

Fast forward - the future of online video in EMEA

by Don Bowman, CTO Sandvine

Digital video entertainment will make up 60 per cent of traffic by the end of 2011 and will get even a larger slice of mobile networks traffic. Whether this will be delivered by a few global ‘winners’ or by numerous local ISPs depends on how the opportunity is approached. Video delivery services can be gauged by measuring quality of experience (within video type and technology), video minutes (not just bytes) and service adoption (not just volumes). These metrics vary in EMEA regional markets, where success factors include language, ease-of-use and local user behaviour. There is little doubt that for video service, price is the killer app - but it must also fit regional trends, be easily understood and include a clear indication of what happens when limits are exceeded. Success in delivering video entertainment depends on these aspects which are only revealed by analysis of these metrics.



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Before becoming CTO, Don served as vice president of consulting systems engineering and led Sandvine's development engineers and technical service consultants. Prior to Sandvine, Don was director of firmware and manager of software engineering for PixStream, responsible for system architecture. Don also held the position of Software Engineering Manager for Cisco Systems in the Video Networking Business Unit.

As a leader in the technology community, Don has spoken at notable events such as Broadband World Forum Asia, SCTE Cable-Tec Expo, ISS and the Communications Futures Program at MIT. In 2007, Don and his fellow co-founders were honoured with the Ernst and Young Entrepreneur of the Year award in the technology category for their success and dedication to their work at Sandvine.

Originally from Ottawa, Don attended the University of Waterloo's bachelor of applied science program for systems design engineering. He currently resides in Waterloo with his wife.

The simple acronym ‘EMEA’ conceals the diversity of the region and the complexities that it presents to Internet providers. An immense area that includes all combinations of network access technologies, subscriber growth rates, and established billing models, Europe, the Middle East and Africa offer tantalizing rewards for network operators who can seize upon the opportunities presented by the increasing adoption of online video.

In examining what ‘video growth’ means for EMEA's network operators and Internet subscribers, a number of recurring themes emerge, which have shown to be true around the world:

1. Online video presents an enormous opportunity for Internet service providers.
2. Visibility and measurements enable informed, optimal decisions.

3. Subscribers crave simplicity.

Global video trends

Real-time entertainment applications in general, and video in particular, are emerging as the dominant form of Internet traffic globally. Nowhere is this trend more pronounced than in North America, where these applications represent almost 50 per cent of total fixed-access traffic. If the rate of growth seen over

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the past two years is sustained, real-time entertainment applications will make up 55-60 per cent of traffic by the end of 2011. This is a considerable turnaround, considering that only a few years ago, peer-to-peer (P2P) file-sharing made up the bulk of Internet traffic. This shift reflects subscriber behavioural preferences towards easy-to-use service. With P2P applications, the subscriber often has to perform cumbersome configuration actions and queue up content to be watched later. With real-time entertainment applications, configuration is typically limited to navigating to a particular website or opening an application client, after which the subscriber hits ‘play’ and starts enjoying content immediately.

Additionally, as content rights holders gain trust, the Internet is increasingly being used to provide live coverage of major events, including unique occasions like The Royal Wedding and a growing number of sport events and tournaments.

Adoption of video is not limited to fixed access networks. Indeed, the current generation of powerful handsets, and the increasing adoption of tablets (with their larger viewing screens) means that subscribers can now access online video anywhere, anytime. Online video is poised to become an even larger piece of mobile networks than it is of fixed networks.

Ultimately, the network operators are the conduit for a highly valued service that is used by the vast majority of the connected population. While there are challenges, the potential rewards for savvy service providers present a rare opportunity.

Video under the magnifying glass

Despite the fact that the user experience for online video is fairly consistent, video services are not all the same: Pure streaming (for example, RTSP) delivers a relatively constant bitrate that is managed by a feedback loop. Buffered video (for example, YouTube) frequently arrives in bursts. Peer-casting (for example, PPStream) relies on consumers to help distribute the load by also serving content

to others. Place-shifting (for example, Slingbox) lets users stream content up from one location and down in another, and many other hybrid forms exist.

Even moving beyond the distribution model, the video itself offers enormous variety, from low-resolution camera-phone and short clips to HD full-length movies and everything in between. Some video can be cached predictably and efficiently near the subscriber edge (say, a top N list of YouTube videos), while live streaming precludes caching for the audience that wants truly live content.

The video ecosystem is made up of countless players that fulfil every combination of the differentiating factors listed above. Of course, most subscribers don’t pause to consider this - they are primarily concerned with more pragmatic issues like content availability, quality, and cost. Netflix found the right combination in the United States by offering high-quality videos from an extensive and growing library for a flat rate of US\$8 per month. When trying to appeal to subscribers, price is certainly powerfully appealing.

For Internet providers, the services that are most popular on particular networks have major implications for decisions like capacity planning and service plan definition. Do subscribers favour short videos or feature-length movies? Does the region offer live online coverage of major sporting events (for instance, YouTube providing live streaming of India Premier League cricket)?

