White Paper

Citrix Application Delivery Controller works even better in the cloud and with Application Delivery Manager

The Citrix ADC supports many cloud deployment features, such as on-demand scaling and using DNS to resolve connected services, and it really shines in this landscape. Tightly integrated features such as backend autoscale to seamlessly add and remove workload servers on demand. When deployed together with Citrix ADM, frontend autoscale clustering provides additional bandwidth and CPU for surge ingress traffic, and flexible integrated licensing features that provide access to your own pool of licenses or even the ability to use your public cloud's Marketplace license model. The Citrix ADC deployed in hybrid and multi-cloud environments has everything your business needs and more.

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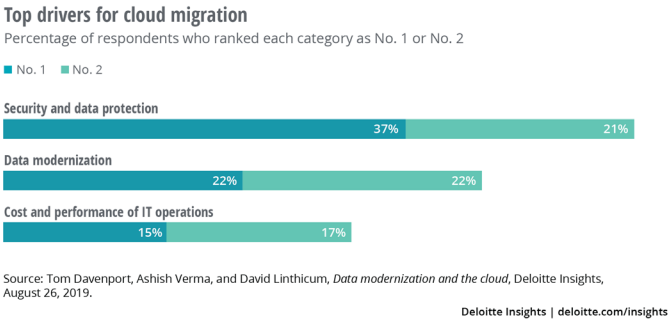
Citrix Opinion

Many businesses have begun moving to the cloud to modernize their data platforms while also minimizing risk and the overall time to invest. According to a survey[1] from Forrester, Ensono, and Wipro, 88% of organizations are adopting a hybrid IT approach. Why are so many businesses moving to the cloud? Deloitte Insights[2] reveals the top drivers being for security and the cost savings and performance of IT operations.



Overview

Before moving to the cloud, it's important first to consider both the benefits and tradeoffs. If your business hasn't yet started its journey to cloud, what's preventing it? Is it the cost of retooling, or changing to an operations cost model? Citrix ADCs deployed with ADM gives organizations the ability to keep a close eye on infrastructure costs while also being able to meet new demands while keeping costs low. Let's see why the Citrix ADC with ADM is the most compelling traffic management solution for application delivery in the cloud.

Benefits for moving to the cloud

One of the largest benefits for moving to the cloud is the ability to scale your services to precisely meet demand. Adding additional points of presence and automating the rapid deployment of new and existing services becomes easier as the cloud provides many tools that no longer require bespoke home-grown solutions to manage. The Citrix ADC with ADM has cloud features baked-in enabling the seamless delivery of applications regardless of taking on more users or load requiring more throughput and processing.

To provide the lowest latency in delivery of your applications to your users and to expand your reach from the cloud, you may choose to have multiple points of presence. The Citrix ADC is equipped with Global Server Load Balancing (GSLB) to enable the distribution of traffic to different sites uniquely to where your apps are running.

According to Deloitte, security and data protection is considered the number one issue for those running in the cloud. To provide the best level of defense to your apps and your servers, the Citrix ADC includes as Web Application Firewall capable of screening and can either redirect or denying bad traffic both to and from your servers. Bots, both good and bad, are have become prevalent, and the Citrix ADC provides bot detection. When a bot is detected, the ADC admin using ADM can choose whether to allow or deny it. You can, for example, choose to allow a web search engine the ability to crawl your site while

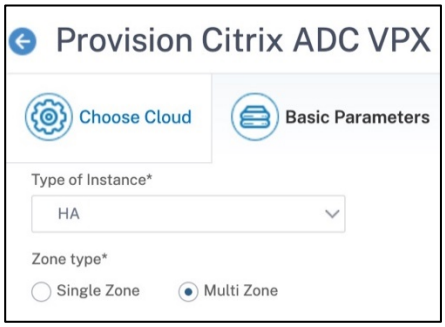
[1] https://itbrief.com.au/story/forrester-report-shows-firms-feeling-pressure-to-move-to-hybrid-cloud

[2] https://www2.deloitte.com/us/en/insights/industry/technology/why-organizations-are-moving-to-the-cloud.html

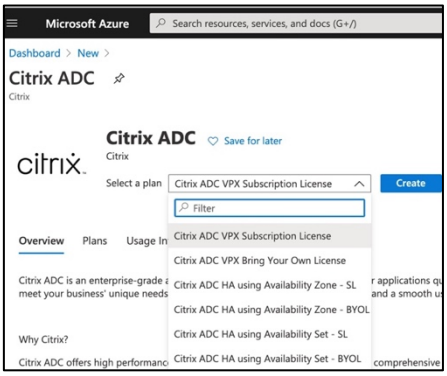
blocking others, while blocking bots that constantly try to log in by guessing passwords.

