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story**

Gatwick Airport Takes Off Toward High Availability with Veeam and HPE

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— Sherif Darwish
    Head of IT Infrastructure
    Gatwick Airport

The Business Challenge

An aircraft takes off or lands nearly every minute during peak times at Gatwick Airport. Any significant IT failure can lead to downtime, data loss and passenger delays, which can be costly to the airport, airlines and onsite business partners and lead to unsolicited and negative media coverage.

"A knock to our reputation is very serious, and it's something we work very hard to avoid," said Sherif Darwish, Head of IT Infrastructure at Gatwick Airport. "With 55 aircraft movements every hour on a single runway, the best way to support airport operations is with a redundant, resilient and robust IT infrastructure."

IT plays a role in almost every airport operation including passenger check-in, security, flight information screens, baggage sortation, gate wayfinding and baggage carousels. Airport processes and workflows are supported by more than 25 mission-critical systems such as security, identity management, Airport Operational Database (AODB) and an enterprise service bus (ESB). These systems are often rooted in niche and bespoke applications as well as pervasive back-office applications including Oracle, Microsoft SQL Server, Active Directory, SharePoint and Exchange. Approximately 60% of Gatwick's IT infrastructure is virtualised on VMware vSphere — 250 virtual machines (VMs) with 38TB of backup data. More of the infrastructure will be virtualised, but several legacy applications will not be virtualized in the short term.

Gatwick's highly available IT infrastructure is spread across two data centres linked by dark fiber to synchronously replicate critical data. Critical services are delivered through clustered servers (physical machines and VMs) and applications with failover capabilities. If a physical machine or VM fails in one data center, a physical machine

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London Gatwick Airport is the United Kingdom's second largest airport and the busiest and most efficient single-runway airport in the world. It serves more than 220 destinations in 90 countries for more than 39 million passengers each year. Gatwick is a major economic driver for the southeast region as well, generating approximately 21,000 on-airport jobs and another 10,000 jobs through related activities.

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or VM in the second data centre will pick up the workload. However, a failed server, whether physical or virtual, exposes Gatwick to the risk of downtime and data loss because the second server could subsequently fail as well. Therefore, Gatwick must recover failed servers as quickly as possible to regain the required level of resilience.

"We reduce the risk of downtime and data loss by ensuring we are 100% capable of performing recovery as quickly as possible," Darwish said. "Our traditional backup tool recovers physical servers, but Veeam allows us to leverage the benefits of the virtualised platform and storage to accelerate and reduce the complexity of that process significantly."

Darwish said agent-based, file-level backup and recovery with the traditional backup tool were slow going and labourious. All VMs could not be backed up within the backup window, and rebuilding a VM from scratch could take hours.

"We needed fast backup and recovery in our virtualised environment to maintain resilience in the IT infrastructure, which requires 24x7x365 availability," Darwish said.

The Veeam Solution

Veeam® Backup & Replication™ helps Gatwick maintain resilience in its virtualised environment and avoid the risk of downtime, data loss, passenger delays, needless costs and negative publicity.

"Veeam plays a key role in our high availability strategy by enabling rapid backup and recovery of critical virtualised systems," Darwish said. "If one our of VMs fails, we can restore it instantly with Veeam to become resilient again."

Unlike Gatwick's traditional file-based backup tool that was designed for physical machines and required agents to be deployed and maintained in each VM to be backed up and recovered, Veeam leverages VMware ESXi snapshot capabilities for VM backup. When a new backup session starts, a snapshot is taken to create a consistent point-in-time copy of a VM, which Veeam uses to retrieve VM data. Whole VM, file-level and application-item recoveries take minutes with Veeam, unlike hours with the traditional backup tool.

"Veeam proved its value for us when we lost a configuration server that allowed us to operate a major airport control system," Darwish said. "The service wasn't down, but without a quick VM recovery, this situation could have been operationally problematic. With Veeam, we restored the VM in a matter of minutes. We don't take recovery lightly. We absolutely have to be able to recover from a backup to maintain a resilient stance."

