

Zentific

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Overview

- What is Zentific?
- Use cases
- Major Components
- Challenges
- Future work
- Zentific in action
- Acknowledgments



What is Zentific?

- Web based virtual machine management tool
 - Open source: {svn,wiki}.zentific.com
 - Official release in March
- User and admin, beginner to expert
- Modular in all components
 - easily extensible
 - platform agnostic as a happy side effect
- Security as motivation,
not afterthought



What is Zentific?

- How are we different?
- Non invasive as much as possible
 - Tiny dom0 footprint
 - Dependencies are those of xen itself
 - Less than 1% CPU hit on dom0
- C from top to bottom (libxc, libxenstat)
- Statistics push to central server



Use Cases

-Learning environments

rm -rf / with impunity; just restore a snapshot

-Workstations

lives happily installed upon dom0 for a single user

-Hosting

user management

resource separation



Major Components

Polling Daemon

- Collects VM/host statistics

Browser Frontend

- Browser management interface

XML-RPC Backend

- Endpoint for statistics and interface

Scheduler

- Dispatches actions as directed



Major Components

Polling Daemon

- Stats: disk, net, cpu, state, etc
- Lives within Domain0
- Only daemon required on dom0
- Libxenstat (C)
 - Improved, more accurate
 - Keir: want a maintainer?
(It needs some love)



Major Components

Frontend

- HTML/Javascript sprinkled with Java
- Rich user experience
- No CLI required



Major Components

Web Service Backend

- API exposed for use by other tools
- XML-RPC (REST/SOAP on the roadmap)
- Namespaces (VM, Node, User, Storage..)
- What about XenAPI/Libvirt?



Major Components

Scheduler

- Acts when signaled by XML-RPC
- Actions
 - Recurring
 - User initiated
 - Event driven
- Dispatch via SSH, libvirt, XenAPI, etc



Challenges

- Libxenstat compatibility issues
 - must support
 - 3.0.3 (RHEL/Debian etch)
 - 3.0.4+ (Novell, Centos, et al.)
 - 3.2, 3.3+ Gentoo, etc
- Some metrics are insufficient/absent
 - disk request counters
- Internet explorer :)



Future Work

- Solaris port of the statistics daemon.
 - XVM/ZFS integration
- KVM
- VMWare
- Patches are welcome



Zentific in action



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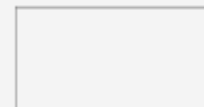
[List All](#) | [Create New](#)

All Virtual Machines

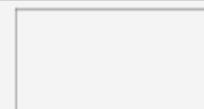
[zentific-dnsINT](#) - Paravirtual VM Running Unknown OS
Status: **idle** | Uptime: **53 days, 10:37:53**
[Pause](#) [Shutdown](#) [Reboot](#) [Console](#)



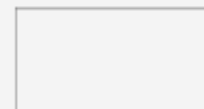
[zentific-dnsEXT](#) - Paravirtual VM Running Unknown OS
Status: **idle** | Uptime: **53 days, 10:37:42**
[Pause](#) [Shutdown](#) [Reboot](#) [Console](#)



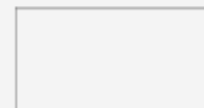
[ebiz4u](#) - Paravirtual VM Running Unknown OS
Status: **idle** | Uptime: **53 days, 10:37:31**
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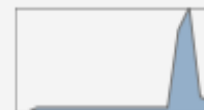
[chriscentosPV](#) - Paravirtual VM Running Unknown OS
Status: **idle** | Uptime: **53 days, 10:36:27**
[Pause](#) [Shutdown](#) [Reboot](#) [Console](#)



[public_shared](#) - Paravirtual VM Running Unknown OS
Status: **idle** | Uptime: **53 days, 10:17:24**
[Pause](#) [Shutdown](#) [Reboot](#) [Console](#)



[shell](#) - Paravirtual VM Running Unknown OS
Status: **idle** | Uptime: **53 days, 10:08:14**
[Pause](#) [Shutdown](#) [Reboot](#) [Console](#)



