digicert®

This document offers a comprehensive overview of the PerfOps platform, detailing its functionality, data collection, management, and utilization.

|2024

Table of Contents

Introduction

This document aims to provide a thorough understanding of the PerfOps platform, showcasing its robust functionality and the types of data it collects. It also emphasizes how this data is managed and utilized, underlining the platform's reliability and security.

In creating this document, DigiCert aims to ensure its clients have an explicit and informed perspective on PerfOps' capabilities and data practices.

Purpose

The purpose of this document is to:

- Educate clients on PerfOps' features and capabilities.

- Ensure transparency about PerfOps' functionality, data collection, and usage.

- Detail PerfOps' data collection methods and purposes.

- Build trust and support by answering common questions.

- Enhance the user experience by detailing PerfOps' user interface.

Audience

The primary audience for this document includes:

- **Current Clients:** Existing platform users requiring detailed information about PerfOps' functions and data practices.

- **Prospective Clients:** Potential users considering the adoption of the PerfOps platform.

- **Business Decision Makers:** Executives and managers responsible for choosing and implementing new technologies within their organizations.

Scope

The scope of this document includes:

- **Platform Overview:** Detailed descriptions of PerfOps' features, analytics, and network utilities.

- **Data Collection:** Information about the different types of data and the methods of collection used by PerfOps.

- **Data Usage:** DigiCert's collection, processing, and output of data.

- **Frequently Asked Questions:** Answers to common queries about the PerfOps platform.

- **Support and Contact Information:** DigiCert's range of support services, including 24/7 customer support, to assist you with any platform-related issues.

Platform Overview

PerfOps is a leader in data analytics, offering precise and impartial performance monitoring and benchmarking reports.

Operating under the DigiCert umbrella, PerfOps integrates with several cutting-edge projects, including DNS Made Easy, Constellix, DNSPerf, CloudPerf, and CDNPerf. These services have earned the trust of thousands of companies worldwide for their exceptional performance in DNS, cloud, and CDN monitoring and benchmarking.

Designed to handle massive amounts of data, PerfOps seamlessly ingests billions of metrics from hundreds of global locations, processes them, and streams them directly to a dashboard or customer endpoint in real-time. This real-time capability ensures that users always have access to the most up-to-date and relevant information for making critical decisions about their online infrastructure.

Based on a rigorous methodology, the publicly available benchmarking and ranking tables provided by CDNPerf, DNSPerf, and CloudPerf attract millions of unique visitors seeking to purchase CDN, DNS, or cloud solutions. These rankings are derived solely from the raw performance data collected through monitoring solutions, providing an unbiased and reliable evaluation for users.

DNSPerf

DNSPerf, a leading platform for DNS performance analytics and comparison, operates a robust network of over 300 testing servers strategically located around the globe.

It tests all DNS providers and resolvers from 200+ locations worldwide every minute, ensuring comprehensive and up-to-date insights into DNS performance, uptime, and the quality of nameserver responses. Tests are conducted over IPv4 and IPv6 with a 1-second timeout, with public data refreshed hourly and real-time data available upon request.

Offering two powerful tools, DNSPerf provides a free DNS Propagation Check for verifying domain nameserver records across a global selection of DNS servers, and a DNS Speed Benchmark to evaluate the performance of DNS providers by performing A record lookups. Benchmark results are retained for 30 days, helping users debug self-hosted DNS servers and optimize routing logic.

CloudPerf

CloudPerf is a leader in global cloud performance analytics and comparison. With a network of over 300 testing servers worldwide, CloudPerf helps users find the best cloud provider and region through millions of tests.

CDNPerf

CDNPerf is a resource for comprehensive CDN performance insights and offers users two valuable tools: a CDN Latency Benchmark and a CDN Price Calculator.

The CDN Latency Benchmark helps users compare CDN providers and their performance in different regions. The CDN Price Calculator assists users in identifying affordable CDN providers.

Using Real User Measurements (RUM) data from around the globe, CDNPerf analyzes over 200 million tests daily to provide authentic metrics. Note that the RUM Uptime metric measures global reachability rather than service uptime.

Data is updated hourly and performance is measured by the time to download a 500-byte image, bypassing local browser caches.

Features

Comprehensive Analytics

PerfOps offers detailed analytics accessible via API and UI, providing users with robust insights into various aspects of their data, including performance, user behavior, and network health.

- **API and UI Access**: Easily access detailed analytics through a user-friendly interface or pull data via the API.

- **RUM Data:** Gain access to billions of daily benchmarks collected from real users globally.

- **Real-Time Data:** React to real-time events with data available via UI and API.
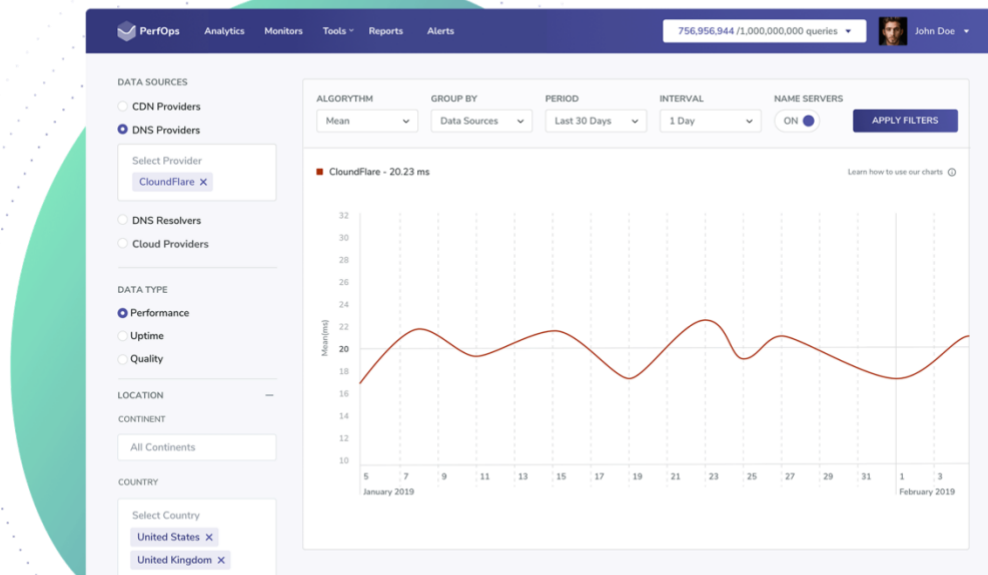
Private Monitoring

Experience the unique power of RUM when monitoring public infrastructure, including custom CDNs, DNS, and private clouds.

- **RUM Data:** Access billions of daily HTTPS benchmarks from real users globally.

- **300+ Synthetic Locations:** Test private DNS infrastructure from over 300 global locations.

- **Full Analytics:** Access comprehensive analytics, raw logs, and real-time data for private benchmarks.

