

# Avi Vantage Platform

## Multi-Cloud Application Services for Load Balancing, Security and Microservices

### APPLICATION SERVICES NEED A GENERATIONAL CHANGE

Today, applications are no longer just supporting the business, they are the business. The needs for applications to be available across any environments securely and reliably have outpaced the infrastructure that delivers them. The rise of automation, APIs, and analytics presents an opportunity for infrastructure to become intelligent, automated and elastic without limitations of appliance-based approach. Modern enterprises need a multi-cloud solution that facilitates consistent application delivery across on-premise and cloud environments.

### ARCHITECTURAL OVERVIEW

The Avi Vantage Platform uses a software-defined architecture that separates the central control plane (Avi Controller) from the distributed data plane (Avi Service Engines). Avi Vantage is 100% REST API based, making it fully automatable and seamless with the CI/CD pipeline for application delivery. With predictive autoscaling, Avi Vantage can scale based on elastic application loads across multi-cloud environments, including bare metal servers, virtual machines, and containers. See Figure 1.

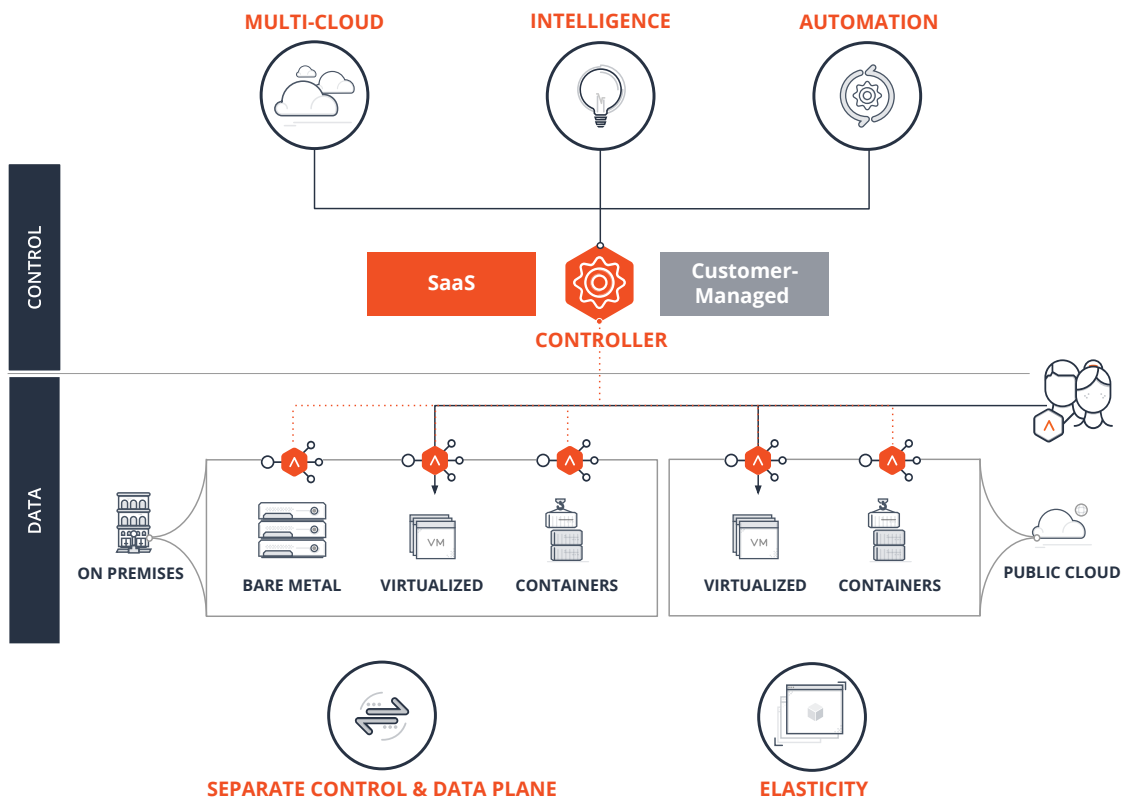
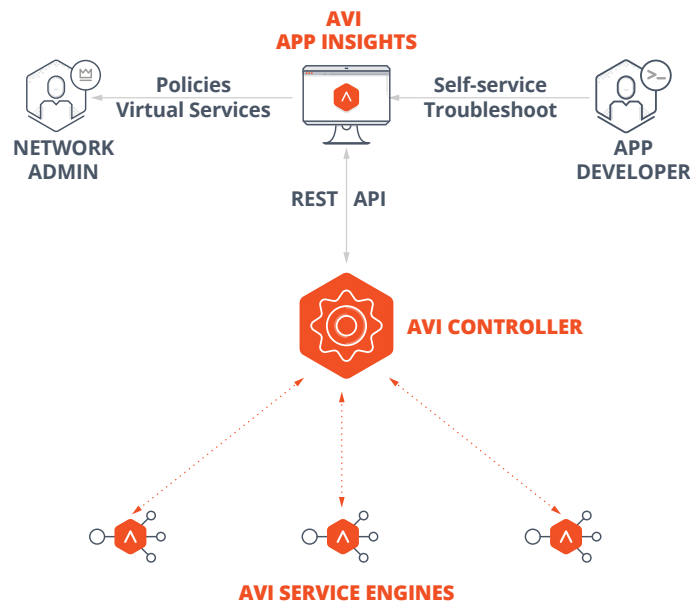


