SANDVINE

Heavy User Management

Improve QoE by identifying and managing the network's heaviest users

HEAVY USER MANAGEMENT DELIVERS:

Contextual Awareness and Network Visibility

Exposes critical trends on how the network is being used by users, devices, and applications, leading to more effective strategic and tactical decisions. Multiple industry-standard interfaces enable gathering of rich user and session information from the network.

Advanced Traffic Management

Powerful and flexible shaping engine with advanced queue management algorithms, including fairness with weighted fair queueing, connection fairness, and normal or tiered fairness.

Flexible Traffic Policy

Agile policy engine with multiple inputs from different sources enables real-time policy control and traffic accounting on a per user basis across multiple service dimensions.

Use Case-Specific Reporting

Detailed real-time and historical visibility provides strong basis for effective decision making. Flexible channels and data export options are also supported.

MARKET OVERVIEW

Network bandwidth is a scarce resource and keeping up with the ever-increasing user demand, while maintaining profitability, is an unrealistic task for service providers. Aside from ongoing network constraints, the prevalence is adding pressure to build out networks faster than necessary. Part of the challenge comes from the introduction and high adoption of unlimited plans, which increases the number of heavy users on any given network.

Heavy users can be defined as the top 1-5% of users, who consume between 50-70% of available bandwidth, but these numbers can vary from network to network. Although once synonymous with P2P sharing, heavy users come in various types (**Figure 1**): the pseudo service providers, malware zombies, the hosting servers, and high-powered gamers (Twitch/video streamers [4K]).

Application behavior is another contributing factor to heavy usage. Popular applications, such as video streaming and P2P sharing, create multiple TCP sessions in parallel to get the maximum available bandwidth, causing service degradation for all.

Regardless of the type of the heavy users, the impact is the same: lack of capacity and poor overall quality of experience (QoE). They can also impact long-term capacity planning and profitability, which in turn drives up service costs for all users. The answer isn't to add more capacity or to blindly throttle network-wide services, but to work smarter, applying other, less costly means for allocating bandwidth and for stretching network assets to deliver more with existing resources.

Heavy user management is a highly effective approach for freeing sizeable amounts of bandwidth. Taking into account that a small percentage of users invariably consume a disproportionate amount of overall network bandwidth, heavy user management moderates the amount of resources consumed by the small heavy user minority, especially during peak times. By reclaiming this often considerable capacity, service providers can free these resources to be shared by the much larger majority of users, and therefore improve the overall experience and ensure that all users have fair access.

USE CASE OVERVIEW

Sandvine's Heavy User Management use case equips service providers with the necessary network visibility and traffic management techniques to effectively manage heavy usage, allowing for a reallocation of excessive bandwidth consumed by the heaviest users to deliver a markedly better QoE to all network users.

Heavy User Management

Figure 1

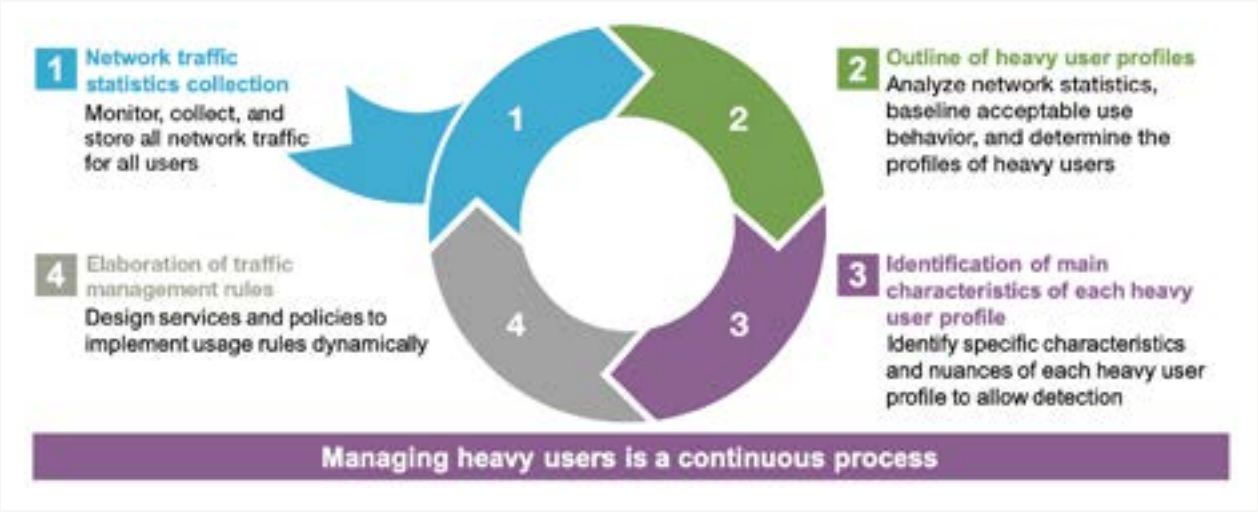
Heavy User Types

P2P SEEDER/LEECHER	PSEUDO SERVICE PROVIDER	MALWARE ZOMBIE	HOSTING SERVER	HIGH-POWERED GAMERS/STREAMERS
Uses P2P traffic at full speed for upload, download, or both consistently, even when they aren't actively using the network	Resells or shares its residential service to multiple customers. The traffic service distribution statistics is very similar to the general profile of the service provider itself, including a higher count of simultaneous connections and connections per second	Inadvertently generates high traffic and/or high connections-per-second due to infectious malware, which perform network scans or attacks	Predominately high upload traffic for services such as HTTP, HTTPS, etc. with server TCP and UDP ports for this traffic on their side indicate they may be acting as a hosting server (in residential capacity)	Generates high volumes of streaming video/gaming traffic for extensive periods of time