- **Quality and Uptime:** Gain insight into global nameserver outages and their impact on your services, regardless of location.
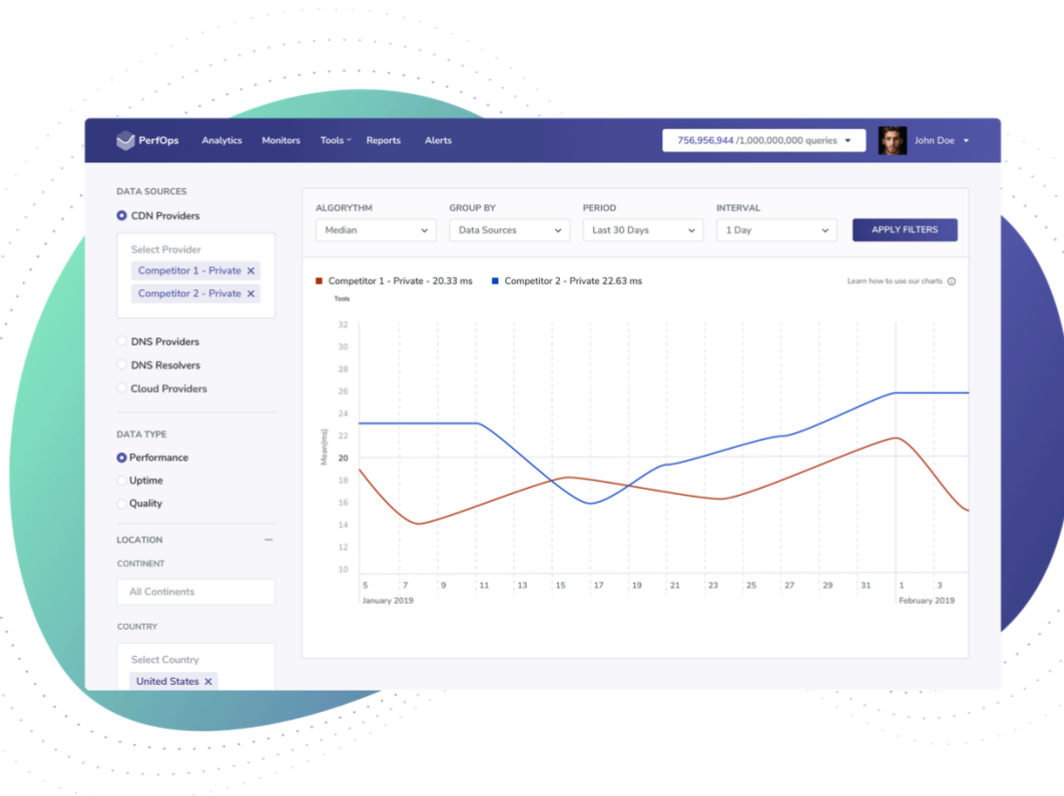
Network Tests on Demand

Debug and benchmark services using a global network of servers.

- **Access via UI, CLI, and API:** Use the UI for quick tests or automate testing through API and CLI.

- **Real-Time On-Demand Tests:** Obtain instant and accurate results from global locations.

- **Benchmark and Debug:** Monitor and identify bottlenecks in Internet infrastructure quickly.

- **Latency Test:** Visualize performance using the network latency map.

- **Network Utilities:** Investigate issues by running network commands through the web interface or CLI tool.
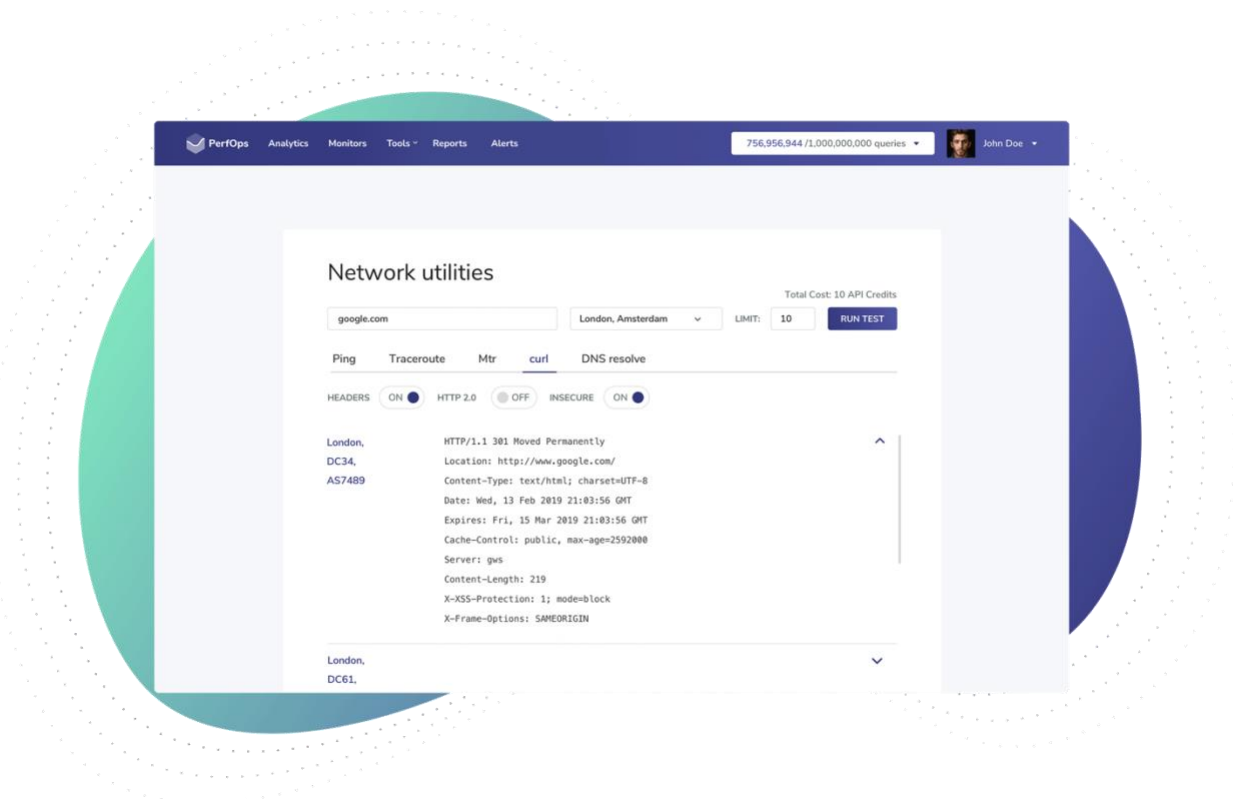
Raw Logs

Access raw logs for all services, including RUM benchmarks and DNS tests.

- **Available via API:** Use the API to pull and analyze raw logs as needed.

- **Easy UI Access:** Quickly find necessary data using the intuitive web interface.

