

KLM's commercial check-in and reservation system on IBM z/TPF system

Overview

■ Challenge

In view of a merger with other airlines, as well as future movements in the market and steering clear of innovative developments regarding the current IBM System z operating system, KLM Royal Dutch Airlines was looking for a dependable and powerful mainframe to 'future-proof' the company.

■ Solution

KLM migrated its TPF 4.1 operating system running on the mainframe to z/TPF Enterprise Edition 1.1, making it the first airline to introduce IBM's latest z/TPF operating system for the real-time processing of its most demanding mission-critical transactions.

Core benefits

■ Enhanced continuity

- *Close connection to future market developments*
- *Fully prepared for Services-Oriented Architecture (SOA)*
- *Flexible application development and integration*



Kees Schipper, ICT Production Manager at KLM Information Services and Martine Heuff, Client Manager Travel and Transport at IBM Nederland B.V.

Being a leader in the field of aviation – especially when it comes to innovation – is an important issue for KLM. With more than 23 million passengers flown annually, plus freight transport and aircraft maintenance, the airline makes full use of ICT to optimise business processes as well as to manage passenger lists, check-in, flight information and freight reservation. For that reason, KLM uses the latest release of IBM's ultra-fast mainframe software z/Transaction Processing Facility (z/TPF).

Smart Leadership is a very important value for the KLM Royal Dutch Airlines. Despite its relatively small domestic market, KLM, in its 90th year of operation, has grown to become a leading player among international airlines. It forms the core of the KLM Group, which includes KLM cityhopper, Martinair and Transavia. In 2004, the airline company merged with Air France to form the holding company Air France-KLM. Both KLM

“A high level of accuracy was needed to succeed in a project that has such an impact on our commercial business, but we managed without any difficulty.”

- Kees Schipper, ICT Production Manager, KLM Information Services



and Air France operate as network companies and ICT plays a large part in those operations. “Since the end of the 1960s, a number of our most important applications have been running on an IBM System z operating system called TPF (or its predecessor ACP – Airline Control Program). It’s a good system, but IBM has now ceased to introduce any new features to it; the last major upgrade to this system was released 15 years ago. With that in mind, and in light of the merger, we went looking for something with greater capabilities of fitting in with future market developments,” says Kees Schipper, ICT Production Manager at KLM Information Services, where his responsibilities include the upgrading and maintenance of the newly selected z/TPF operating system.

Underestimated command system

The TPF (Transaction Processing Facility) has for many years been the HVTP platform (high-volume transaction processing) of choice for many of IBM’s largest clients. These customers operate in various sectors such as hotels, finance, healthcare and the travel sector, including airlines. “TPF is perhaps one of the most underestimated computer systems – while it’s a powerful system, it has the power to process tens of thousands of transactions per second. That’s exactly what we need in our business. At peak times, we input 1,400 to 1,500 items per second. That gives you a response to your input within three seconds, wherever you happen to be in the world. For that reason, TPF has always been an essential system for us.” After IBM made z/TPF generally available in 2005, KLM began looking to see if migration was possible. A definition study was then carried out. In October 2007 the plan was approved and the project was completed in May 2009. KLM migrated its mainframe operating system TPF 4.1 to z/TPF Enterprise Edition 1.1 and in so doing became the first airline company to fully implement IBM’s latest operating system for real-time operation of the most demanding, mission-critical transactions.

A perfect match

The switch made by the airline demonstrated that z/TPF is a perfect match for the demands and wishes of modern corporate life – taking KLM one step closer to its vision of playing a leading role in a dynamic worldwide market. In the technical field, it is also a bold step forward – z/TPF not only has 64-bit architecture, it is also fully prepared for Services-Oriented Architecture (SOA) and is therefore capable of improving flexibility, productivity and time-to-market. There are still further benefits for KLM, such as the modernisation of the development platform through a Linux development environment based on open standards.

“TPF is perhaps one of the most underestimated computer systems – while it’s a powerful system, it has the power to process tens of thousands of transactions per second.”

