

## VersaStack™ Solutions

### Converged infrastructure solutions from IBM and Cisco

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#### Highlights

- Deploy proven, validated infrastructure from industry-leading companies
  - Lower costs and simplify IT deployments with solutions from IBM and Cisco
  - Leverage the power of IBM FlashSystem with Cisco UCS infrastructure
  - Increase functionality with IBM Spectrum Storage software-defined solutions
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The majority of organizations these days report that for them – IT is growing more complex.<sup>[1]</sup> The reasons are varied and numerous: the need for rapid IT transformation, the added complication of supporting work from home, exploding data volumes, the quickly evolving cybersecurity landscape, and an increasing lack of relevant staff skills.

Converged infrastructure (CI) solutions such as VersaStack™ offerings from IBM and Cisco are designed to address growing IT complexity. CI is an approach to managing and providing data center resources that integrates compute, networking, servers, storage, and application development tools in a pre-tested and validated turnkey solution. Rather than multiple IT assets existing in independent siloes, CI bundles hardware components with management software to orchestrate and provision the resources as a single integrated system. This approach is gaining momentum<sup>[2]</sup> as enterprises lower risk and address IT complexity by shifting away from traditional, separate, non-integrated sourcing of infrastructure elements such as servers and storage and instead move toward flexible, agile, hybrid cloud environments. In fact, in a recent market survey, over 90% of enterprises that utilize CI reported that they plan to maintain or increase investments in these simplified, integrated solutions.<sup>[3]</sup>

[1] ESG Research Report: *2020 Technology Spending Intentions Survey*, February 2020

<https://research.esg-global.com/reportaction/2020TechnologySpendingIntentions/Toc?SearchTerms=spending>

[2] TechTarget: *Converged Infrastructure*

<https://searchconvergedinfrastructure.techtarget.com/definition/converged-infrastructure>

[3] ESG Research Report: *2020 Technology Spending Intentions Survey*, February 2020

<https://research.esg-global.com/reportaction/2020TechnologySpendingIntentions/Toc?SearchTerms=spending>

VersaStack Solutions bring together a comprehensive set of converged infrastructure and software-defined technologies from IBM and Cisco designed for quick deployment and rapid time to value. The solutions include Cisco UCS integrated infrastructure together with IBM FlashSystem storage solutions to deliver extraordinary levels of agility and efficiency. VersaStack addresses many of the challenges posed by growing IT complexity because it allows organizations to move faster with less risk. The solutions provide more flexibility and options for managing, operating, and scaling IT infrastructures along the digital transformation journey, while operating in a predictable and economical cost structure.

As part of their on-going collaboration spanning more than a decade and tens of thousands of shared customers, IBM and Cisco have continued to expand VersaStack offerings to include solutions for the IT requirements that are driving 21st century business, including private and hybrid cloud deployment and management, containers, object storage, and artificial intelligence (AI)-driven applications. Now, when enterprises want to gain the benefits of converged infrastructure to address almost any application workload or business use case, they won't need to cobble a solution from untested elements and risk an unknown result. Instead, they can turn to highly integrated, low risk, comprehensive solutions from two of the world's largest and most trusted technology solution providers.

## **Advantages of VersaStack**

VersaStack brings together Cisco Unified Computing System (UCS) integrated infrastructure (including Cisco UCS servers, Nexus and MDS switches, and UCS Director management software) with high-performance, highly functional IBM FlashSystem storage, with the ability to integrate members of the IBM Spectrum Storage family of software-defined storage (SDS) solutions. VersaStack supports varied Cisco and IBM component options that enable enterprises to easily and cost-effectively scale compute, network, and storage capacity as needed.

