HOW TO MONETIZE OVER-THE-TOP (OTT) VIDEO

Author Name: Eitan Efron
VP Marketing & Business Development, Oversi

Abstract

The MSO role in the new media ecosystem is under scrutiny. How can cable operators financially benefit from the demand for over-the-top (OTT) video services and become key players in the content delivery supply chain? At present, most operators are mere bandwidth conduits which do not receive any financial gain from the increasing amounts of Internet video flowing through their broadband networks.

This paper will outline how edge content distribution networks (CDNs) deployed at the cable operator core network can accelerate Internet video delivery and improve quality of service through content distribution platforms. This opens up new monetization opportunities for cable operators with both content owners that are willing to pay for guaranteed service levels, and customers who can choose from a variety of tiered service packages.

MARKET OUTLOOK

Growth in OTT Traffic

Content is traveling through the Internet in ever growing quantities. The most ubiquitous segment is OTT video, which is increasing by volume and quality. The growth of video on the Internet is so marked it is predicted that very soon it will account for the vast majority of all traffic.

A recent white paper from Cisco showed that Internet video sites, such as YouTube, Xbox 360 movies, and MySpace, already generate more traffic than the entire US backbone in the year 2000.[i]

In a joint declaration by the Broadband Services Forum in January 2008, it stated that "current projections on the growing popularity of OTT video predict that service provider networks are going to be operating at near or complete capacity by 2010."

Even with service providers spending billions of dollars to build better, faster and more reliable pipes, OTT video could bring many networks to a grinding halt in the near future.[ii]

The changes noted in Internet traffic patterns and OTT video reflect the customer's desire for convergence. Customers want access to endless varieties of content on multiple devices, or "anything, anytime, anywhere." However, due to high levels of congestion, service providers can't keep up, and customers are experiencing ever lower levels of quality of experience (QoE), leading to customer dissatisfaction and increased churn.

OTT Delivery

Because of the importance of the user's video experience, QoE is becoming a number one priority for content providers. Content providers have traditionally been using the services of CDNs (Content Distribution Networks), such as Akamai and Limelight, in order to expedite the delivery of content and ensure high levels of QoE.

In recent months, OTT video providers, such as the BBC and NBC, are using peer-to-peer

(P2P) or hybrid P2P/CDN technology to distribute high quality content to their customers. P2P is helping them to simultaneously reduce their distribution costs and scale their services to serve more customers with higher quality video content (flash crowds).

However, while CDNs are paid for content delivery, MSOs continue to deliver content across their networks without receiving compensation from content owners or CDN operators.

It is clear that MSOs must find new ways to manage video traffic of all kinds through their networks.

Pain with No Gain

To meet the rising demand of OTT video, infrastructure costs for the MSO are steadily increasing, while the revenues that MSOs can enjoy from their subscribers as a result of this investment is partial at best.

Because of this changing landscape, monetization of OTT video has become a must for MSOs.

THE OPPORTUNITY

From Pain to Gain

In order to close the gap between rising expenses and decreasing revenues, and to capitalize on market opportunities, MSOs can adopt a combination of the following business models:

1. Manage the surge of OTT video on their networks, without hurting the user experience and creating net neutrality issues, by implementing caching platforms which support OTT video.

2. Charge content providers, including OTT providers, for the delivery of content with assured QoE. In this context, MSOs are complementing CDNs and providing service to the last and most important segment in the content delivery value chain: the end user.

3. Establish mega video portals, thereby becoming part of the video distribution value chain and leveraging their existing relationship with their customers. Under this model, the MSO joins the OTT value chain through shared revenues with the content provider.

4. Generate advertising revenue sharing with content providers for ad-supported content. As cited in a recent report, the largest revenue opportunity for online video will come from advertising, which could reach $4.4 billion in the US by 2011.[iii] Under this model, the consumer receives the content at no charge, but advertising has been added to the content by the MSO. Advertising can be general or personalized to specific user groups.

5. Introduce a host of services that can increase the average revenue per user (ARPU) based on subscriptions or advertising. These new services could include nPVR, catch-up TV, and so on.

6. Sell tiered services to users, which also increases the ARPU. MSOs can offer enhanced delivery over specific time periods for special deals. For example, a customer can purchase a movie for download for $3 and pay $1 extra for a faster download, or access their favorite OTT video with accelerated service for an extra $10 per month. This service improves the customer QoE and reduces churn.

A New Content Delivery Infrastructure

To actualize these opportunities, MSOs need to implement an infrastructure that will:

- Cost-effectively manage and deliver their OTT video over the network while maintaining QoE, including high definition TV (HDTV).

- Enable users to view content on all devices, whether on their TV, home computer or portable.

- Support monetization schemes for content delivery, such as local advertisement injection.