- **Detailed Logs With Metadata:** View detailed information for each request easily.
  Note that raw logs are retained for six days before being removing from our system.
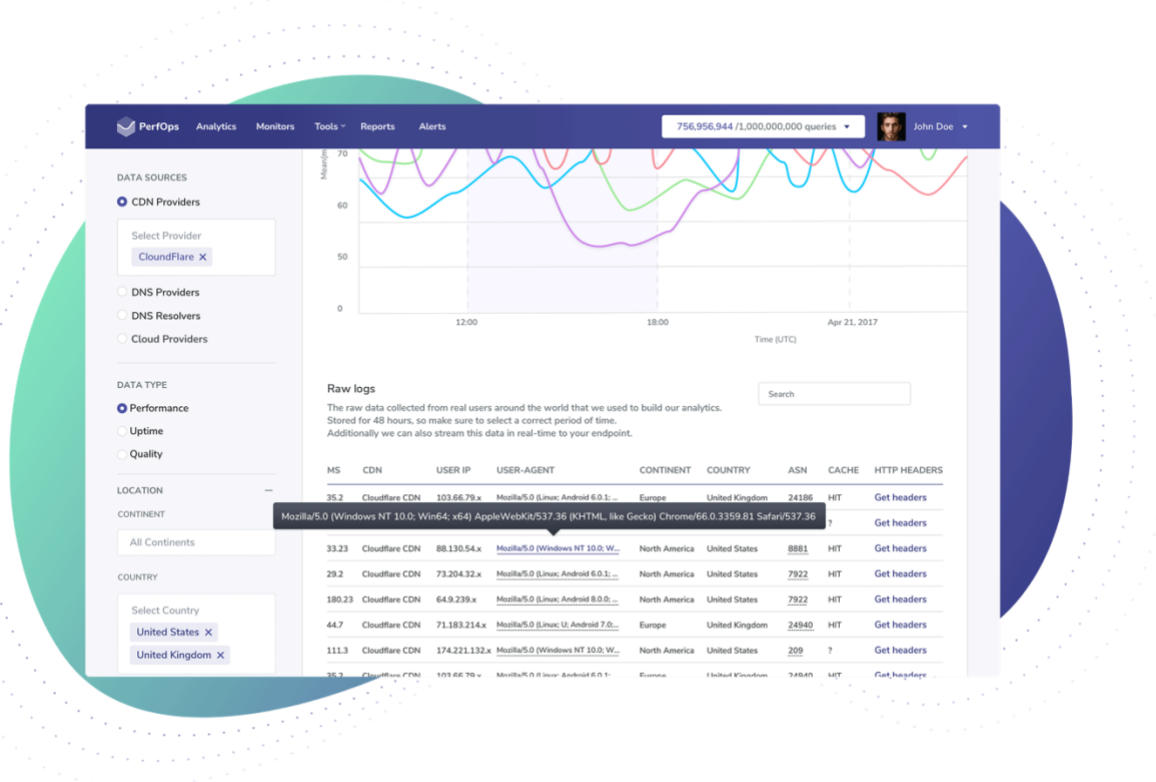
Alerts

Create alerts to ensure prompt notification of any availability or performance degradation.

- **Alerts Based on RUM and Synthetic Benchmarks:** Create real-time alerts for any location globally.

- **Real-Time Status of CDN and DNS Providers:** Receive alerts when CDN and DNS providers experience outages or degradation.

- **Easily Create Alerts:** Set up alerts quickly using the intuitive UI. Notification channels include email, Slack, and OpsGenie.
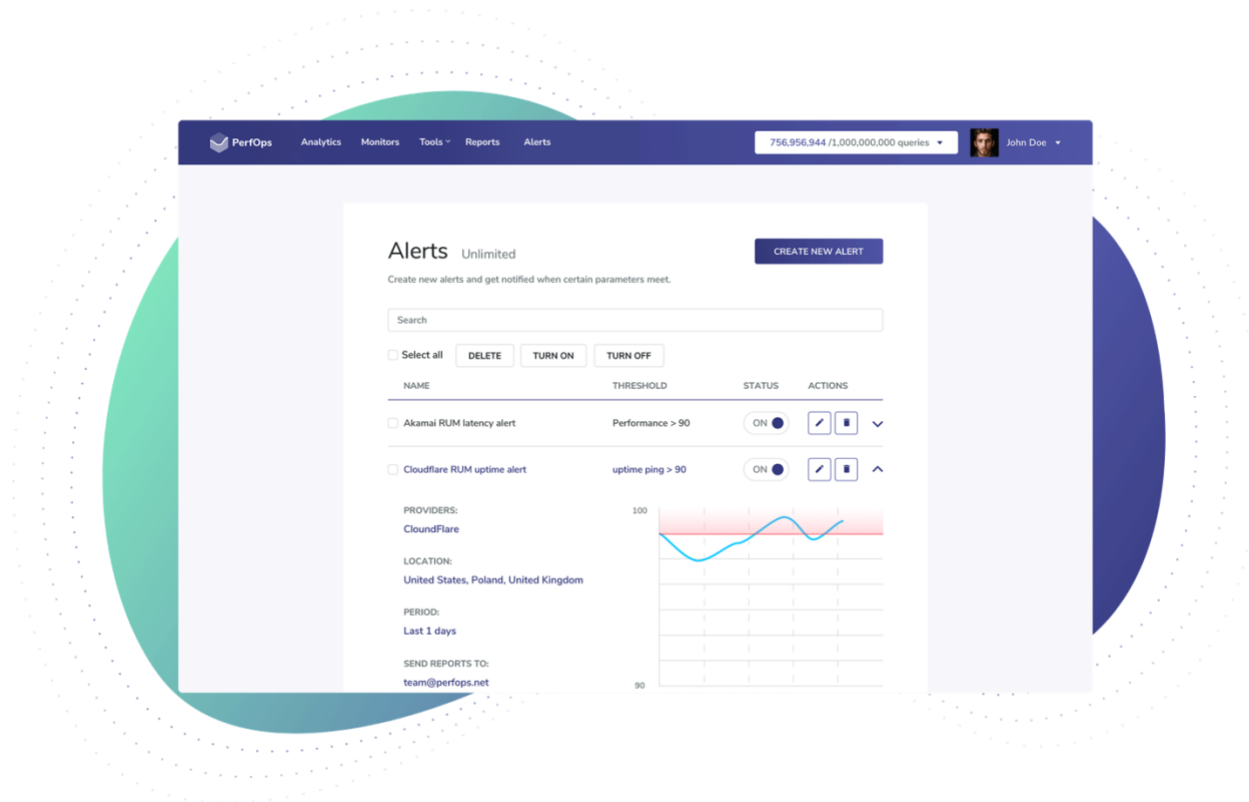
PDF Reports

Generate and schedule PDF reports that can be fully customized and white-labeled for sales and marketing teams.

- **White Label PDF Reports:** Create reports with customized information.

- **CDN and DNS Data:** Generate reports using CDN or DNS benchmark data.

- **Scheduled Reports:** Automate weekly or monthly report generation and sharing.

