

Implementing OS X Push Notifications for Websites

Session 614

Jon Lee

Safari and WebKit Manager

These are confidential sessions—please refrain from streaming, blogging, or taking pictures

Push Notifications



Why Push Notifications?

- Timely and relevant



Paul Brennan 9:32 AM
Package has been shipped.



Weekly Staff Meeting now
Room 47



Erin Steed now
Looks like we are 8 for dinner now.

Why Push Notifications?

- Timely and relevant
- Easy to access



Why Push Notifications?

- Timely and relevant
- Easy to access



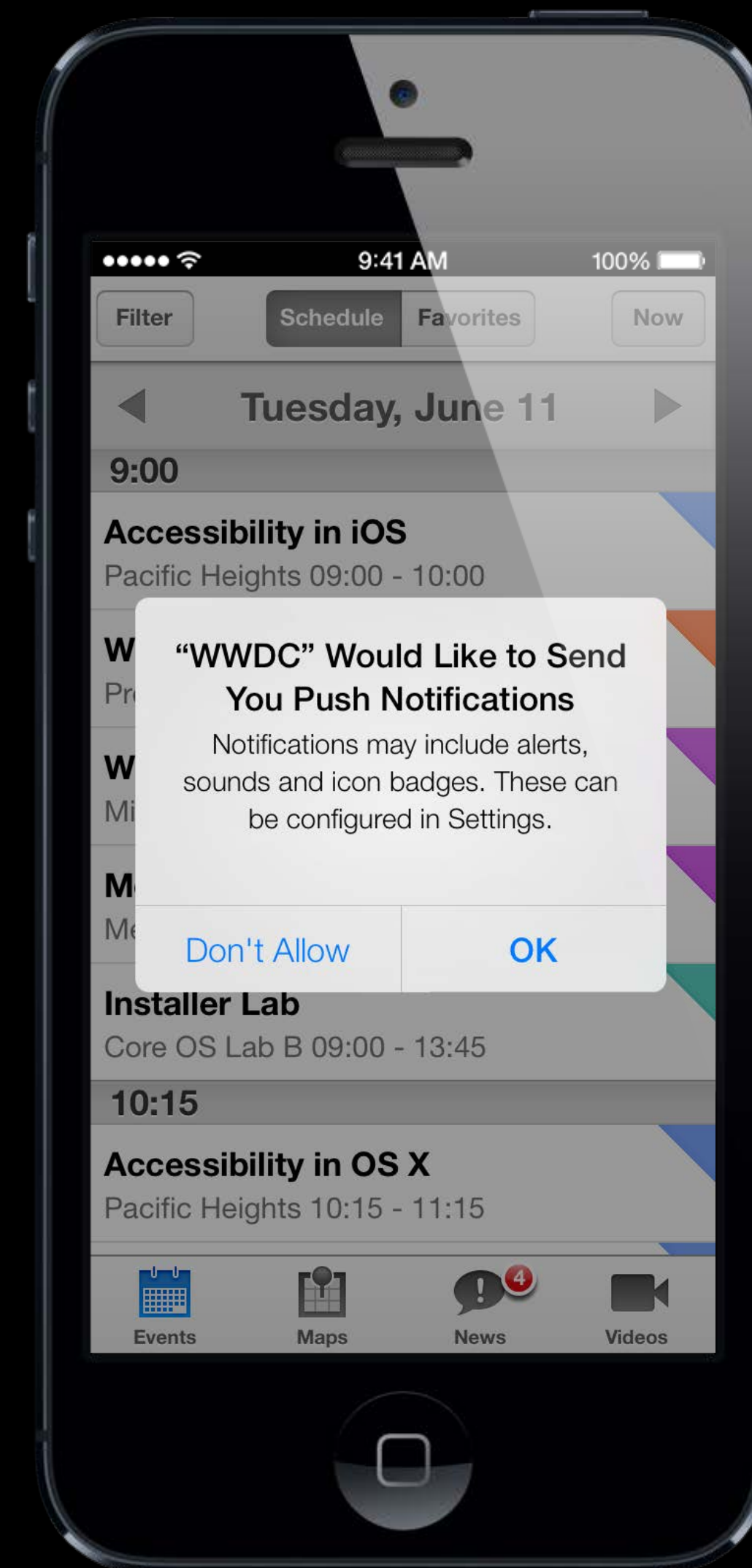
Why Push Notifications?

- Timely and relevant
- Easy to access
- Go straight to the details



Why Push Notifications?

- Timely and relevant
- Easy to access
- Go straight to the details
- Full control



Push Notifications



Push Notifications



What About Websites?



What About Websites?

OS X Website Push Notifications

What You Will Learn

- Background
- How it works
- Implementation
- Best practices

What You Will Learn

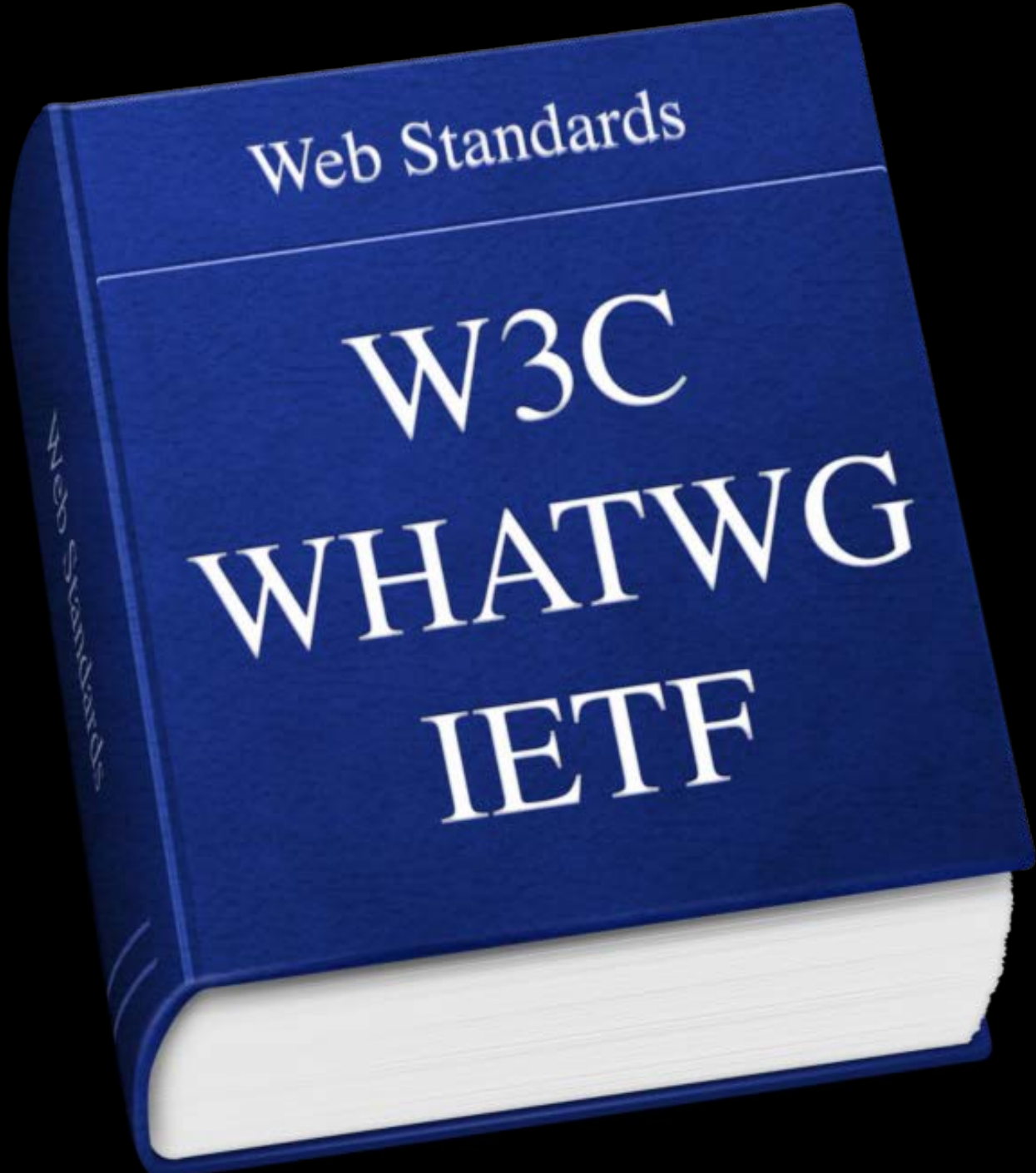
- Background
- How it works
- Implementation
- Best practices

Background

Local Web Notifications

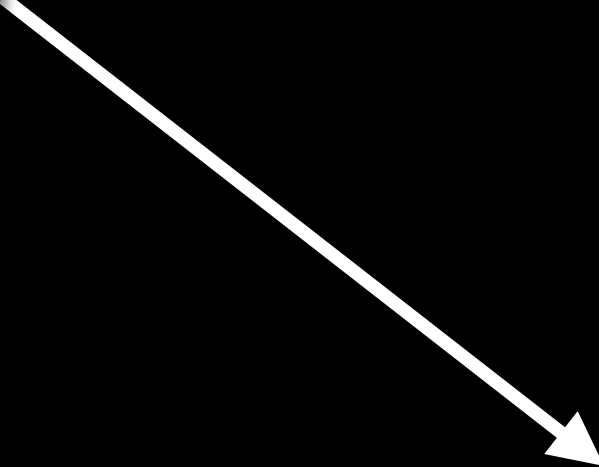


Local Web Notifications



Local vs. Push Notifications on Websites

Local



Local vs. Push Notifications on Websites

Local



Push



Local vs. Push Notifications on Websites

Local Notifications

Push Notifications

Local vs. Push Notifications on Websites

Local Notifications

Push Notifications

Availability

Only when website is open

Anytime

Local vs. Push Notifications on Websites

Local Notifications

Push Notifications

Availability	Only when website is open	Anytime
Attribution	Safari icon Domain name	Website icon

Local vs. Push Notifications on Websites

	Local Notifications	Push Notifications
Availability	Only when website is open	Anytime
Attribution	Safari icon Domain name	Website icon
Notification Center	Grouped under Safari	Grouped per website

Local vs. Push Notifications on Websites

	Local Notifications	Push Notifications
Availability	Only when website is open	Anytime
Attribution	Safari icon Domain name	Website icon
Notification Center	Grouped under Safari	Grouped per website
Action	Makes tab frontmost	Opens web page

Push Notifications on Apps vs. Websites

For Native Apps

For Websites on Mac

Availability		Anytime
Attribution		Website icon
Notification Center		Grouped per website
Action		Opens web page

Push Notifications on Apps vs. Websites

For Native Apps

For Websites on Mac

Availability	The same!	Anytime
Attribution		Website icon
Notification Center		Grouped per website
Action		Opens web page

