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Top Ten Reasons for Deploying
Oracle Virtual Networking in Your Data Center

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Expect enhancements in performance, simplicity, and agility when deploying Oracle Virtual Networking in the data center.

Oracle Virtual Networking streamlines server management and revolutionizes data center economics by creating an agile, highly efficient infrastructure built on your choice of hardware and software. Its open architecture lets you dynamically connect servers, networks, and storage. All traffic, including Ethernet and Fibre Channel (FC), traverses a converged infrastructure, resulting in a simpler, more efficient, wire-once environment with flexible connectivity. This paper identifies the top ten benefits you can expect from Oracle Virtual Networking.

1. Faster Performance

With Oracle Virtual Networking, servers are connected to a fabric that delivers up to 40 Gb/sec bandwidth per server connection. Throughput up to 80 Gb/sec server-to-server—8 times faster than 10G Ethernet—is available.

Examples of where this can help include

- **30 times faster backup applications.** Compared with conventional Ethernet connections, Oracle Virtual Networking provides an 8-times to 80-times faster link between application servers and the backup server. This high-speed fabric ensures optimal streaming performance, which keeps the backup device running at peak efficiency to get the job done on time.

- **19 times faster virtual machine migration.** Virtual machine (VM) migration is a highly I/O-intensive process. The high bandwidth of Oracle Virtual Networking allows migrations to complete up to 19 times more quickly.

- **12 times faster database performance.** Database queries get done faster thanks to the low-latency and 80 Gb/sec throughput of Oracle Fabric Interconnect.

2. 70 Percent Fewer Cables, Cards, and Switch Ports

Oracle Virtual Networking consolidates server connectivity. In the data center, complexity can be hard to avoid with the multitude of networks and devices, but Oracle Virtual Networking reduces the number of parts involved. Cabling can be scaled back to just one cable per server, and physical cards in each server are replaced by virtual cards. The end result is 70 percent fewer cables and cards and significantly fewer switch ports than with conventional networking.
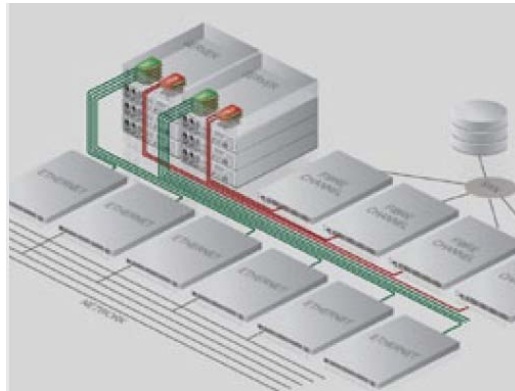

Figure 1. Without Oracle Virtual Networking, connectivity requirements add cost and management complexity, and limit flexibility.
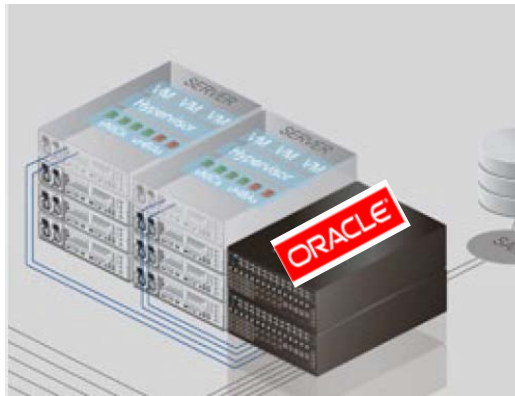

Figure 2. With Oracle Virtual Networking, consolidated connectivity results in 70 percent fewer cables, cards, and switch ports.

ORACLE FABRIC INTERCONNECT

Oracle Fabric Interconnect is the hardware at the heart of Oracle Virtual Networking. It consolidates server connectivity by replacing a server's multiple Ethernet and FC interfaces with a single link. It is the industry's only virtual connectivity solution that lets you connect servers via InfiniBand for bandwidth up to 80 Gb/sec per server.

3. 50 Percent Lower Capital Cost

Fewer parts means lower overall cost. In a 120-server installation, the capital cost savings amount to hundreds of thousands of dollars, or about half of the overall I/O infrastructure cost. If you include the cost of installing and maintaining the infrastructure, the savings from Oracle Virtual Networking go even higher.

4. 100 Times Greater Agility

Data center agility and increased server utilization help you reduce costs and more quickly deliver services in alignment with business objectives. Oracle Virtual Networking boosts agility by letting you adapt your infrastructure on the fly, in real time, without server reboots or resource remapping. By eliminating the management constraints of physical connectivity, Oracle Virtual Networking makes server connectivity personality independent. One server can quickly adopt the identity of another by assuming its World Wide Name (WWN), Media Access Control (MAC) address, and Internet Protocol (IP) address. As a result, it's simpler and faster to move applications among servers, add servers, and change configurations. This agility is important during application migration, new deployments, and disaster recovery.

- **Application migration or failover.** Move applications without remapping networks and storage. Connectivity is redeployed in a simple drag-and-drop operation.
- **New deployments.** You can preconfigure storage and network resources in templates, so when new servers are added they can be deployed quickly.
- **Disaster recovery.** Create needed connectivity at a failover site in seconds. By replicating connectivity from the primary site, disaster recovery is simplified.

5. Centralized and Remote Control of Resources

Oracle Virtual Networking lets you manage connectivity from anywhere. Because there is no need to move cables or to enter the data center, connectivity can be managed from across the campus or across the globe.

6. Always the Right I/O

Get the connectivity you need on demand. If you are adding another network, or switching FC storage to iSCSI, Oracle Virtual Networking lets you deploy the needed connectivity in seconds. That could save hours or days per server when compared with conventional reconfiguration.

Change is inevitable in data center infrastructure. Whether it's a new network, a different interconnect standard, or a new connectivity requirement, Oracle Virtual Networking makes it easy to adapt.

7. The Highest-Performance Server Interconnects

Only Oracle Virtual Networking provides high-speed, low-latency InfiniBand connectivity to all of your servers with up to 80 Gb/sec bandwidth to each system. This provides up to 80 times the performance of legacy networking and creates new opportunities to unlock application performance with ultralow latency communication between applications.

8. Enhanced Virtual Machine Deployments

Virtualization delivers huge management benefits but can create performance bottlenecks and security exposures. Oracle Virtual Networking can help.

- **Performance issues with VMs.** In a *ComputerWorld* article, Andi Mann of Enterprise Management Associates noted that multiple workloads sharing a single network interface card "result in problems with bandwidth availability and throughput." Oracle Virtual Networking helps by delivering up to 80 Gb/sec of bandwidth to each server—bandwidth that can be dynamically shared among all requirements.

- **Security issues with VMs.** To facilitate VM migration it is necessary to deviate from the traditional controls on connectivity mappings, which can compromise security. Oracle Virtual Networking helps with individual vNICs and vHBAs that can be assigned to specific virtual machines. Connectivity can be seamlessly moved between machines when the application is migrated.

9. Guaranteed Performance to Critical Applications

Get end-to-end performance control with Oracle Virtual Networking's integrated quality of service (QoS) features. Both storage and network bandwidth can be controlled via fine-grained traffic policing, ensuring that critical applications deliver the required performance.

10. A Future-Proofed Infrastructure

Change is inevitable in data center infrastructure. Whether it's a new network, a different interconnect standard, or a new connectivity requirement, Oracle Virtual Networking makes it easy to adapt. With modular hardware architecture, you can quickly add new server connectivity. Furthermore, Oracle's commitment to open standards means that Oracle Virtual Networking is interoperable with the server, switch, and storage of your choice, both now and down the road.

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