

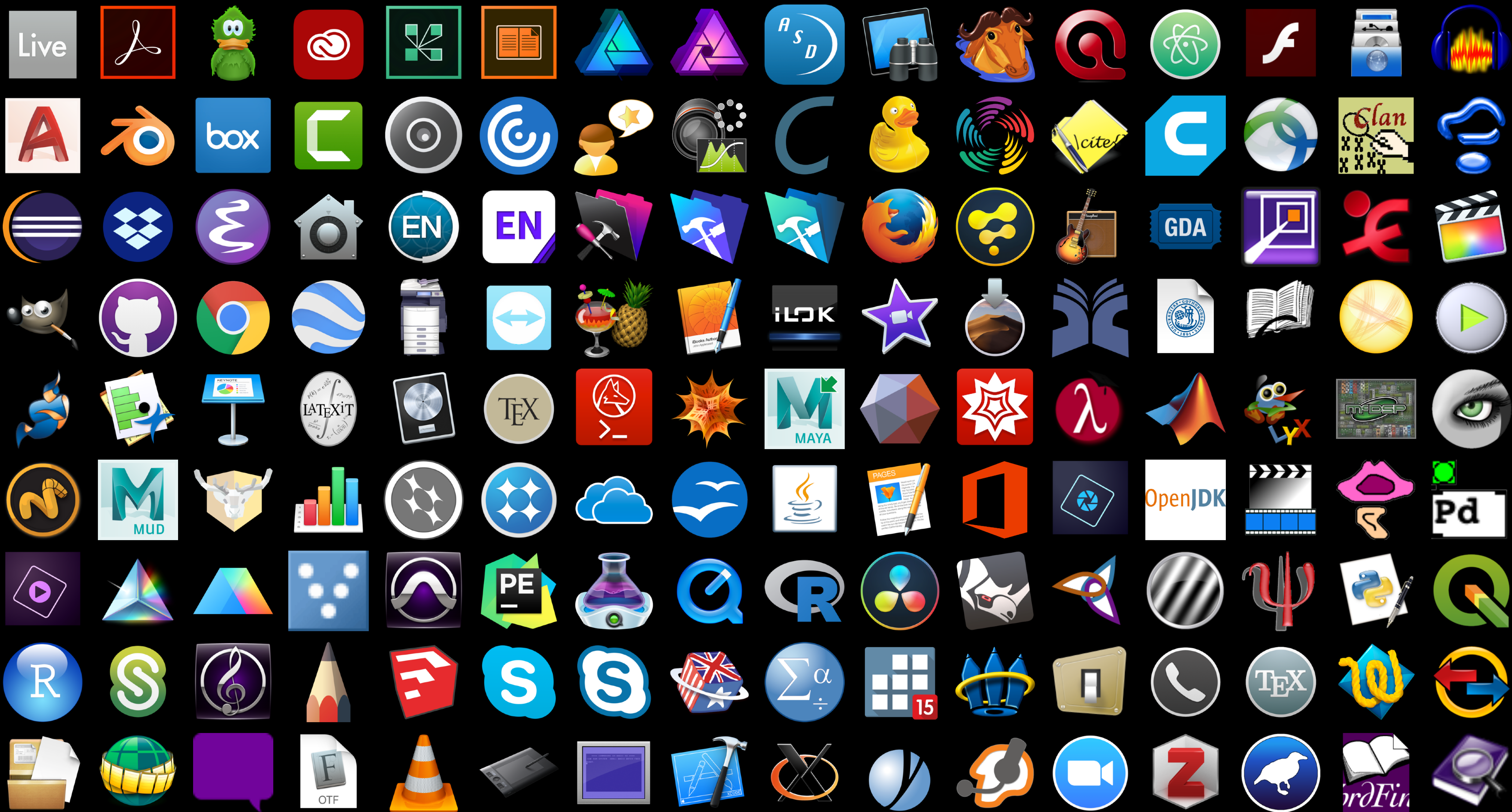


Open Source and the Inevitability of MDM

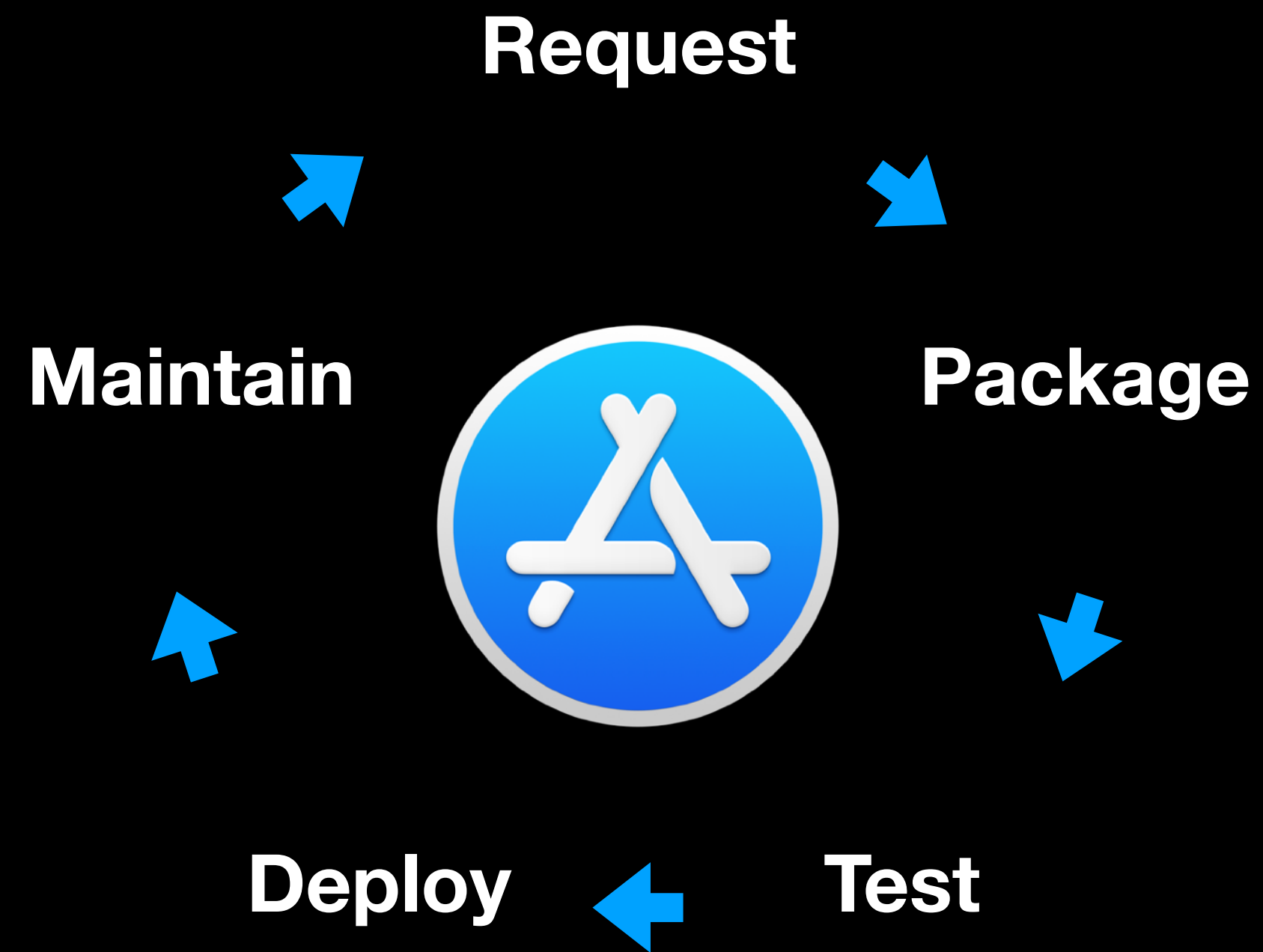
Per Olofsson
University of Gothenburg
@MagerValp

