Considerations for Benchmarking Network Performance in Containerized Infrastructure

draft-ietf-bmwg-containerized-infra-00

Minh-Ngoc Tran (Soongsil University), Sridhar Rao (The Linux Foundation),
Jangwon Lee, Younghan Kim (Soongsil University)
Scope

• Previous **NFV benchmarking** related RFCs
  • RFC 8172: Considerations for Benchmarking Virtual Network Functions and Their Infrastructure
  • RFC 8204: Benchmarking Virtual Switches in the Open Platform for NFV (OPNFV)

• The primary scope of this document is to fill in the **gaps** of these works **when applying to containerized NFV** infrastructure.

• **The consideration gaps are:**
  • Different **network models/topologies configured by Container Network Interfaces** (including the extended Berkeley Packet Filter model which was not mentioned in previous documents)
  • **Resources configuration for containers.**
Draft Development

• **v00: March, 2019 - IETF 104**
  • Initial Proposal

• **v01: July, 2019**
  • First version after comments from IETF 104

• **v02-v09: 2019 - 2023**
  • Self Update based on benchmarking tests from several IETF Hackathons

• **v10: March, 2023 – IETF 116**
  • Update based on reviews from Linux Foundation ViNePERF Anuket Project (Sridhar – Linux Foundation and Al Morton)
  • Agreed on 5 Containerized Network Models types (Kernel-space non Acceleration, User-space Acceleration, eBPF, SmartNIC, Model Combination)
  • Agreed on 4 Resources Configuration considerations (CPU Isolation[NUMA, Pod Hugepages, Pod CPU&memory, Service chaining)
  • First WG adoption call

• **v11: July, 2023 – IETF 117**
  • Update based on reviews from IETF BMWG 116 (Gábor and Vratko)
  • Specify Resources Configuration benchmarking parameters and remove Benchmarking Appendixes

• **v12, 13: November, 2023 – IETF 118**
  • Update based on IETF 117 meeting comments and reviews
  • Provide a clear Scope section (addressing the gaps of related RFC 8204 8172), and remove duplicate containerized infrastructure introduction contents

• **Adoption v0: March, 2024 – IETF 119**
  • Adopted as WG draft
  • Update based on WG adoption comments: environment setup repeatability guidance for all container networking models

• **Adoption v1: July, 2024 – IETF 120**
  • Editorial changes and nits correction
  • No more additional change requests from WG
Summary

• We didn’t receive any new reviews or change request from WG
• After 6 years of development, the draft is stable

• We would like to request Last Call.