Gatwick used Instant VM Recovery™ to restart the failed VM from a regular backup in minutes. Instant VM Recovery was instrumental again in another potentially dire situation.

"Veeam proved its value a second time when one of our critical VMs became inoperable after a change," Darwish explained. "The issue hadn't been identified during testing, and it was initially unclear why the change had caused an outage. Had this situation persisted, it could have caused an airport disruption and a reputational knock. However, Veeam restored the VM quickly, and we placed it back in service."

Challenge

Gatwick built a redundant, highly available IT infrastructure to avoid the risk of downtime, data loss and passenger delays, which can be costly to the airport, airlines and onsite business partners and could lead to adverse publicity. To maintain 24x7x365 availability of this IT infrastructure, Gatwick needs a fast VM recovery tool because restoring a VM with the traditional backup tool could take hours.

Solution

Veeam Backup & Replication

Veeam Backup & Replication helps Gatwick avoid the risk of downtime, data loss, passenger delays and adverse publicity by helping to maintain resiliency in the virtual environment through rapid VM recovery. Veeam restores whole VMs, guest files and application items from regular backups in minutes.

Veeam backs up 250 VMs between two data centres: 30TB of data is backed up, deduplicated and compressed to 4TB on HPE StoreOnce, and 8TB of data is backed up, deduplicated and compressed to 1.5TB on HPE 3PAR StoreServ. VMs deployed on HPE storage are synchronously replicated between data centres.

Another way Gatwick can restore quickly is with Veeam Explorer™ for Storage Snapshots. Application items, guest files and entire VMs can be recovered from HPE storage snapshots in minutes. Veeam Software and HPE worked closely to integrate snapshots to ensure 24x7x365 availability.

Veeam Software and HPE also worked closely to ensure Veeam backup and HPE Storage are complementary. Deduplication and compression in Veeam combined with deduplication in HPE StoreOnce help Gatwick conserve backup storage consumption. Gatwick uses Veeam to back up 250 VMs between data centres: 30TB of data is backed up, deduplicated and compressed to 4TB on HPE StoreOnce. Another 8TB of data is backed up, deduplicated and compressed to 1.5TB on HPE 3PAR StoreServ; Veeam acts alone in the latter situation.

Darwish said Gatwick Airport is exploring the use of Veeam technology to send backup copies offsite. Veeam Cloud Connect could play a role, supporting Gatwick's transfer of backup copies to a hosted cloud repository through a secure sockets layer (SSL) connection. Gatwick will be able to access and recover hosted data directly from the Veeam backup console, providing an additional way to avoid the risk of downtime and data loss.

The Results

- **High-speed recovery maintains resiliency and supports 24x7x365 availability**
  Veeam Backup & Replication enables rapid recovery of whole VMs, guest files and individual application items to maintain resiliency in Gatwick's virtualised environment and support 24x7x365 availability. "Recovery with the traditional backup tool was time-intensive and labourious," Darwish said. "Recovery with Veeam is fast, easy and painless."

- **Risk of downtime, data loss and passenger delays is avoided**
  Maintaining resilience in the virtualised environment with Veeam helps Gatwick reduce the risk of downtime, data loss, passenger delays, needless costs and negative publicity. "There's absolutely no trepidation with Veeam for fast recovery," Darwish said. "Veeam reduces some of the stress and anxiety associated with the recovery of a critical system."

- **Integration with HPE Storage enables granular recovery and conserves backup storage**
  Veeam Explorer for Storage Snapshots allows for granular recovery from frequently created HPE 3PAR StoreServ snapshots. Gatwick conserves backup storage with combined deduplication in Veeam and HPE StoreOnce: 30TB of data is backed up, deduplicated and compressed to 4TB.

Results

- High-speed recovery maintains resiliency and supports 24x7x365 availability

- Risk of downtime, data loss and passenger delays is avoided

- Integration with HPE Storage enables granular recovery and conserves backup storage

About Veeam Software

Veeam is the global leader in Intelligent Data Management for the Hyper-Available Enterprise. Veeam Hyper-Availability Platform is the most complete solution to help customers on the journey to automating data management and ensuring the Hyper-Availability of data.

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