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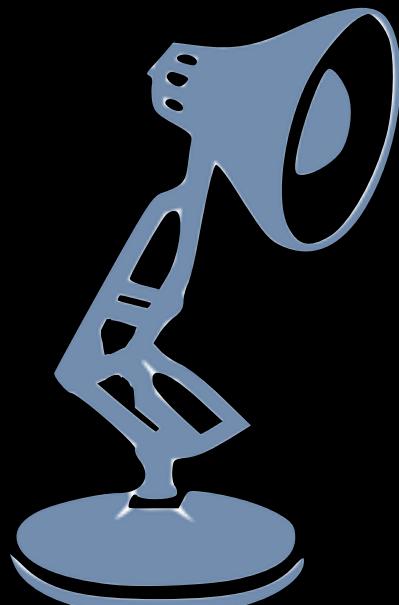
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ANIMATION STUDIOS



Package Management & DevOps for Jamf Pro



Chris Lasell, Apple Peeler, Pixar

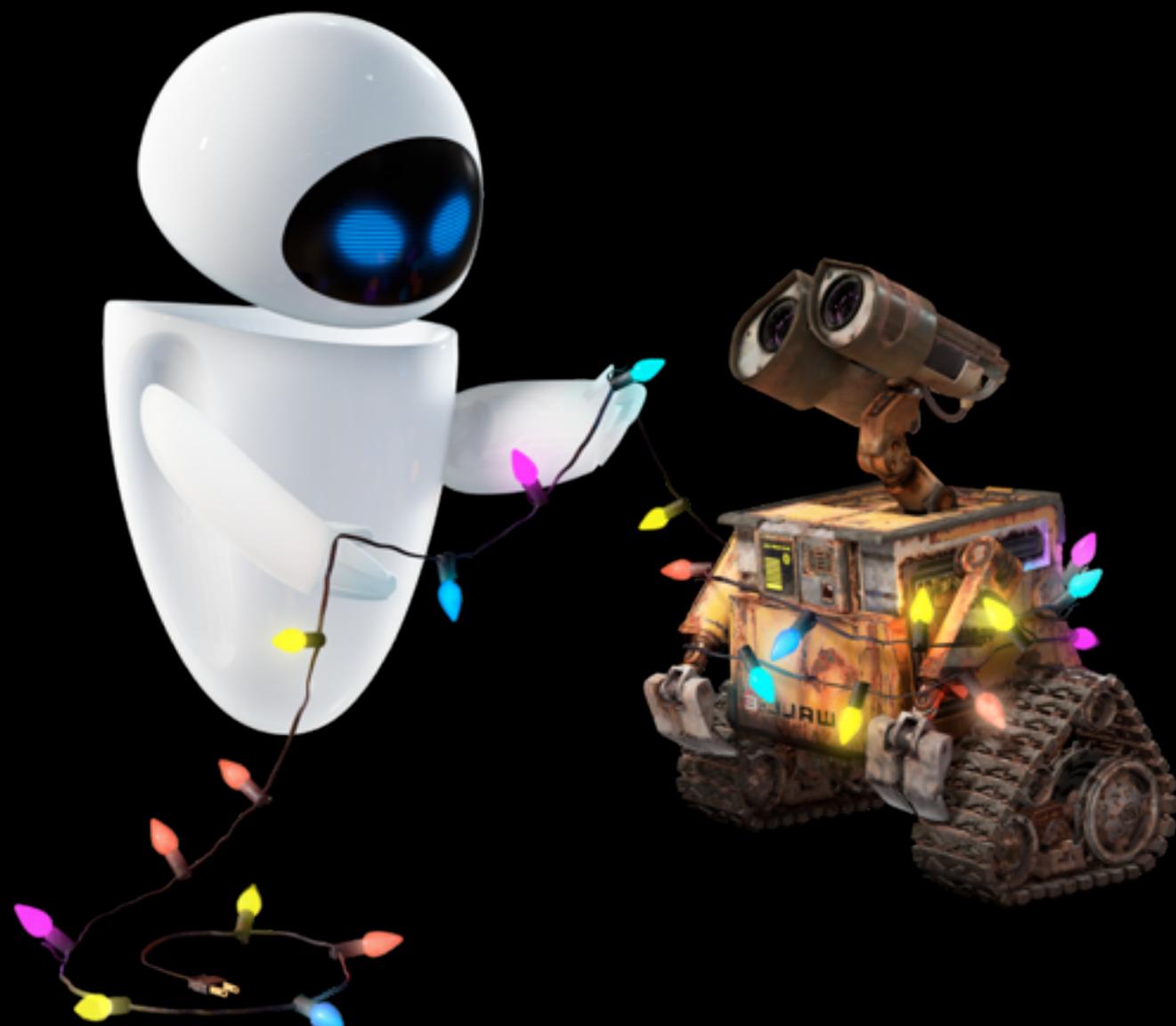


A Long Time Ago

- depot
- depot2 (d2)
- PuppyTime!



2003-2008



- Automatic, scoped installs, and updates •
- Piloting •
- Command-line and scriptable •
- Logout/Reboot installations •
- An unsupported code base •



d2's successor

- 3rd party product?
- Already using Composer
- Casper had more than just package deployment
- We just missed Munki

d3 is born

- First version - mostly a simple wrapper around 'jamf install'
- Deployed at Pixar in early 2010 with Snow Leopard
- Re-factored 2011-12: REST API, modular code
- Re-factored 2012-16: Open-sourced



