

Cloud In A Bottle

Enterprise Virtualization on a Small Business Budget

Jim Salter

Technomancer,
Mercenary Sysadmin,
Small Business Owner



Today's slides can be found at:

<http://openoid.net/presentations/>

Back in 2002, this guy



Tim Anderson

Director of IT,
The Partners Group

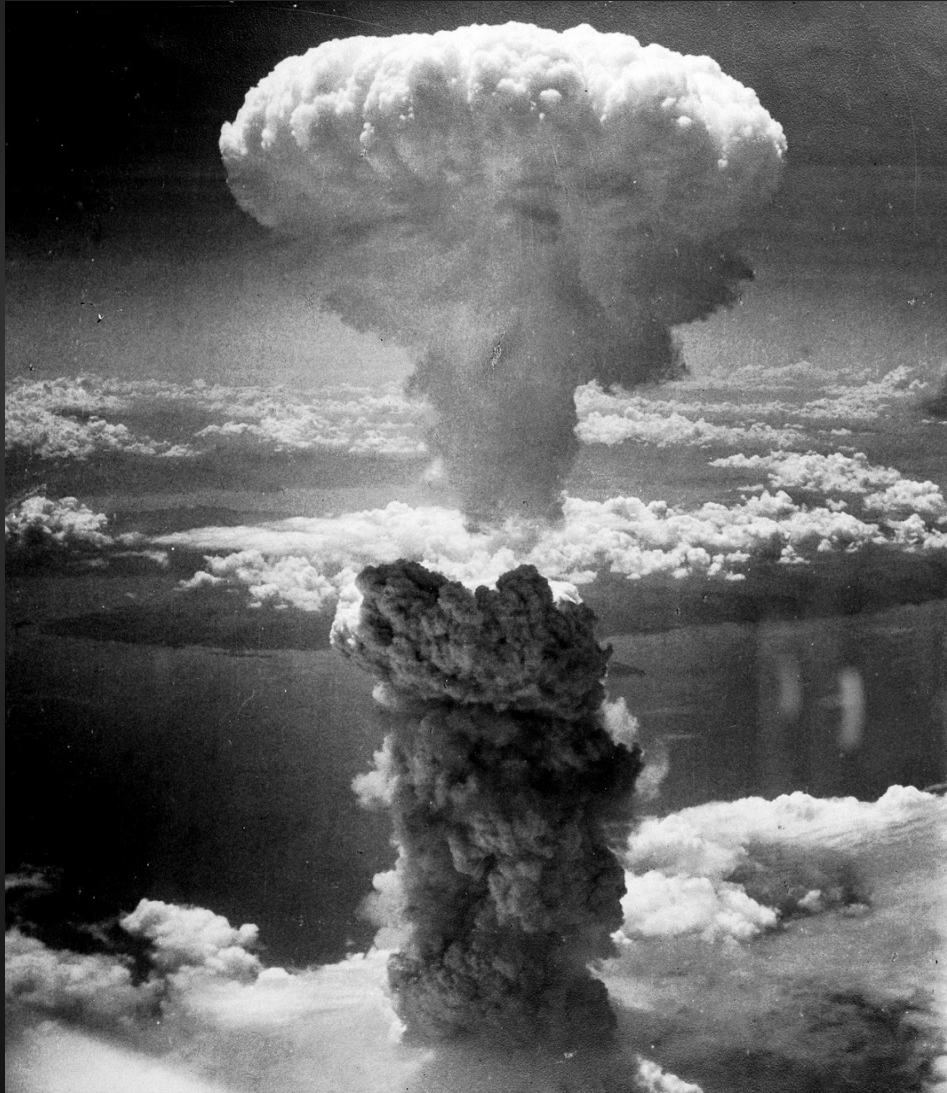
says to me...

“The IT Hero is dead.”



