



IT Business™

Our Mission

The mission of *IT Business* is to provide a platform for discussion and analysis of the successful use of IT to enhance business processes.

**Ashton, Metzler
& Associates**

Leverage Technology & Talent
for Success

Webtorials

IT Business Brief

Crafting SLAs for Private IP Services

by Jim Metzler,
Ashton, Metzler & Associates

VPNs

January 2, 2004

A note from the founders

A Service Level Agreement (SLA) is an essential business tool to provide the customer with a reasonable set of guarantees from a service provider and to protect the service provider from unreasonable expectations by the customer. And a SLA that isn't measurable is useless.

The problem that we often face with new services is that the services are made available on a "best effort" basis before appropriate metrics for crafting an SLA are determined. Consequently, the relationship between the service provider and the customer is in peril because the exact terms of the relationship are not defined in advance.

In this IT Business Brief, my colleague Jim Metzler begins unraveling the mystery of specifying an appropriate SLA for Private IP services. I'm sure you will find it to be extremely useful as you start crafting and/or refining your own SLAs for these services.

- *Steven Taylor, Distributed Networking Associates / Webtutorials*



Jim Metzler

jim@itbusinessmedia.com



Steven Taylor

steve@itbusinessmedia.com

IT Business Brief

Published by
IT Business Media.
www.ITBusinessMedia.Com

Cofounders
Jim Metzler
jim@itbusinessmedia.com

Steven Taylor
steve@itbusinessmedia.com

Design/Layout Artist
Debi Vozikis

Copyright, 2003.
IT Business Media

Contact Jim Metzler
or Steven Taylor for
advertising information

Professional Opinions - All information presented and opinions expressed in IT Business Briefs represent the current opinions of the author(s) based on professional judgment and best available information at the time of presentation. Consequently, the information is subject to change, and no liability for advice presented is assumed. Ultimate responsibility for choice of appropriate solutions remains with the reader.

Crafting SLAs for Private IP Services

The Whys and the Wherefores of Service Level Management

The phrase "Private IP services" refers to a relatively new class of WAN services that incorporate IP functionality and that reside inside a single service provider's network. These services offer significant promise to many IT organizations. However experience has taught us that the migration to Private IP services is likely to present some noteworthy challenges.

For example, the early adopters of frame relay services didn't have the ability to monitor and manage the performance and reliability of their network. This resulted in unhappy end users, angry executives, and added pressure on network managers to better manage this critical resource.

Companies that are looking to deploy Private IP services should strive to avoid what happened to the early adopters of frame relay services. In order to accomplish this goal, companies should only consider deploying Private IP services that have embedded manage-

ment capabilities that enable WAN service level management.

The key management tool that documents WAN service levels is the Service Level Agreement (SLA). While creating and managing SLAs with service providers is critical for the success of the network organization, it can also be a complex set of activities.

SLA Implementation Issues

There are three key SLA implementation issues that have a direct impact on the usefulness of SLAs for Private IP services. The first issue is deciding where the measurements are taken. Because the local loop can have a profound impact on network performance, SLA measurements must be taken end-to-end; i.e., from one customer location to another customer location.

The second issue is utilizing a measurement system that is independent of the network that is being measured. The CPE switch or router cannot provide all the statistics needed to support WAN Service Level Management, and may include router delay that is not indicative of the WAN service problems.

The third issue is ensuring that it is easy to report effectively on the

status of the Private IP service to a diverse audience. Pre-programmed reports that are clear and concise are a necessity. It is also highly desirable to get access to these reports online via a Web interface, as well as to be able to generate custom reports.

Class of Service Functionality

Some service providers are beginning to include IP Class of Service (IP CoS) functionality as a component of their Private IP service offering. Including IP CoS functionality allows service providers to offer functionality that is somewhat equivalent to Frame Relay's Committed Information Rate (CIR). The use of these service offerings also allows enterprise IT organizations to efficiently support applications that have a wide range of requirements for network parameters such as delay and packet loss.

IP CoS is enabled by the introduction of Multi-Protocol Label Switching (MPLS) or a similar technology into the service provider's network. MPLS allows service providers to perform more granular traffic engineering than is possible in a typical IP network. For example, in an MPLS-based network it is possible to have multiple

active paths between the source and destination.

Private IP service offerings that incorporate IP CoS typically provide between three and five service classes. The use of this service offering allows IT organizations to map its applications to an appropriate service class. However, the use of this service also changes the network management requirements. In particular, IT organizations that use these service offerings must manage the SLA that is associated with each individual service class. IT organizations must do this both to ensure that they are getting the services that they negotiated for and to ensure that they are indeed mapping applications to the appropriate service class.

Key SLA Metrics

There are a number of metrics that can logically be included in an SLA for Private IP services. What actually gets included in the SLA is usually a balance between what best serves the needs of the customer and what the service provider feels comfortable offering.

One of the most important metrics that must be included in any SLA is availability. It is worth noting that most service providers will offer an availability metric based on


an average of the availability of every site in the network. However, what is often needed is a metric that guarantees the availability of a given circuit or a given site.

An ideal SLA would contain a guarantee for one-way delay. Unfortunately, providing a one-way delay on an end-to-end basis is a

very difficult technical challenge. Hence, the vast majority of service providers offer an SLA guarantee for round-trip delay.


Most applications are not sensitive to jitter. However, some applications such as voice and video are very sensitive to jitter. If an organization intends to deploy applica-

Maximum WAN Performance. Now, With IP VPNs, It's More Important Than Ever.



**Visual UpTime®. End-To-End WAN Performance Management
Visibility For Frame Relay, ATM And IP VPNs.**

See how much Visual UpTime can save you. Visit www.visualnetworks.com and download our FREE ROI modeler today



VISUAL NETWORKS
www.visualnetworks.com
 800.240.4010

©2002 Visual Networks Technologies, Inc. All rights reserved. Visual Networks, the Visual Networks logo, and Visual UpTime are registered trademarks of Visual Networks Technologies, Inc.

tions such as these on a Private IP network, it is important that the SLA for the Private IP services contains a stringent jitter guarantee.

The throughput of a WAN service is important to virtually all IT organizations. There are some minor differences in terms of how service providers measure and report on throughput. For example, some service providers focus on Data Delivery Rate, while others focus on packet loss.

Recommendations and Coming Attractions

Over the last year, the movement to use Private IP services has begun to gather momentum. Given the benefits that these services

offer, it is reasonable to expect that they will experience the same steady acceptance that Frame Relay experienced roughly a decade ago.

In order to successfully integrate these services into Enterprise WANs, IT professionals need to become sophisticated at crafting SLAs. This IT Business Briefs discussed some of the key components of an SLA for Private IP services. Future IT Business Briefs will analyze how service providers define and measure the key SLA metrics, as well as describe what remedies service providers offer for when they fail to achieve the guarantees contained in their SLAs.

Jim Metzler - is a principle in Ashton, Metzler & Associates a consulting firm that focuses on leveraging technology for business success. During his career, he has worked in virtually every major segment of the IT industry. Jim can be reached at jim@ashtonmetzler.com.