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# Data Center Benchmarking Drafts

draft-dcbench-def-00

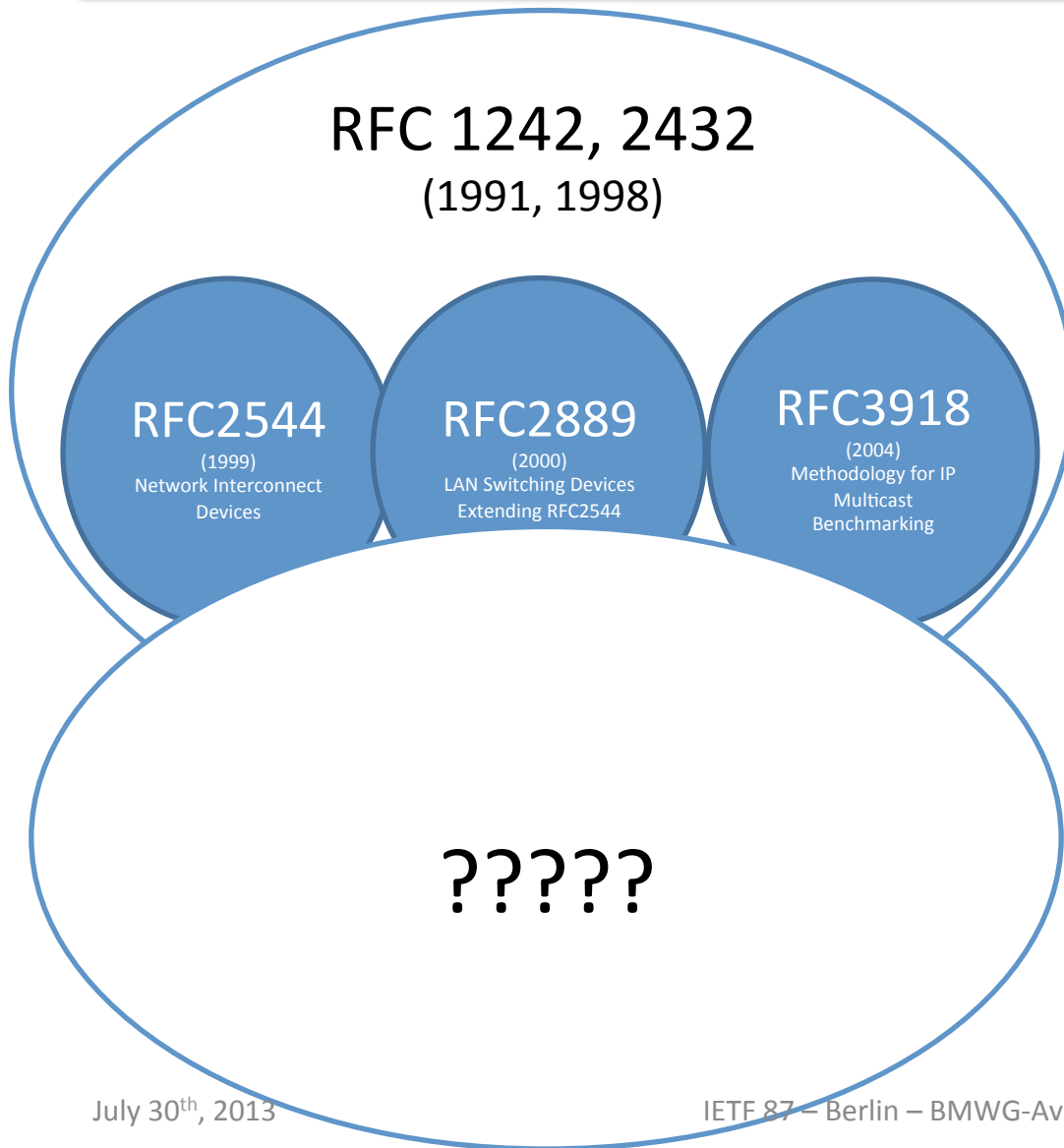
draft-bmwg-dcbench-methodology-01

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