Ascend

COMPETITIVE BULLETIN

Ascend Competitive Response

February 1998

Response to LANQuest/Lucent(Livingston) RAS benchmark study

In the month of January 1998, LANQuest Labs based in Fremont released a performance benchmark report comparing the Lucent (formerly Livingston) PM3 with the MAX™ 4048.

The LANQuest/Lucent study key claims:

- With 23 simultaneous calls, the Lucent PM3 was 232% faster than the Ascend MAX 4048 in terms of aggregate throughput.
- With 256 byte packets, the PM3 exhibited 264 K bytes/sec (2.1 Mbps) whereas the MAX 4048 peaked at 84.5 K bytes/sec (0.67 Mbps). The performance tests were done using 56K analog modems and a packet generator to increase traffic load on the device under test up to 23 simultaneous sessions (up to a single T1/PRI).

A full report of this study can be obtained from LANQuest's web site (www.lanquest.com)

Ascend response

- As before (refer to LANQuest/Cisco performance test response, dated 10/14/97 on the Ascend internal Web site), LANQuest labs test methodology is clearly questionable and is not valid for testing remote access systems. LANQuest used a very basic router test methodology/test bed to assess the performance of Remote Access Concentrators (RAC), which are designed/optimized to work in a dial-in environment. The LANQuest test methodology did not in any way simulate a real life user environment, wherein a RAC performs call set-up, authentication, route processing, etc for a number of dial-in users concurrently. LANQuest Labs has recently admitted that its current test methodology does not "correlate" to real world access environments.
- In order to make a valid performance comparison, we conducted a test in Ascend's Performance Center (CPE lab) using a test bed and tool (Chariot) to closely replicate a real world environment, wherein there is a file transfer using actual RAC routines. **Please Note: We kept the # simultaneous sessions (up to one T1/PRI) and all system configuration the same as LANQuest study to see if there was any appreciable difference in performance numbers.** Following are the test results of the performance comparison done in a valid test bed simulating real world file transfers:

# sessions	Aggregate TPT – Ascend MAX 40XX-- Kbps	Aggregate TPT – Lucent PM3-- Kbps
1	102	90
2	204	179
4	407	355
8	813	786
16	1591	1592
24	1923	2104

Table I. Aggregate Throughput (TPT) comparison using Text file transfers, compression "ON"

# sessions	Aggregate TPT – Ascend MAX 40XX-- Kbps	Aggregate TPT – Lucent -- Kbps
1	43	45
2	86	91
4	172	182
8	342	363
16	671	722
24	1005	1051

Table II. Aggregate Throughput (TPT) comparison using Compressed file transfers – Compression "ON"

As can be seen above (Tables I and II), the performance test results are about the same for both products or better in some data points for the MAX 40XX product. This comparison clearly refutes LANQuest study claims and supports the fact that LANQuest study does not accurately characterize the performance of the Ascend product.

- In addition, a MAX 4048 performance study done by the Tolly Group (See the following URL for the Tolly Group performance test results of the MAX 4048, July 1997) demonstrates that the MAX 4048 scales well when tested in a dial-in test methodology with the system fully loaded (up to 48 concurrent sessions). The Tolly Group study simulated a real life user environment by used a dial-in environment with actual client PCs/modems calling into the RAC over a PBX and processing 48 concurrent dial-in sessions as it is done in a real world production network. The Tolly Group study simulated application transfers in a real world dial-up access network and conducted the tests with both K56Flex and V.34 modems.

URL: http://home.ascend.com/mktg/library/competitive /m48tolca.pdf

- It should also be noted that the use of 256K byte packet sizes (LANQuest Study) is not representative of the real life user environment. If the vast majority of the users are using the Internet or on-line services for e-mail, Web-browsing, file transfers and graphics intensive applications, then the tests should reflect the traffic characteristics of such an environment. Traffic analysis studies of real life user environment indicate that packet sizes of applications would typically average 798 bytes. The MAX platform is optimized to work as a true access concentrator in a real life production network, where such applications are common.

Bottom Line: Again, the LANQuest performance tests do not simulate or resemble a real life traffic environment and it has no meaningful correlation to the performance that a customer can expect in their network with real users and applications. The Ascend and Tolly Group performance testing of the MAX 4048 in a dial-in test environment clearly validates the performance and scalability of the MAX platform.

Addressing the LANQuest/Lucent study in the field:

- LANQuest/Lucent results can be directly refuted by using the results shown above and using the performance study done by the Tolly Group in which the MAX 40XX scales well in a dial-in network test bed very closely replicating an end-user environment

- Validity of the LANQuest methodology should be questioned. The fact that LANQuest uses a router test bed to test the performance of a remote access system represents a serious miscorrelation with the real world use of the remote access system.

- Emphasize the fact Ascend has the largest installed base of integrated access concentrators, dominating the market in terms of analog and ISDN ports. Also, the MAX platform provides scalable port density and a rich feature set – carrier-class functionality, extended RADIUS, VPN support and a wide range of LAN/WAN connectivity options. Refer to the MAX line Vs. PM3 competitive bulletin in the competitive marketing Web site

URL: http://home.ascend.com/mktg/library/competitive/mlivpmcb.

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