Client Acquisition Process

how IT typically works in Small Business



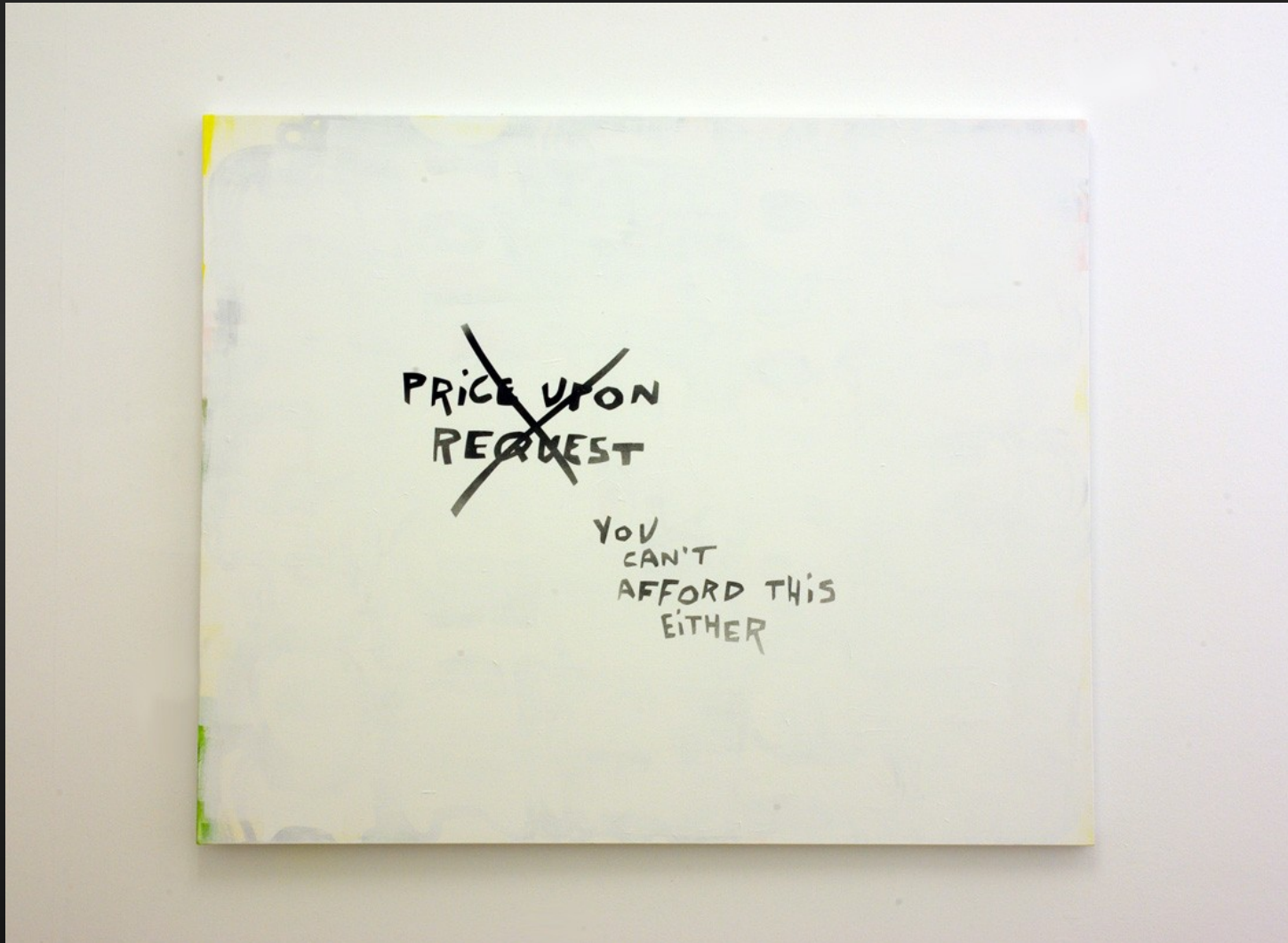
“What's the Fortune 500 do?”

-- Small Business Owners, every day



“You can't afford it.”

-- *Small Business IT People, every day*



“Enterprise” Features

Which ones?

- **High performance?**

Sure – but we've always had *that*

- **Massive scale-out?**

Nope... don't need it.

- **Large IT support staff?**

No way – can't afford it!

“Enterprise” Features

What *do* we want?

- **Predictability**

No nasty surprises, please.

- **Minimal downtime**

A little is OK, though. Especially if it's scheduled.

- **Rapid recovery**

An emergency on your part does not constitute an unscheduled employee holiday on my part!

