Case Study – Scalability and High Availability

Customer Problem

Lucerne Publishers is one of the largest English-language publishers in the world. With nearly 200 years of history, Lucerne has published some of the world's foremost authors, including winners of the Nobel Prize, Pulitzer Prize, National Book Award, Newbery Medal, and Caldecott Medal. Lucerne is consistently at the forefront of innovation, using digital technology to create unique reading and viewing experiences and expand the reach of its authors and documentary producers. Lucerne is headquartered in New York City and has publishing groups in the United States, United Kingdom, Canada, Australia, and New Zealand. Lucerne is in the middle of a three-year project to move the majority of its data center footprint to the cloud. "We have found that cloud implementations give us cost savings and, more importantly, deliver operational flexibility," says Head of Infrastructure and Enterprise Operations. "Like every other business, we're under constant pressure to do more with less. We believe that cloud computing will be substantially cheaper over time than in-house data centers. However, this does raise concerns about security about our data access. Only authorized users should have access to the data. Additionally, we have made a significant investment in Barracuda networks firewalls. Can Azure allow us to continue using that investment?" For their cloud-based workloads, the first solution that Lucerne is thinking of migrating is a large-scale digital asset system. They want to invest in modernizing the design and architecture of this system to make it cloud optimized. Currently, these workloads are hosted in an Equinix co-located data center near Lucerne's New York office.

Digital asset system Lucerne's digital asset system is used by many of the company's employees that are responsible for building and composing the thousands of books, videos, magazines, and digital publications that Lucerne produces annually. According to the Program Manager for the digital asset system, "The current solution is difficult to scale and requires specialized hardware—this makes it hard to easily replicate for development and testing. The new solution should solve both problems." Employees complain that they are required to connect over the corporate VPN connection just to access the application and when they are connected it is slow and sometimes unreliable. She has put together an overview of the current solution's architecture. The application is an ASP.NET MVC web app deployed into a web farm that consists of eight IIS servers on Windows Server 2008 behind a load balancer. Authentication and authorization to the application is based on the user's Windows user account and a specific group in Windows Server Active Directory that the user must belong to. She is concerned that since the solution is hosted in the cloud that users should not have to have a separate identity to log on. The digital assets are stored on a SAN and referenced from tables in a database hosted on a mirrored SQL Server 2008 database. The amount of storage consumed today is around 200 TB, and the capacity required is expected to grow at around 40-50 TBs per year. She is concerned that uploading 200 TBs will take too long and be error prone even with a fast connection.

The development team is starting with Visual Studio 2015 to migrate the application to Microsoft Azure. This is Lucerne's application that takes advantage of Azure Platform as a Service (PaaS) components and they want to take advantage of some of the capabilities around automation to make their environment more agile with development and testing.

Solution Outcome

Design and prepare to present a solution to the target customer audience. Follow the steps below:

Step 1: Initial Planning

1. Identify the key stakeholders and the business goals from the customer's perspective. You could use the examples/formats for the same.

Customer Contacts	
	Name
Project Owner	
Technical Contact	
Business Decision Makers/Stakeholders	
Business Decision Makers/Stakeholders	
Business Decision Makers/Stakeholders	

Business Goals
- Business agility, faster time to market for business group
- Lower Management Cost
- Reduce Storage Cost

2. List the customer pain points, objections, other barriers for cloud, along with any identified gaps and the potential solution in Azure

Step 2: Design and Architect Solution

Create solution architecture to address the following requirements of the digital asset management system.

Data migration

- Describe the best approach and the steps needed to migrate the existing digital assets data to Microsoft Azure. How many storage accounts are required?

Application architecture

- Describe the suggested architecture at the application level for storage and the method of access of digital assets in Azure.

Availability

- How can you monitor the current capacity of your storage solution?

- Propose an architecture that would allow for access to the application in the event the Azure region was down with minimal additional cost and development. Degraded feature sets may be acceptable if it lowers time to deliver.