Cloud Solution Project Part 1:

Azure Solutions for Video Streaming Startup

By: Brendan Ancheta (000975190),
Jahvin Bridge (000967394),
Lance Santos (000962801)

Date: August 10, 2025

Course: COMP-10271: Cloud Computing

Client Situation Analysis

Our company JBL Streaming Inc. is at a defining moment in the Canadian streaming landscape. Our video streaming company is a startup that has 25 dedicated employees, demanding a high operational efficiency, each of our staff members have invested portions of their personal savings into the vision we had in mind to build this company into a success, however this means we have limited access to capital and need to make the most out of the financial investments we've rallied together, so we need to save money wherever possible.

Our business model is structured around providing a streaming platform that targets public domain entertainment releases, licensed movie releases, and classic films that are nearing the end of the expiration of their copyright term. We're aiming to structure our company in a way that allows us to scale our operations easily without going through the demands of traditional equity investments to third-parties, we'd like to scale while keeping our financial budget intact. Our ultimate goal is to see a 25% ROI within the first 24 months of our launch, while maintaining a high level of streaming services to our Canadian consumers.

Recommended Cloud Service Model: Public Cloud

For our organizational goals of keeping costs as low as possible, we decided to launch our company into the cloud in a public cloud structure through Azure services, this solution gives us the best optimization for our startup budget consisting of personal investments. Given our limited access to capital, the public cloud model aligns perfectly with our limited financial flexibility while giving our company instant access to enterprise-level resources without the burden of ownership. Ultimately, the public cloud model gives us the needed cost-effectiveness essential for survival with access to the pay-as-you-consume pricing structure Azure offers.

Given that video streaming can have unpredictable demand, the *elasticity* and *economies of scale* provided by Azure effectively meet our business needs, giving us the opportunity to provision and deallocate resources as our business goes through its peak seasons and low-seasons.

Recommended Service Type: Platform as a Service (PaaS)

For JBL Streaming, the PaaS model gives us the ideal balance for managing our business operations while being able to customize our video streaming application services for our end-users' experience. There's also the added benefit of our limited IT expertise no longer being a concern for management of the underlying infrastructure of application software, since Azure will manage the OS of the apps we deploy.

What really distinguishes the end-user experience of a video streaming platform is the functionality of the applications that platform has, the PaaS model enables our application development team to focus exclusively on that aspect of the business and not worry about issues with the underlying OS like patching issues. We get to offload the cybersecurity concerns related to the OS to Azure, while still maintaining enterprise-grade security.

Since the PaaS model allows us to focus on customizing our applications, we can focus our endeavours on building unique features for our applications and make our product distinct from the other video streaming platforms in this oversaturated streaming market. To reemphasize the benefits of the PaaS approach once more, our ability for rapid deployment cycles become stronger when infrastructure concerns of the OS vanish, which gives lower latency between the time new features for our application are developed and how soon end-users can experience those new features.

Core Azure Services Recommendations

Azure Blob Storage with Intelligent Tiering

JBL Streaming will build a video streaming architecture that relies heavily on *Azure Blob Storage*, making sure to properly configure the management of our data lifecycle. We will use the *Hot* storage tier to accommodate the frequently accessed movie content such as popular licensed movie releases, as well as newly-released movie titles that require immediate availability and low-latency. The Azure Blob storage hot tier can easily manage the demanding 500GB transfers during prime viewing hours.

We will use the Azure Blob cool storage tier for the purpose of managing content that is stored for a long-term basis but not accessed as frequently such as our customer data records. To accommodate our demands of 100GB monthly content additions, they will first be added into the hot storage tier if they are new release films, and automatically migrated over to the cool storage tier if they are customer data records which aren't accessed as frequently. With this automated tiering optimization implemented, we will have significantly reduced storage costs while maintaining our streaming applications' performance for actively used content.

Zone-Redundant Storage (ZRS): We will use the ZRS storage system to maintain redundancy of our critical data, and maintain stronger resilience since our streaming platform has high up-time demands. ZRS will ensure that three datacenters in the Canadian region will replicate our critical operational data even during infrastructure failures at our primary Azure datacentre which will protect our business reputation.

