Buyer's Guide

Evaluating the Potential of Hyper-Converged Storage

What to consider when planning for modern IT and the hybrid cloud era

FREEFORM DYNAMICS

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About this Guide

This guide is designed as a concise reference for IT architects, infrastructure managers, storage specialists, and other senior IT professionals. It is crafted to assist these key decision-makers in ensuring that storage platforms adapt to evolving IT and business needs.

In today's landscape, businesses are highly reliant on seamless access to their data, and this guide dissects the demands such reliance places on modern storage systems. It provides an in-depth look at the evolution of virtualized storage solutions, with a specific focus on the role and potential of Hyper-Converged Infrastructure (HCI) in meeting today's demanding storage needs.

Why this conversation, and why now?

The past fifteen years have seen rapid advancements in storage solutions. Innovations such as Solid State Storage, NVMe and faster networking have expanded sophisticated storage options to suit an unprecedented range of use cases. These developments must also be looked at with reference to the broader IT landscape, where the emergence of cloud solutions and virtualization technologies have given rise to new application architectures.

In light of this changing context, this guide delves into the continuing evolution of HCI storage. It examines how HCI can address a spectrum of challenges commonly encountered by IT teams, aiming to enhance service quality and flexibility while maintaining control over Total Cost of Ownership (TCO). Moreover, this guide explores how HCI can streamline both infrastructure and operational management, painting a comprehensive picture of its place and promise in the modern IT landscape.

The Buyer's Guide Series

Like all Freeform Dynamics Buyer's Guides, this document, which was commissioned by Fujitsu but authored independently, is not intended to be an exhaustive treatment of the topic. Our aim is to provide a concise overview of the essentials in this area, firstly to help orientate those involved in planning and decision-making, and secondly to make sure business cases and solution selection criteria focus on the things that really matter.

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The business need for simpler storage

Today's data-driven business demands a lot from its IT infrastructure resources, as it transforms and modernizes. And no element of any organization today can operate in isolation. This makes it essential that IT is able to demonstrate the business, operational and sustainability benefits of infrastructure modernization to all stakeholders. Meeting the escalating demand for storage is a prime example.

In the case of storage, the rapid development of virtualization and networking technologies has helped accelerate the shift to software-defined and hyper-converged storage solutions - modern, virtualized interpretations of the SAN (Storage Area Network). However, decisions always have to be made in context.

Business Transformation

In the search for agility, organizations have moved more and more processes and work online. This means their software tools need to be able to quickly and efficiently share data.

Cloud-ready, cloud-enabled

Most modern organizations have - or want - systems and data both on-site and in the cloud. The ability to seamlessly interoperate and move between them is important.

Becoming data-driven

A data-driven business exploits data at every level to achieve strategic and operational advantage. Modern data storage platforms, tools and policies are essential to this.

Simplifying IT operations

As IT infrastructure grows ever more capable and complex, it becomes harder to manage it manually. We therefore need to virtualize, abstract and automate wherever feasible.

Meeting external and as-yet-unknown future demands

Effective data management is crucial in modern business for a wide range of reasons, including regulatory compliance, cost reduction, business insight, and data protection. However, this task becomes more challenging with fragmented storage systems.

Virtualized and software-defined infrastructure helps by offering more agility, flexibility, and adaptability. By decoupling hardware from software, it supports new services and allows more hardware variety and choice. Here are some questions to contemplate:

Data management and governance

Can you see how much data you have, what kind it is, who's using it, how it's secured and how fast it's growing? And can you find it quickly when it's needed?

Future-tolerant systems

Will your choice of storage hardware and services limit your future software and hardware choices? Will your storage systems grow and adapt as your needs grow?

The fundamentals of modern storage

Virtualization, aided by cloud, commodity hardware, and NVMe performance, has stimulated innovation and opportunity, and has helped drive much of the IT world to become 'software-defined'. Key to this is the abstraction process, which essentially converts 'hard' resources into logical 'soft' representations under flexible software control. In storage, it involves converting physical blocks from connected drives into a shared pool with logical identities. From this pool, resources can be quickly allocated to software-defined storage services such NAS or object storage. Here are some key concepts and ideas to keep in mind:

Storage Virtualization

Virtualizing physical storage into logical pools can enhance flexibility, scalability, and agility. Thus, logical volumes can exceed the largest physical device, or be thin-provisioned, occupying only the space currently needed.

Virtual SAN

Traditional enterprise SANs provide performance and consolidation benefits, but can be complex to construct and sustain. An effective solution to simplify and reduce cost is to to use software to create a virtual SAN.

Hyper-Converged Storage

A virtual SAN can run on a single server or scalable cluster. This hyper-converged storage combines SAN characteristics with flexible virtualized storage plus simple, automated software-defined infrastructure.

Hybrid Cloud

Cloud services typically use virtualized, automated infrastructure. Running hyper-converged storage services on a public cloud enables the creation of resilient cross-platform, hybrid cloud data access.