Enhancing Jamf Pro

Patch Management - Auto Updates of installed software •

Conditional installs •

Piloting, freezing •

PuppyTime! •

Expiration •

Command-line, automatable •



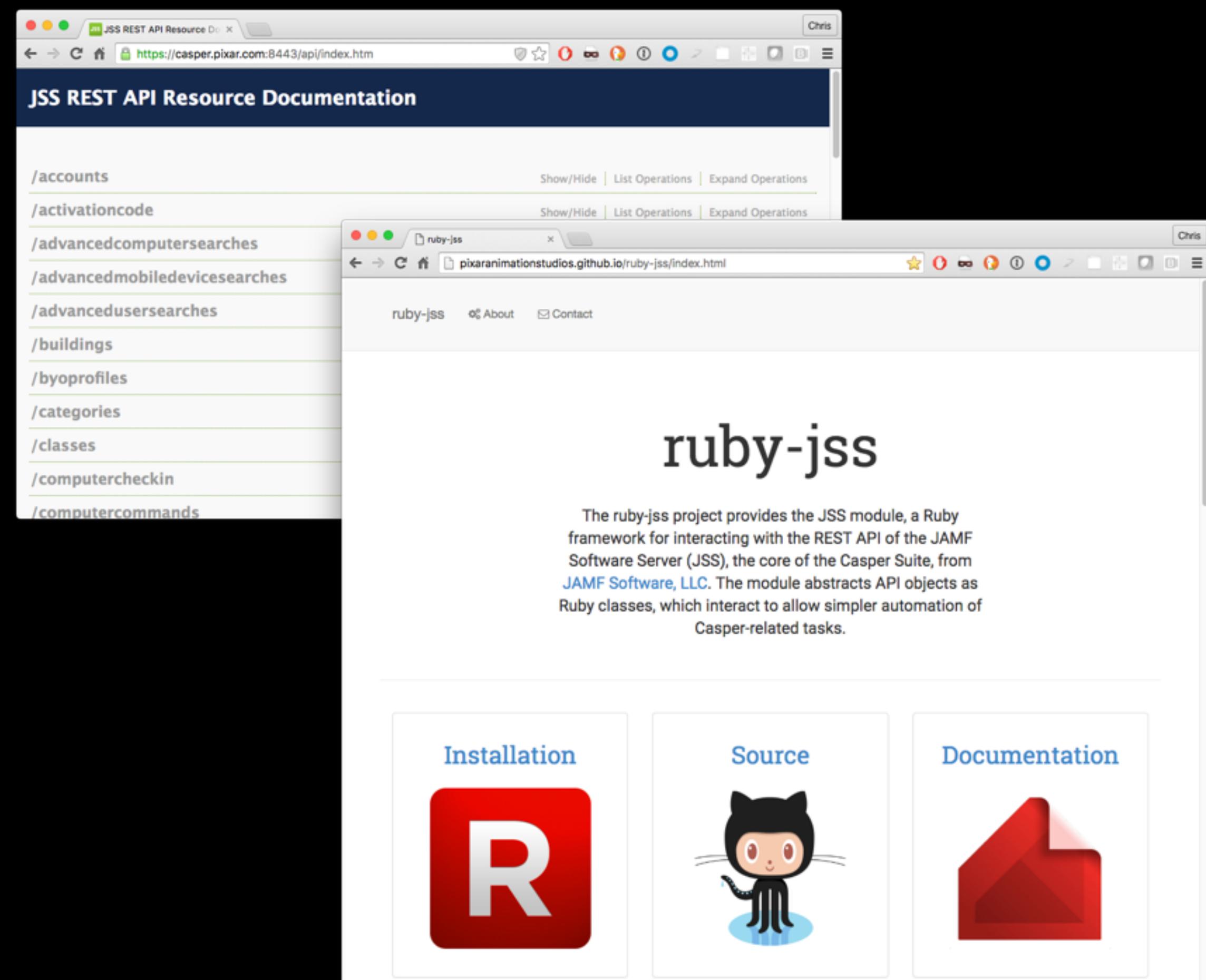
Extending Jamf Pro

- Uses Jamf's REST API & a custom MySQL table
- Two Ruby libraries
- Admin tool, client tool, helper tools
- Uses existing jamf infrastructure as much as possible



ruby-jss

- Ruby interface to Jamf's REST API
