Managing Mobile Devices

Configure, enroll, manage

Dave Rahardja
iPhone Code Wrangler

Chris Skogen
iPCU Engineering

Three Requirements

- Configure
- Enroll
- Manage

Three Solutions

- Configure
  - Configuration Profiles
- Enroll
  - OTA Enrollment
- Manage
  - Mobile Device Management

Technologies

Configuration Profiles

OTA Enrollment

Mobile Device Management

Technologies

Configuration Profiles

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Mobile Device Management

Configuration Profiles

- XML (plist DTD) format

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://
www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
    <key>PayloadContent</key>
    <array>
        <dict>
            <key>PayloadDescription</key>
            <string>Configures device restrictions.</string>
            <key>PayloadDisplayName</key>
            <string>Restrictions</string>
            <key>PayloadIdentifier</key>
            <string>group.company.com.restrictions</string>
            <key>PayloadOrganization</key>
            <string></string>
            ...
```

Configuration Profiles

- XML (plist DTD) format
- Contains one or more payloads
  - Exchange settings, IMAP and CalDAV accounts, etc.
  - Certificates, shared secrets, VPN settings, etc.
  - Passcode requirements, feature restrictions, etc.
- Created via
  - iPhone Configuration Utility
  - Custom server script
  - Commercial management solution

Demo

iPhone Configuration Utility (iPCU)

Chris Skogen
iPCU Engineer

Configuration Profiles

- May be signed and encrypted
- Install over USB, or over the air (OTA)
- All payloads installed or removed together

Configuration Profiles

Carrot and stick approach

- Combine restrictions and accounts in one profile

Technologies

Configuration Profiles

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Technologies

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OTA Enrollment

Features

- User login via web portal
- Deliver custom profile
- SCEP to deliver enrollment identity
  - Profiles can be encrypted

Demo

OTA Enrollment

OTA Enrollment

How it works

OTA Enrollment

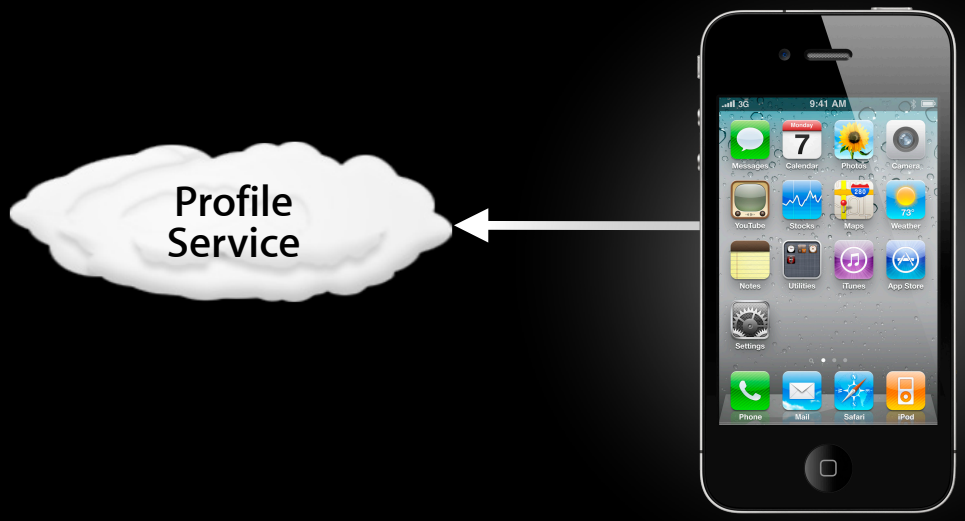
How it works

OTA Enrollment

How it works

1 Log in

0 Enter URL in Safari



OTA Enrollment

How it works

1 Log in

0 Enter URL in Safari

2 Authenticate Device

Profile Service

OTA Enrollment

How it works

OTA Enrollment

How it works

0 Enter URL in Safari

1 Log in

2 Authenticate Device

