Chapter 12 - Handbook Summary and Review

This handbook has led you through the many ways that intelligent IP service optimization systems, using the power of deep packet inspection (DPI), can open up new revenue streams for you while ensuring that your network is operating at maximum efficiency. DPI-based IP service optimization systems give you visibility into all the traffic on your network, and then let you identify, classify, and assign quality- of-service (QoS) actions to the various traffic flows at wire speed. DPI functionality uses Layer 7 awareness to enable deep analysis of static and dynamic protocols, application signatures, content patterns, and session behavior without overstepping privacy boundaries. This visibility is the key to controlling and optimizing IP service delivery.

Today's convergence of voice, data, and video has greatly compounded the challenges you face as a service provider, from ever-expanding broadband demands — exacerbated by bandwidth-hungry applications such as peer-to-peer (P2P) and other file-sharing applications — to ever-higher service-level expectations and price competition. Intelligent IP service optimization puts control of the network back in your hands by showing you what is happening on your network right down to the behavior of each individual subscriber and application.

The Three Steps to Controlling Your Network
The three steps necessary to controlling today's converged networks begin with establishing a baseline. To do this, you leverage DPI to delineate exactly what's on your network, to identify traffic patterns across time, and to characterize overall bandwidth consumption. The second step is application control, which involves classifying traffic and setting network rules to create automated policies that govern the usage of individual applications. The third is subscriber management, which accommodates changes in subscriber usage and behavior, recognizes trends,

enforces service-level agreements (SLAs), and lets you increase the scope of your offerings, all with the aim of improving customer satisfaction and your bottom line.

Once intelligent IP service optimization is in place, its effects are equivalent to adding network multipliers to your system: you can meet increasingly sophisticated user needs more thoroughly with options such as tiered services, premium plans for businesses and heavy users, VoIP services, high-quality video streaming, usage-based charging, and self-provisioning. You can also use real-time graphical reports to troubleshoot network issues as they occur to keep the network running smoothly and ensure that all subscribers experience faster service response times.

Taking the Long View and Reducing Customer Churn
Intelligent IP service optimization helps you decrease churn by increasing loyalty. You build customer loyalty by ensuring that subscribers are consistently satisfied with their service and by anticipating and meeting subscriber needs before they have a chance to become complaints. The analytic reports in an intelligent IP service optimization system can show you:

- What your subscribers want and need

- Which future service upgrades are likely of interest to individual subscribers

- The areas of service improvement that are needed to increase customer retention

The analytic reporting component of intelligent IP service optimization is also useful in determining future bandwidth capacity needs. You can justify expansions in usage, capacity, and service offerings by examining historical usage patterns and making projections of need based on actual subscriber behavior. This approach to long-term planning not only helps you prepare for the impact of new application services that subscribers will likely demand, but it also lets you be a leader in customer satisfaction by paralleling current trends and anticipating future applications and service level directions.

Protecting Real-Time Traffic Integrity
Service providers increasingly are being judged on the quality of the specialty services they offer, especially today's VoIP and video-on-demand (VoD) services. You can use intelligent IP service optimization to ensure that your own branded VoIP service — and other VoIP services using your network — receive the proper

prioritized traffic status on a per-flow basis. You can do the same for VoD, podcasts, live TV programming, video news clips, and other rich-media content.

For VoIP, intelligent IP service optimization allows you to ensure QoS for calls in progress and also lets you apply QoS techniques to reduce VoIP latency, jitter, and packet loss. By managing traffic congestion and recognizing anomalous traffic behavior, intelligent IP service optimization can block suspect traffic to prevent distributed denial of service (DDoS) attacks that could disrupt voice service on your network.

For on-demand content, intelligent IP service optimization can distinguish, optimize, and protect rich-media traffic on your network. You can also track subscriber usage of Web-based content — such as streaming video — in order to identify top video watchers to whom you can target IPTV or other rich-media service packages.

Creating and Profiting from New Competitive Services

Tomorrow's service provider will need tools like DPI to compete effectively in an arena flush with new types of competitive services. Residential subscribers who temporarily want high volumes of bandwidth for gaming and movies are just the beginning.

As the IP Multimedia Subsystem (IMS) becomes widespread, service providers will be providing full access services independent of location or platform, allowing subscribers to roam across different underlying wired and wireless network infrastructures with no disruption of the service experience. Such access-agnostic roaming capabilities will not be universally adopted overnight, however, and that technology lag will lead to a mix of IMS and non-IMS applications running across carrier networks. Service providers can install DPI-capable service control devices between their network gateways and IP backbones to service both types of users, allowing IMS implementations to coexist with traditional, non-IMS applications and enabling service providers to use network intelligence to classify, shape, control, block, and charge for both types of traffic.

Conclusion

Service providers face a host of new challenges in today's competitive market. Being able to manage the triple play of voice, video, and data without endlessly adding bandwidth and infrastructure is a task best solved by using DPI-based intelligent IP

service optimization, which enables carriers to classify, manage, control, and charge for the various tiered services on the network.

Service providers can regain control over their increasingly complex networks by establishing a usage baseline using DPI and then controlling the bandwidth usage of application and subscribers by classifying traffic, setting priorities, and applying quality of service (QoS) policies to the various traffic flows. Optimizing networks promotes customer loyalty by delivering the best service possible. The same analysis that optimizes the network can also help anticipate growth needs and assist in long-range planning.

Protecting service levels using intelligent IP service optimization will help ensure that today's data subscribers become users of the tomorrow's gaming, collaboration, video, VoIP, and IMS services. These new creative services are the ways that tomorrow's service providers will generate new revenue streams and increase ARPU across all segments of their subscriber bases.

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