Compaq Global Energy and Utilities

Powering the smart energy enterprise

COMPAQ
Inspiration Technology

The energy industry is shedding its Industrial Age origins.

Deregulation is not the only driver of this revolution. With the next-generation wireless Internet, any electrically powered device can be a node on a network. The surge in smart appliances will generate an unprecedented volume of information throughout the energy pipeline. A new wave of applications combined with advanced Information Technology (IT) will enable a utility to transform this information into intelligence — and competitive advantage.

This convergence of IT, communication and energy-distribution innovations promises to increase the flexibility, economy and efficiency of energy delivery. Compaq Computer Corporation and its partners are well-positioned to help energy companies leverage these developments and thrive in a market that will reward smart, clean energy. We already help utilities, manufacturers, telcos and securities exchanges to manage their 24 x 7 operations in real-time and gain new agility and efficiency.

Serving deregulated utilities, telcos and financial institutions, we've learned how to harness emerging technologies and stand out in a commoditized market with innovations that deliver real value. Our strategy is simple: In this always-on environment, we enable the energy company to access information as easily and flexibly as its customers access electricity — anywhere, anytime and in any way.

Compaq servers run 65 percent of the world's energy management systems. These solutions enable engineering and operations decision-makers to instantly spot problems and inefficiencies in their energy systems and respond in seconds.

Today, an energy company needs to detect, track down and resolve business problems as quickly as it attacks faults in generation, transmission or distribution. In a 24 x 7 business, all members of the team — from customer service, finance and planning professionals to traders — should be able to operate in real-time.

Compaq can extend continuous, real-time information access throughout an energy organization. With our partners, we offer complete solutions, integrated end-to-end, that span the entire energy value chain from production through consumption.

In this brochure, we present Compaq capabilities that can help energy providers prosper in a dynamic marketplace.

William E. Lewis
Director, Global Energy and Utilities
Compaq Computer Corporation

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"Deregulation is accelerating change in our industry. Our Tru64 *UNIX-based control-center solution allows us to efficiently manage complex activities on a real-time, 24 x 7 basis and respond to evolving customer needs without reengineering."*

Michael J. Gahagan, Vice President, CIO and Chief Strategy Officer, Midwest ISO

In the era of smart energy, agility is key

Deregulation is not the only force revolutionizing the energy industry. Information technology and the Internet, engines of this new industrial revolution, offer countless ways to streamline, globalize, collaborate and compete.

With IT poised to transform every aspect of the energy value chain, an energy company's information resources will equal and, in some cases, eclipse the value of its capital assets.

Whether striving to keep the lights on longer or launch new lines of business, an efficient, innovative energy company will require agile access to information. A 24 x 7 IT infrastructure that responds in real-time is at the core of such mobility.

Compaq's strategy for the energy industry

Our strategy for the energy industry is simple and pervades all of our solutions: We enable the energy company to access up-to-the-minute business

information across the enterprise as easily and flexibly as its control rooms access real-time information on energy operations.

Utilities and energy companies can find in Compaq a single IT provider with the resources to meet all of their IT infrastructure requirements. Together with our best-in-class partners, we develop and deliver innovative solutions that capitalize on Compaq's unique strengths in globally distributed, 24 x 7, real-time computing.

These solutions enable energy companies to achieve unprecedented flexibility and economy in their traditional operations while exploiting the Internet to create and deploy entirely new businesses.

Our solutions include high-availability, clustered real-time systems that control generation, transmission and distribution; fault-tolerant transaction processing systems for billing and customer relationship management; and platforms that enable global generation companies to integrate disparate supply chain systems, creating a unified view of corporate assets. And, as energy innovation moves closer to users, our award-winning wireless devices redefine access to energy — and information.

The Compaq Global Energy & Utilities team engages all of Compaq's core strengths to meet the challenges of today's energy industry. These resources include:

- Compaq Global Services offerings that increase the payback of an IT investment by providing industry-specific expertise and support
- Unique Compaq Zero Latency Enterprise (ZLE) technology, which can function as the integration hub of a regional ISO or virtual national grid
- Compaq *iPAQ™* handheld devices for wire-free meter reading, outage management and energy trading
- Clustered Compaq *Tru64™* UNIX platforms to run business-critical ISO functions in real-time

Compaq also drives energy-industry innovation by providing applications partners with systems and technical expertise to streamline time-to-market of fully tested solutions. We support industry research groups such as the Electric Power Research Institute (EPRI) in developing and deploying utility-industry standards. And we guide delegations from developing countries as they review best practices around the world.

