

What's New in Apple Device Management

Session 303

Todd Fernandez Senior Manager, Device Management & Server



WED
15

11:05

11:00–12:00PM
Device Management
Session 303

72°

54:59



June 2016

- Day
- Week
- Month
- Year



Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
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19	20	21	22	23	24	25
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iPad

9:41 AM

100%

June 2016

Day

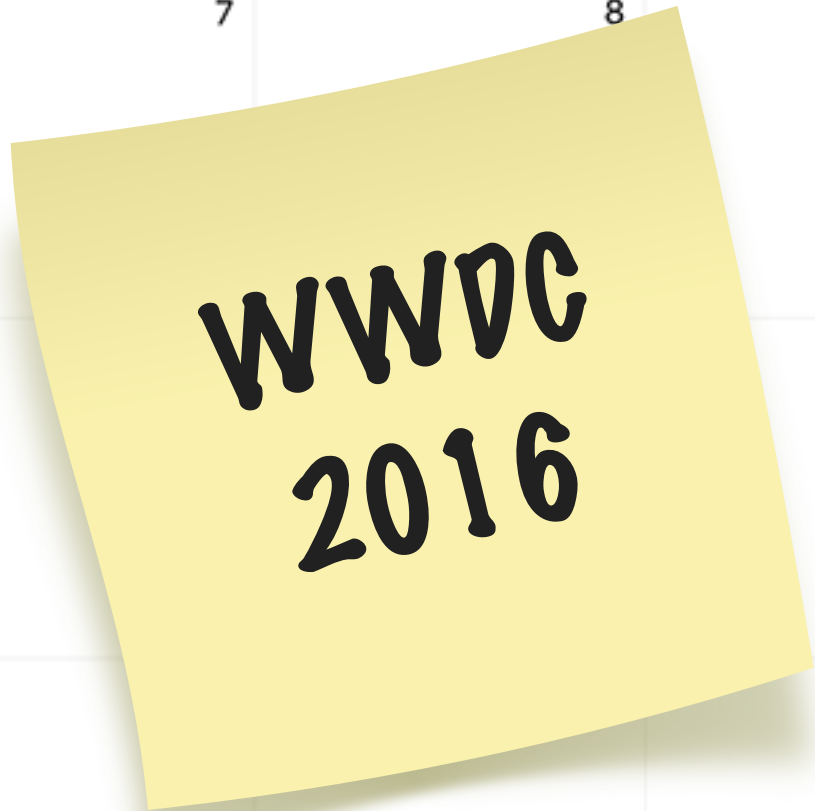
Week

Month

Year



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Today

Calendars

Inbox

September 2016

- Day
- Week
- Month
- Year



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iPad

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September 2016

Day Week **Month** Year



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						Oct 1

Back To School

Today

Calendars

Inbox

iPad

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100%

July 2016

- Day
- Week
- Month
- Year



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Today

Calendars

Inbox


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July 2016

Day Week **Month** Year

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Today Calendars Inbox



May 2016

- Day
- Week
- Month
- Year



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May 2016

Day Week **Month** Year

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29	30	31				
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Today Calendars Inbox



iPad

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March 2016

- Day
- Week
- Month
- Year



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Today

Calendars

Inbox

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March 2016

Day Week **Month** Year

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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Today Calendars Inbox

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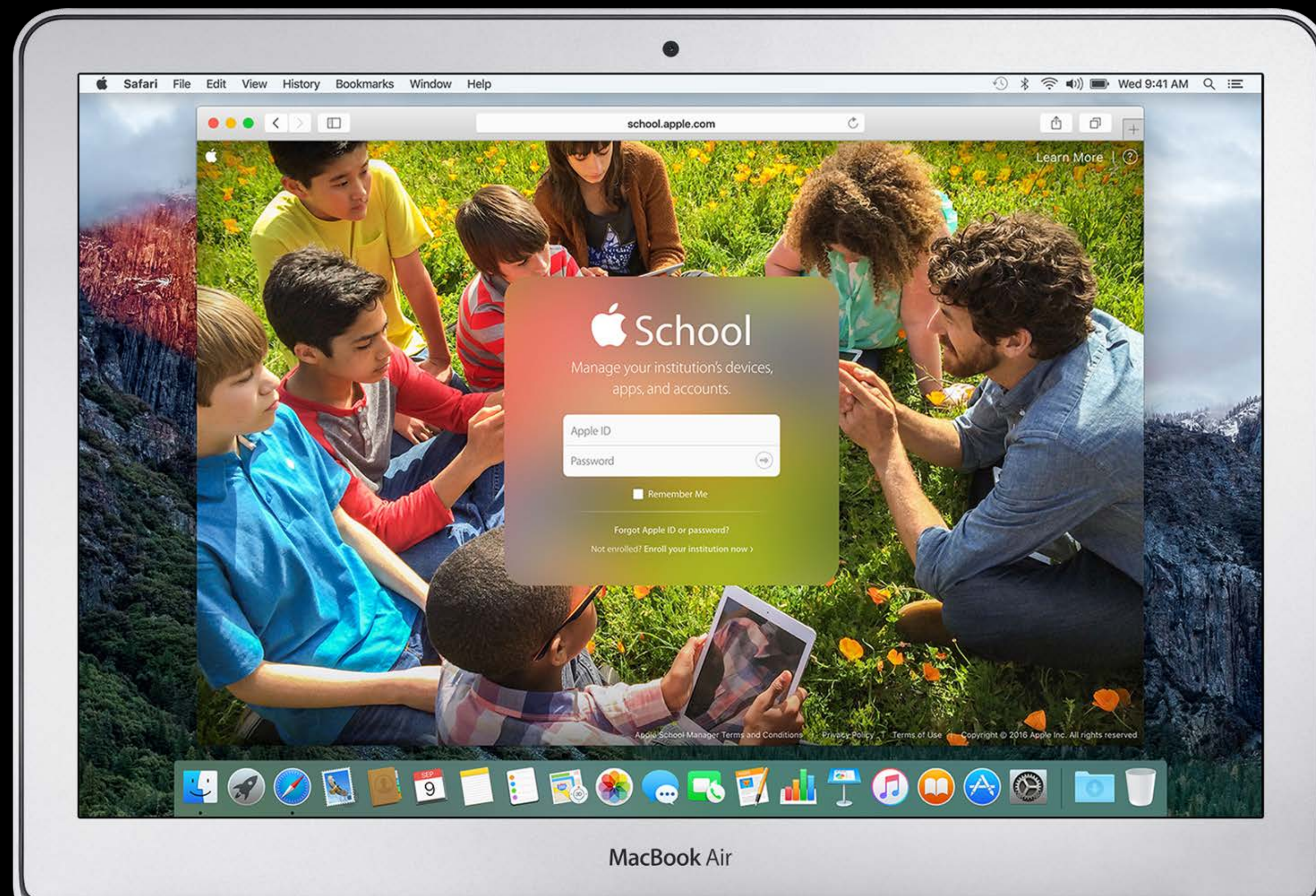
March 2016

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13	14			17	18	19
20	21			24	25	26
27	28	29	30	31		
					1	2

Today Calendars Inbox

Spring 2016



Spring 2016





Apple School Manager

school.apple.com

Township Schools

Search People Robyn Glennon

PEOPLE

Individuals

Classes

Roles

DEVICES

MDM Servers

Device Assignments

Assignment History

CONTENT

Buy Apps and Books

iTunes U

Search All Columns 716 total

Status	ID Number	First Name	Last Name	Managed Apple ID	Grade Level	Role	Date Created	More
CA New	78684556	Cynthia	Able	acynthia2@appleid.bu	1	Student	Today	
DA New	23455656	Diane	Abbott	dabbott2@appleid.bu	1	Student	Today	
EA New	56954843	Evelyn	Amador	aevelyn4@appleid.bul	1	Student	Yesterday	
RA New	34686514	Rose	Anderson	randerson1@appleid.k	1	Student	Yesterday	
JA New	45958756	Jane	Appleseed	jappleseed1@appleid.	1	Student	Yesterday	

Jane Appleseed

New

ID Number
1847664

Role / Location
Student at Township Schools

Grade Level
1

Email Address
jappleseed2@townshipschools.org

Connected

Upload CSV | Add New Person



“Apple School Manager will save our tech staff lots of time—we can manage devices, content, and our student accounts all from one place.”

Patrick Scanlan

Supervisor of Technology & Information Services

San Jose Unified School District



Shared iPad

3rd Grade



Addison



Aiden



Anthony



Ava



Avery



Brayden



Brooklyn



Chloe



Claire



Ella



Gabriel



Gavin



Isabella



Jordan



Julia



Kaelyn



Landon



Liam



Logan



Lucas



Mason



Mia



Natalie



Noah



Owen



Riley



Savannah



Sophia



Tristan



Zoe



Classes

This iPad is managed by Township Schools.

[Learn more...](#)

3rd Grade



Addison



Aiden



Anthony



Ava



Avery



Brayden



Brooklyn



Chloe



Claire



Ella



Gabriel



Gavin



Isabella



Jordan



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Riley



Savannah



Sophia



Tristan



Zoe



Classes

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[Learn more...](#)

Enter Passcode



1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
	0	Cancel

Enter Passcode



1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
	0	Cancel

iPad

9:41 AM

100%

Getting Ready



“Shared iPad will allow our district to transform a cart of shared devices into a personalized learning experience for each student.”

Eric Culpepper

Technology Support Specialist

Goose Creek CISD



Classroom

Help

3rd Grade

Select



Assign



Open



Navigate



Lock



Log Out



Screens



All (30)



iBooks (15)



Safari (9)



Pages (3)



Addison
Safari



Aiden
iBooks



Anthony
Display Off



Ava
Pages



Avery
iBooks



Brayden
iBooks



Chloe
iBooks



Claire
Pages



Elizabeth
Safari



Ella
iBooks



Gabriel
Safari



Gavin
Safari



Isabella
Safari



Jordan
Safari



Julia
Safari



Kaelyn
Safari



Landon
Safari



Liam
iBooks



Logan
iBooks



Lucas
iBooks



Mason
iBooks



Mia
AirPlay



Natalie
Display Off



Noah
iBooks



Owen
iBooks



Riley
iBooks



Savannah
iBooks



Sophia
iBooks



Tristan
Pages



Zoe
Display Off

“Classroom has been an extremely useful tool throughout the school day ... to enhance the Project Based Learning that is going on in my classroom. Classroom helps me to keep all my students accountable for their work, while also keeping them extremely engaged in their assignments.”

Ryan Garcia-Ganan

Fourth Grade Teacher

San Jose Unified School District

Spring 2016





Getting Started



Distribution



Management



Tools



Getting Started

Getting Started

Apple deployment programs

Apple School Manager

Managed Apple ID

Enrollment

Shared iPad



Getting Started

Enterprise

Apple deployment programs

Device Enrollment Program (DEP)

Volume Purchase Program (VPP)

Many new settings and commands



Getting Started

Apple School Manager

People

Devices

Content



Apple School Manager

People

Input

- SIS integration
- CSV upload

Managed Apple ID

- Students
- Teachers

Classes



Apple School Manager

Managed Apple ID

Admin accounts

- Tiered administration
- Roles and privileges

Student accounts

- Required for Shared iPad
- Passcode options
- Disabled services
 - Commerce, FaceTime, iMessage, iCloud Mail, ...



Apple School Manager

API

Roster Service

Users

- Students
- Teachers

Classes



Apple School Manager

API:Transition

Check during syncs if token is now ASM type (API v3)

Tell DEP you support API v3 by including in header

Customers do not need to download new tokens



Apple School Manager

API: Best practices

Handle duplicate records from multiple sources (e.g., LDAP + API)

- ✓ • Allow admin to configure automatic policy matching criteria
- ✓ • Allow admin to manually merge records
source_system_identifier corresponds to CSV "PersonNumber"
- Field is mutable and not guaranteed to be unique!