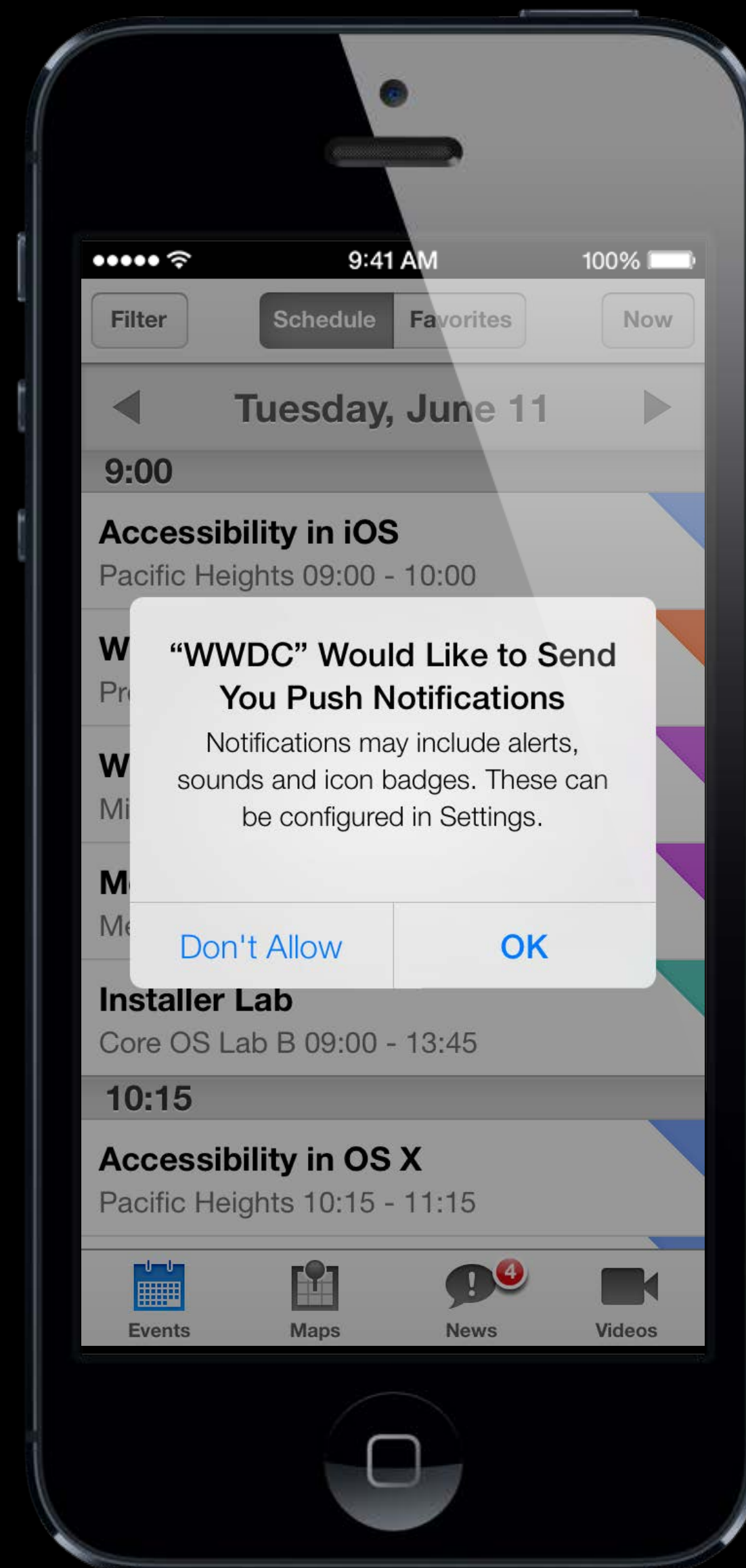
Push Notifications on Apps vs. Websites

For Native Apps

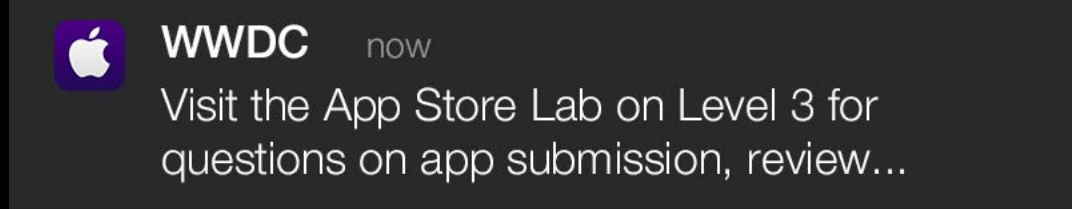
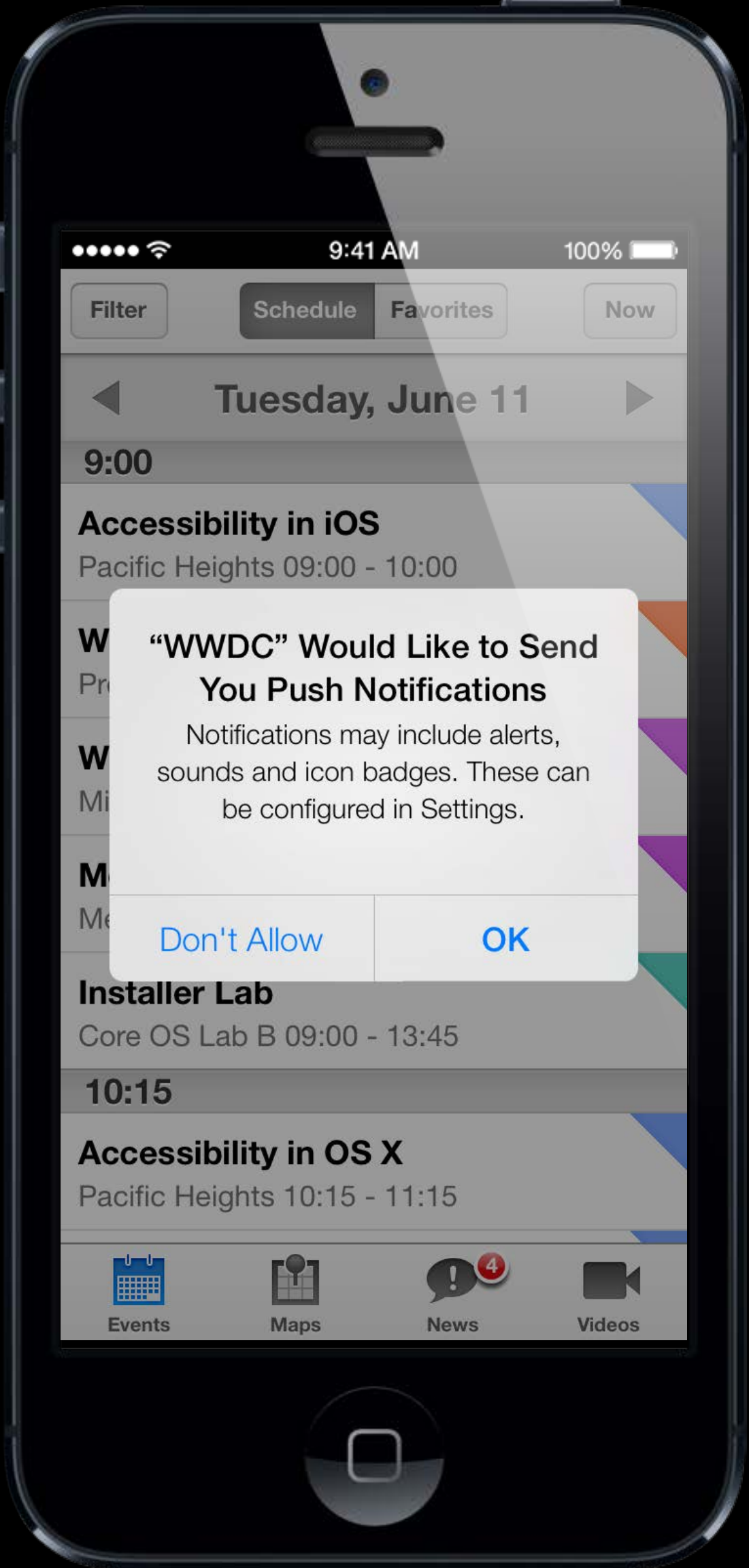
For Websites on Mac

Availability	Anytime	Anytime
Attribution	App icon	Website icon
Notification Center	Grouped per app	Grouped per website
Action	Opens app	Opens web page

