Statelet-Based Efficient and Seamless NFV State Transfer

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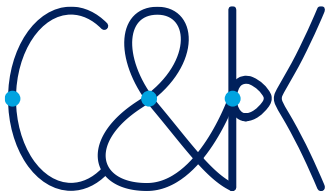
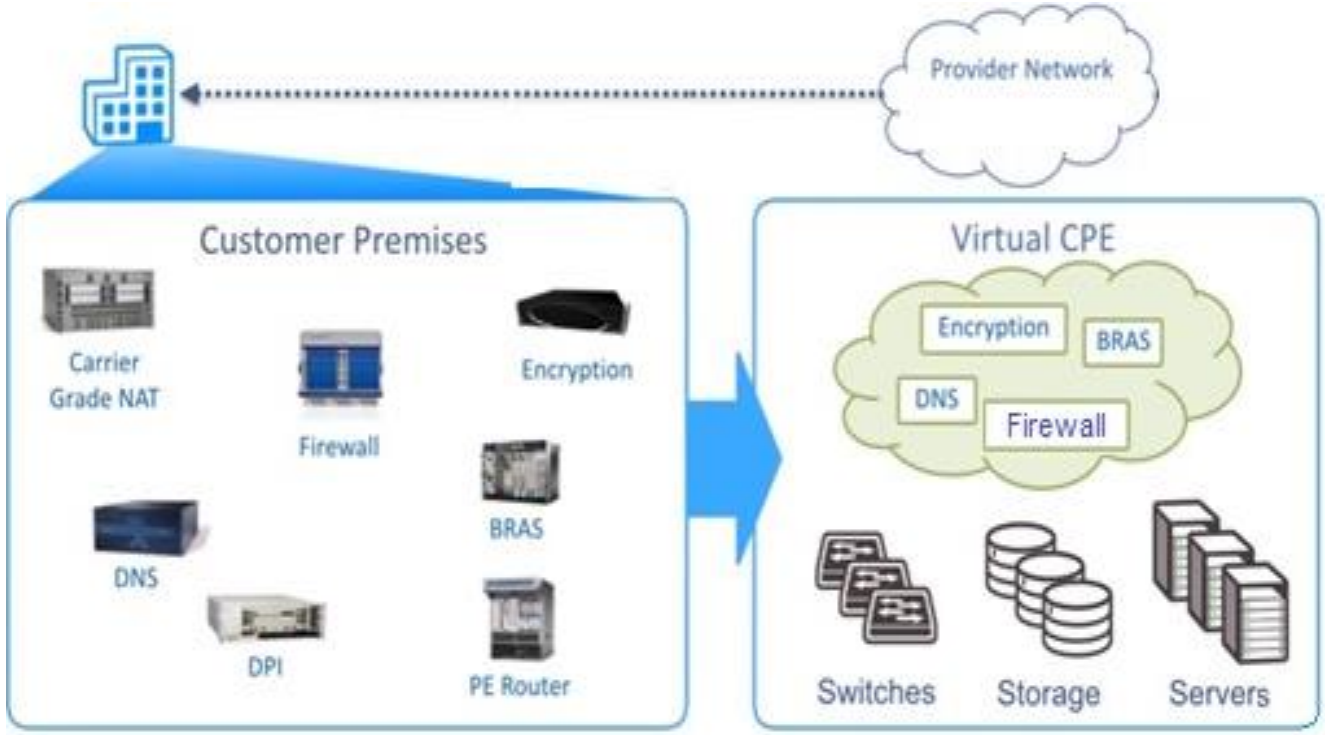


Introduction

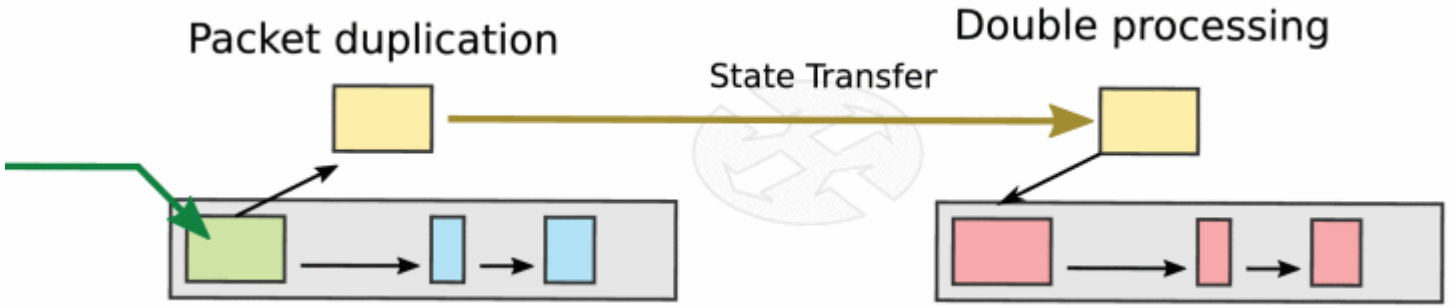
- What is NFV (Network Function Virtualization)?
- Statelet approach
- Slim Migration System(SliM)



