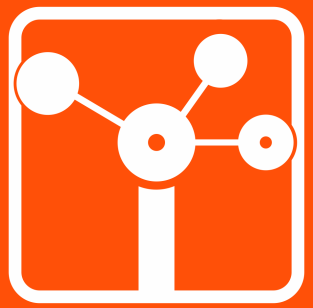
On-demand test-before-deploy Capacity Planning

= Customized performance assessments
= Migration, scaling and auditing VNF-FGs

Conformance testing Compliance and Auditing

= VNF continuous integration
= Proactive policy enforcement in infrastructure setups

VBAAS



Proposal

Sweet spot between continuous monitoring vs. static view

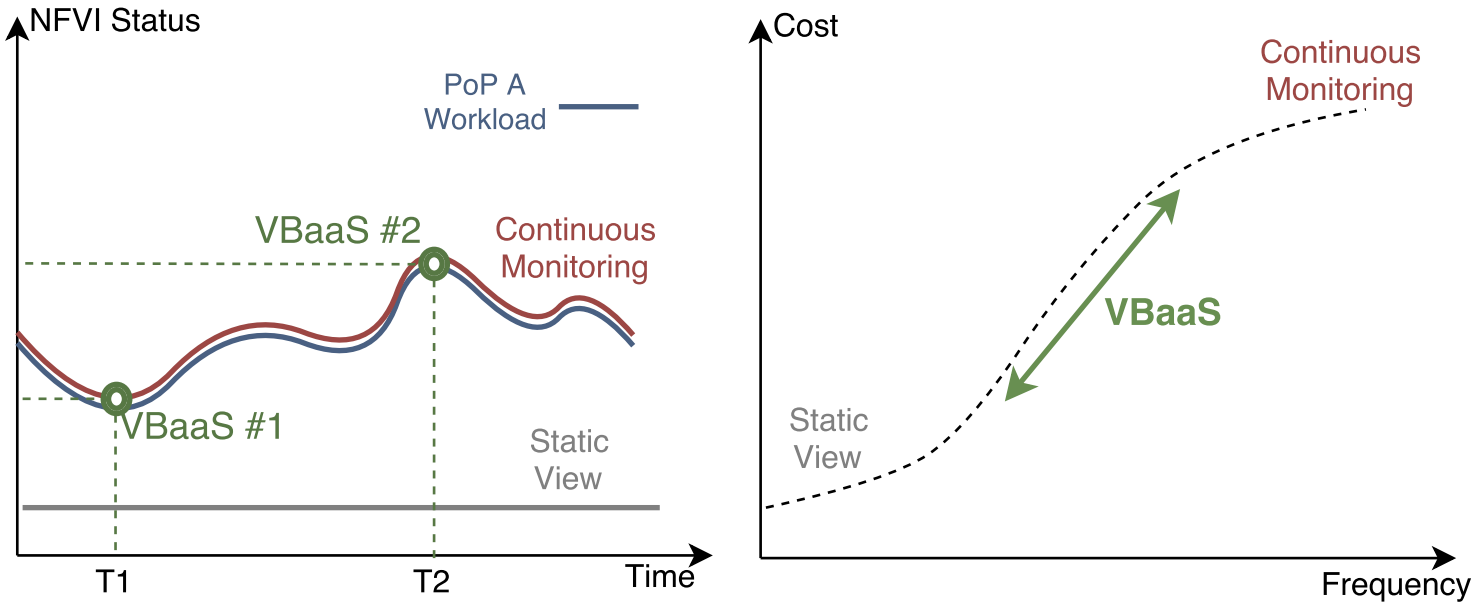
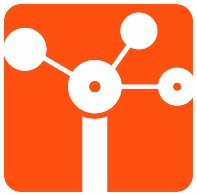


Figure: VBaaS motivation points: static view (VBaaS) continuous monitoring



General Aspects

- Why VBaaS?
  - ¬ NFV performance reliability (KQIs) and agility (Service Assurance)
- What is VBaaS?
  - ¬ VNF/NFVI features (performance) extraction framework
- How VBaaS can be performed?
  - ¬ Independently, oriented by orchestration managers requests
- When VBaaS can be used?
  - ¬ Whenever costs and time scales favour its associated costs (policies)