3 Enroll Identity (SCEP)

Profile Service

CONFIG

Certificate Authority

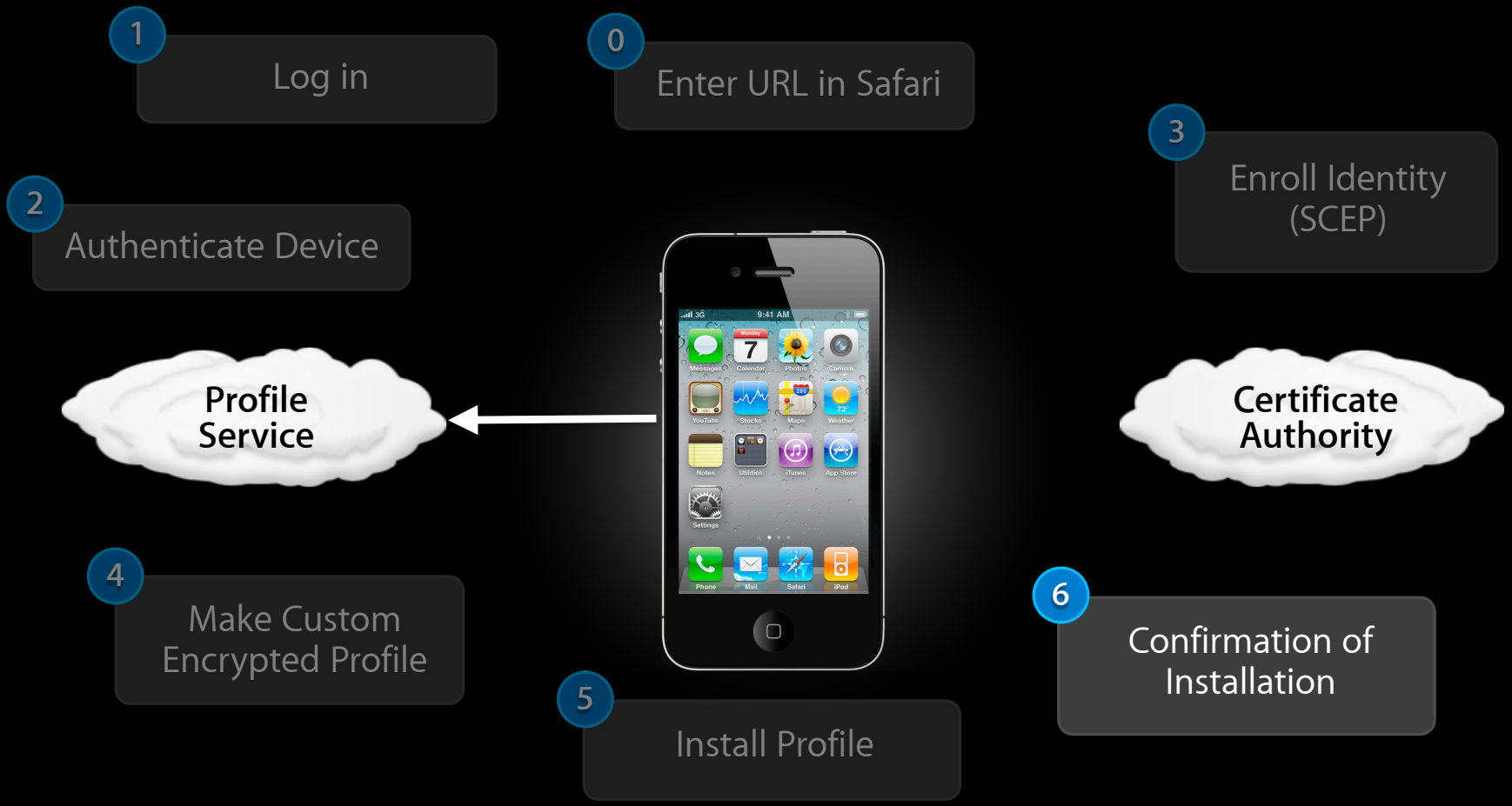
4 Make Custom Encrypted Profile

OTA Enrollment

How it works

OTA Enrollment

How it works



Technologies

Configuration Profiles

OTA Enrollment

Mobile Device Management

Technologies

Configuration Profiles

OTA Enrollment

Mobile Device Management

Mobile Device Management

Features

- Manage devices on demand, over the air
- Works over Wi-Fi and cellular networks
- Transparent to the user

Mobile Device Management

Features

- Initiation using Apple Push Notification
- Communication over HTTPS
- Comprehensive management features
  - Remote commands
  - Queries

Mobile Device Management

Remote commands

- Install and remove configuration profiles
- Install and remove provisioning profiles
- Lock device
- Remove passcode
- Erase

Mobile Device Management

Queries

- Network details
  - Bluetooth and Wi-Fi MAC addresses
  - ICCID
  - Current and SIM carrier network
  - Carrier settings version
  - Phone number
  - Data Roaming setting (on/off)

Mobile Device Management

Queries

- Network details
- Device information
  - Device name
  - UDID, IMEI, and serial number
  - Model name and number
