



Lufthansa Systems: Take off with IBM RS/6000.

Europe's biggest commercial data center can be found in Kelsterbach, directly next to the Frankfurt airport. It is here, in an area 6800 meters square, that Lufthansa Systems GmbH, a division of the Lufthansa group's information technology (IT) services domain, implements the most state-of-the-art electronic data processing (EDP) technology for the benefit of its customers. In doing so, it serves customers worldwide with more than 60000 terminals. Emerging in 1995 from the airline's IT division, the company today numbers among the top five IT suppliers in the travel and transportation market. Even outside the group and in industries that did not belong to its original core market segment it has made a name for itself with its broad offering of services and its know-how. In 1998 Lufthansa Systems showed a turnover of 648 million German Marks, of which 14 percent alone fell to markets outside the industry.

In 1995 the executive board of Deutsche Lufthansa AG decided to replace all of the group's SAP R/2 based systems with SAP R/3 as the standard software. A search for a suitable platform, in which the aspects of scalability, good administrative synergism and future compatibility played a considerable role, yielded a decision in favor of IBM RS/6000 SP. Installation of the first system began the same year. Since then all systems have been converted throughout the group, and only the central personnel management system remains based on SAP R/2. The implementation of SAP R/3 systems for customers external to the group con-

tinues and forms a considerable share of the business outside the Lufthansa group. Says Rolf Radmacher, manager of Lufthansa Systems GmbH's Client/Server Computing Data & Systems Management: "We were treading on new technical terrain with the IBM RS/6000 SP2. The concept was promising and represented a workable solution for the realization of our ambitious plan. The many years of good cooperation with IBM and our confidence in jointly finding solutions for problems that arose were the basis of our decision."

Industrie	IT Service Provider
Applikation	SAP R/3 Modules FI, CO, EC, IM, MM, PA, PD, PM, PP, PS, QM, SD, TR
Software	AIX Oracle
Hardware	RS/6000 SP



A photograph: Deutsche Lufthansa AG

A new dimension:

The 64-bit pilot project

The latest project in this area was completed just recently. In 1995, as the SAP R/3 systems were being planned, about 3300 users were assumed to be distributed among the individual systems; today, Lufthansa Systems supports more than 10000 named users. In the effort to stay one step ahead of customer requirements, the decision was made at Lufthansa Systems in autumn 1999 to conduct a pilot test together with IBM and SAP AG on the basis of a pure 64-bit platform. Amid close cooperation between the three companies involved, a system environment similar to that in production was set up on the basis of an IBM RS/6000 SP using an Oracle database and SAP R/3 version 4.6. The objective was to ensure the co-functionality of the components and to verify that the prerequisites of performance and scalability were met in practice. Both were completely fulfilled within the framework of the 12-week pilot project – despite concurrent activities in preparation for the year-end changeover – for online as well as batch-oriented SAP R/3 transactions specific to Lufthansa. The 64-bit solution works with an expanded addressing capacity and thus offers the possibility of supporting more users per application server. It became obvious from this point on that application performance would visibly improve with the greater addressing capacity in the main memory. Even comprehensive databases can be completely loaded into the main memory, which considerably shortens access time.

RS/6000 SP guarantees constant expansion

At this time all SAP R/3 systems run on five IBM RS/6000 SP cluster environments. More than 150 servers integrated within the SP (called nodes) communicate with other computers of this system family, including eight RS/6000 S7A server models that handle the load of the SAP R/3 databases as external high-end nodes. They are supported by IBM serial storage technology (SSA) in VSS and ESS systems, which, with about 12 TB of data volume, represents a significant component for the scalability, performance and availability of SAP R/3 data. Production systems are all secured against failure by means of high availability cluster multi-processing (HACMP). The range covers everything from “sim-

ple” HACMP cluster environments with mirrored SSA drives to high availability environments with redundant data management parallelized by means of a shadow database concept in various data centers. With these concepts, minimal recovery times every few minutes can be guaranteed. For customers of Lufthansa Systems, that means: Only strong partners can guarantee the permanent optimization of information technology, the efficient formation of internal and external business processes, improved competitive capability and the expansion of the IT services palette according to requirements.

Integrative data center operation – a “must” for any airline

The SAP R/3 systems of Lufthansa Systems' customers are integrative components of their respective business procedures; they interact as a rule with the most varied applications in the field. By operating the appropriate EDP system, Lufthansa Systems contributes to their smooth operation even in dissimilar environments. The SAP R/3 landscape within the Lufthansa group is imbedded in a heterogeneous application environment with interfaces to other UNIX* systems and IBM OS/390-based applications. In the OS/390 environment alone, Lufthansa Systems operates systems with a capacity of about 2500 MIPS (million instructions per second) and about 10 TB of disk space. On many days, transactions are processed in a volume similar to that of the IT divisions of medium-sized industrial operations in an entire year – in an upward trend that has lasted years.



Lufthansa Systems Head Office, Kelsterbach

“An intensive partnership with IBM forms the basis of our projects. Our co-operation has extended for more than 30 years, has stood the test of time and is a foundation for cooperative partnership with SAP. All optimal conditions for the implementation of innovative IT solutions.”

Karlheinz Natt, Vice President,
Data & Systems Management
Lufthansa Systems GmbH



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IBM Deutschland
Informationssysteme GmbH
70548 Stuttgart

IBM Austria
Obere Donaustrasse 95
1020 Vienna

IBM Switzerland
Baendliweg 21, P.O. Box
8010 Zurich

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