How Citrix ADC Excels in the cloud

When deploying a Citrix ADC with ADM in Azure and in AWS, it's likely you'll do it with automation in mind. ADM Service provisions ADC instances in Azure and in AWS, and supports standalone, HA, and clustering modes of operation. It also provides the flexibility to choose whether licenses for the ADC are allocated by yourself (BYOL) or from the cloud provider for each deployment the own licensing or your cloud provider's.



For HA and clustering, ADM allows you choose whether the instances are provisioned in multiple availability zones or availability sets, aligning your deployment with the exact level of uptime your business requires.



To launch an ADC in Azure and AWS, go to the Marketplace and search "Citrix ADC", or use the Citrix provided ARM and CFT templates available on GitHub[3]. Each template is well documented and accommodates every deployment need, whether deploying an unlicensed Citrix ADC VPX Express, a Standalone VPX or HA pair of VPX devices with your choice of licensing, or a FIPS compliant device.

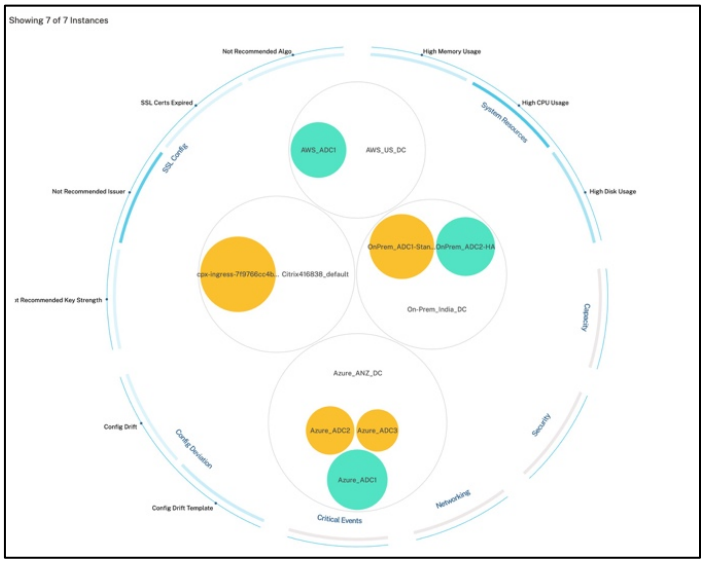
Applications configured to go through a Citrix ADC are enhanced with the benefit of extreme scalability. As your application's needs change, the Citrix ADC works directly with Azure Virtual Machine Scale Sets (VMSS) and AWS Auto Scale Groups to seamlessly track the addition to and removal of workload resources, enabling your business to minimize cost by paying precisely for the services you need, while also continuing to ensure a seamless user experience.

