Top 3 Things to Look for in a

Future-Proofed, Edge-Deployable HCI Solution

Hyper-converged infrastructure (HCI) has solidified its position as an efficient, agile, and affordable approach to IT modernization and simplification. But not all HCI solutions are created equal. It's important to prioritize what to look for in a solution designed for the world of fast-moving big data at the edge in a micro data center and in the traditional data center.

As IT decision-makers look to make their environments more cost efficient, more agile, and easier to deploy and manage for demanding, business-critical, and perishable data workloads, they have to dramatically rethink their approach to the infrastructure needed to deliver essential IT services. As a result, more and more organizations have turned toward hyper-converged infrastructure (HCI) as a way to deploy simple-to-manage, flexible, reliable, and affordable infrastructure to meet demanding business goals.

HCI's architecture—the integration and validation of compute, storage, networking, and virtualization layers in a pre-tested stack—is tailor-made for organizations seeking agility, flexibility, scalability, and affordability. That's why many HCI vendors have leapt into the market with solutions, creating confusion over marketing claims and uncertainty with buyers.

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A X E L L I O

As impressive as HCI adoption rates have been and are likely to continue to be in the next several years, IT executives continue to struggle to sort out vendors' claims and properly evaluate their options. In particular, IT buyers are keen to find solutions that protect their investment over the long haul for a variety of key reasons:

- Data growth will continue at astonishing rates.

- Enterprise data has been, and will continue to be, used to feed critical workloads such as analytics, data warehousing, IoT, and artificial intelligence.

- Performance, space, and power requirements will be critical factors for edge deployment.

- Personnel requirements to handle many management tasks will increase.

- Organizations will be under relentless pressure to innovate faster, respond more quickly, and react to rapidly changing competitive environments and customer demands. This means IT infrastructure must be engineered for easier scalability and higher availability in a much smaller footprint.

HCI solutions have been designed to address many of those issues, but not every HCI solution is architected for a future-proofed path to deliver the space, weight, and power requirements needed in edge computing. Some solutions fall short on dense and simple scalability, others on performance upgrades, some on financial metrics, and still others on easing management complexity.

So how do you select the right HCI solution that delivers an optimized path to future infrastructure requirements around the issues of simplicity, enterprise-scale performance, and edge deployment?

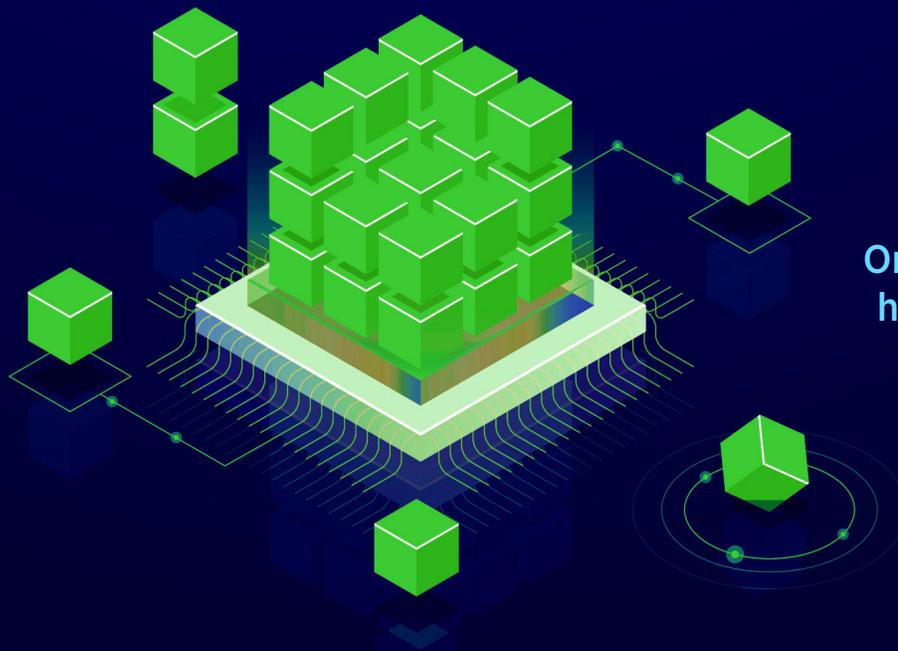## Top 3 Factors in Evaluating and Selecting Your HCI Solution

Evaluating and selecting the right HCI solution for your organization—and especially for your individual workloads—is more important than ever, now that many Tier 1 workloads, large data sets, and enterprise applications are being deployed on HCI solutions. But those evaluations and the selection process are also more challenging, with so many choices and the potential for confusion in trying to compare apples and oranges. This means that IT decision-makers need to focus on the key factors where solutions are most likely to be differentiated, and the results are likely to give infrastructure managers greater confidence in the choices they make.