- **Visualize Data:** Break down data into easy-to-understand pages detailing network performance.
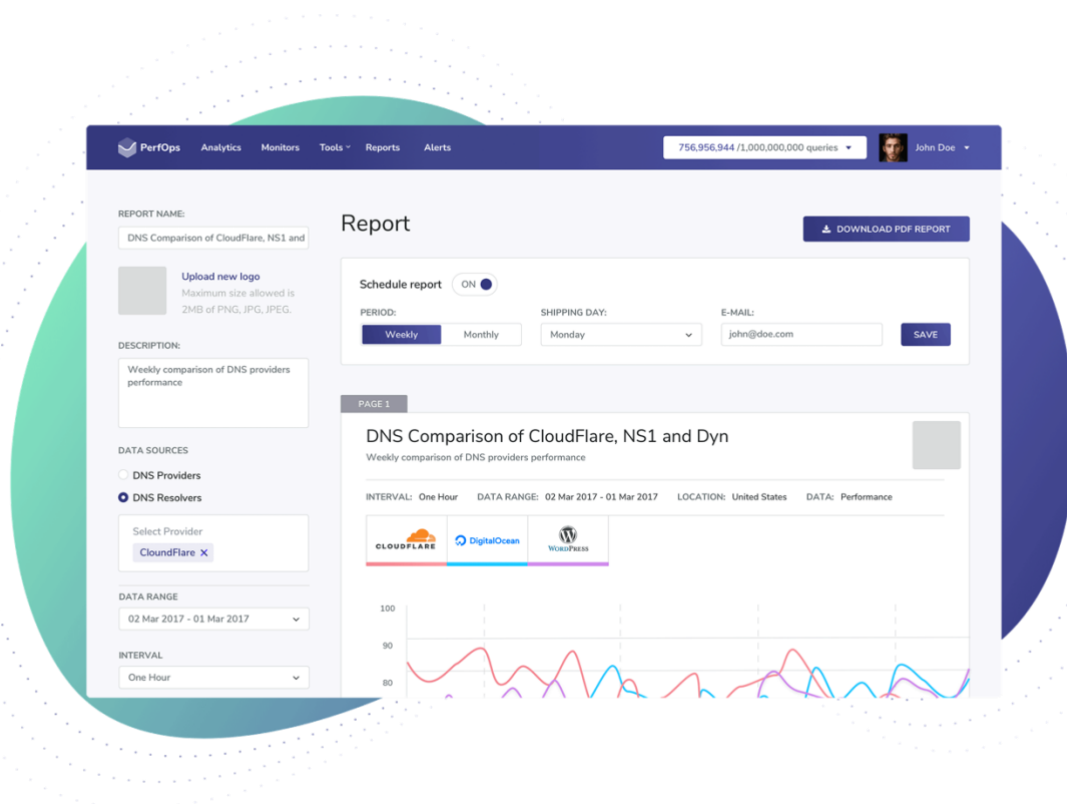
Panels

Analytics

This section explains the PerfOps Analytics panel, each area of which influences the data returned during queries.

For ease of reference, each area has been numbered:

1. Data sources

2. Data type

3. Location

4. ASN

5. ISP

6. Algorithm

7. Group by

8. Period

9. Interval

10. Nameservers

11. Result

12. Raw logs
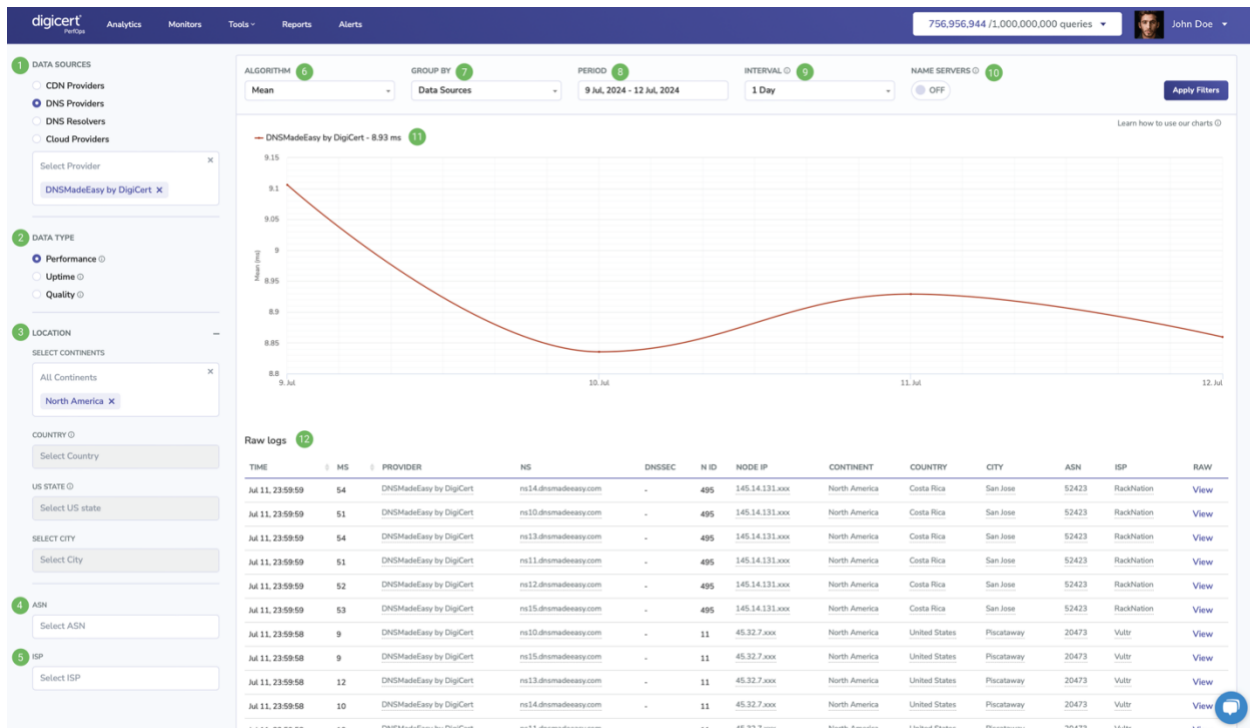
Analytics Panel

In the example above, the data returned pertains to the DNS provider, DNSMadeEasy by DigiCert.

The graph demonstrates the DNS provider's mean performance, measured in milliseconds over three days, with a 1-day interval applied. The raw logs at the bottom are grouped by data source, providing a practical application of the information.

For a more in-depth understanding of each area, refer to the **Area Descriptions** and **Selections Available per Data Source** tables below.

Area Descriptions

The table below provides an organized view of the PerfOps Analytics panel divided into 12 distinct areas. The table features three columns:

- **Area:** This column links to the panel areas above numbered 1 to 12.

- **Option:** This column lists the options or elements available within each area.

- **Description:** This column explains the functionality and purpose of each option listed in the corresponding area.

Area		Option	Description
1	Data Source	CDN Providers	Returns results for monitored Content Delivery Network (CDN) providers.
		DNS Providers	Returns results for monitored authoritative DNS providers.
		DNS Resolvers	Returns results based on monitored recursive DNS resolvers (public DNS resolvers).
		Cloud Providers	Returns results based on monitored service providers that offer cloud computing services, such as infrastructure, platforms, and software delivered over the Internet.
2	Data Type	Cache ratio	Returns results based on cache (efficiency) ratio. Applicable to CDN Providers only.
		Performance	Returns results based on performance.

