



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

Xen Summit
Asia at Intel 2009



DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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)

DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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



DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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



DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

Why DTC & DTC-Xen

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

DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

Why DTC & DTC-Xen

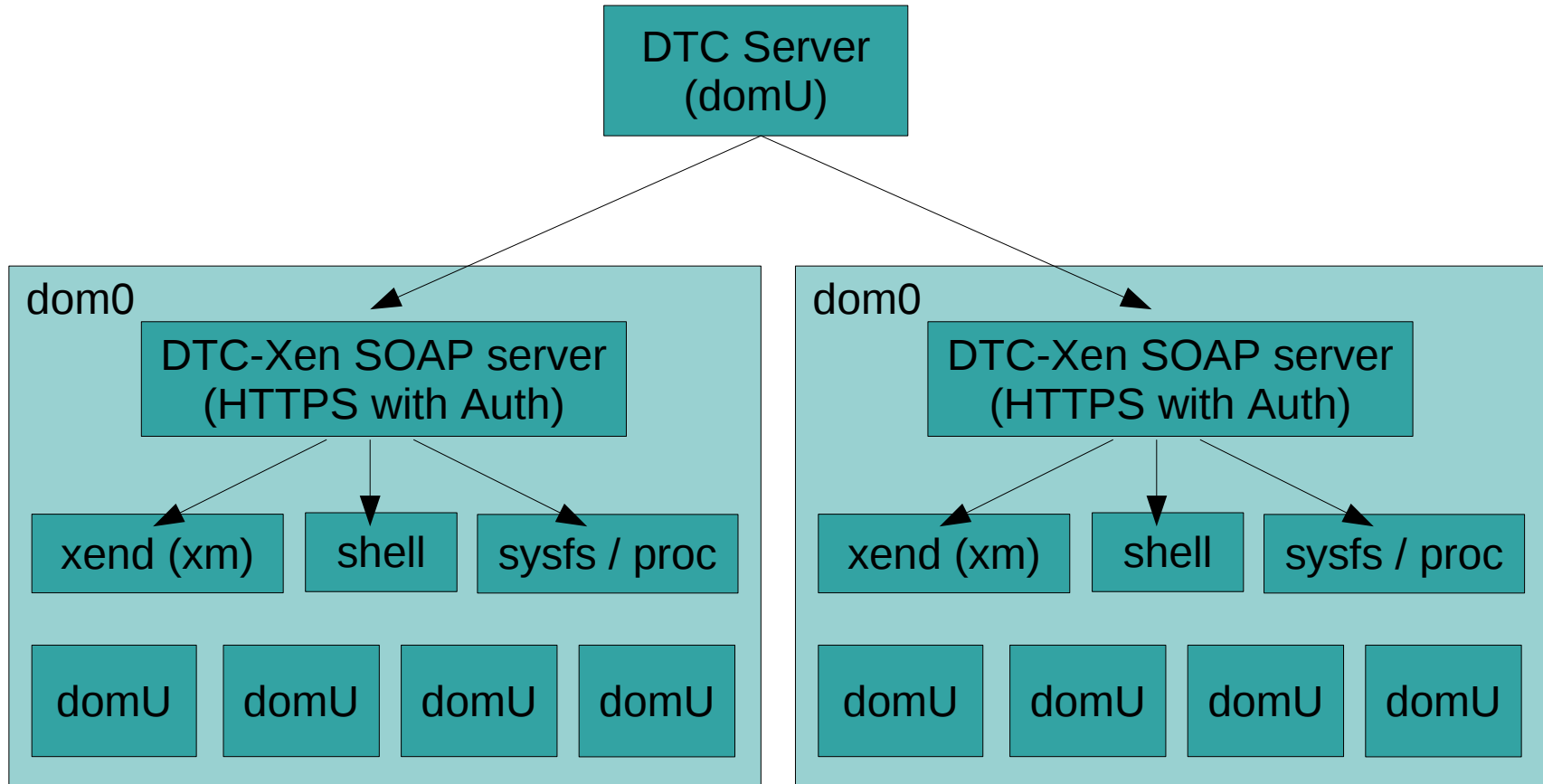
- Resource monitoring:
 - I/O bandwidth
 - Network bandwidth
 - CPU
- Development based on our own (GPLHost) data center needs:
 - No useless functions in the interface
 - All what you need is there
- Multiple dom0, a unique web server central interface
- Easy to extend and modify

