



DTC & DTC-Xen  
Running a VPS business with Xen  
Thomas Goirand, GPLHost CEO

Xen Summit  
Asia at Intel 2009



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# Overview

- 1/ Global VPS hosting market & GPLHost
- 2/ Why an open source panel makes sense
- 3/ DTC & DTC-Xen technical briefing
- 4/ Challenges to overcome

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# Global VPS hosting market

- VPS market is growing, at the expense of the shared and dedicated servers market
- Many small players in the industry, most of them only serving locally
- Few big players providing poor support
- Dominated by Virtuozzo / Parallel, which is very expensive
- All tools but the control panel are in open source
- No Xen web interface for marketing VPSes (especially since the fall of HyperVM and Kloxo)

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# GPLHost in few words

## Open source applied to hosting:

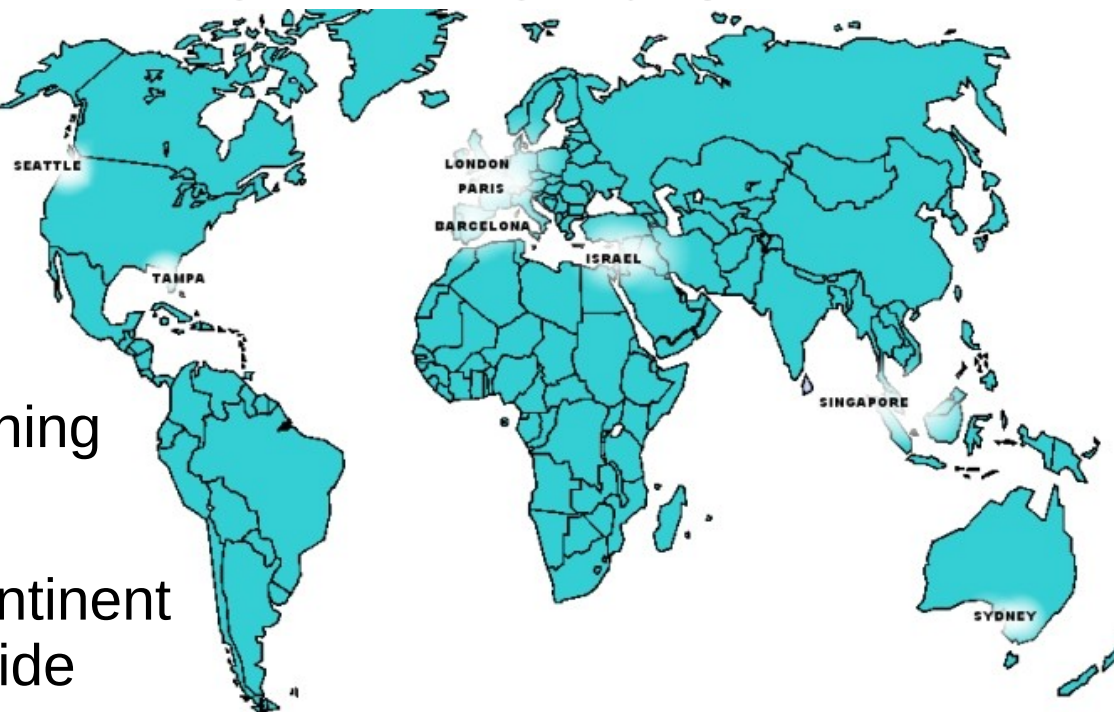
- Open source Web Hosting since 2003
- Xen VPS Hosting since 2005
- Ongoing control panel development since the beginning

## Fast development:

- Technical Support in each continent
- 10 points of presence worldwide
- 3 companies (US, SG, UK)

## A unique software & hosting company:

- The only control panel distributed with Debian based distributions
- The only open source control panel for commercial VPS hosting



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# You do need automation and a customer facing control panel

Common mistakes:

- A control panel is unprofessional (eg: not for geeks)  
I can do all on the shell
- With a control panel  
no need to know the shell tools



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# You do need automation and a customer facing control panel

“By hand” is unrealistic:

- Hosting is small price, many customers
- Extremely easy to make mistakes
- Large amount of time spent on each new customer
- Unprofessional image to final customer who expects control
- Users have to wait for technical support to react to any action

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# You do need automation and a customer facing control panel

