How I Learned to Stop Worrying and Love Tumbleweed

Everyone should be running a rolling release
“Rolling Releases are the future of Linux Distributions”
In the Beginning
Regular Releases aka “Traditional Distributions”

• Most Linux Distributions follow a “Regular Release” model
• Release every X months/years
• Freeze/Reluctantly upgrade package versions between Releases
• Backport patches/fixes for frozen package versions
• e.g. Debian, Fedora, openSUSE Leap, Ubuntu
Dev Branches

- Most Linux Distributions rely on a Dev Branch to seed their Regular Releases
- Always Released
- Nothing Frozen/Backported
- Normally Broken
- e.g. Debian sid, Fedora Rawhide, openSUSE Factory, Ubuntu Daily
The Problems for Developers

- Developers need their system to be as close as possible to their relevant upstream/distribution projects
- Dev Branches accomplish this, but at the cost of stability
- If it’s not stable, Developers will not use it, they have work to do
The Problems for Distributions

- Fewer Users/Contributors of the Dev Branch is a serious, but common problem
- Fewer bugs found before each Regular Release
- Less innovation/new features in your codebase
- Increasing Technical Debt, making each Release more ‘expensive’ to clear that debt
- Stagnation/Decline, often with very public development probs
The Problems for Upstream Developers

- Upstream Developers want to put their software in the hands of users as fast as possible
- Dev Branches do not accomplish this, neither do Regular Releases
- Containerised Apps promise to solve this, but it’s not that easy

Come see my other talk “Resurrecting Dinosaurs”
Janson 13:00 TODAY
The Problems for Users

• Many Linux Users are enthusiasts with a keen interest in the upstream projects of their choice

• These users don’t want to wait, but when they use it they want it to work

• Consistency, ‘well put together’, ‘feels right’, UX, are key requirements

• These enthusiasts are the prime candidates to become contributors of tomorrow
Rolling Releases to the Rescue
Rolling Releases to the Rescue

- No Release Schedule
- Frequent Updates to all Packages
- Updates delivered “when they're ready”
- e.g. Arch, Gentoo, openSUSE Tumbleweed
Rolling Releases – Common Problems

- Unstable
- Unreliable
- Hard to Live With
Unstable

- “Always Changing”
- A fast moving codebase is going to include changes, that’s the point
- Changes must be built, tested, and integrated consistently
- Users must be shielded from behavioural changes so they can just focus on getting their work done, then change when they’re ready
Unreliable

- “Always Breaking”
- Thousands of moving parts from thousands of upstream projects are a challenge to get working together
- Changes must be built, tested, and integrated consistently
- Test-at-the-submission & Test-as-a-whole; Distributions are not a collection of packages, but a cohesive product
- Users must not be shipped something that doesn’t work
Passive Testing is not good enough!

- Many distributions, incl. rolling releases, rely on “Passive Testing”
- Put new packages in a “Testing Branch”, wait X days then assume “it’s good enough” and ship!
- Works better or worse depending on size of developer & testing communities
- Still basically Russian Roulette
Active Testing is required

Rolling Releases SHOULD actively confirm:

- “does the new package break something in isolation?”
- “does the new package break something when installed in a broader context?”
- “does the new package change behaviour users expect?”

• Answers to the above questions needed ideally BEFORE an Upstream Release or ASAP after
Hard to Live With

- The Arch Way - “Do it yourself, it’s a learning exercise”
- The Gentoo Way - “Do it yourself, and you can read the Arch wiki while everything is compiling”

- Something went wrong or changed in a way you don’t like? Too bad, good luck undoing it, you can always start again
“Who said Rolling Releases needed to be difficult?”
Enter Tumbleweed
A Brief History of Tumbleweed

- Originally created by Greg Kroah-Hartman
- Merged with the 'Factory' rolling release on November 4th 2014

- Provides the latest updates 'at the pace of contribution', without the risk of major system issues
- Tested by openQA continuously
- Developer, Contributor & Enthusiast focus
OG Tumbleweed (Pre Nov 2014)

- Tumbleweed was originally 'rolling updates' based on regular releases
- Required an additional repository to your ‘traditional’ openSUSE release
- Focus on Kernel, KDE, GNOME and some Apps
- Would overwrite packages from regular release
- “Reset-to-zero” every regular release
Original Tumbleweed, Original Troubles

