



# Better Answers Across the Board

**Compaq has delivered true “five 9s” of availability on multiple platforms for more than 20 years.**

## Compaq availability solutions for the telecommunications marketplace

The telecommunications industry has long understood the demands of providing continuously available service. Its classic measure has been dial tone: always there, everywhere.

Telecommunications, perhaps more than any other industry, puts its underlying computing infrastructure to the ultimate test with increasing demands for computing reliability and availability that must match the ever-present dial tone.

The heightened demand for availability has signaled changes in the computer industry; computer vendors quickly recognized an outstanding opportunity for their own growth. As a result, many players have recently

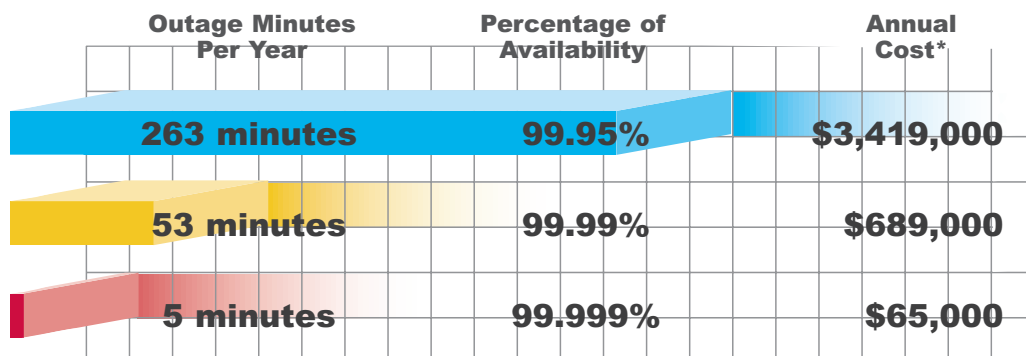
entered the “continuous availability” computing sector—some who are first-time entrants and others who are rushing to redefine themselves and address the growing need.

But providing a truly fault-tolerant, reliable, and highly available electronic solution—one that you can bet your business on—is extremely difficult and complex. You cannot simply bolt new architectural attributes onto an existing infrastructure and declare availability. It’s just not that simple.

### Availability: What does it really mean?

The influx of new availability vendors introduces many more choices for—and approaches to—availability. The profusion of confusing architectural concepts and complex “guarantees” makes it more difficult to choose the right solution.

Even the definition of availability itself has become hazy. The latest term—“five 9s” or 99.999 percent availability—isn’t clearly defined. It translates to roughly five minutes of downtime per year (see figure 1). But what does that really mean?



\*Based on cross-industry cost-of-outage average of \$13,000 per minute (source: Gartner Group). Cost will vary based on application.

Figure 1 The cost of downtime can be astronomical, quickly adding up to millions of dollars per year. The seemingly slight differences between 99.999, 99.99, and even 99.95 percent availability translate to huge differences in the number of minutes of downtime and the resulting costs.

Is that a full year: 7 days a week, 24 hours a day? Does it exclude natural disasters? Is planned downtime for adding hardware components, performing system maintenance, and upgrading software built into the definition or are these activities performed dynamically while the system remains online? And what does online mean anyway? Are we talking about the simple availability of a system prompt or of ensuring that customers can continuously access the services they require?

**The real definition of availability:  
A business-centric approach**

Computer vendors will continue to grapple with the nuances and terminology of

profits by keeping services running whenever customers want them. Availability therefore ensures businesses against loss of revenue due to unavailable services and lowered productivity. It also safeguards businesses from the intangible consequences of these problems, like customer dissatisfaction and loss of reputation.

Availability “insurance” also extends to include protection from the results of disaster, thereby preserving the ongoing accessibility of customer services as well as important public assistance services such as fire and police departments, hospitals, and defense.

At the most basic level, the dimensions of availability can be described in terms of

the type of failure and its effect on the many components that make up an enterprise solution (see figure 2). At any point along the scale, a different mix of availability features and functions is needed. The challenge is to correctly determine where on the availability spectrum a specific set of requirements falls and then find the right mix of ready and proven technologies to select the best solution.

