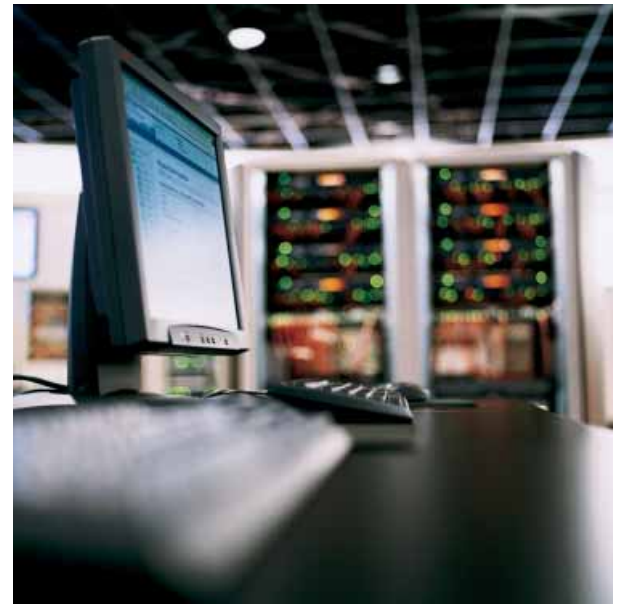




HP solutions for the oil and gas industry  
Meeting new challenges, embracing change



“To achieve the most cost-effective and productive drilling procedure, we have to gather massive sets of seismic data and analyze them quickly and accurately. The combination of Itanium® 2-based servers [from HP] running Linux® and software tools and services from Intel® and HP gives us the power to produce better-defined results in a fraction of time.”  
Keith Gray, Manager, High Performance Computing Center, BP



Without a doubt, these are interesting times for the oil and gas industry.

Changes in global demand are bringing pressure to increase production and revenue. A sharpened focus on profitability is resulting in mergers, consolidations, acquisitions, and divestitures for many of the world's oil and gas leaders. Outsourcing is rising significantly as companies increase scale to handle transition. Traditional gas stations are incorporating customized convenience/communications centers. And more than ever, integration of IT systems is essential—to support remote locations, disparate applications, and the massive amount of data that the industry generates.

Several emerging trends face the major players in oil and gas. China will continue to have the world's highest growth in oil and gas demand: an annual average of 4.5% through the year 2020 (versus the 1.7% world average). Energy commodity production is booming in Norway, Iran, Canada, and the Gulf of Mexico, creating increased challenges in rapid resource deployment. With a truly worldwide market, technology and IT will increase their role in supporting real-time decision-making, process automation, visualization, and collaboration.

HP offers a full range of products and solutions to help address the challenges that oil and gas companies currently face. These solutions focus primarily on achieving the following goals:

- Replenishing oil and gas reserves faster
- Increasing production yield
- Improving the efficiency and cost structure of downstream operations
- Enhancing IT agility and return on investment
- Helping to increase customer loyalty for gas-station chains

HP's vision for what we call the Adaptive Enterprise—an enterprise in which business and IT are synchronized to capitalize on change—helps oil and gas companies create a dynamic and agile IT infrastructure that adapts to customer and business needs.

“We need an IT platform to mobilize new projects of significant scale at very short deadlines.”

Cecilie Fagerlie, CIO,  
Aker Kvaerner ASA

## Solution overview

### Solutions for agile oil and gas IT architecture

HP's IT architecture solutions for oil and gas are designed for large companies that want to leverage IT technologies for the discovery, production, processing, and distribution of oil and gas products. These solutions feature high-performance technical computing (HPTC), storage systems, utility data centers, and HP services—carefully integrated with oil and gas partner products—to provide an agile, cost-effective infrastructure to manage evolving business needs. HP focuses on integrating leading IT technologies, standards, and best-in-class solutions to meet the challenges faced by today's oil and gas companies. This focus is complemented by global service delivery and ongoing innovation with our customers, partners, and oil and gas research centers.

