CISCO

PURESTORAGE®

FLASHSTACK FOR ORACLE RAC

FASTER

Achieve Better Business Outcomes Faster

MORE EFFICIENT

Deployments, Management Processes, Cost Structure, Expansion, and Upgrades

AGILE

Break Free from Data Center Constraints

INTRODUCTION

Database administrators and their IT departments face many challenges that demand a simplified Oracle deployment and operation model providing high performance, availability, and lower TCO. The current industry trend in data center design is toward shared infrastructures featuring multitenant workload deployments. Consider the fact that a recent Gartner report indicated that converged infrastructure systems will represent more than 35 percent of the total integrated system market revenue by 2019. Furthermore, according to the IDC Worldwide Quarterly Converged Systems Tracker, the worldwide converged systems market revenue increased 8.5 percent year over year to $3.1 billion during the fourth quarter of 2015 (Q4'15). The market generated 1547 petabytes of new storage capacity shipments during the quarter, up 26.9 percent compared to the same period a year ago.

Today, Cisco and Pure Storage have partnered to deliver FlashStack, a Converged Infrastructure (CI), which uses best-in-class storage, server, and network components to serve as the foundation for a variety of workloads, enabling efficient architectural designs that can be quickly and confidently deployed.

FlashStack

The FlashStack platform is a flexible, integrated infrastructure solution that delivers prevalidated storage, networking, systems management and server technologies.

CHALLENGES FACING TODAY'S IT ENVIRONMENTS

Oracle deployments can be extremely complicated, and customers face many challenges in maintaining these landscapes in terms of time, effort, and cost. Oracle databases are often mission-critical components of an IT department. Ensuring availability while also lowering the IT TCO is always their top priority. The combination of Cisco compute and networking with Pure Storage arrays showcases scalability, performance, manageability, and simplicity through the FlashStack Converged Infrastructure solution for deploying necessary applications such as Oracle databases.

Specifically, FlashStack aims to overcome a variety of customer challenges with a Cisco® Validated Design to accomplish the following:

•   Build and validate to provide predictable performance of a server, network, and storage platform on a per-workload basis

•   Smooth scalability of performance and capacity to meet growth needs

•   High availability of database instances, without performance compromise, through software and hardware upgrades.

Learn more about the FlashStack Data Center with Oracle RAC 12c on Oracle Linux.

WHAT IS FLASHSTACK?

The FlashStack platform is a flexible, integrated infrastructure solution that delivers prevalidated storage, networking, systems management, and server technologies. Cisco and Pure have carefully validated (Cisco Validated Design) and verified the FlashStack Oracle RAC solution architecture and its many use cases while creating a portfolio of detailed documentation, information, and references to assist customers in transforming their data centers to this shared infrastructure model. Highly efficient components reduce the costs associated with power, cooling and data center space. Based on 100-percent flash

storage and high-performance Cisco Unified Computing System™ (Cisco UCS®) servers, FlashStack CI provides the performance and reliability business-critical applications demand.

Most of all, the entire solution creates a truly stateless architecture. Cisco UCS hardware is defined within a service profile, whereas the Pure Storage FlashArray identity is likewise stateless and software-defined. From there, you can configure how, where, and when workload instances are deployed. Stateless technologies allow administrators to configure MAC, World Wide Name (WWN), Universal Unique Identifier (UUID), boot details, firmware, and even basic input/output system (BIOS) settings. With a stateless ecosystem, you can build the industry's most agile converged infrastructure on FlashStack.

The FlashStack solution includes Pure Storage FlashArrays, Cisco UCS Manager, Cisco UCS servers, Cisco Nexus® switches, and Cisco MDS fiber channel switches.

OVERCOMING CHALLENGES; UNDERSTANDING REAL-WORLD BUSINESS BENEFITS FROM FLASHSTACK

Today, customers will already have some kind of IT infrastructure within the data center. The key differentiator is the value that the technology brings. Just because "it still works" doesn't mean it's bringing value to the business.

FlashStack simplifies an otherwise complex Oracle RAC deployment process and removes bottlenecks in terms of performance and efficiency. Deploying Oracle on a FlashStack converged system offers numerous key benefits:

1. Consistent performance and scalability
•   Consistent sub-millisecond latency with 100-percent flash storage
•   Consolidation of hundreds of enterprise-class applications in a single rack
•   Scalability through a design for hundreds of discrete servers and thousands of virtual machines and the capability to scale I/O bandwidth to match demand without disruption
•   Repeatable growth through multiple FlashStack CI deployments; CVDs make the deployment of new systems much easier

2. Operational simplicity
•   Fully tested, validated, and documented for rapid deployment
•   Reduced management complexity with Cisco UCS Director integration and automation
•   No necessity for storage tuning or tiers

3. Lowest TCO
•   Dramatic savings in power, cooling, and space with Cisco UCS and 100-percent flash memory
•   Industry-leading data reduction
•   Reduced Oracle licensing requirements, rack space, and power-constrained data center: For example, if you're creating

Cisco and Pure have also built a robust and experienced support team focused on FlashStack solutions, from customer account and technical sales representatives to professional services and technical support engineers.

clones of production databases to run reports and analytics because you're I/O-constrained, you can now avoid extra hardware and database licenses (not to mention database administrator [DBA] resources) just to create and maintain clones.