Components
Actors and Interfaces

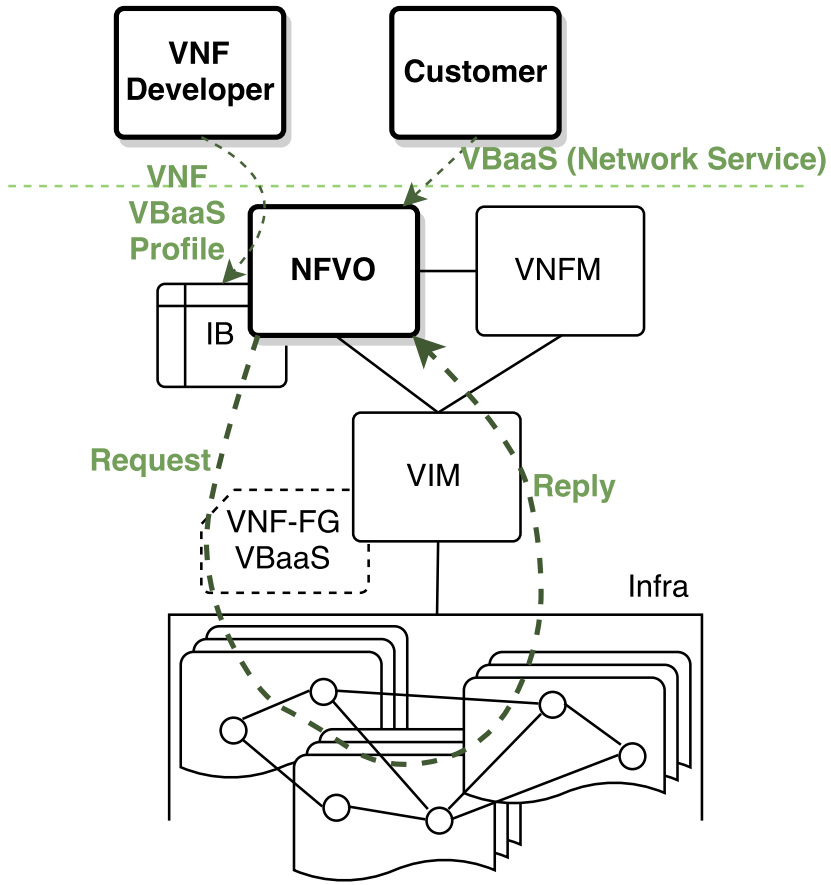


Figure: VBaaS Main Design: Components and Interfaces

Components
VBaaS - Information Base

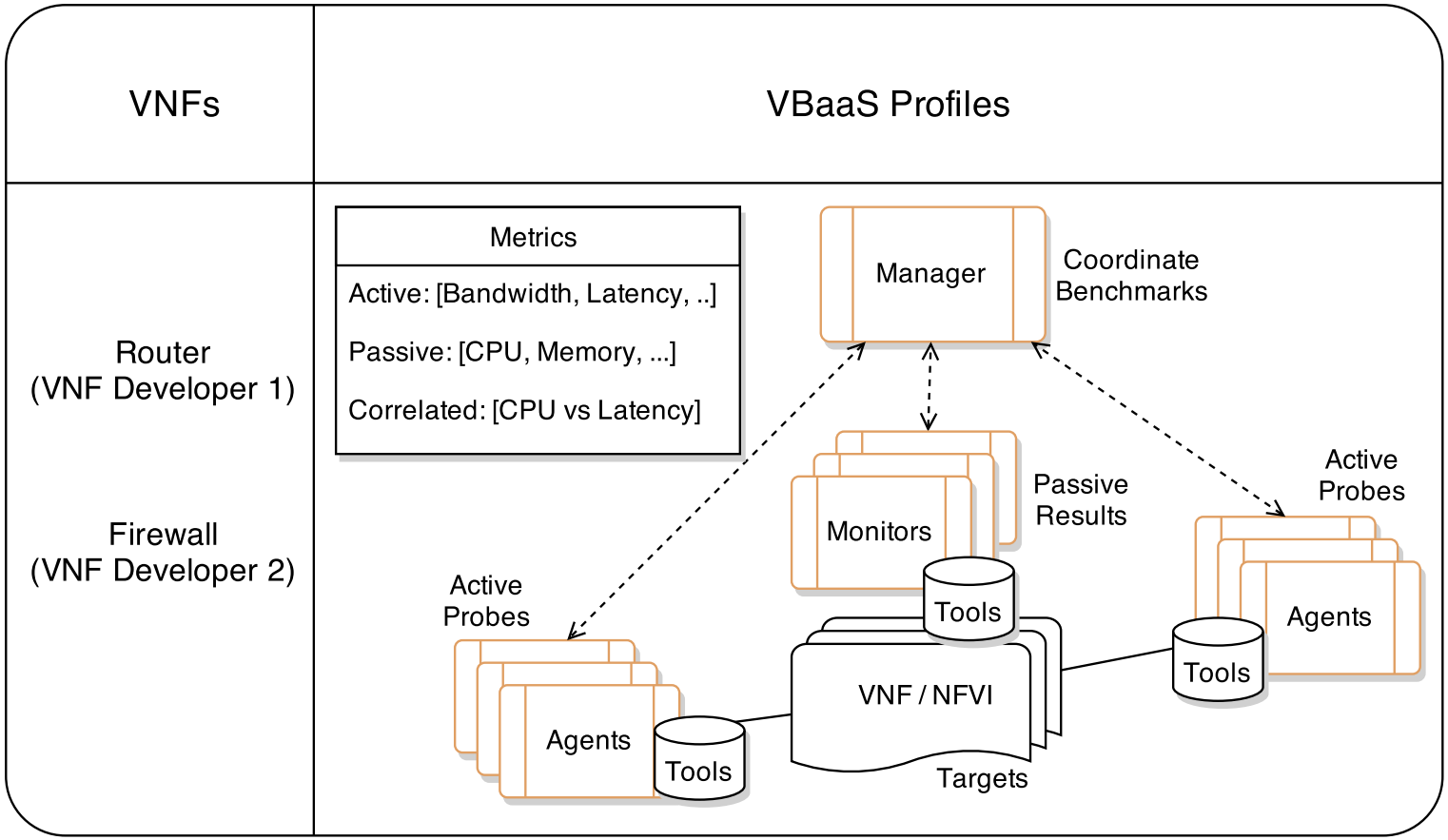
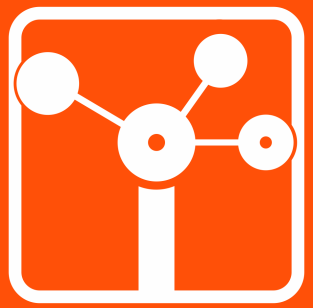


