

SCALABLE AND CENTRALIZED VIDEO OPTIMIZATION FOR SERVICE PROVIDERS

Enhanced User Experience with Advanced Traffic Steering and Video Optimization for Service Providers

Challenge:

Service providers are looking to optimize video traffic, consolidate multiple sites to scale services, improve network efficiency and enhance the user experience.

Solution:

A10 Networks has partnered with Flash Networks to offer a joint solution that optimizes video content and web services, enabling customers' applications to be highly available, accelerated and secure.

Benefits:

- Savings on infrastructure cost with efficient usage of bandwidth in the edge network
- Increased availability and scalability of content management
- Better experience for mobile users
- Additional classes of service generating incremental revenue



Due to the multifold increase in the number of Internet connected mobile devices and the growth in video content, bandwidth requirements have increased in the far edge of the network. The Radio Access Network or RAN is where mobile users connect to the service provider's network and it is typically oversubscribed. Bandwidth reduction is a large motivator and there is also a need for controlling traffic content. Some of the media content can be locally served using caching solutions to save on expensive bandwidth and provide a better user experience. Large service providers offering video optimization services to customers are also looking to consolidate their services in fewer large network operation centers instead of multiple smaller centers distributed across their network.

A10 Networks, a leader in application networking, has pioneered a new generation of application networking technologies. Our solutions enable enterprises, service providers, web giants and government organizations to accelerate, secure and optimize the performance of their data center applications and networks. A10 Networks® Thunder® ADC line of Application Delivery Controllers with its Advanced Core Operating System (ACOS®) enables customers' applications to be highly available, accelerated and secure.

Flash Networks draws on more than a decade of mobile video handling experience to incorporate the mobile world's most innovative and cost-effective video optimization tools. Flash Networks Harmony™ Mobile Internet Services Gateway is designed to support existing and next-generation mobile Internet and mobile broadband services. Web acceleration and industry-leading mobile video optimization are integrated components of the Harmony platform that can also operate as standalone functions.

The Challenge

Service providers are looking at ways to optimize video traffic and web services to conserve bandwidth. Due to the high number of connected devices spread across the network, bandwidth usage has become unpredictable and network congestion has become transient at times. This makes it difficult to predict traffic congestion and demand based on previous statistics. A more real-time intelligent traffic optimization solution is required.

The A10 Networks and Flash Networks Video Optimization Solution

A10 Thunder ADC and Flash Networks Harmony Internet Services Gateway together provide an efficient video optimization solution for Mobile Service Providers (MSPs). A10 Thunder ADC supports advanced traffic steering features to interact with the user requests for video content. The requests are observed by buffering the content received via the Internet from the originating source and then checking to see if it can be optimized based on a variety of variables. The video request is then dynamically redirected to a video optimization service. Flash Networks Harmony or its cloud-based video optimization service can be leveraged

