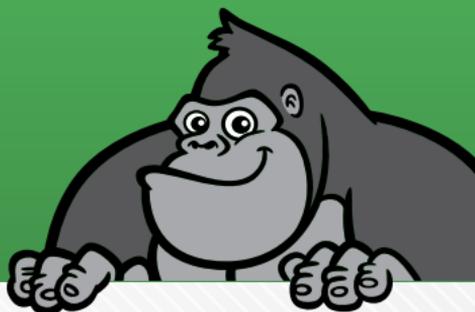


**THE  
GORILLA  
GUIDE TO...**®

**EXPRESS EDITION**



# Delivering Turnkey IT Systems

Alan R. Earls

## Inside the Guide

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- Core Hyperconverged Infrastructure Concepts Clarified
- Break Down Silos With Hyperconverged Infrastructure
- How Hyperconverged Infrastructure Saves Time, Money, and Increases TCO

**THE GORILLA GUIDE TO...**

# Delivering Turnkey IT Systems

**Express Edition**

By Alan R. Earls

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# CALLOUTS USED IN THIS BOOK



The Gorilla is the professorial sort that enjoys helping people learn. In the School House callout, you'll gain insight into topics that may be outside the main subject but are still important.



This is a special place where you can learn a bit more about ancillary topics presented in the book.



When we have a great thought, we express them through a series of grunts in the Bright Idea section.



Takes you into the deep, dark depths of a particular topic.



Discusses items of strategic interest to business leaders.

## ICONS USED IN THIS BOOK



### **DEFINITION**

Defines a word, phrase, or concept.



### **KNOWLEDGE CHECK**

Tests your knowledge of what you've read.



### **PAY ATTENTION**

We want to make sure you see this!



### **GPS**

We'll help you navigate your knowledge to the right place.



### **WATCH OUT!**

Make sure you read this so you don't make a critical error!



### **TIP**

A helpful piece of advice based on what you've read.

# INTRODUCTION

## Just Turn the Key

Welcome to this Gorilla Guide To...<sup>®</sup> (Express Edition) Delivering Turnkey IT Systems. This book is all about simplification. You likely have lots of infrastructure in your data center, even if you're a small-to-mid-size business. It includes hardware and software, from servers to switches to routers to databases to firewalls to applications to ...

Well, you get the idea. Basically, there's a lot of "stuff" there. And the more "stuff" you have, the more complicated everything becomes, from deployment to management to monitoring to securing, and everything in between. In traditional or legacy computing, these things all have their own little fiefdoms—they're all handled separately. We call that being "siloeed."

Silos are terribly inefficient to deal with. They slow you down, and make your admins less productive. This kludgy setup led to the rise of hyperconverged infrastructure, or HCI. The goal of HCI is to break down those siloes, streamlining every aspect of your operations.

In other words, everything is simplified, or “turn-key”—just “turn the key” and it’s done for you. If you think this idea is simply marketing hype and typical overpromising, then you need to read this book right now. It will show you why the hype is real, and the promised simplification isn’t a “piecrust promise”—easily made, easily broken.

So if you’re ready to find out how to do more with less, and make your operations as simple as turning a key, read on for more.

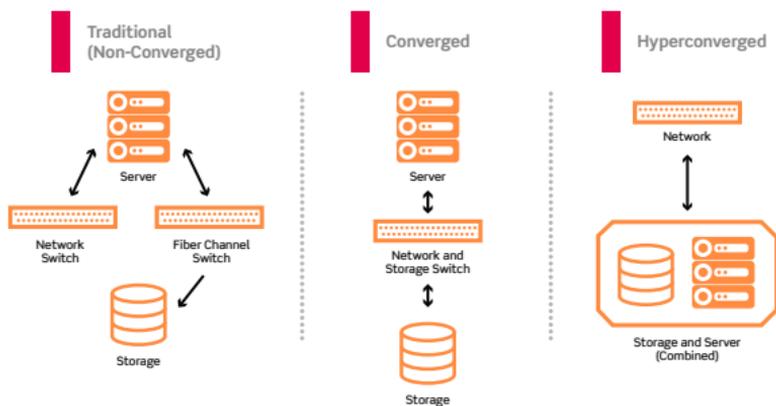
# Hyperconverged Infrastructure: The 'Key' to Turnkey IT Infrastructure

A top priority for many IT departments is eliminating operational complexity. Hyperconverged infrastructure (HCI) takes a giant leap forward in making things easier and reduces the administrative burden for providing IT infrastructure.

