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Application Delivery for DevOps

Overcome the Challenges of Securely Deploying Applications Across Heterogeneous Environments

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DevOps: What Are the Main Challenges?

Applications are at the core of interacting with today's digital consumers and must constantly evolve to meet business demands. The average application development cycle, using traditional methodologies, takes three to six months for initial release, with subsequent releases taking an average of a few weeks. Time frames such as these are no longer satisfactory. One of the methodologies developed to address the need for faster development is called continuous integration/continuous deployment (CI/CD). To support this methodology, a new function has evolved: development and operations (DevOps). As part of the maturation of DevOps, operations (Ops) has become just as critical as application development.

Application development now requires network IT operation teams (NetOps) and security operation teams (SecOps) to work together, thereby putting increased stress on developers and engineers. Adopting DevOps creates a new breed of networking, security and development operation teams, which are tasked with ensuring that products and services will be developed in a timely, continuous manner while clearing any and all hurdles facing developers.

Another market evolution that has occurred to support DevOps is the adoption of heterogeneous infrastructures, including on-premise, private and public cloud environments. As a result, any solution used by DevOps must be suitable for multiple infrastructure environments.

How to Address These Challenges With Radware's Alteon Multi Cloud

Alteon Multi Cloud is an application delivery controller (ADC) solution that facilitates the timely creation and deployment of ADC services across various computing environments. It allows nonproficient IT personnel (such as application developers and DevOps) to manage ADC services.

The Alteon Multi Cloud solution provides the following core functionalities:

- Simplified and intuitive creation of application delivery and security services across multiple environments
- Support of multiple deployment environments, including on-premise data centers, private clouds (OpenStack, Cisco ACI, VMware) and public clouds (Microsoft Azure, Amazon Web Services [AWS], Google Cloud Platform [GCP], IBM SoftLayer)
- Autodetection of application servers already present in the designated deployment environment as well as autodiscovery of servers added/removed from the application server pool
- Automatic scaling of the application delivery and security service
- Multitenancy to enable segregation between application/DevOps teams
- Per-application analytics as well as systemwide and networkwide analytics
- Seamless integration with DevOps automation tools such as Ansible via REST APIs and vDirect automation tools
- Environmentally agnostic license distribution via Radware's Global Elastic License (GEL)
- Additional supported functionality includes high-capacity SSL offloading, web application firewall (WAF), web performance optimization (WPO) and SSL traffic inspection

Alteon Multi Cloud allows anyone to create an ADC service quickly and efficiently. The ADC service is completely autonomous and can scale automatically, including adding more ADC instances to cater to growing application capacity or removing ADC instances as application capacity shrinks. The service owner can monitor the service and analyze its health and performance via a set of application dashboards. On-demand changes can be made at any time, and creation, deletion and monitoring/maintenance of operations can be made via either the user interface or API to cater to a multitude of use cases.

Alteon Multi Cloud allows IT networking administrators to configure the designated deployment environments. IT administrators can also set user boundaries. Boundaries can be deployment environments allowed for certain users; the number, size and type of virtual ADCs that a particular user can spin up; a license limit allocation for individual users; access rights for services and applications per user; and more.

Alteon Multi Cloud allows users to automate the spin-up of ADC services within minutes. The user does not need to have networking or ADC training/experience. Moreover, the fact that the IT administrator has preconfigured user boundaries ensures reliable and error-free service creation.

What Challenges Do DevOps, NetOps and SecOps Face?

Here are some of the most common challenges that DevOps, NetOps and SecOps currently face (as stated by Radware customers) and how Alteon Multi Cloud addresses them.

"The application is now at the stage where it can and should be tested for loads. I need to quickly set up an application delivery service to see if my application works correctly when the traffic is distributed among several application servers."

Solution #1: The IT administrator adds this person as a user, creates a deployment environment and sets user boundaries. The developer logs in to Alteon Multi Cloud and spins up an application delivery service for this application or connects to the system via APIs to create an automated process via integration with Ansible.

"My application is ready to go through complete load testing. I need to quickly set up a cluster of ADCs that have production-level capacity."

Solution #2: This solution is similar to the aforementioned one. The IT administrator expands user boundaries allowing the user to spin up larger instances to test full application loads. Alternatively, the IT administrator can create a different user for a different engineer within the organization to allow that user to spin up an ADC service as well.

"Product development complies with a Blue/Green deployment methodology. I have updated the application code that runs in the offline (green) environment and requires changes to its ADC cluster configuration. It also requires changing the ADC cluster configurations in the blue environment to match the green environment. We use Ansible to manage configuration changes."

Solution #3: The IT administrator creates a DevOps role within Alteon Multi Cloud to allow the DevOps owner to create the necessary ADC configuration changes and to automate the process. This is made possible via integration with Ansible using APIs.

"Our applications are designed to automatically scale. Our application servers, as well as databases and other resources, are scaling within predefined thresholds set for the application. Our networking infrastructure, including our ADCs, must be able to comply."

Solution #4: Every service that a user creates can be configured in a manner that allows scaling within boundaries set by the user. For example, a user could create an ADC service that runs within a public cloud. Boundaries can be set so that the user can only spin up a minimum or maximum number of ADC instances of a certain capacity (up to 1Gbps).

"I need to deploy a WAF service as part of my application delivery solution."

Solution #5: Alteon Multi Cloud also provides WAF functionality as part of its GEL model. The user can access the relevant ADC service and activate WAF service.

"I am a NetOps engineer. I oversee the company's ADCs and assist application developers in allocating ADC resources. On one hand, I have to provide ADC services and resources, but on the other hand, I need to ensure that any service or product that the company deploys complies with strict security policies. Developers are pushing me to grant them autonomy to handle networking services, but this adds risk to our company's networking and security policies."

Solution #6: The primary goal of Alteon Multi Cloud is to assist NetOps engineers in performing their tasks. Alteon Multi Cloud shifts workloads from NetOps to the DevOps team without neglecting reliability and compliance. The NetOps engineer creates thresholds, such as deployment environments allowed, users and roles, and user boundaries.

"I am a DevOps engineer who constantly receives complaints that the application service is underperforming. Certain users are receiving too many errors from the application. As a result, I am constantly troubleshooting issues where I have little to no visibility into application health and performance."

Solution #7: Alteon Multi Cloud provides an analytics solution to gather application performance and event information from every application delivery service and provides customizable reports to enable fast root-cause analysis.

Conclusion

Developers and DevOps must become more agile, and ADCs can serve as a catalyst for accomplishing this. ADCs allow application delivery services to be spun up and efficiently on demand — and use automation and intuitive user interfaces to open up their management to an array of non-technical users. Lastly, analytics provide insight and visibility into performance and service-level agreements (SLAs).

Alteon Multi Cloud provides a cost-effective application delivery solution that supports these goals while reducing operational costs and allowing non-technical users to create and manage ADC services across the entire DevOps process.

About Radware

Radware® (NASDAQ: RDWR) is a global leader of cybersecurity and application delivery solutions for physical, cloud and software-defined data centers. Its award-winning solutions portfolio secures the digital experience by providing infrastructure, application and corporate IT protection and availability services to enterprises globally. Radware's solutions empower more than 12,500 enterprise and carrier customers worldwide to adapt quickly to market challenges, maintain business continuity and achieve maximum productivity while keeping costs down. For more information, please visit www.radware.com.

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