



## IOCL ALONG WITH HPE FUEL BUSINESS PERFORMANCE AND FUTURE GROWTH

HPE helps India's flagship national oil company drive digital innovation and accelerate business growth through one of the world's largest SAP HANA® migrations.

### Industry

Oil and gas

### Objective

Migrate from SAP® ECC to SAP Business Suite on SAP HANA

### Approach

Implemented SAP HANA on end-to-end HPE infrastructure solutions

### IT matters

- Met application performance objectives across business lines and equipped company for growth
- Improved application service levels and increase business resiliency
- Completed massive SAP HANA migration in just four months

### Business matters

- Increased transaction speeds, alleviating frustration of many users
- Increased invoicing speeds, accelerating business growth
- Reduced report generation time from 5 hours to 30 minutes, enabling faster business decisions



**When IndianOil—the energy of India—was ready for one of the world's largest SAP HANA TDI implementations, they trusted the partner they knew could deliver: Hewlett Packard Enterprise.**

### CHALLENGE

IndianOil—India's flagship jewel national oil company with business interests straddling the entire hydrocarbon value chain from refining, pipeline transportation, and marketing, to exploration and production of crude oil and gas, petrochemicals, gas marketing, alternative energy sources, and globalization of downstream operations—has run its \$87 billion<sup>1</sup> business on SAP technology for the past 16 years. "SAP ERP is the lifeline of our business," says Deepak Agarwal, ED-I/C of Information Systems.

IndianOil's IT group supports critical business applications being run across the entire value chain encompassing 35,000 employees—everything from the systems that handle sales and distribution; material management; finance and controlling; project systems; quality assurance; HR/payroll; B2B with partners, suppliers, customers, and so on.

But with aging infrastructure for SAP applications in a mixed workload environment—transactions, invoicing, and reporting all running on the same database

<sup>1</sup> [iocl.com/aboutus/profile.aspx](http://iocl.com/aboutus/profile.aspx)

**“We were not getting the sort of performance that the business was demanding. The business was basically asking us for a real-time system, which was possible only when we thought of migrating to SAP HANA. HANA migration in least possible downtime was a challenge.”**

– Deepak Agarwal, ED-I/C IS, IndianOil

## About the company

IndianOil accounts for nearly half of India's petroleum products market share, with sales of about 90 million tons in 2018–19. The petroleum major has a throughput capacity of over 32% national refining capacity and 71% downstream sector pipelines. What's more, the IndianOil Group owns and operates 11 of India's 23 refineries, with a combined refining capacity of 80.7 million metric tons per annum (MMTPA). IndianOil refineries are on the last leg of upgradations to produce world-class BS-VI compliant automotive fuels for supplies across India from April 1, 2020.

IndianOil's 14,200-km cross-country pipeline network facilitates the transportation of crude oil to refineries and finished products to high-demand centers in an efficient, economical, and environment-friendly manner. Its throughput capacity of 94.20 MMTPA for crude oil and petroleum products and 21.69 million metric standard cubic meter per day (MMSCMD) for gas makes it one of the largest pipeline networks in the world.

As the commercial enterprise with the largest customer interface in India, IndianOil takes precious petroleum fuels to every corner of India through its network of over 50,000 customer touchpoints, surmounting the challenges of tough terrain, climate, and accessibility. This includes 27,700+ fuel stations (petrol pumps), including over 8,000 Kisan Seva Kendra (KSK) outlets in rural markets, all of them fully automated with quality and quantity assurance. For the convenience of large-volume consumers such as defense services, railways, state transport undertakings, industrial, agricultural, and marine sectors, IndianOil has about 7,000 dedicated fuel pumps in operation at their doorstep to ensure timely delivery of products and efficient maintenance of inventory.

systems—and steadily increasing volume, application transaction speeds were slowing, fewer invoices per period were being generated, and reports took several hours to generate.

Also, the business was constantly requesting new capabilities. IndianOil leaders were asking IT to convert the company to paperless operations, automate its 30,000 fuel retailers, and prepare for artificial intelligence (AI) (among other things). The company has 10 TB database size supporting SAP ERP (ECC) applications today and anticipates reaching 18 TB over the next five years. Thus, IT needed a system that addresses today and tomorrow's challenges.

