

DATA SHEET

Application Control

End-to-End QoS



Overview

In an application-driven business environment, IT organizations need to rely on the strongest bandwidth management solution to guarantee the application quality of experience for their users. Additionally, corporations strive to construct networks that will support all IT transformations (UCC, Cloud, SaaS, BYOD, IoT, ERPs), with full business-objectives alignment.

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, bandwidth demand increases when webcam video, requiring several hundred Kbps, is deployed across a network. Employees are also conducting

file sharing synchronization, often requiring more than one gigabyte of memory, by using “online backup” solutions, such as OneDrive for Business or SharePoint. This type of traffic can dramatically impact critical applications, such as ERPs or CRMs, by degrading services.

WHY APPLICATION CONTROL IS THE LEADING SOLUTION?

Ipanema’s Application Control is recognized as the leading solution for bandwidth management and traffic prioritization⁽¹⁾. Indeed, it is the only solution that relies on user-centric and business-oriented performance objectives, which are enforced by cooperative appliances. The Ipanema appliances work per session, by using dynamic bandwidth allocation and priority queuing. Application Control handles both inbound and outbound traffic and it is fully coupled with other Ipanema features.

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1. Gartner Magic Quadrant 2016: “Infovista (formerly Ipanema) supports a unique application-policy-driven solution, dynamic per-flow or per-packet control, WAN path selection, direct access to Internet and WAN optimization in a single, centrally managed system.”

How Ipanema's Application Control Works?

Infovista's patented dynamic-bandwidth allocation and queuing algorithms regulate traffic flows over the enterprise WAN in order to maximize the use of links capacity. The Ipanema system solves the persistent congestion that degrades the performance of applications.

The enterprise defines global Application Performance Objectives (APO) in a centralized way. These objectives include minimum guaranteed bandwidth and the prioritization level for each application session. Ipanema monitors performance across the entire network, and computes the total bandwidth availability and application demand. With this information, Ipanema acts on locally on flows to have a global impact the network in the most complex traffic situations.

This approach is proven to be more efficient than traditional Class of Services (CoS) solutions that shape traffic flows according to static allocation rules without providing the enterprise with the ability to differentiate application usage for each end user.

SENSE

The Ipanema system computes bandwidth demand by identifying, in real-time, all of the flows that cross the network. It analyses traffic up to Layer 7 attributes through Deep Packet Inspection, which identifies the flow signatures of applications. The flows are continuously classified based on their APOs and actual behavior. The system also assesses, in real-time, the capacity conditions with bandwidth tracking mechanisms. Since Ipanema appliances are cooperative, the system not only considers local and remote WAN accesses' current usage, but also end-to-end traffic capacity. This allows knowing in real-time the remaining capacity between any sites.

Ipanema SD-WAN links application performance over the network with the enterprise's business goals.

- **Self-learning, self-adapting and self-healing,** Ipanema offers tightly coupled features that 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 WAN for multi-networked branch offices, selecting in real-time the best path according to actual performance and application traffic characteristics; **WAN Security** protects branch Internet connections from threats. It encrypts traffic over IPsec VPNs to public and private DCs. It forwards Web traffic to Secure Web Gateway providers and allows/denies traffic to go directly to the Internet.

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RESPOND

Based on the analysis of the global network demand and the available bandwidth, the Ipanema appliances regulate application flows in these scenarios:

