F5 White Paper

VIPRION: The Cost of Management

The new F5 VIPRION chassis brings not only performance and capabilities beyond today's demands, but also creates cost efficiencies that will appeal to accountants and management everywhere. This document highlights some unexpected savings that the deployment of the VIPRION system brings to the table.

By Paul Stalvig
Technical Marketing Manager

Introduction

Every organization has its own method for calculating costs associated with implementing a new system, but certain principles are widely accepted in these calculations. Most important among these is the concept that time—and the consumption of power and materials—is money. The new VIPRION system from F5 does not disprove this concept, but it does introduce an entirely new management methodology that challenges some of the typical cost/benefit assumptions that go into this type of analysis.

The purpose of this paper is not to explain how the new VIPRION technology works, or to give a detailed list of every possible expense associated with a new or upgraded system. Instead, this paper details the unexpected management value of VIPRION that can be mapped across people, the data center, and the configuration of the system.

People

Time truly does equal money when it refers to the amount of time people spend to physically set up, configure, and manage a given device. VIPRION takes the simple setup and configurations from its predecessors in the F5 BIG-IP family. Because VIPRION can be set up, configured, and maintained like other F5 devices, the knowledge needed to get up and running quickly is minimal. The only new concept to learn is clustered multiprocessing (CMP) and how VIPRION implements this in the form of virtualization.

On average, installing VIPRION takes less than half a day, from delivery to completion. Adding another blade to an open slot in the VIPRION chassis takes minutes because it was built with redundancy and availability in mind. For companies with remote data centers, quickly and easily walking someone through the process of adding blades to the chassis is a huge benefit, saving both time and money.

In addition to time spent installing systems, engineers spend an inordinate amount of time trying to maintain and optimize systems. The VIPRION system uses a single configuration, enabling the system to accept and use new capabilities (blades, upgrade options, etc.) almost instantaneously. The VIPRION system eliminates the need for multiple configurations, and consequently, the need for numerous IP addresses. VIPRION presents a single management IP address to simplify the work.

Through Administration Groups, engineers can delegate or relinquish the burden of bringing servers out and in from pools to the server administrators. With Administrative Groups, the administrators only have access to the system that controls their server's operations.

Data Center

The data center is the heart and soul of any organization. VIPRION presents numerous value propositions in the data center. VIPRION delivers massive reductions in power and cooling, connectivity, and size without sacrificing performance and capabilities.

Power and Cooling

In the IT world, many organizations are moving data centers closer to power sources and using improved designs to minimize power consumption. The "green data center" is being implemented in small and large scales to reduce overall energy costs.

To say that the VIPRION is greener than other available systems is a slight understatement. Comparative testing shows that the VIPRION uses two-thirds less wattage than a competitor's configuration with similar capabilities. At the same time, VIPRION generates only one-third of the heat.

Again, VIPRION costs approximately one-third to operate and reduces overall cooling costs. Hypothetically speaking, if a data center was using only VIPRION chassis, it would only require one-third the power, one-third the cooling, one-third back-up power needs, etc. The reduction in power and heat alone offers an enormous cascading financial benefit. For example, VIPRION enables server offloading. By reducing the processing requirements of the servers, the servers will consume less power and generate less heat. If external switches are used between VIPRION and the servers, the switches will also realize a reduced power consumption and heat generation.

Connectivity

When calculating the cost of a port to a router, switch, or server, the overall price should decrease as the devices are commoditized. But most organizations know that the overall price per port of connectivity is climbing. Add the increasing costs of full-time employees required to support and maintain the devices and the cost of cabling and ancillary support (backups, management devices, etc.), and it is understandable why costs are increasing. These increasing cost factors add up and completely negate any price decrease achieved by the commoditization of the systems.

With VIPRION, you reduce the number of required ports and amount of cabling and lower your overall network costs. You can have numerous connections and, based on the routing, VIPRION chooses the best connection to respond to or initiate communications. This ensures the computing power of your blade configuration, no matter how many blades you are using. To analyze this comparison further, the difference is between a couple of large fiber or copper ports versus hundreds of cables and ports. With each additional line and port used the potential for issues and the need for troubleshooting increases. While the cost of fiber and copper increases, the amount you save with VIPRION also increases.

Size

While VIPRION has all the power of an on-demand Application Delivery Controller (ADC), it fits in a seven-rack unit (7U) space. A standard rack of 42U allows for six VIPRION chassis. To meet the transactions per second of a single VIPRION chassis, the competitor's devices would need more than three fully loaded racks.

Configuration

Configuration of VIPRION is essentially the same as any of the F5 BIG-IP hardware platforms, but new, additional tools enable you to explicitly view and enable or disable the individual blades. These tools allow you to use the blades to process traffic or to serve as a warm standby for expected surges in traffic or growth.

To mimic the capabilities and methodology used in VIPRION, you would have to configure each competitor's device separately. For example, you could configure a single blade VIPRION, or four competitor's devices. In addition, when you install new VIPRION blades, they are available for use almost immediately. When new VIPRION blades are inserted, they are automatically assimilated within the virtualization and begin performing. With competitor's devices, new hardware systems need to be installed and then configured. This difference means a few minutes versus weeks to achieve capacity.

What happens if your configuration is not quite right? Hours, days, or weeks might pass trying to isolate and identify an issue in competitor's devices. VIPRION uses a single configuration file for the entire system. Whether the VIPRION is fully stocked or just using a single blade, there is only one running configuration to create or maintain. Even experts in the ADC market have difficulty trying to configure multitudes of systems to attain the capability that VIPRION enables.

Between the various ARPs and cross communication necessary to keep all of the competitors' systems in synchronization, the network bandwidth is substantially degraded. Add to that the various system health checks, and the competitor's systems no longer have any bandwidth available for production traffic.

Conclusion

With VIPRION, F5 enables you to virtualize, consolidate, and reduce costs. Many times the benefits of new hardware are overlooked while trying to calculate the costs associated with various systems. VIPRION brings many new technologies to the table while simultaneously reducing the overall cost of setup, configuration, maintenance, and allowing for future expansion. Examining the fundamental costs associated with people, data centers, and configuration provides a better understanding of the excellent value of VIPRION.

F5 Networks, Inc.
Corporate Headquarters
401 Elliott Avenue West
Seattle, WA 98119
+1-206-272-5555 Voice
(888) 88BIGIP Toll-free
+1-206-272-5556 Fax
www.f5.com
info@f5.com

F5 Networks
Asia-Pacific
+65-6533-6103 Voice
+65-6533-6106 Fax
info.asia@f5.com

F5 Networks Ltd.
Europe/Middle-East/Africa
+44 (0) 1932 582 000 Voice
+44 (0) 1932 582 001 Fax
emeainfo@f5.com

F5 Networks
Japan K.K.
+81-3-5114-3200 Voice
+81-3-5114-3201 Fax
info@f5networks.co.jp

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