

Hitachi Content Platform With Pulse Secure Virtual Application Delivery Controller

TRANSFORM YOUR BUSINESS WITH SOFTWARE-BASED APPLICATION DELIVERY SOLUTIONS

In today's global economy, businesses want to be empowered to:

- Drive greater value and enhance the customer experience.
- Improve cost efficiencies and time to market.
- Capture and analyze data for actionable information and new revenue streams.

Reaching these goals dictates the rethinking of traditional IT. Organizations have become data-dense and application-driven, and in many cases, application development and delivery are core to business success.

To remain competitive and efficient in meeting business-critical demands, IT requires modern, fluid, dynamic operations. Software-based, application-centric environments can accelerate return on investments, scale to meet changes and capitalize on opportunities that haven't been imaged yet. What customers want and businesses must accomplish can no longer be fulfilled by yesterday's infrastructure.

Transform Today. Thrive Tomorrow.

In the digital era, IT must embrace cloud-like agility, rapid provisioning, better service levels, increased utilization and reduced risks. Data must promote innovation and opportunity. Applications need to be developed, rolled out and managed in a swift, agile manner. Getting there beckons a scalable, reliable and adaptive solution that supports all kinds of data and applications.

Hitachi Vantara and Pulse Secure are empowering the digital future. Together, we continue to deliver and support embedded, application-savvy, reference architectures. Now, comes a proven software-based solution that optimizes application delivery services, virtually.

Hitachi Content Platform (HCP) and Pulse Secure Virtual Application Delivery Controller (vADC) eradicates clunky, rigid hardware-based architectures with elastic, intelligent, on-demand, software-enabled application services. HCP is a productivity accelerant known for highly efficient object storage software that is capable of supporting mixed workloads at petabyte scale. Pulse Secure vADC provides secure, high-speed, automated application delivery across virtual and cloud platforms, for tangible business value in virtual compute environments. Organizations gain a state-of-the-art software solution that ensures the right data gets to the right place at the right time. Every time.

Together, we can help build your foundation for transforming it all.

Hitachi Vantara Content Platform: Visibility and Control for the Digital Age

Organizations confront unprecedented demands to improve operational efficiencies, develop new business models and boost the customer experience. It is no wonder that HCP is one of the fastest growing solutions to meet these challenges.

A Digital Transformation Solution

HCP is a complete solution for the digital age. Beyond intelligent object-based storage, HCP provides a foundational element for all things data. It ideally balances hybrid cloud and workforce mobility goals while retaining visibility and control across digital assets. Cloud service providers and enterprise IT use HCP to store, share, collaborate, analyze, protect, retrieve and preserve data in a single

system. HCP can deliver differentiated private, public and hybrid cloud services and lower costs by up to 60%. Tiering content is transparent, automated and policy-based, and metadata remains secure and on-premises.

Object-Based Storage

At the core of the HCP is object-based storage (OBS) software, which runs on virtual machines or as an appliance for primary storage, on-premises private cloud and public cloud compatibility. HCP is designed to evolve with changes in scale, scope, applications and technologies throughout the data life cycle. With high-density, highly efficient, backupless multitenancy storage and unlimited scalability, HCP is ideally suited for optimizing massive amounts of unstructured data.

Universal Replication

HCP combines synchronous and asynchronous replication of objects. Flexible intelligent replication options allow IT to replicate between data centers, unidirectionally or bidirectionally, in a chain, or via inbound or outbound star topologies. HCP also enables an active-active protocol, known as global access topology (GAT). This protocol syncs globally distributed HCPs, allowing users to access data from the closest site for improved performance, collaboration and availability.

Cohesive Ecosystem

HCP is tightly and adaptively aligned with Hitachi Content Platform Anywhere (HCP Anywhere) and Hitachi Data Ingestor (HDI). HCP Anywhere is a fully integrated, enterprise file-sync-n-share solution, allowing for continuous access to business data. HDI is a secure file-based gateway to the cloud. It operates as a caching device to provide remote

users and application with bottomless, back-up free file storage from the cloud.

HCP delivers a wealth of progressive features, including:

- Automation through policy-based data movement between cloud environments, with metadata stored on-site.
- Full control, visibility and mobility across data.
- Improved performance and availability for anywhere, anytime collaboration.
- Rapid data access from closest HCP.
- Native API support for HTTP/REST, HCP RESTful, S3, OpenStack SWIFT, CIFS, NFS and more.
- Customizable cloud storage nodes and access nodes to maximize performance, cost, scale, and flexibility.
- Comprehensive data protection at every layer and across the enterprise, with erasure coding and replication.
- Enterprise-class security features for tamper-proof data, multitenant access control and regulatory compliance.

