White Paper

Start Your Digital Transformation With 4 Pillar Technologies

Composable infrastructure can enable the IT you need for future success

Instead of just providing IT services to support business initiatives, IT can now directly impact business strategy and revenues by creating softwarebased services that:

- Energize growth
- Boost productivity
- Enhance innovation
- Increase organizational agility
- Improve the customer experience
- Reduce risk

Today's digital economy runs faster than ever. The convergence of mobile, cloud, big data, and social platforms presents a unique opportunity to organizations to position themselves for success. Dubbed the "Third Platform" by IDC,[1] these four pillar technologies form the foundation for the next generation of applications that will drive the digital economy. Using these technologies to execute a digital transformation strategy enables IT to drive new business opportunities by quickly delivering revenue-generating products, services, and experiences.

Today's complex, traditional infrastructures make it difficult for IT to deliver on Third Platform priorities for a variety of reasons:

- **Traditional software update cycles:** Packaged applications release new versions only a few times a year, limiting their ability to quickly respond to changing business needs.
- **Silo-based hardware:** Technology vendors have developed infrastructure into rigid hardware and operational silos that are optimized for workloads, versus applications and service delivery.
- **Fragmented management:** Infrastructure management software is layered on top of the hardware silos, adding to the complexity. Often management scripts are used, which require continuous maintenance due to changing underlying components.

These siloed products and services make change disruptive, and require multiple points of manual intervention. Provisioning of compute, storage, and network resources can take months based on all the different pieces that need to be changed. If there is cross-platform coordination, things can take even longer.

Composable Infrastructure — Bridging the Gap Between Traditional IT and the Digital Economy

Traditional infrastructure that is siloed can take months to start up and provision. As infrastructure has evolved, IT operations has wrestled with the growing number of tools required to provision, support, and maintain the compute, storage, and fabric resources needed to run their data center. This complexity makes it difficult for IT to gain the agility needed to help their business respond to the dynamic needs of the market. This has led to composable infrastructure models, such as HPE Synergy, powered by Intel® Xeon® processors.

However, the next natural progression of IT architecture, composable infrastructure, is geared to address the need to very quickly commission and decommission infrastructure and services to enable businesses to almost instantly meet business demands. This architecture is fluid and is optimized to deliver infrastructure for the digital economy in seconds for both your traditional and new applications.

HPE Synergy — The Composable Infrastructure Platform

Hewlett Packard Enterprise has developed the first platform built from the ground up for composable infrastructure. HPE Synergy, powered by Intel® Xeon® processors, offers an experience that empowers IT to create and deliver new value instantly and continuously. It's a single infrastructure that reduces operational complexity for traditional workloads and increases operational velocity for the new breed of applications and services. Through a single interface, HPE Synergy composes physical and virtual

[1] IDC, "The 3rd Platform: Enabling Digital Transformation," Nov. 2013.

compute, storage, and fabric pools into any configuration for any application. As an extensible platform, it easily enables a broad range of applications and operational models such as virtualization, hybrid cloud, and DevOps.

Four Reasons to Migrate to HPE Synergy Now

1. One Infrastructure to Run Any Workload

HPE Synergy, strengthened by Intel®, delivers more fluid pools of compute, storage, and fabric. Using significant enhancements in raw resources (compute, storage, and fabric), HPE Synergy delivers a more robust infrastructure as compared to the HPE BladeSystem c-class.

More powerful compute:

- HPE Synergy, strengthened by Intel®, provides support for a full range of current and future Intel processors without any constraints or limitations.
- The HPE BladeSystem does not provide that growth path as it is does not support processors greater than 28-core. HPE Synergy, strengthened by Intel®, also supports greater memory capacity than the HPE BladeServer.
- Most importantly, from an economic perspective, the HPE Synergy solution delivers a 29% lower $/VM cost based on a typical HPE Synergy 480 Gen10 versus HPE ProLiant BL460c Gen10 Server Blade.