"ABB Utility Automation and Compaq have been working closely for three decades to provide utilities with systems that manage many of the world's largest power generation, transmission and distribution operations. Our customers have never had to replace their applications to accommodate new platform technologies. Thanks to Compaq's superior investment protection, control systems installed in the '80s run with little change on the latest Compaq servers. Platforms from Compaq clearly lead the market in value, reliability and flexibility."

Gordon Woolbert, Senior Vice President and General Manager, ABB Utility Automation, Utilities Division

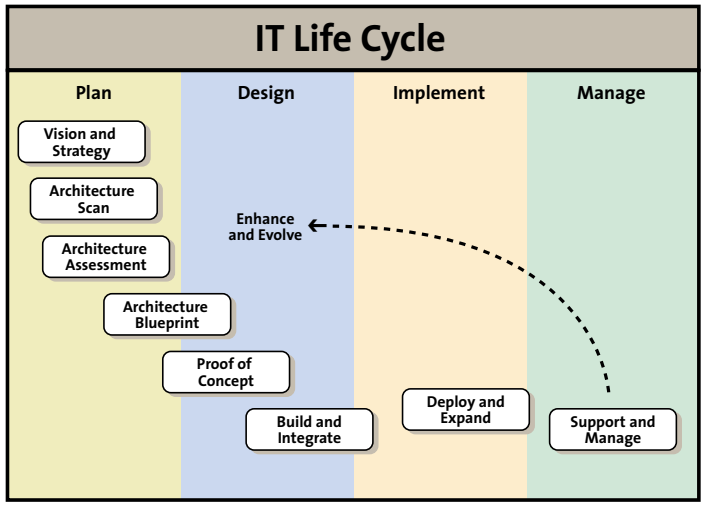
The smart energy enterprise: open for business anywhere, anytime

The energy business runs around the clock — from overseeing grids to conducting trades. And increasingly, these transactions span regional and national borders as well as time zones. In this always-on environment, an energy company can compete more effectively by extending the control room's real-time, 24 x 7 way of doing business throughout the enterprise.

Compaq can help an energy company bring real-time agility to business processes and IT in a timely, cost-effective manner.

More than any other IT provider, Compaq understands real-time computing. Compaq platforms power 65 percent of the world's energy management systems and 95 percent of all securities transactions. With this experience, Compaq is uniquely positioned to help an energy company achieve the payoffs of anywhere-and-anytime information access.

Compaq simplifies the complexities of business and IT transformation. We collaborate with industry-leading solutions providers and integrators to develop complete solutions, and, through Compaq Global Services, we



Compaq Global Services simplifies the complexities of business and IT transformation. Its depth of services extends from planning and design of a solution through implementation and ongoing management.

adapt these solutions to each company's unique needs to deliver higher IT payback, faster. Compaq services can take a company from planning and design of a solution through implementation and ongoing management.

Solutions that revolutionize access to information — and to energy

Compaq is a trusted IT provider to the world's largest utilities, telcos and financial services companies. Leaders in these deregulated industries rely on Compaq and its partners for their most business-critical systems. We build this experience into next-generation solutions that can help the energy industry realize its vision of an efficient, stable and open market.

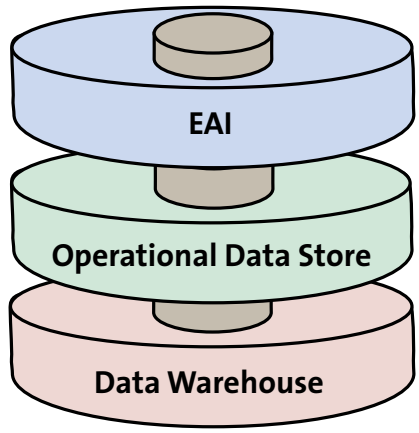
In this smarter energy environment,

- Energy traders have wireless access to up-to-the-second information on global plant performance, emissions constraints, transmission availability, weather, load forecasts and fuel costs
- Customer service staff using one device instantly access outage history, load forecasts, competitor activity, aggregated customer billing history and up-to-the-minute meter data
- Field crews use mobile devices to access maps, documentation, SCADA information, work orders, help files and customer information
- Intelligent metering devices are nodes within an infrastructure that connects energy marketers, suppliers and customers
- Access devices are two-way channels of real-time customer and operational intelligence as well as tools to conduct transactions anywhere, anytime
- Customers manage their energy usage, read their own meters, receive and pay bills electronically and control consumption
- Industrial customers contract for tiered service levels
- Real-time pricing responds to the dynamics of supply and demand, potentially lowering both demand and price
- Grid operators and regulators have a single view of all transmission segments and market operations, from individual and regional ISOs to a virtual nationwide grid.

