allot
See. Control. Secure.

Allot Cloud Traffic Intelligence (ACTI)
For Private & Hybrid Clouds

Assuring Enterprise's business resilience and perception on private cloud

Powering Data Center "Cloudification"

Organizations use data centers as the foundation of their entire digital operations: such as storing, processing, and distributing data and applications. Data centers are specialized facilities that house and manage computer systems, as well as servers, storage devices, networking equipment and other critical IT infrastructure components. Today data centers have proved to be crucial in enabling the digitization of all services and applications and they became integral to modern businesses and societies.

Beyond being the cornerstone of modern applications and mission-critical services, data centers need to deliver a wide range of services to users, partners, and business processes around the clock. These services can include websites, machine-to-machine applications, interactive communication platforms, cloud-based services, and more. The centralized nature of data centers allows for efficient management, scalability, monitoring, and optimization of IT resources.

As technology advanced, the concept of virtualization emerged as a game-changer. Virtualization allowed multiple virtual machines (VMs) to run on a single physical server, drastically improving data center RoI, by increasing software density and allowing tighter control over resource utilization and overall superior operations flexibility. This move, marked the transition from traditional physical servers to a more efficient and scalable model of Virtualized data centers.

Shift to Private Cloud

With the proliferation of virtualization and the increasing demand for agile IT infrastructure, the idea of private clouds took center stage. Private clouds are built upon the principles of virtualization, introducing the notion of a data center Operating System, which abstracts the data center construct as a single entity, also tagged as a "Cloud". Private clouds value-add, further centralizes and streamlines the virtualized automation, self-service provisioning, and resource scalability. This shift allowed organizations to create dynamic and responsive environments tailored to their specific needs by turning their own data centers into private clouds.

From Private Clouds to Hybrid Clouds

Unlike their public counterparts, private clouds provide computing services offered over the internet (cloud computing) which are dedicated to a single organization. While they deliver similar advantages as public cloud, including scalability and self-service, the dedicated deployment of private clouds as well as the owned computing resources (servers, storage, and networking) exclusively used by the owner organization, offer greater control, security, regulatory compliance, and customization than what public cloud can provide.

On the operations side, private clouds have been adopted by a wide array of businesses, across all verticals, to adopt SecOps and DevSecOps practices, to deliver a finer-grained control, a higher ease of use, as well as a fully predictable billing cycle and costs. Another vital factor that positively contributes to private cloud adoption is the effective utilization of the IT staff - the organization's most valuable resource - allowing IT personnel to dedicate quality-time to higher-value tasks, and combine public and private clouds for burst-management, in what is commonly tagged as "Hybrid Cloud".

How does a private cloud function?

A private cloud is a dedicated computing setup for a single organization, ensuring no resource sharing with others. It can be established using existing on-premises infrastructure or new resources from the organization or a third party. Yet, a private cloud provides organizations with some significant cloud computing capabilities, also available in the public cloud. These include, among others:

Virtualization

Enables organizations to create and manage virtual instances of computing resources (such as virtual machines) on physical hardware.

High Availability and Redundancy

Ensure high availability and redundancy through load balancing, failover mechanisms, and data replication.

Scalability

Easy scaling of resources to accommodate changing demands, whether it's adding more virtual machines or allocating additional storage.

API Access

Application Programming Interfaces (APIs) enable users to interact with and manage cloud resources programmatically, allowing for integration with other tools and systems.

Self-Service Provisioning

Users can often provision resources on-demand without direct intervention from IT administrators.

Monitoring and Management

Tools for monitoring resource usage, performance, and infrastructure health.

Resource Pooling

Computing resources like CPU, memory, and storage are pooled, allowing efficient allocation among various workloads.

Data Storage and Backup

Storage solutions, including options for data backup, replication, and recovery.

Does Private or Hybrid Cloud Transformation Provide You with Peace of Mind?

As mentioned, transitioning to private/hybrid cloud offers invaluable benefits, yet it also presents challenges that demand careful consideration. One crucial aspect that requires attention, is the fact that private clouds are opaque environments, blurring the mission-critical services visibility. Regaining this visibility level, is critical, in order to assure that users needs are properly served. Private clouds are only delivering very basic IT observability and tools - unable to provide adequate insight. All the more, private clouds networking policies are coarse-grained and blunt, unable to assure Quality of Experience (QoE). Meeting Service Level Agreements (SLAs) becomes an unachievable task.

Another significant consideration is network stability. Private clouds are lacking the inherent public cloud PaaS services, hence, they are greatly exposed to resilience volumetric DDoS floods. It's essential for organizations to remediate to this lack, and put in place an adequate software-based protection against such attacks, in order to prevent disruptions of operations. Additionally, the prevalence of shadow IT fosters abnormal network and user behavioral activities – some of these originate in external maleficent actors that infiltrated the network and/or devices, while others, are due to erroneous configurations. Detecting and mitigating such threats - typically Botnets and Command & Control (C&C) data exfiltration tunnels - is crucial in this dynamic environment, necessitating robust resilience measures and advanced detection capabilities.

A third aspect that deserves attention during the transition to private & hybrid clouds, is related to operations and costs-control. Operation-wise, private clouds troubleshooting tooling isn't on par with enterprise-grade needs, to say the least - organizations must carefully consider their need of network and application troubleshooting, and one must attend to the fact that, the existing troubleshooting capability isn't taken away from the IT team. On the operational costs front, Enterprises are legitimately expecting to see a reduction of OPEX costs, without compromising on productivity. This involves assessing the efficiency of cost management strategies and ensuring that they align with the organization's overall objectives. Striking a balance between control and cost-effectiveness is essential to maximize the benefits of transitioning to the private cloud while optimizing operational efficiency.