Figure: VBaaS Information Base and VNF Benchmark Profile

USE CASES



VBaaS Workflows

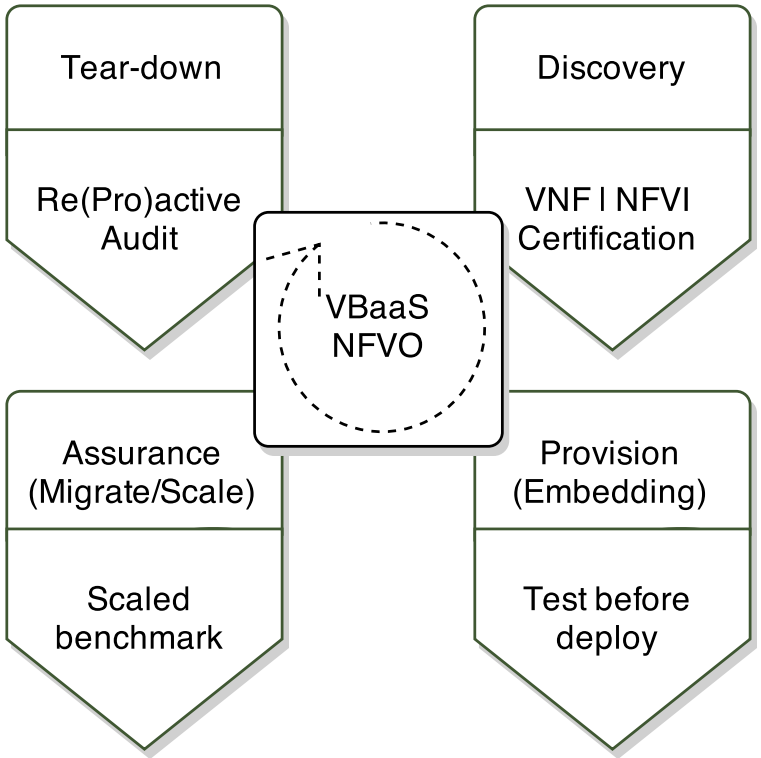


Figure: VBaaS lifecycle

Use Case: Provision
Test-before-deploy

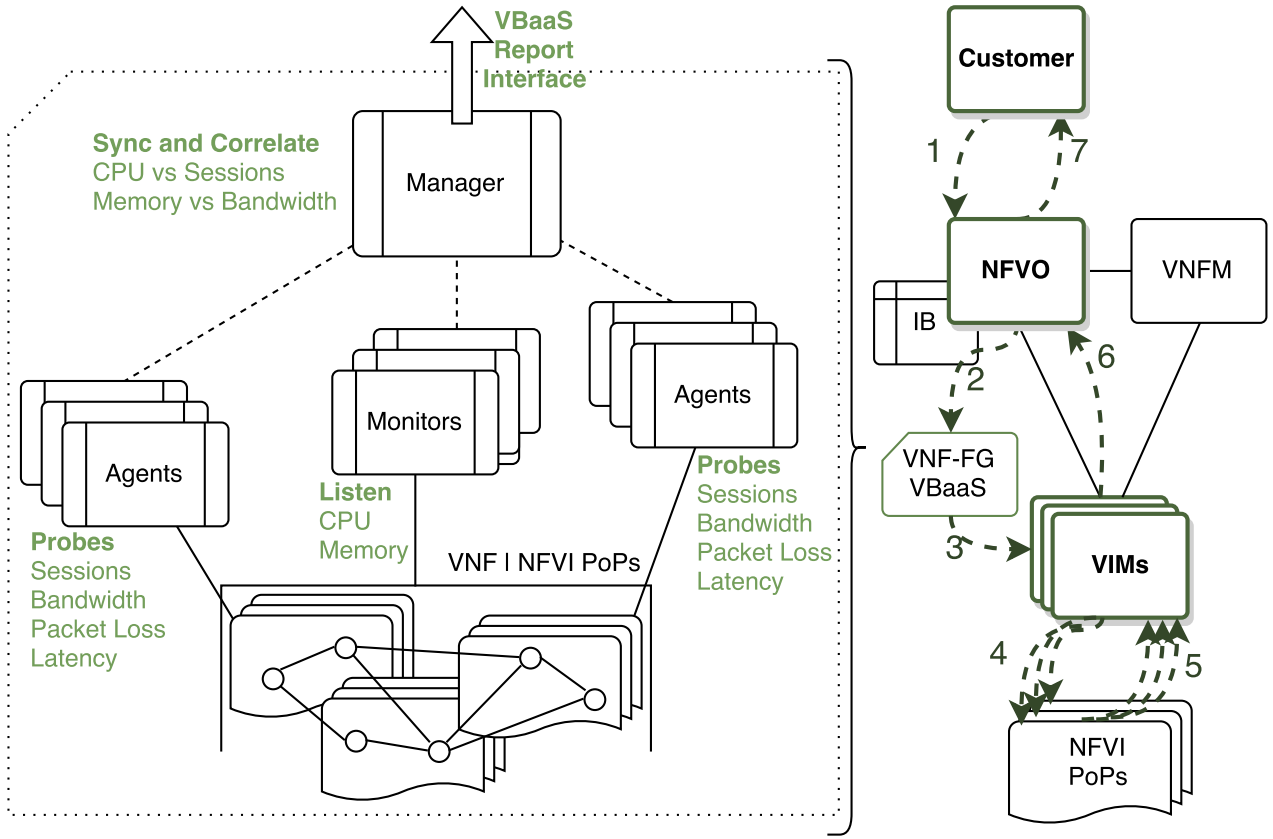
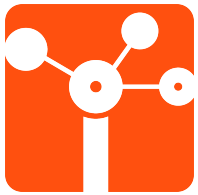


Figure: VBaaS provision workflow



Use Cases Comparison

Table: VBaaS Applicability

Workflow	Objective
Discovery	Compliance
Provision	Test-before-deploy
Assurance	Service continuity
Tear-down	Audit