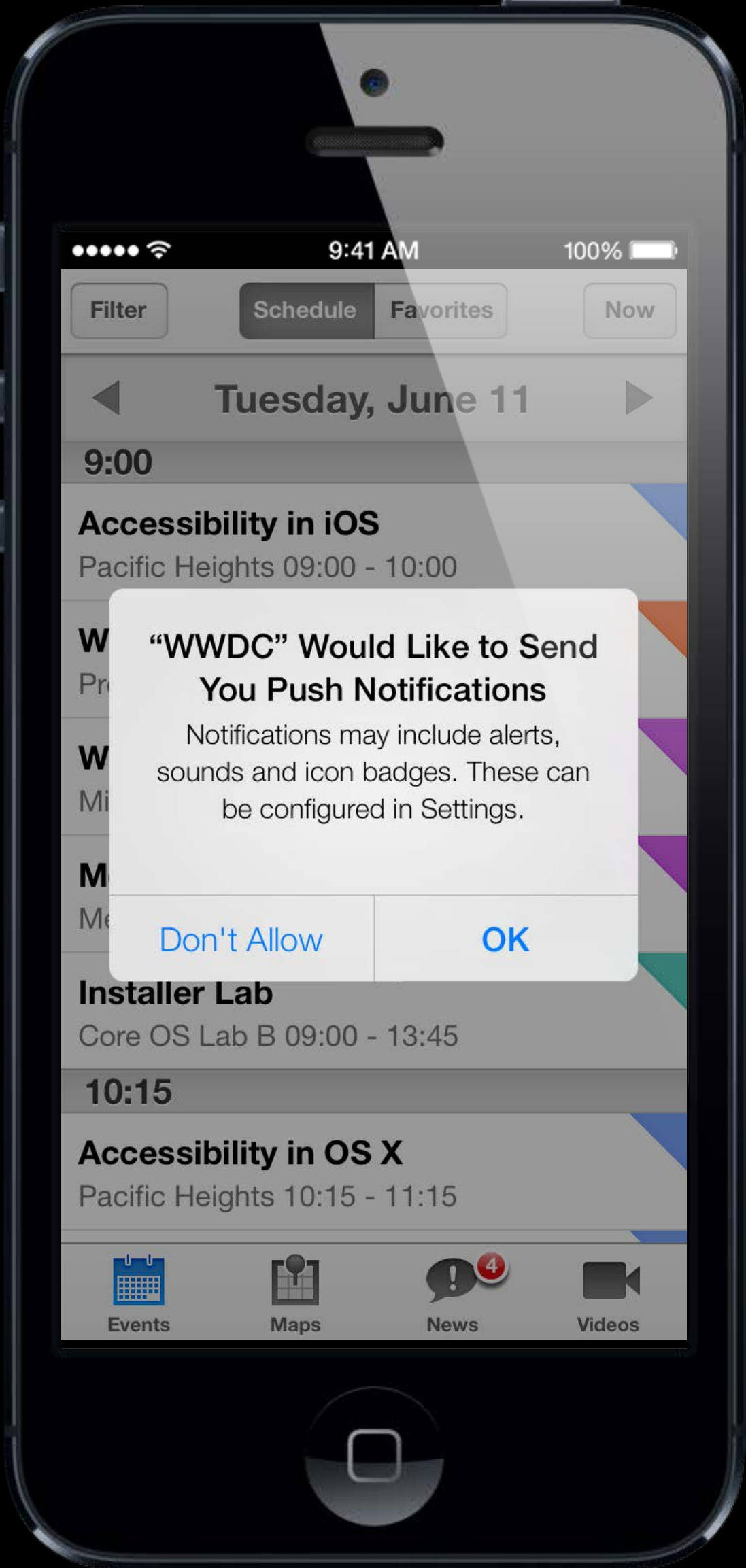
App Identity




App Identity



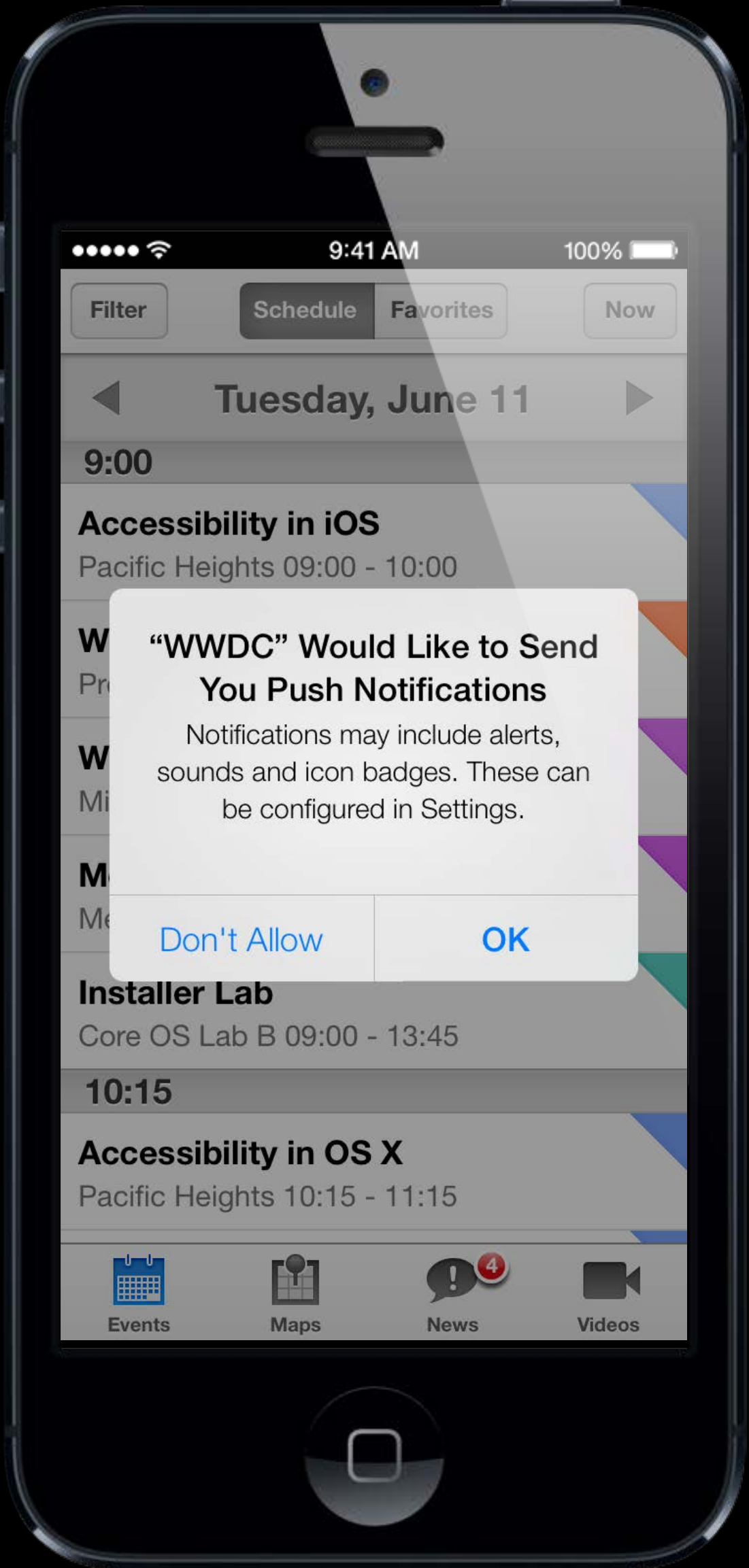
App Identity




 **WWDC** now
Visit the App Store Lab on Level 3 for questions on app submission, review...

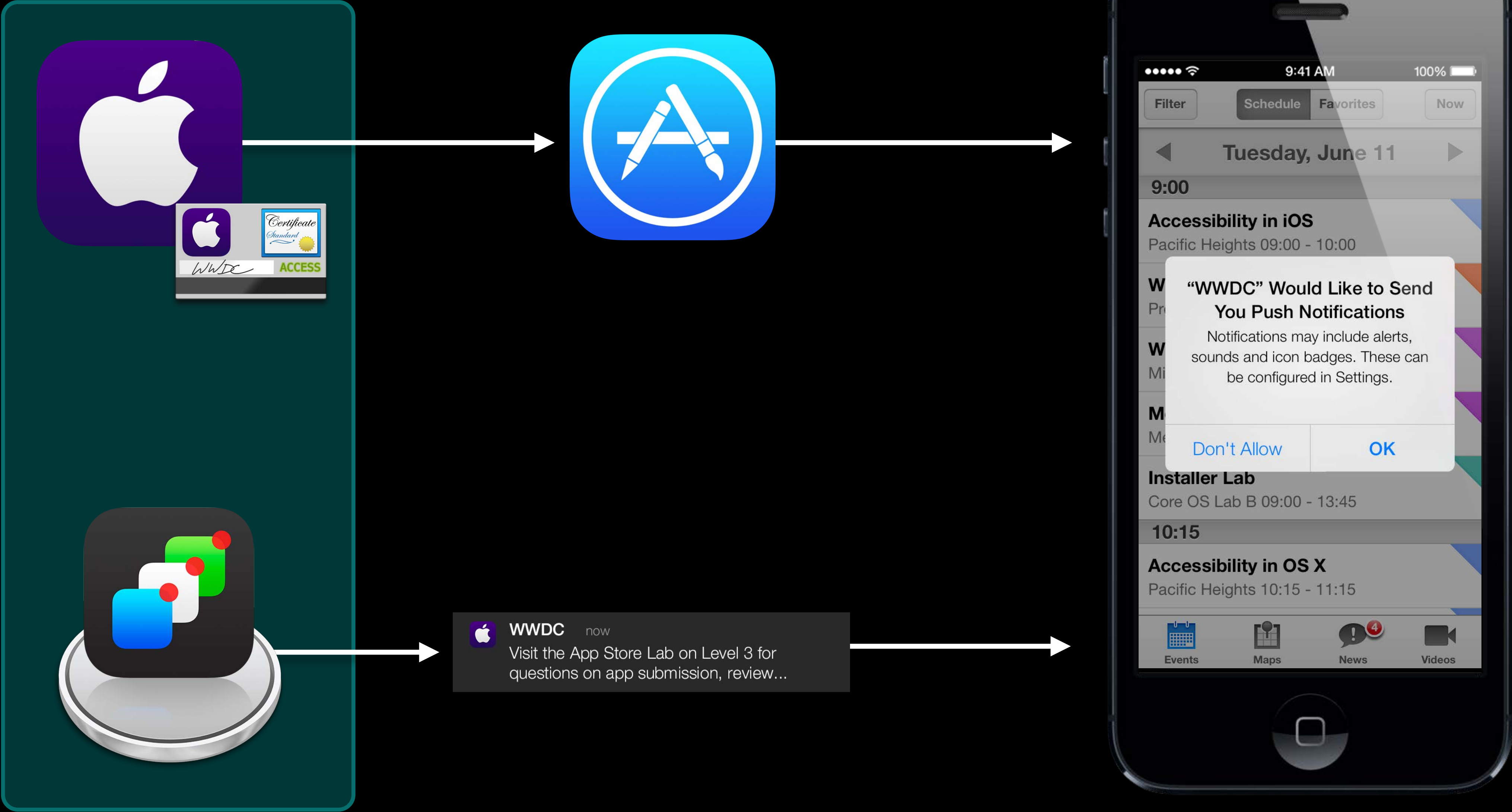


App Identity



 **WWDC** now
Visit the App Store Lab on Level 3 for questions on app submission, review...

App Identity




Website Identity

?



?




 **Flight A109 Gate Changed**
Your gate has changed to A4

[Visit the App Store](#) [Lab on Level 3 for questions on app submission, review](#)

Website Identity

Push Package




 **Flight A109 Gate Changed**
Your gate has changed to A4

Website Identity

Push Package



 **Flight A109 Gate Changed**
Your gate has changed to A4

Website Identity



Website Identity



What You Will Learn

- Background
- How it works
- Implementation
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What You Will Learn

- Background
- How it works
- Implementation
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How It Works