With a 30-year track record of industry leadership, Compaq knows the energy business

- *Compaq is the market leader in utility operations, running 65 percent of the systems controlling the world's electricity supply*
- *Compaq leads in deregulation operations, powering most major deregulation projects*
- *As a voting member of key industry committees, Compaq is in the vanguard of developing and applying standards for hardware and software interoperability*
- *Helping the industry attack supply-chain inefficiencies, Compaq participates in e-procurement initiatives as a key partner in Pantellos and eutilia e-markets*
- *Compaq and its partners provide solutions for all segments, from generation, transmission and distribution to trading, customer service and administration*

Compaq ZLE architecture



65 percent of the world's power is controlled by systems from Compaq and its partners

Compaq platforms run the systems that control two thirds of the world's electric power supply, according to a 2001 study by the Newton-Evans Research Company, Inc.

"Compaq's market share amounts to dominance, not just leadership, in a highly competitive and demanding arena," says Charles W. Newton, president, Newton-Evans Research.

Compaq servers are the standard of the leading EMS/SCADA and ISO systems suppliers. Factors behind Compaq's dominance include the caliber and loyalty of its business partners and superior investment protection.

"Compaq appears to be unique in the migration path offered to its customers," Newton says. "Utilities that installed applications on the Compaq OpenVMS *operating system 20 years ago have been able to scale up through Compaq* VAX™ *and then* AlphaServer *product families without reengineering their software."*

The smart grid

Equal access to information is essential to an open, competitive energy marketplace. Compaq is working with its solutions partners and industry consultants to increase the intelligence of the world's transmission and distribution systems and make this information available to all stakeholders.

We are prototyping a smart virtual grid that will provide a unified view of grid and market operations across control areas.

This virtual grid will enable operators and market participants to predict financial and operational impacts of wide-area and national power scenarios.

The rewards are not just for generation and transmission operators. Consumers will benefit, too, as supply and demand become visible to all players.

Infrastructures to build a 24 x 7, real-time business

The foundation of the smart, always-on energy enterprise is a scalable, highly available IT infrastructure that includes facilities for applications integration and Internet-based communications. Compaq offers the best building blocks for such an environment as well as the services to turn these technologies into complete solutions that deliver rapid and high payback.

The Zero Latency Enterprise

Unique Zero Latency Enterprise (ZLE) technologies from Compaq are already bringing 24 x 7, real-time transactions and information access to globally distributed companies.

The deregulated finance and telecommunications industries have already solved many of the problems facing utilities today. Leaders such as Sprint pave the way with innovative Compaq ZLE solutions that directly apply to the energy market.

The Compaq ZLE architecture integrates legacy and multi-vendor platforms to achieve real-time transaction processing and information access across diverse, globally distributed systems.

Compaq ZLE solutions unite application-integration, operational data store and real-time data warehousing technologies within a single, always-on environment. These solutions can enhance all facets of an energy enterprise, from energy operations to customer-facing activities and behind-the-scenes decision support. Compaq ZLE offerings are ideal for ISOs, global power producers and large energy-trading and customer-service operations.

Sprint

- Sprint ION (Integrated On-Demand Network) combines local and long-distance service, video, data, fax and high-speed Internet access over a single connection
- This broadband network employs a Compaq Zero Latency Enterprise framework on a Compaq *NonStop™ Himalaya™* platform for real-time customer management
- The solution handles large business-intelligence queries while inserting Call Detail Records (CDRs) at the rate of more than one billion per day

"In our service control points, solutions must work every time — multiplied by millions of customers each day. We've achieved that reliability through Compaq NonStop *technology. As our network scales to embrace millions of customers, business-critical computing becomes the core of everything that we do. Compaq* NonStop *technology is unique to the marketplace and critical to the path we are taking with Sprint ION."*

Fred Harris, Director of Network Planning and Design, Sprint Long Distance Division

The third-generation Internet

Ultra-fast 3G (third-generation) Internet technology and the new Internet Protocol Version 6 (IPv6) are driving the global movement toward Internet access anywhere, anytime, and in any way. Already mandated in Japan, the standard will soon spread throughout wireless-saturated Asia and Europe.

The 3G Internet offers energy companies new ways to serve customers and increase profits. A 3G network can connect any electrically powered device. And secure and flexible tiered services are easier to deploy and manage on IPv6, which simplifies service customization.

A member of the Internet Engineering Task Force (IETF) that specified IPv6, Compaq ships its servers IPv6-ready to streamline the transition to the 3G Internet.