InstaDMG

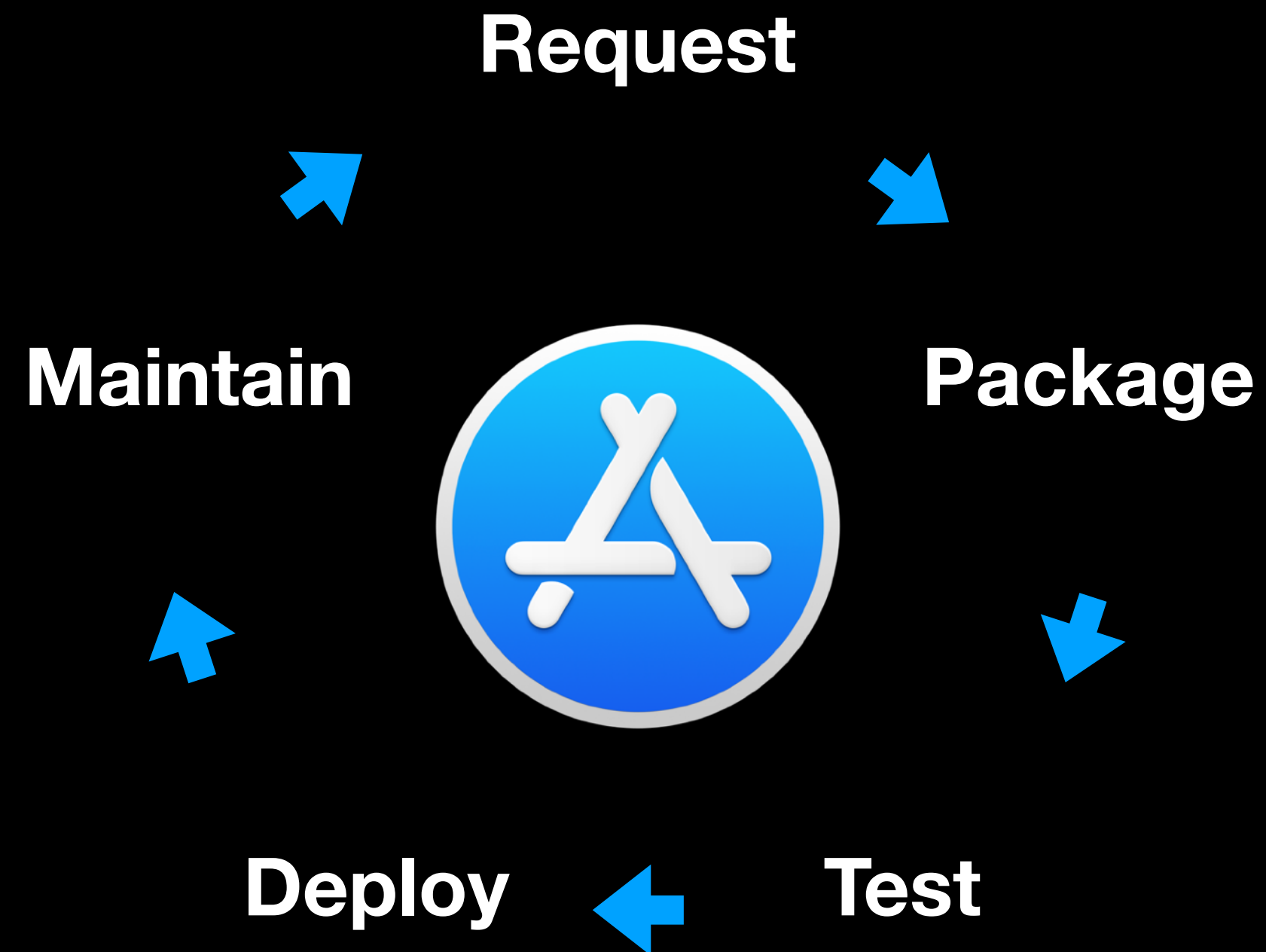
InstaDMG + Munki



Application Management



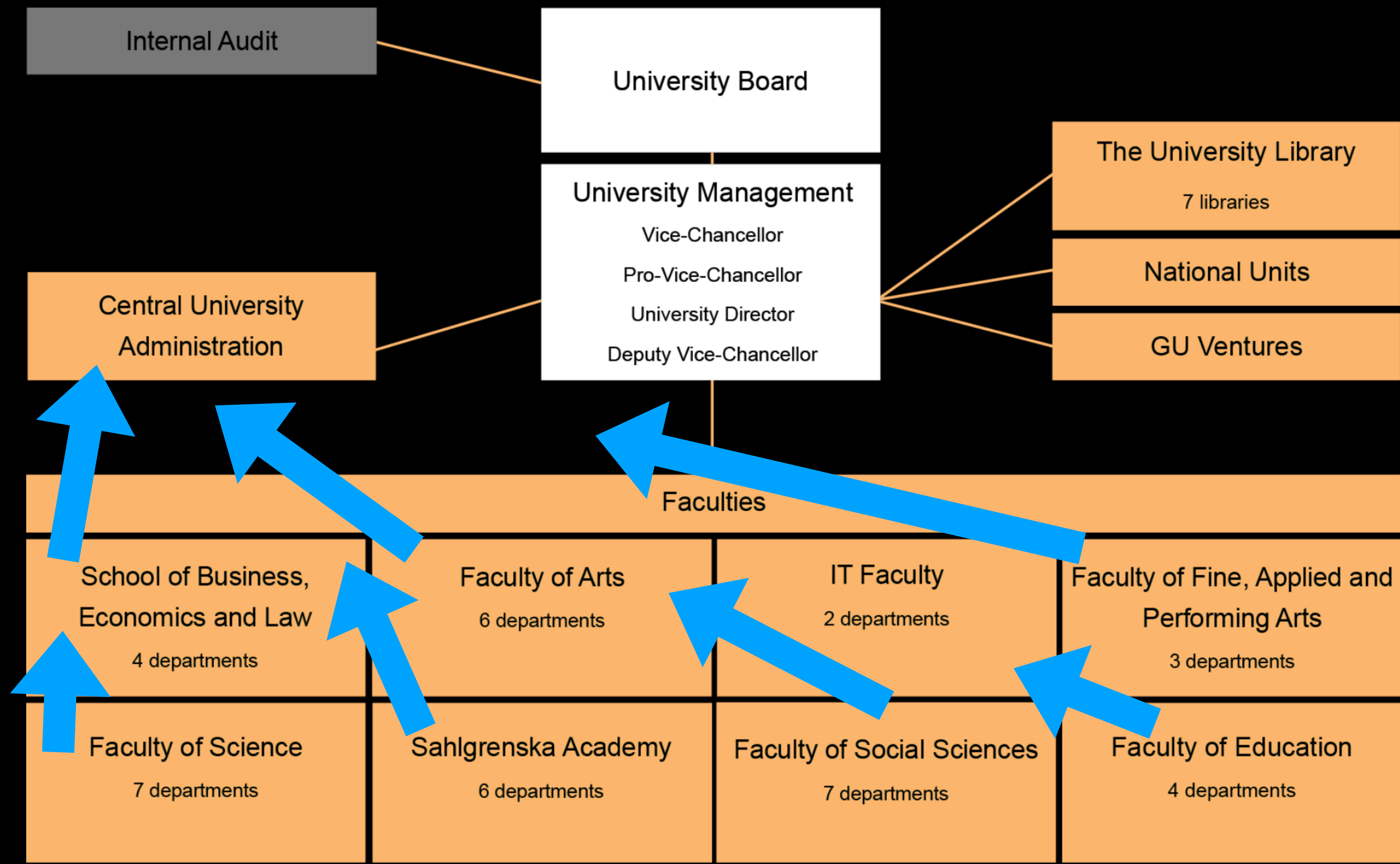
Application Management



AutoPkg
MunkiReport

♥ Greg, Tim, Hannes, Arjen ♥

InstaDMG + Munki + DeployStudio



InstaDMG + Munki + DeployStudio



Investment

- Planning
- Procurement
- Security
- Training
- PoC/Test
- Production
- Documentation

Commercial Mac Management

- Documentation
- Training
- Support

Open Source Mac Management

- Documentation?
- Training?
- Support?