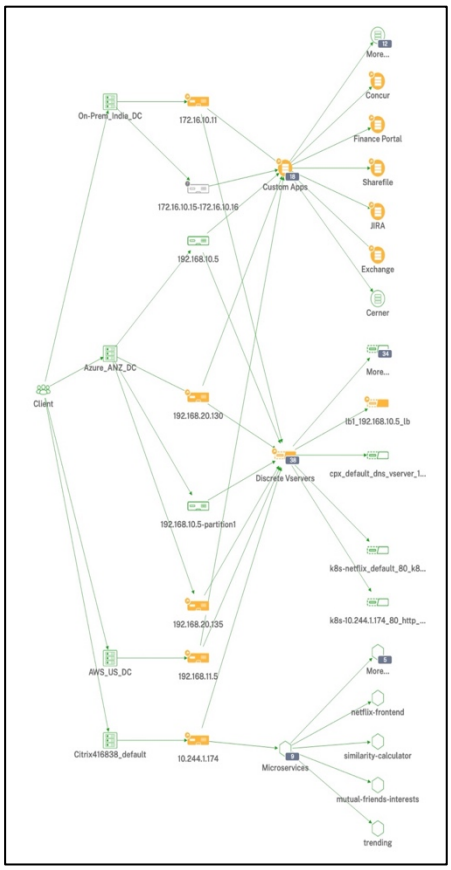
Citrix ADC's provisioned and managed by ADM Service unlock the true power of automation and the extreme scale when running services in hybrid and multi-cloud environments. **Role-based views** enable customized visibility to individual lines of business for all configuration, analytics, and infrastructure views, so that one group only sees and manages the resources allocated to them. Get started fast with **Simplified**

[3] Citrix Azure ARM Templates at https://github.com/citrix/citrix-adc-azure-templates, and Citrix AWS CFT at https://github.com/citrix/netscaler-aws-cloudformation.

Deployment by ADM, by automatically provisioning all the resources and cloud services needed to deliver applications running in Azure and in AWS. Simplified deployment does all the heavy lifting by configuring and provisioning the IP addresses and devices, including the traffic policies for applications in a single workflow, all while supporting the true nature of cloud services by supporting autoscaling of both the front and back sides of the ADC.

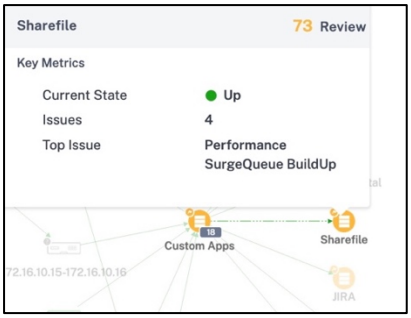
Infrastructure Analytics makes it easy to see immediately how all your managed devices are performing. With infrastructure commonly spanning multiple cloud providers and locations, ADM organizes the managed devices in clusters or sites. With expression filtering and selection focus, zero in on which devices need attention while also being able to spot trends by seeing immediately where those devices are running.



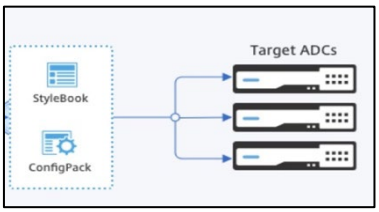


By using **Global Service Graphs** in ADM **Application Analytics** are visible for every application and ADC device regardless of where it's deployed.

Find immediately how both your infrastructure and applications are running with immediate access to key metrics, such as the top contributing factors, network latency, health score, and the overall available status to one or more objects.



With visibility of analytics no longer a challenge, **Stylebooks** in ADM makes it possible manage the configuration of your applications wherever they live.



Using **App Config Migration**, existing and legacy configurations can be turned in to Stylebooks and then re-deployed to any Citrix ADC regardless of its form factor: physical, virtual, or microservice, and regardless of the device's availability model – standalone, HA, or clustered both on-prem and in the cloud. This now makes it simple to migrate the configurations for applications as their deployment platforms straddle on-prem datacenters and the cloud.

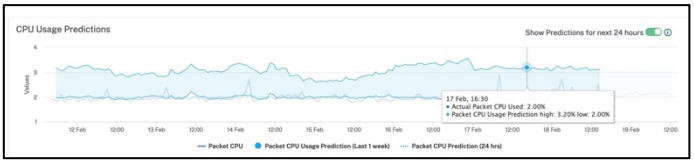
Application Security (AppSec) refers to technology, tools, and processes intended to protect applications—including web applications, cloud applications, and SaaS apps—from internal and external threats. Because web applications often store and provide sensitive data and are now available over multiple networks and points of presence, including on-prem and in the cloud, web application security has become a key part of cybersecurity strategy. Using AppSec-focused stylebooks, such as the "Web Application Firewall Stylebook with AppFW Policy and IP Reputation Policy" in Citrix ADM together with an ADC protects from attacks to web applications by blocking SQL injection attempts, DDoS, malware, denial of service, and attempts to break authentication.

