

# Software Packaging

All Systems Go

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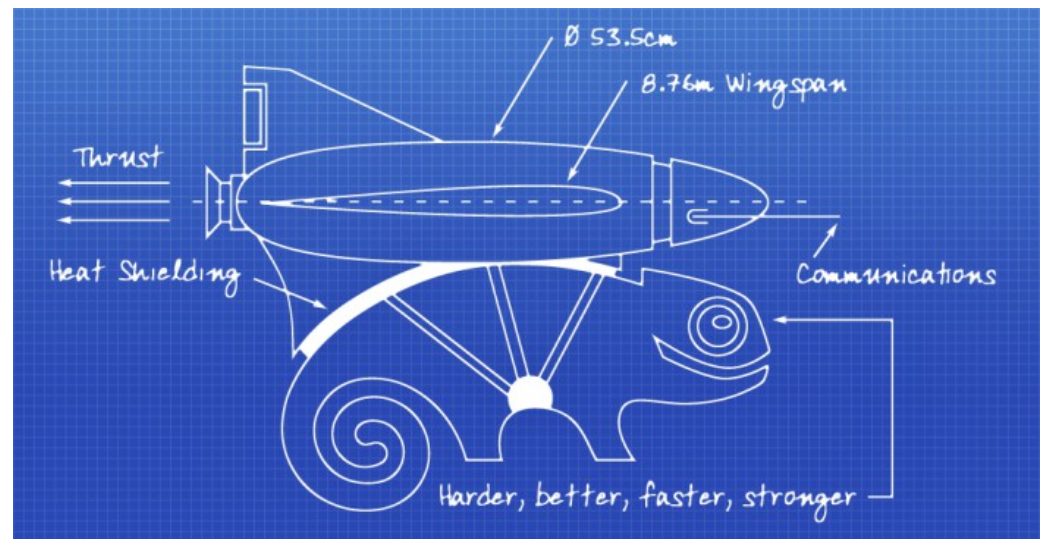
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# All Systems Go

- Why Packaging is Critically Important
- Overview of Software Packaging
- RPM Package Management
- Hands On Demonstration
- ... Introduction to “Advanced Packaging Topics”



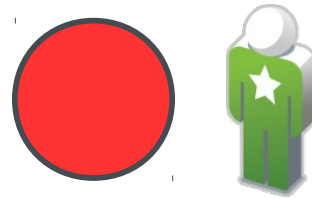
# Why Packaging is Critically Important

# *Killer App!*

- You have **THE** Killer Linux App
- Now what?
  - How will your immortality be secured?
  - How will Killer App reflect the next great social meme?
  - How will **EVERYONE** get / install / port / update / use ?
  - Who is “EVERYONE” ?

# User = Engineer

- Get Sources (sourceforge)
- Customize Sources
  - Features
  - Bugs
- Ad Hoc (Personalize)
- Build to Suit
- Simple Environment