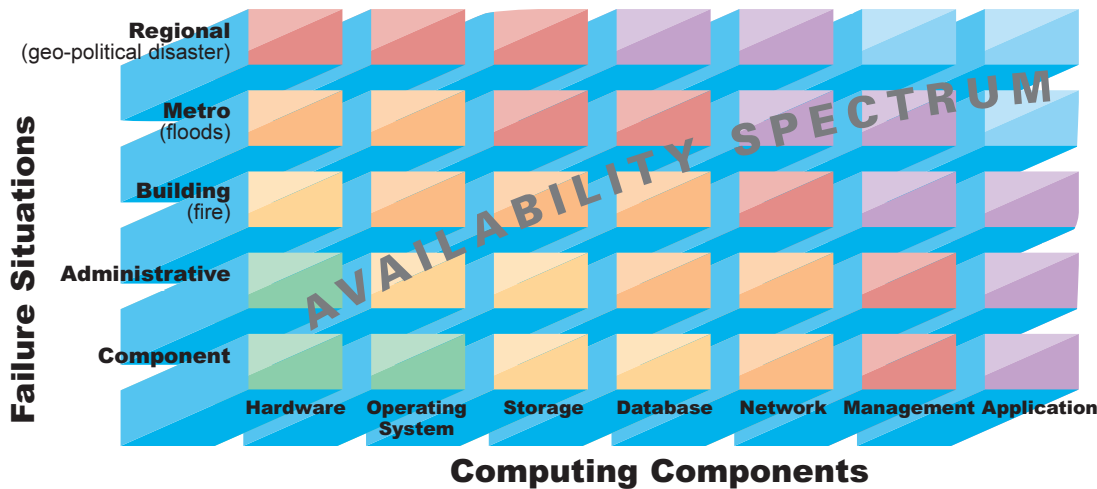


Figure 2 Achieving ultimate availability can be complex and challenging. You must consider many different computing elements and major events (failure situations)—and how they affect availability.

availability, but the only definition that really matters is the one that is business-centric. A business-centric definition of availability is based on the size and specific requirements of a business’s marketplace, its mission-critical application solutions, and its operational environment.

Because, what is availability, actually, but insurance? The business objective of availability has always been to increase

**Better answers: Everywhere on the availability spectrum**

Compaq unquestionably has the broadest range of availability products and solutions on the market today and can provide better answers *anywhere* on the availability spectrum. We offer open, reliable solutions and technologies—from hand-held PCs to the most scalable and highest-performance clusters and systems.

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The world's top 35 telecommunications switch vendors rely on Compaq availability solutions.

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The largest wireless carriers in the United States, Canada, and the United Kingdom depend on Compaq mobility management systems.

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More than 22 million wireless subscribers run on a Compaq Home Location Register (HLR).

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Over 80 percent of the Wireless Customer Care and Billing applications in Europe and Asia are deployed on Compaq servers.

## **Our customers make our point better than we ever will.**

**It is our customers who provide the most compelling narrative. They buy from us because they know that when it comes to fault-tolerant, highly available, mission-critical solutions for the telecommunications industry, the obvious choice is Compaq.**

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Nearly 95 percent of the Alternate Billing Services calls placed in the United States are processed through Compaq servers.

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Compaq handles 90 percent of stock exchange trades, 80 percent of all cash transactions, and 66 percent of all credit card transactions worldwide.

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Compaq delivers the most widely deployed Intelligent Network Server (INS) in the world.

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Nearly 100 percent of all 800-number calls originating in the United States are processed by Compaq servers.

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More than 65 percent of all 911 calls in North America are processed by Compaq servers.

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Compaq leads deployment of service control point (SCP) in the industry for offswitch services.