- Abstracts API objects to Ruby classes
- Useful for any API-based tasks
- Open-sourced in October 2014



using ruby-jSS

```
# load the library
require 'jss'

# Connect to the API
JSS::API.connect user: 'jamfuser', pw: :prompt, server: 'jamf.company.com'

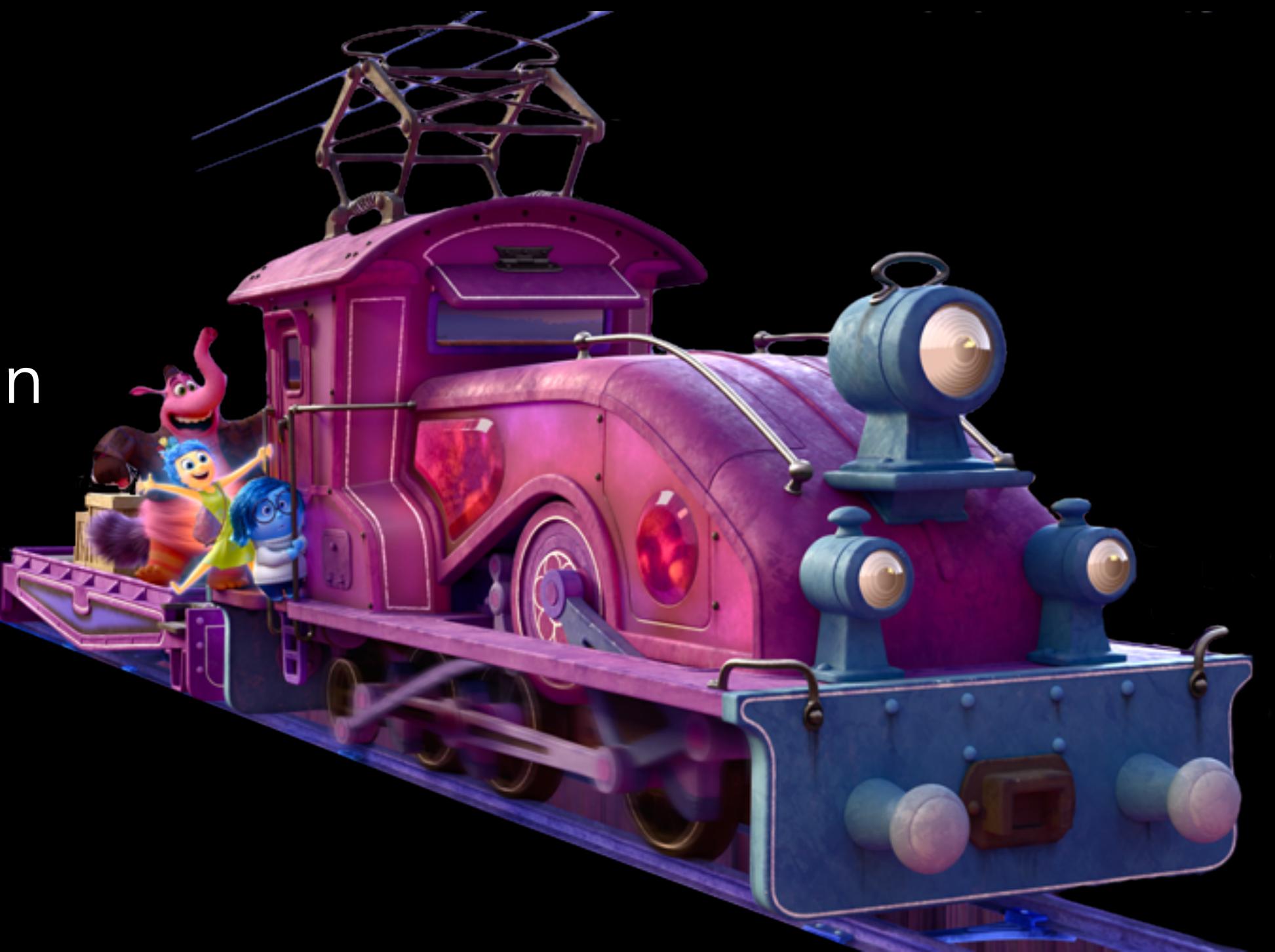
# Get a static computer group from the server
mg = JSS::ComputerGroup.new name: "Macs of interest"

# Add a computer to the group
mg.add_member "pricklepants"

# save changes
mg.update
```

