



New to Xen Guide

July 2010

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Table of Contents

Introduction.....	3
What is Xen Hypervisor?.....	3
Xen Projects.....	5
Xen Community.....	5
Xen Mailing Lists.....	6
Xen Events.....	7
Xen Support.....	7
Xen Solutions and Bugs.....	7
Xen User Groups.....	8
Xen Website Layout.....	8
Home – www.xen.org	8
Products – www.xen.org/products	8
Support – www.xen.org/support	9
Community – www.xen.org/community	9
News – www.xen.org/news	9
Xen Wiki Layout.....	10

Introduction

This document is targeted at new developers, users, researchers, or other interested parties who want to learn more about the Xen hypervisor, open source community, or other Xen projects underway within Xen.org. It contains a wide variety of information and many links to the relevant content in the Xen.org wiki or Xen.org website.

What is Xen Hypervisor?

The Xen hypervisor is a layer of software running directly on computer hardware replacing the operating system thereby allowing the computer hardware to run multiple guest operating systems concurrently. Support for x86, x86-64, Itanium, Power PC, and ARM processors allow the Xen hypervisor to run on a wide variety of computing devices and currently supports Linux, NetBSD, FreeBSD, Solaris, Windows, and other common operating systems as guests running on the hypervisor. The Xen.org community develops and maintains the Xen hypervisor as a free solution licensed under the GNU General Public License.



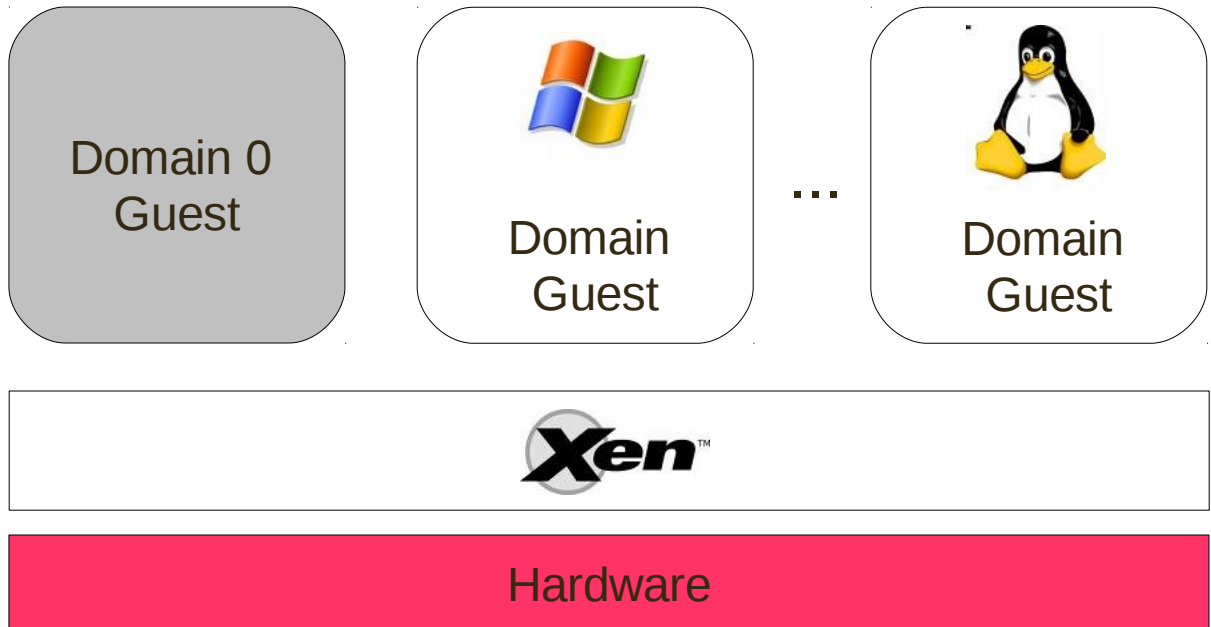
Standard Computer
Hardware + OS



Virt. Computer
Hardware + Xen

A computer running the Xen hypervisor contains three components:

- Xen Hypervisor
- Domain 0, the Privileged Domain (Dom0) – Privileged guest running on the hypervisor with direct hardware access and guest management responsibilities
- Multiple DomainU, Unprivileged Domain Guests (DomU) – Unprivileged guests running on the hypervisor; they have no direct access to hardware (e.g. memory, disk, etc.)