“Enterprise” Features **The Nitty-Gritty**

Rolling hourly snapshots

Policy-driven snapshot thinning

“Enterprise” Features **The Nitty-Gritty**

Asynchronous Incremental Replication

Rapid, granular, *reliable* disaster recovery

“Enterprise” Features **The Nitty-Gritty**

Strong hardware decoupling

Upgrades on demand, no spare parts closets

“Enterprise” Features **The Nitty-Gritty**

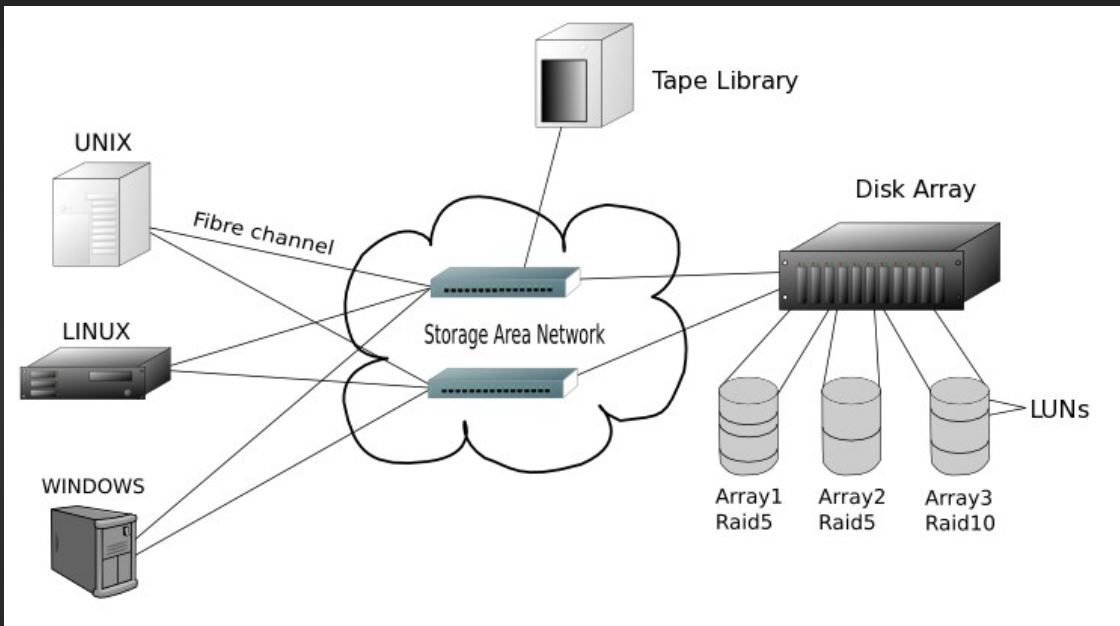
Automated Monitoring

Know it's broken before the users do -

Know *what's* broken when you call them

“Enterprise” Features

How do they do it?