VBaaS Details
VNF and NFVI PoPs performance profiles

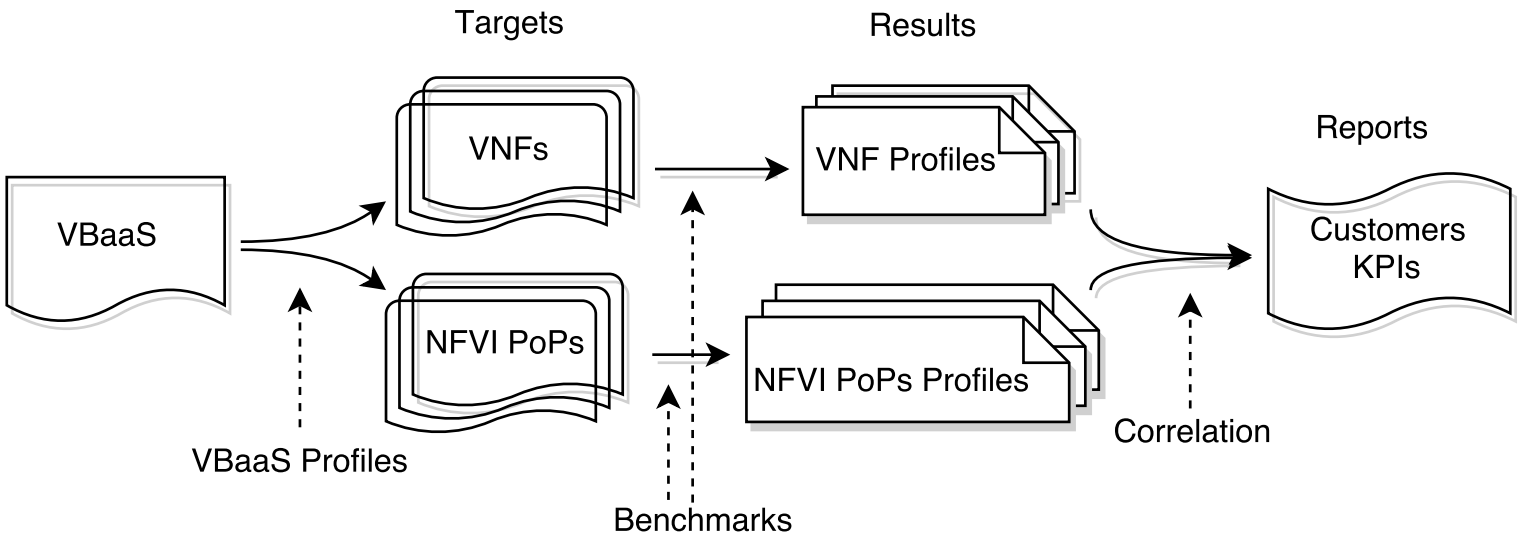


Figure: Correlation of VBaaS results

VBaaS Details
Profiles Results

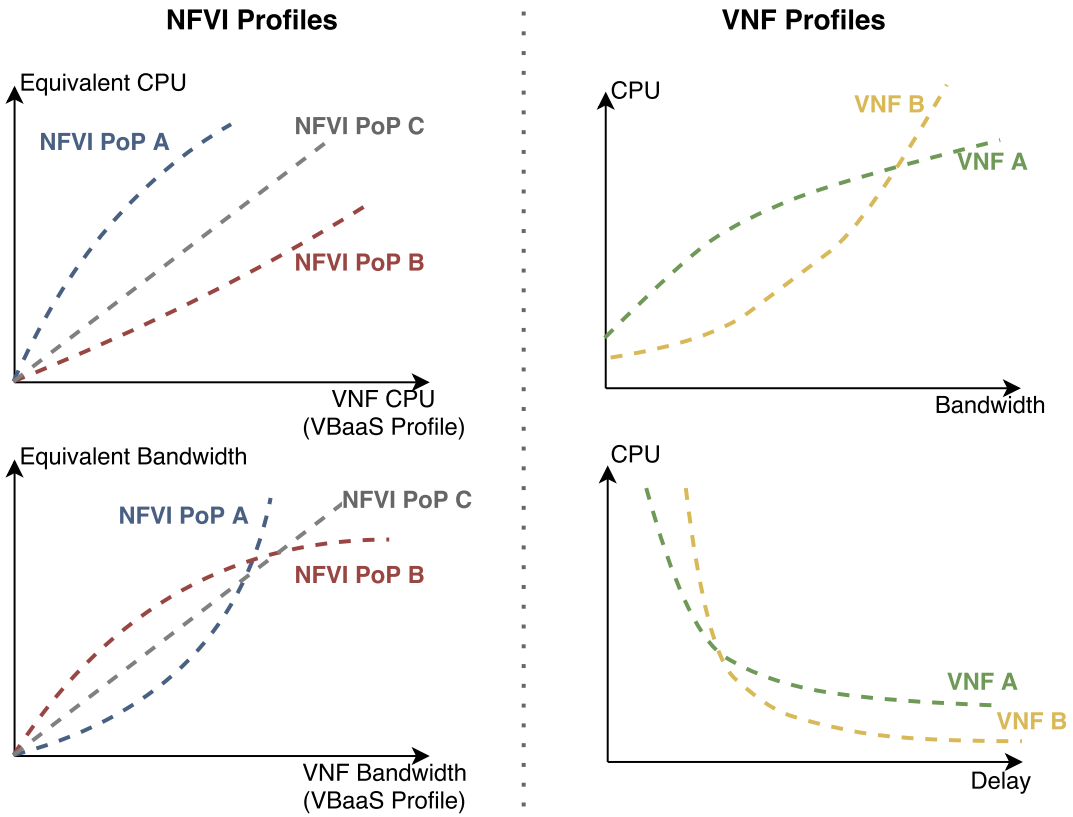
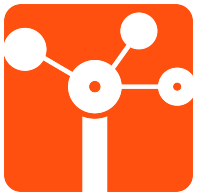


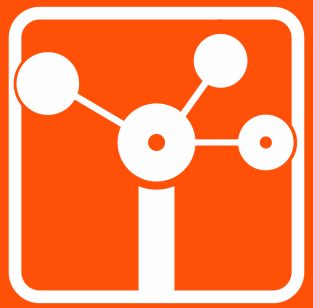
Figure: Assumptions of VBaaS reports

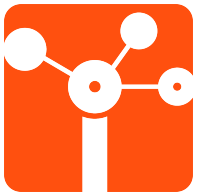


Analysis
Considerations

1. When NFVI PoPs or VNFs are in certain % of utilization
2. Noisy behaviour
3. Long-term tests
4. Constant flux
5. Recovery exam of failed VNF/NFVI
6. Shared resources, comparison with non-virtualized, metrics dependence, etc

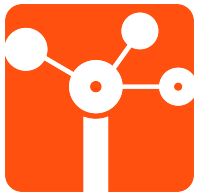
RELATED WORK





Projects

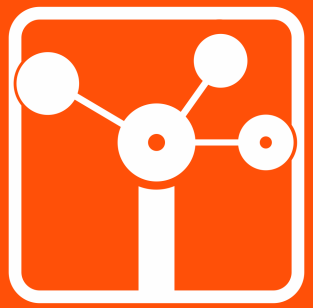
- T-NOVA
- Trilogy
- Unify

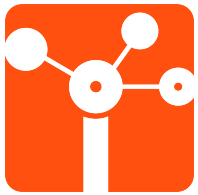


Open Source

- OPNFV: Yardstick and vSwitchPerf

CONCLUSION



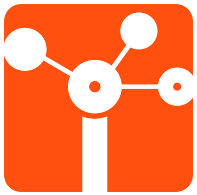


Summary

"Trust, but verify", maybe better: *verify, then trust*

VBaaS

- Motivation: NFV performance reliability/agility and DevOps
- Certification of performance profiles for VNFs and NFVI PoPs
- Instrumentation before VNF-FGs deployment (fine-tune decisions)
- VBaaS processes: discovery, provision, maintenance, tear-down
- Benchmark Considerations!