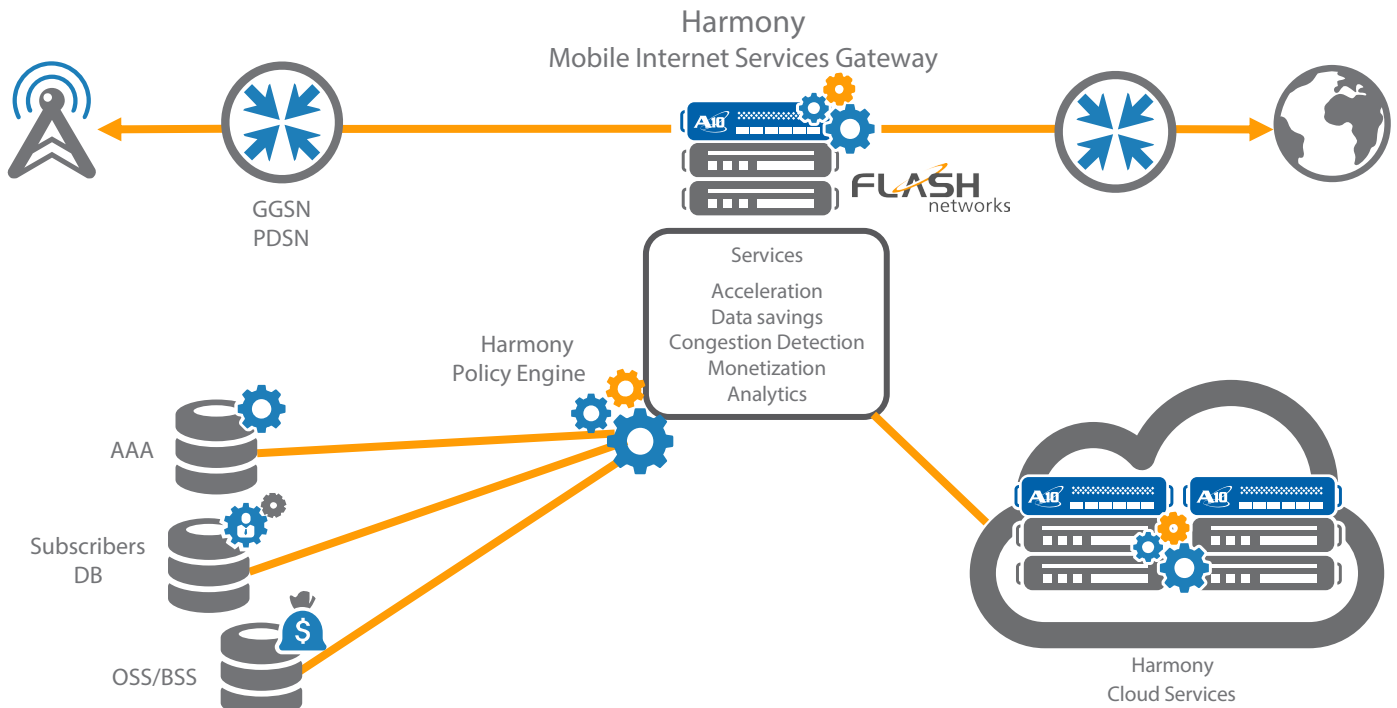


Figure 1. A10 Networks and Harmony joint video optimization solution

for this optimization. The optimized video stream is then sent to the subscriber. A10 Thunder ADC interoperates with the Harmony Video Optimization service using the Transparent Cache Switching (TCS) feature in ACOS. See Figure 1.

Harmony encompasses some of the industry's most advanced video optimization techniques such as network, user and content awareness to determine the best algorithm to be used for optimizing content. Harmony also uses congestion-based optimization techniques, which describes the congestion state by monitoring combinations of clues in the TCP flows. Harmony can actually predict conditions of congestion in real time and apply optimization only when the customer's quality of experience (QoE) is threatened.

These techniques save network resources in the access network by efficiently using bandwidth to serve video content. The traffic redirection decision on Thunder ADC can also be based on local policies that rely on various other variables. For example, it can determine what type of smartphone is in use, and steer its traffic to a specific optimization device for that smartphone's video resolution.

Traffic Steering with Transparent Cache Switching

In addition to providing video optimization solutions with Flash Networks, A10 Thunder ADCs with TCS also support advanced traffic steering and service chaining. TCS can be used by service providers to easily and quickly deploy value added services (VAS) such as with a WAP Gateway and personalized content services including parental controls. TCS is a standardized technique used by multiple vendors to also provide content caching services. Multiple VAS solutions may be chained together for more efficient network throughput with reduced latency. See Figure 2.