Two Steps

1

Subscribing

2

Delivering

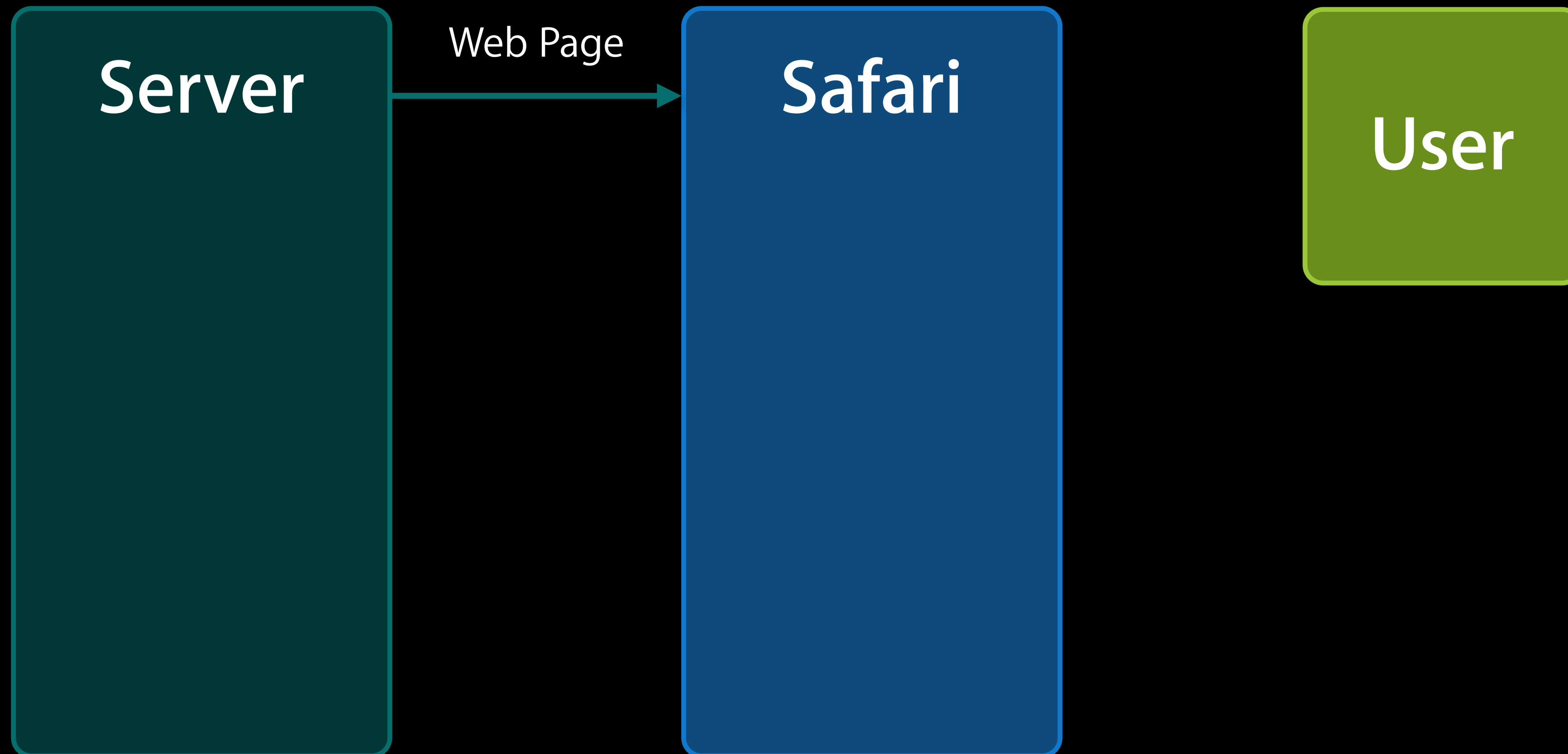
Subscribing

Server

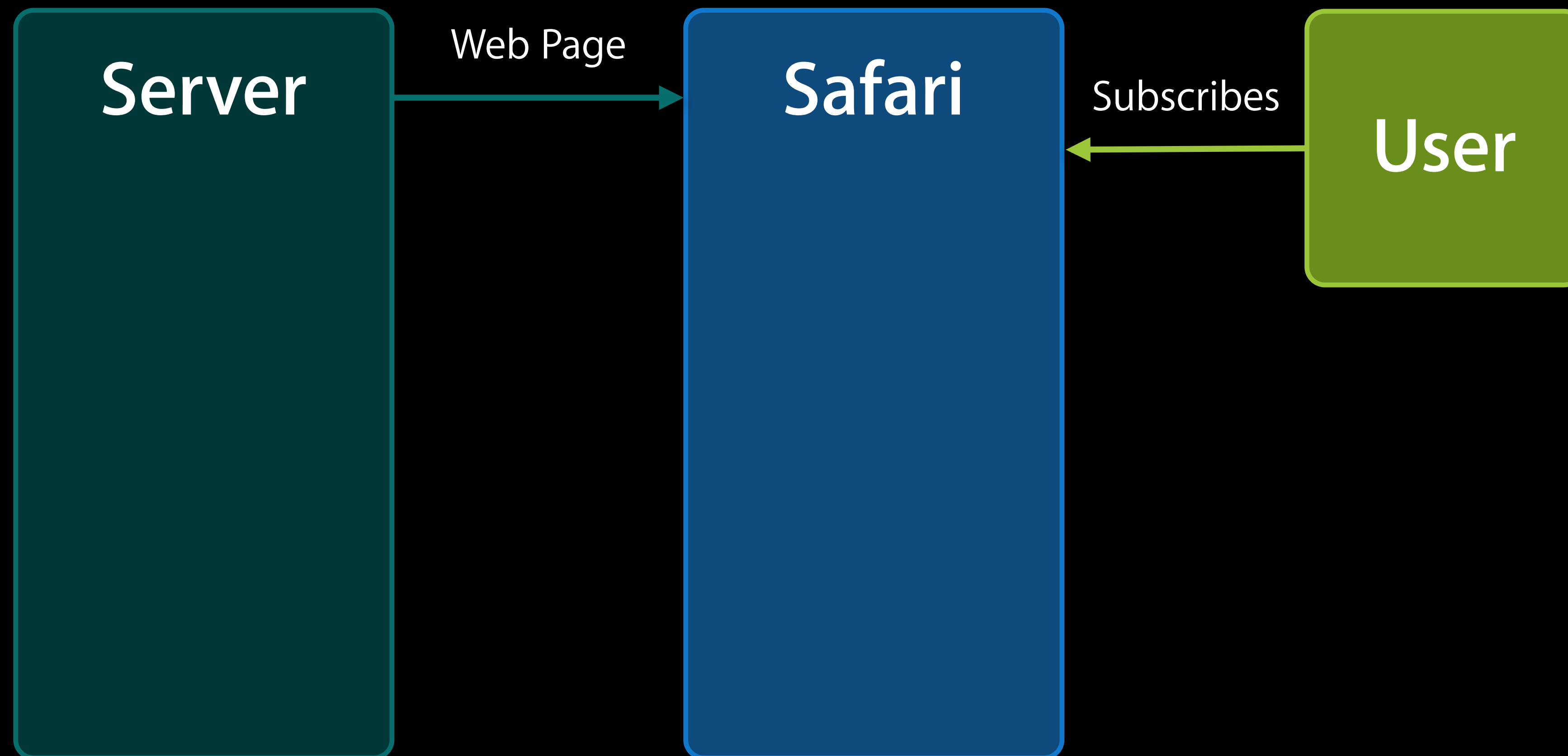
Safari

User

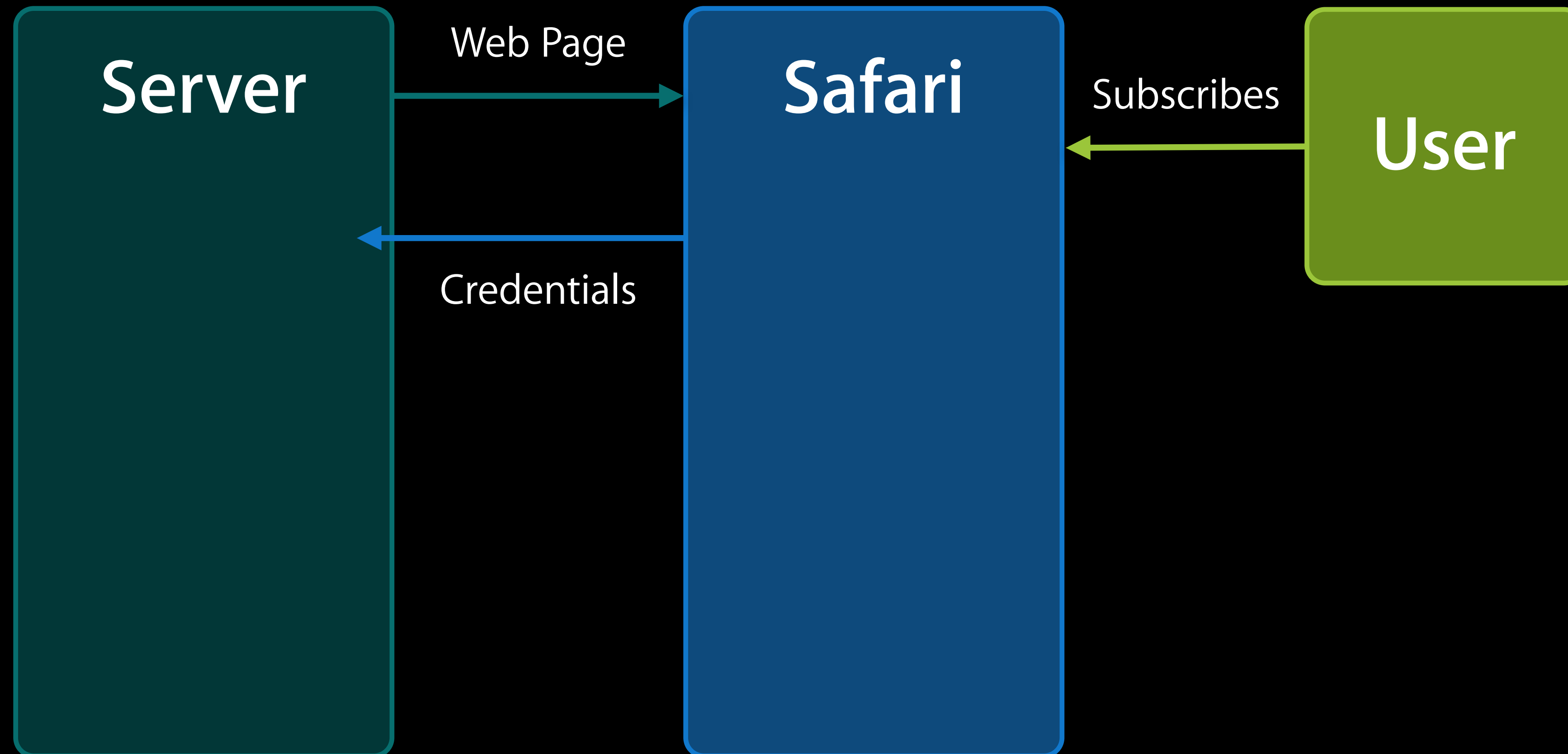
