Executive Brief

Maximizing Business Agility
with the Dynamic Data Center

Abstract

Virtualization technology may be decades old, but it is filled with new promise in helping IT executives improve data center responsiveness.

As one of those executives, perhaps you have completed the first phase of virtualization — server consolidation — and enjoy the benefits of lower costs, less crowded floor space, and a smaller carbon footprint. Now you're looking at virtualization as a way to create a more agile IT infrastructure that will provide higher service levels and greater reliability along with further reductions in TCO — what Egenera calls the *dynamic data center*.

Unfortunately, the closer you look at the myriad "virtualization made easy" products on the market, the more you realize that, at the end of the day, you will only shift existing costs and operational complexity from the physical world to the virtual, without realizing the agility and business resilience you seek.

But among the thorns of incomplete data center infrastructure management solutions, there is a rose that stands out. Egenera keeps some of the world's most vital applications running on industry-standard servers. And we do it by requiring significantly less equipment, intelligently employing virtualization technology, and dramatically simplifying operational practices. All of which translates into higher business value and a healthier bottom line.

The Complexity Conundrum

If you're like most IT executives, then budgetary pressures and operational complexity are inundating your data centers at the very time IT is evolving from a support function into a core element of the competitive business environment.

Ironically, as you can see in Figure 1, most of this cost and complexity is on the right side of the graph where there are relatively fewer servers. But they are the ones running business-critical and mission-critical applications.

On the left side are the edge applications, those intranet and print services that require little in the way of customization or management, and which do not impact the business if they fail. This is the area where the inventory of servers is growing rapidly and much of the unused CPU power is wasted.
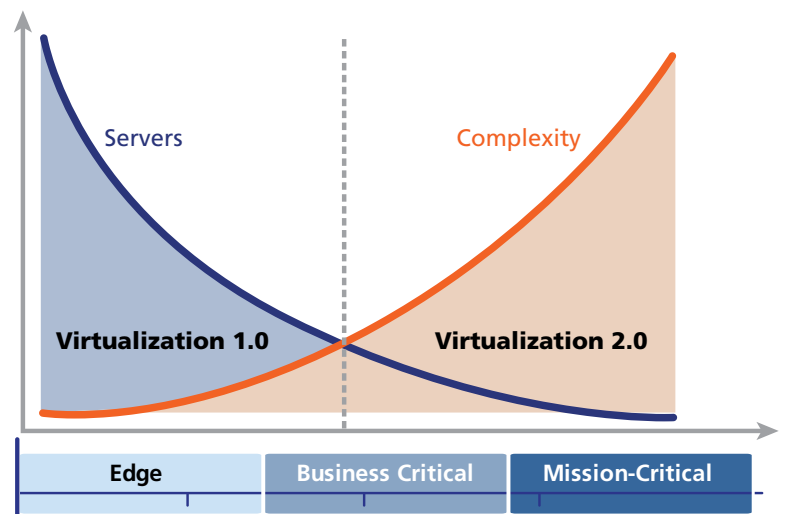

Figure 1: Data Center Complexity

Server virtualization has proven effective as a way of reducing equipment levels at the low end along with attendant support, energy, and floor space costs. This tactical use of virtualization is often referred to as Virtualization 1.0.

According to the analyst firm Forrester Research, by the year 2009 over 50 percent of all enterprises will have at least two years of experience invested with server virtualization.[1] Forrester goes on to say that this two-year milestone is crucial because it represents the "tipping point" at which firms will have garnered a working knowledge of virtualization and are ready to move to a more strategic application of the technology.