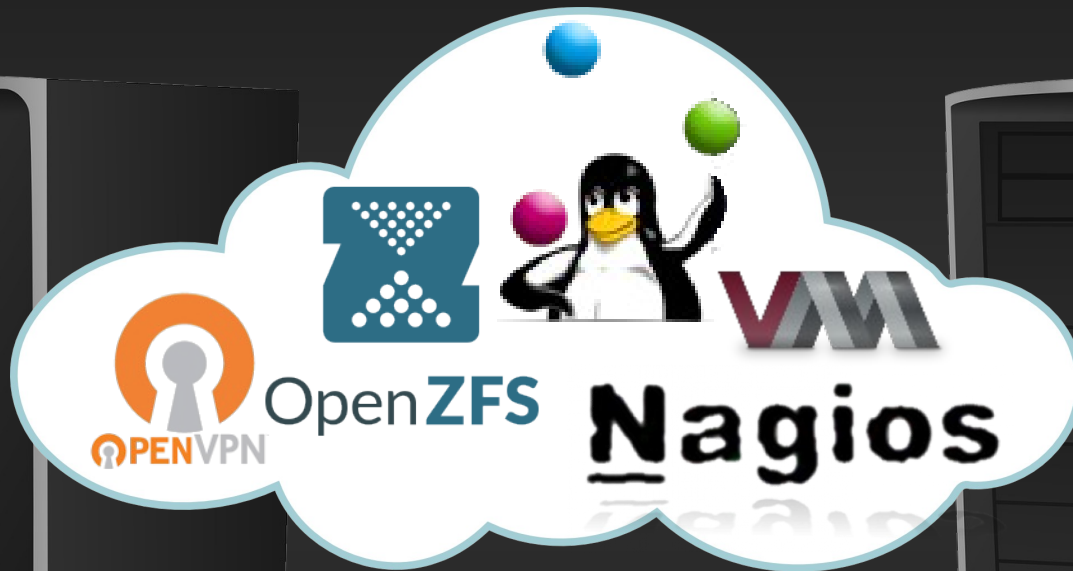


“Enterprise” Features

How do they do it?



“Enterprise” Features How can FOSS do it?



the mettle of the metal

Commodity Hardware

Dell? HP? Custom-built?
Rackmount? Towers?

