About Customer: Swapnil Patni's Classes

Swapnil Patni's Classes (SPC) was founded in December 2010. It provides specialized class-room training for students undergoing the Chartered Accountancy Course. The Academy conducts model examinations and online classes to boost the confidence of the students.

SPC is one of the major CA training classes in India. Students from different parts of India enroll to SPC for enhancements in their career. They also inspire students through motivational lectures as they believe without inspiration the best powers of the mind remain dormant.
Many CA topper students are from SPC batches additionally 1st AIR topper of November 2016 batch is student of SPC classes, and 85 rankers has achieved their milestone. The mark gainers and rankers itself reflects the quality of their classes.

Customer Challenge

SPC are serving live video lectures through their online web application. There would be around 3000 students who attend the live classes online concurrently, also there is a provision for watching offline recorded videos. SPC had the following challenges and the infrastructure required an overhaul to mitigate these issues.

1. Streaming videos were lagging frequently and student experience was not good.
2. Frequent buffering and delay of live videos.
3. Video transcoding for recorded sessions was a slow process and students need to wait for long hours to get access to the videos.
4. All static contents like recorded videos and audio files were getting streamed from the server directly and the latency was creating a negative experience for the users.
5. Security posture of the infrastructure was to be reviewed and adapted to the best practices.

Solution Approach

Workmates helped SPC move to the cloud improve the content delivery and security posture of the overall application to adapt to cloud. The following are the key details of the solution.

1. Migrated and deployed the entire application on AWS Cloud, the application is having features including delivery of offline video content, live classes, exam portal etc.
2. Workmates implemented the MediaLive for broadcast-grade live video streaming and it provides built-in reliability and resiliency. The service transparently manages resources across multiple Availability Zones, and automatically monitors their health, so that any potential issues are detected and resolved without disrupting live channels.

3. Provisioned 5 different channels for concurrent streaming to support multiple different classes running at the same time.
4. AWS MediaLive, MediaPackage, MediaConvert is configured based on the customer requirement and we have deployed the same on AWS Mumbai Region to have reduced latency.
5. To improve the security posture, SSE-KMS encryption is implemented for the S3 bucket and its content. Lambda@Edge functions are given IAM permissions to read from S3 and indirectly operate encryption/decryption using a CMK managed by KMS. These functions are triggered every time CloudFront makes a request to S3, and sign the request with AWS Signature Version 4 by adding the necessary headers.
6. AWS Elemental Media convert is used in the solution to transcode the raw videos into videos of different resolutions.
7. 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.
8. CloudFront is also used for serving the dynamic content from the application server behind a ALB load balancer.

Solution Architecture
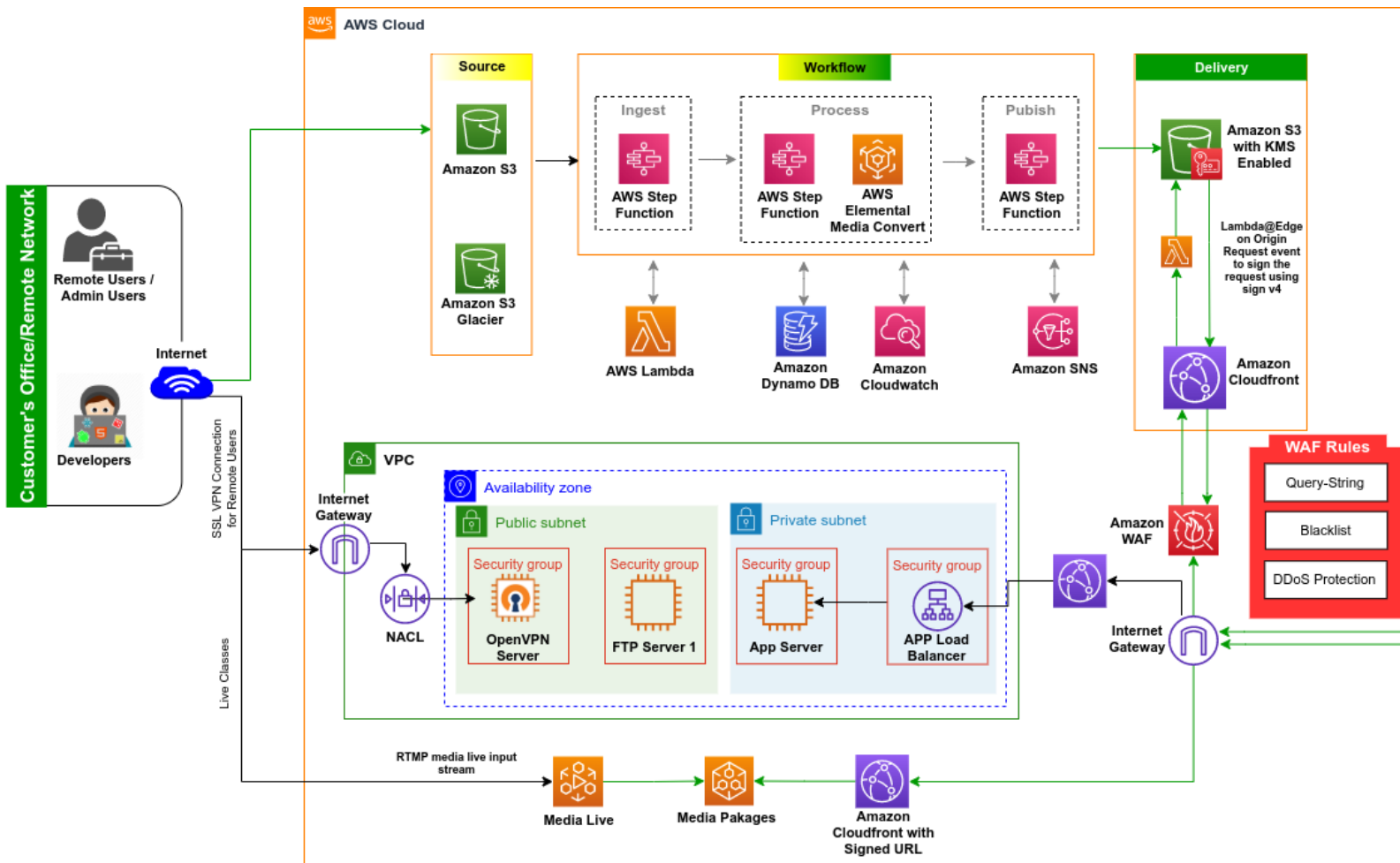
Key AWS Services Used

CloudFront, Lambda@Edge, Elastic Compute Cloud, Elemental MediaConvert, Elemental MediaLive, Elemental MediaPackage, S3, WAF, Elemental MediaLive, Elemental MediaPackage, Elemental MediaConvert, Lambda, Auto-Recovery, SNS etc.

Results and Benefits

1. Using CloudFront and Media Live channels, end users are getting high quality video of their live classes without buffering and minimum latency.
2. Application performance increased compared to the on premises infra, customers are getting 2x the performance.
3. Transcoding time reduced from hours to minutes. Using media live, users are able to get videos in multiple formats based on the internet speed.
4. Using S3 and CDN we have completely eliminated buffering issues from the videos.
5. Using WAF, Lamdba@Edge and CDN we have improved the overall security posture of the environment.

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, E-commerce, Analytics, IOT, Machine Learning, VR, AR etc. Our VR services are transforming many businesses.

Workmates has a yellow theme which is the color 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.