Figure 1: Avi Vantage Platform High-level Architecture

Avi Vantage can be delivered in two modes: customer-managed or SaaS for deployment flexibility. The Avi Controller is the “brain” of the entire system and acts as a single point of intelligence, management, and control for the data plane. The Avi Service Engines represent full-featured, enterprise-grade load balancers, WAF, or service mesh that manage and secure application traffic, and collect real-time telemetry from the traffic flows. The Avi Controller processes this telemetry and presents actionable insights to administrators on a modern web-based user interface that provides role-based access and analytics in a dashboard. Avi App Insights include: application monitoring, end-to-end timing, “network DVR” like record and review capabilities, searchable traffic logs, security insights, log insights, client insights, and more. See Figure 2.



**Figure 2: Avi Vantage Platform Core Components**

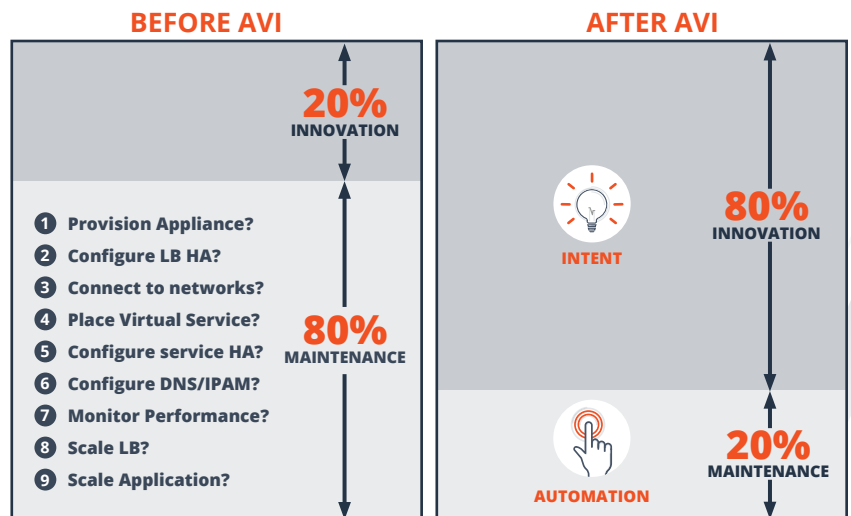
For security, Avi Vantage features an Intelligent Web Application Firewall (iWAF) that covers OWASP CRS protection, support for compliance regulations such as PCI DSS, HIPAA, and GDPR, and signature-based detection. Additionally, built-in analytics provide actionable insights on performance, end-user interactions and security events in a single dashboard (Avi App Insights) with end-to-end visibility. For container-based microservices applications, Avi Vantage offers a Universal Service Mesh that provides traffic management, service discovery, application maps, and micro-segmentation for both north/south and east/west traffic.



