Tech Brief

Validating Microsoft Exchange 2010 on Cisco and NetApp FlexPod with the F5 BIG-IP System

As enterprises around the globe move to increasingly virtualized environments, they can use a Cisco and NetApp FlexPod pre-validated data center design—together with F5 Application Delivery Controllers running on the F5 VIPRION chassis—to provide scalability, security, remote access management, and a superior user experience in their virtualized Microsoft Exchange 2010 deployments.

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Introduction

As organizations begin virtualizing Tier I, mission-critical applications, they face the significant challenge of pre-validating a data center platform to support their scale and performance requirements. FlexPod, a validated data center design built on NetApp and Cisco technologies, fills this crucial gap by enabling certified NetApp and Cisco partners to design, build, and provide a pre-validated platform for their enterprise customers seeking to deploy Tier I applications in a virtualized environment.

As FlexPod data center solutions enable customers to efficiently deploy virtualized applications by providing a pre-validated design from the storage, compute, and Layer 2 networking perspective, the F5® BIG-IP® system provides the application delivery services, availability, and security necessary to fully deploy an application. When they deploy the BIG-IP system in concert with FlexPod validated data center designs, enterprises will realize a dramatically improved return on their investment by maintaining application availability, simplifying business continuity and application security, and improving the end user experience.

As enterprises around the world transition to increasingly virtualized environments, many must also upgrade their Microsoft Exchange deployments. Deploying Exchange 2010 in a virtualized environment comes with challenges, but FlexPod pre-validated data center designs, together with F5 application delivery technologies, address many of them in a complete application solution. To explore this, F5 built out a joint FlexPod and Exchange 2010 solution in partnership with Scalar Decisions and Avnet Canada.

How FlexPod and F5 Technologies Enable a Scalable and Secure Exchange 2010 Deployment

Performance and Scale of Exchange 2010

Moving to a virtualized Exchange 2010 environment from an Exchange 2007 environment requires a substantial degree of infrastructure planning. The Exchange 2010 Infrastructure and Design Guide strongly recommends that organizations use hardware load balancers to direct access to Client Access Servers. FlexPod validated data center designs provide a comprehensive platform for a virtualized Exchange

2010 deployment; adding F5 BIG-IP Application Delivery Controllers (ADCs) to the solution ensures that organizations experience better application availability and performance. BIG-IP features such as SSL offload, connection pooling, and adaptive compression can improve end user access to Exchange 2010 mailboxes, overall end user experience, and overall satisfaction with their Exchange 2010 deployment.

Advanced Data Protection

NetApp snapshot and replication technologies in FlexPod data center platforms provide users with a comprehensive, disk-based data protection suite. NetApp SnapManager for Microsoft Exchange Server ensures not only data protection, but that the application state is maintained so data and application recovery can occur when necessary. This becomes even more critical in a virtualized deployment of multiple applications.

F5 ADC acceleration technologies are instrumental in a cost-effective disaster recovery and business continuity strategy. F5 BIG-IP® WAN Optimization Manager™ (WOM) ensures rapid and reliable mailbox replication so organizations can meet their SLAs and provide superior replication performance. Additionally, BIG-IP WOM has been validated to accelerate NetApp SnapMirror replication operations to address customers who have WAN links with high latency, packet loss, or limited WAN capacity budgets.

Maintain Availability of Exchange 2010

With the advanced monitoring capabilities of BIG-IP® Local Traffic Manager™ (LTM), administrators know they can maintain application availability whether the environment is virtualized or physical. F5 advanced monitoring capabilities ensure that users can scale their Exchange virtualized infrastructure to support thousands of users simultaneously.

Rapidly Deploy a Fully Virtualized Infrastructure

Enterprises seeking to realize the substantial benefits of full virtualization can dramatically shorten the planning and deployment phase of their initiatives. FlexPod pre-validated data center platforms are pre-configured to support the scale and performance characteristics of any enterprise. Certified F5, Cisco, and NetApp technology partners, such as Scalar Decisions, ensure that a combined F5 and FlexPod solution is pre-validated to suit a given environment.

F5 iApps™ is a powerful set of features in the BIG-IP system that enables organizations to rapidly deploy complex application delivery services for both upgrades and new deployments of Exchange 2010. With iApps, organizations can effectively deploy crucial ADC technologies into a FlexPod virtualized environment.