3			When sourcing data from CDN Providers, note that performance is measured by the time it takes to download a 500-byte image without DNS and TCP connection time. When sourcing data from DNS / Cloud Providers, note that performance is measured by performing global A record lookups across 300+ locations.
		Uptime	Returns results based on uptime (providers are marked as down only if all name servers are unavailable). Timeouts are set at 1000ms. Applicable to DNS / Cloud Providers only.
		Quality	Returns results based on the uptime of nameservers. Results are displayed as a percentage. Applicable to DNS Providers / Resolvers only.
		RUM Uptime	Returns results based on the uptime of CDN providers, as measured by real users. Timeouts are set at 2500ms. Applicable to CDN Providers only.
3	Location	Continent	Filters results by continent.

			Continents available to CDN Providers include: • Africa • Asia • Europe • North America • Oceania • South America Continents available to DNS / Cloud Providers include: • Africa • Asia • Europe • North America • Oceania • South America
		Country	Filters results by country. When sourcing data from CDN Providers, note that results are limited to countries that feature a minimum of 50,000 benchmarks per day. When sourcing data from DNS / Cloud Providers, note that results are limited to countries that host DigiCert's PerfOps servers.
		US State	Filters results by US state. When sourcing data from CDN Providers, note that results are limited to states that feature a minimum of 50,000 benchmarks per day.

			When sourcing data from DNS / Cloud Providers, note that results are limited to states that host DigiCert servers.
		City	Filters results by city.
4	ASN		Filters results by ASN.
5	ISP		Filters results by ISP.
6	Algorithm		Performs the following calculations on the data in the dataset: • Mean • Median • Resolver simulation • Percentile 75 • Percentile 90 • Percentile 95 Results are measured in milliseconds (ms).
		Mean	Provides results that reflect the average of all values in the dataset.
		Median	Provides results that reflect the middle value of all ordered values in the dataset.
		Resolver Simulation	Provides the minimum value seen throughout the time period.

		Percentile 75	Provides results that reflect the values below which 75% of the data in the dataset falls.
		Percentile 90	Provides results that reflect the values below which 90% of the data in the dataset falls.
		Percentile 95	Provides results that reflect the values below which 95% of the data in the dataset falls.
7	Group By		Groups results by: • Data source • Continent • Country • US state • City • ASN • ISP
		Data Sources	Groups results by data source. Sources include: • CDN Providers • DNS Providers • DNS Resolvers • Cloud Providers
		Continents	Groups results by continent. Continents available to CDN Providers include: • Africa • Asia • Europe

			• North America • Oceania • South America Continents available to DNS / Cloud Providers include: • Africa • Asia • Europe • North America • Oceania • South America
		Countries	Groups results by country. When sourcing data from CDN Providers, note that results are limited to countries that feature a minimum of 50,000 benchmarks per day. When sourcing data from DNS / Cloud Providers, note that results are limited to countries that host DigiCert servers.
		US States	Groups results by US state. When sourcing data from CDN Providers, note that results are limited to states that feature a minimum of 50,000 benchmarks per day. When sourcing data from DNS / Cloud Providers, note that results are limited to states that host DigiCert servers.
		Cities	Groups results by city.

		ASN	Groups results by ASN.
		ISP	Groups results by ISP.
8	Period		Filters results to those collected during the last: • 60 minutes • 24 hours • 48 hours • 7 days • 30 days Note that custom periods are available.
9	Interval		Filters results using intervals of: • Seconds • Minutes • Hours • Days • Months
		1 second	Data filtered using second-by-second intervals is stored and accessible for two days. Applicable to CDN Providers only.
		1 minute	Data filtered using minute-by-minute intervals is stored and accessible for one week.
		1 hour	Data filtered using hour-by-hour intervals is stored and accessible for three months.

		1 day	Data filtered using day-by-day intervals is stored and accessible for one year.
		1 month	Data filtered using month-by-month intervals is stored and accessible for one year.
10	Nameservers		Displays data categorized by individual nameservers instead of aggregated data by provider. Applicable to DNS Providers / Resolvers only.
11	Result		The output generated after applying the algorithm to the data, measured in milliseconds.
12	Raw Logs		The raw data collected from real users around the world that PerfOps uses to build its analytics.
		Time	The date and time when the request was made.
		Ms	The duration it took to complete the request, measured in milliseconds.
		Provider	The DNS provider selected for the request.
		NS	The nameserver that returned the result for the request.
		DNSSec	Indicates if Domain Name System Security Extensions were used for the request.

		N ID	The unique identifier of the node that processed the request.
		Node IP	The IP address of the node that processed the request.
		Continent	The continent from which the result of the request was delivered.
		Country	The country from which the result of the request was delivered.
		City	The city from which the result of the request was delivered.
		ASN	The Autonomous System Number used to deliver the request result.
		ISP	The Internet Service Provider used to deliver the request result.
		Raw	Unprocessed metadata available for detailed inspection.

Selections Available per Data Source

The table below provides a detailed view of the various options available to each data source. The table features three columns:

- **Data Source:** This column lists the different data sources from which data can be obtained.

- **Data Type:** This column specifies the data types available to each data source.

- **Filters:** This column indicates the filters that can be applied to the data type to refine the results.

Note that regardless of the data source and type selected, the following areas are always displayed:

- Location

- ASN

- ISP

- Result

- Raw logs

Data Source	Data Type	Filters
CDN Providers	• Performance • RUM Uptime • Cache ratio	Algorithm: • Mean • Median • Percentile 75 • Percentile 90 • Percentile 95 Group By: • Data source • Continent • Country • US state

		• City • ASN • ISP
		Period: • Last 60 minutes • Last 24 hours • Last 48 hours • Last 7 days • Last 30 days
		Interval (dependent on Data Type and Period): • 1 second • 1 minute • 1 hour • 1 day • 1 month
DNS Providers	• Performance • Uptime • Quality	**Algorithm:** • Mean • Median • Percentile 75 • Percentile 90 • Percentile 95 • Resolver Simulation
		Group by: • Data source • Continent • Country • US state • City • ASN • ISP
		Period: • Last 60 minutes • Last 24 hours

		• Last 48 hours • Last 7 days • Last 30 days
		Interval (dependent on Data Type and Period): • 1 minute • 1 hour • 1 day • 1 month
		Nameservers
DNS Resolvers	• Performance • Uptime • Quality	Algorithm: • Mean • Median • Percentile 75 • Percentile 90 • Percentile 95
		Group By: • Data source • Continent • Country • US state • City • ASN • ISP
		Period: • Last 60 minutes • Last 24 hours • Last 48 hours • Last 7 days • Last 30 days
		Interval (dependent on Data Type and Period):

		• 1 minute • 1 hour • 1 day • 1 month
		Nameservers
Cloud Providers	• Performance • Uptime	Algorithm: • Mean • Median • Percentile 75 • Percentile 90 • Percentile 95
		Group By: • Data source • Continent • Country • US state • City • ASN • ISP
		Period: • Last 60 minutes • Last 24 hours • Last 48 hours • Last 7 days • Last 30 days
		Interval (dependent on Data Type and Period): • 1 minute • 1 hour • 1 day • 1 month

Network Utilities

This section explains the PerfOps Network Utilities panel, each area of which empowers our customers to perform network tests and troubleshoot issues directly from our monitoring nodes.

