

Student Checkout Devices

Marriott Library Student Checkout Program IT Details



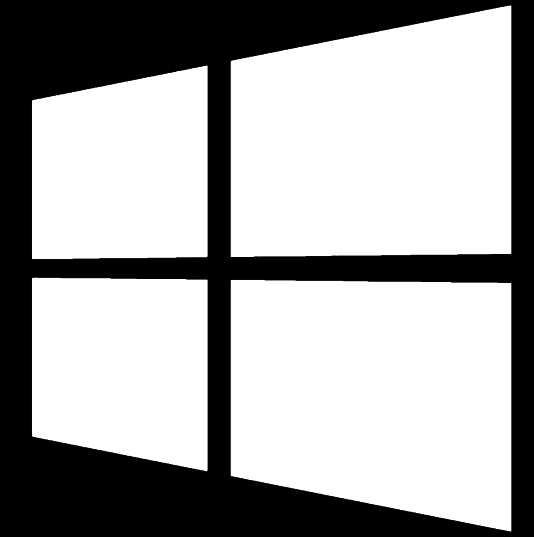
Hardware

Device Quantities & Specifications



Hardware

Device Quantities & Specifications

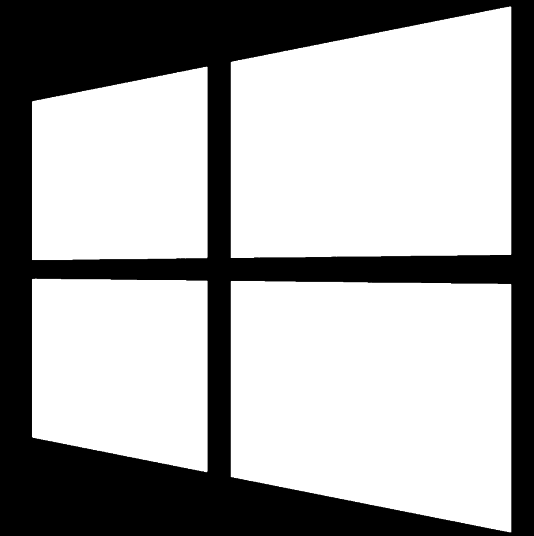


- Windows Laptops & Peripherals



Hardware

Device Quantities & Specifications



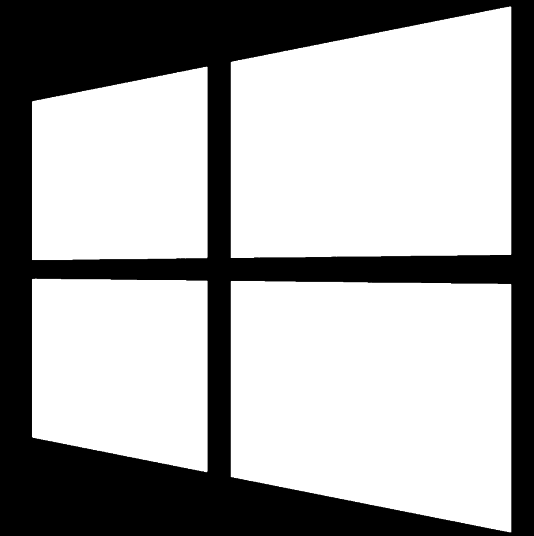
- Windows Laptops & Peripherals

Make	Model
Lenovo	ThinkPad T14s Gen 1
Lenovo	ThinkPad P52
Lenovo	ThinkPad P51
Lenovo	ThinkPad T480
Lenovo	ThinkPad T460
Lenovo	ThinkPad T450

744 TOTAL

Hardware

Device Quantities & Specifications



- Windows Laptops & Peripherals



Specifications

Lenovo ThinkPad T14s Gen 1

Storage: 512 GB SSD

Memory: 16GB DDR4 3200MHz Onboard

Processor: Intel Core i5 10210U

Display: 14.0 FHD(1920x1080) IPS Anti-Glare

Hardware

Device Quantities & Specifications



- macOS Laptops & Peripherals



Hardware

Device Quantities & Specifications



- macOS Laptops & Peripherals

Make	Model
Apple	MacBook Pro (13-inch, M1, 2020)
Apple	13-inch MacBook Pro (2020, Two Thunderbolt 3 ports)
Apple	13-inch MacBook Pro (2019, Two Thunderbolt 3 ports)
Apple	13-inch Retina MacBook Pro (Mid 2017)
Apple	13-inch MacBook Pro (Early 2015)

630 TOTAL

Hardware

Device Quantities & Specifications



- macOS Laptops & Peripherals



Specifications

MacBook Pro (13-inch, M1, 2020)

Storage: 256 GB SSD

Memory: 8GB DDR4 3200MHz Onboard

Processor: M1 8-core CPU

Display: 13.3-inch (diagonal) LED-backlit display

Hardware

Device Quantities & Specifications



- iOS Devices & Peripherals



Hardware

Device Quantities & Specifications



- iOS Devices

Make	Model
Apple	iPad Pro (11-inch Wi-Fi) (2nd Generation)
Apple	iPad Pro 11-inch (1st generation)
Apple	iPad 6th Generation (Wi-Fi)

100 TOTAL

Hardware

Device Quantities & Specifications



- iOS Devices Specifications



Specifications

iPad Pro 11-inch (2nd generation)

Storage: 128 GB

Processor: A12Z Bionic chip with 64-bit architecture

Display: 11-inch (diagonal) LED-backlit

Ports: USB-C

https://support.apple.com/kb/SP814?viewlocale=en_US&locale=en_US

Hardware

Device Quantities & Specifications



- iOS Peripherals

Quantity	Make	Model
10	Apple	Magic Keyboard for 11-inch iPad Pro (2nd generation)
70	Logitech	Slim Folio Pro Keyboard Case for iPad Pro 11-inch
6	Apple	Smart Keyboard Folio for 11-inch iPad Pro
80	Apple	Apple Pencil (2nd Generation)
6	Apple	Apple Pencil (1st Generation)

Hardware

Device Quantities & Specifications



- iOS Peripherals Specifications



Specifications

Magic Keyboard for 11-inch iPad Pro (2nd generation)

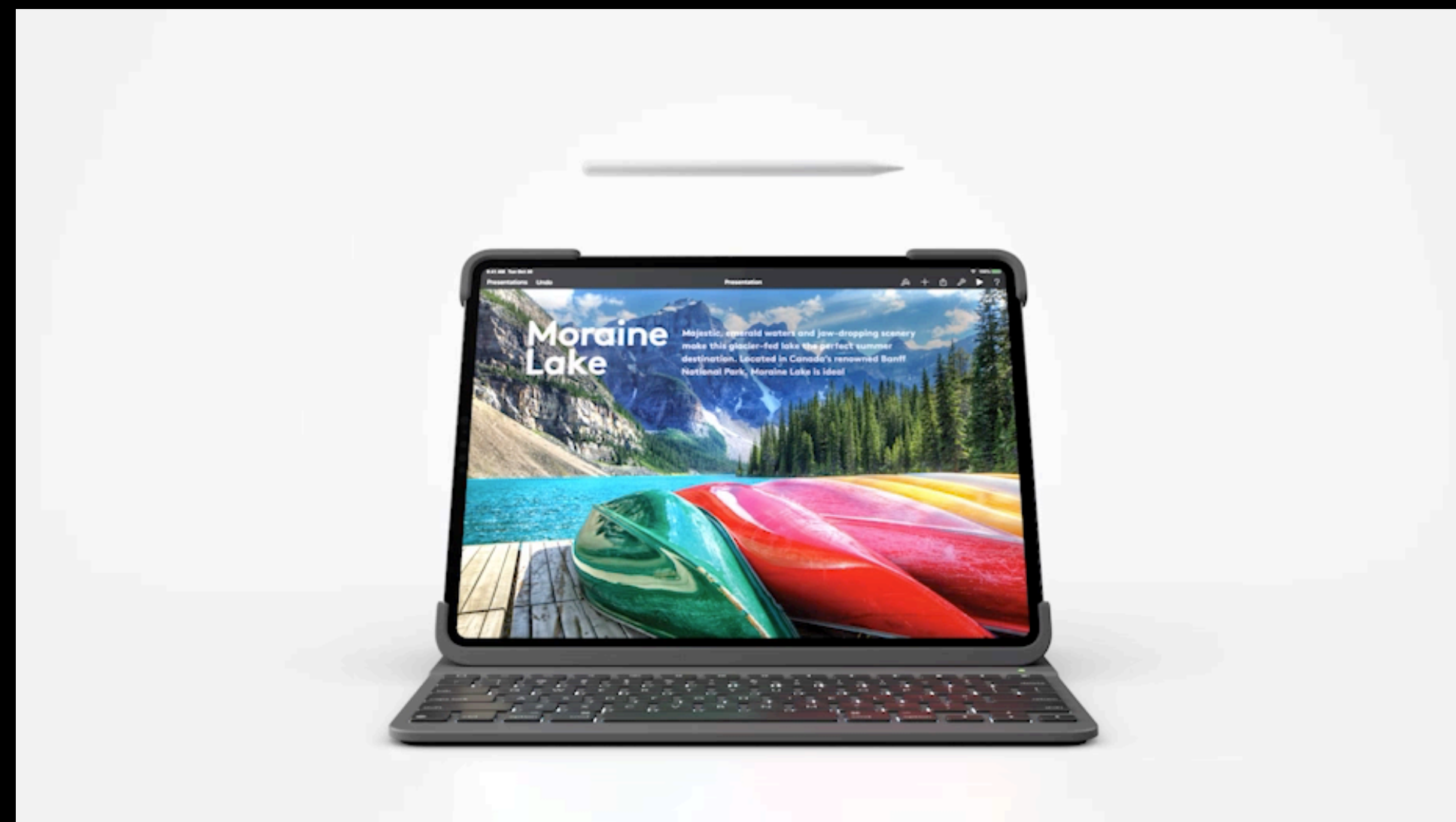
https://support.apple.com/kb/SP814?viewlocale=en_US&locale=en_US

Hardware

Device Quantities & Specifications



- iOS Peripherals Specifications



Specifications

Slim Folio Pro Keyboard Case for iPad Pro 11-inch

<https://www.logitech.com/en-us/products/ipad-keyboards/slim-folio-pro.html>

Hardware

Device Quantities & Specifications



- Google Chrome Devices & Peripherals



Hardware

Device Quantities & Specifications



- Google Chrome Devices & Peripherals

Make	Model
Acer	Chromebook 14 CB3-431-C99D
Acer	Chromebook 13 C810-T9CA

12 TOTAL

Inventory

Inventory Process & Details



Inventory

Inventory Process & Details

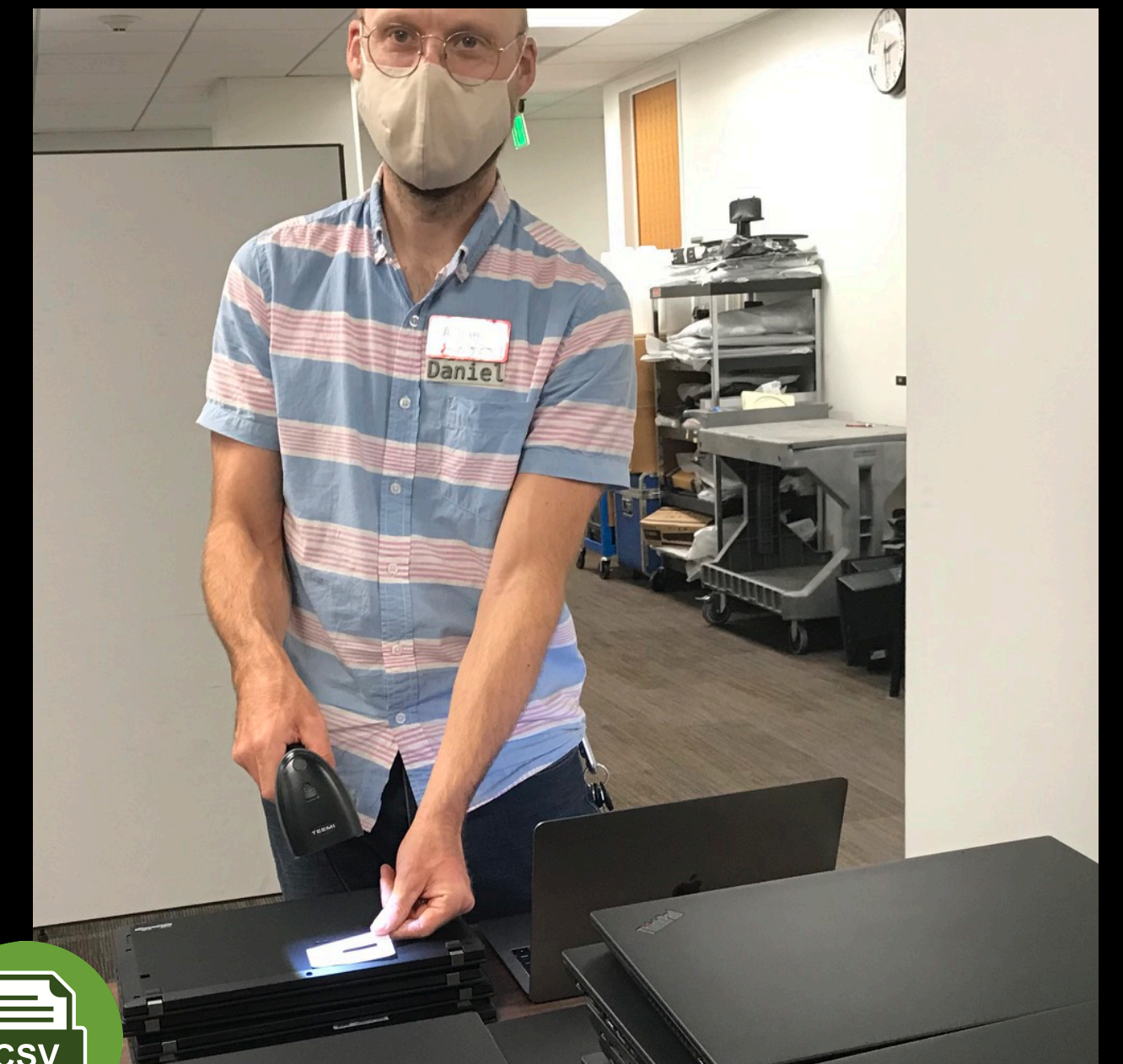
- Inventory Tags
 - Physically Attach Inventory Tags to each Device
 - Device Name
 - U of U Property
 - Library
 - CARES Act



Inventory

Inventory Process & Details

- Batch Input
 - Input & Scan Tags into Excel Spreadsheets
 - Added to “Alma” Library Services Platform
 - Used to implement library checkout of devices
 - Large Batches of Devices Added via CSV File
 - Smaller Batches Manually Added



Inventory

Inventory Process & Details

The screenshot displays the Alma library system interface. At the top, there's a navigation bar with 'Physical items' and 'Keywords' dropdowns, a search icon, and utility icons. A sidebar on the left contains navigation options: Alma, Acquisitions, Resources, Fulfillment, Admin, and Analytics. The main content area shows a search for 'Windows laptop.' with a 'View all holdings' link. Below this, a table lists inventory items with columns for Barcode, Library, Location, Description, Temporary Location, Status, and Process type. The table shows items #131 through #136, all of which are Lenovo ThinkPad T14s laptops located at 'Level 2: Knowledge Commons Desk C' in the 'Marriott Library'. Most items are marked as 'Item not in place' with a 'Loan' process type, while item #135 is 'Item in place'.

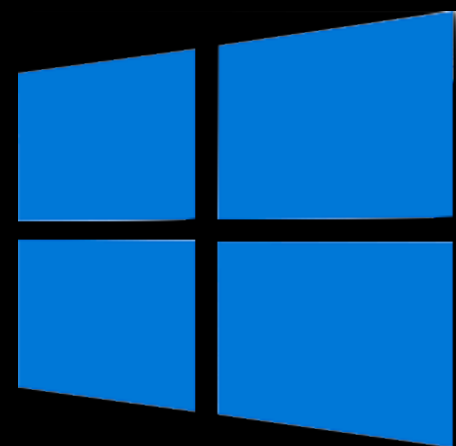
	Barcode	Library	Location	Description	Temporary Location	Status	Process type
101	31114043263765	Marriott Library	Level 2: Knowledge Commons Desk C	#131 Lenovo ThinkPad T14s	No	Item not in place	Loan
102	31114043263724	Marriott Library	Level 2: Knowledge Commons Desk C	#132 Lenovo ThinkPad T14s	No	Item not in place	Loan
103	31114043263716	Marriott Library	Level 2: Knowledge Commons Desk C	#133 Lenovo ThinkPad T14s	No	Item not in place	Loan
104	31114043263708	Marriott Library	Level 2: Knowledge Commons Desk C	#134 Lenovo ThinkPad T14s	No	Item not in place	Loan
105	31114043263690	Marriott Library	Level 2: Knowledge Commons Desk C	#135 Lenovo ThinkPad T14s	No	Item in place	-
106	31114043264623	Marriott Library	Level 2: Knowledge Commons Desk C	#136 Lenovo ThinkPad T14s	No	Item not in place	Loan
107	31114043264631	Marriott	Level 2: Knowledge Commons Desk C	o ThinkPad T14s	No	Item not in place	Loan

Inventory

Inventory Process & Details



- Asset Management
 - Use Jamf Pro for Device Hardware Inventory
 - Implemented it Prior to Microsoft Endpoint Configuration Manager (aka SCCM)
 - Supports macOS, Windows, iOS, iPadOS Devices

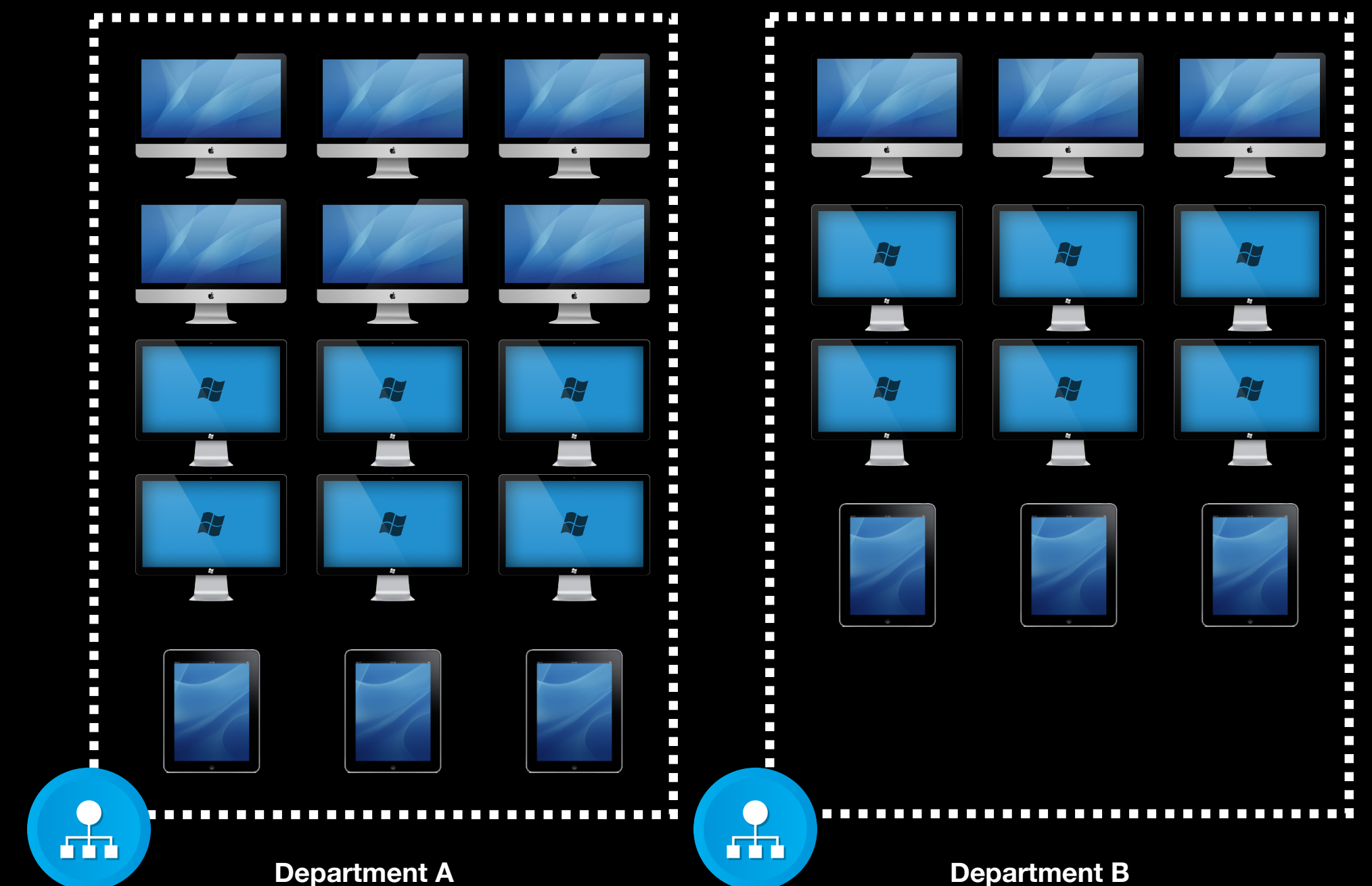


iPadOS

Inventory

Inventory Process & Details

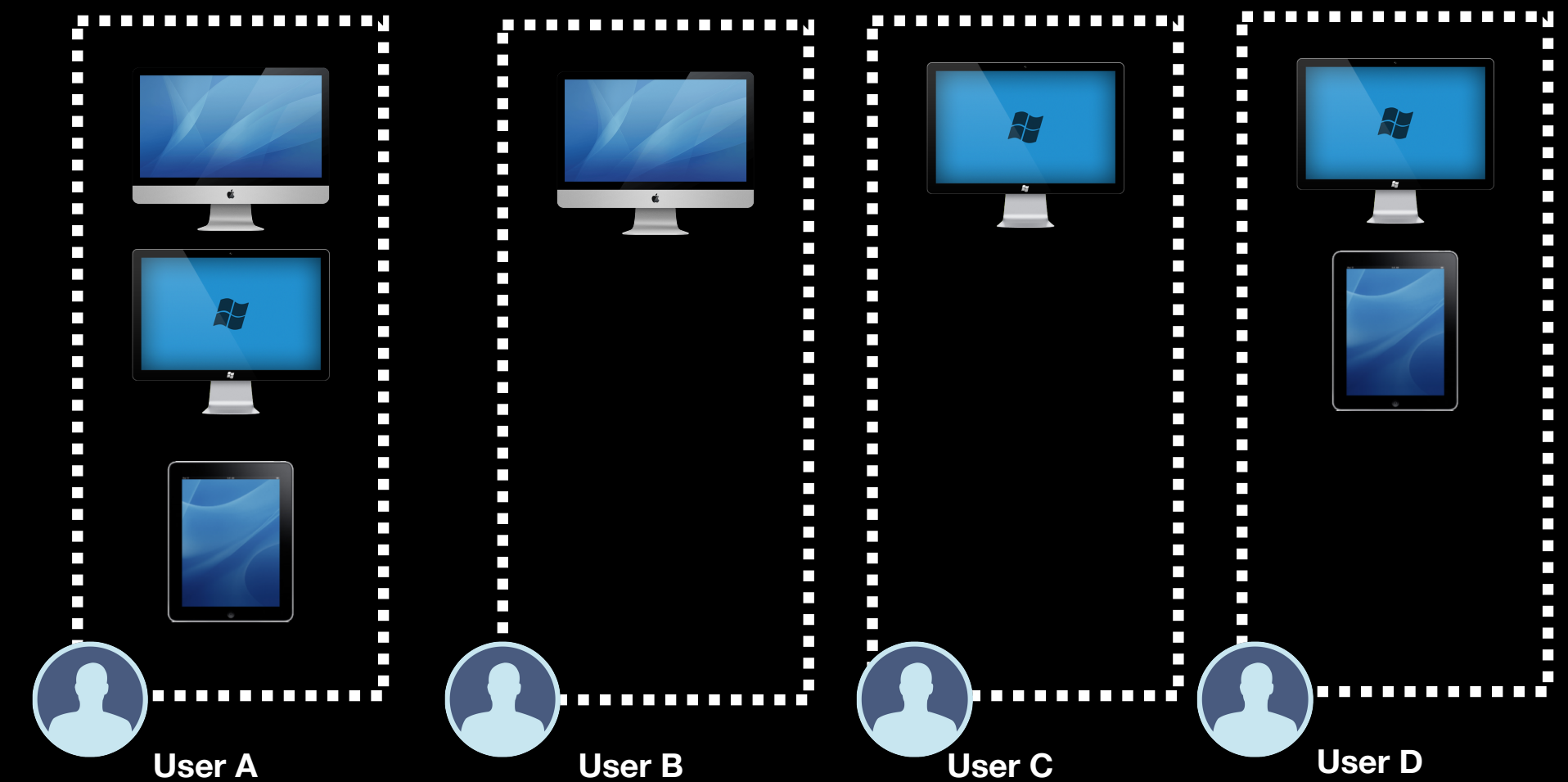
- Provides overview organizational client landscape
 - Number of Devices per Department/Group



Inventory

Inventory Process & Details

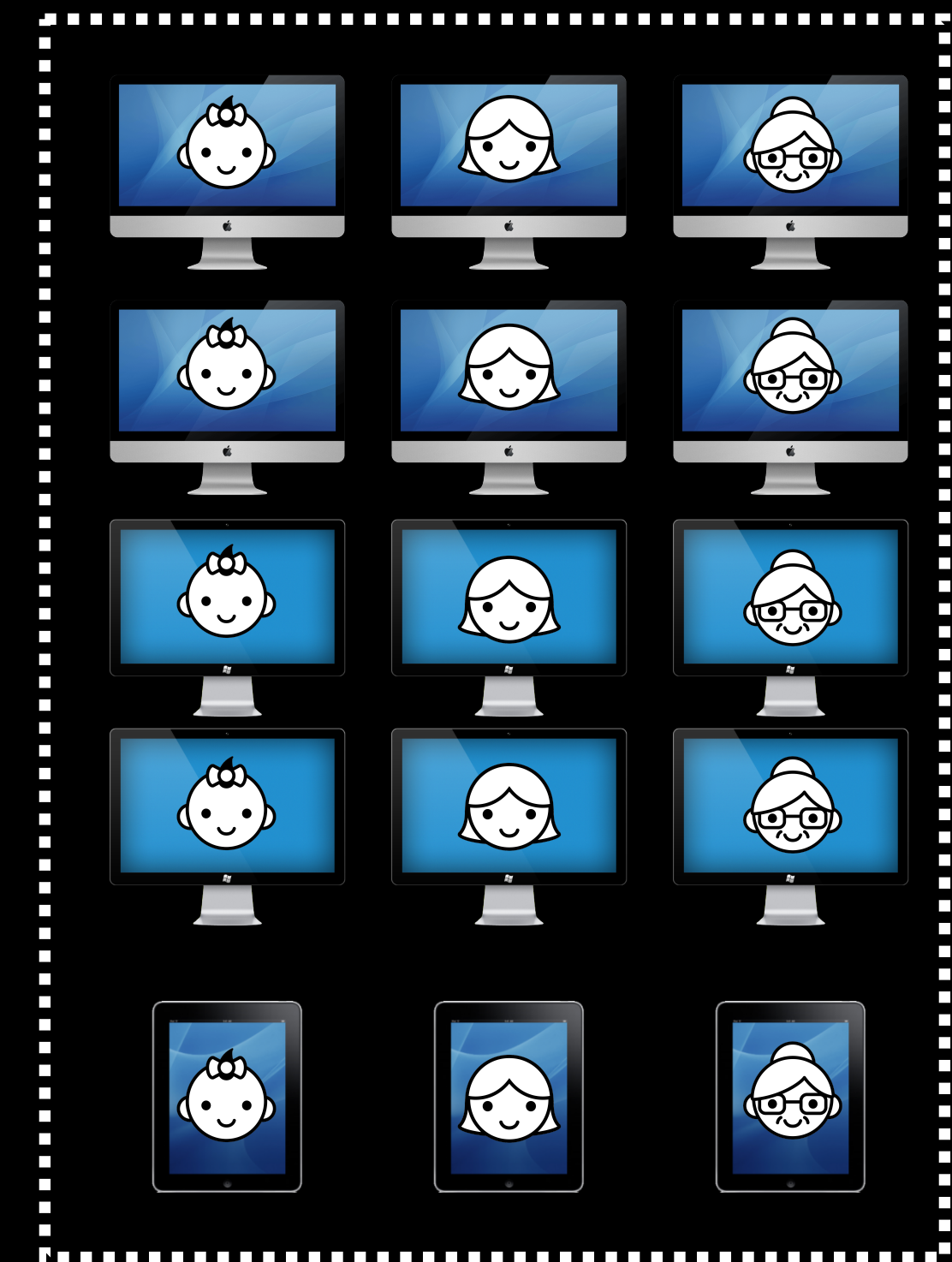
- Provides overview organizational client landscape
 - Number of Devices per Department/Group
 - Number of Devices per User



Inventory

Inventory Process & Details

- Provides overview organizational client landscape
 - Number of Devices per Department/Group
 - Number of Devices per User
 - Estimate of Device Age
Programmatically Calculated & Updated



Age - New to Old

https://github.com/univ-of-utah-marriott-library-apple/scl_jamf_extension_attribute_collection#estimated-age

Inventory

Inventory Process & Details

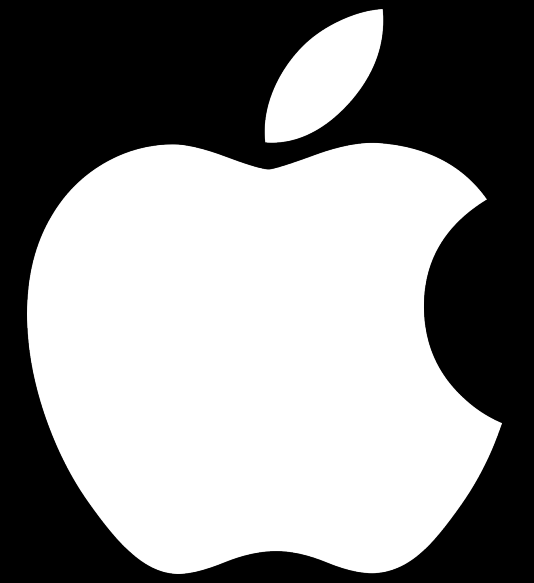
- Provides overview organizational client landscape
 - Number of Devices per Department/Group
 - Number of Devices per User
 - Estimate of Device Age
Programmatically Calculated & Updated
 - Device Usage/Priority
Primary, secondary, service, etc



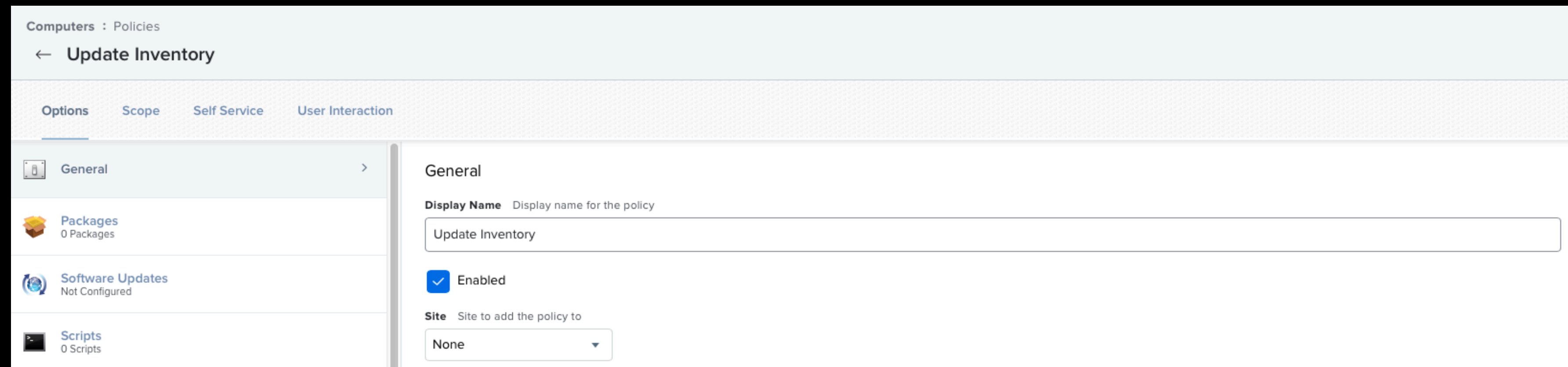
Usage & Priority

Inventory

Inventory Process & Details - Initial & Schedule Update

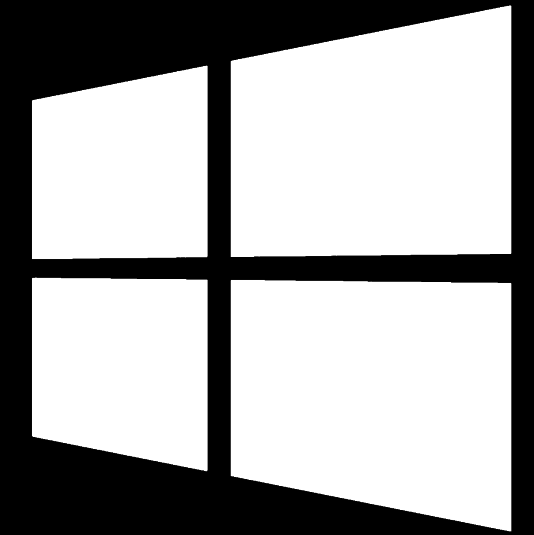


- Initial Inventory Records on “Jamf Pro” Server via Onboarding
 - During Onboarding Process Initial Inventory Built with Device Enrollment
 - Apple Devices use Jamf Pro’s Update Inventory Policy



Inventory

Inventory Process & Details - Initial & Schedule Update



- Initial Inventory Records on “Jamf Pro” Server via Onboarding
 - On Windows Devices we Developed a Python Script called Recce
 - Its open source and available from our GitHub Repository here:

<https://github.com/univ-of-utah-marriott-library-apple/recce>

Recce

Early on we decided to use [JAMF](#) to track our PC's as well manage our MacOS and iOS devices. We continued using recon.exe after it was deprecated, but as the writing was on the wall (and the release notes), another solution would be needed. I leveraged the experience I gained from writing [Tugboat](#) and [Cargo Ship](#) to develop Recce, a recon.exe replacement.