- Kees Schipper, ICT Production Manager,
KLM Information Services

Business & ICT – System z and z/TPF migration

Open standards

The migration project was widely supported by KLM. In all, some 90 people from a wide range of disciplines were involved, but the project was primarily handled by 30 enthusiastic professionals for the 18 months that it took to complete the work. “We had to involve many people,” says Schipper. “Application and system programmers, functional application managers and system operators who had to monitor the system in a production environment and make adjustments where necessary. The test management department was called in to supervise the testing process and the project steering group included representatives from all parts of the company who were involved in the migration. With the new environment, Linux was also introduced to System z, and we also wanted to get Linux specialists involved on the management side. Which was a good decision.”

Schipper is delighted with the Linux capabilities on System z. “Linux on System z combines the advantages of the IBM mainframe with the flexibility and open standards of the Linux operating system. Linux plays an important role in the simplification of the IT infrastructure, not only because it helps to simplify the business integration through the use of open industry standards, but also because it makes faster implementation of new solutions possible and speeds up the time-to-market.”

Making choices

Despite the fact that TPF platform was being phased out due to synergy considerations with Air France, it was not difficult for KLM to opt for z/TPF. The future ability of z/TPF to grow alongside increasing business requirements, as well as the implementation of a Services-Oriented Architecture and the flexible application and integration were all decisive factors. The more favourable pricing of z/TPF and the enhanced options for paying costs in proportion to the required computing capacity also played a part in the decision. In addition, KLM carried out the development and test activities in the new z/TPF environment and the new system offers a saving on licence costs. Optimising the existing systems for passenger lists, check-in, flight information and freight reservation, coupled with the emphasis on open standards for the present and future development, according to KLM, is the right way to adapt its transaction processing system in a service-oriented IT environment. KLM is, after all, a service-oriented company. “Our mission statement is not there for nothing,” asserts Schipper. “We need to be able to offer reliable ICT services and solutions on an ongoing basis so that the company can operate as efficiently as possible.”

Core components

Hardware

- IBM System z9™ Enterprise Class, z/TPF productiemachine

Operating Systems

- z/OS®
- z/TPF Enterprise Edition 1.1
- Linux on System z™

KLM ICT

With around 1,500 employees in the ICT domain, KLM is one of the largest internal IT employers in The Netherlands. KLM ICT is an ambitious organisation that provides its internal clients, both in KLM and Air France, with advanced ICT solutions in the form of customised software and/or integrated standard packages. ICT knowledge and good ICT service are key to achieving the targets set by the Air France KLM Group – namely, to play a leading role in a dynamic global market.

KLM ICT is an internal ICT provider, delivering ICT solutions that ensure KLM businesses processes are given optimum support. That means KLM ICT facilitates the KLM customer/business by designing business processes more efficiently with the help of ICT. These processes in turn achieve a competitive edge that works to generate greater revenue, deliver better service to passengers and lower costs per unit on an ongoing basis. This applies to virtually any area where KLM has an operating presence – in other words wherever Information and Communication Technology play a crucial role.

Business & ICT – System z and z/TPF migration

Motivating

The level of collaboration between KLM and IBM has been outstanding and Schipper cannot hide his enthusiasm. “It’s going unbelievably well,” he says. “The whole experience has been positive and motivating for our people. This also stems from the fact that the world of z/TPF is not that large and you come into contact with everyone. Consequently, we had a lot of help from the IBM lab in Poughkeepsie, New York. Two people actually travelled here when we were ready to carry out the migration. It’s also good that IBM has now given us and all other z/TPF customers the source code for the software. This means we can work on any problems and consult with IBM and other clients so that we all contribute to a better product. This was important because the basic version we received from IBM still had quite a few bugs in it, which meant that after working on it, we were able to pass the problem on to the people in Poughkeepsie, including a proposed solution. A high level of accuracy was needed to succeed in a project that has such an impact on our commercial business, but we managed without any difficulty. I am especially proud of the results that the teams from KLM and IBM have achieved working together.”



© Copyright IBM Nederland BV 2009

IBM Nederland BV
Johan Huizingalaan 765
1066 VH Amsterdam

IBM, the IBM logo, ibm.com, Power Systems, System i, Systems Storage are trademarks of International Business Machines Corporation in the United States, other countries, or both.

This case study illustrates how an IBM customer uses IBM products. There is no guarantee of comparable results.