

World Leading Learning Company

Customer is a multinational learning & Assessment company based out in UK and US. With worldwide network of test centers customer deliver high stack exams empowering professionals

Business Objectives

Using AI Algorithms on Live Exam Web Streaming, Customer wanted to remotely Proctor the exams. They had following business objectives with this engagement:

- Auto Proctor the online exams and alert examiner in case of anomalies
- Scale the Online Examination methodology with less dependency on Virtual Examiner watching live stream
- Scale up & scale down the Infrastructure according to tests scheduled
- Flexible deployments to introduce new AI Model to be applied based on exam or geography
- Leverage Azure Cloud services & solutions to benefit 360-degree partnership with Microsoft & Customer

Challenges

- Green field Product Development & Deployment
- AI Algorithms – CPU & Memory Intensive
- Scale Up & Scale Down the Infrastructure based on number of Exam Session (60-180 mins long)

Technology Spread

- Azure Kubernetes, Azure Container Registry (ACR)
- Application Gateway Ingress Controller
- MySQL
- Azure Service BUS
- KEDA (Kubernetes Event Driven Autoscaling)

HCLTech Solution

- Development of Custom AI Algorithms executing on Live Exam Web Streams to remotely Proctor the exams
- End to End Setup of Dev, Test & Production Infrastructure on Azure Cloud using AKS, API Gateway, Azure Service Bus & MySQL
- Architecture & Design to decouple the incoming exam session request (Start/Pause/Resume) in a centralize queue
- Scaled the Kubernetes Infrastructure (up to 36K Pods) using KEDA based on the exam backlogs. Individual exam runs for ~60 – 120 mins requiring dedicated 3 Pods
- Monitoring of PODS by custom liveness/readiness design
- Establish Security best practices by private ingress controller, restricted access to SQL & Azure Firewall for ingress and egress port restrictions
- Setting up DevSecOps CI/CD Pipelines for faster and secure deployments using Azure DevOps and Git CI
- Deliver IaC (Infra-as-Code) through Terraform and Azure DevOps

Benefits

- Ability to Remotely Proctor Exams at Scale
- Custom AI models specific to business needs and geographies
- Cost benefits on inhouse developed AI Models as compared to standards AI services provided by Cloud/Third party
- Scale Up & Scale down of Infrastructure as per the Exam Scheduling
- Possibility to add newer AI model in future