  - OS and build version
  - Modem firmware version
  - Total capacity and free space

Mobile Device Management

Queries

- Network details
- Device information
- Application details
  - List of apps installed
  - App ID, name, and version
  - Size of app and its data
  - Provisioning Profiles installed and their expiry dates

Mobile Device Management

Queries

- Network details
- Device information
- Application details
- Compliance and security information
  - Installed Configuration Profiles
  - Certificates and expiry dates
  - List of restrictions in effect
  - Data Protection capability
  - Passcode compliance

Mobile Device Management

Queries

- Network details
- Device information
- Application details
- Compliance and security

Demo

Mobile Device Management

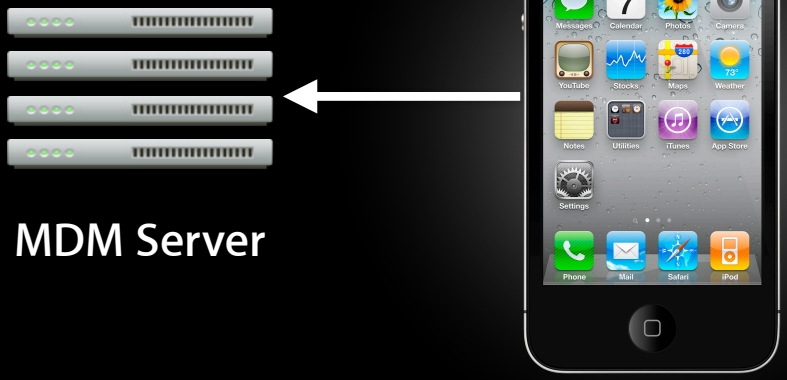
Mobile Device Management

How it works

Mobile Device Management

How it works

0 OTA Enrollment



MDM Server

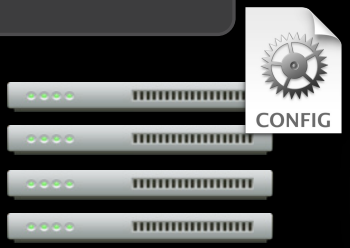
Initial Configuration

Mobile Device Management

How it works

0 OTA Enrollment

1 Generate MDM Profile

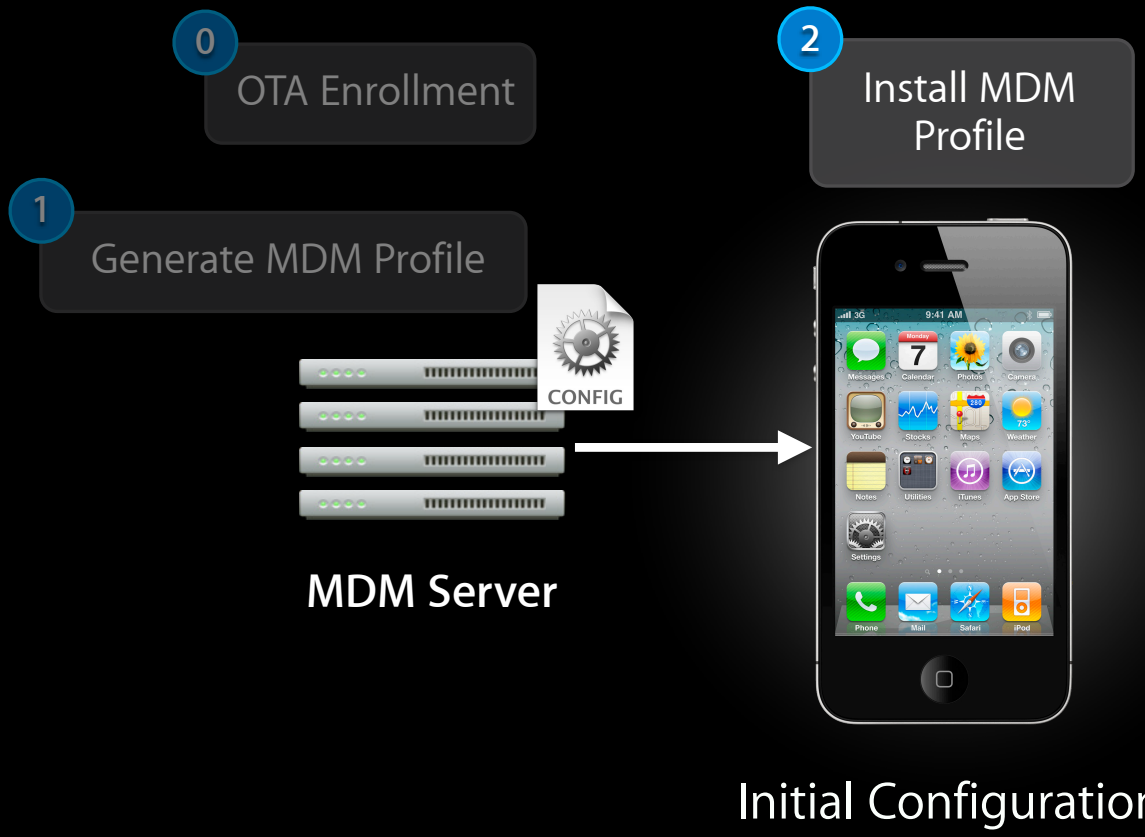


MDM Server

Initial Configuration

Mobile Device Management

How it works



Mobile Device Management

How it works