Business Benefits

The HCP portfolio aids the organization in better understanding its data, moving it to the right tiers for the right reasons, and performing analysis, search and queries – all from a single management point. Among its many business attributes, HCP helps to:

- Readily adapt to changes with flexible architecture and seamless data mobility.
- Foster mobilization of content across multiple HCPs, devices, locations, clouds, applications and storage.
- Manage multitenancy and complex application environments with

intelligent automation and less overhead.

- Manage data growth generated by the internet of things (IoT), machine data, cloud and custom applications with massive scalability.
- Meet regulatory mandates and mitigate cyber risks with dynamic, holistic security, retention and compliance.
- Optimize costs and operational efficiencies and single point of control and a common platform.
- Support public, private, and hybrid cloud environments with broad protocol capabilities.
- Leverage and groom content and meta-data for business insight, research, intelligence and investigation purposes.
- Empower collaborative teams and workforce mobility with better access and data sharing anytime, anywhere.

“Organizations confront unprecedented demands to improve operational efficiencies, develop new business models and boost the customer experience. It is no wonder that HCP is one of the fastest growing solutions to meet these challenges”

Reference Architecture: Hitachi Content Platform With Pulse Secure vADC

The beauty of a pre-engineered solution is that it has already been configured, tested, integrated and standardized. The value for IT organizations is bypassing lengthy and expensive do-it-yourself infrastructure builds to deploy faster with better performance and reliability.

Fast, Reliable, Scalable Deployment

HCP with Pulse Secure vADC helps ensure that data center applications and networks remain available accelerated, scalable and secure. Because virtual ADCs are software-based, rather than hardware-based, they can support faster, more reliable and scalable delivery of applications for any cloud or virtualized environment.

Deploying Pulse Secure vADC in front of HCP alleviates typical issues related to domain name system (DNS) infrastructure, such as scalability, lack of application-node awareness and round-robin load balancing. Unlike load balancers involving dedicated hardware or software, such as multilayer switches or DNS server processes, the Hitachi and Pulse Secure architecture simplifies and streamlines. The Hitachi load-balancer API integrates with Pulse Secure vADC so that the controller can bypass embedded DNS functionality. This bypass allows IT administrators to manage application processes via a single IP address.

Clean and Integrated Distribution

The HCP and vADC solution has no need for secondary zones, stub zones or complicated transfers. Unnecessary DNS overhead is alleviated. Rather than resending sessions to overloaded systems, the load balancing algorithm transparently identifies loads on any given cluster and evenly distributes

sessions across all nodes. The vADC also manages communication and removes any problematic nodes or systems in the cluster.

Assured Service Levels

HCP with Pulse Secure vADC tracks the number of sessions per node and session through-put. The solution performs quality of service (QoS) rate limiting, which surpasses traffic queuing to assign, alter or drop IP priority levels. Because these activities are accomplished on the wire, there is no impact to HCP and no need to manage these network tasks. By using the QoS functionality and session management to align with a multitenant environment, service level agreements (SLAs) can be defined and enforced.

Advantage and Cost Efficiencies

The combination of HCP and Pulse Secure vADC software offers a powerhouse of benefits and cost efficiencies. The solution culminates with the opportunity to jointly deploy ADC-as-a-service (ADCaaS). This compelling architecture speeds provisioning, fine-tunes the user experience and catapults performance choices. The Hitachi and Pulse Secure ADCaaS provides better investment returns and a complete toolset for rapid, wherever-whenever service delivery. With a long-standing partnership built on legendary quality and innovation, Hitachi and Pulse Secure eclipse traditional and public cloud offerings.

Pulse Secure vADC: A Comprehensive Approach to Application Delivery

Pulse Secure vADC provides fast, reliable application delivery across virtual and cloud platforms at massive scale. The vADC portfolio provides a comprehensive, on-demand ADC

solution. For medium-to large-sized Hitachi object storage environments, HCP leverages the Pulse Secure Virtual Traffic Manager (vTM) feature.

Pulse Secure Virtual Traffic Manager (vTM)

Integral to vADC is Pulse Secure Virtual Traffic Manager (vTM). Designed to orchestrate applications, particularly in complex, distributed and virtualized environments, Pulse Secure vTM delivers the broad toolset necessary to solve web-based service performance issues.

Pulse Secure vTM is a potent, software-based ADC that provides Layers 4 to 7 services and a foundation for higher-level optimization of security and content. Flexible and fast, Virtual Traffic Manager gives organizations reliable, high-performance access to public websites and enterprise applications running in the cloud and virtualized environments. (See Figure 1.)

