



everRun MX: Powering Application Availability for the Always on World

Fault Tolerant Breakthrough Removes the Price/Performance Barrier to Continuous Uptime

System downtime is no longer an option for business-critical and customer-facing applications.

“Always-on” Application Availability is a critical and growing business requirement that has become a top priority for IT professionals in businesses of every size. Today’s organizations rely on technology for nearly every aspect of their business. This, combined with our 24 x 7 global society, has made satisfying the demands of the always-on world one of the top IT challenges.

The pressures of meeting the needs of the always-on world are falling squarely on the shoulders of IT organizations. It’s up to IT professionals to keep databases running so order entry systems don’t become inoperative. It is the IT team that ultimately ensures automated factory systems are functioning. If e-commerce sites go down, it’s the IT staff that is called to the rescue, on weekends, holidays, or at 3 AM.

The key to meeting the needs of the always-on world is “Application Availability.” Applications are the lifeblood of today’s always-on business. Applications are the tools of employee productivity; the engines that keep mission-critical business processes running; and customers’ gateway to your business. Today’s users not only expect uninterrupted application access – they demand it. Without Application Availability, business can quickly come to a halt, revenue can be lost, and customers can decide to do business with your competition.

System administrators, DBAs, CIOs and CTOs now must answer to the always-on world. System downtime is no longer an option for business-critical and customer-facing applications. The risks are simply too great and the consequences too severe.

TRADITIONAL AVAILABILITY APPROACHES

Traditional availability approaches do not meet the requirements of the new always-on world because they are reactionary methods that focus on speeding up recovery times after a failure, to minimize the impact of downtime, rather than preventing downtime in the first place. Two of the more common of these reactive approaches have been replication and clustering.



everRun MX: Powering Application Availability for the Always on World

Replication and clustering are not viable solutions when downtime is not an option.

Replication with Manual Failover: This approach replicates data from a primary server to a standby server. In the event of a failure in the primary server, IT staff must bring services back up on the standby server. This is a reactive model that does not prevent, but rather, reacts to downtime. Recovery under this model requires significant human intervention to re-start the services on the standby server. This can often take hours and result in lost data.

Clustering Technologies: In this model, a group of physical servers form a cluster and all data resides on a common storage platform. Application services run on one of the servers in the group and, in the event of a failure, the service re-starts on another server in the group.

Clustering technology automates the failover process. While human intervention is not needed to bring up services on a standby server, clustering still results in a service disruption while the applications and services are re-started on the standby server. Because of this, clustering is also a reactive approach that results in downtime. During the failover process, applications are offline. The other hurdle that must be overcome under this model is the complexity of setup and maintenance of the environment. Clustering technologies require a SAN (Storage Area Network) implementation. If this, or any aspect of the cluster setup is not configured properly, you are exposing your applications to potential downtime.

Replication and clustering are not viable solutions for the always-on world where downtime is not an option. Both of these reactive technologies result in a disruption of service and do not deliver the level of availability needed for the always-on world.

THE ALWAYS-ON APPROACH: FAULT TOLERANCE

Fault Tolerant Options

If downtime is not an option for key aspects of your business, following are three fault tolerant options to consider:

1. Hardware-based fault tolerant solution
2. Fault tolerant add-on from your virtualization vendor
3. Software-based fault tolerant solution



everRun MX: Powering Application Availability for the Always on World

Hardware-based Fault Tolerant Solution

In this approach, specialized servers that are designed solely for creating fault tolerant protection are deployed to create a fault tolerant environment. The hardware is set up as a single chassis that contains redundant internal components. This has been the traditional approach to fault tolerance for many years. The appeal of this approach is that it provides support for applications that need to leverage multi-processor/multi-core architectures.

One of the concerns about this approach however is that since the chassis is one physical asset, it is also a single point of failure. If an incident occurs, such as a localized power failure, the system will go down, which basically renders this fault tolerant approach ineffective. Another challenge with this approach is that these solutions are built on proprietary hardware. Organizations cannot use the hardware platform of their choice, and instead are locked-in to this specialized hardware, which can create challenges for peripheral and storage support. In addition, these solutions can be very expensive (in the six figures), and usually require specialized skills to setup, administer and maintain.

Fault Tolerant Add-on to a Virtualization Solution

In this scenario, a virtualization solution has a fault tolerant software add-on as an option. Some organizations may find this an attractive option because it is from the same vendor that provides their virtualization platform. However, there are several drawbacks to this approach.