0 OTA Enrollment

1 Generate MDM Profile

2 Install MDM Profile

3 Bind to MDM Server

MDM Server

Initial Configuration

Mobile Device Management

How it works

0 OTA Enrollment

1 Generate MDM Profile

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MDM Server

Initial Configuration

Notification Service

Mobile Device Management

How it works

MDM Server

Notification Service

On-going Management

Mobile Device Management

How it works

4

Send MDM
Push Notification

MDM Server

Notification
Service

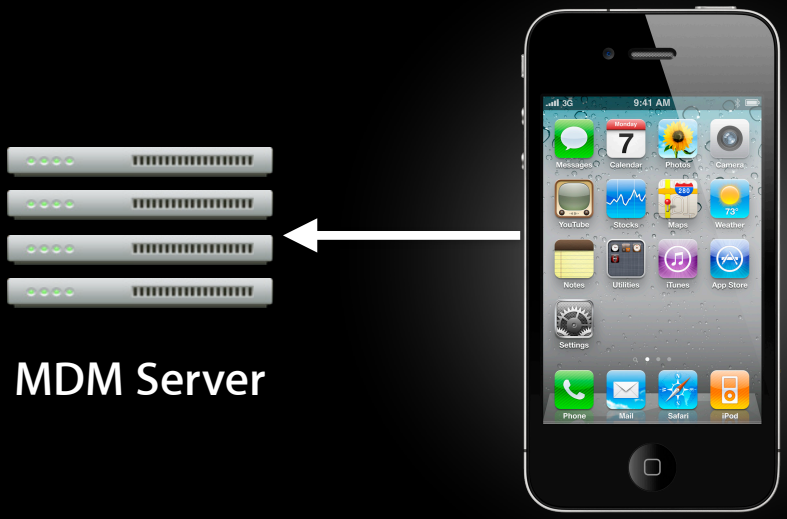
On-going Management

Mobile Device Management

How it works

4 Send MDM Push Notification

5 Device Connects to MDM Server



MDM Server

Notification Service

On-going Management

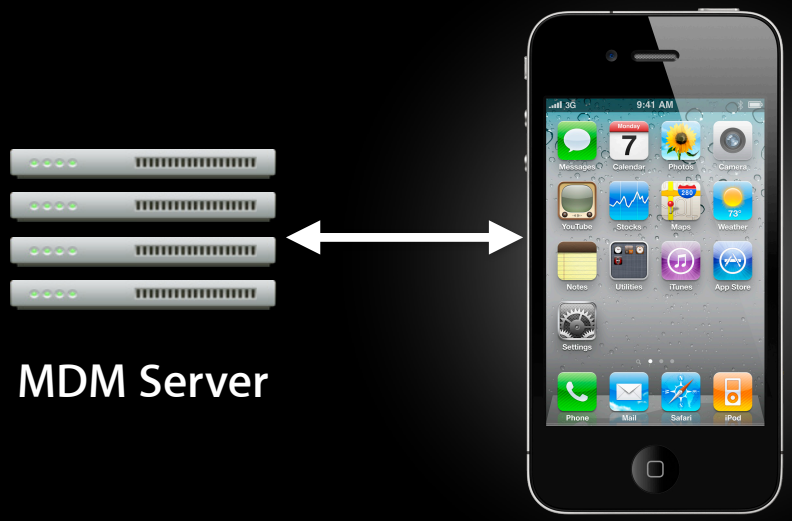
Mobile Device Management

How it works

4 Send MDM Push Notification

5 Device Connects to MDM Server

6 Send Commands, Queries, and Receive Data



On-going Management

Mobile Device Management

How it works

4 Send MDM Push Notification

5 Device Connects to MDM Server

6 Send Commands, Queries, and Receive Data

MDM Server

On-going Management

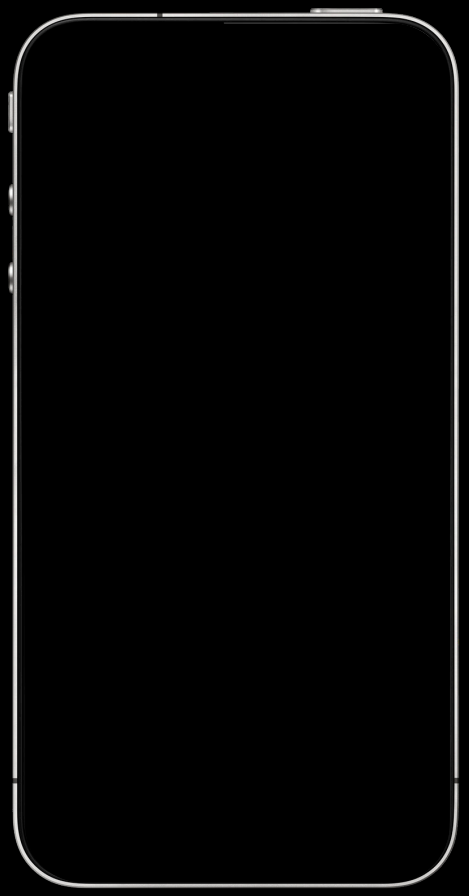
Mobile Device Management

Managed Profiles

Mobile Device Management

