



About South Orange County Community College District (SOCCCD)

South Orange County Community College District (SOCCCD) was founded in 1967 and is one of 72 community college districts in California. It is a multi-campus district comprised of Saddleback College in Mission Viejo, Irvine Valley College (IVC) in Irvine, and the Advanced Technology & Education Park (ATEP) in Tustin. SOCCCD serves more than 60,000 students per year and employs 3,000 faculty and staff. Saddleback College and Irvine Valley College are accredited institutions, preparing students for associate degrees, transfer to four-year colleges and universities, workforce development and basic skills.

The Challenge

SOCCCD's was looking to make significant enhancements to its SmartSchedule application, which provided students with a basic electronic view of classes offered at its various community colleges. The .NET application was built on legacy code, so making changes and ongoing management was difficult. The application and continuous integration pipelines were hosted on-premise with all application deployment done manually, which was cumbersome and error-prone. SOCCCD needed a continuous delivery pipeline with code promotion criteria and approval gates so that they could host their .NET application in Docker. They didn't have any documented rollback procedures, monitoring, or systems to notify them when rollback would be required. Their on-premise Windows server provisioning, with required software installation, was a manual process with no auditing or governance practices. The manual changes introduced inconsistencies between the environments, which caused application code to behave differently in each environment.

As they looked to make enhancements and scale the SmartSchedule application, the SOCCCD team didn't want to incur the footprint of managing more servers, plus they had disaster recovery issues in the past, so they were looking to move to the cloud.

The Solution

What began as a simple lift-and-shift conversation turned into much more. Neudesic helped SOCCCD design a consistently repeatable cloud environment, defined using Infrastructure as Code, where infrastructure and networks are managed through AWS CloudFormation. Neudesic implemented a functional end-to-end deployment of features required for the SmartSchedule application entirely on AWS. CI/CD workflows were implemented through a .NET code with defined acceptance and approval criteria to conduct unit tests and other test automation against all software builds upon commit to the source control management system. SOCCCD now has alerting and monitoring of system usage and application errors as well as a decoupled environmental configuration from the application source code. They have implemented monitoring systems and rollback mechanisms in their workflow and have containerized their SmartSchedule application deployment to host their windows workloads and .NET application in the cloud.

Why AWS

SOCCCD decided that AWS was the best fit to leverage their technology needs in a variety of capacities throughout their organization. Prior to this project, they had some limited AWS competency, but the SmartSchedule application significantly expanded it. The SmartSchedule cloud environment is deployed on AWS with both non-production and production accounts as per best practices. All of the tools used for Infrastructure as Code (VPC, VPN Gateway, ELB, AutoScaling Groups, EC2, Security Groups, Route 53, and IAM) are implemented through CloudFormation. AWS ECR is used to store the SmartSchedule application Docker images. AWS RDS is the SQL server for the SmartSchedule application data load. AWS Auto Scaling group is being used to scale up and down the EC2 instances. EC2 for Windows server provides SOCCCD with a flexible and agile development platform, deeply integrated with Visual Studio and .NET to help accelerate their development cycles. AWS Systems Manager is used to store the SmartSchedule application environment configurations. For SOCCCD to monitor their applications, search for full text, and log analytics, they use AWS Elasticsearch Service, with ElastiCache to improve search performance. AWS CloudTrail enables governance, compliance, and operational and risk auditing of environments, while the S3 buckets store all of the CloudTrail logs and other application related objects. CloudWatch monitors SmartSchedule application resources. Neudesic replaced RabbitMQ with AWS SQS for brokered message capabilities.

The Business Outcome

With the new architectures in place, Experian UK is able to support Hybrid Cloud. Experian has increased their agility enabling rapid delivery fast and often, while maintaining security and compliance. They have the flexibility to adjust to different product directions with high availability and scalability. Experian has improved their operational efficiency with continuous integration and deployment. They are using test driven development and multi-channel communication.