Package mainatainance automation for RPM-based Linux distributions.

ALT LINUX TEAM

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Linux Distributions: Symptoms of Crysis.

Users are unhappy.
And even powerusers are.

Ingo Molnar

"What ails the Linux desktop?"

"The basic failure of the free Linux desktop is that it's, perversely, not free enough."

Ingo Molnar

"What ails the Linux desktop?"

Desktop Linux distributions are trying to "own" 20 thousand application packages consisting of over a billion lines of code and have created parallel, mostly closed ecosystems around them. The typical update latency for an app is weeks for security fixes (sometimes months) and months (sometimes years) for major features. They are centrally planned, hierarchical organizations instead of distributed, democratic free societies.

OSS Community Distribution

Benefits:

share the cost of
- building
- installation
- testing

History lesson.

Long time ago, when men were men and wrote their own device drivers, there was not much free software. A single person or two were capable of producing a distribution by themselves.

When the code base of Open Source Software grew, It become hared or even impossible for one person to make a distribution of it.

Power users began to delegate some packages to other people, creating packaging societies (teams).

Just like feudal lords provided land for the service.
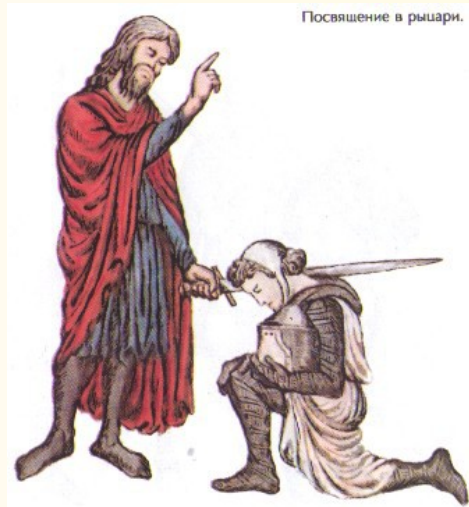
It was a heroic epoch.

And it worked.

Till the modern times.

"Feudal" society did not scale well when the package base grew.

Growth of packages in ALT Linux distributions.

Master 2.2	1780
Master 2.4	3226
Compact 3.0	4569
Branch 4.0	6871
Branch 5.1	9758
Branch P6	11597
Sisyphus	13291

But

Team numbers does not grew accordingly.

Current package base is faced by a team of
300 (100+ active) Sisyphus spartians.

And limitations

of "feudal" distributed approach

were made clear.

