results. We have also measured, to what extent the different solutions decrease the performance of **`siitperf`**.

We conclude that we were successful in implementing the varying port number feature of **`siitperf`**, while keeping its high performance.

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REFERENCES

[1] M. Georgescu, L. Pislaru L, and G. Lencse, "Benchmarking methodology for IPv6 transition technologies, *IETF RFC 8219*, 2017. DOI: 10.17487/RFC8219

[2] G. Lencse and Y. Kadobayashi, "Comprehensive survey of IPv6 transition technologies: A subjective classification for security analysis", *IEICE Transactions on Communications*, vol. E102-B, no. 10, pp. 2021–2035, DOI:10.1587/transcom.2018EBR0002

[3] C. Bao, X. Li, F. Baker, T. Anderson, and F. Gont, "IP/ICMP translation algorithm", *IETF RFC 7915*, 2016. DOI: 10.17487/RFC7915

[4] S. Bradner and J. McQuaid, "Benchmarking methodology for network interconnect devices", *IETF RFC 2544*, 1999. DOI: 10.17487/RFC2544

[5] C. Popoviciu, A. Hamza, G. Van de Velde, and D. Dugatkin, "IPv6 benchmarking methodology for network interconnect devices", *IETF RFC 5180*, 2008. DOI: 10.17487/RFC5180

[6] G. Lencse, "Benchmarking stateless NAT64 implementations with a standard tester", *Telecommunication Systems*, DOI: 10.1007/s11235-020-00681-x

[7] G. Lencse, "Design and implementation of a software tester for benchmarking stateless NAT64 gateways", *IEICE Transactions on Communications*, DOI: 10.1587/transcom.2019EBN0010

[8] G. Lencse, "Siitperf: An RFC 8219 compliant SIIT (stateless NAT64) tester", free sofware under GPLv3 license, [Online]. Available: https://github.com/lencsegabor/siitperf

[9] D. Scholz, "A look at Intel's dataplane development kit", *Proc. Seminars Future Internet (FI) and Innovative Internet Technologies and Mobile Communications (IITM)*, Munich, Germany, Aug. 2014, pp. 115–122, DOI: 10.2313/NET-2014-08-1_15

[10] D. Newman, T. Player, "Hash and stuffing: Overlooked factors in network device benchmarking", *IETF RFC 4814*, 2008. DOI: 10.17487/RFC4814

[11] G. Lencse, K. Shima, "Performance analysis of SIIT implementations: Testing and improving the methodology", *Computer Communications*, vol. 156, no. 1, pp. 54-67, April 15, 2020, DOI: 10.1016/j.comcom.2020.03.034

[12] G. Lencse and D. Bakai, "Design and implementation of a test program for benchmarking DNS64 servers", *IEICE Transactions on Communications*, vol. E100-B, no. 6. pp. 948–954, Jun. 2017. DOI:10.1587/transcom.2016EBN0007

[13] G. Lencse, "Benchmarking authoritative DNS servers", *IEEE Access*, vol. 8. pp. 130224–130238, Jul. 2020. DOI: 10.1109/ACCESS.2020.3009141

[14] A. C. Morton, "Re: [bmwg] An Upgrade to Benchmarking Methodology for Network Interconnect Devices -- Fwd: New Version Notification for draft-lencse-bmwg-rfc2544-bis-00.txt", May 22, 2020, *IETF BMWG mailing list archive*, [Online]. Available: https://mailarchive.ietf.org/arch/msg/bmwg/xEhrqdP59PAphKJES9viKM8Tt_E/

[15] G. Lencse, Á. Kovács, K. Shima, "Gaming with the Throughput and the Latency Benchmarking Measurement Procedures of RFC 2544", *International Journal of Advances in Telecommunications, Electrotechnics, Signals and Systems*, vol 9, no 2, pp. 10-17, 2020, DOI: 10.11601/ijates.v9i2.288

[16] DPDK Documentation, "rte_eth_tx_burst()", [Online]. Available: https://doc.dpdk.org/api/rte__ethdev_8h.html#a83e56cabbd31637efd648e3fc010392b

[17] T. Herbert, W. de Bruijn, "Scaling in the Linux Networking Stack" [Online]. Available: https://www.kernel.org/doc/Documentation/networking/scaling.txt

Gábor Lencse received his MSc and PhD in computer science from the Budapest University of Technology and Economics, Budapest, Hungary in 1994 and 2001, respectively.

He has been working full time for the Department of Telecommunications, Széchenyi István University, Győr, Hungary since 1997. Now, he is a Professor. He has been working part time for the Department of Networked Systems and Services, Budapest University of Technology and Economics as a Senior Research Fellow since 2005. His research interests include the performance and security analysis of IPv6 transition technologies. He is a co-author of RFC 8219.