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Hewlett-Packard and Marathon Technologies Offering New Assured Availability (AE-4) Solutions for NT

Executive Summary

Hewlett-Packard and Marathon Technologies have signed a multi-year, multi-product OEM agreement. Based on this agreement HP now offers its users a NetServer Assured Availability Solution for Windows NT. Additionally, HP provides worldwide world-class support for its Marathon-based NetServer Assured Availability Solutions. HP and Marathon will under the terms of this agreement share in the marketing and future technology development, as well as in the establishment of an Assured Availability standard. As part of this newly announced partnership, HP and Marathon have developed a common high availability vision based around HP NetServers, Marathon's Assured Availability capability, and HP's worldwide service and support organization.

Hewlett-Packard will initially provide the NetServer Assured Availability Solutions in three basic configurations; Datacenter, Branch Office, and Disaster Tolerance. All three configurations can be managed through a special Marathon interface that complements HP's TopTools and ManageX products. The service and support offerings include standard, recommended and optional packages.

<u>Service & Support Category</u>	<u>Service & Support Offering</u>
Included	24x7 Hardware and Software Support
Recommended	6 Hour call-to-response on HP NetServer Priority Software recovery
Optional	Personalized System Support Critical Systems Support for NT Back Office Software Support

The recently announced HP/Marathon alliance provides users with unparalleled choices in terms of availability environments, configurations, service & support, and delivery/implementation services. Harvard Research Group believes that the Marathon Technologies Endurance array is the first example of a new category of fault tolerant systems built around low cost industry standard hardware and off-the-shelf Windows NT software. Marathon Technologies Corporation develops and markets Fault Tolerant or Assured Availability systems for mission critical, high value Windows NT solutions. Their goal is to provide products and services that maintain both server and data availability on a 24 x 7 basis, via low-cost, industry standard technology such as the Intel architecture and Windows NT. Marathon's partnership with Hewlett-Packard, one of the preeminent providers of the high availability products and services, brings Assured Availability to a wider audience. Together these partners offer users the ability to get, from a single source, availability solutions spanning the entire availability spectrum from Highly Reliable or AE-1 solutions up to and including Fault Tolerant or AE-4 solutions. (Please refer to HRG's Availability Environment definitions later in this document).

According to Harvard Research Groups Availability Environment classifications, the HP NetServer Assured Availability Solution is an Availability Environment (AE-4) class product that offers nonstop processing and continuous data access for windows NT mission critical services and applications. The HP Assured Availability Solution acts as a single logical server and enables continuous business operations by providing uninterrupted application service to end users.

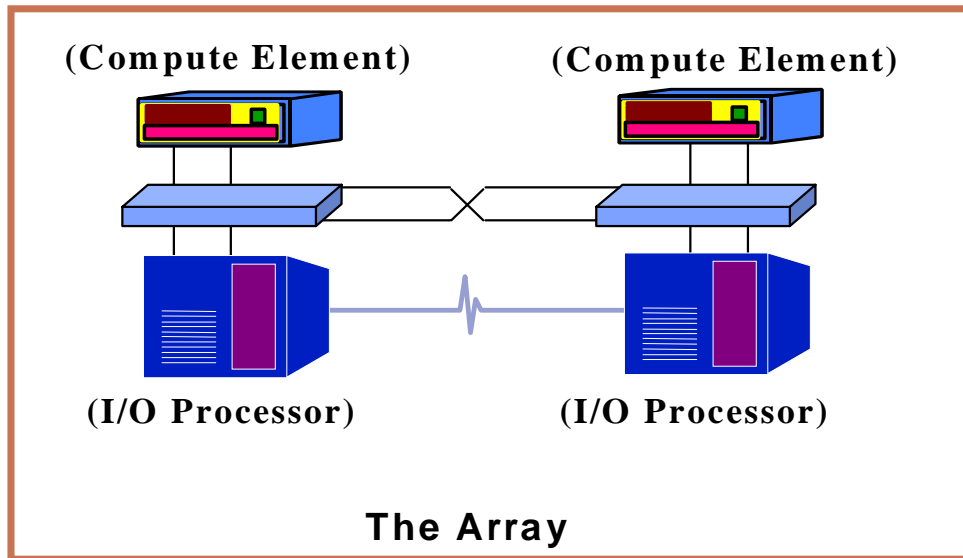


Figure 1- HP NetServer Assured Availability Solution

Figure 1 illustrates how the HP NetServer Assured Availability Solution divides a server solution into four components – Two PCs consisting of processor and memory (compute elements) and two PC-based I/O servers (I/O elements). Both compute elements process the same work and they appear to users or clients as a single system. If either fails, the remaining compute element will complete the work. When the failing element has been repaired, it is transparently reconfigured back into the system without disrupting its operation or clients. Two copies of critical data are kept, one on each I/O processor, ensuring that if one I/O processor fails, a copy of the data can be obtained from the other I/O processor. Hardware upgrades can occur without server disruption, and in the case of a disk failure, data can be restored to a replaced disk as a background operation. The HP NetServer Assured Availability Solution can also be configured over geographically split locations to provide processing and real time I/O duplication between rooms and buildings located up to 1.5 kilometers apart. Some of the key features that support fault tolerance include:

- No single point of failure with the ability to identify any single error or failure.
- The ability to isolate the failure and continue to operate without the failed component causing any loss of transactions or data.
- The ability to be repaired while it continues to perform its intended function
- The ability to be restored to its original level of redundancy and operational configuration.
- The use of off-the-shelf Intel systems running an unmodified version of the Windows NT operating system

- The ability to geographically separate the two compute elements and I/O elements up to 1.5 km apart via a fiber connection thus providing disaster tolerance
- The ability to provide Availability Environment 4 protection for the Windows NT operating system. (See **HRG's Availability Environment definitions**)

User Defined Availability Level Set the Stage

HRG has defined availability in terms of the impact a system being unavailable to perform work has on the activity of the business and consumer (end user) of the service, rather than the technologies used to achieve it. The five Availability Environments (AE) below define availability in terms of the impact on the both the business and the end user or consumer:

- **Fault Tolerant (AE-4)** – Business functions that demand continuous computing and where any failure is transparent to the user. This means no interruption of work; no transactions lost; no degradation in performance; and continuous 24x7 operation.
- **Fault Resilient (AE-3)** – Business functions that require uninterrupted computing services, either during essential time periods, or during most hours of the day and most days of the week throughout the year. This means that the user stays on-line. However, current transaction may need restarting and users may experience performance degradation.
- **High Availability (AE-2)** - Business functions that allow minimally interrupted computing services, either during essential time periods, or during most hours of the day and most days of the week throughout the year. This means user will be interrupted but can quickly relog on. However, they may have to rerun some transactions from journaled files and they may experience performance degradation.
- **Highly Reliable (AE-1)** – Business functions that can be interrupted as long as the integrity of the data is insured. To the user work stops and uncontrolled shutdown occurs. However, data integrity is ensured.
- **Conventional (AE-0)** – Business functions that can be interrupted and where the integrity of the data is not essential. To the user work stops and uncontrolled shutdown occurs. Data may be lost or corrupted.

* **Disaster Recovery** capability is a horizontal availability feature that is applicable to any of the Availability Environments (AEs). It provides for remote backup of the information system and makes it safe from disasters such as an earthquake fire, flood, hurricane, power failure, vandalism, or an act of terrorism.

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