Package ownership fragmentation.
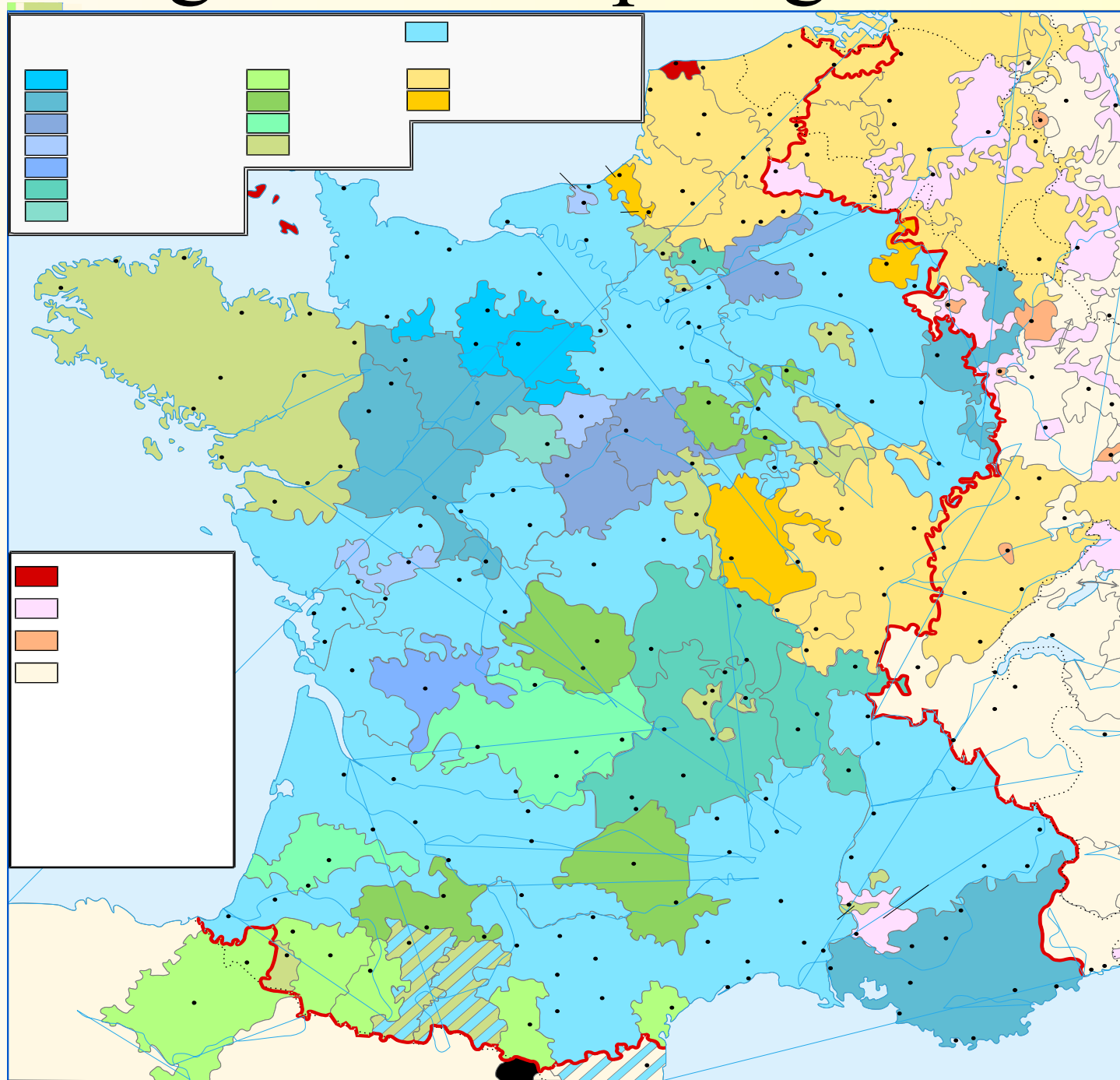
Complication of structure.