Simplified, Secure Remote Access

Organizations' increasingly mobile and distributed workforces present the significant challenge of providing simplified access to Exchange without compromising security. F5 BIG-IP® Access Policy Manager® (APM) provides secure single sign-on (SSO) authentication to Microsoft Outlook or Outlook Web Access (OWA) whether the user is on a traditional laptop, smart phone, or other mobile device.

Review of Environment Setup and Deployment

To demonstrate the simple integration between F5 and FlexPod pre-validated data center designs, F5 deployed Exchange 2010 on its VIPRION® chassis with FlexPod providing the storage, compute, and layer 2 networking. This test scenario revealed several benefits of adding F5 to FlexPod architectures for secure access and traffic management to an Exchange 2010 environment. F5 validated this solution in partnership with Scalar Decisions, a leading F5 and NetApp technology partner, in an Avnet Labs environment in Mississauga, Ontario.

F5 provisioned a VIPRION 2400 device, running version 11.2 of the BIG-IP system, to provide application traffic management for an Exchange 2010 deployment, with the aim of optimally configuring the VIPRION appliance to support the Exchange 2010 deployment on a pre-validated FlexPod data center solution. The solution included both a Nexus switch configuration and the F5 BIG-IP LTM networking setup and configuration for F5 vCMP® (Virtual Clustered Multiprocessing), a virtualization solution designed to scale ADC instances across the BIG-IP platform. It also used F5 iApps for Exchange 2010 to streamline the BIG-IP deployment, which in turn supported a Microsoft Exchange 2010 deployment on a FlexPod platform. For more information about F5 iApps, a powerful solution for configuring, managing, and deploying

application delivery services across multiple BIG-IP appliances both on- and off-premises, read the F5 white paper, F5 iApps: Moving Application Delivery Beyond the Network.

Avnet Lab Environment

Cisco Fabric Interconnects	8 Port 1/2/4 Gbps Native FC
5108 Chassis (x2)	2104XP Fabric Extenders
B200 M2 Blade Server (x4)	2.66 GHz Xeon X5650 CPU (x2) 73 GB SAS Drives 48 GB RAM
Nexus 5548UP w/ L3 Module	Nexus 5596UP w/ L3 Module
NetApp FAS 3210 (Redundant)	DS2246 Disk Shelf 24 x 450 GB 10K RPM SAS (x2)
Cisco UCSM Version	2.0 (2r)
NetApp Software	Ontap 8.0
F5 BIG-IP Version	Current software setup BIG-IP 11.2 HF1 Build 245

NetApp configuration

NetApp Controller	FAS 3210 HA
DS2246	24 x 450 GB 10K SAS
DS2246	24 x 450 GB 10K SAS
Firmware Version	8.0

The Avnet Lab environment was set up with a high-availability (HA) pair of NetApp 3210 controllers as well as two DS2246 shelves, and F5 used 450 GB 10SAS disk technology to ensure high performance. F5 set up and configured the NetApp device with four FCOE volumes for booting ESX and one shared 2 TB NFS volume for the ESXi guests. To learn more about the setup and configuration of the NetApp 3210 controller, visit www.netapp.com.

NetApp volume configuration

/vol/vol_ESXi_Boot_1 (40GB)	ESXi Host 192.168.100.10 (FCOE)
/vol/vol_ESXi_Boot_2 (40GB)	ESXi Host 192.168.100.20 (FCOE)
/vol/vol_ESXi_Boot_3 (40GB)	ESXi Host 192.168.100.30 (FCOE)
/vol/vol_ESXi_Boot_4 (40GB)	ESXi Host 192.168.100.40 (FCOE)
/vol/NFS_F5 (2TB)	VMware Guest ESXi Mount

Networking Components Setup

F5 configured virtual port channels (vPCs) on the Cisco Nexus Switches and a single trunk on the VIPRION 2400 to communicate with the redundant Cisco vPCs. For details about integrating a VIPRION appliance and Cisco Nexus switches, visit the Virtualize Absolutely Everything blog post on DevCentral,™ F5's user community of over 100,000 members.

