Corporate/Open Source Community Relationships: The OpenZFS Example

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Breaking that down…

Corporate/Open Source Community Relationships: The OpenZFS Example

The most familiar of these terms

For our purposes: That thing with an HR Department

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Breaking that down…

Corporate/**Open Source** Community Relationships: The OpenZFS Example

Software under a license that

guarantees four freedoms

Breaking that down: Open Source

Free Software Foundation Four Freedoms

- ❒ The freedom to **run** the program as you wish, for any purpose
- ❒ The freedom to **study** how the program works, and change it so it does your computing as you wish
- ❒ The freedom to **redistribute** copies
- ❒ The freedom to distribute copies of your **modified** versions to others

Breaking that down: Open Source

Two Leading Schools of Thought

❒ Permissive Licensing: You may keep your changes to my code if you preserve my copyright notice

❒ Copyleft Licensing: You must provide your changes to my code to your users

With or without patent protections/indemnification

Why would you do that?

Breaking that down: Open Source

Joy's Law

"No matter who you are, most of the smartest people work for someone else."

Bill Joy, Sun Microsystems

Leverage like-minded developers

Find common ground: "Coopetition"

Breaking that down: Open Source

Dexter's Law

"Only proprietary software vendors want proprietary software. Everyone else will choose software freedom when given the choice."

Michael Dexter

Breaking that down: Open Source

"A patent is not a business model."

Tim Kastelle

Technologies alone do not find customers, support them, build a brand, source vendors, manage HR…

The same is true of most software unless you explicitly sell software

timkastelle.org/blog/2010/03/a-patent-is-not-a-business-model

Breaking that down: Open Source

Speaking of selling software and services…

The majority of proprietary software and services offer, to the maximum extent of the law, LESS than the zero guarantees offered under open source licenses

At best they will refund your money

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Breaking that down: Open Source

This places most software on equal footing with the *added* advantage of freedom

This also reaffirms the value of hardware solutions running open source software…

Breaking that down: Open Source

Open Source powers…

98.8% of Supercomputers

Most Smart Phones

Most Network Infrastructure

Netflix, Yahoo!, Google, Amazon
and Facebook Servers

Most Internet of Things

Many Storage Vendors

http://www.idc.com/prodserv/smartphone-os-market-share.jsp

Breaking that down…

Corporate/Open Source **Community** Relationships: The OpenZFS Example

A global network of contributors

Breaking that down…

Corporate/Open Source Community Relationships: The **OpenZFS** Example

A proven Enterprise Open Source file system first developed at Sun Microsystems that continues the pioneering file systems work done by the CSRG at UC Berkeley

Thank you Dr. Kirk McKusick

Breaking that down: OpenZFS

An OpenZFS "pool" can provide a fully integrity-checked store that can transcend unique hardware for decades

And no, I have not seen a Btrfs Petabyte and they recently admitted that their RAID code is faulty

"Re: [BUG] Btrfs scrub sometime recalculate wrong parity in raid5"

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Breaking that down…

Corporate/Open Source Community
Relationships: The OpenZFS Example

My Relationships

FreeBSD and OpenBSD Operating Systems

bhyve Hypervisor

OpenZFS File System

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Motivations

Motivations

#School

#DayJob

#Hobby

#Passion

#Startup

#???

Motivations

In the absence of an HR Department…

Motivations vary

Locations vary

Attitudes vary

Skills vary

Motivations

A low barrier to entry in the absolutely best and worst sense

Priceless and costly relationships

Largely priceless!

FreeBSD & OpenBSD

❑ Direct descendants of the UC Berkeley CSRG "BSD" work

❑ Quality, permissively-licensed software

❑ Global corporate and individual community

❑ Strong events around the world

❑ The software that runs the Internet

FreeBSD & OpenBSD: Lessons Learned

- ❑ Ask questions, followed by more questions
- ❑ Don't assume anything, ever
- ❑ A little bit of good will goes a long way
- ❑ Don't rush, don't burn out
- ❑ Vendors can make priceless contributions
- ❑ Some of the finest humans on the planet

bhyve Hypervisor

- Developed by a very large storage vendor
- Upstreamed to the community with my help with zero legal strings attached
- Continued professional development
- Three bhyvecon conferences
- Bootstrapped community but now very capable with many contributions

bhyve Hypervisor: Lessons Learned

- ❒ Persistence pays off
- ❒ Trust your instincts
- ❒ Deaf ears usually aren't
- ❒ Many SMEs do not choose to be SMEs
- ❒ Community members can pass away ☹
- ❒ Eventually, someone will brag to you about your work

OpenZFS File System: Community

❒ Unique community of Sun/Solaris refugees
- ❒ Delphix
- ❒ Joyent
- ❒ OmniIT
- ❒ Nexenta

OpenZFS File System: Community

❑ Strong community of FreeBSD and Linux consumers and contributors

  ❑ iXsystems

  ❑ Spectra Logic

  ❑ Wheel Systems

  ❑ Datto

  ❑ FreeBSD Foundation

OpenZFS File System: Community

- ❑ Virtual Foundation, considering options
- ❑ Strong corporate and community support
- ❑ Quality events

OpenZFS Developer Summit

September 26th and 27th!

www.open-zfs.org

OpenZFS File System: Media

- ❏ Many authoritative blog posts/articles
- ❏ zfsbook.com: FreeBSD Mastery: ZFS
- ❏ Social Media: @OpenZFS on Twitter
- ❏ developer@open-zfs.org mailing list
- ❏ #OpenZFS on Freenode IRC
- ❏ Strong BSDCon presence

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OpenZFS File System: Upstreaming

□ "Feature Flags" allow for proprietary "secret sauce" features…

So few exist that I cannot name them

Vendors have done a very good job of upstreaming their changes

KUDOS!