Apple School Manager

API: Best practices

No delta API

- SIS syncing only once per day
- ✘ • Don't automatically perform "full sync" more than once per day
- ✔ • Consider throttling admin-initiated syncs



Apple School Manager

Devices

Device Enrollment Program

- Find purchases
- Configure MDM servers
- Assign devices to MDM servers



Apple School Manager

Content

Volume Purchase Program

iTunes U



Getting Started

Enrollment

Enrollment optimization

Security best practices

Configure Setup Assistant

MDMServiceConfig

Shared iPad



Enrollment

Enrollment optimization

Enrollment

Enrollment optimization

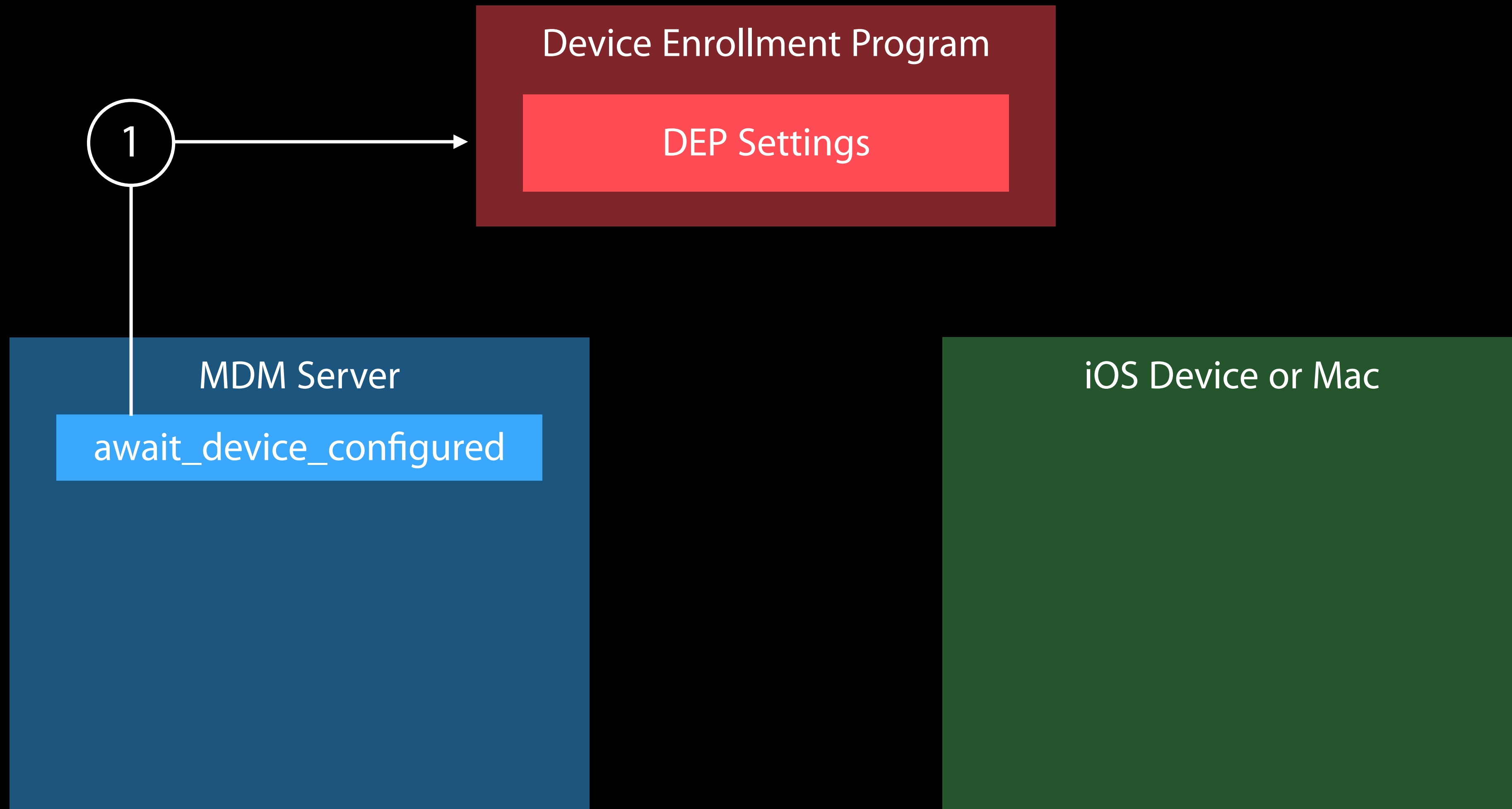
Device Enrollment Program

MDM Server

iOS Device or Mac

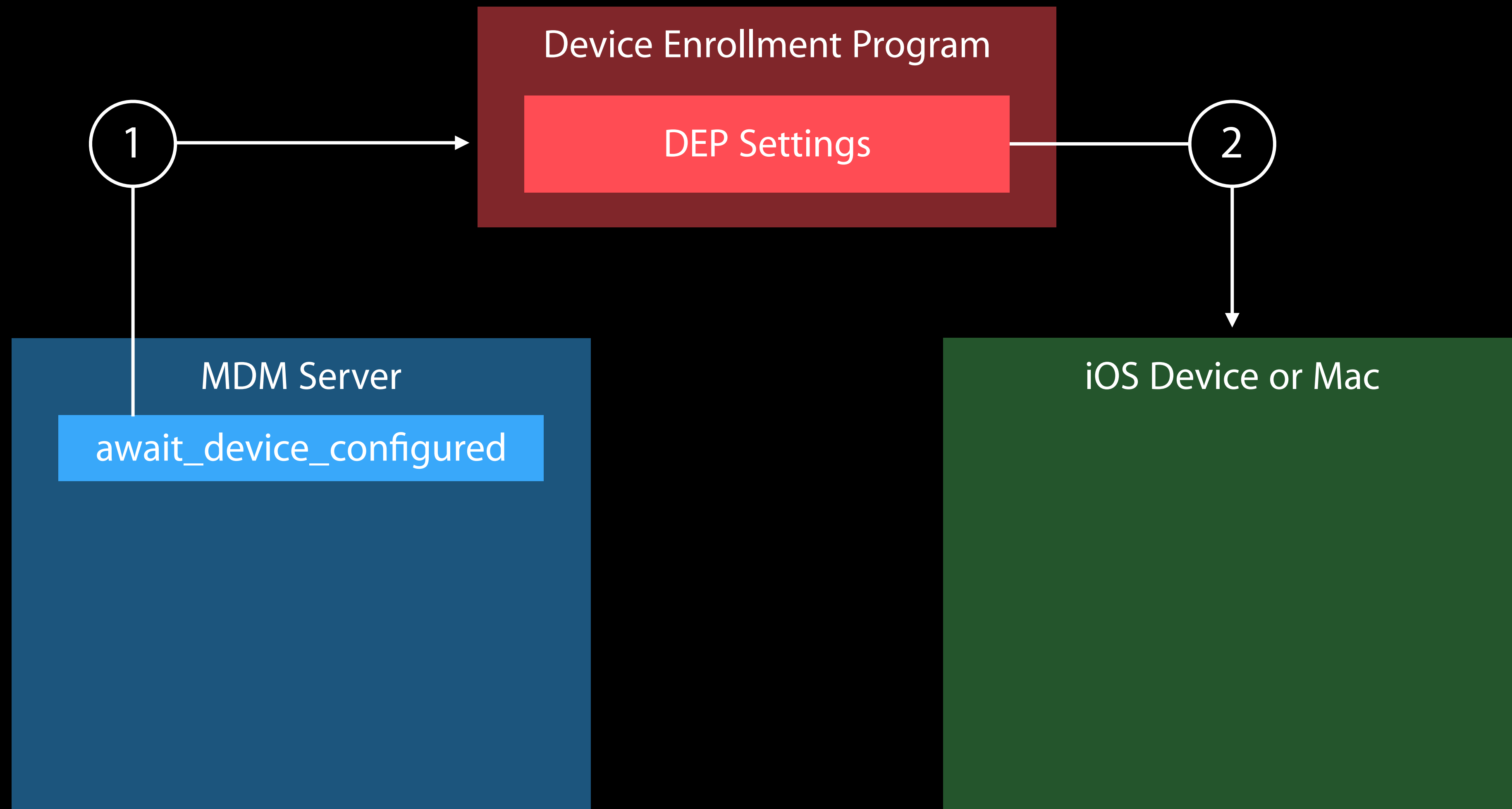
Enrollment

Enrollment optimization