For ease of reference, each area has been numbered:

1. Ping

2. Traceroute

3. Mtr

4. DNS Resolve

5. Curl

Network Utilities Panel

Ping

Ping measures the time it takes for a packet to travel from one point on the internet to another, providing a measure of latency. This tool helps identify issues that may be causing slow DNS speeds.

- The **IP or Host Name** field tests the entered hostname.

- The **Location or Node IDs** field allows users to specify a single node, multiple nodes separated by commas, or a specific location.

- The **Limit** field specifies the number of our monitoring servers on which you can run the Ping test. This feature is useful when distributing the test across multiple servers to get a more comprehensive view of your network's performance.

- The **IPv6** check box allows tests to be run on IPv6 addresses, though this may impact results as not all nodes support IPv6.

Ping Test

Traceroute

Traceroute displays the path data takes across the internet and provides a detailed view of up to 20 hops. This detailed view equips users with the knowledge to troubleshoot effectively and make informed decisions.

- The **IP or Host Name** field tests the entered hostname.

- The **Location or Node IDs** field allows users to specify a single node, multiple nodes separated by commas, or a specific location.

- The **Limit** field specifies the number of our monitoring servers on which you can run the Traceroute test. This feature is useful when distributing the test across multiple servers to get a more comprehensive view of your network's performance.

- The **IPv6** check box allows tests to be run on IPv6 addresses, though this may impact results as not all nodes support IPv6.

Traceroute Test

MTR

MTR (My Traceroute) combines the functionalities of a Ping test and a Traceroute test, offering a detailed view of the network path and its performance.

- The **IP or Host Name** field tests the entered hostname.

- The **Location or Node IDs** field allows users to specify a single node, multiple nodes separated by commas, or a specific location.

- The **Limit** field specifies the number of our monitoring servers on which you can run the MTR test. This feature is useful when distributing the test across multiple servers to get a more comprehensive view of your network's performance.

- The **ASLookup** check box displays the Autonomous System Number (ASN) associated with an IP address.

- The **IPv6** check box allows tests to be run on IPv6 addresses, though this may impact results as not all nodes support IPv6.

MTR Test

DNS Resolve

The DNS Resolve tool verifies the operation of DNS servers by resolving hostnames and testing their functionality.

- The **IP or Host Name** field tests and resolves the entered hostname to its corresponding IP address.

- The **Location or Node IDs** field allows users to specify a single node, multiple nodes separated by commas, or a specific location.

- The **Limit** field specifies the number of our monitoring servers on which you can run the DNS Resolve test. This feature is useful when distributing the test across multiple servers to get a more comprehensive view of your network's performance.

- The **DNS Server** field allows you to specify the IP address of the DNS server you want to test.

- The **Record** list enables users to view results for various types of DNS records, including:

  o A (Address): Maps a domain name to an IPv4 address.

  o AAAA (IPv6 Address): Maps a domain name to an IPv6 address.

  o CNAME (Canonical Name): Alias for another domain name, pointing one domain to another.

  o MX (Mail Exchange): Specifies mail servers responsible for receiving email for the domain.

  o NAPTR (Naming Authority Pointer): Provides rules for rewriting domain names, often used with ENUM for phone numbers.

  o NS (Name Server): Indicates which DNS servers are authoritative for the domain.

  o PTR (Pointer): Maps an IP address to a domain name for reverse DNS lookups.

  o SOA (Start of Authority): Contains administrative information about the domain, including the primary DNS server, the domain administrator's email, and the domain's serial number.

o   SPF (Sender Policy Framework): Specifies which mail servers can send emails on the domain's behalf, preventing email spoofing.

o   SRV (Service): Provides information about services available in the domain, including the service's hostname and port.

o   TXT (Text): Holds arbitrary text, often used for verification purposes, including domain ownership and security protocols like SPF and DKIM.

DNS Resolve Test

Curl

Curl allows users to make web requests from various monitoring nodes.

- The **IP or Host Name** field tests the entered hostname.

- The **Location or Node IDs** field allows users to specify a single node, multiple nodes separated by commas, or a specific location.

- The **Limit** field specifies the number of our monitoring servers on which you can run the Curl test. This feature is useful when distributing the test across multiple servers to get a more comprehensive view of your network's performance.

- The **Head** check box enables users to perform different web requests and retrieve HTTP headers and response bodies.

- The **Insecure** check box allows users to bypass TLS errors, such as expired or misconfigured certificates, and proceed with the request.

- The **HTTP2** check box allows requests to utilize the HTTP/2 protocol instead of the default HTTP/1.1.

- The **IPv6** check box allows tests to be run on IPv6 addresses, though this may impact results as not all websites support IPv6.

Curl Test

Data Collection

Types of Data Collected

The data we collect (tabled below) and document is accessible through PerfOps' REST API; additionally, you can connect to our synthetic monitoring network of nodes via API or CLI.

Element	Type	Description	Exposure	Notes	Example
time	Integer	The time the user initiated the request.	API raw logs & UI panel	Format: yyyy-mm-dd hh:mm:ss	2020-11-02 23:59:59
asn	Comma-separated strings	The Autonomous System Number (ASN) that uniquely identifies the ISP's network through which the user made the request.	API raw logs & UI panel		32780
isp	String	The user's Internet Service Provider that provides them access to the Internet.	API raw logs & UI panel		FORTHnet SA
cache	Integer	Whether the user accessed their requested content from a cache server within the CDN network.	API raw logs	Accepted values: • 1: Yes • 0: No	1

cdnid	Integer	The unique identifier used within CDN services to manage configurations, settings, analytics data, billing information, and API interactions associated with specific CDN instances or customer accounts.	API raw logs		7
continent	String	The continent from which the request originated.	API raw logs & UI panel		EU
country	String	The country from which the request originated.	API raw logs & UI panel		Greece
header	String	The Base-64-encoded HTTP response header provides additional information about the request or the client. This header is customizable and configurable at startup.	API raw logs & UI panel		YWNjZX B0LXJhb mdlczog Ynl0ZXM NCmFjY2 V= Note that this value has been shortened for display purposes.