- A control panel:
  - Frees support staff to address more complex issues
  - increases reactivity to users requests: on demand reboots and reinstalls / re-image
  - Automates accounting and renewals
  - Increases security and uptime by:
    - Resource monitoring
    - Establishing security policies in software
    - Capitalizing knowledge into software
  - Enables your business to grow

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# Why DTC & DTC-Xen

- Open source (free as freedom), AND accepting contributions
- CentOS and Debian
- Included in Debian and Ubuntu
- No need of 3<sup>rd</sup> party software:
  - Support ticket
  - Billing



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# Why DTC & DTC-Xen

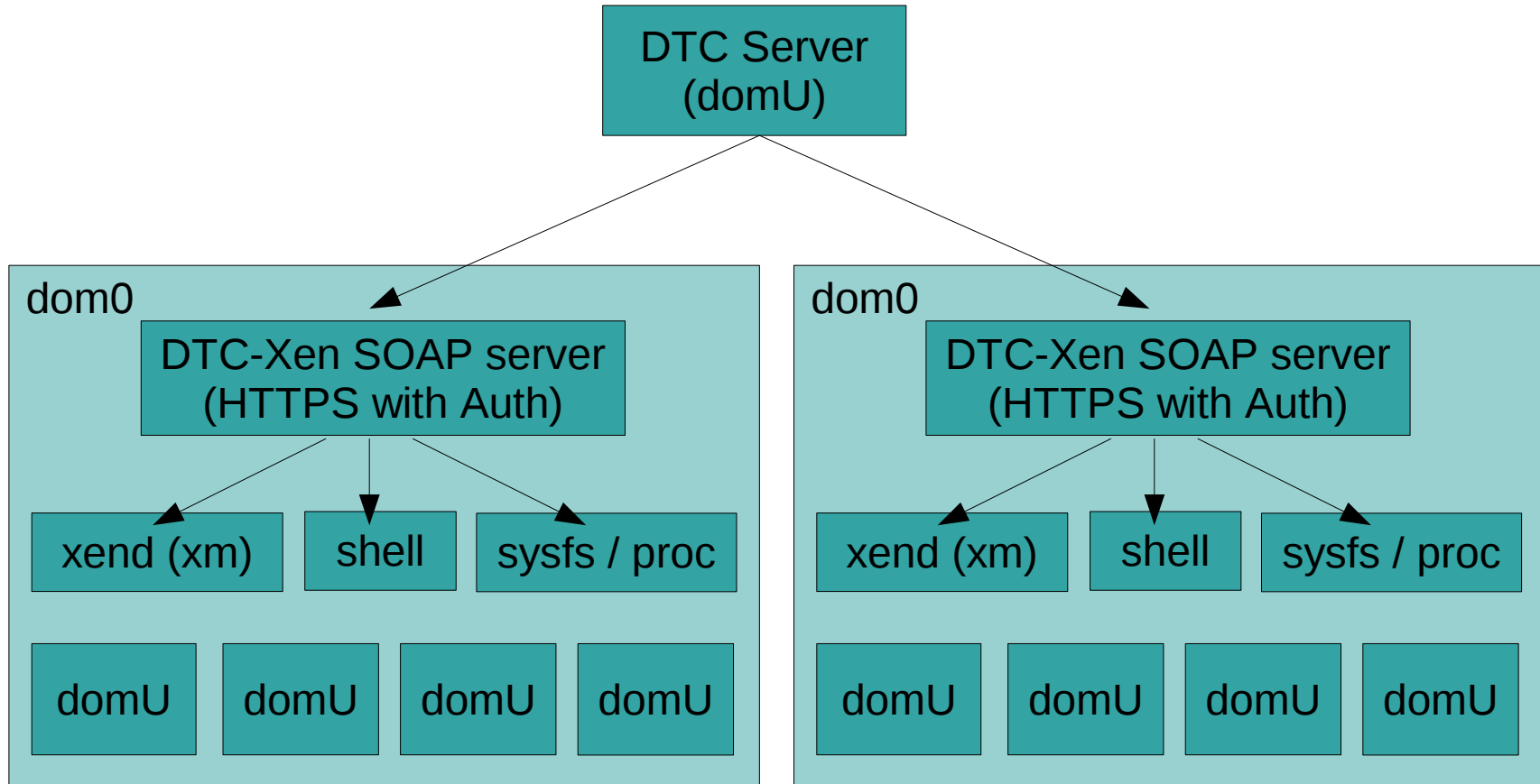
- Resource monitoring:
  - I/O bandwidth
  - Network bandwidth
  - CPU
- Development based on our own (GPLHost) data center needs:
  - No useless functions in the interface
  - All what you need is there
- Multiple dom0, a unique web server central interface
- Easy to extend and modify

