

## Making over-the-top video work for the operator

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Over-the-Top applications such as video are a ‘must have’ for the subscriber, but a great burden on the network. These applications can be detrimental to the operator’s bottom line and the Quality of Experience (*QoE*) that the subscriber demands and deserves. However, operators do have a way out. Operators can combine the benefits of DPI, policy enforcement and charging to maximize network resources, generate new revenue and offer personalized packages to the subscriber.



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We don’t need WikiLeaks to tell us that mobile Internet is on the rise, it is not a secret. What mobile operators refer to as ‘Over-the-Top’ applications are gaining popularity as millions of people use their mobile devices to access content where and when they want it. Cisco predicts that in the next four years, more than 90 per cent of all content traversing the Net will be some form of video, whether it’s peer-to-peer or streamed from servers (source: Cisco VNI Report). According to our MobileTrends Report, global mobile data bandwidth usage increased 68 per cent during the first half of 2010. Furthermore, video-streaming continued to be the fastest growing application type, with a 92 per cent increase during that same period.

Regardless of whether it is YouTube or Hulu, video is a mass-market application that spans generations. The demand for video is straining the mobile network. The amount of raw data accompanying these applications can be detrimental to the operator’s bottom line and to the quality of experience (*QoE*) the subscriber demands and deserves. Without visibility into its network traffic, operators are hit with a double loss from both an operational and a revenue perspective. An operator that cannot effectively manage network congestion will face problems when their customers do not receive the *QoE* that they expect. At the same time, the operator will miss opportunities to create new revenue streams through tiered services and revenue-sharing models.

However, operators can turn a potential negative into a positive. Operators can combine the benefits of application recognition, policy enforcement and charging to maximize network resources, generate new revenue and offer personalized packages to the subscriber.

Deep Packet Inspection (*DPI*) gives operators critical information about network traffic at the application level. It is important to understand that not all network traffic has equal value to an operator and not all applications require the same amount of resources - P2P applications consume substantial bandwidth while VoIP doesn’t use much at all. DPI helps operators prioritise certain types of applications when the network is congested. For example,

although VoIP traffic does not require a lot of bandwidth, it is delay-sensitive and requires precedence when travelling across the network, so VoIP traffic can be given priority over P2P when the network is taxed.

Operators can gain additional information at both the network level and at the subscriber level, providing an in-depth understanding of how their networks' utilisation. Visibility into the network topology allows operators to better monitor and manage infrastructure elements. Operators can quickly identify parts of the network or particular cells that are currently congested, verify the applications causing the congestion, and change the priorities for a given cell to reduce the congestion - all in real time. By giving operators the ability to manage their infrastructure this way, they can increase the usage of their current infrastructure by up to 30-50 per cent and improve the subscriber's experience.

By paying closer attention to what applications matter most to their subscribers, operators can optimise their networks and create better pricing and new products. Operators can use network visibility to understand user needs better, personalize the experience and monetise it through new charging models. The idea is to give choice to the subscriber as to how they use and access the Internet via mobile devices and applications. By building personalised services aimed directly at the subscriber, operators will find it easier to charge for services that they know the subscriber wants. These services give operators a way to reverse ARPU decline.

By feeding application and network traffic data into the policy and charging functions, operators gain a more complete and accurate picture of the network. Granular intelligence enables network providers to feed information about the application, subscriber and topology intelligence directly into policy enforcement rules.

Operators can manage each subscriber session and put ad hoc policies in place. Taking it one step further, traffic can be detected and matched to a subscriber profile in order to implement a specific service plan. For example, traffic policies may prioritize or allocate a guaranteed amount of bandwidth to certain traffic. Or, policies may prioritize bandwidth when usage exceeds predefined congestion thresholds. The charging function supplies information about pricing and gives

operators contextual insight on how and when to charge/bill the subscriber. These technologies can work together regardless of the access technology so they can function transparently across 3G, 4G/LTE or even a converged fixed/mobile network.

Today, the combination of DPI, policy enforcement and charging technologies gives operators some very powerful tools and we can expect to see many specialized deployments in the years to come.

Today, many operators have already made the shift from flat rate services and billing to tiered services. Tiered services categorise services in levels and define what each level provides the subscriber. Levels can be based on quotas, throughput, QoE, content or any combination of factors. For example, with a premium plan, a subscriber may get a given amount of megabytes per month, plus guaranteed prioritization of favourite applications.

The marrying of the DPI, policy and charging technologies lets operators match the traffic detected to the subscriber's profile and service plan and feed the information charging system. By using these technologies, subscribers can be given choice, in real time, to purchase extra bandwidth for the month or move to a higher tier whenever their traffic is close to surpassing their monthly quota.

Another service plan, often dubbed 'happy hour', gives subscribers incentives to use the network during non-peak hours. This helps alleviate peak hour congestion since more people use the network when it is usually less utilized. As a result, during off-peak hours subscribers can pay lower rates or use applications without deductions from their monthly quotes. Such a plan offers value to the subscriber and to the operator.

There are also service pass plans that let a subscriber use any device to access the network, applications and content. A subscriber may choose a service pass that delivers a large amount of Gigabytes per month while another subscriber may choose a pass that gives them unlimited access to their favourite website. More advanced service plans are now being considered to alleviate congested networks.

Content providers are also eager for solutions such as 'bundles' that let consumers buy applications and receive all the connectivity to support it for the

same price. A package to view a designated number of movies - a combined offer from both the content provider and the operator - would give the content buyer access to the bandwidth needed to view it; no relationship with the operator would be required.

We may also see deployments in the near future fuelled by split billing among service providers.

For example, a subscriber may receive the first 15 minutes of a movie for free. If the user buys the movie after this initial period, the operator and content provider will share the revenue. If the user does not buy the movie, the content provider who ran the movie promotion pays for the network resources used for the 15 free minutes.

These innovative data access propositions let users choose what works best for them. Users do not need to sign a two-year contract; instead, they choose their preferred device, application and even their network provider. If the subscriber isn't happy with their service provider or the price then they can go elsewhere. The operators also gain; they can manage their networks to both deliver Quality of Experience and affordability while creating new revenue streams.

The combination of DPI, policy enforcement and charging are a powerful way to maximize network resources, generate new revenue and personalize the experience for the subscriber. However, it's also important to realize that taming the mobile environment is not the job of one technology, solution or provider. It takes a full mobile ecosystem of industry participants to manage and control the network while sustaining subscriber QoE and affordability and giving the operator a viable business model.

It is up to operators to educate their subscribers and the public at large to help them understand that the mobile Internet is a complex ecosystem of technologies and a finite resource with physical limitations. The operators' job is to offer their subscribers choice in how they want to consume that Internet and to give them the best experience possible. ●