

NOMINUM® VANTIO™ CACHESERVE

# Deliver fast, reliable Internet with the DNS leader

For over a decade, Vantio CacheServe has formed the foundation for the world's fastest and most reliable Internet networks. It provides built-in security features while delivering 100% availability and the industry's lowest latency metrics. CacheServe boosts subscriber satisfaction while allowing providers to fully leverage the value of network infrastructure investments.

## Sizzling performance and rock solid stability

CacheServe has delivered reliability, high performance and high security for over 10 years. The world's leading DNS engineering team has developed algorithms that set the standard for recursive performance and the team continually makes enhancements to the CacheServe engine. Today, hundreds of millions of internet users in over 40 countries rely on CacheServe every day for a fast, reliable and safe internet experience.

### Precision policies

No other vendor offers policy language and granular control like Nominum. Network operators can filter bad traffic while protecting the experience of non-impacted subscribers. For example, filters or rate limits can be based on:

- IP address
- Query type
- Fully qualified domain name
- Other query parameters



*For over a decade, Vantio CacheServe has formed the foundation for the world's fastest and most reliable Internet networks by enabling self-defending DNS infrastructure that shields networks and subscribers from cyberthreats.*

### KEY HIGHLIGHTS

- OPEX and CAPEX reduction
- Flexible reporting enables data-driven insights
- Inherent security features such as cache poisoning defenses
- Precision policies for granular control of query traffic
- ECS enhancements improve scaling and performance
- Provides extensible launchpad for value-added subscriber services

Additionally:

- Logical operators (AND, OR, NOT) are supported for better targeting of traffic
- Policies can be nested to make them more specific and more powerful
- Domain list feeds (blocklists and whitelists) can be integrated to match against policies
- Policies can be configured for individual servers or across distributed servers to precisely target any kind of unwanted query traffic such as:
  - » Misbehaving devices or applications that send excessively high levels of DNS queries
  - » Illegal content: providers can easily integrate domain lists provided by local authorities and define the appropriate policies to manage DNS traffic in accordance with regulations

Today, hundreds of millions of internet users in over 40 countries rely on CacheServe daily for fast, reliable internet.

### Content-aware DNS resolution for CDNs

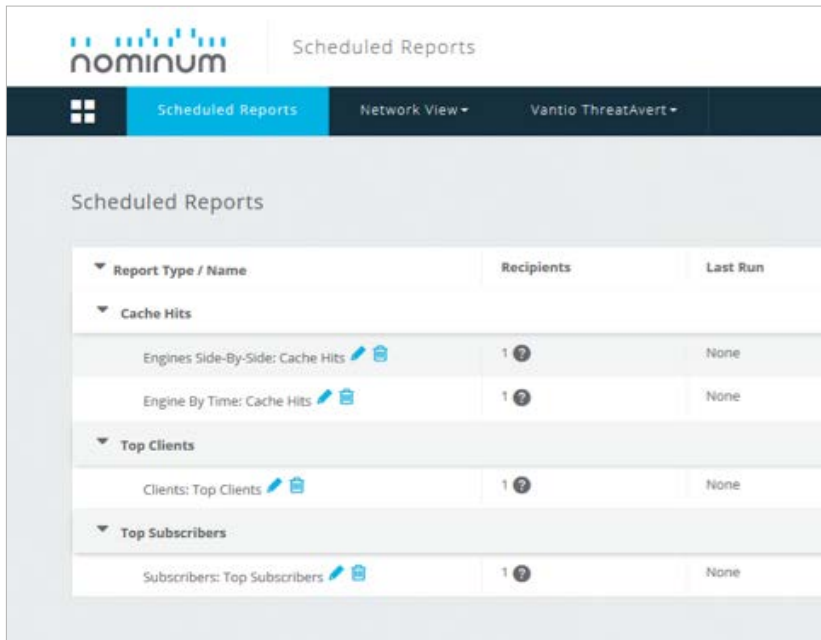
For service providers that are considering deployment of distributed Content Delivery Network (CDN) caches across their networks, EDNS0 client subnet (ECS), a draft RFC, can potentially improve the alignment of content sources with preferred network capacity to reduce transit path costs. CacheServe now supports equivalence class, which considers the respective provider and CDN network topologies to substantially reduce the load on resolvers that would otherwise be introduced with ECS.