## **What Is HCI? A Brief Definition ...**

HCI is an IT architecture built on virtualization that enables tight integration between formerly disparate hardware elements such as compute, storage, and even networking, as well as virtualized elements. It can be implemented directly through software or with the help of a dedicated appliance.

Broadly speaking, HCI is an outgrowth of the development and adoption of virtualization, taking the concepts to a logical conclusion. It's also, in part, a



**Figure 1:** Traditional vs. converged vs. hyperconverged infrastructures

response to the popularity of cloud computing, offering enterprises that need or want an on-premises data center the option of doing so without having to deal with too much complexity (see **Figure 1**).

## HCI: Evolving and Proving Its Value

HCI has moved from a leading-edge concept to an appealing and widely adopted paradigm in a short time because of its many potential advantages. By virtualizing almost all functions across the hardware layer, including SAN, storage, compute, and virtualized networking, on top of widely used components and centered on the hypervisor, management is dramatically

simplified. With software as the predominant feature, efficiency, in general, is better than with most traditional arrangements.

## How HCI Fits in Traditional Data Center Approaches

Aside from its inherent advantages as a more modern approach to data center architecture, HCI also provides an experience and environment that, for both end users and IT operations, is in many ways cloud-like and familiar for modern IT staff. This makes it a good fit for companies that have shifted or expect to shift more work to the cloud.

Moreover, because it's simple to configure, it's ideal for companies that might expand organically or through acquisition. It allows underlying resources to be viewed and treated more like commodities than ever before. And it incorporates both automation and orchestration.

**Automation** in IT means more or less the same thing as in any other field: routine and necessary tasks can be set up to occur with little or no staff involvement, which is increasingly critical as staff available for time-intensive manual processes continues to shrink or is reallocated. Instead, more are (or should be)

focusing on strategic or game-changing tasks that can improve the business.

**Orchestration**, a closely related concept, represents much of the value-add traditionally provided by a sizable, skilled IT staff able to get the most from large, distributed systems by implementing load balancing among resources and anticipating the stresses and strains that can occur in the face of competing needs.

In the best of times, accomplishing all this was more art than science, not unlike the management of large virtual environments that includes the integration and scheduling of tasks. And that's why orchestration technologies have developed—to modernize these practices, speeding and simplifying the operations of different workloads and systems.

Combined, automation and orchestration can deliver the kind of smooth and efficient operations rarely achievable by humans alone.

## **Relief for Overburdened IT Departments—the Evolution from Art to Science**

IT operations management can no longer be treated as an “art”—it has to be an exact science, and automation and orchestration are key to making IT predictable, repeatable, manageable, *and* adaptable. In fact, for many

IT leaders, automation and orchestration are becoming nonnegotiable (as opposed to simply nice-to-have).

From a purely practical standpoint, automation and orchestration are one of the best ways to ensure a reduced staff workload with fewer “surprises,” allowing for more regularized operations and long-term planning. A well-designed hyperconvergence platform includes this functionality throughout.

## **The Compelling Case for HCI**

Technology now makes automation and orchestration both necessary and possible. With IT teams weighed down by the need to manage applications that often number in the thousands, along with equally numerous servers and other resources, there's just too much complexity.

The business need to operate at breakneck speed makes it all but impossible for humans to do it alone. Furthermore, the pace and complexity of operations means that most human interventions would be too little, too late, or might even potentially do more harm than good.

Conversely, modern computing power and smarter software can be configured to handle most challenges with very little human input. That's why orchestration

and automation have become mandatory for most organizations, and why well-designed HCI platforms are so compelling. HCI platforms offer the ability to deliver dynamic scaling with high availability, excellent application performance, and bullet-proof reliability, while spanning multiple platforms across multiple clouds and wide-ranging physical geography.

