Guix, GuixSD, and getting to 1.0

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GNU Hackers Meeting
Knüllwald-Niederbeisheim, August 2017

agenda

- Seriously, who cares?
- What's new?
- What's missing?
- What's hot?!

```
$ guix package -i gcc-toolchain coreutils sed grep
…

$ eval `guix package --search-paths`
…

$ guix package --manifest=my-software.scm
…
```

```
(operating-system
  (host-name "schememachine")
  (timezone "Europe/Berlin")
  (locale "de_DE.utf8")
  (bootloader (grub-configuration (device "/dev/sda")))
  (file-systems (cons (file-system
                        (device "my-root")
                        (title 'label)
                        (mount-point "/")
                        (type "ext4"))
                      %base-file-systems))
  (users (cons (user-account
                (name "alice")
                (group "users")
                (home-directory "/home/alice"))
               %base-user-accounts))
  (services (cons* (service dhcp-client-service-type)
                   (service openssh-service-type
                            (openssh-configuration
                              (port-number 2222)))
                   %base-services)))
```

So, is it relevant?

spoiler: yes it is!

1. transactional, per-user package manager
2. software environment manager
   - like virtualenv, “modules”, Vagrant, Docker, etc.
3. VM/container provisioning tool
   - like `Dockerfile`s, but higher-level
4. OS deployment tool
   - (almost) like Ansible, Chef, Puppet, Propellor, etc.
   - ... and kinda like FreedomBox, Internet Cube/YunoHost

What’s new?

GuixSD surely works for you now! :-)

UEFI, LUKS on root, GNOME, 73 services, etc.

6,000 packages, 75% bit-reproducible

... and getting better

```
$ guix pack guile emacs geiser
...
/gnu/store/...-pack.tar.gz
```

Guile
GNU extension language

and also...

- Guix on **aarch64**
- **containerized** system services
- **multiple bootloader** support
- `guix system disk-image` supports **ISO 9660**
- **Git integration** for `guix pull`
- MinGW, PowerPC, and Alpha (!) **cross-compilation targets**
- ...

updating the list of substitutes...

berlin.guixsd.org

berlin.guixsd.org

Thank you, Max Delbrück Center & Ricardo!

What’s missing for 1.0?

#1: faster `guix pull`, authenticated commits

#2: stable, self-hosted infrastructure: Cuirass, etc.

#3: performance & UI improvements

#4: fewer glitches in our workflow...

- merge `core-updates` more quickly...
- **big set of updates** frowned upon (GHC, Perl, Python, ...)
- tame the **patch & bug queues**
- **security updates** need more people
- **build farm admin** needs more automation
- ...

What’s hot?!

high-performance computing (HPC)

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- better Guix setups on clusters
- better performance
- **reproducible** environments
- **Guix Workflow Language** (Roel Janssen)

distributed Guix & “GuixOps”

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- `GUIX_DAEMON_SOCKET=ssh://host.example.org`
- \+ **remote code evaluation** through Guile-SSH
- = `guix system reconfigure --remote=host` ?

- **the potluck** (Alex's talk tomorrow!)
- **GuixSD on ARM?** (Mathieu's talk today!)
- `bootstrappable.org` & Mes (Ricardo's talk tomorrow!)
- **GuixSD ncurses installer** (John's FOSDEM talk)
- **build daemon written in Guile** (reepca, GSoC 2017)
- get **substitutes from your neighbors** with Avahi
- search & **on-line doc of system services**
- *your project here*

Join us now!
Get yourself a sticker too!

GuixSD

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https://gnu.org/software/guix/

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