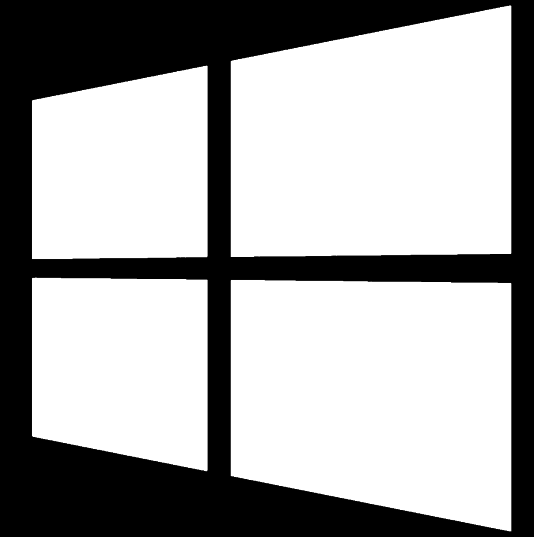
Recce duplicates much of the original recon.exe binary and uses JAMF's REST API to upload the inventory information. Using JAMF's API is a safe and reliable way to read and write data to your JAMF instance.

You can learn how to pronounce "recce" and learn more about the project [here](#).

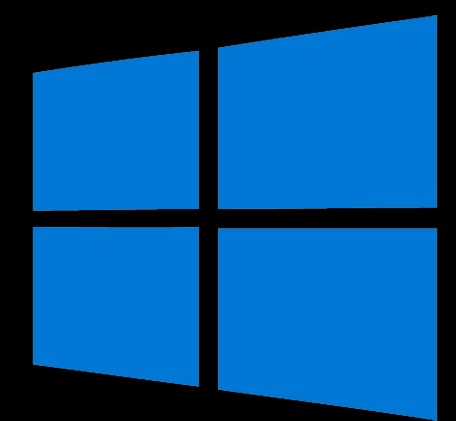
Inventory

Inventory Process & Details

- Recce uses Jamf Classic API to Upload Inventory Information
 - Version 1.0 does not support:
 - Applications
 - Users
 - Fonts
 - Compiled Version can be used like any Other Binary
 - Part of a schedule job
 - Windows GUI as Launch-able Application



Windows 7



Windows10

Inventory

Inventory Process & Details



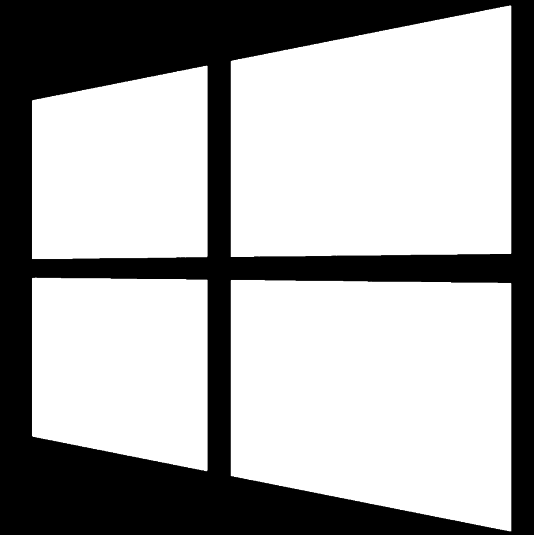
- Batch Update Records on “Jamf Pro” Server via CSV File
 - Apple Devices use Jamf Pro’s Inventory Preload Option



- Need a Jamf Pro user account with privileges for Inventory Preload Records

Inventory

Inventory Process & Details



- Batch Update Records on “Jamf Pro” Server via CSV File
 - Windows Devices use our [auto-tugboat](#) python script
 - Interacts with Jamf Pro using Classic API & Updates Hardware Records

```
#!/usr/bin/python

# insert imports
import csv
import socket
import urllib2
import xml.etree.cElementTree as ET
import base64
import json
import subprocess
import pexpect
import MySQLdb
import re
import datetime
import time
import string

class Computer:
    def __init__(self, id):
        self.identifier = id
```



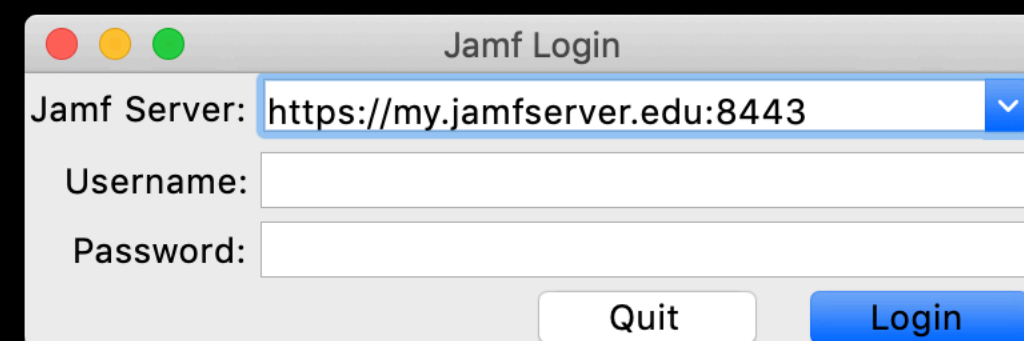
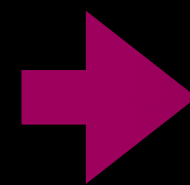
Inventory

Inventory Process & Details

- Modify & Add Additional Data to Hardware Inventory
 - This is a cross-platform python application for inventory audits & updates
 - Uses tkinter to provide GUI front-end for python



Tugboat



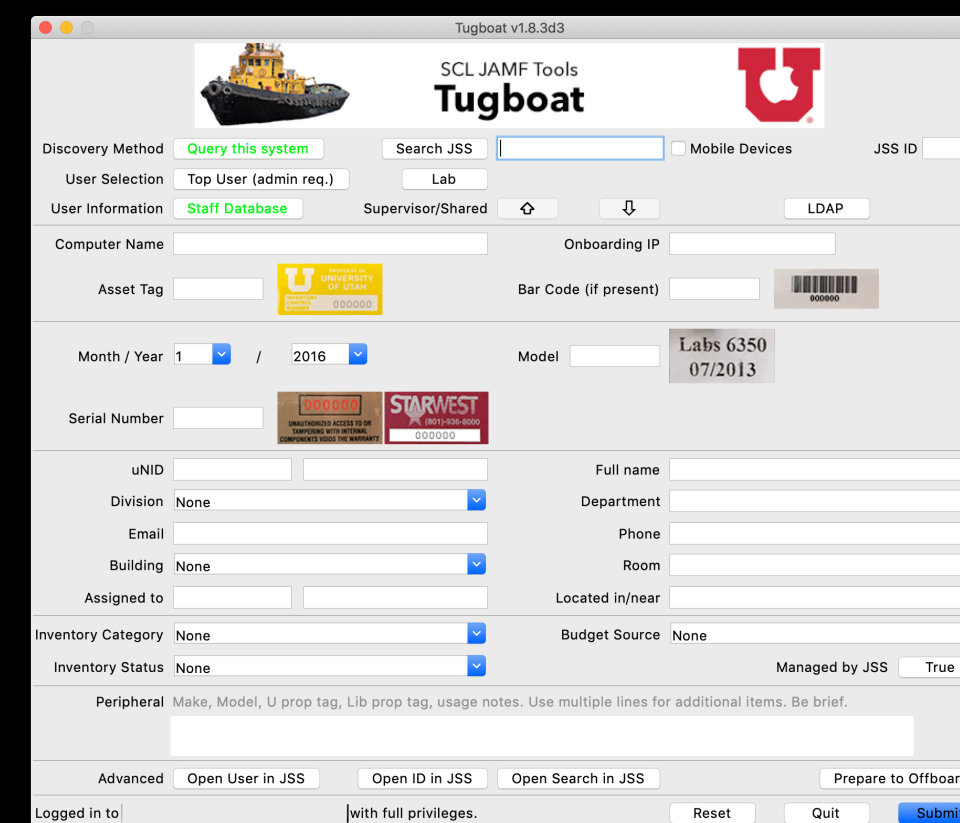
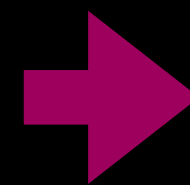
Jamf Login

Jamf Server:

Username:

Password:

Jamf Server Login



Tugboat v1.8.3d3

SCL JAMF Tools
Tugboat

Discovery Method: Search JSS: Mobile Devices: JSS ID:

User Selection: Lab:

User Information: Supervisor/Shared: LDAP:

Computer Name: Onboarding IP:

Asset Tag: Bar Code (if present):

Month / Year: 1 / 2016 Model: Labs 6350 07/2013

Serial Number:

uNID: Full name:

Division: None Department:

Email: Phone:

Building: None Room:

Assigned to: Located in/near:

Inventory Category: None Budget Source: None Managed by JSS:

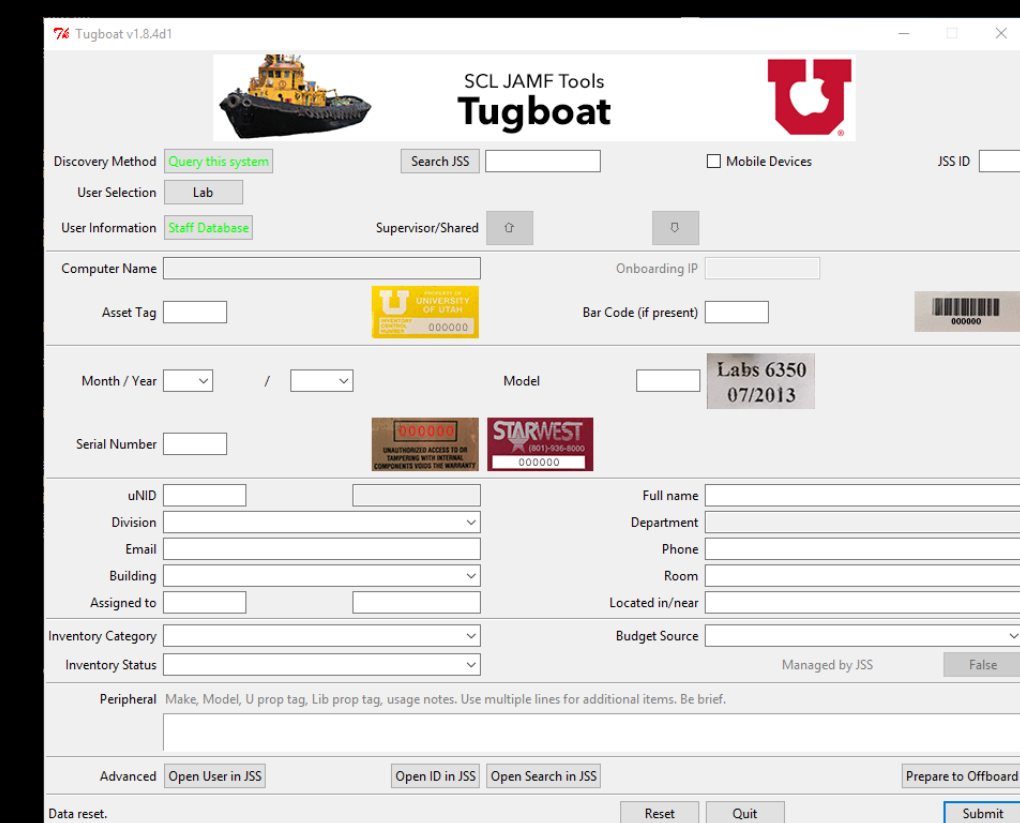
Inventory Status: None

Peripheral: Make, Model, U prop tag, Lib prop tag, usage notes. Use multiple lines for additional items. Be brief.

Advanced:

Logged in to: with full privileges.

macOS Version



Tugboat v1.8.4d1

SCL JAMF Tools
Tugboat

Discovery Method: Search JSS: Mobile Devices: JSS ID:

User Selection: Lab:

User Information: Supervisor/Shared: LDAP:

Computer Name: Onboarding IP:

Asset Tag: Bar Code (if present):

Month / Year: / Model: Labs 6350 07/2013

Serial Number:

uNID: Full name:

Division: Department:

Email: Phone:

Building: Room:

Assigned to: Located in/near:

Inventory Category: Budget Source: Managed by JSS:

Inventory Status:

Peripheral: Make, Model, U prop tag, Lib prop tag, usage notes. Use multiple lines for additional items. Be brief.

Advanced:

Data reset.

Windows Version

Inventory

Inventory Process & Details

Lookup Staff Info
Using
Marriott Library
Internal Staff Database

Tugboat v1.8.6



SCL JAMF Tools
Tugboat

Discovery Method Search JSS Mobile Devices JSS ID


User Selection

User Information Supervisor/Shared

Computer Name Onboarding IP

Asset Tag  Bar Code (if present) 

Month / Year / Model Labs 6350
07/2013

Serial Number 

uNID Full name

Division Department

Email Phone

Building Room

Assigned to assigned name Located in/near

Site

Inventory Category Budget Source

Inventory Status Managed by JSS True

Peripheral

Advanced

Data reset.

Inventory

Inventory Process & Details

Navigate Up or Down
Organizational
Structure

Tugboat v1.8.6



SCL JAMF Tools
Tugboat

Discovery Method [Query this system](#) Search JSS Mobile Devices JSS ID


User Selection [Top User \(admin req.\)](#) [Lab](#)

User Information [Staff Database](#) [Supervisor/Shared](#) [LDAP](#)

Computer Name Onboarding IP

Asset Tag  Bar Code (if present) 

Month / Year / Model **Labs 6350**
07/2013

Serial Number 

uNID Full name

Division Department

Email Phone

Building Room

Assigned to assigned name Located in/near

Site

Inventory Category Budget Source

Inventory Status Managed by JSS True

Peripheral Make, Model, U prop tag, Lib prop tag, usage notes. Use multiple lines for additional items. Be brief.

Advanced [Open User in JSS](#) [Open ID in JSS](#) [Open Search in JSS](#) [Prepare to Offboard](#)

Data reset.

Inventory

Inventory Process & Details

Lookup User Info
Using
Campus LDAP

Tugboat v1.8.6



SCL JAMF Tools
Tugboat

Discovery Method Search JSS Mobile Devices JSS ID


User Selection

User Information Supervisor/Shared

Computer Name Onboarding IP

Asset Tag  Bar Code (if present) 

Month / Year / Model Labs 6350
07/2013

Serial Number 

uNID Full name

Division Department

Email Phone

Building Room

Assigned to assigned unid assigned name Located in/near

Site

Inventory Category Budget Source

Inventory Status Managed by JSS True

Peripheral

Advanced

Data reset.

Inventory

Inventory Process & Details

Device Name & Tag Info

Tugboat v1.8.6



SCL JAMF Tools
Tugboat

Discovery Method **Query this system** Search JSS Mobile Devices JSS ID


User Selection **Top User (admin req.)** Lab

User Information **Staff Database** Supervisor/Shared LDAP

Computer Name Onboarding IP

Asset Tag  Bar Code (if present) 

Month / Year / Model Labs 6350
07/2013

Serial Number 

uNID Full name

Division Department

Email Phone

Building Room

Assigned to assigned unid assigned name Located in/near

Site

Inventory Category Budget Source

Inventory Status Managed by JSS True

Peripheral Make, Model, U prop tag, Lib prop tag, usage notes. Use multiple lines for additional items. Be brief.

Advanced

Data reset.

Inventory

Inventory Process & Details

Tugboat v1.8.6



SCL JAMF Tools
Tugboat

Discovery Method [Query this system](#) Search JSS Mobile Devices JSS ID


User Selection [Top User \(admin req.\)](#) [Lab](#)

User Information [Staff Database](#) Supervisor/Shared [LDAP](#)

Computer Name Onboarding IP

Asset Tag  Bar Code (if present) 

Month / Year / Model Labs 6350
07/2013

Serial Number 

uNID Full name

Division Department

Email Phone

Building Room

Assigned to assigned unid assigned name Located in/near

Site None

Inventory Category Budget Source

Inventory Status Managed by JSS True

Peripheral Make, Model, U prop tag, Lib prop tag, usage notes. Use multiple lines for additional items. Be brief.

Advanced [Open User in JSS](#) [Open ID in JSS](#) [Open Search in JSS](#) [Prepare to Offboard](#)

Data reset.

Device User Info

Inventory

Inventory Process & Details

Tugboat v1.8.6

SCL JAMF Tools
Tugboat

Discovery Method [Query this system](#) Search JSS Mobile Devices JSS ID

User Selection [Top User \(admin req.\)](#) [Lab](#)

User Information [Staff Database](#) Supervisor/Shared [LDAP](#)

Computer Name Onboarding IP

Asset Tag Bar Code (if present)

Month / Year / Model Labs 6350 07/2013

Serial Number

uNID Full name

Division Department

Email Phone

Building Room

Assigned to assigned name Located in/near

Site

Inventory Category Budget Source

Inventory Status Managed by JSS True

Peripheral

Advanced

Data reset.

Inventory Assignments

Inventory Category

- None
- Primary System
- Secondary System
- Service System
- Shared/Part-Time System
- Supplementary

Inventory Status

- None
- Acknowledged Offline
- Current
- Departmental Transfer
- Development
- Guinea Pig
- Missing
- Salvage
- Staged
- Storage

Inventory Budget Source

- None
- External (Grant, etc)
- Labs
- Local (Departmental, etc)
- Staff

Inventory

Inventory Process & Details

Tugboat v1.8.6



SCL JAMF Tools
Tugboat

Discovery Method **Query this system** Search JSS Mobile Devices JSS ID


User Selection **Top User (admin req.)** Lab

User Information **Staff Database** Supervisor/Shared LDAP

Computer Name Onboarding IP

Asset Tag  Bar Code (if present) 

Month / Year / Model Labs 6350
07/2013

Serial Number 

uNID Full name

Division Department

Email Phone

Building Room

Assigned to assigned unid assigned name Located in/near

Site None

Inventory Category Budget Source

Inventory Status Managed by JSS True

Peripheral Make, Model, U prop tag, Lib prop tag, usage notes. Use multiple lines for additional items. Be brief.

Advanced

Data reset.

Offboard Device

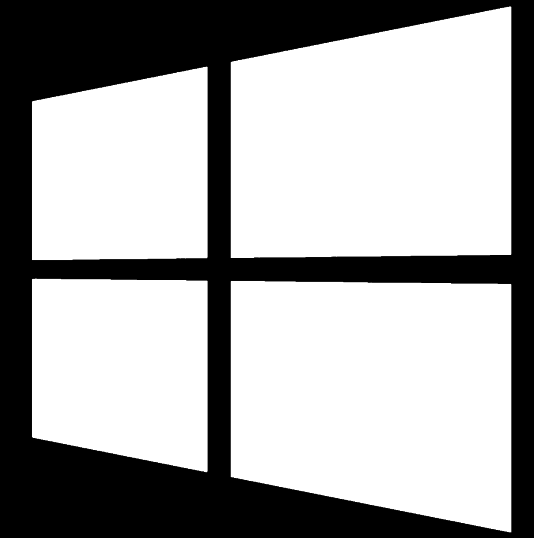
Onboarding

Onboarding Process & Details



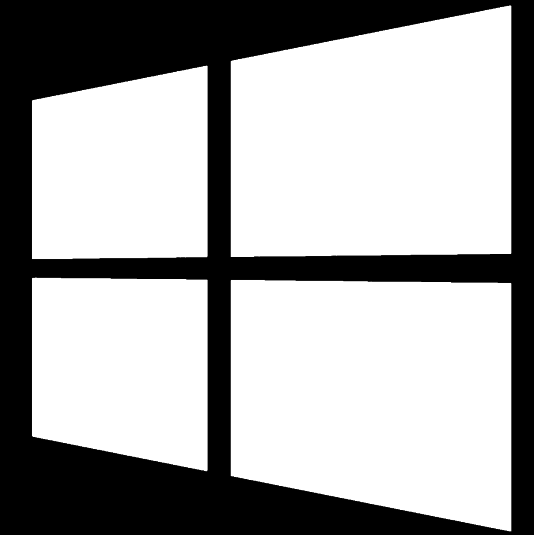
Onboarding

Onboarding Process & Details - Windows Laptops

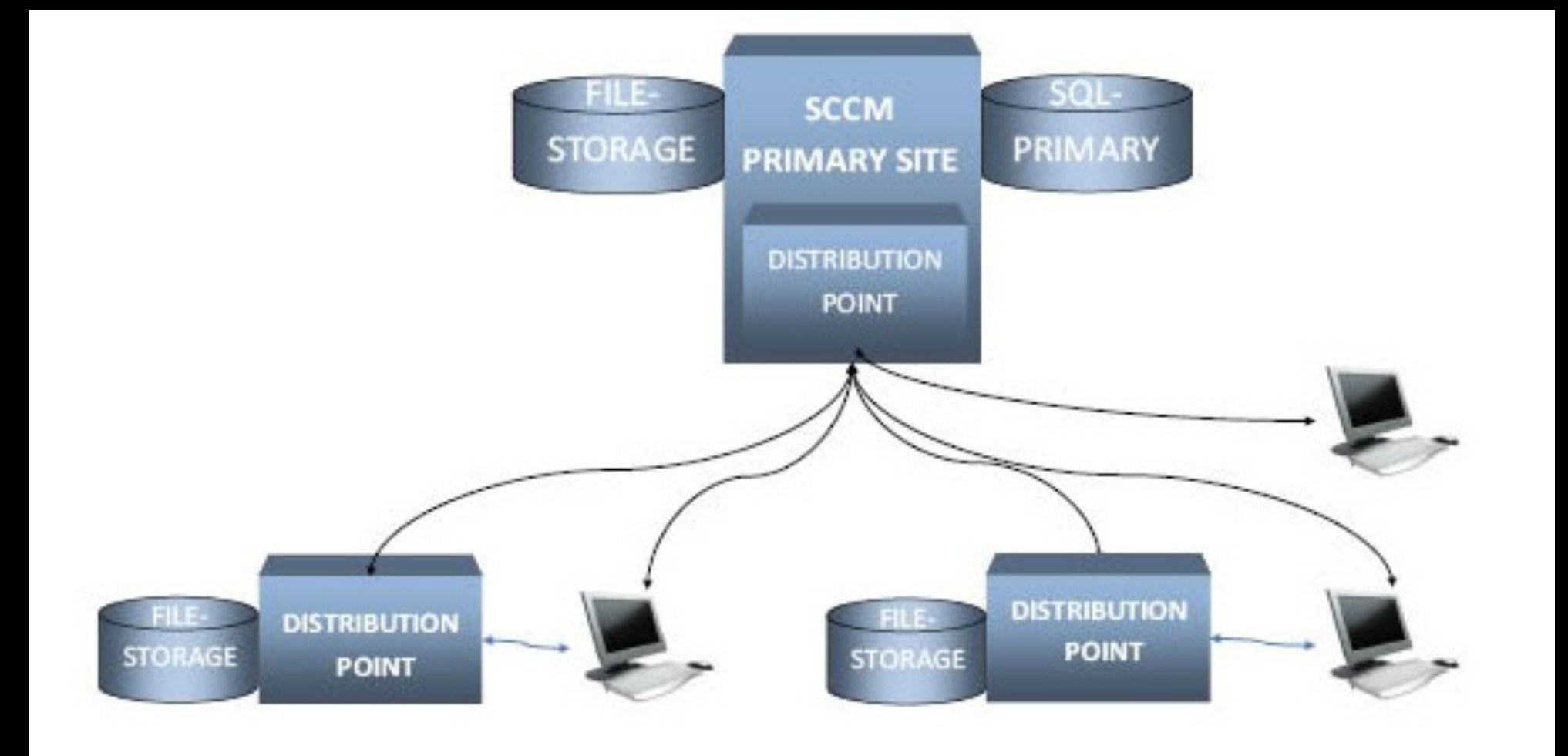


Onboarding

Onboarding Process & Details - Windows Laptops

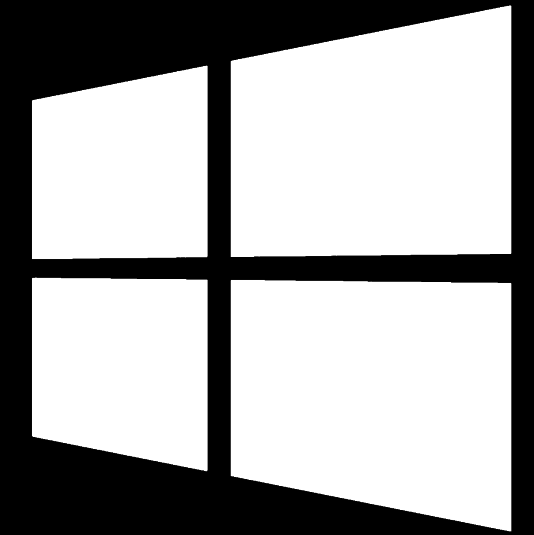


- Notable Components
 - Microsoft Endpoint Configuration Manager (formerly SCCM)
 - Primary Site Server, Management Point(s) and Distribution Point
 - Software Update Point Role - WSUS (backend)
 - OS Deployment Role - WDS (backend)
 - Other Components
 - Reporting, inventory, etc.

