**Proposal for Mo Vid Inc. for migrating on-premise infrastructure to the public cloud**

*For SaaS Platform*

# Overview

# Mo Vid Inc. has been using an on-premise virtualization platform by managing four virtual machines to host video software services for its customers. Sustaining the physical on-premise infrastructure needed for continuous growth poses a challenge. This proposal provides a solution for migrating the current SaaS software platform to the public cloud.

# Our Proposal

# This proposal suggests Mo Vid host its SaaS platform and virtual machines on AWS public cloud. AWS provides flexibility to host our software and gives us autonomy and control over infrastructure and data.

## Rationale

# We will use an Amazon Web Services vendor to host the Mo Vid application primarily because of the AWS Elastic Beanstalk service. It will allow hosting of the SaaS Solution by setting up infrastructure services as desired to support the Mo Vid application developed using .NET. The application or website is dynamic in nature because of new video content regularly uploaded for streaming; the AWS Elastic Beanstalk on deploying the application will provision one or more AWS resources, leveraging the CloudFormation template existing under the hood, technically, to provision multiple AWS services such as Load Balancers, Auto Scaling Groups, EC2 instances, RDS, etc. as required, to run the application. Beanstalk will provide one EC2 instance for the web application server and one Amazon RDS for SQL Server. Secondly, the application should be up and always running; this selection will help in blue-green deployment, meaning the replacement or changes to the application can be done parallelly while the existing web application continues to run. Since the software runs on top of IIS, leveraging AWS Elastic Beanstalk to host the web application will reduce the time spent on initial configurations.

*Key Points:*

* AWS Elastic Beanstalk: The service that helps you deploy and manage web applications with capacity provisioning, app health monitoring, and more.
* AWS’s Amazon Elastic Transcoder is designed to be a highly scalable, easy to use and a cost-effective way for developers and businesses to convert (or “transcode”) media files from their source format into versions that will playback on devices like smartphones, tablets, and PCs.
* Global Presence of Data Centers and Networks - Good availability of resources
* Relatively secure cloud and guarantee of constant updates
* Simple and easy to use platform with good community support

## Execution Strategy

*Currently we have four SaaS solutions to be hosted on AWS. We will be using different services for each solution:*

*Application Server* - The server can be deployed by leveraging AWS Elastic Beanstalk (a PaaS solution) which will automatically provision an EC2 instance i.e., a dedicated virtual machine on AWS cloud.

*Wowza Streaming Engine* - Streaming will need a dedicated EC2 Virtual Machine.

*Video content storage* - Amazon S3 buckets.

Video Transcoder - Amazon Elastic Transcoder can be used to transcode video files to be sent to the streaming engine.

*Microsoft SQL Server* - Amazon RDS for SQL server which will be provisioned by Amazon Elastic Beanstalk.

Instead of 4 VMs, we only need 1 Virtual Machine to be running for Wowza Streaming while the resources for Application Server & Microsoft SQL Server will be automatically provisioned through AWS Elastic Beanstalk which is Platform as a Service & is free. Also, the transcoder API will handle the transcoding jobs.

**Resources**

*List of resources/services required for migration:*

* Web application deployed through Amazon Beanstalk, which is free, will request one EC2 instance for the web application server.

Pricing Strategy: On-Demand

* One EC2 instance for streaming engine server.

Pricing Strategy: On-demand

* Amazon S3 buckets for storing video content.

Pricing Strategy: On-demand

* Amazon Elastic Transcoder for transcoding the videos.

Pricing Strategy: On-demand

* Amazon RDS for SQL server which will be provisioned by Amazon Elastic Beanstalk.

Pricing Strategy: On-demand

*For moving the on-premise data, primarily the video content, to cloud, the proposal is to leverage Advanced Cloud Feature ‘AWS Snowmobile’ for quick migration of huge amounts of data.*

*Specifications:*

* AWS Snowmobile is a data migration service that allows to move very large datasets from on-premises to AWS.
* Each Snowmobile comes with up to 100PB of storage capacity housed in a 45-foot long High Cube shipping container that measures 8 foot wide, 9.6 foot tall and has a curb weight of approximately 68,000 pounds. The ruggedized shipping container is tamper-resistant, water-resistant, temperature controlled, and GPS-tracked.

*Working Strategy/Plan:*

A Snowmobile job encapsulates the end-to-end data migration process using a Snowmobile. There are five main steps:

* Site Survey, where AWS personnel will work with us to understand the migration objectives, data center environment, and network configurations in order determine a migration plan.
* Site Preparation, where we will identify and make available local resources such as parking space and power source for the Snowmobile, local security, network address, ports, and available rack positions to connect the Snowmobile with the local network backbone.
* Dispatch and Setup, where AWS personnel will dispatch a Snowmobile to our site and configure it for us so it can be accessed securely as a network storage target.
* Data Migration, where we will copy data from all sources within our data center to the Snowmobile, and
* Return and Upload, where the Snowmobile is returned to an AWS region that we have designated where our data will be uploaded into the AWS storage services we have selected.

# Backup Methodology

We will be using the 3-2-1 methodology for backing up the video files & SQL data leveraging backup services offered by AWS.