### 90% FASTER SERVICE PROVISIONING

Self-service provisioning for continuous application delivery and CI/CD support (see Figure 3)

- Virtual IP (VIP) provisioning in seconds
- On-demand load balancing and application autoscaling
- Full automation with REST API to support faster application rollout in Blue/Green and Canary deployments



**Figure 3: Service Provisioning Before and After Avi Vantage Platform**





## RAPID RESOLUTION IN SECONDS

Google-search like capability for network transactions to troubleshoot quickly (see Figure 4)

- Application health score for a quick snapshot of network posture
- End-to-end round trip times with latencies between each network hop
- Network DVR for recording and replaying traffic events
- Granular insights into performance, security, and end user experience

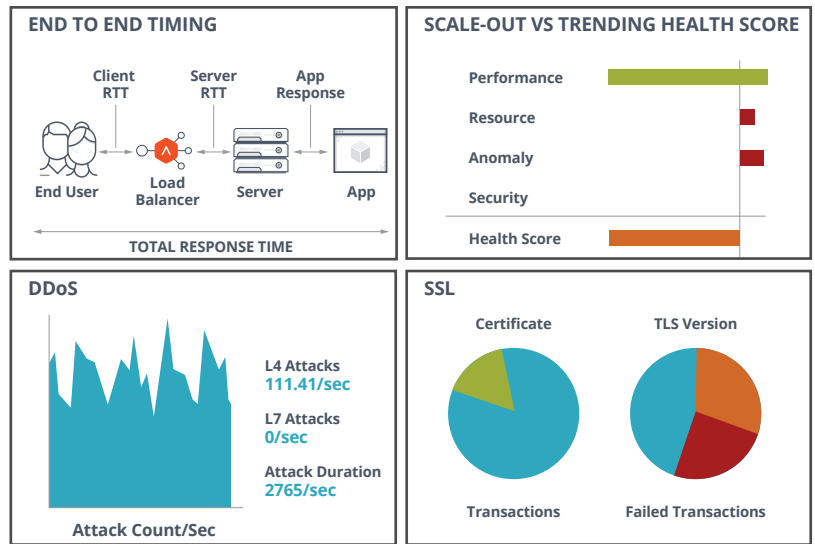


Figure 4: Avi Vantage Streamlines IT Resolution Processes



## MORE THAN 50% REDUCTION IN TCO

Elastic load balancing and on-demand autoscaling without overprovisioning (see Figure 5)

- Flexible, subscription-based licensing model that eliminates high CapEx
- Simplified operations through central management of a distributed load balancers
- Reduced costs with software-defined load balancing on high-performance Intel x86 servers

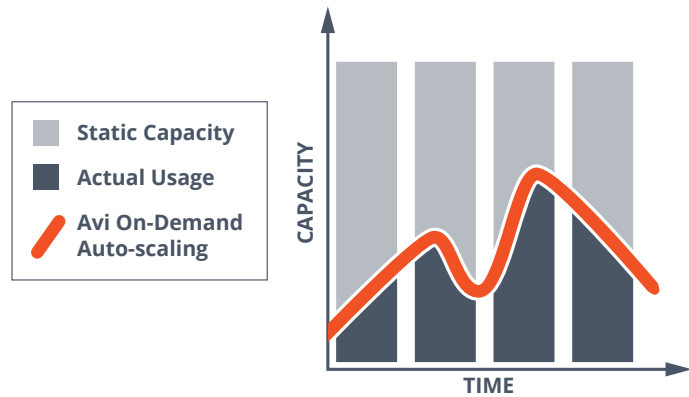


Figure 5: Avi Vantage Uses On-Demand Autoscaling to Cut Down TCO



## SECURITY INSIGHTS WITH IWAF

Distributed web application security fabric to enforce security through closed-loop intelligence (see Figure 6)

- Point-and-click simplicity for policies with central control
- Elastic scale with high performing, automatic scale-out architecture
- Granular security insights on traffic flows and rule matches for precise policies

