

GridIron Systems: High Performance Virtualized Environment for Clustered Applications

SOLUTION OVERVIEW

GridIron Systems, Inc., U.S.A.



GridIron Systems delivers big data acceleration with a comprehensive set of solutions that speed up multi-terabyte databases, while offering the least amount of disruption to the existing clustered and virtualized environments, at a fraction of the cost of alternatives.

Virtualize Tier 1 databases using the GridIron TurboCharger™ Data Accelerator appliance.



The GridIron TurboCharger™:

- Installs in an hour.
- Requires ZERO changes to existing applications, servers, or storage.
- Removes the storage I/O bottleneck.

Website

<http://www.gridironsystems.com>

TARGET CUSTOMER

Target Customer

- Virtualized Oracle deployments with shared storage
- Virtualized Big Data applications operating on diskless servers

GRIDIRON – VMWARE PARTNERSHIP

Partnership Objective

VMware and GridIron Systems have a very strong alliance. Both companies have recently:

- Collaborated on testing to validate the performance and functionality of Oracle RAC running under VMware
- At Oracle OpenWorld 2011, GridIron and VMware teams have jointly launched a reference architecture for virtualizing Tier 1 Oracle databases

Business Impact

- Cost savings from higher server consolidation ratios and the use of Tier 2 storage in place of expensive Tier 1 storage
- Business efficiencies and topline revenue impact from higher performing, scalable business applications

The virtualization of processing, memory, and network resources enables higher utilization, superior manageability, and lower cost of ownership for today's data center owners. Even clustered applications, designed for single-server architectures with local storage, can now be virtualized with the additional benefits of higher resiliency and lower internode communication delays. However, storage performance often becomes a bottleneck, threatening the viability of these virtualized applications and inhibiting the realization of benefits.

Overcome I/O Bottlenecks in Virtual Environments

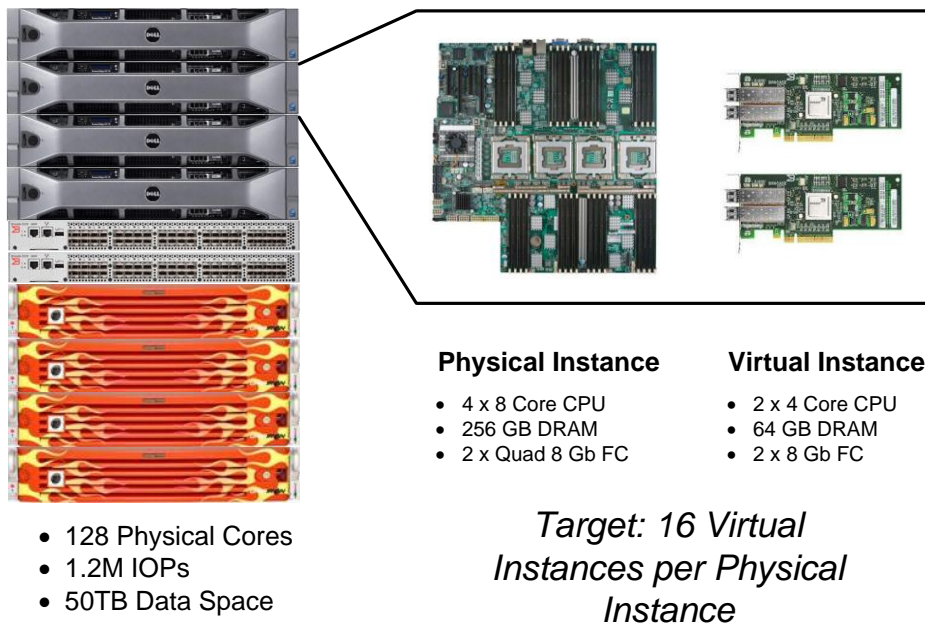
In order to fully utilize processing and memory resources in a virtualized environment, I/O contention must be handled. Shared storage systems allow concurrent access to data, but often suffer significant performance degradation as the number of users or applications increases. The inability of the storage system to handle the I/O demand of all of the clients inevitably leads to a loss of virtualization efficiency. Traditional tiering and caching schemes are poorly suited to deal with constantly changing environments, for example, those where clients are moved from server to server using vMotion, clients are started and stopped, and so on. To resolve these issues, GridIron Systems created a new acceleration technology to match the power and flexibility of virtualized environments.

The GridIron TurboCharger is a SAN-based appliance that transparently and securely removes the storage bottleneck in I/O intensive environments. Deployments of TurboChargers can be scaled to deliver any desired level of performance from the existing storage infrastructure at a fraction of the cost of equivalent new deployments of Tier 1 systems.

- **Enable virtualization of Tier 1 applications.** Hardware and administrative savings of virtualization can be lost if I/O bottlenecks force the acquisition of large and expensive storage systems. License savings from virtualization of CPU and memory can be lost if I/O contention results in reduced performance. GridIron technology solves I/O bottlenecks and enables the virtualization of applications originally designed to leverage fast local disk or expensive Tier 1 storage. By matching storage performance to compute capability, virtual environments can be fully utilized and provide the highest value to customers.
- **Remove storage performance bottlenecks.** Deployment of a GridIron solution delivers solid-state performance from the existing storage by providing the bandwidth and IOPS that applications need. The scalable architecture allows order-of-magnitude increases in performance, while supporting the highest levels of concurrency. Customers can realize higher value and longer life from the existing storage investment by turbocharging data access with performance levels built to order.
- **No changes to existing servers, software, or storage.** The GridIron TurboCharger deploys as a SAN-based appliance to accelerate the existing storage infrastructure. Because no new targets or LUNs are required, the existing software and its configuration are not affected and the administrator is not required to migrate data. All existing backup, snapshot, replication, disaster recovery, and other storage management processes continue to operate as before. For absolute security, write-through architecture assures that the existing storage always has the "golden copy."

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Solution Architecture



- 128 Physical Cores
- 1.2M IOPs
- 50TB Data Space

Figure 1. High compression of clustered applications using GridIron Turbocharger technology

Business Benefit

CUSTOMER CHALLENGES	KEY FEATURES	BUSINESS IMPACT
Inability to virtualize Tier 1 databases and applications with high I/O requirements	<ul style="list-style-type: none"> • Transparent SAN-based I/O acceleration • High availability clustered architecture • Preserved data integrity by using write-through architecture 	<ul style="list-style-type: none"> • Products cost savings from reduced equipment, power, and cooling • Provides higher reliability, availability, and serviceability
Overcome storage I/O bottlenecks	<ul style="list-style-type: none"> • Set-rank analytics • Scalable architecture designed for bandwidth and concurrent access • Real-time line-rate operation 	<ul style="list-style-type: none"> • Removes the need for forklift upgrade of storage and infrastructure • Provides superior storage utilization and efficiency • Produces cost savings from using lower-tier storage for capacity
Licensing and deployment costs of clustered architectures	<ul style="list-style-type: none"> • SAN-based architecture • Policy-based provisioning based on servers, applications, or LUNs 	<ul style="list-style-type: none"> • Reduces licensing costs and optimizes the use of existing licenses • Increases the performance and manageability of clustered solutions • Provides for rapid deployment and clustering scalability

Resources

- For more information, please visit GridIron Systems at: <http://www.gridironsystems.com>

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