## **Backup/Recovery**

The other side of HCI is its role in backup and recovery. Data remains at the core of digitalization and nearly every automated system. Protecting that data and making it accessible when needed, reliably, is a must-have capability, more critical now than ever before.

## **Optimal Utilization**

A unified, hyperconverged infrastructure can provide a pool of resources with which to consolidate a variety of previously disparate workloads. As with cloud and virtualization, this ensures all resources are used as efficiently as possible. Increased resource utilization and management efficiency reduce expenses and increase productivity.



A robust HCI solution incorporates backup and recovery natively to allow disaster recovery (DR) implementations in situations where implementing a robust DR solution was previously economically challenging.

Rather than taking a siloed approach, HCI builds in backup and recovery as part of the infrastructure so that it's less expensive, more robust, and easier to manage. It becomes an inherent system element rather than something that must be addressed and managed separately.

## **Load Balancing and Best Overall Operating Characteristics**

HCI is a direct path to handling load-balancing issues. By aggregating all resources, HCI creates a flexible and highly elastic computing environment that can deliver nearly ideal operating conditions for all applications and function. With convergence—just as with server virtualization—utilization can be maintained at a higher level and changes can be made on the fly to adjust to shifting needs.

Effectively, HCI delivers better application performance and network speed through built-in orchestration and load-balancing. Furthermore, all of this can be accomplished with less direct staff involvement, helping to multiply savings.

## **Adapt to Changing Business Needs**

Agility is no longer a buzzword or a distant goal—it's a requirement. All businesses must be constantly on the watch for black swans—seemingly now less uncommon in a highly interconnected world. And that means IT must be able to turn on a dime, shifting resources, implementing new capabilities, or handling suddenly higher traffic loads.

HCI provides a core strength for rationalizing existing and often fragmented resources as well as for adding and integrating new capabilities whenever needed.

## **Edge Computing with Easy Implementation and Support**

It's a data-driven world, but the data often comes from remote locations and even from sensors far from traditional IT. Edge computing aims to do an initial capture of that data and preprocess the data so it can be efficiently transmitted to either an on-premises or cloud data center. But that data may be arriving where resources are already stretched thin and where staff is unprepared to further adapt.

HCI gives organizations the power to more readily support edge computing and absorb new and unexpected data flows, establishing data repositories and

implementing analytics and machine learning to extract value from the edge.

## **The HCI Opportunity vs. Legacy Thinking**

Above all, HCI supports the flexibility and ease of configuration required by organizations that are embracing the edge. No other approach can so readily adapt to the hundreds or thousands of new data sources that edge introduces and that then need to be managed.

The infrastructure of the data center is the core of the data-driven organization—and because of its critical importance, change has been embraced cautiously. The virtualization revolution, led by companies such as VMware, left a long shadow that still dominates thinking in the IT community about what new technologies should be embraced and how.

Some virtualization pioneers have been slow to move beyond the “classic” approach to virtualization, leaving it to new vendors with more efficient approaches to deliver next-generation virtualization in the form of HCI. They continue to advance the state of the art while VMware and others have taken smaller, fitful steps forward.



**Traditional virtualization will remain important for many organizations**, but those moving forward to embrace HCI are finding it an easy-to-make transition that quickly confers benefits. Those benefits include greater adaptability, more cost-effective use of resources, and dramatically improved ease of use.

Vendors such as Scale Computing are introducing second- and third-generation HCI, leaving traditional virtualization vendors behind. Enthusiastic users are proving that HCI is here, and broadly adopted.

HCI does all that across a range of use cases, making it a perfect fit for what organizations are doing now, and in the future. That's the focus of Chapter 2.

## CHAPTER 2

# HCI Enables What Business Leaders Are Asking For

IT leaders are concerned about the pace of change. They want to achieve faster delivery without sacrificing resiliency, compliance, cybersecurity, and more. But, in keeping up with the pace of change, they must also ensure that they are getting the best possible return on their investments.