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# Principle



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# DTC admin panel



Domain Technologie Control

Take control of your domain name

V0.31.0 R1 - debian Logged as: dtc Documentation | PhpMyAdmin



Users administration   Customer management   Bandwidth monitor   Server monitor   Renewals management   Hosting product manager   Configuration generation   DTC general configuration

### Admins list

Display and sort by:  
Logins

- New virtual admin
- dtc
  - test
  - test2

### User administration test

Client interface   Domain config   Admin editor

#### Your domains

- My account
- node0109.gplhost.com:02
  - Monitoring
  - My VPS usage
  - My VPS vs. others
  - Installation
- this-does-count.net
- Password
- Support tickets
- Help

Logout - Use text menu

#### Virtual Private Server 02 running on node0109.gplhost.com

##### VPS 02:node0109.gplhost.com

#### Current contract:

Advanced VPS

#### Expiry date:

Your VPS was first registered on the: 2009-02-21  
Your VPS will expire on the: 2011-06-09

- Advanced VPS (1 month renewal) (59 USD)
- Advanced VPS (3 month renewal) (149 USD)

#### Console output:

```
dtc.xen650901.gplhost.com:>_
```

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# Provisioning servers & slots

## VPS Products editor

### Product list editor (VPS)

Id	Renewal-ID	Name	Period	Price	Setup fee	Commission	\$	Disk	RAM	Traffic	Private		
1	Not a renewal product	Test VPS (do not register)	0000-01-00	29	2.00	2		15000	512	1024	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	1: Test VPS (do not ...	Test VPS renewal (1 month renewal)	0000-01-00	58	0.00	0		15000	512	1024	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Not a renewal product	Advanced VPS	0000-01-00	59	0.00	0		30720	768	204800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	5: Advanced VPS	Advanced VPS (1 month renewal)	0000-01-00	59	0.00	0		30720	768	204800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	5: Advanced VPS	Advanced VPS (3 month renewal)	0000-03-00	149	0.00	0		30720	768	204800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Not a renewal product										<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

## IP pools editor

### IP address pool editor:

Customize	Location	Network	Netmask	Broadcast	Gateway	DNS	Type of zone generation		
Customize	Tampa, Florida (USA)	66.255.255.0	255.255.255.127	66.255.255.127	66.255.255.1	66.255.255.20	One zonefile per IP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Customize	Seattle, WA state (USA)	117.255.255.0	255.255.255.0	117.255.255.255	117.255.255.1	66.255.255.20	One zonefile per pool	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
							Support ticket	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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# Provisioning servers & slots

## Dom0 list and VPS IP list edition

VPS Server list:

IPs	addr	dom0 IP	addresses	Hostname	Location	SOAP login	SOAP password	Country	Use LVM backend
Edit IPs	121.14.117.			alpha.exam	Shanghai, C	dtc-xen	••••••	China	<input checked="" type="radio"/> Yes <input type="radio"/> No
Edit IPs	66.255.199.			node0109.g	Tampa, Flor	dtc-xen	••••••	United States	<input checked="" type="radio"/> Yes <input type="radio"/> No
								Afghanistan	<input checked="" type="radio"/> Yes <input type="radio"/> No

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# Customer interface: freeing customer

The screenshot displays a customer interface with a sidebar on the left and a main content area on the right. The sidebar, titled "Your domains", contains a navigation menu with the following items: "My account", "node0109.gplhost.com:02" (expanded to show "Monitoring", "My VPS usage", "My VPS vs. others", and "Installation"), "this-does-count.net", "Password", "Support tickets", and "Help". At the bottom of the sidebar is a "Logout - Use text menu" link. The main content area shows details for "Virtual Private Server 02 running on node0109.gplhost.com". It features a computer icon and the text "VPS 02:node0109.gplhost.com". Below this, it lists "Current contract: Advanced VPS" and "Expiry date: 2011-06-09". It also states "Your VPS was first registered on the: 2009-02-21" and "Your VPS will expire on the: 2011-06-09". Two pricing options are shown: "Advanced VPS (1 month renewal) (59 USD)" and "Advanced VPS (3 month renewal) (149 USD)".

