



## I D C V E N D O R S P O T L I G H T

# Applications Driving the New World Technology Order

July 2014

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Sponsored by F5 Networks

*In today's hyper-competitive marketplace, organizations are increasingly recognizing the need to leverage technology to drive competitive advantage and successful business outcomes. In light of this, applications have taken on a more critical role for many organizations, not only from an operations perspective, but also from a business enablement standpoint. With the number of moving parts, whether from a technology perspective with the introduction of software defined networking (SDN) and the 3rd Platform, created by the prevalence of cloud, big data, mobility and social, among others, or from the business perspective with "cautious" being a word commonly used by many CEOs both globally and in the region, CIOs need to make intelligent technology choices that are flexible enough to evolve alongside any technology and business direction transformation. This is on top of having to ensure their investments today remain relevant with the changing environment especially as IT budgets come under pressure. This IDC Vendor Spotlight examines the need for enterprises and service providers to start thinking of applications as their focal point before exploring ICT options. We will also take a closer look at F5 Networks' (F5) application-centric solutions that meet the requirements of enterprises and cloud service providers alike in the Asia/Pacific region.*

### **New Decisions in the New World Technology Order**

Applications have long been taking center stage with organizations depending on myriads of applications ranging from email, office productivity tools and data management to customer relationship management and enterprise resource planning to run their day-to-day operations. Several factors however have changed the game for businesses.

First is the consumerization of IT and rise of mobility. As more and more employees bring their personal devices into the business environment, businesses are forced to rethink their corporate policy on applications. Organizations today have to ensure that the right suite of business productivity applications is made available to employees to ensure smooth business operations and efficiency. This also brings the issue of security to the fore as organizations need to deliberate on corporate policies to enable non-corporate devices access to business databanks without any security compromises.

The complexity for application management is also increasing with the rise of the "3rd Platform" – a term coined by IDC which reflects the shift to a connected intelligence era where the four technology pillars of cloud, big data, mobility and social collectively transform the market. For CIOs this means that they will increasingly have to address questions such as: "Which applications to prioritize and deploy? Where should the application sit? Who should have access to the information, and under what circumstances can an employee gain access to these applications, and how secure is it?" Ultimately, the reality is that regardless of where the applications sit, no application should be ignored as they are the core assets of businesses today.

Not only do organizations have to shift to this new world order, cloud service providers also have to provision for this change to meet their customer demands as well as seek a solution that will be viable for their business model.

Below highlights the key technology and business trends that are driving change in technology acquisition decisions.

### ***Software Defined Networking to Software Defined Application Services***

Software defined networking, the poster child of the networking world in 2013, is one of the ingredients to the storm being formed. It is revolutionary in the networking context as the separation of the control and data plane gives users the ability to centralize management and control, with improved orchestration and automation. This fits perfectly into the application-centric world as it supports the faster deployment of new applications, which also points to faster returns on investments for organizations. This also plays right into the hands of cloud service providers who need to provision applications and cater relevant services for their customers, particularly as hybrid cloud models seem to be the choice of enterprises these days.

2013 was the year where organizations in the Asia/Pacific region were getting educated on the potential benefits of SDN. They were also studying the possible implications on their networks and benefits to their business in the medium to long term. Although the first movers for SDN are the cloud service providers, some deployments were observed in the enterprises by the end of 2013 and IDC expects that the take up of SDN is only at the beginning, and hockey stick growth is expected in the next two to three years.

SDN addresses only a limited segment of the network and as it becomes a network architectural norm, users will have to plan for software defined application services at the application layer to derive the full software defined solution suite benefits. This includes the benefits of having the ability to scale application services seamlessly, such as load balancing, web application security, single sign-on and access control.

### ***Cloud – Adding Complexity to the Network***

Cloud is maturing in the region. According to the IDC Asia/Pacific Cloud Computing survey conducted in May 2013, 49.1% of the 1,761 respondents polled are using public cloud, and this is expected to increase to 76.5% within the next 12 months. Private cloud users in the region are also expected to increase from 36.0% of the respondents polled, to 67.4% within the next 12 months based on findings from the same survey.

This moving piece adds another level of complexity for CIOs as hybrid clouds and burstable cloud models raise questions on which applications should reside in the cloud, as well as where in the cloud should the applications reside, in the private or public cloud. With the continued migration to cloud, CIOs are also concerned over security and the shortage of IT skill sets to manage the growing network.

### ***Big Data – Virtually Anywhere Geographically***

Organizations are sitting on a goldmine of information which if monitored and analyzed, can help guide strategic business decisions. The only catch is that they must be able to access the data and pool them for analysis. It might sound simple; however, with data sitting across geographical boundaries, organizations have to look out for cross boundary failures as well as financial disclosure requirements.

