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| blinkbox-from-Tesco-Reverse |  |  | Movie Streaming Business Uses Cloud Service to Save Millions of Dollars, Scale Quickly | |
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| Overview  Country or Region: United Kingdom  Industry: Media and entertainment—Broadcast  Customer Profile  blinkbox is a one of the most popular movie and TV streaming services in the United Kingdom, with more than a million monthly users. blinkbox is owned by the UK supermarket giant Tesco.  Business Situation  blinkbox needed a cost-effective way to meet its voracious appetite for compute power and storage, to transcode video files for an ever-increasing number of formats and resolutions, including high definition and surround sound.  Solution  blinkbox decided to migrate its entire video encoding and streaming workflow to Microsoft Azure and shut down its datacenter completely.  Benefits   * Save millions of dollars in datacenter costs * Scale infrastructure quickly to deliver a great customer experience * Remove IT barriers to growth * Improve service reliability |  |  | “If we need to encode a whole stack of new movies at once or convert our entire movie and TV library to a new format, we just have Microsoft Azure do the work for us.”  Jon Robinson, Group Head of IT, blinkbox |
|  |  | blinkbox is a UK movie and TV streaming service that is enjoying terrific growth. However, the company’s London datacenter loomed as a barrier to future growth. To quickly and cost-effectively gain access to the prodigious amounts of compute power and storage needed to perform video encoding, blinkbox moved to the cloud—specifically, Microsoft Azure. By moving its entire video workflow to Microsoft Azure and unplugging its datacenter, blinkbox will save millions of dollars, gain the ability to scale IT infrastructure on demand, and deliver a great customer experience on multiple consumer devices. The company is taking advantage of Microsoft Azure to expand its business and deliver more content to more customers, with outstanding reliability and quality. |
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Situation

blinkbox is counting on the impatience of the movie-hungry public. The UK-based movie and TV streaming service, owned by UK supermarket giant Tesco, knows how little consumers want to wait for their favorite TV shows and the hottest movies. They want new releases right away, on their favorite consumer devices, with impeccable video and audio quality and reliability.

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blinkbox has been breathtakingly successful at giving the UK viewing public exactly what it wants and consequently enjoyed a whopping 245 percent revenue growth in 2013. However, management worried that the company’s growth could hit a brick wall inside its London datacenter. There, the IT organization worked feverishly to deploy servers and storage devices fast enough to meet both video encoding and streaming demands. Video encoding is the process of translating original film and TV content into formats and resolutions suitable for consumption on multiple devices from different vendors.

“Our biggest growth blocker was storage,” says Jon Robinson, Group Head of IT for blinkbox. “We have tens of thousands of customers watching shows simultaneously, and it was very difficult for our storage systems to keep up because of the need to stream different chunks of the same show simultaneously to different viewers. We were running out of I/O and didn’t have the capital to purchase the amount of storage that we needed.” Further, the video encoding workload was intermittent, and blinkbox didn’t want to spend hundreds of thousands of dollars on servers that would sit idle when encoding jobs were done.

Because of piracy concerns, content providers often provide a movie just one day before blinkbox will make it available. This leaves blinkbox less than 24 hours to perform quality checks, encode the film in multiple formats, and prepare it for streaming. While blinkbox shuffled high-priority films to the front of the encoding queue, its total encoding backlog was often weeks long. And when a new viewing device—TV, PC, tablet, or game console—or a new generation of mobile communications technology was introduced, blinkbox had to reencode its entire library for the new device or technology.

“We had aggressive growth goals, but we needed to break through the encoding bottleneck,” Robinson says. “We also needed greater resilience beyond our London datacenter in the event of a natural disaster or a utility worker chopping through a cable. The more successful we became, the less we could tolerate a service interruption of any length of time.”

With its datacenter hardware approaching end-of-life, blinkbox faced a decision: build a new datacenter or move to the cloud.

Solution

The blinkbox application is Microsoft-based, built on Microsoft ASP.NET, Microsoft Media Platform, and Microsoft SQL Server 2012 database software, running on the Windows Server 2008 R2 and Windows Server 2012 operating systems. In 2011, blinkbox had talked to Microsoft about Microsoft Azure—the Microsoft cloud platform that provides compute, storage, networking, and other cloud services from Microsoft datacenters.

