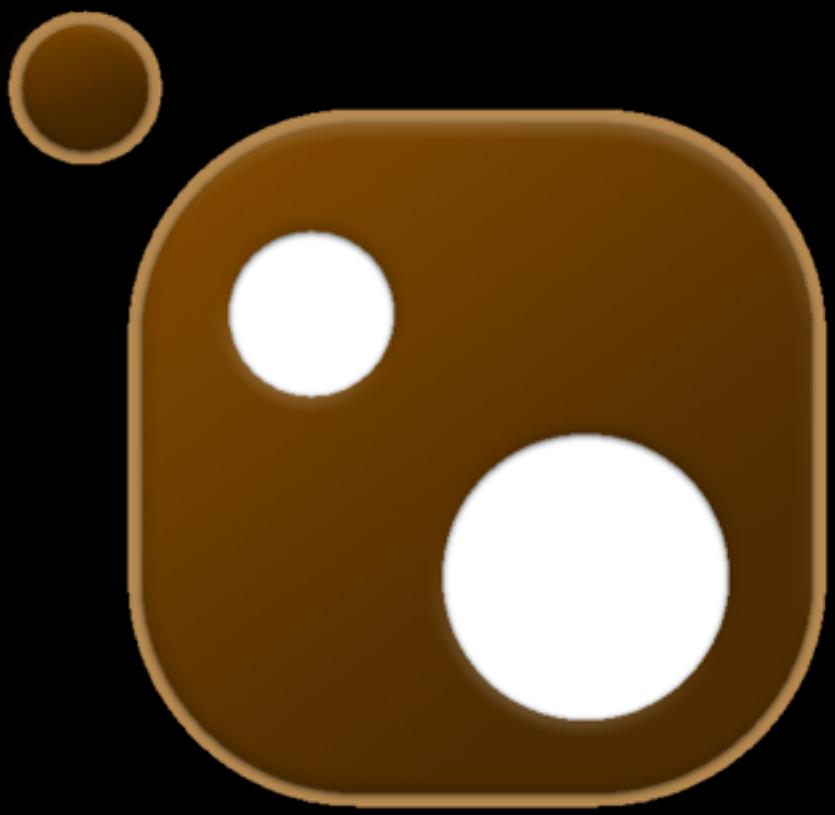


Windows Just Got Chocolatey (Package Management)



Rob Reynolds, Puppet Labs

Rob Reynolds

- Developer at Puppet Labs



- Creator of Chocolatey



- Background in .NET development
([ASP.NET](#) MVC, JavaScript, C#, Windows services, MSMQ)



- Co-wrote and maintained infrastructure framework known as the Chuck Norris Framework



- Doing the hard work for Puppet on Windows so you don't have to



Agenda

- What is Chocolatey?
- Windows 10 Built-in Package Manager
- Building on Windows Ecosystem
- A history and the future of Chocolatey
- Configuration Management



Binary Package Manager for Windows

- Behaves much like Yum
- Uses NuGet packaging framework
+ PowerShell for automation scripts
- CLI tool - choco.exe
- GUI - ChocolateyGUI
- Allows non-centralized/private repositories
- Microsoft validated - there will be a OneGet provider



chocolatey.org (Community Repo)

- Community Feed / Community Maintained
 - Moderated as of October 2014
 - A couple people have downloaded packages (1 yr ago at 5 Million)
 - Organizations should not depend on community b/c trust and control
- 2,938**
unique packages
- 33,144,406**
total downloads

The screenshot shows the homepage of chocolatey.org. At the top, there's a banner stating "Currently we have a very large backlog of packages in moderation and are actively taking measures to resolve it. [More...](#)". Below the banner is a navigation bar with links for Home, About, Packages, Upload, Docs*, Project*, Forum*, Shop*, and a search bar labeled "Search Packages". The main content area features a section titled "Let's get Chocolatey!" which describes Chocolatey NuGet as a Machine Package Manager. It includes a command-line example: "c:\>choco install git". Below this, there's a section titled "Easy Install!" with instructions for using an administrative cmd.exe or PowerShell prompt to run the command. To the right, there's a sidebar with the title "Chocolatey" and a bulleted list of its features: * Sort of like yum or apt-get but for Windows, * Global silent installer, * Supports multiple package feeds, including private!, * Feeds can be local file folder shares!, and * NuGet Infrastructure + PowerShell Delivery.

But Windows 10 has a Package Manager
Built-in!

Sort of...

OneGet aka PowerShell PackageManagement

- Package Management may be a misnomer
- OneGet is ***NOT*** a package manager. It's a package manager *aggregator*.
- The PowerShell Provider ***is*** included.
- It knows how to bootstrap providers.
- Chocolatey will have a provider for OneGet.

Building on an Existing Windows Ecosystem

Windows Software Ecosystem

- State of The Union:
- Thousands of existing installers and archive files
- It's like the ultimate Wild West for a packaging system





Unify the Windows Packaging Ecosystem?