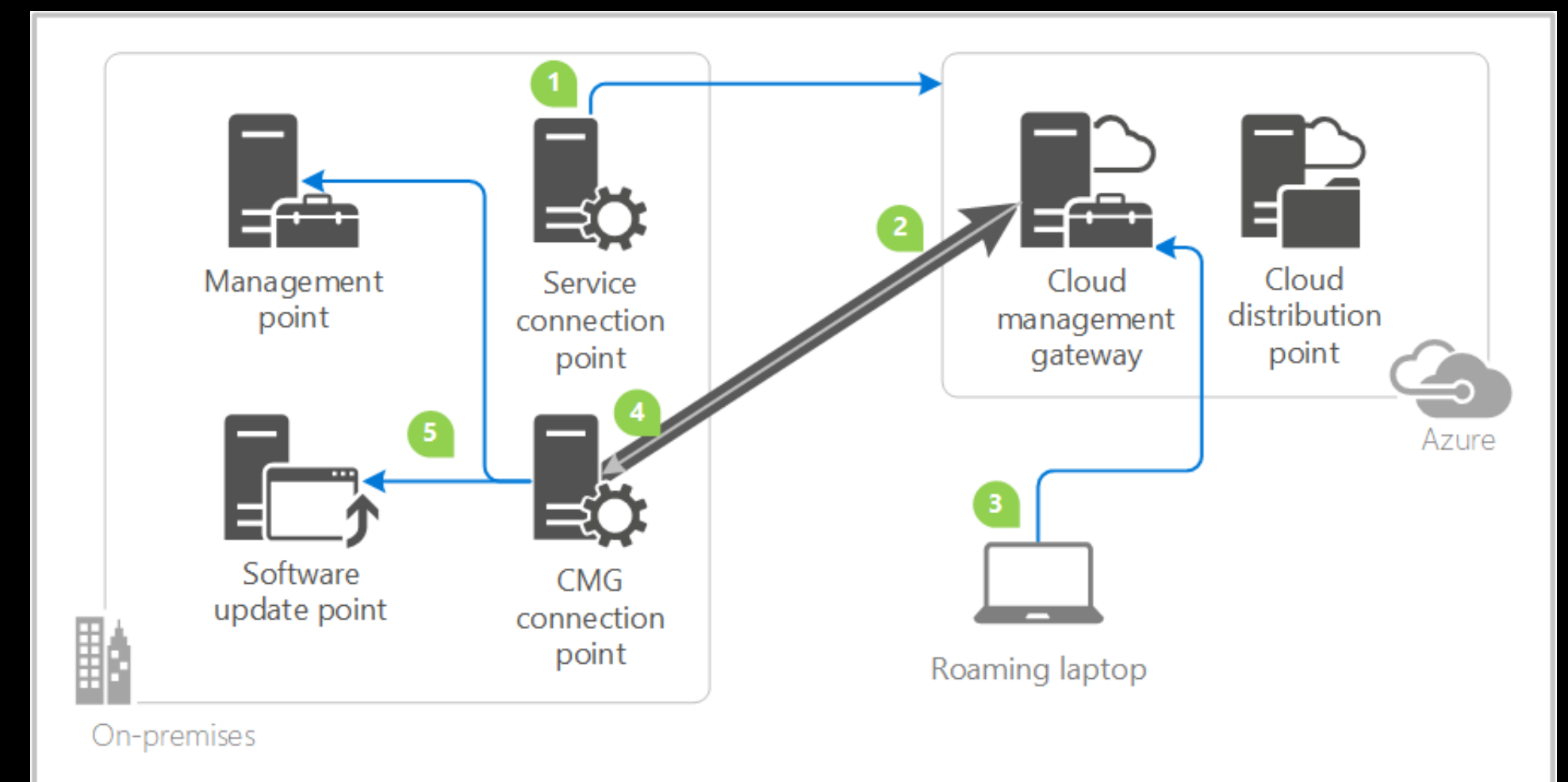


Onboarding

Onboarding Process & Details - Windows Laptops

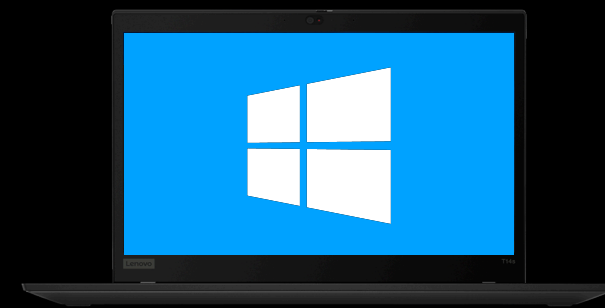
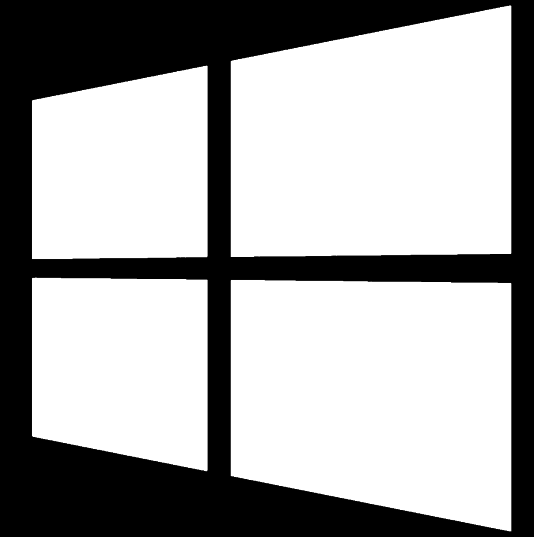


- Notable Components
 - Cloud Management Gateway
 - To address, security concerns with making on premise SCCM Available Off-Campus
 - Token Based Authentication
 - Setup a Cloud Management Gateway in Azure
 - Worked with UIT, to setup and support the service



Onboarding

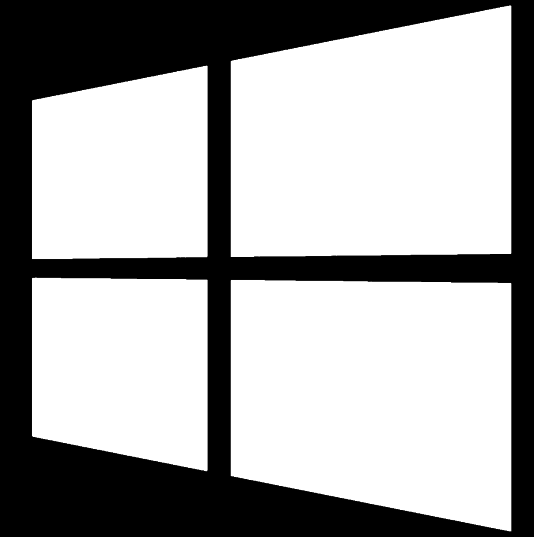
Onboarding Process & Details - Windows Workflow



Windows Laptop

Onboarding

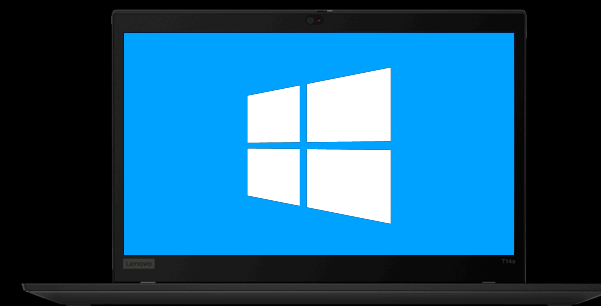
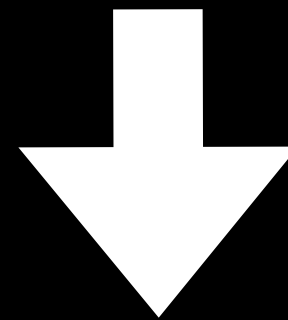
Onboarding Process & Details - Windows Workflow



Network & Power

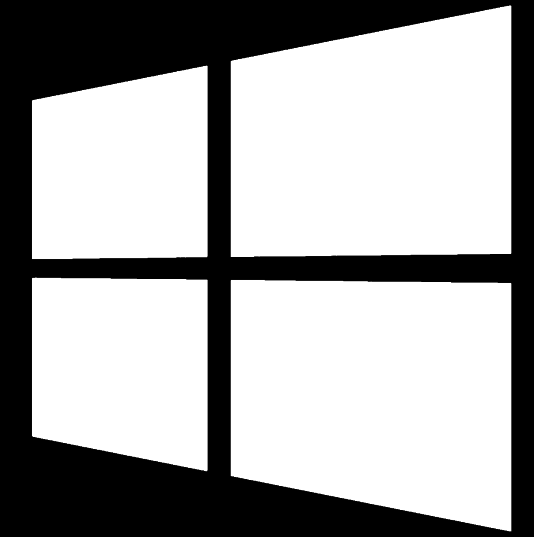


Step 1
Connect Ethernet
& Power



Onboarding

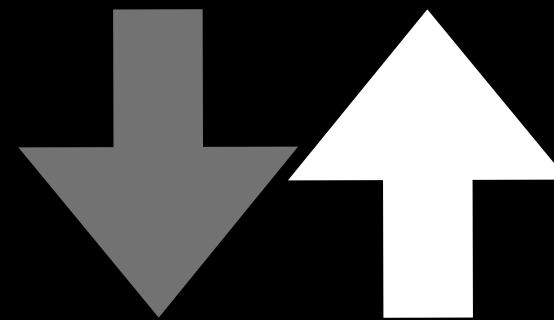
Onboarding Process & Details - Windows Workflow



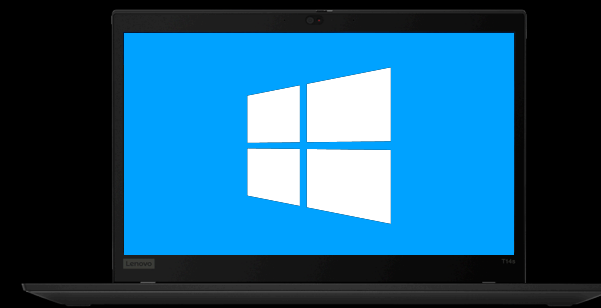
Network & Power



Step 1
Connect Ethernet
& Power

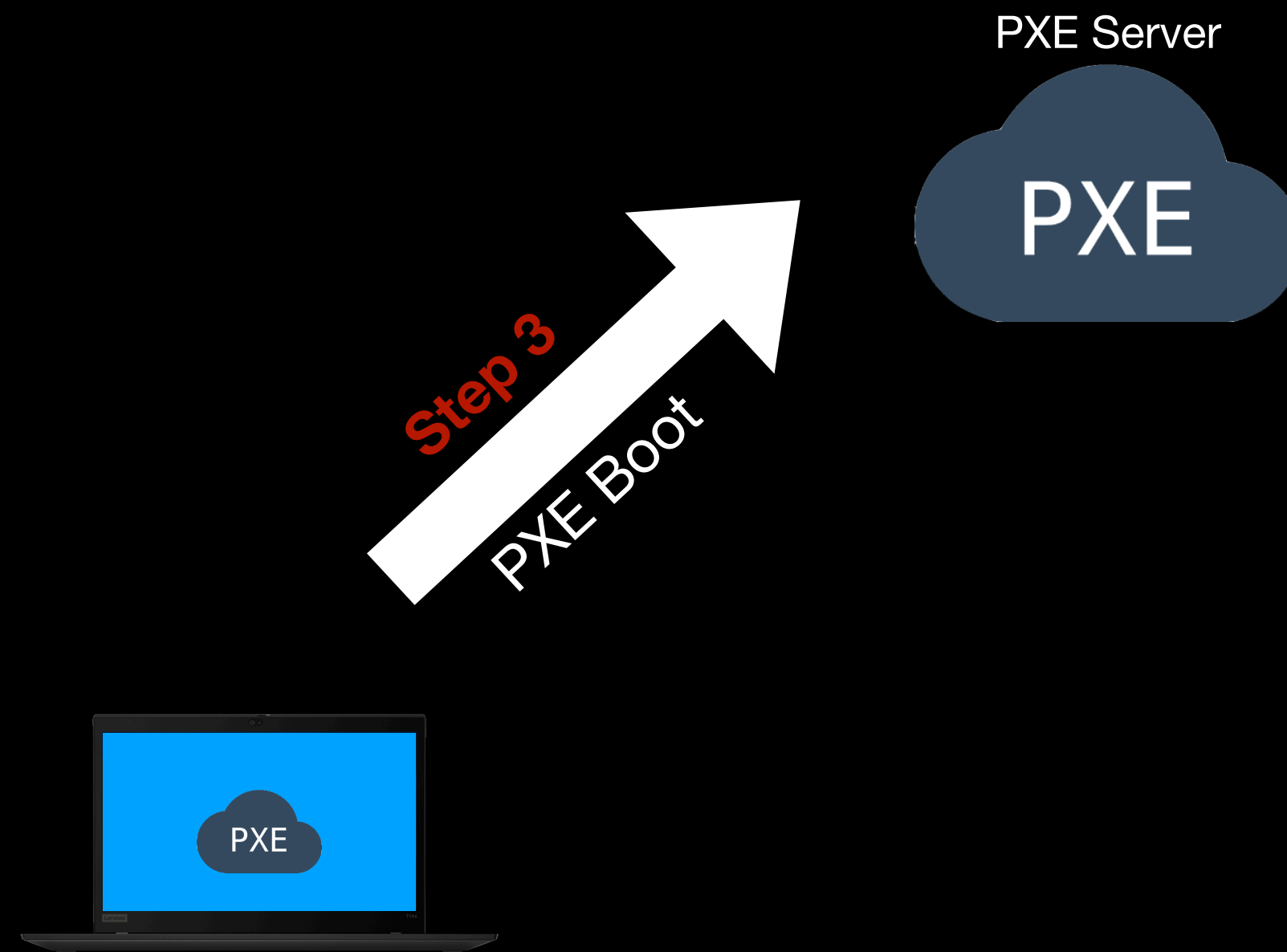
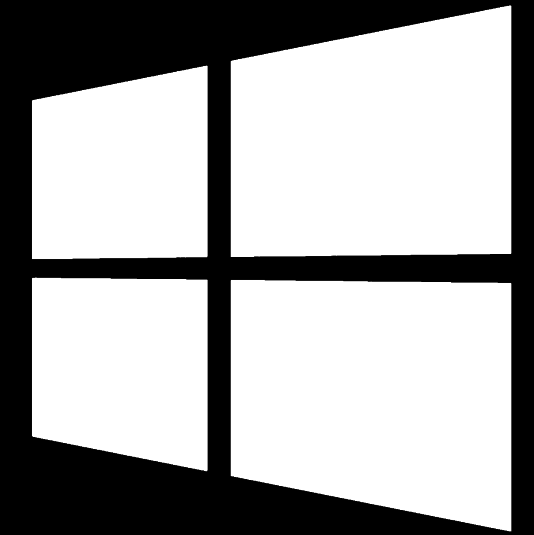


Step 2
Power On
Laptop



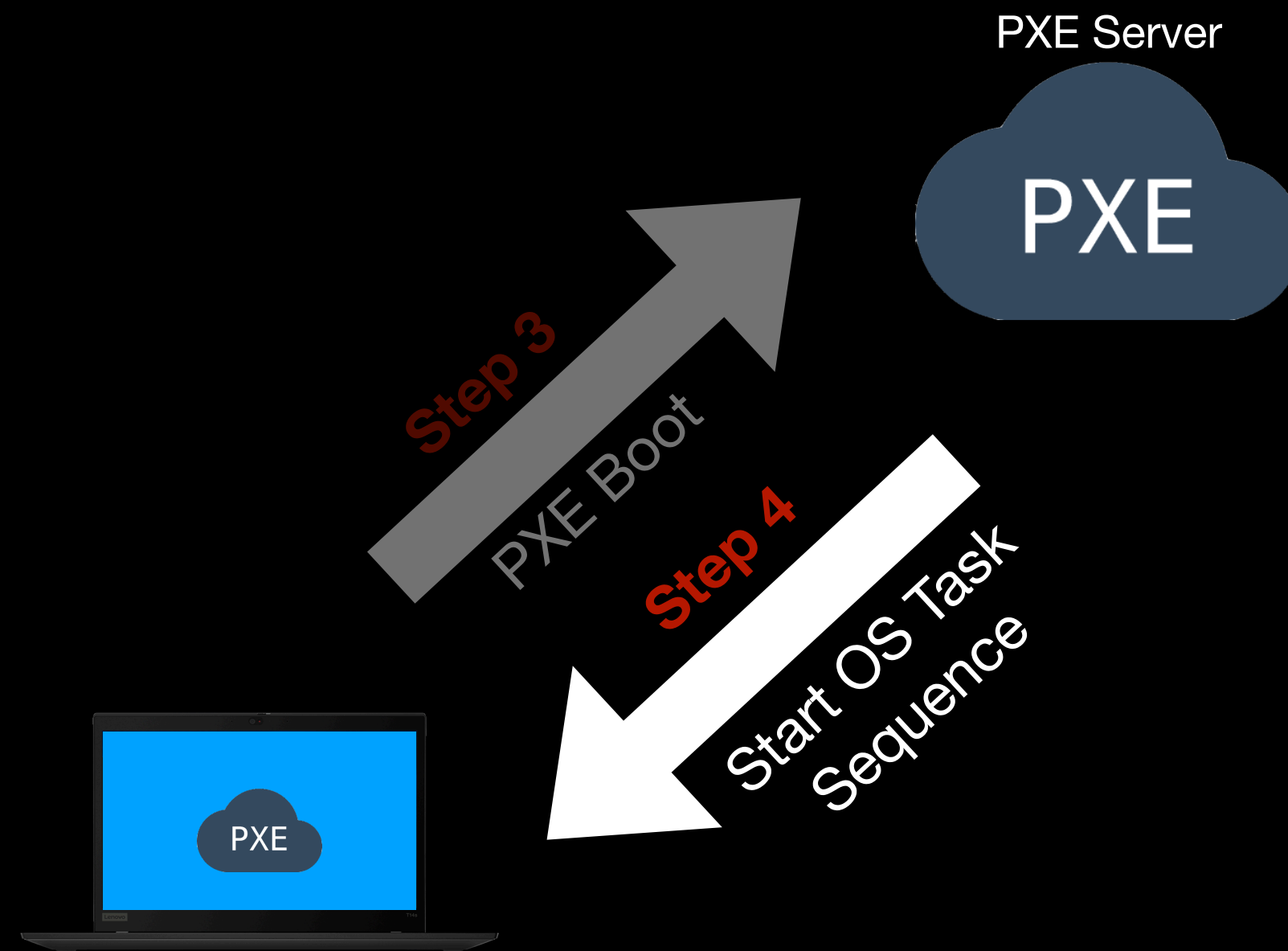
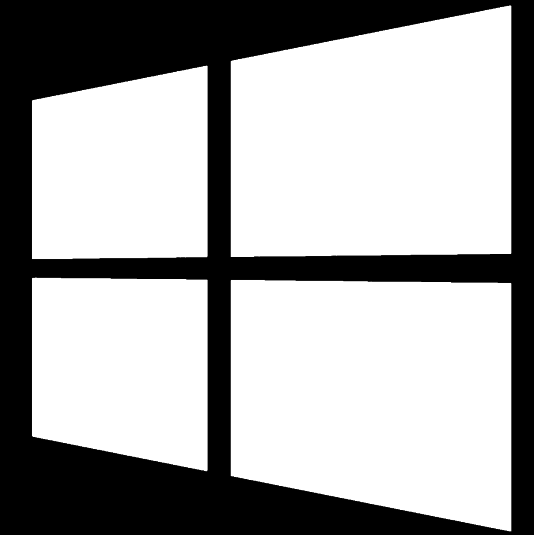
Onboarding

Onboarding Process & Details - Windows Workflow



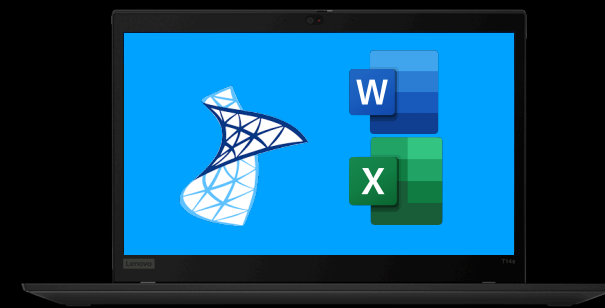
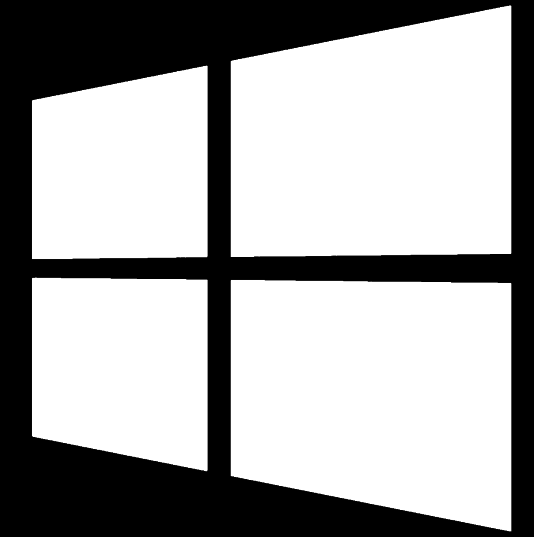
Onboarding

Onboarding Process & Details - Windows Workflow

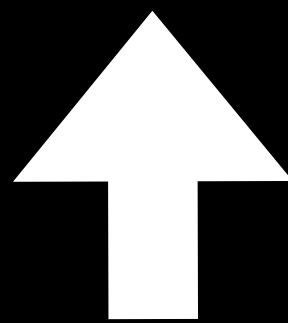


Onboarding

Onboarding Process & Details - Windows Workflow



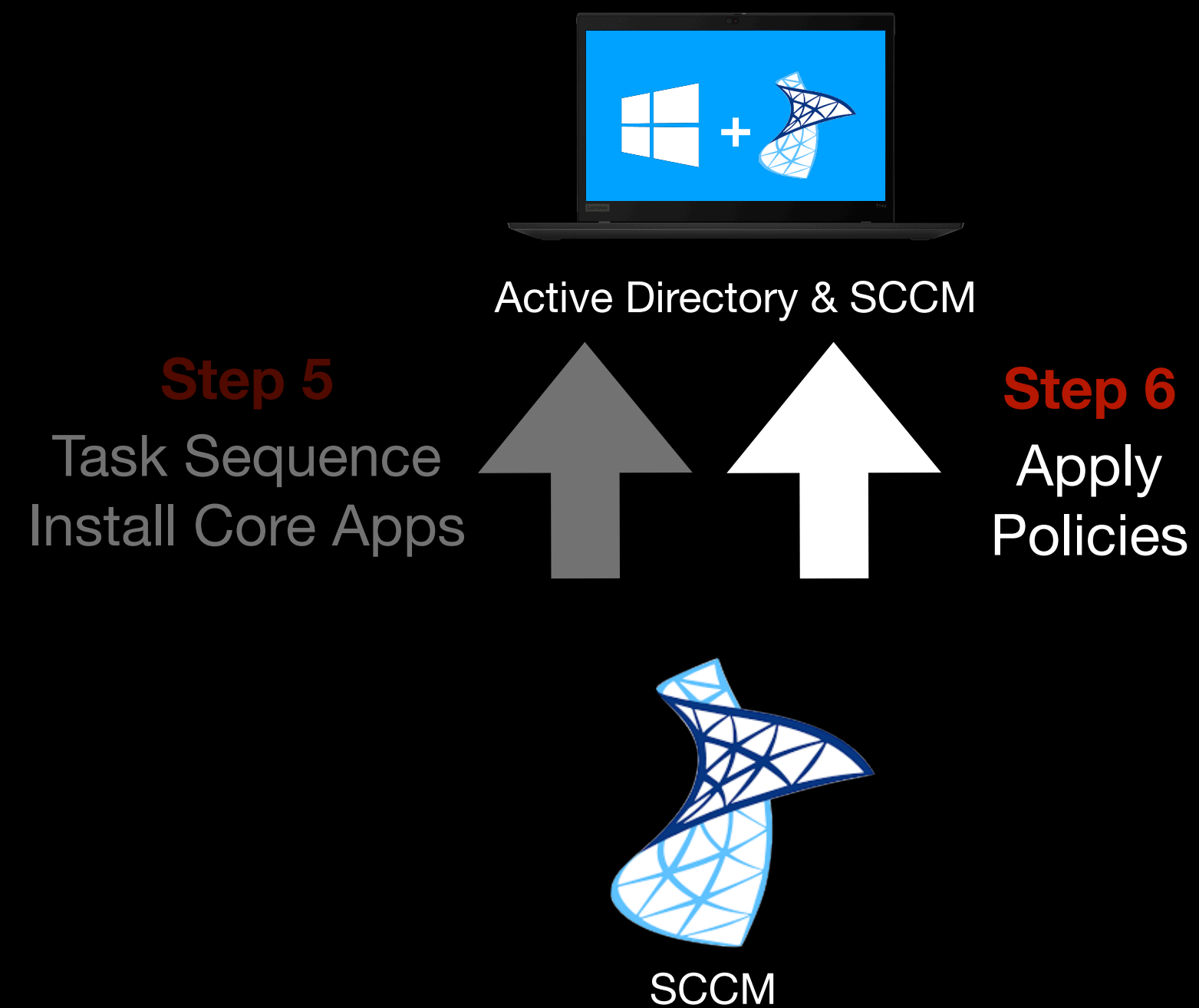
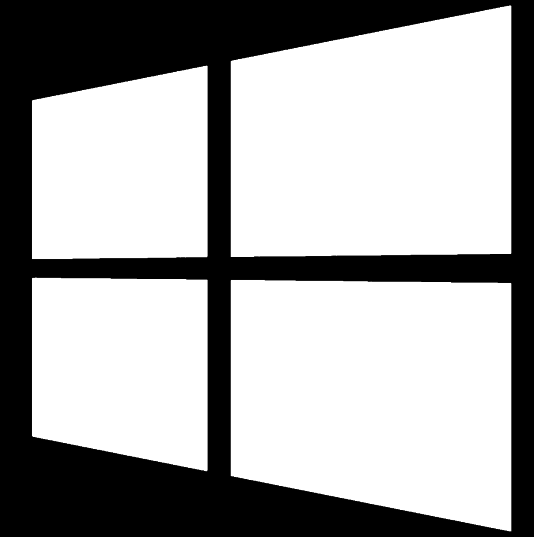
Step 5
Task Sequence
Install Core Apps



SCCM

Onboarding

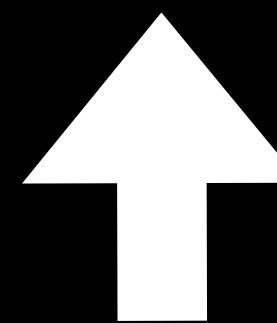
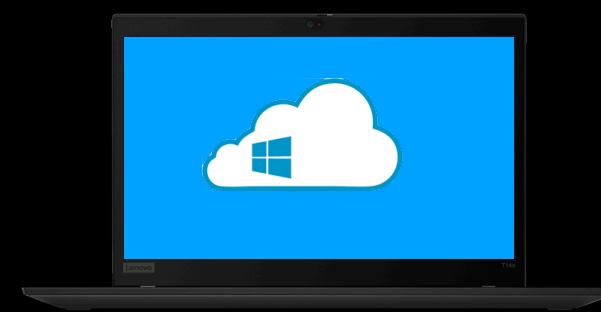
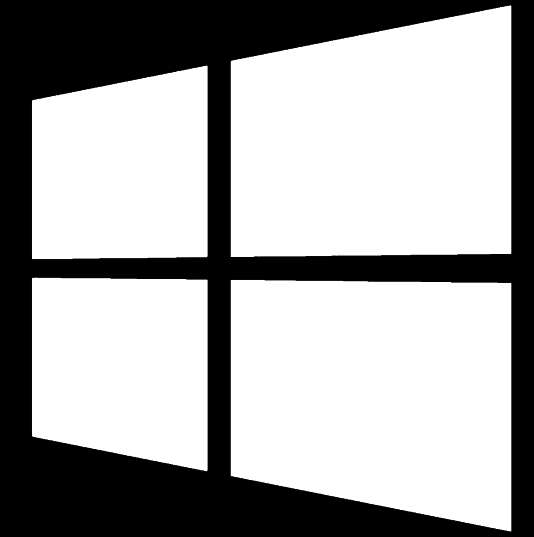
Onboarding Process & Details - Windows Workflow



Onboarding

Onboarding Process & Details - Windows Workflow

Cloud Management Gateway



Step 7
Cloud Mgmt
Gateway Trust
(establish)

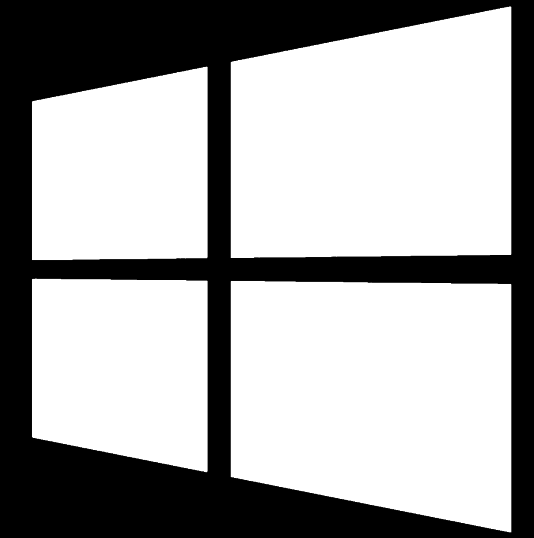


SCCM

Onboarding

Onboarding Process & Details - Windows Workflow

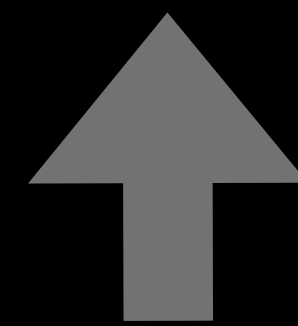
Cloud Management Gateway



Step 8
Create Token



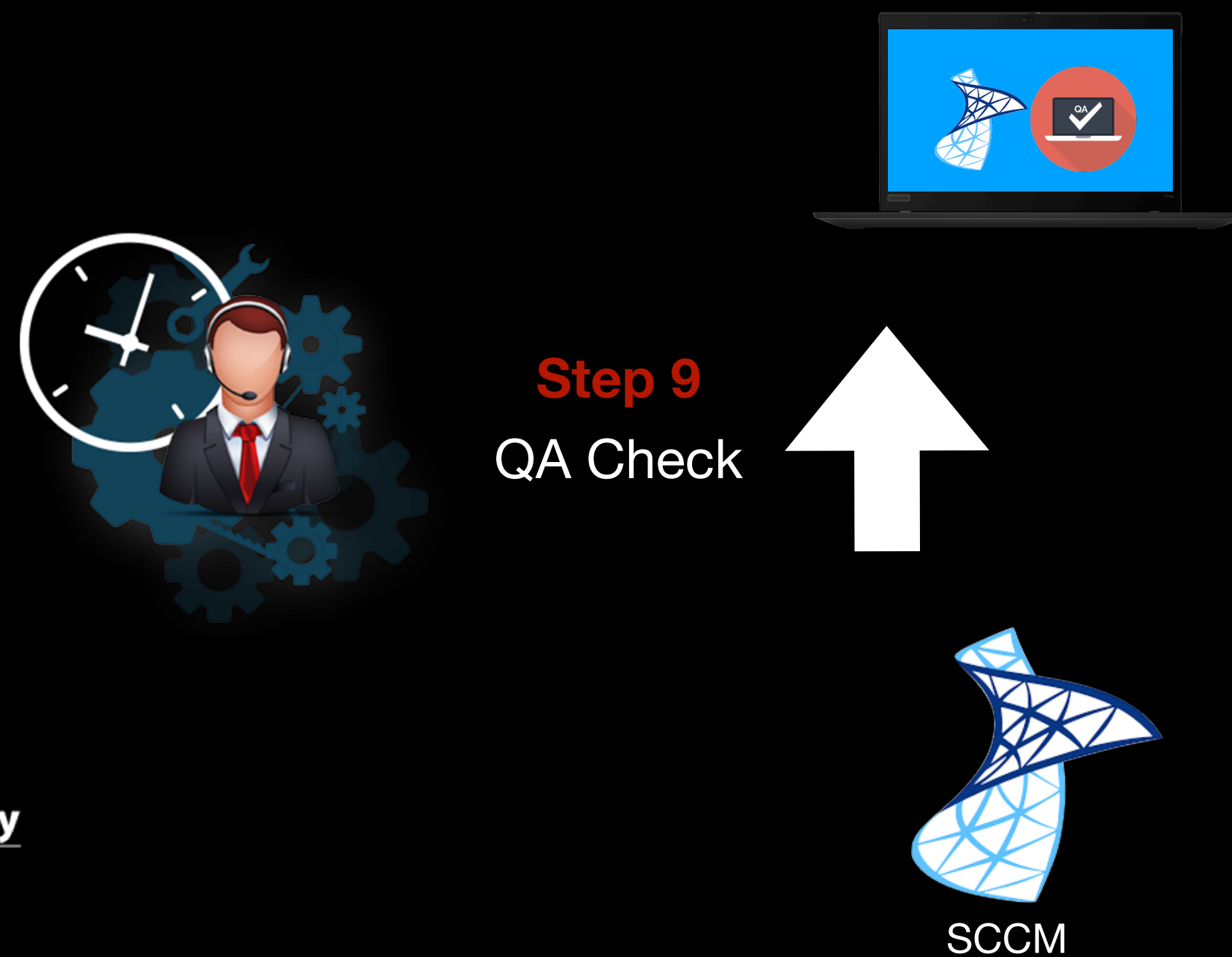
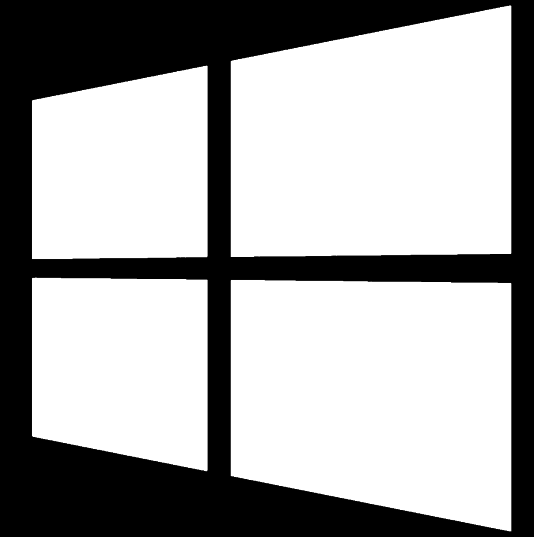
Step 7
Cloud Mgmt
Gateway Trust
(establish)