CGTerm 1.6

What?

CGTerm was a C/G telnet client that let you connect to C64 telnet BBS:s with the correct colours and the correct font. Also included was a client for 64CHAT called [CGChat](#).

Features

- Open source - runs on Windows, MacOS X, and unix compatibles.
- Full C64 screen and keyboard emulation.
- File download with Xmodem, Xmodem/CRC, Xmodem-1k, and Punter protocols.
- Screen capture to SEQ file, and SEQ file playback.
- Keyboard macros.
- Fullscreen mode.
- and more...

New in 1.6

- 80 column mode
- Fullscreen toggle for all platforms
- Optimized screen save
- File upload with Xmodem, Xmodem/CRC, and Xmodem-1k
- Address book
- Read/write to d64/d71/d81 (broken, see below)
- File drop box
- Sound toggle
- Config file is created if none exists
- Scrollback buffer
- X-modem padding is stripped and added correctly
- Added chat client

Known bugs

Known bugs in CGTerm 1.6.

- Unix users might get a complaint about a missing keyboard.kbd file the first time they start the program. Simply restart and the warning should be gone (but you still have to configure the keyboard as described in the documentation).
- Disk image routines are broken in 1.6, specifically directory and BAM code doesn't work correctly. d64 should be safe to use, but don't use d71 and d81 images.

Downloads

The last binary release of CGTerm was in 2003 and doesn't work anymore.

[CGTerm on GitHub](#)

Source code.

Links

<http://www.petscii.com/>

Has a BBS list, telnet gateways, and more.

License

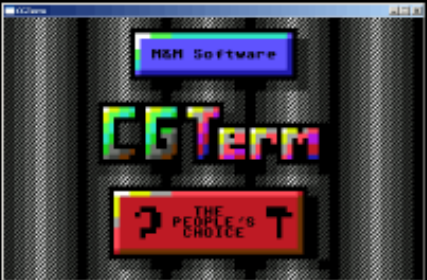
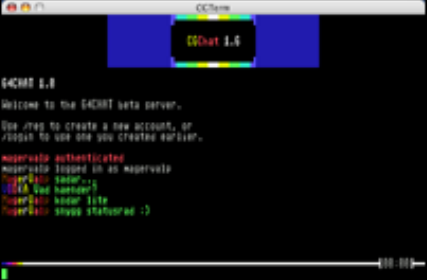
CGTerm is released under a slightly modified BSD license:

Copyright (c) 2003-2004, Per Olofsson
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



- Unix users might get a complaint about a missing keyboard.kbd file the file is gone (but you still have to configure the keyboard as described in the docs)
- Disk image routines are broken in 1.6, specifically directory and BAM code for d81 images.

Downloads

The last binary release of CGTerm was in 2003 and doesn't work anymore.

CGTerm on GitHub

Source code.

Links

<http://www.petscii.com/>

L [REDACTED] CGTerm v1.8 OS X

...CGTerm v1.8 for OS X as a .dmg file? I have been looking everywhere and cannot seem to find it. Earlier versions do

M [REDACTED]  italian keyboard mapping for CGTerm

...it in a next release of CGTerm. I'm pleased to share this file with the rest of the world! Thank you for your effort in re

L [REDACTED] CG Term 1.8s

...p> Do you have CG Term 1.8s for the MAC in .dmg? I only see up to 1.7.p>p> p> <https://paradroid.automac.se/cgt>

M [REDACTED] problem with CGterm in linux

...CGterm. I like this program very much. I'd like to run CGterm in linux mint 18.1 serena. I've been able to compile from

G [REDACTED] request info for CGTerm

...Cgterm but not function. I used ver. 1.6 and ver.1.7b2 but always not function. When i digit BBS address, Cgterm say

F [REDACTED] Re: CGTerm onto Mac OS X

...the source yourself, but there's no guarantee that it'll work: <https://github.com/MagerValp/CGTerm/tree/maccleanu>

M [REDACTED] Re: CGTerm

...on github that you can try building, but it still needs more work: <https://github.com/MagerValp/CGTerm/tree/macc>



Open Source Mac Management

- Documentation?
- Training?
- Support?



+



Join **MacAdmins** on Slack.

166 users online now of **26087** registered.