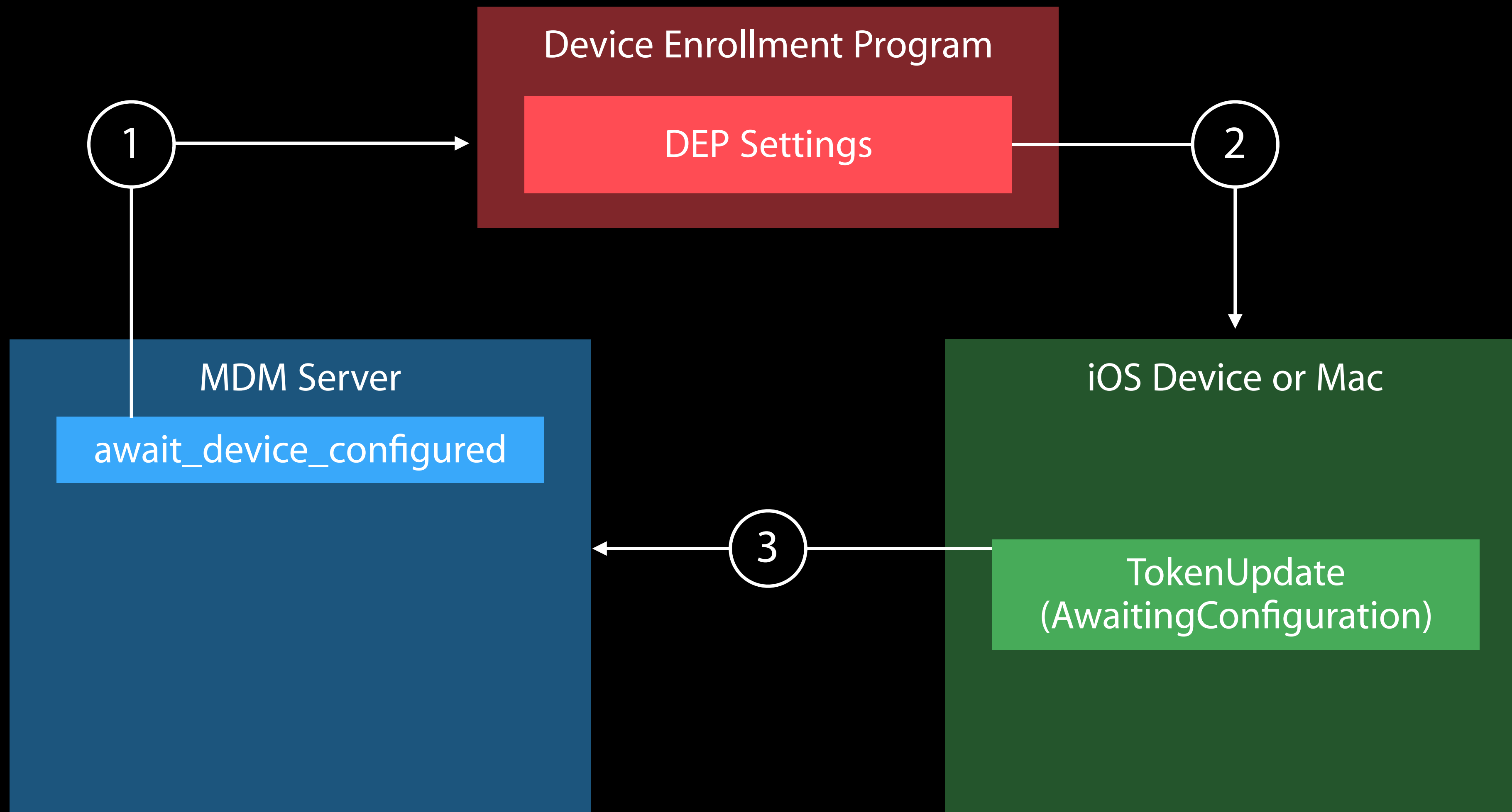
Enrollment

Enrollment optimization



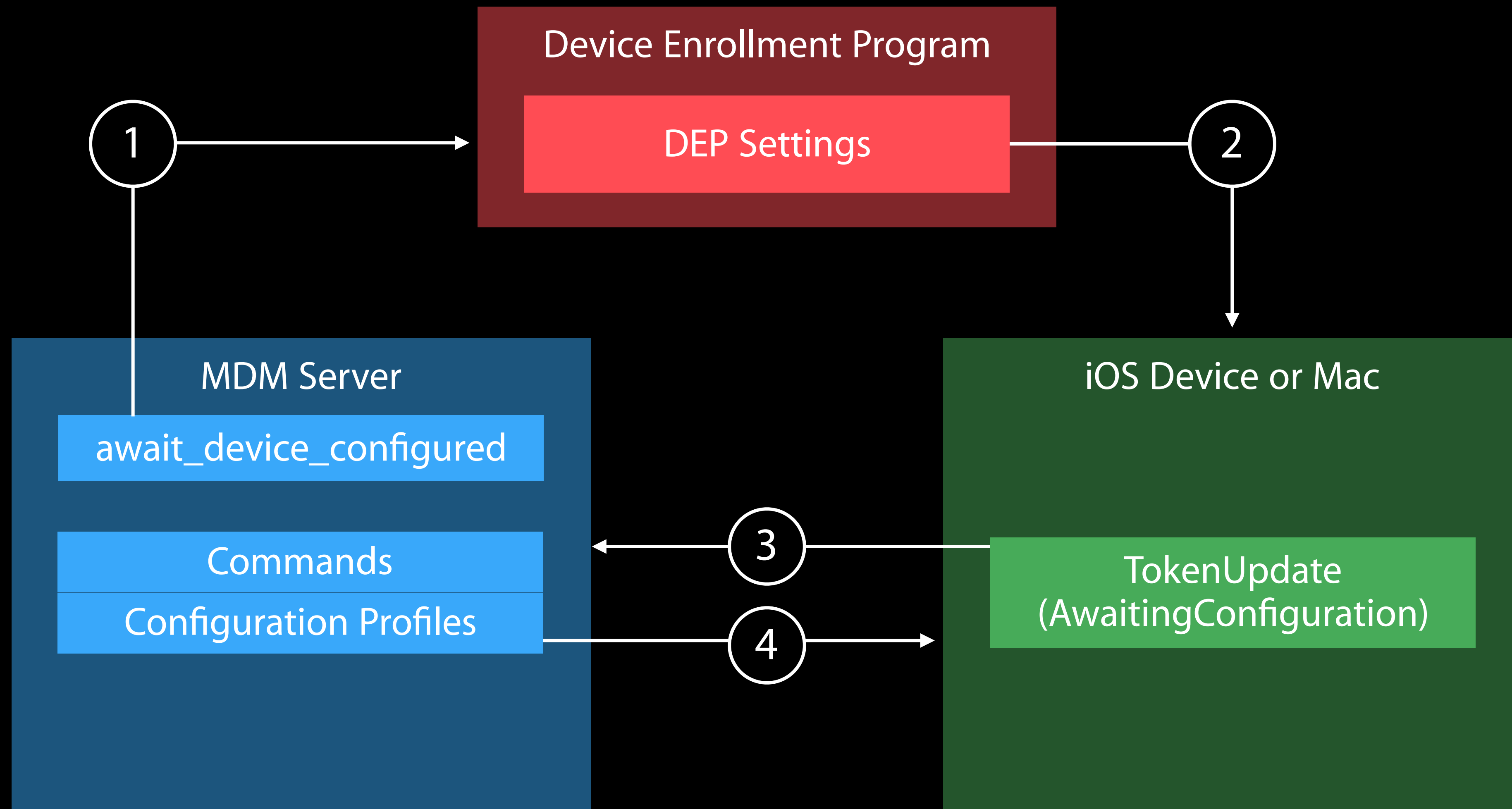
Enrollment

Enrollment optimization



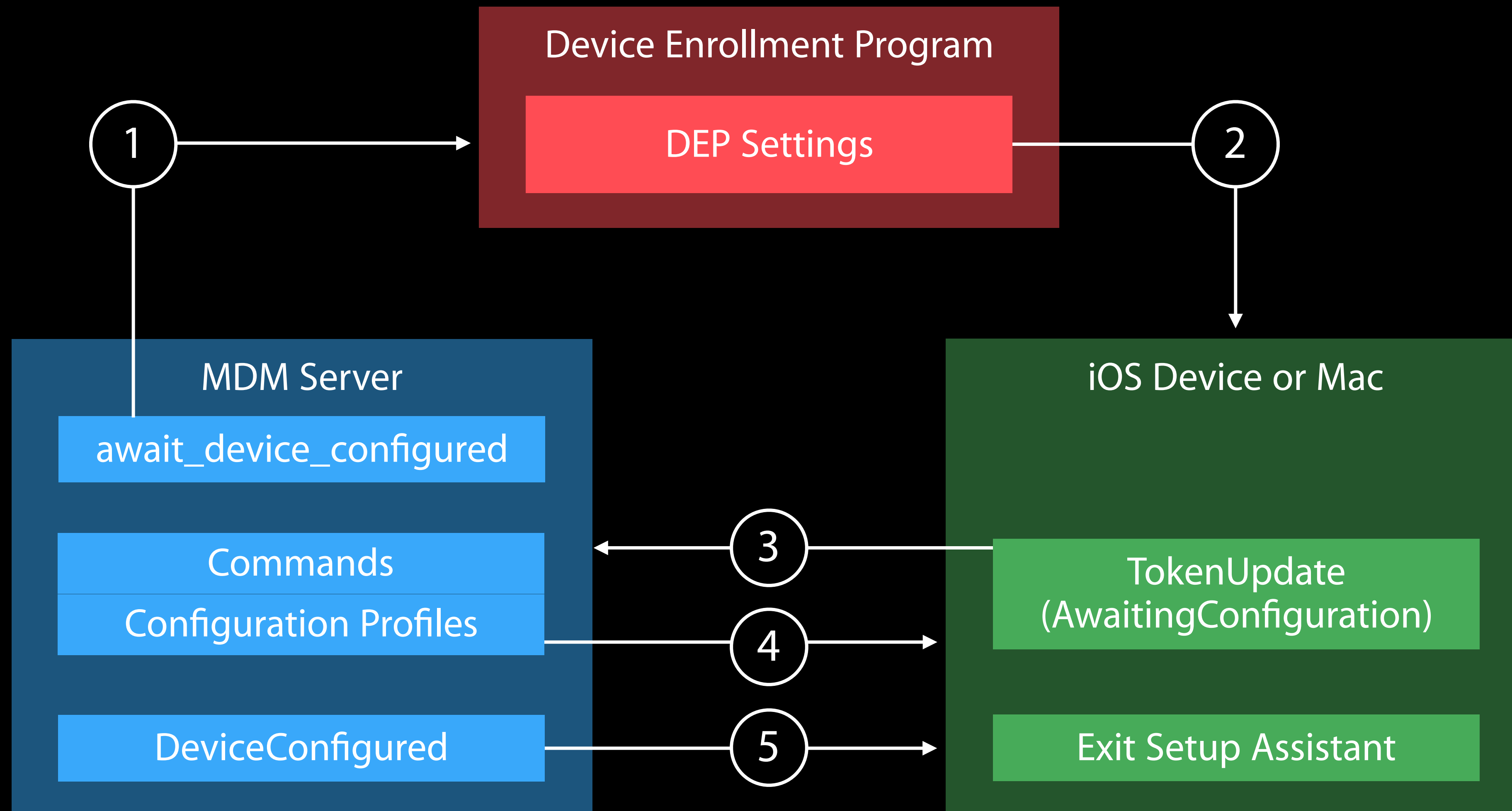
Enrollment

Enrollment optimization



Enrollment

Enrollment optimization



Enrollment

Enrollment optimization: Shared iPad

Enrollment

Enrollment optimization: Shared iPad



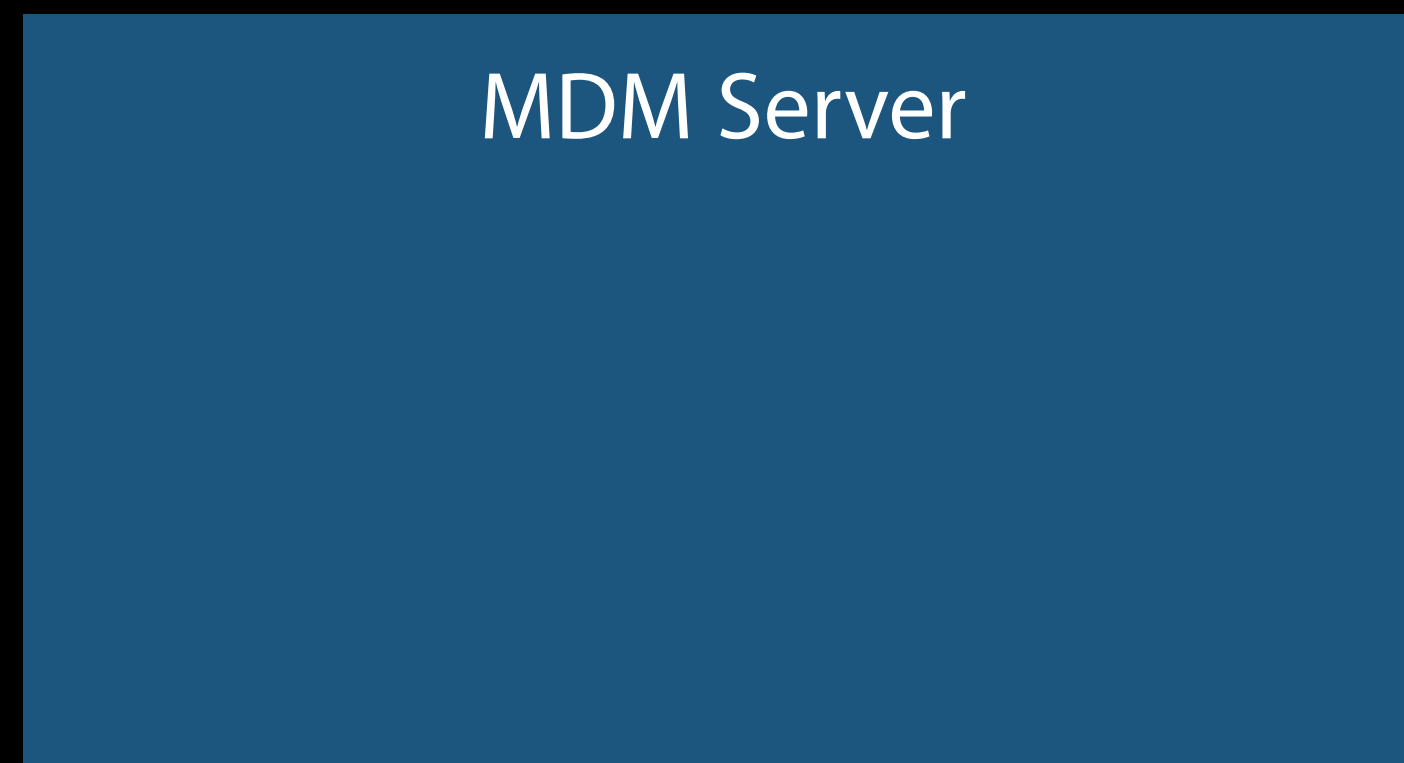
MDM Server

The diagram consists of two rectangular boxes on a black background. The left box is blue and contains the text 'MDM Server'. The right box is green and contains the text 'Shared iPad'. There are no lines or arrows connecting the two boxes.

Shared iPad

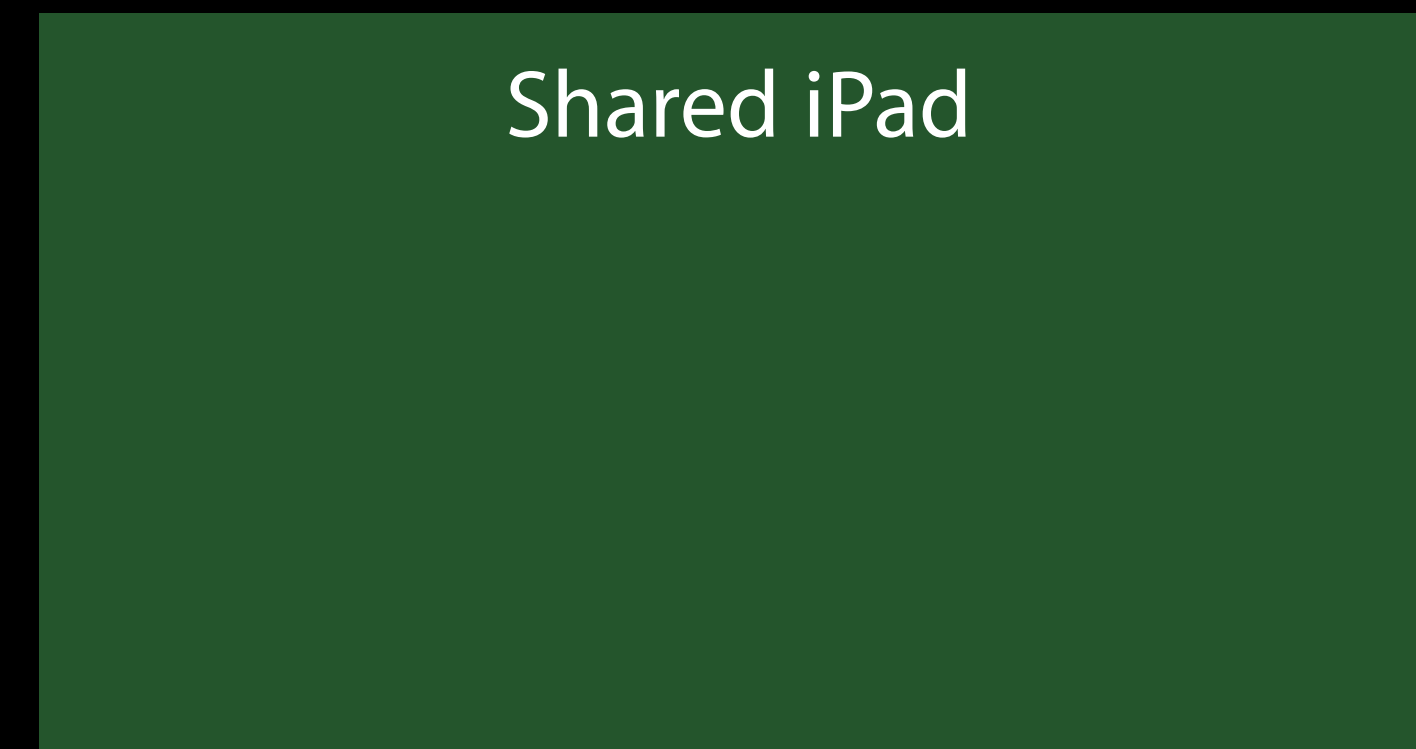
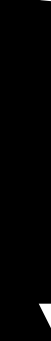
Enrollment