Future Work

* NFVO decision process for NFVI PoP targets selection
* Benchmark dependencies and consistent tasks
* Correlation of VBaaS results
* Prototyping in Unify architecture
* Input for Multi Domain Distributed NFV

Acknowledgements

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Thanks!

Questions?

Backup Slides

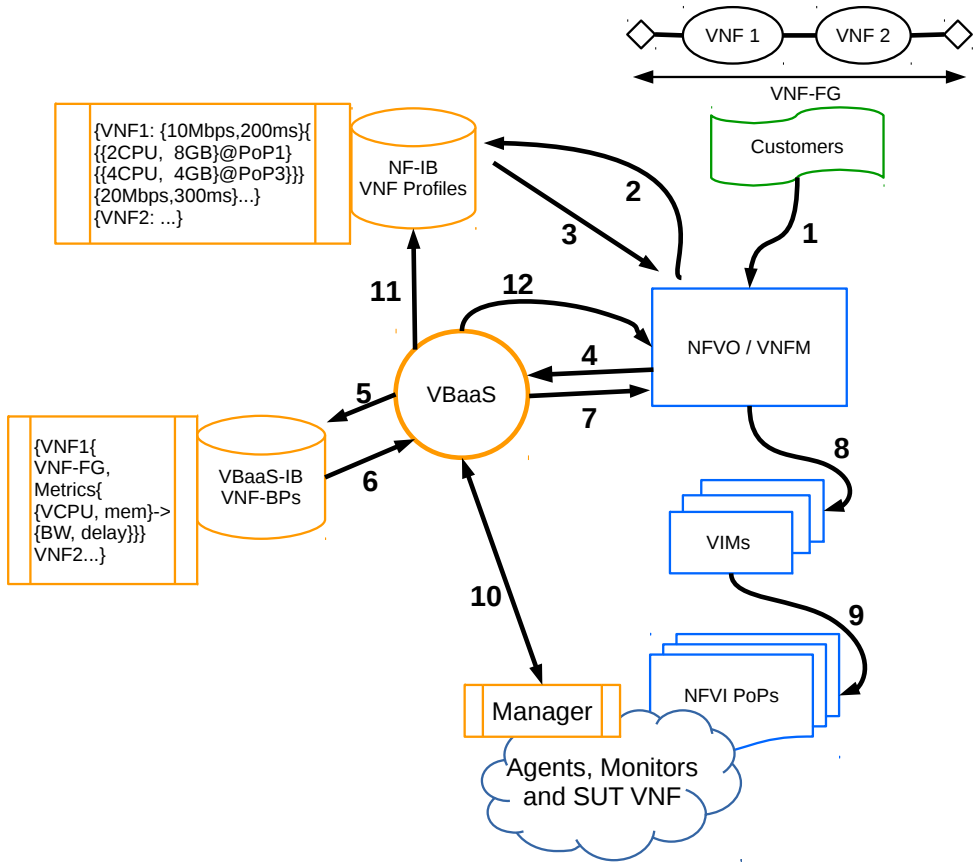

Figure: VBaaS Detailed Workflow

Backup Slides

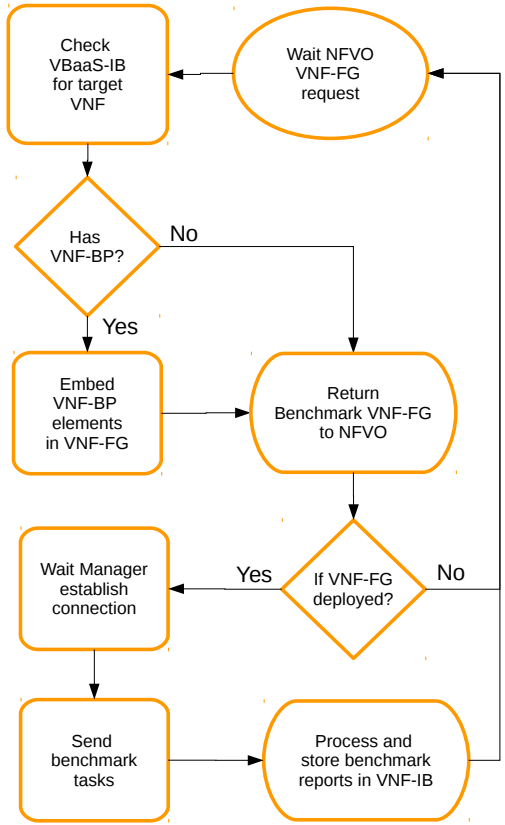

Figure: VBaaS Activities Flow

Backup Slides

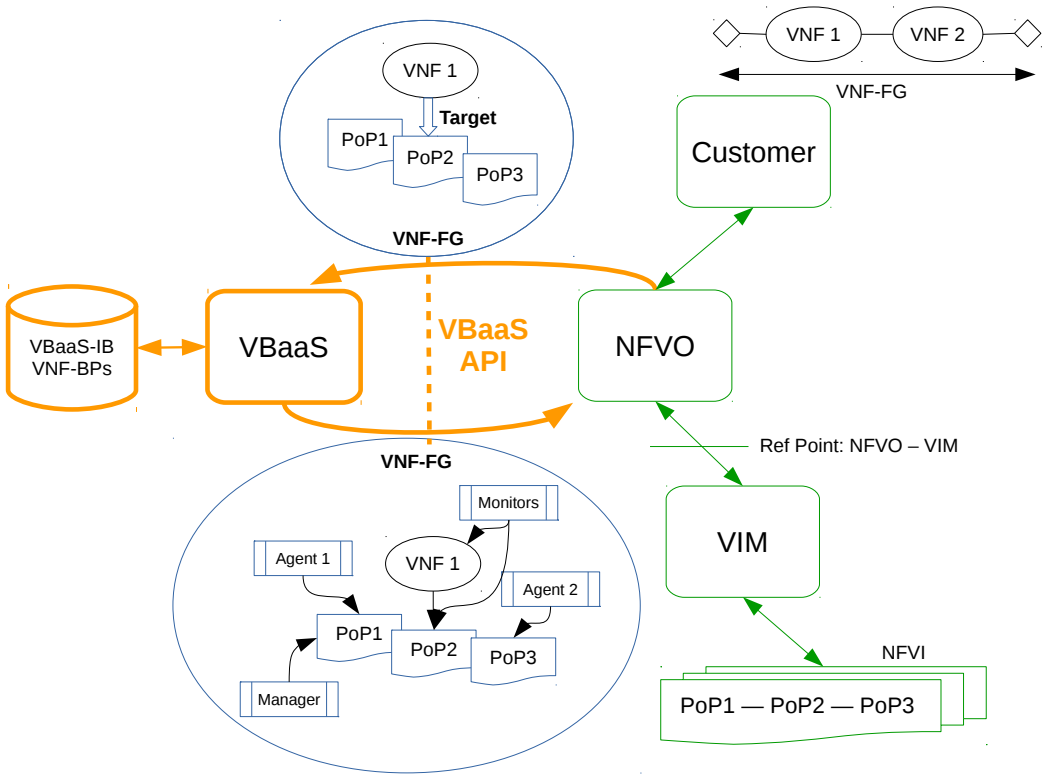

Figure: VBaaS Recursive API

Backup Slides