First, this approach only provides fault tolerance for applications that run on single processors. The inability to make resource-intensive applications fault tolerant creates a large gap in this offering because most of today's mission-critical applications, such as SQL Server, and Exchange, require multiprocessor and multi-core support.

Additionally, this approach requires you invest in a SAN (Storage Area Network) infrastructure. If you have already made this investment, you will need to consider the additional expense of making the SAN infrastructure fault tolerant as well, without fault tolerant storage, you will have created a point of failure within this architecture.

Finally, the virtualization add-on approach does not provide fault tolerance at the component level, exposing applications to additional risk. To address this concern you will need to build in hardware component redundancy, which adds expense and complexity.

Fault Tolerant Options

Proprietary Hardware:

- Expensive to implement
- Limited flexibility (limited peripheral support).

Virtualization Add-on:

- Single CPU support only
- Expensive (requires redundant SAN)

Fault Tolerant Software Approach (everRun MX):

- Multiprocessor / Multi-core support
- Lowest total cost of ownership (TCO)
- Hardware flexibility
- Easy to implement



everRun MX: Powering Application Availability for the Always on World

everRun MX is the world's first software-based fault tolerant solution that supports SMP and multi-core Windows applications.

Software-based Fault Tolerant Solution

Advances from Marathon Technologies have enabled a new software-based solution that provides full fault tolerance – everRun® MX. everRun MX is the world's first software-based, fault tolerant solution that supports single and symmetric multiprocessor and multi-core applications. With everRun MX, all applications can have fault tolerant protection for a cost that is lower than today's recovery-based, high availability solutions.

Because everRun MX is software-based, it means complete freedom of choice for hardware platforms and peripheral devices such as storage. In addition, everRun's software approach significantly reduces the cost and complexity of achieving fault tolerance, and puts it within reach for almost every organization, even those with limited budgets and IT resources.

everRun combines the physical resources of two or more standard Windows servers into a single operating environment with complete redundancy of all underlying hardware and data. everRun operates with complete redundancy of the servers, storage, data, and networks, and provides automated fault management.

everRun provides both system and component-level fault tolerance. If a component fails, then just the failed component is isolated from the application, and other resources in the pool continued to be utilized. This helps you avoid the need to place redundant hardware in the same box. With the component level approach, your application will simply work around the failed component, and will continue to benefit from redundancy of other components in the system that has not failed.

Other advantages of everRun MX are that it is automated, for minimal IT staff intervention; and it protects all components in the application infrastructure: storage, servers, applications and network.

Achieving the Goal of Continuous Uptime

In the past, IT organizations typically made availability solution decisions based on the infrastructure already in place. Don't fall into this trap. If you have an application that is critical and, therefore, needs fault tolerance, you need to choose the platform that best meets that goal.

It is very important to not let other infrastructure decisions influence how you handle fault tolerance for your applications environment. The idea behind this is to allow your consolidation platform to do its job,



everRun MX: Powering Application Availability for the Always on World

everRun MX removes the price/performance barrier to continuous uptime, which eliminates the technology tradeoffs forced upon IT departments

and run your most critical applications on the platform that offers the highest levels of availability to meet your needs (best of breed approach).

When it comes to those applications that are critical to your business, employing the right technology to meet your availability needs is an area where today's IT organizations no longer have to compromise. Adding a platform that will ensure application fault tolerance and high availability, along with disaster recovery options can be cost effective and easy to implement, and will augment your consolidation efforts, while providing the necessary levels of business continuity to your organization.

everRun MX Key Characteristics

With everRun MX, any organization can turn standard servers into hardened, fault tolerant platforms that prevent application downtime and eliminate data loss.

Full Fault Tolerance

everRun MX handles system, network, and disk I/O failures without IT intervention and with zero downtime. Self-healing operations do not require IT intervention or specialized skills.

Symmetric Multiprocessor and Multi-core Support

everRun MX solves one of the most technically challenging problems in computing: scalable fault-tolerance across multi-core server architectures. everRun MX is the only software-based fault tolerance solution that protects all Windows applications including applications that require symmetric multiprocessor / multi-core support.

Software Solution

everRun MX is a software solution that is easy to deploy and use for organizations with limited IT staff. It does not need application modifications or scripting to deploy.