The **Xen hypervisor** runs directly on the hardware and becomes the interface for all hardware requests such as CPU, I/O, and disk for the guest operating systems. By separating the guests from the hardware, the Xen hypervisor is able to run multiple operating systems securely and independently.

The **Domain 0 Guest** referred to as Dom0 is launched by the Xen hypervisor during initial system start-up and can run any operating system except Windows. The Dom0 has unique privileges to access the Xen hypervisor that is not allocated to any other Domain Guests. These privileges allow it to manage all aspects of Domain Guests such as starting, stopping, I/O requests, etc. A system administrator can log into Dom0 and manage the entire computer system.

The **Domain Guests** referred to as DomUs or unprivileged domains are launched and controlled by the Dom0 and independently operate on the system. These guests are either run with a special modified operating system referred to as paravirtualization or un-modified operating systems leveraging special virtualization hardware (Intel VT and AMD-V) referred to as hardware virtual machine (HVM). Note – Microsoft Windows requires a HVM Guest environment.

- **Paravirtualization**

A term used to describe a virtualization technique that allows the operating system to be aware that it is running on a hypervisor instead of base hardware. The operating system must be modified to accommodate the unique situation of running on a hypervisor instead of basic hardware.

- **Hardware Virtual Machine (HVM)**

A term used to describe an operating system that is running in a virtualized environment unchanged and unaware that it is not running directly on the hardware. Special hardware is required to allow this, thus the term HVM.

Xen Projects

The Xen.org community currently supports several projects for people to take part in:

- **Xen ARM** – Xen hypervisor port to ARM processor
 - Wiki - <http://wiki.xen.org/xenwiki/XenARM>
 - Website - <http://www.xen.org/products/projects.html>
- **Xen Introspection Project** – a comprehensive set of APIs allowing developers and solution vendors to have direct access to a variety of monitored features for a specific running virtual machine on a Xen hypervisor
 - Wiki – http://wiki.xen.org/xenwiki/Xen_Introspection
- **Xen Cloud Platform** – a complete cloud infrastructure platform with a powerful management stack based on open, standards based APIs, support or multi-tenancy, SLA guarantees and detailed metrics for consumption based charging in an ISO format
 - Wiki – http://wiki.xen.org/xenwiki/XCP_Overview
 - Website - <http://www.xen.org/products/cloudxen.html>
- **Xen Client Initiative** – Xen hypervisor port to client devices including laptops
 - Wiki – <http://wiki.xen.org/xenwiki/XCI>
 - Website - <http://www.xen.org/products/xci.html>
- **Hosted Xen** – Run Xen hypervisor as a type-2 hypervisor in an operating system (MacOSX & Windows)
 - Wiki – http://wiki.xen.org/xenwiki/Xen_HXEN
 - Website - <http://www.xen.org/products/projects.html>

A list of available Xen projects can be found at <http://wiki.xensource.com/xenwiki/XenDevelopmentProjects>.

Xen Community

As an open source community, Xen.org has a variety of “characters” and members who contribute various ideas, software, etc to the betterment of Xen. In early 2010, the Xen.org community created our first mascot:



The community history is available at <http://www.xen.org/community/xenhistory.html>. A page dedicated to all Xen related research is available at <http://www.xen.org/community/xenpapers.html>.

An overview of community members and project leaders is available at <http://www.xen.org/community/members.html>. All speaker profiles from Xen events are also available http://www.xen.org/community/event_speakers.html.