## Hottest of the Hot Buttons

There are four top concerns and technologies in focus for IT decision makers as the 2020s get underway. Each has a connection to hyperconverged infrastructure (HCI). They are:

- Faster, seamless disaster recovery (DR)
- Virtual desktop infrastructure (VDI)
- Edge computing
- Futureproofing the environment

Let's take a closer look at each of these categories.

## Seamless, Quicker Disaster Recovery

DR is not an exotic “once in a blue moon” concern anymore. It is something that needs to be built in, as well as ready and responsive. Downtime is unacceptable and extremely expensive. Every minute you are down costs you revenue and business—and the costs are not only financial in nature.

For example, even a brief outage can damage your company’s reputation. No one likes to be inconvenienced, and an outage immediately leads customers or clients to question the capabilities and strength of an organization. Once that seed of doubt is planted, any subsequent minor glitch, real or perceived, can easily add to a growing negative perception.

Of course, if that glitch impacts the customer in a more substantive way—causing a shipment to miss a deadline, for example—the effect is certainly going to be more severe.

If downtime or data loss lead to customer defection—a very likely outcome—the costs to your organization rise substantially, given the large investments made to win those customers in the first place.

The fallout from both downtime and data loss can also draw scrutiny from regulators, potentially impacting the ability to fulfill regulatory requirements in a timely manner.

Also consider that we now live in an always-connected, global economy. That means 24/7/365 operations, and that kind of availability is largely dependent on fast, reliable recovery.

A big hurdle to keeping those operations going, however, is the threat of ransomware. This scourge has developed into one of today's greatest cybersecurity challenges, and continues to grow in scope and impact (see **Figure 2**).

**Organizations affected  
by ransomware**

2020	62.4%	↑
2019	56.1%	
2018	55.1%	

**Figure 2:** Ransomware has been steadily rising in frequency

For example, an attack on shipping giant Maersk reportedly cost that company more than \$200 million.<sup>1</sup> And a September 2018 report in *Wired*<sup>2</sup> claimed that the same malware ultimately did more than \$10 billion in damages globally.

Since so many different methods of installing ransomware have been utilized, no single defense strategy seems likely to alter the frequency or severity of attacks. This makes it imperative that organizations implement rapid, robust, and reliable recovery.

Doing so protects a company from the catastrophic damage represented by ransomware. It provides the confidence of knowing that they can safely ignore the maliciously encrypted data, and reinstall comprehensive, accurate backup data.

To support the general pace of business, better, more aggressive Recovery Time Objective (RTO) and Recovery Point Objective (RPO) goals are being demanded. IT has learned from experience that investments in quicker RTO and RPO objectives really do pay off.

<sup>1</sup> <https://www.cnbc.com/2017/08/16/maersk-says-notpetya-cyberattack-could-cost-300-million.html>

<sup>2</sup> <https://www.wired.com/story/notpetya-cyberattack-ukraine-russia-code-crashed-the-world/>

It is those kinds of requirements that have led to the wide adoption of HCI and its many benefits. In the area of backup and DR, HCI provides the most flexible and cost-effective means of supporting a modern solution.

For instance, HCI often includes built-in capabilities to manage scheduled snapshots and remote replication, as well as application-aware protection and recovery of selected files or even full VMs.

## **Virtual Desktop Infrastructure (VDI)**

HCI is for more than just backup and DR, however. VDI is a way to give end users a desktop-like experience, keeping them happy while improving manageability and security. Along with those advantages, though, traditional VDI has real challenges, including:

- The complexity and cost of building a virtual infrastructure using traditional virtualization architectures
- Creating costly, highly available virtualization clusters with shared storage and the capacity to run hundreds of desktops, as well as scale out as needed
- The cost of licensing traditional VDI solutions, which are stacked on top of the infrastructure cost

Taken together, these challenges can end up making legacy VDI solutions cost prohibitive for many organizations. Organizations have to provide infrastructure that supports high VM density, with the ability to grow that density over time.

HCI provides a simple, turnkey solution that properly balances the VDI cost/benefit equation. It scales out easily, and saves on deployment and management. In addition, it is highly reliable and resilient, which are quickly becoming non-negotiable characteristics. As you can see, HCI is a game-changer for VDI, making it possible to deliver cost-effective infrastructure support.