Besides avoiding licenses for clones, the capabilities of FlashStack can potentially save you other licenses as well. For example, if you're using Oracle Enterprise Edition for partitioning or compression, you may be able to achieve the same results—or better—without these features on Oracle Standard Edition.

4.   Enterprise-grade resiliency
•   Highly available architecture and redundant components; no single point of failure
•   Nondisruptive operations
•   Ability to upgrade and expand without downtime or performance loss
•   Native data protection: snapshots and replication
Cisco and Pure have also built a robust and experienced support

team focused on FlashStack solutions, from customer account and technical sales representatives to professional services and technical support engineers. The support alliance between Pure Storage and Cisco gives customers and channel services partners direct access to technical experts who collaborate with cross vendors and have access to shared lab resources to resolve potential issues.

Support options include:
•   Direct Vendor Support: Support provided directly by vendors—Cisco, Pure Storage, VMware or Microsoft
•   Cisco Solution Support for Critical Infrastructure: Single call experience for L1 support provided by Cisco TAC
•   Partner-Led Support: Single call experience for a co-operative support model with Cisco being the primary support point.

REAL-WORLD CUSTOMER USE-CASE
The Business Challenge:
NewYork-Presbyterian Hospital

had a real challenge involving their electronic health records (EHR). Specifically, the hospital was running a mission-critical EHR job, which was being delivered to all senior executives. Running on a nightly basis, the job was taking 9 to 12 hours to complete, and was failing 50 percent of the time.

Furthermore, high-latency problems created very real storage bottlenecks that affected their environment. One of the challenges was with one of Oracle's key applications: An Oracle Database.

New York-Presbyterian Hospital needed to find a way to run its critical workloads more efficiently. Furthermore, the hospital wanted to design an ecosystem capable of scale, efficiency, and greater levels of resiliency for the its most important users.

Technical Outcomes
•   Executives have near-real-time data on key measurements.

•   Critical reports, which could be run only at night, now can be run multiple times during the day.
•   Run time has been cut from 9 to 12 hours to 40 minutes.
•   Evergreen storage and elimination of data migration are big benefits for a hospital running 24 hours a day.
•   Upgrades occur in minutes during the day versus 8 hours on a weekend.

Business Benefits
•   Data reduction of 4.5:1 across Oracle, virtual desktops and databases during the proof of concept (POC)
•   Greater resiliency, ease of management, and reduction in data center floor space

FINAL THOUGHTS: ORACLE ON FLASHSTACK – A WINNING BUSINESS AND DATA CENTER DESIGN
Mission-critical Oracle Database environments can be extremely complicated to design, deploy, and maintain. Infrastructure, and storage in particular, can often

be a bottleneck in terms of performance and efficiency, causing unnecessary frustration for database administrators.

The FlashStack solution for Oracle helps alleviate the problems associated with traditional infrastructure by providing a highly available platform for Oracle Database that delivers outstanding performance and scalability, and is easy to deploy.
•   FlashStack is validated and tested for rapid deployment of the highly available Oracle Database RAC environment.
•   It delivers a high degree of scalability and performance at a fraction of TCO (through 3:1 data reduction) of traditional infrastructure stacks.
•   The same infrastructure is used for transactional and data warehouse applications.
•   FlashStack delivers greater agility for Oracle DBA teams.
•   The solution offers linear scalability with sub-millisecond response times.
Furthermore, with FlashStack

You're now deploying an environment with a powerful stateless architecture.

you're deploying an environment with a powerful stateless architecture. When you work with Cisco technologies, you are using powerful hardware and service profiles. This type of architecture allows you to create workload deployments where identity is abstracted from the underlying physical hardware. Remember that Cisco UCS hardware is defined within a service profile, whereas the Pure FlashArray is defined within the software. Stateless technologies allow all server and hardware configurations to

be abstracted in software. This type of ecosystem allows you to design the industry's most agile converged infrastructure on FlashStack.

You can now deploy a highly available, scalable, and performant Oracle environment in a fraction of the time compared to traditional infrastructure. Furthermore, FlashStack greatly reduces the overall TCO of Oracle deployments in terms of optimizing Oracle licensing, power and cooling, and data center space costs.

GET STARTED WITH FLASHSTACK

Delayed infrastructure rollouts can affect your organization's bottom line. FlashStack makes it easy to deploy the right virtual desktop infrastructure right from the start. This verified, lab-tested architecture helps reduce risk and guesswork by giving your IT architects and administrators a guidebook for implementation.

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CISCO NEXUS SWITCHES
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