[zentific-auth](#) - Paravirtual VM Running Unknown OS
Status: **idle** | Uptime: **53 days, 08:36:12**
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exampleVM

[Unpause](#)

Last Reported Uptime: 23 days, 19:27:09

Machine Status: paused

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Status

Configuration

Maintenance

Console

Log

Users

Notes

General

Virtualization Type Paravirtual

Operating System Unknown

Parent Node a0af933d-a1ef-4098-bf28-1275694a2af8

Memory

Max Memory (kb): (can't exceed 4194304 kilobytes)Memory (kb): (can't exceed Max Memory))

Processing

Virtual CPUs

Networking

[Add VIF](#)

Storage

[Add Disk](#)

Cancel

Save

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shell

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Last Reported Uptime: 53 days, 10:53:14

Machine Status: idle

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Virtual Console:

[Disconnect from VNC](#) | [Ajax](#)

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shell

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Last Reported Uptime: 53 days, 10:54:13

Machine Status: idle

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Virtual Console:

[Disconnect from AJAX](#)

Open in separate window:

```
· Colors GET Paste
Ubuntu 6.06.1 LTS
shell login: ^[[B
```

Zentific

Hello, [steve](#) [Logout](#)[Home](#) | [Virtual Machines](#) | [Nodes](#) | [Users](#) | [Configuration](#)[List All](#) | [Create New](#)

winxp

[Pause](#) [Shutdown](#) [Reboot](#) [Console](#)**Last Reported Uptime:** 0 days, 00:13:07**Machine Status:** running[< Back to All VMs](#)[Status](#)[Configuration](#)[Maintenance](#)[Console](#)[Log](#)[Users](#)[Notes](#)

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User Administration

[Add User](#)

steve[Delete Account](#)[Reset Password](#)steve@zentic.com [Edit](#)Disable User: Privileges: ▼Language: ▼**demo**[Delete Account](#)[Reset Password](#)demo@zentic.com [Edit](#)Disable User: Privileges: ▼Language: ▼**node**[Delete Account](#)[Reset Password](#)contact@zentic.com [Edit](#)Disable User: Privileges: ▼Language: ▼**snadge**[Delete Account](#)[Reset Password](#)snadge@zentic.com [Edit](#)Disable User: Privileges: ▼Language: ▼**justin**[Delete Account](#)[Reset Password](#)justin.demaris@gmail.com [Edit](#)Disable User: Privileges: ▼Language: ▼**admin**[Delete Account](#)[Reset Password](#)Disable User: Privileges: ▼Language: ▼

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Provision a Virtual Machine

Basic Configuration

VM Name VM Type ▼Target Node ▼

Memory

Max Memory (kilobytes)Assigned Memory (kilobytes)

Processing

Virtual CPUs

Networking

Storage

 [Cancel](#)

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Global Config

Option	Value
Stat Retention	<input type="text" value="25"/>
Node User	<input type="text" value="default"/>
Default Language	<input type="text" value="en_US"/>
Max Memory per VM (MB)	<input type="text" value="4194304"/>
Max VCPUs per VM	<input type="text" value="4"/>
<input type="button" value="Save"/>	

Module Management

Module	Description	Layer				Enabled?
		Frontend	XMLRPC	Scheduler	Poller	
Base	Base Module - Cannot be Disabled	yes	no	no	no	<input checked="" type="checkbox"/>
Vms	Manage and view virtual machines	yes	no	no	no	<input checked="" type="checkbox"/>
Nodes	Manage and view physical nodes	yes	no	no	no	<input checked="" type="checkbox"/>
Users	User Management and Preferences	yes	no	no	no	<input checked="" type="checkbox"/>
Configuration	Global Config and Module management	yes	no	no	no	<input checked="" type="checkbox"/>

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-Justin Demaris

Scheduler/Interface

-Russ Jancewicz

Grapht: javascript graphing library

-Chris Keller

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GPLPV drivers and the new Xenstore interface

-All those testing our code