VersaStack offers many benefits:

- Substantial reductions in design, deployment, and management overhead through use of repeatable, consistent processes and templates across standardized infrastructure and management
- Lower total cost of ownership (TCO) based on simplified architectures and validated designs that help reduce deployment time, increase asset utilization, and decrease capital and operating

expenses

- Significant reductions in power, cooling, cabling, and other infrastructure costs
- Rapid scalability of the platforms through infrastructure automation and simplified, validated architectures

VersaStack solutions are backed by Cisco Validated Designs (CVD) and IBM RedBooks to provide faster delivery of applications, greater IT efficiency, and less risk. With Cisco UCS Management spanning from the data center to the edge and multiple IBM FlashSystem choices to optimize performance and cost-efficiency priorities, VersaStack solutions can address the entire spectrum of data center workloads, from the most demanding large enterprise environments to much smaller edge and remote office requirements.

Unlike hyperconverged approaches which rely on an inflexible building block approach, VersaStack CI solutions can be tailored to the unique requirements of each enterprise or remote office environment. For example, a powerful VersaStack solution designed specifically to accelerate IT and business transformation by facilitating rapid and efficient development of mobile applications based on the latest container technology leverages Red Hat OpenShift Container Platform and VMware virtualization technologies. Red Hat OpenShift Container Platform (OCP) is a platform for developing and running containerized applications. It is designed to allow applications and the data centers that support them to expand from just a few machines and applications to thousands of machines that serve millions of clients. The VersaStack CI stack is comprised of Cisco compute and network switches, IBM FlashSystem storage, and VMware vSphere as the underlying hypervisor. This stack is integrated so users do not have to allocate time and resources researching the required components and how to optimally integrate them to support OCP. Because the solution is tested and validated, it saves deployment time and minimizes risks so organizations can quickly become productive and focus on business, rather than worrying about setting up infrastructure.

The VersaStack for OCP solution is just one example of how the power of CI can provide significant advantages to users.

Other advantages include:

- **Ease of deployment and operation.** IT staff spend a lot of time selecting, connecting, integrating, testing, and managing components. VersaStack makes it easy to deploy resources and add them when needed. Verified, lab-tested architectures provide detailed design and implementation guidance that help reduce risk and guesswork by giving IT architects and administrators detailed blueprints for implementation. By following the CVD guidelines, a VersaStack foundation can be deployed that helps protect against compromise while delivering a simplified, standardized, and trusted approach for the deployment, use, and management of IT infrastructure resources. And the use of a single point of management makes the

environment easy to operate, saving administrators valuable time.

- **Efficiency.** VersaStack solutions simplify the operating model so that organizations can get more work done with fewer resources. These high-density systems combine built-in compression, automated data tiering, and data copy services to deliver optimized performance and scalable capacity in a small footprint. Built-in server, storage, and network virtualization and the capability to virtualize existing storage infrastructure allow for seamless operation and data migration from aging systems. Unified management simplifies deployment and provisioning processes and provides the automation needed for optimum efficiency. Using the role- and policy-based management capabilities of Cisco UCS Manager, IT staff can provision servers in minutes rather than the days or weeks required in traditional environments.
- **Versatility.** Traditional IT architectures often require infrastructure modifications to support new applications and services. VersaStack provides a uniform approach to IT architecture with a well-characterized and documented shared pool of resources. This flexible and consistent approach supports a variety of service-level agreements and business initiatives, including analytics, private cloud, high-performance applications, AI, scale-out data centers, and remote- and branch-office deployments.

## Flexibility and deep integration

All VersaStack solutions include Cisco UCS elements to address both host and networking requirements. Cisco UCS integrates industry-standard, x86-architecture Intel Xeon processor-based servers with networking and storage access into a single unified system. This system is the foundation for Cisco UCS Integrated Infrastructure, a highly secure, automated platform that includes Cisco UCS, Cisco Nexus family switches, Cisco MDS 9000 family multilayer switches, Cisco UCS Manager, and Cisco UCS Director.

All components are connected through a unified fabric that delivers high-performance data and storage networking to simplify deployment, help ensure the quality of the user experience, and reduce operating costs. Within the system, integrated network services provide high-speed connectivity and high availability, accelerate application performance, and reduce the security risks associated with multitenant environments.

