

IETF #109 - BMWG

Methodology for VNF Benchmarking Automation
-06

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Context, in version -05: Which were the major technical changes?

- Introduction: clear motivation and scope
- Considerations: the "Phases of a Benchmarking Test" subject to automation
- YANG modules: VNF-BD, VNF-PP, VNF-BR
- Methodology explained in details: the composition/execution of a VNF-BR
- Reference implementation of draft concepts - Gym:
<https://github.com/raphaelvrosa/gym/>

Why the draft was updated?

- The methodology was not yet as clear as it could be
- VNF-BR now detains most of the needed information
- Address comments in the mailing-list written by Steven Van Rossem (Thanks!)

Which are the major technical changes?

→ **Refined VNF Benchmarking Report (VNF-BR)**

- Explained in the draft (VNF-BD and VNF-PP)
- Methodology consists in processing VNF-BR inputs to produce VNF-BR outputs
- Inputs: VNF-BD + variables (sample space of tests/trials)
- Outputs: VNF-BD (sampled) + variables (sampled) + VNF-PP (output of VNF-BD execution)
- Methodology:
 - References the Architectural Framework (defined in the draft considerations)
 - Automates the Phases of a Benchmarking Test (defined in the draft considerations)
 - Explores the input VNF-BD and variables to perform tests and trials

→ Draft and YANG modules

- ◆ <https://github.com/raphaelvrosa/vnf-bench-meth>

→ Published Gym VNF-BR examples (and results in json and csv)

- ◆ <https://github.com/raphaelvrosa/gym/tree/master/examples>

Which issues are unresolved? Which issues needs further discussion.

- Comments by Vladimir Vassilev - Thanks :)
 - ◆ Going to update YANG models
- Structure VNF Benchmark Report compilation of
 - ◆ Useful/Summary joint information from VNF-BD and VNF-PP
 - e.g., performance_metrics = F(traffic/workload, resources, VNF/configuration)
 - ◆ Currently, Gym outputs a CSV -> Can be translated into an YANG data structure
- Synergies (alignment/collaboration) with BMWG related work
 - ◆ Considerations for Benchmarking Network Performance in Containerized Infrastructures
 - ◆ Considerations for Benchmarking Network Virtualization Platforms
 - ◆ **A YANG Data Model for Network Interconnect Tester Management**

Final Remarks + Call for adoption request

- Considering:
 - Draft in version -06
 - Comments in mailing list adequately addressed
 - VNF-BD and VNF-PP modules compose VNF-BR YANG module
 - Methodology is being clearly stated
 - Reference tool implementing draft methodology (YANG modules and experimental results)
- **We ask BMWG to call for the draft adoption**
 - We have received off-list support in different forms and stakeholders
 - Industrial partners / collaborators
 - Academia: https://scholar.google.fi/scholar?oi=bibs&hl=en&cites=18378234994237256450&as_sdt=5
https://scholar.google.fi/scholar?cites=8508100077884394238&as_sdt=2005&scioldt=0,5&hl=en
 - We are addressing mailing-list comments:
 - Thanks! Arguably all addressable towards point improvements, no major issues.
 - We are going move forward on refining the draft
 - YANG modules + Examples related to other BMWG drafts



Thank you!



References

- [1] R. Rosa, C. Bertoldo, C. Rothenberg, "Take your VNF to the Gym: A Testing Framework for Automated NFV Performance Benchmarking", IEEE Communications Magazine Testing Series , Sept 2017, <<http://ieeexplore.ieee.org/document/8030496>>.
- [2] "Gym Home Page", <<https://github.com/intrig-unicamp/gym>>.
- [3] M. Peuster, H. Karl, "Profile Your Chains, Not Functions: Automated Network Service Profiling in DevOps Environments", IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN) , 2017, <<http://ieeexplore.ieee.org/document/8169826/>>.
- [4] "5GTANGO VNF/NS Benchmarking Framework", <<https://github.com/sonata-nfv/tng-sdk-benchmark>>.
- [5] YANG Models: <https://github.com/raphaelvrosa/vnf-bench-model/tree/master/vnf-br/yang>
- [6] Example Results: <https://github.com/raphaelvrosa/vnf-bench-model/tree/master/experiments>