

AWS Educational Case Study for ULURN



About the Customer

ULURN is an educational portal with a vision to provide aspiring financial professional students with comprehensive study guides and training materials, both online and offline, to ensure they shine brightly in their chosen career path. ULURN team has some of the best-certified faculties with a sound understanding of the subjects they offer, who are constantly coming up with tested and continuously upgraded study materials. We are constantly striving to make education accessible for all!

ULURN provide easily accessible study materials to students pursuing financial professional courses for easy understanding and comprehension. To ensure that the students opting for online courses can prepare for the tough exams in their chosen career thoroughly they deliver their study materials directly at their doorstep. ULURN also run mock tests for various exams so that students gain confidence in their ability to clear the exams with ease. They are confident that the study guides they offer for a comprehensive preparation for the examinations will help students secure a place on top of the success pyramid.

Customer Challenge

As being a one of the pioneers in educational regime ULURN always wanted to focus on the different source of raw study materials in any format uploaded and or sent by amateur through scholar personnel. Later the teaching staff of ULURN check and extract the important subject matters from those collections. However, this process was not only taking huge time but also very annoying and need sent percent concentration, which matter them most.

Another most challenging area of ULURN was to channelling the video tutorials starting from creation, formatting and low latency live streaming of those collections across various devices. So interested student can play those tutorials directly from their mobile devices within very limited bandwidth. Important thing was they wanted some cost-effective solution and not ready to move some AWS managed services in the beginning.

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The Solution

For the **1st problem statement** our practice team members found that in AWS we already have the solution which is **AWS Glue** a cloud service that prepares data for analysis through automated extract, transform, load (ETL) processes. The managed service a simple and cost-effective method for categorizing and managing data in the enterprise. It provides organizations with a data integration tool that formats information from disparate data sources and organizes it in a central repository, where it can be used to inform business decisions.

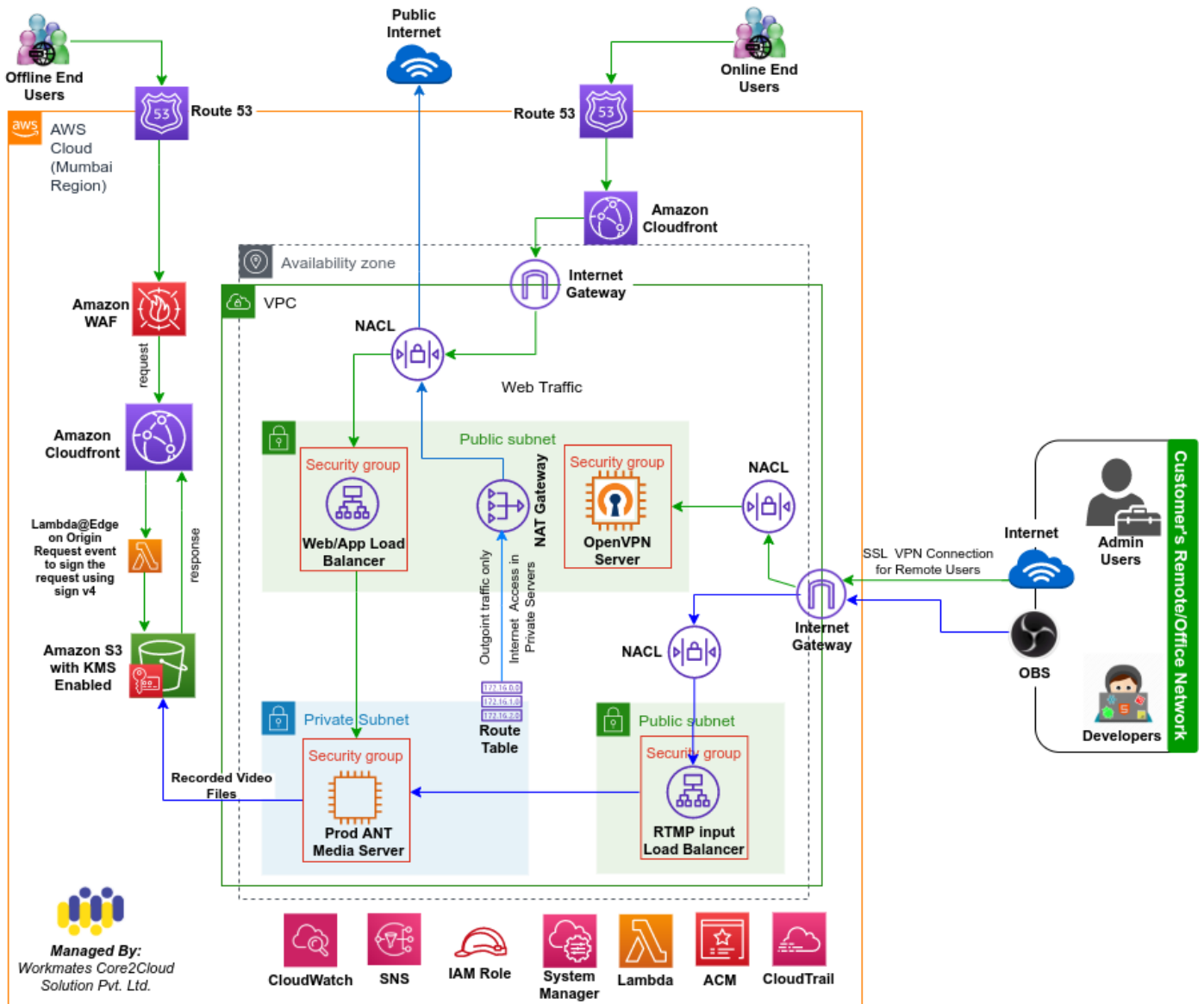
The unstructured data when it sent to S3, the S3 put event trigger a Lambda API call which in turn trigger the Glue Job. Once triggered, Glue extracts the data, transforms it based on code that Glue generates automatically, and loads it into Amazon and writes metadata from the job into the AWS Glue Data Catalog.