OpenZFS File System: Upstreaming

It would appear that OpenZFS vendors are more likely to violate the GPL than to not contribute their OpenZFS improvements

A bit awkward if you compete with them…

OpenZFS File System: Getting Involved

Give FreeBSD, SmartOS, FreeNAS, OmniOS or TrueOS a try

They are first-class OpenZFS platforms with various levels of professional support

OpenZFS File System: Getting Involved
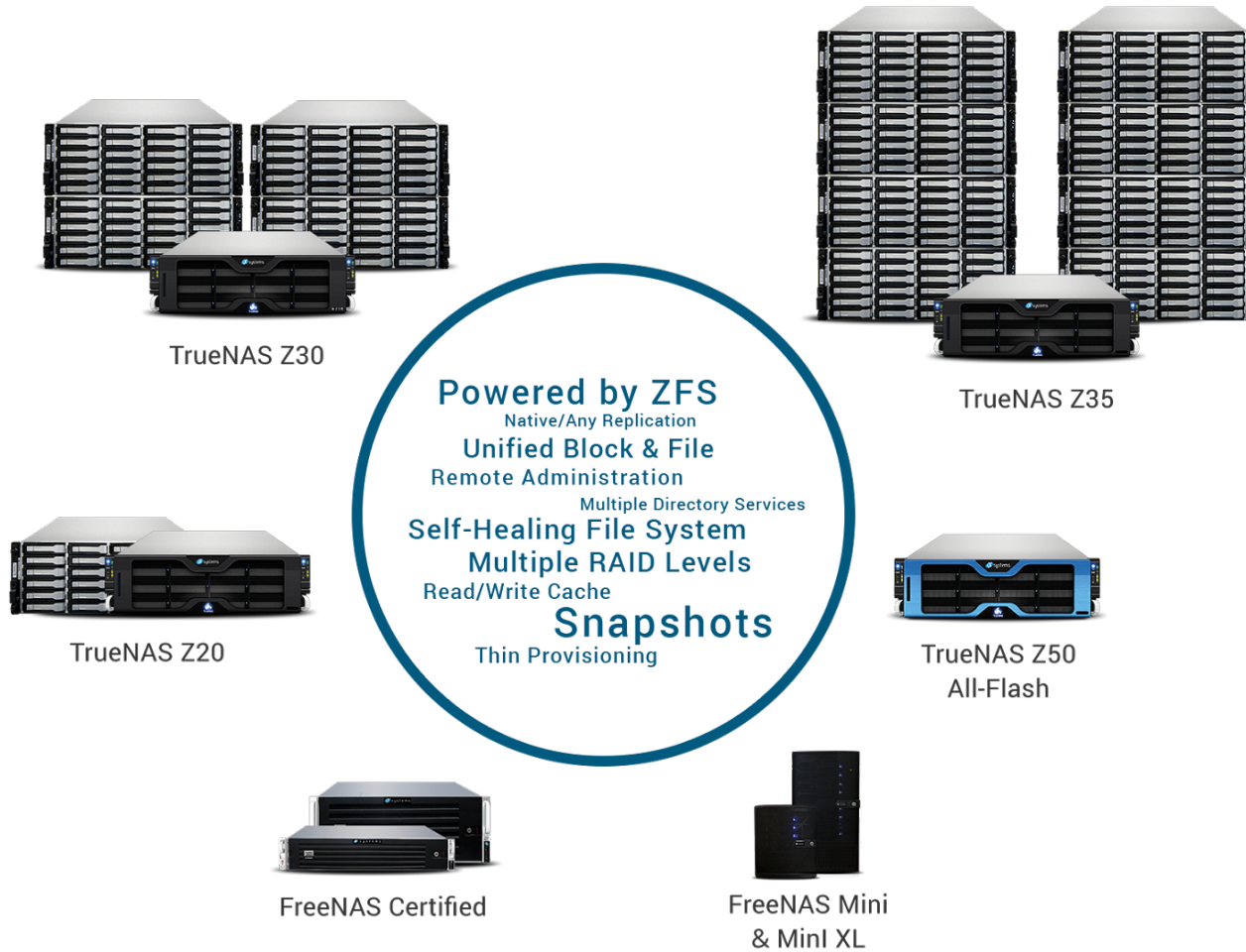
Try an OpenZFS proof of concept
in your product or service

Better late than never and few if any file
systems offer the same guarantees

Our Conclusions

OpenZFS File System: Our Conclusions

- Make OpenZFS Available to as many people as possible
    - FreeNAS has been downloaded nearly 9 million times
    - World's Number One Software-Defined Storage OS
- All Software Requires Hardware
    - FreeNAS Mini/Mini XL, FreeNAS Certified Line
- SDS Separation is the enemy of Hardware Integration
    - Integrated Hardware Platform
    - High Availability Option
    - Vendor Certification
    - Deployment and Maintenance Support

OpenZFS File System: TrueNAS

TrueNAS Z30

TrueNAS Z35

Powered by ZFS
Native/Any Replication
Unified Block & File
Remote Administration
Multiple Directory Services
Self-Healing File System
Multiple RAID Levels
Read/Write Cache
Snapshots
Thin Provisioning

TrueNAS Z20

TrueNAS Z50
All-Flash

FreeNAS Certified

FreeNAS Mini
& MinI XL

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Questions!
(I am happy to geek out)

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