Subscribing



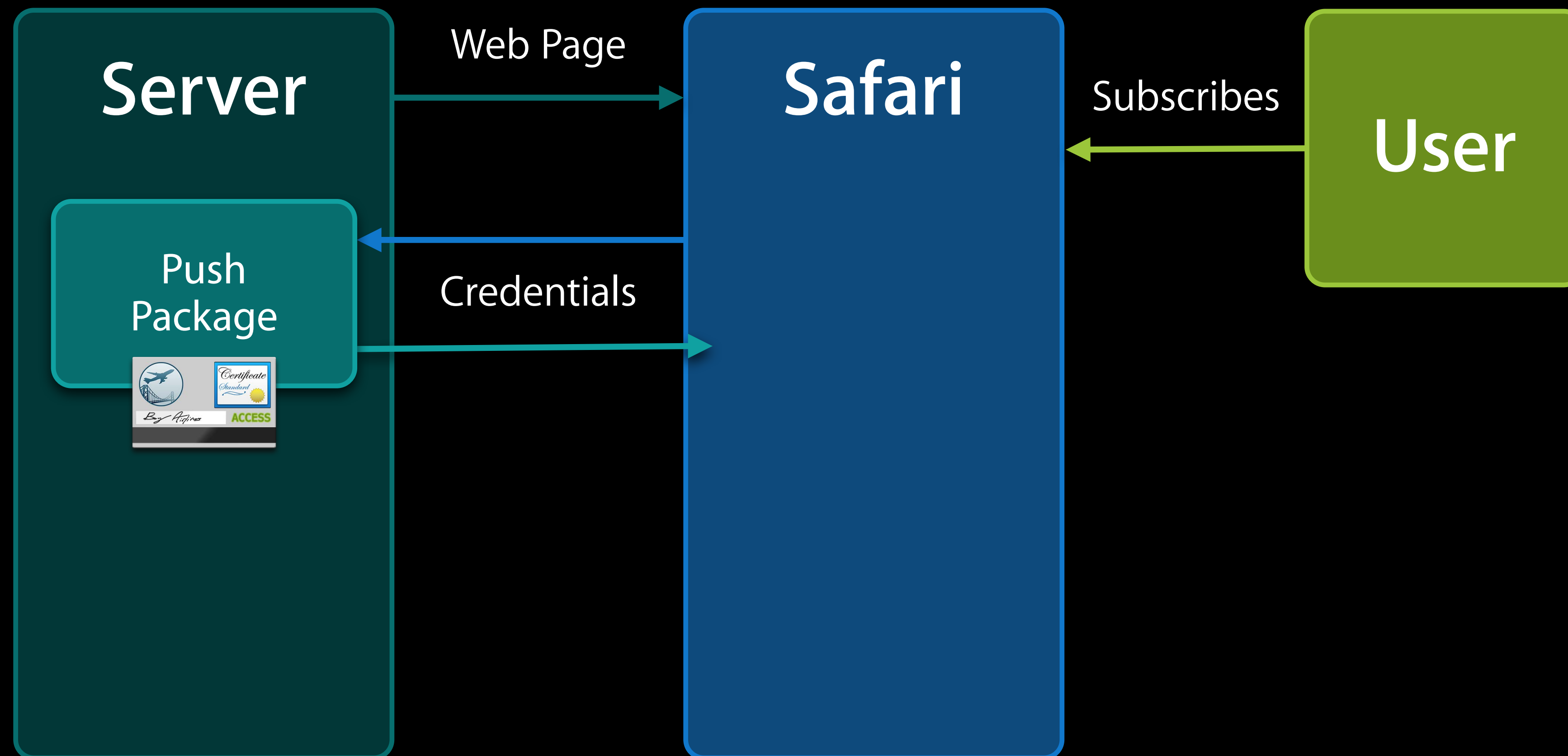
Subscribing



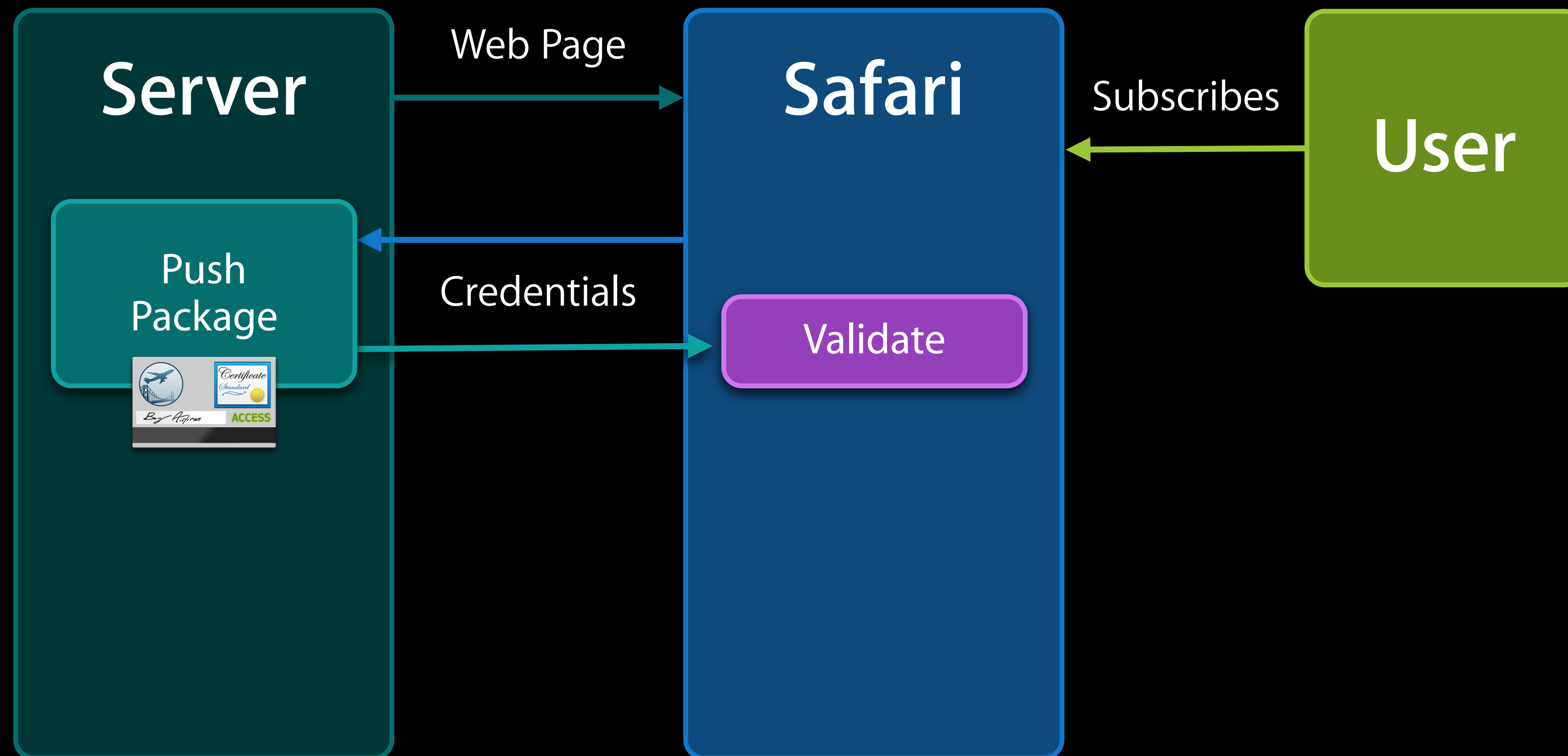
Subscribing



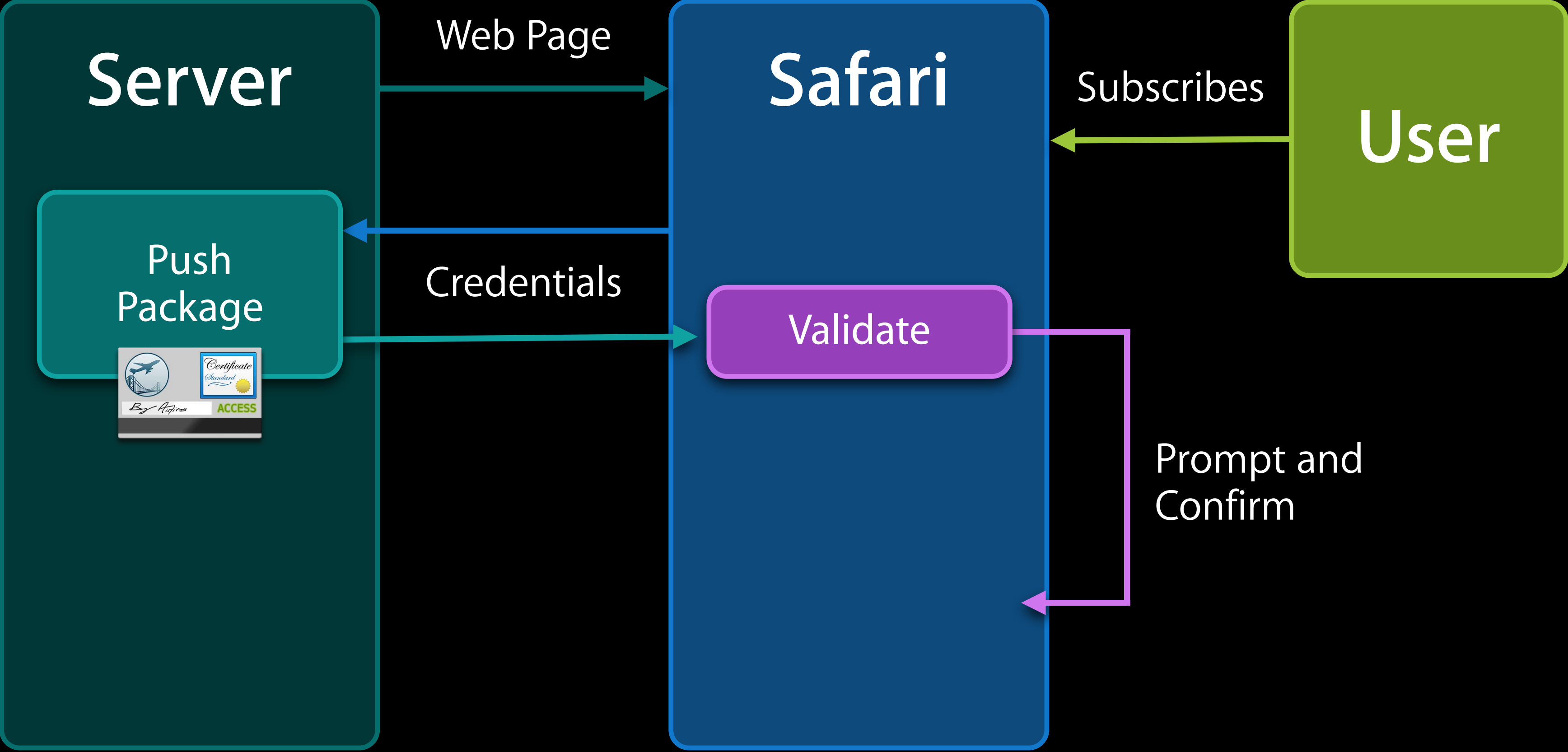
