Data Center Benchmarking Drafts

draft-dcbench-def-00
draft-bmwg-dcbench-methodology-01

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Data Center Benchmarking Drafts Overview

Redefine Definitions
draft-dcbench-def-00

Latency
Redefine how latency calculations are used
Update usage of FIFO, FILO, LIFO and LILO

Jitter
Define the application Jitter RFC 3393 and packet size requirement and histogram for DC devices

Physical Layer Calibration
Cable test calibrations and documentation

Line Rate
Consequences of PPM: 99.98%

Buffering
Define Buffering and Buffer Efficiency, Burst, Intensity of Microburst
Define Incast [many-one, many-many]

Application Throughput
Goodput definition and how to measure it

Redefine Methodology
draft-bmwg-dcbench-methodology-01

Line Rate Testing
Test all ports at 99.98% including latency, jitter histogram for min/max/avg and drops

Buffering Testing
Buffer highest efficiency
Maximum port buffer size
Maximum port pair buffer size
Maximum DUT buffer size
Microburst

MicroBurst Testing
Use all ports, at 100% intensity of microburst

Head of Line Blocking Testing
Measure two groups (8 ports) of DUT, up to all ports
Reports provides percent of traffic loss during HOLB

Incast Stateful and Stateless Traffic
measure TCP goodput while measuring UDP latency

3.2.2 Measure Max Port Buffer Size

- Repetitions added
  - For each test methodology described, it is key to obtain repeatability of the results. The recommendation is to perform enough iterations of the given test to make sure the result is accurate, this is especially important for section 3) as the buffering testing has been historically the least reliable.

This DUT has 4.29 MB of buffer per port at 1518 bytes with COS 0
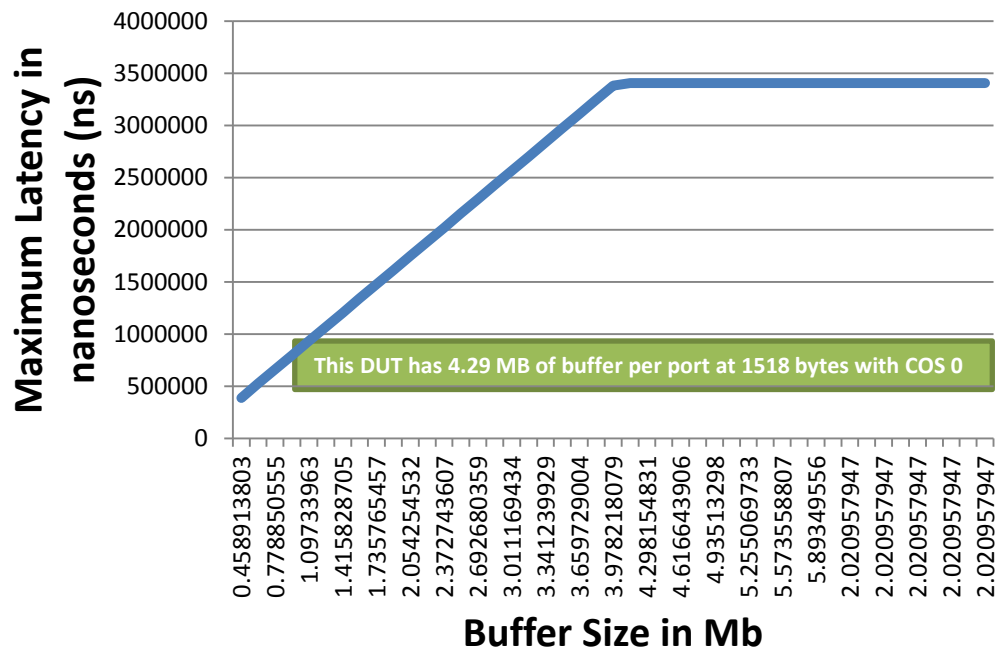
Other Comments

Jitter – Use of RFC 5481 – IPDV and PDV. Agreed that both are important. This draft is more focuses on constraints of use (e.g. Packets the same size, displayed in a histogram).

Discussion on Latency:

   1) FILO MUST be used as a measuring method, as this will include the latency of the packet; and today the application commonly need to read the whole packet to process the information and take an action.

   2) FIFO MAY be used for certain applications able to process data as the first bits arrive

   3) LIFO MUST not be used, because it subtracts the latency of the packet; unlike all the other methods.

Next Steps

What's needed next?

- Add in RFC5481 IPDV and DV discussion
- Add in wording on optimal buffer usage, reference buffer bloat work