

PREPARING FOR THE IMPACT OF RECREATIONAL TRAFFIC ON YOUR NETWORK

Recreational traffic is a constant and growing load on your enterprise network. Using workplace computers and BYOD smartphones or tablets, employees are reaching into the internet and pulling recreational traffic onto business networks. Recreational traffic can consume 30 to 90 percent of the WAN or internet capacity of every branch site. This will inevitably lead to lower network utilization, misallocation of budget and capacity, slow or unresponsive applications and – importantly – end-user performance complaints.

Executive Summary

Businesses who do not have the tools and policies to mitigate this impact may encounter severe disruption to their network environments.

Recreational traffic – news and events, YouTube, BYOD downloads and uploads, social networking, regional television and movies – is a constant drain on network capacity. Blue Coat provides a complete solution for managing this impact to keep your critical applications moving:

- **Visibility:** Real-time application and web-content view of network traffic, to identify and measure utilization of millions of rich content sites as well as hundreds of enterprise applications
- **Control:** Simple QoS policies that limit recreational traffic to 10 percent or less of network capacity, enabling bursts when bandwidth is not needed by higher-priority business applications
- **Acceleration:** Caching of content, reducing the impact of recreational video or downloads and uploads while enabling core business applications – internal or SaaS – to drive operations

News Events: Unforeseeable Network Disruption

The biggest network disruptions are caused by unpredictable newsworthy events. Scandals, celebrity deaths, natural disasters, political revolutions – they’re all of compelling interest to people throughout the world. Some events have a life of days or even weeks; the 2010 Chilean mine disaster attracted major interest for 69 days. Live and on-demand video streams range from 200Kbps to 1.5 Mbps, so sudden events that draw employees online can completely consume network capacity. These are the biggest disruptions your network can suffer. The following table shows their impact:

The YouTube Phenomenon

With over a trillion views in 2011 and 72 hours of video uploaded every minute, YouTube is the behemoth of online video content. Its reach is global. Localized in 60 languages across 46 countries, it impacts networks from the U.S. to India to Germany. The continual uploading of a wide variety of videos gives YouTube its mass appeal.

| NEWS EVENT | LENGTH (MINUTES) | DEVICE USED | BANDWIDTH CONSUMED DURING DELIVERY | TOTAL BANDWIDTH USED |
|------------------------|------------------|---------------------------|------------------------------------|----------------------|
| NEWS VIDEO | 5 | Mobile (BYOD) 360 x 240 | 200Kbps | 7.5MB |
| NEWS VIDEO | 10 | Desktop/Laptop 640 x 260 | 500Kbps | 37.5MB |
| SPORTS HIGHLIGHT VIDEO | 1 | Mobile (Tablet) 480 x 360 | 400Kbps | 3MB |

Impact of the Most-Viewed YouTube Videos of all time (Oct. 2012)

| VIDEO NAME/ SOURCE | NO. OF VIEWINGS | VIDEO LENGTH | VIDEO RESOLUTION | BANDWIDTH | TOTAL BANDWIDTH CONSUMED BY VIDEO |
|---------------------------------|-----------------|--------------|--|-------------------|--------------------------------------|
| Baby ft. Justin Bieber | 786,359,742 | 3:45 | 360 x 240 | 200Kbps | 5.625 MB |
| On the Floor Jennifer Lopez | 605,413,253 | 4:27 | 360 x 240 | 200Kbps | 6.675 MB |
| Love the Way You Lie Rihanna | 502,252,114 | 4:27 | 360 x 240 (Standard) 1440 x 1080 (Option) | 200Kbps / 1.5Mbps | 6.675 MB 46.31 MB |
| Waka Waka Shakira | 494,978,747 | 3:31 | 360 x 240 (Standard) 1440 x 1080 (Option) | 200Kbps / 1.5Mbps | 5.275 MB 39.56 MB |
| Bad Romance Lady Gaga | 489,582,110 | 5:08 | 360 x 240 | 200Kbps | 7.7 MB |

A good example is the videos captured at family events (Charlie bit my finger again: 486 million views) that have universal appeal and transcend languages and cultures. But in terms of viewing counts, professional entertainment videos drive the most viewings on YouTube by a huge margin. As of October 2012, eight of the all-time top 10 most-viewed videos were professionally produced music videos that people tend to watch repeatedly. The top five alone have been viewed a total of 2,878,585,966 times. Average running time: 4 minutes 15 seconds with bandwidth consumption of 200Kbps. Average bandwidth consumption per viewing: 6.39MB.