Subscribing



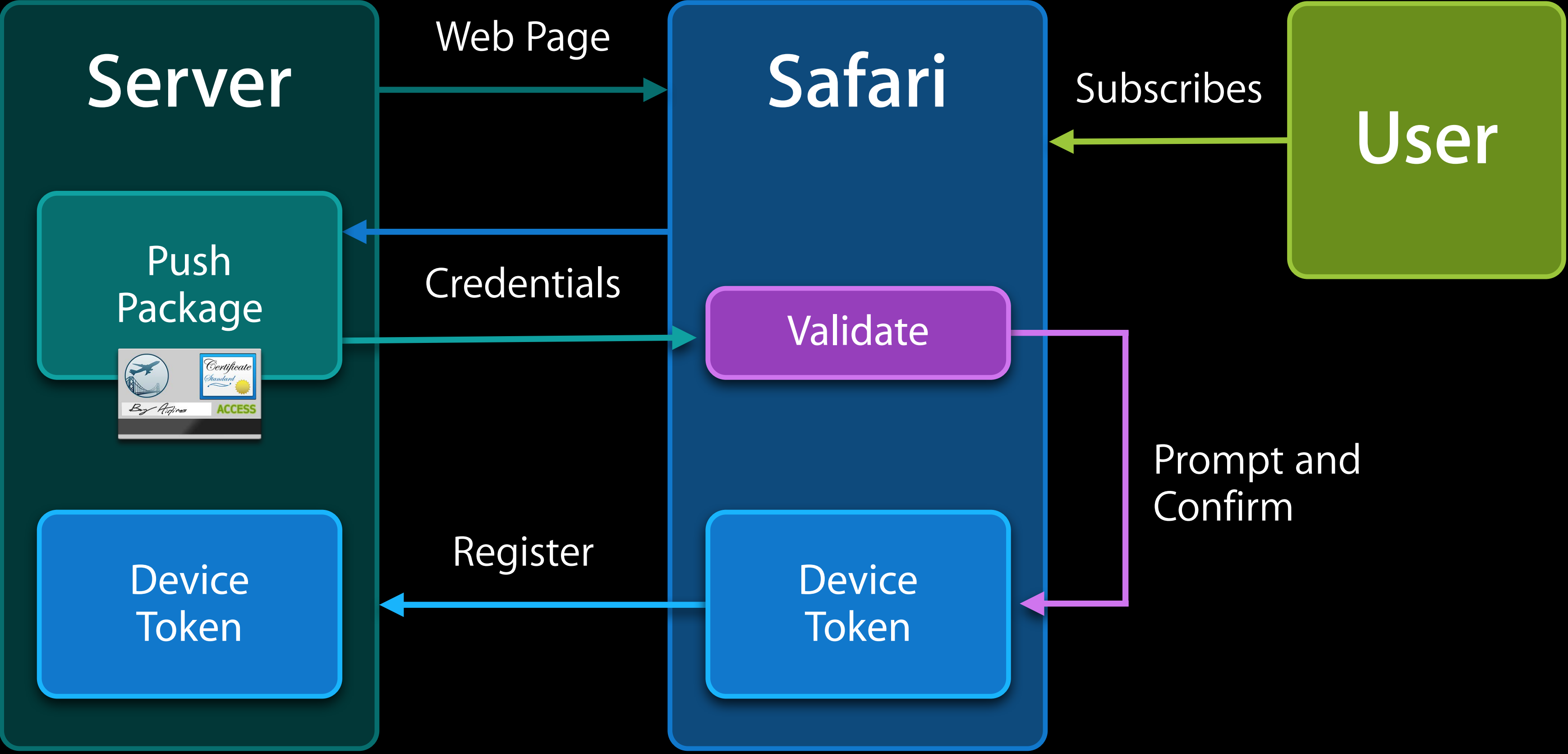
Subscribing



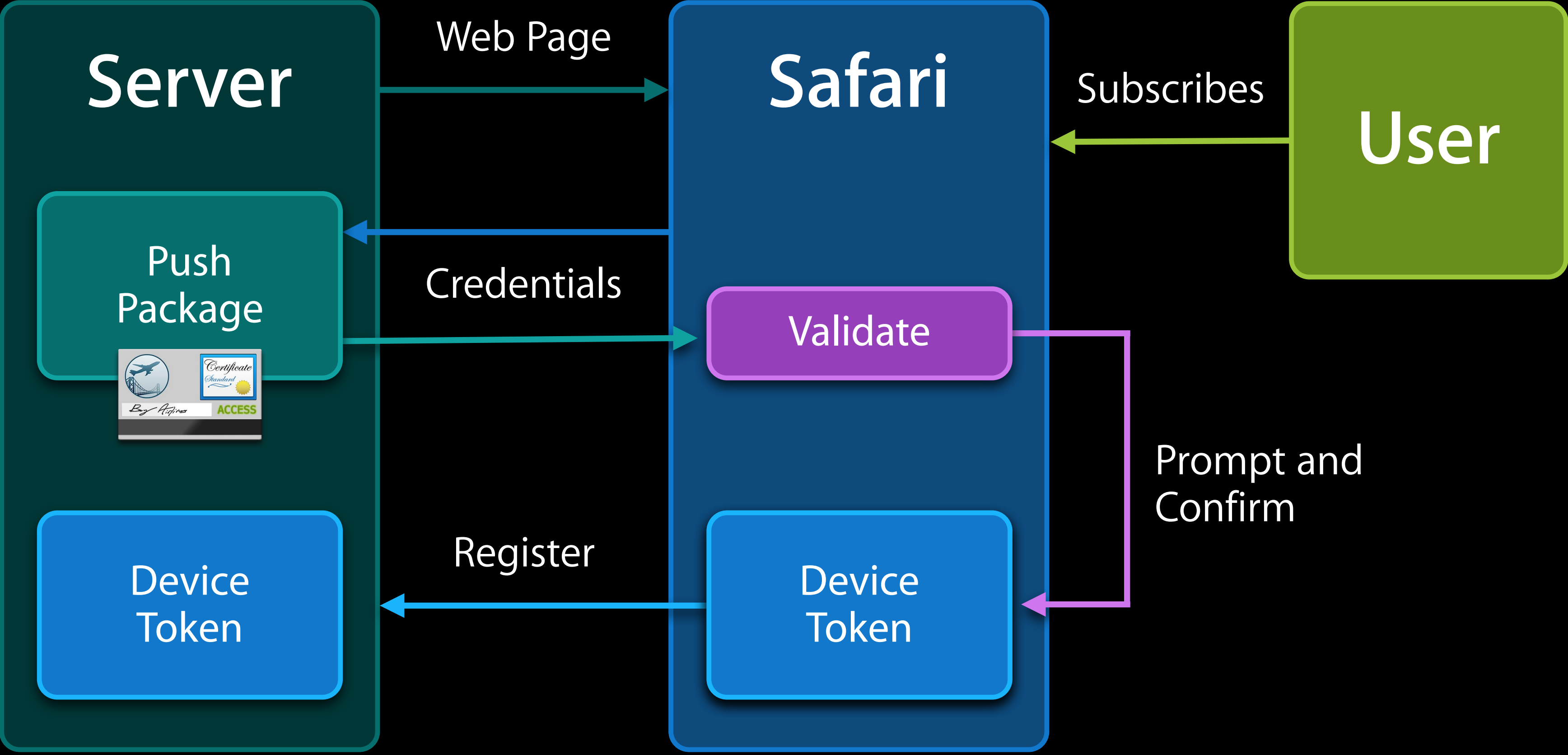
Subscribing



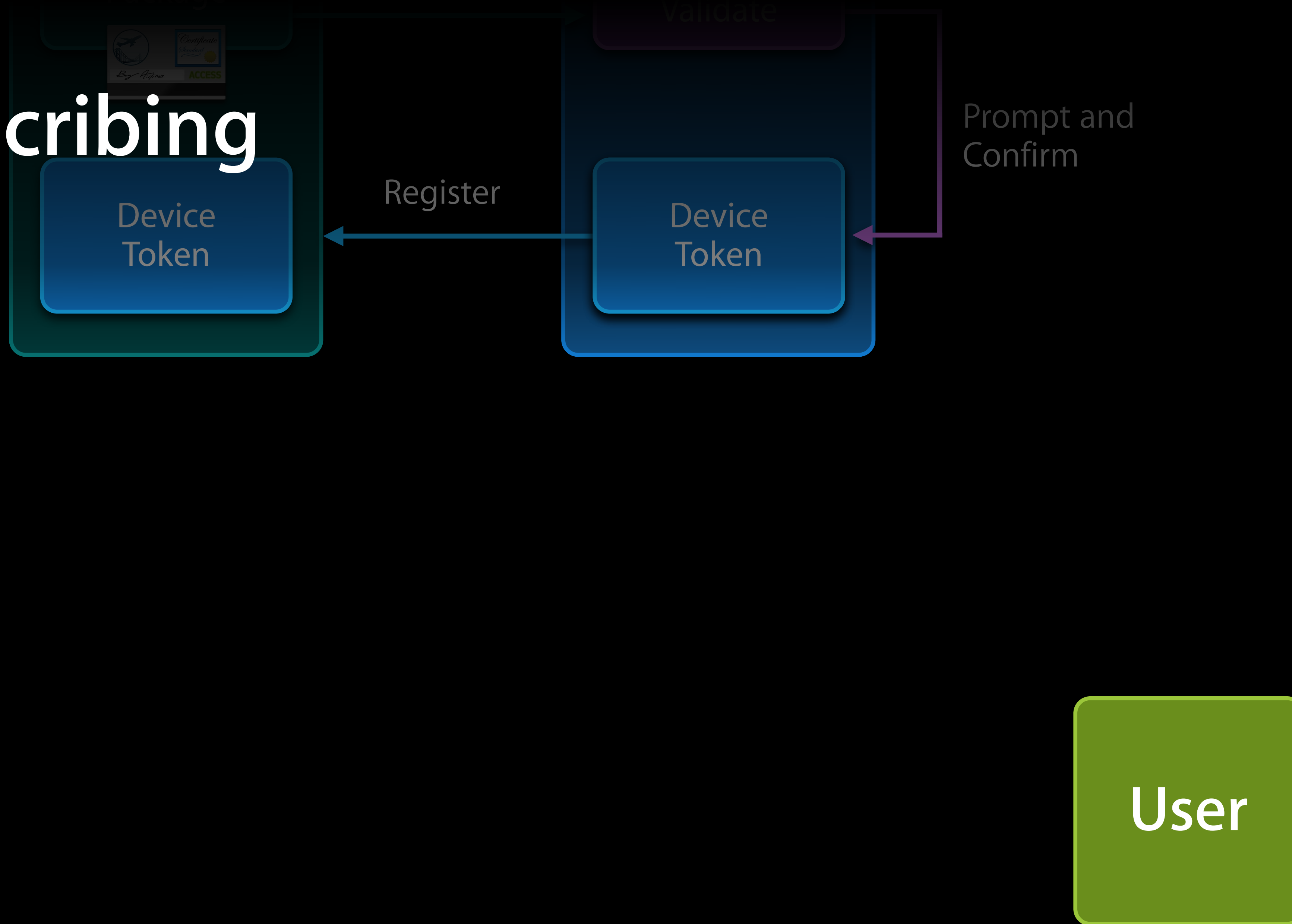
Subscribing