Reference: https://medium.com/@blogstevej327stuff/what-is-network-function-virtualization-nfv-a3bcd98d891f

Problem

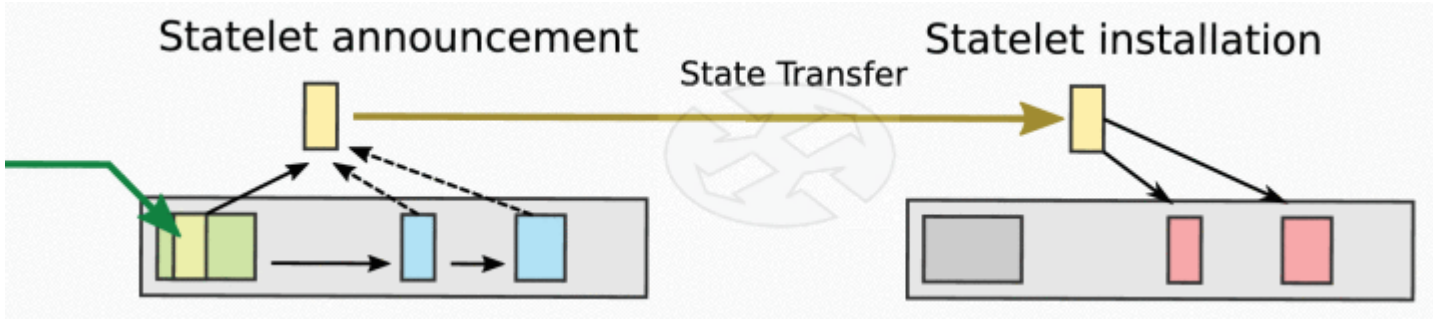
- Duplication-based mechanism: packet buffering
- NF Failure : unexpected delay



Duplication-based transfer[1]

Approach

- Statelet Interface
- Methods to use statelet approach:
  - Network address translation
  - Signature-based intrusion detection
  - Vpn concentrator



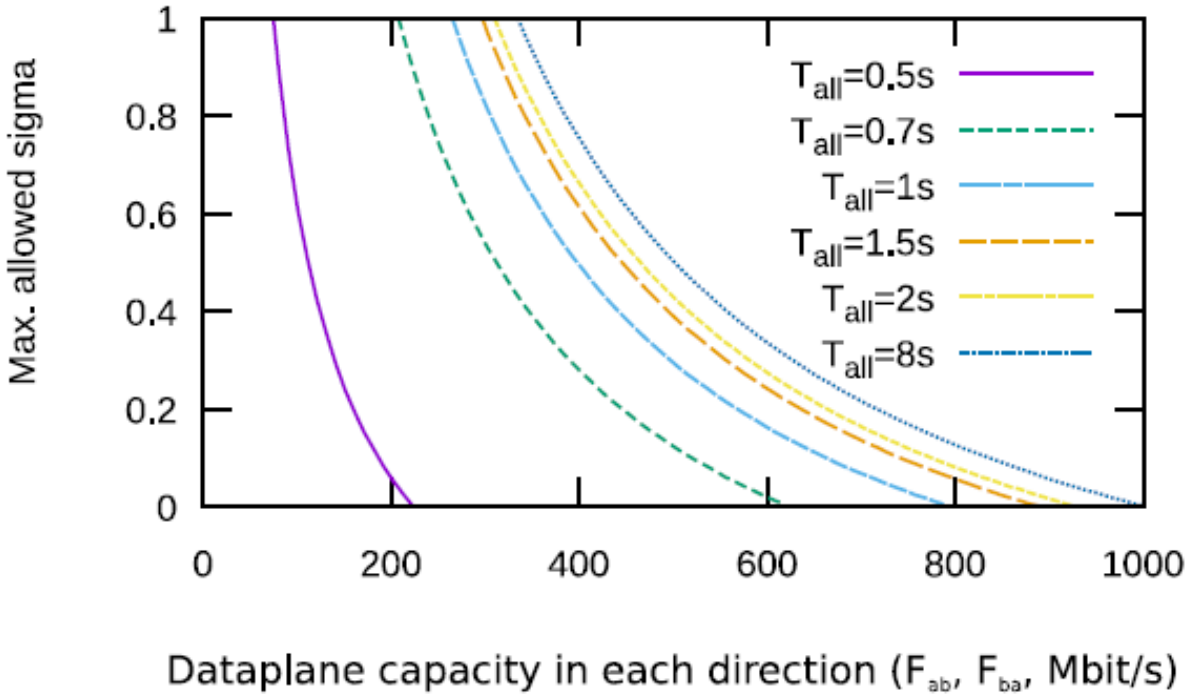
Statelet-based transfer [1]