*The Customer side interface overview: billing and renewals*

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# Customer interface: freeing customer

**Start and stop of your VPS:**

Boot up (xm start)

**File-system check:**

File system check (fsck)

**Reinstall operating system:**

Currently installed operating system: debian

Operating system: Debian (network install with debootstrap)

VPS root password: Debian (network install with debootstrap)

**Physical console**

Once your VPS is installed:

- Debian with DTC panel (network install with debootstrap)
- CentOS (network install with yum)
- NetBSD (network setup with install kernel)
- Xen HVM (boot on your own .iso image)
- ubuntu-amd64-9.04 (operating system image)
- slackware.13-0.amd64.20090904 (operating system image)
- elastix-centos5.2-i386 (operating system image)
- mandriva-amd64-2009.0 (operating system image)
- fedora-amd64-9 (operating system image)
- gentoo2008.0-amd64 (operating system image)
- openvpn (appliance builder)
- kde-nx-server-3.3.0 (appliance builder)

**New SSH password:**

**New SSH key:**

To access to your console, first enter a ssh password or key above, and then ssh to:  
 xen05@alpha.bithost.cl

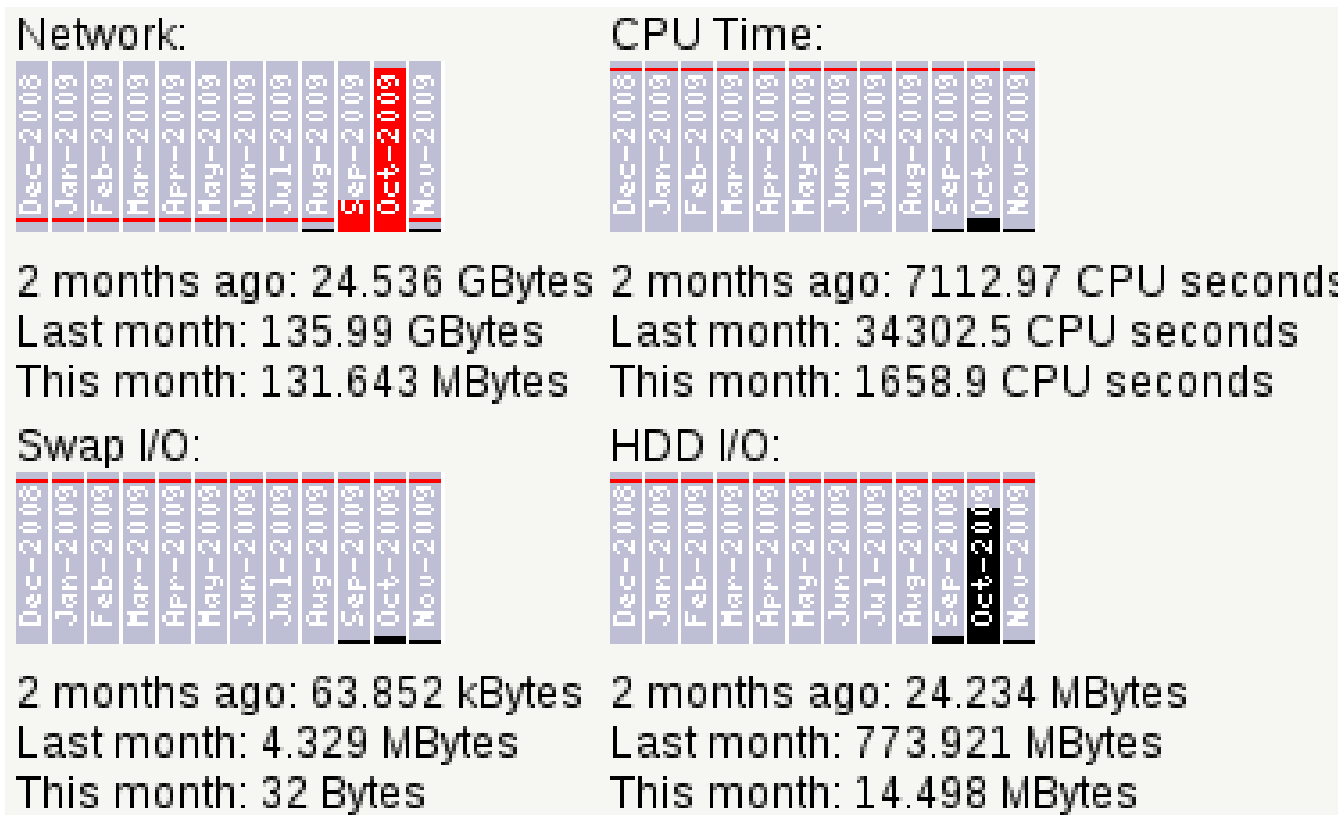
*Reinstall your virtual machine with a new OS*

