Advancing Container Support in Debian

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What are containers?

– A combination of two fairly old technologies used to implement lightweight virtualisation

– Resource control via cgroups
  – CPU, memory
  – Block I/O
  – Network

– Isolation via namespaces
  – Process
  – Network
  – Mount
  – User
  – IPC and UTS
A brief history of players in this space

– OpenVZ
  – Late 1999-present, Kernel 2.2, early contributors to nascent cgroups patch?

– Linux Vserver
  – 2001-2009?, VPS implementation

– LXC
  – 2008-present, uses control groups and namespaces

– Docker
  – 2013, very good userspace tools, has most of the mindshare in the container space

– ???
  – Disruption has a way of surprising most everyone
Has everyone gone container crazy?

YES
Google Trends interest over time
Why has everyone gone container crazy?

– Docker appeared at the right place at the right time
  – With the right set of tools for distributed non-hierarchical collaboration

– Development
  – Can fire up a command line for {Debian, Ubuntu, RedHat, CentOS} in milliseconds
  – Many app images available

– Production
  – Can reproducibly create identical environments
  – Separates host from guest
Why use Debian for containers?

– Obviously it’s the best choice!
  – Freedom
  – Quality
  – Security

– Debian stable is stable

– Can have your cake and eat it too!
  – Run stable on host, something else as guest

– Avoid (OS) vendor lock-in
  – At host level
  – At guest level
Debian support for Docker

- Wheezy and later has kernel support for cgroups and namespaces
- Vendor packages of open-source and commercial versions available
- Development on github.com/docker/docker continues to accelerate
- Problem: use non-free vendor package or ancient version of Docker

- **Current status**
  - 1.6.2 in stable-bpo
  - 1.8.3 in testing
  - 1.11.2 in experimental branch on alioth unstable
Debian support for Kubernetes

– Multi-node container orchestration platform by Google
  – Quite mature
  – Uses Docker as a back end

– Very popular as a PaaS for developing, distributing and operating large applications

– **Current status**
  – 1.2.5 in experimental
  – Needs more testing
Debian support for Rocket

– Rocket still a project in the incubation stage

– No vendor packages available

– What’s the future of Rocket?

– **Current status**
  – 1.5.1 in testing
  – 1.9.1 in unstable
  – Needs more testing
Why should we be working on containers?

– Containerization (i.e Docker) is driving a lot of computing at the moment

– Debian risks being left behind or losing growth to other distros

– Vendor packages are not a good solution for many reasons
The Debian pkg-go team

– A typical Debian package team, currently 55 members

– Members currently working on Docker, et al
  – Paul Tagliamonte
  – Tianon Gravi
  – Dmitry Smirnov
  – Tim Potter
  – And others…
Conclusion

– Let’s make sure container technology works well in Debian

– The pkg-go team has made a great start

– HPE is interested in developing container technology in Debian

– Assistance and testing is gratefully received!
Thank you
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