Enrollment optimization: Shared iPad



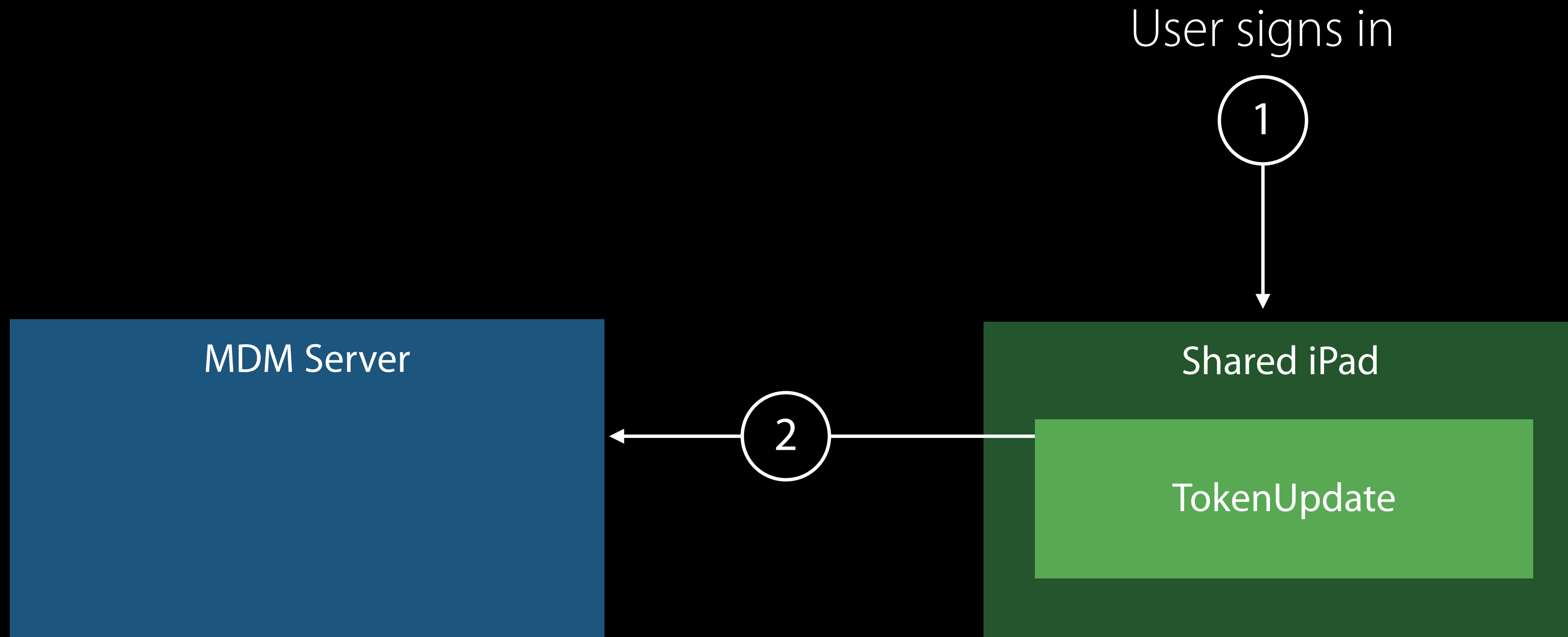
User signs in

1



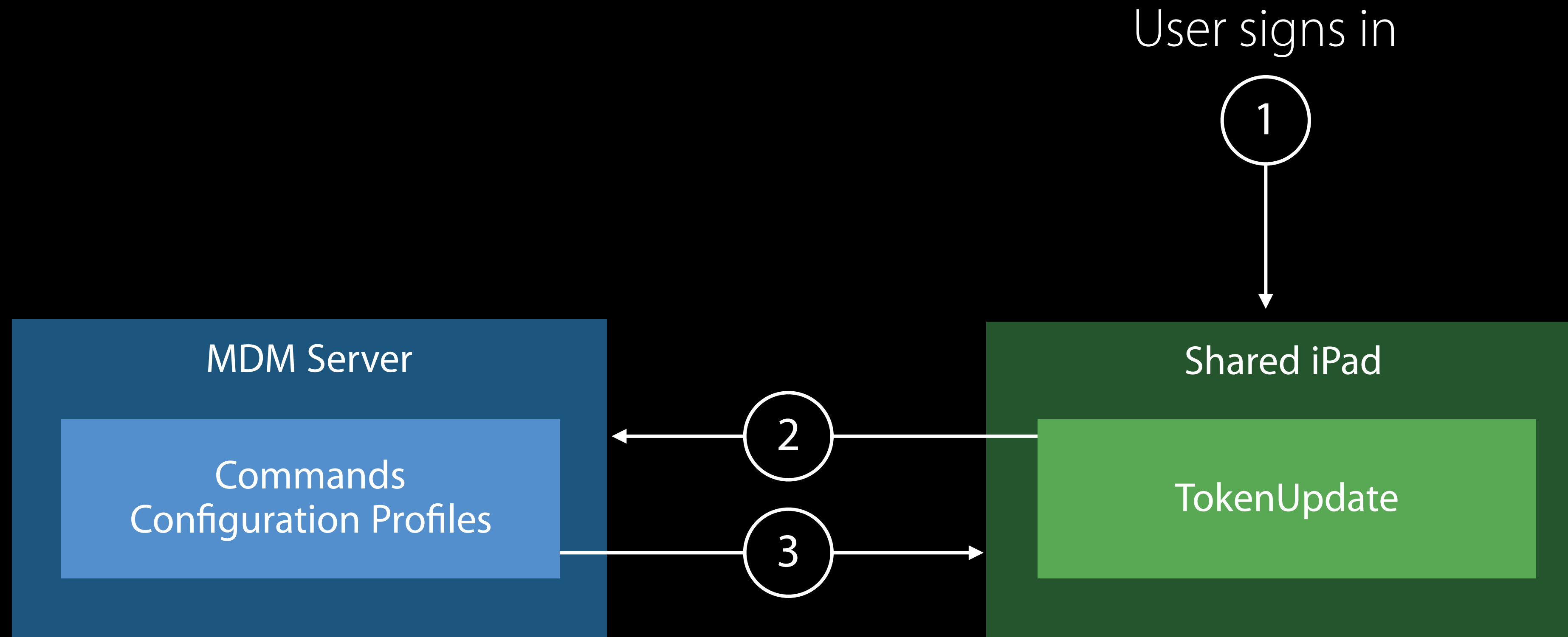
Enrollment

Enrollment optimization: Shared iPad



Enrollment

Enrollment optimization: Shared iPad



Enrollment

Security best practices

iOS 9.3.2 no longer supports MD5

DES deprecated

iOS 10 adds AES support

SCEP servers need to support 3DES or
AES as soon as possible



Enrollment

Configure Setup Assistant



True Tone

Enrollment

Configure Setup Assistant

NEW



Siri



iCloud Desktop

Device Enrollment Program

MDMServiceConfig

Equivalent to VPP Storebag from iTunes Store

Informs tools what info they can obtain from your server

Unauthenticated HTTPS request at URI `MDMServiceConfig`

UTF8 JSON-encoded hash

- `dep_enrollment_url`
- `dep_anchor_certs_url`
- `trust_profile_url`

Device Enrollment Program

MDMServiceConfig

Equivalent to VPP Storebag from iTunes Store

Informs tools what info they can obtain from your server

Unauthenticated HTTPS request at URI `MDMServiceConfig`

UTF8 JSON-encoded hash

- `dep_enrollment_url`
- `dep_anchor_certs_url`
- `trust_profile_url`

Profile Manager has implemented

Configurator 2 now supports



Shared iPad

Shared iPad

Support multiple users

Install apps

Preserve user data



Shared iPad

Multiple users

Requires Managed Apple ID to sign in

Signs in to iCloud and iTunes



Shared iPad

Installing apps

Device assigned

MDM vendors use PurchaseMethod 1

All app types supported

- App Store developers must allow device assignment



Shared iPad

Architecture

Student data truth in the cloud

- Data is cached, but may be purged when needed
- User data separation
- Data will continue to upload after sign out if necessary