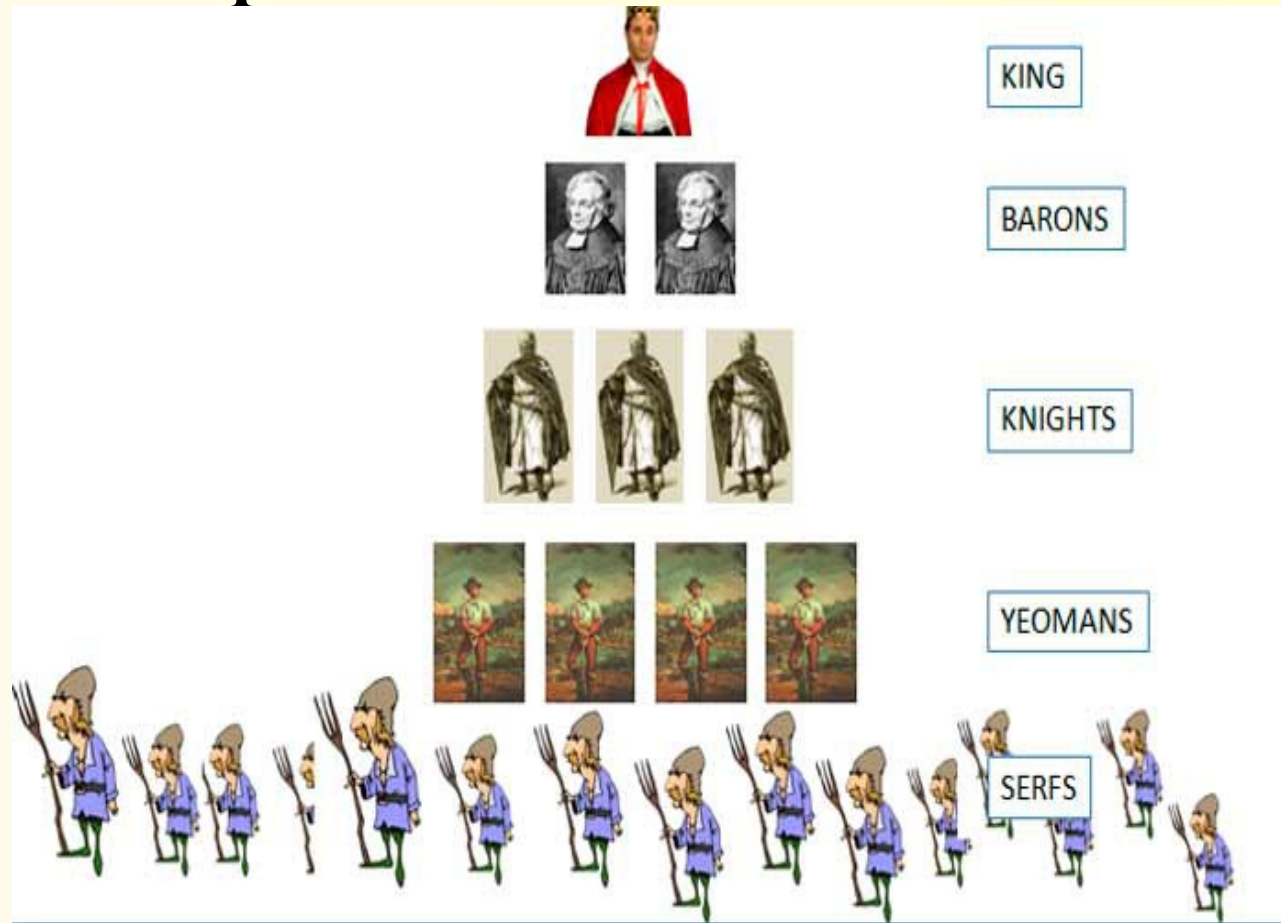
mismatch of package ownership and aspect ownership, specialised teams.