Future Requirements

Software-defined, hyper-converged storage is not application-specific or silo'd, thus simplifying the scalability and provisioning of new applications and workloads, e.g. Kubernetes Persistent Volumes.

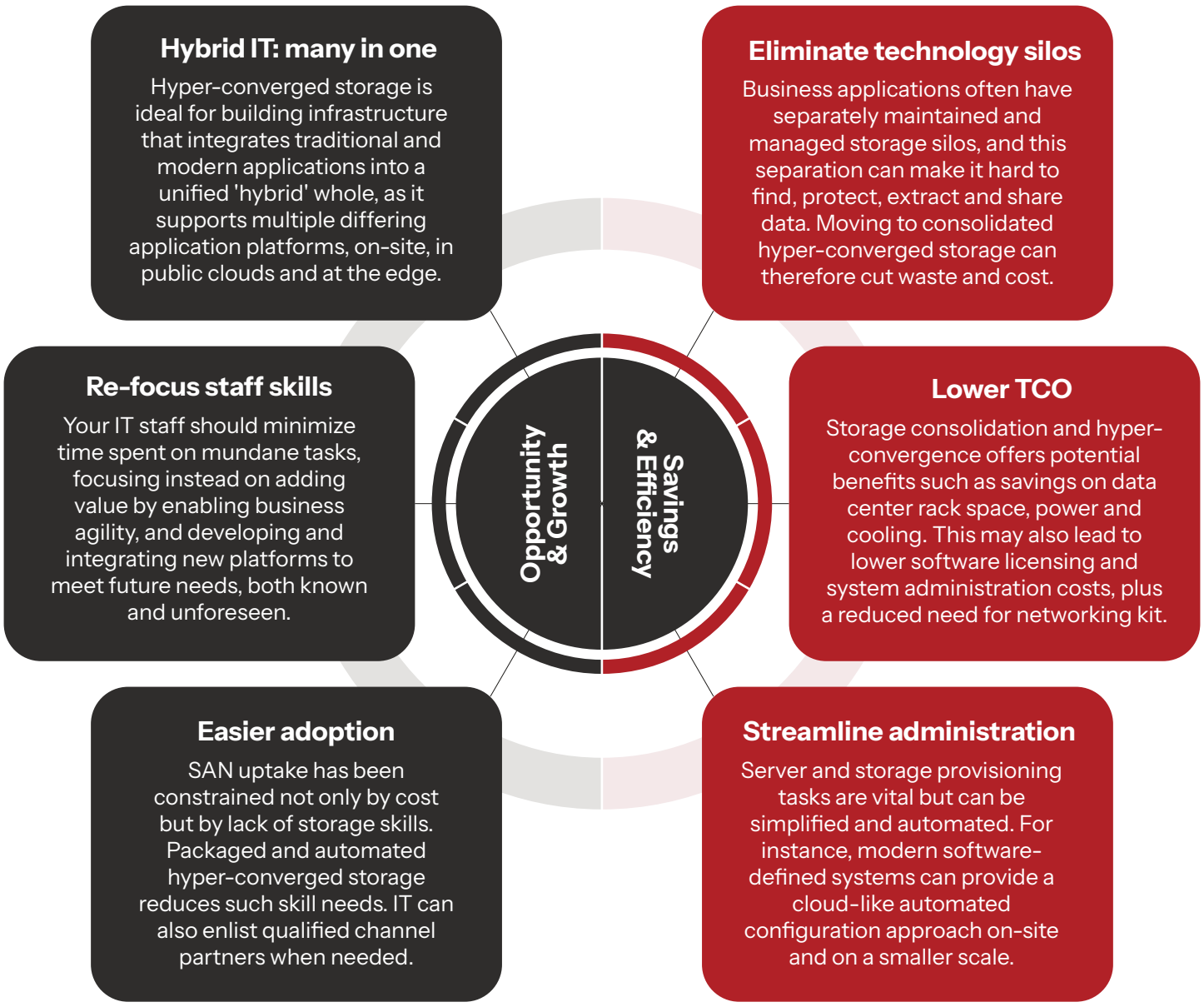
As well as enhancing service delivery, reducing IT complexity and simplifying operations, modern hyper-converged storage technologies can also support many other initiatives. These include significantly improving data management and governance, the development of hybrid cloud and hybrid IT strategies, and the adoption of new software and application models, including edge computing.

Bringing it all together and building a cost model

Creating a business case for storage modernization involves evaluating a range of factors, some positive and some negative. Start by listing the things that impact your TCO, then consider how each factor would change, first if you simply update your storage systems, and second if you adopt hyper-converged storage.

There can be big benefits moving to hyper-converged storage, or even modernizing existing HCI systems, but doing so incurs cost. Remember though that running or upgrading your older systems will also cost more, so ensure you take all factors into account, including the respective costs of power, space and management. What matters is the difference between the options of maintaining existing systems or modernizing with HCI.

As the potential costs and benefits of using HCI can vary, it may be useful to speak with your supplier/partner for advice, case studies and examples to use in your considerations.



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