With the growing need to deliver applications and services from multiple locations and points of presence, even globally, you'll likely find the need to use multiple public and private cloud platforms.

Supporting applications deployed across multiple and disparate regions, Citrix ADM is equipped with a unique multi-cloud GLB Stylebook – a stylebook that supports applications deployed to different providers and locations. By using DNS together with server load balancing at both the frontend – with clients being served the most appropriately located DNS answer - and at the backend with the ADC able to resolve DNS to the application servers, GLB and **GSLB Stylebooks** natively enable applications to run seamlessly across multiple providers both in front of and behind the Citrix ADC.

You cannot always plan for a sudden influx in users or every surge in demand for every application**. Pooled Licensing** in Citrix ADM for the ADC reinvents the traditional licensing model with Bring Your Own (BYO) licenses, making it possible to dynamically change the capabilities and features on each device, including the set of features that are licensed and its available bandwidth. With the performance of an application depending on the capabilities of the device securing and delivering its traffic, and now with the application running in multiple locations, it's more important than ever to be able to expand or shrink the capabilities devices, making it available to others where the need is greatest.

One of the key benefits to running services in the cloud is the ability to scale them tightly by demand. Using AutoScale Groups for Citrix ADC managed by ADM Service, enables

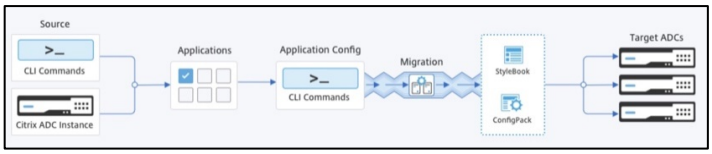


Frontend AutoScaling for traffic ingress, with advanced scaling methods only provided by ADM Service. Bandwidth, Memory, and CPU usage, computed locally on each ADC provides the most accurate measure for when to trigger a scale event.

To support the most rapid scale out needs, ADM Service can be configured to keep a

spare node ready to take traffic in a matter of seconds. ADM Service can also provide **usage predictions** for the ADC, by looking historically at its CPU and Memory use. This information can be used to fine tune your auto scale settings to deploy only the exact number of resources needed to support the delivery of your applications.

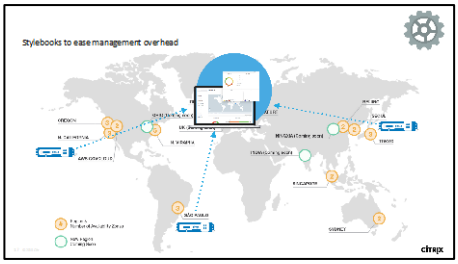
Whether you're deploying a new application or moving an existing one to the cloud, Citrix provides the tools needed to rapidly deploy and to re-deploy your services. **Cloud Migration Tools** have been created to make it easier to operate in the cloud than has traditionally been possible in classic on-premises environments.



When using ADM Service to manage your ADC's, ADM can import the configuration of an existing ADC, convert it to Stylebooks, and re-deploy to ADC's running in other environments. Whether moving from on-prem to the cloud or moving from one cloud to one or more clouds and cloud providers, the CLI to Stylebook migration tool reduces the effort to several clicks – choose all the apps and policies you want to migrate, and ADM Service does the conversion as needed.

Challenges and Opportunities

Hybrid and multi-cloud environments have become the standard model for common and disparate infrastructure deployments,



and Citrix ADM Service to manages and monitors ADCs in a way that brings all the information and tools an organization needs to thrive efficiently in the future of app delivery. While most public cloud services are easy to consume, they do little to nothing to operate between different providers. This presents a clear and unique opportunity for Citrix ADM Service, built directly to interface with the most common public cloud providers as well as work with existing resources on-prem, to address the need to manage and deliver applications from multiple providers and locations.

Conclusion

Citrix ADM Service is the best cross platform manager that also provides visibility and the tools needed to manage, migrate, and monitor the delivery of applications globally. For more information, visit https://www.citrix.com/products/citrix-application-delivery-management/ or contact your local Citrix Sales Representative.

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