Compaq and its partners offer pioneering applications based on the 3G Internet, including

- Location-based services from Compaq and its partner SignalSoft, the first company to unite location-sensitive service, billing and customer care on one platform
- Revolutionary Compaq ZLE solutions for real-time, data-rich, transaction-intensive operations such as billing and customer care.

Compaq is a leading IT provider to the telecommunications industry. More than 200 communications firms, including the world's top 50, depend on Compaq products, applications and partner solutions. This experience can be an asset to utilities that are expanding their communications systems to enhance operations or launch new services.

Information and transaction security

Running the largest energy trading operation as well as the 15 largest securities exchanges, Compaq knows what it takes to transact business with total security.

Security solutions from Compaq and its partners protect many of the world's most active e-operations. Compaq has installed more than 1,000 hacker-free high-end firewalls worldwide.

Industry standards for interoperability

A 24 x 7, real-time IT environment builds in seamless data and application access across hardware and software platforms. Compaq simplifies enterprise application integration (EAI) through a modular, broker-based approach that minimizes custom coding.

As a Worldwide Prime Integrator for Microsoft BizTalk Server 2000, Compaq offers a complete portfolio of services to build EAI solutions. These offerings combine Microsoft's BizTalk application-integration tools and Compaq iOrchestrator, a cross-platform adapter that works with a host of standards-based and commercial integration technologies.

The application wrappers and data models within this architecture are consistent with the Electric Power Research Institute's CCAPI standards for application integration, data access and control-center communications.

Best-in-class applications to transform information into intelligence

Best-in-class applications can transform information into intelligence — and competitive advantage. Compaq and its partners help an energy company to adopt and integrate these applications quickly and cost-effectively, and with less risk. Compaq partners with the makers of industry-leading applications and integration middleware, and with its partners, jointly tests and configures solutions on Compaq platforms.

Smarter operations management

Responsive, efficient service is key to customer retention in this competitive, always-on market. Smarter operations management driven by real-time information can help an energy company to meet rising performance and pricing expectations, retain and expand customer relationships and deliver innovative, value-added services.

Compaq is the preferred IT provider to the control rooms of the world's largest utilities. We bring together industry-leading partners, platforms and integration expertise to deliver total solutions that increase the intelligence and efficiency of operations management.

These solutions integrate real-time control-room information with Internet-enabled systems serving field crews, customer-facing personnel and the public. The energy management environment extends to GIS, trouble call and outage management, mobile dispatch, work management and SCADA applications as well as customer information systems.

Enhancing resource management, these integrated solutions keep the lights on longer with monitoring and planning tools that reduce the risk of outages. When the lights go out, power restoration is faster and safer with these solutions, which manage spikes in call volume, locate outages, re-route power, dispatch and update field crews and inform customers throughout the process.

Compaq solutions partners*

Compaq partnerships span all segments of an energy operation

Enterprise Applications

Clarify
Custima
Excelergy
Indus
JD Edwards
Lodestar
Oracle
PeopleSoft
SAP
SCT
Severn Trent
Siebel

Business Intelligence and Decision Support
Ardent
Business Objects
Cognos
Informatica
Microsoft
Oracle
SAS

T&D Operations

EMS/DMS/SCADA
ABB
ALSTOM ESCA
DAQ
Groupe Schneider
Logica
Metso Automation
NARI (China)
QEI
Quindar
Siemens/Telegyr
Thomson/Syseca
Yogogawa

GIS/Engineering
ABB
Aspen
Autodesk
Bentley
Cook-Hurlbert
ERDAS
ESRI
GE Smallworld
GeoData Solutions
MapInfo
Miner & Miner
PTI
Stoner

Automated Meter Reading
Itron
Schlumberger

Trouble Call/Outage Management
ABB
CES International
GE Smallworld
M3i

Work Management
Indus
Logica
SAP
Severn Trent

Load Management
ABB
Scientific Atlanta
Telegyr

Computer-Aided Dispatch
M3i
MDSI
Utility Partners

**Note: This is a representative listing only. For an expanded listing please visit our Utilities Web Site*

Hydro-Québec

- Manages distribution of energy to 3.5 million customers on Compaq *AlphaServer™* platforms
- Reduced annual budget 40 percent by integrating SCADA, distribution/ outage management

"We've created a fully integrated system capable of efficiently and continually controlling a low- and medium-voltage system. Our solution speeds up service restoration and increases our productivity." Marcel Jobin, Director of Distribution Control Center, Hydro-Québec

