eBOOK

ADVANCED LOAD BALANCING IN THE CLOUD

5 WAYS TO SIMPLIFY THE CHAOS

Introduction

Load balancing isn't just about managing traffic anymore. As your infrastructure expands to include applications in public, private, and hybrid clouds, traffic management has evolved from a technology function to a business function that delivers value to the business as a whole.

It has also become complex. The average enterprise is running applications in at least five clouds with over 900+ applications. And most clouds have their own load balancers. Microsoft Azure and Amazon Web Services (AWS) have native load balancing that works in Layer 3 to provide basic traffic management, and both solutions are good for simple applications. But as your multi-cloud environment becomes more and more complex, how do you ensure effective load balancing in the cloud?

Here are five ways to help unravel your cloud complexity.

1

Performance and reliability of your applications is critical to your business

Visibility and Analytics

Advanced load balancing keeps your apps running with efficiency and reliability in a number of ways. They use machine learning to set baselines for application performance, user behavior, etc., so you have visibility into which assets are doing well and which may be due for an overhaul or have reached end of life.

When a problem is discovered, contextual information helps your operations team troubleshoot faster and more efficiently so the customer experience can continue with little or no interruption, and anomaly detection can be used to drive proactive and even predictive responses.

Businesses undertaking digital transformation can use advanced load balancing to inform their decision-making and prioritize their development and infrastructure investments. Visibility, analytics, and insights take the guesswork out of your app strategy.

Source: https://www.forbes.com/sites/bernardmarr/2015/09/30/big-data-20-mind-boggling-facts-everyone-must-read/#39eb341a17b1

2

Secure your apps at scale without adding to your security team's workload

Integrated Security

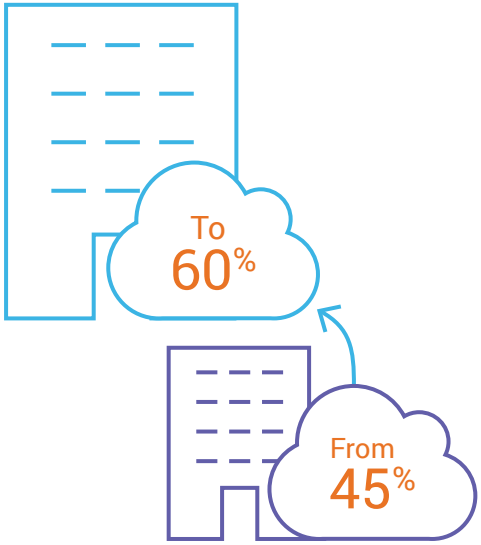
The scale and scope of attacks is increasing, and will continue to increase as 5G and IoT gain traction. In public clouds security is a shared responsibility. The public cloud provider is responsible for securing their own infrastructure and data inside their own cloud. You are responsible for the security of your applications. It's important to understand these boundaries and implement full-stack security at both the infrastructure and application levels. The load balancer plays a key role in security, because it sits in the best place to reveal patterns around the behavior of clients. Your operations teams can use those patterns to differentiate between legitimate and malicious traffic.

Security that is integrated into the load balancing solution provides the best defense. Bolt-on security products tend to be complex and hard to configure, particularly with regard to application security. Unless your operations team includes security experts, you will be implementing security on the load balancer. Configuration and management of security features and the ability to adjust policies at a granular level needs be straightforward and easy.

Cloud-based workload deployment

(on-premises, private cloud, hosted private cloud, IaaS and SaaS),

will rise by 2019:



Source: https://451research.com/blog/1910-by-2019,-60-of-it-workloads-will-run-in-the-cloud

3

On the road to digital transformation

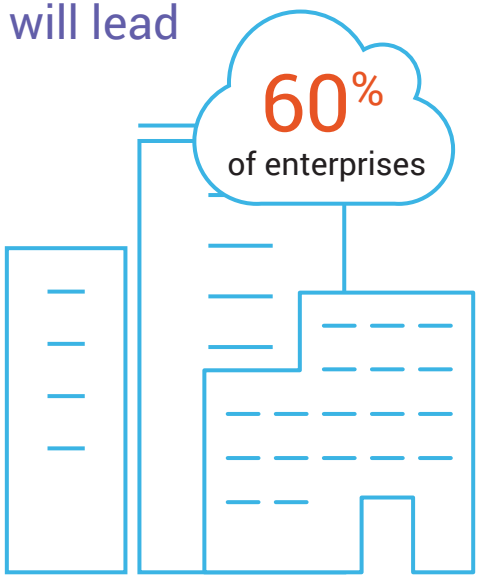
Intelligent Automation

New brands and technologies are emerging at a pace faster than ever before, and it is essential that application delivery, security, and load balancing solutions are able to integrate with everything.

Many organizations have already implemented continuous integration & continuous deployment (CI/CD) to merge the work of individual developers. Reducing the problems in the release process, CI/CD automatically triggers a build every time a major change is made to the code. Load balancing that is automated and API-driven will integrate with DevOps tool chains, regardless of whether they're using Ansible, Azure-specific tools, or other technologies.

The need for automation and integration extends beyond the DevOps team. Does your load balancer integrate with all the clouds in your infrastructure? An advanced load balancing solution, with strong integration capabilities, gives businesses the flexibility to respond to changes without having to purchase new assets and re-set the ROI clock. New products and services can go to market faster when integration makes the infrastructure easy to modify.

