IP Flow Information Accounting and Export Benchmarking Methodology

http://tools.ietf.org/id/draft-novak-bmwg-ipflow-meth-00.txt

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IP Flow Monitoring – “subject” of the IPFIX WG

RFCs: 3917 - Requirements for IP Flow Information Export (IPFIX)

5101 - Specification of the IP Flow Information Export (IPFIX) Protocol for the Exchange of IP Traffic Flow Information

5102 - Information Model for IP Flow Information Export

Cisco specific: RFC 3954 - Cisco Systems NetFlow Services Export Version 9

Motivation for this work:

Q: Why are we doing this?

Numerous customer requests over a period of last 3-4 years and wide confusion about what to measure and how to measure it.

Aims

What we want to achieve:

- provoke discussion
- WG adoption
- definition and standardisation of metrics

Scope of this work:

Performance implications of IP flow monitoring and flow information export on network devices:

1) CPU utilisation
2) RFC2544 throughput with IP flow monitoring

Does not cover:

- IP Flow monitoring accuracy
- Performance of flow export collectors
- Probes and other non-forwarding monitoring devices

Note: RFC2544 Benchmarking Methodology for Network Interconnect Devices

IP Flow Monitoring Functions

- IP flow database - cache
- Cache maintenance - updates
- Flow aging
- Flow export

Laboratory CPU utilisation metrics

(unrealistic in real life scenario, used to catch trivial implementation errors)

Cache States Maintenance

Cache States Update

True CPU metrics

(attempting to simulate life network device)

Flow Expiration Rate

Flow Export Rate

Two possible situations:

8) small amount of active flows

2) cache overflow

RFC2544 Throughput

Define exact traffic conditions for the test in the presence of IP flow monitoring to create controlled test environment

Note: RFC2544 Benchmarking Methodology for Network Interconnect Devices

Questions

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Next steps

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