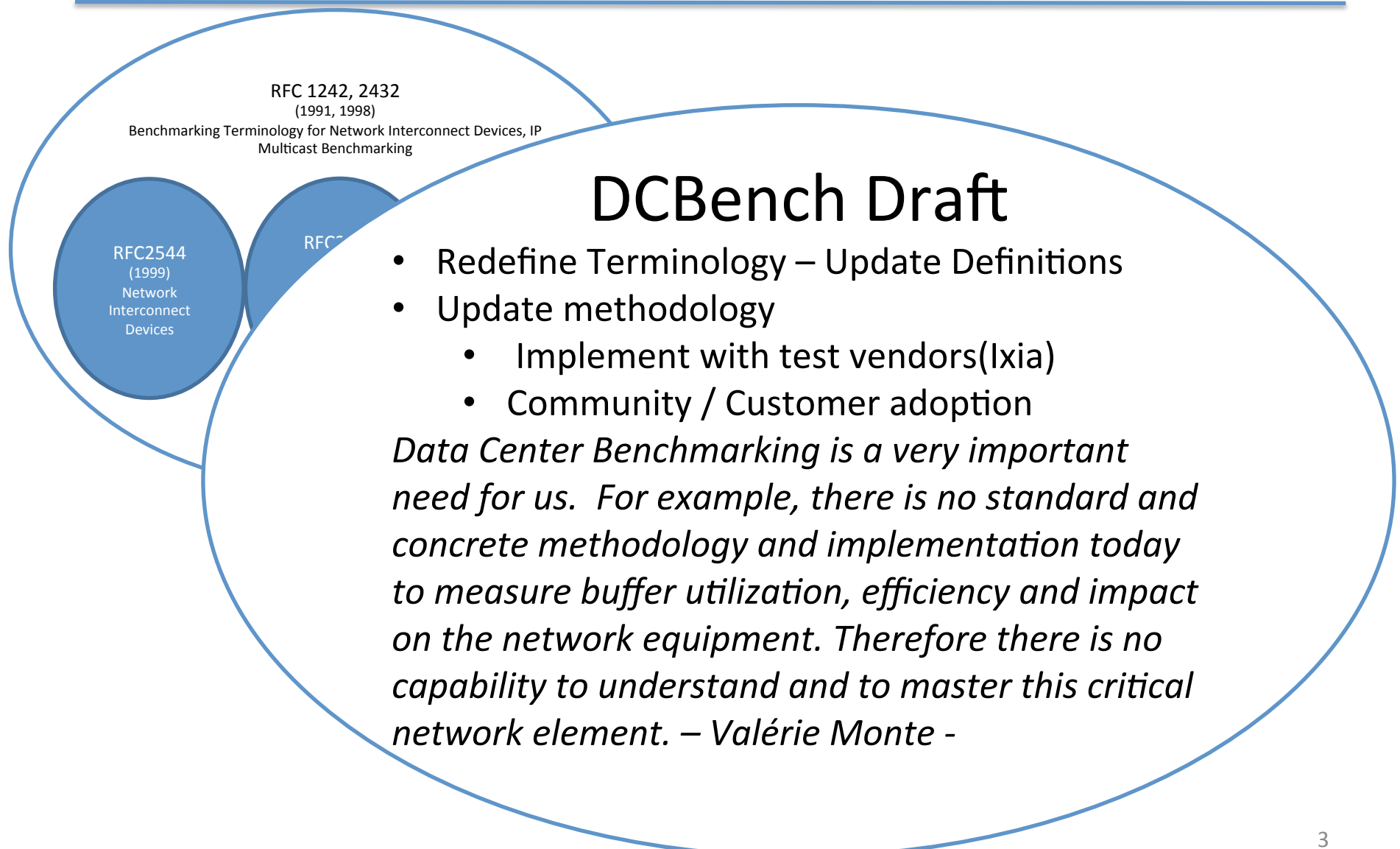
# Evolution of the Data Center



Latency, throughput  
and definitions

Virtualization, Multi-  
purpose/tenant DC,  
Low Latency, Big Data,  
Bursts, Buffering,  
Incast, Goodput...