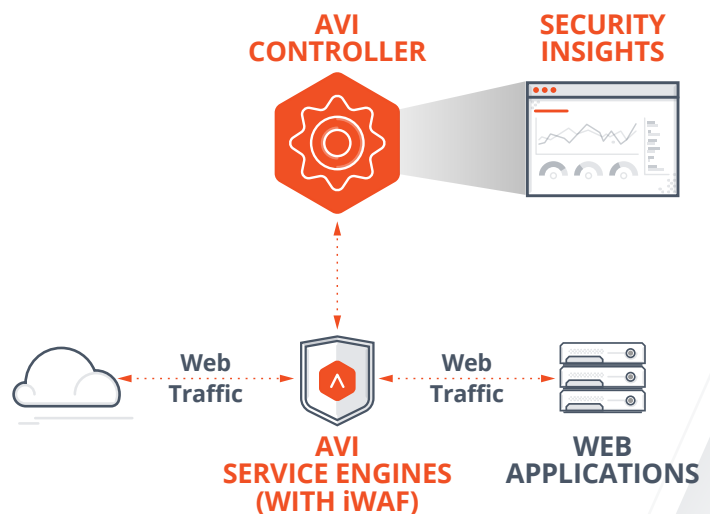


Figure 6: Avi iWAF Provides Security Insights for Web Applications



## SUPPORTED PLATFORMS

VMware	vCenter, vRealize Automation (vRA), vRealize Orchestrator (vRO)
OpenStack	Juno, Kilo, Liberty, Mitaka, Newton, Ocata, Pike, RHEL OSP, LBaaS , Keystone
Bare Metal	RHEL, CentOS, Ubuntu, Oracle Enterprise Linux, Cisco CSP 2100 (NFV appliance)
Containers	Kubernetes, OpenShift, Docker, Rancher
Public Cloud	Microsoft Azure, Amazon Web Services (AWS), Google Cloud Platform (GCP), IBM Cloud
SDN	Cisco ACI/APIC, VMware NSX, Nuage VSP, Juniper Contrail
IPAM / DNS	Avi DNS, Azure DNS, Azure DNS Private Zones, AWS Route 53, Infoblox
Automation and analytics	Ansible, Terraform, Splunk, Cisco AppDynamics, Cisco Tetration

## CONTROLLER OPTIONS

SaaS	Controller deployed and managed by Avi
Customer-Managed	Controller managed by customers in their on-premises and/or cloud environments

## SYSTEM PERFORMANCE AND SCALE

Max System Throughput	10 Tbps
Max Connections	100 million per second
Max Concurrent Connections	10 billion
Max HTTP Requests	200 million per second
Max SSL TPS (2k RSA)	10 million
Max SSL TPS (SEC256r1 ECC)	30 million
Max tenants (shared data plane)	Unlimited
Max tenants (isolated data plane)	200
Max Avi Service Engines	500

## FEATURE

## DESCRIPTION

Enterprise-class load balancing	SSL termination, default gateway, GSLB, DNS, and other L4-L7 services
Multi-cloud load balancing	Intelligent traffic routing across multiple sites and across private or public clouds
Application performance monitoring	Monitor performance and record and replay network events like a Network DVR
Predictive autoscaling	Application and load balancer scaling based on real-time traffic patterns
Micro-segmentation for Service Mesh	Micro-segmentation for IP address and microservices-based security access policies
Self-service	For app developers with REST APIs to build services into applications
Cloud connectors	Native integration with VMware vCenter, SDN/NFV controllers, OpenStack, AWS, GCP, Azure, Linux Server Cloud (Bare Metal), Service Mesh for Istio/OpenShift/OpenShift/ Kubernetes
Distributed application security fabric (iWAF)	Granular app insights from distributed service proxies to secure web apps in real time
Automation and programmability	REST API based solution for accelerated application delivery; extending automation from networking to developers
Application Analytics	Real-time telemetry from a distributed load balancing fabric that delivers millions of data points in real time

