TEST REPORT

Tolly.

#213151

October 2013

**Commissioned by
Araknis Networks**

Araknis Networks AN-100 Series Gigabit Switch

Performance and Feature Comparison Versus Cisco Systems and Pakedge Device & Software

EXECUTIVE SUMMARY

Fixed-port Gigabit Ethernet switches are traditionally thought of as a commodity where price alone is the key purchasing criterion. However, the dramatic increase in video multimedia traffic, data, and VoIP brings the focus back to network performance.

Araknis Networks commissioned Tolly to evaluate its AN-100 Series Gigabit Switch and compare its performance to Gigabit Ethernet LAN switches from Cisco Systems and Pakedge. Tests show that the Araknis AN-100 Series Gigabit switch delivers a line-rate throughput of 1Gbps per port across all 24 ports. This is equivalent to the performance of the Pakedge switch, and better than the Cisco switch which can only pass 50% of line-rate traffic with 9216-byte frames. Furthermore, the Araknis switch demonstrates latency that is generally lower than the competitive switches.

THE BOTTOM LINE

1 Delivers a line-rate throughput of 1Gbps per port across all 24 ports – better than Cisco and equivalent to Pakedge

2 Demonstrates latency that is on average lower than Cisco and Pakedge

3 Provides enterprise-grade performance for unmanaged plug-and-play applications

Layer 2 Gigabit Ethernet Switch Throughput
Across 24 Ports in a Port-to-Port Configuration
(as reported by Ixia IxAutomate 7.20)
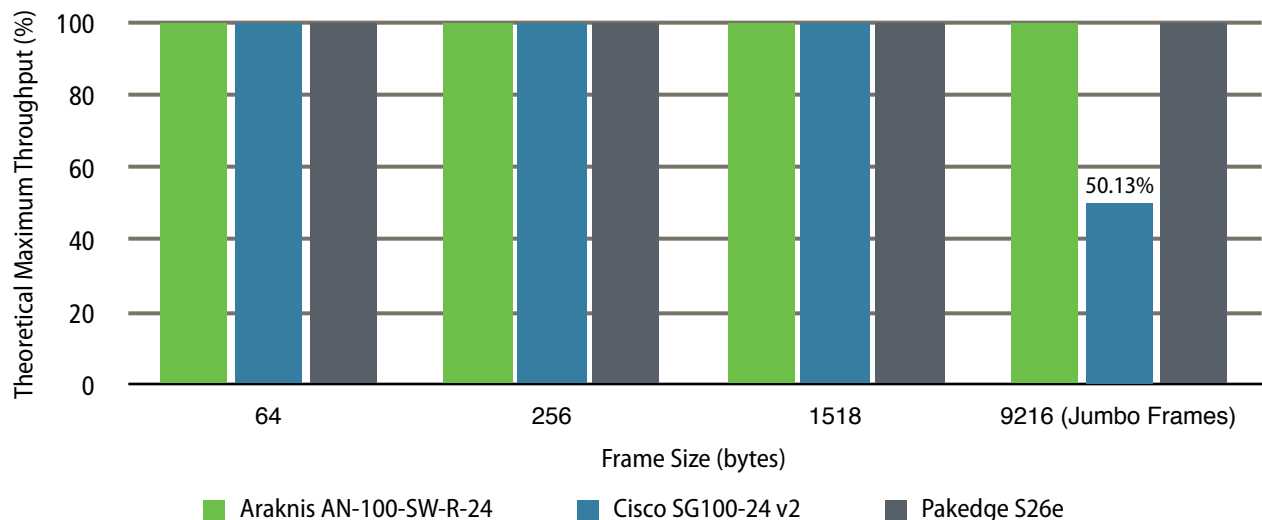
Source: Tolly, September 2013

Figure 1

The Araknis switch was compared to the Cisco Systems SG100-24 v2 and the Pakedge S26e - all three are unmanaged Layer 2 switches that provide Gigabit Ethernet connectivity. The Araknis and Cisco switches are 24-port switches, the Pakedge switch is a 26-port switch.