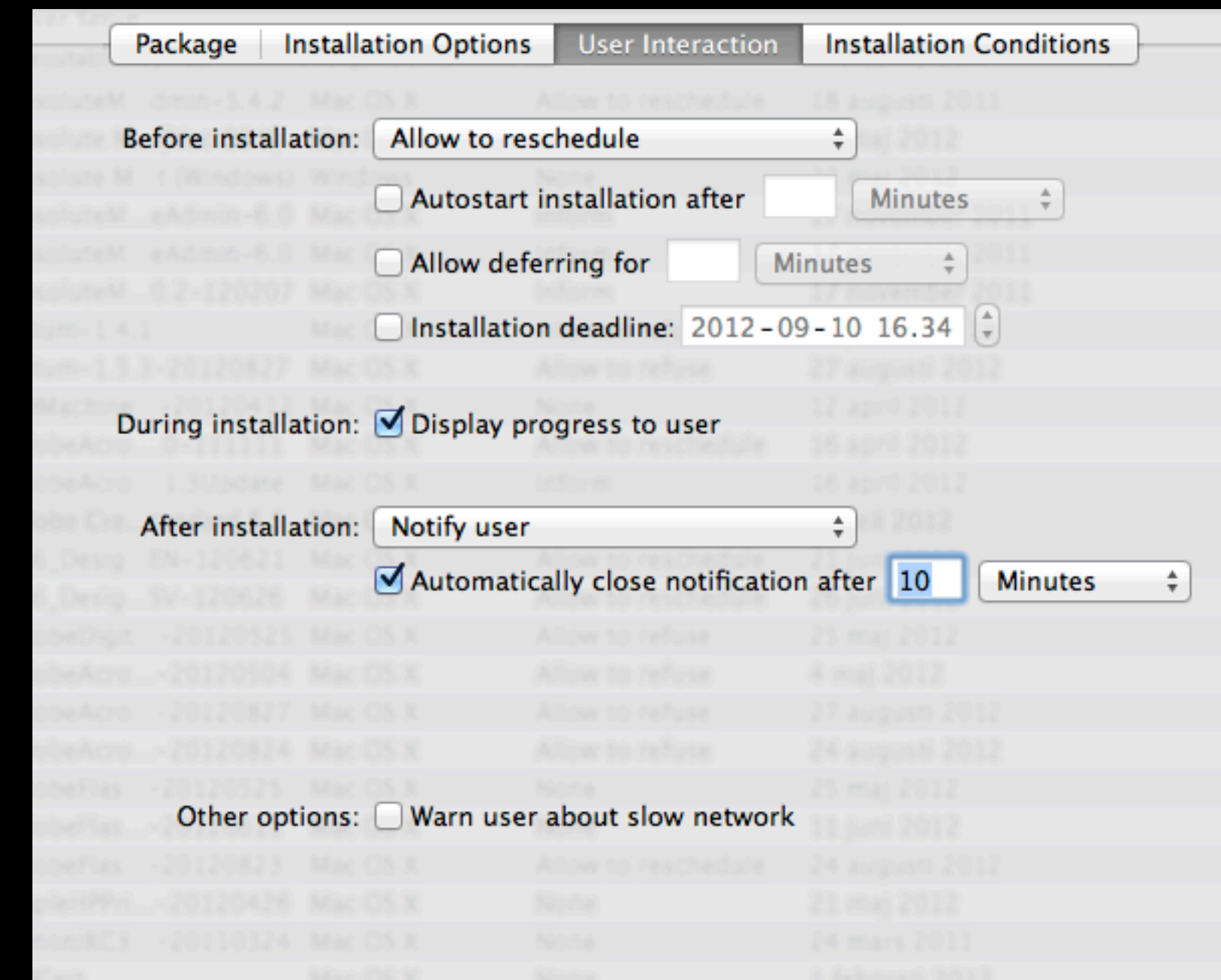
Mac Management Tools 2010

Produkt	OS-installation	Programdist	Inventering	Självbetjäning	MCX	AD-integration
Casper Suite	✓	✓	✓	✓	✓	Nja
Absolute Manage	Ominstallation	✓	✓	Endast paket	✓	✓
KACE	✓	✓	✓	✗	✗	✓
Altiris	Via NetInstall	✓	✓	?	?	✓
LANDesk	Via NetInstall	✓	✓	?	?	✓
Quest	✗	✓	✓	✗	✗	✓
FileWave	Ominstallation	✓	✓	✗	✗	Trasig
DeployStudio	✓	✗	✗	✗	✗	✗
Munki	✗	✓	✗	Endast paket	✗	✗
Puppet	✗	✓	✓	✗	✓	✗
Radmind	✗	✓	✗	✗	✗	✗
NetInstall	✓	✗	✗	✗	✗	✗
Open Directory	✗	✗	✗	✗	✓	✓
Centrify	✗	✗	✗	✗	✓	✓
Likewise	✗	✗	✗	✗	✓	✓

- Fiction: Open Directory + MCX!
 - Fact: Configuration Profiles
- Fiction: Easy admin GUI to encourage collaboration
 - Fact: Staffed with programmers
 - Kicker: Who actually all know Munki

LANrev

- Apps "Almost as good as Munki" 😊
- But also does:
 - Inventory
 - AD integration
 - Remote Client Commands
 - ...and lots more



 Profile Manager

Directory Ad... ▾

LIBRARY

 Users

 Groups

 **Everyone**
All Users

 **Workgroup**
2 Members

 **Everyone**
All Users

Profile

Members

About

 Settings for Everyone

 General

 CalDAV

 iChat

 CardDAV

Download

Edit

 Revert

Save...

BREAKS IN PRODUCTION



- SAY THE LINE BART!



- BUT IT WORKS ON MY MACHINE



This project has been archived and is no longer maintained

26 commits1 branch0 releases1 contributor

Branch: master

Create new fileUpload filesFind FileClone or download

MagerValp and MagerValp Clarified lack of PM3 support.		Latest commit 73e370d on 12 May 2014
.gitignore	Ignore csv and json files.	7 years ago
README.markdown	Clarified lack of PM3 support.	5 years ago
importtest.csv	Added export_placeholders and dump_devices, updated add_placeholder a...	7 years ago
pmcli.py	Update pmcli.py	5 years ago
profilemanager.py	Moved ProfileManager class to its own module.	7 years ago

README.markdown

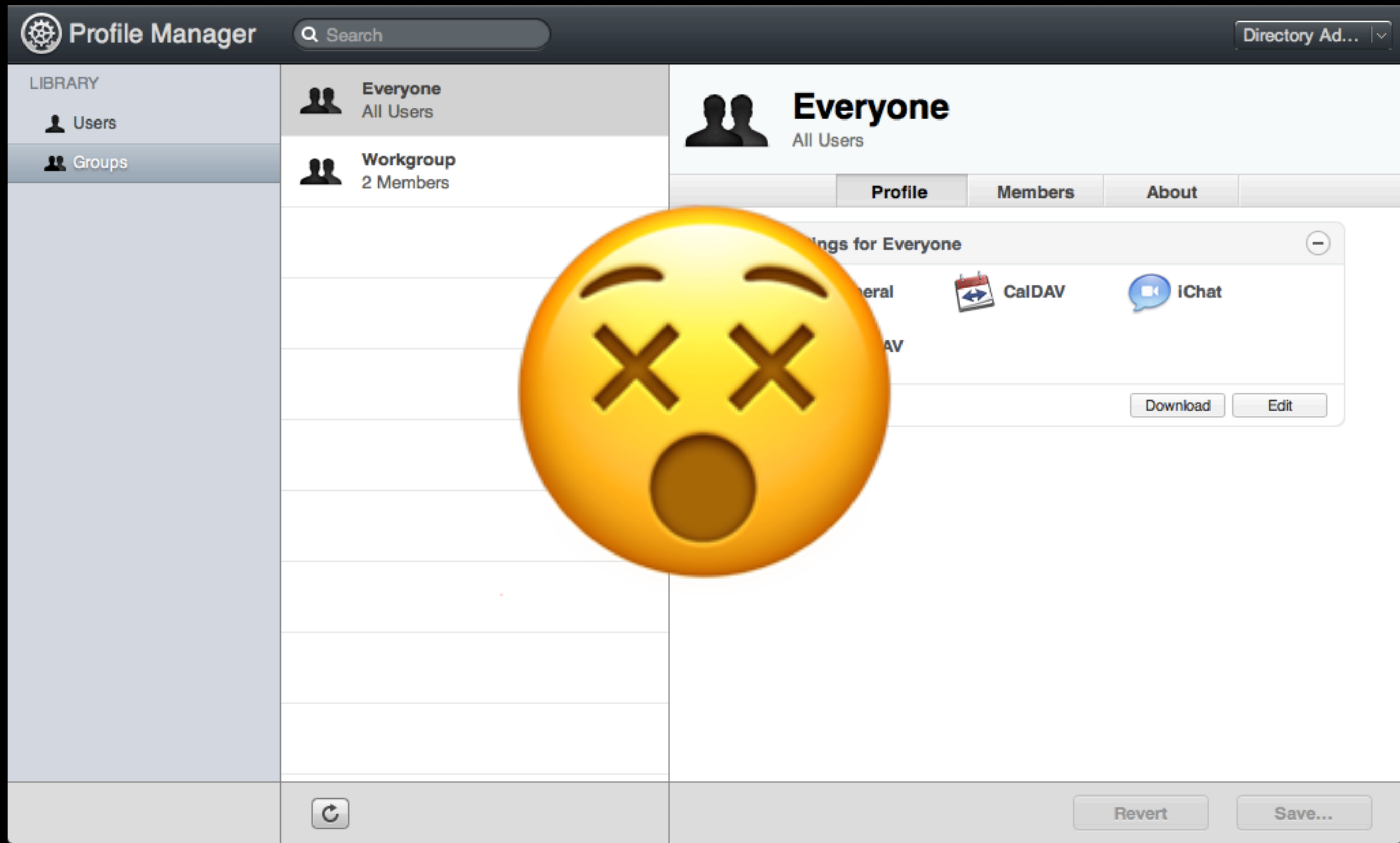
Profile Manager CLI

A command line interface for Profile Manager administration.

Requirements

Currently Profile Manager 1 (Lion) and 2 (Mountain Lion) are supported. Profile Manager 3 (Mavericks) is not supported at this time, see [issue #2](#).

