

F5 Extends The High-End of the Application Delivery Controller Market

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Abstract: Web application growth has led to an unexpected technology bottleneck. Many Application Delivery Controllers (ADCs) simply don't have the horsepower to handle the scale associated with demands for SSL transactions, traffic shaping and Web 2.0 content. F5 Networks wants to address these problems head-on with a better mousetrap. Its new VIPRION family creates an ADC "supercomputer"—delivering massive scalability to meet the application delivery needs of high-end web apps.

Overview

Organizations with business processes based upon large web applications can certainly relate to the famous beginning of Charles Dickens's book, *A Tale of Two Cities*: "It was the best of times, it was the worst of times." Why the schizophrenia? On the positive side, web application use is exploding, complete with new phat social networking features like blogs, wikis and video content. Web application proliferation is also boosted as software-as-a-service (SAAS) becomes a viable alternative to homegrown development and in-house IT infrastructure. Finally, web applications are now accessed by a bevy of mobile devices over cellular networks. In aggregate, web applications now offer more functionality to more users, regardless of location or device type.

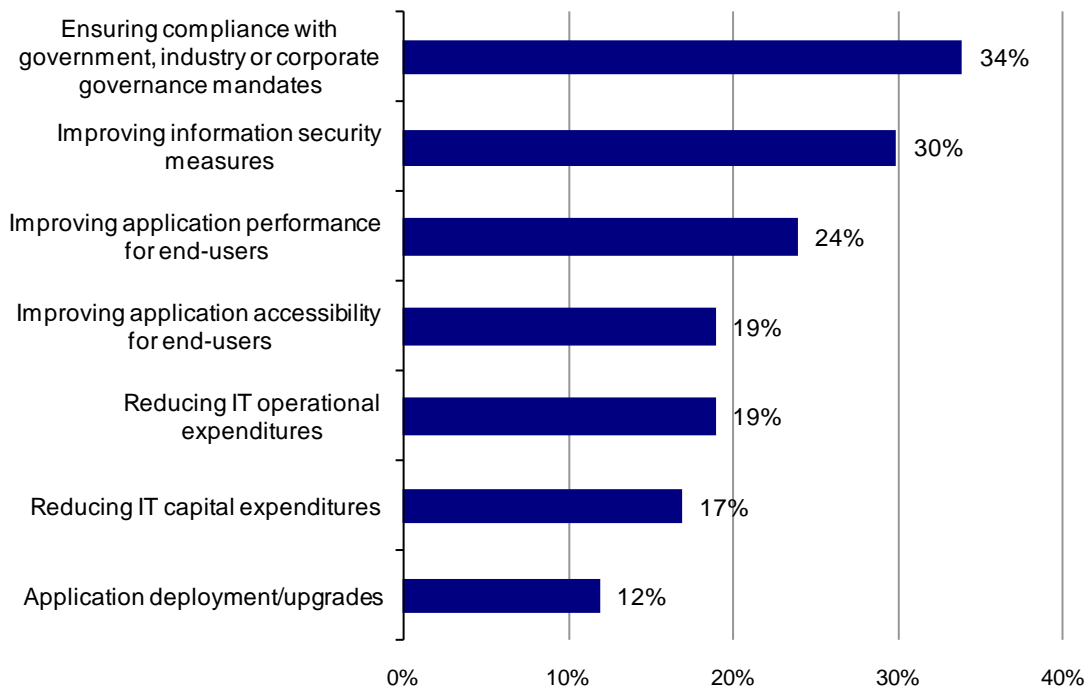
While web application growth can certainly benefit the business, it also creates a nightmare for IT. As application functionality and scale exponentially increase, CIOs are faced with:

- **Security and compliance concerns.** Web applications need to be surrounded by specialized safeguards like application firewalls, XML security systems and SSL processing devices. Additionally, web application security and management controls are often mandated by government and industry regulations. For example, future versions of the Payment Card Industry Data Security Standard (PCI DSS) will require the presence of application firewalls, while almost all regulations mandate network device access controls, change management controls and log data retention.
- **Performance issues.** Managing traffic flows, accelerating application protocols and caching content are essential elements of maintaining performance and delivering an acceptable end-user experience. While many IT managers have employed many of these kinds of tools, tuning end-to-end application performance continues to challenge even the most sophisticated IT shops.
- **Operations overhead.** It can take a lot of boxes and an army of IT staff to babysit mission-critical web applications around the clock, but throwing more networking devices and bodies at the problem simply doesn't scale. Eventually, even large firms run out of money, personnel and patience.

