Helix™ Universal Server from RealNetworks

IMPROVES INDUSTRY ECONOMICS

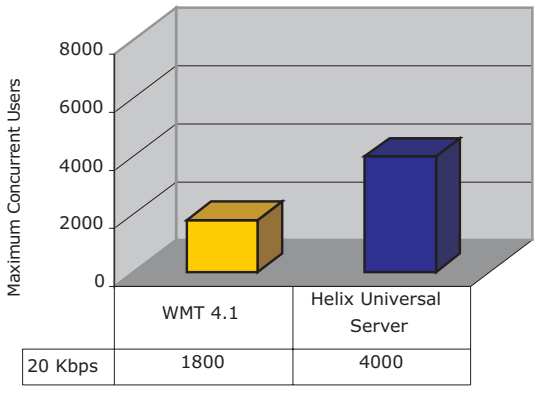
Serves Windows Media Better than Windows Media Server

In June of 2002, RealNetworks, Inc. contracted KeyLabs™ to perform an independent comparative analysis test of the Helix Universal Server from RealNetworks, and Microsoft's Windows Media Technology (WMT) 4.1 server product. The specific objectives of this project were as follows:

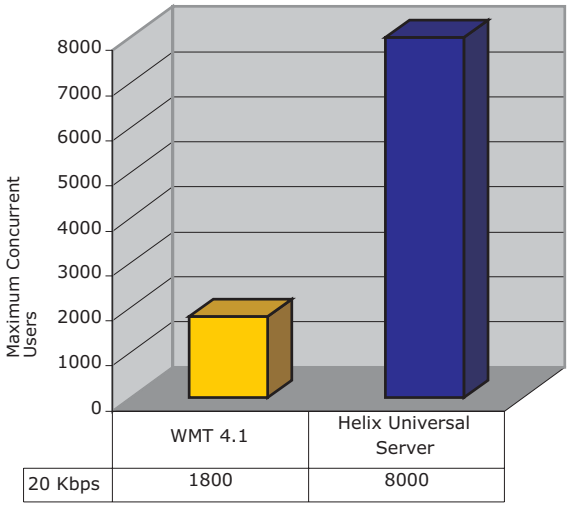
1. Determine peak client connections for Helix Universal Server while delivering Windows Media 8 and RealVideo® 9.
2. Determine peak client connections for WMT 4.1 while delivering Windows Media 8 streaming media format.

KeyLabs was selected due to its expertise in test methodologies, with the goal of conducting the tests in a fair and equal manner to provide a set of independent data results. All testing was completed at the KeyLabs facility located in Lindon, Utah.

Helix Universal Server on Windows 2000 v. WMT 4.1 on Windows 2000



Helix Universal Server on Linux v. WMT 4.1 on Windows 2000



- KeyLabs' test results indicate that **Helix Universal Server allows more than twice as many 20 Kbps Windows Media 8 connections than WMT 4.1 Server — on the same Windows operating system**. This indicates that Helix Universal Server provides a lower cost of ownership in relation to the number of clients that the server can accommodate. For instance, the Helix Universal Server running on Windows 2000 Advanced Server is able to deliver over twice as many 20 Kbps Windows Media Audio streams to Windows Media Players than WMT 4.1 Server.

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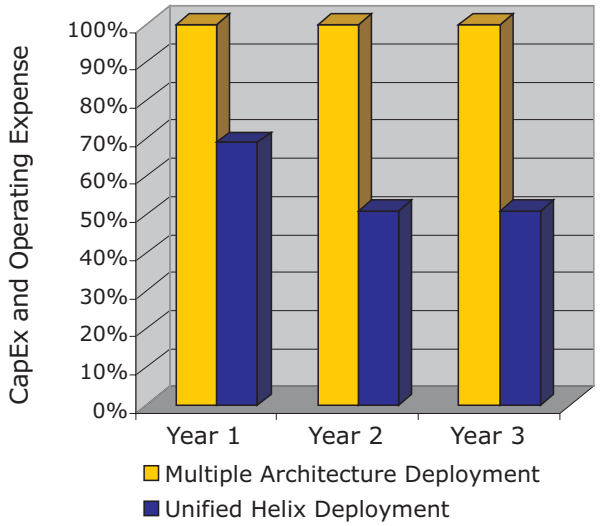
- **Helix Universal Server running on Red Hat Linux 7.3 is able to deliver over four times as many (344% increase) 20 Kbps Windows Media Audio streams** to Windows Media Players than WMT Server 4.1. The same hardware (Dual Intel Pentium III Xeon 700 MHz) was used for the referenced tests.
- KeyLabs' test results indicate that the **Helix Universal Server, running on Linux is able to deliver 11,000 20 Kbps RealMedia™** streams to the RealONE™ player on a Dual Intel Pentium III Xeon 700 MHz machine.

  See the published report at: www.keylabs.com/results/realnetworks/helixcomparativeload.shtml

Helix Universal Server Lowers Media Delivery Costs by Nearly 50%

- Unified architecture eliminates need to deploy for format footprint and provides better load optimization
- Helix Universal Server performance means fewer boxes. KeyLabs found that Helix Universal Server's utilization of processors and memory is both effective and scalable in that it uses the processors and/or memory to their maximum. This allows Helix Universal Server to maintain a higher level of user connections. Adding memory or processors to the server in many cases would allow the server to maintain additional connections.
- Standardization of platform and OS reduces operations & development staffing



Model based on capital expense and operating costs associated with multiple architecture deployment versus a Helix deployment. Edge topology with servers and proxy/caches, total network throughput 10,000 Mbps. Does not account for reduced bandwidth achieveable with the Helix Universal Server content distribution.