CASE STUDY: Enterprise Architecture Cost Reduction Project

PROBLEM STATEMENT: United Airlines, a global aviation leader, faced escalating egress costs tied to Artifactory, used for deploying applications to AWS. Approximately 70% of these costs stemmed from inefficient retrieval of publicly available third-party images. The reliance on Artifactory led to an estimated $720K in annual unnecessary expenses. A cost-effective solution was needed without disrupting application teams or compromising system reliability.

OBJECTIVES

- **Reduce high egress costs** associated with Artifactory usage for deploying applications to AWS services (EKS and ECS)
- **Migrate to a cost-effective AWS-native solution** to eliminate unnecessary expenses
- **Ensure minimal disruption** to application development teams during the transition
- **Maintain system reliability, availability, and security** throughout the migration process

SOLUTION

PROCESS

- Analyzed Artifactory costs, finding 70% stemmed from pulling third-party images through it instead of external repositories
- Assessed AWS ECR as a cost-effective Artifactory alternative, confirming it met United's business and technical needs
- Designed an optimized architecture leveraging AWS services such as Route 53, an Application Load Balancer, and AWS ECR
- Developed and tested a phased migration strategy to ensure minimal disruption to application teams

DELIVERED

+ Migrated applications to AWS ECR, reducing reliance on Artifactory and eliminating unnecessary egress costs
+ Created vanity URLs to streamline the transition and minimize pipeline changes for application teams
+ Increased ECR quota limits to prevent bottlenecks and ensure seamless performance
+ Rolled out the solution in development (Dev) and quality assurance (QA) environments before gradually implementing it in production

IMPACT

IMPROVED OPERATIONAL EFFICIENCY	Reduced maintenance and operational overhead associated with Artifactory
$720,000 IN COST SAVINGS	Estimated annual savings of $720,000 by eliminating unnecessary egress costs
SEAMLESS TRANSITION	Ensured minimal disruption to application teams through a well-structured migration approach
IMPROVED SCALABILITY & RELIABILITY	Migrated approximately 500 applications, enhancing system resilience and efficiency
SUCCESSFUL TECHNOLOGY ENHANCEMENT	Transitioned from Artifactory to an AWS-native solution using Route 53, Application Load Balancer, AWS ECR, and Lambda for efficient deployment management