Brooks's law in action:

distributed volunteers: a week delay in communtication is common.

Package ownership fragmentation:
The vassal of my vassal is not my vassal :(
sometimes you need to be a true politician to persuade a collegue to make a trivial fix that benefits your packages
or implements improved policy.

Hard to make common decisions.

Sejm of Rzhech Pospolita Polsko-Litewska

How should we change?

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Packages Cloud
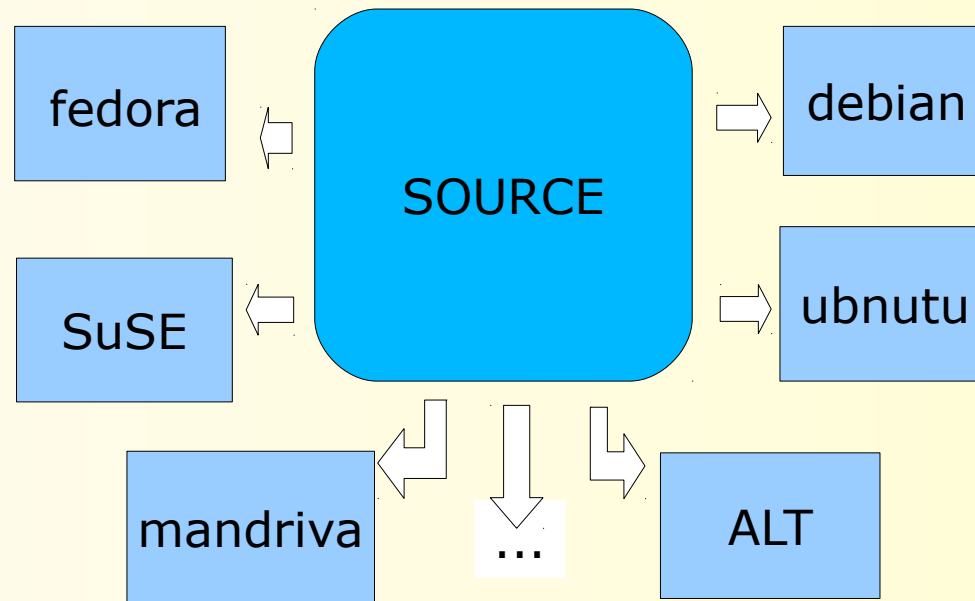
- Incompatibility at package level
- Duplication of efforts.

Why?

Even if
packages and software involved are
Open Source?

Example: XIX century.

Copyright law regulated printers only.

You were "free" to copy a book -
but it was much cheaper
to buy a copy.

Technology barreer.

Traditional interdistribution interaction requires substantial amount of manual efforts.

Industrial revolution once changed the Feudal world.
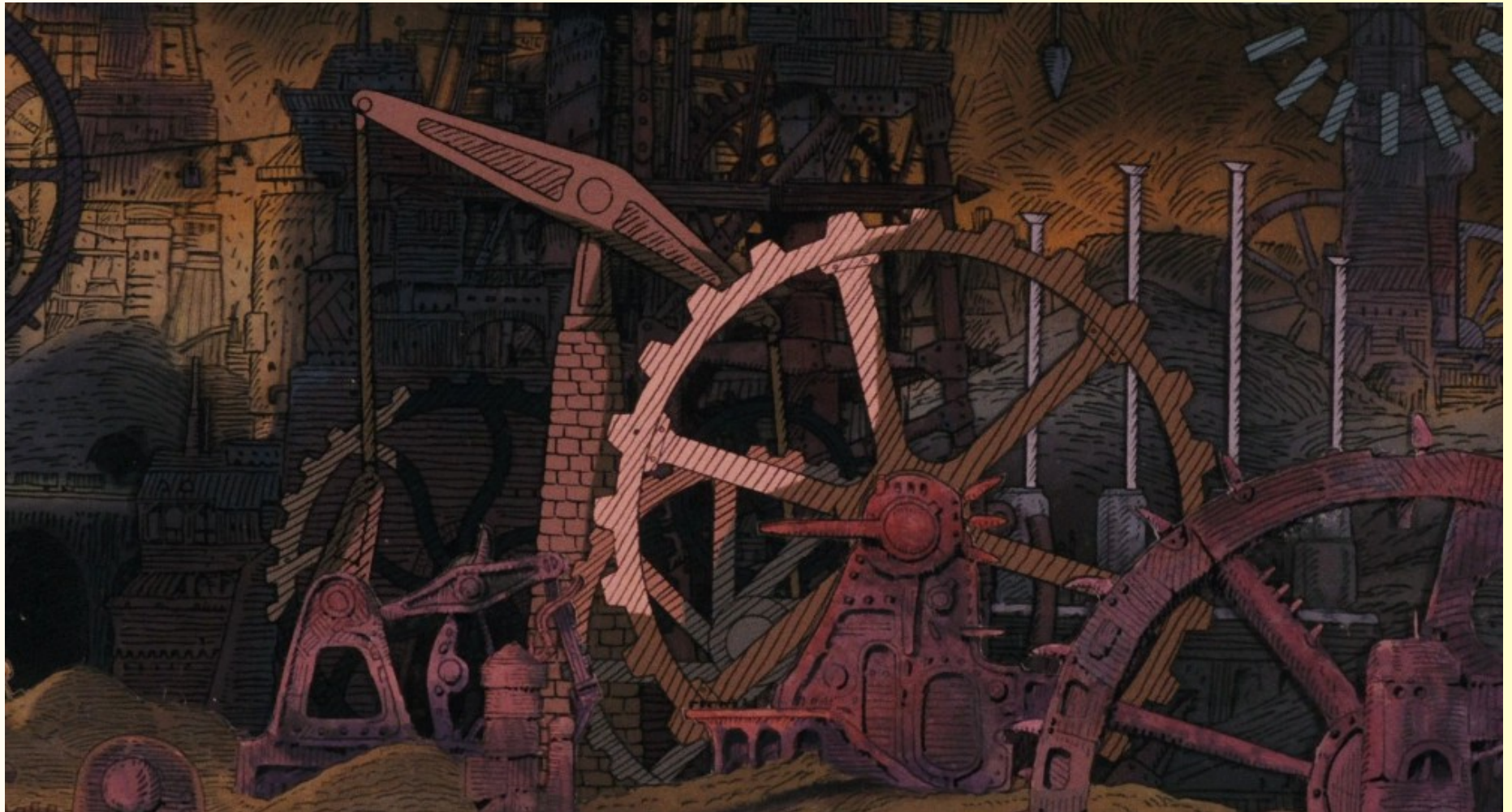
Distro world needs a new technology.