Throughput and Latency

Industry-standard RFC 1544 Throughput tests of multiple frame sizes, from 64-bytes to jumbo frames of 9216-bytes, proved that the Araknis switch delivers the same line-rate throughput as the Pakedge switch, and better throughput than the Cisco switch which was unable to pass more than 50% of line-rate traffic consisting of 9216-byte jumbo frame. See Figure 1.

Similarly, latency tests showed that the Araknis switch delivered consistent latency results that were generally better than the Cisco and Pakedge switches. Tolly engineers noted that Cisco latency results were inconsistent, showing large gaps between minimum and maximum latency measurements. The average results were anomalous with the 64-byte latency being unusually high and the 1518-byte latency unusually low. Latency for the 9216-byte jumbo frames was dramatically higher than Araknis with an average latency of nearly 115 microseconds. Engineers also noted that the Cisco Systems switch was only able to pass ~50% of the line-rate load. See Figure 2.
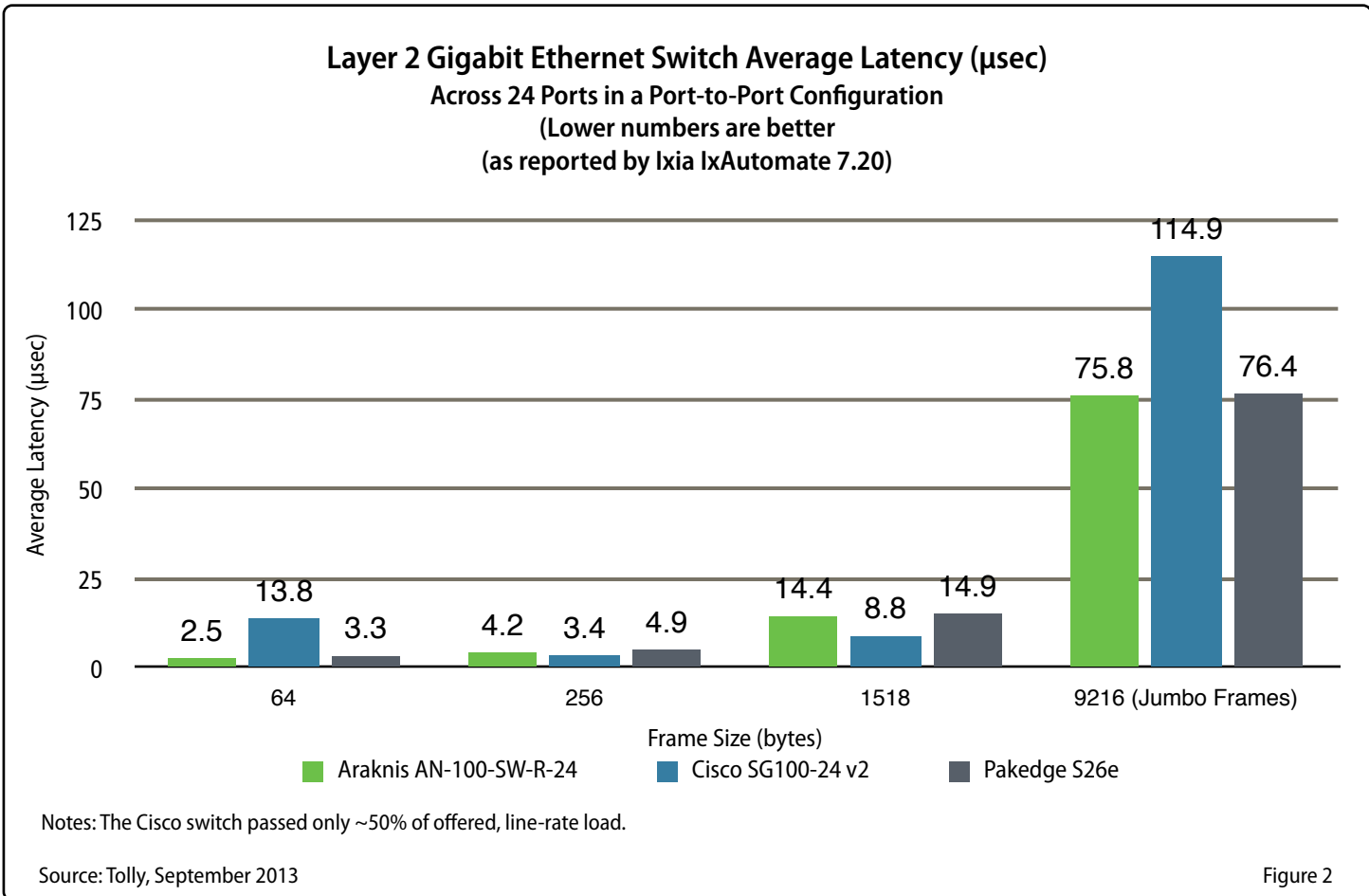
Araknis Networks