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

Principle



DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

DTC admin panel



Domain Technologie Control

Take control of your domain name

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



Navigation bar with icons and labels:

- 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 Ok

- 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:>_
```

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

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"/> |

DTC & DTC-Xen
 Running a VPS business with Xen



Open source
 hosting worldwide

Provisioning servers & slots

Dom0 list and VPS IP list edition

VPS Server list:

| IPs | 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 | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| Edit IPs | 66.255.199. | | node0109.g | Tampa, Flor | dtc-xen | •••••• | United States | <input checked="" type="radio"/> Yes <input type="radio"/> No | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| | | | | | | | Afghanistan | <input checked="" type="radio"/> Yes <input type="radio"/> No | <input type="checkbox"/> <input checked="" type="checkbox"/> |

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

Customer interface: freeing customer

A screenshot of a customer interface. On the left is a blue sidebar with a "Your domains" header. Below it are several menu items: "My account" (with a home icon), "node0109.gplhost.com:02" (with a server icon), "Monitoring" (with a gauge icon), "My VPS usage" (with a gauge icon), "My VPS vs. others" (with a gauge icon), "Installation" (with a folder icon), "this-does-count.net" (with a key icon), "Password" (with a key icon), "Support tickets" (with a ticket icon), and "Help" (with a question mark icon). At the bottom of the sidebar is "Logout - Use text menu". The main content area on the right has a light blue header "Virtual Private Server 02 running on node0109.gplhost.com". Below this is a server icon and the text "VPS 02:node0109.gplhost.com". The main content area is divided into sections: "Current contract:" with "Advanced VPS" below it; "Expiry date:" with "Your VPS was first registered on the: 2009-02-21" and "Your VPS will expire on the: 2011-06-09" below it; and two pricing options: "Advanced VPS (1 month renewal) (59 USD)" and "Advanced VPS (3 month renewal) (149 USD)".

The Customer side interface overview: billing and renewals

DTC & DTC-Xen
Running a VPS business with Xen



Open source
 hosting worldwide

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:

VPS root password:

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

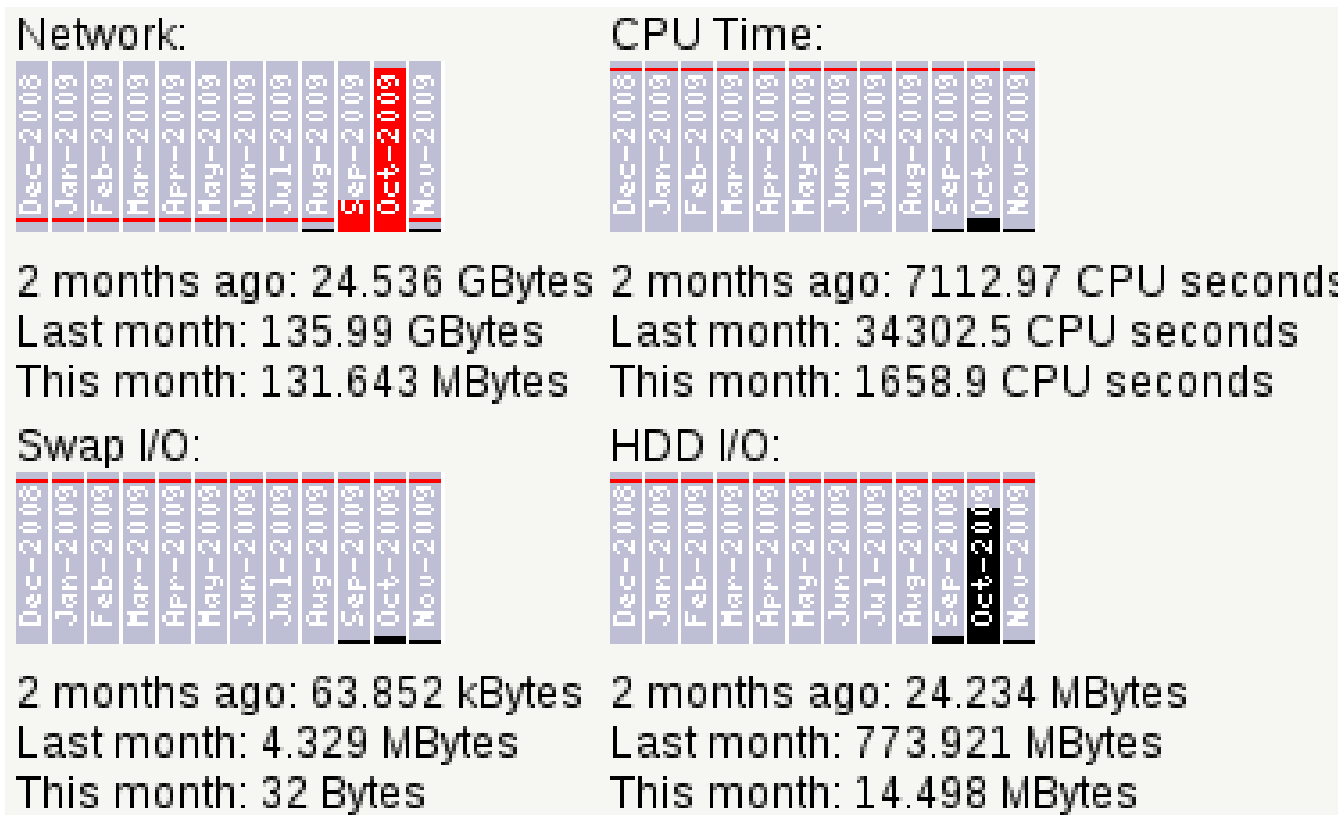