The **2nd challenging** area was to manage the video tutorial life-cycles in an automated and cost-effective manner. For this we have given a custom solution which was nothing but implementing **ANT Media Server** in plain vanilla EC2 instance. This is a streaming engine software that provides adaptive, ultra-low latency streaming by using WebRTC technology with ~0.5 seconds latency. Ant Media Server is highly scalable both horizontally and vertically. Since this is an open-source package – it helped our customer finically as they were initially not to go with any kind of COTS product which might incur a good amount of cost to them.

This solution provided the virtual classrooms with teachers as many as it was required and it presented and viewed separately with ultra-low latency.

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Solution Architecture



AWS Services Used

- ▶ CloudFront
- ▶ CloudTrail
- ▶ CloudWatch
- ▶ Data Transfer
- ▶ WAF
- ▶ Elastic Compute Cloud
- ▶ Elastic Load Balancing
- ▶ Glue
- ▶ Key Management Service
- ▶ Lambda
- ▶ Route 53
- ▶ Simple Email Service
- ▶ Simple Notification Service
- ▶ Simple Queue Service
- ▶ Simple Storage Service

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Security Considerations

- The AWS shared responsibility model applies to data protection in Amazon CloudWatch
- CloudTrail logs enabled for tracking all kind of activities performed for AWS resources across all regions. Administrator can get the deep insights of API call of each AWS user.
- AWS Asynchronous KMS Encryption is enabled for all provisioned S3 Storage buckets and in transit data is encrypted using AWS ACM.
- All the Glue Data are encrypted at rest using KMS-CMK, and CloudWatch monitoring has been setup in Glue for logging and monitoring for the Glue jobs.
- AWS IAM role-based access control to restrict users to the required resources only. Custom and Inline policy are attached to AWS IAM Roles. Specific events actions are place into the Inline policy.
- Multi-factor Authentication is enabled for extra layer of protection for Root user name and password.
- Web server is exposed via AWS application load-balancer and both applications are serving traffic through 443 ports only.
- S3 Buckets are not in public and can be accessible within the AWS resources.
- WAF is helping to protect the CloudFront endpoint against common web exploits that might affect availability or consume excessive resources.
- WAF is protecting the URL security and users would be able to access the secure URL for the strings which only mates with the input.
- Ant Media Server is used for converting the videos and for administrative task web portal is hosted inside the ant media server.
- All system monitoring is done using AWS CloudWatch. AWS CloudTrail is used for recording API calls to AWS, the logs are kept for 90 days.

Results and Benefits

Benefits of using Glue

- Fault-tolerance. Failed jobs in Glue are retrievable, and logs in Glue can be debugged.
- Filtering. Filters for bad data.
- Maintenance and deployment. Simple maintenance and deployment, because the service is completely managed by AWS.

Benefits of using Ant Media Server

- Ultra-Low Latency Adaptive One to Many WebRTC Live Streaming
- RTMP Ingesting
- WebRTC to RTMP Adapter
- IP Camera Support
- Recording Live Streams (MP4 and HLS)

Finally, the story ended with cent percent customer satisfaction and recognition for quick, to-the-point and cost-effective solutions. The solutions are not only saving the huge time and effort for data filtering but also level up the accuracy of selecting relevant data from dust.

ANT Media Server became the game changer for ULURN as now the whole system starting from media creation, formatting and distributing the low latency streaming is fully automated that too with being losing an extra amount of penny for so called big COTS product. Simply our customer was spellbound by getting this solution and whole team was appreciated several times by our precious customer.



About Workmates

Workmates core2cloud Solution Pvt. Ltd is an AWS Advance consulting partner and Leading Cloud Management Company in Eastern India. Workmates Core2cloud is a cloud managed services company focused on AWS services, the fastest growing AWS Advanced Consulting Partner in India. We focus on Managed services, Cloud Migration and Implementation of various value-added services on the cloud including but not limited to Cyber Security and Analytics. Our skills cut across various workloads like Microsoft, SAP, Media Solutions, DevOps, E-commerce, Analytics, IOT, Machine Learning, VR, AR etc. Our VR services are transforming many businesses.

Workmates has a yellow theme which is the colour of youth. Our Vibrant team of 100% certified resources brings the edge to customers for an End-to-End AWS partner, committed towards quality and supporting their business on a 24X7 basis.