AN-100 Gigabit Switch

Performance: Throughput & Latency Validation

Tested September 2013

Layer 2 Gigabit Ethernet Switch Average Latency (µsec)
Across 24 Ports in a Port-to-Port Configuration
(Lower numbers are better
(as reported by Ixia IxAutomate 7.20)

Notes: The Cisco switch passed only ~50% of offered, line-rate load.

Source: Tolly, September 2013   Figure 2

Test Setup & Methodology

All switches under test were unmanaged switches and provided at least 24 ports of Gigabit Ethernet (1000Base-T) connectivity. See Table 1.

Performance

All tests were run using Ixia's IxAutomate 7.20.117.9 GA running on a Microsoft Windows 7 system in conjunction with IxOS 6.40.900.6, IxNetwork 7.0.801.25 EA and IxLoad 6.20.15.5 EA-Patch2. A single Ixia Optixia XM2 was outfitted with copper Gigabit Ethernet ports provided by two LSM1000 XMV16-01 cards.

All performance testing used 24 ports. All performance tests used port-to-port traffic mapping.

Throughput & Latency Tests

The Ixia RFC 2544 templates were used for all throughput and latency tests. All tests were run using the following frame sizes: 64-, 256-, 1518- and 9216-bytes. The 9216-byte packet was used to test support for jumbo frames. All tests were run three times for a duration of one minute each. The average of the three runs was reported.

For the throughput test, the constant loading traffic profile was used with a loss tolerance of zero percent.

For the latency test, the constant loading traffic profile was used and the rate was set to 100%.

Unmanaged Switches Under Test

Vendor	Product	Model	Gigabit Ethernet Ports
Araknis Networks	24-port 10/100/1000Mbps Ethernet Switch	AN-100-SW-R-24	24
Cisco Systems	24-Port Gigabit Switch	SG100-24 v2	24
Pakedge	24-Port Gigabit Ethernet Switch with 2-SFP Ports	S26e	26

Note: All software as provided with the switch.

Source: Tolly, September 2013

Table 1

Test Equipment Summary

The Tolly Group gratefully acknowledges the providers of test equipment/software used in this project.

Vendor	Product	Web
Ixia	**Optixia XM2** **Software: IxAutomate 7.20.117.9 GA, IxOS 6.40.900.6 EA**	http://www.ixiacom.com
Siemon	**Cable Infrastructure**	http://www.siemon.com

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Interaction with Competitors

In accordance with Tolly's Fair Testing Charter, Tolly personnel invited representatives from Cisco Systems and Pakedge to participate in the testing. Neither vendor responded to the invitation.

For more information on the Tolly Fair Testing Charter, visit:

http://www.tolly.com/FTC.aspx

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