# Update DUT Benchmarking



# 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

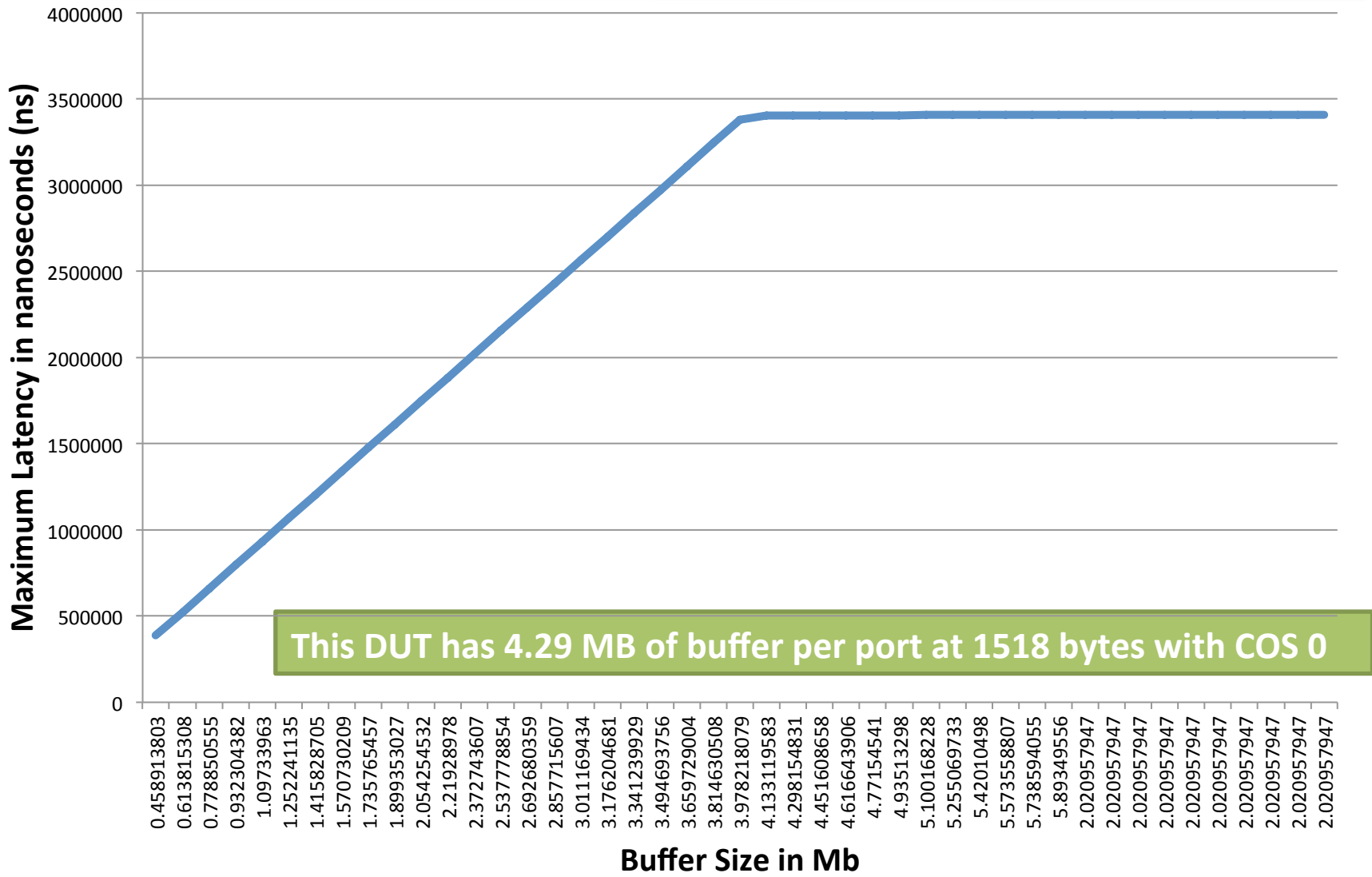
### **Head of Line Blocking Testing**

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



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

Measured with Ixia

# Conversation on draft-dcbench-def-00

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- Received great feedback on the list and have provided answers
- 1.2 Change measurement to measurement units
- 2.1 change Latency to Latency interval
  - FILO -> First bit, Last bit
  - FIFO -> First bit, First bit
  - LILO -> Last bit, Last bit
  - LIFO -> Last bit, First bit
- 2.3 Latency: FILO as MUST, FIFO as MAY
- 3. Jitter: what we mean by this is to provide new recommendation: packets of the same size MUST be used, and histogram of latency buckets MAY be provided
- 2.1 define cut-through additionally to bit forwarding [this is already in section 2.1]
- Provide buffering per priority [this is done as referred to cos /dscp value]