All Nippon Airways Co., Ltd.

Introduction

All Nippon Airways (ANA) selected NEC to build a common link infrastructure to standardize the data links between mission-critical systems, enhancing responsiveness to changing market conditions. NEC and ANA also jointly established an integrated monitoring system for the common link infrastructure centered on NEC’s MasterScope software suite to achieve the high availability, performance, and operating stability required for the infrastructure.

Challenges

With deregulation and the emergence of low cost carriers, competition within the airline industry is intensifying.

“We were looking to transform our business model to respond more quickly to market needs and become the customer’s choice of airline,” says Akihiro Yamaguchi, Manager of Information Technology Services at ANA.

ANA had previously implemented diverse business models utilizing IT, but the open systems of the 90s now present serious obstacles. “Each system was constructed individually using a variety of interfaces, complicating the creation of links between systems. System connections now look more like a spider’s web,” explains Yamaguchi.

This has led to problems in detecting and responding quickly to system irregularities, enormous repair costs, and increased workloads due to technology diversification.

ANA’s answer was to create separate categories for international and domestic passengers, and outsource the international reservations and boarding systems to leading companies, while rebuilding the domestic system as a conventional open system. This required standardization of inter-system links and a common link infrastructure that would simplify the system.

Customer

• All Nippon Airways Co., Ltd.

Industry

• Scheduled airline carrier business, unscheduled airline carrier business, aerial work services, other related operations

Challenges

• To transform business model to respond more quickly market needs.
• To solve the complicating the creation of links between systems.
• To improve the time of responding to system irregularities, enormous repair cost and maintenance workload.

Solution

• Built a common link infrastructure to standardize the data links between mission-critical systems.
• Established an integrated monitoring system for the common link infrastructure centered by NEC’s MasterScope MISSION CRITICAL OPERATIONS.

Results

• Launched the new common link infrastructure and integrated monitoring system in October 2010. As of February 2011, 70 mission-critical systems have been transferred to the infrastructure.
• With using the registered 30,000 items of knowledge, problem solving time has been reduced by 10%.
• The common link infrastructure makes the individual creation of interfaces unnecessary, thereby reducing system development time by 30%.
ANA requested vendor proposals for building a common link architecture. Requirements included a 99.995% operation rate to enable the following:

- Uninterrupted services
- An average turn around time (TAT) of 40 ms
- A stable throughput of 500 transactions per second

ANA also wanted service-oriented architecture (SOA) to be used to standardize inter-system links and for the common link infrastructure to be visible. An integrated monitoring system that visualizes the entire infrastructure in real time was considered essential for stable system operation.

“We needed a separate monitoring system dedicated to the common link infrastructure. Otherwise important alerts could be missed and operational quality would drop,” says senior expert Ryoji Yoshizumi. Senior manager Koichi Sato explains the reasons for choosing NEC as their partner: “NEC has outstanding achievements in building and operating mission-critical systems, and also proposed the best possible combinations of middleware, rather than simply offering their own products.”

Throughout the project, launched in October 2008, NEC made sure that ANA’s performance and availability requirements were satisfied through repeated prototyping and benchmarking. The performance monitoring tool CA Introscope was also used during performance verification to analyze the infrastructure’s internal processing and perform advanced tuning.

NEC built the integrated monitoring system by deploying NEC’s MasterScope MISSION CRITICAL OPERATIONS to ensure operational stability. By grouping events in business or other units and making them visible by using icons, information from all system devices (such as server, storage, and network devices) and applications can be managed in an integrated manner, allowing the system status to be easily grasped.

The new common link infrastructure includes three independent systems for increased availability. These systems can be easily linked to all other system devices and displayed on a single unified screen by using a specific matrix.

“Color codes indicate problems and their locations, so we can easily locate and isolate problems that we couldn’t before when monitoring individual units,” explains manager Michihito Nakanishi. The root-cause of a failure and appropriate response can be referenced instantly by using the drill-down icon and the problem node can be identified. Moreover, abnormalities can be detected early because systems are linked seamlessly with CA Introscope.

NEC and ANA launched the new common link infrastructure and integrated monitoring system in October 2010. As of February 2011, approximately 70 mission-critical systems have been transferred to the infrastructure, which has continued running with superior operational stability. The integrated monitoring system can detect system irregularities and their locations to prevent system failures. NEC also provides analysis reports when failures occur, and has established work processes to instruct the integrated monitoring system to perform certain activities. There are already 30,000 items registered in the system, reducing problem solving time by 10%.

“Together with NEC, we have constructed an IT platform that is exceptionally fast and cost-effective. The common link infrastructure makes the individual creation of interfaces unnecessary, thereby reducing our development time by 30%. We are planning to use this platform to change applications into web services and expand the benefits of the system. We are looking forward to continuing our excellent partnership with NEC in the future,” concludes Yamaguchi.

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