Apps should be education ready



Enter Passcode



1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
	0	Cancel

Enter Passcode



1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
	0	Cancel

Getting Ready





iBooks



Pages



Numbers



Keynote



iTunes U



Notes



GarageBand



iMovie



BrainPOP



ClassDojo



Educreations



The Earth



Hopscotch



Newsela



Remind



Showbie



Todo Math



Messages



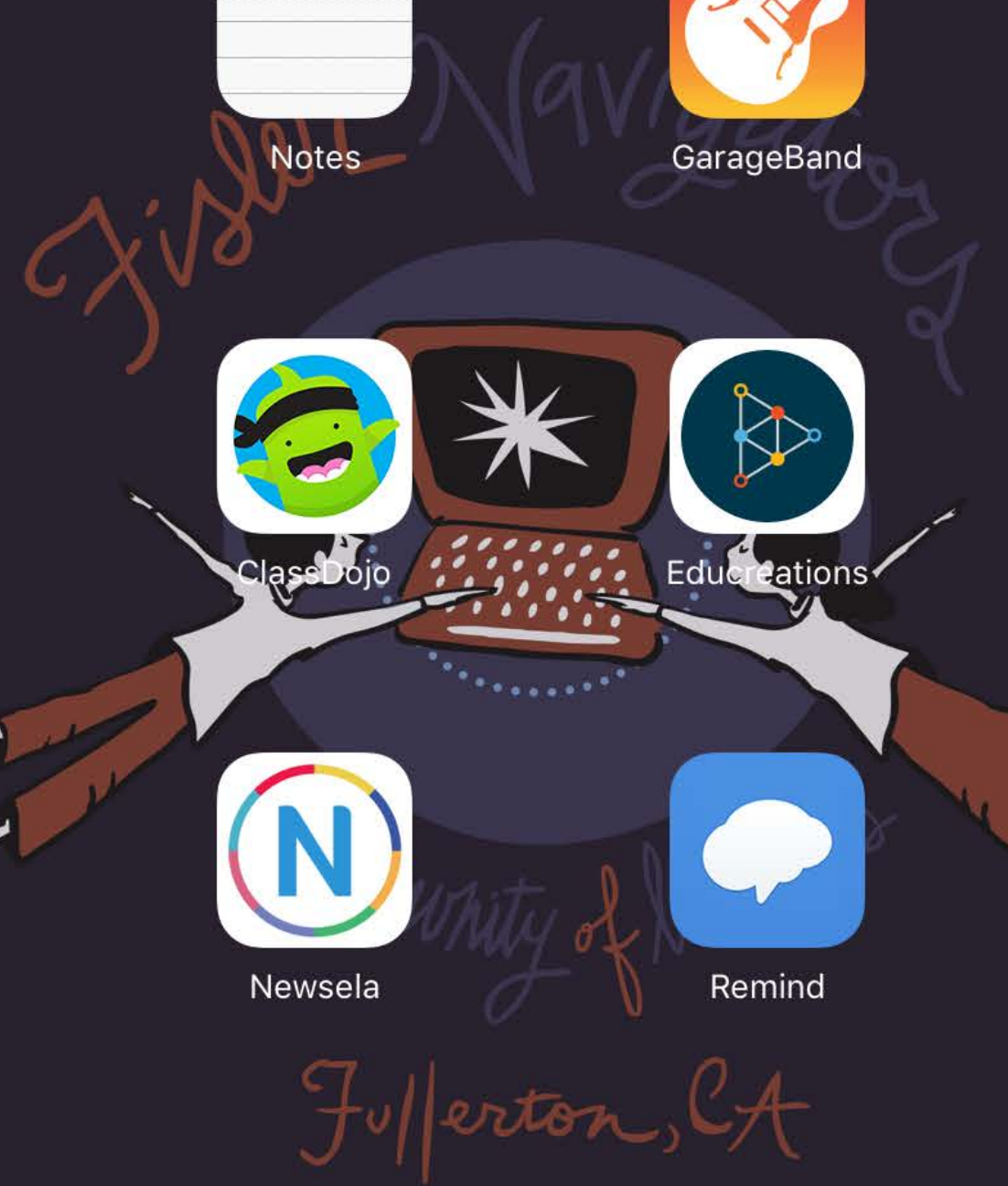
Safari

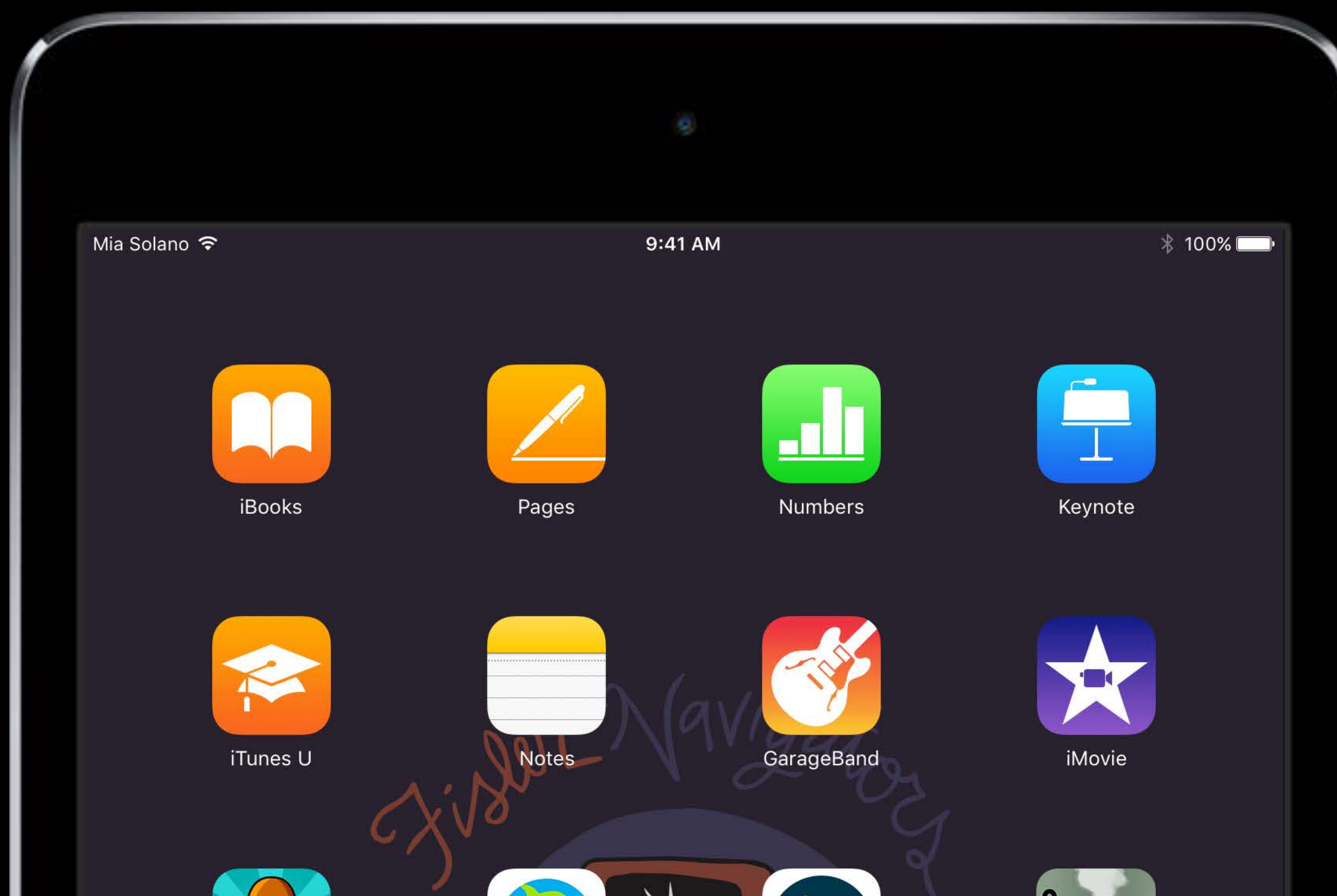
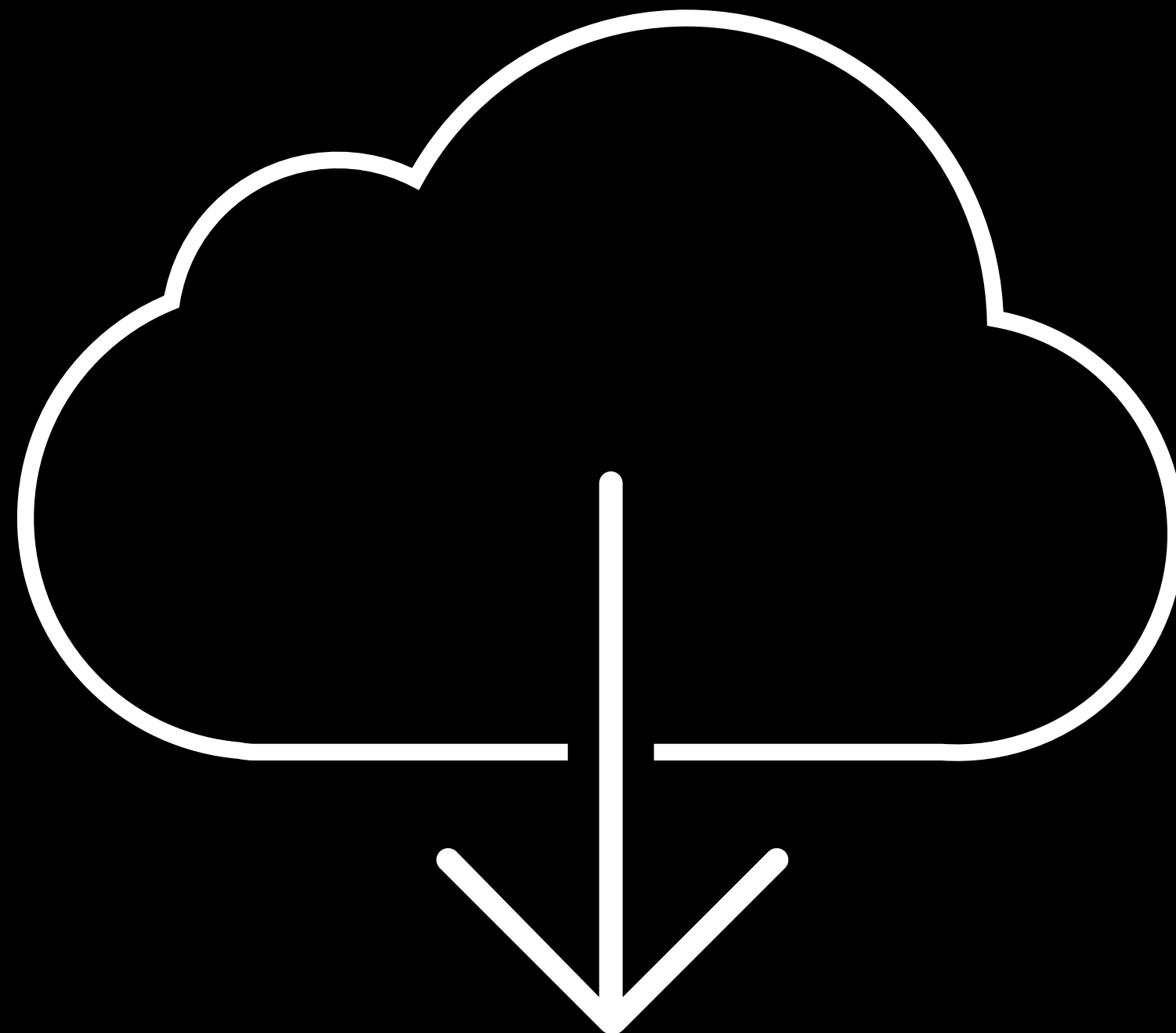


Mail



Music







iBooks



Pages



Numbers



Keynote



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Educations



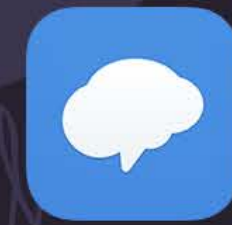
The Earth



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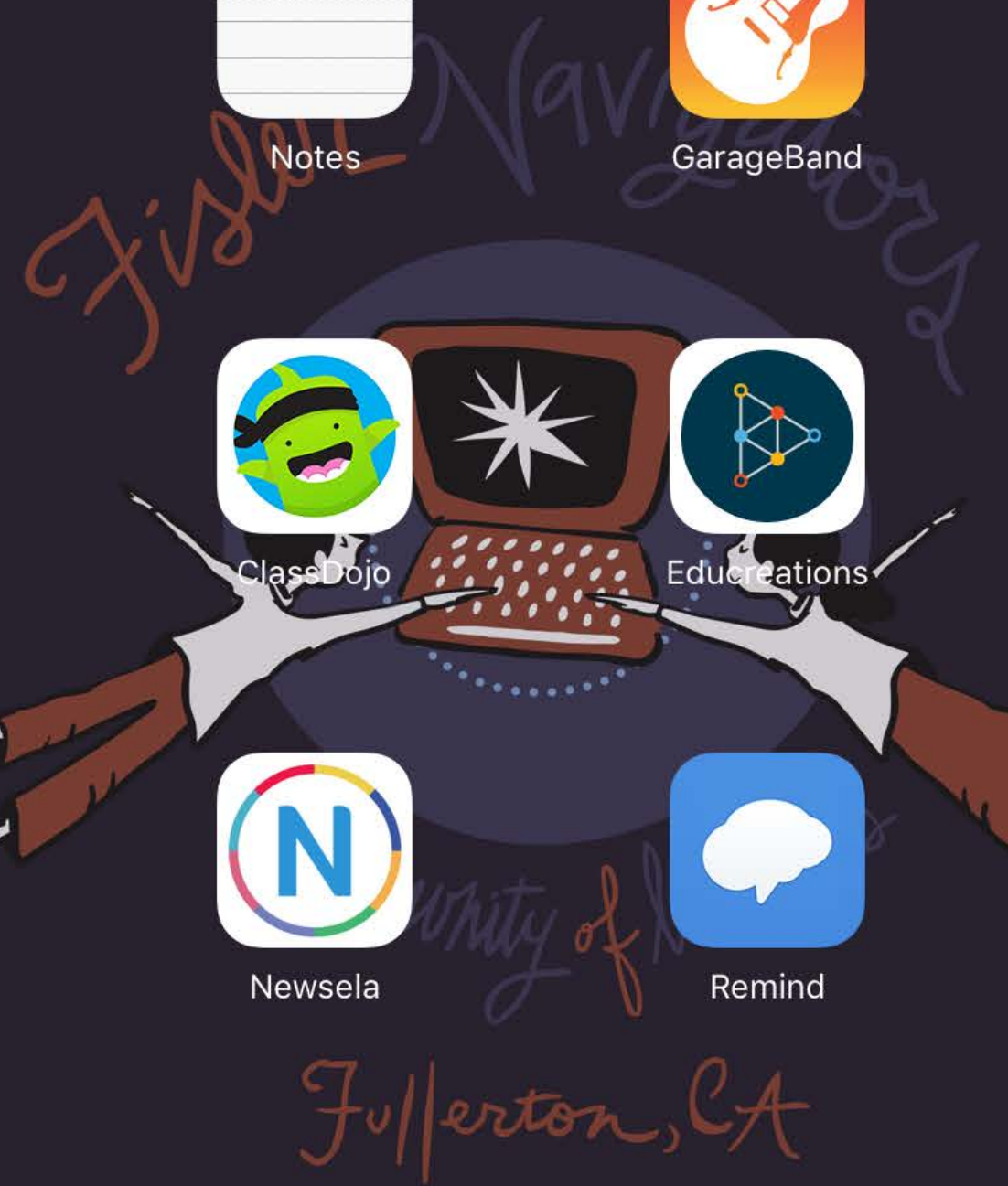
Safari