The type of HCI you use makes a difference for VDI efficacy, since that environment tends to be more resource hungry. To that end, appliance-based HCI integrates all components, including compute, storage, and hypervisor. Since it is built to work together, the whole experience, from both an admin and end-user perspective, is smooth and seamless.

Another less-obvious advantage is a single source of support—one “throat to choke,” which means elimination of the rotating finger of blame so frustratingly common with less integrated solutions.

When it comes time to scale, this integration lends itself to clustering. HCI clustering not only eliminates single points of failure, it also offers scalability and strong performance. HCI grows as your VDI needs grow, without a lot of complexity or drama.

It is important to understand that HCI is not necessarily the lowest-cost solution in terms of initial capital investment. On the other hand, operational savings add up to such a degree that, over time, HCI can achieve more than a 50% savings over traditional approaches. HCI allows you to buy only what you need and offers clear, immediate overall savings.

## **Edge Computing and the Internet of Things**

As computing has moved beyond the strict confines of on-premises operations, HCI has moved with it. That includes edge computing, which supports decentralized data gathering and IT operations outside the data center.

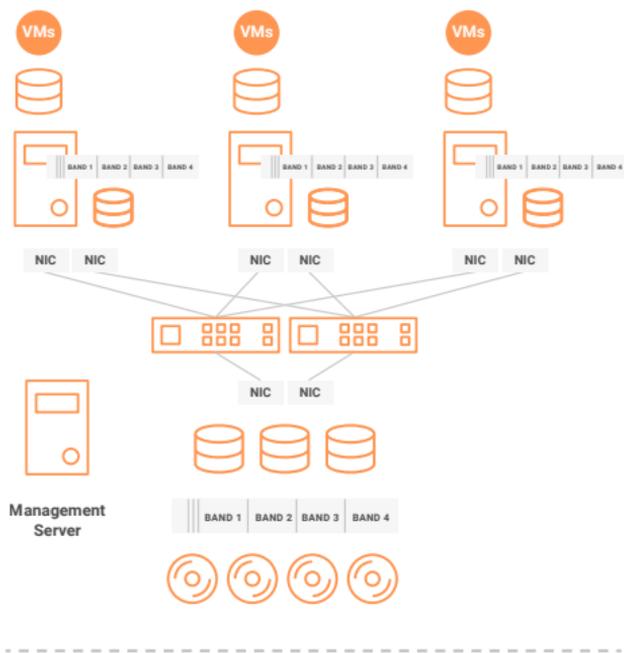
And like everything else in IT, it comes with both huge opportunities and substantial challenges. The opportunities exist in almost every industry. Whether it is monitoring moisture, sunlight, and soil chemistry in a farmer's field; instrumenting a retail environment to

understand personal and crowd dynamics and assess marketing and product presentation strategies; or operating a manufacturing facility, where process data is central to ensuring productivity, the opportunities for Internet of Things (IoT) data gathering are limitless.

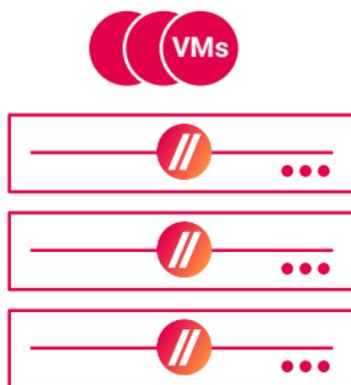
While IoT data systems can produce almost limitless quantities of data, moving all that data is cost-prohibitive and, even under the best of circumstances, too slow. Edge computing enables immediate data processing, which can directly inform actions at the edge and better support centralized decision making. Edge computing provides more and better data analysis, less need to send all data to a central data center, and the potential for real-time processing to support controls and operations directly at the edge in near real time.

Creating or supporting compute at the edge with traditional virtualization technologies is typically cost-prohibitive and complex, often driving organizations to simply avoid edge solutions or deploy ill-suited desktop machines and standalone servers instead (see **Figure 3**). Direct-to-cloud is also an option, but usually comes with the same transport and bandwidth challenges as simply remaining data center-centric. Something better has long been needed.

