**Case Study: Driving Technology Transformation and Governance Through Enterprise Architecture at United Airlines**

**The Problem Statement:**

United Airlines, a leading global aviation carrier, faces increasing demands for digital modernization to maintain competitive advantage, ensure operational reliability, and deliver superior user experiences. With a fragmented technology landscape, aging legacy systems, inconsistent architecture standards, and growing complexity in IT infrastructure, there was a pressing need to drive organization-wide standardization, technology adoption, and system reliability all while maintaining governance across a vast and dynamic IT landscape.

**Industry:** Aviation / Airlines.

**Domain:** Enterprise Architecture (EA).

**Methodology:** Agile.

**Person Interviewed:** Ron Smith, Enterprise Architect (Creospan).

**Focus Area:** Technology operations (TechOps) concerning supply chain, and maintenance of planes, as well as enterprise architecture design reviews.

**Project Objectives:**

* Improve system reliability by assessing and optimizing existing and underperforming applications.
* Support the adoption of new technologies with scalable tools and platforms (e.g. AWS QuickSight, Kong API platform, Solace messaging system).
* Provide architectural guidance and design reviews to ensure system consistency and security.
* Enable cost savings by driving the standardization and governance of enterprise-level technology decisions.
* Collaborate with various departments to future-proof United’s enterprise architecture infrastructure.

**Challenges:**

* The EA team operates across multiple projects simultaneously, responding to shifting business needs.
* EA team must rapidly assess a high volume of system changes (2–3 reviews per week).
* Balancing between maintaining older applications and introducing new platforms.
* The EA team acts as a support and advisory layer for numerous project teams.
* The EA team is driving multiple major technology initiatives across the company.

**Implementation & Approach:**

**1. Decentralized, Ongoing Engagement Model**

* The Enterprise Architecture team worked across the organization, supporting several projects simultaneously rather than focusing on a single monolithic transformation.
* Focused engagement areas included TechOps (aircraft maintenance and supply chain systems).

**2. Architecture Design Reviews**

* Participated in 2–3 system design reviews weekly alongside the cybersecurity team.
* Evaluated new system implementations and upgrades for compliance with architectural and security standards.

**3. Technology Adoption Initiatives**

* Championed the introduction and testing of AWS QuickSight for analytics and reporting.
* Contributed to broader EA-led initiatives like:
  + Kong API Platform (for API management)
  + Solace Messaging Platform (event-driven architecture)

**4. Application Reliability Assessments**

* Led a significant evaluation for the E-services application, which experienced a major outage in August 2024.
* Conducted deep-dive assessments to identify root causes and future mitigation strategies.

**5. Knowledge Sharing and Governance Support**

* Provided on-demand architectural consultations for application teams exploring new capabilities or modernizations.

**Impact:**

* Improved system reliability through deep-dive assessments and remediation recommendations.
* Enabled cost savings and operational efficiency by retiring legacy tools, outdated systems, and streamlined system usage.
* Fostered faster tech adoption by providing well-documented, easy-to-follow implementation guides.
* Strengthened enterprise-wide governance by creating consistency in how architecture reviews and technology standards are implemented across teams.
* Facilitated adoption of modern, scalable platforms (APIs, analytics).
* Contributed to United’s readiness for future expansion and innovation by integrating enabling technologies.

**Key Users & Stakeholders:**

* Enterprise Architecture Team.
* Cybersecurity Team.
* Application Development Teams.
* TechOps and Supply Chain Teams.
* Business Leadership and IT Governance Committees.

**Technology Stack:**

* **Old Technology Stack**
* Tibco- Integration and messaging platform.
* AWS API Gateway – API management system.
* **New Technology Stack**
* AWS QuickSight – Data visualization and analytics.
* Kong API Gateway – API management and scalability.
* Solace – Event-driven architecture and messaging platform.
* Microsoft BI – Data visualization platform.
* Some Gen AI being used for improving the software development lifecycle.

**Project Timeline:**

Ron started in November 2024.

Project is currently Ongoing.

* Highlights:
  + **August 2024:** Major issues with an application called E-services triggered deeper application reliability assessments.
  + **2024:** Continued architecture reviews and governance support across technology domains.

**Team Composition:**

* Ron Smith – Enterprise Architect (Creospan), TechOps focus.
* Kevin Dooley – involved in Gen AI work.
* Shyam Sundhar Venkataraman – Enterprise Architects (Creospan), driving the Enterprise Logging initiative.
* Krishna Srinivas– Reporting Manager.
* Ninos Gabriel – Manager overseeing Krishna.
* Other EA team members – Mix of United employees and consultants (e.g., from Tescra, another consulting company).
* Documentation and implementation support – Internal collaborators from United.
* The Enterprise Architecture team did not have an offshore component, but United has a delivery team that has offshore staff.

**Conclusion:**

This case study demonstrates how United Airlines’ Enterprise Architecture team serves as a linchpin in ensuring technology cohesion, governance, and modernization across departments and functions not just as a support role but as a core enabler of digital transformation. While not tied to a singular project, Ron Smith’s role encapsulates the dynamic and consultative nature of EA functions, assessing risk, enabling innovation, supporting adoption, and fostering resilience in a constantly evolving tech landscape. Through a blend of architectural governance, technology adoption, and ongoing assessments, the EA team ensures United is not just responding to technological change, but actively shaping it to build a more resilient, cost-efficient, and scalable IT foundation. Rather than one monolithic project, this dynamic, cross-functional approach serves as a blueprint for continuous digital evolution in large, complex enterprises operating in high-stakes industries like aviation.

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