Optimizing and Protecting Critical Applications on Integrated Systems

All applications need services no matter what their underlying infrastructure. With the F5 BIG-IP platform, you can ensure the same high availability, performance, and security services for applications running on integrated systems as those running on traditional infrastructure.

White Paper

by F5 Networks

Introduction

IT organizations are continually looking for creative ways to simplify their operations, reduce their costs, and still keep pace with growing user demand. Many who are using virtualization and cloud solutions to achieve the above are turning to integrated systems. According to a 2014 survey by Zenoss, 45.9 percent of respondents are already using them and 44.3 percent are actively considering them. But what exactly are integrated systems? What's motivating enterprises to use them, how are they using them, and what are the perceived advantages? What should enterprises consider before deploying them? These are some of the questions we'll answer in this white paper. We'll also explore how F5 can help you deliver your applications successfully, whatever underlying infrastructure you choose.

What Are Integrated Systems?

Today's integrated systems combine compute and storage components into pre-engineered, tested, and validated solutions. Converged and hyper-converged infrastructures both fall into this category. The primary difference between the two is that hyper-converged infrastructures add virtualization (hypervisor), and broader management support to the basic compute and storage package. Prominent vendors in the converged infrastructure market are VCE and NetApp while emerging vendors include VMware, EMC, and Microsoft. Nutanix and SimpliVity are leading hyper-converged infrastructure vendors.

What's Driving Integrated System Purchases?

Many business and technical challenges are motivating organizations to adopt integrated systems. Among the most commonly cited is the need for rapid deployment. Integrated systems dispense with the busywork of provisioning servers, hypervisor, and storage, and enable organizations to essentially drop into the data center a plug-and-play solution that's up and running within hours—even minutes. This is in contrast to the weeks or months it takes to deploy legacy infrastructure. Forty-three percent of adopters surveyed by 451 Research cited ease and speed of deployment as the top benefit of converged infrastructure.

Integrated systems also help organizations improve operational efficiency and reduce IT complexity. They're easy to acquire, offer a level of convenience that legacy infrastructure cannot, and provide a single vendor to turn to for support services. Because they are pre-engineered, tested, and validated, they also provide a level of reliability that can be more difficult to achieve and maintain for workloads running on traditional IT infrastructure. And when it comes to scalability, integrated systems enable organizations to increase capacity on demand without downtime—and without requiring complex, long-range planning and large capital investments.

Within the category of integrated systems, converged infrastructure is generally less expensive to deploy than legacy infrastructure since it combines the largest CapEx components into a single solution. Hyper-converged infrastructure offers an even lower point of entry due to significantly lower storage costs. It also offers OpEx savings since IT generalists rather than expert staff can easily manage and maintain the systems.

Integrated systems are used for a variety of workloads, the most common ones being:

- **Business mobility**. Integrated systems are an attractive option for business mobility—especially VDI solutions like Citrix XenDesktop and VMware Horizon because they offer fast, easy deployment and predictable scalability. They also help keep capital expenses under control because organizations purchase only the number of devices needed to meet their application demands.
- **Microsoft enterprise applications**. By using integrated systems for critical business productivity applications such as Exchange and SharePoint, organizations get the cost, scalability, and agility benefits of web-scale IT in their own enterprise IT environments.
- **Web-scale IT**, a term coined by Gartner. It refers to organizations having the ability to achieve extreme levels of agility and scalability (like cloud providers do) within an enterprise IT setting. Enterprises typically choose web-scale solutions to reduce the cost and footprint of data center infrastructure, easily launch new solutions, and improve their ability to scale according to changing business needs.
- **Disaster recovery and business continuity**. Integrated systems, and in particular, hyper-converged systems, are well-suited for disaster recovery and business continuity because they're specifically designed for virtual workloads and are inexpensive and easy to install in secondary (backup) locations.

Application Delivery Services: The Essential Complement to All Applications

Whether your organization chooses converged or hyper-converged infrastructures, your ultimate objective is to deliver enterprise workloads, which could include servers (email, database, and others), test and development platforms, or enterprise applications (CRM, ERP, industry-specific, and web-based). For all the convenience, rapid deployment, and turnkey benefits that integrated systems provide, one fact remains: *you still must manage your applications*. And the simple truth is that all applications, regardless of the underlying infrastructure, require services.

Application delivery services range from availability and performance services (that ensure applications are always accessible and performing as users expect) to security services (that protect the applications themselves as well as your network, users, data, and devices). Without these and other services, applications are just software programs—like new construction homes that don't come with major appliances, window screens, in-ground sprinkler and security systems, or fenced yards. Just as homeowners must choose the right products and services for their individual needs, so must enterprises choose the right services for their applications.

How F5 Helps You Address Critical Application Delivery Challenges

F5 makes those choices easier for you by providing a comprehensive range of application delivery services that span security, access and identity management, performance, availability, and mobility (see Figure 1). Based on a single, unified platform, F5 TMOS®, these services are sold as F5 BIG-IP® modules. They run across a services "fabric" that can include F5's chassis/blade-based systems (F5 VIPRION® platform), BIG-IP systems, and virtual edition software.