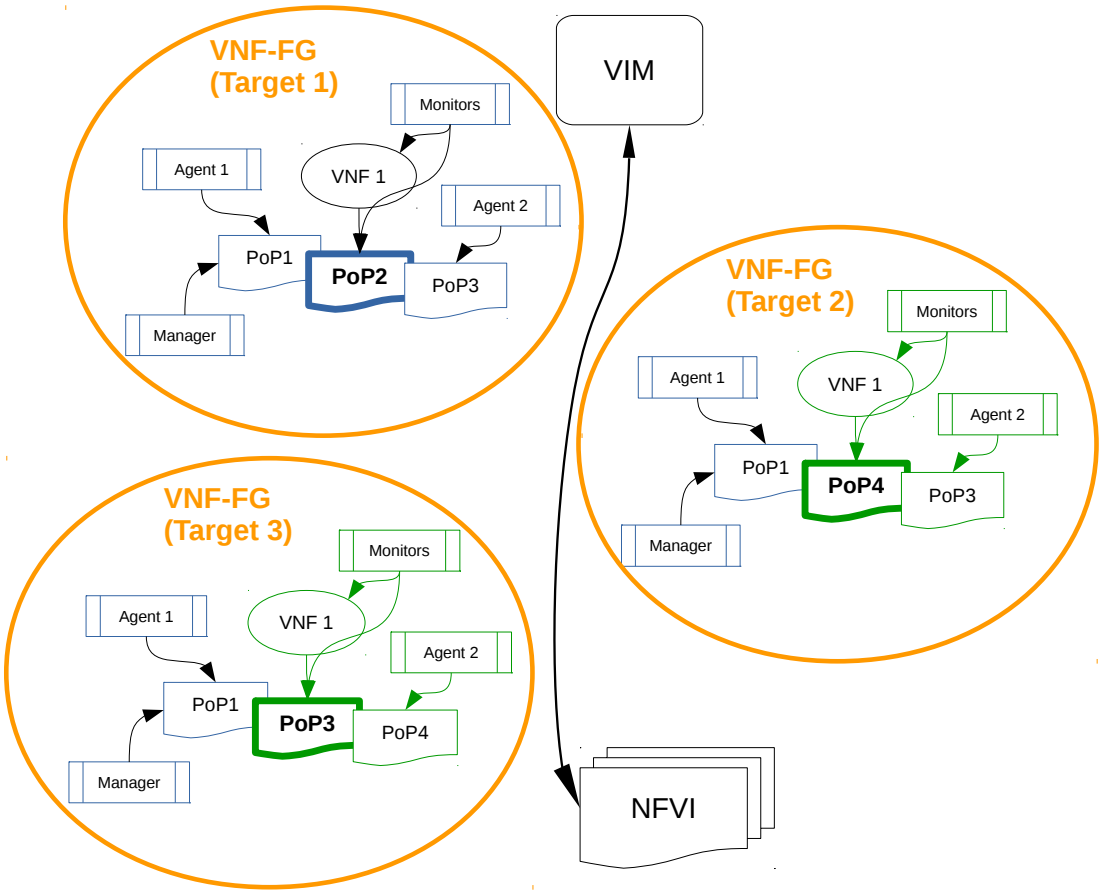

Figure: VBaaS Deployments Optimization

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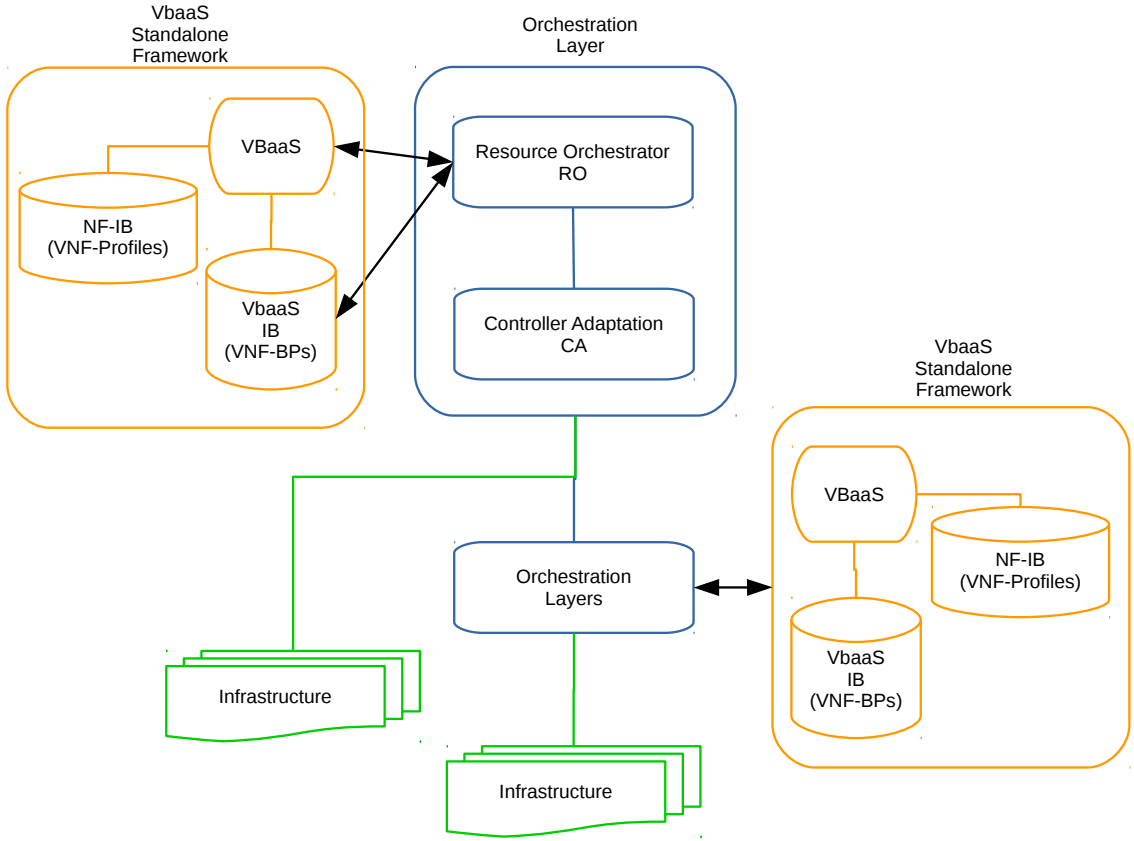

Figure: VBaaS and Unify: General Ideas

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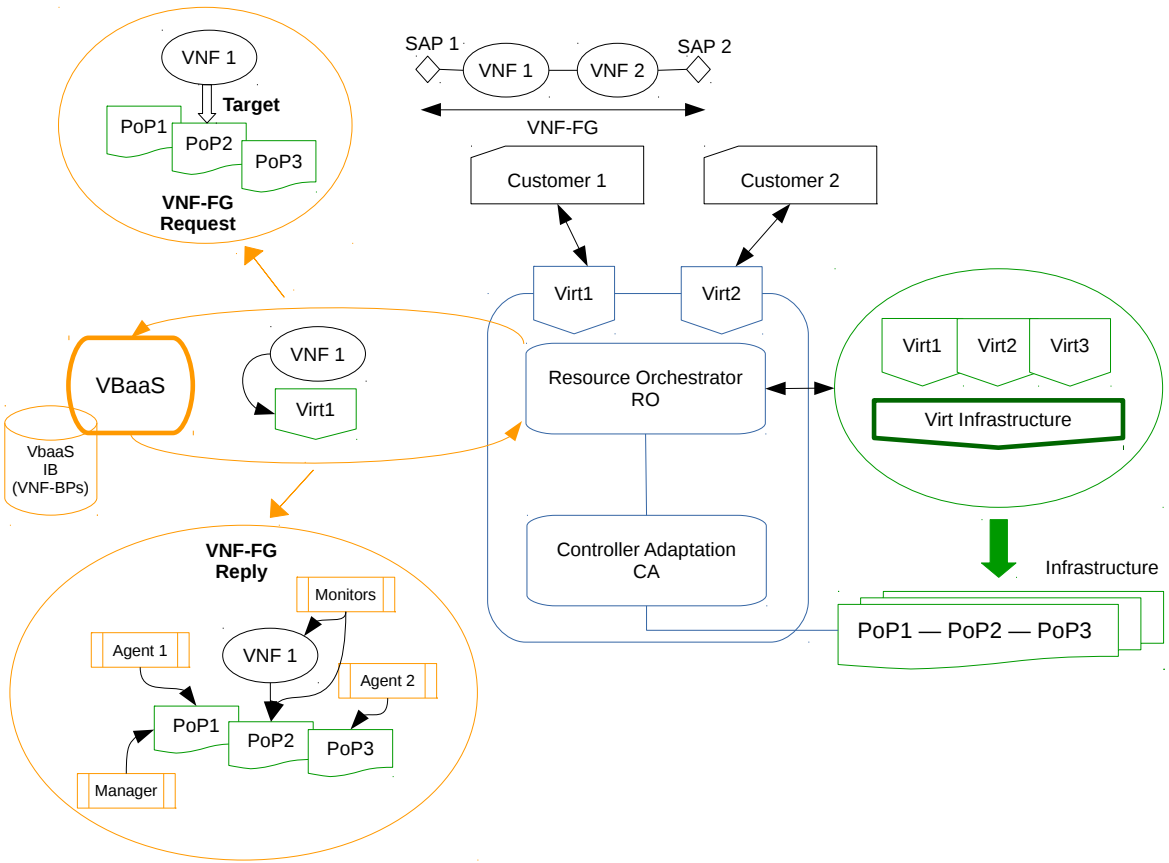