When IndianOil learned about the SAP HANA in-memory database and application acceleration capabilities—they didn't hesitate. They knew it was the solution they need. “Our business setup is based only on SAP, and we plan to be a SAP customer for the next five to 10 years,” says Manish Srivastava, Deputy General Manager IS.

The only question was which infrastructure, partners, and services would best support the upgrade—and whether the migration could be completed within an aggressive 4-month timeline or less with downtime acceptable to business.

## SOLUTION

As one of the largest SAP-driven companies in the world, IndianOil faced a massive and complex migration to SAP HANA. The solution needed to be scalable, secure, and able to perform at the highest level.

IndianOil is a longtime HPE customer—beginning with IndianOil's original SAP ECC installation in 2003. They trusted HPE's expertise and performance and valued HPE's robust portfolio of infrastructure, services, and support. After evaluating system vendors, IndianOil implemented an end-to-end HPE solution to support their SAP upgrade.

“HPE was involved from day one,” said Rajan Wahal, IndianOil's General Manager of IS. “Our complete SAP infrastructure has been managed by HPE only.”

The HPE team worked closely with IndianOil to design and manage the solution from the bottom up—everything from production and test environment infrastructure, to high availability (HA)/disaster recovery (DR), to data backup.

## COMPUTE SERVERS

To serve the many needs of IndianOil's huge business, the company implemented a wide range of SAP Business Suite application modules on HANA—from IS-OIL to FI, CO, SD, MM, PP, QM, PM, PS, and HCM. To support its large and differentiated SAP HANA workloads, IndianOil chose the x86-based HPE Superdome Flex, a breakthrough system utilizing a unique, modular, building block architecture, designed for environments of all sizes. This mission-critical compute platform is perfectly equipped to support SAP HANA applications while ensuring optimum performance and reliability.

In all IndianOil implemented 40 HPE Superdome Flex servers in scale-up configurations, ranging from 4-socket systems with 768 GB of shared memory to 24-socket systems with 18 TB of shared memory to power the application environment (production and test/non-production). The servers are located in two separate data centers in India—a primary site and a disaster-recovery facility 2000 kilometers away from the primary site.

IndianOil had already been using mission-critical HPE Integrity Superdome servers for many years, and the team was very happy with their features. So the upgrade to HPE Superdome Flex was a welcomed next step. The server's RAS and memory-resiliency capabilities were among the system's most desired features for IndianOil.



## “The journey has been wonderful, and HPE has done magnificent job.”

– Rajan Wahal, General Manager IS, IndianOil

**HPE helped the largest commercial oil company in India<sup>2</sup> seamlessly complete a massive migration to SAP HANA that accelerated business performance and prepared the company for future growth.**



“Because we were hosting such a big SAP implementation—probably one of the biggest, as far as ERP is concerned—we felt that to run such a massive database footprint in the memory itself, guarding against memory failures was key,” says Srivastava. HPE Superdome Flex delivers this.

The memory bandwidth provided by Superdome Flex is also quite huge compared to other platforms, according to Srivastava. Also, the server’s unique, modular architecture enables IndianOil to start with a size that meets its needs today and add capacity as data volume grows.

### STORAGE

To provide persistent data storage, the SAP HANA infrastructure utilizes all-flash HPE 3PAR StoreServ 20800 R2 storage. Two HPE 3PAR storage systems are installed at the company’s primary data center and two are installed at their disaster recovery site.

### HIGH AVAILABILITY/ DISASTER RECOVERY

Given the scale and complexity of IndianOil’s SAP HANA implementation and how critical it is to their business, IndianOil needed a best-in-class HA and DR solution. While their Linux® OS offered basic system failover capabilities, the company coupled SAP HANA data replication with HPE Serviceguard for Linux (SGLX) software to help ensure the highest level of business continuity and meet IndianOil’s stringent RPO and RTO needs.

### END-TO-END SERVICES

From the beginning, HPE worked to deliver the highest level of performance in the fastest, most secure, and seamless way for IndianOil. The key to this success was the ASM engagement and collaboration with all stakeholders within HPE Pointnext Services because migrating SAP ECC R/3 to SAP HANA touched so many aspects of the environment beginning day one.