Strategic virtualization begins with Virtualization 2.0 (Figure 2). Here, high availability, disaster recovery, and workload management begin to yield a reduction in the slope of the complexity curve. Still, invoking these management operations often requires complicated Run Book steps comprised of manual intervention and network reconfiguration, along with a bit of good fortune. In the case of equipment failure or a site disaster, such complexity could have a devastating effect on business processes, revenue, and corporate reputation.
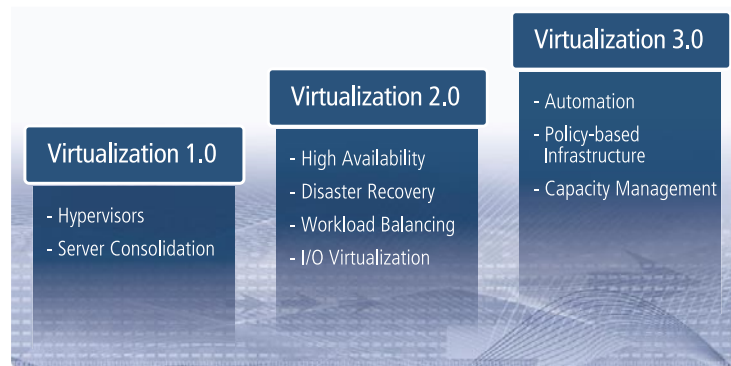

Figure 2: Virtualization Evolution

Virtualization 3.0, or what Egenera calls the dynamic data center, adds automation and policy-based management capabilities that practically eliminate the upward slope of the complexity curve. Think of the difference between Virtualization 2.0 and the dynamic data center like starting a car engine with a crank versus an electronic key. Both methods get the engine running, but one is dangerous, time consuming, and leaves you wet on rainy days.

> *"The Egenera system delivers a truly unique combination of resiliency, cost-effectiveness and flexibility ideally suited to vision for the future."*
>
> *CIO, Standard Chartered International Bank*

Hitting the Virtualization Tipping Point

What does it take to move from Virtualization 1.0 to the dynamic data center?

There are vendors out there that offer virtualization features augmented by limited management capabilities and those that provide management point-solutions such as disaster recovery and virtual machine backup. Others claim N+1 recovery, but require that you buy products from multiple vendors, and still can recover only one virtual machine at a time. Then there are the vendors offering only paper "computing environments" and "architectures."

---

1 Gillette, Frank E. x86 Virtualization Adopters Hit the Tipping Point. Cambridge: Forrester Research, Inc., 2007.

At Egenera we think all of these solutions are inadequate, because the requirements for instant application deployment and high availability demanded by stringent service level agreements change the calculus.

Hypervisors and limited standalone management products do not and cannot simplify operational complexity or bring you the level of automation you need to maintain competitive business agility. And you don't want to wait until a data center disaster to find out just how true that is.

Change Your Risk Calculus

Mitigating the risks of server failure, site disaster, and operational error requires a virtualization management system that doesn't just provide the building blocks for automated management, but follows through with a range of integrated capabilities designed to be reliable, responsive, and simple to use.

Consider the following risks of choosing to implement strategic virtualization without integrated management:
- Incomplete or erroneous application recovery requiring manual intervention
- Delayed deployment of new applications due to complex configuration procedures
- Application recovery that does not work for unplanned outages
- Fixed data and storage network configurations that prevent instant application migration to higher-performing servers
- The high cost of maintaining idle backup configurations for high availability or disaster recovery

Each of these risks is the result of unnecessary operational complexity that can ultimately lead to unintended consequences. And those consequences will lead to lost business.

Alternatively, by strategically using virtualization technology to create a dynamic data center, you flatten the slope of the complexity curve and lower your business risks. As a result, the dynamic data center enables your IT organization to:
- Support business needs for IT flexibility, agility, and responsiveness that are necessary in a competitive "winner take all" marketplace
- Enable a broad range of applications to benefit from flexible high availability, disaster recovery, and workload management, thus keeping business operations ongoing
- Simplify capacity planning and management through more economical use of data center resources
- Reduce the requirement for power, cooling, and floor space, providing the cost and business benefits of Green IT
- Lower TCO by decreasing equipment levels and eliminating operational complexity

> *"Egenera technology helped us design a product offering unparalleled in the industry. Egenera continues to be a key technology partner, helping keep us in an enviable competitive position."*
>
> *CTO, SAVVIS*

What Makes Egenera Different?

PAN Manager® by Egenera® employs virtualization and management technologies to create a processing area network, or PAN. You can deploy application services within the PAN and have confidence that they will be quickly re-provisioned on any PAN server using our advanced provisioning, N+1 availability, and disaster recovery features.

