



## TenStep Supplemental Paper

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3 March 2008

### Traffic Shaping

Carriers and Application Service Providers (ASPs) along with enterprise customers increasingly face the problem of controlling the flow of traffic on the network. Business critical applications like Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) depend heavily on bandwidth allocation and proper management of the wide area network. Inefficiently managed network links cause network application bottlenecks that are responsible for inconsistent performance. These bottlenecks are a great threat to an enterprise's existence as they affect communication with customers and strategic partners.

IT managers, ASPs and network outsourcers have no access to critical information about network applications. They can only handle enterprise resources passively, slowing down mission critical applications with low priority services that consume a considerable amount of bandwidth. Thus, traffic shaping is mainly affected by inaccessibility to detailed application and sub-application level data.

Traffic shaping involves several techniques used to enforce rules governing prioritization for data transmission over a network link. The current form of queuing data (packets, cells, frames) is based on 'First Come, First Served' policy. In this case, a large music file transfer that easily consumes a considerable amount of bandwidth can force data for mission critical applications to wait in line for a free slot. This could be overcome if the data to be transmitted were prioritized on the basis of their importance.

Traffic shaping solutions have helped IT managers, ASPs and outsourcers change the queuing pattern for data transmission. Traffic shaping is intended for the purpose of analyzing traffic flows and then using the pre-established rules to handle their maximum transmission rates. Most Service Level Management (SLM) tools are limited in their capability to analyze traffic flow because their report on the overall service performance is based on layer 4 data. It is impossible for these SLM tools to fix problems regarding the flow of applications and services without access to layer 7 data.

Essentially, a typical report generated by these tools consists of information about availability, Mean-Time-To-Restore Service (MTTRS) and sub-second response time. They also monitor trouble-ticket generated violations of SLAs (Service Level Agreements). The limited feature sets of SLM tools and the people behind network and application management steered the focus of SLAs towards performance evaluation and availability of network devices and cables. End users' feedback about the response times of applications on the network was considered irrelevant.

The proactive approach of new SLM tools and application priority switches helps IT managers, carriers and ASPs in identifying problems before they become critical. These tools are more focused on end users' requirements. Their application centric approach of managing resources helps IT managers, carriers and ASPs to assure availability of bandwidth for specific applications on a given circuit.