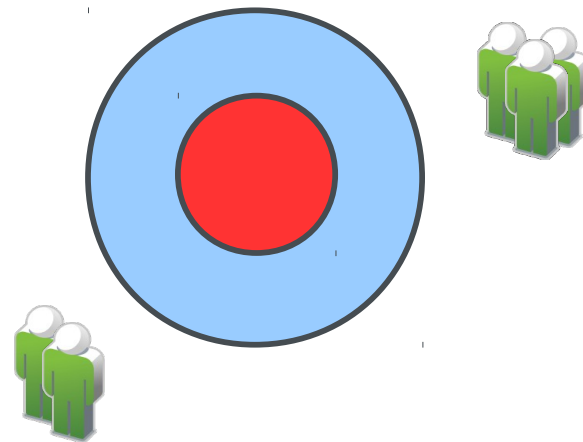


Engineer can do whatever he wants,  
knows how to make himself happy



# User = Enthusiast

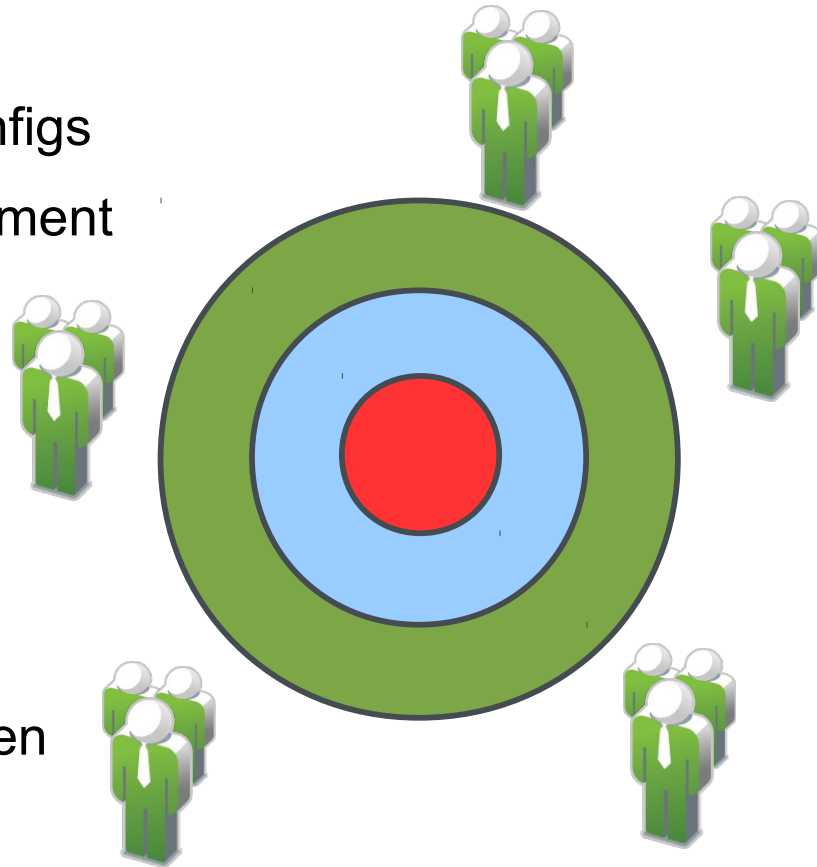
- Get Sources (sourceforge)
- Minor Tweaks (Personalize)
- Knows Some Stuff
  - Tools
  - Command Line
  - Makefiles
- Build According to Docs
- Deploy in Small Scale
- Contacts Author



Enthusiast likes to tinker, gets by on his own,  
can make himself and small organizations happy

# User = The Enterprise

- Get Binaries
- Behavior via Runtime Configs
- Knows Only Own Environment
  - Distro
  - Network
  - Integrate with other apps
  - Time constraints
- Deploy in Larger Scale
- Contacts Author Only When Software Stops Working



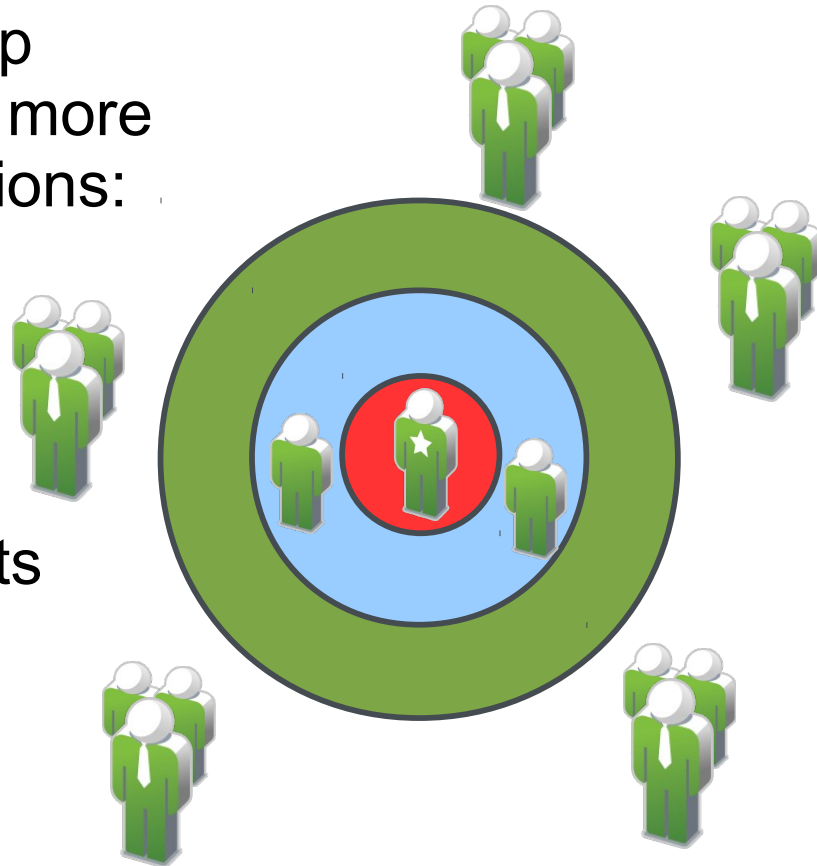
Enterprise depends on Killer App, depends on you!

