



## VIRTUALISATION & STORAGE

# Leeds Bradford International Airport

Owned by Bridgepoint Capital, Leeds Bradford International Airport (LBIA) offers passenger flights to over 70 leisure and business locations. LBIA delivers a punctual service and best-in-class facilities to maximise the travel experiences of the more than three million passengers who pass through its gates every year. Airport facilities include a passenger terminal that houses an array of shopping, dining and travel services.

## THE CHALLENGE

### Centralise storage to complement virtual infrastructure

With Bridgepoint's 2007 purchase of LBIA came the private-equity firm's commitment to develop the airport to increase passenger throughput, expand the route network and enhance terminal facilities to deliver best-in-class services to passengers and visitors.

For Adrian Rollins, IT manager at LBIA, delivering on these objectives meant taking a hard look at the airport's existing IT infrastructure, built on physical servers with local storage. "We were already experiencing the problems of server sprawl - that is, proliferating but underutilised hardware, high support costs, rising energy usage, and decentralised backup/recovery processes that had the potential to put some business applications and data at risk. Expanding the current structure to meet the growth and business continuity requirements of Bridgepoint's master plan for the airport would have only exacerbated IT issues."



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Rollins says that detailed cost analyses and a looming capital spend to replace end-of-life systems accelerated the search for a more scalable and cost-effective IT solution. Working with Phoenix Software, a leading provider of consultancy, development and software auditing, the LBIA team determined that a virtualised-server environment with shared storage would better support the airport's changing business requirements and priorities.

In conjunction with the decision to move to a VMware-based environment, LBIA outlined the following essential storage requirements:

- High availability and replication technologies to implement affordable disaster recovery (DR) and ensure business continuity
- Administrative simplicity and cost efficiencies to reduce total cost of ownership (TCO)
- Architecture flexibility to support growth and responsive business service

## THE SOLUTION

### Standardise on NetApp for high availability/DR, cost savings and agility

From a field of potential suppliers that included finalists Dell (EqualLogic), HP and NetApp, LBIA selected NetApp based in part upon differentiating RAID-DP (a double parity RAID 6 implementation), deduplication and replication technologies.

Rollins points to the unique value of NetApp software tools: "NetApp technologies and management software let us achieve space and operational efficiencies that we simply couldn't easily accomplish on competitive offerings - the choice really came down to deploying a physical box versus a full software solution. The scalability and integrated NAS/SAN functionality of the NetApp Data ONTAP operating system also gave us confidence in our ability to support a broad and always-evolving set of business objectives."

LBIA currently leverages some 24TB of NetApp storage capacity. A NetApp FAS2050 system (populated with SAS disk drives) at the primary data centre provides storage (via CIFS) for Windows file shares and (via iSCSI) to the VMware environment running across two ESX servers. LBIA uses NetApp Snapshot technology to maintain three days' worth of backups online and then archives them to tape.

NetApp SnapMirror software enables routine replication of virtual servers and data to a NetApp FAS2050 system (with economical SATA disk drives) at the LBIA DR site. This NetApp system provides storage for a third ESX server and also serves as primary storage for LBIA test and development environments. A suite of NetApp SnapManager products simplifies data management, including configuration, backup, and recovery operations for Microsoft Office SharePoint Server, Exchange Server, SQL Server, and VMware environments. Rollins adds, "With NetApp software, we can do more granular restores than we can using SharePoint, for example, right out of the box."

Applications running in the LBIA VMware-on-NetApp environment include: Microsoft SharePoint Portal Server and SQL Server-based applications; a Sun Accounting system for utility billing and revenue management, a Gentrack Airport 20/20 passenger information system, and the airport's Bluetooth queue monitoring solution.

## BUSINESS BENEFITS

### Delivering the enjoyable journey, 24x7

The new infrastructure enables LBIA to meet within-minutes recovery time objectives (RTOs) with a maximum four-hour data loss on all critical applications. As NetApp SnapManager for Virtual Infrastructure works with VMware vCenter, administrators can automatically create application-consistent backups of virtual machines as well as instantly recover datastores, VMs and vmdk or individual files within VM guests.