Pulse Secure vTM works to process application traffic with full payload inspection and streaming. Within vTM is TrafficScript, which controls how individual requests are optimized and routed to the web and application servers. As a sophisticated programming language, TrafficScript can customize and apply rules to all aspects of traffic management, for outstanding service. Virtual Traffic Manager also uses a web-based administration interface that provides real-time analysis and historical breakdown of traffic across clusters.

“The beauty of a pre-engineered solution is that it has already been configured, tested, integrated and standardized. The value for IT organizations is bypassing lengthy and expensive do-it-yourself infrastructure builds to deploy faster with better performance and reliability.”

Key features of Pulse Secure vTM include:

- Intelligent load balancing that uses multiple algorithms and variable criteria-based techniques
- Global load balancing with automatic failover
- Application acceleration with auto-scaling to automatically manage traffic changes in real time.
- Dynamic content caching and compression offload within vTM to free up back-end servers.
- Service-level monitoring to keep applications and services running as expected.
- Bandwidth management to set criteria-based access limitations.
- Cloud bursting and balancing.
- Service automation using REST API.
- HTTP/2 connections support to improve web page load times.

Business Benefits

From reaching consumers and building products to automating back-end transactions, applications are at the center of business today. Pulse Secure vADC enables a new way to promote the app era. Among its business benefits, vADC provides:

- Seamless, anywhere deployment for private, public, and hybrid cloud environments.
- A software-based platform, rather than hardware, for better meeting DevOps requirements and application portability.
- A proven, reliable, innovative solution with advanced features to optimize web content, user experiences and revenue streams.