depot3

- Ruby module, uses and builds on ruby-jss
- d3admin - manage packages on the server
- d3 - manage packages on the client
- helper tools - puppytime, d3helper, d3RepoMan
- Open-sourced in April 2016



d3admin

- Add packages, build if needed
- Edit package settings
- Delete packages

```
% d3admin add transmogrifier ...
```

```
% d3admin edit transmogrifier-2.4-1 ...
```

```
% d3admin delete transmogrifier-2.4-1
```

d3admin live

- Releasing for deployment

```
% d3admin live transmogrifier-2.0-7
*****
Ahoy there! You are about to:
Make transmogrifier-2.0-7 live for basename 'transmogrifier'
*****
Are you SURE? (y/n): y
Done 'transmogrifier-2.0-7' is now live.
New installs of basename 'transmogrifier' will get 2.0-7
Existing installs will be updated at the next d3 sync.
```

one-line command

```
chrisl@kimchi: d3admin add transmogrifier --source-path /Users/Shared/Transmogrifier.pkg \  
--description 'this is a new description' --pre-install 'transmogrifier-install' \  
--auto-groups standard --excl-groups special-macs --oses '>=10.10.1' \  
--remove-first --category test-apps --expiration 30 \  
--expiration-path /Applications/Transmogrifier.app/Contents/MacOS/tmog
```

menu-driven

```
% d3admin add transmogrifier --walkthru  
-----  
Adding pilot d3 package 'transmogrifier-2.0-7'  
with values inherited from 'transmogrifier-2.0-6'  
-----  
1) Basename: transmogrifier  
2) Version: 2.0  
3) Revision: 7  
4) JSS Package Name: transmogrifier-2.0-7.pkg  
[ . . . ]  
Which to change? (1-22, 'x' = done, ^c=cancel):
```

d3admin search

```
chrisl@kimchi: d3admin search transmogrifier
# All 'transmogrifier' packages in d3
# Edition          Status   Added      By       Released    By
#-----
```

