Hewlett Packard Enterprise

HPE aruba networking

AOS-CX 10.13 Update: Configure Cable Length for Buffer Adjustment

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Dec, 2023

Agenda

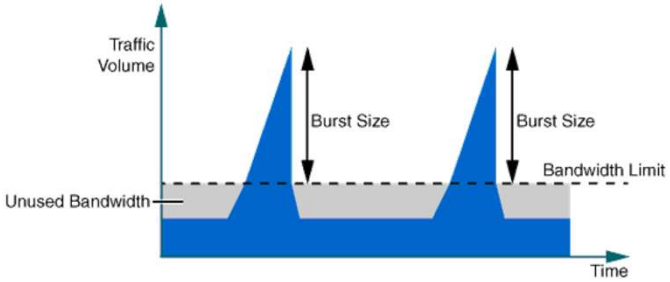
1	What is Buffering?
2	New - Configure Cable Length for Buffer Adjustment

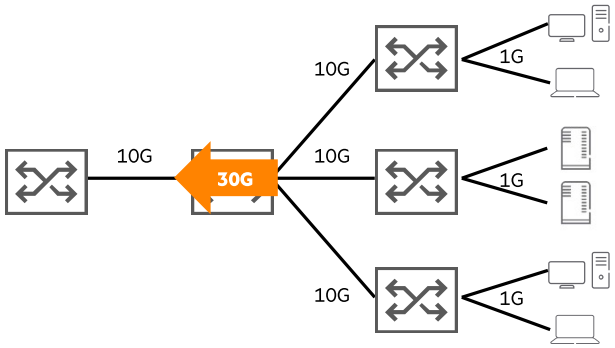
What is Buffering?

What is Buffering?

Physical memory storage used to temporarily hold data while it is being moved from one place to another

- There are two main reasons we need buffers in network devices:
  - Capture intermittent bursts
  - Avoid packet drops when output interface is congested due to incast
- Buffers can be found everywhere:
  - Printers, Sound Cards, Network Interface Cards (NICs), Switches, Routers, ect…
  - Can be on-chip or off-chip
- Queueing:
  - Data structure which allows data to enter and exit the device in different order
  - Ordering can change on the fly depending on various conditions

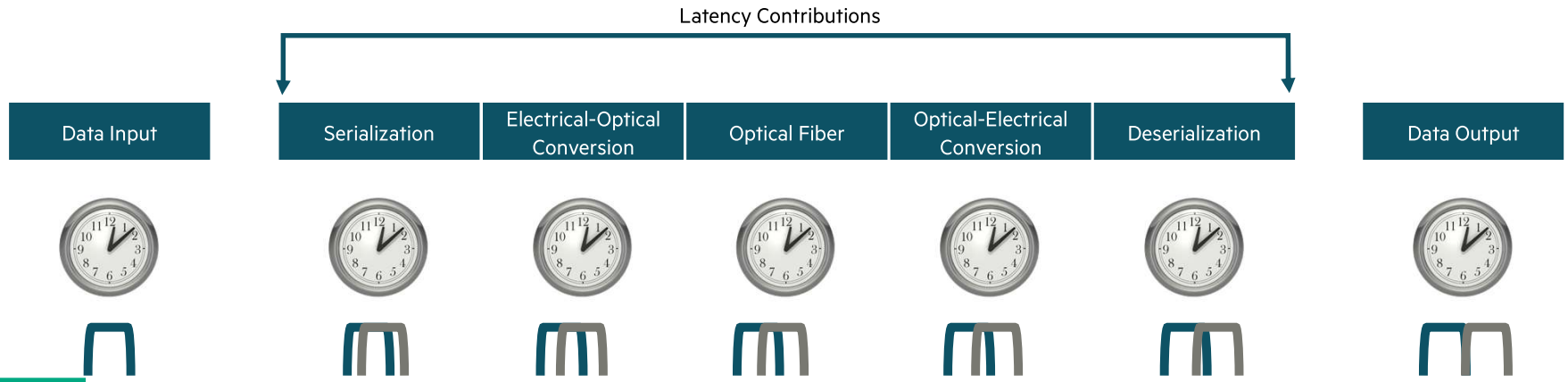




Without effective buffering and queuing frames will more likely be dropped during times of congestion

Latency

- Simply put, latency is the time it takes for a signal to travel from point A to point B.
- Latency is an important consideration in designing networks.
  - It is particularly important in certain applications like super-computing, gaming and financial trading applications and a key spec in designing fiber optic networks.
- Components that effects traffic round trip time (RTT).
  - Serialization
  - Electrical-Optical Conversion
  - Cable length
  - Optical-Electrical Conversion
  - Deserialization



New - Configure Cable Length for Buffer Adjustment

Configure Cable Length for Buffer Adjustment

- This command is used to calculate the required buffer to sustain the delay caused by the cable length (headroom) in meters for the given port.
- Mode: config interface ethernet
  - Range : 1-100,000 (1 meter to 100km)
- No Reboot required
- Only supported 10G and higher on:

Configure Cable Length for Buffer Adjustment	OVA	4100	6000	6100	6200	6300	6400	8100	8320	8325	8360	8400	9300	10000
Platform Support	No	No	No	No	No	No	No	No	No	**Yes**	No	No	**Yes**	**Yes**

```
SWITCH(config)# interface 1/1/32
SWITCH(config-if)# flow-control buffer cable-length
  <1-100000>  The cable length in meters (Default: 350)
  auto        Automatically detect the cable length when possible
```

Flow-Control Buffer Headroom

- The hardware-programmed headroom pool limit is based on configuration of either:
  - **Flow-control buffer headroom**
  - **Flow-control buffer cable-length**
- If both configurations are specified on the same interface:
  - **Headroom buffer limit configuration takes precedence over the cable length**
- If no headroom limit or cable length configuration is specified, or cable-length auto is specified but hardware is not reporting a cable length, then a default cable length of 350 meters is used to compute the headroom limit.

```
SWITCH(config)# interface 1/1/32
SWITCH(config-if)# flow-control buffer priority 3 headroom
  <18-10240>  The headroom limit in kilobytes
```

```
SWITCH(config)# interface 1/1/32
SWITCH(config-if)# flow-control buffer cable-length
  <1-100000>  The cable length in meters (Default: 350)
  auto        Automatically detect the cable length when possible
```

Display Buffer Statistics

- Specifies the hardware-programmed usage limit for the row.
- For priorities configured for lossless behavior, two rows are shown
  - First representing the lossless pool usage and configured XOFF limit,
  - Second representing the headroom pool usage and the configured limit.

```
switch# show interface 1/1/2 qos buffers
Buffer usage for 1/1/2 in kbytes:
Cable Length: 400 meters(user configured)
Recent Peak Interval: 50 seconds



switch# show interface 1/1/3 qos buffers
Buffer usage for 1/1/3 in kbytes:
Cable Length: 50 meters(hardware detected)
Recent Peak Interval: 50 seconds
```

Thank you

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