Mail




Music



Goodbye, Mia



 Saving documents





Uploading
Mia's Data



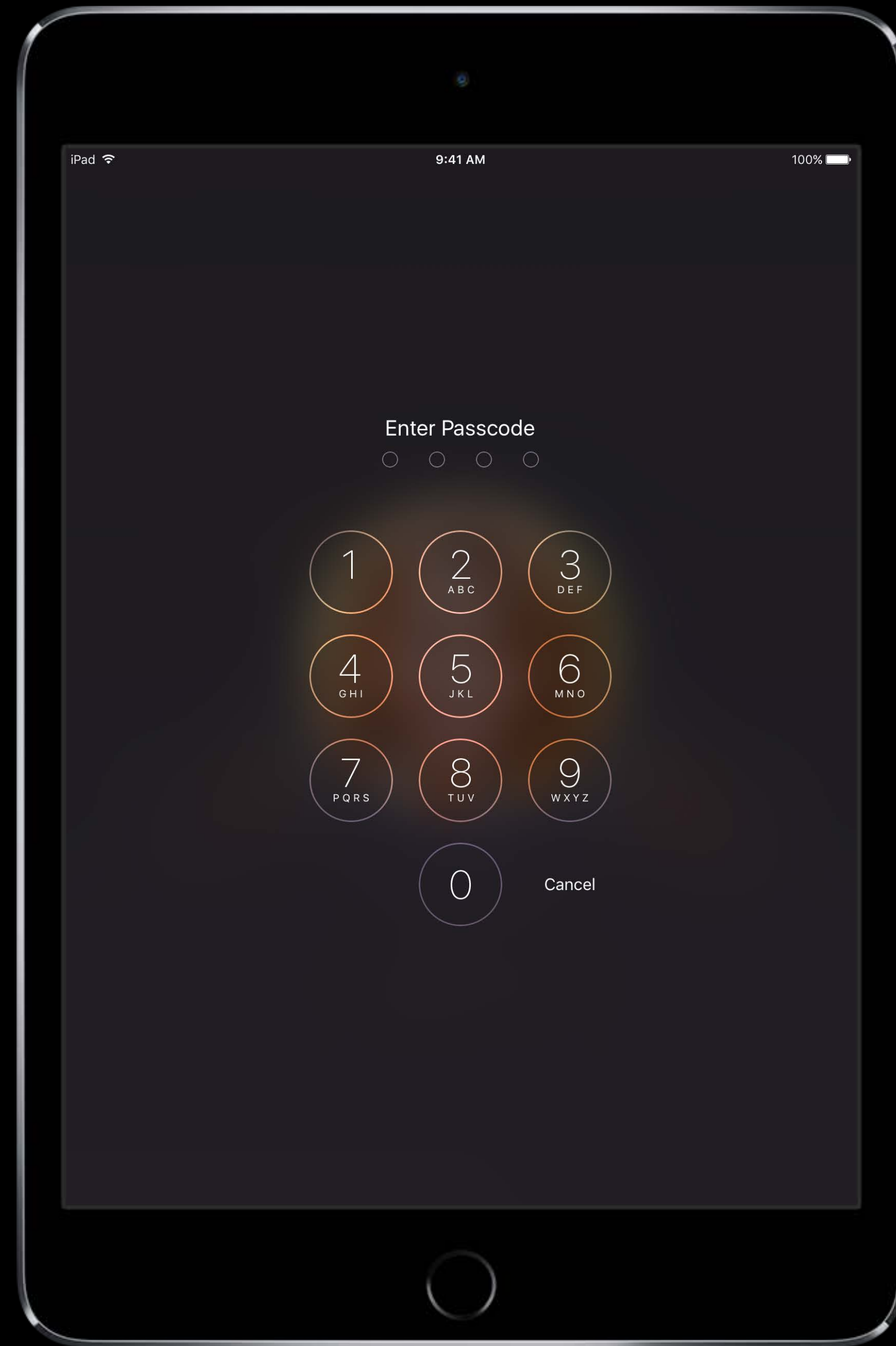


Uploading
Mia's Data



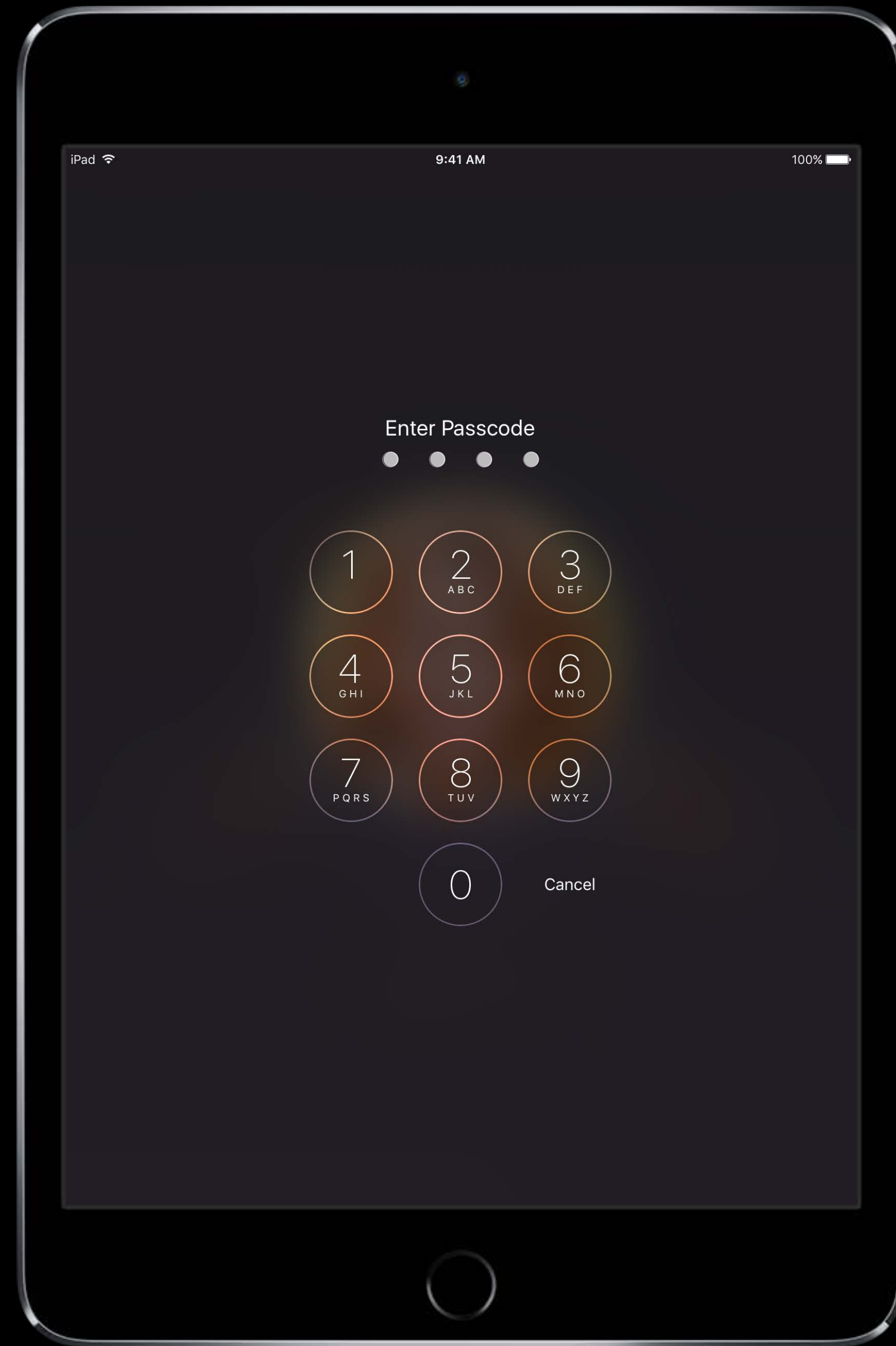


Uploading
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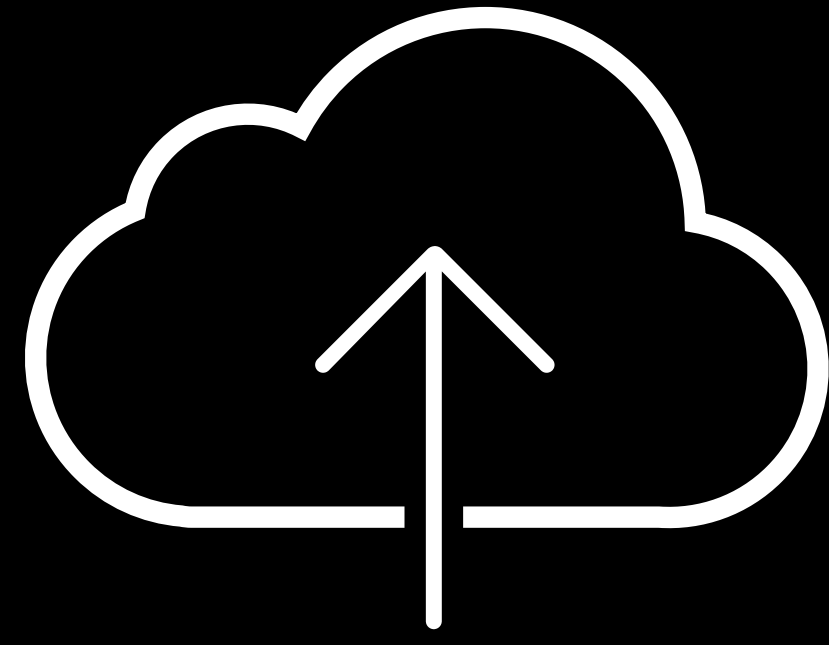
Uploading
Mia's Data





Uploading
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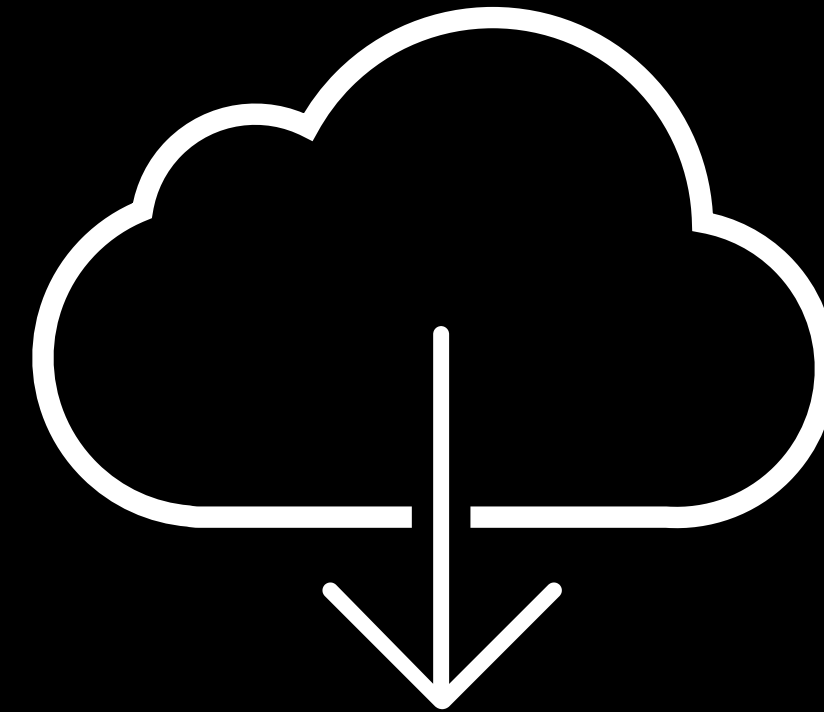