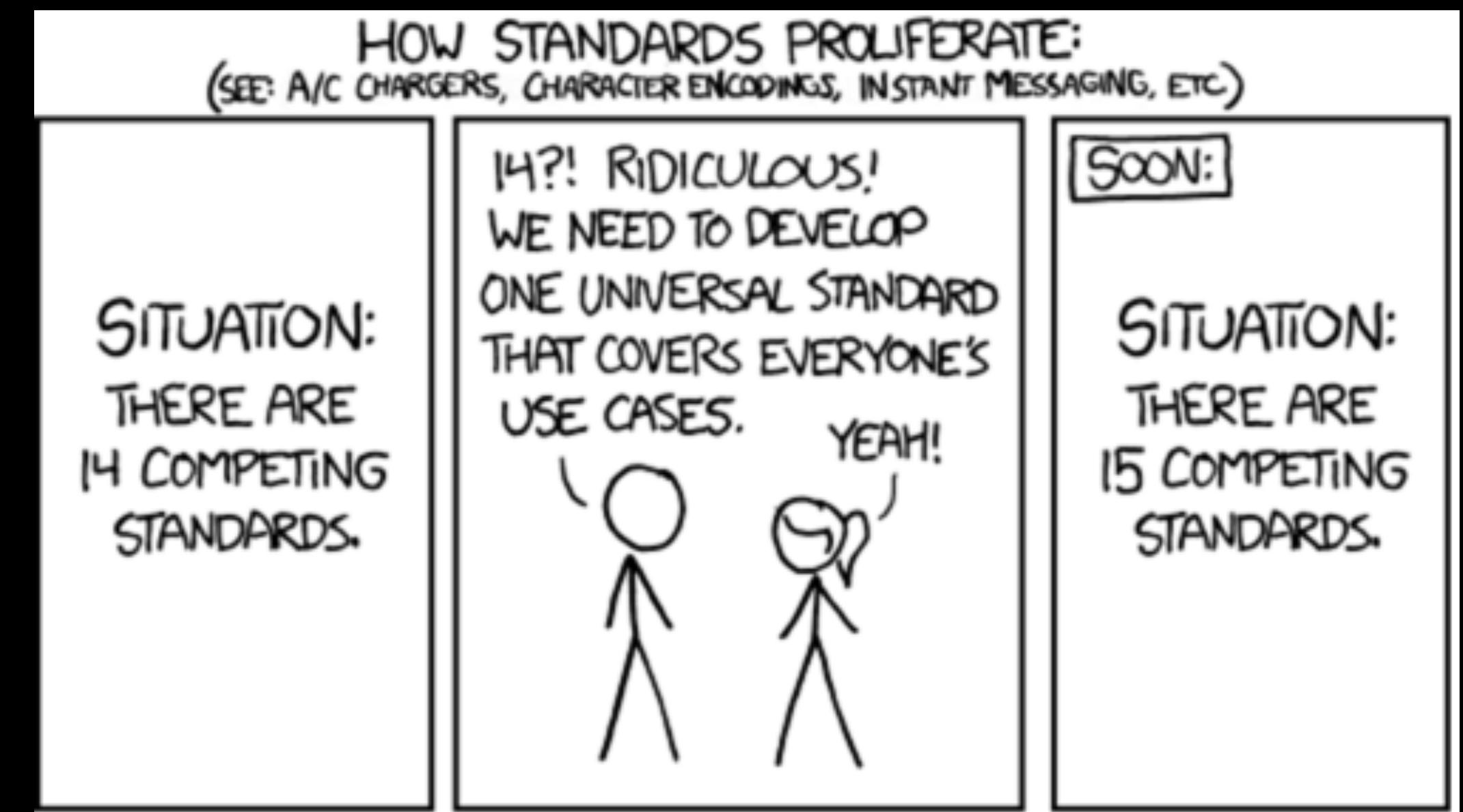
Unify the Windows Packaging Ecosystem?



Unify the Windows Packaging Ecosystem?

Unify the ecosystem

- You'd need something that abstracts (builds on top of) the existing ecosystem and provides a single unifying interface
- Failed package managers for Windows have left a trail attempting to ignore the above and build a new standard
- “Ain’t nobody got time for that!”