Not knowing the answers to these questions can lead to suboptimal decisions and significant missed opportunities. In general, there are three high-level metrics that should be closely monitored:

- **Quality:** It is no secret that there is a close relationship video quality of experience (QoE) and overall subscriber satisfaction. A challenge for service providers is that there are no standards for video QoE that accurately reflect the subscriber experience. If you ask a subscriber what factors matter, terms like ‘choppiness’ (start latency, buffer under-runs) and pixilation (perhaps from resolution

downshifts) come into play. By measuring those factors, we can go a long way towards quantifying the subscriber experience.

- **Minutes:** Bytes of video is an interesting metric, but total bytes are ultimately the product of other factors like service adoption rates, codecs, resolution and, most importantly, minutes of video consumed per subscriber. In fact, minutes are the most important criterion. While bytes have virtually no upper limit, minutes do, because there are only a finite number of minutes for which any individual subscriber can watch video. ‘Video Minutes’ are a subset of ‘Daily Minutes’, and ‘Online Video Minutes’ are in turn a subset of ‘Video Minutes’. Other subsets of ‘Video Minutes’ include traditional television, movie theatres and any other medium vying for a slice of the same pie. By measuring the minutes of video per subscriber, a service provider can understand subscriber behaviour to a level of granularity that byte-based reports cannot provide. Is it more useful to know that subscribers averaged 800 MB of video last month and 820 MB this month, or that they averaged 120 minutes of video last month and 132 minutes this month? Would the answer change if the service also provided a branded video offering in which advertising revenue was linked to viewership?

- **Adoption:** Similar to the discussion above, simply measuring bytes on the network will obscure factors like the rate of subscriber adoption of online video. If a new service launched in the coverage region, would it be more useful to know that total bytes attributable to that service increased 20 per cent month-to-month, or that subscriber adoption rose from ten per cent to 12 per cent?

A detailed understanding of these metrics, perhaps even breaking down by other factors like video service provider, container type and codec will ensure that service providers make critical decisions based on facts rather than on anecdotes or assumptions.

A closer look at EMEA

EMEA is a geographically large region for which broad generalisations are misleading.

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Stop for a moment and consider the range of languages and cultures that make up the population, and ponder how that diversity can influence which content services will come to be successful. Netflix dominating North America’s networks, and BBC’s iPlayer being a significant component of traffic in the United Kingdom might suggest that it is common for large regions to have a small number of dominant services, but this is not always the case. While it is true that homogeneous population groups might well share reasonably common tastes, a heterogeneous population such as that found in EMEA can only be examined in terms of segments that share common characteristics.

When Netflix expanded into Canada in September, 2010, the company made a point of seeking out deals with the Canadian Broadcasting Corporation to bolster local content. Netflix understood that local content is a prerequisite for successful international growth.

Even when there are globally dominant players, there remain exceptions that can reveal useful insights. For instance, BitTorrent is the dominant peer-to-peer network worldwide - except for in Latin America, where Ares proves more popular. The most plausible explanation for Ares popularity in Latin America is that the Ares client supports local languages. What does this mean for video in EMEA? Rather than expecting that a small number of services will achieve widespread adoption, it is far more likely that success will be regionalised.

Generally, two necessary conditions for a video service to be successful are a content library that appeals to subscribers and a high-quality experience. While we might eventually see a few dominant players emerge due to consolidation and financial resources, in the short term we expect to see a diverse ecosystem of local video services that cater to specific population segments.

Seizing the opportunity

Experience tells us that subscribers throughout EMEA will adopt online video.

This will happen regardless of language, country, and access technology. Subscribers have an enormous appetite for on-demand video, particularly entertainment, and services will emerge to meet this demand. For most Internet service providers, the primary challenge lies with offering billing models that ensure sustainable business operation while appealing to subscribers. A lucky few service providers will be in a position to actually become the dominant online video service, by virtue of vertical integration or local licensing and distribution rights. Where regulations allow such vertical integration, any provider not actively investing in a video service is in danger of missing a rare opportunity.

The online video explosion presents an opportunity for service providers to rewrite the norms of billing. For instance, by-the-byte bills often lead to confusion. Not many people know how big the average YouTube video is, whereas everyone understands the concepts of ‘number of minutes’ and ‘number of events’ (videos watched, photos downloaded, etc). Rather than focusing on byte-based billing plans, service providers should investigate plans that are time or event driven.

Price certainty is the killer app


When it comes to billing models that appeal to subscribers, price certainty is the killer app. Subscribers understand flat rates (say, US\$5 per month for unlimited social networking, or \$10 per month for 25 YouTube videos). Therefore, service providers should shy away from unpredictable or potentially confusing offerings.

Regardless of the precise format of billing models in each region, history teaches us that subscribers generally accept service plan parameters provided that they are clearly understood. For instance, for service providers who institute any kind of quota (minutes, bytes, unique videos, etc), the key is to be clear in the messaging about what happens when the limit is exceeded. It might make sense for a provider in one region to maintain normal download speeds, but to charge for overage (excess volume per byte, per video, etc). In another

region, the best option might be to limit download speeds once a quota is exceeded but to avoid charging overage.

Advice-of-use portals are necessary in any case, so that the subscriber can proactively monitor and adjust usage accordingly, or elect to top-up service with additional units of minutes, bytes, or events.

What is most appropriate is dependent upon the unique characteristics of each particular market. Armed with knowledge of subscriber usage trends, service providers can make optimal decisions regarding the pricing structure that is most suitable. ●



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