| # | Edition | Status | Added | By | Released | By |
|---|----------------------|------------|------------|--------|------------|--------|
| | transmogrifier-1.6-1 | deprecated | 2015-10-08 | barney | 2015-10-08 | barney |
| | transmogrifier-1.7-1 | deprecated | 2015-11-08 | barney | 2015-11-08 | fred |
| | transmogrifier-1.8-2 | deprecated | 2015-12-14 | wilma | 2015-12-20 | wilma |
| | transmogrifier-2.0-1 | skipped | 2016-03-01 | barney | - | - |
| | transmogrifier-2.0-2 | skipped | 2016-03-03 | barney | - | - |
| | transmogrifier-2.0-3 | skipped | 2016-03-04 | barney | - | - |
| | transmogrifier-2.0-4 | skipped | 2016-03-04 | barney | - | - |
| | transmogrifier-2.0-5 | skipped | 2016-03-09 | chrisl | - | - |
| | transmogrifier-2.0-6 | skipped | 2016-03-09 | chrisl | - | - |
| | transmogrifier-2.0-7 | live | 2016-03-10 | chrisl | 2016-03-16 | chrisl |
| | transmogrifier-2.1-1 | pilot | 2016-03-29 | wilma | - | - |
| | transmogrifier-2.1-2 | pilot | 2016-03-31 | wilma | - | - |

d3admin search --groups

```
chrisl@kimchi: d3admin search --groups avid

# Packages that auto-install for group 'func-avid'

# Edition          Status    Added      By       Released   By
#-----          -----    -----      -----    -----      -----
automount-menu-1-6      deprecated 2015-12-01 phred    2015-12-01 phred
automount-menu-2-3      live       2016-03-03 phred    2016-03-03 phred
bing-bong-12-5         deprecated 2016-06-06 phred    2016-06-06 phred
bing-bong-13-2         skipped     2016-06-17 phred    -           -
bing-bong-13-3         live       2016-06-22 joshm    2016-06-22 joshm

# Packages that are excluded for group 'func-avid'

# Edition          Status    Added      By       Released   By
#-----          -----    -----      -----    -----      -----
boxedit-3.0.18-3        live       2015-05-18 chrisl  2015-05-20 benrillie
tranmogrifier-12.0-1    pilot     2016-03-11 chrisl  -           -
```

d3admin report

```
chrisl@kimchi: d3admin report transmogrifier

# All computers with 'transmogrifier' receipts

# Computer    User    Edition          Status   As_of      Frozen Installed By
#-----#
ale        fred    transmogrifier-2.0-7 live    2016-04-01 - 2016-03-16 auto-installed
wine       wilma   transmogrifier-1.8-2 deprecated 2016-04-01 frozen 2015-12-20 auto-installed
whiskey    barney   transmogrifier-2.1-1 pilot   2016-04-01 - 2016-03-29 wilma
tequila    betty    transmogrifier-2.1-2 pilot   2016-04-01 - 2016-03-31 wilma
gin         pebbles  transmogrifier-345-3 live    2016-03-31 - 2016-03-16 metro
vodka       bambam   transmogrifier-345-3 live    2016-04-01 - 2016-03-16 auto-installed
rum         dino     transmogrifier-2.0-7 live    2016-04-01 - 2016-03-16 auto-installed
[...]
```

d3admin report --computers

```
chrisl@kimchi: d3admin report --computers portland
# Receipts on 'portland' (user: chrisl) as of 2016-06-29
# Edition          Status As_of   Frozen Installed By
#-----
1password-6.0.1-1      pilot  2016-06-29 -  2016-06-23 selfservice
adobe-pixar-cc14-2-1    live   2016-06-29 -  2015-11-10 adobe-installer-helper
adobe-plugins-cc14-1-3   pilot  2016-06-29 -  2016-06-17 chrisl
aedeliver-14-2         live   2016-06-29 -  2016-01-19 auto-installed
aesubmit-2-6            live   2016-06-29 -  2016-03-29 chrisl
after-effects-cc14-13.2-2 live   2016-06-29 -  2015-11-10 chrisl
anyconnect-4.2.01035-3   live   2016-06-29 -  2016-03-15 auto-installed
avid-codecs-2.3.7-2     live   2016-06-29 -  2015-08-12 auto-installed
boxedit-3.0.18-3        live   2016-06-29 -  2015-08-12 auto-installed
bridge-cc14-6.1-1       live   2016-06-29 -  2015-11-10 adobe-installer-helper
cocoadialog-3.0b7-1     live   2016-06-29 -  2015-08-12 auto-installed
[...]
```