Keep it Simple S____

How not to KISS

- Make it complicated
- Unnecessarily complex
- Over-engineer
- Magpie



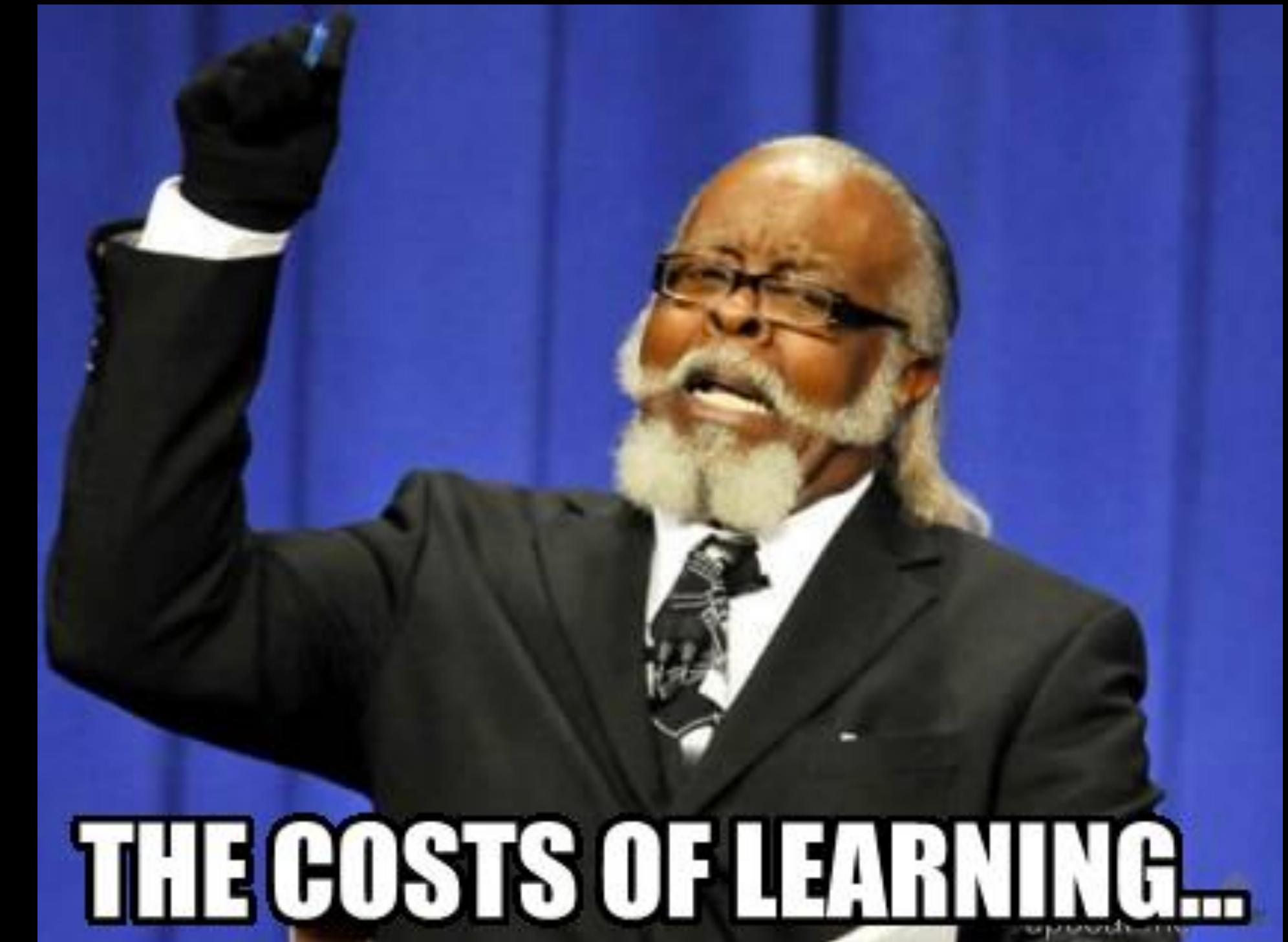
memegenerator.net

How to KISS

- “Simple ain’t easy” - Thelonious Monk
- Complex != Complicated
- Introduce Complexity only when necessary
- Resist the urge to magpie

Building a Community

- Foster friendliness and a helpful attitude
- Document, document, document
- Business friendly
- Open Source
- Community Package Repository
- Make the UX Simple
- Did I mention document? Because reasons.



The NuGet Packaging Framework

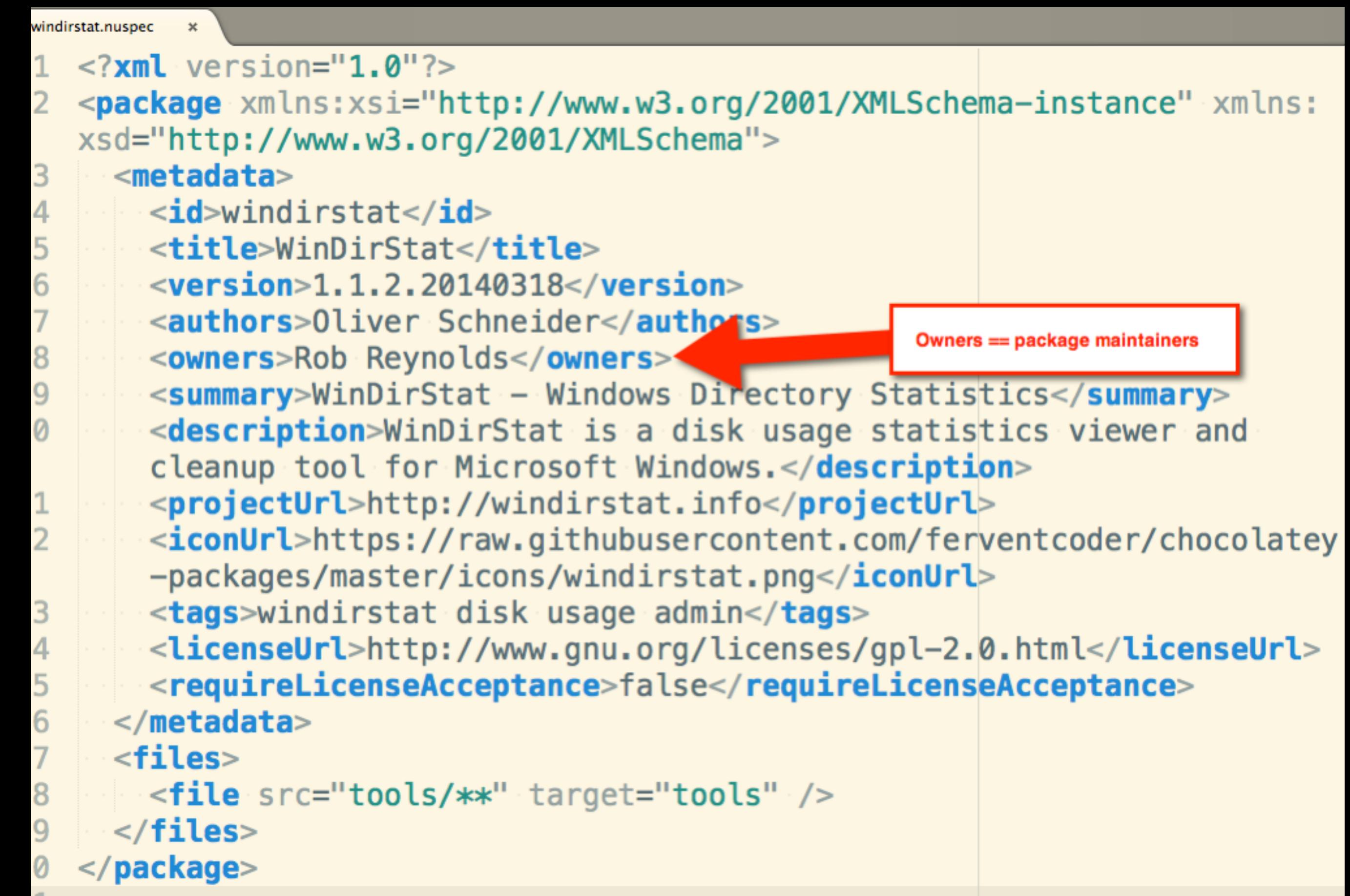
NuGet - 2010

- NuGet is the package manager for the Microsoft development platform including .NET.
- I was on the team that brought about the “Nu” part. We started working on the NuGet team in 2010.
- Not the first FOSS project for Microsoft (WiX and Orchard), but perhaps one with the biggest contributions
- Looking back it's completely different now with everything Microsoft being open-sourced and they are really trying not to be evil.