packaging automation.

Облачный Кластер Автоматизации (ALT linux Robotic Cloud)

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ALT LINUX TEAM

Public status page

http://watch.altlinux.org/pub/monitor/index.htm

Automated package maintainance:

precise
work
24/7

Autonomous node - a personal house for each maintainer, robotic or human.

The place that cares of your repositories.

Small repositories are merged automatically.
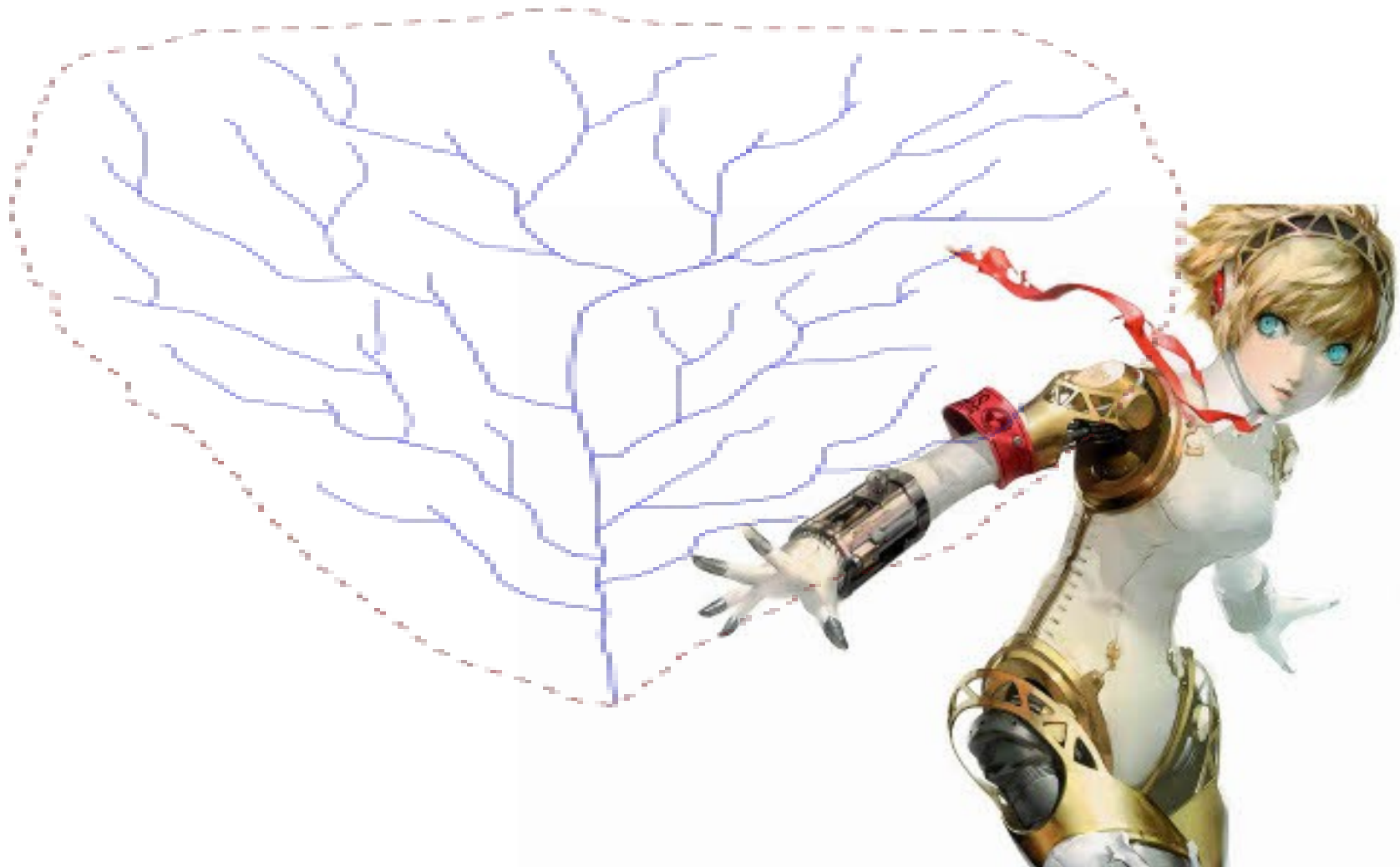
Automated testing