Shared DAS storage – up to 14x more storage per HPE Synergy server:

- HPE Synergy, strengthened by Intel®, offers more flexible storage options: up to 202 sharable drives per compute unit, compared to 14 on HPE BladeSystem.
- HPE Synergy is shareable across the entire frame. HPE BladeSystem storage modules only work with an adjacent blade.
- With HPE Synergy, the same RAID controller can be used for both internal and shared DAS storage. HPE BladeSystem does not allow this, and requires separate controllers.

Rack-scale fabric:

- HPE Synergy fabric is rack-scale master switch/ satellite interconnect architecture — a simpler interconnect system. The HPE BladeSystem requires more cabling, uplinks, and interconnects — providing an uplink savings of up to $37,350 per rack (assuming a fourframe rack) for HPE Synergy, compared to HPE BladeSystem.
- HPE Synergy brings 3.8x more compute to a single flat fabric.
- HPE Synergy also offers 2.5x increased bandwidth, compared to HPE BladeSystem.

2. Simpler Operations

HPE Synergy, powered by Intel® Xeon® processors, has several significant management enhancements compared to the c-class HPE BladeSystem. These features reduce operational time, complexity, and expense.

Composer:

- HPE Synergy, strengthened by Intel®, does not require an external OneView instance to be configured, as it boots up ready to run. The HPE BladeSystem c-class, in contrast, does require an external OneView instance to be configured.
- The HPE Synergy management ring connects up to 21 frames, enabling the Composer to automatically discover and inventory all resources in the management ring. HPE BladeSystem c-class is much more manual and cumbersome.
- At 21 frames, a single composer manages up to 252 servers and associated fabrics. In contrast, c-class HPE BladeSystems require direct management of all iLOs, Onboard Administrators, and Virtual Connect Managers — creating a complex management environment. The single composer of HPE Synergy results in a reduction of 99.8% in management touch points.

Simplified System Update:

- Firmware for a logical enclosure (three to five frames) can be updated through a single interaction.
- Server firmware and drivers are updated at the choosing of each server admin. Activation requires a reboot, but this can be aligned to desired time frames, such as an application maintenance window.
- Based on how HPE Synergy updates are handled compared to the c-class HPE BladeSystem. HPE Synergy can achieve up to 73% reduction in admin time.

Image Streamer:

- Image Streamer enables stateless computing and very rapid provisioning and updating. In effect, physical servers can be treated like virtual machines (VMs).
- Stateless servers can have new images created in seconds and booted with new personalities in a matter of minutes. This enables a variety of new workflows, such as rapid patching of images or shifting the balance of servers running VMs or containers with ease.
- HPE Synergy delivers up to 80x faster image boot with Image Streamer as compared to the c-class HPE BladeSystem.

3. Superior Economics

HPE Synergy, strengthened by Intel®, delivers significant CapEx and OpEx savings over c-class HPE BladeSystems.

CapEx Savings: By using fluid pools of compute, storage, and fabric, IT can reduce CapEx costs associated with overprovisioning underutilized IT assets. HPE Synergy offers up to 29% lower $/VM cost than a similarly configured c-class HPE BladeSystem.

OpEx Savings: Using HPE Synergy Composer, powered by HPE OneView, administrators can orchestrate the provisioning of their infrastructure much faster — thereby saving operational time. With HPE BladeSystems, administration is more complex as IT staff needs to spend time moving from server to storage to fabric using multiple tools to perform low-level operations.

The table below illustrates an example of how operational savings can be achieved through a typical scenario.