Implementation

- Migration System: Complete and Partial Migration
- State Migration:
  - Drawback: Bandwidth Capacity

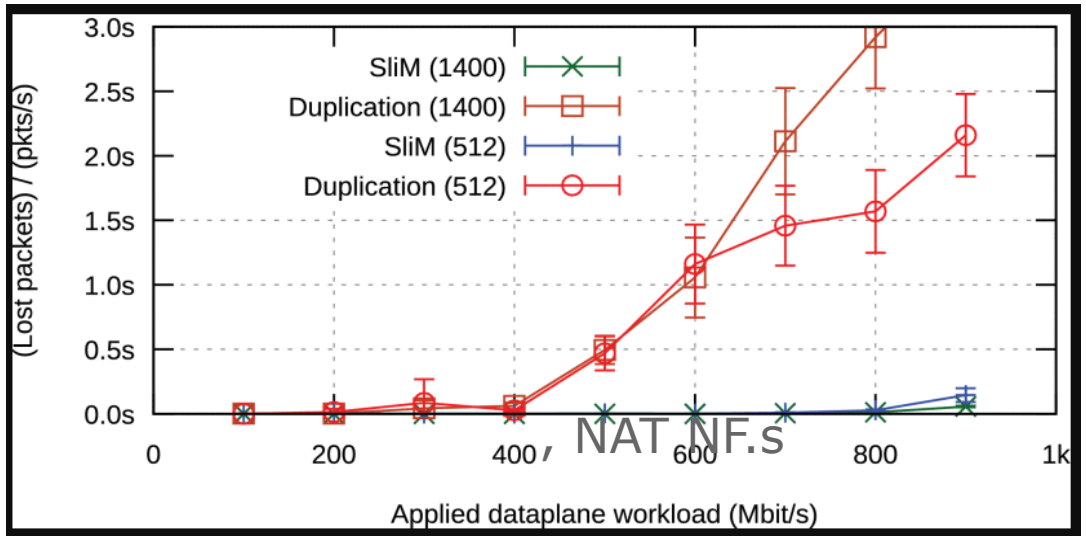
Solution

- Statelet Factor [σ] : ratio of the average statelet traffic volume and average volume of the packets.
- SliM Migration

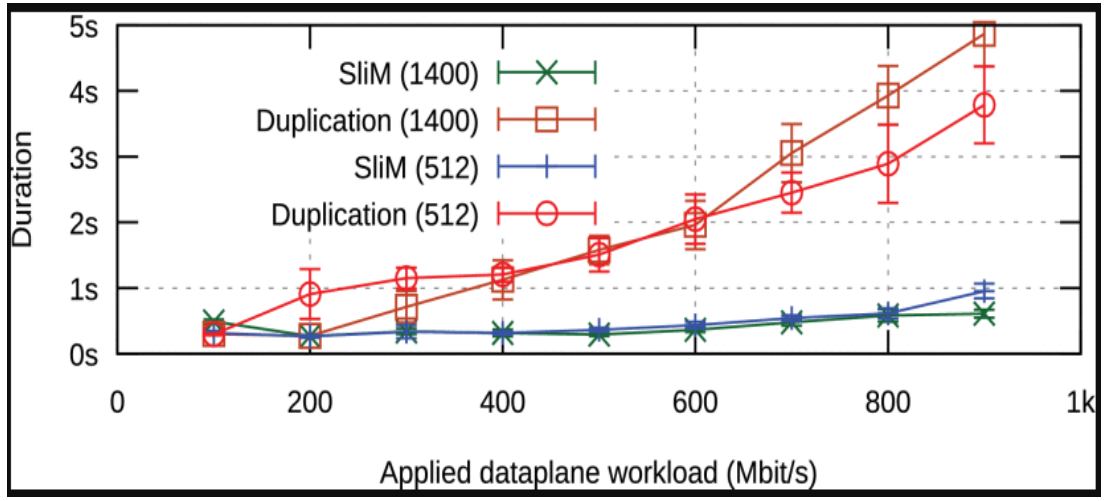


"Dataplane capacity" in each direction(Mbits)[**1**].

Results



"Seconds of packet loss"for 1400 byte ,NAT NF. [1]



"Migration duration" for 1400-byte and 512-byte packet, NAT NF.[1]

Conclusion

- SliM technique is bandwidth efficient.
- Higher performance rate and reduces packet loss.

Future Work

- Extend SliM with partial state migration.
- Show SliM with its feasibility in different types of ways.

References

- L.Nobach, I.Rimac, V.Hilt and D.Hausheer. "Statelet-Based Efficient and Seamless NFV State Transfer"}.In IEEE Transactions on Network and Service Management, vol.14,no.4, pp.964-977, Dec 2017. [1]
- https://medium.com/@blogstevej327stuff/what-is-network-function-virtualization-nfv-a3bcd98d891f

Thank You