		Milliseconds.	UI panel	Calculated as **responseEnd - requestStart.**	167
ms	Integer	The total time taken for a request.			
state	String	The state from which the request originated.		Limitations apply; see panel tooltip.	?
uagent	String	The user agent serves as a client's identifier in HTTP requests. It provides servers with information such as the type of browser or device being used.	API raw logs & UI panel		TW96aW xsYS81Lj AgKFdpb mRvd3M gTlQggMT A= Note that this value has been shortene d for display purposes .
uip	String	The user's Internet Protocol address serves as a unique identifier for network devices. It is crucial in routing data and enabling communication between devices across the Internet, ensuring that data is sent to the correct destination.	API raw logs & UI panel	This value is partially hidden in the raw logs for privacy reasons.	2a02:214 9:8645:a 500::xxx: xxx
up	Integer	This refers to whether a cache service or system is operational	API raw logs	Accepted values:	1

			API raw logs & UI panel		
		and functioning correctly.		• 1: Up • 0: Down	
city	String	The city from which the request originated.	API raw logs & UI panel		Athens
dnsLookupTimeMs	Integer	The time it takes for a CDN to resolve the domain name and select the appropriate edge server to handle a client's request for content.	API raw logs	Measured in milliseconds. Calculated as **domainLookupEnd - domainLookupStart.**	12
tcpTimeMs	Integer	The time it takes for the client to establish a TCP connection with the server to serve the requested content.	API raw logs	Measured in milliseconds. Calculated as **connectEnd - connectStart.**	2
sslTimeMs	Integer	The time it takes to establish a secure SSL/TLS connection between the client and the server.	API raw logs	Measured in milliseconds. Calculated as **connectEnd - secureConnectionStart** .	3
statusCode	Integer	The HTTP response code indicates the outcome of an HTTP request, providing information about whether the request was successful,	API raw logs		200

		redirected, or encountered an error.			
clientDns	Array of objects	The DNS resolver the client device uses to resolve domain names into IP addresses.	API raw logs		["8.8.8.8", 15169, "GOOGLE", "United States", "NA", "Mountain View", "California", 37.389444, -122.081944]
platform	String	The platform the user used to make the request.	API raw logs	Acceptable values: • Desktop • Mobile	Desktop

Resource Timestamps

The following diagram illustrates the sequence of HTTP resource-loading events segmented into distinct timestamps. It represents each stage of the HTTP request process, from the initial DNS query to the final resource loading.
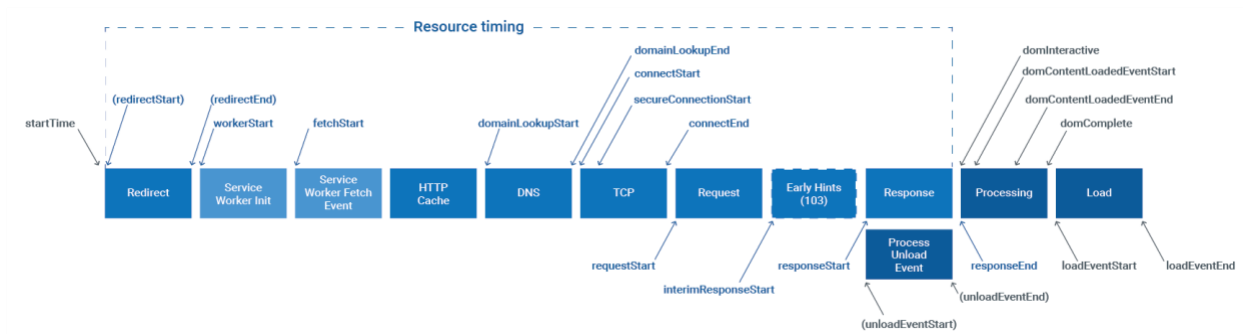
Resource Timing

Key timestamps include:

- **startTime:** The timestamp immediately before the resource loading process begins.

- **redirectStart:** The timestamp of the fetch that initiates the redirect.

- **redirectEnd:** The timestamp immediately after receiving the last byte of the response to the last redirect.

- **domainLookupStart:** The timestamp immediately before the browser starts the domain name lookup for the resource.

- **domainLookupEnd:** The timestamp immediately after the browser finishes the domain name lookup for the resource.

- **connectStart:** The timestamp immediately before the user agent starts establishing the connection to the server to retrieve the resource.

- **secureConnectionStart:** If the resource is loaded via a secure connection, timestamp immediately before the browser starts the handshake process to secure the current connection.

- **connectEnd:** The timestamp immediately after the browser establishes the connection to the server to retrieve the resource.

- **requestStart:** The timestamp of the time immediately before the browser starts requesting the resource from the server, cache, or local resource.

- **responseStart:** The timestamp immediately after the browser receives the first byte of the response from the server, cache, or local resource.

- **responseEnd:** The timestamp immediately after the browser receives the last byte of the resource or immediately before the transport connection is closed, whichever comes first.

Methods of Data Collection

PerfOps uses Real User Measurements (RUM) to monitor CDN performance.

RUM captures real-time data from actual users, providing an accurate view of your services' performance under real-world conditions. Unlike synthetic monitoring, which simulates user interactions, RUM collects data directly from users, offering genuine insights.

RUM works by embedding a lightweight snippet of code on the websites of our paid RUM partners. When users visit these sites, the code runs in the background, gathering performance benchmarks from their browsers or devices. Our implementation ensures this process does not affect the user experience, as the code only runs after the webpage or app has fully loaded.

To ensure fairness and reliability, each performance test collects an equal number of benchmarks from each provider.
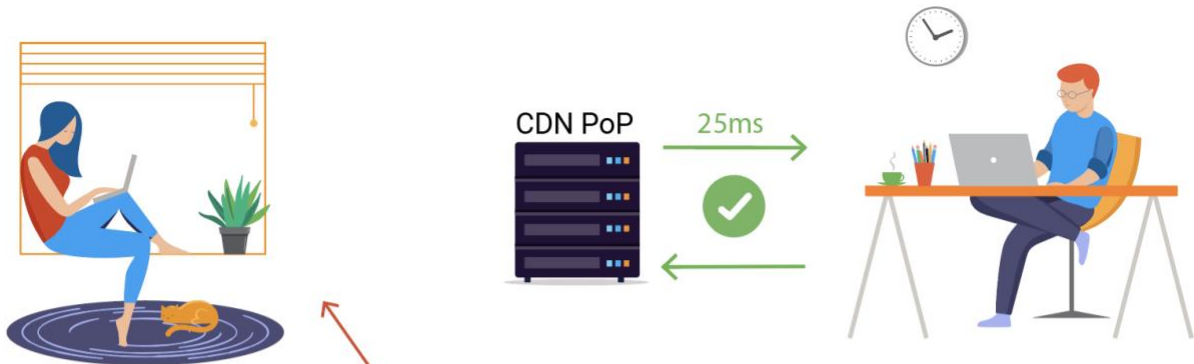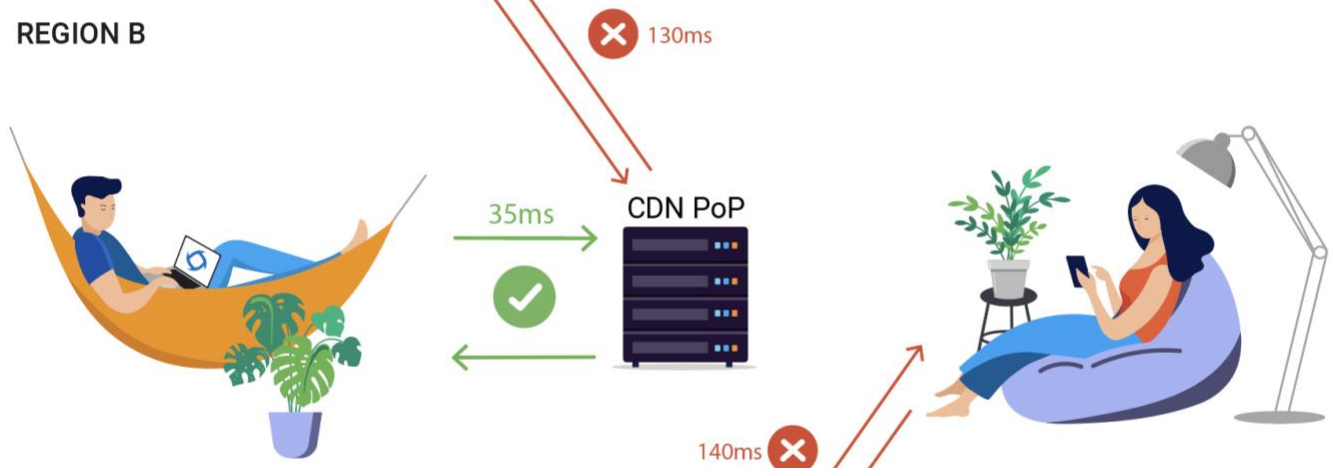
This illustration shows how users experience suboptimal routing speeds when connecting to CDNs outside their region, while those connecting to local CDNs enjoy fast connections.

