



# virtuall|engine Virtual-Machine Appliance

The Autonomic Networking System™ (ANS™) is at the heart of Ipanema's ability to connect application performance to 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, including:

**Application Visibility**, providing full understanding of application usage and performance over the global network - from the smallest detail up to high-level KPIs to manage application SLAs and capacity planning;

**QoS & Control**, dynamically adjusting traffic control and network resources according to users' activity and application performance objectives, enforcing critical application SLAs in the most complex and challenging traffic situations, while guaranteeing the best possible usage of the infrastructure;

**WAN Optimization**, accelerating application response time, optimizing chatty protocols and providing additional virtual bandwidth by substantially reducing the volume of data transmitted across the network;

**Dynamic WAN Selection**, selecting the best route for application flows in multi-networked branch offices according to the application performance objectives of each user flow and the real-time performance characteristics of each available path

Ipanema's Autonomic Networking System™ (ANS™) uses both software and hardware components. The fully featured hardware components are called ip|engines. These devices are installed within the customer VPN at edge locations, typically between a CPE router and the LAN.

This document describes the virtuall|engine, a virtualized image of a physical ip|engine. This virtuall|engine enables Enterprises to manage their public and private cloud applications seamlessly in the same manner as their traditional business applications using ANS. <sup>(1)</sup>



## When should a virtuall|engine be considered?

In some cases, **deploying a hardware appliance is a challenge** for Operations, too much time consuming or even impossible:

- Deployment in countries with custom-clearance issues
- Limited space or strong-constraint environment

In other cases, the enterprise IT's strategy is to fully virtualize deployment of appliances through an industrialized virtual environment.

- Either in fully virtualized private Data-Center (virtualization of infrastructure and operating systems)
- Or in virtualized Branch-Office (Branch Office Box, BoB,)

<sup>1</sup> The Ipanema virtual|engine should not be confused with the Ipanema tele|engine, the branch office management service that requires no hardware or software installation locally.



Both these deployment cases are covered using Ipanema's virtual|engine appliance installed on a server or on a CPE router's blade.

### Key Benefits

The virtual|engine brings the same benefits as a physical ip|engine and allows enterprises to Guarantee Application Performance over the network, going far beyond classical WAN Optimization, through tightly integrated features: Application Visibility, QoS & Control, WAN Optimization (2), Dynamic WAN Selection (2) and Network Rightsizing. Enterprises can support their strategic IT transformations such as cloud computing and Unified Communications and control Internet growth while reducing their IT expenses.

In addition, the virtual|engine appliance avoids deploying a dedicated hardware appliance leading to:

- Flexible deployment models, including virtualized data centers and branch office box;
- Virtualization of the infrastructure platform (hardware and operating systems) at the data center and at the branch office;
- Reduced costs and faster installation times.

### Models

Two Virtual Images are available, depending on the size of the site to be equipped:

- Virtual|engine 20ax, a branch-office device up to 20Mbps.
- Virtual|engine 140ax, designed to be used for larger sites and Data Centers, up to 100Mbps (3)

Both can be installed both on a SRE blade in a Cisco router or on a VMware servers

### VM-Ware Configuration

Currently the supported hypervisor is VMware ESXi and requires the following VM configuration:

Model	Virtual CPU(s)	Memory	Virtual NICs		OS Disk	Data Disk
			Serial in-line	Virtual out-path		
vip e 20ax	1 x 1.0 GHZ min	1900 MB	3 = MGT, LAN/WAN	2 = MGT, LAN	1 GB	30 GB
vip e 140ax	2 x 1.6 GHZ min	4096 MB	3 = MGT, LAN/WAN	2 = MGT, LAN	1 GB	60 GB

### Deployment Scenarios

The virtual|engine supports deployment both "in-path" and "out-of-path."

- **Serial in-path**, The VM server is inserted between the LAN and the WAN access routers. It acts as a multi-ports switch toward the WAN. It must be noted that fail-safe mode is not possible with Virtual Machine. As a consequence, an alternate physical connection between the CPE router and the LAN switch must be created to ensure network continuity.
- **Out-of-path, using WCCP v2**, in this mode, virtual|engines are not in the path between the LAN and the WAN. Instead, WCCPv2 protocol is used to redirect traffic to them through a GRE tunnel. All traffic flows to and from the virtual|engine through its LAN interface (the WAN interface is unused). Devices can be clustered to increase the maximum throughput using native WCCP capabilities.

<sup>2</sup> Please refer to the Release Notes for full information about any restrictions

<sup>3</sup> When deployed out of path, WCCPv2 supports clustering of virtual|engines for increased throughput if required