Reinstall your virtual machine with a new OS

DTC & DTC-Xen
Running a VPS business with Xen



Open source
 hosting worldwide

Customer interface: monitoring



Monthly usage statistics

DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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:

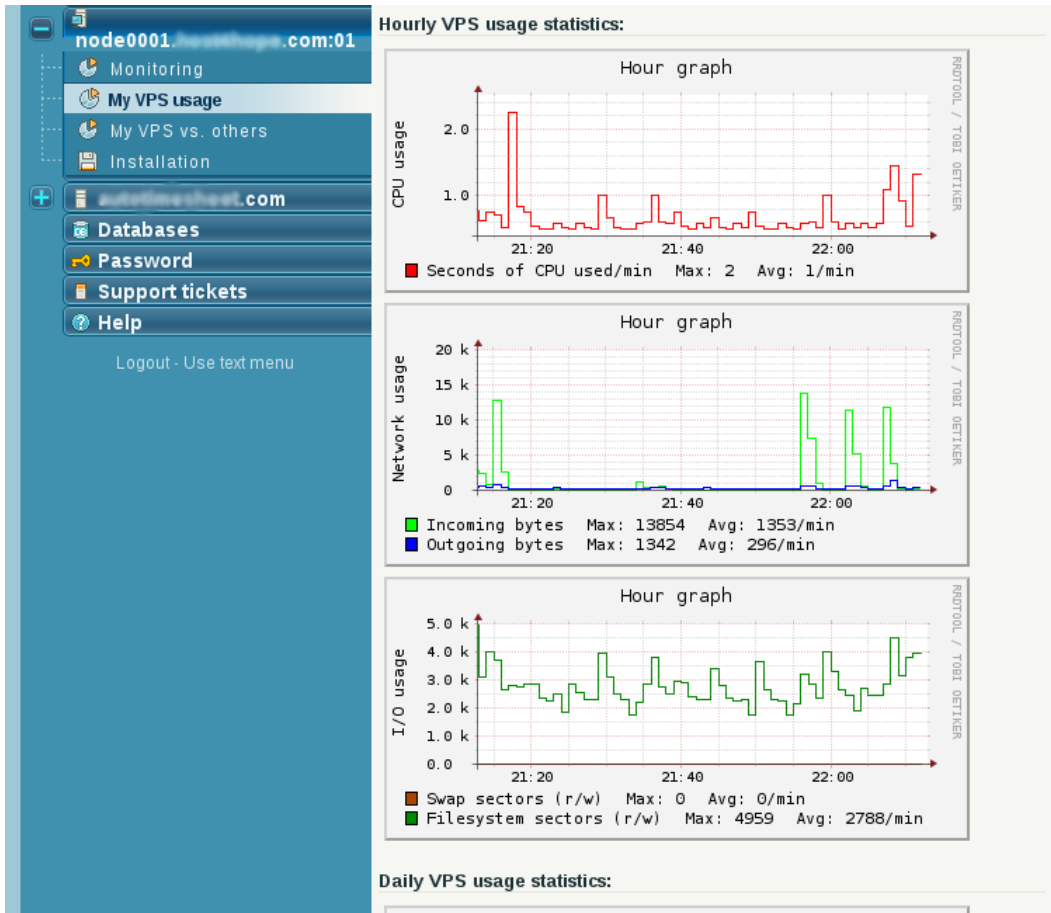
Nagios monitoring

DTC & DTC-Xen
Running a VPS business with Xen

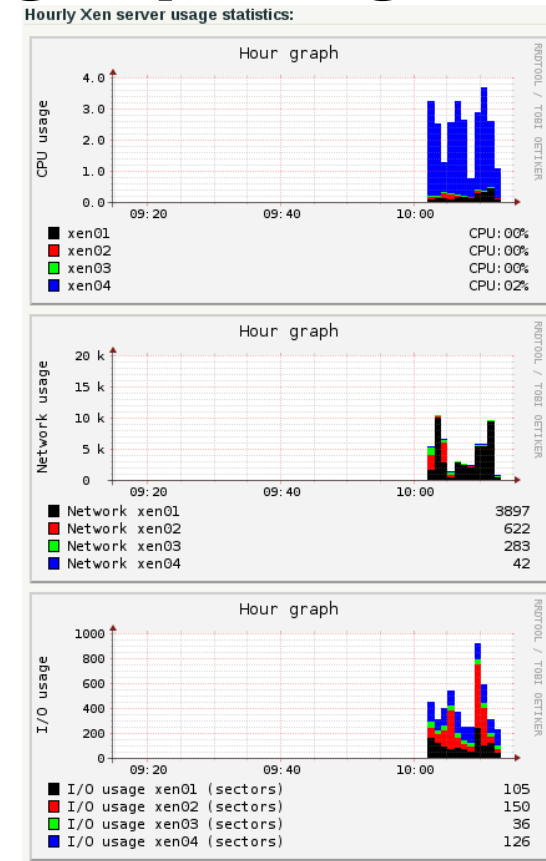


Open source
hosting worldwide

Customer interface: graphing



Virtual machine real time statistics



Server overall usage

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

DTC-Xen Internals: images

Modular OS templates and appliances (sh scripts):

- install_os
- custom_os
- setup_network
- Appliance = an OS dependency + 1st boot script

OS Templates available:

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

Appliances available:

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

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen

GPLHOST



Open source
hosting worldwide

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

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

Future of DTC / DTC-Xen

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

DTC & DTC-Xen
Running a VPS business with Xen



Open source
hosting worldwide

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