RUM Benefits

- **Accurate Performance Insights:** RUM provides a precise view of how real users experience your services, allowing you to identify performance issues such as slow page load times, high server response times, or frequent errors that synthetic tests might miss. These insights can help you prioritize and address the most critical issues affecting your users' experience.
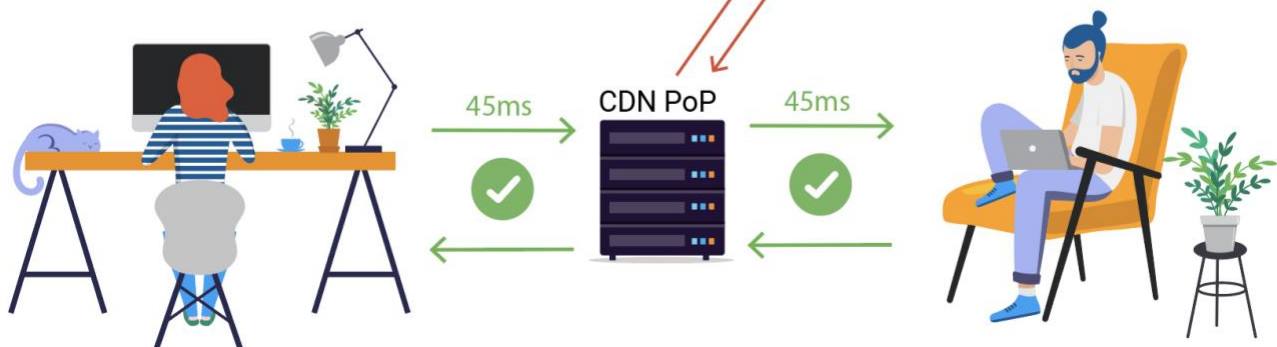
- **Region-Specific Data:** No single CDN or cloud provider performs optimally in every region. RUM helps measure application delivery performance across all areas, offering insights that can inform the use of multiple CDNs to enhance global performance.

- **Unbiased Monitoring:** Our RUM monitoring is built on fairness and reliability. It uses a standard 500-byte image across all providers, ensuring unbiased and purely performance-based benchmarks. This standardized approach guarantees fairness in data collection and comparison, giving you confidence in the reliability of the insights provided.

- **Optimized Performance:** Focusing on the top ASNs/ISPs, which handle most Internet traffic in certain countries, can significantly improve end-user experience. By leveraging RUM data to monitor and optimize performance across these critical networks, you can ensure a smoother, faster, and more reliable service for your users.

Data Access and Analysis

- **API and UI Access:** RUM data is accessible via API and UI. While the API provides comprehensive access to the entire dataset, the UI presents a curated view, displaying key insights due to space constraints.

- **Comprehensive Network Coverage:** Our RUM testing network spans tens of thousands of networks (ASNs/ISPs), providing a comprehensive view of your services' performance. This coverage allows you to pinpoint performance issues at the ASN or ISP level, empowering you with the insights needed to optimize your services.

DigiCert collects DNS IP resolver information using RUM testers. This data helps engineers pinpoint issues related to specific DNS resolvers.

Please be aware that this service is paid and only available to subscribed providers.

Data Usage

Purpose of Data Collection

PerfOps' primary data collection purpose is to gather comprehensive performance metrics related to DNS and cloud provider performance, CDN latency, and CDN uptime. This data is sourced from a global network of testing servers, strategically located worldwide, ensuring a thorough and complete data collection process.

By collating this information, PerfOps empowers users to make informed decisions about their online infrastructure investments.

Data Processing and Analysis

PerfOps processes billions of metrics from hundreds of global locations in real time, ensuring accurate and reliable data handling.

The platform offers real-time streaming to dashboards or customer endpoints, providing immediate access to up-to-date information. Hourly updates and retention periods enable detailed analysis and benchmarking over time.

These techniques instill a sense of reassurance and confidence in PerfOps' reliability.

Insights and Reporting

PerfOps provides actionable insights and comprehensive reporting through publicly available benchmarking and ranking tables.

These rankings, derived solely from raw performance data, ensure unbiased evaluations of CDN, DNS, and cloud solutions, enabling sound decision-making regarding service providers and geographical regions for cloud deployments.

Frequently Asked Questions

What is a CDN?

A Content Delivery Network (CDN) is a network of distributed servers, or Points of Presence (PoPs), strategically placed to enhance web content delivery worldwide.

CDNs are designed to prioritize the user experience by caching frequently accessed content closer to end-users, reducing latency and improving load times; however, issues such as improper routing configurations, malfunctioning PoPs, network congestion, outdated cached content, and security vulnerabilities can impact performance and reliability.

Can I check ASN/ISP data if I don't have a PoP on that network?

Yes, you can check any ASN/ISP. Our RUM monitoring system collects data from real users worldwide, enabling them to download and test your CDN even if you don't have a presence in that region, ASN, or ISP.

This is the primary value of our service: it provides real-world performance data from users outside your network, empowering you to make informed decisions on where to invest or fix a PoP.

How does PerfOps determine the cache ratio?

PerfOps determines the cache ratio by checking the cache header configure on the CDN side. This header is set up to be exposed by the CDN platform, allowing us to analyze it.

Who can access raw logs via API?

Access to our API, and the amount of data you can pull, are reserved for paid users.

As a user of PerfOps, you can access limited quantities of collected metrics for testing. Please contact your manager to determine who within your organization has full API permissions.

Is there an API rate limit?

Yes, there is a rate limit for API users. Free API users are limited to 200 raw logs per page, while paid API users enjoy higher limits, with access to up to 100,000 raw logs per page.

Can I pull data from other providers?

Yes, you can retrieve data from both public and your own private endpoints.

Support and Contact Information

[Contact PerfOps' dedicated Customer Service team](#) for assistance or support. We are available 24/7 via phone, chat, and email.