d3 client

- Install, uninstall
- Pilot
- Freeze, thaw
- Manage 'Puppy Queue'

```
root@kimchi: d3 install filemaker
```

```
root@kimchi: d3 uninstall filemaker
```

```
root@kimchi: d3 install filemaker-13-3
```

```
root@kimchi: d3 freeze filemaker
```

```
root@kimchi: d3 list-queue
```

```
root@kimchi: d3 dequeue sec-update-16-02
```

d3 queries & reports

- Queries
- Receipt reports

```
root@kimchi: d3 list-available
```

```
root@kimchi: d3 list-files filemaker
```

```
root@kimchi: d3 query-file /some/file/path
```

```
root@kimchi: d3 list-details transmogrifier
```

```
root@kimchi: d3 list-installed
```

```
root@kimchi: d3 list-manual
```

```
root@kimchi: d3 list-frozen
```

d3 sync

```
root@kimchi: d3 sync
Starting sync
Updating receipts
Checking for invalid puppies in the queue
Checking for updates to installed packages
Updating transmogrifier-2.0-5 (pilot) to transmogrifier-2.0-6 (live)
Checking for new packages to auto-install
Starting expiration check
Finished sync
```



PuppyTime!

- Triggered by a logout policy
- Installs whatever's in the puppy queue
- Displays a slideshow using jamfHelper.app
- Reboots, or calls a policy to reboot



d3helper



- Miscellaneous tools and functions •
- Display puppy notification •
- Generate Extension Attribute data for enhanced reports •
- Imports existing JAMF pkg receipts •

d3RepoMan

- Tiny applet that runs continuously
- Monitors apps coming to the foreground
- Records a timestamp and the executable path
- Sync expiration process uses recorded data



Installing d3

- Download & install .pkg
- Set up jamf server, mysql server
- Add or import packages
- Configure & test
- Deploy .pkg to clients via a policy

Admin Workflow

- Acquire package, or create root-folder
- d3admin add <basename>
- Pilot the new pkg with d3 install <edition>
- Make live
- Potentially add to self-service



Developer Workflow

- Build in XCode, build script ends with
 - `d3admin add <basename> ...`
- Deploy to pilot group for testing
- Freeze clients on older version if needed
- Release new version company wide
- If bugs are found later, easy to roll-back
- Can use ruby-jss to automate the above with via Casper



Jamf Pro's Patch Management

- Integrate with d3 as jamf rolls out Patch.
- Webhook-triggered retrieval of new patches
- Usage of 'patch policies'
- As their code grows, ours will shrink
- d3 will always be command-line & scriptable



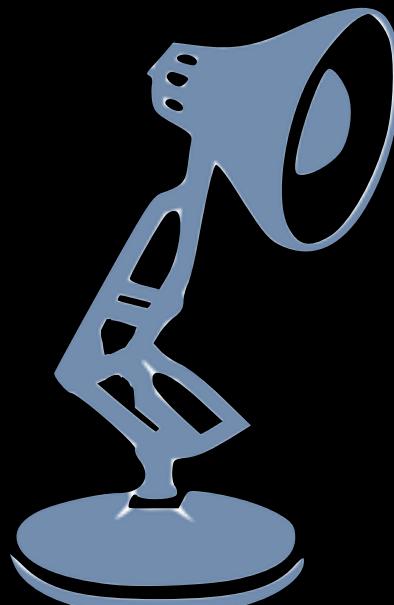
What's Next?

- Integrate with AutoPkg & Jamf's patch management
- Eliminate need for MySQL access
- Installer & Admin GUI
- AppStore/VPP integration?
- Many improvements



Thank You!

- <http://pixaranimationstudios.github.io/depot3>
- <http://pixaranimationstudios.github.io/ruby-jss>
- MacAdmins Slack: @glenfarclas17 #d3 #jss-api #ruby



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