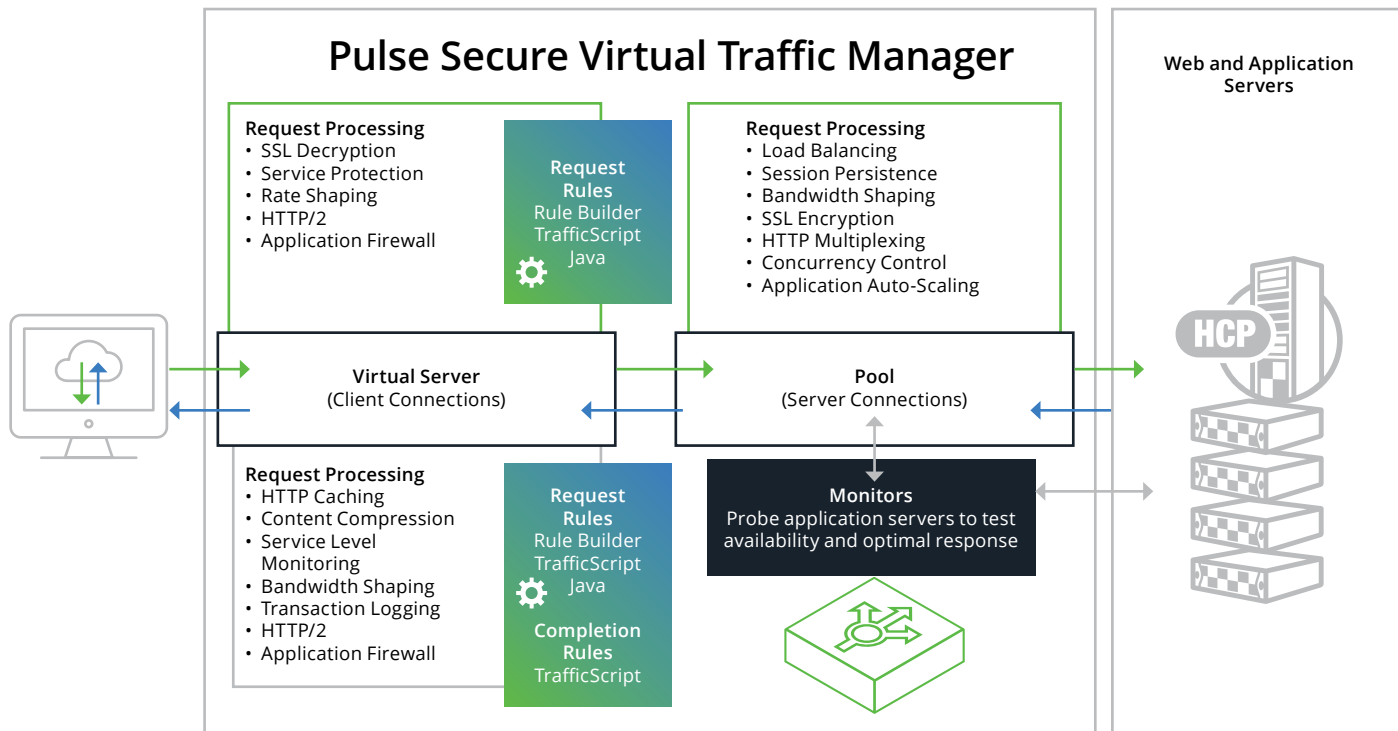


Figure 1. Pulse Secure Virtual Traffic Manager

USE CASE: Global Load Balancing for Object Storage

HCP with Pulse Secure vADC is ideal for high availability scenarios, from business-critical operations and transactions to DevOps. (See Figure 2.) Global load balancing ensures fast, transparent failover to an alternative HCP, in cases of unexpected occurrences and catastrophes. Built-in system logic provides automatic failover, and global access topology functions provide rapid manual failover. HCP with vADC is adeptly capable of rapid rebuilds, along with traffic movement to secondary sites. Services deploy across multiple sites with location-specific configurations, and load balancing can cater to performance-sensitive traffic routing. There is one global name across all platforms.

USE CASE: Termination of SSL for Agile Operations

Deploying a clustered pair of virtual ADCs in front of the applications and HCP allows for algorithmic load balancing and the termination of SSL traffic. (See Figure 3.) Pulse Secure vTM also terminates the HTTP or HTTPS REST-based traffic to distribute and manage all traffic based on unified business requirements. Now, each HCP cluster becomes its own domain so that each deployment will include a unique name. For example, HCP1 becomes `https://hcp1.customer.com`, HCP2 becomes `https://hcp2.customer.com`, and so forth. Additionally, traffic scripting can be used to uniquely customize and apply any business logic to the environment. The data environment remains cohesive and nimble.

USE CASE: Segregation of Services

HCP with Pulse Secure vADC provides better control over data flows and access authorization. Before creating a data flow, IT must establish the users who will be authorized to set up namespaces and tenants. Using vADC with HCP allows for better control over IP addresses available for services to leverage and how activities will flow through the system. Users gain improved access. IT bolster security.

