Dynamic WAN Selection
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

Ipanema's Dynamic WAN Selection (DWS) provides **user-centric and real-time path control**. It automatically chooses the best network access for each application flow, taking into account the **actual end-to-end conditions of the entire Hybrid Network - capacity, availability and quality** - in order to maximize the end-user experience and optimize the usage of each available network.

Natively integrated with Ipanema's Application Control and WAN Optimization, DWS allows enterprises to successfully implement and manage their Hybrid Networking and Internet local break-out strategies, which are now widely considered to increase business continuity, IT agility and network efficiency.

HOW IPANEMA'S DWS WORKS

DWS is a WAN Path Controller that enables an enterprise to balance traffic to and from a site over two or more network accesses. It supports multiple network combinations like dual MPLS access, dual service providers, MPLS+Ethernet or MPLS + Internet.

As with all other Ipanema features, DWS relies on the ability of Ipanema's Autonomic Network System (ANS) to continuously measure in real time the actual bandwidth availability and application usage demand of the entire Hybrid Network.

Sense

The Ipanema system identifies in real-time all of the application flows that cross the network. Contrary to Policy-Based Routing (PBR) mechanisms which are limited to Layers 3 and 4 analysis, Ipanema's Deep Packet Inspection analyses traffic up to Layer 7 to identify the patterns of applications flows. Then, flows are continuously classified based on their Application Performance Objectives (APO) as centrally-defined by the enterprise. Network path preferences are also defined centrally for each application.

Measuring bandwidth availability requires knowing the current network conditions. Contrary to other WAN Path Controllers, DWS not only considers the local availability of links but also the end-to-end characteristics of each network — meaning available bandwidth and actual quality criteria, including network delay, jitter and loss. This is possible because Ipanema's ip|engine network devices are cooperative and share this information in real time.

Application Performance Guarantee

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Respond

Based on this global knowledge of real-time application usage and bandwidth availability, the ip|engine device decides for each flow the network path that best matches the predefined network path preference and Application Performance Objectives (APO). For example, voice will usually look for the fastest path while email might prefer the largest available path. DWS, working simultaneously with the Ipanema system's Application Control feature, continually decides the best network paths for application flows to avoid traffic congestion.

Options for network path preference allow a variety of selection strategies — from fully automated to partially or fully constrained — in order to adapt to various enterprise policies.

For example, it can be decided to use a path from network #2 (Internet) when network #1 (MPLS) does not match with the APO ("Fully Dynamic"), or only when network#1 (MPLS) is not available ("Primary/Backup" usage). For certain applications, it can be decided to never use network#2 even when network#1 is not available (this usage is driven by "security constraints" to not send sensitive information through the Internet). Other options can be set centrally per application, such as to use or not use the same path for a whole IP session.

Defining these objectives and preferences by application centrally is another fundamental advantage of DWS for streamlining IT management, especially in complex IT environments.
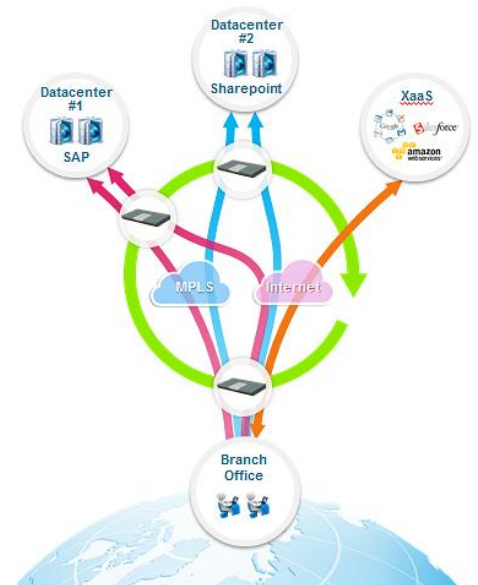
BENEFITS

For the enterprise as a whole: Increase Business Continuity by ensuring always-available connectivity to critical applications. Accelerate time-to-market for key innovations. Reduce time to launch new remote offices and points-of-sale.

For the IT organization: Improve IT agility and ensure the network will not be a bottleneck to the rollout of new applications. Reduce IT infrastructure costs by optimizing network efficiency, leveraging best of two worlds (MPLS+Ethernet or MPLS+Internet) and activating previously inactive-backup links. Simplify IT management by eliminating the configuration issue of other solutions such as PBR or traditional WAN Path Controllers.

For the end-user: Increase end-user productivity. Reduce end-user frustration by offering a comfortable work experience, more bandwidth for hungry traffic, and the shortest response times for SaaS applications.

Key differentiators to remember:

- Granular & User-Centric: Decisions made in real time per application flow, not for a whole application or set of applications.
- Business-Oriented: Predefined and centrally controlled APOs and Network Path Preferences drive decision-making.
- Dynamic and End-to-End: Local and global network conditions are taken into account.
- Integrated with other features: Ensures the global consistency of all decisions.
- Easy to manage: APOs and Network Path Preferences are automatically communicated to all sites.

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