



# BladeFrame<sup>®</sup>

## System Overview



Egenera simplifies the data center with a unique server architecture specifically designed to reduce data center complexity and deliver an agile, highly-available infrastructure. The Egenera<sup>®</sup> BladeFrame<sup>®</sup> system's Processing Area Network (PAN) architecture eliminates the need to dedicate servers to applications. Instead, a data center virtualization architecture, which replaces physical components with software, can automatically repurpose and reallocate servers on demand. Virtualization means that server resources can be easily shared, enabling enterprises to slash server count and reduce data center complexity by up to 80 percent. Additionally, new servers can be provisioned in minutes—not days, weeks or months—to enable business agility that cannot be achieved with legacy server architecture.

Moreover, by combining the scalability of blade servers and the price/performance of x86 processors with mainframe-class functionality, the BladeFrame enables data centers to leverage Linux<sup>®</sup>, Microsoft<sup>®</sup> Windows<sup>®</sup> and Sun<sup>®</sup> Solaris<sup>™</sup> for mission-critical applications. Other x86-based systems simply aren't robust enough. Mid-range and high-end RISC systems, like mainframes, cost a small fortune and lock you in. Egenera delivers commodity price/performance with the enterprise-class functionality needed to run a business. Key benefits include:

### Lower TCO

Virtualization enables multiple applications to share resources for spikes and failover, making it possible to reduce excess capacity by 50 percent and double utilization. And it's all business-driven. Resources are automatically allocated through software based on application priorities and service levels.

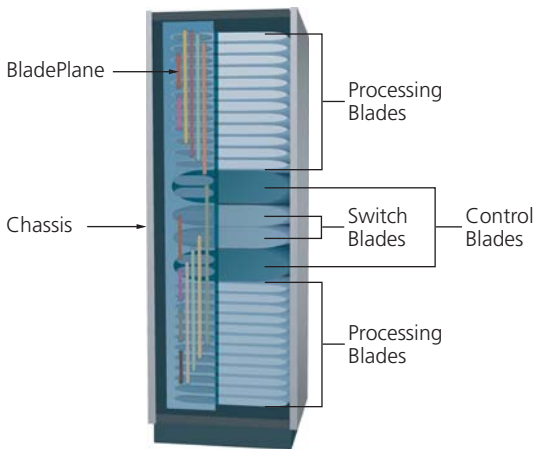
Virtualization also simplifies data center infrastructure by reducing the number of devices and failure points under management. 1,000 discrete servers can be replaced with just 10 BladeFrame systems, lowering server count by 75 percent. This consolidation slashes TCO by reducing operational costs including software license fees, hardware maintenance fees and personnel requirements.

### Unprecedented Agility

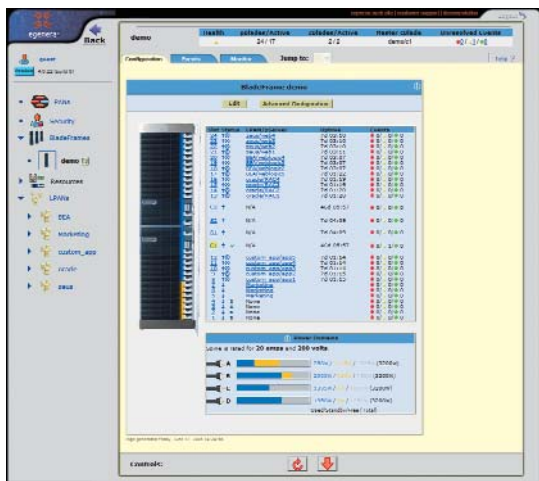
Through virtualization, new services can be launched faster than ever before to neutralize competitive threats and capitalize on market opportunities. When a new processing resource is required, it can be installed and deployed—including automated configuration of the software stack—in minutes, versus the weeks required to provision traditional hardware.

For existing services, resources can be repurposed in minutes to scale applications and ensure uptime. Based on business priorities, the Egenera system can identify applications that are under-powered or over-powered, and reallocate capacity on-the-fly. Incremental resources can be accessed from asset pools or shifted from less critical services. The same model applies to hardware and software failover, ensuring that mission-critical services are always available and making high availability cost-effective for every organization and application.

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*This rear-view image illustrates how the BladePlane consolidates connectivity for 24 Processing Blades.*



*Egenera PAN Manager software provides a single point for configuring, managing and monitoring both the physical and virtual resources in the Processing Area Network.*

## Hardware

The Egenera BladeFrame creates a pool of up to 192 server-class x86 processors deployable entirely through software. The product consists of a 24x30x82-inch chassis containing up to 24 processing resources (Egenera Processing Blade™), redundant central controllers (Egenera Control Blade™), redundant integrated switches (Egenera Switch Blade™) and redundant, high-speed, low-latency interconnects (Egenera BladePlane™).

The BladeFrame was engineered to complement Storage Area Network (SAN) technology. Thus, the diskless, anonymous Processing Blades—which function just like conventional servers once configured—contain only processors and memory and require no external connections. Instead, all Ethernet and disk I/O is routed via the BladePlane through the Control Blades, which interface to the IP network and external storage. The Processing Blades communicate among themselves and with the Control Blades over an integrated switched fabric network at speeds faster than Gigabit Ethernet.

## Software

The PAN architecture establishes a distributed set of BladeFrame and non-BladeFrame resources—including processors, disks and network connections—that are dynamically associated into virtual servers through Egenera PAN Manager™ software. A PAN Manager option, Egenera vBlade™ software enables an administrator to partition a Processing Blade into “virtual blades” (defined by CPU and memory resources) on which to deploy Egenera virtual servers. This provides a single environment for configuring, allocating, repurposing and managing both physical and virtual blades.

PAN Manager also provides comprehensive management functionality, including lights-out access and user-friendly console interfaces. Finally, the software continuously monitors the health and performance of resources and optimizes system operation in a predictive manner, making the BladeFrame self-monitoring, self-tuning and self-healing.

## Service

Recognizing that the BladeFrame is deployed in mission-critical environments, Egenera designed the system for serviceability. Most blade components are easily customer-replaceable. The system also features event-notification functionality. Likewise, Egenera can remotely monitor performance on a 24x365 basis and proactively respond.



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