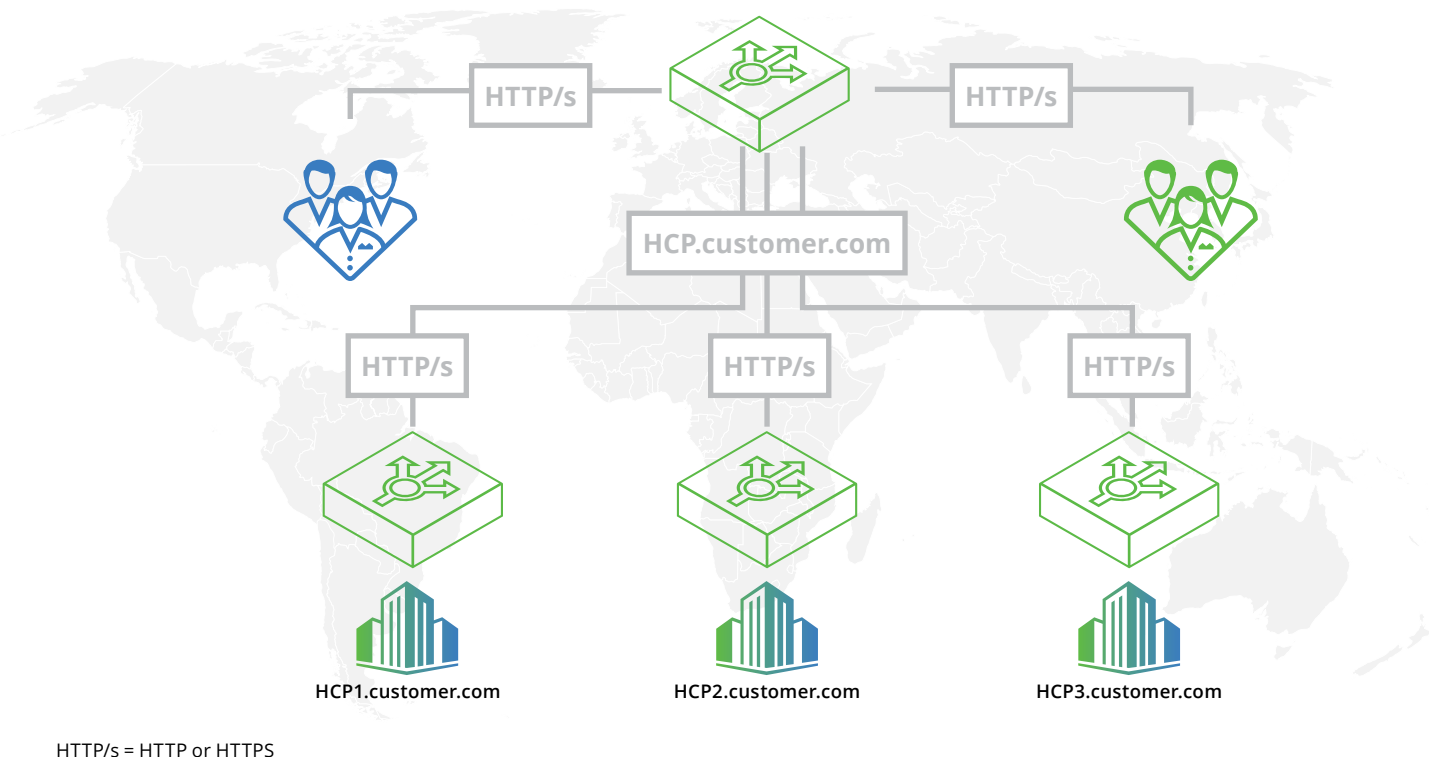
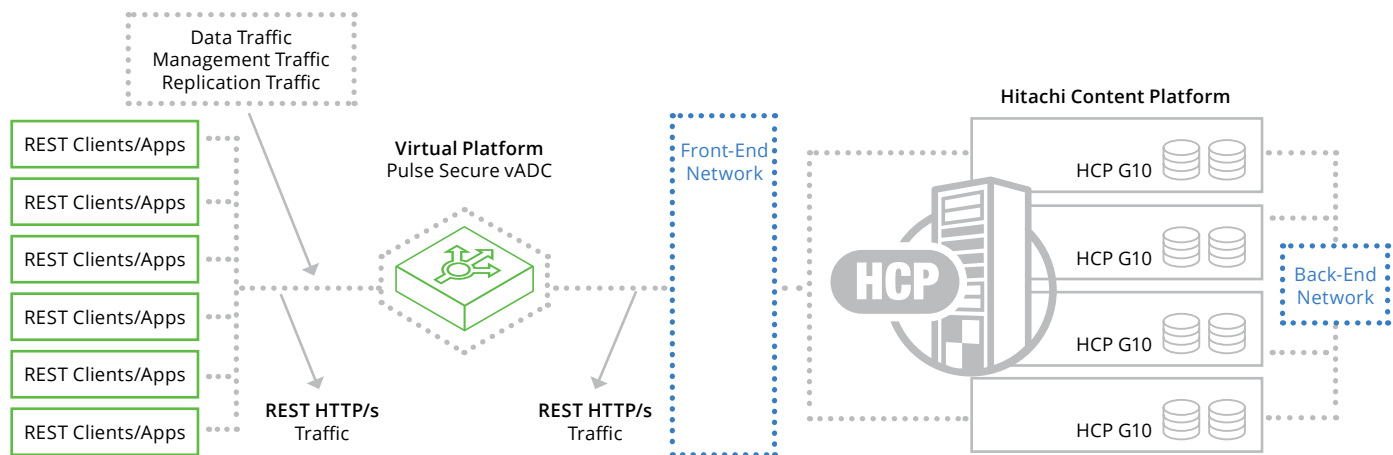


Figure 2. Global Load Balancing



HTTP/s = HTTP or HTTPS

Figure 3. vADC Pair in Front of the Applications and HCP

USE CASE: Global Platforms for Large-Scale Deployments

Whether striving for hyperconverged infrastructure or creating massively scalable platforms serving the front-end of the cloud, HCP with vADC offers a simple, streamlined pathway. Large-scale deployments benefit from highly maneuverable technologies to ensure ultimate flexibility in interfacing with platforms, such as HCP clusters with traditional NAS or NAS on-ramp avenues.

While organizations may already have shared load balancers in front of the HCP clusters in production environments, for example, vADC acts as a dedicated platform. Whereas the shared load balancers can fall short of simultaneously supporting, say, traditional web applications and application-generated storage traffic, virtual ADCs excel. HCP with vADC promotes scalability at a much higher rate and better footprint while ensuring high performance, security and robustness. This use case is also ideal for organizations wishing to build a DevOps environment that mimics entire production sites.

Learn More

For more information about how Pulse Secure vADC with Hitachi Content Platform can solve your application goals, please contact:

- Your Hitachi Data Systems representatives or visit www.hitachivantara.com.
- Your Pulse Secure representative or visit www.pulsesecure.net/vadc.

Corporate and Sales Headquarters

Pulse Secure LLC
 2700 Zanker Rd. Suite 200
 San Jose, CA 95134
www.pulsesecure.net