Plant Operations

Plant Monitoring/Control
ABB
GE
Meindensha
NARI (China)
SAIC/DS&S
Thomson/Syseca

Plant Simulation
ABB
CAE

Plant Information/ Document Management
Indus
Mincom
Novasoft
SAP

Deregulation Operations

Independent Systems Operator (ISO, RTO)
ABB
Accenture
ALSTOM EMM
CGEY
PWC

Meter Data Acquisition
Itron/UTS
Logica

Load Profiling
ABB
Loadstar
Logica

Energy Trading
ABB
ALSTOM EMM
CGEY
Enermetrix
OATI
OM Systems

Oasis Congestion Management
ABB
ALSTOM EMM
OATI

Systems Integration and Consulting

Accenture
Black & Veatch
CGEY
ConnexT
CSC
Deloitte Touche
DSI
EDS
EPRI
Incremental Systems
KPMG
Logica
PricewaterhouseCoopers
Schlumberger-Sema
Tabors Caramanis & Assoc.

Tacoma Power

- Generates, transmits and distributes power to 150,000 customers over a 2,000-mile network

- Streamlines supply chain with EMS from ABB Network Management based on the Compaq *Tru64* UNIX OS

"We can scroll through a performance snapshot of our entire electrical power infrastructure in two-second increments. This new level of information will also enhance internal customer service. It's an end-to-end solution."
Joe Orth, Transmission/Distribution Supervisor, Tacoma Power

Deregulation solutions

Utilities are adapting their organizations, processes and IT to manage the complexities of deregulation. Many are revamping existing energy management systems and installing new applications for market operations and energy trading.

Compaq and its partners ABB and ALSTOM ESCA are designing and delivering the systems that run most of the major deregulated transmission systems, including ISO California, ISO New England, Ontario IMO, Midwest ISO, Ercot and Grid South.

Midwest Independent Transmission System Operator, Inc.

- Manages and administers one of the largest bulk electricity systems in US, including more than 61,000 miles of lines, 53,000 MW of generation and $6.5 billion in installed assets

- Oversees, with its partners, grids up to a substation level, monitoring as many as 100,000 points every 60 seconds via the Integrated Control Center System (ICCS) from ALSTOM ESCA based on the Compaq *Tru64* UNIX OS

- Allows real-time, 24 x 7 scheduling, management of transmission and transactions, settlement and billing, FERC-compliant reporting and long-term planning via ICCS

"We chose ALSTOM ESCA as prime contractor for its proven, industry-leading technology and track record of on-time delivery. We had to build, install, test and commission the system within one year to meet the deadline set by FERC, and we did so."
Michael J. Gahagan, Vice President, CIO and Chief Strategy Officer, Midwest ISO

Customer relationship management

Customers are demanding more personalized services. With the next-generation Internet, they will be able to easily choose and purchase energy plans, including

competitors' offerings. Customer Relationship Management (CRM) solutions from Compaq and its partners enable energy companies to exploit the Internet as an efficient medium for understanding and responding to customer preferences.

Coupled with customer care and billing, a Compaq CRM solution allows a service provider to view and manage each customer's activity across channels and product lines, drawing from both up-to-the-minute and historical data. This dynamic information on customer relationships can guide call-center, operations and telesales strategies and bring the company closer to its customers.

New Brunswick Power

- Runs the first SAP IS-U/CCS installation based on Compaq *ProLiant™* servers and MS SQL Server 7.0
- Bills from 15,000 to 20,000 of its business partners on weeknights

"We are working with industry leaders to build a maneuverable, scalable enterprise solution. Compaq, Microsoft and SAP are more than suppliers. They are our partners. These relationships are critical to our success."
Dwight Wilson, CIO, Production and Systems Support, New Brunswick Power

Business intelligence

A Business Intelligence (BI) solution turns information into a competitive asset. For example, customer-facing operations can use business intelligence to attract and retain the most profitable accounts.

Partnering with industry-leading providers of database and data-mining applications, Compaq offers solutions that can hone decision-making of all kinds, from fault detection and preventive maintenance to marketing, sales and trading.

Supply chain management

Many energy companies have deployed Enterprise Resource Planning (ERP) systems to reengineer and integrate internal operations. Supply Chain Management (SCM) solutions extend the ERP environment with B2B (business-to-business) capabilities.

An Internet-based SCM solution from Compaq and its partners enables an energy company to interact in real-time with customers and suppliers and improve the agility and economy of its supply chain. Using sophisticated algorithms, the SCM solution draws from ERP data and related systems to streamline and integrate such processes as replenishment, demand planning, logistics and invoicing.