The screenshot shows the NuGet.org homepage. At the top, there is a navigation bar with links for Home, Packages, Upload Package, Statistics, Documentation, Downloads, and Blog. The Home link is currently selected. A search bar labeled "Search Packages" is located at the top right. Below the navigation, there is a section titled "What is NuGet?" which contains a brief description of the tool. A large blue button with the text "Install NuGet" and a download icon is centered below this section. At the bottom of the page, there are three large statistics: "45,215 unique packages", "632,459,316 total package downloads", and "451,419 total packages". On the right side of the page, there is a detailed view of the EntityFramework package, showing its version (5.0.0), action (Upgrade), and various options like Show preview window and Dependency behavior.

NuGet as a Framework

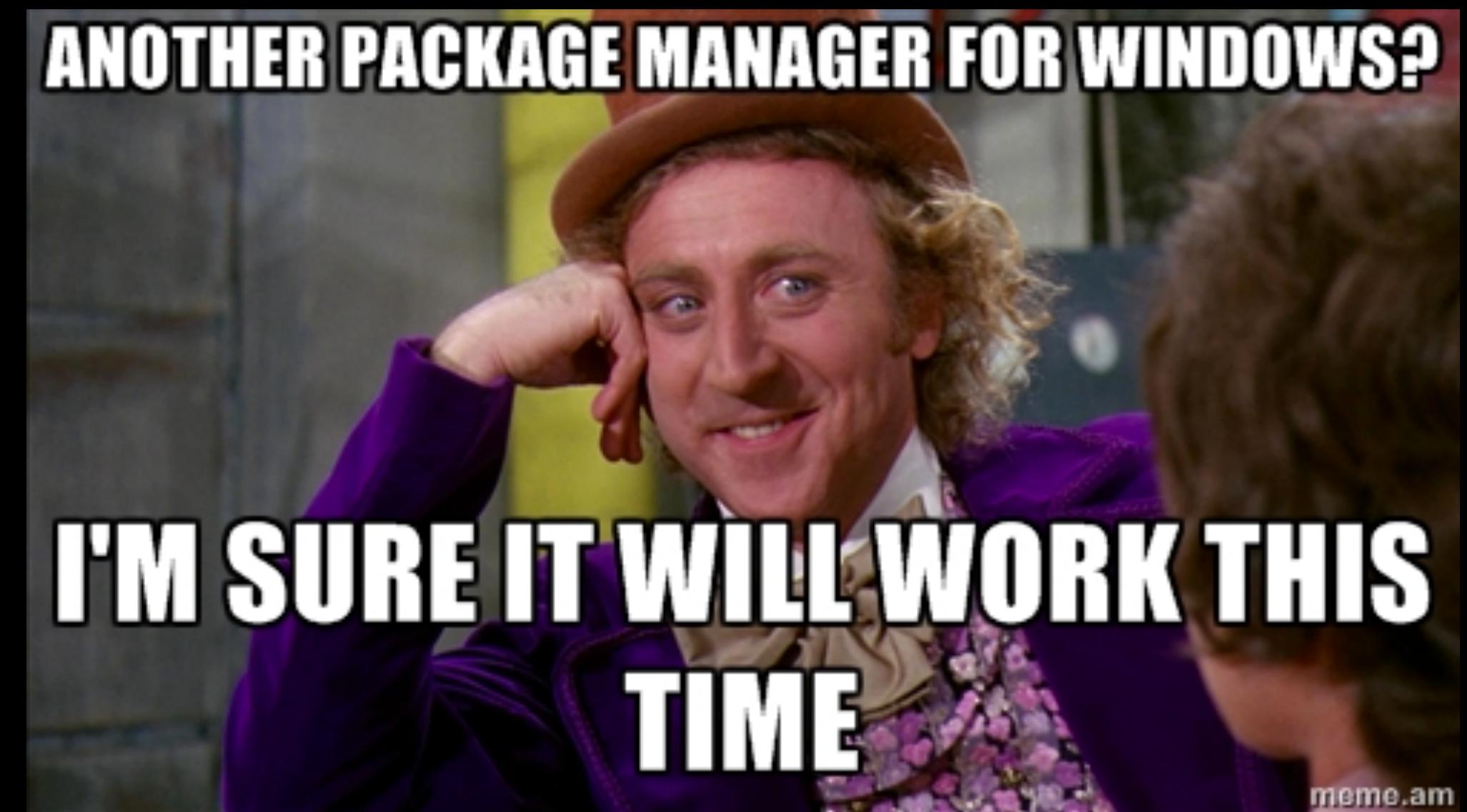
- Packaging
- Decentralized
- Describe dependencies
 - Version ranges
- No conflicts, provides
- Not architecture specific
- No signing



```
windirstat.nuspec x
1 <?xml version="1.0"?>
2 <package xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:
  xsd="http://www.w3.org/2001/XMLSchema">
3   <metadata>
4     <id>windirstat</id>
5     <title>WinDirStat</title>
6     <version>1.1.2.20140318</version>
7     <authors>Oliver Schneider</authors>
8     <owners>Rob Reynolds</owners>
9     <summary>WinDirStat – Windows Directory Statistics</summary>
0     <description>WinDirStat is a disk usage statistics viewer and
    cleanup tool for Microsoft Windows.</description>
1     <projectUrl>http://windirstat.info</projectUrl>
2     <iconUrl>https://raw.githubusercontent.com/ferventcoder/chocolatey-
      -packages/master/icons/windirstat.png</iconUrl>
3     <tags>windirstat disk usage admin</tags>
4     <licenseUrl>http://www.gnu.org/licenses/gpl-2.0.html</licenseUrl>
5     <requireLicenseAcceptance>false</requireLicenseAcceptance>
6   </metadata>
7   <files>
8     <file src="tools/**" target="tools" />
9   </files>
0 </package>
```



Tell Me More About Chocolatey



It started as a thought experiment.



Seriously, did you ever look at the source?!