Automated Solution

An automated solution, everRun MX enables hands-off operation, which is ideal for organizations with minimal IT staff. everRun MX synchronizes, monitors, corrects and repairs problems in all components within the application environment to prevent downtime.



everRun MX: Powering Application Availability for the Always on World

Holistic

everRun MX protects all components in the application infrastructure, including servers, all Windows applications, off-the-shelf storage and the network. This eliminates the need for multiple point solutions for availability, and results in easier administration and significant cost savings.

Uses Off-the-shelf Storage

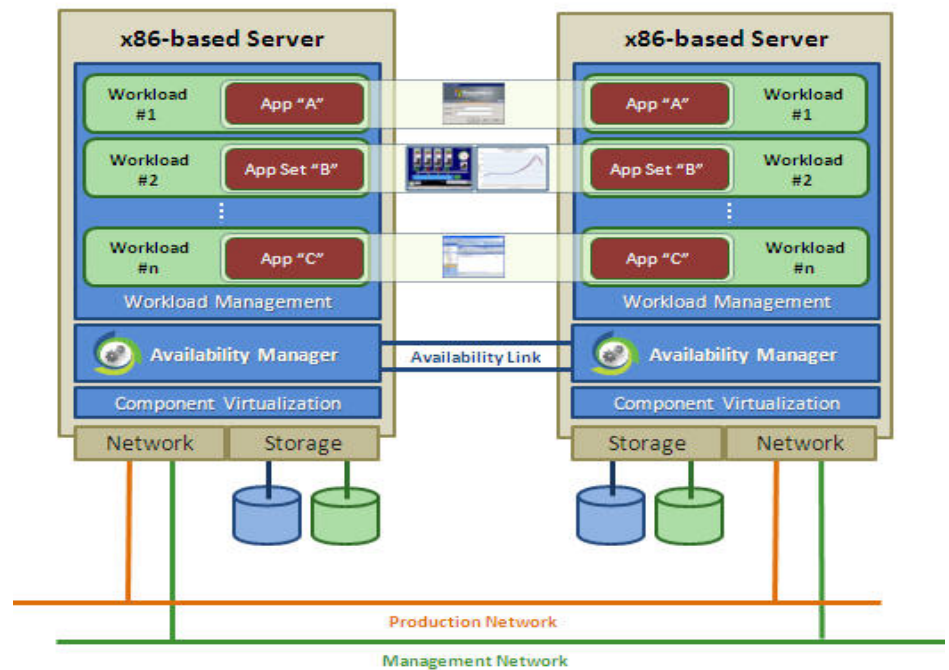
everRun MX is completely hardware agnostic. It lets you use any type of off-the-shelf storage (Direct Attached Storage or SAN) to help save money and also easily leverage hardware innovations.

How everRun MX Works

everRun MX combines the physical resources of two standard Windows servers into a single operating environment with complete redundancy of all underlying hardware and data. everRun MX virtualizes these servers to appear and operate as one, to keep applications running even in the event of a server failure.

everRun MX operates with complete redundancy ensuring complete fault tolerance of the hardware, data, and networks, and provides automated fault management. This ensures true continuous availability for applications that simply cannot have any downtime, or lose 'in-flight' transactions.

everRun MX Topology





everRun MX: Powering Application Availability for the Always on World

CORPORATE HEADQUARTERS

Marathon Technologies Corporation

295 Foster Street

Littleton, MA 01460

Tel 1.800.884.6425/1.978.489.1100

Fax 1.978.489.1101

Email:

info@marathontechnologies.com

Web:

www.marathontechnologies.com

EMEA HEADQUARTERS

Marathon Technologies UK Limited

Regus House, Trinity Court

Wokingham Road, Bracknell

Tel +44(0) 1344.706.241

Fax +44(0) 1344.706.242

Email:

emea@marathontechnologies.com

Web:

www.marathontechnologies.com

THE TIME HAS COME

The world has evolved, and IT expectations have evolved with it. We now live in an always-on world in which users and customers not only expect around-the-clock access to your business – they demand it. To be successful, you must meet the needs of the always-on world by being an always-on business. Organizations today can no longer afford to accept system downtime.

With everRun MX, you can now deliver continuous Application Availability without the risk of downtime to your organization. everRun MX removes the price/performance barrier to continuous uptime. This breakthrough not only eliminates the technology tradeoffs forced upon IT departments, but also makes world class availability obtainable by any organization, regardless of its size.

To learn how to become an always-on business, contact Marathon today:

Call us:

1.888.360.5484

Email us:

info@marathontechnologies.com

Visit our Web site:

www.marathontechnologies.com