Cisco SingleConnect technology provides an efficient way to connect and manage computing resources. With Cisco UCS fabric interconnects and Cisco virtual interface cards (VICs), VersaStack solutions have three networks – IP, storage, and management – running on a single set of cables and a single set of I/O adapters. Because Cisco UCS is form factor independent, blade and rack servers can be deployed in the same chassis, simplifying data center deployments.

Cisco Fabric Extender technology reduces the number of network layers by directly connecting physical and virtual servers to the system's fabric interconnects. This technology eliminates blade server and hypervisor-based switches by connecting fabric interconnect ports directly to

individual blade servers and virtual machines. IT staff can manage virtual networks in the same way they manage physical networks, but with massive scalability. This approach represents a radical simplification compared to traditional systems, reducing capital expenditures and operating expenses while increasing business agility, simplifying and accelerating deployment, and improving performance.

## **Data storage for modern business**

VersaStack solutions offer multiple IBM FlashSystem storage options to address a wide range of IT infrastructure performance, capacity, and budget requirements. IBM FlashSystem storage solutions combine the performance of flash and a NVMe-optimized architecture with the reliability and innovation of IBM FlashCore technology and the rich feature set and high availability of IBM Spectrum Virtualize. These powerful storage platforms provide:

- The option to use large capacity IBM FlashCore modules (FCM) with inline-hardware compression, data protection, and innovative flash management features; industry standard NVMe drives; or Storage Class Memory (SCM) drives
- The software-defined storage functionality of IBM Spectrum Virtualize with a full range of industry-leading data services such as dynamic tiering, IBM FlashCopy management, data mobility, and high-performance data encryption, among many others
- Innovative data reduction pool (DRP) technology that includes deduplication and hardware-accelerated compression technology, plus SCSI UNMAP support and all the thin provisioning, copy management, and efficiency you'd expect from IBM Spectrum Virtualize-based storage.

IBM FlashSystem has been recognized as the most innovative in the marketplace.<sup>[1]</sup> The IBM FlashSystem family simplifies storage for hybrid cloud environments. With a unified set of software, tools, and API's, the systems address the entire range of storage needs, all from one data platform that extends enterprise functionality across the storage estate. The IBM FlashSystem family currently includes:

- IBM FlashSystem 5010, 5030, and 5100 deliver entry enterprise storage solutions
- IBM FlashSystem 7200 provides a midrange enterprise solution
- IBM FlashSystem 9200 and the rack-based IBM FlashSystem 9200R deliver high-performance enterprise solutions.

The majority of these IBM FlashSystem models support both all-flash and hybrid flash/disk configurations, offering great flexibility for building storage solutions targeted to meet specific performance, capacity, and budgetary needs.

## **Virtualization and hybrid cloud capabilities**

IBM Spectrum Virtualize provides the data services foundation for every IBM FlashSystem solution. Its industry-leading capabilities include a wide range of data services that can be extended to over 500 IBM and non-IBM heterogeneous storage systems; automated data movement; synchronous and asynchronous copy services (either on-premises or to the public cloud); encryption; high-availability configurations; storage tiering; and data reduction technologies, among many others. IBM FlashSystem solutions can function as IT infrastructure modernization and transformation engines because of the IBM Spectrum Virtualize capabilities that allow you to extend a wide range of data services and functionality to all legacy external storage systems under the solution's management, reducing both capital and operational costs while increasing return on investments in legacy infrastructure.

IBM Spectrum Virtualize offers powerful data-reduction pool capabilities that include block deduplication that works to minimize the number of data copies stored, and hardware-accelerated data compression technology that provides consistent, high-performance results across application workload patterns. To further drive IT transformation, IBM Spectrum Virtualize for IBM Public Cloud offers multiple ways to create hybrid cloud solutions between on-premises private clouds and the public cloud. It enables real-time storage-based data replication and disaster recovery, as well as data migration between local storage and a growing list of public cloud service providers. And because of its software-defined storage nature, IBM Spectrum Virtualize allows storage administration of cloud-based resources in the same way as on-premises, regardless of the type of storage.

