The Open Sourcing of Infrastructure

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Elizabeth K. Joseph
@pleia2
Elizabeth K. Joseph, Developer Advocate

- Developer Advocate at Mesosphere working on DC/OS, Apache Mesos
- 15+ years working in open source communities
- 10+ years in Linux systems administration and engineering roles
- Founder of OpenSourceInfra.org
- Author of The Official Ubuntu Book and Common OpenStack Deployments
The [recent] history of infrastructure

(from a highly opinionated, open source view)
“To make a server, first add...”
And so rose the proprietary world of software

With proprietary Unix and Windows-based platforms, the stage was set for the golden age of proprietary software in the 1990s and into the 2000s.
Linux was an upstart, at best seen as “cheap Unix”

Lots of FUD around open source
I liked it anyway.
So I got a junior Linux systems administrator job!
Some of the topics during a seminar I spoke at in the 00s

- What is Free/Open Source Software (FOSS)?
- How & Why Linux and FOSS can Deliver Business Results
- Managing FOSS: Thousands of Alternatives - How To Choose?
- Using Open Source Web Applications to Produce Business Results
Turning point: LAMP stack
Flood of changes to how we interact with software

- Reluctance to be locked-in by a vendor
- Greater concern over security
- Wanted the ability to fix bugs ourselves
- Learned that innovation is stifled when software is developed in isolation
Flood of changes to how we use software

Downtime becoming [considerably more] unacceptable
Increase in reliance upon scaling and automation
Transition from server “pets” to “cattle”
Larger focus on data (retention, speed)
Open source is now ubiquitous
### Organizations with the most open source contributors

<table>
<thead>
<tr>
<th>Organization</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Microsoft</td>
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<td>npm</td>
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</tbody>
</table>

Developers are using, developing on, contributing to, and sharing open source software!

Operations is using and developing on open source software.
When I left my ops job, I left my tools behind

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Time to open source ops stuff!
Configuration management
- Puppet Modules
- Chef Cookbooks
- Ansible Playbooks

Open application definitions
- DC/OS Universe Catalog
- Juju Charms

Full disk images
- Dockerhub and other container registries
Welcome to the present!
What were some of the reasons for going open source in the first place?

- Security
- Ability to diagnose and fix bugs without vendor intervention
- Increased control over our data and services
- Avoiding vendor lock-in
The Cloud.

Including IaaS, PaaS, SaaS...
“Most people just consume the cloud without thinking ... many users are sinking cost into infrastructure that is not theirs, and they are giving up data and information about themselves without thinking.”

Edward Snowden, OpenStack Summit, May 9, 2017
Let’s think.
Is the service I’m using adhering to open standards, or am I locked in?
What is my recourse if the service vendor goes out of business
...or is bought by a competitor?
Does the vendor have a history of communicating clearly and honestly with their customers about downtime, security, etc?
Does the vendor respond to bugs and feature requests?
Will the vendor use our data in a way that I’m not comfortable with?  
(or worse, isn’t allowed by your own customer agreements)
Initial costs may be low, but do you have a plan to handle long term, growing costs?
You *could* consider all these things and acknowledge them as acceptable risks.

Many organizations do!

Just make sure you are *actually, seriously* considering them.
Various infrastructure technologies are available:

- OpenStack
- Kubernetes* and Docker swarm mode*
- DC/OS*
- ...more in the future!

* Can be used in the cloud or on premises
Even further into the future
Open Source the Whole Stack

Infrastructure, configurations, tools, images

OpenStack  OSUOSL  KDE & Gnome  Debian & Ubuntu

And more atopensourceinfra.org
What do these projects get?

- Contributions from anyone, anywhere
- Vendor independence
- No lock-in
- Community ownership
Questions?

Elizabeth K. Joseph
Twitter: @pleia2
Email: lyz@princessleia.com

Slides
http://princessleia.com/presentations/2017/

“Why open source should be the first choice for cloud-native environments” article
https://opensource.com/article/17/8/open-sourcing-infrastructure