VIPRION and vCMP Setup

To support this validation, F5 configured vCMP with two guests. One EXCH01 guest was configured as a BIG-IP LTM device to load balance the two Exchange CAS servers, and the second guest, EDGE01, was configured for BIG-IP APM to support the remote client configuration. For additional details about provisioning of the guests and configuration of the iApps for BIG-IP LTM and BIG-IP APM on the two vCMP guests, please refer to the Virtualize Absolutely Everything Part II blog post.

## Use the Exchange 2010 iApp to Deploy BIG-IP LTM and BIG-IP APM for Exchange 2010

One of the major benefits in deploying a FlexPod pre-validated data center design is a simplified, more rapid deployment of storage, compute, and layer-2 networking components to support a particular application or workload. F5 iApps are a natural extension of this deployment simplicity. By providing the ability to provision the virtual server, profiles, and other objects necessary to support an Exchange 2010 deployment, iApps enable users without specific ADC expertise to configure and deploy the BIG-IP LTM and BIG-IP APM components in support of an Exchange 2010 environment. For additional details on the setup of this environment, read Virtualize Absolutely Everything Part III.

ESXi and Client Setup of the Environment

To properly validate both local and remote client access to the environment, F5 configured two separate Windows 7 clients: one as an internal client and one as an external client to simulate both local and remote access scenarios to Outlook and OWA. The Windows 7 client machines and CAS servers were distributed across four separate ESXi hosts running on the Cisco UCS compute blades.
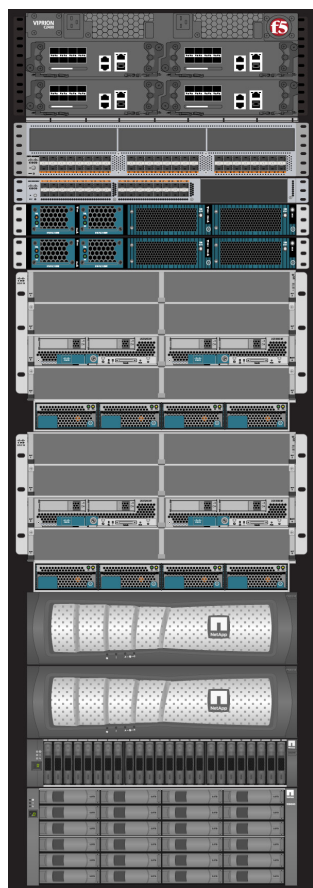
VIPRION 2400

