

Implementing the Next Generation of Network Telemetry Technologies

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Abstract

Current network monitoring and telemetry applications require host-based collectors across all nodes in a network (both on servers/hypervisors and traditional switches and routers). These can be effective solutions, but just as datacenter deployment patterns have evolved new technology to track traffic as it moves through the network had emerged. Newer specifications like INT [2] and IFA [1] propose standards to add metadata to packets or clone and add metadata as they flow through a network to allow collectors/agents to gather data at the network edges. Hardware that supports INT/IFA can add metadata automatically with application/flowlevel/virtual-port granularity which allows more detailed network monitoring and assurance to customers that service levels for applications are being met.

1 Introduction to INT and IFA

Introduction to INT and IFA network elements including currently proposed on-wire frame formats

1.1 INT Frame Formats

1.2 IFA Frame Formats

2 Hardware Requirements

Hardware requirements/implementations for handling IFA/INT today and the challenges facing those wanting to implement them in hardware and software.

3 Possible Configuration Methods

Proposals for configuring INT/IFA in both software dataplane and hardware dataplane environments on supported hardware.

3.1 Host-based configuration

3.2 Network-based configuration

4 Risks and Rewards

Assessing and minimizing risk associated with the maintenance of deploying an early draft of a standard.

5 Acknowledgments

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References

- [1] J. KUMAR, E. A. Inband Flow Analyzer. <https://tools.ietf.org/pdf/draft-kumar-ippm-ifa-01.pdf>.
- [2] KIN CHANGHOON, E. A. In-band Network Telemetry (INT). <https://p4.org/assets/INT-current-spec.pdf>.

Notes

¹Remember to use endnotes, not footnotes!