The FlashStack Data Center

STREAMLINED

Single, integrated architecture with management from a central place

FLEXIBLE

Easy and dynamic scalability without downtime

TRANSFORMATIVE

Technical innovation without the need to rip and replace

BUILT FOR THE CLOUD

integration with cloud platforms from Cisco, VMware, OpenStack, and others

THE CHALLENGE: DATA CENTER COMPLEXITY

Deploying, operating, and maintaining data center infrastructure is complex, time consuming, and costly. The result is a data center architecture that limits business success by limiting application availability, reducing overall productivity, and draining budgets. These challenges are particularly relevant for traditional data center architectures based on aging systems. These systems can be hard to install, difficult or impossible to scale, and complex to manage, and they can disrupt application availability with planned downtime and a "rip-and-replace" upgrade cycle.

A NEW APPROACH: THE FLASHSTACK DATA CENTER

FlashStack™, a Cisco® and Pure Storage® solution, is a streamlined, flexible, transformative approach to IT infrastructure. It fully supports mission-critical enterprise applications and provides a robust platform for cloud services. FlashStack combines the latest in computing, network, storage components into a single, integrated architecture that accelerates time to deployment, lowers overall IT costs, and reduces deployment risk. Highly efficient components such as the Cisco Unified Computing System™ (Cisco UCS®) and Pure Storage FlashArray reduce the costs associated with

SERVER AND COMPUTING	STORAGE	FABRIC AND NETWORKING
• Cisco UCS high-density, modular, policy-based computing platform • Scales seamlessly from 1 to 160 servers, including both blade and rack servers • Interconnected with Cisco SingleConnect technology through fabric interconnects, fabric extenders, and Cisco virtual interface cards (VICs) • Supports Cisco UCS Mini deployments in small-, remote-, and branch-office locations	• Pure Storage FlashArray//M and FlashArray//X • Scales seamlessly from 5.5 TB to more than 1.5 PB of storage capacity • Includes snapshot and replication tools at no additional cost • Supports both Fibre Channel and Small Computer System Interface over IP (iSCSI) block storage protocols	• State-of-the-art fabric switching integrated with Cisco UCS fabric interconnect technology • Supports Cisco Nexus® Family switches and Cisco MDS 9000 Family Fibre Channel directors • Simplifies networking and scales seamlessly as FlashStack components increase in number and capacity

"Simplicity in implementation and management is one of the biggest benefits we've seen. I can manage my storage, network, and compute requirements all on one platform."

JACK HOGAN
Chief Technology Officer
Lifescript

power, cooling, and data center space. Based on the latest server technology and 100 percent flash storage, FlashStack provides the performance and reliability that business-critical applications demand. FlashStack is available from Cisco and Pure Storage through accredited FlashStack partners. These partners help provide flexible ownership models, technical expertise, and an excellent converged infrastructure ownership experience.

FLASHSTACK ARCHITECTURES FOR CRITICAL WORKLOADS AND APPLICATIONS

FlashStack is validated with common workloads and applications to reduce deployment risk and help IT organizations quickly and easily deploy the right infrastructure. FlashStack architectures are comprehensively documented and defined in Cisco Validated Designs, which are freely available at *cisco.com/go/flashstack* and *purestorage.com/flashstack*.

Additional technical documentation and reference architectures are also available if necessary.

The FlashStack architecture is designed for resilience and high availability to help keep important workloads and applications online and available. The design combines individual components with high availability into a single, redundant architecture and includes tools for simplified backup and recovery operations.

FlashStack is also expertly supported through a range of flexible offerings to help administrators if any issues arise. With FlashStack, IT organizations can deploy critical workloads with confidence and with the understanding that Cisco and Pure Storage have validated and tested the configurations available. We have resolved potential issues so that you can deploy your solution with reduced risk and high confidence.

BUSINESS-CRITICAL APPLICATIONS

PRIVATE CLOUD INFRASTRUCTURE

VIRTUALIZED AND BARE-METAL WORKLOADS

DATA PROTECTION AND COPY MANAGEMENT

VIRTUAL DESKTOPS

FLASHSTACK FOR PRIVATE AND HYBRID CLOUDS

FlashStack is designed as a high-performance foundation for the delivery of private cloud services. Preintegrated with common cloud platforms including Cisco ONE™ Enterprise Cloud Suite, VMware vRealize Operations, and OpenStack, FlashStack helps IT organizations supply services on demand through automated services portals. FlashStack also supports hybrid clouds, allowing administrators to manage and monitor on-premises, hybrid, and public cloud workloads through management tools such as Cisco CloudCenter.

