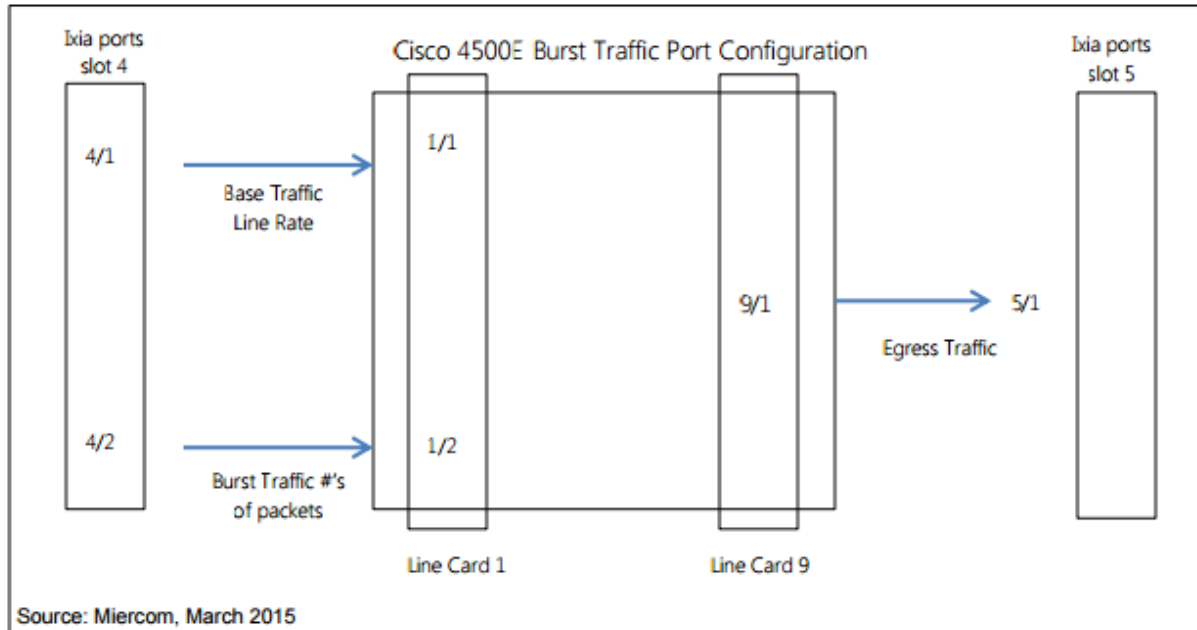


Miercom Comparative Analysis: Cisco Catalyst 4500E v HP 5400R z12

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How We Did It

The test plan was to determine the "maximum burst size" that the switch could accommodate on an output port. The switch under test was configured with three active ports. The set-up for the Cisco switch test is shown in the diagram below.

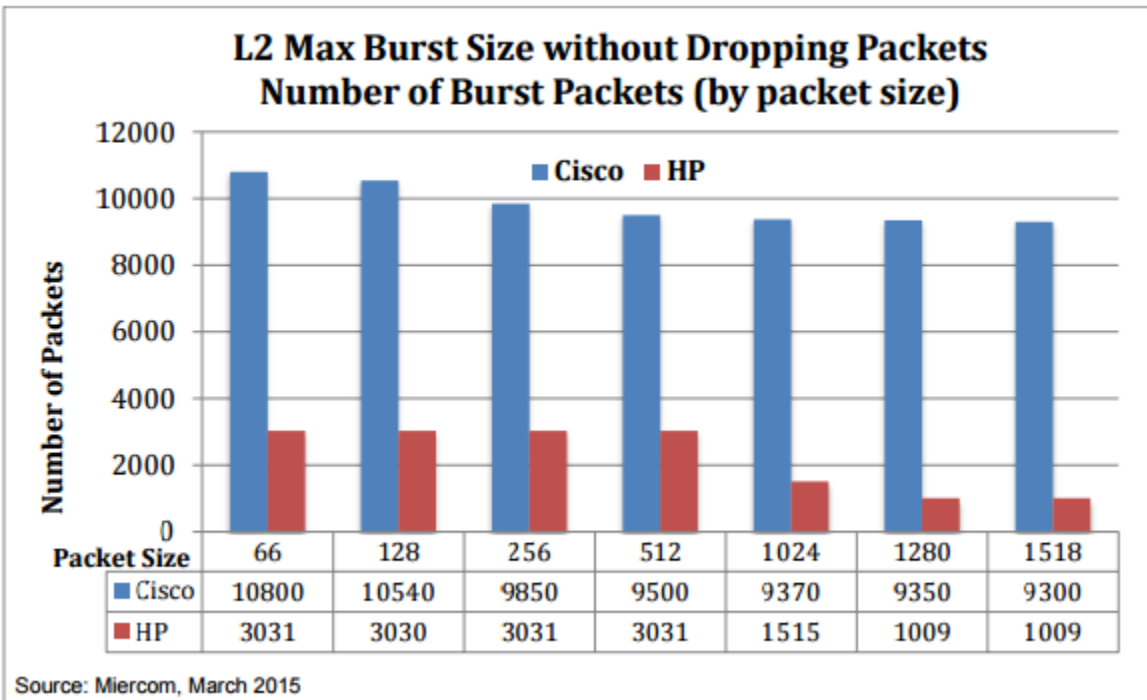


The Ixia test system delivered a 10-Gbps, Layer-2 traffic flow in one direction to Port 1 on the 10GE line card in slot 1 of the Cisco 4500E switch. This line-rate "Base Traffic Flow" was forwarded to output on Port 1 on the 10GE line card in slot 9, and delivered back out to the Ixia traffic generator. This traffic flow, which changed for each test packet size, would fully load the outbound channel of Port 9/1. The Ixia would confirm that there was no packet loss.

Then, in addition to this stream, a single burst of a specified number of packets (at the current test packet size), is sent in on a different port (Port 1/2). The line-rate, steady-state stream and the burst are forwarded to the same output port. All the output from this port is sent back out to the Ixia test system, which meticulously compares the sent traffic with the packets returned, looking for any dropped packets.

The size of the burst (the number of burst packets) sent is compared with the burst packets received and, if there is no loss, the burst size would be increased – until loss started to occur. Three test runs with 0 loss confirm that the "maximum burst size without packet loss" has been found (for that particular packet size). The number of packets for each such burst without loss, for each packet size, are then graphed and compared by packet size. The max burst size without loss equates directly to the output buffer depth of the line card.

Results Summary



The graph highlights the differences in buffer management and buffer depth between the Cisco 4500E and the HP 5400R z12 switches. The larger Cisco internal output buffers on the ports provide additional space to handle much larger traffic bursts without losing data. The differences are dramatic: At small packet sizes the Cisco 4500E accommodates over three times larger bursts with no packet loss than the HP 5400R z12. At large packet sizes the Cisco 4500E accommodates over nine times larger bursts with no packet loss than the HP 5400R z12.