



Bandwidth Management Nomadix Service Engine

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Thursday, January 05, 2012

White Paper

Introduction

One of the most significant problems facing today's public access networks is the unlimited access model that was originally developed to preempt inevitable competitive pricing pressure. Unlike their dial-up forebears, connectivity in a broadband network is plagued by the unlimited connect time due to the "always-on" nature of the connection and the problems created by vastly increased bandwidth. These problems are magnified with the proliferation of Wireless Local Area Networks (WLANs) that run at slower speeds than traditional wired Ethernet.



AG-5600

Nomadix developed the Bandwidth Management feature for the Nomadix Service Engine (NSE) running on our family of Access Gateways to enable network administrators to deliver an equitable amount of bandwidth to their users while providing a mechanism to upsell service plans based on bandwidth rates.

Bandwidth Management

When designing the Bandwidth Management feature, Nomadix aimed to give service providers and network administrators the ability to change their subscribers' bandwidths in real-time while ensuring that users receive an equitable share of available bandwidth. Additionally, service providers can automate the bandwidth provisioning process, allowing subscribers to change their

Process a Subscriber Profile

MAC Address	<input type="text" value="00:10:A4:EF:45:EB"/>
IP Address	<input type="text" value="208.46.165.54"/>
Username	<input type="text" value="1meg"/>
Password	<input type="text" value="1meg"/>
Expiration Time	<input type="text" value="0"/> hrs <input type="text" value="0"/> mins
Paid	<input type="text" value="\$ 0.00"/>
User Definable 1	<input type="text"/>
User Definable 2	<input type="text"/>
Upstream Bandwidth	<input type="text" value="1024"/> Kbps
Downstream Bandwidth	<input type="text" value="1024"/> Kbps
Confirmation	<input type="text"/>

Bandwidth parameters can be set by the user.

Buttons: Show, Add Update, Delete, Reset

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bandwidth at will.

The NSE running on a Nomadix Access Gateway is the only control mechanism needed in the network, as it will act as a traffic cop- only delivering the bandwidth a subscriber is authorized to receive.

The Bandwidth Management feature enables service providers and network administrators to limit bandwidth usage on a per device (MAC Address/User) basis. This ensures every user has a quality experience by placing a bandwidth ceiling (limit) on each device accessing the network so every user gets a fair share of the available bandwidth.

The bandwidth for each device can be defined asymmetrically for both upstream and downstream data transmissions. The service provider can also allow the individual user to dynamically increase or decrease their bandwidth by the minute—or on an hourly, daily, weekly, or monthly basis—without having to disconnect or re-establish a new session. The NSE can also manage the WAN Link traffic providing complete bandwidth management through the edge of the network.

The Bandwidth Management feature shapes traffic going through the WAN and local links to prevent its over-utilization. The NSE accomplishes this using a patent-pending algorithm that queues traffic from overly busy instances in time, then sending the packets as appropriate lulls in the traffic occur.

Dynamic Bandwidth Management Presentment

Nomadix' patented Information and Control Console (ICC) of the NSE drives an HTML page down to each user's browser providing them with the ability to self-select services (i.e. upgrade their bandwidth and billing options in real-time).



Future development will enable the NSE's Bandwidth Management feature to provide "per application" bandwidth management enabling the development of new billing schemes based on applications such as VoIP, etc.