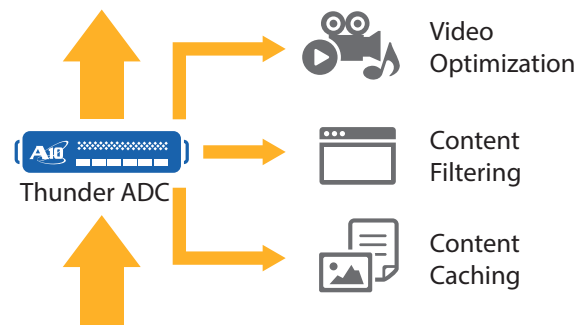


Figure 2. Traffic steering and Transparent Cache Switching (TCS)

Subscriber traffic is transparently redirected and load balanced across caching servers. Traffic redirection and load balancing can be based on a variety of parameters and a choice of algorithms. Persistence can be maintained using techniques like source-IP hashing and use of persistent templates. ACOS supports dynamic redirection of traffic using traffic steering features comprised of A10 Networks aFlex® Deep Packet Inspection (DPI) Scripting Technology, a powerful and flexible Tools Command Language (TCL)-based scripting feature to inspect content and take specific actions. aFlex scripts allow users to exercise more granular control over packet inspection, including both headers and payload within the traffic, and they make traffic redirection decisions based on various criteria. These dynamic traffic steering features can enable service chaining involving multiple services or a combination of services based on the subscriber's class of service.

Features and Benefits

This joint solution from A10 Networks and Flash Networks provides service providers with flexibility and operational benefits that enable advanced services and content management solutions.

Some of the additional benefits include:

- Intelligent content control helps identify static and dynamic content which can be optimized, and redirects it appropriately for optimization. Splitting the request into static and dynamic categories and servicing static content from a cache server optimizes data center resources.
- Header enrichment using aFlex scripts helps mobile subscriber traffic accessing web-based services to be appropriately identified and serviced according to class of service. This enables service providers to enable multiple classes of service and generate additional revenue.
- Increased availability and scalability of video content is enabled by appropriately redirecting content to video optimizers and then servicing the requests based on class of service and network congestion.
- Reduced infrastructure cost in the edge network is achieved due to efficient usage of network resources. Video content takes up a large amount of bandwidth in the access network. Using video optimizers, it is possible to efficiently use existing bandwidth to scale the number of users and increase video content.

Solution Components

This joint solution by A10 Networks and Flash Networks as shown in Figure 1 includes:

- A10 Thunder ADC line of Application Delivery Controllers
- Flash Networks Harmony Internet Services Gateway

Summary – Enhanced User Experience with Advanced Traffic Steering and Video Optimization

A10 Thunder ADC provides advanced and powerful traffic steering features to scale, optimize content delivery and enhance the user experience by efficiently using network resources. The Harmony Mobile Internet Services Gateway is a telco-grade solution that empowers enhanced subscriber quality of experience (QoE) while reducing operation expenses by applying best-in-class services to mobile data traffic.

This solution also helps drive revenue growth by offering different classes of service using header enrichment, intelligent content control and application availability features.

Service providers who want to consolidate their investments and centralize their video optimization services to help scale with the growth in Internet connected devices and video content will benefit from this joint solution.

Next Steps

For more information about the A10 Networks/Flash Networks video optimization solution, please contact your A10 representative.

About Flash Networks

Flash Networks is the global leader of mobile Internet optimization and monetization solutions that enable operators to boost network speed, optimize video and web traffic, and generate over-the-top revenues from the mobile Internet. Sitting at the core of the network, Flash Networks' Harmony Mobile Internet Services Gateway accelerates LTE networks by up to 50% and reduces web and video traffic data by up to 30%, while providing operators with in-depth traffic analytics and user insights.

About A10 Networks

A10 Networks is a leader in application networking, providing a range of high-performance application networking solutions that help organizations ensure that their data center applications and networks remain highly available, accelerated and secure. Founded in 2004, A10 Networks is based in San Jose, California, and serves customers globally with offices worldwide. For more information, visit: www.a10networks.com

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To learn more about the A10 Thunder Application Service Gateways and how it can enhance your business, contact A10 Networks at: www.a10networks.com/contact or call to talk to an A10 sales representative.

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