Azure AI Foundry

JBL Streaming's recommendation infrastructure is one of the keys to our competitive advantage that differentiates us, we implement Azure AI Foundry for that purpose. Azure AI Foundry provides our company the access to creating machine learning algorithms that will analyze viewing patterns, our end-user's preferences, and the metadata of our content to deliver personalized movie suggestions immediately to our end-user after they complete a viewing session. We will also be able to develop a chat bot through this service, that can be used to help streamline our customer service process, while filtering out major issues from our customers for easier analysis. Using this AI feature, we are able to better personalize our user experience, increase the engagement of our end-user, and lengthen the duration of each session which ultimately helps drive revenue.

Azure Virtual Desktop

The capabilities of our remote workforce are essential for our 25-person team to succeed. Azure Virtual Desktop will give our remote staff the structured and secure access they need to company, and software development resources from any geolocation. This approach essentially eliminates the gaping need for us to implement an expensive on-premises file server solution or implementing an expensive and complex on-premise VPN infrastructure. The long-term infrastructural optimization this creates is advantageous to our company, it leverages Azure services to provide a secure collaborative software development environment.

Azure CDN Integration

JBL Streaming will deploy the Azure Content Delivery Network to optimize our end-users' downloading experience for movies on our platform, preventing lags and delays across Canada and other areas in the world where our customers are located. This will give the end-user the seamless streaming experience that will ultimately increase customer retention for our subscribers, and strengthen our reputation. Ultimately by implementing Azure Content Delivery Network, we will maintain a high-quality streaming experience for our end-users regardless of where they are located by keeping movie content cached at edge locations closest to them.

Azure Payment HSM

By implementing a dedicated HSM from Azure, this will allow JBL to conduct secure transactions with their customers, such as when they rent individual movies or set up a subscription with the service. Azure's HSM runs off of servers that are PCI-DSS compliant, so this will also aid in our own storage management by allowing for easier

and more streamlined access to creating a secure storage infrastructure. Essentially, implementing Azure Payment HSM is a win-win for us, because it will build our customer trust since they know that their PII is secured properly by a robust security system, and we are assured that our security system is compliant with the PCI-DSS framework.

Microsoft Defender for Cloud

As we plan to use Azure to cover a large majority of technical requirements for our business, it of course makes sense to take advantage of Azure's built in Microsoft Defender for Cloud to better secure all of our systems. Assuming we want to save as much on expenses as possible, the basic plan for Defender is available for free for Azure, providing us insights on the security posture level of our cloud infrastructure. Should we require further security and have more resources to spend in the future, we can always upgrade and pay for either the Standard or Professional Direct plan as we continue to expand.

Azure App Service

In order to push as much of our focus as we can on the development of our web service, Azure App Service will provide us a comprehensive and simple method for hosting and deploying our projects. Through this service, we can easily purchase domains to host our applications from, without having to handle management of said domains ourselves.

Azure Entra ID

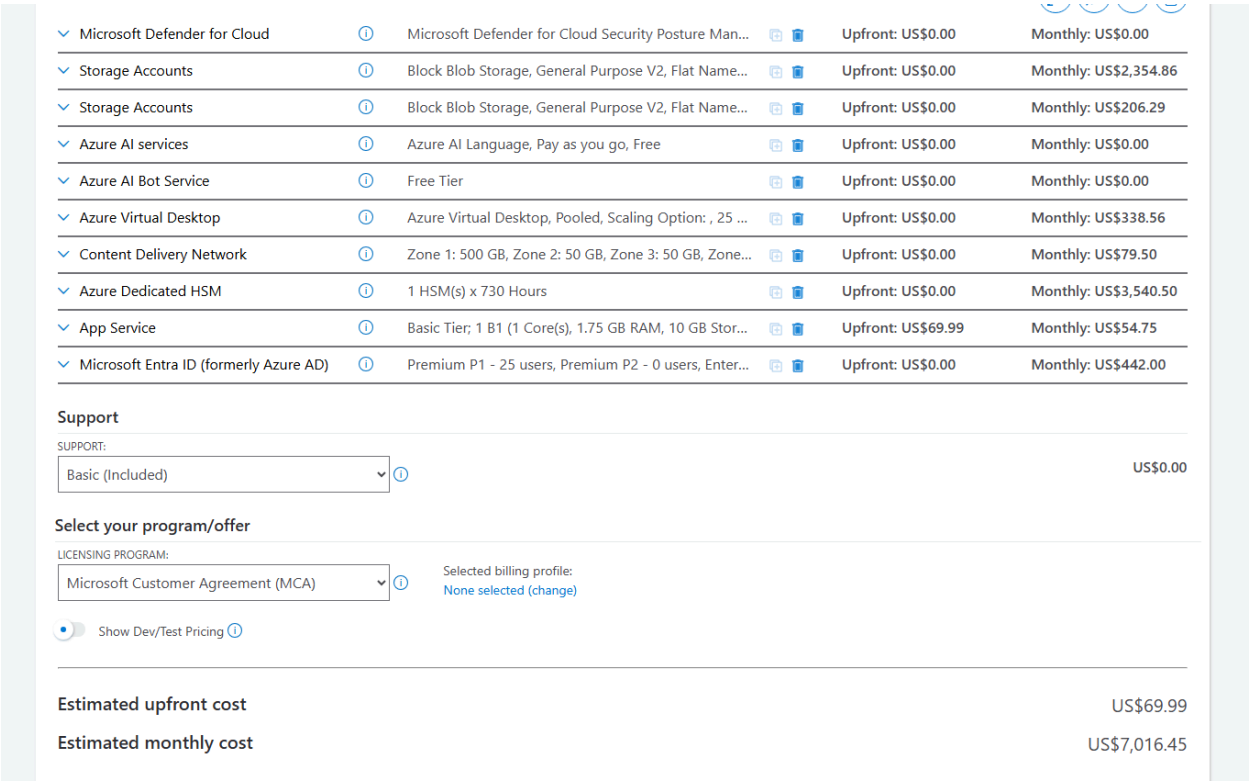
By utilizing Azure Entra ID for our company, we can efficiently and securely manage access to our company's cloud components. This is especially important since our company's employees work from remote positions, so we need to make sure we are not at major risk of someone gaining unauthorized access to our systems remotely. Entra ID of course works with the Microsoft Authenticator App, providing us a built-in easy to use MFA method for authenticating account access.

