Traffic Management

In computer networking, **network traffic control** is the process of managing, controlling or reducing the network traffic, particularly Internet bandwidth, e.g. by the network scheduler. It is used by network administrators, to reduce congestion, latency and packet loss. This is part of bandwidth management. In order to use these tools effectively, it is necessary to measure the network traffic to determine the causes of network congestion and attack those problems specifically.

Traffic shaping

Main article: Traffic shaping

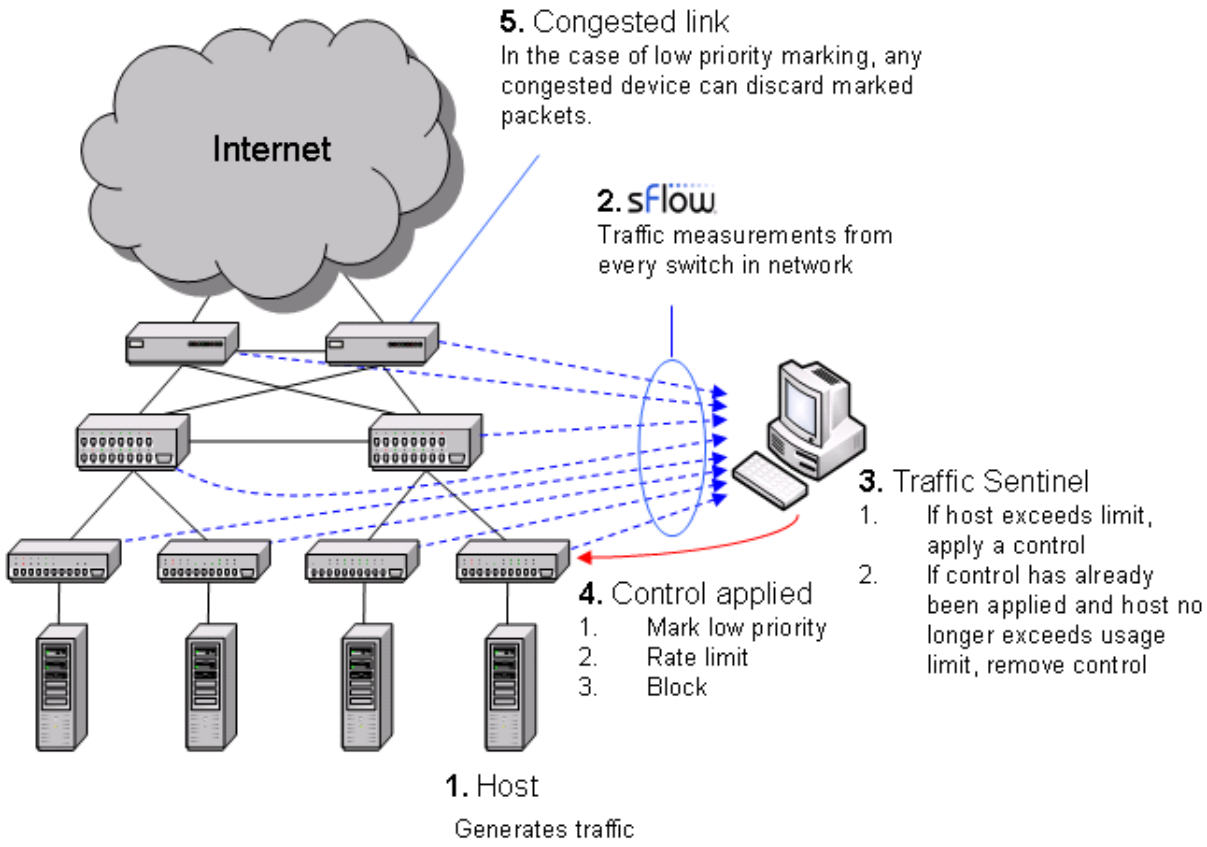
Traffic shaping is the retiming (delaying) of packets (or frames) until they meet specified bandwidth and or burstiness limits. Since such delays involve queues that are nearly always finite and, once full, excess traffic is nearly always dropped (discarded), traffic shaping nearly always implies traffic policing as well.