Managed Profiles

MDM Server

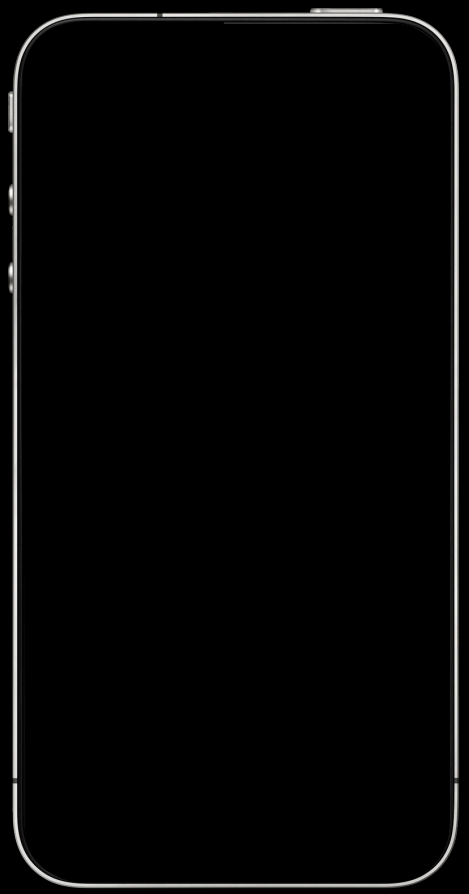


Mobile Device Management

Managed Profiles

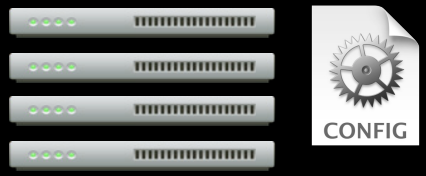
MDM Server

MDM

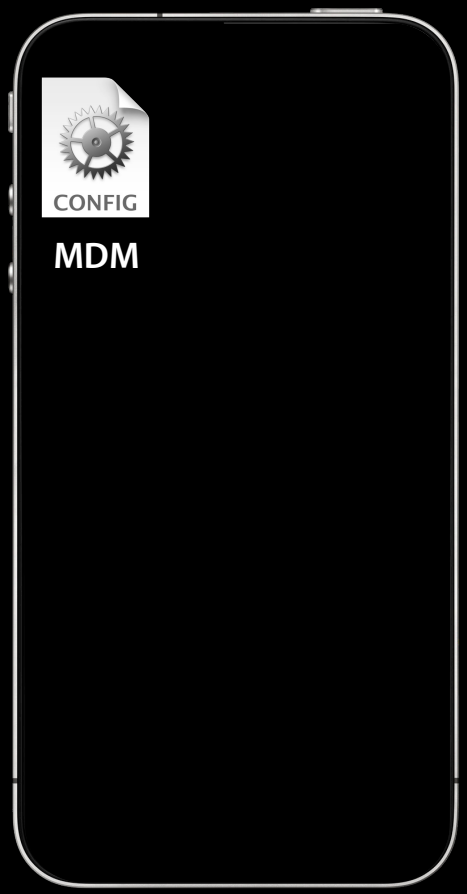


Mobile Device Management

Managed Profiles

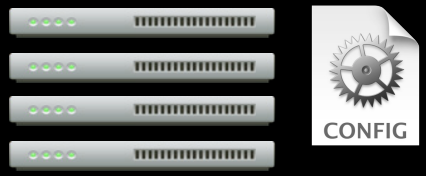


MDM Server



Mobile Device Management

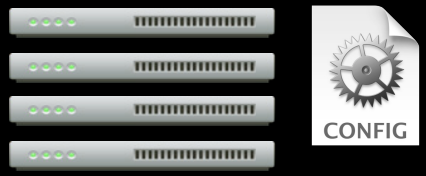
Managed Profiles



MDM Server

Mobile Device Management

Managed Profiles



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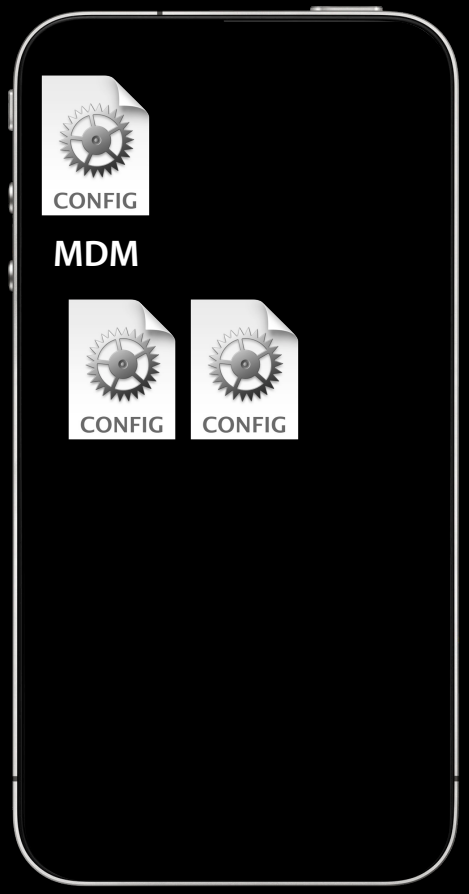
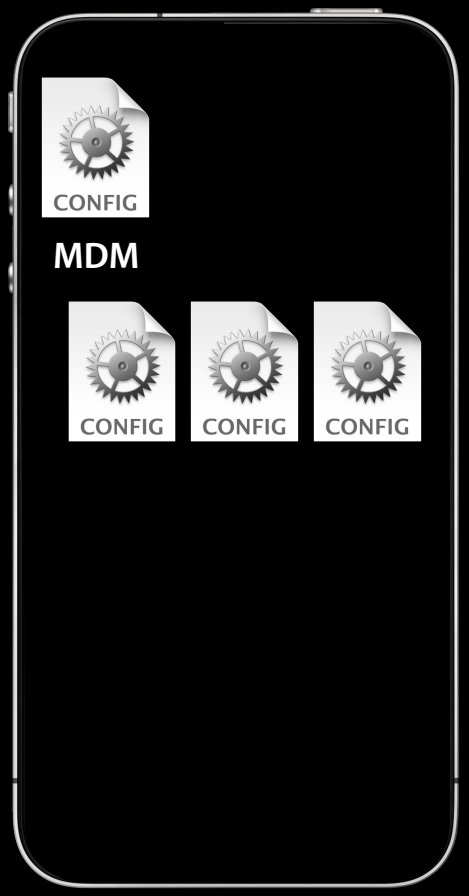


Mobile Device Management

Managed Profiles

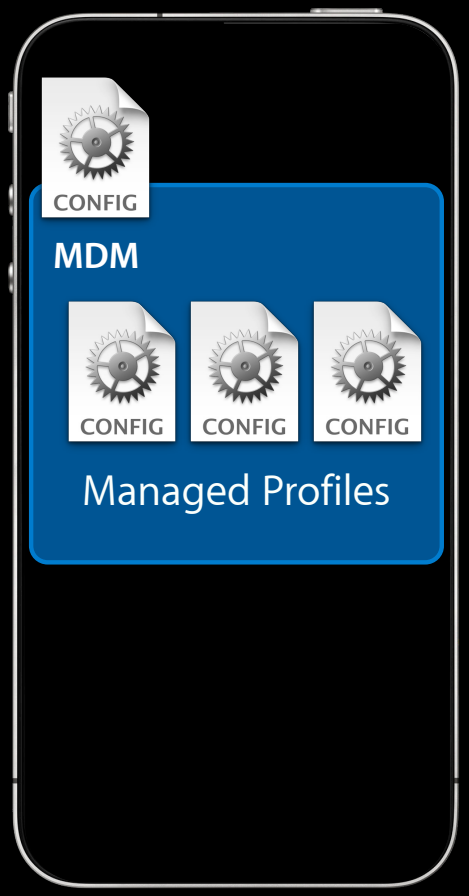
MDM Server



Mobile Device Management

Managed Profiles

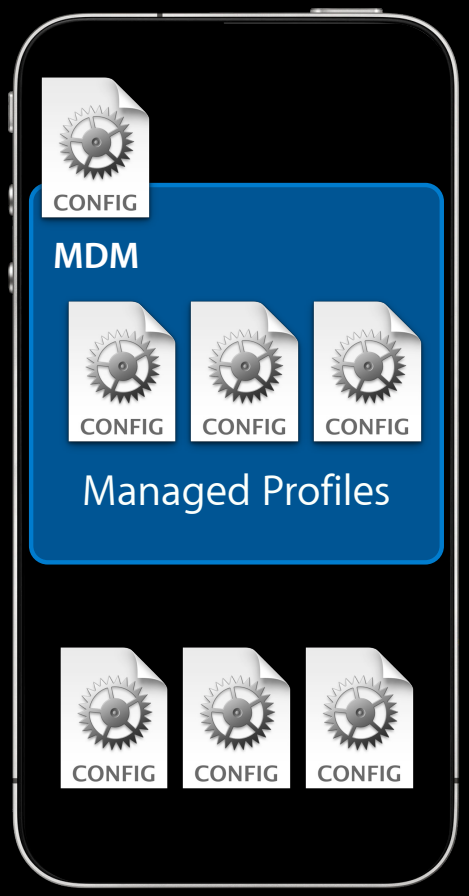
MDM Server



Mobile Device Management

Managed Profiles

MDM Server

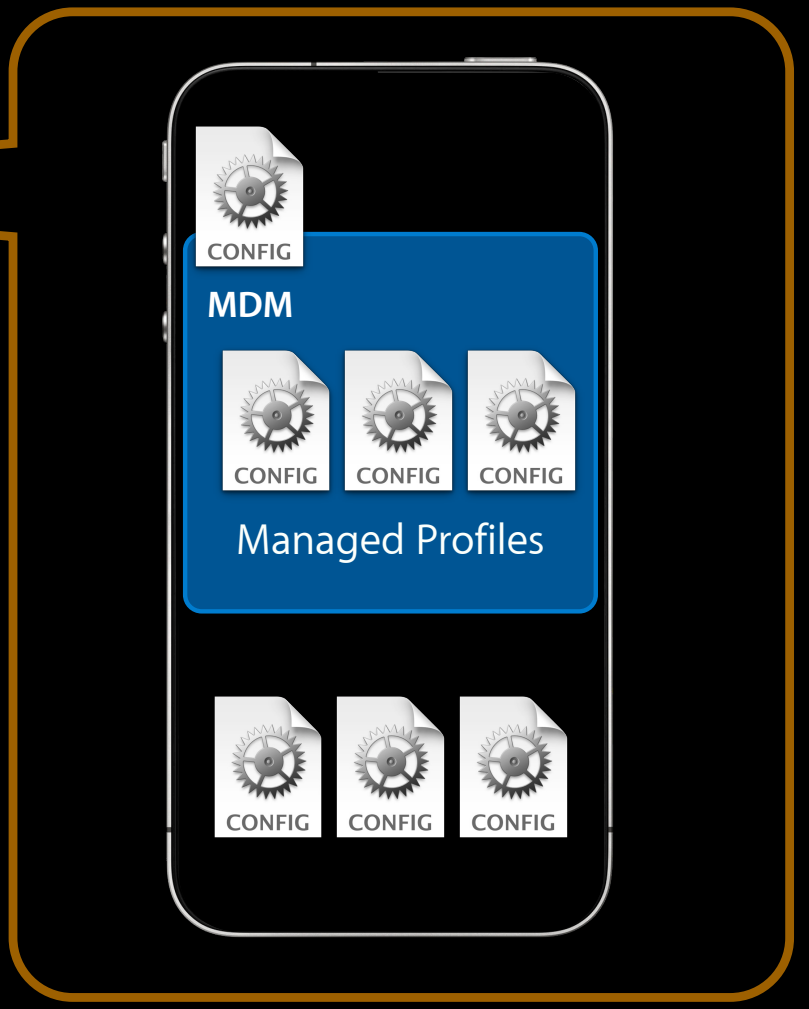


Mobile Device Management

Managed Profiles

MDM Server

- May examine all profiles

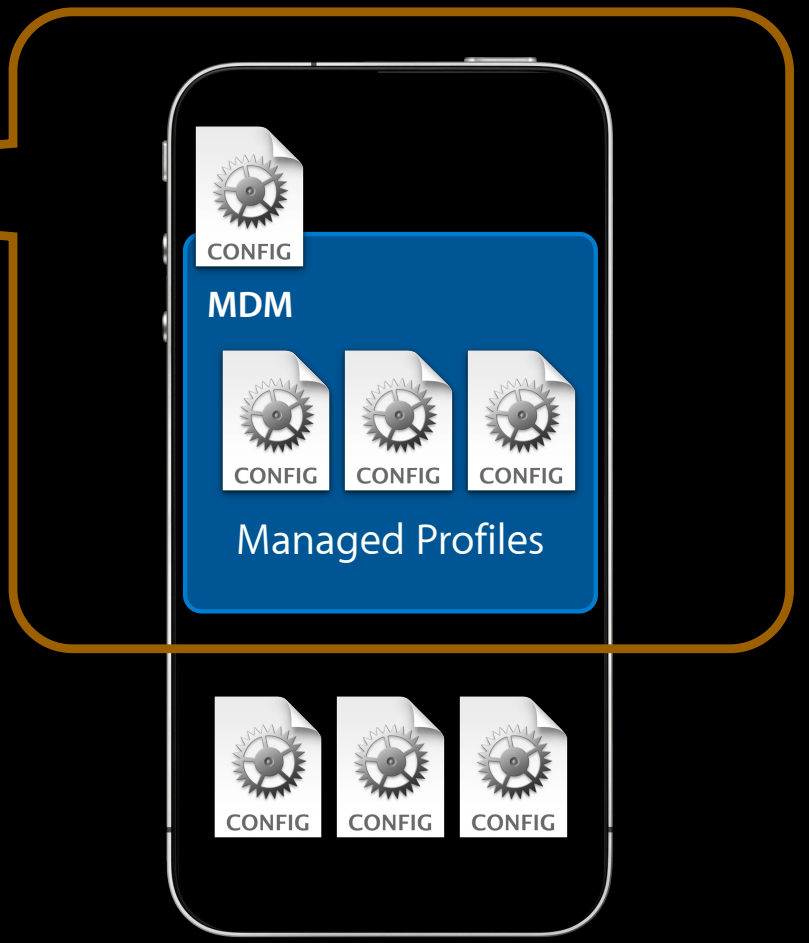


Mobile Device Management

Managed Profiles

MDM Server

- May examine all profiles
- May remove or replace only Managed Profiles

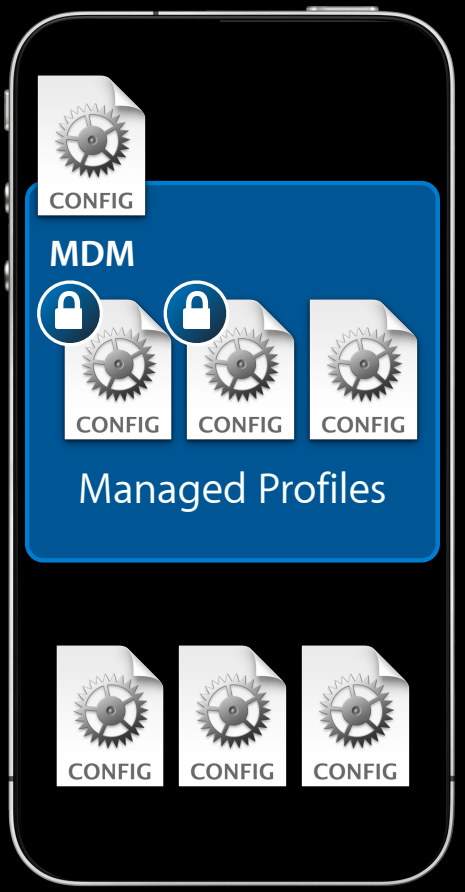


Mobile Device Management

Managed Profiles