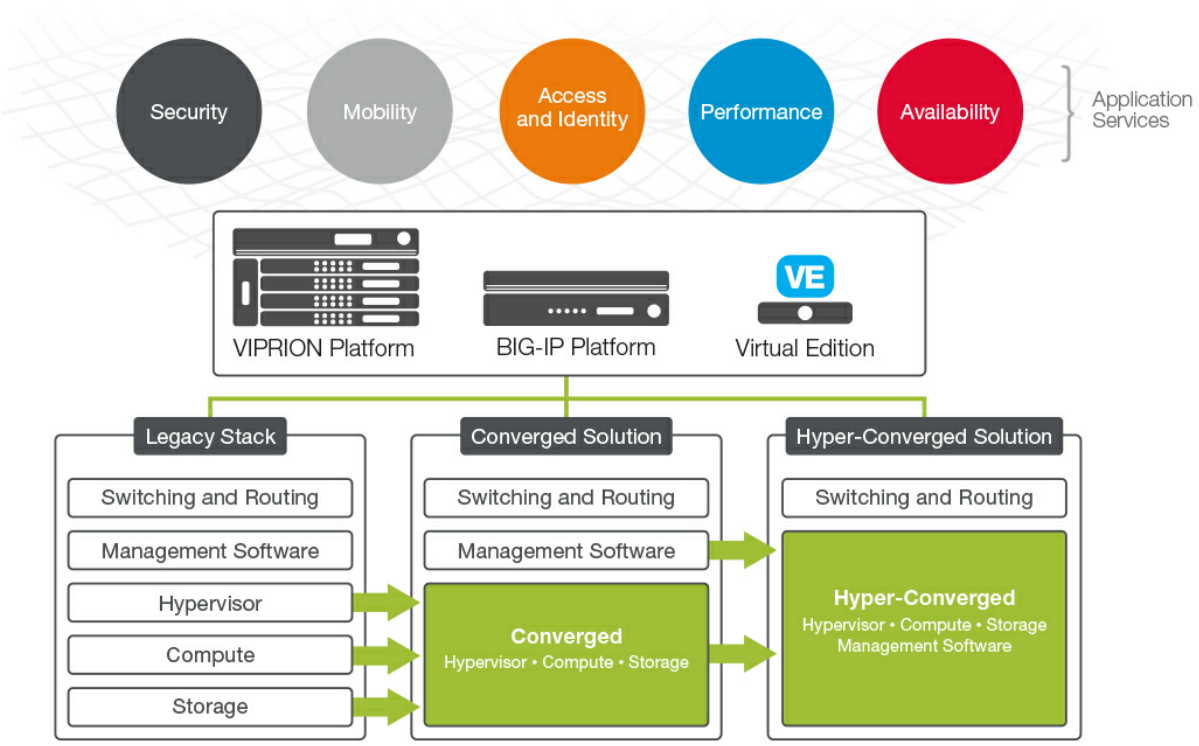

Figure 1. F5 application delivery services work consistently across legacy, converged, and hyper-converged solutions

Let's take a closer look at how F5 can help you address three key considerations—availability and performance; security; and flexibility—when deploying application workloads on integrated systems.

Availability and Performance

Mobile workers, customers, and business partners have high expectations of the applications they use daily. That means organizations must be able to deliver applications quickly and reliably, wherever they're deployed and on any device. This has become increasingly difficult for some organizations as traditional and web-based applications—and the IT infrastructure itself—have grown infinitely more complex.

Application performance and high availability are non-negotiable for F5; they are foundational to all BIG-IP application delivery services. BIG-IP® Local Traffic Manager™ (LTM) provides multiple features that address intelligent traffic management and protocol support; network and application optimization, secure and encrypted communications; on-demand scalability; programmability; and application visibility, health monitoring, and analytics. All of these capabilities help you ensure your applications are always available to users and are performing at their best.

Security

Security begins with protecting your data centers, which are increasingly under threat from sophisticated, targeted attacks. BIG-IP® Advanced Firewall Manager™ (AFM) helps you mitigate the most aggressive, high-volume distributed denial of service (DDoS) attacks on premises—before they enter your network. Deeper into the network, BIG-IP® Application Security Manager™ (ASM) protects your web-based applications and data from OWASP top 10 threats, application-specific vulnerabilities, and zero-day attacks. It also helps you comply with industry standards such as HIPAA and PCI DSS.

Controlling access to applications, however, is just as important as protecting your infrastructure. With BIG-IP® Access Policy Manager® (APM), you can inspect user devices to ensure they comply with corporate standards, and then create policies that allow or restrict access to applications based on a user's identity, location, device, type of network connection, and other criteria. This enables you to enforce identity-based, context-aware, and policy-driven access control—whatever the location, user, or application. BIG-IP APM also gives you single sign-on and federation capabilities across the data center and into the cloud. This gives users easy access to a variety of applications and lets you maintain control of user credentials for software-as-a-service applications.

Flexibility

The IT mandate to "do more with less" has become almost cliché, yet it's showing no signs of going away. Helping IT simplify operations and drive greater agility is more important than ever. One way F5 helps you achieve this is by giving you "architectural freedom" to pick and choose the BIG-IP solutions that are most relevant to your business needs. The goal is to give you the flexibility to add the ***right*** services when and where you need them—across multiple form factors (hardware and software), deployment models (on premises and in private, public, or hybrid clouds), and infrastructures (traditional, converged, hyper-converged). BIG-IP solutions are also offered through many large public cloud providers like Amazon, Microsoft, Cisco, VMware, Verizon, and Rackspace.

The BIG-IP platform also provides the built-in programmability features you need to manage traffic on your terms. With F5 iRules®, you can manipulate incoming and outgoing IP traffic; F5 iCall™ enables you to inspect and maintain your environment and reduce downtime by automating tasks; and F5 iControl® gives you open APIs to integrate third-party applications with BIG-IP systems. Using F5 iApps® wizard-driven templates, you can deploy applications with all their required services in minutes rather than weeks.

F5 Integration with Integrated Systems Vendors

No vendor can stand alone in today's complex and expanding world of IT. F5 is known for its technology alliances and collaboration with leading vendors on integrated, complementary, and joint solutions. In the integrated systems market, F5 has partnerships with both leading and emerging vendors, including Microsoft, NetApp, Nutanix, SimpliVity, VCE, and VMware. For more information about all available solutions, visit f5.com/converged.

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