Traffic policing

Main article: Traffic policing (communications)

Traffic policing is the dropping (discarding) or reduction in priority (demoting) of packets (or frames) that exceed some specified bandwidth and or burstiness limit.

- Network performance



Traffic Shaping

Traffic shaping is used to control bandwidth of the network to ensure quality of service to business-critical applications. It can be validated at :

1. Port group level
2. Virtual or distributed virtual switch

This technique uses three parameters to shape the flow of network traffic :

1. Burst size
2. Average bandwidth
3. Peak bandwidth

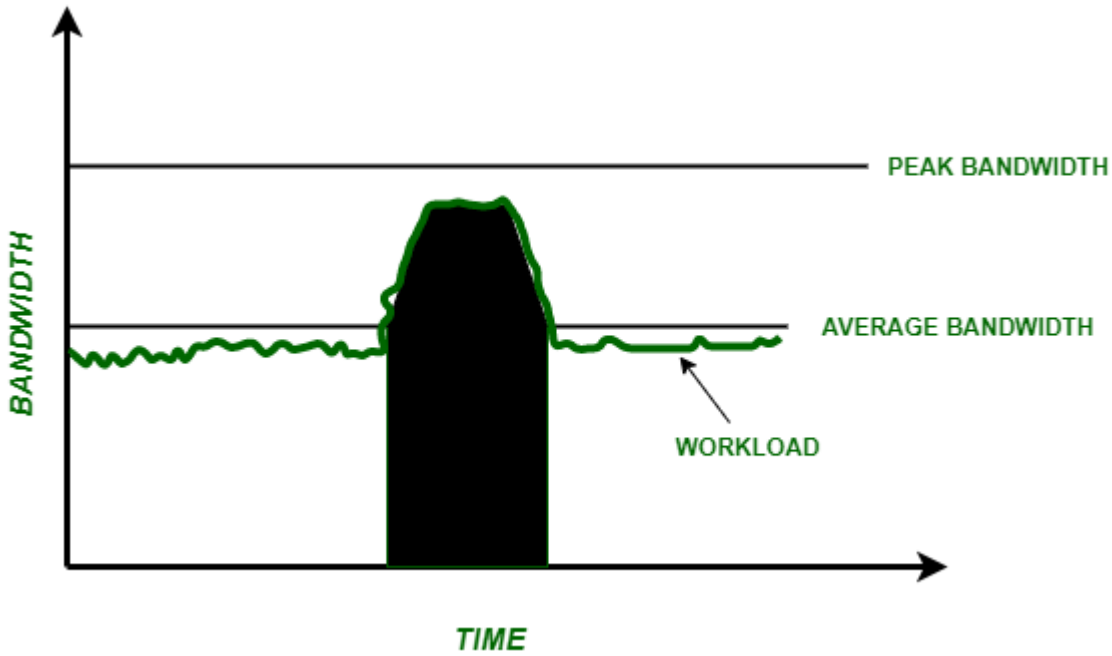
These are explained as following below.

1. **Burst Size :**
   When the workload is greater than average bandwidth it is known as burst. Maximum amount of bytes that are permitted to move in a burst are defined by burst size.
   Burst Size = Time*Bandwidth

   Bandwidth can increase up to peak bandwidth. Available bandwidth and time burst can stay for a specific burst size are inversely proportional to each other. Therefore, greater time burst can stay for a specific burst size, lesser is available bandwidth and vice versa. If a

particular burst is greater than the configured burst size, then remaining frames will be lined up for later transmission. The frames will be discarded in case queue is full.

2. **Average Bandwidth :**
   It is configured to set permitted bits per second across a port group level or a virtual/distributed virtual switch, over time. The rate of data transfer is permitted over time.
3. **Peak bandwidth :**
   It decides maximum number of bits per second permitted across a port group level or a virtual/distributed virtual switch without discarding or queuing the frames.
   Peak Bandwidth > Average Bandwidth



Traffic Shaping : A network traffic management technique.
Example :
Suppose we have Burst Size = 3 Kb, Average bandwidth = 1 Kbps and Peak bandwidth = 4 Kbps.
Then we can say that Burst with rate of data 3 Kbps can remain for 1 second.