Nexus 5548UP, 5596UP Switches

Cisco 6120 Fabric Interconnects

Cisco UCS 5108 with B200 Blades

NetApp 3210HA Controllers

DS22460 Shelf 1TB SATA

2 450GB SAS

Figure 1: Diagram of the Avnet Labs environment setup

Validation of the FlexPod and VIPRION 2400 Setup for Exchange 2010

Once the configuration of the NetApp storage, Cisco UCS blade servers, ESXi servers, and Exchange software was completed, F5 configured a single Exchange database, EXCHDB02, on the first Exchange 2010 CAS server. From the local Windows 7 client, F5 connected successfully via both Outlook and OWA.
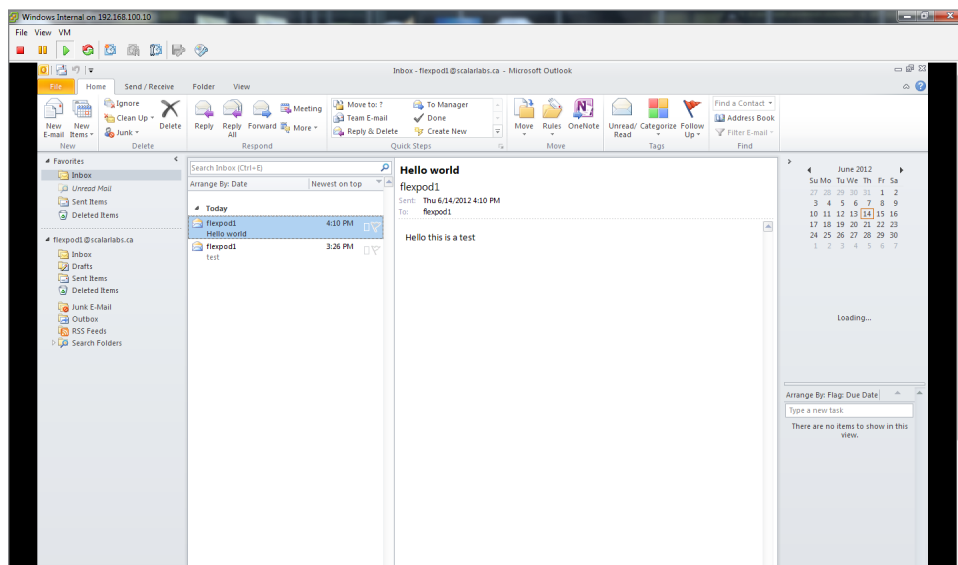
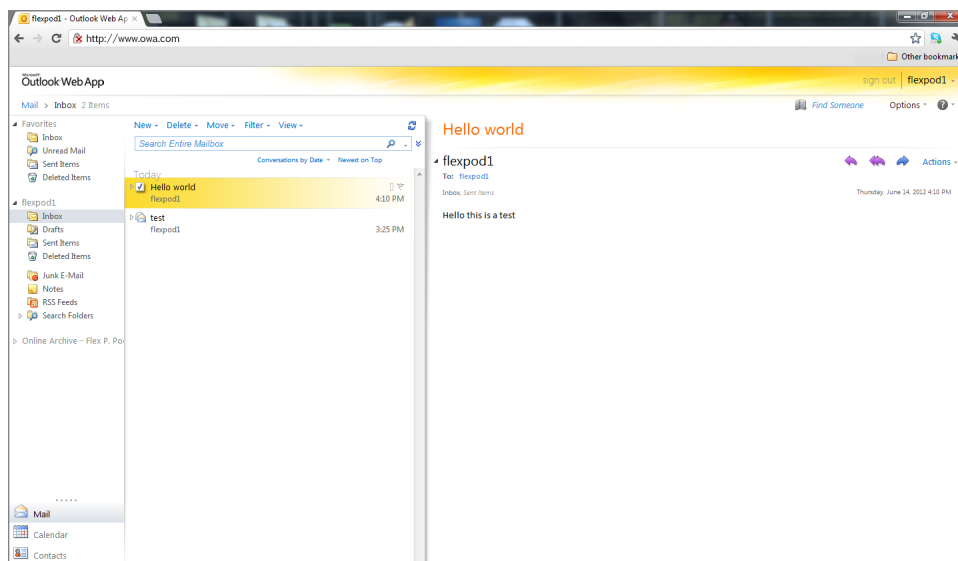Figure 2: A Microsoft Outlook account accessed by a user

Figure 3: An OWA user logged into Exchange 2010

Validation of BIG-IP APM Configuration and Setup and Remote Client Access for Exchange 2010

After completing the logon and access to the Exchange environment, F5 simulated remote access from a remote client to Exchange. F5 installed and configured the

BIG-IP® Edge Client® on the external Windows 7 machine to provide secure remote access to OWA. Read about the specifics of setting up the iApp on Virtualize Absolutely Everything Part III.

Conclusion

With the rapid adoption of pre-validated designs like FlexPod, enterprises now have a platform for a full-scale virtualization of their computing environment. Utilizing best-of-breed storage, compute, and layer-2 networking is essential to providing the necessary foundation for virtualizing data centers. Application delivery, performance, and availability, provided by the F5 BIG-IP system, are crucial extensions of this capability. This FlexPod pre-validated solution for Exchange 2010, including F5 ADCs, gives enterprises a complete, application-ready solution.

About Scalar Decisions

Scalar Decisions is an IT solutions integrator headquartered in Toronto, Canada, with offices in Vancouver, Calgary, Ottawa, and London. Scalar is the Canadian leader in designing, deploying, and managing innovative solutions focused on data center automation and cloud enablement. In 2010, 2011, and 2012, Scalar was included on the PROFIT list of the fastest-growing companies in Canada. Scalar has been an F5 Partner since 2004 and is the only F5 Authorized Training Centre in Canada. Additionally, Scalar is a NetApp Platinum Partner, and a Cisco Premier Partner. For further details, visit www.scalar.ca or follow Scalar on Twitter, @scalardecisions.