SOLUTION BRIEF

Create an effective multi-CDN media strategy

Improve streaming experiences with Amazon CloudFront optimized by NS1 Pulsar and Mux Data

Delivering enhanced streaming experiences

High-quality video experiences are critical to attracting, engaging, and retaining viewers, which is why organizations need their services to perform well in all regions, at all times, on all devices.

Amazon Web Services (AWS) customers can optimize their media streaming strategies by implementing Amazon CloudFront as part of a multi-content delivery network (CDN) approach that accommodates global audiences and improves performance.

However, simply adding more CDNs does not necessarily mean every viewer's experience will automatically be improved. To achieve the best outcomes, organizations need a way to gather performance data and intelligently steer traffic across multiple CDNs quickly and securely. In addition, organizations need to optimize for the best-performing CDN at any particular moment because performance varies greatly by geography and provider.

Automatically optimize performance using NS1 Pulsar

NS1's Pulsar solution automates active traffic steering across multiple CDNs based on a number of business variables including location, availability, and performance. This delivers a significant improvement in viewer experience that goes beyond simply selecting the closest network.

NS1 uses the internet's core infrastructure (Domain Name System) to improve end-user experiences and lower content delivery costs by steering traffic to the lowest-priced, highest performing options based on customizable presets. By utilizing its worldwide network of points of presence (PoPs), NS1 delivers lightning-fast response times and resilient, redundant networks that maintain constant uptime.

Measure video Quality of Experience with Mux Data

Mux Data is a real-time video analytics platform that helps video teams monitor and improve video streaming performance by measuring video quality of experience (QOE), With just a few lines of code, video teams can get real-time insights into startup time, rebuffering, video quality, and playback failure for every stream, and use the data to identify and address issues impacting the user experience.

Engineering and support teams use Mux Data to track video playback down to the individual view level, so teams can know exactly what's happening on every play for every user, and debug more effectively. These actionable analytics can be leveraged to monitor and improve video performance on AWS-powered workflows.

In collaboration with

NS1.

MUX

Benefits at a glance

By integrating Mux Data and NS1 Pulsar, organizations can make decisions in real time to improve the viewing experience. As internet conditions change, streams are automatically protected from outages and localized network disruptions, so audience video viewing experiences aren't affected. Organizations can customize and combine metrics to meet their individual business goals, such as optimizing for performance, costs, and region.

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Mux Data and NS1 Pulsar working together

This integration combines CDN performance telemetry from Pulsar and viewer QOE metrics from Mux Data to optimize viewer routing decisions in real time. Using a wider range of data inputs, organizations can more precisely determine which CDN offers a better experience for users. Pulsar utilizes the additional performance insights from Mux Data to automatically adjust routing decisions for each viewer as they are connecting and streaming, thereby ensuring the best experience.

Collecting data
Pulsar gathers network specific metrics including throughput, latency, and availability from multiple CDNs as well as viewer QOE metrics from Mux Data. Mux Data monitors viewer QOE metrics such as video startup time, rebuffering, playback failures, and video quality from viewer platforms or devices accessing each CDN. With a few lines of code, video providers can integrate the Mux Data software development kit into their player, enabling data collection and real-time insights into video QOE. Using this data allows customers to quickly identify and fix issues that arise across regions, devices and operating systems, and provides visibility into the video user experience down to individual views.

Rating CDN performance
Pulsar rates each CDN's overall performance by combining CDN telemetry and Mux Data metrics in real time. These ratings determine which CDN a viewer is routed to. Organizations have complete control over which metrics are used and how they are combined in order to configure a CDN's rating.

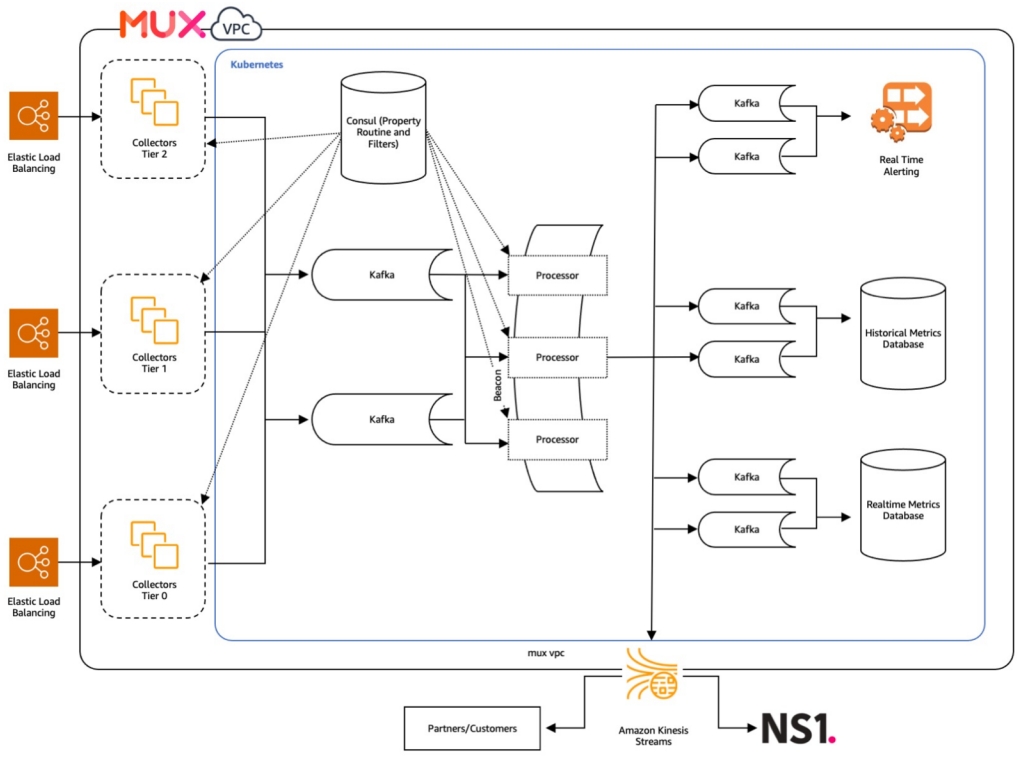
Customizing decision making
Pulsar makes the performance ratings actionable with easily configurable routing policies. The policies are configured by chaining together single-purpose algorithms for different business priorities such as minimizing CDN costs, meeting CDN usage commitments, or upholding geographic content licensing restrictions. Whatever your business goals are, Pulsar makes it easier to balance meeting critical business key performance indicators (KPIs) and maintaining viewers' QOE.