Usage



MDM vs Local Profiles

MDM

- "UDP Management"
- Server Side Logic
- Asynchronous

Local

- Predictable
- Client Side Logic
- Synchronous

Best Effort Management

Send out the command and hope for the best

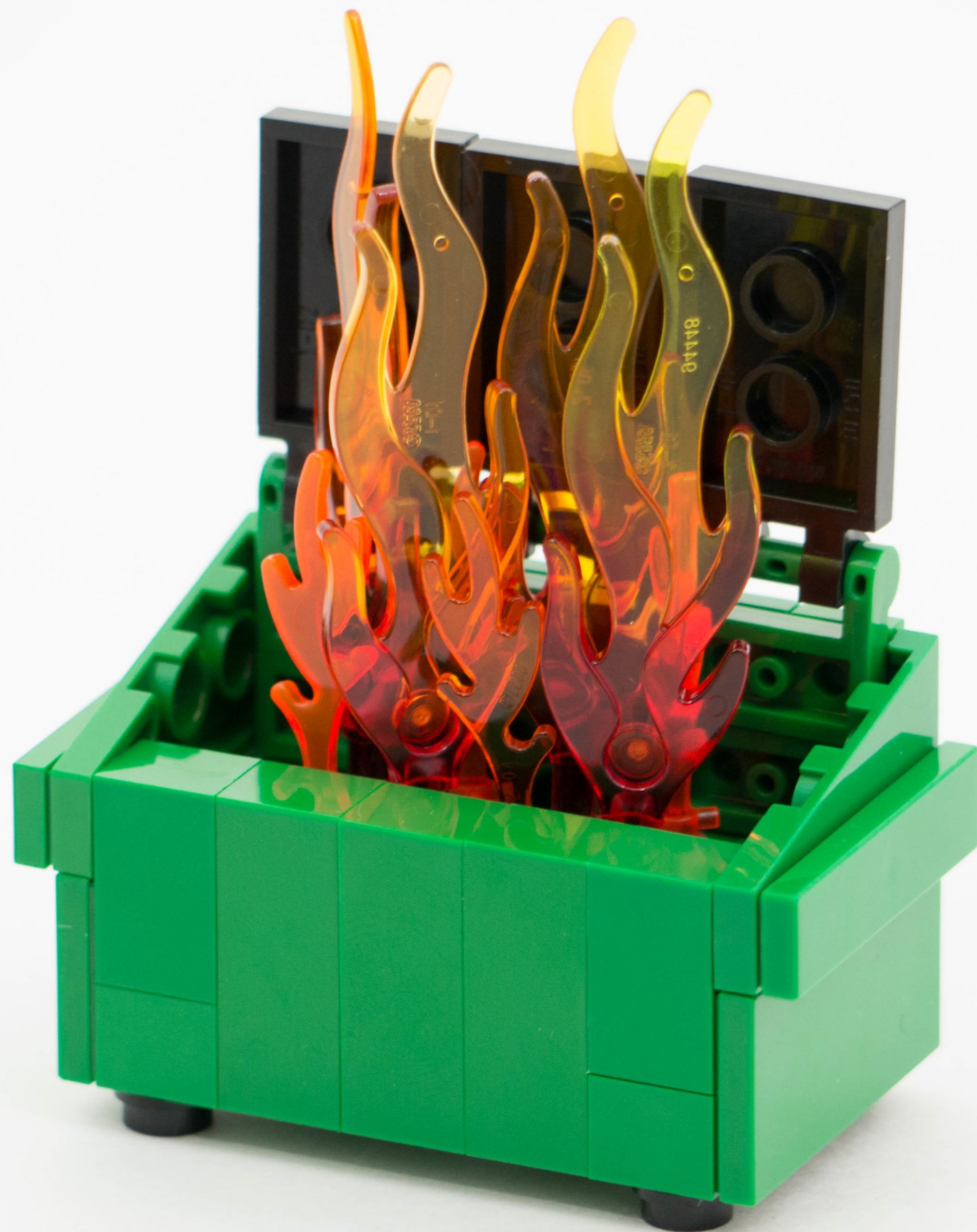


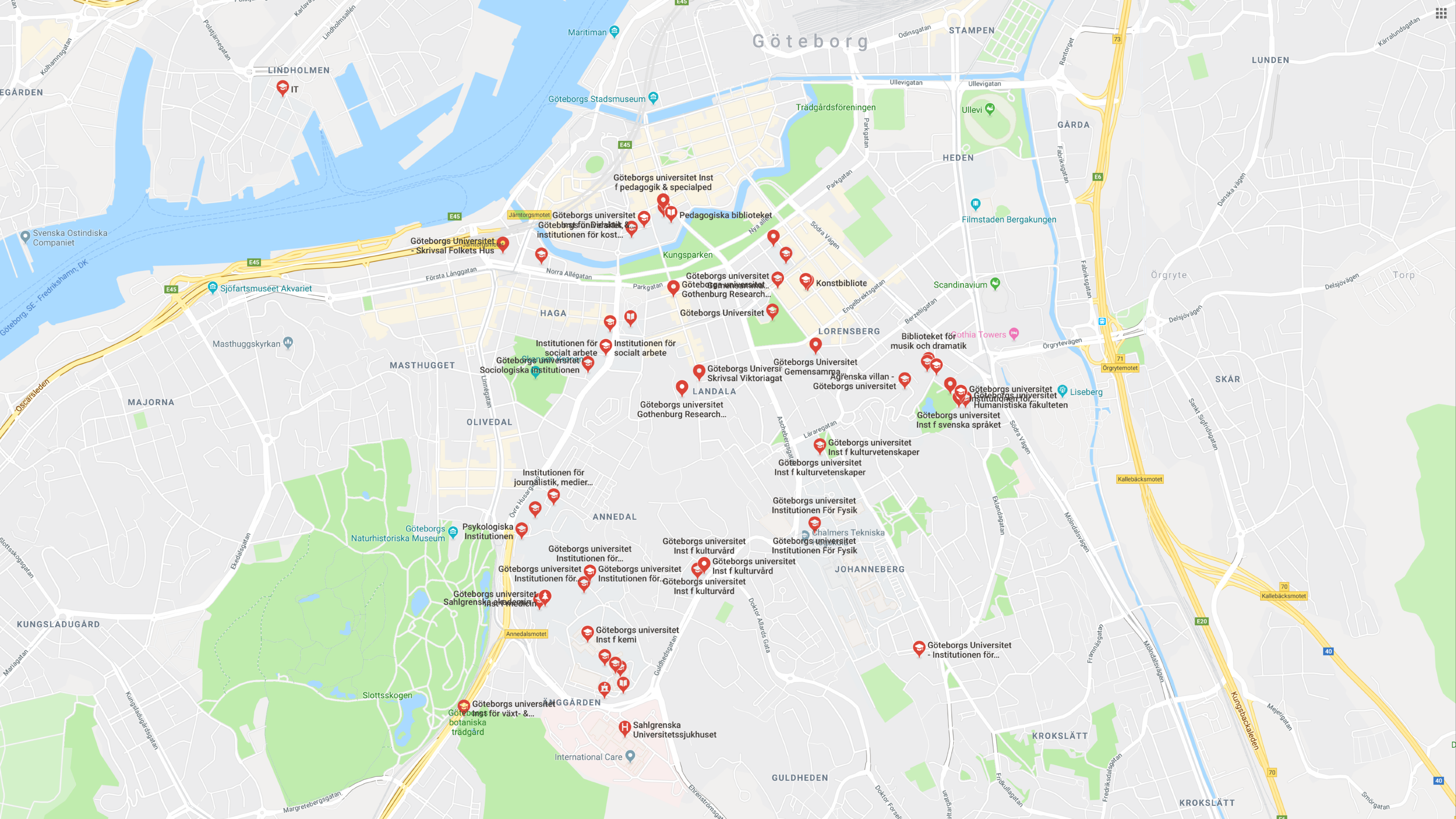
Configuration Management

- Reliable
- Declarative (desired state)
- Idempotent



- Apple's MDM protocol is imperative, not declarative
- Profiles are evaluated once during installation





Göteborg

LINDHOLMEN

STAMPEN

LUNDEN

GÄRDA

HEDEN

HAGA

LORENSBERG

SKÅR

MAJORNA

MASTHUGGET

OLIVEDAL

ANNEDAL

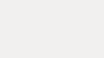
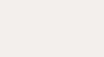
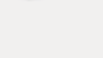
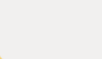
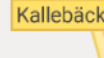
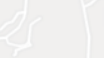
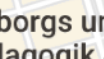
JOHANNEBERG

KUNGSLADUGÅRD

KROKSLÄTT

GULDHEDEN

KROKSLÄTT



EGÅRDEN

Svenska Ostindiska
Companiet

Sjöfartsmuseet Akvariet

Masthuggskyrkan

Göteborgs universitet
Sociologiska Institutionen

Institutionen för
socialt arbete

Institutionen för
socialt arbete

Göteborgs universitet
Skrivsal Viktoriat

Göteborgs universitet
Gemensamma

Göteborgs universitet
Agrenska villan -

Biblioteket för
musik och dramatik

Göteborgs universitet
Institutionen för

Göteborgs universitet
Humanistiska fakulteten

Göteborgs universitet
Inst f svenska språket

Göteborgs universitet
Inst f kulturvetenskaper

Göteborgs universitet
Inst f kulturvetenskaper

Göteborgs universitet
Institutionen För Fysik

Chalmers Tekniska

Slottsskogsgatan

Göteborgs
Naturhistoriska Museum

Psykologiska
Institutionen

Göteborgs universitet
Institutionen för...