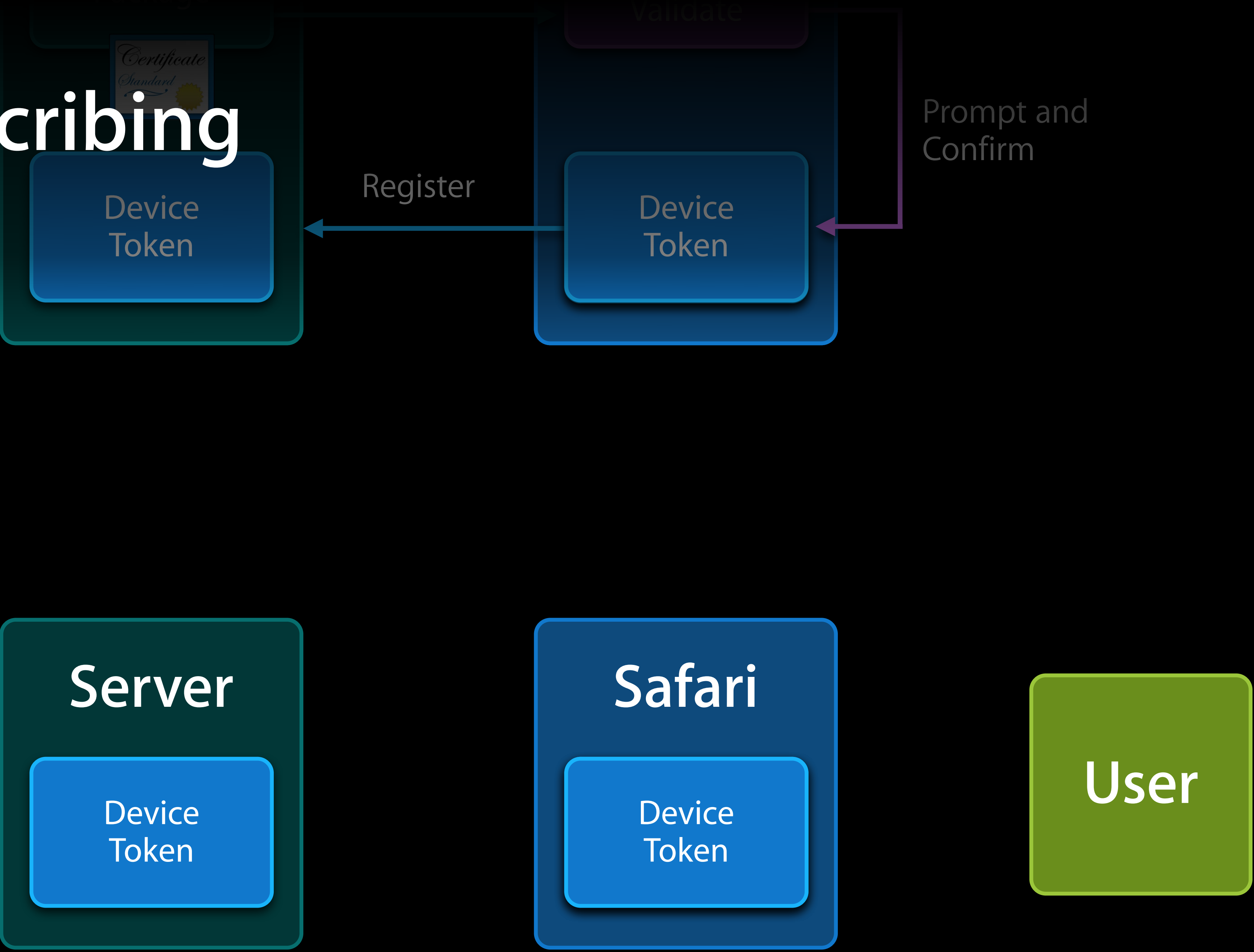
Subscribing



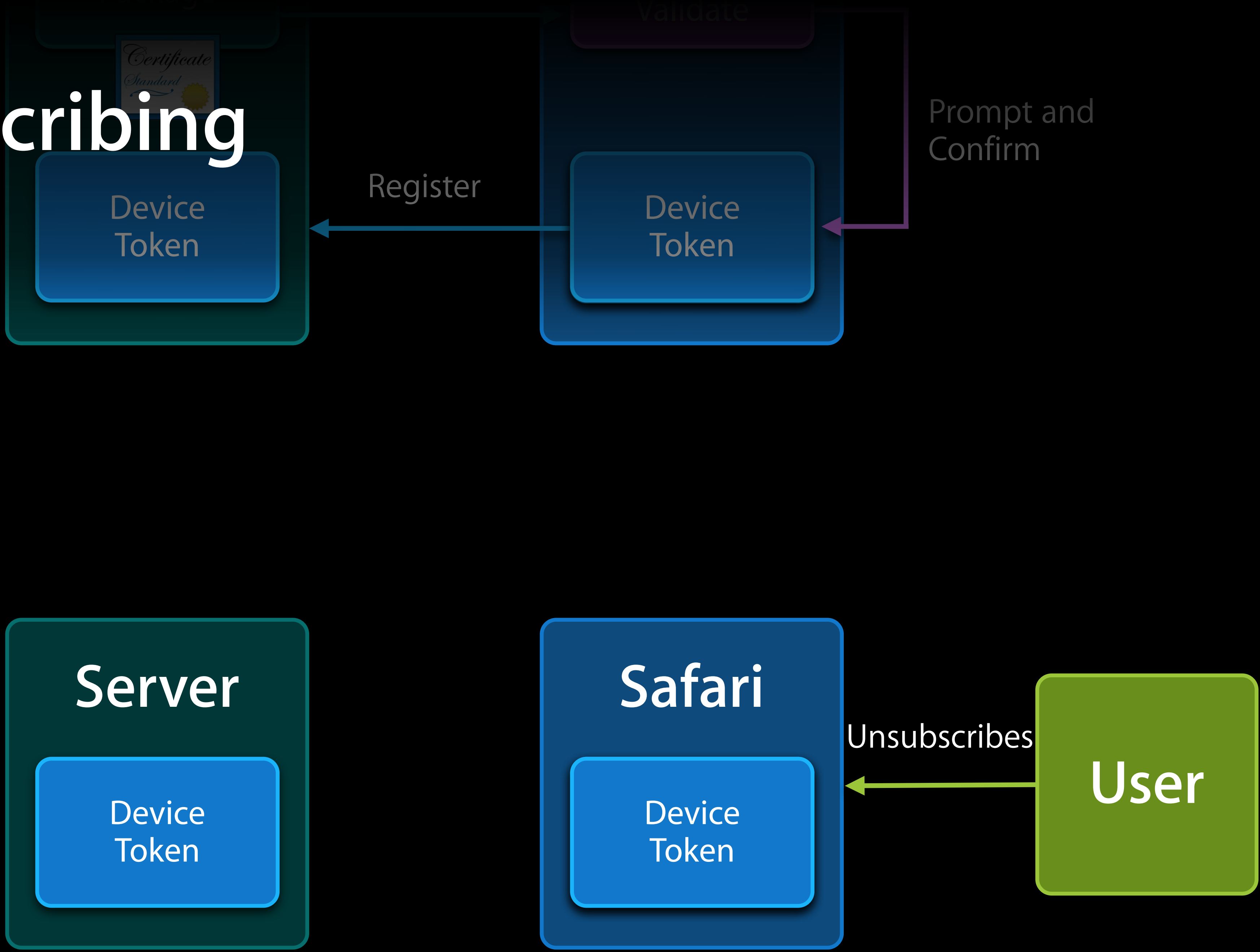
Subscribing



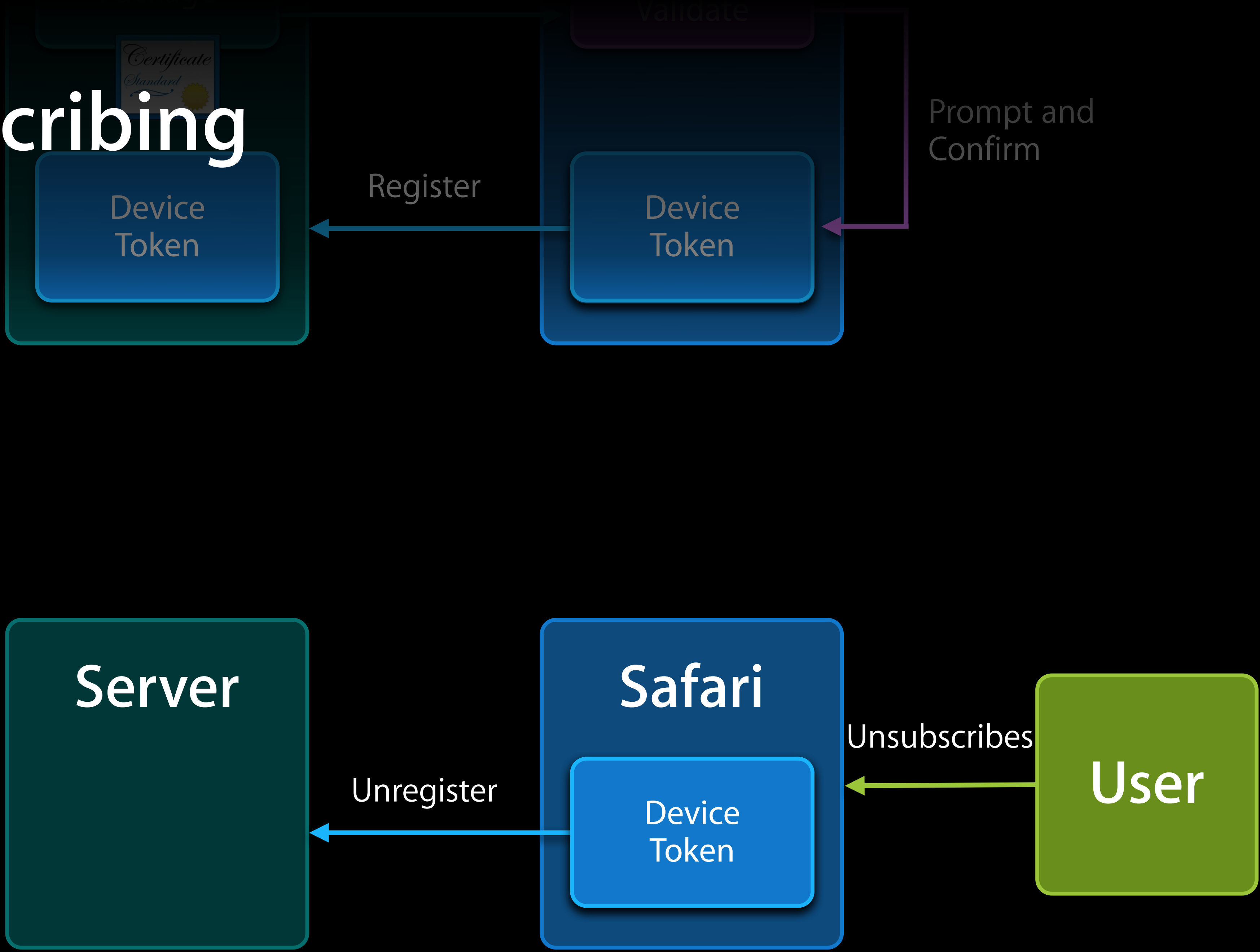
Subscribing



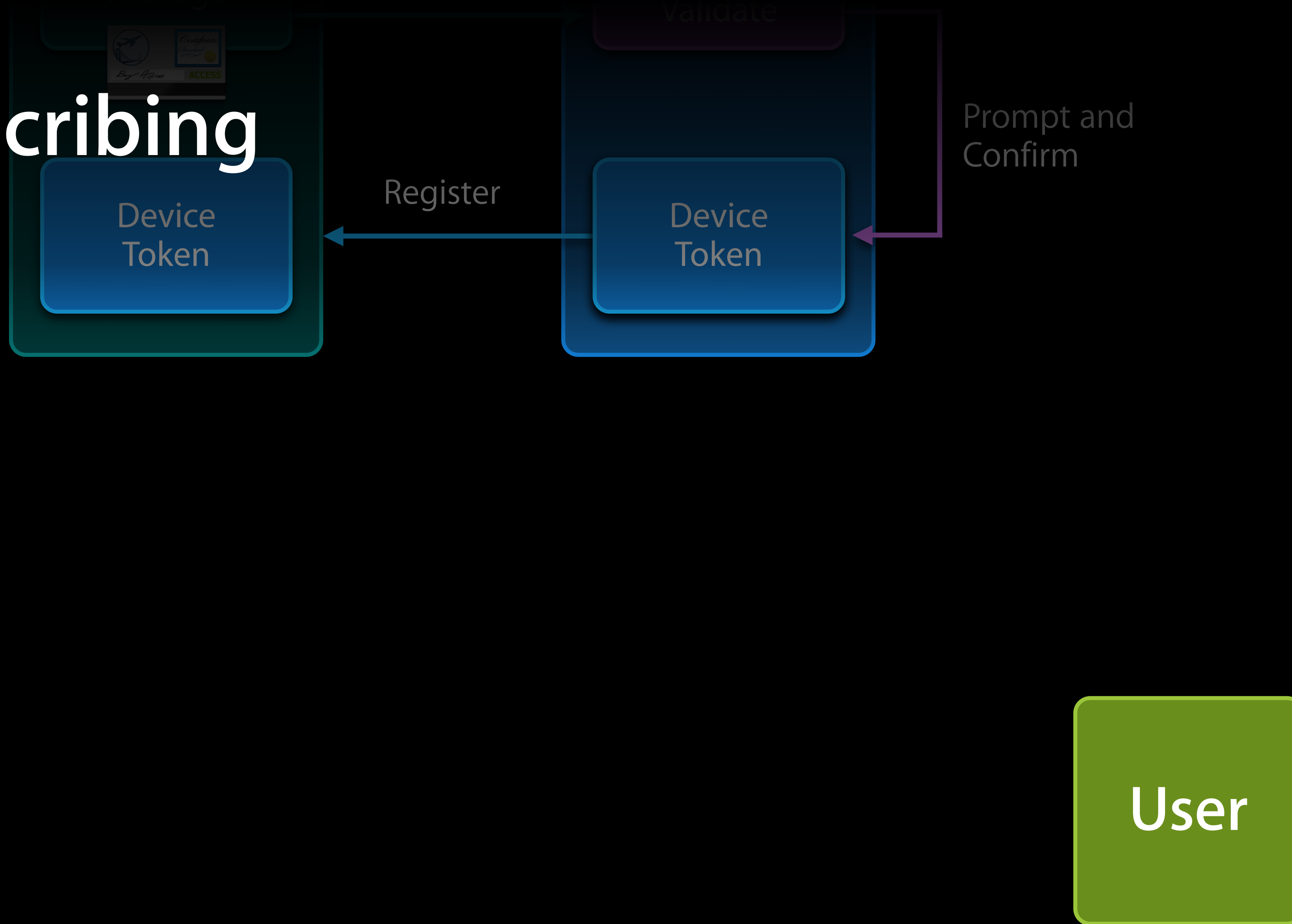
