

OneVantage™ Request Router

Network operators have traditionally focused their efforts on the optical transport and packet switching layers of their networks for creating and improving the connectivity experience of their subscribers. Recently, however, the consumption of rich media content has come to dominate the perceived Quality of Experience (QoE) for subscribers. And as the explosive growth in this traffic is pushing networks to capacity, operators are turning to application-layer content caching and delivery services as the next source of improvement for the user experience.

This represents a fundamental shift in mindset. During the past decade operators left responsibility for sourcing and delivering content largely to global CDN service providers. However, the massive popularity of OTT content coming at the expense of network operating margins is driving operators to reinsert themselves into the content delivery value chain. By deploying CDN platforms to support a variety of new and higher quality content services, these operators are addressing a current problem and protecting their long-term competitiveness.

Verivue's OneVantage™ Content Delivery Solution is a suite of turnkey CDN technologies designed to meet the next-generation content delivery needs of network operators. The OneVantage™ Content Delivery Solution is comprised of an open network virtualization platform, installed on commodity hardware, upon which CDN software modules are deployed and managed. The OneVantage™ Request Router is the "glue" that functions as both the client entry point and the resource load balancer of the CDN.

Product Overview

The OneVantage™ Request Router is a highly scalable request routing and redirection service. Using enhanced Domain Name System (DNS)-based techniques, it translates host names from end-user requests into IP addresses of edge caches best able to deliver the requested content. In selecting the proper CDN, PoP, cluster, machine, and delivery service for each client, the Request Router is also responsible for global and local load balancing at all levels of the CDN and, when applicable, between CDNs.

The Request Router combines server mapping and network topology information provided by the operator with load, latency, and availability information provided by OneVantage™ HyperCache nodes to direct client requests to the optimal CDN resource. The Request Router also provides DNS services for the URLs served by the CDN.



Edge Intelligence:

Optimal node selection
at near-infinite scale

Flexible Control:

Operator-defined node
selection policies for isomorphic
network mapping

Unparalleled Performance:

Elegant design with low latency
routing and redirection

Simplified Management:

Self-healing, automatic
graceful recovery

Non-stop operation:

Fault-tolerance and in-Service
Software Upgrades with
99.999 % uptime

Large Network Support:

Scale out design for web scale
implementations, unaffected
by number of objects in
the system

Features and Benefits

Scalability and High Availability:

With its scale out architecture, Request Router servers can be replicated and distributed throughout the network to assure maximum performance and fault tolerance. The underlying algorithms scale independently of the number of end-users requesting objects and the number of objects being served. The Request Router routes requests around site failures as well as individual node failures within a HyperCache cluster.

Native Support for Adaptive Streaming:

Request Router is especially well suited for support of highly fragmented HTTP Adaptive Streaming video traffic. HTTP-AS works by breaking down large video files into small HTTP-based chunks of streams encoded at a variety of bitrates. Using state-of-the-art DNS techniques, the Request Router scales to support a near-infinite number of HTTP small object requests.

Enhanced Operator Control:

The Request Router selects from among the set of caching nodes according to an operator-defined policy that takes user proximity, network topology, cache load, and hardware capabilities into account. This gives the operator full control over traffic engineering decisions and ensures that all caches in the CDN operate in the most efficient way possible.

Federated CDN Support:

The OneVantage™ approach to request redirection is naturally extensible to a federation of interconnected CDNs. This enables an operator to engage in mutually beneficial peering arrangements, including:

- **CDN Termination:** A Global CDN peers with one or more regional CDNs that terminate content delivery to locally connected end-users.
- **Pair-wise Peering:** two CDNs that want to deliver their local content to each other's end-users
- **International CDN:** a set of national affiliates cooperating to form a single international CDN.
- **On-Net/Off-Net Delivery:** an operator serving content to end-users directly connected to its network might also serve those same users when they are connected off-network

OneVantage™ Content Delivery Solution

Verivue's OneVantage Content Delivery Solution is a complete CDN infrastructure solution for network operators. It offers the industry's most extensible design to meet the requirements of a diverse set of applications. Also available from Verivue are:

Request Router
Management & Analytics
Internet Streamer
VoD Streamer
Object Store
Transparent Cache