DATA CENTER SCALABILITY WITH FLASHSTACK

An important benefit of FlashStack is its ability to scale, without disruption, from small (2 hosts and 5.5 terabytes [TB] of storage) to very large (more than 160 hosts and more than 1.5 petabytes [PB] storage). FlashStack scales seamlessly with the same management tools, same operational model, and same

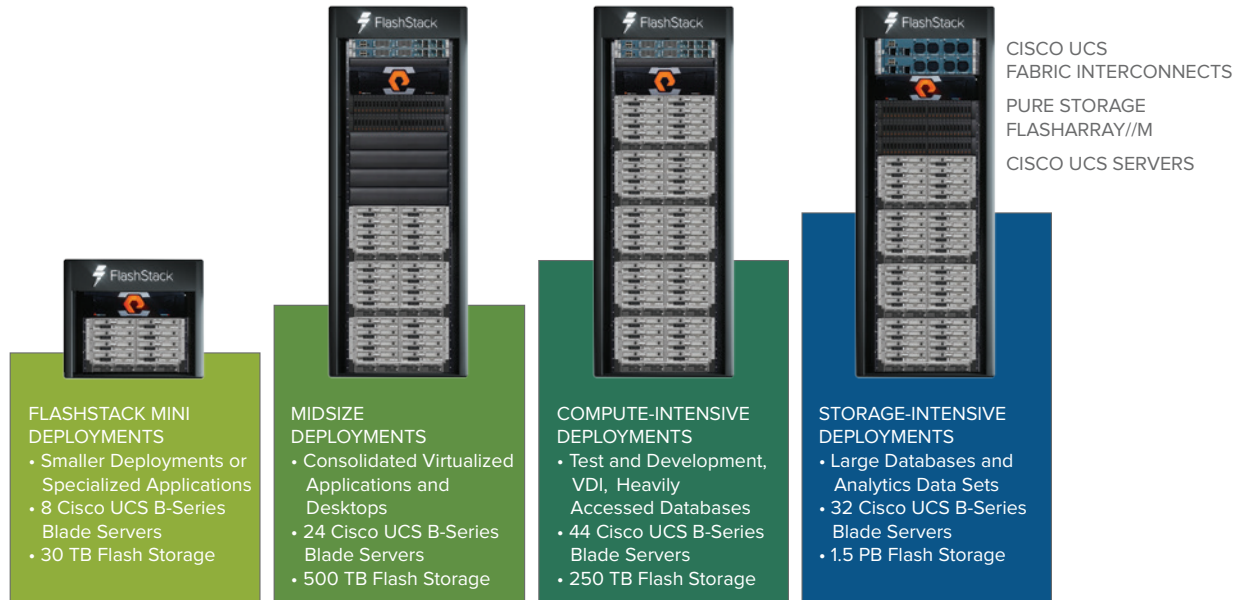| STREAMLINED OPERATIONS	FLEXIBLE GROWTH	CHOICE AND TRANSFORMATION	BUILT FOR THE CLOUD
• Simplify data center operations and IT infrastructure lifecycle. • Manage everything from one place. • Reduce risk and lower IT costs. • Remain always on, with always high performance.	• Scale freely, without downtime, as business requirements change. • Essentially eliminate planned downtime. • Handle demanding critical workloads with ease and without the need for performance tuning.	• Deliver more value to the business, faster. • Improve user experiences and deliver IT on demand. • Capture technical innovation without having to rip and replace.	• Cloud capabilities are built in, including full integration with cloud platforms from Cisco, VMware, OpenStack, and others. • Integrated automation frees administrators to focus on application and service delivery.

underlying systems, whether the deployment is small or large. And as it scales, it keeps the same number of points of management and same resilient, redundant design, so not only do applications stay online, but they are easier to monitor and maintain.

THE FLASHSTACK DATA CENTER DIFFERENCE
FlashStack is an excellent platform for delivering mission-critical workloads and empowering users by building on extensible, continuously available, Cisco validated architecture. With FlashStack, IT organizations can upgrade capacity without downtime and deploy cloud-like capabilities to help ensure constant access to data across the organization. Now IT administrators can avoid the rip-and-replace cycle of traditional infrastructure ownership and use familiar, integrated tools to manage the entire data center stack right out of the box. FlashStack solution-based data centers free IT staff to innovate by reducing the amount of time spent on infrastructure, automating common tasks, getting systems up and running in minutes, and keeping them running to support a business's vital applications.

     PURESTORAGE®

CISCO UCS
FABRIC INTERCONNECTS

PURE STORAGE
FLASHARRAY//M

CISCO UCS SERVERS

FLASHSTACK MINI DEPLOYMENTS
- Smaller Deployments or Specialized Applications
- 8 Cisco UCS B-Series Blade Servers
- 30 TB Flash Storage

MIDSIZE DEPLOYMENTS
- Consolidated Virtualized Applications and Desktops
- 24 Cisco UCS B-Series Blade Servers
- 500 TB Flash Storage

COMPUTE-INTENSIVE DEPLOYMENTS
- Test and Development, VDI, Heavily Accessed Databases
- 44 Cisco UCS B-Series Blade Servers
- 250 TB Flash Storage

STORAGE-INTENSIVE DEPLOYMENTS
- Large Databases and Analytics Data Sets
- 32 Cisco UCS B-Series Blade Servers
- 1.5 PB Flash Storage

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            SOLUTION BRIEF