These are not trivial annoyances, but actually major IT problems. According to a recent ESG Research Report, many large organizations consider things like ensuring regulatory compliance, improving security, improving application performance and improving application access as "urgent" IT priorities with regard to delivering applications to remote users (see Figure 1). Obviously, CIOs need viable solutions ASAP.

FIGURE 1. ADDRESSING APPLICATION SECURITY AND PERFORMANCE ARE TOP IT PRIORITIES

**Urgent IT priorities related to application support for remote users
(Percent of respondents, N = 468, multiple responses accepted)**



Source: Enterprise Strategy Group, 2007

What about Application Delivery Controllers (ADCs)?

The problems described above are nothing new—organizations dependent upon web applications have been fighting these fires for years. Oftentimes, CIOs looked to ADCs as a network-based solution for today's application delivery challenges. Unfortunately, many current ADCs can no longer meet the massive scaling needs of large web applications because:

- **Individual systems hit a processing ceiling.** Many ADCs have the right combination of application delivery functionality like SSL acceleration, reverse caching, compression and traffic shaping, but simply can't keep up with the explosion in usage, transactions, bandwidth needs and traffic spikes. This can force organizations into complex solutions like installing multiple ADCs, changing DNS settings and segmenting networks. Yes, these solutions may "work," but this is the IT equivalent of a Faustian compromise where no one really wins.
- **Scaling is often "lumpy."** Application delivery is an inexact science. The bottleneck could easily be abundant HTTP sessions on Monday, SSL processing Tuesday and streaming video on Wednesday. To prevent bottlenecks, many IT shops are forced to overprovision everything. No CIO would like this solution.
- **Half-baked solutions are expensive and inefficient.** Buying multiple over-provisioned ADCs may not be feasible in an era of flat IT budgets and corporate purchasing mandates to do "more with less." Even organizations that can afford a potpourri of ADCs may still run into resource problems when network and security administrators are forced to repeat management processes constantly on a box-by-box basis.

F5 Networks Is Out to Break the ADC Barrier

In theory, the solution to the ADC bottleneck seems easy; simply virtualize ADC services like load balancing, caching and SSL processing across a common compute platform and then throw more processing power at the whole enchilada. Yup, that's the ticket alright, but this takes a heck of a lot of operating system, hardware, networking and applications expertise to pull off. Fortunately for large organizations, F5 Networks is one company rising to the challenge. In the past, F5 came up with its Traffic Management Operating System (TMOS) to unify application delivery services across a common platform. Now, F5 is complementing TMOS with the announcement of its VIPRION platform; an ADC "supercomputer" offering advanced multi-core processing power for tremendous scaling capability. To describe the new VIPRION capabilities, F5 uses terms like "application fluency" and "virtual processing fabric" and "on-demand" ADC. In more pedestrian terms, VIPRION's scalable architecture means:

- **Scaling across application delivery services.** Yes, VIPRION delivers a lot of headroom, but TMOS is really the secret sauce here. With TMOS, users can dynamically scale application delivery services based upon unique and changing demands. When users rush to access a new product video, VIPRION processing power can be pointed toward content distribution. Once these users decide to actually make purchases, VIPRION can be tuned to address the anticipated SSL processing overhead. Unlike existing solutions, VIPRION resource pooling can eliminate the need for wasteful over-provisioning. Application performance can become more predictable, capacity planning gets more scientific and management can be based upon processes rather than firefighting.
- **A flatter network.** Since VIPRION alleviates the need for a multi-box solution, there is no need to jump through network configuration hoops. This keeps costs down while making networks easier to secure, manage and operate.
- **Improved security and auditing.** With central control of multiple application delivery services, VIPRION can be locked down—eliminating the threat associated with multiple, vulnerable loads of administrator passwords or mis-configured network devices. Additionally, VIPRION's application delivery service integration means centralized logging. This eases troubleshooting, security forensics and compliance auditing—all at once.

Ultimately, the VIPRION value proposition is easy to articulate. Organizations can maximize application delivery and maintain peak performance as users, functionality and content distribution increases. In this way, large organizations can ensure that technology foibles don't interfere with business objectives.

The Bottom Line

It's easy to dismiss VIPRION as the next generation F5 box. After all, application delivery is F5's bread-and-butter market, so it should be pushing the envelope. What's missing from this simplistic assumption is an appreciation for research, development and technology efforts to deliver a system with this type of capability. VIPRION combines state-of-the-art hardware with extremely good software chops. The result is a platform that can throw a lot of horsepower at a lot of application delivery tasks while remaining flexible to accommodate dynamically changing needs on a moment's notice.

Yes, the majority of companies around the world will never need the type of scale that VIPRION can deliver. That said, those that do will gain a tremendous amount of value from this new type of ADC system.