MDM Server

- Managed Profiles may be locked (cannot be removed)
- Root MDM profile may not be locked
  - User may terminate MDM relationship at any time

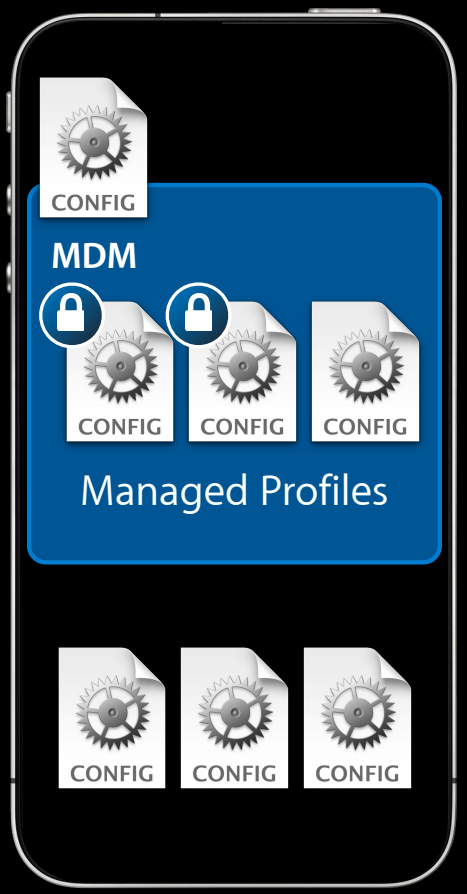


Mobile Device Management

Managed Profiles

MDM Server

- Managed Profiles may be locked (cannot be removed)
- Root MDM profile may not be locked
  - User may terminate MDM relationship at any time
- Removing Root MDM profile removes all Managed Profiles



Mobile Device Management

Carrot and stick

- Two approaches
  - Restrictions and accounts in a single profile
  - Using MDM
    - Install restrictions in a locked profile
    - Wait for user to comply
    - Install account in separate profile

Technologies

Configuration Profiles

OTA Enrollment

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Configuration Profiles

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Mobile Device Management

Wireless Enterprise App Distribution

Wireless Enterprise App Distribution

Features

- Wireless distribution of in-house apps
- Uses your web server
- Xcode integration

Demo

Wireless Enterprise App Deployment

Wireless Enterprise App Distribution

What you need

- Web server
- Your app's distribution provisioning profile