# Packaging Makes Your App Universal

Want to make Killer App truly useful? Get it into more systems and organizations:

- Package It
- Packaging Satisfies Engineers, Enthusiasts and Enterprises

*All Systems Go!*





# Overview of Software Packaging

# Launching Killer App

- How to get Killer App to customers?
  - What distro do customers use? Architecture?
  - Do all customers build from your sources?
  - How will customers get the latest updates?
- What dependencies exist for Killer App?
- How will customers install/manage Killer App?



# What is Killer App?

- Executable program, libraries, scripts, data
  - /usr/bin/foo (0755 root root)
  - /usr/lib64/libfoo.so.1 (0755 root root)
- Configuration files
  - /etc/foo (0644 root root)
- Documentation (yes please!)
  - Maybe the customer doesn't want the docs; optional
- Development files
  - Files others can use to build more apps that work with yours



# Distribution of Killer App

- Keep Track of All the Files
  - And their changes!
- Consistent, Reproducible and Predictable
- Update and Upgrade
  - Easy!
- Uninstall
  - It's a shame, but don't make the customer suffer

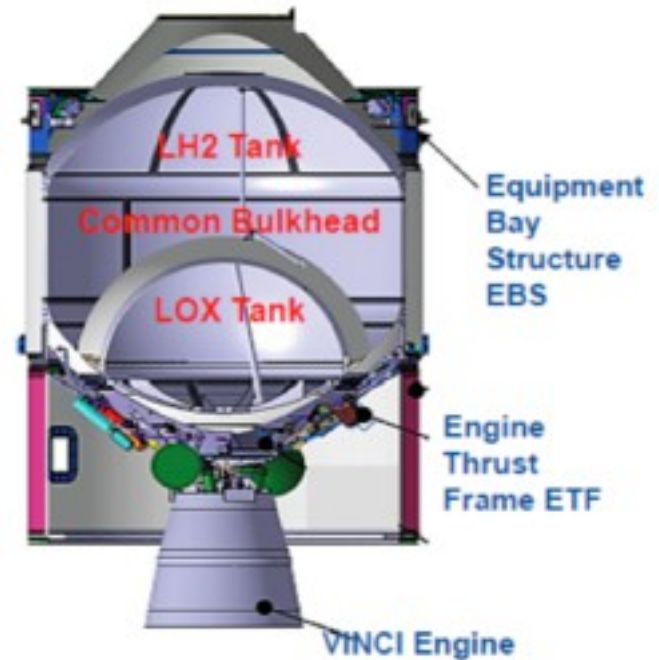


## **METADATA**



# Metadata of Killer App

- Version tracking
- Manifest of files
- Descriptive data
- Rules for
  - Installing
  - Updating
  - Uninstalling
- Dependencies



Thrust in vacuum	180 kN
ISP in vacuum	464 s
Mixture ratio	5.8
Chamber pressure	61 bar
LOX mass flow rate	33.69 kg/s
TPO rotational speed	18015 rpm
LOX pump discharge pressure	81 bar
LH2 mass flow rate	5.81 kg/s
TPH rotational speed	90127 rpm
LH2 pump discharge pressure	224 bar

# Packaging Benefits

Benefits for user and developer

- Consistency
- Reproducibility
- Tracking, auditing and management
- Integrity
- Tie binaries back to sources for support
- Log changes





# RPM Package Management

# RPM Package Management

- Principal Distributions
  - SUSE / openSUSE
  - RedHat / Fedora
- Build
  - “spec” file is the build specification
  - Builds from sources (or not)
  - Metadata about software
- Delivers
  - Creates .rpm file



# RPM Repositories

- SUSE® / openSUSE
  - zypper (yast) client tools
  - repomd repository format
- RedHat / Fedora
  - yum client tools
  - yum repository format (effectively same as repomd)

# RPM Packaging Fundamentals

- “package”
  - Normal .rpm file (delivers the software)
  - The set of files necessary to build
- RPM database
- rpm
- rpmbuild
  - Builds from sources
  - Builds for a specific architecture
  - Creates version'd binary packages for installation/upgrade
  - cpio archive of files + scriptlets

# Hands On Demonstration









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