By addressing these challenges comprehensively, organizations can successfully navigate the transition process and realize the private cloud's full potential in driving innovation and growth.

The Allot Cloud Traffic Intelligence (ACTI) Solution on Private Cloud Ensures the Enterprise's Perception and Business Resilience

The Allot Cloud Traffic Intelligence (ACTI) solution empowers organizations to migrate and implement their IT infrastructure and applications seamlessly across private/hybrid cloud environments. Deployed inline within the private cloud network, Allot's ACTI delivers granular visibility and insights into corporation applications and user requests, delivering real-time monitoring of Quality of Experience (QoE) and Service Level Agreements (SLAs) for mission-critical enterprise services.

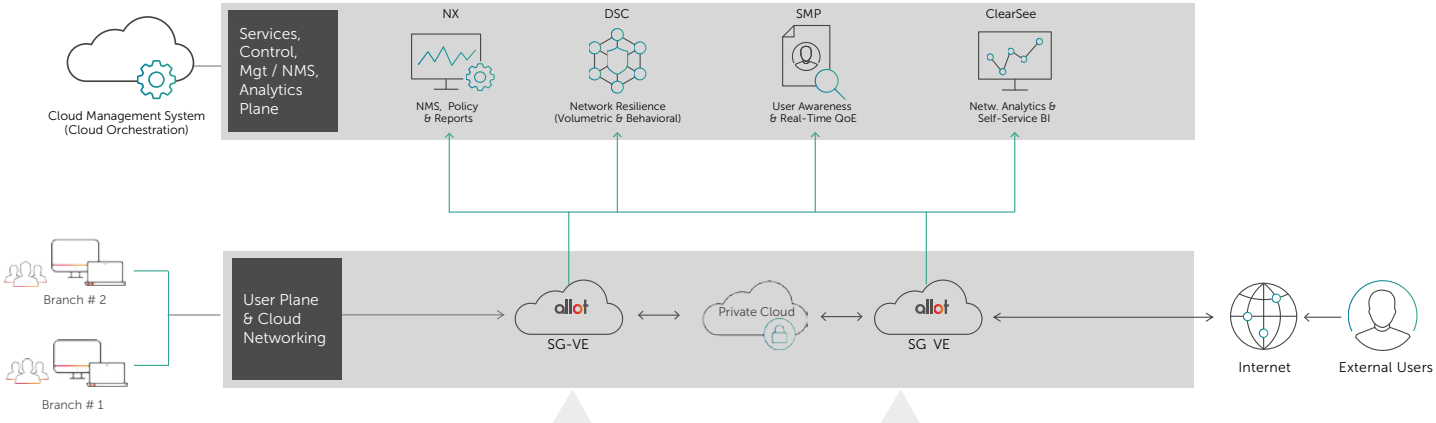
Gaining such granular visibility into the private cloud is only the 1st necessary step to ensure committed SLAs and end users' optimized QoE. Utilizing its intuitive UI and leading traffic-shaping capabilities, ACTI enables the Enterprise to enforce the required traffic control policies so that the organization's mission-critical applications will be prioritized as required.

Moreover, Allot's ACTI offers mitigation of complex volumetric DDoS floods as well as Botnet and Command & Control detection capabilities. ACTI can mitigate, within seconds, both smaller-scale and significant attacks, threatening the private cloud's network resilience. By doing so, ACTI delivers a network-native layer complementing the virtual firewalls, and Web Application Firewalls (WAFs) protection layers – which do not cover flood surges, nor abnormal network behaviors.

The ACTI UI and dashboards offer IT professionals an excellent troubleshooting and cost-control tool for cloud resources. Through ACTI dashboards, IT leaders can quickly identify any problem in mission-critical applications availability and delivered QoE, as well as understand how the private cloud computing resources are consumed in RT and along the time to forecast any future bottlenecks and optimize resource utilization.

Consequently, Allot's ACTI guarantees private cloud services visibility and control, assures network resilience, supports cloud costs-control , and delivers network-native infrastructure protection.

ACTI deployment in private cloud



Use-Cases

- MPLS (WAN) Visibility & Optimization
- Branch Capacity Tier Mgt – Pipe Fair-Use
- Netw. Integrity: C&C + Botnet detection (NSR)
- Differential QoS – per user / Apps / Services

Use-Cases

- Internet-bound (WAN) Visibility & Traffic Optimization
- Flood Protection for Private Cloud (NSR) & assured QoE
- Differentiated QoS for ENT online Assets & Partners
- Detect Cloud-based servers miss-configuration (NSR)

ACTI Deployment

Deployed within the private cloud network, the ACTI integrates cloud computing capabilities and comprises the following VNF-based components:

		Role	Solution area
User Plane DPI, Management & Protection Components	Service Gateway Virtualized Edition (SGVE)	**User Plane** • Traffic enforcement of QoE policies. • DDoS real-time detection and mitigation. • Real-time and statistics data generation.	User Plane Visibility, Control & Analytics Services
	NX Centralized Management	**Management Plane** • Manages all Allot components (NMS) • Policy creation and alarm notifications	Management & Analytics Plane
	DDoS Secure Controller (DSC) - Optional	User Plane protection	Management Plane
	Subscriber Management Platform (SMP)- Optional	**Control Plane** User awareness	Management & Analytics Plane
Advanced Analytics	ClearSee (Analytics) - Optional	**Management Plane** ClearSee – Business Intelligence Layer, self-service Analytics ClearSee – Data Warehouse Layer (Historical Statistics Data) providing QoE & peak bandwidth reports	DPI & Analytics
		ClearSee - Data Warehouse Layer (Historical Statistics Data)	DPI & Analytics

May 2024