



VDI BREAKTHROUGH: ***BETTER THAN PC PERFORMANCE AT A LOWER THAN PC PRICE***

TOGETHER, IBM FLASHSYSTEM HARDWARE AND ATLANTIS COMPUTING SOFTWARE ARE TACKLING STORAGE CHALLENGES THAT HAVE LONG INHIBITED MAINSTREAM ADOPTION OF VIRTUAL DESKTOP INFRASTRUCTURE.

It's practically an annual tradition.

Every year, IT industry prognosticators forecast a big jump in virtual desktop infrastructure (VDI) deployments. And every year those deployments fail to materialize.

Indeed, VDI has long been the Flying Dutchman of information technology—always headed for mainstream acceptance but never quite getting there. The biggest reason why is no secret, either. For all the efficiencies they enable, virtual desktops simply can't cost-effectively match the performance of physical PCs when hosted on conventional disk-based storage systems.

"That's been an industry-wide struggle for a long time," says Matt Darlington, North American lead for desktop and application virtualization at IBM Corp., of Armonk, N.Y.

That struggle is now approaching its conclusion, however. With the help of a powerful storage optimization solution named ILIO, from Mountain View, Calif.-based Atlantis Computing Inc., IBM® FlashSystem™ arrays are finally empowering enterprises to do what once seemed all but impossible: leverage the considerable benefits of VDI without compromising on performance or price.

PROS AND CONS

Unlike much about VDI, those benefits have never been in dispute. Hosting desktops in the data center simplifies administration while empowering technicians to provision new users and roll out new operating systems rapidly. "You don't have to go to everyone's desk," observes Edward Haletky, president and CEO of AstroArch Consulting Inc., a provider of virtualization expertise and analysis in Wrentham, Mass. "You just roll out a brand-new image and you're done."

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Centrally stored desktops are easier to secure too. "If someone loses their laptop, you're not putting corporate data at risk," observes Seth Knox, Atlantis Computing's vice president of products. Better yet, employees aren't limited to laptops for mobile access. "You can get to your desktop from any of your devices wherever you go," Knox says.

Unfortunately, however, VDI has traditionally had far less benign implications for storage. For starters, virtual desktops take up large amounts of space on costly enterprise storage arrays. They also generate write-intensive workloads with much steeper performance requirements than the typical disk-based storage device can effectively handle. Worse yet, those performance demands spike sharply any time lots of users do the same thing at once, like log in to their desktop at the start of the workday. "It can really cause a lot of traffic congestion issues," notes Tom Coughlin, founder of Atascadero, Calif.-based storage consultancy and analysis firm Coughlin Associates.

With problems like that, virtual PCs have long been conspicuously slower than physical ones, while two to three times more expensive. "You're paying a premium price and getting less from a performance perspective," IBM's Darlington says. "It's no wonder adoption has been slow."

INDUSTRY LEADERS

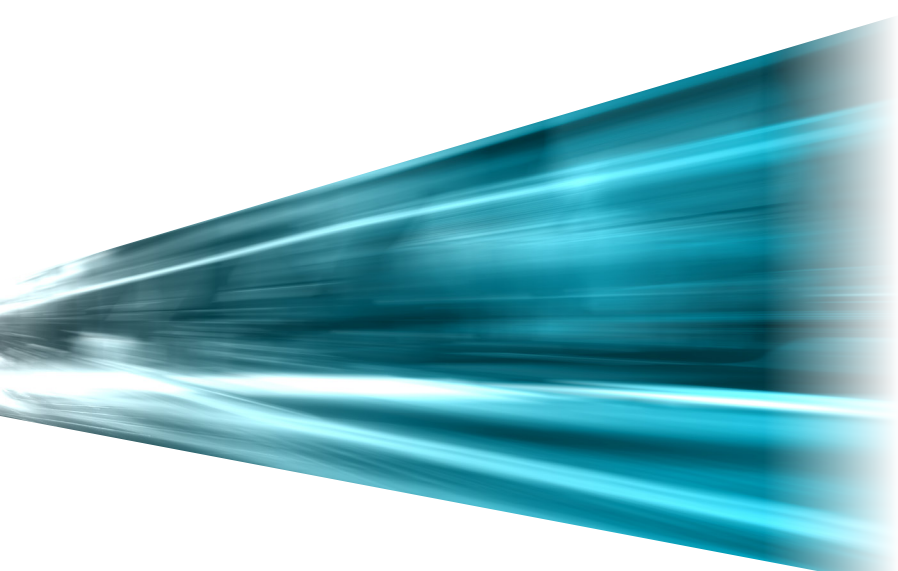
Flash storage, on the other hand, is anything but slow. A solid-state technology that delivers dramatically more IOPS and dramatically less latency than hard disk drives, flash memory is fast enough to handle VDI's heightened performance needs. "Flash is a perfect platform for VDI, because it has the speed to provide a great end-user experience," Knox states.

That's especially true of IBM FlashSystem arrays. "They combine the industry's best performance, economics, and energy efficiency in a very compact footprint," Knox says. They're also both highly scalable and exceptionally reliable. "That's important with virtual desktops, because when a VDI solution isn't working, neither are your users," Knox observes.

Darlington credits the FlashSystem family's many strengths to years of patient research and development. "It's a very mature product line," he says. "A lot of the flash vendors out there today have only been in business three or four years, and you can almost be assured they haven't worked out all the bugs yet."

