Elevating Airline Passenger Experience: Scalable Self-Service Kiosk Solutions with AWS EKS and MuleSoft

ORGANIZATION

Our client, a leading global airline, operates an extensive network of domestic and international routes. Established in the late 1920s through a series of mergers, it has become the third-largest airline in the world by fleet size and route network. Annually transporting over 140 million passengers to more than 300 destinations across six continents, the airline is committed to innovation, sustainability, and customer-centric services. Continuous investments in fleet modernization, cabin upgrades, in-flight entertainment, and a superior digital experience demonstrate its dedication to remaining an industry leader.

CHALLENGE

Modernizing legacy systems is crucial for organizations aiming to meet the evolving expectations of their customers and maintain operational excellence. The airline faced significant hurdles in migrating its legacy Kiosk application to a NextGen platform designed for the future of travel technology. Below challenges spanned technical complexities, domain-specific intricacies, and platform integration issues.

- **Legacy Infrastructure**: The outdated technology stack and platform dependencies made migration highly intricate. Understanding the e-service (core service) APIs was challenging due to their complex architecture and lack of comprehensive documentation.
- **Platform Compatibility**: The NextGen Kiosk application was designed for the Common Use Self-Service (CUSS) platform, supported primarily on Windows, while the existing UI was built using Angular on Android.
- **Regional Payment Integrations**: The Kiosk supported diverse payment methods tailored to regions like the USA and Europe, requiring seamless integration with multiple payment vendors, such as Aurus and Worldpay.
- **Domain Complexity**: Navigating the intricacies of the airline industry, including relationships with third-party vendors like Global Distribution Systems (GDS), payment processors, and airport service providers, demanded specialized expertise.
- **Lack of Documentation**: The absence of detailed documentation on the current architecture created hurdles in understanding and modernizing the system.

TECHNICAL SOLUTION

XTIVIA deployed a comprehensive, forward-thinking solution to modernize the airline's Kiosk platform, addressing both technical and domain-specific challenges. The approach was grounded in leveraging advanced technologies, domain expertise, and a commitment to innovation, ensuring a seamless and impactful transformation.

Key Solutions

- **Advanced Payment Integration**: Designed and implemented a robust WebSocket layer, seamlessly integrated with the Aurus SDK, enabling secure, real-time payment processing and multi-vendor compatibility.
- **Legacy API Modernization**: Analyzed, troubleshot, and upgraded existing legacy e-service APIs, developing new APIs using industry best practices to enhance performance, scalability, and maintainability.
- **Cross-Platform Optimization**: Ensured seamless compatibility of payment APIs across all platforms, maintaining superior quality and reliability.
- **Commitment to Mastery and Exploration:** To tackle these complex challenges, the team adopted a proactive and continuous learning approach. They invested substantial effort in analyzing limited documentation, meticulously mapping the system architecture, and deeply exploring existing solutions. This thorough understanding laid the foundation for effective problem-solving and innovation.
- **Scalable Deployment**: Leveraged **AWS Amazon Elastic Kubernetes Service (EKS)** and an API-driven architecture to ensure high scalability, resilience, and operational efficiency.

BUSINESS RESULT

The modernization of the airline's Kiosk platform delivered transformative results, both in terms of operational efficiency and customer satisfaction. By deploying an innovative, API-driven architecture on AWS, the airline achieved measurable improvements across its global operations.

- **Global Modernization**: Successfully deployed the NextGen Kiosk application across airports worldwide, replacing outdated systems with a unified, high-performance solution.
- **Cost Optimization**: Reduced operational and maintenance costs significantly through AWS EKS-based scalability and optimized API architecture.
- **Enhanced Customer Experience**: Delivered a user-friendly, efficient self-service experience, driving higher customer satisfaction and engagement.
- **Improved Operational Efficiency**: Streamlined payment processing and airport operations, reducing downtime and transaction delays.
- **Future-Ready Infrastructure**: Established a scalable, modular platform equipped to adapt to evolving business and technological demands.

KEYWORDS

PNR (Passenger Name Record), Self-Service Check-In, Bag Printer, AWS DynamoDB, C#.Net, AWS Elastic, Kubernetes Service (EKS), Docker, AWS DynamoDB, Airline Kiosk Modernization, Legacy System Migration, NextGen Platform Development, API-Driven Architecture, Multi-Vendor Payment Integration, CUSS Platform Optimization, Real-Time Payment Processing, Scalable Self-Service Solutions

SOFTWARE

Microsoft Visual Studio, C#, .Net, Angular, Aurus SDK, Worldpay, REST APIs, AWS Elastic Kubernetes Service (EKS), Docker, Materna Software, AWS DynamoDB

HARDWARE

CUSS Platform (Common Use Self-Service): Core platform used for the self-service kiosks.
Aurus and PSD Devices: Used as part of the kiosk infrastructure for passenger interaction and ticketing.

ABOUT XTIVIA

XTIVIA is a proven technology integration and innovation company known for delivering leading-edge technology solutions to our clients' specific requirements, regardless of project complexity. We bring next-level business operations to reality through Application Development, Business Intelligence, Data Warehousing, Database Support & Management, Enterprise Information Management, Digital Experience Solutions and Enterprise Resource Planning. Our success stems from a demonstrated ability to deliver deep expertise via professional services, empowering clients to leverage their chosen technology successfully, competitively and profitably. XTIVIA has offices in Colorado, New York, New Jersey, Missouri, Texas, Virginia and India. www.XTIVIA.com