Expected Benefits

This PaaS, public cloud Azure-centric approach will as mentioned earlier, give our company access to enterprise-grade infrastructure, while remaining within our budget given our limited access to investment capital and goal of turning a profit within 24 months.

Estimated Costs

Below is a screenshot from Azure Pricing Calculator on the expected monthly costs based on our selection of cloud services:



Microsoft Defender for Cloud		Microsoft Defender for Cloud Security Posture Man...	Upfront: US$0.00	Monthly: US$0.00
Storage Accounts		Block Blob Storage, General Purpose V2, Flat Name...	Upfront: US$0.00	Monthly: US$2,354.86
Storage Accounts		Block Blob Storage, General Purpose V2, Flat Name...	Upfront: US$0.00	Monthly: US$206.29
Azure AI services		Azure AI Language, Pay as you go, Free	Upfront: US$0.00	Monthly: US$0.00
Azure AI Bot Service		Free Tier	Upfront: US$0.00	Monthly: US$0.00
Azure Virtual Desktop		Azure Virtual Desktop, Pooled, Scaling Option: , 25 ...	Upfront: US$0.00	Monthly: US$338.56
Content Delivery Network		Zone 1: 500 GB, Zone 2: 50 GB, Zone 3: 50 GB, Zone...	Upfront: US$0.00	Monthly: US$79.50
Azure Dedicated HSM		1 HSM(s) x 730 Hours	Upfront: US$0.00	Monthly: US$3,540.50
App Service		Basic Tier; 1 B1 (1 Core(s), 1.75 GB RAM, 10 GB Stor...	Upfront: US$69.99	Monthly: US$54.75
Microsoft Entra ID (formerly Azure AD)		Premium P1 - 25 users, Premium P2 - 0 users, Enter...	Upfront: US$0.00	Monthly: US$442.00

Support

SUPPORT:

Basic (Included) — US$0.00

Select your program/offer

LICENSING PROGRAM:

Microsoft Customer Agreement (MCA)

Selected billing profile:
None selected (change)

Show Dev/Test Pricing

Estimated upfront cost	US$69.99
Estimated monthly cost	US$7,016.45

As shown, monthly costs are just over ~$7000 dollars for our included services. When applicable we chose the basic free plans, as in the future we can always continue to scale our cloud services to our current needs. When specific metrics were required, certain estimates had to be made, such as the data values for CDN. It should be noted these are the prices using pay-as-you-go models for pricing, as we are a small business and this will minimize our immediate upfront costs, allowing us breathing room to build up our capital and continue to build up our resources. Considering the monthly costs, our total expenses for Azure over 24 months would be around ~$168,000. So in order to meet our goal of 25% ROI, we would need to make at least $210,000 in that time span in order to cover our Azure expenditures, while also turning our desired profit, of course not including other costs outside of Azure.