

At the Heart of Uninterrupted Operations

Mitigating Operational Risk for an Airline through Operational Acceptance Testing

CASE STUDY

Synopsis

With great expansion comes great complexity, and higher risk of system instability. Pursuing an aggressive growth strategy, a leading commercial airline was expanding in the US, Europe, and the Middle East. To keep up with the pace of expansion, the client implemented new technology systems. This led to a complex IT landscape with issues in application integration, which resulted in increased occurrences of system failure. We responded with a comprehensive operational acceptance testing (OAT) solution that mitigated functional risk, increased operational efficiency, and enabled 99% system reliability within the expected timeframe.

About the Client

One of the largest commercial airlines in the US, the client ranks high in terms of customer experience and services.

Business Challenge

The client's diverse airline applications were not well-integrated—including air cargo, airport management, crew management, and flight operations systems. Their existing infrastructure was incapable of handling legacy applications, operating systems, and databases, which added another layer of complexity.

The client needed a technology partner who could address:

- ◆ Unanticipated interruptions and complexity in discovering the root cause of emergency issues in the staging phase
- ◆ Lack of sufficient time for functional operational acceptance testing (OAT) due to frequent releases in a short duration
- ◆ The need to provide quality to the airline's integrated systems via OAT according to business requirements

- ◆ The need to reduce cost and improve overall system stability

Our Solution

After analyzing the client's IT environment, our team determined that systems functionality was working as expected in the test environment, but there were defects in the staging/pre-production environment. They inferred that the defects were related to improper configuration on the server and the client, database, and network. There were inadequacies in the infrastructure design, build deployment, monitoring, and health checks. They also found limited systems documentation for release notes, deployment guides, infrastructure setup guides, technical implementation plans, and operational guides such as rollback and backup/recovery procedures. Another issue was the lack of a disaster recovery / IT service continuity plan.

Operational Acceptance Testing for Pre-production Verification

In this phase, the physical infrastructure and the applications were evaluated for failover, availability, backup and restore, alert and monitor, test configuration and deployment, and backout plans. This entailed review and update of procedural documents such as implementation plans, build

guides, release notes, and backout / rollback plans. We followed a stringent process to define clear scope of functionality before proceeding to production, which included functional, system, regression and user acceptance testing, followed by OAT. Our team enhanced work item tracking, bug tracking, and change control methodologies—all of which helped the airline standardize its testing processes.

Delivering More Value

- ◆ **More System Stability:** Our OAT solution enabled the client to foresee issues/risks that may result in system failure. 99% of risks related to functionality were mitigated after four levels of testing before going live, and the client was able to achieve 99% system reliability within a specified period.
- ◆ **More Operational Efficiency:** A 99% increase in operational efficiency helped enhance business operations using systems support.
- ◆ **More Savings:** The client saved significant costs on defect amelioration due to reduced post-production defects and smoother operations. There were no critical issues in production after one year of implementation

The NIIT Technologies Advantage

Since the systems were core to the client's business operations, our approach to operational acceptance testing (OAT) had to be non-disruptive. We achieved this by ensuring service continuity capability of the IT infrastructure while enabling backup and restore capability for the applications. Another imperative was making the OAT process comprehensive. To do so, testing of the infrastructure and systems was carried out basis multiple business and operational needs—spanning failover, disaster recovery, backup and restore, end-to-end environment stability, SLA / OLA monitoring, performance on different tier 1, 2, and 3 browsers and devices, business continuity, and implementation / operational guide verification, and business continuity.