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# Customer interface: monitoring



*Monthly usage statistics*



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# Customer interface: monitoring

**Current VPS status:**

VM id: xen02  
 Max memory: 2048  
 Number of CPU: 2  
 VPS State: -b----

**Service monitoring:**

VPS monitoring alerts email address:

Ping:

SSH:

HTTP:

SMTP:

POP3:

IMAP4:

FTP:

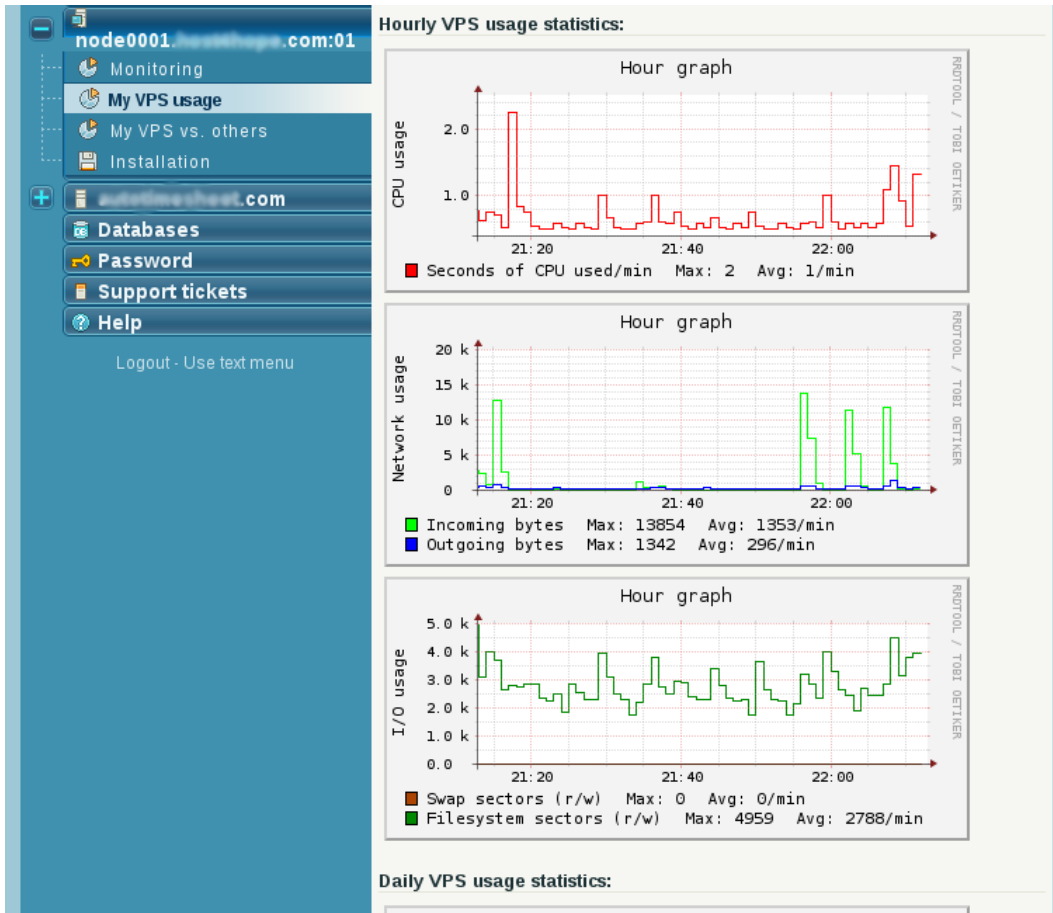
*Nagios monitoring*

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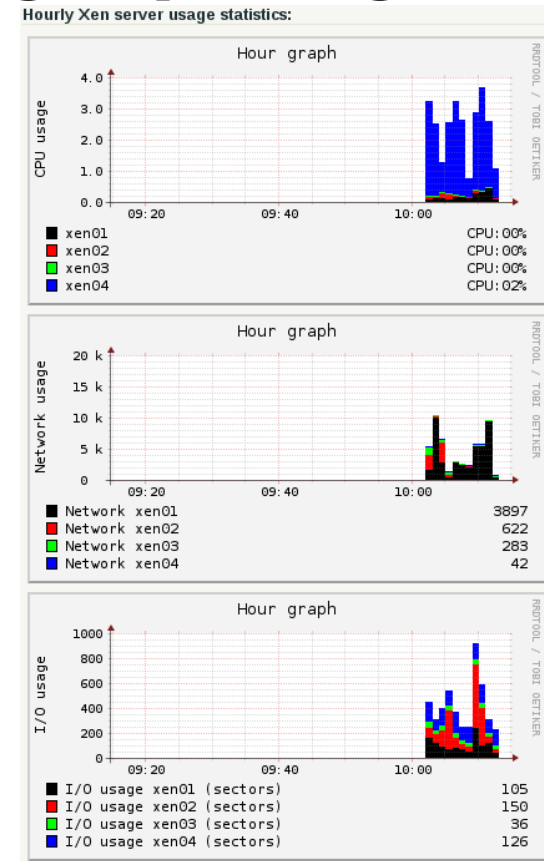


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# Customer interface: graphing



Virtual machine real time statistics



Server overall usage

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# Other functionalities

- Support tickets
- Full billing:
  - Email reminders
  - Invoices
  - Payment gateways (modular)
- VPS physical console access (tty)
- Mailing lists for each individual server and server groups
- Shared hosting with DTC
- HVM domU with self-uploaded ISO images

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# DTC-Xen Internals: architecture

- DTC-Xen = a small SOAP server written in Python
- HTTPS + auth on each dom0
- Less than 384 MB is needed on the dom0
- Arch independent / OS independent (CentOS or Debian)
- Full OS integration thanks to Debian and CentOS packaging
- Included in both Debian and Ubuntu

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# DTC-Xen Internals: bootstraps

From the network you can install:

- Debian Stable (with debootstrap)
- CentOS (with yum)
- DTC itself (shared hosting use, Debian by default)

Bootstrapping from network:

- Really DOES work
- As fast as templates/images (thanks to proxying)
- Up-to-date distribution
- Cleaner: distributions recommended way