Göteborgs universitet
Institutionen för...

Göteborgs universitet
Inst f kulturvård

Göteborgs universitet
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Göteborgs universitet
Inst f kulturvård

Mariagatan

Kungsladugårdsgatan

Slottsskogen

Göteborgs universitet
Göteborgs för växt- &...

Göteborgs universitet
botaniska trädgård

Göteborgs universitet
Inst f kemi

Göteborgs universitet
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Sahlgrenska
Universitetssjukhuset

International Care

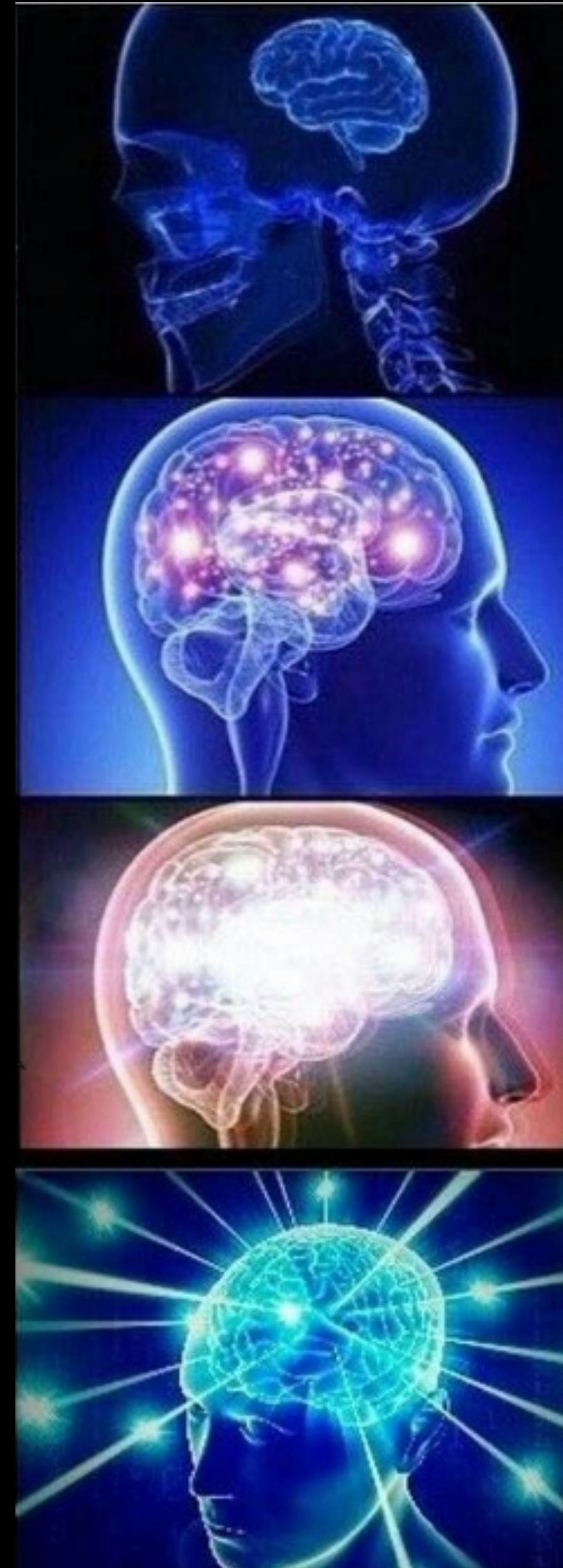
Göteborgs Universitet
- Institutionen för...

Manual

asr

DeployStudio

DEP



Wishlist

- Munki
- DEP
 - ...which needs MDM
- NoMAD, Cloud Sync, ...etc

Outsourcing 🎉

$$1 + 1 = ?$$

Jamf

Jamf

MDM	Imaging	FileVault	Inventory
Config Mgmt	Printers	Reports	Self Service
App Mgmt	eBooks	Classrooms	...and more!

Managing Apps — Jamf vs Munki

Managing Apps — Jamf vs Munki

Training

- Jamf:
 - Self Service is easy
 - Unconditional installs are easy
 - Policies can get complex
- Munki:
 - Steeper learning curve
 - Command Line and plists
 - Advanced features

Managing Apps — Jamf vs Munki

Infrastructure

- Jamf:
 - Web server
 - SMB
 - Certificate
 - Firewall rules
- Munki:
 - Web server
 - SMB
 - Certificate
 - Firewall rules

Managing Apps — Jamf vs Munki

Munki Benefits

- Version Logic
- User Experience
- Dependencies
- OS Upgrades
- Logging
- Version Control

Managing Apps — Jamf vs Munki

Version Logic

- Munki understands version numbers
 - Automatic upgrade logic
- Looks on client, not on server

Managing Apps — Jamf vs Munki

User Experience

- Blocking applications
- Gentle logout or reboot
- Forced install after date, with countdown
- UI at the login window

Managing Apps — Jamf vs Munki

Dependencies

- A **Requires** B
 - MS_OFFICE_2019-16.25.0 requires Office2019-VLS-16.17.18080304
- B is an **update_for** A
 - AcrobatDCProUD-17.011.30113 is an update for AcrobatDCPro

Managing Apps — Jamf vs Munki

OS Upgrades

- Install macOS.app
- Preloading
- Force install after date

Managing Apps — Jamf vs Munki

Logging

- Client side logging
- Actually tells you what it tries to do and what the result is
- Enables support techs

Managing Apps — Jamf vs Munki

Version Control

- `manifests` and `pkginfo` are plain plist files
- Put everything you can in version control