## Virtualization: The Old Way



## Virtualization: The HCI Way



**Figure 3:** A comparison of traditional virtualization architecture and HCI-based virtualization

HCI is that something better. It allows you to maximize the value of existing edge investments and minimize the cost of enhancing edge capability through widespread efficiencies. An appliance-based HCI, in particular, can provide high levels of computing capability with comparative simplicity, lower cost, and ease of management.

With HCI, sophisticated processing or preprocessing at the edge can deliver on the promise of the edge—turning all that raw data into valuable, actionable information for long- and short-term decision-making, and for new or enhanced data applications at the edge.

## **Futureproof Your Environment**

Recent events underscore how difficult it can be to plan organizational needs. The nature of the workloads evolves, and the volume and intensity of compute requirements is also subject to change.

This is a reflection of the fact that HCI can help reduce architectural complexity. In fact, HCI can be more cost effective than almost any other approach, providing speed, minimal latency, high utilization, and so forth. HCI helps minimize sprawl, and ensure maximum utilization (to avoid high levels of spending), which is

a sound basis for any future information technology investments.

Finally, HCI is highly adaptable and inherently future-proof, meaning it can readily incorporate or support future needs and developments such as AI and machine learning.



**The difference between HCI and other approaches** is that an investment decision made today doesn't eliminate future opportunities. Instead, it sets the stage for flexibility and scalability. Adding further compute and storage capacity in the future if needed to support new and emerging workloads is almost as easy as "plug and play."

In many companies, however, decisions like whether to adopt new technologies like HCI often come down to dollars and cents. Chapter 3 tackles that topic—and as you'll find, HCI offers better Total Cost of Ownership, or TCO, making it in many cases a no-brainer option.

## CHAPTER 3

# How To Immediately Reduce TCO for Your Infrastructure

Do much more with less. Like it or not, that's been the IT mantra for decades, and it isn't going to change. Fortunately, adopting Scale Computing-based HCI allows you to ensure that future capacity won't be an issue. You can reduce downtime, and reduce the workload on IT staff, all within the same budget or perhaps less. It's technology that's leading edge but not bleeding edge—built on the steady advancements in virtualization and the specific breakthroughs pioneered by Scale Computing.

## **Operational Simplicity**

Operational simplicity isn't just a matter of giving IT professionals an easier, consumer-like experience. It's part of the march toward ubiquity for IT, with powerful compute capabilities available anywhere and anytime.

## **Powerful Computing That's Also Easy**

Scale Computing's HCI platform, known as HC3, is built to be simple enough that nearly anyone with

some basic IT experience can run it successfully. Unlike many cloud-based or traditionally complex on-premises options, Scale Computing HC3 relies a lot on common sense, a simplified structure, and intuitive controls.

That means it's no longer necessary to go through the "fire drill" of finding someone with the time, energy, and inclination to spend days or weeks in training and then mastering multi-level certifications, just so you can get started.

Because of its intuitive approach, your existing staff can grasp the basics almost immediately and increase their comprehension as they become more comfortable with HC3. This also means there's no need to hire anyone with exotic or high-priced skills. In short, if you like your IT department, you can keep your IT department.

Your IT department will also like HC3, due to innovations like HyperCore technology. HyperCore makes HC3 self-healing, so it automatically identifies and corrects issues that might cause downtime. That frees up your IT staff to focus on more proactive activities, rather than just reacting to the latest outage that harms productivity.



**Figure 4:** The Scale Computing HC3 platform brings together storage, servers, and virtualization in one, comprehensive system

## Upgrades Without Pain

Similarly, when upgrades come along, you don't have to face them with dread. Instead, it's the proverbial "easy button:" Upgrades are, by design and by definition, non-disruptive. How is this possible?