### Solutions for the digital oil field (upstream)

For oil and gas companies focused on exploration, acquisition, and development of oil field resources, HP provides solutions to create a secure IT infrastructure that integrates all devices, information, and partners to provide a single view of the field. HP upstream solutions—developed together with our customers and partners—revolve around the digital oil field, where smart, quick decisions can be made based on real-time information about oil field assets. HP upstream solutions can help companies shorten time to production, increase efficiency and uptime, and lower costs in their oil fields. In addition, these solutions handle the acquisition, capture, and archiving of real-time data from oil fields.

## Solutions for fuel retail chains

HP solutions for downstream are geared to oil and gas companies focused on fuel retail automation and integration. For example, these solutions help fuel-station chains to meet new regulatory compliance demands, address mergers and acquisitions, reduce cost, decrease fraud, introduce innovative loyalty programs, implement customer relationship management (CRM) programs, launch convenience-store (C-store) operations, or plan to develop new services for their customers. The HP Intelligent Fuel Chain Solution Portfolio enhances the fuel-and-convenience-store supply chain by integrating both front- and back-office retail systems, improving marketing services, and transforming the business model with the creation of new services.

The HP Intelligent Fuel Chain Business Discovery Workshop provides the first stage—identifying new opportunities, cost savings, automation potential, and services for fleet customers and consumers. The workshop enables you to define or refine your vision for a fully optimized supply chain and develop a clear strategic roadmap for successful implementation. Retail chains can benefit from the workshop findings by implementing strategies for back-office integration, marketing services, and business transformation.

## Key benefits

HP's strong channel partnerships, global presence, multiple service lines, support services, and scalability of architecture solutions differentiate HP as a leader in manufacturing today. IDC cites HP as a key challenger for the manufacturing IT leadership spot.<sup>1</sup> HP's capabilities span the entire spectrum of consultancy, services, and system integration, providing these key benefits:

- Faster time to oil through reduced processing times and improved collaboration
- Business agility through a highly available, scalable, and adaptive infrastructure
- Increased return on IT investment through increased productivity and integrated information systems
- Lower total cost of ownership and reduced overall IT spending

<sup>1</sup> Source: IDC vertical market survey, December 2003

“We need tomorrow’s computers today in time to develop imaging theory for tomorrow!”

John Etgen, Senior Advisor,  
Seismic Imaging, BP



## The HP advantage in oil and gas

Among the key factors that make HP a global leader in the oil and gas industry are:

- Strong cooperation with partners including Microsoft®, Intel, Schlumberger, Halliburton
- Collaboration and integration solution offerings featuring CBI.Net
- Investment in the CERA (Cambridge Energy Research Associates) Digital Oil Field of the Future study
- Partnership network and engagement model with the leading oil and gas independent software vendors (ISVs) and systems integrators
- Strong partnership with the U.S. Department of Energy
- Worldwide presence and support capabilities, with a proven, global infrastructure that encompasses desktop, mobility, services, printing, and data-center solutions—all from a single vendor

## Solutions that span the oil and gas spectrum

HP provides hardware and software solutions for computation, visualization, data storage and management, printing and imaging, and mobile computing, as well as services to help design, deploy, and maintain the business’s crucial IT infrastructure.

HP views strategic partnerships and standards-based, open IT platforms as essential to enabling business agility. We partner with best-in-class providers of hardware, software, and consulting services throughout the oil and gas industry. And we work with the market leaders in the oil and gas services industry, Schlumberger and Halliburton, to set the framework for comprehensive solutions.

### About CBI.Net

A collaborative business infrastructure (CBI) enables businesses to integrate and enhance the extended enterprise by connecting applications, data, and people to business processes and Web services. CBI.Net is the collaborative business infrastructure built on the Microsoft .NET platform. A reference architecture around which HP and Microsoft will deliver business solutions, CBI.Net provides implementation templates for delivery partners, workflow accelerators for specific business processes, and rapid deployment services.