SCCM

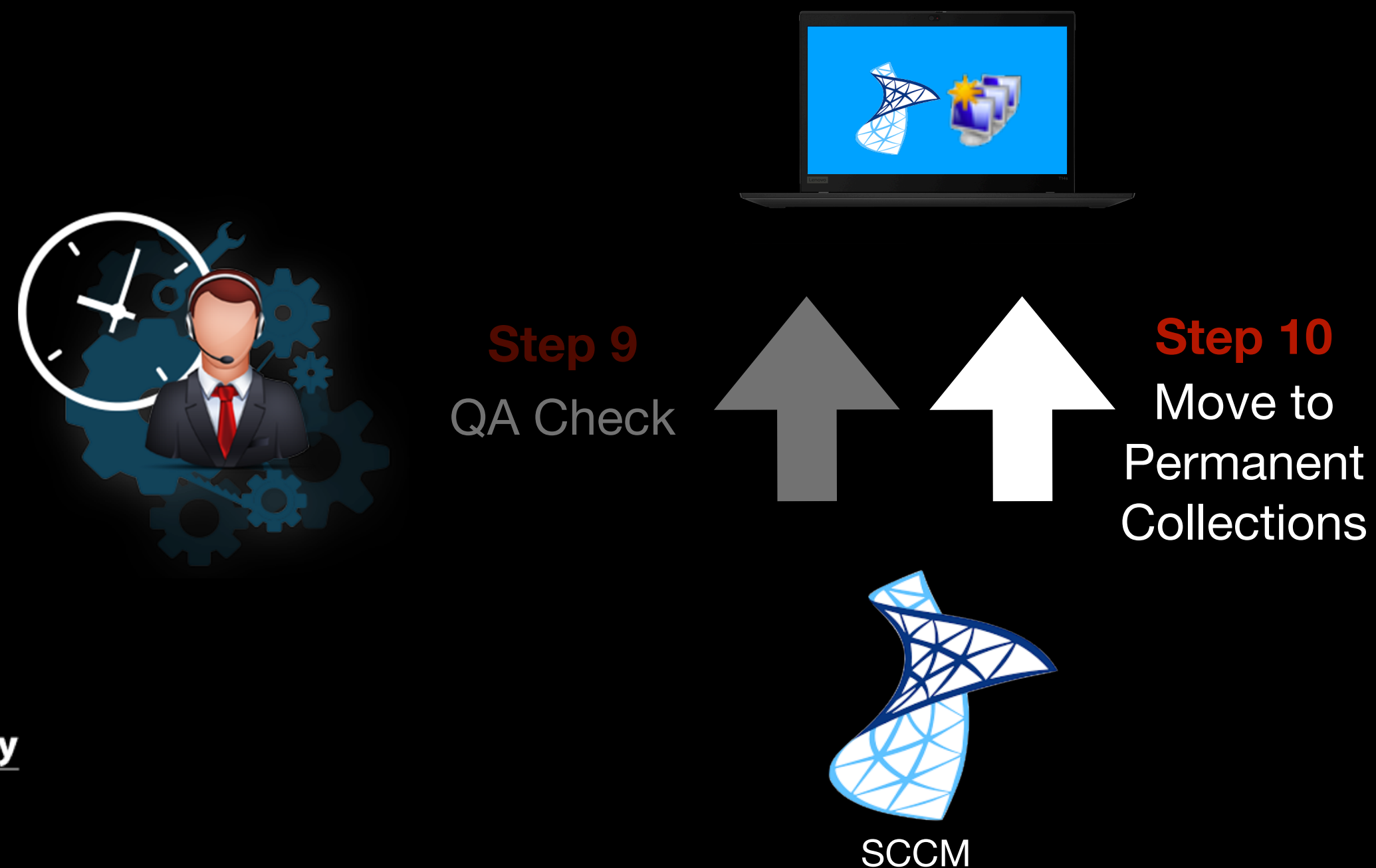
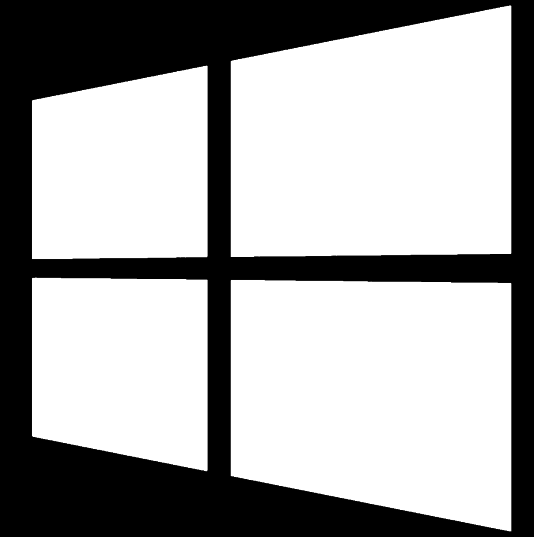
Onboarding

Onboarding Process & Details - Windows Workflow



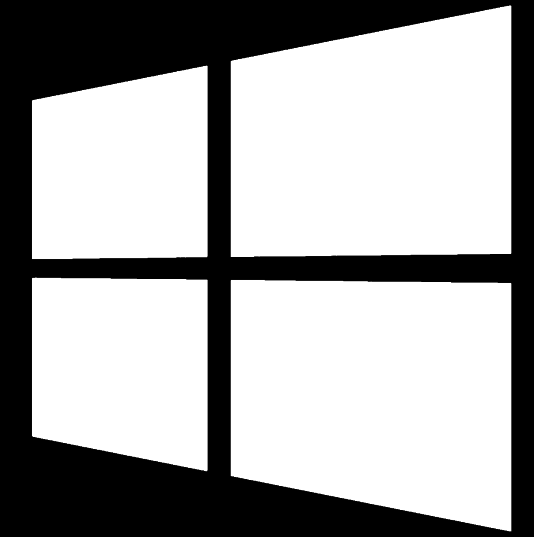
Onboarding

Onboarding Process & Details - Windows Workflow



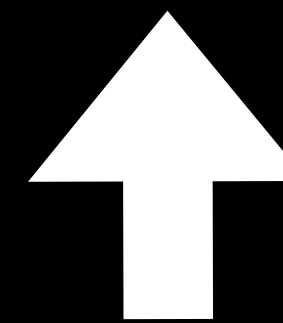
Onboarding

Onboarding Process & Details - Windows Workflow



AnyConnect at Login Window

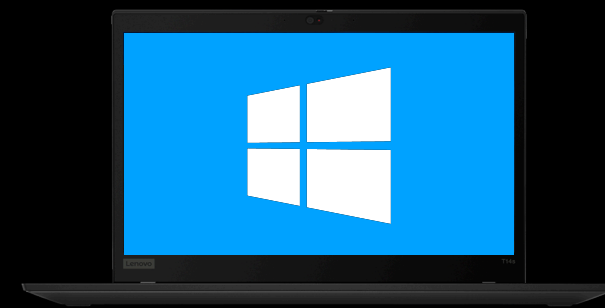
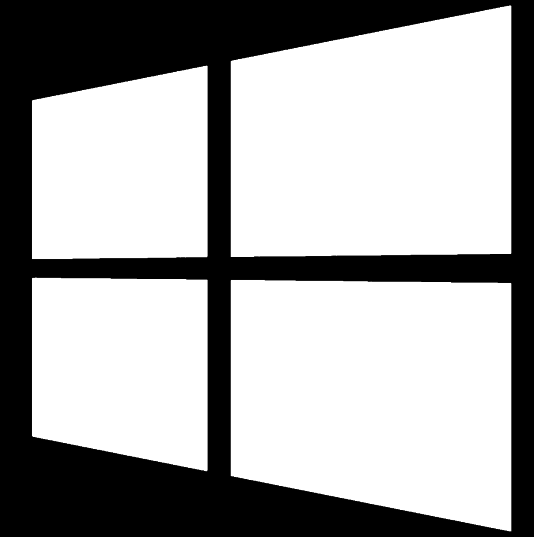
Step 11
Final Checks



SCCM

Onboarding

Onboarding Process & Details - Windows Workflow



Onboarding Completed

Onboarding

Onboarding Process & Details - macOS Laptops



Onboarding

Onboarding Process & Details - macOS Laptops



- Notable Components
 - Apple School Manager
 - Web Portal to Deploy Apple Devices, Apps & Books
 - Enroll Devices in your mobile device management (MDM)
 - Assign Devices to a MDM server for Automated Device Enrollment
 - Contact the Office of Software Licensing to create an account on ASM



Onboarding

Onboarding Process & Details - macOS Laptops



- Notable Components
 - Apple Notification Service (APNs)
 - Push notifications are small packages of data with instructions for a device
 - APNs is required for secure delivery of configuration profiles
 - You must permit outbound connection to Apple
 - Apple does not make inbound connections.



Onboarding

Onboarding Process & Details - macOS Laptops



- Notable Components
 - APNs Hosts & Ports

Function	Server Address : Port
Sending Notifications	gateway.push.apple.com : 2195
Receiving Feedback	feedback.push.apple.com : 2196
Initialization (Devices)	init-p01st.push.apple.com : 80
Notifications (Devices)	##-courier.push.apple.com : 5223†
New http/2 API	api.push.apple.com : 443

† 443 is used as a fallback over Wi-Fi only. The protocol is HTTPS.

<https://stream.lib.utah.edu/index.php?c=details&id=13303>

Onboarding

Onboarding Process & Details - macOS Laptops



- Notable Components
 - Jamf Pro
 - A best of breed, Apple client management solution
 - Includes server (on premise or cloud) and client software
 - Manages & configures macOS, iOS, iPadOS & tvOS
 - Leverages Apple's native MDM Framework
 - Includes a Jamf Agent to execute system level tasks and installation

Onboarding

Onboarding Process & Details - macOS Laptops



- Notable Components
 - Jamf Pro

Jamf Pro for Apple Device Management.

Jamf has been dedicated to helping organizations succeed with Apple since 2002.

			
Deployment	Device Management	App Management	Security
Provision the perfect Mac, iPad, iPhone or Apple TV for your users. Choose a zero-touch, hands-free experience or go hands-on through imaging. Either way, enroll devices and deploy them with ease.	Ongoing management is the bread and butter of IT's daily activities. Go beyond configuration profiles and use policies and scripts to customize devices for the optimal user experience.	Purchase apps in bulk and make them available automatically or through a Self Service catalog. Give users the ability to install apps, update software and maintain their own device.	Secure your Apple devices by leveraging native security features. Manage device settings and configurations, restrict malicious software, and patch all of your Apple devices without user interaction.

Onboarding

Onboarding Process & Details - macOS Laptop Workflow



macOS Laptop

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

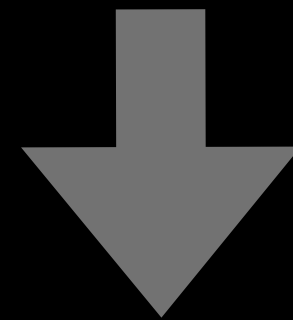


Network & Power



Step 1

Connect Ethernet
& Power



Onboarding

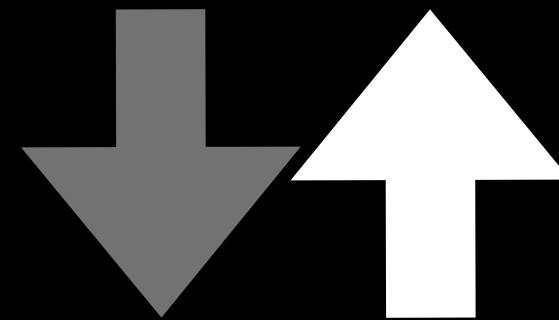
Onboarding Process & Details - macOS Laptop Workflow