Scale Computing HC3 gets its updates directly from a web interface from which they can be applied automatically. For example, unlike some HCI, a single click can update everything, including the hypervisor, storage system, the firmware, and every other part of the system, as a single tested unit (**Figure 4**). There's no chasing after resources and making sure they're

updated. The automated process relocates VMs among nodes to free them up one at a time for updating. The configuration then reverts once updates are completed.

## **High Availability**

Increased uptime results in less disruption to business and loss of productivity.

### **When Downtime Isn't an Option**

Doing more with less isn't the only mantra embedded in IT these days. Businesses, even mom and pop operations, need to have systems available most of the time, ideally 24/7/365. This is a proposition that was almost unattainable not that many years ago, requiring massive investments in specialized hardware and software.

But, of course, all that has changed. Virtualization on its own essentially puts all your eggs in one basket (and doesn't make the basket any better). So, the need for ensuring resiliency in storage, and capabilities such as failover to other servers, made existing IT resources much more failure-resistant, and hyperconvergence takes the trend even further by managing practically every potential failure point for high availability.

A particular feature of Scale Computing HC3-enabled high availability is that it can apply to the data center itself, as well as to remote locations. This is possible because Scale Computing relies on a hypervisor-embedded storage architecture.

What that means is that there's no need for a virtual storage appliance at every node. In fact, the whole system stack typically consumes only about 4GB of RAM per node, a fraction of what most HCI systems require. That was part of the design thinking: make infrastructure so efficient that the focus can be on delivering results, not creating overhead.

That's another example of the innovation that drives Scale Computing solutions, innovations that free up valuable staff resources and make your IT team more productive.

## **Investments Gain Value**

Beyond traditional virtualization solutions, HCI can efficiently pool server resources like storage, RAM, and CPU to optimize utilization across clusters of virtual host appliances. Fewer resources are left sitting underutilized for long periods of time, helping return value on the investment made in them. High availability of resources on the virtual platform and down to the

hardware level obviates concerns about data loss and performance issues.

Downtime can be one of the biggest costs to business. The inherent high availability of the HCI platform

## Scale Computing Resources

The Scale Computing website<sup>1</sup> is a great place to start exploring the benefits of HCI. Dig deeper through the site, and you'll find other valuable information that can help you understand more about HCI and related technologies. They include:



- The Scale Computing Blog<sup>2</sup>
- Scale Computing customer case studies<sup>3</sup>
- Scale Computing whitepapers<sup>4</sup>

Check them out!

<sup>1</sup> <https://www.scalecomputing.com/>

<sup>2</sup> <https://www.scalecomputing.com/blog>

<sup>3</sup> <https://www.scalecomputing.com/success-stories>

<sup>4</sup> <https://www.scalecomputing.com/white-papers>

delivers greatly increased uptime, resulting in much less actual or potential disruption to business. Averting even a single downtime event can provide an immediate return on investment, all but eliminating the costs of loss of productivity so long associated with more fragile IT systems.

## **Cost-Effectiveness**

The advantage of HCI is not only availability, but also that, with its own hypervisor and embedded storage, it can deliver these benefits at a remarkably low cost.

HCI turns out to be a good fit for the challenges facing businesses today, helping them to become more agile and adaptable while using financial and human resources more effectively. This has been true for SMBs, as well. They, after all, face most of the same challenges of larger enterprises, but often must address them with more limited resources. In some instances, their challenges may be greater, particularly when it comes to the availability of on-staff expertise.

Those factors make Scale Computing HC3 particularly compelling. With all the elements of a robust data center melded into one, the power smaller organizations need is there while the complexities are gone.

## Scalability

Scalability is inherent in Scale-based HCI, and that's a very good thing.

### A Whole That's Greater than the Sum of Its Parts

Scale Computing HCI is a happy coalescence of hardware and software that integrates compute, networking, and storage with an integrated hypervisor. It also greatly reduces the complexities usually involved in IT scalability.



**Because HCI integrates storage and compute capabilities,** there's no need to think

separately about NAS or SAN assets. Instead, more resources are simply added to a cluster as needed. Resource requirements almost always grow and, with HCI, rip and replace isn't a requirement for accommodating new capacity.

HCI implementations can work well for almost any combination of workloads but are considered especially well adapted for both analytic and big data functions.