In essence, MSOs need their own internal content distribution platforms (CDPs), housed within their existing network. Today's CDNs are deployed outside the MSO network and can only deliver content in the open Internet environment, where they cannot guarantee quality of service inside the MSO network.

MSOs need a solution that can deliver content in both the open and the private network. While open Internet traffic travels on a best efforts basis, using a private network, the MSO can provide content providers/OTT partners with quality of service guarantees and enhance the services it offers its customers.

THE CDP SOLUTION

The content distribution platform (CDP) solution is designed to meet the needs and requirements of MSOs in the delivery of rich media content through their networks and enable monetization opportunities.

The CDP is an edge content delivery platform deployed within the MSO's network.

The following figure illustrates the overall CDP concept:

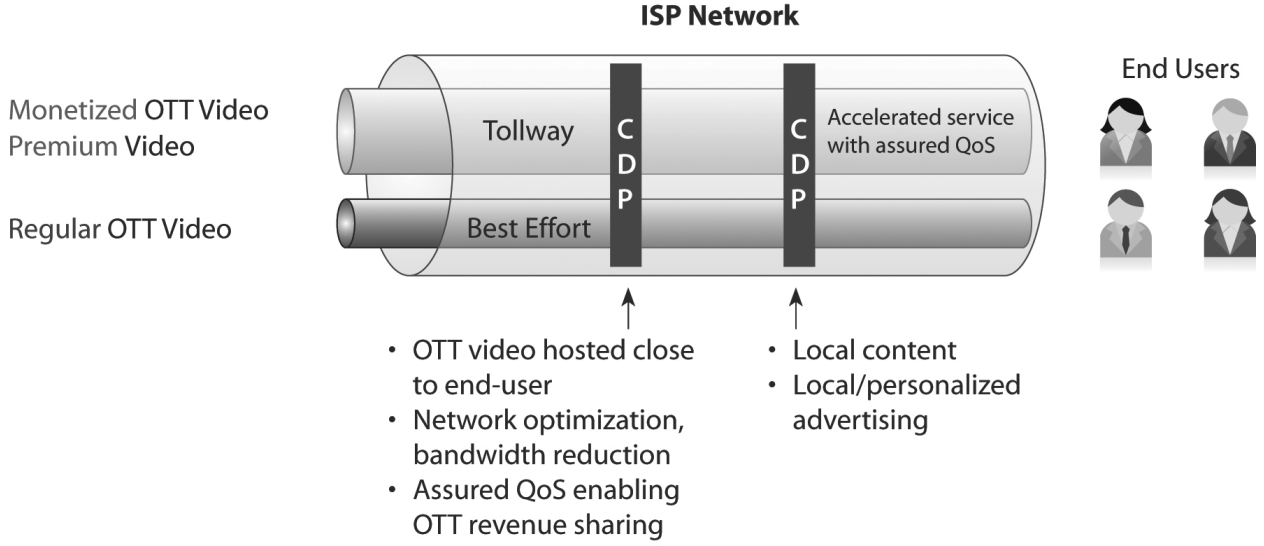

Figure 1: CDP Solution

The CDP solution consists of a two-tiered content delivery network:

1. A best effort freeway, which is today's open broadband connection for P2P, user-generated content (UGC), and other OTT traffic, that provides equal (net neutral) service on a best efforts basis to all incoming traffic.

2. A QoE tollway, which is designed as a gated garden that allows for service level agreement (SLA) based delivery of premium content for users and OTT content providers.

Both tiers are supported by the CDP infrastructure at different service levels, which is the key to both a rational network/traffic management model and an effective content monetization solution.

CDP Conceptual Design

The CDP is based on the smart deployment of a robust and scalable caching and acceleration system. A proven way to ensure the delivery of popular, high quality content is to cache it close to the user. The caching of content avoids randomly created network bottlenecks, saves on bandwidth and ensures prompt content delivery upon request.

The CDP is a multi-protocol caching platform that provides all of the necessary functionality from content collection and smart caching to the delivery of huge quantities of the cached content. The CDP supports all of the major and most popular protocols that are being used for content delivery today and anticipated in the future, including: P2P, HTTP, RTSP, etc.

The following diagram illustrates the CDP overall architecture:

