Application Control
Features & Benefits

The Autonomic Networking System™ (ANS™) links application performance over the network with the enterprise's business goals.

Self-learning, self-adapting and self-healing, ANS offers tightly coupled features that together bring a unique level of intelligence to the enterprise network:

- **Application Visibility** provides full understanding of application usage and performance over the global network - from the smallest detail up to SLA-based application performance management;

- **Application Control** dynamically adjusts network behavior and resources to the exact application traffic demand - guaranteeing critical application performance in the most complex and changing traffic situations;

- **WAN Optimization** accelerates application response times and offers additional virtual bandwidth to the network;

- **Dynamic WAN Selection** enables Dynamic Hybrid Networking for multi-networked branch offices, selecting in real-time the best path according to actual performance and application traffic characteristics.

OVERVIEW

In a continuously changing and complex environment, IT organizations need to rely on the strongest bandwidth management solution to deliver expected application performance and to be sure their network will support all IT transformations (UCC, Clouds, BYOD…) fully aligned with business objectives.

Why bandwidth management and traffic prioritization are mandatory

While obvious for small capacity links, bandwidth management and traffic prioritization are now also mandatory for high capacity links. For example, demand increases for Webcam Video at 400 Kbps and employees synchronizing 1 Gbyte files with an "online backup" solution, such as Dropbox. This type of traffic can block Business Critical applications such as ERP, several times a day at each branch office.

Why Application Control is the leading solution

Ipanema's Application Control is recognized as the leading solution for bandwidth management and traffic prioritization [1]. Application Control is the only solution that relies on **user-centric and business-oriented performance objectives** enforced by **cooperative devices**. They perform **per-flow dynamic and adaptive** bandwidth allocation and priority queuing, handling **both inbound and outbound traffic**. Application Control is **fully coupled with other Ipanema features**.

HOW IPANEMA'S APPLICATION CONTROL WORKS

Ipanema's patented dynamic bandwidth allocation and queuing algorithms regulate traffic flows over the enterprise WAN in order to maximize the capacity of links, continuously avoiding congestion that would degrade the performance of applications.

The enterprise centrally defines Application Performance Objectives (APO), including a minimum bandwidth for each application session and a criticality level used for prioritization. The Ipanema system continuously monitors conditions across the entire network – computing bandwidth availability and application demand - and acts locally on traffic flows to prevent network congestion globally.

This approach is definitively more efficient than traditional CoS solutions that shape the traffic according to static rules and consider an application as a whole without the ability to differentiate application usage by each end-user.

(1) *Gartner Magic Quadrant 2012: "Unique in the market, Ipanema uses a closed-loop feedback mechanism that can tune delivered QoS across massive mesh networks to match precisely defined SLAs."*

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Sense

The Ipanema system computes bandwidth demand, i.e. identifying in real-time all the flows that cross the network. It analyses traffic up to Layer 7 through Deep Packet Inspection that identifies the flow patterns of applications. Then, flows are continuously classified based on their APO and behavior. The system also assesses the real-time network conditions with bandwidth tracking mechanisms. Since Ipanema's network devices are cooperative, the system not only considers the local capacity but also the remote capacity and end-to-end capacity as well.

Enterprise Applications		Application Perf. Objectives (per flow)				
Application name	Criticality	Bw (kbps)	Delay (ms)	Jitter (ms)	Loss (%)	Etc.
SAP	Top	50	50-200	n/a	1-3	
UCC Voice, IP Telephony	Top	80	50-100	25-50	0-1	
UCC Telepresence,	High	2,000	50-100	40-80	0-1	
Logistics/Citrix	High	20	50-200	n/a	1-5	
File Sharing	Medium	400	200-800	n/a	1-5	
Salesforce.com	Medium	50	200-800	n/a	1-5	
Office 365	Medium	400	200-800	n/a	1-5	
Sharepoint	Medium	400	100-400	n/a	1-5	
Webcam, Skype	Low	0	n/a	n/a	n/a	
YouTube/Facebook	Low	400	200-1000	n/a	1-5	

Respond

Based on the analysis of the global demand and available bandwidth, the Ipanema network devices regulate the application flows:

- when there is no risk of congestion, the bandwidth requirements for all flows are satisfied;

- when global demand is close or above available bandwidth, devices act on the flows according to their APO and real-time activity.

The devices shape flows starting from the lowest criticality apps to the highest as necessary to ensure the minimum bandwidth requirement. Several criteria drive the queuing of flows, including the nature of applications (real-time, transactional or background) and the actual behavior of the flows (idle, stable, elastic).

With its cooperative devices, the Ipanema system can handle all topologies, even fully meshed, and all types of congestion. It also manages both inbound and outbound traffic and can even tele-manage non-equipped sites with tele|engine devices.

Ipanema's Application Control is not only compatible with MPLS CoS but also strongly streamlines its operational management by optionally coloring packets for the CE router — a great benefit when considering the complex process of updating CoS statically.

BENEFITS

For the enterprise as a whole: Fully align IT organization, network and application performance with business objectives. Make all IT transformations a success by ensuring the network will not be a bottleneck. Protect software investments.

For the IT organization : Handle increasing complexity of network management that can no longer be fixed manually and statically   because of fully-meshed topology, hundreds of business applications and web sites, thousands of flows from many devices, and the explosion of new application usages including video and file sharing continuously competing with transactional flows such as VDI and ERP. Optimize network budget by using network capacity to the maximum. Reduce help-desk calls.

For the end-user: Increase end-user productivity. Maximize end-user contributions to the business. Avoid end-user frustration while performing critical activities with business applications, even during peak business hours. Allow comfortable but auto-regulated usage for other applications.

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