Network & Power



Step 1
Connect Ethernet
& Power

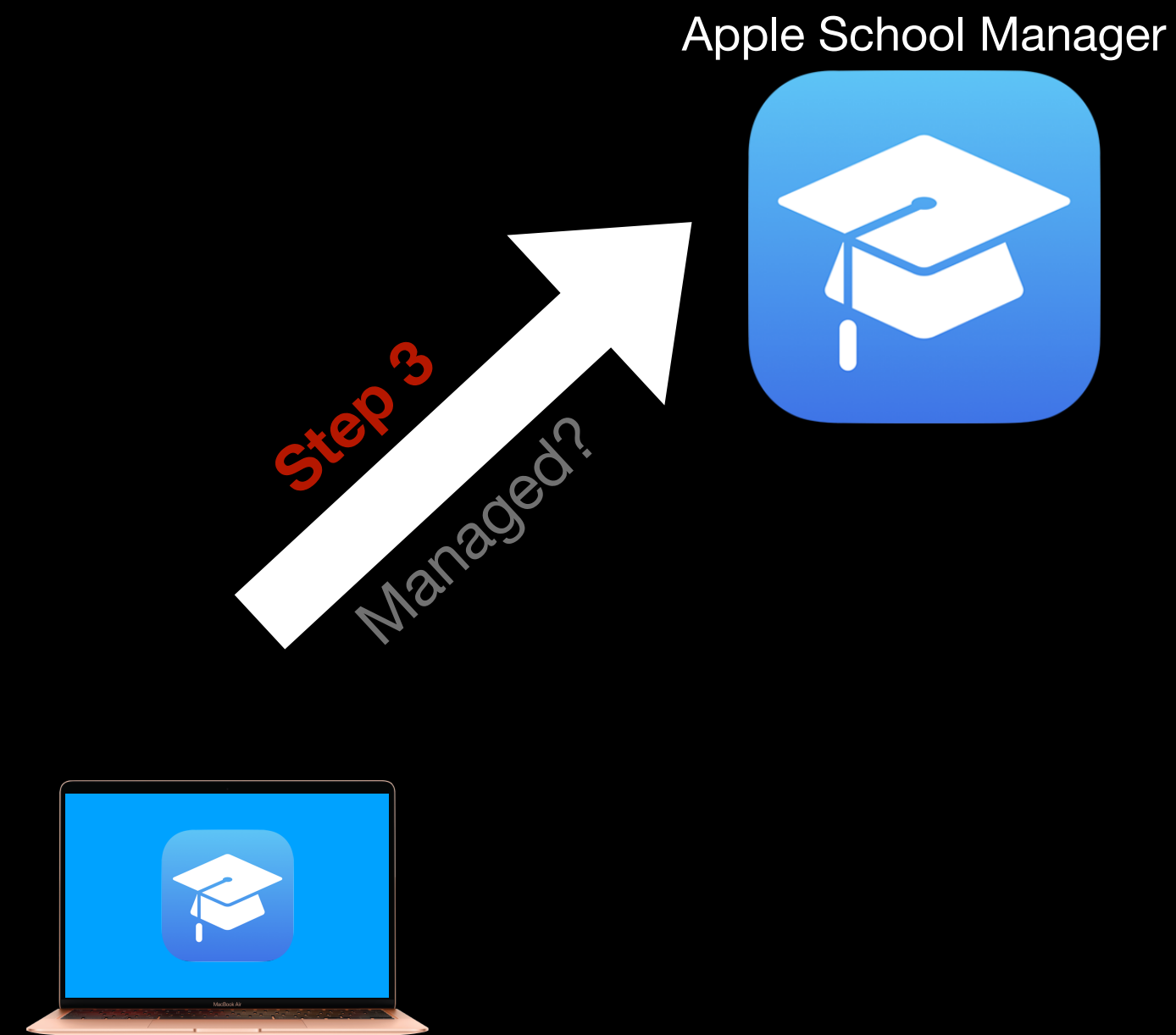


Step 2
Power On
Laptop



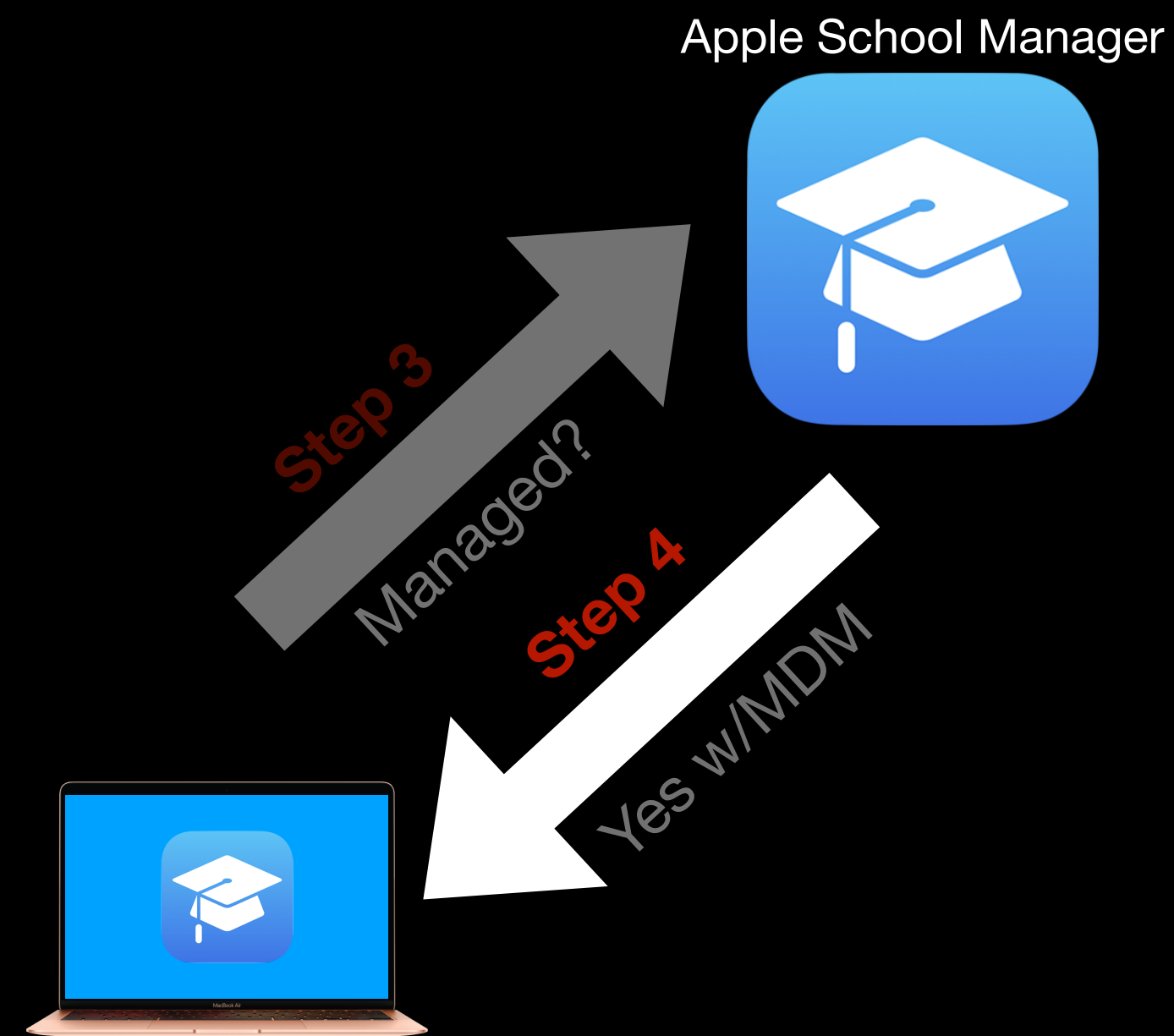
Onboarding

Onboarding Process & Details - macOS Laptop Workflow



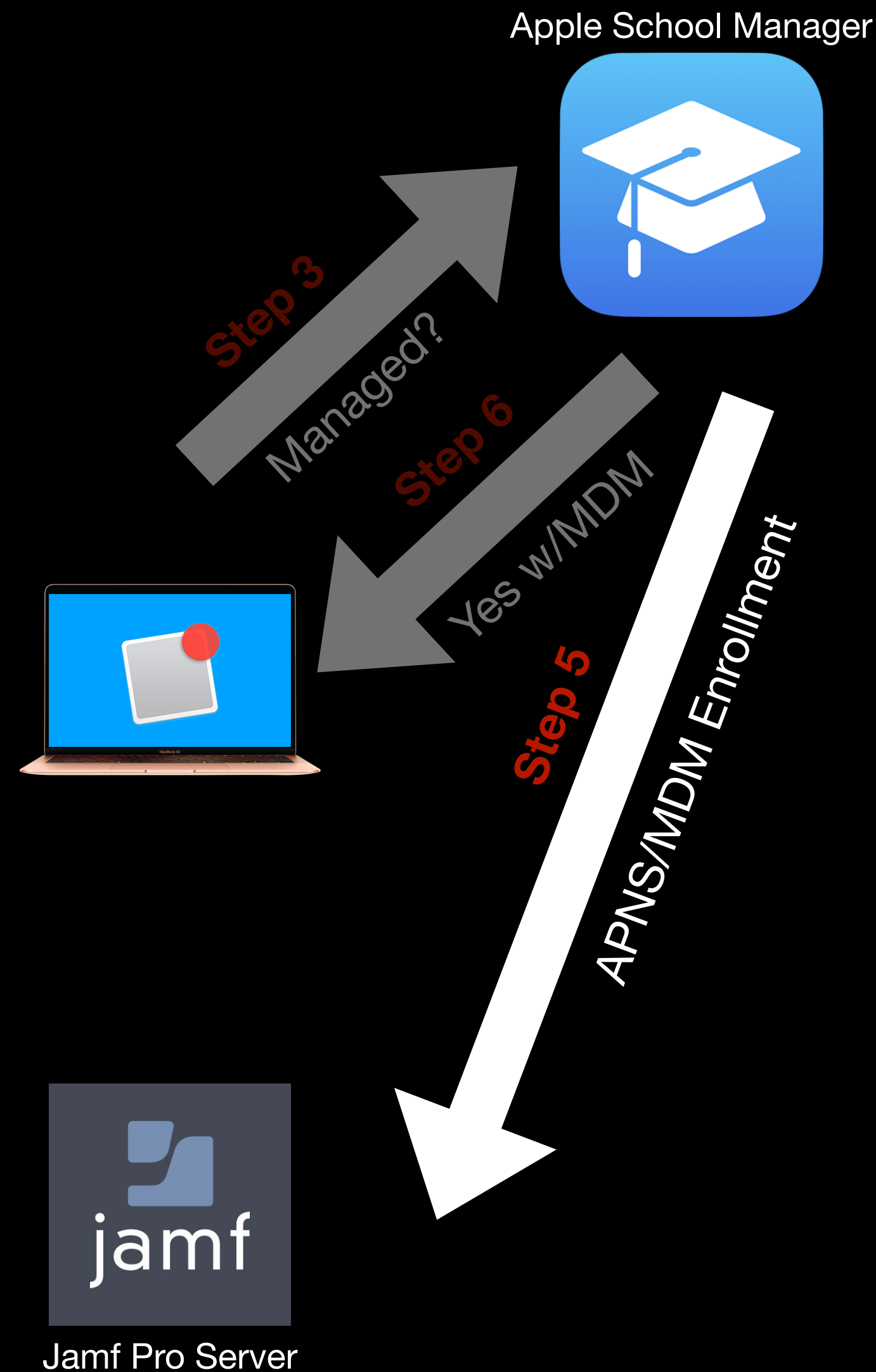
Onboarding

Onboarding Process & Details - macOS Laptop Workflow



Onboarding

Onboarding Process & Details - macOS Laptop Workflow

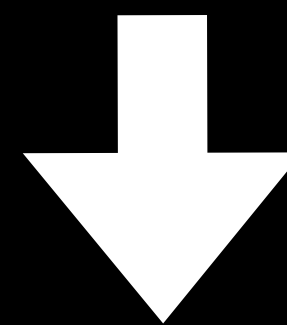


Onboarding

Onboarding Process & Details - macOS Laptop Workflow



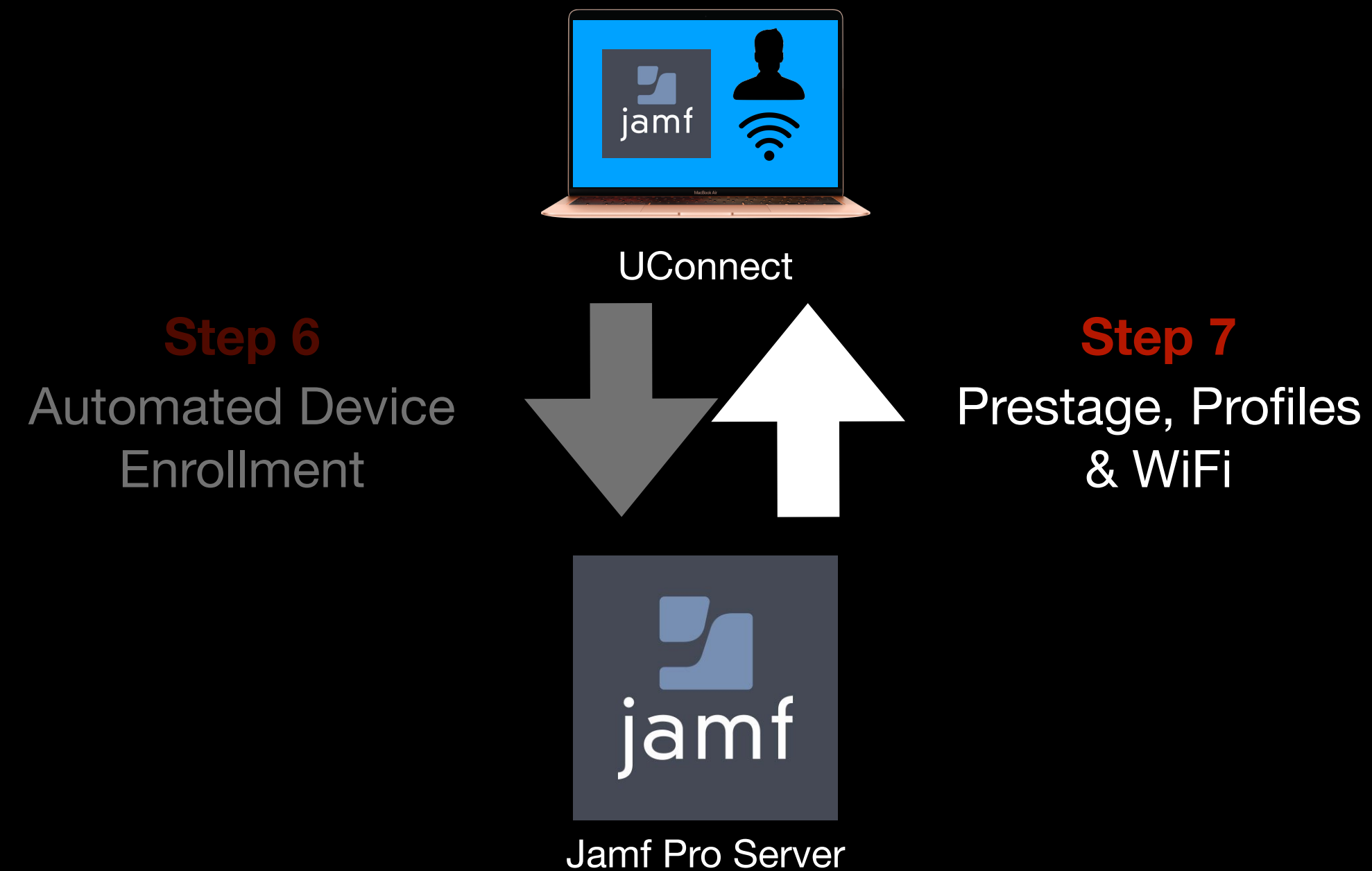
Step 6
Automated Device
Enrollment



Jamf Pro Server

Onboarding

Onboarding Process & Details - macOS Laptop Workflow



Onboarding

Onboarding Process & Details - macOS Laptop Workflow



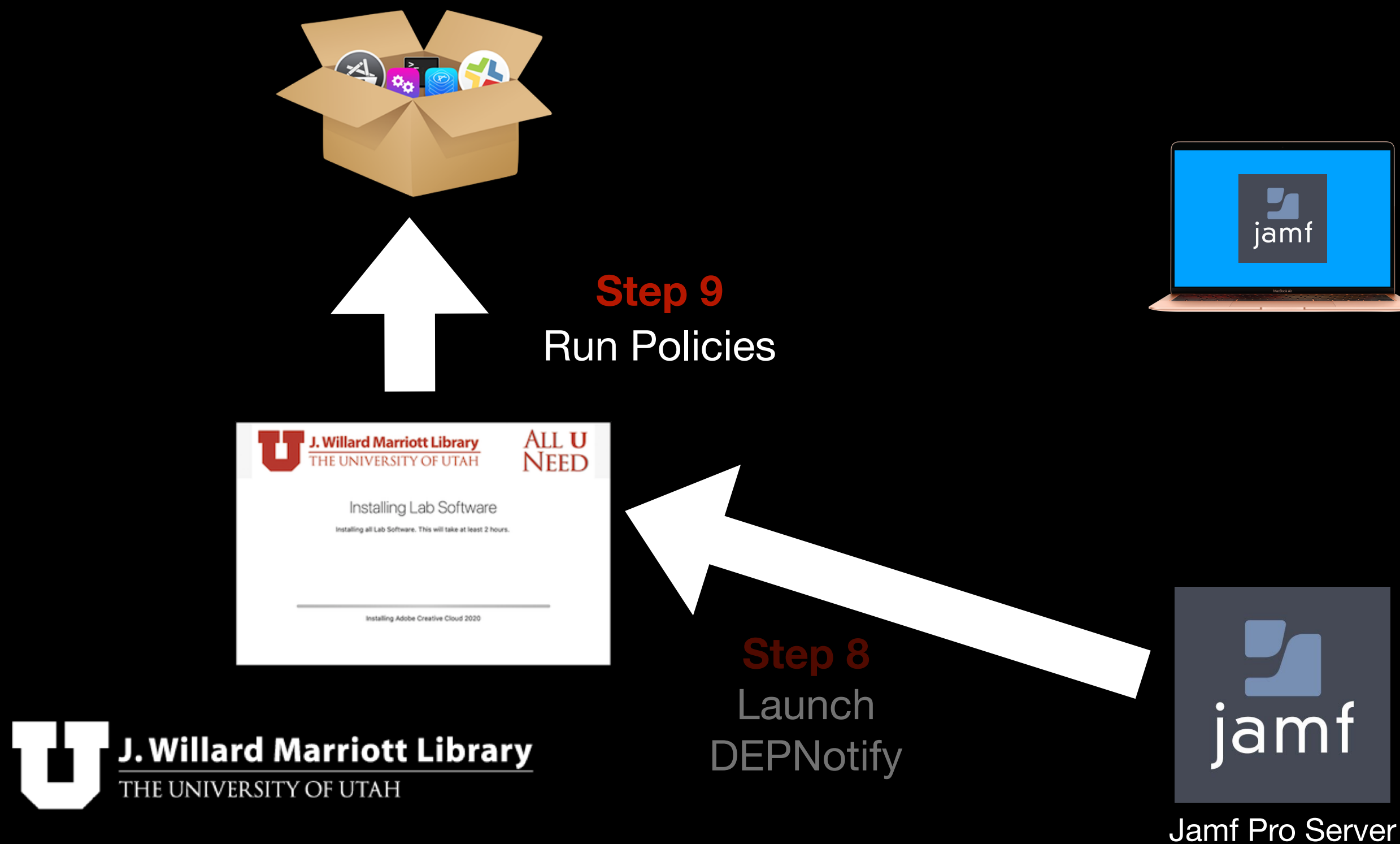
Step 8
Launch
DEPNotify



Jamf Pro Server

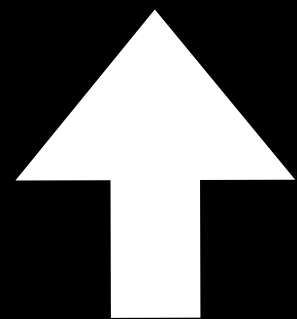
Onboarding

Onboarding Process & Details - macOS Laptop Workflow

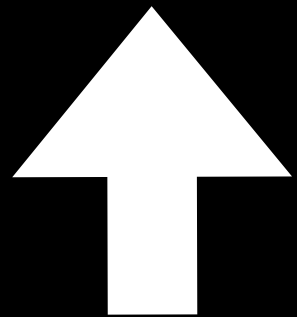


Onboarding

Onboarding Process & Details - macOS Laptop Workflow



Step 10
Automatic
Restart



Step 9
Run Policies



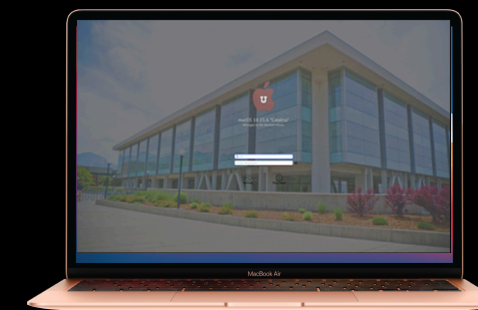
Step 8
Launch
DEPNotify



Jamf Pro Server

Onboarding

Onboarding Process & Details - macOS Laptop Workflow



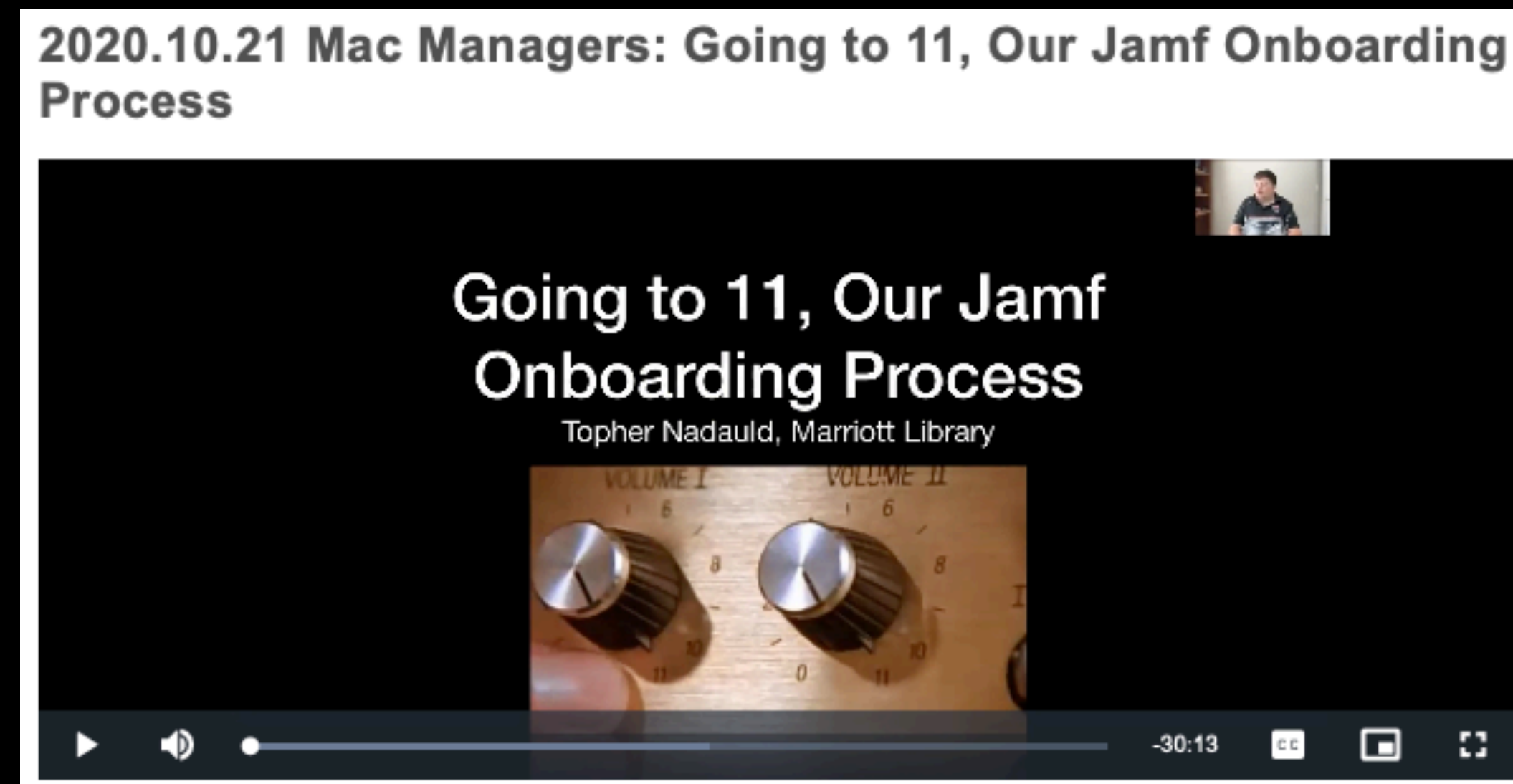
Onboarding Completed

Onboarding

Onboarding Process & Details - In Depth Presentation



- In-depth macOS Laptop Onboarding Presentation & Documentation
 - Going to 11, Our Jamf Onboarding Process – By Topher Nadauld, Marriott Library



<https://stream.lib.utah.edu/index.php?c=details&id=13384>

Onboarding

Onboarding Process & Details - iPads



Onboarding

Onboarding Process & Details - iPads



- Originally, we developed a python script called “AEiOS”
 - To implement “true” zero touch device management (attach cable)
 - Designed for our student checkout iPads with busy support staff
 - Integrates Apple Configurator, Apple School Manager (DEP, VPP & MDM)



<https://github.com/univ-of-utah-marriott-library-apple/aeios>

Onboarding

Onboarding Process & Details - iPads



- iPad Onboarding
 - Since it was Prone to Errors from Apple Configurator
 - Original Developer Left Group & Not Enough Bandwidth to Debug Issues
 - Migrated to a commercial solution named iMazing Configurator

The screenshot shows the iMazing website. At the top, there is a navigation bar with links for Features, Reviews, Download, Enterprise, Store, Support, and Blog, along with a language selector for English. The main heading is "iMazing Configurator". Below it, a sub-heading reads "Discover powerful tools designed to help sys admins configure and provision fleets of Apple mobile devices, including iPhone, iPad, iPod touch and Apple TV." To the right of this text is a blue circular icon containing a white organizational chart symbol. At the bottom left, there are two buttons: "Get Started" (green) and "Buy Now" (white with a black border). A small note at the bottom states: "The Configurator feature set requires an iMazing Configurator Edition license and is only available on macOS."

The screenshot displays the "Editing Blueprint" interface. On the left is a sidebar with categories: General, Organization & Supervision, Setup & Accessibility, Actions, Apps, App Files & Config, App Restrictions, and Profiles. The "Organization & Supervision" section is selected, showing options like "Supervise device", "Allow pairing without supervision identity", "Disable USB restricted mode", "Save passcode unlock token to keychain", "Activation Lock", and "Allow activation lock while supervised". On the right, under the heading "Define Advanced Blueprints", there is a list of features with green checkmarks: Supervision, MDM enrollment, Profiles, Wallpapers and settings, Apps and app files, Backup and restore backup, and Update and restore iOS. Below this list, a paragraph explains that blueprints can be exported or imported securely using an AES encrypted .blueprint format and can be deployed with the Windows version of iMazing.

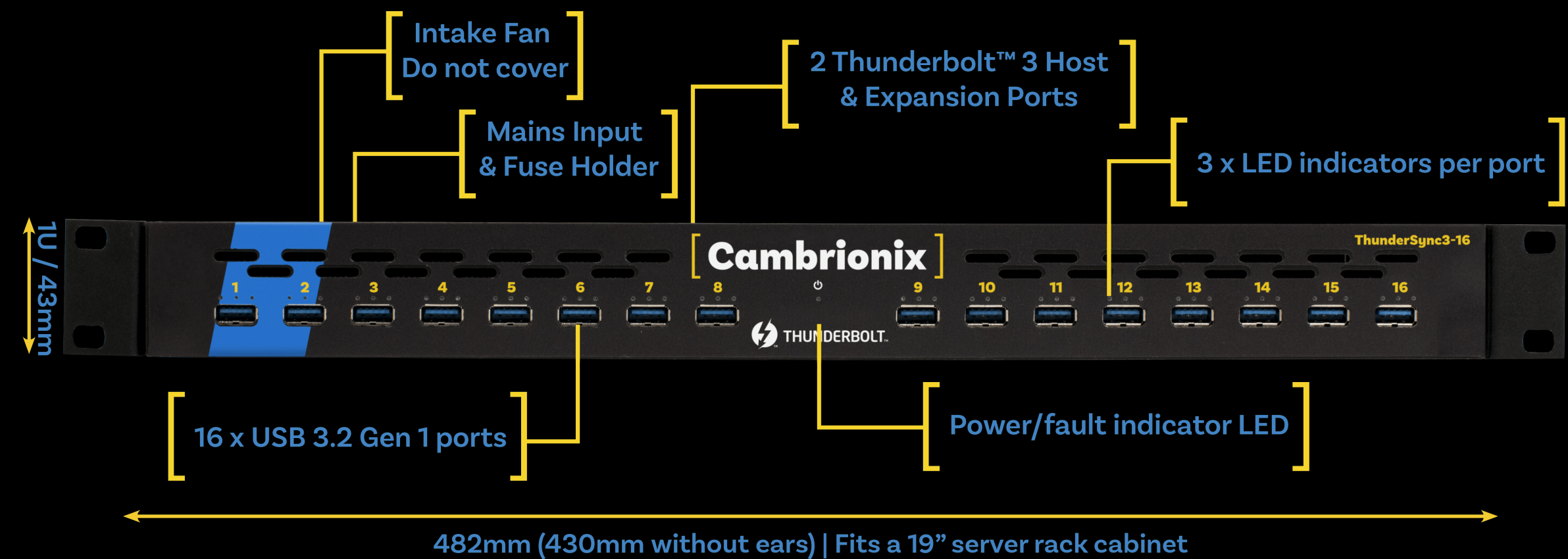
The diagram is titled "Configure Devices in Bulk". It features a central "BLUEPRINT" icon with a downward arrow pointing to three mobile devices: an iPhone, an iPad, and another iPhone. Above the devices, text reads: "Apply blueprints to multiple iOS, iPadOS and tvOS devices simultaneously. Follow progress reports on each device, and dig into detailed logs if needed." The devices are shown with their respective lock screens, indicating they are in a ready state for configuration.

Onboarding

Onboarding Process & Details - iPad Hardware



- iPads
- Mac mini or iMac
- **Cambrionix - ThunderSync3-16**
High performance USB Hub
Supports Charging Downstream Port (CDP)



Onboarding

Onboarding Process & Details - iPad Hardware Example



Onboarding

Onboarding Process & Details - macOS Laptops



- Notable Components

- As with macOS...

- Apple School Manager
 - Apple Push Notification server (APNs)
 - Jamf Pro

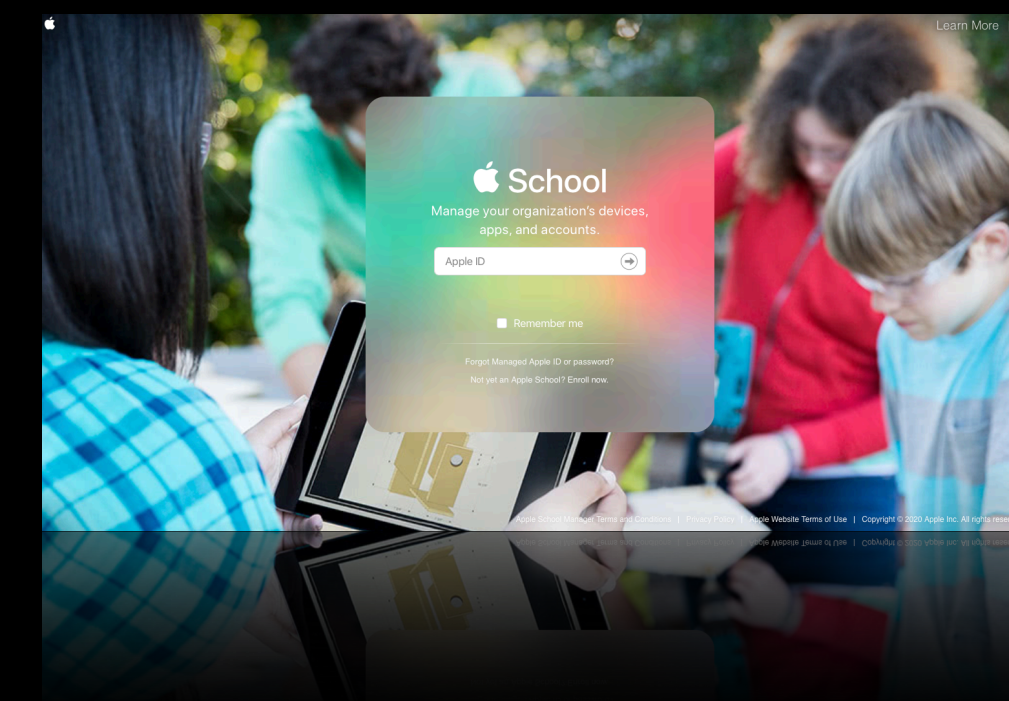
- But, additional component with iOS & iPadOS...

- iMazing Configurator

Jamf Pro for Apple Device Management.

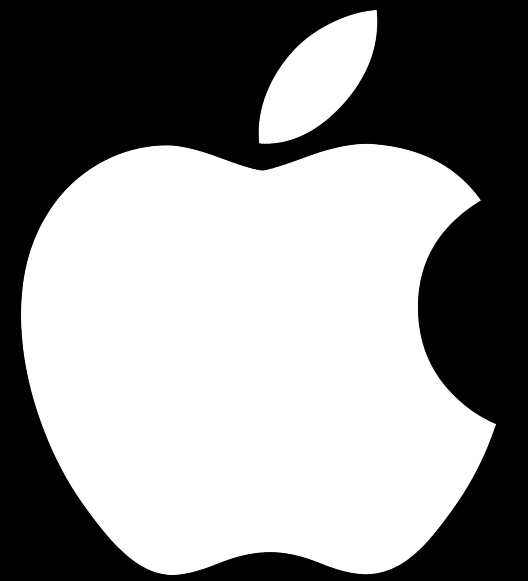
Jamf has been dedicated to helping organizations succeed with Apple since 2002.

Deployment	Device Management	App Management	Security
Provision the perfect Mac, iPad, iPhone or Apple TV for your users. Choose a zero-touch, hands-free experience or go hands-on through imaging. Either way, enroll devices and deploy them with ease.	Ongoing management is the bread and butter of IT's daily activities. Go beyond configuration profiles and use policies and scripts to customize devices for the optimal user experience.	Purchase apps in bulk and make them available automatically or through a Self Service catalog. Give users the ability to install apps, update software and maintain their own device.	Secure your Apple devices by leveraging native security features. Manage device settings and configurations, restrict malicious software, and patch all of your Apple devices without user interaction.

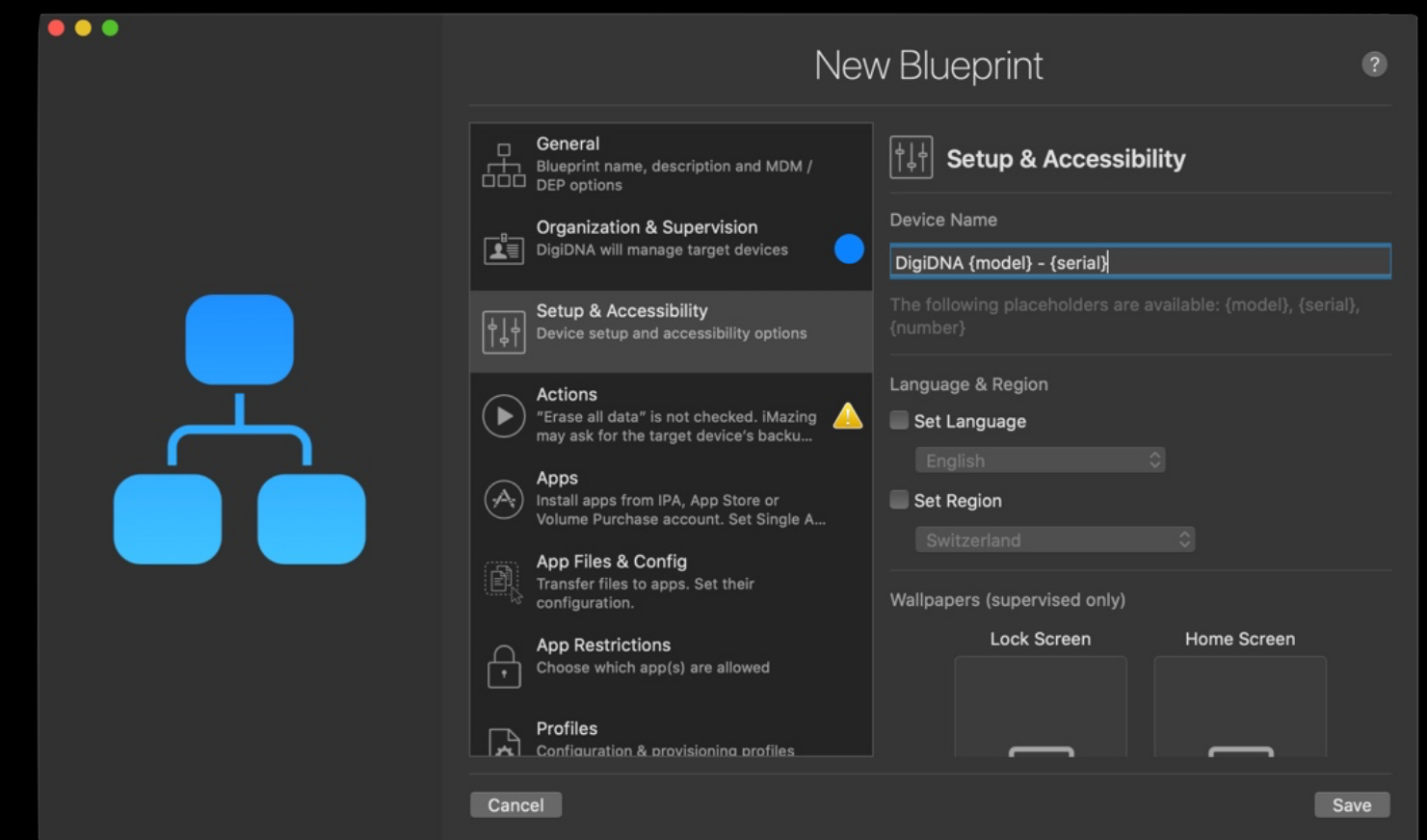


Onboarding

Onboarding Process & Details - iPads



- iMazing Configurator
 - Product from DigiDNA a Swiss Company
 - Blueprints that allow automation & configuration
 - Target devices via supervision
 - Installing configuration profiles to pre-configure Wi-Fi access
 - Refurbish workflows includes options like erase all data and settings and update the OS



<https://www.youtube.com/watch?v=6PpF2Zrgbal&t=52s>

Onboarding

Onboarding Process & Details - iPad Workflow Example



iOS iPad

Onboarding

Onboarding Process & Details - iPad Workflow Example



iMazing Configurator



Onboarding

Onboarding Process & Details - iPad Workflow Example



iMazing Configurator



Last Attach > 5 min?

