NetApp Knowledge Base

Why is my ISL saturated when the line is not busy?

https://kb-stage.netapp.com/on-prem/ontap/mc/MC-KBs/Why_is_my_ISL_saturated_when_the_line_is…
Updated: Wed, 24 Jun 2026 07:24:33 GMT

Applies to

- AFF systems
- FAS systems
- MetroCluster IP
- Switches
- TCP
- Network

Answer

- When monitoring Network components it is important to understand that most monitoring solutions do not visualize all traffic at every point in time.

- Simply speaking, most monitoring solutions only show an average (scaled) view of traffic that has been measured over a certain time period
- In case of NetApp Grafana, the time-stamps available for examination represent an average workload over the previous 30 seconds as a minimum.
- Consequently, a brief but intense spike in workload lasting only 10 milliseconds is unlikely to be discernible in the displayed data.
- Similarly, in case of TCP or network traffic in general, observations are an aggregated average over a specific time frame.
- Detailed insights into each millisecond or even finer intervals of activity on the network line are often not visible.

Example:

- To illustrate this we have to look at a very much simplified TCP workload graph and what happens within the network.

- The red and green dotted lines show the range of bandwidth available on the network line.
- Data starts in flight from the left hand site .
- The workload very quickly reaches the maximum that the network line can handle.
- The TCP Protocol automatically avoids congestion by reducing the throughput of the in flight data. (aka TCP Fast Recovery)
- Once there is enough headroom, the data throughput increases again until it reaches the line maximum bandwidth.
- At this point the TCP protocol once more reduces the throughput.
- The blue dotted line in the middle illustrates the output from a network monitoring solution showing the average bandwidth in use.

Note:

- The overall saturation on a given network can not be measured only by relying on network monitoring solutions which rely on the average bandwidth.
- To learn if your available bandwidth meats the requirement of data throughput, it is necessary to check on your network devices for packet drops due to queue discards.
- Those are strong indicators that the given bandwidth might not meeting the requirements for the given data traffic.

Additional Information

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