Digital transformation will lead



to move IT off-premises by 2019.

https://www.techrepublic.com/article/digital-transformation-will-lead-60-of-enterprises-to-move-it-off-premises-by-2019/

4

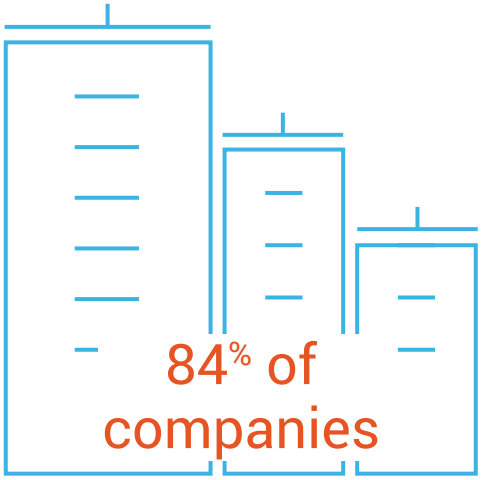
Flexibility to respond quickly to changing business environments

Centralized Management

Today, the typical organization has technology everywhere, and managing all that traffic can be a challenge. An advanced load balancing solution that provides centralized management will prevent conflicting policies. It will also ensure visibility of the application stack in both public and private clouds, as well as enable multiple regions to accommodate high availability, regulatory requirements, or other needs.

Your operations teams can use a central management console to easily create clusters, build elasticity, and scale up or down based on application needs without having to configure each application individually. This applies whether your infrastructure is running on a multi-cloud, multi-region environment or just one cloud. By having a single source of truth through a centralized console, your operations team can drive efficiency by understanding application performance better, detecting anomalies more accurately, and troubleshooting issues faster.

In CA Technologies' "The State of Business Agility 2017" survey,



said they valued agility because they believed that fast responses to new opportunities would give them an advantage over their competition.

5

Simplify and enable app portability across the infrastructure

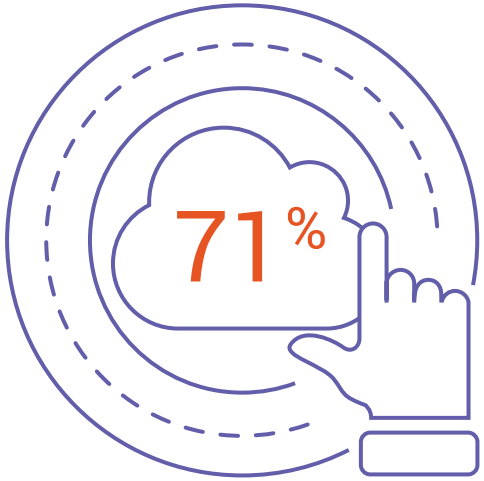
Integration with Containers

Applications have expanded from traditional hardware servers to virtual machines and multiple public and private clouds. With the application infrastructure becoming more and more complex, adoption of containers is critical. It orchestrates computing, networking, and storage infrastructure on behalf of user workloads. This lets you deploy cloud-native applications anywhere and control them with confidence.

Kubernetes is the de-facto standard for container orchestration and management, and has been adopted by all the major players, including Microsoft, Amazon, VMware, Red Hat, and, of course, its developer, Google. Use of Kubernetes has had a tenfold uptick in adoption in public clouds, and the size of deployments is also increasing.

Any advanced load balancing technology that integrates with containers not only has to be able to automatically scale to accommodate changes in application traffic, but also must automatically update itself when changes are made to the infrastructure. Operations teams won't have to configure policies or otherwise actively manage the load after the advanced load balancing solution is configured. Your operations team can function more efficiently, and your organization will get more value from them.

A recent survey by 451 Research, finds that



of enterprises are either using or evaluating container orchestration options like:

kubernetes

docker

https://coreos.com/blog/451-research-container-survey-results

The right technology in the right place all the time

Today, business and infrastructure are synonymous. Your operations team is under pressure to deliver a flexible and secure infrastructure that can support your evolving corporate strategies. Advanced load balancers reside in the ideal position in the flow of traffic to help your operations team become more agile and efficient in a multi-cloud environment. But the benefits of advancing load balancing don't just help your operations teams: your decision-makers, security teams, and DevOps departments will also feel the benefits.

5 Ways to Simplify the Chaos Checklist

- **Performance and reliability**. Whether your business depends on customer-facing apps, internal apps, or a mix, don't tolerate slow loading or downtime. Advanced load balancing gives you the control to provide fast, reliable content and services.

- **Secure your apps at scale**. When your operations team needs to change a policy, they shouldn't have to escalate to your security experts. Advanced load balancing makes it easy to control security on your apps so they can do their work more efficiently and quickly.

- **Flexibility**. Digital business depends on the ability to make fast connections between systems. Automaton and integration have to be in place to do the heavy lifting for businesses that want to do more with less.

- **Centralized management**. Managing a multi-cloud, multi-region infrastructure gets complicated quickly. Advanced load balancing offers centralized management to ensure best practices across the infrastructure.

- **Simplify and enable portability**. You deliver workloads across computing, network, and storage infrastructure. Advanced load balancers that integrate with containers like Kubernetes give you control over cloud-native applications.

5 BENEFITS TO ADVANCED LOAD BALANCING IN AZURE

WATCH ON DEMAND

A10 Lightning ADC

Learn how A10 Lightning ADC provides organizations with application load balancing and traffic management, security and per-app analytics for workloads in public, private or hybrid clouds, visit a10networks.com/products/cloud-load-balancer-application-delivery.

▶ *LEARN ABOUT A10 Lightning ADC*

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