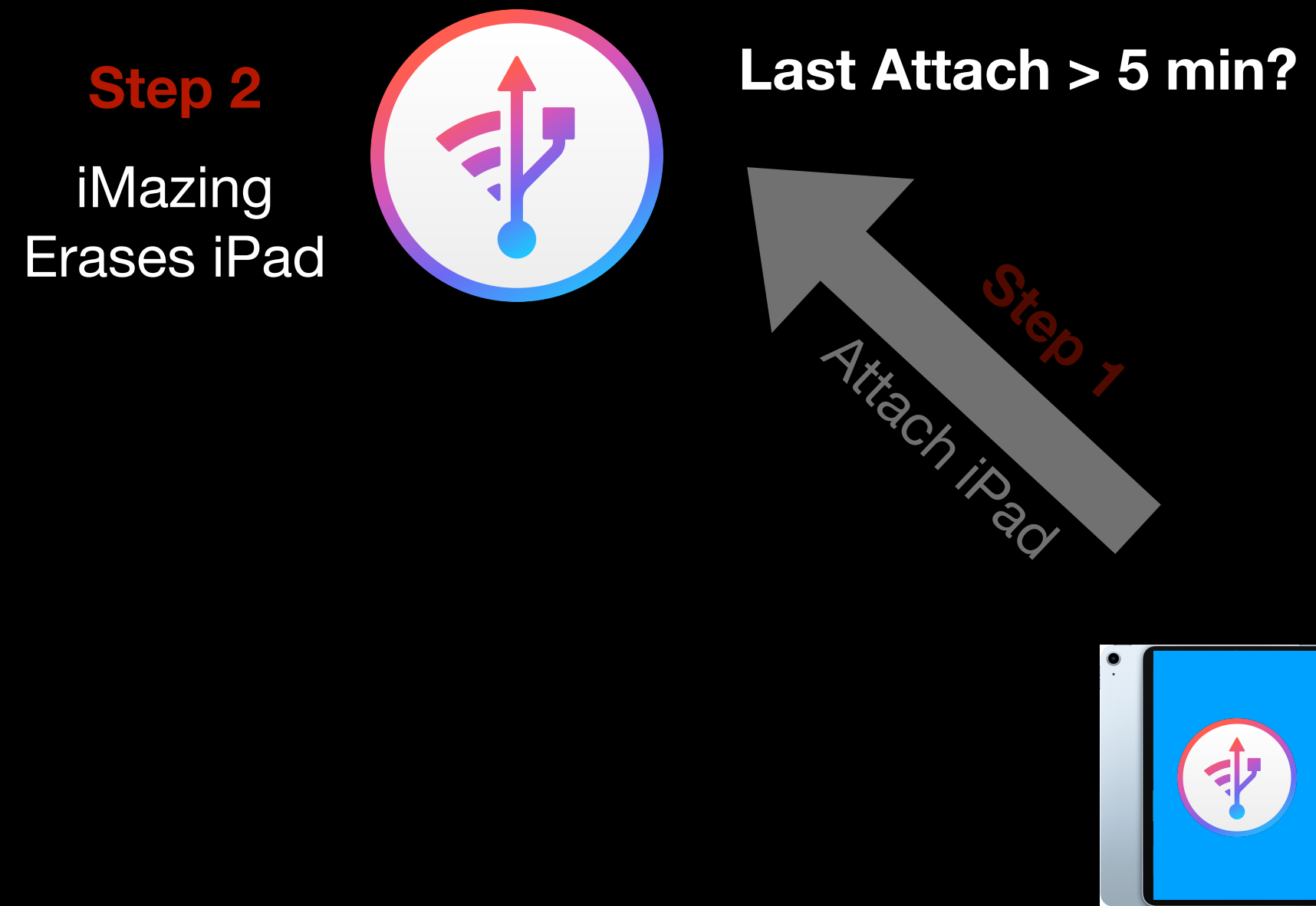


Onboarding

Onboarding Process & Details - iPad Workflow Example

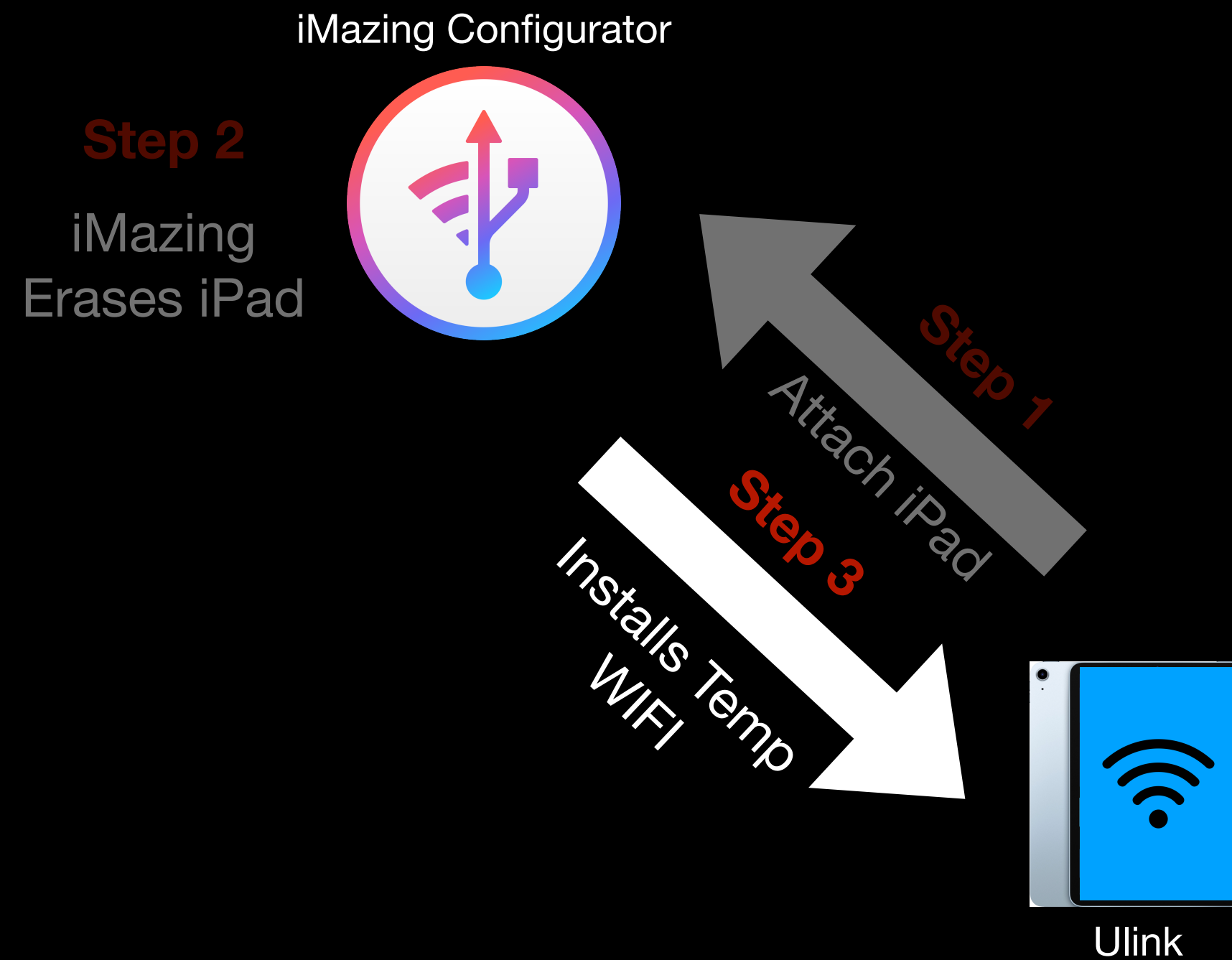


iMazing Configurator



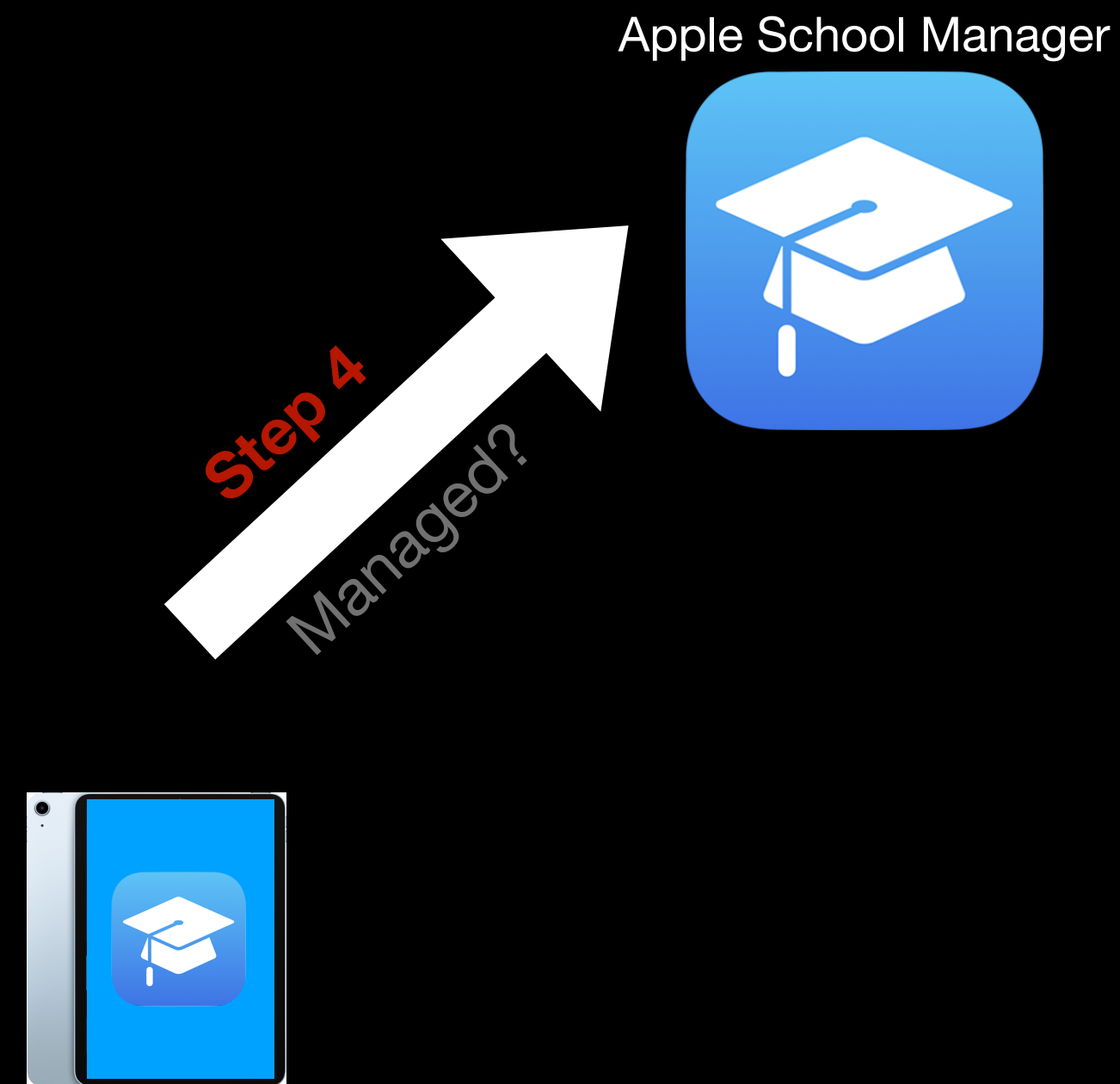
Onboarding

Onboarding Process & Details - iPad Workflow Example



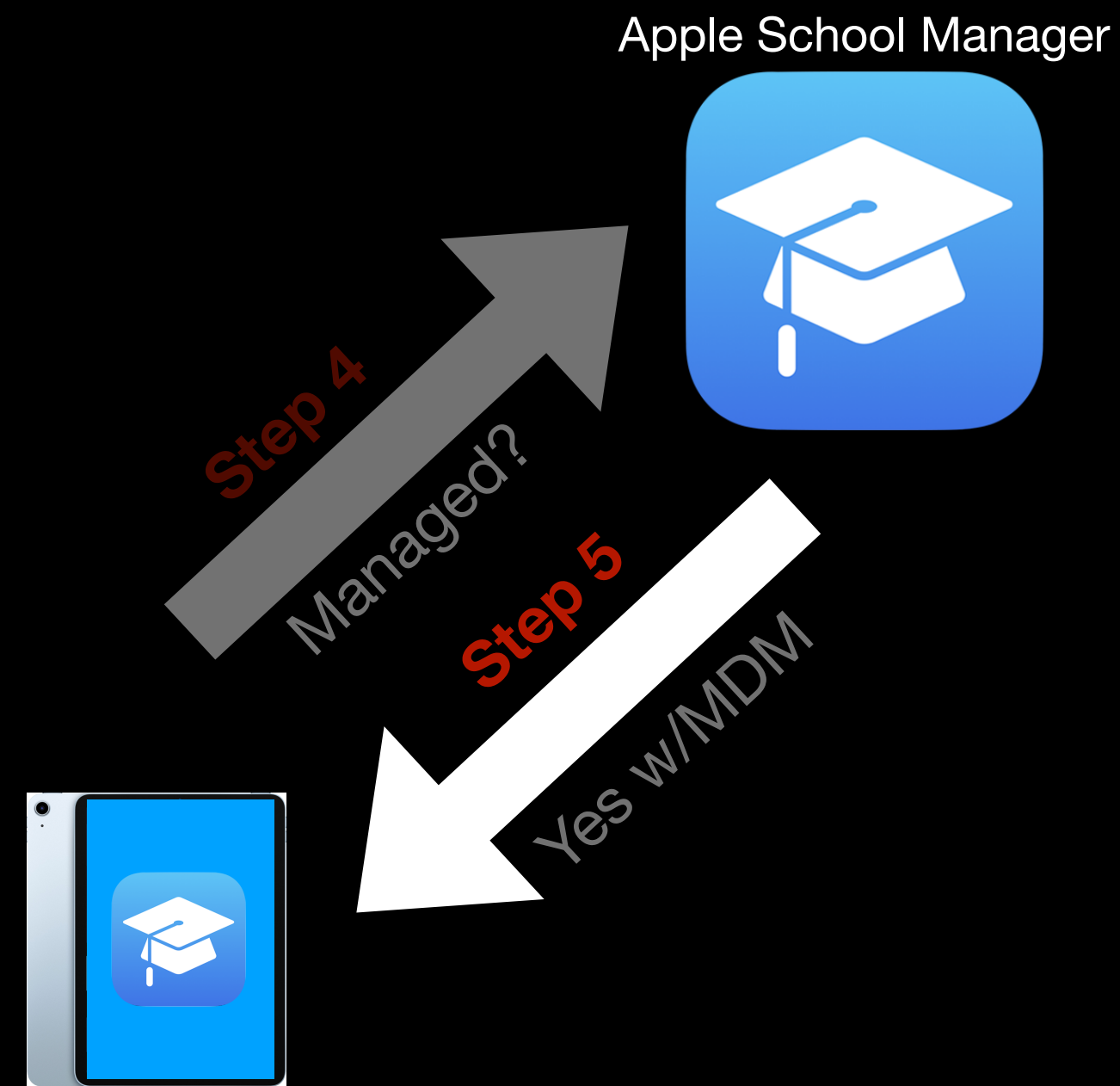
Onboarding

Onboarding Process & Details - iPad Workflow Example



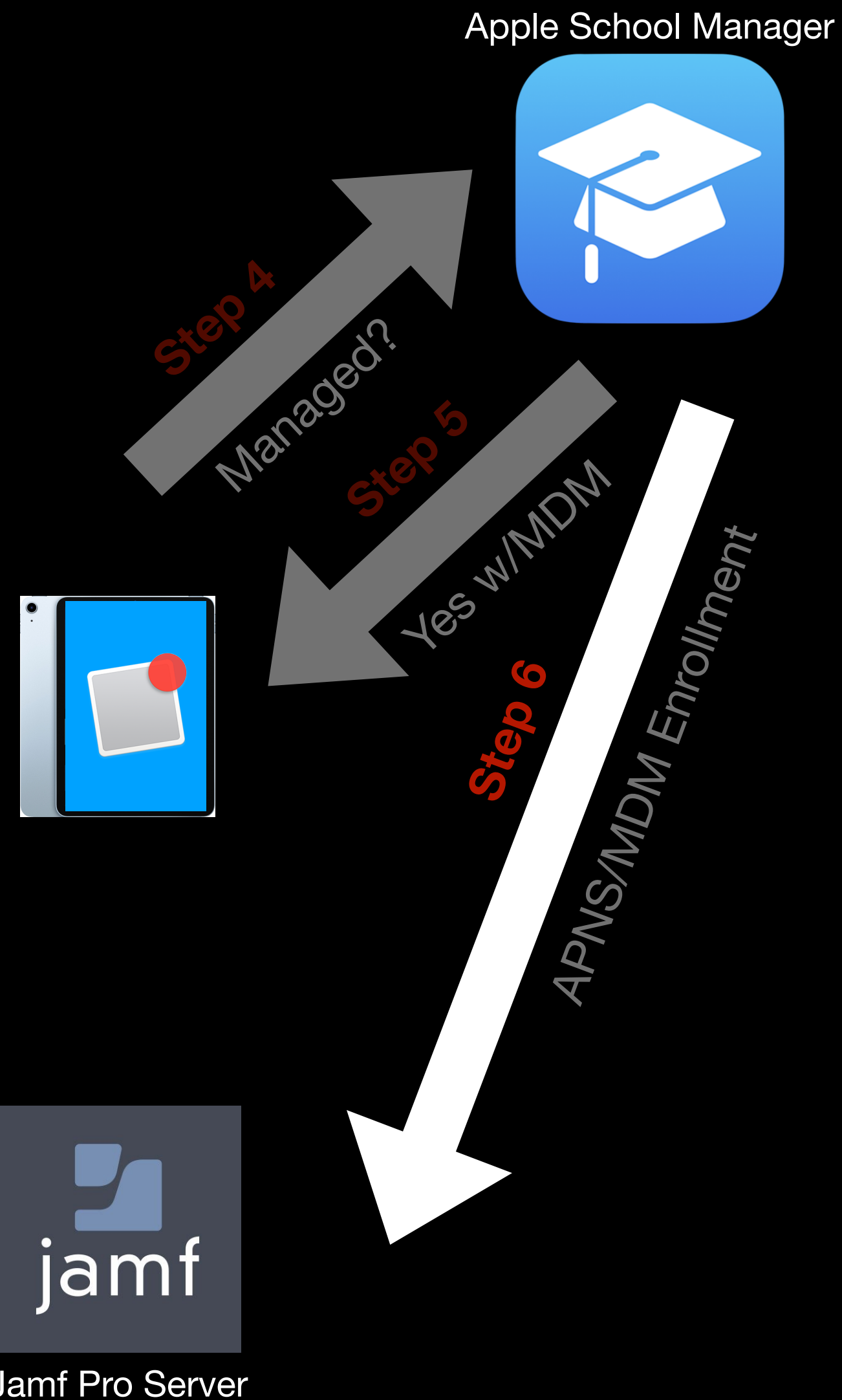
Onboarding

Onboarding Process & Details - iPad Workflow Example



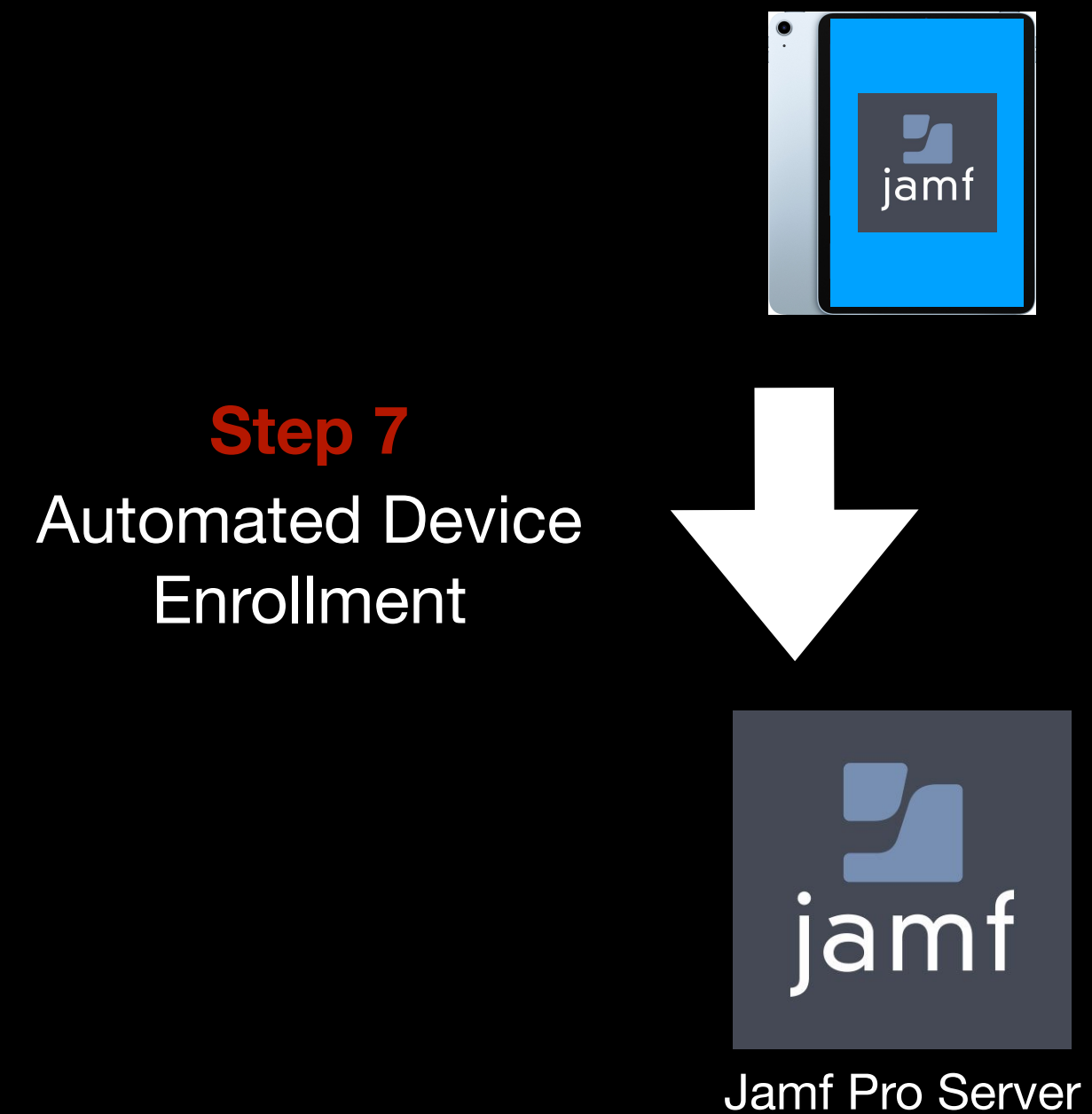
Onboarding

Onboarding Process & Details - iPad Workflow Example



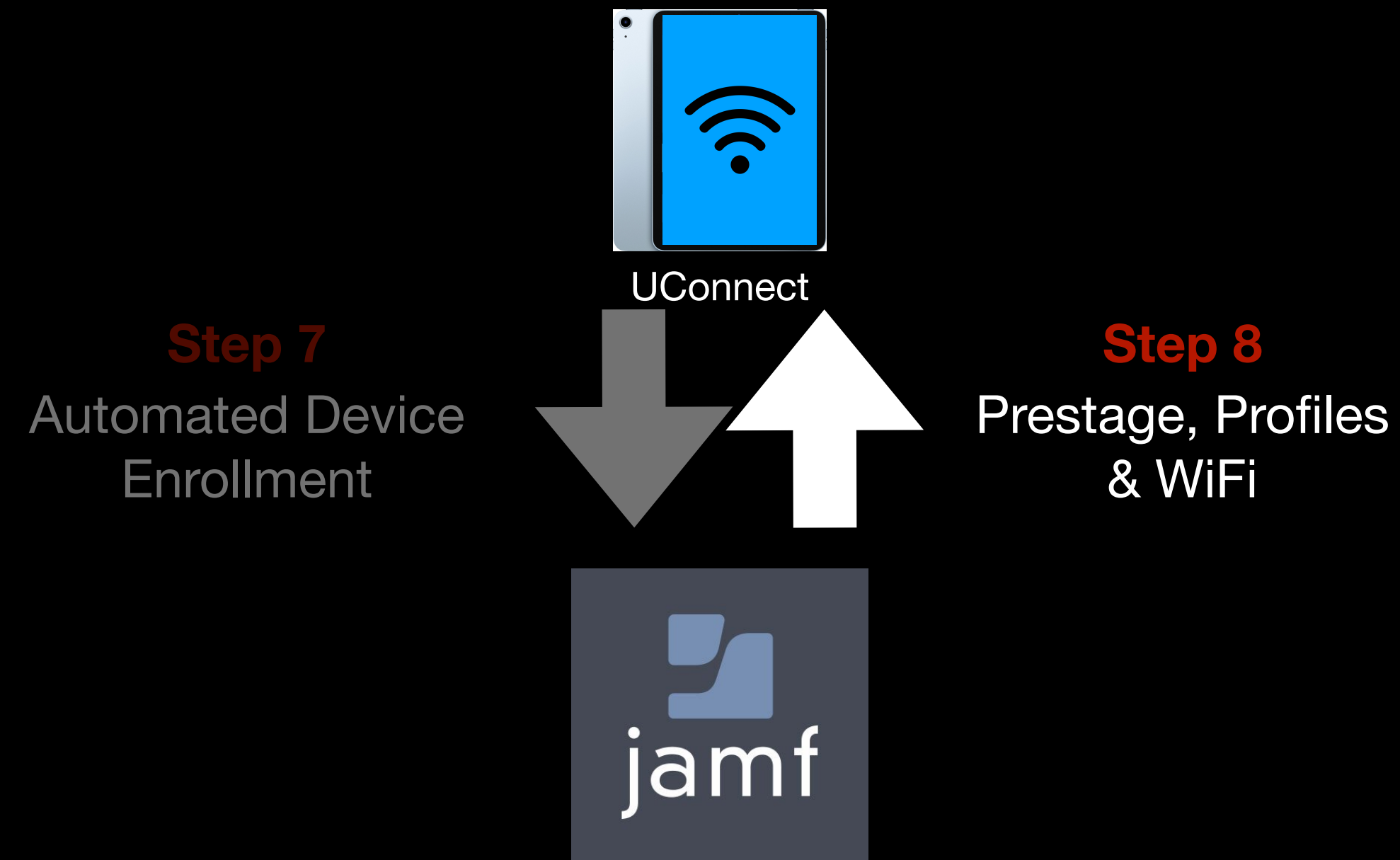
Onboarding

Onboarding Process & Details - iPad Workflow Example



Onboarding

Onboarding Process & Details - iPad Workflow Example



Onboarding

Onboarding Process & Details - iPad Workflow Example



iMazing Configurator

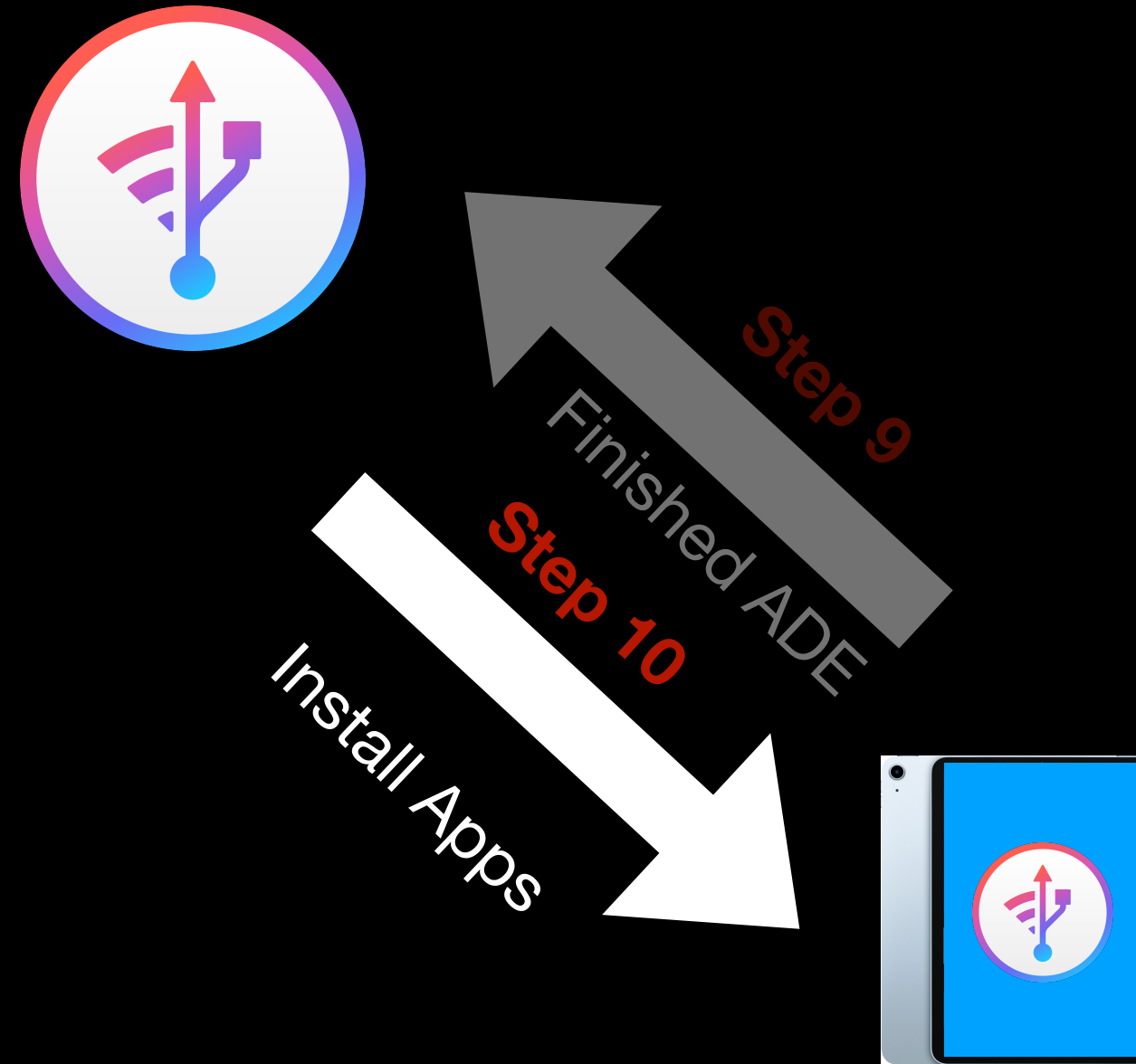


Onboarding

Onboarding Process & Details - iPad Workflow Example



iMazing Configurator



Onboarding

Onboarding Process & Details - iPad Workflow Example



Onboarding Completed

Onboarding

Onboarding Process & Details - In Depth Presentation


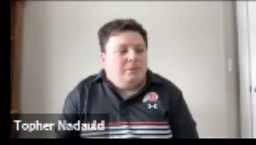


- In-depth iPad Onboarding Presentation & Documentation
 - iPad Management – By Topher Nadauld, University of Utah, Marriott Library

2021.02.17 Mac Managers - iPad Management

Overview

- Apple School Manager
- iPads for Students
- Configuration Options
- iMazing
 - Jamf Pro
 - Configurator
 - UI Script

A red logo featuring a stylized 'U' with a white Apple logo cutout in the center, and the text '#utah-jamf' below it.A small video thumbnail showing a man, identified as Topher Nadauld, in a video call window.

<https://stream.lib.utah.edu/index.php?c=details&id=13417>

Challenges

Friction & Pain Points



Challenges

Friction & Pain Points - Software Requests & Support



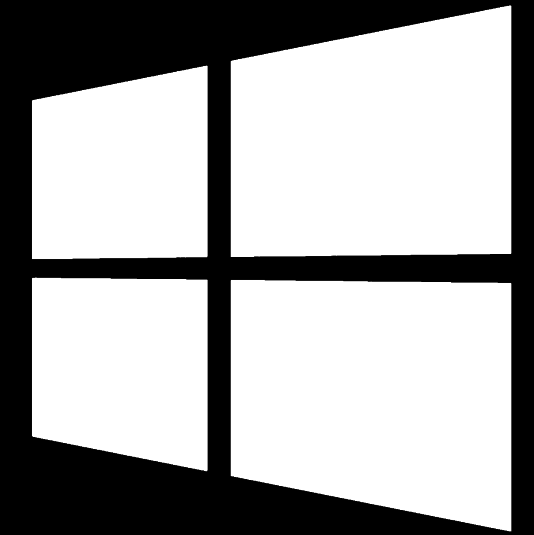
Challenges

Friction & Pain Points - Software Requests & Support

- With CARE Act Funds checkout laptops & extending checkout period
 - Caused large amount requests for wide range of software
 - Many requests were for classes, dept, group or student academic needs
- From wide range of open source, commercial, group or individual licensed
 - Support of student individual licenses or class licenses
 - Software and components update frequently & not always obvious its needed

Challenges

Friction & Pain Points - Software Requests & Support




- Windows Laptops
- Software2 AppsAnywhere Packaging Service
 - To aid in when IT Staff very busy with projects and requests
 - AppSet packaging difficult or requires more in-depth time to setup and troubleshoot.

<https://www.software2.com/packaging-service>

Packaging. Simplified.

All over the world, IT admins are packaging the same software again and again. But if we're all using the same apps, why do they even need to be repackaged?

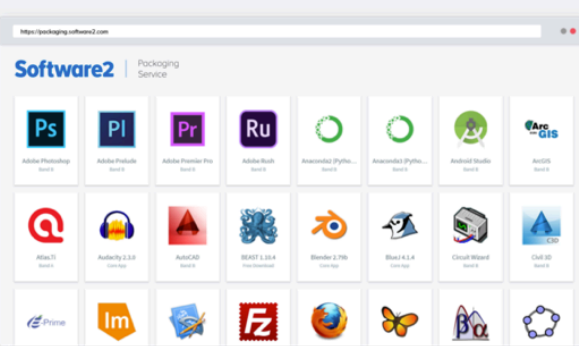
That's what our Packaging Service is here to change. Many widely-used apps now allow a license to be applied post-install. That means we can package once and add your license later, in a fraction of the time.



Pay-as-you-go packaging.


We've built a specially-selected menu of discounted app packages for you to choose from.

Our menu consists of commonly-used apps that can be repackaged in a fraction of the time it would traditionally take. That means we can pass the savings onto you and you can spend time on more strategic IT projects.



How it works

Subscribe and take advantage of our menu of packages.



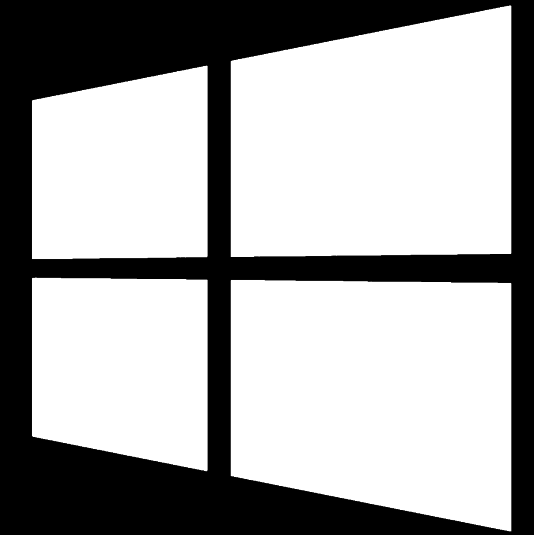
Subscribe to the Packaging Service

Choose apps from our packaging menu

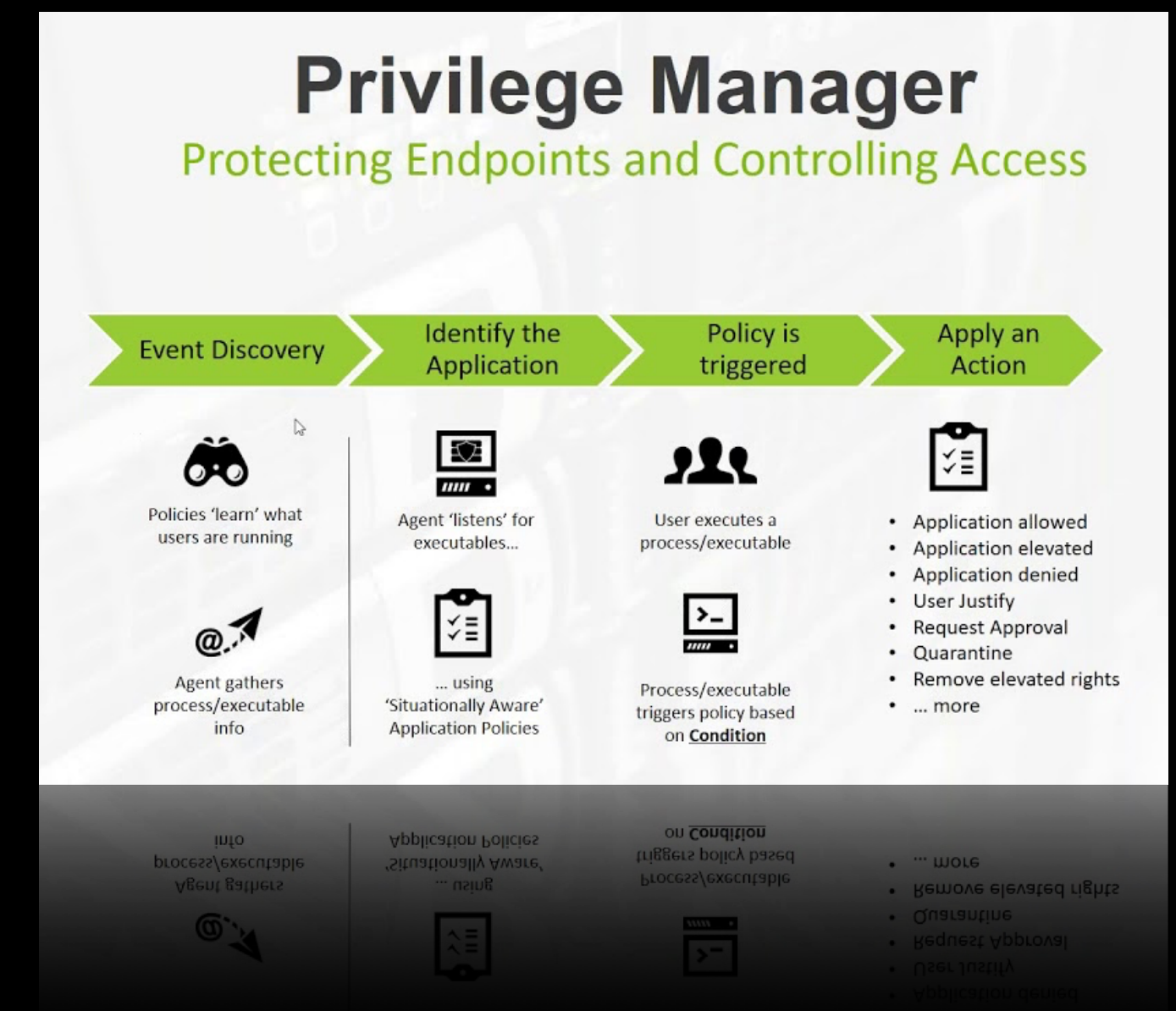
Top-up account with Packaging Credits

Challenges

Friction & Pain Points - Software Requests & Support



- Windows Laptops
- Thycotic Privileged Account Manager (PAM)
 - To aid in addressing some of the software pain points with software installation & updates
 - Including VR and AR headsets, 3D printers that frequently update from daily to weekly
 - Provides features to allow whitelisted applications to automatically update
 - Or depending on need user can manually update or install whitelisted applications or components
 - Purchase approved by UIT & ISO, but still in progress...



