



K7 Computing
FLUIDVM

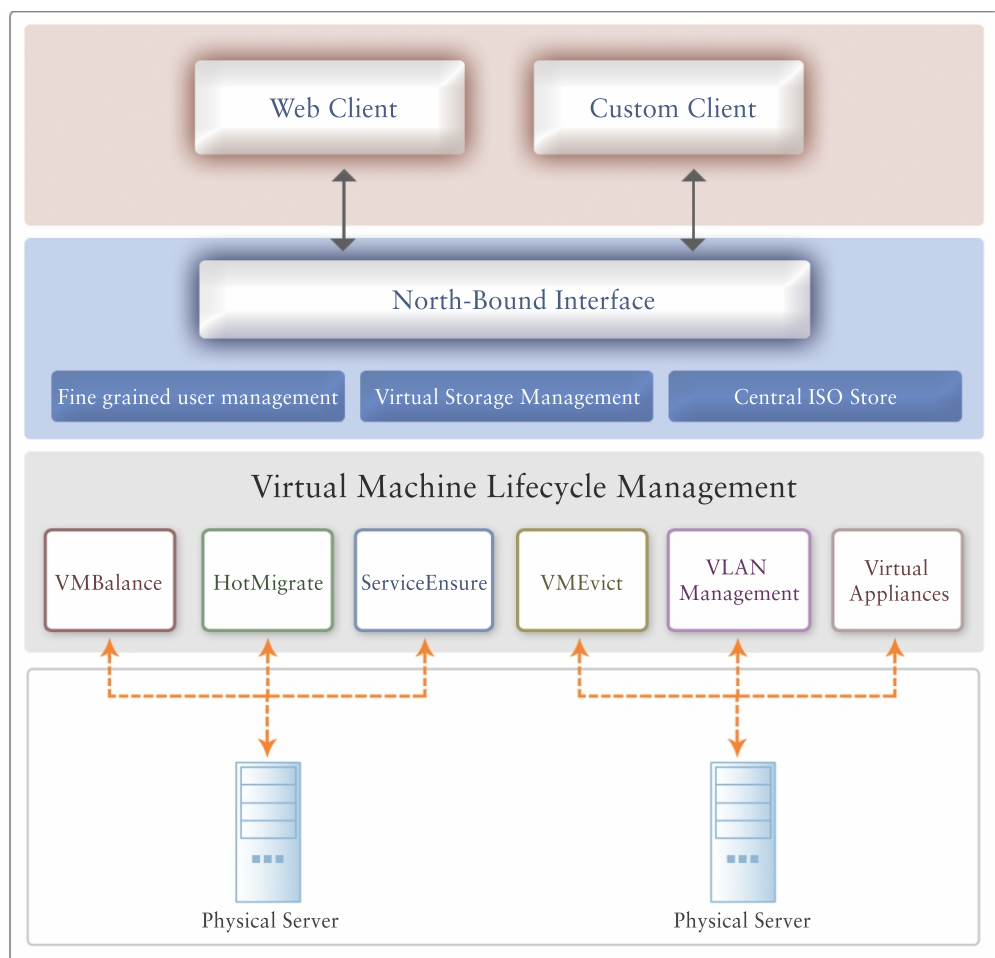


A Whitepaper

FluidVM: Virtualization done right

Advantage Virtualization

With virtualization becoming commodity software, the Hypervisor is essentially free. However, there is much more to virtualization than just the Hypervisor. To have a good virtualization strategy is to think about not only the system virtualization, but to also think about storage and network virtualization. Without all these elements, any virtualization strategy is essentially incomplete. FluidVM is a virtualization technology agnostic virtualization management platform that lets you roll out virtualization in your organization or data center and also has all the features that lets you run an ondemand, pay-as-you-go Infrastructure as a Service (IaaS) business.



FluidVM Architecture

FluidVM is able to manage multiple clusters of physical servers that are powered by different virtualization technologies. FluidVM supports container based virtualization technologies like OpenVZ, Paravirtual virtualization technologies like Xen and also Full system based virtualization technologies like Xen HVM. Support for KVM is on its way.



Across all these diverse virtualization technologies, FluidVM makes available storage and network virtualization. Much more than infrastructure virtualization, FluidVM also provides enterprise features like VMBalance, HotMigrate, ServiceEnsure and VMEvict. These features simplify virtualization management by adding value to your virtual infrastructure.

System virtualization in FluidVM

FluidVM supports the following virtualization technologies:

Technology	Details	Notes
OpenVZ	Operating system level / Containers based virtualization.	Runs only Linux guests. Provides near native performance. The overhead is usually less than 1%.
Xen Paravirtual	Paravirtualization technique is one where a modified guest is run on a bare metal hypervisor.	Runs only Linux due to licensing restrictions. Excellent performance usually the overhead is about 2-3%.
Xen HVM (Hardware Virtual Machine)	Full system virtualization.	Able to run most operating systems unmodified, including Windows and Linux. Some devices are emulated in software, leading to performance degradation.

FluidVM is able to manage a heterogeneous cluster of physical machines running a mix of supported virtualization technologies. This heterogeneous cluster is then able to share other resources that are common to it via FluidVM features that are implemented across these virtualization technologies.