Adding to the complexity and urgency of HCI evaluation and selection is the diversity of environments where HCI solutions are being considered for deployment: the traditional headquarters data center, remote offices/branch offices (ROBO), remote data centers where size is a critical factor, edge computing environments, and, of course, the cloud.

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Ultimately, making a smart choice is likely to boil down to three major areas: consolidation, performance, and economic efficiency.

- **Consolidation** has become a major requirement for infrastructure choices for a variety of reasons—from CapEx and OpEx savings to the need for right-size infrastructure for edge computing workloads. Specifically, this means looking for solutions where organizations can:

  - Shrink the physical and virtual footprint of infrastructure.

  - Confront and overcome challenges typically associated with scale-out architecture with lots of smaller servers.

  - Cut storage latency and reduce bandwidth bottlenecks.

  - Reduce the number of servers in a typical HCI cluster into a smaller number of densely packed clusters.

  - Provide a more efficient, scalable, and robust infrastructure for critical workloads than the bare-metal servers often used in virtualized environments.

- **Performance** is more important than ever for HCI solutions because newer HCIs can and do deliver enterprise-class performance needed for Tier 1 workloads—at scale. This means decision-makers need to look for HCI solutions that include:

  - Extremely high IOPS, especially for hard-to-predict workload performance requirements that don't follow linear performance requirements, such as analytics and data warehousing.

– Low storage latency in an all-flash array, especially during high-demand cycles where users demand real-time access to data for important decision-making.

– Extremely dense server architecture that obviates the need for a larger number of smaller, less-powerful servers that are not optimized for enterprise-class workloads.

– Software-defined architecture that alleviates traditional performance bottlenecks in HCI-based servers, storage, and networks.

– High-speed PCIe architecture that enables dynamic scaling on a component-by-component basis.

• **Economic efficiency,** always an important factor, is now even more of a primary concern as organizations look to trim operating expenses along with traditional CapEx, particularly in edge computing scenarios. This means that your next HCI solution should achieve:

– Savings in CapEx by utilizing HCI architecture based on a smaller number of very dense servers, rather than a larger number of smaller servers.

– Reduced software licensing fees by taking advantage of enterprise software license structures with Microsoft.

– Substantial OpEx savings in the form of management simplicity, lower staff overhead, automated performance tuning, and, especially, a smaller footprint, lower weight, and reduced power consumption.

– Use of commercial, off-the-shelf components for easier management.

Why You Should Consider Axellio's FabricXpress™ All-NVMe Server Platform

One HCI technology partner that has positioned itself specifically for these next-generation HCI requirements is Axellio, which has pioneered a line of high-performance, cost-efficient, and tightly-consolidated solutions.

Axellio's FabricXpress (FX) solution is built around an extremely-dense, all-flash-based architecture optimized to run mission-critical workloads that now can be re-deployed away from inefficient, legacy data center infrastructure. Through a combination of unique hardware features and a strategic relationship with Microsoft, FX delivers the performance, financial, and operational benefits necessary to run scale-up and scale-out workloads in a single, simple HCI cluster—something not achieved by others on the market. This workload concurrency capability allows for a dense, deployable solution without sacrificing computing power for space, weight, and power requirements—or more importantly, sacrificing computing power for affordability.

FX meets all of the requirements laid out earlier in this paper for consolidation, performance, and economic efficiency—all while using off-the-shelf components engineered into a solution equally well-suited for data center, ROBO, and edge computing requirements.

The PCIe-based architecture supports dynamic component scaling, allowing organizations to expand compute, storage, or networking as needs require, rather than having to purchase more-expensive, fully-integrated nodes. A single cluster

with Microsoft can scale up to 16 nodes and, with Axellio's FabricXpress solution, can support up to 3.7 petabytes of capacity (before de-duplication and compression) in a space-efficient 18U form factor, delivering more than 16 million IOPS at sub-millisecond latency.

Finally, Axellio's partnership with Microsoft allows IT organizations to benefit from Storage Spaces Direct, resulting in significant storage and compute performance for hyperscale requirements. Additionally, Microsoft's HCI software stack improves manageability of HCI clusters using Microsoft's free tool, Windows Admin Center, as well as Hyper-V-based backup and data protection that eliminates backup silos that have typically arisen in IT environments over the years.

Conclusion

Once your organization has made the decision to adopt HCI, it still needs to make an important decision: Which HCI solution approach is likely to allow the organization to achieve the benefits of consolidation, performance, and economic efficiency so essential for workload concurrency and maximizing computing power for small space requirements from the data center to the edge?

Axellio's FabricXpress solutions are engineered specifically for high-performance requirements, but in a consolidated form factor that is easier to deploy, simpler to manage, and more cost efficient than earlier generations of HCI solutions.

For more information on why Axellio's FabricXpress solutions are your best option for powerful HCI deployments today and in the future, please visit www.axellio.com.