While the Microsoft Azure platform-as-a-service offering at the time was perfect for its media services needs, it was not ideal for other parts of its video workflow. “We had a well-defined, very complex application that we did not want to rewrite for the Microsoft Azure offering at the time,” Robinson says. “We needed an infrastructure-as-a-service offering, with empty virtual machines that we could populate with our own software.”

Rich Menu of Cloud Services

In mid-2012, blinkbox got a sneak peek at the Microsoft Azure roadmap for the next 12 months and was excited to see infrastructure-as-a-service (IaaS) offerings (Microsoft Azure Virtual Machines) and other cloud services that fit its needs. “There was a fantastic fit between the Microsoft Azure roadmap and our business,” Robinson says. “The IaaS offering—raw virtual machines that we could populate with our application running whatever operating system we wanted, be it Windows or Linux—meant that we could consider Microsoft Azure for our needs.”

Robinson’s team also liked Microsoft Azure Blob Storage, which it could use to store content in triplicate at two different Microsoft Azure datacenters (Dublin and Amsterdam). “The value to us was that we could upload our content once and have it replicated three times in two different locations,” Robinson says. “It provided an incredible level of redundancy that we could never afford to build ourselves.”

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Additionally, blinkbox was impressed at Microsoft support for the Linux operating system, which it uses in its infrastructure. “A fantastic part of Microsoft Azure is that it’s broadly platform agnostic,” Robinson says. “There’s loads of Linux support, and it doesn’t treat Linux like a second-class citizen. This allows us to run our breadth of tools across the platform without any concerns about reliability or downtime.”

High Availability in the Cloud

In August 2013, blinkbox started migrating its video encoding and streaming application to Microsoft Azure. “We’re taking an application that’s been built up for five or six years and migrating it largely unchanged from on-premises to the cloud,” Robinson says. The company runs its application in two European Microsoft Azure datacenters in active-active mode, and customers are served by the datacenter nearest them. blinkbox plans to ultimately unplug its London datacenter, hopefully by the end of 2014.

As part of the migration, it was essential that blinkbox provide high availability across its business-critical SQL Server 2012 installation so that its applications were available around the clock. blinkbox previously provided high availability using Windows Server 2012 Failover Clustering. As part of the move to Microsoft Azure, blinkbox sought to further increase availability by implementing disaster recovery from Microsoft Azure to its on-premises datacenter.

To do this, it created a SQL Server 2012 AlwaysOn Availability Group, a collection of databases that automatically fails over together. It also used an Availability Group listener to provide seamless failover between the Microsoft Azure datacenter and its on-premises datacenter. An availability group listener is a virtual network name to which clients can connect to access a database in a primary or secondary replica of an AlwaysOn Availability Group.

All blinkbox mission-critical production databases now run within a SQL Server AlwaysOn Availability Group running in Microsoft Azure Virtual Machines. In the event of a disaster, the databases can be failed over to the blinkbox datacenter—and soon to another Microsoft datacenter—in about a minute, giving blinkbox improved business continuity and uninterrupted customer service. blinkbox plans to migrate to Microsoft SQL Server 2014 to take advantage of enhanced backup capabilities.

Cloud-Based Media Distribution

blinkbox is also a heavy user of Microsoft Azure Media Services, a scalable, cost-effective, end-to-end media encoding and distribution solution that supports media streaming to Adobe Flash, Android, iOS, Windows, HTML5, and other devices and platforms.

“We were very impressed with Microsoft Azure Media Services,” Robinson says. “We spent five years creating a video encoding platform of our own and know well the numerous intricacies involved. As a small company, we know that encoding experts are a precious resource. With Microsoft Azure, we instantly have a scalable video encoding platform. We can spin up hundreds of encoding servers when needed and let them go when the job is done.”

The blinkbox team also likes the fact that Microsoft Azure Media Services is application programming interface (API)–driven. The IT team doesn’t have to move files to different servers and keep track of file location. The blinkbox application simply makes calls to web services. “All the busywork involved in managing disk storage and ensuring that network links are in place between storage nodes goes away,” Robinson says.