Every day, around the clock, Compaq servers run:

- *65 percent of the world's EMS/SCADA systems*
- *95 percent of all securities transactions*
- *80 percent of all Automated Teller Machine (ATM) transactions*
- *75 percent of the world's 100 largest Electronic Funds Transfer (EFT) networks*
- *66 percent of all credit card transactions*
- *100 of the world's 112 stock exchanges, including the 15 largest*
- *Four of the five most-visited Internet sites*
- *Eight of the top 10 Internet Service Provider operations*
- *The most powerful civilian and military computers*

"Scalability, flexibility and portability have been the hallmarks of our long and successful partnership with Compaq. With Compaq as a partner ALSTOM EMM has been able to provide investment protection across changes of hardware, operating systems and applications technology. The result is clear: in 20 years no customer has ever replaced a Compaq-based, ALSTOM-supplied solution with a competitor's. With the Compaq Itanium announcement, we can continue to offer our customers the choices they demand based on Compaq's tradition of quality, performance and value."

J.D. Hammerly, Vice President, ALSTOM Energy Management and Markets

SAP R/3 is one of the leading ERP solutions and Compaq is SAP's leading platform provider. More SAP R/3 installations run on Compaq servers than on any other brand of computer. Compaq provides engineering support to size and configure SAP solutions through its worldwide network of SAP Competency Centers.

Platforms to power an always-on energy business

From business-critical servers to handheld devices and integration middleware, Compaq offers end-to-end platforms that can revolutionize access to both information and energy.

Compaq provides choice at each level of an enterprise IT infrastructure, including Compaq *NonStop Kernel™*, *OpenVMS™* and *Tru64* UNIX operating systems; industry-leading Microsoft Windows 2000 and Linux implementations; and the best tools in the industry to integrate these environments into a single computing system.

With Compaq, an energy company can easily scale up, down or migrate across platforms to keep pace with evolving business needs — and new technologies. Interoperability and scalability are not

just buzzwords at Compaq. Rather, they are the design principles that have driven the continuous evolution of our platforms for decades.

Next-generation, 64-bit platforms: the Compaq Intel partnership

Now Compaq is leveraging its technical leadership and expertise in 64-bit computing to develop a new generation of enterprise servers — all on a single microprocessor architecture.

Compaq has partnered with Intel to standardize its 64-bit enterprise server product lines on the Intel Itanium Processor Family. These new Compaq servers will deliver unparalleled performance, price/performance and application support.

As they move to these next-generation platforms, utilities and energy companies can count on Compaq for unmatched investment protection.

Business-critical computing simplified

Compaq offers the servers of choice for the always-on enterprise. The same Compaq platforms that run 24 x 7 operations in energy, telco and financial services industries are also ideal for integrating, storing, mining and modeling data across the entire enterprise.

Open storage area networks
As energy companies build multi-terabyte repositories of customer and operations data, an open Storage Area Network (SAN) presents new opportunities to consolidate, manage and distribute information throughout the enterprise.

Compaq pioneered the concept of a platform-independent storage utility, and this principle is the cornerstone of the Compaq Enterprise Network Storage Architecture. With its uniquely open and scalable SAN architecture, Compaq has quickly become the market leader in enterprise SANs based on volume of storage capacity shipped.

Compaq SANs connect multiple storage devices on diverse servers and access information from any and all platforms, no matter where it resides. Within a Compaq SAN, storage is a flexible, scalable utility available to just about anyone, anywhere. And capacity can be scaled up in minutes without disrupting operations.

Database and application engines
The Compaq *NonStop Himalaya* server platform is the hub of Compaq Zero Latency Enterprise (ZLE) solutions, which make the promise of enterprise-wide, real-time IT a reality.

Compaq/Oracle partnership

So valuable is the Tru64 *UNIX performance edge that Oracle9i Real Application Clusters are engineered with key components of the* Tru64 *UNIX operating system and* Tru64 *UNIX clustering system.*

Capable of scaling up to handle the largest applications, *NonStop Himalaya* servers bring to high-volume transaction processing both bulletproof data integrity and continuous availability.

Compaq innovates in both software and hardware to achieve superior performance and economy. Take the Compaq *Tru64* UNIX operating system, the first and most robust 64-bit UNIX environment.

Unique Compaq *VLM64™* (Very Large Memory) technology dramatically boosts processing speed of data-intensive applications with large data sets. *Tru64* UNIX platforms consistently outperform other UNIX-based systems for complex, processing-and-data-intensive applications such as GIS, energy management, customer relationship management, business intelligence and supply chain management.