The IBM Spectrum Virtualize functionality in IBM FlashSystem solutions complements server virtualization technologies such as PowerVM, Microsoft Hyper-V, VMware vSphere, Kubernetes, and Docker. Similar to provisioning virtualized servers, provisioning capacity with IBM FlashSystem is designed to become an almost entirely automated function. Containerization is a key enabling technology for flexibly delivering workloads to private and public cloud and DevOps. IBM FlashSystem enables any supported storage to be used as persistent storage in Red Hat OpenShift, Docker, and Kubernetes container environments, improving flexibility, simplifying deployment, and lowering costs while offering the confidence of deploying stateful containers using highly available storage with enterprise capabilities.

## **Unlimited versatility**

All of the IBM storage options for VersaStack are built with IBM Spectrum Storage software, which means that deploying IBM FlashSystem in VersaStack solutions opens the door to the entire IBM Spectrum Storage suite.

These solutions are already proven to work together in the most demanding mission-critical environments. IBM Spectrum Storage with Cisco UCS helps improve efficiency and leverage existing server resources while delivering a rich set of storage capabilities.

VersaStack solutions come with IBM Spectrum Storage capabilities, no matter how they are configured. IBM Spectrum Virtualize makes cloud connectivity possible through IBM Transparent Cloud Tiering. It provides data compression that can lower storage costs significantly and allows virtualization of hundreds of different types of multi-vendor external storage systems to make them one storage resource with all the enterprise-class data services included in IBM Spectrum Virtualize itself.

Once IBM Spectrum Virtualize is part of your VersaStack platform, you can easily add IBM Spectrum Storage solutions to extend capabilities and functionality so that you can address almost any IT challenge, application workload, or business use case. Do you need a high-performance file system and object storage solution? IBM Spectrum Scale provides the solution with global reach and a rich feature set that has been proven in the most demanding big data and AI environments around the world. It can integrate well with IBM Cloud Object Storage to create a comprehensive file and object storage solution with public cloud integration that can make your unstructured data storage capacity seem essentially unlimited.

Want to transform your tape system into an active archive that makes petabytes of data surprisingly accessible while dramatically lowering storage costs? Consider deploying IBM Spectrum Archive. Is protecting your valuable data assets a top priority? Add IBM Spectrum Protect to manage leading-edge disaster recovery and data replication solutions. And if you want to drill down and analyze your storage systems so that you can make the best investment decisions, deploy IBM Spectrum Control either on-premises or as a cloud service.

## **Confidence**

VersaStack converged infrastructure solutions from IBM and Cisco help enterprises of all sizes and types address the challenges of growing IT complexity. Plus they do much more. VersaStack with Cisco UCS and IBM FlashSystem elements offer a low risk, high-performance pathway to IT transformation and accelerated business agility.

[1] IBM IT Infrastructure Blog: *Flash Memory Summit Award: Most Innovative Flash Memory Technology – IBM FlashSystem 9100*, August 2018  
(<https://www.ibm.com/blogs/systems/flash-memory-summit-award-innovative-flash-memory-technology/>)



## Why IBM?

IBM and Cisco are global IT industry leaders. Together, the companies offer more than 15 years of demonstrated joint success with tens of thousands of shared customers. IBM and Cisco have experience in driving emerging technology transitions, with the breadth and ability to deliver innovative, validated solutions while helping customers reduce risk.

The companies provide global delivery capabilities and deep industry expertise along with current technology offerings in data center computing, networking, mobility, collaboration, analytics, and the Internet of Things.

## Next steps

→ [VersaStack Solutions](#)

## For more information

To learn more about VersaStack Solution, please contact your IBM representative or IBM Business Partner, or visit [ibm.com/versastack](http://ibm.com/versastack)

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