Core i7? Xeon?
AMD FX? Opteron?



OK!

welcome to the machine

Kernel Virtual Machine

High Performance “Bare Metal” Hypervisor and utilities

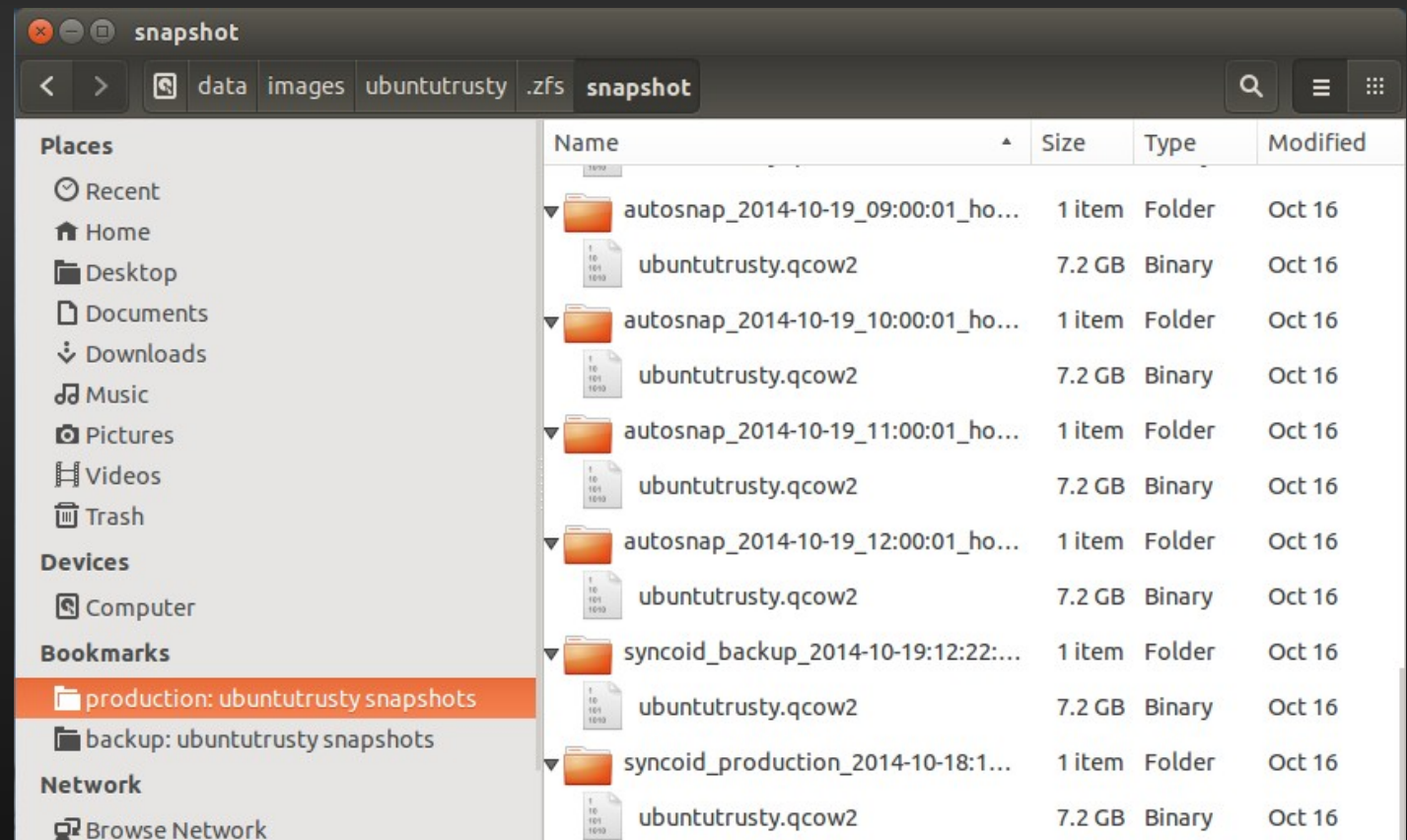
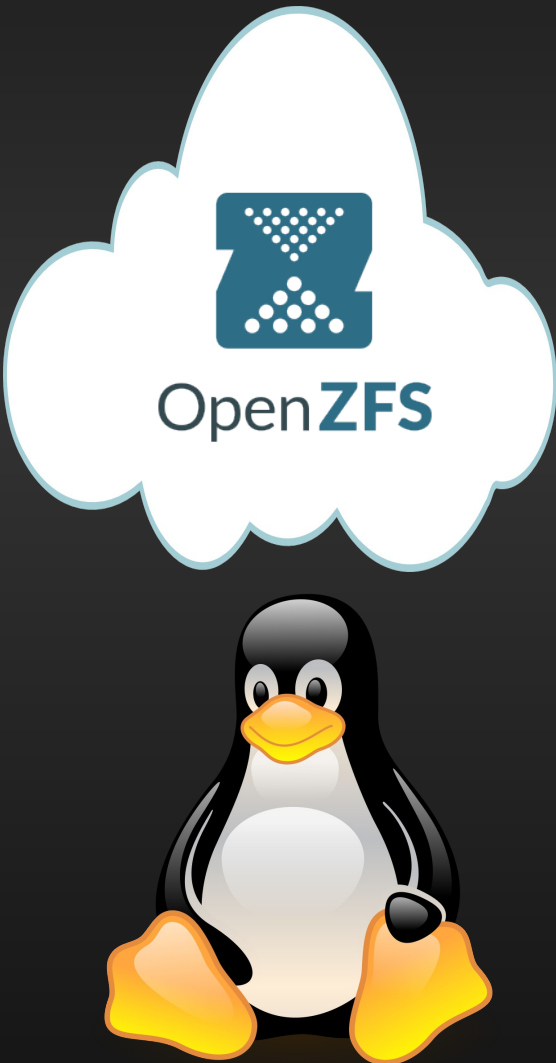