What I Wanted in 2011

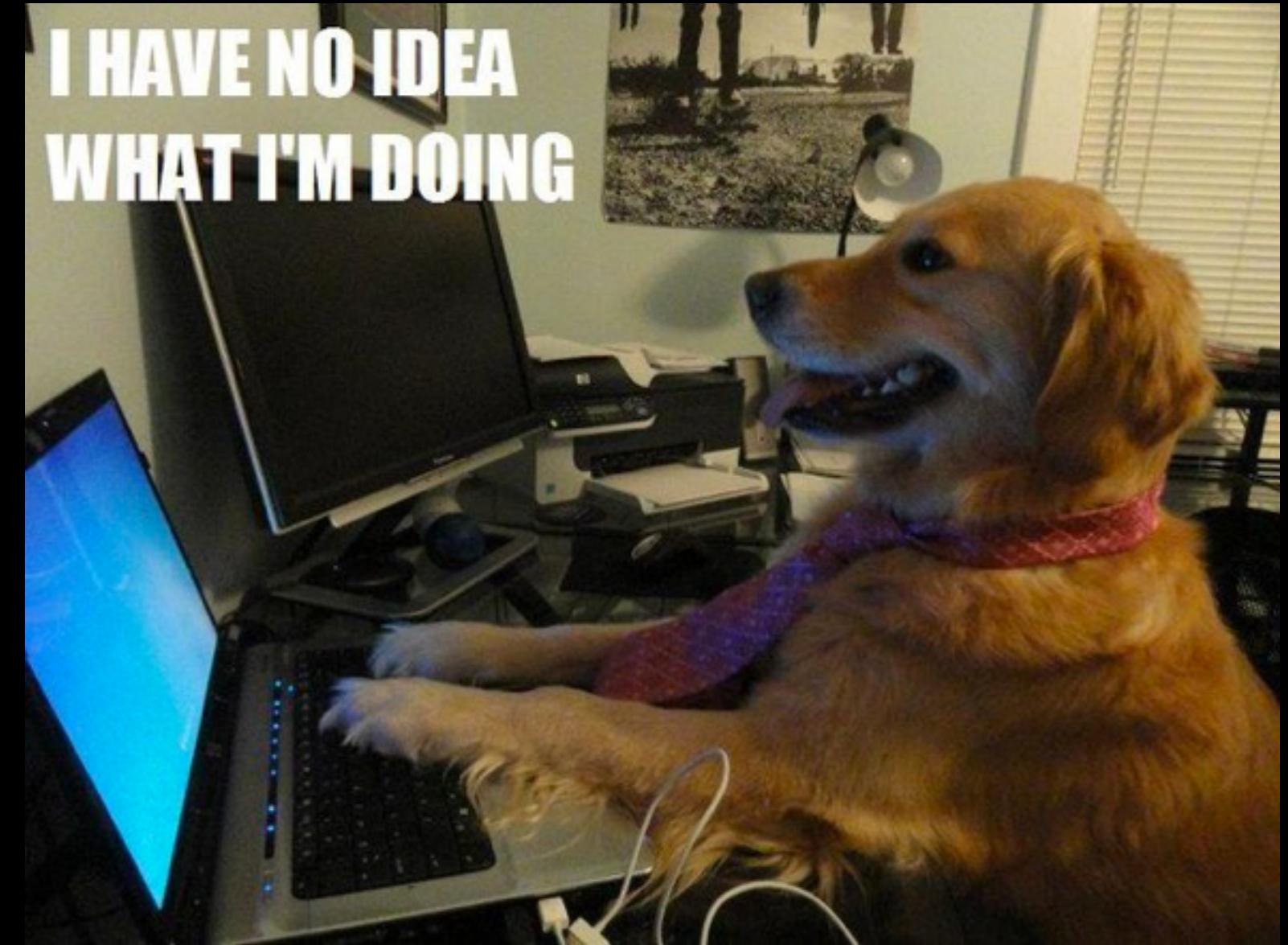
- Pairing / troubleshooting experience - No Notepad++?
- Experience with silent installers
- Existing?
- How to globalize?

Experiment in March 2011

- Building onto NuGet
- Packages tagged “chocolatey” on nuget.org (until Sep 2011)
- Concepts of KISS packaging
- Building on an existing ecosystem
- Focus on UX

The Experiment Was Built In PowerShell

- PowerShell
- Built with PowerShell as a programming language?!
- Always felt like I was relearning PowerShell

