

Application Congestion Control

Ensuring the Most Efficient use of Network Resources through Application-aware Traffic Optimization

Business Case

The continuing proliferation of smart mobile devices and the popularity of mobile video applications have created both a unique business opportunity and some network challenges for the mobile service provider. Service providers have expanded mobile network capacity to meet subscribers' growing data needs. However, even with significant capacity expansions, service providers continue to face capacity crunches in specific sectors of the network. Large numbers of subscribers accessing multimedia content from a particular area can create localized capacity crunches; spectrum availability and backhaul capacity also contribute to capacity crunches. Network hotspots tend to occur in areas such as downtown and business districts that have significant numbers of subscribers. If the problem is left unaddressed, it can significantly degrade the subscriber experience, which might lead to higher customer churn and negative effects on mobile service providers' profitability.

Business Challenges

With the explosion of demand for mobile video, service providers are faced with the following challenges:

- How to balance the cost of infrastructure upgrades vs. revenue at a time when bandwidth demand is exploding, ARPU is flattening and competition is increasing?
- How to provide a smooth video user experience while addressing the challenges of increasing demand and the inherent dynamic nature of mobile networks?
- How to support the ever-evolving video ecosystem when the service provider has minimal control over the content riding its network and internet video formats change without notice?

To address these challenges, service providers need to:

- Have a clear understanding of network traffic and subscribers usage patterns and be able to adapt network usage to match traffic patterns.

- Provide the optimal user experience based on network conditions, device and content consumption.
- Develop a mechanism to quickly react to any changes in content delivery mechanisms and video formats.

The Openwave Solution

Openwave's Application Congestion Control solution offers a comprehensive suite of content optimization capabilities that provide a unique and personalized viewing experience. The solution provides a 360-degree view of network traffic and usage patterns, including a view of localized hotspots. Congestion Control applies just the right amount of optimization, exactly when and where required, based on network conditions, device capabilities, content characteristics, service provider policies and customer price plans.

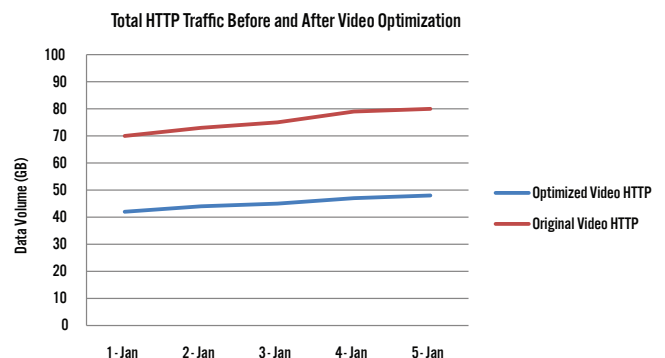


Figure 1: Application Congestion Control shows the benefits of optimization.

One of the unique features of Media Optimizer is its capability to dynamically detect congestion and apply optimization techniques only to hotspots in the network. Rather than optimize all areas of the network, those areas that are operating normally can continue to operate without compression. This saves bandwidth and ensures the most efficient use of network resources. Video quality can be

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adjusted to provide the optimum user experience based on available bandwidth at the cell site, context of the content being viewed (high action vs. low action) and specific subscriber plans. This capability allows service providers to significantly lower the cost of deploying optimization solutions, as well as providing more control over when and where compression is enabled.

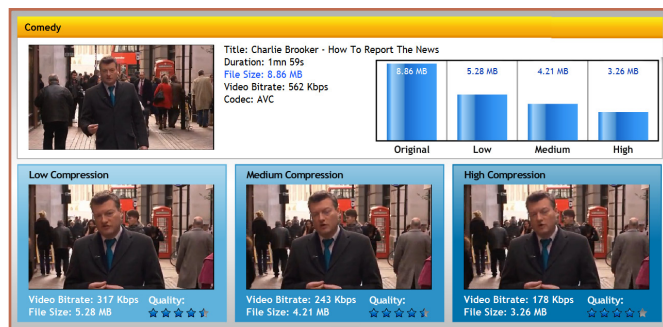


Figure 2: Video Optimization Capabilities.

Media Optimizer also provides service providers with an effective solution to address the constant changes in internet video formats. Its dynamic update service constantly monitors changes in video formats and delivery mechanisms on the internet. Any time a change is detected, an update is developed by Openwave that can be proactively pushed over the cloud to customer deployments. This update mechanism helps minimize major network disruptions.

Conclusion

Openwave's Application Congestion Control solution offers an intelligent and cost-effective solution to understand and proactively manage congestion hotspots and provide an optimum video experience to subscribers. The solution offers service providers the unique capability to manage congestion dynamically in localized hotspots as it occurs, rather than requiring compression of all videos on the network. Congestion Control ensures the most efficient use of network resources while also providing an optimal user experience.



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