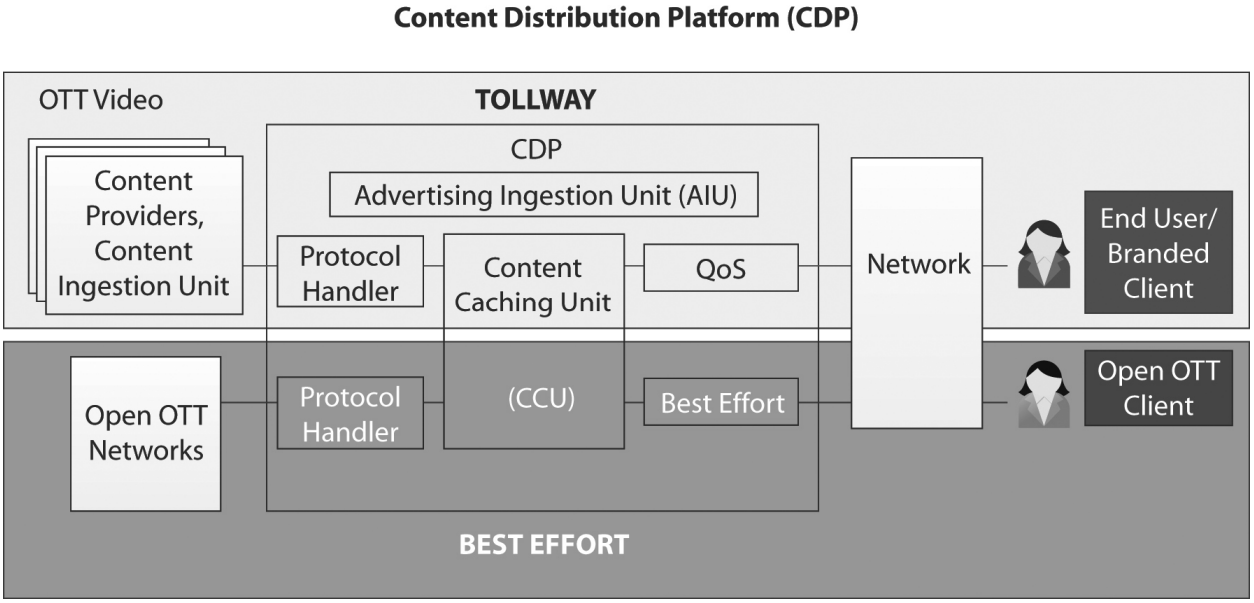

Figure 2: CDP Conceptual Design

A CDP typically consists of the following main units in its architecture:

1. **Content Ingestion Unit (CIU)**: Located within the MSO or at the Content Provider (CP) facility, the CIU enables content providers to upload content and define content-related

policies. Uploaded content has business data attached to it, which describes the business model between the MSO and the CP.

2. **Content Caching Unit (CCU)**: A caching unit that is characterized by strong bandwidth generation capacity (it can deliver the same content to many concurrent users simultaneously). Once content is ready for caching, it is uploaded into the CCUs. CCUs are also typically installed in the access network since they need to support high demand delivery, such as streaming content. The subsystem keeps track of all of the content handled by the system using smart caching technology and is responsible for sourcing and delivering content.

3. **Advertising Ingestion Unit (AIU)**:
The AIU enables the CDP to deliver content and advertisements in accordance with policies established in the external system. The unit interfaces with external advertisement control systems or ad networks. The CDP's ad-insertion system is located close to the end user.

4. **End Unit Client (EUC)**: This optional MSO branded client is installed at the customer's premises, providing branding opportunities and advertising functionalities and enables quality of service guarantees.

Functional CDP Requirements

The CDP solution meets the following key functional requirements:

- Works in managed and unmanaged environments, and gated garden (B2B) modes.

- Scalable: Supports millions of users and assets.

- Personal: Per-subscriber SLA and accounting/charging.

- Modular architecture that supports multiple access protocols, including HTTP, RTSP, P2P, etc.

- Modular solution: Enables gradual transition from single multi-server node to managed network of multi-server nodes.

- Virtual CDP architecture enables providers to offer managed CDN services to third parties.

SUMMARY

To avoid becoming dumb pipe operators, and carrying the costs of delivering OTT video, MSOs must adopt strategies that enable them to become part of the OTT video distribution value chain.

A CDP deployment enables the cable operator to monetize OTT video by:

1. Generating revenue from video traffic passing through its network. MSOs can charge content providers for hosting and delivering their content.

2. Delivering virtual video portals for their customers, using a pay-per-view model or subscriptions.

3. Participating in advertising revenue sharing with content providers for ad-supported content directed at an MSO's existing customer base.

4. Selling tiered services and different advertising/subscription packages to customers, thereby increasing the ARPU.

5. Taking advantage of personalized advertising opportunities through the MSO's own content portal.

Additional MSO benefits of a CDP deployment include:

- Full control over video content.
- Reduced MSO bandwidth costs.
- Improved QoE for end users generated through accelerated content delivery and a better overall experience of all online services, which will ultimately increase the MSO customer base and reduce churn.

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[i] Statistics from Figure 4 from The Exabyte Era White Paper (based on the paper: Traffic Forecast and Methodology 2006-2011), Cisco Systems, 2007.

[ii] Joint Declaration of the Broadband Services Forum, January 2008.

[iii] Report: IPTV Competitors are Over-the-Top (Quoting James Crawshaw's report: Internet TV, Over-the-Top Video & the Future of IPTV Services, Heavy Reading), Ryan Lawler, Light Reading, June 28, 2007.