



*High Availability Solutions
from Compaq CustomSystems*

*For NonStop[®]
eBusiness Computing*



COMPAQ
Better answers



High availability is attainable and affordable.

The right level of high availability can actually deliver a return on investment.

We will help you define the level you need.

Compaq CustomSystems will help you define that level based on the cost of downtime and the nature of your computing environment.

And install your systems and solutions with minimal disruption to your ongoing operations.

We will provide you with a single point of accountability.

Based on your requirements, *Compaq CustomSystems* will configure to order, factory integrate, tune, and test high-availability platforms, systems, and solutions. We will stage and document the configurations, disassemble and pack them, and deliver them to your shipping dock. Then, under the direction of a technical project manager, the same team that assembled and packed your configurations will install and power them up onsite whether at night, over the weekend, or on holidays. There will be minimal disruption to your ongoing operations.

High availability for *NonStop*[®] eBusiness computing from *Compaq CustomSystems*.

It's a challenge to ensure that the data and transactions of a business or organization are protected and available. E-Commerce and global operations have made high availability essential for survival in the face of negative events such as those described below.



Component faults due to hardware, software, or interoperability problems. While the industry has come a long way in reducing Mean Time Between Failure rates for individual hardware, packaging, and mechanical components, the interdependent nature of today's multivendor and networked solutions is a major consideration in architecting high availability and continuous computing solutions.



Administrative intervention. Just because it's planned downtime doesn't mean it's not downtime. Management tasks like system maintenance, database backups, application/operating system updates, or a physical move may require that a system be brought down. Or the intervention itself may cause a failure. Or an inadvertent or malicious human action might cause a catastrophe.



Building-level incidents. Disasters affecting a site or building, such as fire, power loss, or flooding can interrupt service by damaging systems, robbing them of power, or preventing access to them.



Metropolitan area disaster. Disasters, such as floods, fire, and blackouts, can affect substantial sections of cities, impacting systems located throughout the metropolitan area.



Regional events. Computing can be interrupted by disasters that affect systems across a large region. Hurricanes, earthquakes, or geopolitical disruptions can cause outages over hundreds of square miles.

Crucial Factors

Do you know the probability of each of these events affecting your operation? Do you know what will happen to your applications, particularly those in the "24 x 365" zone, in each of these cases? Have you assessed the risks you are willing to take? Do you know it can cost less than the alternative to minimize the negative impact that could occur? The alternative? Doing nothing — or worse — doing the wrong thing.

Understanding

Successfully architecting and deploying a high availability solution is not a trivial process. It requires an in-depth understanding of the complexities of the known ... and a healthy respect for the vagaries of the unknown.

Some aspects of high availability are obvious. Others are not.

The obvious: if your systems go down people rant and rave. The IS department becomes the focal point of scrutiny. Your business or organization incurs

- Lost opportunities
- Lost revenues
- Failure-to-perform fees
- Non-compliance penalties
- Malpractice exposure
- Stranded fixed costs

Potentially more damaging is the loss of good will. Customers, partners, and suppliers affected by system shutdowns perceive your organization as poorly run and unable to meet their needs.

To prevent the obvious from happening, you need to understand the not so obvious:

- What does high availability really mean to your organization?
- Have you determined the risks you are willing to take and the trade-offs?
- Should you worry about recovery point — where the loss of data is unacceptable — or recovery time — where realtime continuity is key — or both?
- Are you in a data-centric or a transaction-centric environment?
- Can a high-availability solution deliver the performance required by your mission-critical applications?
- Is the infrastructure in place to support the solution reliably and affordably? Regionally? Globally?

Compaq engineering: talent and experience

In terms of talent and experience, the Compaq engineering community is unique in the industry today. It is composed of the individuals and groups who have led the way in inventing, architecting, delivering, deploying, and supporting high availability, disaster tolerant, fault tolerant, and continuous computing solutions for the past twenty years. And *Compaq CustomSystems* helps make it all work ... together.

Consider this compelling fact: Among customers with the highest levels of availability requirements — those with an hourly cost of outage of \$100,000/hour or more or where loss of life or property is a concern — the choice is Compaq by a factor of nearly three times that of our nearest competitor.

Compaq systems run

- 66% of the world's wholesale funds transfers
- 66 of the 68 largest Stock Exchanges worldwide
- 60% of the world's ATMs
- More than 50% of the world's cellular phone billing systems
- More than 80% of IS-41 off-switch HLRs
- 90% of the world's CPU chip manufacturing capacity
- More North American Healthcare organizations than any other IT manufacturer

Fact is, you don't have to be a telecom company or chip maker to need high availability. And the level of availability your business requires may not have to be 7 x 24 x 365. It needs to be what is right for you and your customers.

As you architect and deploy your high availability environment, Compaq CustomSystems can work with you every step of the way, help you answer the questions and make the choices that lead to success.

Systems and solutions tailored to your requirements

For many organizations, the design and configuration of high-availability solutions requires a tailored approach. That's when you call *Compaq CustomSystems*. We are experts at building high-availability solutions to meet your precise requirements.