Uploading
Mia's Data





Uploading
Mia's Data



Downloading
Gabriel's Data

Getting Ready





iBooks



Pages



Numbers



Keynote



iTunes U



Notes



GarageBand



iMovie



BrainPOP



ClassDojo



EducationCity



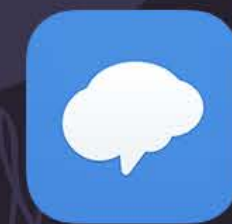
The Earth



Hopscotch



Newsela



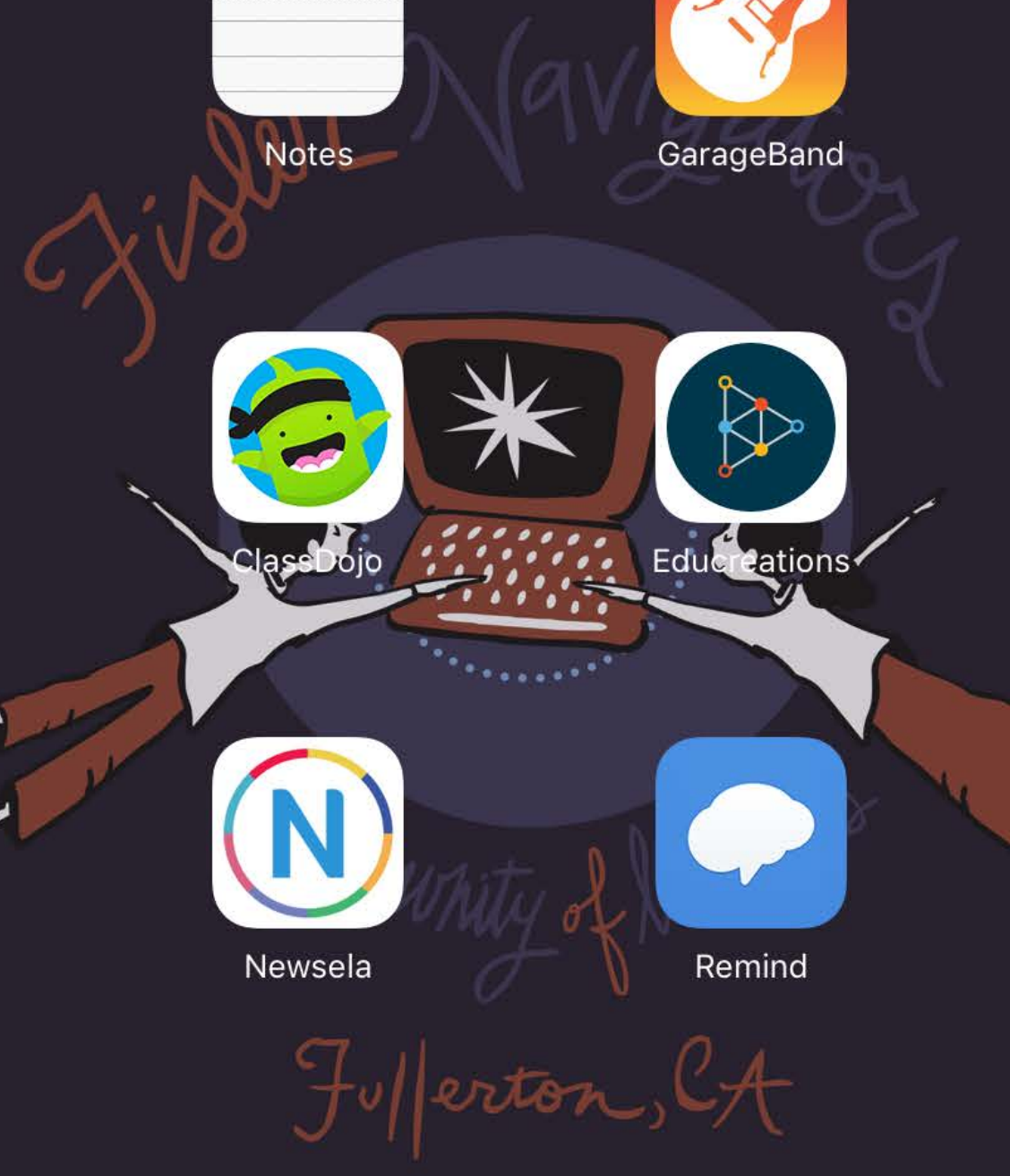
Remind



Showbie



Todo Math



Messages



Safari



Mail



Music

Shared iPad

Support in MDM servers

New DEP setting to enable

Use Enrollment Optimization to set options before student use

- User quota
- Lock screen grace period



Shared iPad

User quota

Shared iPad

User quota

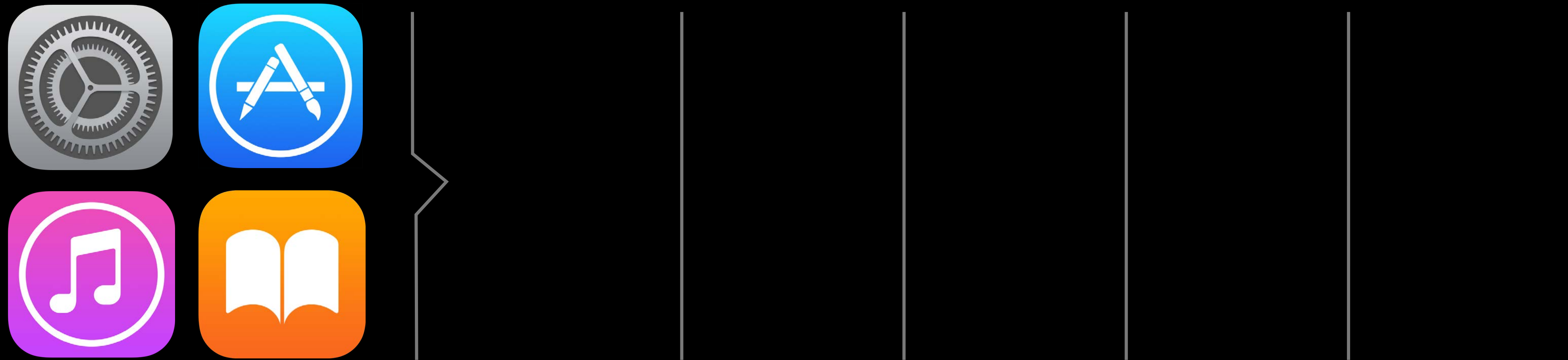
Maximum numbers of users cached locally

Shared iPad

User quota

Maximum numbers of users cached locally

Storage allocated to each user calculated automatically



Shared iPad

User quota

Maximum numbers of users cached locally

Storage allocated to each user calculated automatically



Shared iPad

User quota

Maximum numbers of users cached locally

Storage allocated to each user calculated automatically

After limit reached, new user purges the cache of the LRU user



Shared iPad

User quota

Maximum numbers of users cached locally

Storage allocated to each user calculated automatically

After limit reached, new user purges the cache of the LRU user



Shared iPad

User quota

Maximum numbers of users cached locally

Storage allocated to each user calculated automatically

After limit reached, new user purges the cache of the LRU user



Shared iPad

Lock screen grace period

Time after screen locks that device will prompt for user passcode

Before time limit reached, student can wake device with just a swipe





iBooks



Pages



Numbers



Keynote



iTunes U



Notes



GarageBand



iMovie



BrainPOP



ClassDojo



Educreations



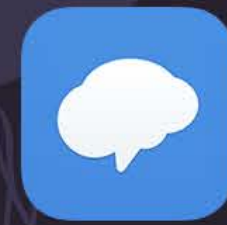
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Hopscotch



Newsela



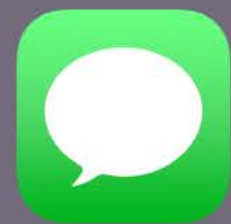
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Showbie



Todo Math



Messages



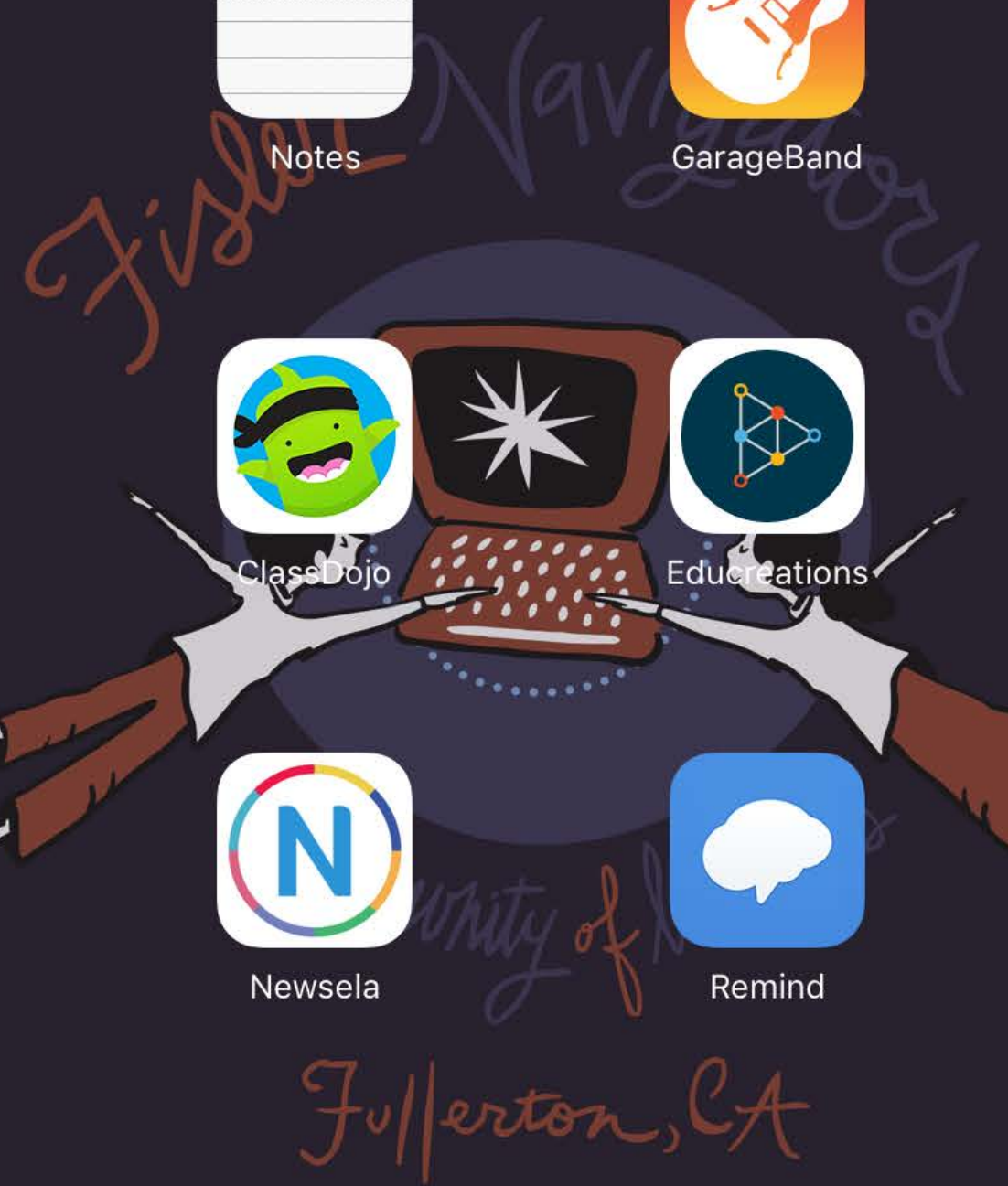
Safari



Mail



Music



iPad

9:41 AM

100%

Hello, Mia



> slide to unlock



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This iPad is managed by Township Schools.

[Learn more.](#)

iPad

9:41 AM

100%

Hello, Mia



> slide to unlock



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iBooks



Pages



Numbers



Keynote



iTunes U



Notes



GarageBand



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Educations



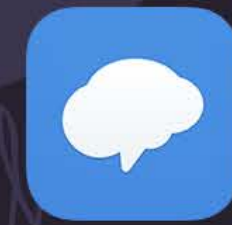
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Hopscotch



Newsela



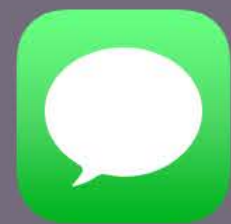
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Todo Math



Messages



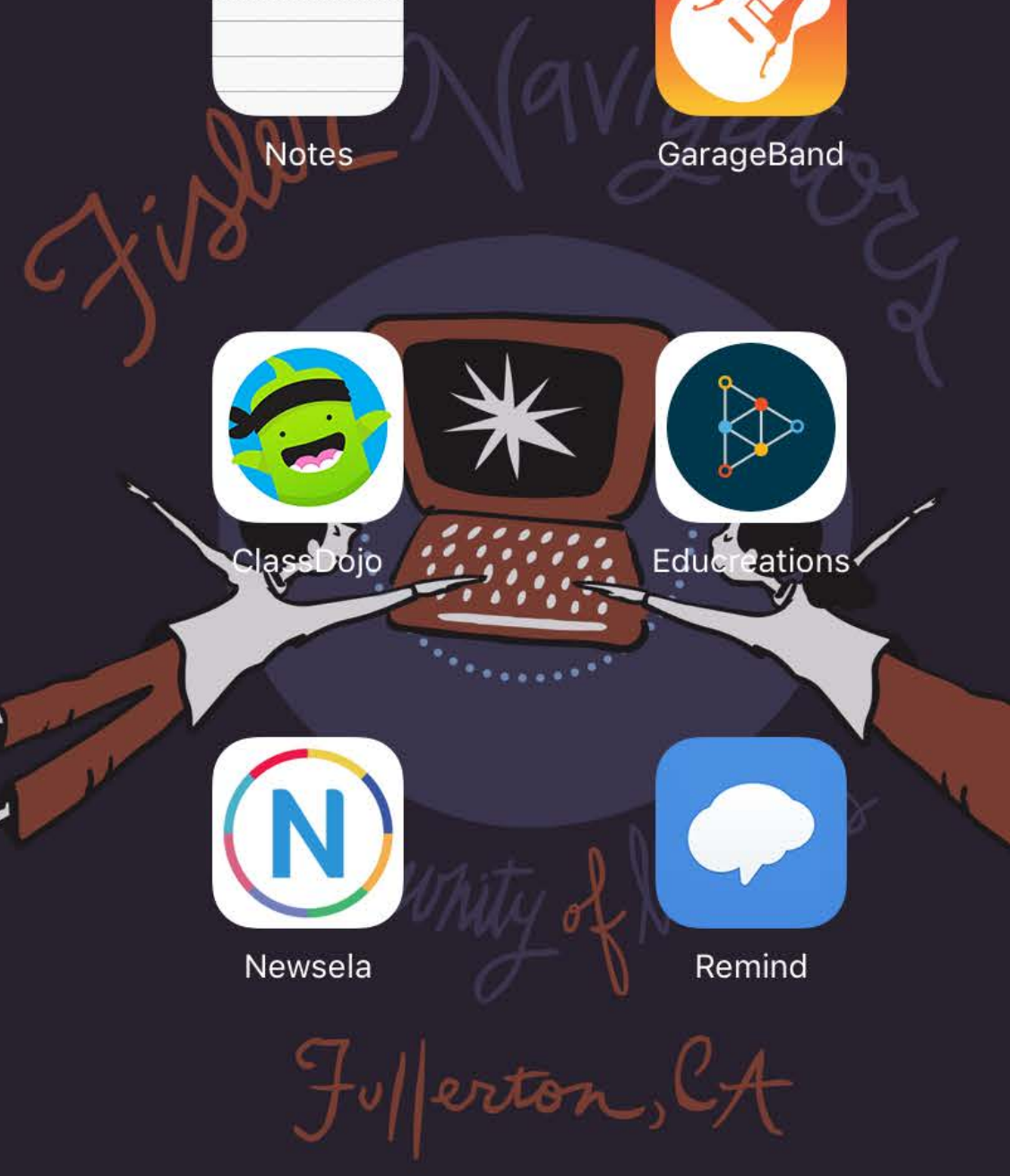
Safari



Mail



Music



iPad

9:41 AM

100%

Hello, Mia



> slide to unlock



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[Learn more.](#)

iPad

9:41 AM

100%

Hello, Mia



> slide to unlock



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Enter Passcode



1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
	0	Cancel

Shared iPad

User channel

Allows MDM server to configure per-user settings

- Similar to macOS
- iOS devices running 9.3 and later don't ignore it
- Some payloads now supported