A good example is in Indonesia where Bank Indonesia has mandated that all local customer data from Indonesia has to stay on local soil. This gives added complexity for regional banks with datacenters in and outside Indonesia.

### ***Mobility – Anywhere, Anytime, Any Device, but Not Just Anyone***

There is a natural push toward mobility as employees not only bring personal devices into the work space, but also try to access corporate information through these devices. This creates a

new headache for CIOs as they have to ensure confidential information is not compromised and that business continues to operate smoothly.

According to IDC's Asia/Pacific excluding Japan (APEJ) C-Suite Barometer Survey conducted in 2013, C-levels in the region viewed mobility as the top issue they need to address from an "importance and urgency to deploy" standpoint. Security, device management, virtualization, virtual desktop infrastructure and operating system management, applications and software, data governance and analytics are issues they have to prepare for or deal with as problems surface with time.

### ***Desire for "Zero" Capital***

Beyond changes on the technology front, business models are also evolving. Organizations are taking a very cautious position with no public or private bodies having a clear view of what the future holds with uncertainty across geographies. IDC observed from the APEJ C-Suite Barometer Survey conducted in 2013 that having IT budgets squeezed is a common trend among many organizations.

This was the situation even before the currency depreciation against the US dollar in the earlier part of 2013. With the depreciation of multiple ASEAN currencies against the US dollar in the later part of 2013, budget challenges are becoming even more apparent. IDC expects that this will put pressure on vendors to become more innovative in terms of payment models – or what IDC refers to as smart pricing.

### **Next Generation Application Delivery Technology – Ready for the Application Generation**

The transformation to this new world order is not without its challenges. Organizations need to address the new requirements alongside existing investments and still ensure everything runs without a glitch. In order to reap the benefits for their business in this application-centric world, organizations need to address the technology challenges SDN, cloud and mobility, among others, place in its path.

To begin on this transformation journey, the network engineer's mindset has to change. Traditionally the starting point is centered on each application service, and the network engineer has to figure out layer 4–7 requirements, authentication, security and other services that each application may require. Today, keeping to this traditional thinking will create solution sprawl, and management of policies will be a challenge with higher probability of human error. Instead, the starting point should be that of a fabric, where the capabilities for ease of policy management will help to create operational efficiency and consistency.

With the growing number of applications used in each organization, application delivery requirements are increasing. Nonetheless, each application can be equally important to different users and management should not have to consider which applications to prioritize. Ultimately, no applications should be neglected and the next generation application delivery technology is capable of fulfilling that role. By providing a suite of services that all applications need over the fabric of the datacenter and also seamlessly integrating with the underlying networking infrastructure (software defined or otherwise), the next generation application delivery controllers (ADCs) can significantly cut down management costs and increase utilization of the application infrastructure. By being deployed across the fabric, they can also enhance end user experience across the enterprise as the benefits from the technology can be shared across multiple departments.

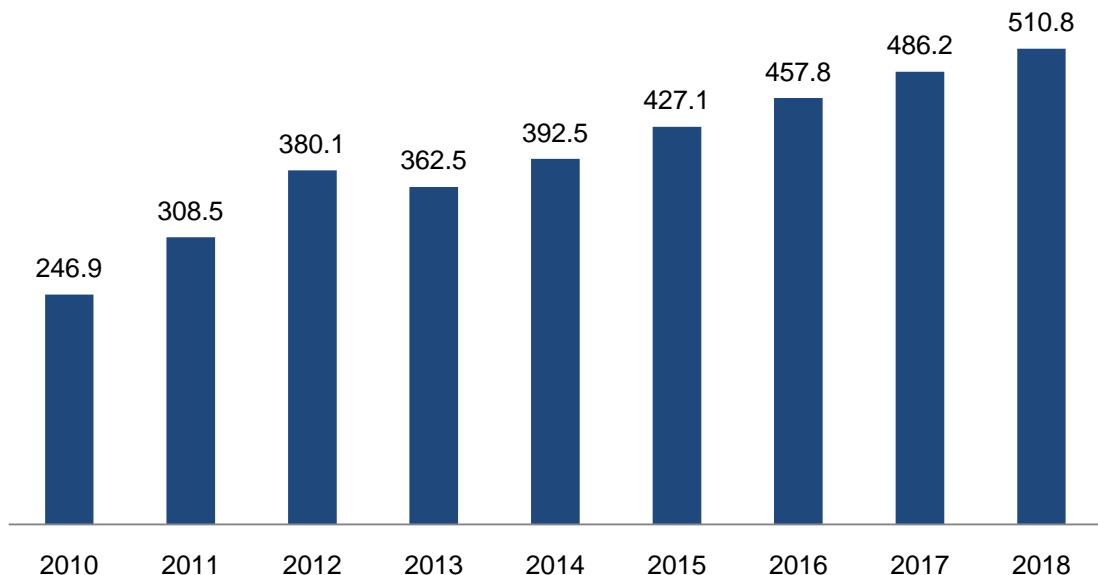
Application delivery technology has morphed beyond the ADC to address the myriad of services applications need today, regardless of whether they are delivered via a hardware or software solution. IDC believes that the new generation of application delivery solutions can be leveraged to align with the new market terrain to help enterprises and cloud service providers gain efficiencies and a competitive edge.