Managing Apps — Jamf vs Munki

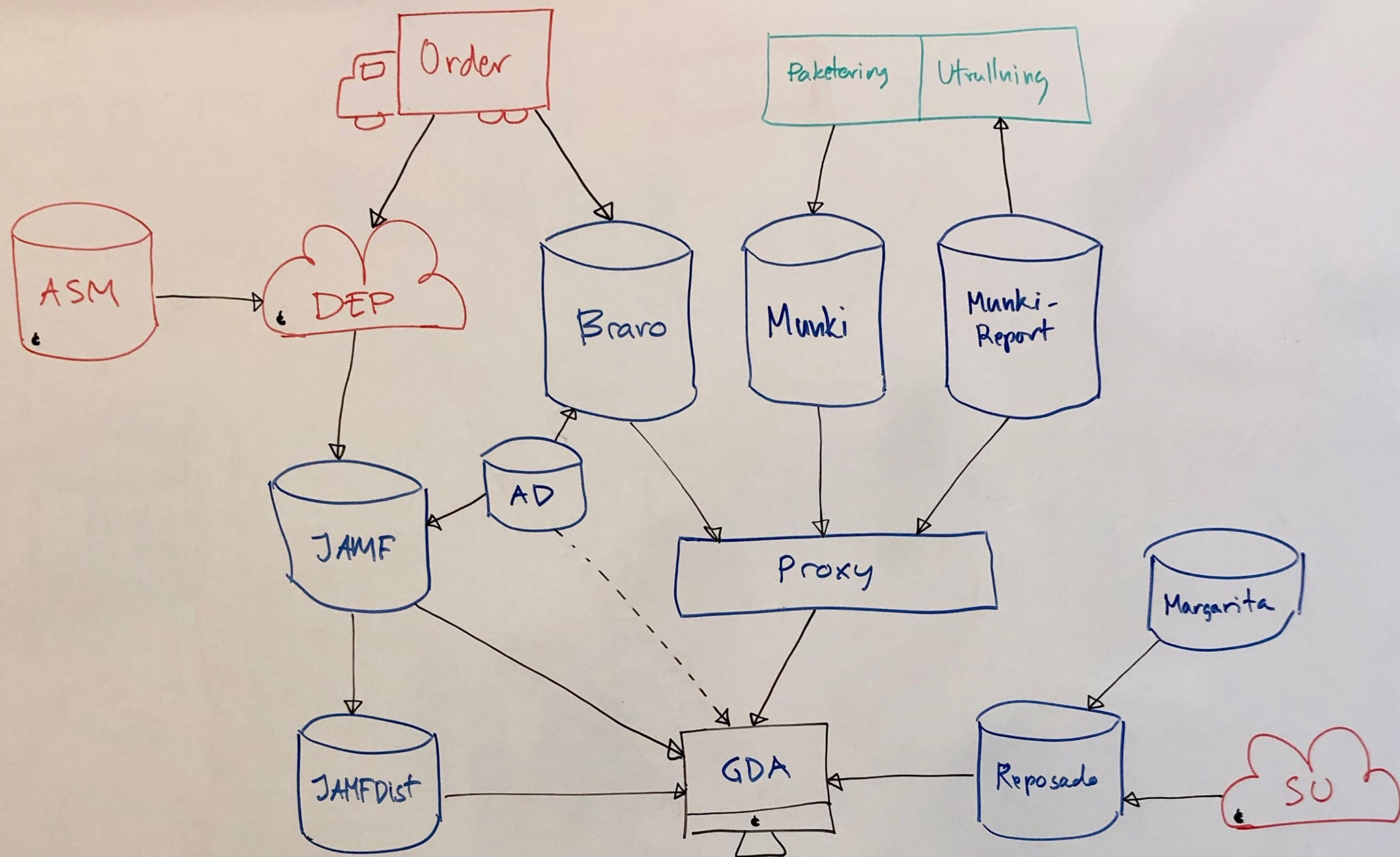
Some things are the same

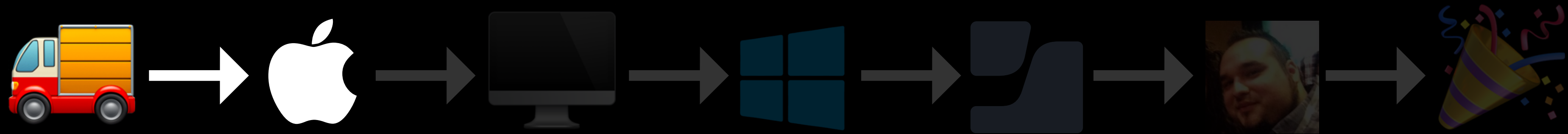
- AutoPkg
- preflight/postflight scripts
- Custom Conditions $\approx$ Extension Attributes

Managing Apps — Jamf vs Munki

Summary

- In our organization, Munki offers the best possible user experience
- Munki lets us spend less time managing applications





School

Institution

Aktivitet

Platser

Personer

Konton

Klasser

Roller

Enheter

Enhetstilldelningar

Tilldelningshistorik

Innehåll

Appar och böcker

iTunes U

Personliga inställningar

Min profil

DEP GU

Appar och böcker

Institutionsinställningar

Registreringsuppgifter

Göteborgs Universitet

Konton

7 hanterade Apple-ID

Datakälla

Inställningar för enhetshantering

1 509 enheter

MDM-servrar

Apple Configurator 2

2 enheter

DEP ▾

?

Min profil

DEP GU

Namn

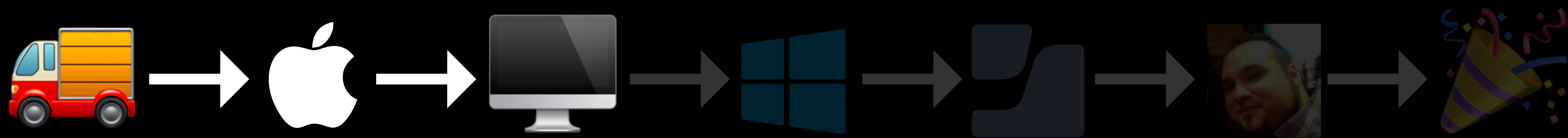
🔍 DEP GU

E-postadress

Hantera på appleid.apple.com/se ↗

Telefonnummer

Hantera på appleid.apple.com/se ↗



Remote Management

Remote management enables the administrator of "Göteborgs Universitet" to set up email and network accounts, install and configure apps, and manage this computer's settings.



"Göteborgs Universitet" can automatically configure your computer.

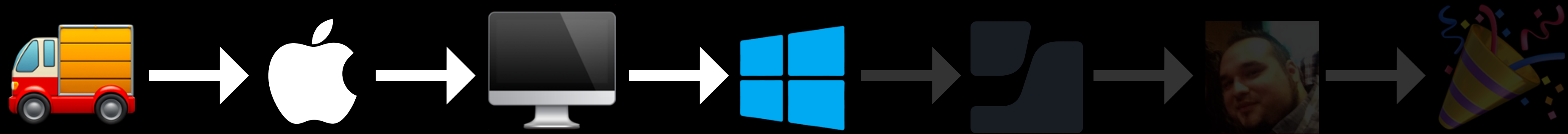
[Learn more about remote management](#)



Back



Continue



Skapa ett datorkonto

Fyll i följande information för att skapa ett datorkonto.

Fullständigt namn:

Kontonamn:

Detta blir namnet på din hemmapp.

Lösenord:

Lösenordstips:



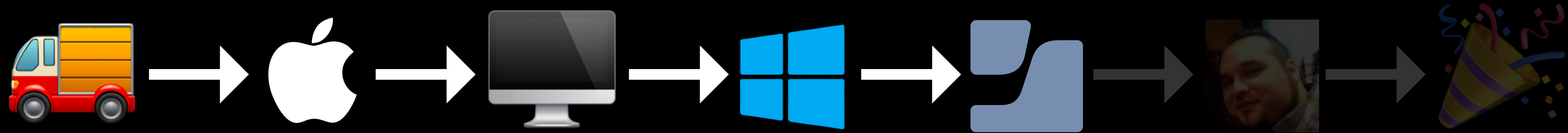
☒ Ställ in tidszon baserat på nuvarande plats