Challenges

Friction & Pain Points - Software Requests & Support



- macOS Laptops
 - Developed scripts to automate repackaging installers when necessary
 - Developed python script & library to automate Jamf Patch
 - python-jamf - a library to access the Jamf Pro Classic API
<https://github.com/univ-of-utah-marriott-library-apple/python-jamf>
 - jctl - automates patch uploads, updates & releases
<https://github.com/univ-of-utah-marriott-library-apple/jctl>
 - AutoPKG - Open source framework for automating packaging & software distribution on macOS
<https://github.com/autopkg/autopkg>

Challenges

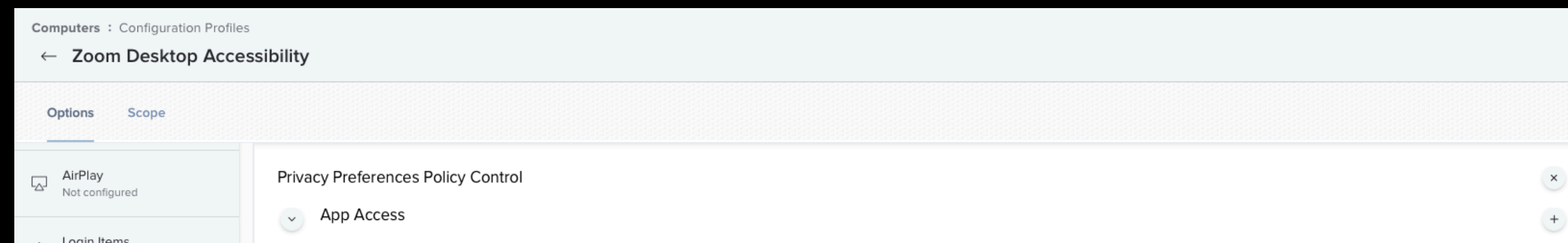
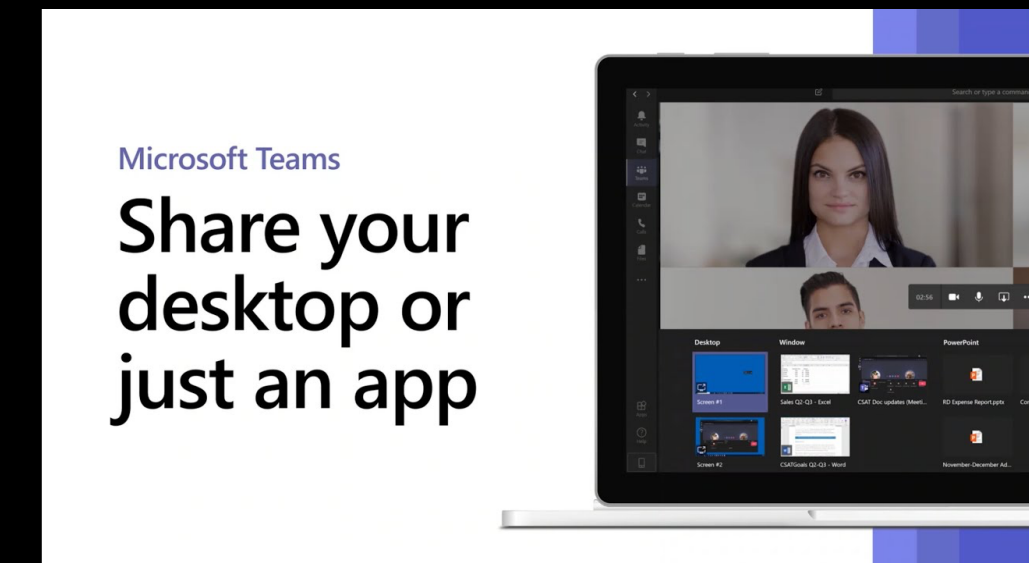
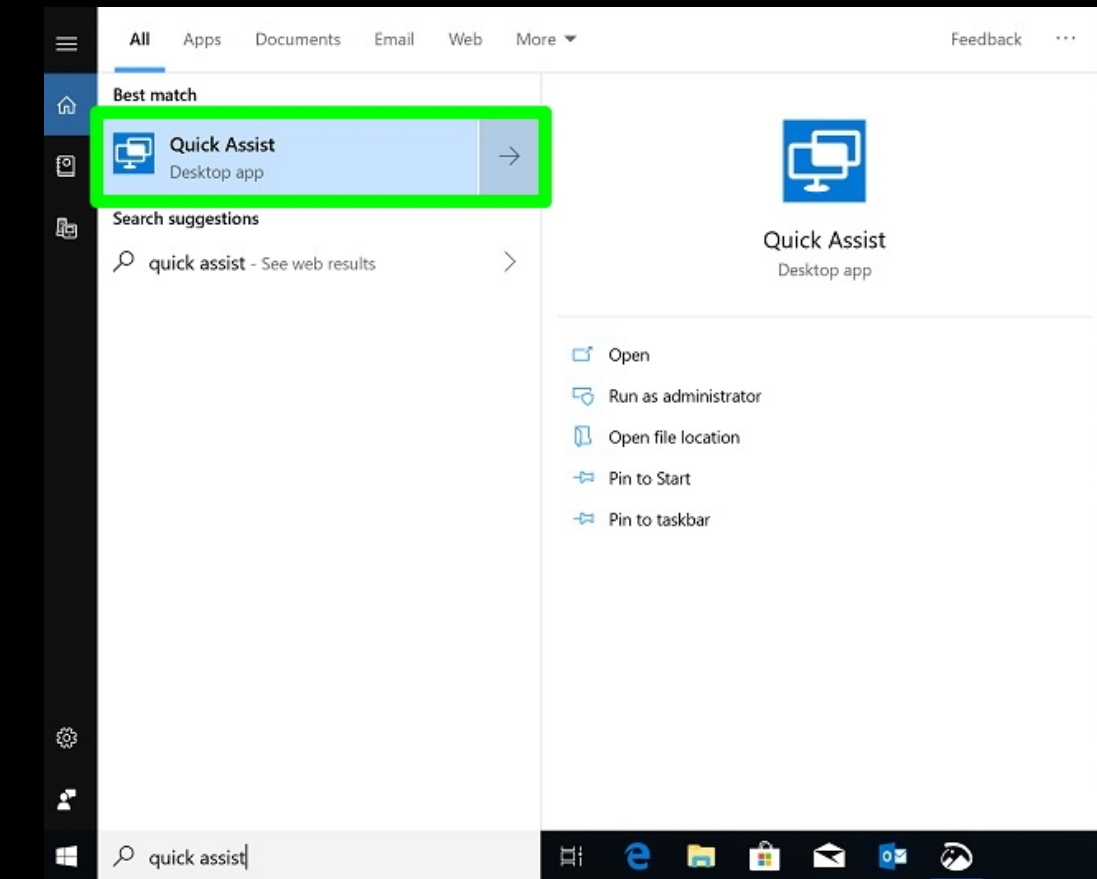
Friction & Pain Points - Remote User Support



Challenges

Friction & Pain Points - Remote User Support

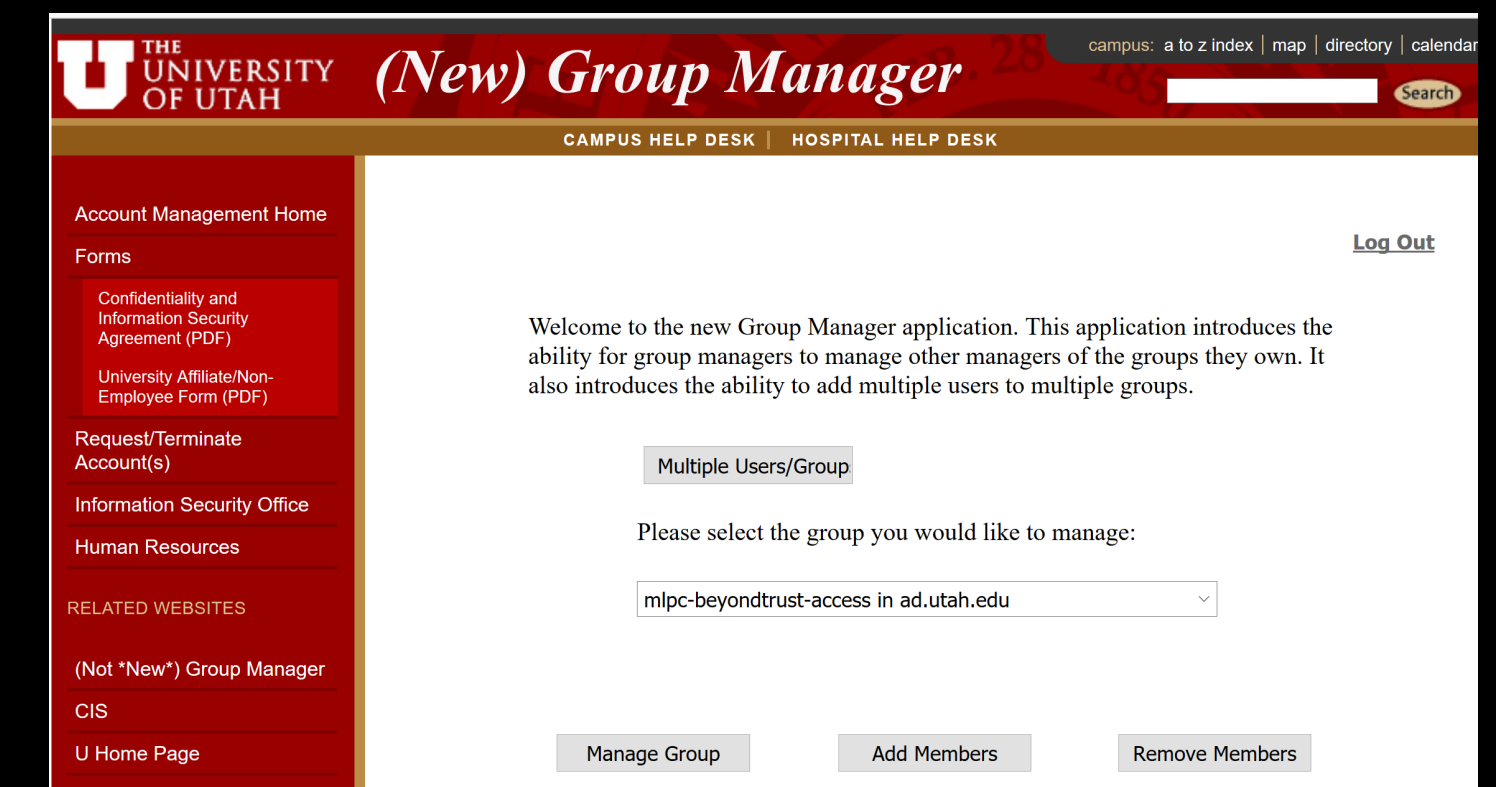
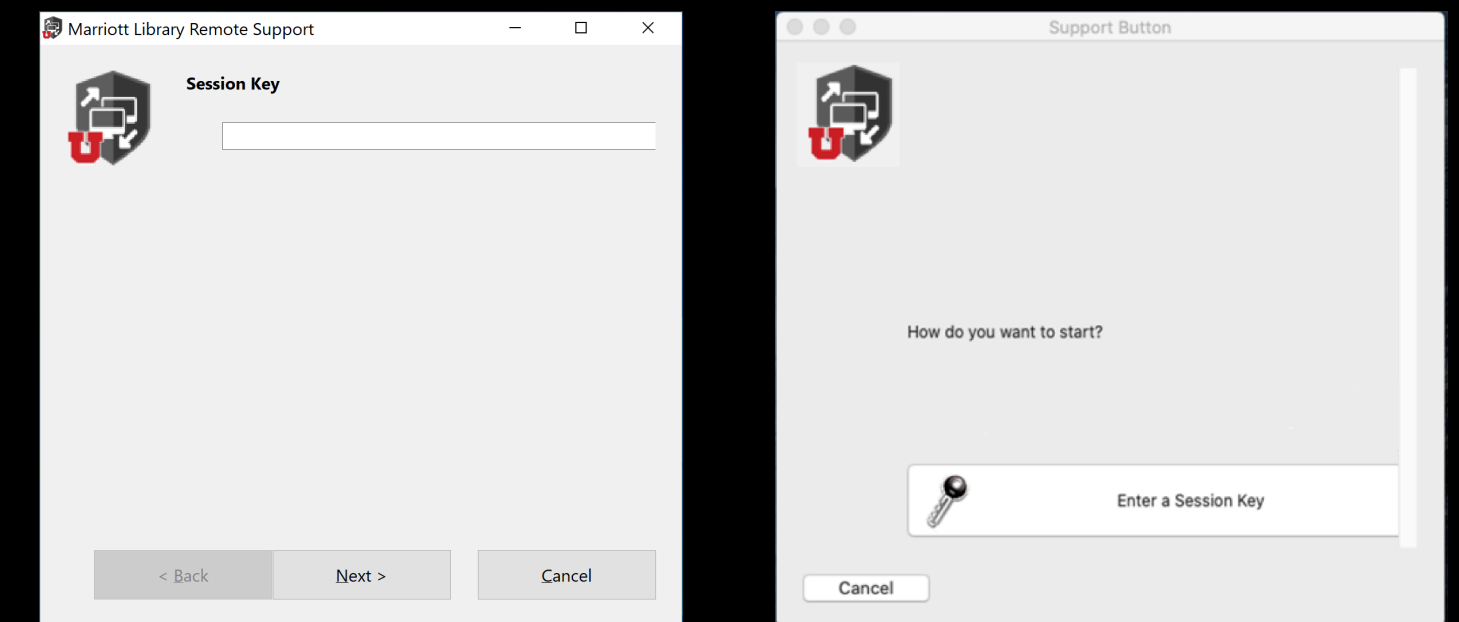
- Used multiple options for remote user support
 - On Windows Laptops, used built in “Quick Assist”
 - Or used Zoom & Microsoft Teams
 - On Mac Laptops, have used Zoom & Jamf Remote
 - For Zoom created configuration profile to provide remote control support on a temporary basis via scoping.



Challenges

Friction & Pain Points - Remote User Support

- **BeyondTrust Remote Support**
 - Provides Uniform Experience & Branding
Across supported platforms macOS & Windows
 - Secured Elevation
Use “Run as administrator” to run commands or login with admin account
 - Role/Function-Based Access Controls
For different groups like help desk, admins, or managers
 - Auditable & Transparent Actions
User Must Approve Actions by remote support
 - Supports Central Automation of Group Management
Access based on AD and managed through SailPoint (TOTP)



Challenges

Friction & Pain Points - Remote User Support

- BeyondTrust Remote Support

The screenshot displays the BeyondTrust Remote Support Representative Console. The interface is divided into several sections:

- Sessions:** Located at the top, it includes a 'Quick Start Buttons' area with options like 'Start...', 'Access Requests', 'Session Key', 'Support Buttons', 'Present', 'Jump To...', 'RDP...', 'VNC...', 'Shell Jump...', and 'Intel® vPro...'. Below this is a 'Queues' section with 'Accept', 'Decline', and 'Transfer' buttons.
- My Queues:** A table showing queue details. The current queue is 'D-Nice' with a status of 'In Progress' and a time in queue of '3:21:01'. The table has columns for Queue, Status, Time in Queue, Name, Computer, OS, Issue, and Total Time.
- Monitor:** A section for monitoring the session, with 'Join' and 'Take Over' buttons.
- All Representatives:** A list of representatives, including 'Hiro Protagonist' who is currently online.
- My Jump Groups:** A list of jump groups, including 'Recently Used', 'Personal', and 'TechCom'. The 'TechCom' group is selected.
- Jump Item Interface:** A table listing jump items with columns for Name, Hostname/IP, Jump Method, and Comments. The items are 'LS-RED05', 'TC-DEFEND01', and 'TechCom Mac', all using 'Jump Client' as the method.
- LS-RED05 Properties:** A detailed view of the selected jump item, showing its status as 'Active [ON]', online since '08/14/2019 03:14:05 PM', and session started at '08/19/2019 11:2...'. It also lists the hostname/IP, FQDN, jump policy, and session members.
- Representative Chat:** A chat window on the right side of the interface, showing a conversation with 'Hiro Protagonist'.

Challenges

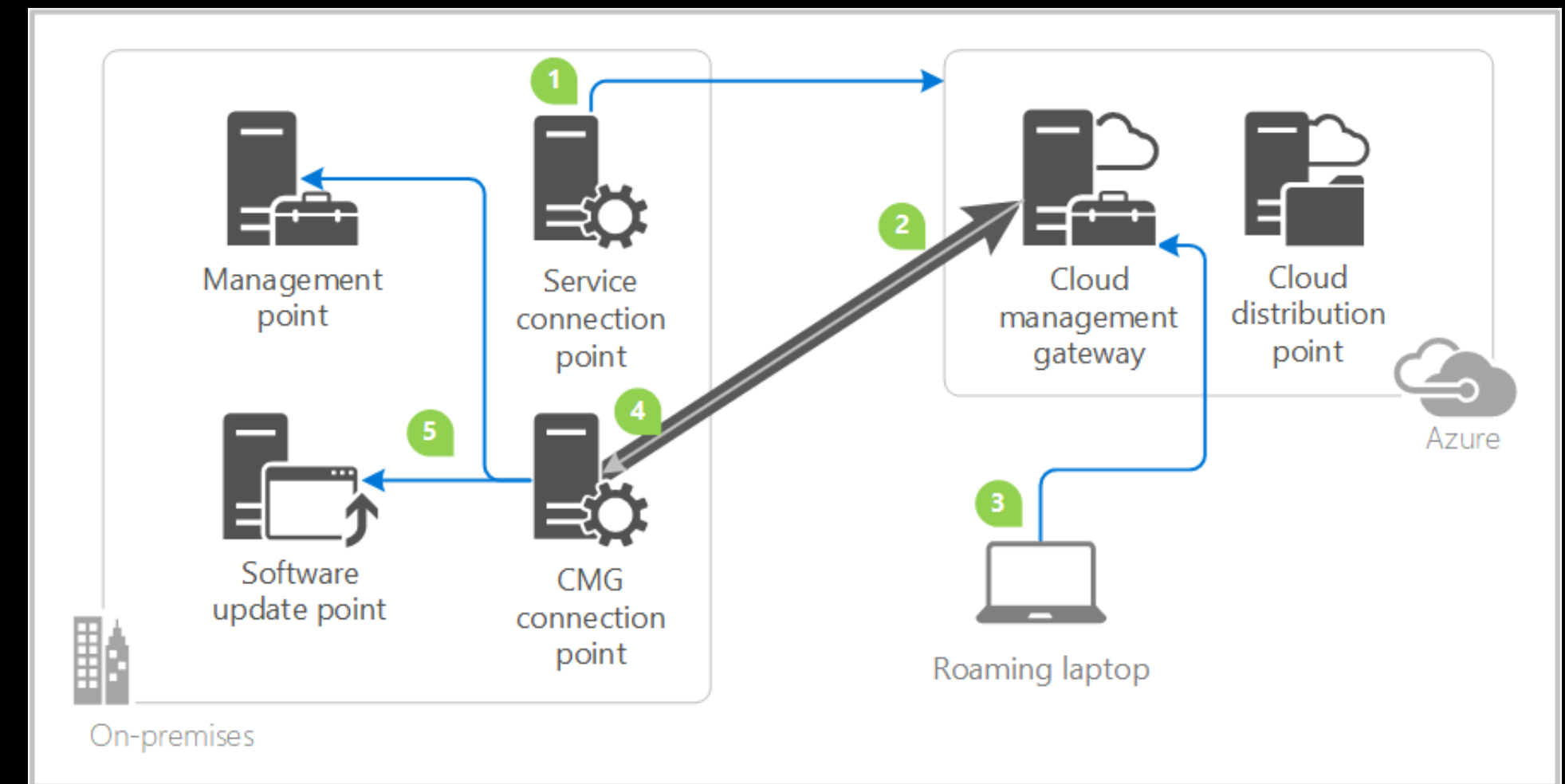
Friction & Pain Points - Off-Site Device Management



Challenges

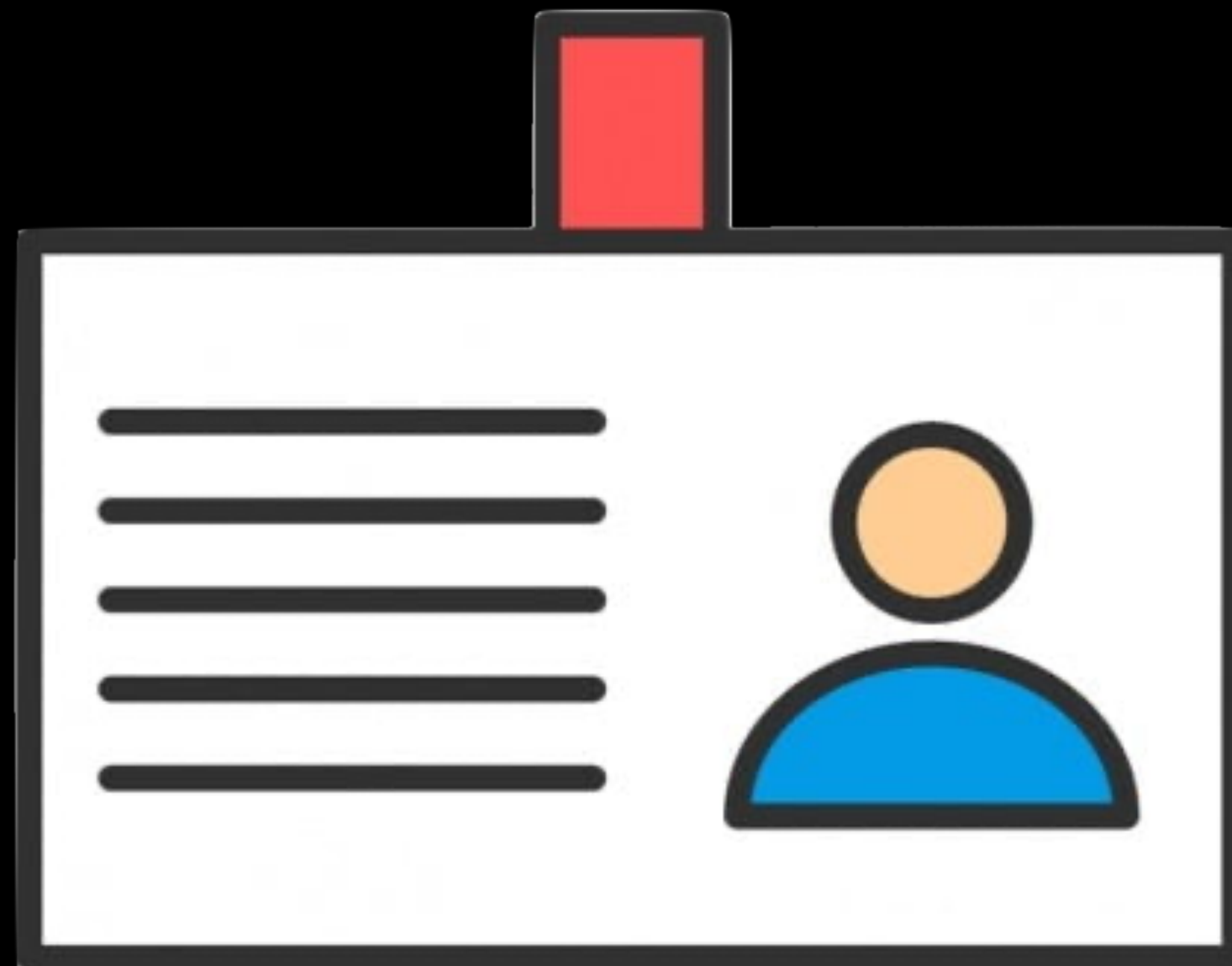
Friction & Pain Points - Off-Site Device Management

- Windows Laptops
 - To address, security concerns with making SCCM Available Off-Campus
 - Setup a Cloud Management Gateway in Azure
 - Worked with UIT, to setup and support the service
 - Poor & unreliable home networks.
 - Forced some students to come to campus



Challenges

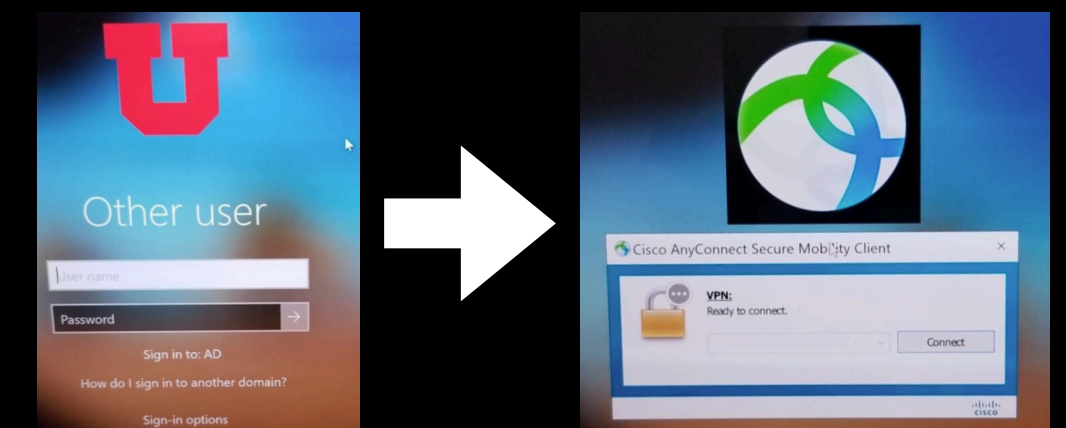
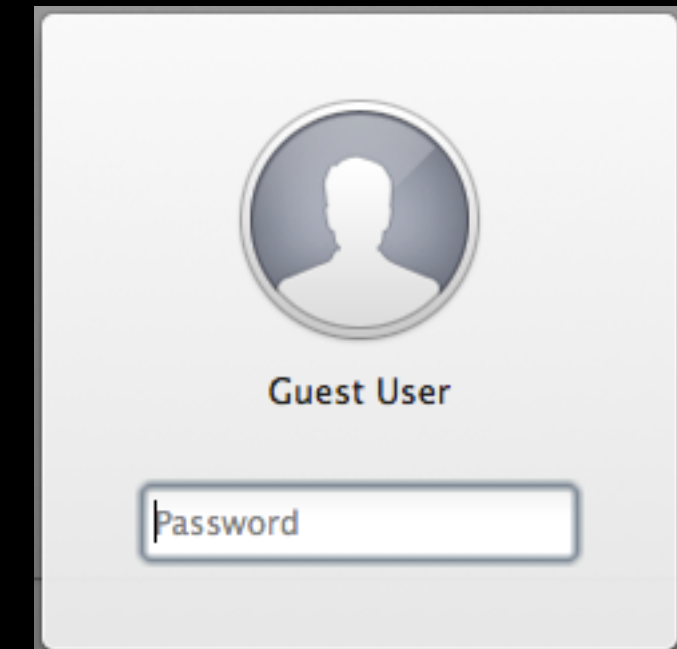
Friction & Pain Points - Identify Provisioning



Challenges

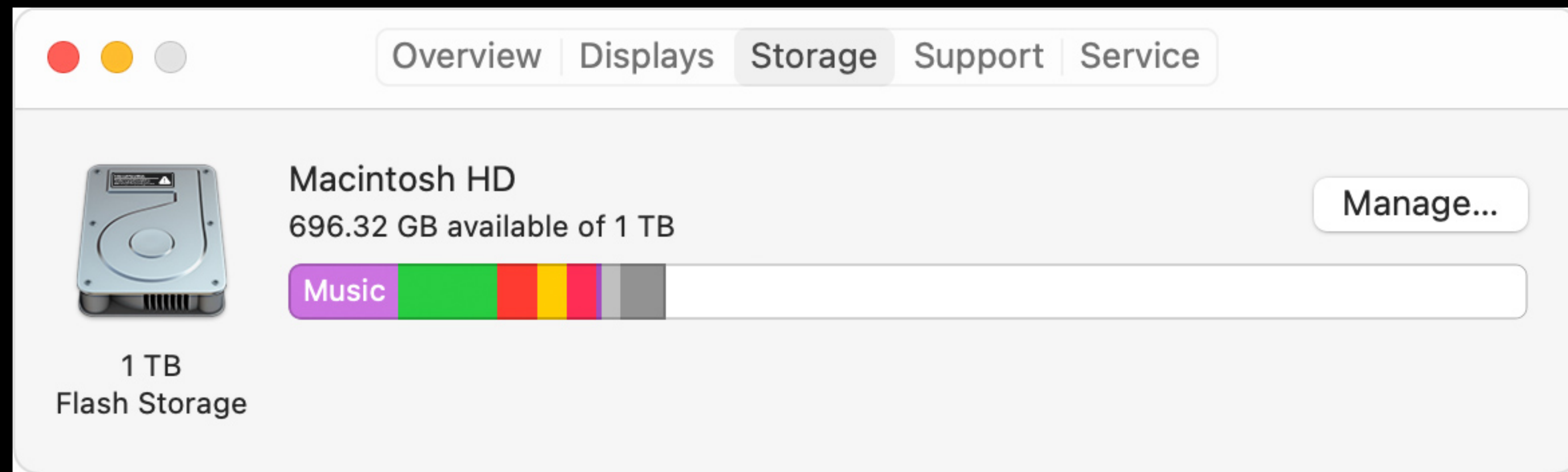
Friction & Pain Points - Identify Provisioning

- Guest Accounts
 - During COVID-19 pandemic, the library was closed to public
 - We working with the Union, to make checkout laptops available
 - Or would ship directly to student home
 - But, needed to stage laptops with cached guest account
- Azure AD
 - If UIT approved & supported Azure AD for identity provisioning
 - We could allow new logins with uNID off-campus w/o VPN
 - On Windows, we have implemented VPN at login window



Challenges

Friction & Pain Points - Storage Space



Challenges

Friction & Pain Points - Storage Space



- Mac Devices
 - Due amount software & large size of some applications
 - Ran into storage issues on Mac laptops with 256 GB Storage
 - As workaround, created different software distribution policy
 - Smaller drives only get subset of available software
 - User can install additional software using Jamf Pro Self Service application.
 - Which causes support, consistency & cleanup challenges with some devices

Challenges

Friction & Pain Points - Storage Space



- Mac Devices
 - Software Cleanup Options
 - Remove Application Bundle via Script
 - Package Uninstaller via Script Referencing Package Receipt
 - Developer Uninstaller
 - Custom Uninstaller or Script