We will use centralized backup management solution offered by AWS to manage backups across the AWS services that our applications use (The video files stored in EC2 instance & The RDS). With AWS Backup, we can centrally manage backup policies that meet backup requirements. Those can be applied to the AWS resources across AWS services, enabling back up of application data in a consistent and compliant manner coupled with flexible retention period. The AWS Backup centralized backup console offers a consolidated view of backups and backup activity logs, making it easier to audit backups and ensure compliance.

For video files:

We will leverage Amazon S3 buckets for backing up our EC2 instance containing the video files, one copy in the same region and the second copy in another region, with a retention period of 60 days.

Backup Strategy:

Periodic backups, which allow you to retain data for your specified duration, including indefinitely.

The first backup is a full backup, while subsequent backups are incremental at object-level. For example, if there is a 1 kB change in your 1 GB object, the subsequent backup will create a new 1 GB object in the backup vault.

**Cost Breakup:**

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

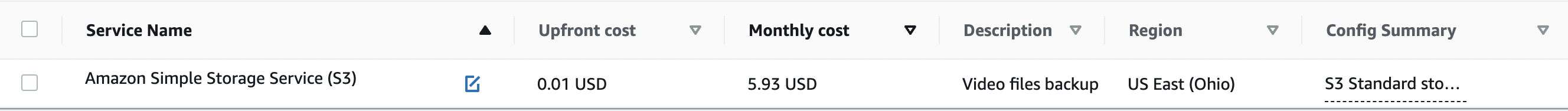
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Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, application

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*For Mo Vid SQL data:*

We will configure the above-mentioned AWS service (5th resource in Resource & Planning) for SQL server to include backups as well through multi-AZ deployment which in turn will create one local backup and one in a different region with a retention period of 30 days.

Backup Strategy:

Periodic backups, which allow you to retain data for your specified duration, including indefinitely.

The first backup is a full backup, while subsequent backups are incremental at object-level. For example, if there is a 1 kB change in your 1 GB object, the subsequent backup will create a new 1 GB object in the backup vault.

**Cost Breakup:**

Graphical user interface, text, application

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**Pricing (Inclusive of Backup costs)**

*Detailed configuration & cost estimates for small customers:*

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Table

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*Detailed configuration & cost estimates for medium customers:*

*A picture containing graphical user interface

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*Detailed configuration & cost estimates for large customers:*

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Text, table

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*Summary of monthly cost estimates for all customers:*

Graphical user interface, application

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*Cost associated with using AWS Snowmobile:*

*$0.005/GB/month*

*Text

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*Assumption: 38 customers (*3 large customers, 10 medium customers, & 25 small customers*) have remained the subscribers of Mo Vid for 5 months. The total amount of data to be migrated would be around 1300 TB.*

*Total cost of migration: $(1300 \* 1024 \* 5 \* 0.005)*

*$33280*

# Service uptimes and guarantees by vendor

*Service uptime for EC2 instances:*

For each individual Amazon EC2 instance (“Single EC2 Instance”), AWS will use commercially reasonable efforts to make the Single EC2 Instance available with an Instance-Level Uptime Percentage of at least 99.5%, in each case during any monthly billing cycle (the “Instance-Level SLA”)

*Service uptime for RDS Instance:*

The RDS SLA affirms that AWS will use commercially reasonable efforts to make multi-AZ instances of Amazon RDS available with a Monthly Uptime Percentage of at least 99.95% during any monthly billing cycle.

*Guarantees for EC2 instances:*

Amazon guarantees that any services included in the SLA will be available for 99.99% in any given region in any monthly billing cycle. 99.99% uptime equates to 4.38 minutes of permitted downtime per month.

*Guarantees for RDS instance:*

AWS will use commercially reasonable efforts to make each Single-DB Instance available with an Instance-Level Uptime Percentage of 99.5% during any monthly billing cycle.

# Total Cost of Ownership:

(Costs per customer)

|  |  |  |
| --- | --- | --- |
| Customer Type | Monthly Cost for setup | Yearly Cost for setup |
| Small Customer | 10176.46 USD | 122117.52 USD |
| Medium Customer | 220519.35 USD | 2646232.2 USD |
| Large Customer | 865560.83 USD | 10386729.96 USD |
| TOTAL COSTS (per customer) | 1096256.64 USD | 13155079.68 USD |
|  | |  |

*For 25 small customers the estimated yearly total cost would be* 122117.52 \* 25 USD.

* Total = 3052938 USD

*For 10 medium customers the estimated yearly total cost would be* 2646232.2 \* 10 USD.

* Total = 26462322 USD

*For 3 large customers the estimated yearly total cost would be* 13155079.68 \* 3 USD.

* Total = 39465239.04 USD

*For data migration using snowmobile the total cost would be* 1300 \* 1024 \* 5 \* 0.005 USD.

* Total = 33280 USD

|  |
| --- |
| The total estimated cost of ownership for 12 months, for 25 small, 10 medium, and 3 large customers would be 69013779.04 USD (Around 6.9 million USD) |

We look forward to working with AWS VMs and platforms. We are confident that we can meet the challenges ahead and stand ready to partner with AWS in delivering an effective solution to our customers.

If you have questions on this proposal, feel free to contact Rajat Chelani at your convenience by email at rchelani@syr.edu or by phone at +1 (315) 450-9931. We will be in touch with you next week to arrange a follow-up conversation on the proposal.

Thank you for your consideration,

Rajat Chelani  
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