A community blog is also available for members at <http://blog.xen.org> with a Twitter account operated by the community manager @xen_com_mgr.

A Xen.org store is at http://www.cafepress.com/xen_org where you can order any item you like at wholesale prices with the Xen logo and Panda mascot.

Xen Mailing Lists

The Xen.org community primarily communicates via a set of focused mailing lists. The complete list of emails is at <http://lists.xensource.com>. Here are a few of the most significant mailing lists:

- xen-users - <http://lists.xensource.com/xen-users> ; user support for running all various xen projects
- xen-devel - <http://lists.xensource.com/xen-devel> ; developers discussing xen hypervisor and all source code patches for xen hypervisor
- xen-api - <http://lists.xensource.com/xen-api> ; developers discussing Xen Cloud Platform project and all source code patches for XCP and the XAPI interface
- xen-japanese - <http://lists.xensource.com/xen-japanese> ; user and developer discussions in Japanese

To search all the emails sent in the various Xen mailing lists, go to <http://xen.markmail.org>.

Xen Events

The Xen.org community runs two types of events yearly – Xen Summit and Xen Directions. Xen Summit events are held twice a year in North America and Asia for the developers, testers, and researchers interested in the latest progress of the various projects as well as proposals for future features. These events are highly technical in nature.

Xen Direction events are technical marketing oriented events held in various global locations to promote solutions using the open source Xen hypervisor.

All event information is available at <http://www.xen.org/community/xenevents.html> with links to past events including slides and videos for community access.

Xen Support

The Xen.org community supports itself in various methodologies:

- IRC Channels – Freenode ##xen & Freenode #xen-api
- Xen.org Blog – <http://blog.xen.org>
- Xen.org Wiki Support Page - <http://wiki.xensource.com/xenwiki/XenSupportHome>
- Community Support Home Page - <http://www.xen.org/support/community.html>
- Documentation Support Home Page - <http://www.xen.org/support/documentation.html>
- Tutorials & Demonstrations - <http://www.xen.org/support/tutorial.html>
- Mailing List Search Tool – <http://xen.markmail.org>

Specific information on various features is available in the Xen.org Wiki; here are some sample items:

- Distribution Support - <http://wiki.xensource.com/xenwiki/DistributionSupport>
- Distribution Downloads - <http://wiki.xensource.com/xenwiki/DistributionDownloads>
- Xen Common Problems - <http://wiki.xensource.com/xenwiki/XenCommonProblems>
- Xen Best Practices - <http://wiki.xensource.com/xenwiki/XenBestPractices>
- Xen 4.0 - <http://wiki.xensource.com/xenwiki/Xen4.0>

Xen Solutions and Bugs

As Xen is an open source solution, many products are available at little to no cost. An incomplete but always growing search-able list of solutions is at <http://xen.cyberneticos.com/>. Users can also find open source case studies in the Xen.org wiki at http://wiki.xen.org/xenwiki/Xen_Case_Studies and example deployments at <http://wiki.xen.org/xenwiki/CoolConfigurations>.

A Bugzilla database, <http://bugzilla.xensource.com/bugzilla/index.cgi>, is available for anyone to report a bug found in the product they are running; however, most users who find a bug send an email to xen-devel or xen-users with information on the Xen product and specific details as to what happened. Some developers may request log files to further assist in debugging the problem.

Xen User Groups

Several groups are in place to allow users to connect locally with other Xen users:

- **Brazil Xen User Group** - <http://www.xen-br.org/>
- **Italy Xen User Group** - <http://forum.xen-it.org/>
- **Los Angeles Xen User Group** - <http://www.meetup.com/Xen-User-Group-Los-Angeles>

Xen Website Layout

This section details the structure of the Xen.org website (<http://www.xen.org>). Note – there may be modifications of the website over time that may not be reflected in this document as this is a snapshot in time description of the website which does change over time to best serve the community.