### Key focus areas for oil and gas solutions

- **Seismic acquisition, processing, and interpretation**  
These systems use the properties of sound and its reflection from land and marine rock formations to give a seismic profile of the geological formations. Having a visual representation of these subsurface formations aids in the decision-making process for further exploratory work.

Partial list of ISVs: Western GECO, Paradigm, CGG, Veritas DGC, and SMT

- **Reservoir management and simulation**  
These systems aid in the quantitative description of multi-phase flow in heterogeneous porous media. They are needed for detailed performance prediction used in intermediate and long-term reservoir management.

Partial list of ISVs: Schlumberger, Landmark, and Paradigm

- **Exploration and production data management**  
Integrated data management systems are advanced yet easy-to-use tools for capturing, storing, archiving, accessing, and delivering exploration and production data. As a master database, these systems support online storage of information such as well header, seismic navigation, and production data. Data is stored in unique, industry-standard data models.

Partial list of ISVs: Schlumberger, Landmark, Paradigm, Earth Decision Sciences, and Computer Modeling Group

- **Reservoir characterization**

Integrated reservoir characterization systems help to precisely describe the subsurface throughout the full exploration and production workflow by integrating project data management, geology, geophysics, and modeling to create a seamless workflow for multidisciplinary needs. Productivity increases as less time is spent looking for data and more time is spent evaluating it. This solution features scalable visualization, fluid monitoring, and supervisory control and data acquisition (SCADA) solutions based on CBI.Net technology and HP's Adaptive Enterprise architecture.

Partial list of ISVs: Schlumberger, Landmark, Paradigm, and CGG

- **Refinery process management systems**

These systems aid in the day-to-day plant operations and management for refineries and petrochemical plants, including systems such as plant planning, scheduling, optimization, simulation, mass balancing, yield accounting, and historian.

Partial list of ISVs: Siemens, Aspentech, Honeywell, Invensys, ABB, Yokogawa

- **Plant document management systems**

These systems manage the extensive document creation, management, and flow in the various units of the refinery. Also included are version control and change management.

Partial list of ISVs: IXOS

- **Fuel and C-store retail systems**

These are integrated systems for managing fuel products and convenience-store retail. These applications manage inventory, head-office reconciliation, decision support, site transactions, and point of sale (POS). HP provides integration of these products with various fuel-station devices as well as tight integration to enterprise resource planning (ERP), marketing, and distribution, and other headquarters-based systems.

Partial list of ISVs: PDI, SAP IS-Oil, and SAP Retail

- **Retail marketing solutions**

Retail marketing solutions enable the capture and analysis of retail transactional data by customer segment and profile, enabling companies to launch innovative promotional and loyalty programs. Forming the backbone of such systems are tightly integrated CRM, data-warehouse, and market-analysis systems.

Partial list of ISVs: SAP, Oracle®, and PDI

- **Fuel management and distribution**

Fuel-management systems manage fuel operations such as tracking inventory levels, delivery schedules, tank readings, and meter readings. These systems allow fuel stations to enhance the fuel supply chain at each level, from the terminal to the retail site.

Partial list of ISVs: SAP IS-Oil

- **Project portals**

Project portals are important collaboration tools for capital projects such as well projects and plants—projects that are characterized by their size and complexity. Project portals provide key benefits such as improving project tendering and procurement, enabling communication of project progress and 24x7 access for project changes and requests, shortening project lifecycles, and improving record-keeping and documentation.

Partial list of ISVs: Microsoft, webMethods, and BEA

- **Payment solutions**

These systems and solutions deliver the speed, convenience, and security of electronic payment to millions of businesses worldwide, including fuel retail outlets. The systems interface with most of the predominant electronic dispensers and dispenser card readers. They also provide a single control point for fuel sales, speeding customer turnaround.

Partial list of ISVs: Verifone

- **Asset maintenance systems**

These systems are crucial in managing the lifecycle of assets—maintaining and enhancing all strategic components that have a direct and significant impact on company operations and performance. The goal is to help companies more effectively manage the life of these assets.

