Bharat Petroleum Corporation Limited (BPCL) is India’s second largest oil company in terms of market share. Its first refinery was commissioned in 1955 in Mumbai. Today, the Rs 330-billion giant produces a diverse range of products - from petrochemicals and solvents to aircraft fuel and specialty lubricants.
The company markets its products through 4,510 petrol stations, 967 kerosene dealers and 1,389 LPG distributors. It also supplies fuel directly to hundreds of industries and several international and domestic airlines.

The Indian oil sector was under government control until economic reform process began in the year 1991. Subsequently, many fields viz., LPG, lubricants, refinery and even oil exploration and production were thrown open for private investment. The government of India has announced complete deregulation of the oil industry in April 2002. Anticipating radical changes in its business environment, BPCL undertook a massive exercise for preparing itself to face challenges of emerging free market scenario.

In India, BPCL has always enjoyed an image of being a progressive organisation. It had pioneered many new concepts in the area of oil marketing, such as new generation retail outlets, convenience stores, and the usage of smart cards. It was also in the forefront in the field of IT, with very robust IT-infrastructure in place and business-driven IT policy guiding its forward march.

BPCL's change initiative started towards the end of 1996 with the help of Arthur D. Little, Inc. (ADL). ADL's methodology involved co-creating a vision for the company, determining its current reality, conceptualisation of gaps between vision and current reality; and evolution of a change plan to bridge these gaps. The overriding dimension of this exercise was an increased customer focus. The entire change plan necessitated effective integration and was premised on a massive increase in the information intensity of the organisation. Information Technology (IT) was envisaged to contribute in these areas and thus began the project for evolving an IS Plan.

The IS Plan envisaged creating a comprehensive system landscape for supporting business aspirations of the company. A small team drawn from IS and Business set out to map the existing business systems (legacy systems) vis-a-vis the needs of future characterised by customer focus, resource-optimisation, integration and flexibility. The company had a host of in-house developed systems which ran on PCs. The data generated by many point solutions got consolidated at the regional offices and then, again, at the central office. All this exercise of data gathering, capture and consolidation was unwieldy and time-consuming.

After a detailed study, the IS plan team concluded the need for replacing the existing batch-process oriented legacy systems with a state-of-the-art ERP system. A comprehensive technical selection process was undertaken to find the ‘best fit’ ERP package for current and future needs of BPCL. Subsequently, SAP/ R3 software was chosen for implementation.

In 1999, on the basis of an elaborate technical architecture design devised by its IS team, BPCL undertook a comprehensive review of its hardware requirements. There were not many organisations in India that had implemented a large ERP of the size BPCL was contemplating to execute. But the company was aware that such a large implementation required meticulous technical planning. Based on the information and case studies available, BPCL identified general and potential bottlenecks that affected large SAP R/3 implementations.

The need to take care of the entire enterprise’s data and manage its growth in an efficient and reliable manner was paramount. Says K.B Narayanan, the technical lead for SAP infrastructure and Basis – Project ENTRANS (Enterprise Transformation) at BPCL, “As BPCL was moving from point solutions to a centralised application architecture, the time had come for storage consolidation.”
innovating with hp

For fulfilling its demanding data requirements in a centralised setup as part of its re-architected IT infrastructure, BPCL chose HP Surestore XP256 and XP512 disk storage systems and Ultrium tape library. For the hardware and associated software, BPCL had short-listed four vendors – HP, IBM, Compaq, and Sun. Says Narayanan, “We evaluated all the four vendors but finally decided on HP as it had a better overall solution in terms of servers, operating system, storage systems, tape libraries and software tools. For a very large and geographically spread out enterprise such as BPCL, the most important criteria for selection of IT infrastructure were performance, reliability, scalability, support, future roadmap, and research & development.”

As part of the R/3 rollout on a consolidated hardware platform, BPCL first deployed the XP256 around February 2000 with a total capacity of 2 TB. It was used by two production systems (BPCL has a separate HR landscape), quality and test systems. But very quickly, the main SAP R/3 data started growing at a rate of 25 GB per month with the main database reaching 400 GB in size. In order to take care of its growing requirements and for implementing a suitable disaster recovery plan, BPCL upgraded the XP256 to XP512 and moved the former to the Disaster Recovery (DR) site. The company is taking every precaution to manage and safeguard its valuable data. “We take full backup every day, using the HP Surestore Business Copy XP which enables us to back up our data without shutting down our systems,” says Narayanan. Within the data centre at Ballard Estate in Mumbai, Omniback backup solution is used to take backups of all the servers on the Ultrium tape library. The company has, among other infrastructure, over 15 N and L class HP servers at the data centre. BPCL is also using HP Continuous Access XP to replicate data between the primary and DR site. Today the SAP R/3 application is running in all its modules at BPCL, with about 3,000 users accessing them from over 270 locations across India. BPCL has recently put its main database (Oracle 8i), on HP’s Superdome server platform. The peak load factor is as high as 1,000 concurrent users. According to Narayanan, in terms of depth and breadth of R/3 implementation (and geographical spread), BPCL is running the largest enterprise-wide implementation in the country. With the R/3 implementation, BPCL has made rapid progress in terms of IT infrastructure with its centralised strategy.

A robust storage platform is a key element of the company’s future technology roadmap. BPCL is using the XP512 for meeting performance levels that are required for such a large online application as the R/3. All the servers in the system landscape share this disk sub system. The features of this solution (like Business Copy) are used to provide uninterrupted application availability for end users without affecting the daily backup schedule. Says Asheesh Kumar, Country Business

BPCL SAP R/3 Environment

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Manager, Extended Manufacturing Business Unit, HP India, “The high reliability and business-critical features of XP512 are key to eliminating data management headaches for BPCL.”

However, besides having the best of software and hardware platforms, it is very important to manage data distribution effectively. Says Narayanan, “The underlying distribution of data within the disk sub system is extremely important, because when applications share the same storage resource, ‘hot spots’ can quickly develop. This will necessitate reorganisation of data within the box. And in our kind of business environment, where you have to be continually up and running, you seldom get a large enough time window to do that.” A large table space reorganisation in SAP can take many days. Such delays can prove very expensive in terms of hampering business-critical functions of companies operating in a 24x7 environment. The flexibility and performance of the XP512 comes very handy in such circumstances.

BPCL, which now conducts over 90% of its business on the HP platform running SAP R/3, makes sure that it continues to opt for the most reliable and manageable solution and anticipates its future computing requirements with a clear roadmap.

benefits galore

When BPCL was undergoing an organisational restructuring in 1996, it had foreseen the need to use IT as a strategic tool in the market place. Now it is realising that it is payback time for that foresight. Having picked up the best storage solutions as an integral part of its enterprise-wide IT strategy, BPCL has started reaping the benefits that accrue in different tangible and intangible forms. For one, the management of infrastructure has simplified and therefore, easier to manage. Because of the central data consolidation, reduction in process hierarchy has taken place, resulting in more efficient and faster operation and decision-making.

“From the technical point of view, a significant portion of SAP R/3’s success can be attributed to HP’s hardware solutions especially in the area of storage” emphasises Narayanan. Now the company can manage the infrastructure efficiently with a small number of people, he says.

Going forward on its IT vision, BPCL wants to extend its network of SAP user locations from the present 277 “primary selling locations” to as many as 5,000 dealers and distributors. It also has an eye on e-business, supply chain management and customer relationship management initiatives as and when they make sense.

“Data growth is a continuous phenomenon, its effective management is very critical in future” says Narayanan.