### Compelling economics, data driven insights

With CacheServe, providers can simplify operations and consolidate servers. A single CacheServe server running on commodity hardware can answer more than 2.5 million queries per second, enabling hardware cost reductions. CAPEX reductions of nearly 40% can be obtained in centralized topologies. OPEX reductions are even more compelling. Benchmarks comparing rack/power/cooling and management costs show significant savings with CacheServe. With centralized Points of Presence (POPs), savings of more than 50% are possible. Through distributed POPs, savings of more than 35% can be realized. NFV/virtualization is also supported.

### Flexible, comprehensive reporting

Reports covering all aspects of CacheServe operations are available. These can be customized (dates, report type, etc.), exported and automatically emailed to executive stakeholders. Data can show activity based on web destinations (domain names) rather than IP traffic statistics and can be used by network operations and security teams to enhance network visibility, report across the organization and identify trends. Data is easily aggregated, compressed and exported to big data systems for further analysis with N2™ Big Data Connector, an optional add-on product.

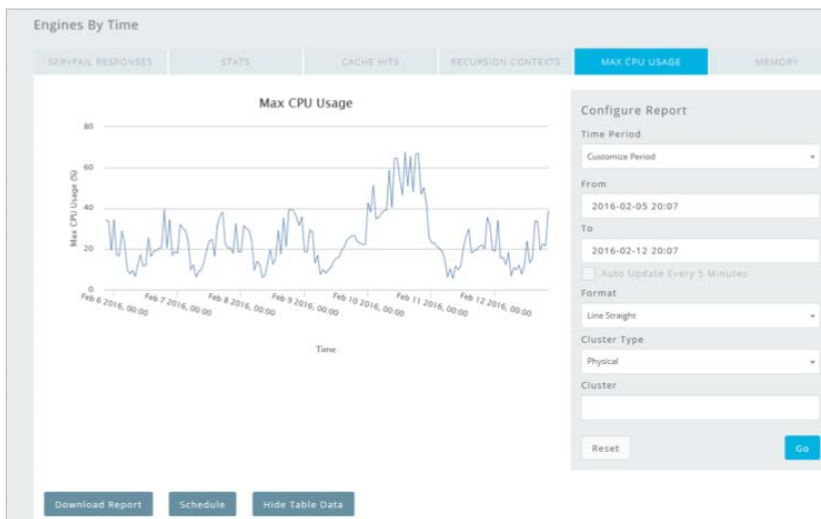


The screenshot shows the 'Scheduled Reports' section of the Nominum interface. It features a table with columns for 'Report Type / Name', 'Recipients', and 'Last Run'. The reports listed are categorized under 'Cache Hits', 'Top Clients', and 'Top Subscribers'.

Report Type / Name	Recipients	Last Run
Cache Hits		
Engines Side-By-Side: Cache Hits	1	None
Engine By Time: Cache Hits	1	None
Top Clients		
Clients: Top Clients	1	None
Top Subscribers		
Subscribers: Top Subscribers	1	None

Because CacheServe reporting is separated from the resolution “fast path,” performance is never compromised.

CacheServe reports provide valuable trend and network data.



CacheServe operating statistics are displayed; reports can be configured according to a provider's needs.

## Unparalleled security to defend against cyberthreats

The N2™ ThreatAvert application works on CacheServe to protect DNS servers, networks and subscribers from abuse through precise targeting of malicious or unwanted traffic. Backed by Nominum data science, N2 ThreatAvert contains live streaming threat intelligence where 100,000 queries daily are blocked due to maliciousness. At the same time, legitimate queries are protected to preserve a



subscriber's browsing experience with no false positives.

CacheServe has built-in cache poisoning defenses to protect against malicious attempts where a DNS server uses incorrect information from a host that has no authority to provide the information. CacheServe withstood Kaminsky's well-known attack in 2008 that compromised other resolvers in minutes. Nominum security experts shipped defenses for the cache poisoning vulnerability months before details were disclosed while no other vendor protected against it.

### Extensible Nominum N2 applications

CacheServe is leveraged for the Nominum N2 application suite which includes advanced cybersecurity applications for businesses and subscribers as well as in-browser messaging capabilities. These applications make it easy for providers to quickly and easily offer cloud-based solutions to their customers that build loyalty and increase revenue.

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## ABOUT NOMINUM

Nominum provides an integrated suite of carrier-grade DNS-based cloud solutions that enable fixed and mobile operators to enhance and protect their networks, strengthen security for consumers and business subscribers, and offer innovative value-added services. The result is improved service agility, increased revenue, greater brand loyalty and a strong competitive advantage. More than 130 providers in over 40 countries use Nominum software.

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