**COMPAQ**

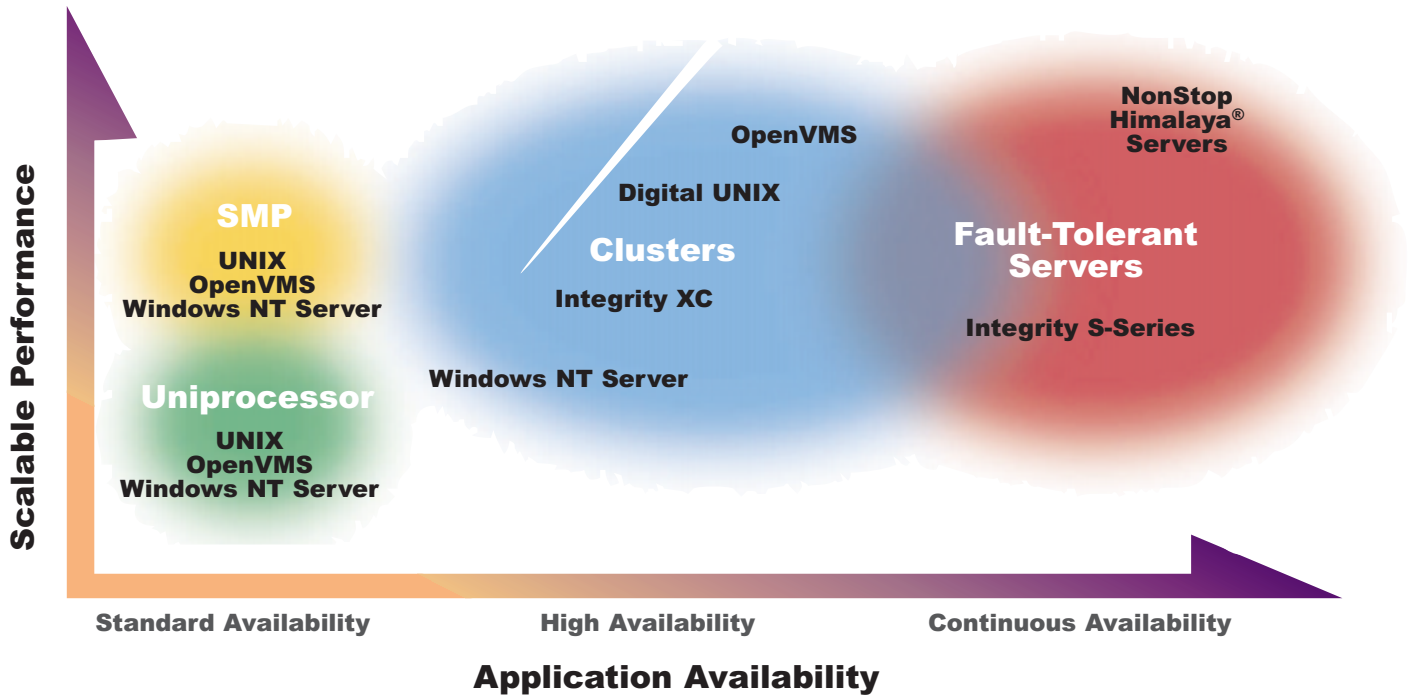


Figure 3 Compaq products provide better answers *anywhere* on the availability spectrum.

While some vendors make promises and present a vision of their availability offerings, Compaq offers products and solutions that are time-tested, mature, and robust. Our solutions have been proven over and over to stand up to the most stringent requirements of the telecommunications industry.

In fact, the professionals in the Compaq Enterprise Computing Group (encompassing the Tandem Division and Digital) *pioneered* the concepts of fault tolerance, continuous availability, and disaster tolerance more than 20 years ago, and have been delivering and supporting systems running in the most demanding mission-critical environments ever since. The combined development, delivery, and support experience of Compaq, Digital, and Tandem personnel is unsurpassed in the marketplace.

Consider some compelling facts: Among customers with the highest availability requirements—those with an hourly cost of outage of \$100,000 or more—the choice is Compaq by a factor of nearly three times that of our nearest competitor. And a large majority of these Compaq high-availability customers (61 percent) have experienced *no* unscheduled outages in the last year, nearly twice the average of customers using other high-availability platforms (Griggs-Anderson Research, July 1998).

Analysts and the press alike recognize our high-end line of availability platforms—NonStop® servers, OpenVMS, Digital UNIX®, Integrity® S-series, and Integrity XC—as the most robust offerings in the industry (see figure 3). In addition, Compaq is bringing the levels of availability found in these high-end servers to the Microsoft® Windows NT® environment.

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Compaq is the leader and major driving force in the acceleration of Windows NT Server as an enterprise solutions platform.

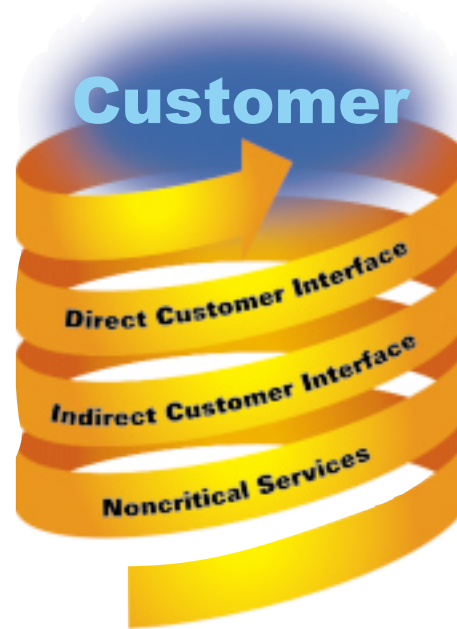
With our broad range of technologies, we can help you define your availability requirements; target the best platform or blend of platforms for deployment; and deliver an integrated, enterprise-wide system that is supported by world-class services. The people who know availability best can help you assess how to improve the availability of your existing environment or to design an infrastructure from the ground up. No other company has more talent with regard to fault tolerance and availability, and as wide a selection of options to choose from.

What's more, Compaq leads the market with convergent solutions that enable telecommunications carriers and service providers to look to one leader to solve all their needs. Compaq partners with more than 170 industry-leading companies to offer a comprehensive and reliable selection of telecommunications solutions.

### Why would you go anywhere else?

Compaq knows how to build resilient solutions, with reliability and fault tolerance designed into every element—from our hardware, software, and application solutions to our high-speed network interconnections. We've delivered *true* "five 9s" of availability (less than 5 minutes of downtime a year) on multiple platforms for more than 20 years and are undeniably the experts. So when it comes to availability, why go anywhere else—when we offer better answers?

## Availability in the Telecommunications Industry



### The requirements of availability increase the closer you get to the customer.

**Continuous availability:** Required for direct customer interaction, which includes elements within the call path such as Home Location Register (HLR) and Enhanced Network Services such as E-911.

**High availability:** Required for the indirect customer interface such as Business Support Systems (BSS) and Operations Support Systems (OSS).

**Standard availability:** Used for noncritical services such as file and print servers.

**For more information**

Access the Tandem website at <http://www.tandem.com>.  
Send Internet e-mail messages to [info@tandem.com](mailto:info@tandem.com).

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