We will configure the hardware and software you need to meet your availability and performance requirements. Server and storage configurations, applications, and even databases are precisely tuned and tested in our ISO 9001 manufacturing facility.

Your high-availability solution is ready to run when it arrives at your site. And, if you wish, we'll even install the platform, giving you a complete, reliable, and hassle-free solution.

Our proven engineering and factory-integration capabilities deliver a reassuring measure of certainty that your systems will work reliably in the real world to meet your definition of availability.

CustomSystems added value

- Architecture and consulting
- Design and configuration
- ISO 9001 factory integration
- Global delivery and support
- In-depth technical project management
- Documentation and installation
- Mission-critical delivery
- Training and support
- Configuration management

CustomSystems can create a specific solution on a one-time basis. Or take a design and replicate it *by the hundreds* for global deployment.



The right solution for you

Implementing high-availability computing solutions is not a one-size-fits-all proposition satisfied by a single answer or product.

The right solution for you is based on a number of choices about CPUs, operating systems, databases, application software, storage subsystems, interconnects, networks, and more.

That's why you should work with Compaq and *CustomSystems*. We have the people, technologies, and resources to deliver and support the precise level of availability you require.

Along with our engineering capabilities, CustomSystems has robust, proven high-availability platforms and solutions that reduce risk, simplify complexity, and accelerate time to deployment. Here are some examples

High Availability from Compaq

Tru64 UNIX Cluster Solutions

Tru64 UNIX® clusters are ideally suited for applications requiring high availability and performance. With *Tru64 UNIX* solutions, you benefit from our nearly two decades of experience with clustering technology. That means our cluster software is operationally mature so you can trust your critical applications to fail over — rapidly and reliably.

Data Server Clusters for Tru64 UNIX, Windows NT, and OpenVMS

A Data Server is a high performance, high capacity cluster using industry-standard, high-performance network protocols. *Tru64 UNIX* and *OpenVMS* are supported by Compaq's 64-bit *AlphaServer* processors while Windows NT runs on *ProLiant* systems.

OpenVMS Disk Services for Windows NT

OpenVMS Disk Services for Windows NT is the ideal storage solution for managers deploying Windows NT systems who want the reliability and failover capabilities they've come to expect from *OpenVMS*.

Parallel Database Cluster Solutions for Windows NT

Compaq Parallel Database Cluster Solutions for Windows NT with Fibre Channel storage provide cost-effective, scalable, fault-resilient computing for e-commerce, telecom, decision support, and business-intelligence environments.

Oracle Disaster Recovery Service

Your challenge is to maintain database file integrity and high levels of data currency. An effective way to achieve that is with *Oracle*® *Disaster Recovery*

Disaster Tolerant Solutions

Disaster Tolerant (DT) systems are highly available systems that span distances beyond a single site. The decision to implement Disaster Tolerance is based on a simple formula: the cost of extended downtime and the risk of a potential loss must outweigh the cost of the Disaster Tolerant solution and the supporting infrastructure.

No two DT solutions are exactly alike. Each solution must be tailored to your specific application, business, geographic, and economic requirements. The *CustomSystems* team takes all these factors into account when it creates a complete DT solution using a range of Compaq and third-party systems, storage, interconnect, and software technologies and components.

Platforms and Solutions *CustomSystems*

(ODR) Services. ODR is a consulting service and software product coupled with installation services for the deployment of the log-shipping method of data protection in Oracle and *Tru64 UNIX* environments.

Multi-terabyte high-speed backup/restore

While everyone is concerned with how long it takes to backup their databases, it's restore time that counts in an emergency. Our solution enables you to restore a 250-GB database from a disaster or operator error in 20 minutes!

Specialized tape solutions

High availability goes beyond keeping systems up and running. It also demands data availability — even if that data is located on legacy systems or stored on legacy media.

CustomSystems provides specialized tape solutions that give you the ability to read and interchange data archived on legacy tape media.

- *Tape Interchange System* for Windows NT for accessing ANSI- and IBM-standard ASCII and EBCDIC tape records
- TKZ6x tape drives for IBM® 3480/3490/3490E media compatibility for data interchange or backup
- TKZ90 tape drive for IBM 3590 media compatibility
- TS707 1600/6250 bpi for worldwide, industry-standard data interchange
- TKX9F industry-standard 8mm, helical scan tape drive for interchange and backup

High-density packaged disks

Our Terabytes in a Cabinet solution packs 1.7 terabytes of hard disk storage in seven square feet of floor space.

NonStop® SAP platforms

Configured-to-order, factory-integrated, high-availability SAP platforms speed deployment and reduce risk.



Compaq: Enhancing Value, Expanding Choice

Compaq offers a full suite of processes, methods, and tools designed to create high-availability environments that meet your mission-critical requirements. With our broad range of technologies, we can help you define your availability requirements, target the best platform or blend of platforms for deployment, and deliver an integrated, enterprise-wide system.



Available Technologies

From component failure to regional disaster, there are key technologies that can minimize your downtime.