Optimizing viewer routing
Every viewer is automatically routed to the best CDN based on real-time performance ratings and decision-making policies. When changes in CDN performance or video QOE are detected, routing decisions are automatically adjusted to ensure the best experience for every viewer.

Reviewing the results
Users can review traffic distribution across all CDNs to improve policies and decision making. This visibility also provides insights for future capacity planning and vendor management.

Mux Data AWS architecture

- Performance improvements and reliability
- Ensures scalability as customers cross into the billions of video views per month
- Enables Mux to build additional features as they scale



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Speed, security, and ease with Amazon CloudFront

Using Amazon CloudFront, NS1 Pulsar, and Mux Data in concert, organizations can enable and manage multi-CDN architectures, and with over 310 globally dispersed Amazon Edge locations, they can maintain the highest levels of security, affordability, and availability. Amazon CloudFront offers built-in security features such as traffic encryption, access controls, and AWS Shield to defend against distributed denial-of-service (DDoS) attacks—so your assets are not only delivered quickly but also protected along the way. Using data and intelligence from NS1 and Mux also allows users to route traffic based on AWS commitments, so portions of your AWS bill can be designated for CloudFront to maximize savings.

CloudFront can also be incorporated as part of a multi-CDN environment ensuring enhanced end-user application experience, business reliability and security, improved IT efficiency, and modernized infrastructure. For organizations already building on AWS, CloudFront can be added as a CDN with the added benefit of zero egress fees between an AWS origin and CloudFront. The simple drag-and-drop logic of NS1 allows users to make CDN decisions quickly and easily.

Case study: Streaming the big game with NS1 and Mux Data

Planning to stream a live broadcast of one of the biggest sporting events of the year, a large global broadcast TV network anticipated a significant increase in streaming audience. To ensure the highest quality video quality for its viewers, the customer needed to minimize the stream delay relative to the TV broadcast, ensure a high quality streaming video experience, and support the broad range of devices that audience members were using.

The network implemented Mux Data's Real Time Dashboard as its operational nerve center for monitoring and optimizing the viewer experience. By integrating a Mux Data SDK into its player, the network was able to collect and view data in real time, covering playback failures, video startup time, viewer experience scores, and more.

NS1 ingested QOE data from Mux Data, along with other QOE metrics generated using AWS Elastic Search. NS1 then processed those QOE metrics to make intelligent decisions, based on preset performance thresholds, on how to steer traffic to the best performing network services.

The broadcaster also exported data from Mux in real-time using Amazon Kinesis to power other business intelligence (BI) applications. Throughout the event, the network saw approximately 60 million total requests with an average HTTP response time of 4ms at the 99th percentile. The customer was also able to analyze the data collected during the broadcast to help refine its strategy for future events.

Enhanced user experiences, simplified operations, and improved costs

Whether your organization is implementing a multi-CDN approach or leveraging CloudFront as a single CDN, Mux Data and NS1 work together to optimize your content delivery and media performance across multiple platforms. This integrated, customizable approach helps your business to meet its goals and maintain the highest quality end-user experiences, while leveraging the security, efficiency, and affordability of AWS.

Learn more about **Amazon CloudFront**

Try **NS1** on AWS Marketplace today

Try **Mux Data** on AWS Marketplace today

About NS1 and Mux Data

NS1's mission is to provide precision control over application delivery. NS1's intelligent DNS and traffic management platform is purpose-built for the most demanding, mission-critical applications on the Internet.

Mux is the developer video platform that takes the complexity out of live and on-demand video. Thousands of companies rely on Mux to deliver the highest quality video experience without having to hire a team of embedded video experts.

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