The image shows two overlapping screenshots. The left screenshot is from 'Virtual Machine Manager' showing a list of VMs: 'localhost (QEMU)' with 'ubuntustrusty' (Running), 'win10techpreview' (Running), and 'win2012' (Running); and 'testlab-on-backup (QEMU)' with 'ubuntustrusty' (Shutoff), 'win10techpreview' (Running), and 'win2012' (Shutoff). The right screenshot is from 'Server Manager' showing a 'Dashboard' with a 'QUICK START' section containing a numbered list: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, 4. Create a server group. Below this is a 'ROLES AND SERVER GROUPS' section showing 'AD DS' and 'DHCP' each with a count of 1 and a list of sub-items like 'Manageability', 'Events', 'Services', 'Performance', and 'BPA results'. The system tray at the bottom right shows the time as 1:24 PM on 10/19/2014.

the storage is the thing

OpenZFS Filesystem

I seriously don't understand how you're living without this.



er, I mean *replication* is the thing OpenZFS Filesystem

Easy. Affordable. Offsite. DR.



OpenZFS



```
root@remote:~# iperf -c onsite
[ ID] Interval      Transfer      Bandwidth
  3]  0.0-11.9 sec  1.62 MBytes  1.15 Mbits/sec
```

```
root@remote:~# zfs list backup/images
NAME                USED    AVAIL    REFER
backup/images      2.54T  2.96T   2.14T
```

```
root@remote:~# ssh onsite 'zfs send -I
data/images@2014-10-18_22:00:01
data/images@2014-10-19_22:00:01 | lzop' | lzop
-dcf | pv | zfs receive backup/images
4.24GB 1:01:22 [1.18MB/s] [  => ]
```

```
root@remote:~#
```

et vos custodiet ipsos custodes


Nagios and OpenVPN


Current Network Status - Mozilla Firefox

Current Network St... x +

172.18.40.30/cgi-bin/nagios3/status.cgi?hostgroup=sanoid-servers&style=detail

Google

demo.backup.vpn	 SSH	OK	2014-10-19 15:54:53	0d 0h 28m 59s	1/4	SSH OK - OpenSSH_6.6.1p1 Ubuntu-2ubuntu2 (protocol 2.0)
	check disk space on mounted volumes	OK	2014-10-19 15:53:16	0d 0h 7m 58s	1/4	OK
	root disk	OK	2014-10-19 15:53:14	0d 0h 7m 58s	1/4	DISK OK - free space: / 12909 MB (73% inode=81%):
	sanoid: check snapshot freshness	OK	2014-10-19 15:54:53	0d 0h 7m 0s	1/4	OK: all monitored datasets (backup/images /ubuntustrusty, backup/images /win10techpreview, backup/images/win2012) have fresh snapshots
	sanoid: check storage pool health	OK	2014-10-19 15:53:14	0d 0h 7m 2s	1/4	OK ZPOOL backup : ONLINE {Size:214G Used:49.4G Avail:165G Cap:23%}
	system load	OK	2014-10-19 15:53:14	0d 0h 7m 58s	1/4	OK - load average: 0.01, 0.04, 0.05

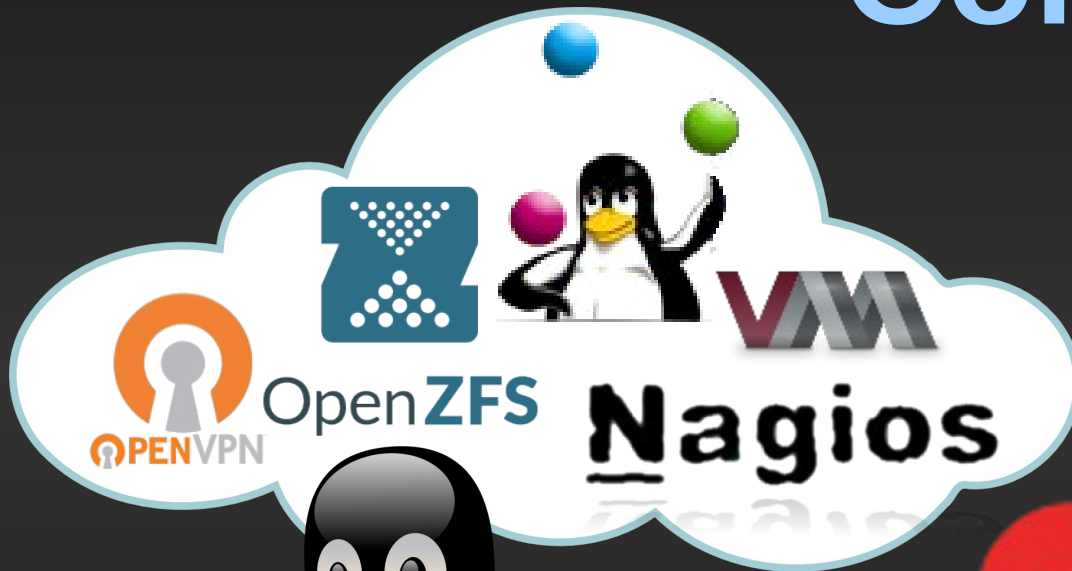


The Nagios logo features a stylized penguin character sitting on a cloud. The penguin is black and white with orange feet. The word "Nagios" is written in a bold, black, sans-serif font. Above the penguin is a circular icon with a keyhole shape inside, and the text "OPENVPN" is written in a smaller font above the "Nagios" text.

Questions?

Comments?

Angry denunciations?



OPENOID