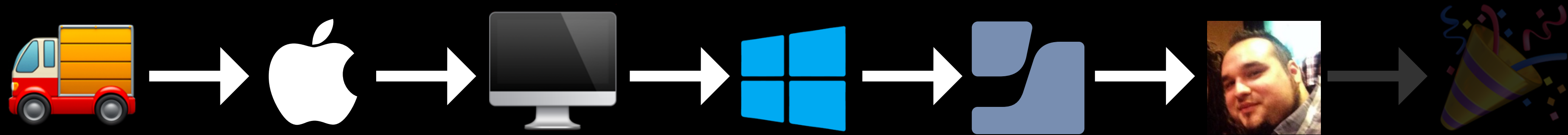
Tillbaka



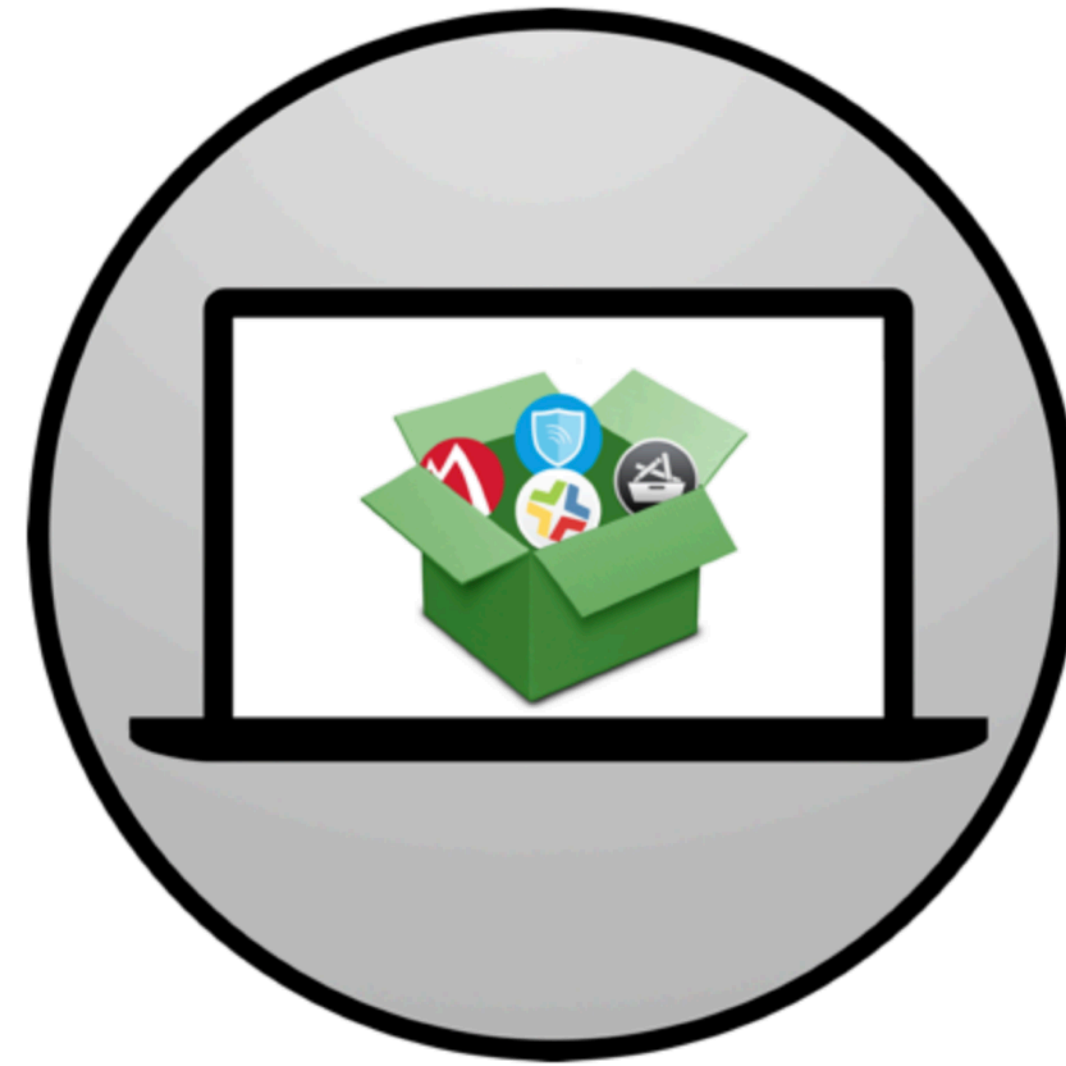
Fortsätt



- Jamf Agent installs
- enrolls
- and on Eduroam:
 - Wi-Fi goes down
 - Wi-Fi goes back up again
 - Jamf PI-004144



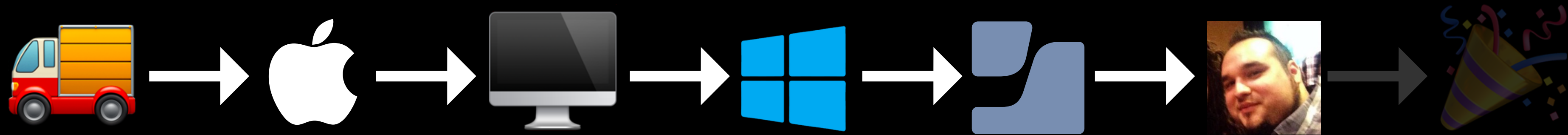
InstallApplications



InstallApplications is an alternative to tools like [PlanB](#) where you can dynamically download packages for use with `InstallApplication`. This is useful for DEP bootstraps, allowing you to have a significantly reduced initial package that can easily be updated without repackaging your initial package.

MDMs that support Custom DEP

- AirWatch
- FileWave (please contact them for instructions)
- MicroMDM
- SimpleMDM



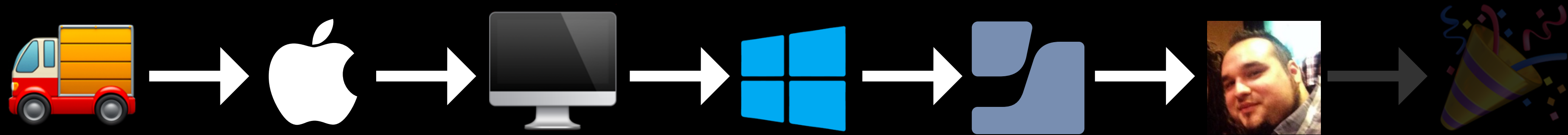
Onboarding app



Munki

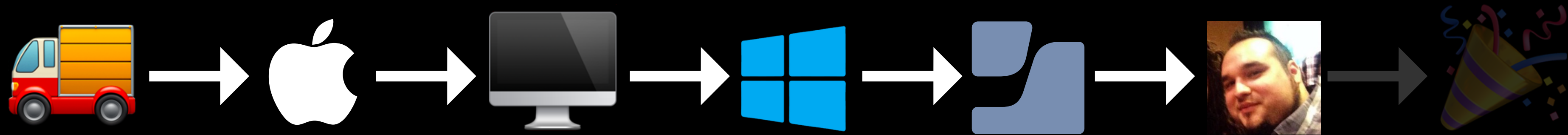


bootstrap script



bootstrap script

```
echo "Installing high priority packages"
/usr/local/munki/managedsoftwareupdate --id=gda_dep --auto --munkipkgsonly
echo "Installing base packages"
/usr/local/munki/managedsoftwareupdate --auto --munkipkgsonly
echo "Installing low priority packages packages"
/usr/local/munki/managedsoftwareupdate --set-bootstrap-mode
/usr/local/munki/managedsoftwareupdate --auto
```

Apple

GDA OnBoard

Fönster

Hjälp

📶

🖥️

🔋

tis 14:34

Per Olofsson

🔍

☰



DIGITAL ARBETSPLATS

IT-enheten

031-786 2020

support@gu.se

Ställ in din Mac

✓

Konto: [REDACTED]

✓

Bravo svarar

✓

Datornamn: [REDACTED]

✓

Stöldskyddsetikett: [REDACTED]

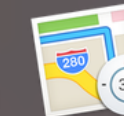
✓

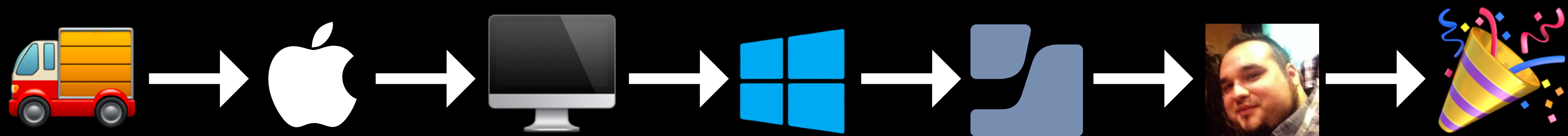
Avdelning: [REDACTED]

✓

Komponenter installerade

Nästa





Minimalist MDM

- DEP
- UAKEL & TCC
- Traditional tools do everything else

Minimalist MDM

- Begrudgingly implement the changes?
- Or go all in?

macOS Catalina

- Supervision
- Activation Lock
- ~~fdsetup~~ 🖐️
- ~~profiles~~ 🖐️

A wide-angle photograph of a rugged coastline at sunset. A large, steep mountain with patches of green vegetation and exposed rock faces dominates the center. The sea is dark blue on the left and transitions to a deep red/pink on the right, reflecting the sunset. The sky is filled with soft, colorful clouds in shades of purple, pink, and blue. The text "Time to reevaluate again" is overlaid in white, sans-serif font across the middle of the image.

Time to reevaluate again