## Application Networking a Growth Engine

With more CIOs, governments and cloud service providers investing in cloud in the region, the demand for ADCs is on a positive trajectory in APEJ as shown in Figure 1. The five-year compound annual growth rate (CAGR) from 2014 through 2018 stands at 5.2%. Although the CAGR is not as sizable as compared to earlier years, this technology is by no means slowing down. The investment today is predominantly on physical ADC. However, with the market moving toward “software defined everything”, software ADCs, also known as virtual editions, which contribute to approximately 10% of the total market in 2013, will grow in popularity in the next few years. IDC expects virtual editions to lower the overall average selling price of an ADC. Thus, although demand for ADC throughput will increase, the overall growth in revenue will be on a gentler trajectory.

**Figure 1**

APEJ Ethernet Switch (Layer 4–7 only) Forecast (Value in US\$M)



Source: IDC's Asia/Pacific Ethernet Switch and Router Tracker, 1Q 2014

## Application Delivery Solutions as it Stands Today

Application delivery technology evolved from a load balancer when it was first introduced to an application delivery controller with capabilities that allow for effective application delivery through application intelligence and agility. It is morphing again as new trends such as SDN and the 3rd Platform, where the pervasiveness of cloud, big data, mobility and social change the underlying infrastructure requirements. The following shows how the increased intelligence in application delivery solutions leads to key benefits which meet the needs and challenges of today's organizations:

- Ability to understand each application's requirements: Application delivery solutions today go beyond having high availability between application delivery controllers or through management of traffic to servers. They are now able to identify an application's requirements, and based on the application be dynamic enough to change the way a service is offered. This is especially critical as enterprises increase usage of applications with different user access

requirements and adopt different types of cloud architectures, be it private, public or the more common hybrid cloud. This new environment is driving the need for a dynamic application delivery solution to deliver and manage application services to the users.

- Flexibility of the fabric enhances performance and allows for ease of management: The concept of an application delivery solution fabric, where multiple ADCs can be grouped together to form a single fabric, allows for a single management platform. This enables the rapid deployment of new applications and scaling capabilities. Management is also going to be simplified with capabilities such as automated discovery. This again will also cater well for the new breed of hybrid cloud users as it does not matter where the application sits – it will still be discovered, optimized and efficiently delivered to the user.
- Efficiency with a single authentication entry point: Traditionally, authentication and authorization are built directly into the application. From a user standpoint, it is inefficient as the user will need to sign in with each application they use. With the latest application delivery solutions, a single authentication will allow the user access to all relevant applications. It simplifies sign on to applications from a user standpoint, and from an IT manager's standpoint, this simplifies the design and management of the authentication system. In the era of the 3rd Platform, federating authentication between the enterprise and the cloud would increase efficiency and enhance the user experience.
- Increased security services for applications: With the increasing ADC performance, it is becoming commonplace to use the ADC to provide security services such as Web application security, DDoS mitigation, high performance DNS security and SSL inspection. Not only can the customer enjoy better returns on their ADC investments, they also benefit from complementary protection against threats that the traditional firewalls may overlook.

## **Role of F5 Networks**

F5 Networks is the leader in the datacenter switch market in Asia/Pacific, holding 44.5% market share in 2013, and 43.6% market share in 1Q14 according to IDC's APEJ Switch and Router Tracker in 1Q14. As the leader and visionary in the application delivery space, F5 is focused on developing application delivery solutions that are relevant today and have the capability to evolve to meet new requirements tomorrow. Other than focusing on technology transformation, F5 has also designed a contemporary consumption model that fits all current scenarios. With the intent to invest on research and development around the F5 Synthesis™ platform, as well as a clear understanding of customers' requirements, F5's offering will not only fit requirements today, but also that of future scenarios.

### ***Understanding F5 Synthesis™ Offerings***

F5 Synthesis™, the company's architectural vision, was launched in November 2013 and is built on top of the company's existing BIG IP, BIG IQ and TMOS operating system. The vision is for Synthesis™ to enable both enterprises and cloud service providers to simplify deployment and provisioning of flexible, cost-effective software defined application services. This vision is supported by a series of reference architectures, developed to minimize deployment risk for the customer.