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# DTC-Xen Internals: images

## Modular OS templates and appliances (sh scripts):

- install\_os
- custom\_os
- setup\_network
- Appliance = an OS dependency + 1<sup>st</sup> boot script

## OS Templates available:

- Fedora
- Gentoo
- Mandriva
- Ubuntu
- Elastix (software PBX)
- Slackware
- SUSE

## Appliances available:

- FreeNX (Gnome or KDE desktop)
- OpenVPN
- DTC

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# Faced challenges

- Xen is a patch:
  - Difficulty to keep up-to-date with security issues
  - Integration in the distribution
  - Too much RedHat focussed (kernel 2.6.18 ...)
  - Hardware driver
- Console device renaming scheme is a recurring issue
- Deploying upgrades in many servers
- Installing many servers
  - Solution: FAI (Fully Automated Install)
- Resource scheduling: customer abuse of I/O, CPU and Network

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# Specifics when hosting in China

- A market with a big potential
- Windows is very widespread, and is nearly a single focus in the Chinese market
- Limited Linux knowledge, small community
- Telecommunication sector rather closed
- Cannot use your own IPs from APNIC
- Operator IPs are very expensive (50 or 100 yuan per IP)
- Language barriers: DTC had to be fully translated to Chinese (simplified), need for native speakers for support



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# Future of DTC / DTC-Xen

- More templates and appliances
- Cloud computing
- More payment gateways
- Your contribution...

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# Thanks to Xen!

- GPLHost recruiting in Shanghai
- Debian developer for signing my PGP key
- Partnership in China
- Your questions and suggestions...
- Contact us: [support@gplhost.com](mailto:support@gplhost.com)