The *Tru64* UNIX operating system consistently outranks other UNIX offerings in:

- Total cost of ownership savings (Standish, Techwise)
- Customer satisfaction, performance, cost and reliability (Gartner Group, DataPro)
- System capabilities (DH Brown)
- Ease and flexibility of clusters and system management (DH Brown)

Also unique to *Tru64* UNIX clustering are its single-system image and cluster-wide file system, which enable the cluster to manage multiple systems as easily as one. By uniting multiple servers, a *Tru64* UNIX cluster achieves ultra-high reliability while lowering the cost of owning and managing an IT infrastructure.

So valuable is the *Tru64* UNIX performance edge that Oracle9*i* Real Application Clusters are engineered with key components of the *Tru64* UNIX operating system and *Tru64* UNIX clustering system.

Bonneville Power Administration (BPA)

- Operates 15,000 circuit miles of high-voltage transmission
- Supplies 50 percent of the electricity and 75 percent of the high-voltage transmission serving Pacific Northwest
- Relies on the *OpenVMS* OS for real-time operational dispatching and energy management, and Oracle software on the *Tru64* UNIX OS for billing, metering and data warehousing

"Our Compaq solutions have the reliability, scalability and flexibility to suit our dynamic, 24 x 7 business."
Mark Reynolds, Manager of Transmission Marketing Systems Support, BPA

Application servers

The Compaq *ProLiant* server family is the most frequently deployed server in the world. Compaq is continually advancing the exceptional reliability, performance and value of this product family with such innovations as 8-Way servers, appliance servers, hot-plug technology, remote deployment and Compaq Intelligent Manageability, which streamlines management throughout the entire life cycle of the IT investment.

The *ProLiant* system is the reference platform for the Microsoft Windows operating system, which Compaq engineers helped Microsoft design. The only company recognized by Microsoft as a Worldwide Prime Integrator for Windows 2000, Compaq has more service professionals trained on Microsoft technologies than any other company except Microsoft.

ProLiant servers are also the industry-leading platform for the Linux operating system. Compaq builds the highest levels of interoperability, manageability and performance into its Linux-based systems. These offerings extend from handheld devices and workstations to high-end servers, all backed by Compaq Global Services consulting and 24 x 7 support.

"ALSTOM's Energy Management & Markets (EMM) business is achieving record sales levels. Key to our success are our longstanding relationship with Compaq and the high quality of Compaq support and engineering. Compaq servers are fast enough to handle the size and performance needs of the newly forming Regional Transmission Operators (RTOs) in the United States, many of which are choosing solutions from ALSTOM."

J.D. Hammerly, Vice President, Sales, ALSTOM Energy Management and Markets

"The reliability of the ProLiant *servers has been fantastic. And the system we've put together will also support new services as fast as our business changes."*

Mike Hammon, Senior Information Specialist, Illinois Power

Illinois Power

- Serves about one million electric and gas customers
- Supports real-time monitoring and streamlines business innovation with Web-based energy management on *ProLiant* servers

Innogy Plc

- Is an Integrated energy company with 8,000 MW of generating capacity
- Supplies electricity and gas to more than five million U.K. customers
- Partners with Compaq for Microsoft Windows-based solutions that include a five-year managed-services contract for all client/server assets and an enterprise-wide Microsoft Exchange infrastructure

"Compaq is well ahead of other companies because of its close partnership with Microsoft. Compaq delivers superior value for the money, from systems to consulting and support. Thanks to our Compaq and Microsoft solutions, we've brought everybody together — 5,500 staff at 20 sites across the U.K. — which has streamlined our workflows, enhanced productivity and greatly lowered our costs."
Gary Rowan, Infrastructure Services Manager, Innogy Plc

Internet access devices of all kinds

Energy professionals who want anytime, anywhere access to information will require versatile client devices capable of exploiting the bandwidth of the 3G Internet.

Compaq offers innovative access tools that can make the Internet vastly more productive for energy-industry users. The Compaq *Evo*™ family offers next-generation client systems that include sophisticated desktop computers as well as high-performance workstations and notebooks.

For example, the Compaq *iPAQ* Pocket PC packs the power of a desktop in a sleek handheld device and offers access to Microsoft Pocket applications such as Internet Explorer, Outlook, Word and Excel. The *iPAQ* Blackberry Wireless E-mail Solution allows on-the-go access to e-mail, contacts and appointments.

Compaq *iPAQ* systems with GPS, messaging and mapping capabilities are valuable tools to a utility's field personnel. And an energy trader on the move could use an *iPAQ* PC to maintain real-time contact with markets.