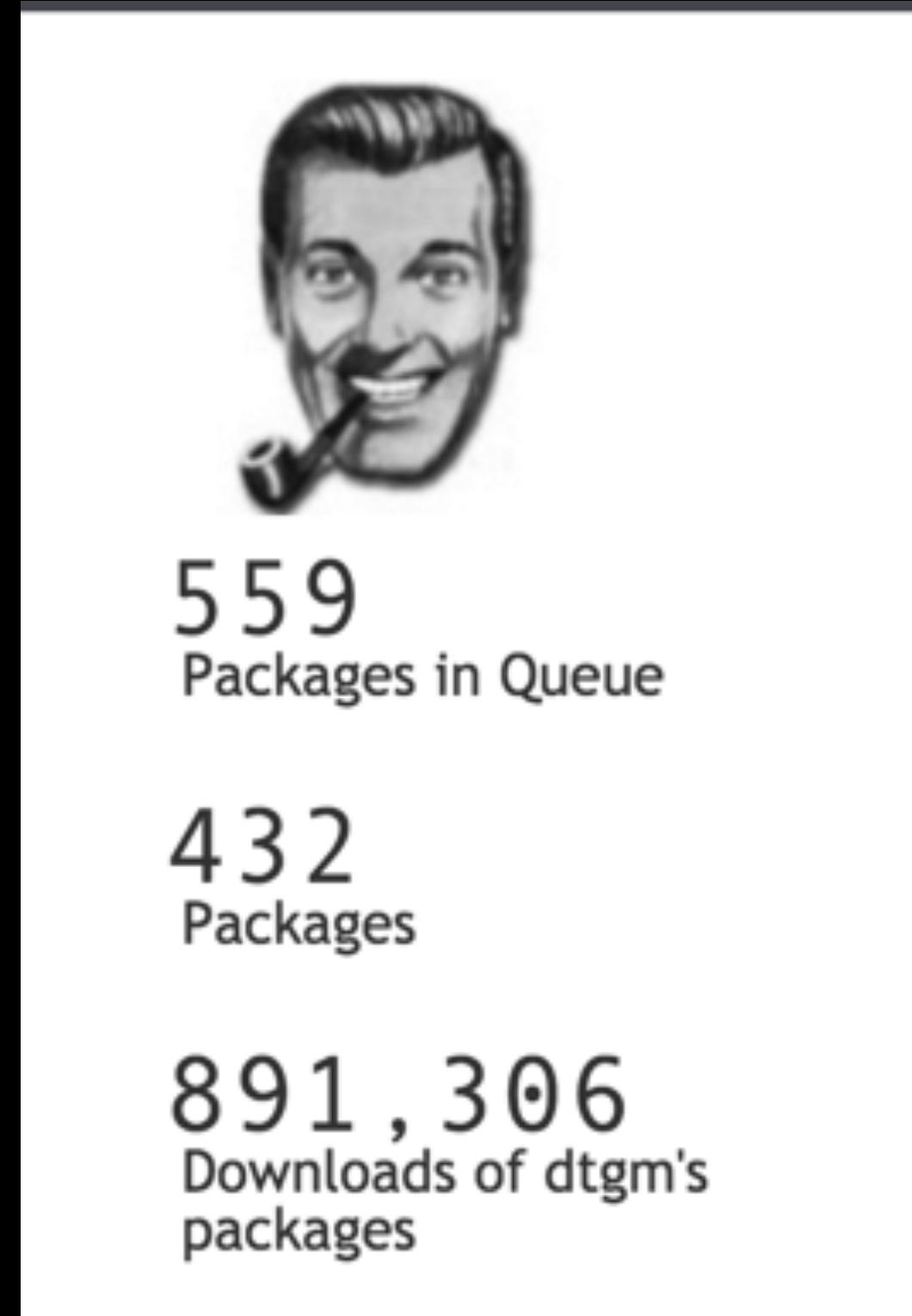


And Then... Community

- Somewhere along the line came the community
- Design or Sheer Luck?
- Maybe it was the semi-okay Documentation?
- 1. Gnomes. 2. ??? 3. Profit!

Automatic packages

- Built with Ketrin to check for updates and push up newer versions of packages automatically
- Some folks have taken advantage of that



Microsoft Got Involved

- Validated the idea in 2014
- Announced OneGet
- Talked about integration
- The OneGet boot strapper will bring Chocolatey to Windows seamlessly the first time you ask for it, as if it was built-in.

Ensuring Chocolatey for the Long Term

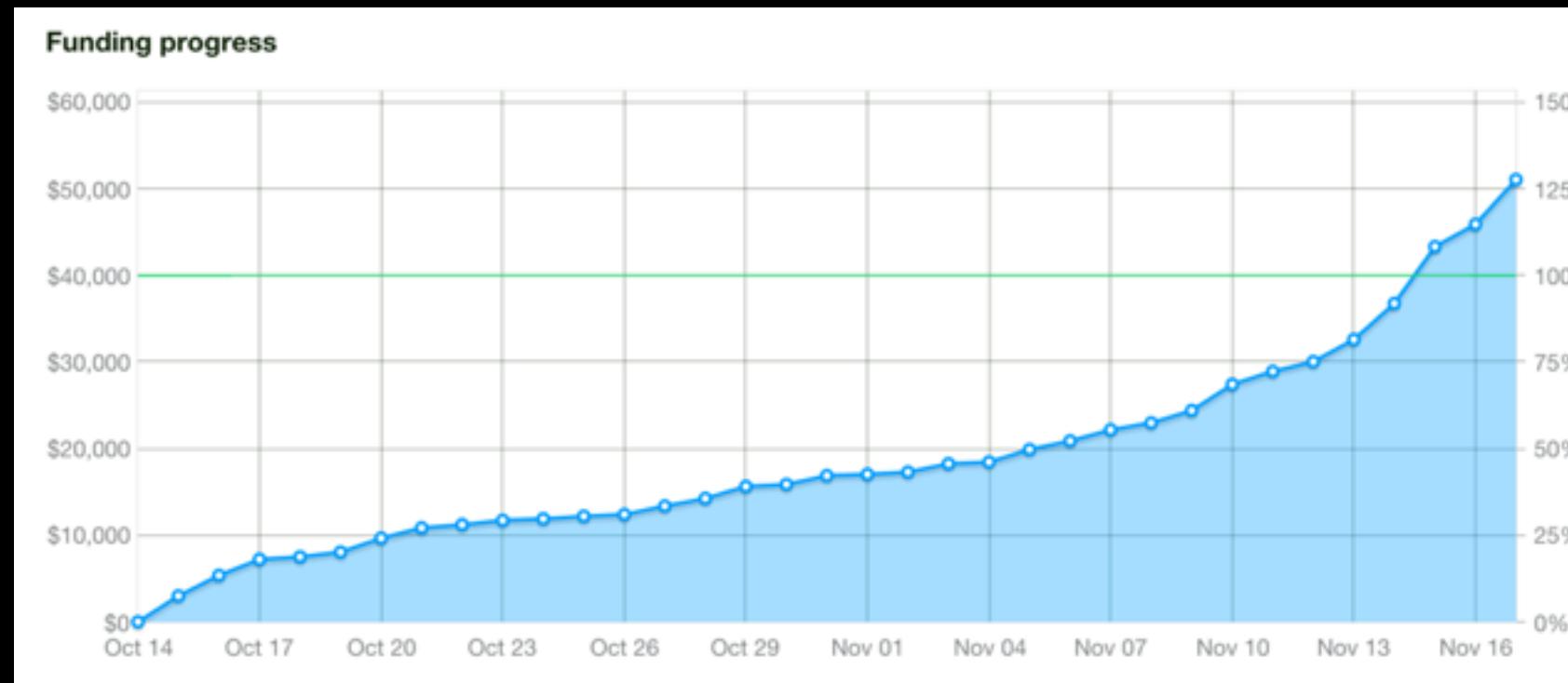
The Long Overdue Rewrite - 2014

- Started March 2014, first release in 0.9.9 in March 2015.
- C# - b/c already wrote production code while learning language
- Why?
 - Maintainability
 - Speed
 - Better library support
 - Strong techniques for security
 - Because pro/business



Kickstarter - October 2014

- Started planning in June
- Introduces the ideas of Chocolatey for Business
- Pro/Business Version to offer additional features
- Longevity of Chocolatey itself



Chocolatey: The Alternative Windows Store - Like Yum/Apt-Get

The Chocolatey Experience

The world needs an alternative Windows Store. Chocolatey is thriving as that store. Help us make The Chocolatey Experience a reality!