“HPE has worked very closely with us,” says Wahal, who cites HPE’s data-centric support and on-site engineers as key to the smooth migration.

HPE Pointnext Services provided everything from advisory services, to design services spanning infrastructure architecture, backup, HA and DR, to implementation and testing services.

HPE SAP HANA specialists were also instrumental in preparing for potential SAP HANA go-live issues. They performed extensive monitoring and reporting during trial startups and provided 24x7 on-site support throughout the migration and at go-live. The HPE Pointnext Services team continues to provide on-site monitoring and support of IndianOil’s systems around the clock.

Srivastava says the team was especially helpful with two important issues first one, HPE enabled IndianOil to significantly increase memory bandwidth. With HPE’s help, we achieved better system performance than initially projected. Second, HPE helped the IndianOil team improve data replication between SAP HANA systems. “Based on the recommendations of HPE’s remote team and the successful, flawless, and timely execution by their experienced on-site team, we saw a performance boost of 100%,” says Srivastava.

These are just two examples of how HPE SAP HANA expertise continues to help IndianOil.

### BENEFITS

The entire IndianOil migration to SAP HANA took just less than four months to complete—impressive by any measure, but especially for such a large and complex environment. At the time of its completion, it was the largest SAP HANA migration in the world for HPE and remains one of the largest for all of SAP.

Business transactions are now happening faster—with the average response time dropping by more than half—and more invoices generated within a time interval, increased company revenue. Reports generated 10 times faster help IndianOil make quick and accurate real-time decisions.

<sup>2</sup> [en.wikipedia.org/wiki/Indian\\_Oil\\_Corporation](https://en.wikipedia.org/wiki/Indian_Oil_Corporation)



## Customer at a glance

### HPE Hardware

- HPE Superdome Flex servers with Platinum 8180 Intel® Xeon® Scalable processors ranging from 768 GB to 18 TB of shared memory
- HPE 3PAR StoreServ 20800 R2 storage
- HPE StoreOnce 6600 D2D backup solution
- HPE StoreFabric SN8000B 4-slot SAN Director Switch<sup>3</sup>
- HPE FlexFabric 12900E<sup>4</sup> and HPE FlexFabric 5900 Switches<sup>5</sup>

### SAP and Linux software

- SAP HANA
- SAP Business Suite (IS-OIL to FI, CO, SD, MM, PP, QM, PM, PS, HCM)
- SUSE Linux Enterprise Server for SAP applications

### HPE software

- HPE SGLX
- HPE Recovery Manager Central (RMC)

### HPE Pointnext Services

- Solution design spanning production, HA, DR, test, development, migration
- System architecture and deployment
- Data migration
- Backup and replication
- HPE Datacenter Care support with 6-hour call-to-repair (CTR) on all equipment
- SAP HANA CoE support and services spanning solution planning to lifecycle services
- Facility Management Services for both primary and DR sites round the clock

<sup>3</sup> [h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04154441](http://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04154441)

<sup>4</sup> [h20195.www2.hpe.com/v2/getdocument.aspx?docname=c04111378](http://h20195.www2.hpe.com/v2/getdocument.aspx?docname=c04111378)

<sup>5</sup> [h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04111469](http://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04111469)

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IndianOil is thrilled leveraging SAP HANA in-memory technology, and with system infrastructure that can support both their current needs and plans for the future, including a migration to SAP S/4HANA®. The IT team continues to explore and implement new functionality in SAP HANA and to meet growing business demands.

“We used to receive a lot of critical feedback on the system response,” says Deepak Agarwal. “Now we do not; the users are satisfied.”

“Secondly, we are now ready for digital transformation and aligned ourselves to SAP road map,” says Deepak Agarwal.

Overall, the migration to SAP HANA, the partnership with HPE, the HPE based infrastructure, and the services of the HPE Datacenter Care team have paid off for IndianOil. “The journey has been wonderful,” says Srivastava, “and HPE has done a marvelous job.”

## LEARN MORE AT

[hpe.com/info/sap/hana](http://hpe.com/info/sap/hana)

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