Still, even storage systems as fast and sophisticated as IBM FlashSystem arrays can only do so much on their own. A complete answer to VDI storage challenges takes both hardware *and* software.

Enter Atlantis Computing's ILIO, which supercharges VDI performance and slashes virtual desktop costs by eliminating bottlenecks, streamlining management, and boosting storage density. "ILIO typically lowers the capital and operational costs of doing VDI by up to 80 percent compared to traditional storage," Knox says. It also provides the linear scalability organizations need to continue collecting those savings even as their user base grows.



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—Seth Knox, vice president of products
Atlantis Computing

STUNNING RESULTS

Convinced that FlashSystem and ILIO would make an unbeatable duo, IBM and Atlantis joined forces in the spring of 2013 to deliver high-speed, low-cost VDI storage solutions. “We’ve created dozens of reference architectures with every conceivable hardware configuration,” Knox says. They’ve also validated those designs under real-world conditions at IBM Innovation Centers, state-of-the-art technology labs staffed by IBM technical experts. “We made certain we could deliver a virtual desktop infrastructure that’s fast, easy to deploy, and economical,” Knox says.

Just how fast, easy, and economical became clear during joint benchmark testing in December 2013. Together, IBM FlashSystem arrays and Atlantis ILIO reduced per-desktop disk space requirements by a stunning 99 percent, enough to pack 4,000 virtual desktops into a 2U form factor. They also delivered VDI performance up to 40 times greater than traditional storage solutions, resulting in virtual desktops six times faster than the Apple MacBook Air. “That’s the gold standard for PC performance,” Knox observes.

For VDI users, numbers like that add up to an incredible combination: better-than-PC performance at a lower-than-PC price. “You can now provide very fast virtual desktops at sub-\$300 levels. That’s a pretty amazing feat,” Darlington says. That’s while also radically reducing storage-related floor space, power, and cooling requirements without sacrificing scalability. “IBM FlashSystem and Atlantis ILIO give organizations a very easy way to deploy a low-risk, prevalidated VDI solution and grow it to very large numbers,” Knox states.

That has enterprises of every description flocking to VDI at last. “We’re seeing a big acceleration in VDI deployments now,” Darlington says. With the help of IBM FlashSystem and Atlantis ILIO, the technology world’s Flying Dutchman appears to be finally nearing its destination. ■

For more information, visit
ibm.com/storage/flash

Better Together

**SETH KNOX**

is the Vice President of Products for Atlantis Computing.

Prior to Atlantis Computing, Mr. Knox held leadership positions in product management and marketing at several virtualization and security related start-up companies.

The high costs and slow performance that result when virtual desktops run on disk-based storage systems have stalled adoption of virtual desktop infrastructure solutions for years. Thanks to a close partnership between IBM and Atlantis Computing, however, those barriers are finally coming down. In this executive Q&A, Seth Knox discusses the origins of the IBM-Atlantis partnership, as well as how IBM FlashSystem arrays and Atlantis' ILIO software combine to deliver breakthrough VDI performance at equally breakthrough prices.

Q: When and why did Atlantis enter into its alliance relationship with IBM?

A: We've actually had joint customers for several years, but our formal partnership with IBM started in May 2013. We were looking for a great enterprise technology vendor to collaborate with on comprehensive VDI storage solutions offering record-breaking performance and economics. IBM has outstanding server hardware and the best flash storage arrays in the business, so we knew that our software and their hardware would be an excellent combination for our customers. We were right too. Together, IBM FlashSystem arrays and Atlantis ILIO are empowering enterprises to get better performance from virtual PCs than they get from physical PCs at a lower-than-PC cost for the first time.

made it freely available to our joint customers. We've also validated our reference architectures in the IBM Innovation Center labs to confirm that they result in virtual desktop infrastructure environments that are fast and easy to deploy, and that provide a great end-user desktop experience as well.

Q: How does the IBM-Atlantis partnership benefit your mutual customers?

A: A lot of our mutual customers have initiatives to either implement VDI for the first time or expand a pilot implementation to all of their users. The combined IBM-Atlantis offering gives them a proven way to deploy a VDI solution that they can scale to support very large numbers of users. It's simple, it's documented, and you can roll it out with very low risk.

Q: How do IBM FlashSystem products contribute to the combined IBM-Atlantis solution?

A: FlashSystem arrays are the hardware cornerstone of that solution. In fact, we now advise everyone planning a persistent VDI deployment involving more than 1,000 desktops to run Atlantis ILIO on IBM FlashSystem solutions. Benchmark testing has proven conclusively that using those two products together produces an unsurpassed blend of high performance, low cost, and compact data center footprint. It's really been a tremendous flash array to work with. At the end of the day, ILIO is software, and while it does a lot to optimize VDI on its own, it needs high-quality hardware to be at its best. We believe IBM FlashSystem arrays are simply the highest-quality and highest-performing flash storage hardware out there. ■

"... enterprises can for the first time get better performance from virtual PCs than they get from physical PCs, and do it at a lower-than-PC cost."

Q: How have Atlantis and IBM worked together to optimize joint solutions ?

A: We started off by building some basic reference architectures, so customers would know the best ways to deploy ILIO on IBM hardware. Then we began adding further guidance in areas like high availability and disaster recovery. We've documented all that and