Created by

Rob Reynolds

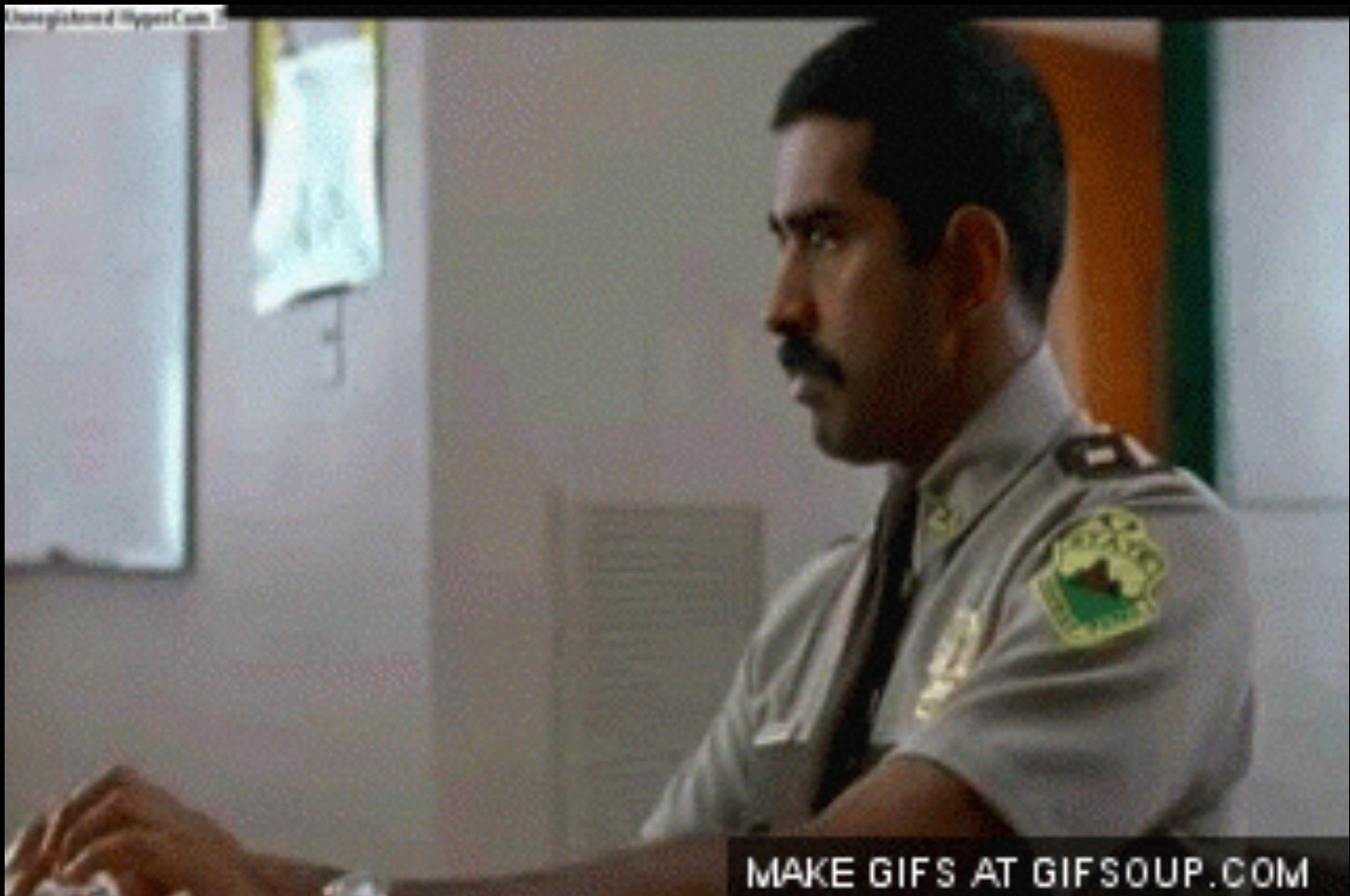
1,044 backers pledged \$51,071 to help bring this project to life.

Moderation of Community Packages

- Introduced for more predictability
- Package quality
- Safety and Security
- Starting to build trust in community repository, but still quite a long way to go

Extending NuGet

- Enhanced nuspec with provides, conflicts, replaces (although choco doesn't know what to do with those yet)
- Will be enhancing further: architecture, os versions, etc
 - NVRA (name version release architecture)
- Package signing (PGP) / Security Enhancements