Challenges

Friction & Pain Points - Storage Space



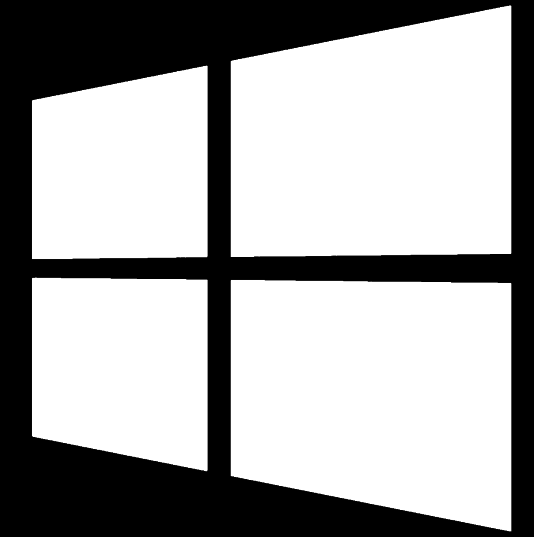
- Mac Devices
 - “Cleanup Manager” is open source solution for user home folder cleanup



https://github.com/univ-of-utah-marriott-library-apple/cleanup_manager

Challenges

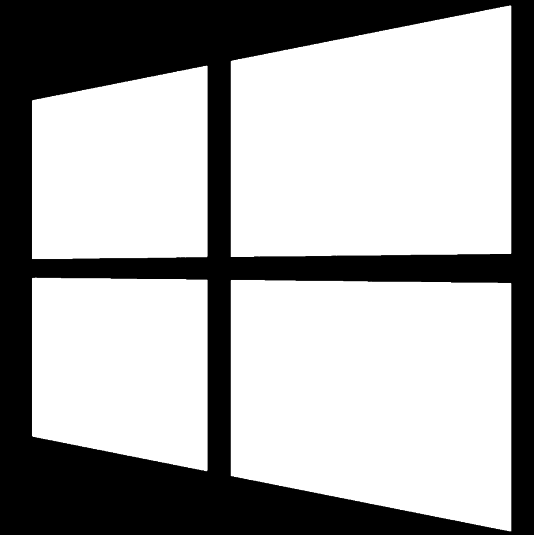
Friction & Pain Points - Storage Space



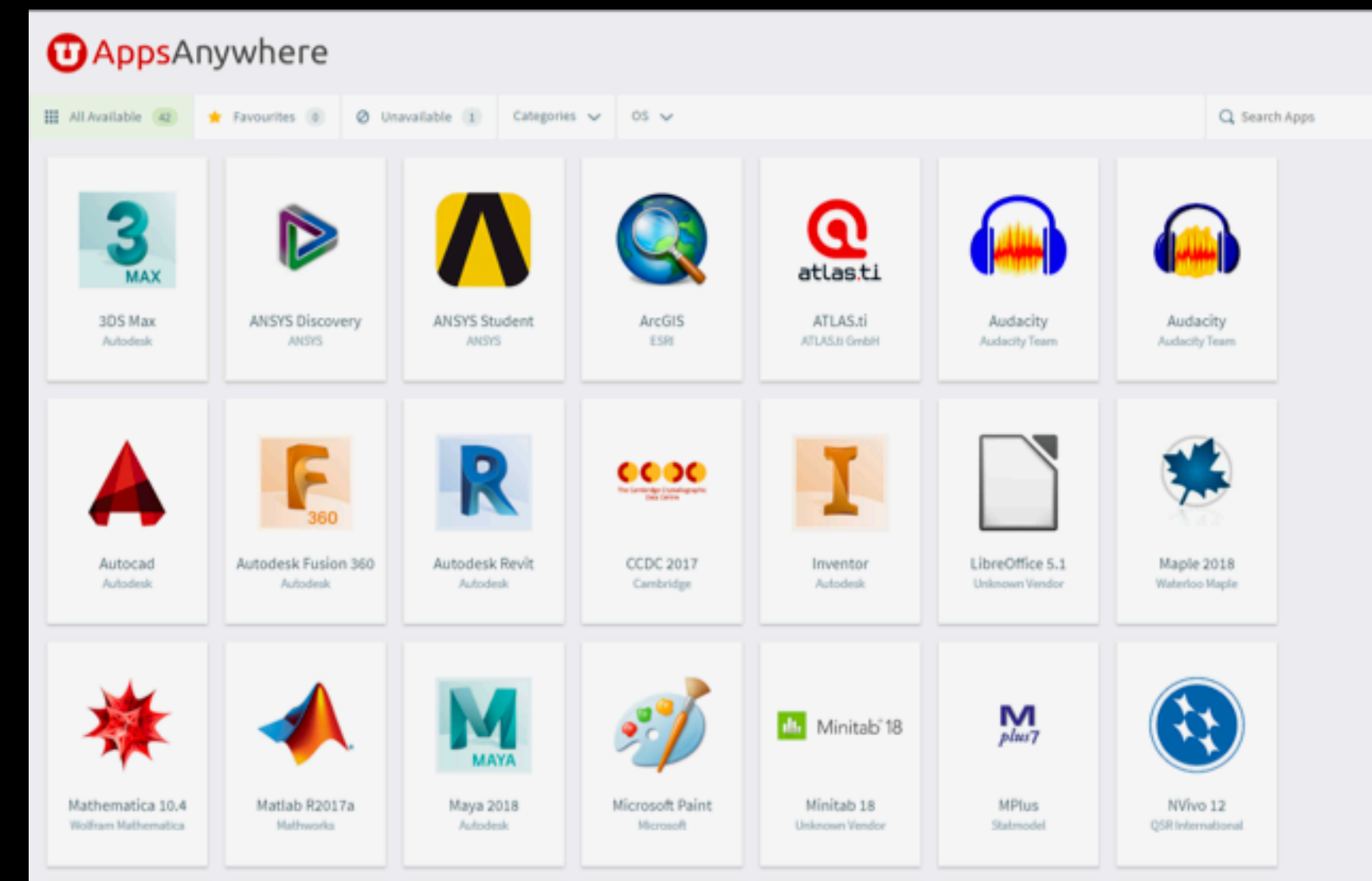
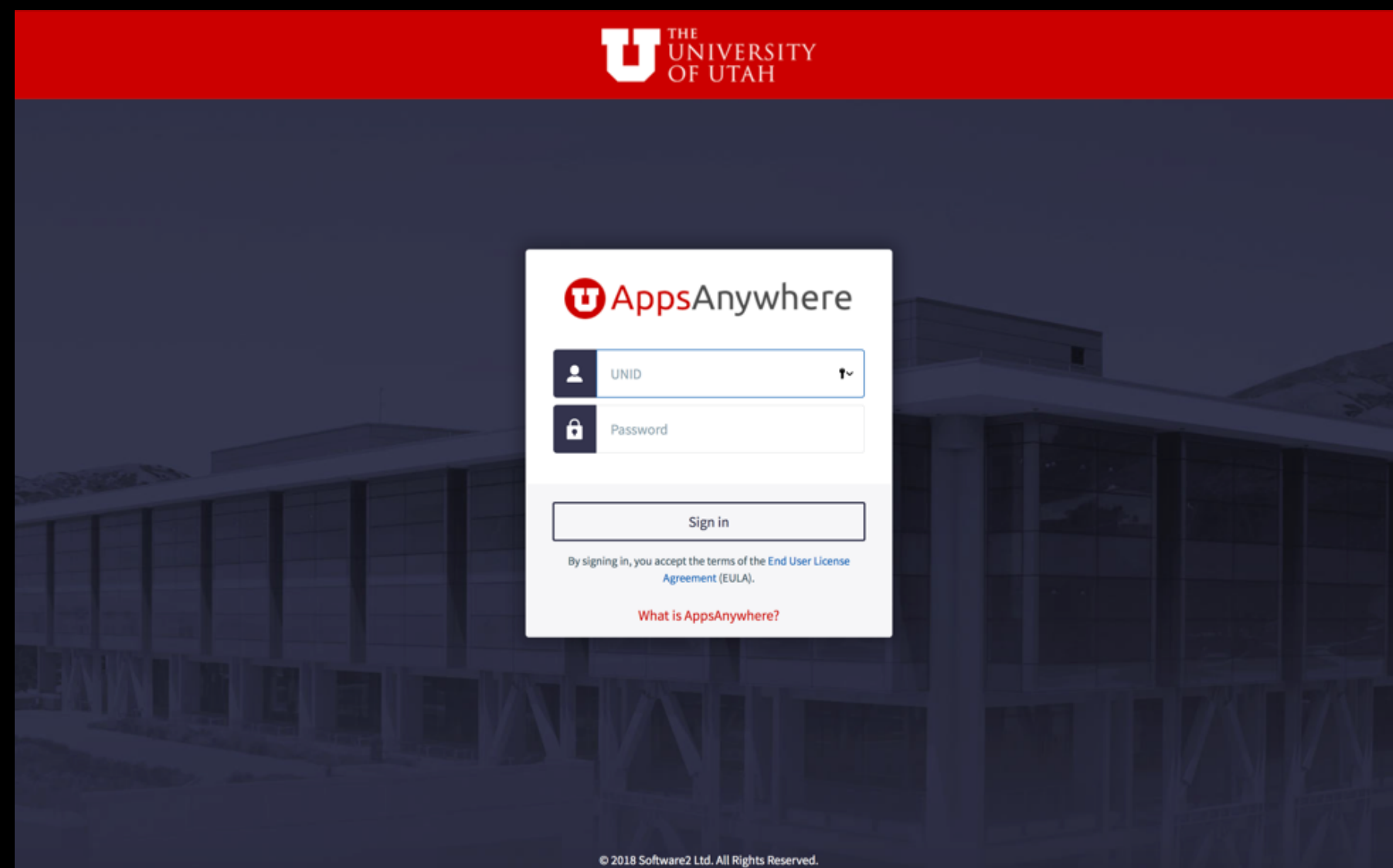
- Windows Devices
 - Storage is less critical because of software distribution solution
 - Very few applications stored locally on device
 - Most applications made available through Software2 AppsAnywhere
 - It uses a technology called CloudPaging to efficiently deliver virtualized applications
 - This applications on temporarily stored on Windows systems
 - Cleanup using Powershell Script for User Profiles & Temporary Files via Scheduled Task

Challenges

Friction & Pain Points - Storage Space



- Windows Devices



<https://newsletter.lib.utah.edu/appsanywhere-marriott-library/>

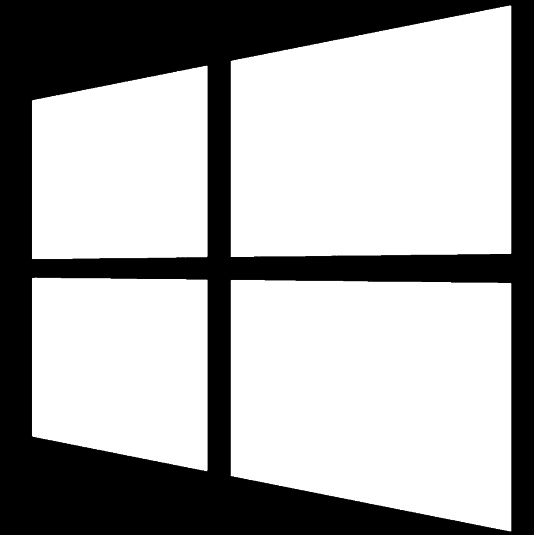
Challenges

Friction & Pain Points - Device Damage



Challenges

Friction & Pain Points - Device Damage

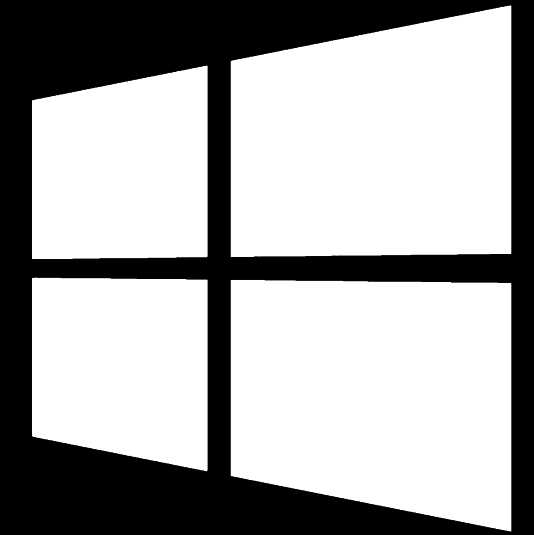


- Library Fine Policy
 - Place hold on student record
 - Referral to Dean of Students
- When laptop is damaged by student
 - Repair Cost
Get a repair estimate that student will be fined
 - Replacement Cost
Of if laptop age > 2 years old and repair is “close” to replacement cost

Fines over \$50.00 will result in a suspension of borrowing privileges.




Unpaid library fines and/or fees will result in holds placed on a patron's University record.

The failure to timely pay library fines and/or fees may also result in referral to the Dean of Students, University Administration, University Police, or a collection agency. In such circumstances, the patron will be responsible for all fines and/or fees incurred as well as all costs to collect the unpaid fines and/or fees, including attorney's fees.



Friction & Pain Points - Device Damage

- Windows Laptops
 - Includes Premier Onsite Support
 - 3 Years Accidental Damage Protection
 - 1 Year Battery Warranty
 - Warranty Adds \approx \$70 Laptop Cost

	 Good Depot Support	 Better Onsite Support	 Best Premier Onsite Support
Basic Phone Support	✓	✓	✓
Parts & Labor included	✓	✓	✓
Advanced Phone Support			✓
Fastest Repairs - Next Business Day			✓
Comprehensive Hardware & Software Support			✓

Challenges

Friction & Pain Points - Device Damage



- macOS Laptops
 - Due to high price of warranty coverage for user damage.
 - We do NOT purchase additional warranty coverage
 - We purchase a hard shell case for additional protection



Enjoy 3 years of peace of mind when you buy AppleCare+ for Mac.

Every Mac comes with one year of hardware repair coverage through its **limited warranty** and up to **90 days of complimentary technical support**. AppleCare+ for Mac extends your coverage to three years from your AppleCare+ purchase date and adds up to two incidents of accidental damage protection every 12 months, each subject to a service fee of \$99 for screen damage or external enclosure damage, or \$299 for other damage, plus applicable tax.¹ In addition, you'll get 24/7 priority access to Apple experts by chat or phone.²

 3 years of Apple-certified service and support coverage

 24/7 priority access to technical support

 Get up to 2 incidents of accidental damage protection every 12 months¹

 Battery service coverage³

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Protection Solutions *Designed* for the college and institutionally owned technology.
Check out our options for every budget and planning scenario.

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With more than 38 years of experience protecting technology in education, you can rest assured you have the right partner in Safeware.

Services

- Warranty & Insurance Solutions**
Protection against failure, accidental damage, theft (burglary & robbery), and standard perils: Fire, Flood & Vandalism.
- Commercial Finance Options**
Safeware offers commercial financing and lease options to meet the flexibility your institution needs.
- 24/7/365 Tech Support**
In the new remote landscape, having a quality tech support partner can reduce your workload and increase up-time.
- Cyber Security Insurance**
From ransomware to data theft, it's more important than ever to ensure you're protected.
- Asset Management**
Safeware partners with the leading Asset Management companies in the nation. This includes seamless MDM management.
- Device Buyback**
Turn your old devices into cash or credit. Retired devices can be sold allowing money to be added back into your budget.

<https://www.itslaut.com/collections/macbook-series/products/huex-for-macbook-pro-13-2020-model?variant=32623120154721>

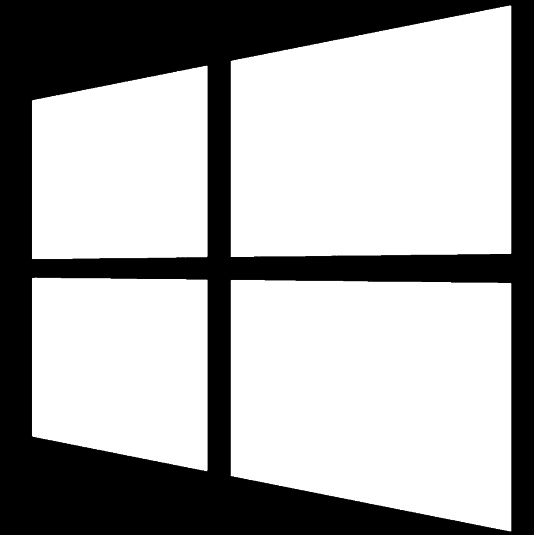
Challenges

Friction & Pain Points - Theft

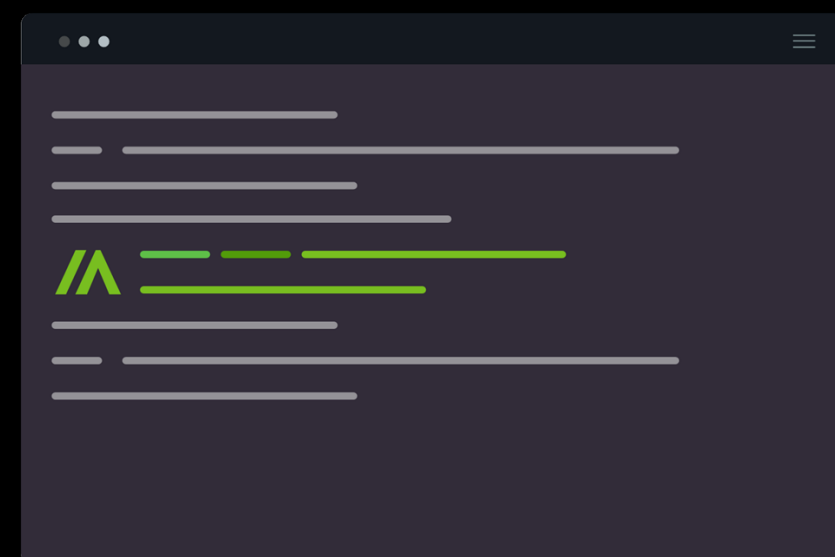
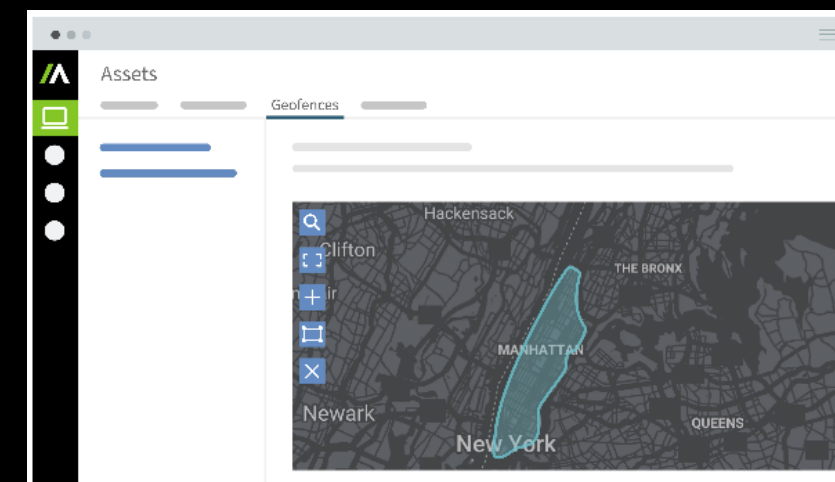


Challenges

Friction & Pain Points - Theft



- Windows Laptops
 - Absolute Platform
 - Lock or Wipe
Freeze at-risk-devices or delete data from system
 - Geofencing
Automatically trigger these actions whenever a device leaves a safe area
 - Persistence Privileged Position in the Firmware
If anything is missing it reinstalls, even if hard drive is replace



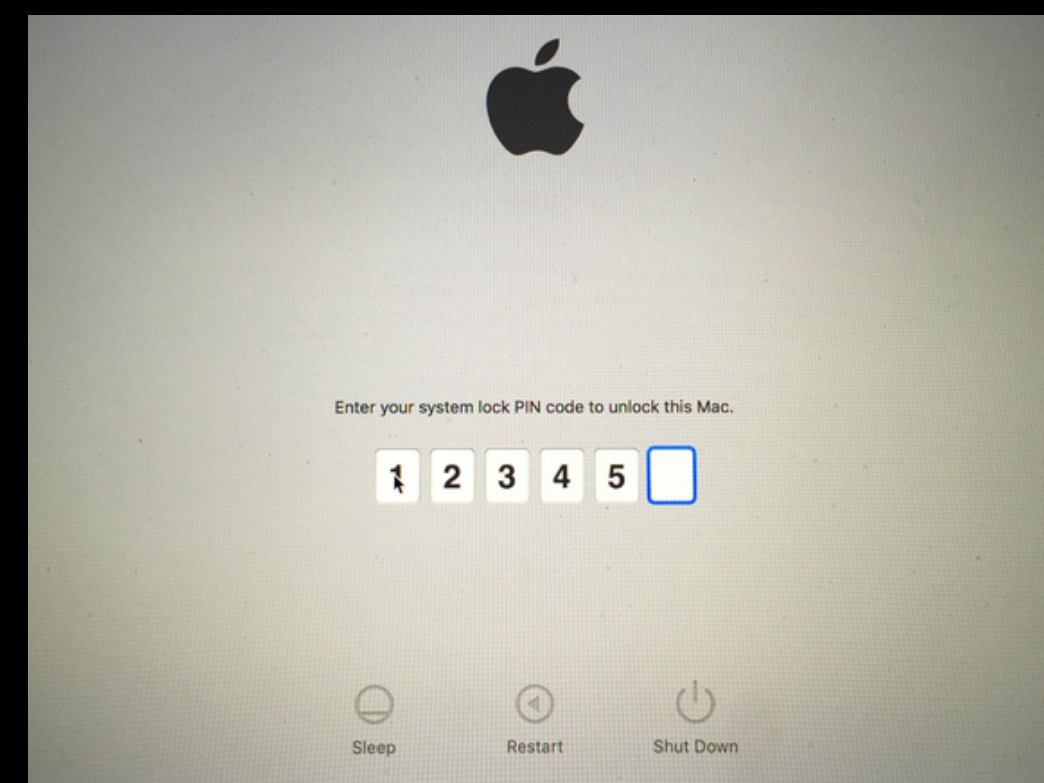
<https://www.absolute.com/platform>

Challenges

Friction & Pain Points - Theft

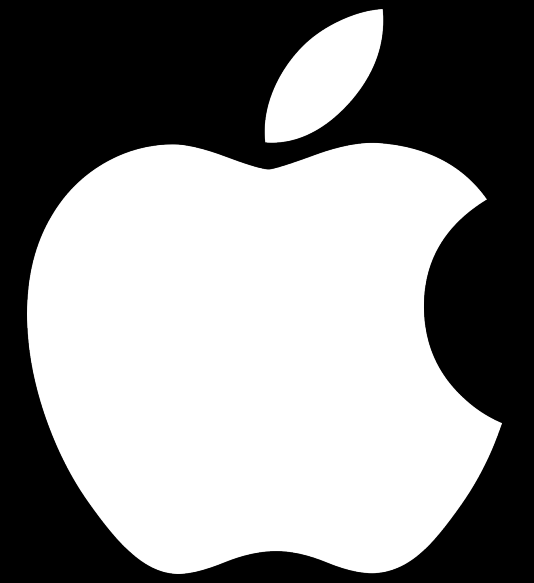


- Mac Laptops
 - Jamf Pro has MDM functionality to Wipe & Lock Devices
 - Enabling Automatic Device Enrollment

A screenshot of the 'Lock Computer' dialog box. It features a title bar with a lock icon and the text 'Lock Computer'. Below the title bar, there is a section for 'Remote Lock Passcode' with a sub-header 'Remote Lock Passcode' and a description 'Passcode to use to lock the computer. This must be a 6-digit passcode'. A text input field contains '[Required]'. Below this is a section for 'Lock Message' with a sub-header 'Lock Message' and a description 'Message to display after the computer is locked'. A text area contains '[Optional]'. At the bottom right, there are two buttons: 'Cancel' and 'Lock Computer'.

Challenges

Friction & Pain Points - Theft



- Mac Laptops
 - Enable & Change Firmware Password
 - Prevents starting from another internal or external storage device

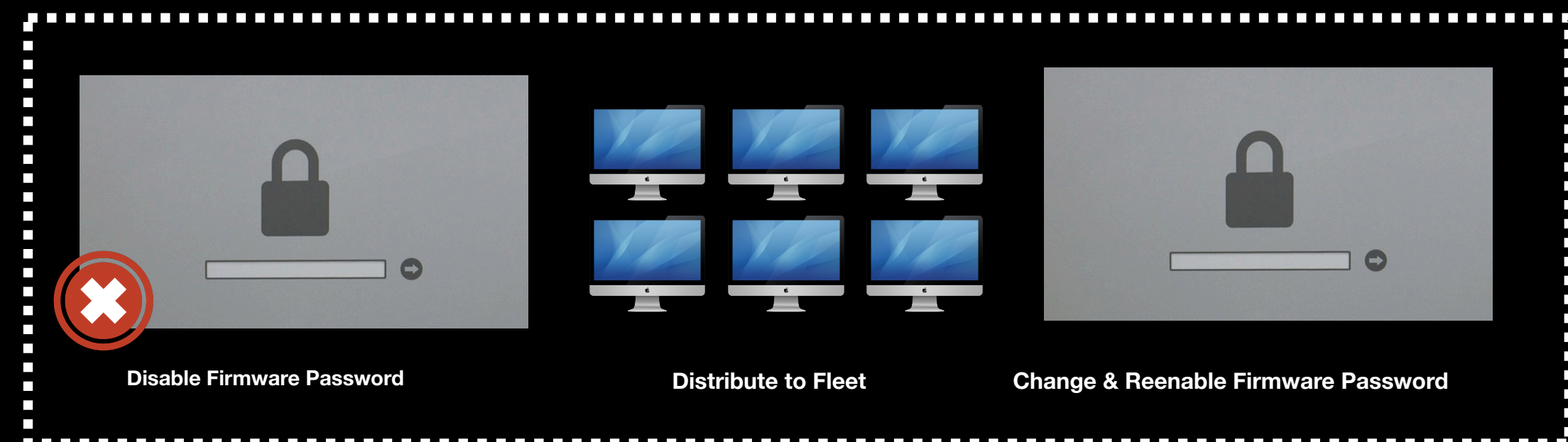


Challenges

Friction & Pain Points - Theft



- Mac Laptops
 - Enable & Change Firmware Password
 - With Jamf Pro the build-in default is “set it and forget it”
 - It allows you to set password and activate it, but laborious to change

A screenshot of the 'Open Firmware/EFI Password' configuration window. It features a 'SECURITY LEVEL' dropdown menu currently set to 'Command'. Below this are two password input fields: 'PASSWORD' and 'VERIFY PASSWORD', both containing masked characters (dots). A close button (X) is located in the top right corner of the window.

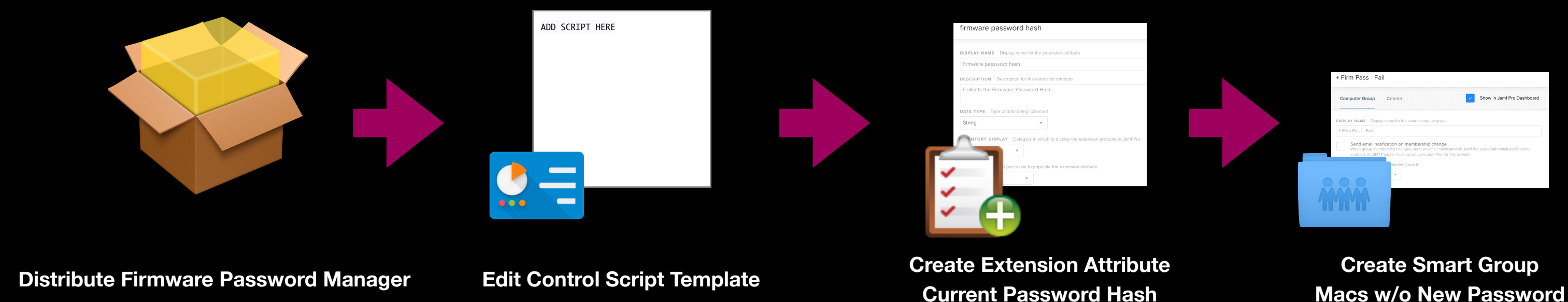
Challenges

Friction & Pain Points - Theft



- Mac Laptops

- Created a python tool, Firmware Password Manager
- Adds more functionality allowing setting and updating firmware password
 - Integrating with Jamf Pro, using control script, extension attribute, smart group & policy



https://github.com/univ-of-utah-marriott-library-apple/firmware_password_manager

Challenges

Friction & Pain Points - Theft

- Classroom Laptop Checkout
 - Three classroom checkout rooms
 - Includes a secure cabinet for laptops
 - Requires ID Card to access cabinet
 - Door auto-locks after X timeframe
 - Campus C*Cure is managed by Building Access Department



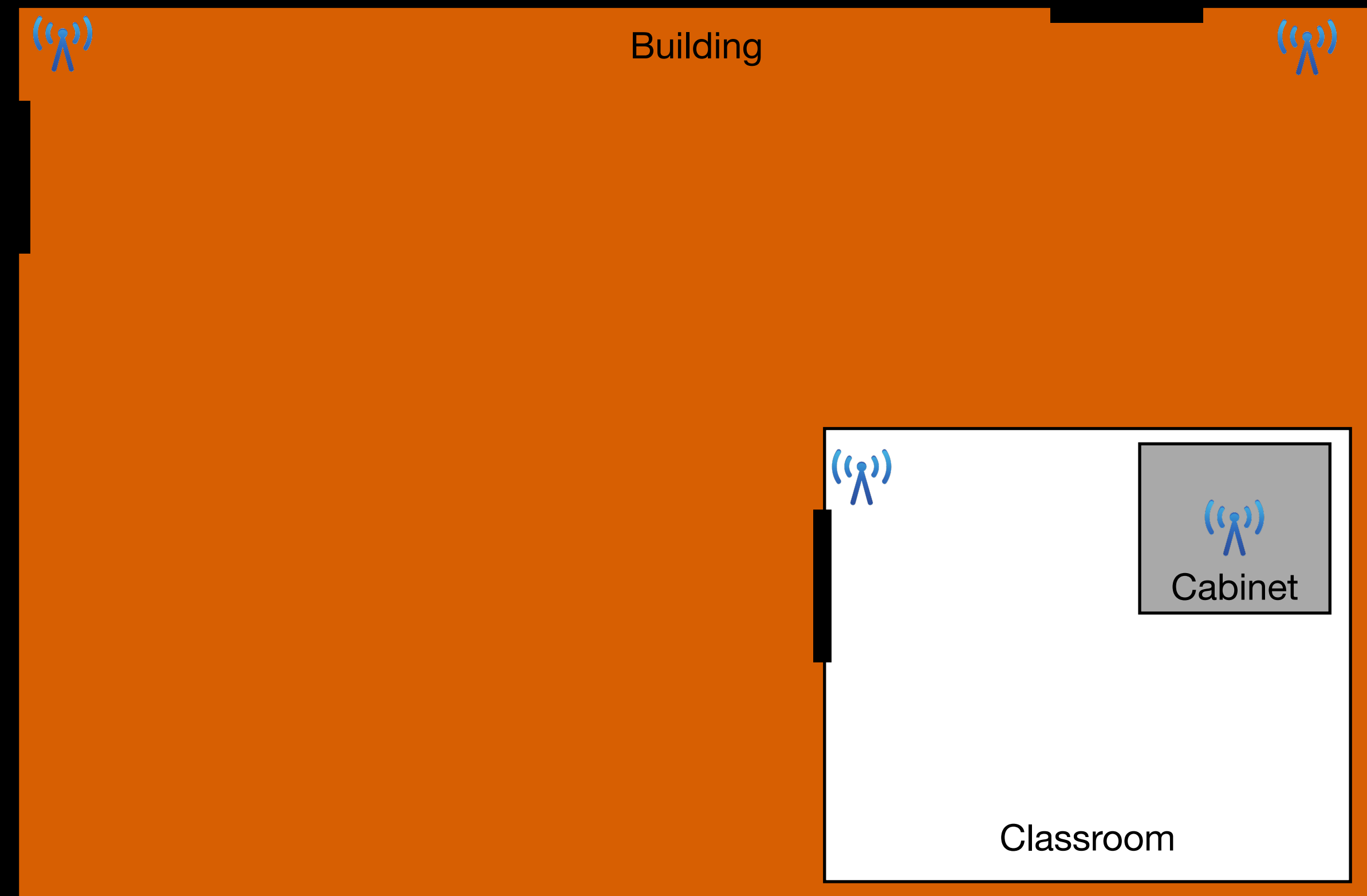
<https://facilities.utah.edu/requests/key-requesttc-cure/>



Challenges

Friction & Pain Points - Theft

- Classroom Laptop Checkout
 - Commodity RFID Project
 - Working with Electrical Engineering on project
 - Open source solution that provides geofencing & triggers
 - Inventory triggers & monitoring in cabinet
 - Triggers & monitoring for classroom & building door proximity
 - Integrates cheap commodity RFID antennas



Student Checkout Devices

Question or Comments