No user authentication on iOS

- Never send sensitive information over user channel
 - User channel enforces no credentials
 - Google OAuth supported, but without credentials



Shared iPad

User channel: Supported payloads

Accounts, including Google OAuth account

Notifications

Home screen layout

Managed Domains: Safari autofill domains

Restrictions, including Show/Hide Apps



Shared iPad

User channel: Restrictions payloads

Most restrictive wins

Combined to compute effective restrictions

- Just like multiple profiles



Demo

Shared iPad

David Steinberg

Device Management Engineer

Demo Recap

Shared iPad

Classes preconfigured on login screen

Recent users

Sign in with Managed Apple ID and passcode

Sign in choosing recent user

Apps show only current user's data

Different users see different apps and home screen layout



Getting Started



Distribution



Management



Tools



Distribution

Distribution

Managed Apple ID

Books for Shared iPad

Enterprise Apps



VPP

Managed Apple ID association

Programmatically associate Managed Apple IDs for VPP

Requires DEP/ASM token and VPP tokens from same organization

- Customer doesn't need new tokens after transition to ASM
- DEP and VPP use different tokens so could be different organizations
 - Dedicated error code for this failure mode; try and fail

Requires MDM solution adopt API

Important for iBooks Store books

VPP

Books for Shared iPad

iBooks Store VPP books

- Assigned to users
- Cannot be distributed to devices
- Shared iPad user must “download” in iBooks
 - Downloaded only once per device

Non-iBooks Store books

- PDF, IBA, EPUB
- Device assigned

Enterprise Apps

UPPs

Allow non-App Store app to run on device not defined in provisioning profile

Require trust and validation

User must explicitly trust apps from that signer to run on this device

- Apps installed via MDM implicitly trusted

Apple must consider this UPP still valid

- Periodic checks via online connection to validation server
- MDM installed apps still require periodic validation
- MDM can trigger validation for any app



- Automatically validate any applications that it discovers are not validated



Getting Started



Distribution



Management



Tools



Management

Management

Shubham Kedia

iOS Engineer

What's New in iOS 9.3

MDM commands and queries

 Settings now allows setting max users, diagnostic submission

 User List

 Logout user

 Delete User




 MDM Lost Mode (including device location)

 MDM Activation Lock

What's New in iOS 9.3

Configuration profile payloads

Education

-  Notifications
-  Home Screen Layout
-  Lock Screen Message

Exchange, Mail: Allow Mail Drop





Managed Domains: Safari autofill passwords

VPN: Many new IKEv2 settings

Restrictions: Many new settings

What's New in iOS 9.3

Configuration profile payloads: Restrictions

-  Apple Music
 - Classroom Screen View
 - iCloud Photo Library
-  iTunes Radio
-  Modify Notifications
-  Show/Hide Apps

What's New in iOS 9.3

Configuration profile payloads: Education

Students

Teachers

Classes

Photos

- URLs
- Get required HTTPS

Used by Shared iPad login screen and Classroom

Only one allowed per device

Student devices and teacher devices need different payloads

What's New in iOS 9.3

Configuration profile payloads: Per-user on Shared iPad

Five payloads can now apply per-user on Shared iPad

Accounts

- Google OAuth account

Notifications

Home screen layout



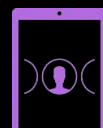
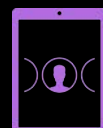
Managed Domains: Safari autofill domains

Restrictions

- Show/Hide Apps

What's New in iOS 9.3.2

MDM commands and queries

-  Enable/Disable App Analytics
-  Set lock screen grace period
-  DeviceInformation returns App Analytics enabled/disabled
-  SecurityInfo returns lock screen grace period

What's New in iOS 9.3.2

Automatic Assessment Configuration

Continues to work same way on supervised devices

New entitlement

API then disables five features while app is running:

- Auto correction, Define, keyboard shortcuts, predictive keyboard, spell check

Safe escape behavior on unmanaged devices

What's New in iOS 9.3.2

Configuration profile restrictions

-  Modify diagnostics submission

What's New in iOS 10

NEW

Configuration profile payloads

Contacts, Exchange, Google, LDAP: Communication service rules for audio

Lock Screen Message: Updated key names

VPN: IKEv2 EAP only authentication method, timeout for IPSec

VPN: PPTP has been removed from iOS 10

- Existing payloads will not work

Wi-Fi: Captive bypass

Wi-Fi: Cisco fast lane QoS marking



Restrictions: Modify Bluetooth

Deprecations

Configuration profile restrictions

App installation

App removal

FaceTime

Safari

iTunes

Explicit content










iCloud documents and data

Multiplayer gaming

Add GameCenter Friends

Deprecations

Configuration profile restrictions

-  App installation
-  App removal
-  FaceTime
-  Safari
-  iTunes
-  Explicit content
-  iCloud documents and data
-  Multiplayer gaming
-  Add GameCenter Friends

What's New in OS X 10.11.4

MDM commands and queries

Install major update (DEP Macs)

What's New in macOS Sierra

NEW

Configuration profile payloads

IP firewall

Restrictions

- Apple Music
- iCloud keychain sync
- iCloud Photo Library
- Back to my Mac
- Find My Mac
- Sharing to Notes, Reminders, or LinkedIn



Getting Started



Distribution



Management



Tools



Tools



Classroom

Assign Shared iPad

Launch app

Navigate to location

AirPlay to Apple TV

Lock iPad

View screen



Demo

Classroom

Shruti Gupta

Device Management Engineer

Demo Recap

Classroom

Open app

Create and edit groups

Lock to app

View screen

Lock device

Tools

DEP and VPP Simulators

Simulate DEP and VPP services

Test handling of service errors

Now supports all the new DEP and VPP features

Available for download on developer portal

Support new features



Getting Started



Distribution



Management



Tools

Summary

Administrators

Use Apple School Manager to manage people, devices, content

Use DEP (wireless) or Configurator (wired) to enroll devices in MDM

Use Shared iPad with Managed Apple ID on shared devices

Use VPP Managed Distribution to distribute apps to devices or users

Summary

MDM developers

Support VPP Managed Apple ID association

Support new features in iOS 10 and macOS Sierra

- Documentation available now

Test with DEP and VPP simulators

Summary

App developers

Store data and preferences in cloud

Test using app with two iPads

Related Sessions

Best Practices for Building Apps Used
in Business and Education

Nob Hill

Wednesday 1:40PM

Labs

Education and Enterprise Deployment
and Development Lab

Graphics, Games,
and Media Lab C

Tuesday 1:30PM

Education and Enterprise Deployment
and Development Lab

Fort Mason

Wednesday 3:00PM

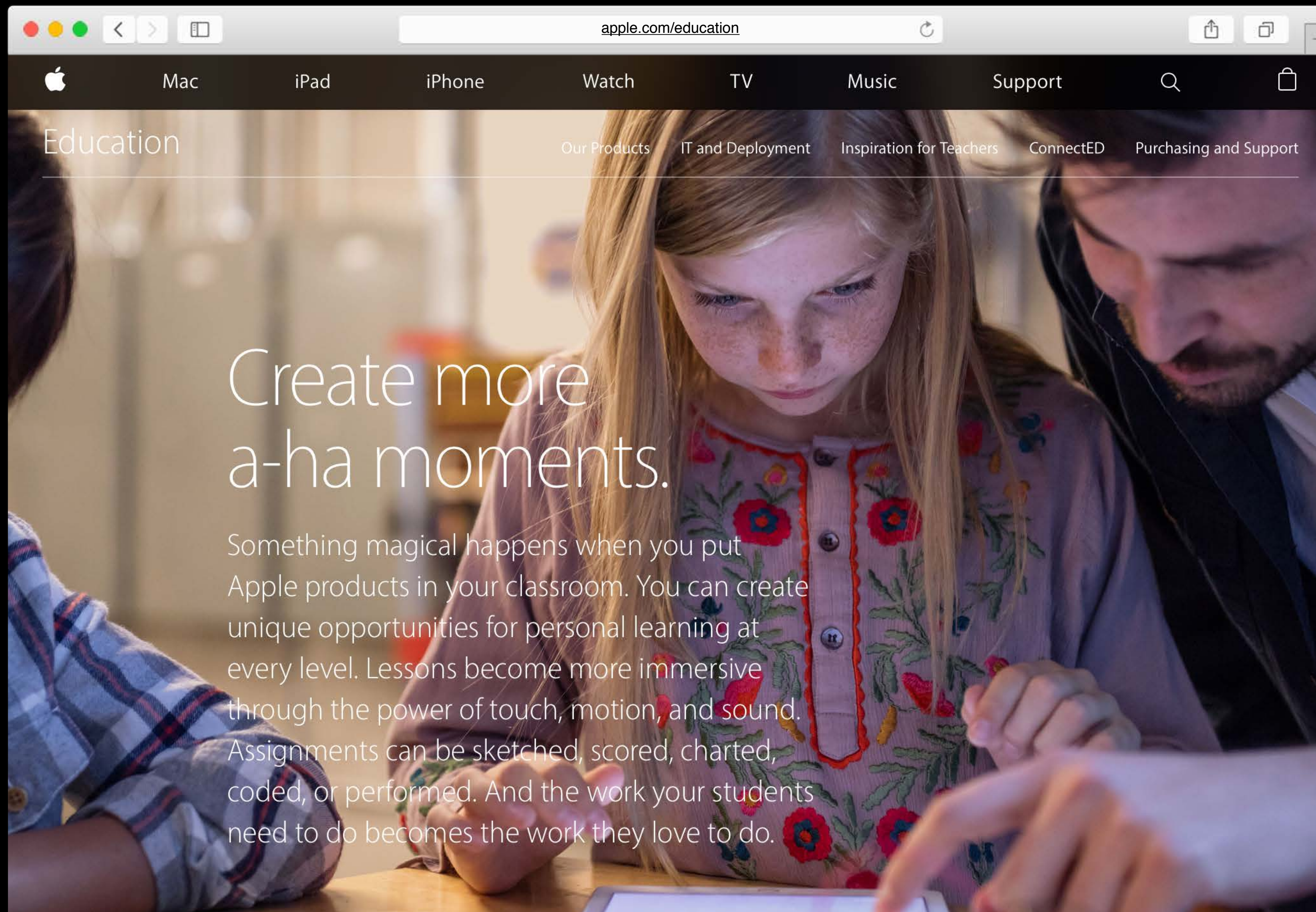
Education and Enterprise Deployment
and Development Lab

Fort Mason

Thursday 11:00AM

Resources for Education

apple.com/education



The image shows a screenshot of the Apple Education website. At the top, there is a navigation bar with the Apple logo and links for Mac, iPad, iPhone, Watch, TV, Music, Support, a search icon, and a shopping bag icon. Below this is a secondary navigation bar with the word "Education" on the left and links for "Our Products", "IT and Deployment", "Inspiration for Teachers", "ConnectED", and "Purchasing and Support" on the right. The main content area features a large background image of a young girl with freckles and long blonde hair, wearing a purple floral-patterned shirt, looking intently at a tablet. A man with a beard is leaning over her, also looking at the tablet. The headline "Create more a-ha moments." is overlaid on the image in a large, white, sans-serif font. Below the headline is a paragraph of text in a smaller, white, sans-serif font.

Education

Our Products IT and Deployment Inspiration for Teachers ConnectED Purchasing and Support

Create more a-ha moments.

Something magical happens when you put Apple products in your classroom. You can create unique opportunities for personal learning at every level. Lessons become more immersive through the power of touch, motion, and sound. Assignments can be sketched, scored, charted, coded, or performed. And the work your students need to do becomes the work they love to do.

Resources for Enterprise

developer.apple.com/enterprise



iOS makes it easy to build amazing and powerful apps for business. By leveraging the latest iOS technology, you can create even more engaging

More Information

<https://developer.apple.com/wwdc16/303>



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