The Growing Impact of BYOD Traffic

Since 2009 more than a billion smartphones and tablets based on iOS (Apple) and Android (Google) operating systems have been sold. Consumers are deeply enamored with these devices and bring them to work for both business and recreational activities, creating a BYOD phenomenon. BYOD devices may be small, but they add gigabytes of traffic to business networks with OS and application downloads and updates. A typical iPhone user has 65 apps, of which 40 are

downloaded. Their average size is 20MB, so a user will generate at least 800MB of network traffic just to download them the first time. But apps typically send two updates a year, which adds an annual 1.6GB to network traffic. Many are also used for recreational purposes, such as capturing photos and videos and uploading them to websites for sharing with co-workers and friends. These BYOD-added activities on business networks impact business application performance and network bandwidth.

Social Networks: Constant Change and Expansion

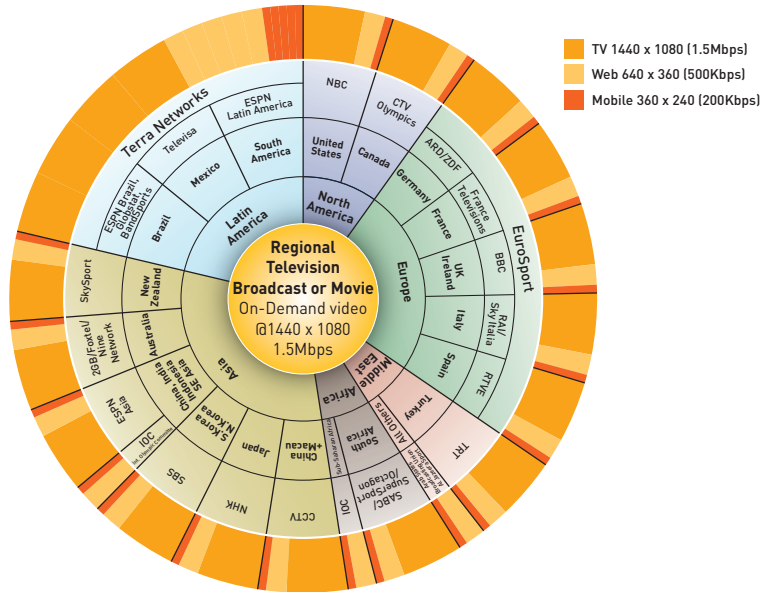
In September of 2012, Facebook claimed over a billion active users. Facebook continually adds applications and functionality to expand its user-base and revenue opportunities. This continual evolution changes the ways users interact with Facebook in a multitude of ways that impact business network and application performance.

For example: Facebook has added a number of applications to its website. Some are extremely bandwidth-intensive. Video, gaming, and audio streams can all be accessed by Facebook users by simply logging in via the web browser. Here's how much bandwidth some of the popular Facebook applications can consume:

| FACEBOOK APPLICATION | TYPICAL TRAFFIC FLOW SIZE | LENGTH OF INTERACTION TIME | BANDWIDTH CONSUMED |
|----------------------|--|----------------------------------|--------------------|
| Gaming | Initialization: 2Mbps, Ongoing: 50Kbps | 7-10 seconds, 30 minutes | 13.750 MB |
| Video upload | File size: 2.7MB, Upload: 500Kbps | 44 seconds | 2.7 MB |
| Audio Stream | 128Kbps | 4 minutes, (typical song length) | 2.840 MB |

Regional Television and Movies

The evolution of the internet has transformed the way people consume content. One of its biggest effects has been the change from traditional television viewing. Gone are the days of viewing a favorite show at a fixed time on a specific day of the week – and, if you miss it, hoping to catch a re-run later. Today, whatever you want in drama, comedy, sports, talk shows or any other genre is rapidly and readily available from a broadcaster's website. But broadcasters have also developed and made available client software for smartphones and tablets.



Aligning Network Bandwidth Usage with Business Goals

For businesses to align network capacity with operational goals, they must have 1) visibility into the traffic on the network, 2) a means of controlling and prioritizing traffic and 3) a way to accelerate and optimize applications and protocols.

