Indian Railways: Fast-Tracking to Success with Technology from Sybase, an SAP Company

Indian Railways
Lifeline to the nation...

Executive overview

Company

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Benefits

Company
Indian Railways

Industry
Public sector

Products and Services
Rail transportation

Web Site
www.indianrailways.gov.in

SAP® Solutions
SAP® Sybase® Adaptive Server® Enterprise,
SAP Sybase SQL Anywhere® and
SAP Sybase Replication Server®

Partner
Centre for Railway Information Systems

Indian Railways (IR), the largest rail network in Asia, spans over 6,000 stations and carries 20 million passengers every day. To support the approximately 19 million customers without reservations, IR turned to its technology partner, Centre for Railway Information Systems (CRIS), for help in developing the Unreserved Ticketing System (UTS). Based on technology from Sybase, an SAP company, UTS replaces IR's antiquated paper-based system with a centrally administered, automated ticketing system.

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Keeping customers satisfied and on schedule

Founded in 1853, Indian Railways is one of the world's oldest and largest railway networks. Employing more than 1.4 million people, IR supports a range of long-distance and suburban rail systems carrying passengers and commercial freight on more than 72,000 miles of track. IR is a government-owned organization, overseen by India's Ministry of Railways.

With the aim of keeping customers happy and getting them to their destinations on time, IR partnered with CRIS, the IT arm within its organization, to build a state-of-the-art unreserved ticketing system. Built on SAP® Sybase® Adaptive Server® Enterprise (SAP Sybase ASE) and other SAP technology from Sybase, the ticketing system addresses key business and operations issues – including making it easier for passengers to purchase tickets when and where they choose.

$19.3 billion

In annual revenue

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Getting back on track

Generating over 49% of its earnings from passengers without reservations, Indian Railways needed a solution to centralize the purchase and management of unreserved tickets. Before the UTS was available, passengers without reservations had to purchase tickets at the railway station from which they were departing, and tickets could be purchased only one hour prior to departure, resulting in serpentine queues at congested stations while people lined up to buy their tickets. The process gave rise to considerable passenger discomfort, and at the same time posed a number of operational and administrative problems for IR, including system downtime, lost revenue, fraud, cumbersome reporting and accounting, and high maintenance costs. The railway also found it difficult to monitor staff performance, and it spent a good deal of effort on inventorying and distributing tickets.

~19 million

Unreserved tickets purchased daily

Together, IR and CRIS envisioned a scenario in which customers could buy their tickets at any station, at any time, day or night. Working with SAP technology, the two organizations endeavored to build an unreserved ticketing system that eliminates cumbersome manual processes and expedites ticketing while minimizing downtime.

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Keeping up with unpredictable and extensive customer demand

Using SAP Sybase ASE, SAP Sybase Replication Server®, and SAP Sybase SQL Anywhere® solutions, IR is able to achieve faster purchasing transactions and the advanced booking functionality it requires. The SAP technology helps to ensure that systems remain up and running and that ticketing operations continue uninterrupted, even in areas with questionable connectivity. Additionally, as IR expands its network of railways and passenger lines, SAP offers the breadth and depth of technology needed to accommodate future growth.

60%

Of unreserved tickets are sold through UTS

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Automating the ticketing process for high availability

Near-zero recovery time is critical in IR's widely distributed computing environments, which encompass nine data centers, each with a number of zones. To ensure the fastest possible recovery time from system downtime or failure, the CRIS and IR team deployed the high-availability option of SAP Sybase ASE. To move and synchronize data, the team uses SAP Sybase Replication Server to support the UNIX-based servers in each data center. Additionally, SAP Sybase SQL Anywhere enables the rapid development and deployment of database-powered applications in remote environments.

The consolidated database now resides on an area server that connects all the stations within a particular zone. Installed at the stations, SAP Sybase SQL Anywhere resides on thin clients that update the zonal server every few minutes with ticketing information such as cancellations. Bidirectional synchronization between thin clients and area servers helps ensure that all information is replicated.

<20 seconds

To distribute a ticket

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Changing the ticketing system

~$5 million

Generated by the UTS daily

Thanks to UTS and SAP technology, railway passengers can now purchase their rail tickets quickly and easily. They can buy their tickets at any time from dedicated counter terminals, automatic vending machines, and other venues.

New functionality that wasn't previously possible includes cross-counter cancellation of tickets issued from any station and the booking of unreserved tickets up to three days in advance. UTS also enables customers to make fare enquiries. With greater trust in the data, IR can obtain a correct accounting of tickets issued and minimize the possibility of manipulation and ticket misuse.

In addition to providing centralized system administration and software upgrades, UTS enables IR to add new terminals, users, location, routes, and so on, as needed and with relative ease. The ability of the system to deliver ticketing at remote corners of the country and provide uninterrupted services everywhere has been lauded by the government of India. The UTS project, along with the CRIS team responsible for its initial design and implementation, won the Prime Minister's Award for Excellence in Public Administration.

Today, the award-winning UTS handles 60% of IR's unreserved traffic, yielding average revenues of about US$5 million daily. Along with a user-friendly interface that supports multiple regional languages, as well as Hindi and English, the new system eliminates high personnel resource requirements; high costs of printing, packing, and stacking ticket cards; and problems of defacing and forgery. Plus, IR and CRIS continue to work together to support business and technology strategies, including initiatives such as RFID smart cards and e-ticketing.

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Delivering value, security, and consistency

Employing cutting-edge SAP technology, the UTS has proven to be extremely cost-effective for regions with limited or substandard connectivity. With 24x7 ticketing services and automated ticketing, the system has enabled the railway to reduce passenger lines and crowds at booking offices and stations, improving the customer experience. And in spite of a dramatic increase in railway traffic in recent years, there's been no need for IR to add personnel.

One of the key benefits of UTS is that it allows for uninterrupted ticketing service even in case of back-end system unavailability. Another plus is administrative efficiency and reliability: IR is no longer challenged by out-of-stock tickets, the high costs of staffing, and the need to manually process tickets. Ineffective demand planning, long queues, and inaccurate inventory management are also things of the past.

Customers reap benefits as well. Now, tickets can be purchased at any one of the automated machines – in less than 20 seconds. In addition, up to four passengers can now be accommodated on a single ticket versus one person. And, with optimum system availability, passengers residing in and around a large city like Mumbai can be sure they make their trains on time.

8,520

Trains supported by UTS

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