Storage Virtualization in FluidVM

FluidVM seamlessly supports locally attached and SAN based storage via a unified interface. It also sports a feature called the ISO Store that makes CD-ROM ISO images available to all virtual servers on the cluster from a central location. Since ISO images are read-only, they can also be shared among several virtual servers simultaneously.





FluidVM supports the cloning of virtual servers even while they are running, since virtual server storage is based on advanced enterprise storage technologies.

Rescan iSCSI servers

Serial Number	Status	Size(MB)	UsedBy/OwnedBy	Free(MB)
San Disk(s)				
iqn.2006-01.com.openfiler:storagetarget.backup	✓	21184	admin	64
iqn.2006-01.com.openfiler:storagetarget.disk1	✓	10240	admin	3300
iqn.2006-01.com.openfiler:storagetarget.winxp	✓	3104	admin	44
Discovered Disks				
Vista	✓	3060	admin	0

Logical Volume
Volume Group
Storage Target

Create Storage Group Create Logical Volume Remove Rename/Resize
Clone Disk Assign Owner Initialize

Network Virtualization in FluidVM

FluidVM supports simple or advanced schemes via VLAN networking. Multiple network interface cards are supported per virtual server and these may be added or removed while the virtual server is running. FluidVM also supported traffic shaping, allowing you to control the maximum bandwidth and thus the network data usage of the virtual servers.

Made for hosting, made for Cloud

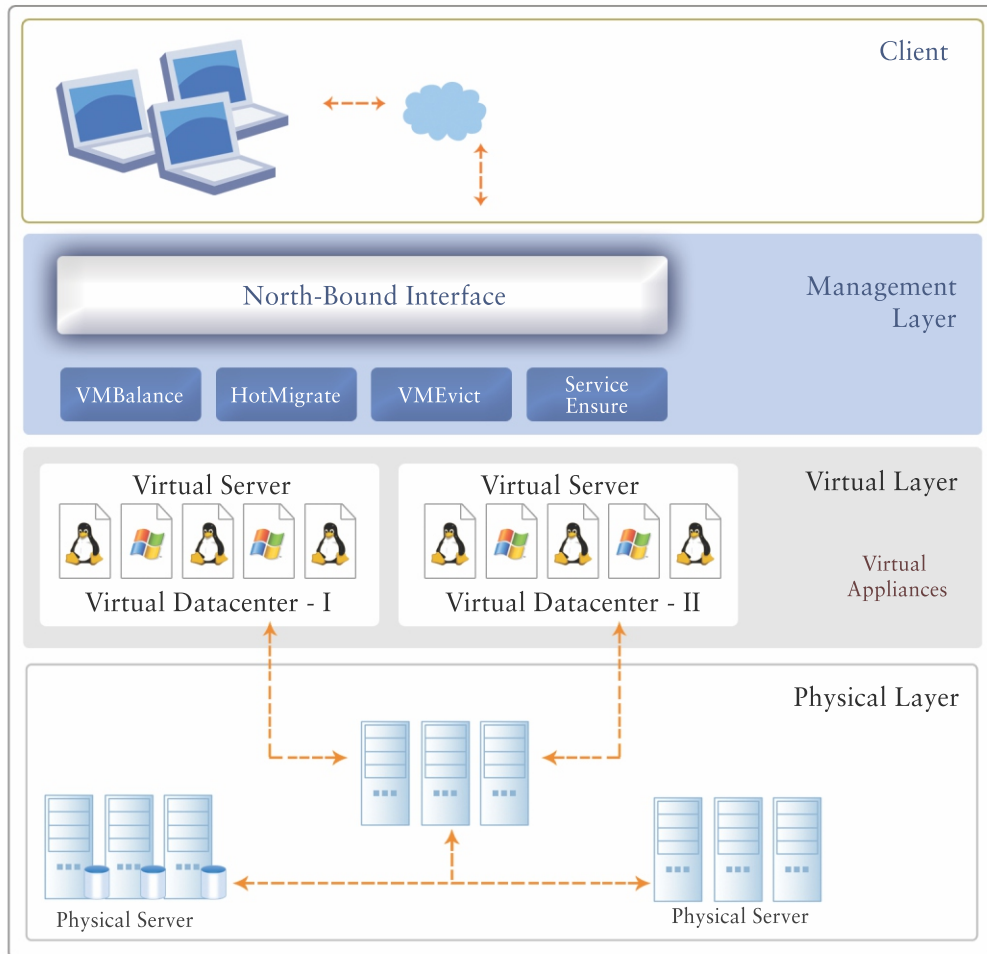
FluidVM was designed from the ground up for hosting. It supports very fine grained resource access control, support for admins, re-sellers and regular users. There is also support for welcome mail and direct VM logins. Supports exists for the pay-as-you-go billing model where the user pays only for the actual time the virtual servers are run. The billing resolution in FluidVM is one hour.

Fully extensible

We know that each business is different. Keeping that in mind, FluidVM is fully extensible with most popular languages via a simple and powerful Application programming, north bound interface.

The API is based on the XML-RPC protocol and support libraries are available for Python, Ruby and PHP..





FluidVM Architecture

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