repocop

A place where your robots live happy life

A factory capable of maintaining of hundreds of thousands of packages.

- Example: cpanbuilder

- Repository of 20.000 packages

- Daily updates.

- Comparing to manual repository of 1.000 packages with yearly updates - 6.000 increase in productivity

Дух уходящей эпохи.

… За скобками обсуждений об оптимальной автоматизации, правда остался философский вопрос — ведь все таки изначально «дистростроительство с ментейнерами» подразумевало действительно, «феодальные наделы», множество ручной, «ремесленной» работы, «цеховые» регламенты «гильдии» ментейнеров, и плотную, духовную или практическую связь ментейнера с пакетом, когда ментейнер отлично разбирался и во внешнем, и внутреннем интерфейсе поддерживаемой софтины, активно пользовался ей, замечал косяки сборки, отвалившиеся фичи, баги, да и следил за изменениями, минимизируя шансы внедрения подлых закладок. …

Станислав Фомин

Gains

Productivity

DevOps

New oportunity: Crowd testing.

Crowd testing.

The best the majority of Linux users is capable of.

It is nothing to be ashamed of. Musician, not a musician with C++ knowledge.

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Turning the package base into commodity.

Only turning the package base into commodity will make distributions "free enough" in the sense of Ingo Molnar.

Distributions will make difference on higher level than packages – they will differ in trade-off choices and system and user settings.

Wide implementation of automated packaging and repackaging is the nessesary step.

Distribution's goal is not just package, but to fit packages together.

Packaging is nessesary, but it is only an itermediate step in creating a perfect distribution. Automated packaging tools aim to relieve maintainers from routine tasks, allowing them to concentrate on higher level tasks such as fixing bugs and maintaining consistent policies over huge sets of packages.

Packaging Automation.
A new opportunity.

Widespreading the technology will definitly change
ALT Linux into a prominent distribution and make
it an innovation leader.

If ALT Linux will succeed, its example will cause
the whole Linux Desktop to take a step to become
the more distributed, more democratic free societies
Ingo Molnar envisioned.

Thanks!

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