The F5 Synthesis™ offering was designed with customer requirements in mind. Components of the F5 Synthesis™ vision include:

- High Performance Service Fabric: F5's innovation on the fabric addresses concerns users have over the shortage of skilled labor and the challenges faced with regard to application management, provisioning and human errors. F5's fabric solution delivers unified management that is capable of automated discovery, topology and provisioning of the service fabric. The combination of physical and virtual F5 products forms an elastic, multi-tenant fabric that delivers software defined application services™ (SDAS™). It is an application aware fabric that has a 20 Tbps throughput, a concurrent connection capacity of 9.2 billion,

and 80 multi-tenant instances per device, scalable to 1.28 million instances with a full fabric. The scalability of the F5 fabric will be able to support requirements of an enterprise with one datacenter or multiple datacenters in the region. The F5 fabric can also scale to meet the requirements of cloud service providers. This offers considerable investment protection and scalability to the customer as their business grows.

- **Intelligent Orchestration:** Management across a single pane of glass with BIG IQ allows users to manage, scale and automate application services with ease. Orchestration can be across device, network or geography, and still be able to deliver application requirements effectively in a reliable and secure manner. The management capabilities help customers save on human resource costs, reduce human errors and more importantly allow for the speedy deployment of new services while still giving the autonomy to adapt systems where required.
- **Simplified Business Model:** F5 has introduced three bundles that are flexible enough to cater to customers' requirements, and which also simplify the choices for its customers based on the usual combination of services from its existing customers. For cloud service providers, F5 has designed licensing practices which fit usage-based IT consumption models. A good example of where this is available is on the AWS market place for utility consumption.
- **Reference Architectures:** Prior to the Synthesis™ release, F5 has designed and tested the architectures to validate the configuration. There are multiple service offerings from F5's pool, and users might opt for each service at a different time. With F5's reference architecture, users are able to easily understand, overlay and deploy solutions without having the concern of sprawl, interoperability and other limitations which the reference architectures would have addressed.

## ***Opportunities and Challenges***

### **Concept of Fabric – Only at the Beginning**

According to several layer 2 and layer 3 switch vendors in the Asia/Pacific region, they observed growing acceptance and uptake of fabric solutions from their customers as of late 2013. This is therefore the perfect timing for F5 with their fabric offering as they are riding on the same wave and striking when the iron is hot. Nonetheless, it is important for F5, as leader in the application delivery space, to invest in educating the market on the benefits of a fabric at the application layer. Given the right market education, F5 has the opportunity to be a thought leader in the application layer SDN space, especially if they can build upon the Synthesis™ vision.

### **Simplicity with Hidden Complexity**

A single pane of glass is relatively new in the market and the network managers who are more familiar with management of individual devices need to go through a learning curve in the short run which will pay off in the longer term. Having a solution that has self-discovery capabilities and automated provisioning of policies across networks increases the ease of management; however, complexities still exist within the network, just that these are hidden. F5 has to ensure that the solution will always hide the complexities and ensure that there are no glitches. F5 can also reassure customers of the solution reliability, and one of the features to highlight is their active-active or active-standby configuration over two devices regardless of their location. This feature is now also available with their virtual editions. Should one of the devices become unavailable, the active-active or active-standby configuration is designed to failover to one another.

### **Synthesis for the Long Run**

F5's vision for Synthesis™ is to be adaptable to new solutions™ and ways customers use application delivery services. It will also be the platform F5 will continue to innovate on in the medium to long term. This will put the C-level's mind at ease from an investment protection perspective as well as give them the control to pace the investments whether it is due to budget constraints or because the organization does not require the upgrade yet. This is made possible

with the F5 reference architectures which can be overlaid over existing infrastructure. F5 is also furthering its relevance by partnering with tech giants such as Cisco and VMware, exhibiting how F5's software defined application services can overlay over Cisco's ACI offering or VMware's NSX solution to address application services. Partnerships also extend to other technology vendors such as Arista, Dell and HP. F5's promised continued innovation around Synthesis™, as well as their continued drive to build a comprehensive ecosystem of partners, can give customers the assurance that their investments will be protected, thus giving customers the confidence to invest today. Furthermore, the opportunity is for F5 to come up with new innovations on the same platform to meet customers' requirements and continuously grow their footprint.

## Conclusion

The growing prevalence of applications in the business environment, introduction of SDN and the 3rd Platform are causing a major disruption in the market as all technology segments evolve to address the changing requirements. C-levels are also studying these technologies to see how they can leverage them to grow their businesses, but at the same time are taking a cautious approach to investments as budgets become tighter, and the importance of investment protection rises. Application delivery is also evolving to address this technology shift. Today application delivery solutions have to address needs from an application availability and performance perspective, cloud services and security services, as well as access and identity management.

There is no doubt that the application delivery market will evolve and demand will continue to grow. F5 is therefore well positioned as the leader in this space with its Synthesis™ vision, to not only address the requirements that fit today, but also with a platform that can evolve without major disruption to address users' requirements in the future.

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