	Provision 24-Node VM Cluster	Update F/W and Drivers	Add 12-Node Capacity	Total Time
HPE Synergy	58 min	3 min	4 min	1hr: 5 min
HPE Blade System	4hr: 14 min	53 min	2hr: 19 min	7hr: 26 min

Term Definitions:

- **Provisioning:** Initial provisioning of 24-node virtualization cluster in VMware vCenter
- **Updating Firmware and Drivers:** Fast forward six to eight months: Time to do some firmware, driver and OS patches
- **Adding Additional Capacity:** After one year, it has been determined additional capacity is needed

Tech Refresh Savings Scenario: HPE BladeSystem to HPE Synergy Tech Refresh (Oracle or VMware)

Example Scenario: Replacing an 18-frame existing HPE ProLiant BL460c Gen10 Server Blade, powered by Intel® Xeon® Scalable processors, with a single-frame HPE Synergy solution can generate a significant reduction in data center footprint (power and cooling savings), pay for itself in less than a year, and achieve millions of dollars in savings over a three-year period. This includes operational, support, and maintenance costs.

4. Designed for the Future — Pathway to the Cloud

Just like the HPE BladeSystem c-class was designed in 2006 to be ready for the next 10 years, HPE Synergy is designed now for the next decade of computing as well. HPE Synergy, powered by Intel® Xeon® processors, is designed to handle both traditional application environments, such as VMware and Microsoft applications, but also for the new cloud-based and cloud-native applications developed in a DevOps environment.

21X More Bandwidth:

- Each HPE Synergy, strengthened by Intel®, bay provides three redundant 100Gb links. This is 7.5x the bandwidth per bay of the HPE BladeSystem c7000.
- HPE Synergy is enabled with photonics-ready capabilities, which will provide ultrafast connectivity between compute nodes and Node Version Manager in the evolving memory-driven computing world. The HPE BladeSystem c-class has no such capabilities.

50% More Power Headroom:

- HPE Synergy, strengthened by Intel®, allocates more raw power per bay than c-class HPE BladeSystems as well as advanced power management to ensure optimal use of allocated power.
- HPE Synergy is designed to accommodate the increased power requirements of current and next-generation Intel processors.
- GPUs, which did not exist 10 years ago, are increasingly popular for VDI and highperformance computing environments. HPE Synergy is designed with ample headroom to support GPUs.

Extensible Management:

- HPE Synergy Composer, powered by OneView, with the unified API, is designed to be highly extensible and ready for future technologies without the need to create more management tools.
- HPE Synergy with the unified API essentially provides a bare metal as a service that is seamlessly integrated with various cloud stacks and configuration management tools, making it a fluid base infrastructure platform for current and future cloud states based on VMs, containers, or future technologies.
- The unified API is extensible, maintaining both forward functionality and backward compatibility.

With all these capabilities built in, HPE Synergy is well poised as a single platform for current and future needs.

A single infrastructure for all applications and operational models

Deploy HPE Synergy, strengthened by Intel®, to support your enterprise resource planning, databases, and VM

farms. Feel confident in the benefits of high-availability and flexible configurations, which can quickly be composed and re-composed to meet seasonal workload requirements. Refreshing your HPE BladeSystem with HPE Synergy provides a perfect environment for hybrid cloud, big data, cloud native apps/DevOps, and hyper converged solutions.

Realize Your Goals With the IIS Advantage

At IIS, we see your success as our highest achievement. Working as an extension of your team, we provide the technical expertise you need to turn your vision into a reality. To become a true collaborative partner, we start by understanding your business and strategic objectives. Our team then helps you leverage the right technologies to transform your infrastructure.

Why IIS?

IIS is one of the largest resellers of Hewlett Packard Enterprise products and solutions — recognized for our ability to architect, integrate and deploy complex IT solutions. Our technical experts have the highest certification levels in the business. Rely on us to architect and deploy a custom solution that addresses your unique technical and business challenges.

Future-proof your IT investments with composable infrastructure.

Contact us today at 877-704-4001 to learn more about the benefits of refreshing your existing HPE BladeSystem with HPE Synergy, strengthened by Intel®.

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Hewlett Packard Enterprise specializations include Platinum: Converged Infrastructure; Gold: Cloud Builder.

Hewlett Packard Enterprise Platinum Partner

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