Partial list of ISVs: MRO, SAP, Indus, and Oracle

HP also continues to work with leading global systems integrators, including Capgemini and Accenture, to bring integration expertise to customers.

“By 2010, production will have been accelerated, in some cases [by] 5–10%. The average oil recovery rate will have been increased from 44 to 50 percent. Operation and maintenance costs will have been reduced by 25 to 40 percent.”

The Norwegian Oil Industry Association (OLF)



## Key customers across the globe

HP works with many of the world's leading oil and gas companies to create and manage systems for oil acquisition, production, development, and distribution. Here are some brief examples of recent customer engagements:

- **Bharat Petroleum Corporation Limited**

HP designed a storage consolidation solution for one of India's largest oil companies, offering simplified and accelerated data management as well as a reduction in process hierarchy.

- **BP**

HP designed and implemented a significant Itanium 2- and Linux-based server cluster for BP's High Performance Computing Centre. This cluster ranks among the largest new clusters in national laboratories and universities, and it drastically reduced the computation time for seismic analysis.

- **Abu Dhabi Marine Operating Company (ADMA-OPCO)**

ADMA-OPCO engineers deployed HP solutions with Schlumberger Eclipse reservoir-simulation software to find and exploit petroleum resources faster and more cost-effectively and with increased accuracy. HP uses Linux-based management and clustering solutions designed to help enterprise customers realize a better return on information technology investment through the use of open systems.

- **Oil & Natural Gas Corporation (ONGC)**

ONGC is one of India's premier organizations engaged in exploration and exploitation of hydrocarbons. This solution features an SAP infrastructure, with 8,000 end users from all areas making use of the system to conduct and transact daily business. The installation includes HP Superdomes, storage, desktops, and workstations, as well as five years of managed services.

- **Petrol Ofisi (POAS)**

POAS signed a contract with HP to manage its IT infrastructure—both at operations data centers and in the field—including multi-operating-system servers, storage systems, databases, and applications. HP is helping POAS to maintain business profitability by keeping expenditures and efforts focused on their core business areas.

- **Aker Kvaerner ASA**

Based in Norway, Aker Kvaerner ASA is a leading global provider of oil and gas services, engineering and construction services, technology products, and integrated solutions. HP designed and is currently implementing a consolidated global IT infrastructure for data power and storage capacity.

- **Statoil**

HP designed and implemented a technical infrastructure that enabled the largest retailer of petroleum and other oil products in Scandinavia to consolidate 250 applications into one. This project resulted in maximum availability and uptime for 17,000 users, reduced maintenance costs, and improved efficiency with minimum disruption to service.

“This project represents a very good result for both Statoil and HP. HP has delivered the quality that we requested and the levels of competence that we required. At the same time, the two companies have cooperated closely at both managerial and technical levels: it is a partnership that has worked well.”

Kjell Magnus Myge, Director, IT Operation, Statoil

## Why HP?

HP Services professionals are highly experienced in delivering strategies and roadmaps that incorporate a synchronized approach to deploying business-process change and the associated IT components. HP delivers expert solutions with direct impact on specific business drivers, goals, and value.

Key components of the HP advantage include:

- A wealth of technology, tools, and best practices—all poised for global delivery
- A strong investment in the Digital Oil Field of the Future, based on HP’s Adaptive Enterprise architecture and including the capability for quick integration with third-party solutions
- 65,000 service professionals with unmatched technical expertise in 160 countries, including approximately 2,100 certified project management professionals

T. Erling Henriksen, Director of Information Systems, Hydro (formerly Norsk Hydro) recently stated that Hydro achieved approximately a 20 percent reduction in rig manning due to new communications and operational support. This is an approximate 20 percent reduction in direct maintenance and purchasing costs due to better monitoring and planning as well as reduced well costs through online data monitoring and better decision-making.



## For more information

To find out more about how HP expertise can help assess your current situation and develop a roadmap for the future, visit us at: [www.hp.com/go/manufacturing](http://www.hp.com/go/manufacturing)



To learn more, visit [www.hp.com](http://www.hp.com)

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