ScottishPower

- Serves seven million customers in the U.K. and Pacific Northwest
- Employs 430 *iPAQ* Legacy-Lite devices backed by 160 *ProLiant* ML350 servers to deliver Internet-based services such as instant credit at 186 superstores

"The Compaq solution is ideal for our environment and will ensure that our customers receive the very best care at our stores while cutting down time and paperwork."
Tom Orr, IT Operations Manager, ScottishPower

Making it all work together: Compaq Global Services

Compaq solutions for the energy industry combine industry-leading platforms and middleware with best-in-class applications. Compaq Global Services adapts these solutions to each company's unique environment to deliver higher payback, faster.

One of the largest, most advanced service organizations in the world, Compaq Global Services can take a company from upfront planning and design of a solution through implementation and ongoing management.

B2B pioneer enhances energy-industry supply chains

Pantellos is an independent, online marketplace serving utilities and energy companies. It was founded by 21 of North America's largest energy companies, including Cinergy, Duke Energy, Entergy and PG&E Corporation.

Pantellos helps its members — utilities and energy companies and their suppliers — to devise supply-chain solutions that improve the procurement and life-cycle processes for both parties. Compaq is the first major information technology solutions provider to join the Pantellos network.

"We collaborate with member buyers and suppliers to develop win-win scenarios that reduce Total Cost to Supply (TCS) and Total Cost of Ownership (TCO)," says Contract Solutions Director Matthew Worth of Pantellos. "We are enthusiastic about our relationship with Compaq because it is an industry leader in TCO management. More than any other IT provider, Compaq has developed unique service offerings that improve the way its customers do business, reducing their cost of ownership."

Compaq simplifies IT procurement

Compaq Financial Services offers flexible, cost-effective solutions that simplify global financing of IT assets. These solutions help reduce total cost of ownership and enhance asset management — from procurement to disposition. And with consistent financing worldwide, a single global lease can further streamline time and expense.

The resources of Compaq Global Services include:

- Consistent global delivery capabilities in more than 200 countries
- 38,000 service professionals, from support engineers and technical consultants to solution architects and project managers
- The expertise of the most highly certified and technically proficient service personnel in the business, with decades of experience in multi-vendor integration and support
- Proven methodologies to plan, design, build, test and implement projects on budget and on schedule
- Consulting practices in such disciplines as server, storage, network and security architectures and frameworks; enterprise information management; applications; and e-business
- Industry-focused consulting that transfers successes of deregulated utilities, telecommunications and financial services organizations
- Utility-specific practices such as Compaq Assure, a European team focused on deregulation projects, and an Operations Resource Management group that delivers outage management solutions
- Outsourcing to manage and run an entire multi-vendor IT operation or any segment
- Services and tools to consolidate IT resources across diverse platforms, increasing flexibility and economy
- Business-critical support with guaranteed uptime for 24 x 7 environments
- Worldwide operations management centers
- In-depth partnerships with industry-leading systems integrators as well as such companies as Microsoft, Oracle, SAP, Cisco and Nortel
- Partnerships that extend Compaq-branded services through 60,000 channel partners worldwide.

Northern Ireland Electricity Plc (NIE)

- Is Northern Ireland's largest utility, serving 700,000 customers
- Reengineered outage-management infrastructure within nine months with Compaq Global Services program/project management, architecture consulting and 24 x 7 support
- Utilizes centricity from CES International running on a *Tru64* UNIX-based *AlphaServer* platform

CLP Power Hong Kong Limited

- Supplies electricity to more than 1.9 million customers, 70 percent of Hong Kong's population
- Runs mission-critical, Internet-based systems that drive up efficiency, including an AM/FM system, a 3,000-seat Microsoft Exchange system and SAP R/3 on cost-effective, reliable, 24 x 7 server platforms from Compaq
- Relies on Compaq Global Services to speed IT payback with expertise from planning through startup and support and Microsoft Enterprise Agreement, which streamlines procurement

"Compaq's sophisticated clustering technologies, expert consulting and seamless interchange with Microsoft all simplify our operations."
Richard Brisbane-Cohen, Management Services Manager and CIO, CLP Power

"Working with Compaq, we've rapidly reengineered the way NIE responds to network faults. The system has enabled us to establish a new, 24-hour Response Business that has improved restoration times and streamlined information flows. While reducing customer-service minutes lost, we've also lowered costs through more effective resource utilization."

Caroline Murphy, Program Manager, Customer Service Systems, NIE

More information about Compaq solutions for the energy and utilities industry is available on the Compaq Web site: www.compaq.com/solutions/index.html

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