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ADRIAN ROLLINS, IT MANAGER, LBIA



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Rollins points out that this level of protection comes in sharp contrast to the limited recoverability afforded in the previous physical-server-with-local-storage infrastructure. "In the past, recovering from a single server failure could take up to 24 hours. And, depending upon when the failure occurred, we could lose as much as 72 hours' worth of data restoring from tape. Today, we leverage NetApp Snapshot technology to make frequent online backups. For our Sun Financial, we run backups at three-hour intervals, so RPO for critical financial data is never more than three hours. As we're able to replicate our entire server state - the operating system, applications and data - we can bring back complete systems in minutes, not hours or days. We recently had an occasion to restore our Bluetooth system - the whole process took three minutes."

Rollins credits the expertise of the Phoenix Software staff, as well. "Start to finish, the highly productive working relationship with Phoenix Software helped us expediently design and implement a solution to meet all of our business objectives. The rollout took just four weeks, during which time the Phoenix team also led a successful skills transfer to ensure our administrative self-sufficiency at the hand-off. Their assistance was particularly critical during the actual cutover that we had to complete during a brief scheduled downtime between 11pm and 4am, when there would be

no disruptions to airport services. We successfully accomplished the transition and have experienced no downtime since."

Another benefit that Rollins notes is the ability to use NetApp FlexClone technology to copy production environments for the purpose of non-disruptive DR testing: "We know our plan works and that we can maintain business operations. This disaster recovery solution also integrates all key systems. Had we gone the external services route, we would have had significantly higher costs for a skeletal DR solution that covered only the most mission-critical systems. Instead, the NetApp solution with VMware gives us extremely affordable business-operations protection that encompasses all of our applications. We are also implementing multi-use DR and expect to leverage the FAS2050 to provide enterprise IT services to our concession and other business partners."

Asked about the impact of downtime to LBIA, Rollins emphasises that it's not just about hard costs: "The information on the terminal screens throughout the airport? Our passengers rely on that to move through the terminal and get to their flights on time. The information must be up to date and available 24x7. Our services can make the difference between stressful travel and an enjoyable journey. It's difficult to put a value against goodwill, but it's essential to our business. Helping passengers move



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airside - where they can relax over breakfast or enjoy a few minutes of shopping - also generates business for our retail partners."

#### Grounding high IT costs

Rollins can put a real number on TCO savings: "Over five years, the VMware-on-NetApp solution will reduce our server/storage TCO by 21%, or nearly £78K. In four years, energy savings will exceed £19K - that's about a 44% reduction. By the time we've moved all of our systems into the virtual environment, we'll see close to an 84% reduction in data centre footprint. To airport management, the numbers present a very compelling story."

LBIA attributes savings in part to better resource utilisation and NetApp storage efficiencies, including thin provisioning and deduplication that saves as much as 77% capacity for production-data volumes. Rollins comments that IT is also now more efficiently resourcing staff: "We've eliminated the expensive support costs of managing individual servers and direct-attached storage and put our staff to work on higher-value tasks. And, we're delivering more services within the existing budget."

#### The sky's the limit: scalability for growth, flexibility for business

By all accounts, LBIA is on track to meet Bridgepoint's objectives for growth. The City of Leeds recently approved a £28M

investment to enhance facilities, Ryanair's introduction of 14 new routes expands the LBIA network to more than 70 destinations and the airport master plan forecasts passenger throughput will reach around 5 million by 2016.

"We now have a highly scalable foundation in place to simultaneously support the growth and budget-control objectives of the airport," summarises Rollins. "With our 'VMware first' policy, we've successfully contained server sprawl. The new infrastructure also makes it much easier to consolidate data for business intelligence. Right now we're building a management information system that will pull together parking statistics, terminal throughput and other data invaluable to airport businesses.

"We also have the ability to offer retailers access to IT services - virtual-server environments, DR services, etc. It takes just minutes and a few mouse-clicks to provision and segregate new server and storage resources for them. Providing IT services to partners not only helps LBIA attract new business, it helps the company recoup infrastructure investments. The VMware-on-NetApp environment lets us do more with less and at the same time gives us the flexibility and scalability to continue to support the business in delivering best-in-class facilities that will enhance our status as the region's premier airport."



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