Figure: VBaaS and Unify Abstractions

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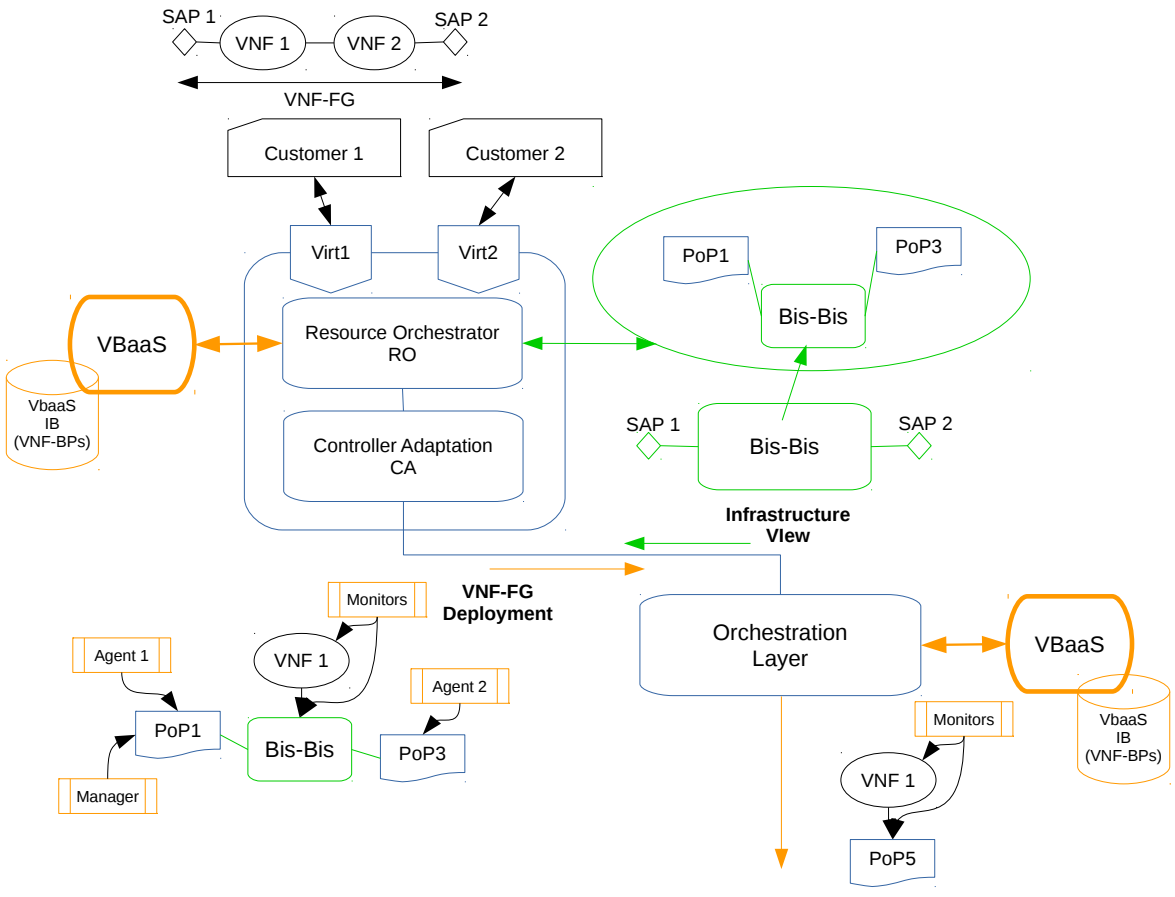

Figure: VBaaS and Unify Bis-Bis

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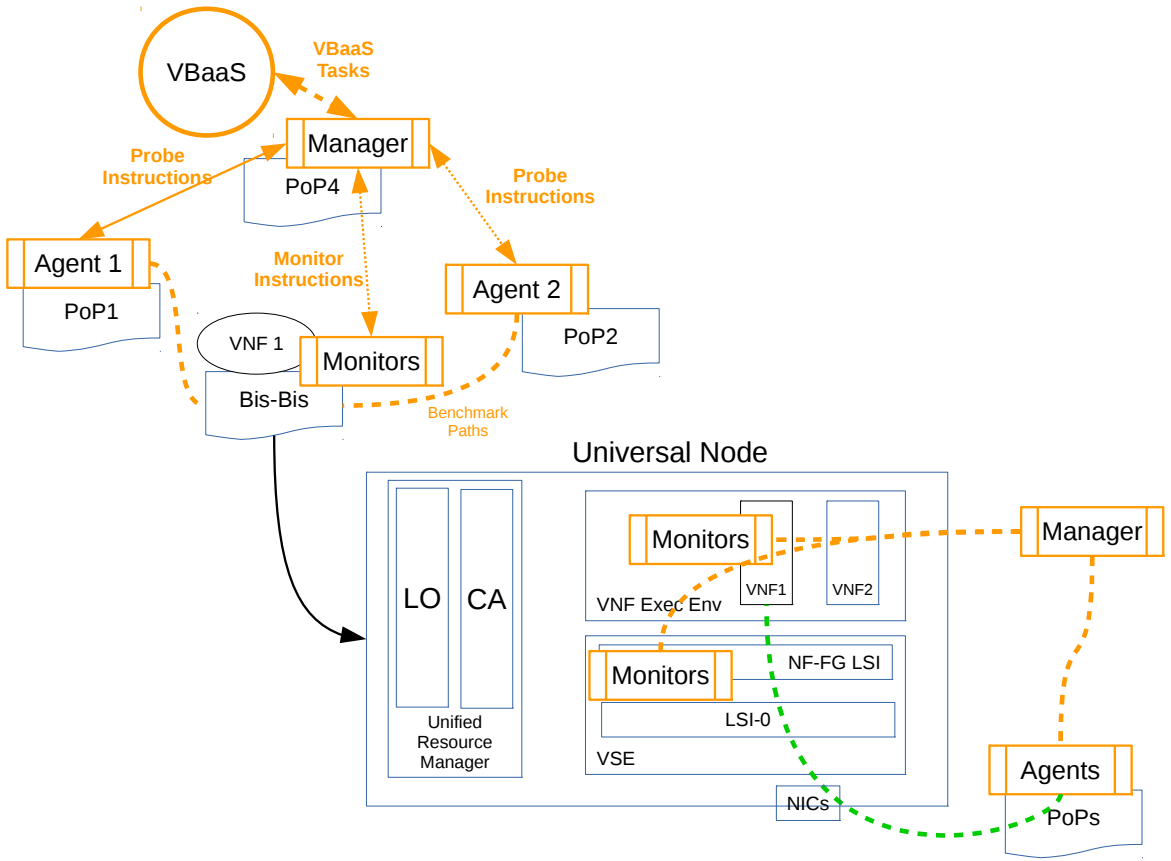

Figure: VBaaS and Unify Universal Node