Specifically, this use case fulfills all stages of an effective heavy user management policy by implementing a continuous cycle of the following:

Figure 2

Heavy User Management Process



On average, heavy users can account for the top 1-5% of users and can consume 50-70% of network bandwidth

Accurately identifying the offending users requires granular traffic and usage insight, namely categorizing those users that consume the most traffic, and then associating them with their specific bandwidth-hungry behaviors and applications. Specifically, the service provider must first collect statistics on all network traffic consumed by all users to understand the percentage of bandwidth consumed on a per user basis.

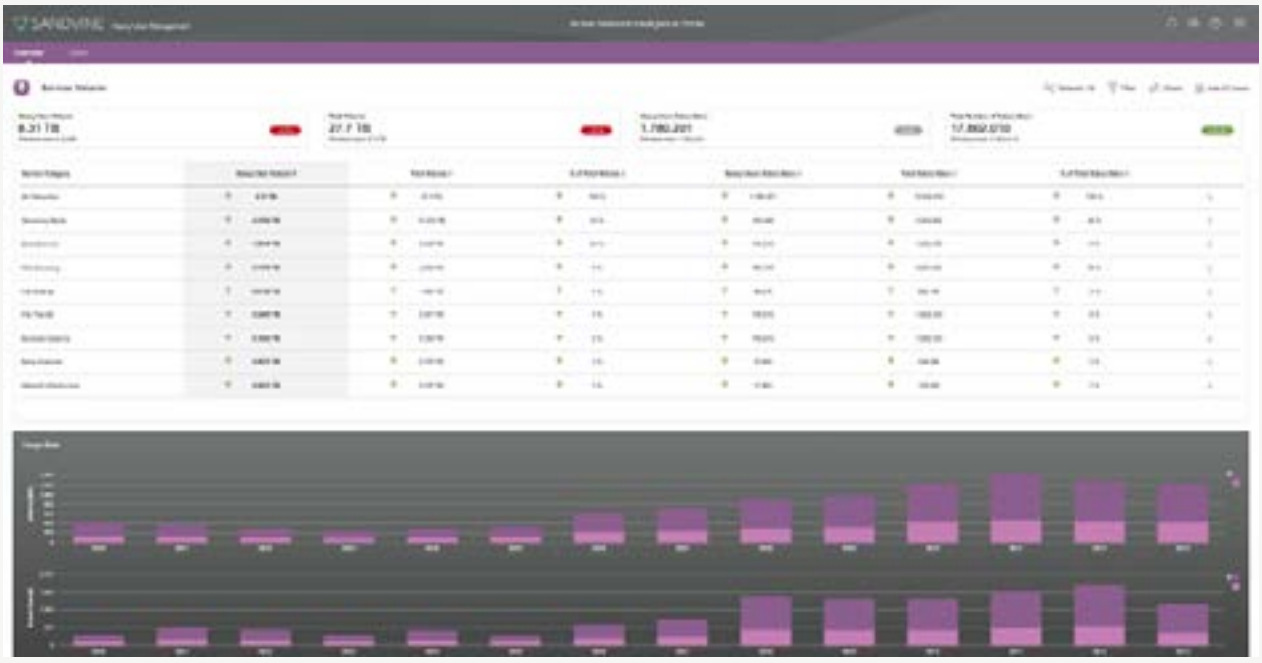
Once each user is identified and ranked by bandwidth consumed, the service provider can then select their heavy user population and begin to identify those behaviors that will be used for detection and enforcement of traffic management rules. For example, these behaviors could be P2P application usage or continuous and extensive amounts of high-resolution video traffic.

Sandvine's use case allows service providers to distinguish between network abusers and power users, who could be better serviced with an alternative plan. The available intelligence means policies can be delivered in a way that doesn't cause those power users to churn, but gives service providers the opportunity to be proactive in how they manage power users.

Heavy User Management

Figure 3

Sandvine's ANI Portal: Heavy User Management Overview Dashboard



By using an intelligence-based heavy user management solution, service providers can proactively and effectively manage heavy usage, reduce the likelihood of congestion-related churn, extend infrastructure lifetime, and maintain competitiveness and profitability.

ABOUT SANDVINE

Sandvine's cloud-based Application and Network Intelligence portfolio helps customers deliver high quality, optimized experiences to consumers and enterprises. Customers use our solutions to analyze, optimize, and monetize application experiences using contextual machine learning-based insights and real-time actions. Market-leading classification of more than 95% of traffic across mobile and fixed networks by user, application, device, and location creates uniquely rich, real-time data that significantly enhances interactions between users and applications and drives revenues. For more information visit **http://www.sandvine.com** or follow Sandvine on Twitter **@Sandvine**.

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