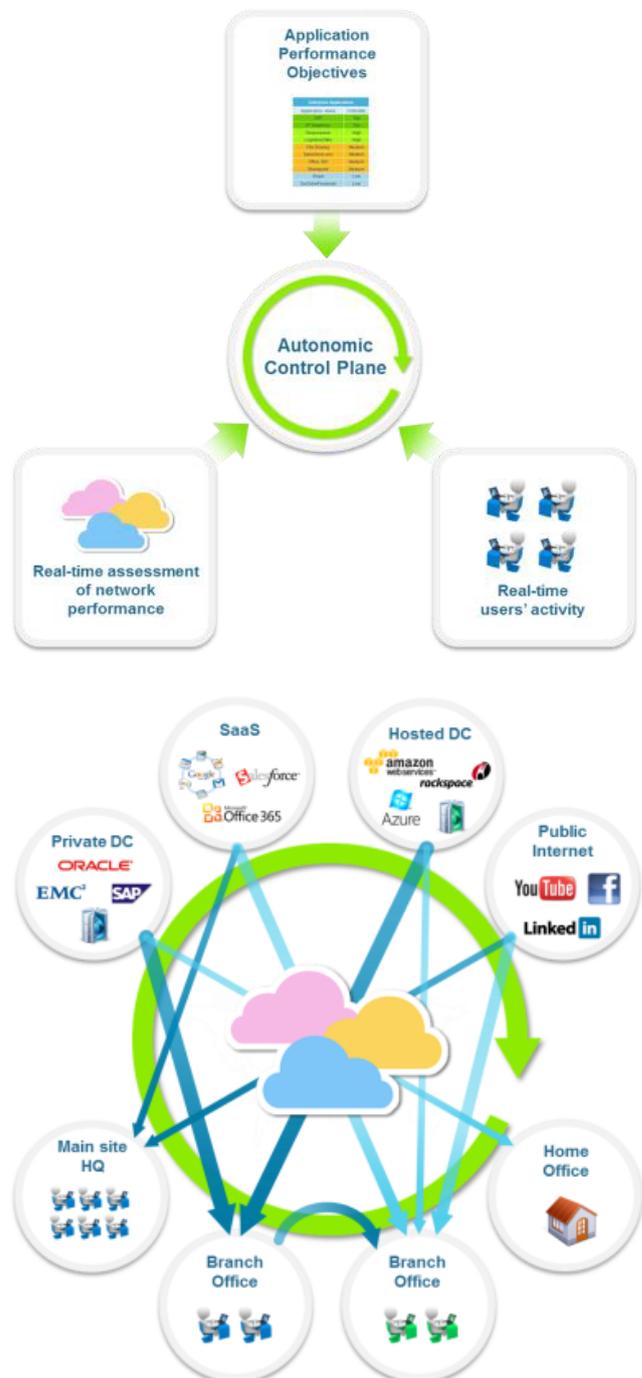
- When there is no risk of congestion, the bandwidth requirements for all flows are satisfied and the control mechanisms are not triggered;
- When total applications' demand is close to or in excess of the available bandwidth, the appliances act on traffic flows according to their APOs based on their respective criticalities.

When the Ipanema appliances apply traffic shaping to the flows, they regulate first the applications of the lowest criticality, and then continue up to the applications with highest criticality as necessary for ensuring the minimum guaranteed bandwidth requirement. Several criteria drive the queuing of flows, including the nature of applications (real-time, transactional or background) and the actual bandwidth behavior of the flows (constant, variable, elastic).

With its cooperative functionality, 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 do traffic "tele-management" of non-equipped sites with tele|engines.

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

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	



Benefits

For the enterprise, as a whole: Align network and application performance with the company’s business objectives. Ensure the success of all IT transformations by ensuring the network will not create bottlenecks, will protect software investments and increase business efficiency.

For the IT organization: Handle fully meshed topologies having hundreds of applications (e.g. video and file sharing) which compete with VDI and ERP flows. Optimize network budget through optimal usage of corporate network capacity. 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 and auto-regulated use of other applications, such as some social networks.



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About Infovista

Infovista, the leader in modern network performance, provides complete visibility and unprecedented control to deliver brilliant experiences and maximum value with your network and applications. At the core of our approach are data and analytics, to give you real-time insights and make critical business decisions. Infovista offers a comprehensive line of solutions from radio network to enterprise to device throughout the lifecycle of your network. No other provider has this completeness of vision. Network operators worldwide depend on Infovista to deliver on the potential of their networks and applications to exceed user expectations every day. Know your network with Infovista.