MAKE GIFS AT GFSOUP.COM

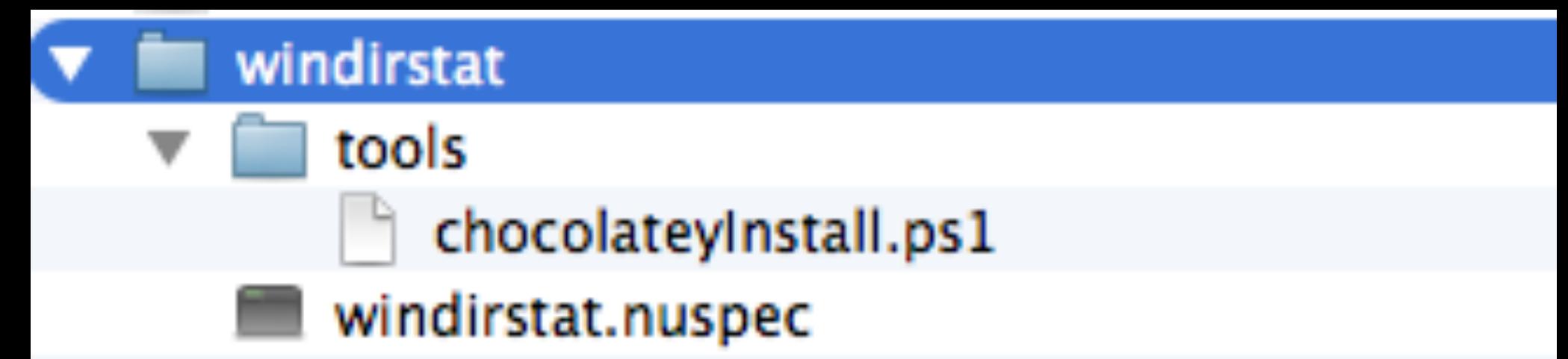
More Future Enhancements

- More security and traceability
- Try to maintain good balance of KISS while introducing necessary complexity
- Chocolatey for Business / Enterprise General Availability

Using Chocolatey

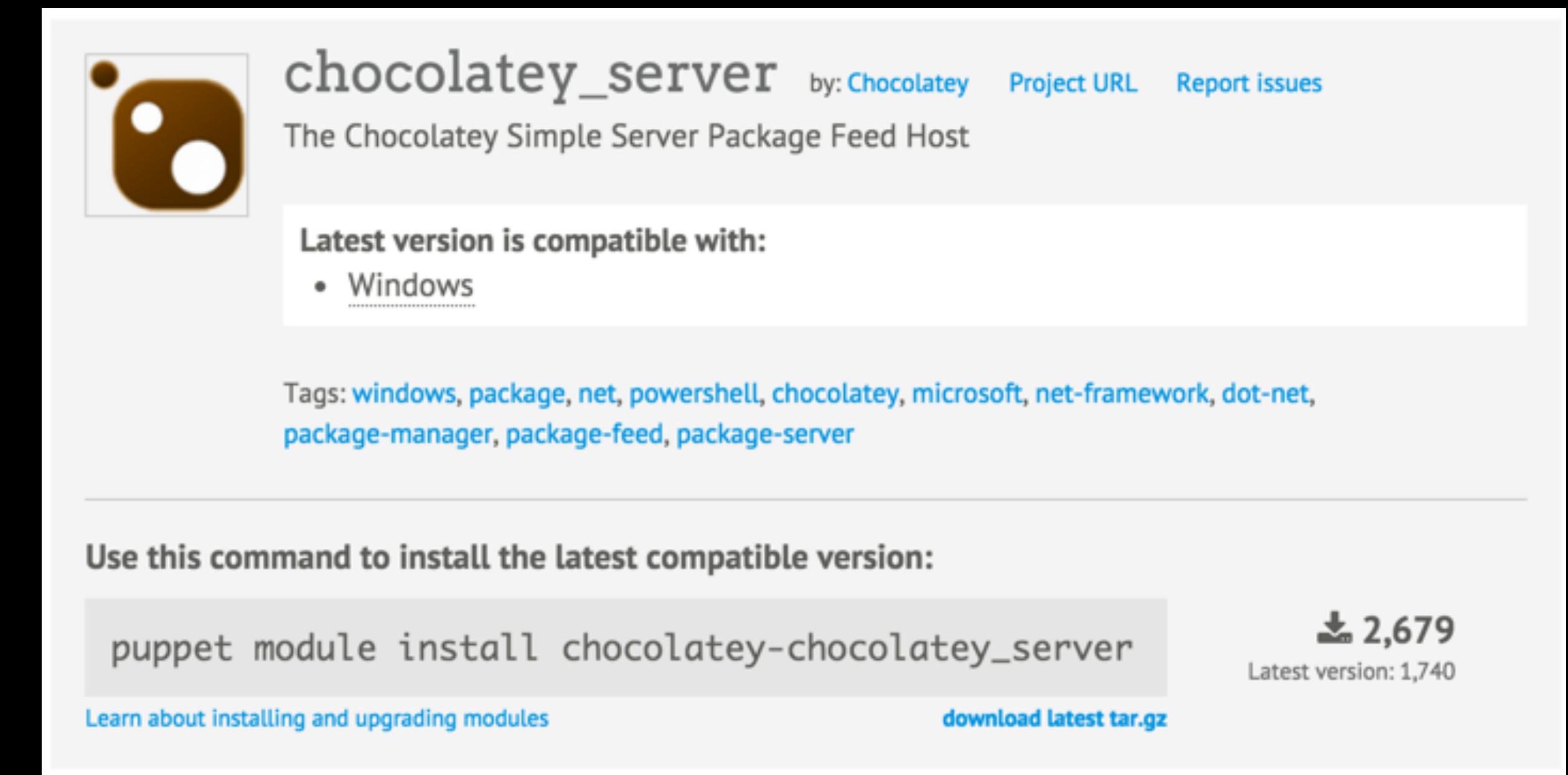
Creating Packages

- choco new -h
- Create organizational templates!
- *.nuspec
- chocolateyInstall.ps1
- Other resources like binaries / config files,
etc
- Getting started / reference at [http://bit.ly/
choco-create](http://bit.ly/choco-create)



Hosting Your Own Packages

- With Puppet - chocolatey/chocolatey_server module
- Non-Windows Hosting
 - Artifactory
 - Sonatype Nexus
- NuGet Gallery proper
- ProGet / MyGet
- <https://bit.ly/choco-package-server>



Configuration Management

CM Integrations

- Puppet Labs - https://bit.ly/choco_puppet (Approved, soon Supported)
- Chef - https://bit.ly/choco_chef 
- Ansible - https://bit.ly/choco_ansible 
- Saltstack - https://bit.ly/choco_salt 
- PowerShell DSC - https://bit.ly/choco_dsc 



Demo

Questions?

- Join the newsletter for announcements - <https://chocolatey.org/#newsletter>
- ferventcoder { twitter, github, gmail}