The Open Sourcing of Infrastructure

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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
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>Contributers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft</td>
<td>16,419</td>
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<tr>
<td>Facebook</td>
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<td>Docker</td>
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<td>Angular</td>
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<td>Atom</td>
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<td>FortAwesome</td>
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<td>Elastic</td>
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<td>Apache</td>
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</tr>
<tr>
<td>Npm</td>
<td>6,815</td>
</tr>
</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!
Done!

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 at opensourceinfra.org
What do these projects get?

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

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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