- "Partially-Rolling" does not work
- Constant breakage over the growing chasm between the ‘stable base’ and ‘rolling top’
- Ad-hoc tinkering of the ‘stable base’ stops it being stable
- “Reset-to-zero” rebase to a new stable base every 8 months was brutally disruptive for many users
Richard’s Rolling Release Rule

“In order to move ANYTHING quickly, you need to be able to move EVERYTHING quickly”
Building Linux Better

- Open Build Service started in February 2006
- Used to build the openSUSE® & SUSE® distributions
- Can also build packages for other distributions (Fedora/Red Hat, Ubuntu, Debian, Arch, etc)
- Also used by ownCloud, Linux Foundation, VideoLAN (VLC), Dell, Cray, Intel and more.

http://openbuildservice.org
Testing Linux Better

- openQA started in November 2009
- Able to fully test Linux distributions from install to user applications
- Integral part of the openSUSE® Tumbleweed & Leap process
- Used by SUSE® to test SUSE Linux Enterprise
- Recently adopted by Red Hat to test Fedora

http://open.qa
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openSUSE leap 42.2 Alpha 1

Boot from Hard Disk

Installation

Needle

Upgrade

67%
Help make openQA & Tumbleweed better

• Main Website
  – http://open.qa

• Documentation
  – http://open.qa/documentation/

• Bug Reports & Feature Requests
  – https://progress.opensuse.org/projects/openqav3
Learn More

“Continuous Integration with the Open Build Service”

Christian Bruckmayer
This Room
13:30 TODAY
“Fancy, but I don’t want to wait for all that build & test nonsense”
Working with Upstream Projects

- GNOME 3.22 – Shipped <48 hours after Upstream Release
- KDE Plasma 4.9 – Shipped on Upstream Release Day

- “GNOME:Next” – Tumbleweed derivative testing GNOME git
  - LiveCD’s provided for Upstream Release Day
- openSUSE Krypton – Tumbleweed derivative testing KDE git
A “quiet” Tumbleweek

- 3 Snapshots
- 146 Package Updates
- 15 New Packages on the DVD
- 38 Packages Removed from the DVD
- 1 new Kernel
A “quiet” Tumbleweek

- 3 Snapshots
- 146 Package Updates
- 15 New Packages on the DVD
- 38 Packages Removed from the DVD
- 1 new Kernel
Another Tumbleweek

- 5 Snapshots
- 298 Package Updates
- 47 New Packages on the DVD
- 42 Packages Removed from the DVD
- 2 new Kernels
btrfs & snapper – our secret sauce

- Tumbleweeds default install uses btrfs & snapper
- Automatically configured to snapshot root filesystem when packages are installed
- Unwanted changes can be safely rolled back, even from GRUB

“Transactional Updates with btrfs” - Thorsten Kukuk
This Room 15:30 TODAY
“What about openSUSE Factory?”
Who needs a Dev Branch anyway?
“What about the openSUSE Regular Release?”
The New openSUSE Distributions

• openSUSE Tumbleweed
  – Rolling Release
  – Continuously Updated & Tested
  – Perfect for Developers & Power Users

• openSUSE Leap
  – Regular Release
  – Shared Core with SUSE Linux Enterprise
  – Perfect for SysAdmins, Enterprise Developers, and Users
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<th>Tumbleweed</th>
<th>openSUSE Leap</th>
<th>SUSE® Linux Enterprise</th>
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Tumbleweed and SUSE Linux Enterprise

openSUSE Tumbleweed

Leap 42.2
Core 12.2
SLE 12 SP2

Leap 42.3
Core 12.3
SLE 12 SP3

Leap 43.0
Core 13
SLE 13
In Review
Tumbleweed for Developers

- Keep close to your chosen upstream projects
- Get the latest and greatest versions of everything
- “It just works”, and if it doesn’t work the way you want any more, snapper rollbacks keep you working
- Something not quite perfect? Please contribute back, so we can help make Tumbleweed even better for you
Tumbleweed for Upstream Developers

- Roll with us and you get packaging experts to help, cross-distro packaging tools, and unparalleled automated functional testing
- Containerised Applications are cool for those ‘other’ distributions, but are more work for you
Tumbleweed for Users

• Get the latest and greatest versions of everything
• “It just works”, and if it doesn’t work the way you want any more, snapper rollbacks keep you working
• Having a lot of fun? Please contribute back, so we can help make Tumbleweed even better for you
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