Egenera has several reasons why you ought to take look at PAN Manager:

We do the hard work

At Egenera, we don't believe in patchwork solutions. So we designed our software from the beginning to ensure that all of the virtualization and management pieces fit and work together. Then we provided an easy-to-use "point and click" management interface to minimize learning time and errors. PAN Manager's wire-once feature always boots the correct OS and application image on any PAN server. Physical-to-virtual and virtual-to-physical conversions are automatic and transparent. We can even install and configure hypervisor instances automatically, giving your staff one less component to think about.

"Single Pane" management

Egenera delivers a total approach to physical and virtual management that enables IT staff to easily provision servers, monitor resource utilization, and provide reliable policy-driven HA and DR. PAN Manager lets you decide which applications run under server virtualization and which run on physical servers. Our software automatically backs up and synchronizes server configuration databases. I/O bandwidth is optimized to ensure that each application receives its required data and network throughput. Our security features protect data from snooping or modification by other processes running within the PAN.

Freedom of choice

PAN Manager is compatible with servers from industry-leading vendors. PAN Manager also supports Microsoft Windows, Sun Solaris, Linux and industry-standard server virtualization products. We maintain strong relationships with our server, semiconductor, storage, and software partners through our Enterprise Technology Alliance Program.

Mainframe caliber high availability

PAN Manager's N+1 high availability gives you the flexibility to designate one server to backup many production servers. PAN Manager will quickly and automatically move applications that are resource-starved and will reconfigure destination servers whether recovering a single virtual machine, an individual physical server, or an entire virtual server.

Verifiable disaster recovery

PAN Manager reduces the cost of downtime and eliminates the complexity of recovery with N+1 DR that lets you designate one site as backup to multiple production sites. Egenera's unique XML-based server definition technology ensures that each disaster recovery operation replicates the production site exactly. This approach lets you construct an N+1 disaster plan whereby a single site can be used as backup for multiple production sites as well as productively used for non-critical applications until such time as a recovery operation is needed.

Less power, more green

Egenera reduces power, cooling, and floor space by virtually eliminating the need for idle backup servers and underutilized clusters, consolidating peripheral equipment, and dynamically adjusting workloads to optimize resource utilization.

Top-flite service

Our professional services consultants will help you assess, plan, and implement your migration strategy. We never say, "It's not our problem."

Towards the Dynamic Data Center

The bottom line is that PAN Manager is the only viable solution on the market that lets you achieve the dynamic data center.

Don't take our word for it though — we have customers around the world who rely on PAN Manager to watch over their most critical telecommunication, financial, government, and medical applications.

These customers have realized as much as 80% lower capex and 70% lower opex. And our simplified approach has yielded up to 75% reduction in Run Book pages. Management just doesn't get any simpler than that.

If you have successfully deployed Virtualization 1.0 and are perched at the tipping point, Egenera will make sure you don't fall backwards.

For More Information

To learn more about PAN Manager by Egenera, find out what our customers have to say, or locate a sales office near you, please visit the Egenera website at www.egenera.com

---

egenera®

Corporate Headquarters	West Coast Headquarters	Europe/Middle East/Africa	Asia Pacific	Japan
Egenera, Inc.	Egenera, Inc.	Egenera Ltd.	Egenera (Hong Kong) Ltd.	Egenera, K.K.
165 Forest Street	5201 Great America Parkway	FSC Campus	Suite 1903	Shinjuku NS Bldg. 6F,
Marlboro, MA 01752	Suite 446	The Boulevard, Cain Road	Central Plaza	2-4-1 Nishishinjuku,
U.S.A.	Santa Clara, CA 95054	Bracknell, Berkshire RG12 1HH	18 Harbour Road	Shinjuku-ku
Main: 508-858-2600	U.S.A.	United Kingdom	Wanchai, Hong Kong	Tokyo 163-0806 Japan
Sales: 508-858-3600	Main: 408-748-1100	Voice: +44 (0)1344 475237	Voice: +852-2877-9101	Voice: +81-3-5321-7157
Fax: 508-481-3114	Fax: 408-748-1101	Fax: +44 (0)1344 475775	Fax: +852-2877-8611	Fax: +81-3-5321-7158
www.egenera.com		www.egenera.com	china.egenera.com	japan.egenera.com