This is in part because HCI can flexibly deliver both data resources and compute resources while keeping necessary data movements to a minimum.

That kind of “smart” operational sense contributes to making HCI particularly scalable. HCI provides a particular boost in IT scalability to applications designed for edge computing or distributed systems. Take time to consider your current range of applications and review their suitability for HCI. Most will get a boost from the HCI choice.

## **Look to the Bottom Line**

From a business standpoint, HCI is a big winner because there’s no requirement to purchase capacity far in advance of actual need, as with old style “just in case” annual budgeting. This means minimizing or avoiding CapEx costs, which can free up funds for other needs. The mirror image of this is that under-purchasing isn’t an issue, either, both because of the inherent efficiency of HCI, which tends to cut requirements overall, and the ease with which capacity can be added when needed.

This translates into scalability with flexibility. For example, HCI provides innate support for mixing node configurations. Rather than configuring only once for

tasks or groups of tasks, HCI can reconfigure on the fly to meet sudden or evolving needs.

Viewed through the important lens of licensing costs, HCI scalability again delivers big benefits because it isn't tightly linked to those licensing costs. For example, with Scale Computing HC3 a built-in HyperCore operating system and KVM-based hypervisor eliminates the need for any additional licensing costs.

Similarly, HC3 appliance nodes can be configured to function in a storage-only mode. That prevents the system from running VMs on the node, often eliminating the need to license an application or OS for that node.

HCI is also designed to require the minimum of resources. This means, for example, fewer inefficient protocols and other overhead that in some IT arrangements ends up consuming a substantial portion of the investment without conferring matching benefits.

## **Affordability**

With simplicity, high availability, and scalability, it's perhaps not surprising that HCI also scores high in affordability.

## Balanced Attributes

That's because simplicity, high availability, and scalability make for a more flexible and effective spend. It's like the difference between a mechanic with a jumbled toolbox and one with everything in its place and ready for use. Simply put, HCI organizes and makes use of assets better.

Furthermore, by supporting ad hoc substitution or replacement, HCI makes it easier to move toward a more modern infrastructure. There's no need to prepare complex plans or schedule downtime.

One of the biggest savings comes from the fact that with HCI, there's no need for extra hypervisor licensing. And, by combining many different IT functions into one system, HCI leverages efficiencies in shared resources and avoids duplication of systems and/or system sprawl.

Finally, HCI has a significant impact on the human side of IT through simplified administration. How much of a savings this represents will vary depending on the size of the organization and its complexity. But, obviously, if one goes all the way from dozens of discrete servers and a SAN or NAS to a fully consolidated HCI, the reduction in required staffing will be significant.

And even more so, the reduction in the skill sets required will be dramatic.

Even if you're starting with a virtualized infrastructure, moving to HCI offers a sharp divide with far more modest human resources required after the transition.

## **Time to Do More**

Throughout this Gorilla Guide, you've seen the dramatic advantages offered by HCI. In terms of scalability, simplicity, manageability, and cost, it's hard if not impossible for legacy infrastructure to match.

But not all HCI vendors are the same. It's imperative to do your homework and look at each vendors' offerings. When you do, it should become quickly apparent that Scale Computing's solutions stand out from the crowd.

When you're ready to do more with your infrastructure; when you're ready to break down inefficient silos; when you're ready to incorporate AI and edge computing into your environment; then you're ready for Scale Computing HCI. See what it can do for you.

# ABOUT SCALE COMPUTING



Scale Computing HC3 software eliminates the need for traditional IT silos of virtualization software, disaster recovery software, servers, and shared storage, replacing these with a fully integrated, highly available platform for running applications. Using patented HyperCore™ technology, the HC3 self-healing platform automatically identifies, mitigates, and corrects problems in the infrastructure in real-time, enabling applications to achieve maximum uptime even when local IT resources and staff are scarce.

[www.scalecomputing.com](http://www.scalecomputing.com)

# ABOUT ACTUALTECH MEDIA



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ActualTech Media's team speaks to the enterprise IT audience because we've been the enterprise IT audience.

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