- Hardware
- Operating systems
- Storage
- Databases
- Networks
- Applications
- Management

Looking at causes, finding the cure

Once you identify which causes of downtime are of most concern you can begin to analyze your total environment taking the proven availability technologies into account and architect the high-availability system that is right for you.

First, call Compaq. We can help you every step of the way.

Knowledge from the ground up

The people who know availability best can help you improve the availability of your existing environment or design an infrastructure from the ground up with

- Availability reviews
- Availability partnerships
- Mission critical services
- Business continuity solutions
- System management support
- Assessment and capacity planning
- Installation and start-up
- Hardware and software support
- Factory-integrated systems

World-class service and support

After installation, you can count on Compaq to take care of your high availability environment.

We field one of the most powerful IT service and support organizations in the world — including 27,000 IT experts in 114 countries and a network of over 30,000 highly skilled resellers.

With these resources, we offer a suite of proactive and reactive services that will keep your high availability and *NonStop*® computing environments operating at peak efficiency.



By calculating the cost of downtime — lost revenue, confidence, and productivity — businesses and organizations usually discover that availability is easily cost-justified.

Compaq is uniquely positioned to provide you with the level of availability that best matches your requirements.

Our inclusive approach to availability involves a partnership and shared risk. We help you assess the financial impact of downtime and identify your availability risks.

Plus, we offer the industry's broadest range of high availability computing products, platforms, solutions, and services.

Server superiority

In terms of processing and availability features, our line of servers delivers everything you need for a high availability/continuous computing infrastructure.

- *NonStop® Himalaya*
- *OpenVMS Alpha*
- *Tru64 UNIX Alpha*
- *Windows NT Alpha*
- *Windows NT ProLiant*
- *SCO® UnixWare ProLiant*

Compaq delivers maximum uptime with minimum risk

- Availability despite unplanned events
- Availability during planned events
- Fast recovery from failures
- Data integrity
- Modular, linear, and inexhaustible growth
- Trust and security

Total commitment to availability

Availability features are built into all Compaq server solutions — for example:

- Hot Plug PCI in *ProLiant* servers
- Clustered UNIX capability in *Tru64 UNIX* and *SCO® UnixWare* servers
- Highly integrated, high-availability features in *OpenVMS Alpha*, *NonStop Himalaya*, and *NonStop Integrity* environments

What's more, *OpenVMS*, *NonStop Kernel*, and *Tru64 UNIX* continue to provide key hardware and software technologies to the Windows NT environment, accelerating the deployment of enterprise-level applications on Windows NT Server software.

The continued investment in these platforms allows Compaq to deliver — today — solutions at all levels of the enterprise.

No other vendor can provide the range of standard, off-the-shelf business-critical features with the low total cost of ownership that Compaq can.

And no other vendor has the level of experience and capabilities to deliver configured-to-order solutions that meet the unique requirements of your business or organization.

High Availability Checklist

What level of availability do you need? This short checklist highlights some key actions you should take to ensure availability for your organization and your customers.

- Determine the cost of downtime.
- Assess the risks you are willing to take.
- Understand recovery in terms of point and time.
- Focus on the events that can have a negative impact on the ability to keep an application — and an organization — up and running. Understanding these events is essential for developing the right high-availability environment for your organization.
- Understand the proven availability of various technologies with respect to the above.
- Once you understand the events that lead to downtime, choose a technical strategy for achieving the level of availability required by a particular environment.
- Save time and money. Contact Compaq for complete lifecycle planning, deployment, management, service, and support.

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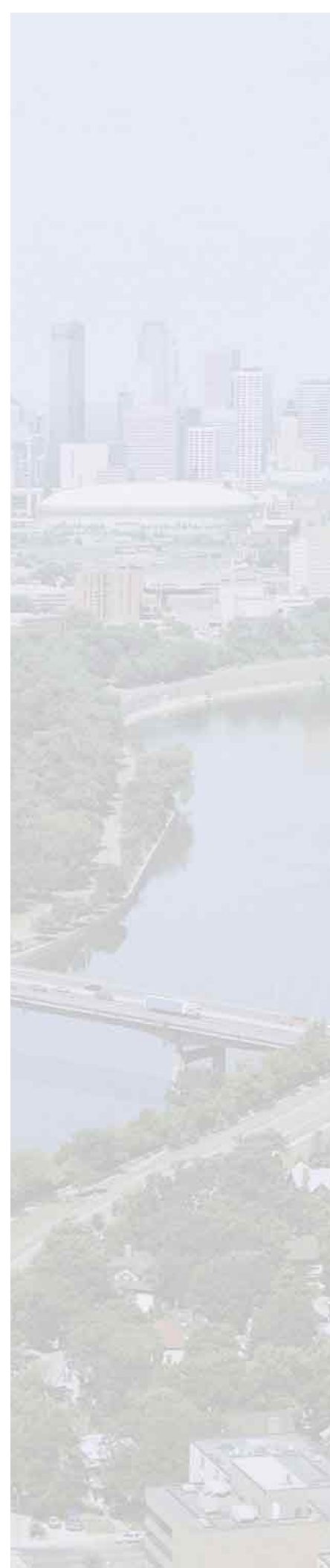
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