



Deepfield helps Tier 1 ISP improve QoE for OTT content and boost its Netflix ISP Speed Index ranking

Use case

Many broadband internet users now subscribe to multiple over-the-top (OTT) services from different content providers. If they experience service slowdowns with the content from their favorite OTT provider, they may consider switching to a different internet service provider (ISP).

OTT content providers have a vested interest in ensuring that ISPs deliver their content with the best possible quality of service. Some OTT providers want to make sure that subscribers won't attribute a degraded quality of experience (QoE) to them, so they maintain their own rankings of ISPs' network performance. Well-known examples of these rankings include the [Netflix ISP Speed Index](#) and [Google Video Quality Report](#).

These rankings put the burden on ISPs to deliver a premium QoE for all OTT services to maintain a competitive edge. If quality levels drop, subscribers may complain or, if the problems persist, leave for a competing ISP—one with a better online reputation or a higher speed or quality ranking.

Challenge

Broadband internet users are consuming more and more higher-definition video content. ISPs must design and optimize their networks to deliver the bandwidth required to support this content, maximize the user experience and minimize costs.

However, most ISPs lack the visibility to solve or proactively avoid problems associated with OTT and video service delivery. This is the case for ISPs that focus solely on broadband internet and ISPs that have more varied service offers, such as cable and multiple system operators (MSOs).

ISPs need the ability to understand how OTT content is delivered across all parts of their network so they can quickly identify the right locations to increase bandwidth and place content caches and other network resources.

Unfortunately, legacy IP network analytics products weren't built for cloud services. ISPs have traditionally stored application- and network-related data in separate silos, leaving them unable to troubleshoot OTT-related streaming issues or correlate them with their infrastructure issues (e.g., congestion on a particular link). This absence of full and detailed insight has made troubleshooting a costly and inefficient process that doesn't significantly improve overall service quality.

Most often, OTT video traffic is adaptive bit-rate traffic. It reduces the video quality of the stream when there is not enough bandwidth. This makes it hard for an ISP to estimate how much network bandwidth is required without knowing the exact number of video streams and average bit rate. An ISP will also find it difficult to compare this information with other service areas in the network.

One Tier 1 ISP attempted to solve this problem with customized deep packet inspection (DPI) network appliances. It turned out to be too expensive to deploy DPI appliances across the whole network, so the ISP focused its deployment on key service areas, leaving large portions of the network unmonitored. The DPI appliances were also unable to inspect encrypted content, so they provided poor or no visibility into over half of all traffic that flowed through the network.

The ISP recognized that it needed a new, next-generation solution for the cloud era. The solution had to provide full, multi-dimensional visibility of all traffic while being more cost effective than the ISP's legacy hardware-based DPI solution.

Solution

The ISP addressed these needs by deploying Nokia Deepfield Cloud Intelligence and Deepfield Service Intelligence, a software-based solution that provides actionable real-time insight into all network flows. It requires no network probes and can be deployed quickly and scaled to support the world's largest networks.

The solution enhances the detailed information from the ISP's network obtained through Deepfield Cloud Intelligence with the Deepfield Cloud Genome® data feed, which identifies, classifies and categorizes billions of IPv4 and IPv6 internet endpoints and traffic flows. It rapidly correlates this information with the ISP's network-related data to provide a holistic perspective on the network and services. Unlike DPI-based solutions, it achieves all of this without looking into IP payloads. With Deepfield, the ISP also gets a complete view of all encrypted and unencrypted traffic.



The Deepfield solution enables the ISP to instantly understand and visualize the impact of video traffic—and all other traffic flows—across any part of its network. For video flows, the ISP monitors the performance of a select number of OTT video services by using Deepfield Service Intelligence to measure the average bit rate (ABR) and total number of video streams per OTT video service.

Benefits

The Deepfield solution has helped the ISP improve network performance and minimize the associated costs.

Deepfield allows the ISP to get detailed information about OTT video traffic, with breakdowns by router, point of presence (PoP), peer, content delivery network (CDN), cable modem termination system (CMTS), market and subscriber access type. This information has enabled the ISP to improve OTT video service delivery.



The Deepfield solution enables the ISP to match network capacity with subscriber demand and visualize the impact of OTT video traffic.

The ISP uses the network insight provided by Deepfield to add the right amount of bandwidth where and when it's needed, and to make timely and appropriate infrastructure decisions such as where to place content caches in the network. With Deepfield, the ISP can ensure that subscribers get their desired content with the best possible quality.

The ISP also uses real-time insight provided by the Deepfield solution in workflows that allow it to accurately monitor network performance, pinpoint configuration mismatches and solve problems proactively.

Deployment of the Deepfield solution has enabled the ISP to increase customer satisfaction, reduce churn and boost OTT delivery speeds. The ISP's ranking in the Netflix ISP Speed Index rose significantly after it began using Deepfield and continues to improve year over year.

About Nokia

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

Nokia is a registered trademark of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

© 2023 Nokia

Nokia OYJ
Karakaari 7
02610 Espoo
Finland
Tel. +358 (0) 10 44 88 000

Document code: CID201366 (May)