- Application in .ipa format
- XML manifest file

Automated by Xcode

Wireless Enterprise App Distribution

Works best with MDM

- Install web clip for App Catalog website
- Install and renew provisioning profiles
- Monitor app versions

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Wireless App Distribution

What Next?

Start using these technologies

- Download iPhone Configuration Utility
  - Free of charge
  - Ideal for small workgroups
- Develop a solution
  - Join the Enterprise Developer Program
  - Review documentation
  - Fully customized solution
- Purchase third-party solution

More Information

Mark Malone
Integration Technologies Evangelist
mgm@apple.com

Documentation
Enterprise Deployment Guide
Enterprise Developer Manual
Wireless Enterprise App Distribution
http://developer.apple.com
http://www.apple.com/iphone/business/integration

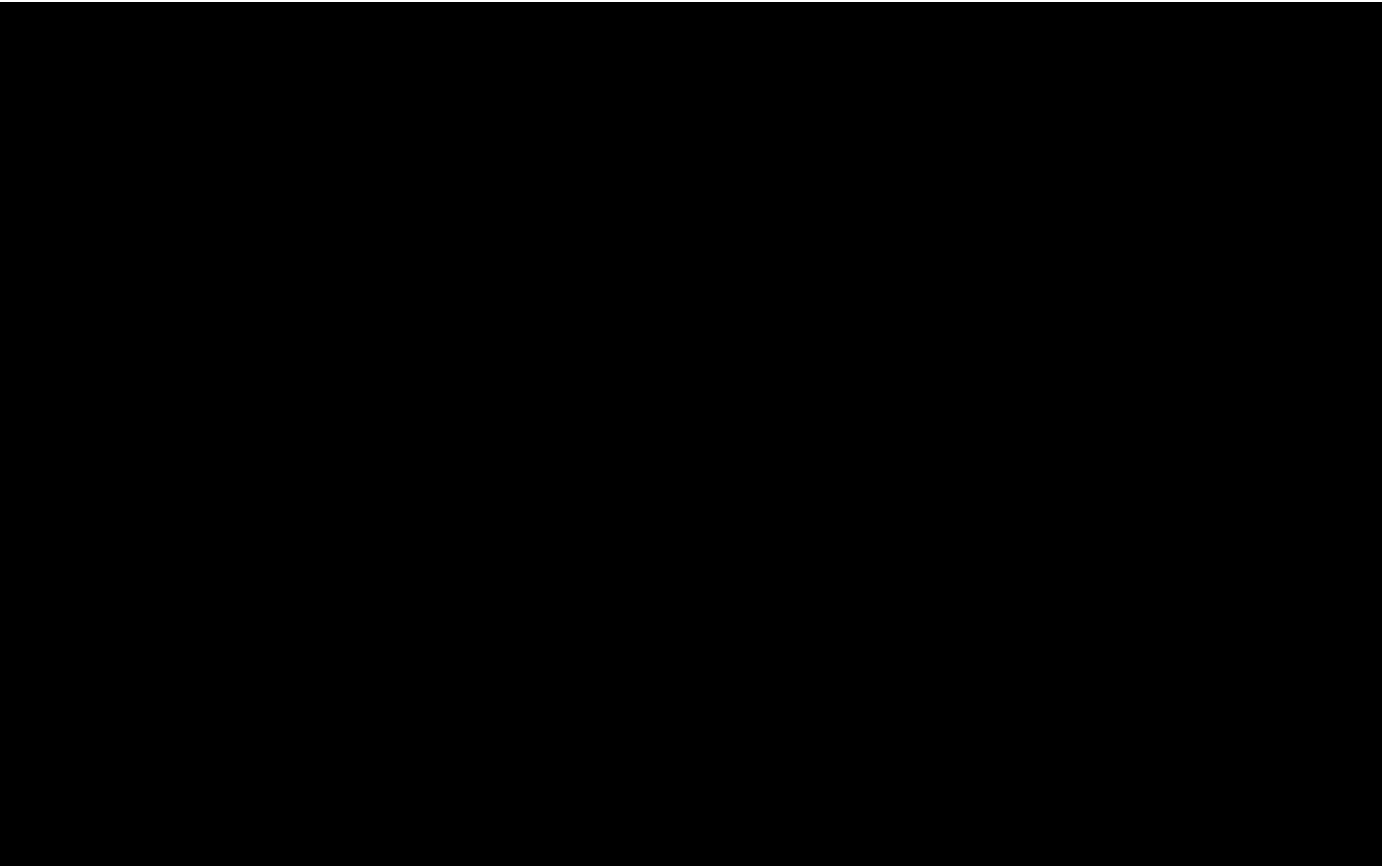
Apple Developer Forums
http://devforums.apple.com

Related Sessions

Creating Secure Applications	Russian Hill Tuesday 4:30PM
Building a Server-Driven User Experience	Nob Hill Wednesday 11:30AM
Securing Application Data	Marina Thursday 11:30AM

Labs

Mobile Device Management Lab	App Frameworks Lab B Tuesday 4:30PM

Q&A

WWDC10