Visibility: A Real-Time, Granular View into Network Traffic

To manage application traffic on your network you must have a granular view of it – granular enough to let you differentiate internal applications

from web-based applications and content. Knowing that traffic is coming via Port 80 or Port 443 doesn't help you to understand what's impacting internal applications. Your visibility into network traffic must be granular enough to let you identify it by flow (business vs. recreational) and in real time, so you can see traffic bursts, respond quickly, and see instant results.

The problem is that the huge number of applications and web sites makes it very difficult to get a clear understanding of traffic. That's why Blue Coat PacketShaper provides real-time traffic classification of hundreds of applications and millions of web sites, measuring utilization and response times and recording a hundred stats for each class. Our classification technology gives you the ability to classify and differentiate:

- Hundreds of enterprise applications, with sub-classification of key applications like Microsoft, SAP and Oracle
- Internet applications that use multiple techniques to evade detection – P2P, IM, gaming, Skype, proxy avoidance
- Tens of millions of web sites in 84 categories
- Applications within complex social media sites like Facebook, using detailed sub-classification for effective segmentation and control

This real-time visibility gives you a clear picture of what's happening on your network, and a path to traffic control.

Control: The Ability to Prioritize and Segment Network Traffic

Granular visibility of network traffic is only half the equation for managing the network. To ensure that business-critical applications meet users' expectations, maintain productivity, and are not impacted by recreational traffic, traffic must be segmented and prioritized. Control should build on visibility by enabling network administrators to partition traffic and prioritize it by business value. It should help network administrators to restrict recreational video or BYOD downloads to a small but reasonable portion of network bandwidth so it neither impacts business applications nor incurs the wrath of sports enthusiasts (including vice presidents and senior directors) or BYOD-driven employees. Here are some examples of Blue Coat PacketShaper application-driven QoS:

- Partitions can limit recreational traffic to 10 or 20 percent of capacity or provide guaranteed bandwidth to critical applications.
- Priorities can provide a simple way to allocate bandwidth, giving more important applications higher priority. They can also prioritize access to “burstable” partitions.
- Dynamic sub-partitions can allocate bandwidth fairly – on the whole link or within a partition – among active users. This can be beneficial for virtual desktop deployments or for allocating bandwidth for Guest Wireless deployments.
- Application-based MPLS tagging allows you to set DiffServ, TOS bits and even MPLS labels at an application level, saving you from complex router ACLs.

All these policies are driven by the application-level view of traffic and are simple to implement. You can immediately contain the impact of undesirable traffic and assure bandwidth availability for key applications.

Acceleration/Optimization: Mitigate the Impact of Recreational Traffic on the Network

Acceleration and optimization of applications where possible will help mitigate the impact of recreational traffic, reduce bandwidth consumption, and eliminate performance complaints from users.

The impact of video and application downloads to mobile devices can be minimized by object-caching on the Blue Coat ProxySG/MACH5 appliance. The ProxySG/MACH5 will cache the first download. Subsequent requests will be served directly from the local appliance instead of the WAN and the internet. When demand ceases, the video, download, or web-page screen build will age out and be removed from the cache.

It's critical that all popular video delivery methods be supported to mitigate the impact of video on business operations. ProxySG/MACH5 supports all popular video formats. It communicates with video-serving servers to pull down a single stream to a requesting location and split it into as many real-time streams as local branch users have requested. The same principle applies to on-demand video, but in this case the ProxySG/MACH5 caches the video for users who call up the video later – for example, when they receive an emailed URL from a coworker.

ProxySG/MACH5 accelerates and optimizes these types of recreational traffic:

- Video (news, YouTube, social networks, regional television): Adobe Flash, native and encrypted (RTMP, RTMPE); Microsoft Silverlight (HTTP/RTSP); HTML5; Apple QuickTime; HTTP/SSL
- BYOD: iOS and Android OS updates, app downloads and updates, photo and video uploads and downloads
- Social Networks: webpage screen builds, on-line games, photo and video uploads and downloads

In Summary: Blue Coat Gives You a Way to Control the Impact of Recreational Traffic

Blue Coat Packetshaper and ProxySG/MACH5 give businesses complete visibility, control and optimization of recreational traffic. They minimize the impact of recreational traffic on business operations while allowing employees to access internet-based content. Contact Blue Coat for the complete story.

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