GENERATIONAL CORE

The future of Fedora?

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IT’S A LIE!

There is no Generational Core. There is only Base Runtime.
STATUS QUO
It kinda sucks... and it’s a miracle it actually works, really

- Thousands of packages
- Some are well cared for, others are a complete mess
- It’s all tangled together
- It’s all built in a random order
- It’s all released together
- And it's all supported for the entire release lifetime
  ...or so we say.
What can be done?
MODULARIZE

ALL THE THINGS
MODULARITY

In a nutshell

- Some serious bundling
MODULARITY

In a nutshell

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- Content duplication
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- Content duplication
- Maintenance overhead
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- Some serious bundling
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- It’s different
MODULARITY

In a nutshell

- Some serious bundling
- Content duplication
- Maintenance overhead
- It’s different
- And it’s still not ready :(


MODULARITY
On the other hand

- Upstream-driven life cycles
MODULARITY

On the other hand

- Upstream-driven life cycles
- Parallel availability
MODULARITY
On the other hand

- Upstream-driven life cycles
- Parallel availability
- Parallel installability
MODULARITY

On the other hand

- Upstream-driven life cycles
- Parallel availability
- Parallel installability
- Honesty
MODULARITY

On the other hand

- Upstream-driven life cycles
- Parallel availability
- Parallel installability
- Honesty
- Familiarity
  Others have been doing it for years!
Base Runtime

What it is and how it fits in the picture
CHALLENGES

API definition, or what it is we actually want to ship

- Determine our use cases
- Where to draw the line between the base system and the applications
- Finding the balance between minimalism and usability
- Mostly guesswork
CHALLENGES
Making it possible and maintainable through minimization

- Fewer packages means lower maintenance burden, disk space and memory footprint, faster builds, and smaller attack surface
- Ship as few implementations of common libraries as possible, especially when it comes to cryptography
CHALLENGES
Building it... and building the building blocks

- The first real module
- Infrastructure bootstrap
- Hundreds of FTBFS issues
  - Buildroot changes
  - Undeclared dependencies
  - Package incompatibilities
  - Poor packaging in general
CHALLENGES
Dependency chains, package splits and filters

- Tim Toady
- Sub-packaging and sub-package filtering
- Disabling optional features
- General repackaging
- Ensuring people can use our API
Examples of dependency chains, package split and filters.
CHALLENGES
Implementing packaging changes

- Unresponsive package maintainers
- Different people, different opinions
- Repetitive, endless discussions about solved issues
DELIVERABLES
What to expect and when

- **Fedora 26**
  Base Runtime & Boltron

- **Fedora 27**
  Stable and polished Base Runtime
  The entire distribution is modularized

- **And beyond!**
  More content, higher quality modules,
  happy users, the year of the Linux desktop,
  who knows...
DEMO TIME
DEMO RESOURCES

Try it yourself! Note it’s all work-in-progress, however

- **Base Runtime RPM repository**
  https://fedorapeople.org/groups/modularity/repos/base-runtime/26/

- **Base Runtime module definition**
  http://pkgs.stg.fedoraproject.org/cgit/modules/base-runtime.git/

- **Base Runtime self-hosting prototype repository**
  https://koji.stg.fedoraproject.org/koji/builddtargetinfo?targetID=222
HELP WANTED
Want to contribute? Here’s how!

- **Fedora Modularity WG**
  [https://fedoraproject.org/wiki/Modularity_Working_Group](https://fedoraproject.org/wiki/Modularity_Working_Group)

- **Base Runtime**
  [https://fedoraproject.org/wiki/BaseRuntime](https://fedoraproject.org/wiki/BaseRuntime)

Or simply join #fedora-modularity @ freenode and talk to us!
THANK YOU