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Benefits

By moving its primary business application from its London datacenter to Microsoft Azure, blinkbox will save millions of dollars in datacenter costs and gain the ability to scale its infrastructure on demand to ensure a great customer viewing experience anywhere, anytime, using any device. With Microsoft Azure, blinkbox has removed significant barriers to growth and can continue its growth trajectory. SQL Server 2012 high availability features together with the redundancy and georeplication of Microsoft Azure datacenters gives blinkbox heretofore unattainable levels of service reliability that will help reinforce customer loyalty.

Save Millions of Dollars in Datacenter Costs

By unplugging its datacenter, blinkbox will save millions of dollars by eliminating racks of high-performance servers and storage. Those resources are available on demand in Microsoft Azure datacenters, more cost-effectively than blinkbox can deploy them. What’s better, blinkbox can turn off Microsoft Azure video encoding servers when it’s finished with an encoding job.

In addition to removing capital costs, blinkbox reaps operational savings by making far better use of its engineering staff. “We’re a small company that is growing rapidly, and we’re an engineering company at heart,” Robinson says. “No one wants to do boring work. By removing mundane datacenter tasks from our engineers’ days, they can do smarter things like make our platform more reliable, do better monitoring, and improve our auto-scaling.”

Scale Infrastructure Quickly to Deliver a Great Customer Experience

Whereas the blinkbox encoding queue used to be weeks long, it’s now days or hours long. “If we need to encode a whole stack of new movies at once or convert our entire movies and TV library to a new format, we just have Microsoft Azure do the work for us,” Robinson says.

Today, blinkbox is using approximately 700 terabytes of Microsoft Azure Blob Storage; with new file formats coming out, blinkbox expects that figure to soon rise to a petabyte. When high-definition streaming becomes commonplace, storage volumes will double. “Video content is getting ever richer, being stored in ever larger formats, and needs to be streamed ever faster,” Robinson says. “Plus, the number of devices and formats that we need to support is growing. All this leads to the need for lots and lots of storage, which we now have in Microsoft Azure.”

Before moving to Microsoft Azure, when blinkbox added support for a new tablet or game console, it had to scale up its datacenter infrastructure months in advance. “The last thing we want is for a customer to buy a movie on his PC, then try and watch it on his tablet and get a ‘this device is not supported’ message,” Robinson says. “New devices are coming out all the time; some manufacturers give us lead time, others don’t. With the elastic scalability of Microsoft Azure Media Services, we no longer worry about how much lead time we have. We have encoding resources available on demand, and Microsoft deals with adding new streaming protocols when needed.”

With scalability just a mouse-click away, blinkbox is free to market its service aggressively. In the past, marketing campaigns were sometimes so successful that they flooded the company’s infrastructure with more viewers than the company could comfortably handle. With Microsoft Azure, blinkbox can scale up its infrastructure the day before a promotion launches to “soak up” the extra traffic, then scale it back when traffic slows. This saves the company money but more importantly preserves customer goodwill and business.

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Remove IT Barriers to Growth

blinkbox plans to keep up its spectacular growth pace. “We experienced a 245 percent revenue growth last year and expect to continue this pace as we develop our service and digital media on-demand becomes more mainstream,” Robinson says. “With Microsoft Azure, we can accommodate that growth.”

Improve Service Reliability

blinkbox can ensure uninterrupted streaming services using SQL Server AlwaysOn Availability Groups and the georedundancy of Microsoft Azure datacenters. With the Availability Group listener function, blinkbox has been able to increase availability and disaster recovery, reduce failover time, and create a solution that can easily be extended.

By running SQL Server 2012 in Microsoft Azure Virtual Machines, blinkbox can more easily serve and grow its customer base. It has simplified high availability and a complete disaster recovery solution, giving it the confidence it needs that customers will always have content just a click away as it expands its platform and user base. “Traditional high-availability options for SQL Server aren’t applicable in IaaS, but keeping our databases up is no less critical,” Robinson says. “Using AlwaysOn Availability Groups across two datacenters delivers the uptime our customers expect.”

“Our customers can now tolerate a datacenter disappearing because we have a second,” Robinson concludes. “The way that Microsoft has built its datacenters, with two in each geographical region, gives us a fantastic level of storage reliability and delivery reliability. “There’s no way we could create a comparable level of redundancy ourselves.”

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