Home – www.xen.org

The home page is the main landing platform for most users coming to the Xen.org site. The main sections of this page are:

- **What is Xen?** - short overview with a link to the What is Xen? document and Xen history page
- **Xen Community Deliverables** – Xen Projects and links
- **Xen Community Events** – Upcoming events and links to recent Xen events
- **Product Releases** – Latest product availability with links
- **Community Member Spotlight** – Highlight of a community member

Products – www.xen.org/products

The main page for all Xen.org products including links to the product home pages. The secondary links on this page link to the following:

- **Downloads** – Links to all available downloads, source and object code
 - Secondary Links to Xen, XCI, XCP, and HXEN Archive Pages
- **Xen Hypervisor** – General information on the Xen Hypervisor including various documents about Xen; 1 page marketing slick in English, Portuguese, Japanese, German, & Chinese. Links to the LiveCD and Case Studies
 - Secondary Links to Roadmap, Archive, Latest Release, Source Browser, Mercurial Repository, and Support
- **XCI** – General information on the Xen Client Initiative and a link to the ARM and embedded device projects
 - Secondary Links to Roadmap, Archives, Source Code, and Support
- **Xen Cloud Platform** – General information on the XCP project
 - Secondary Links to Roadmap, Archives, Source Code, Support, and XCP Projects

- **Projects** – Information on the HXEN, Xen ARM, and Project Satori
 - Secondary Links to HXEN Source, HXEN Binary, Project Satori, and HXEN Support
- **Solution Search** – Search for solutions based on Xen with details and links to product home pages; thanks to Cyberneticos for hosting this tool

Support – www.xen.org/support

The main page for product support. There are three separate pages within this heading:

- **Community Support** - Links to various support options based on community interaction
- **Documentation Support** – Links to various documents available on the products
- **Tutorials and Demonstrations** – Links to videos showing Xen in action as well as step by step instructions

Community – www.xen.org/community

The home page for Xen.org community information. The page is broken down into several sections:

- **Community Tools** – includes brochures & presentations about products and community in various languages
- **Xen Mascot** – includes links to cool Xen Panda wallpaper
- **Xen Social Networks** – Links to Xen groups at Facebook, LinkedIn, etc
- **Xen User Groups**
- **Xen Advisory Board** – short overview of the members of the group that manages Xen.org

The secondary links on this page:

- **Xen Events** – List of all Xen events including links to each event home page with videos and slides
- **Members** - Community member spotlight and a list of Xen.org community members with significant roles
 - Secondary Links to developer interviews, Community members, and Xen event speakers
- **Papers** – List of academic, research, and media articles related to Xen
- **Projects** - List with links of associated projects to Xen.org

News – www.xen.org/news

This section contains a link to Google News showing the 5 latest Internet posting on Xen hypervisor.

Secondary links on this page:

- **Press Release Archives** - List of press release articles published from the Xen.org community
- **Community Blog Link** – Link to the <http://blog.xen.org> site

- **Events Page Link** – Link to the events page in www.xen.org/community
- **Xen.org Merchandise Store** – Link to the CafePress merchandise store containing Xen logo and Xen Panda items for sale at wholesale prices

Xen Wiki Layout

The Xen.org wiki (<http://wiki.xen.org/xenwiki>) is broken into several sections to allow the user to better find the information they are looking for. Also, the wiki does have much of the information translated into Spanish, French, Chinese, Korean, Russian, and Italian; however, as Wiki content changes frequently the translated versions are usually a bit behind.

The main sections of the wiki are:

- **New to Xen** – targeting people who are interested in learning more about Xen and want to get started with the community
- **Xen Community** – targeting community members with useful links to tools and other information
- **Xen Support** – targeting users who need assistance with the various Xen technologies
- **Xen Development** – targeted developers with information on how the various products are designed, etc.
- **Archive** – list of old pages no longer in use but kept available for various purposes