Subscribing



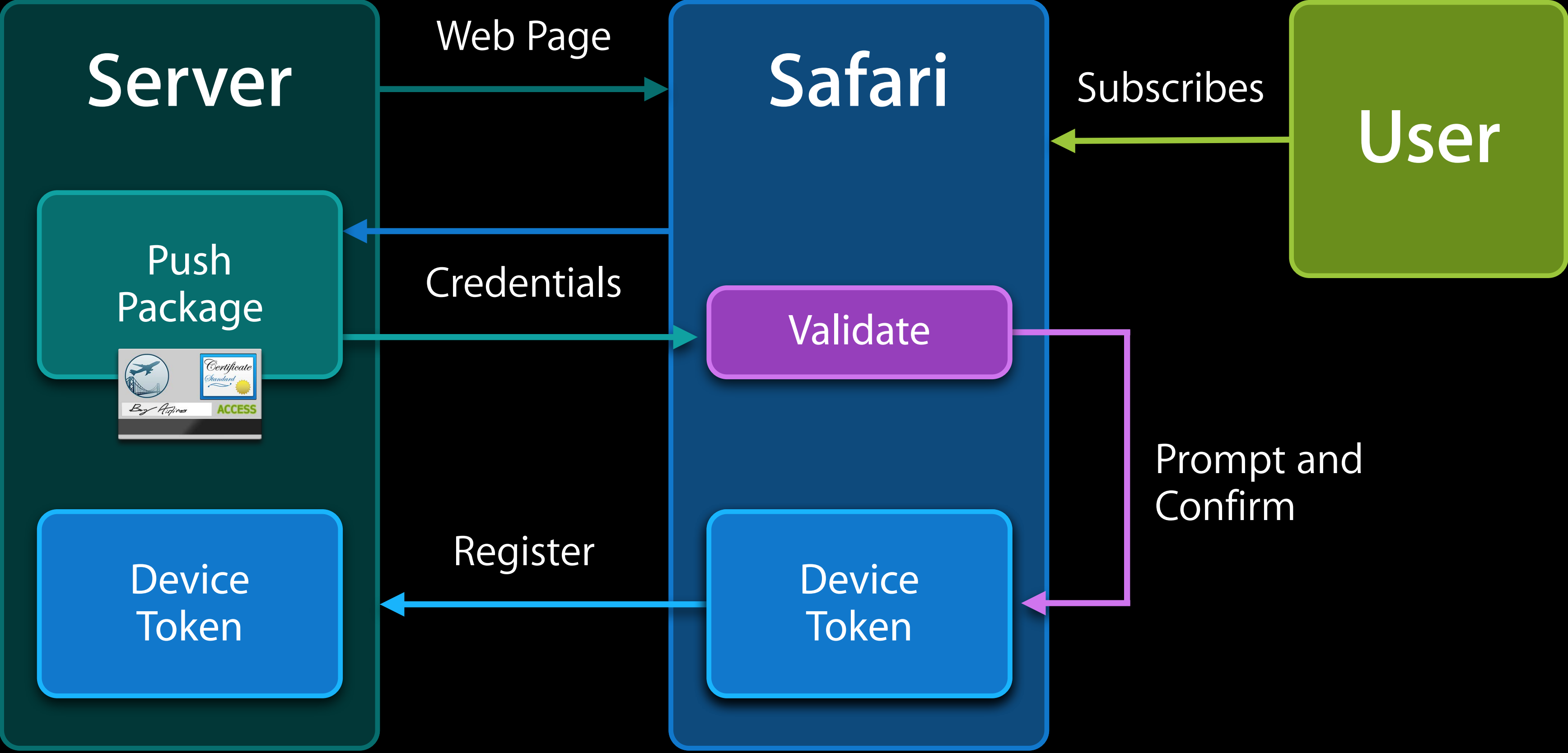
Subscribing



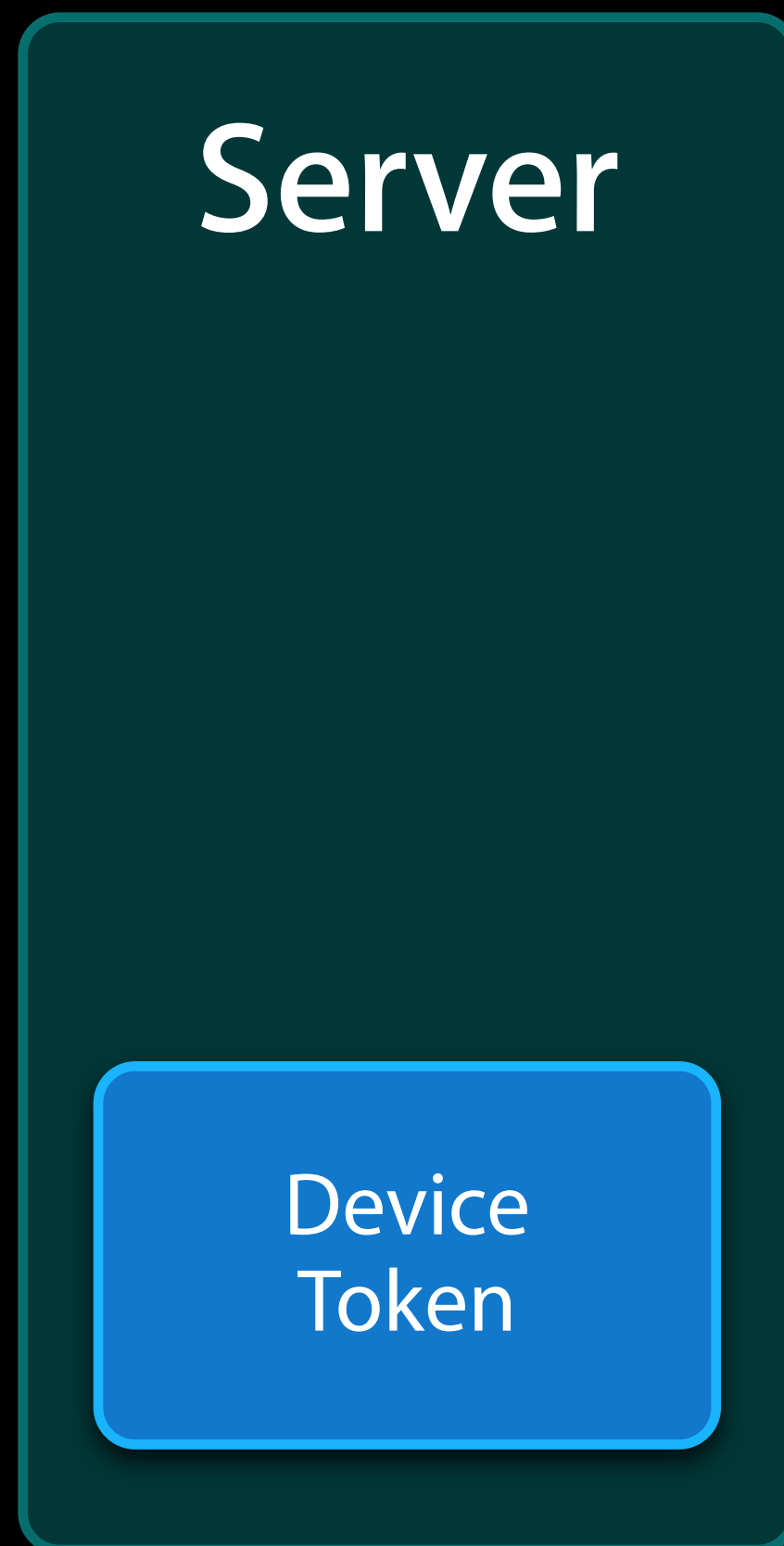
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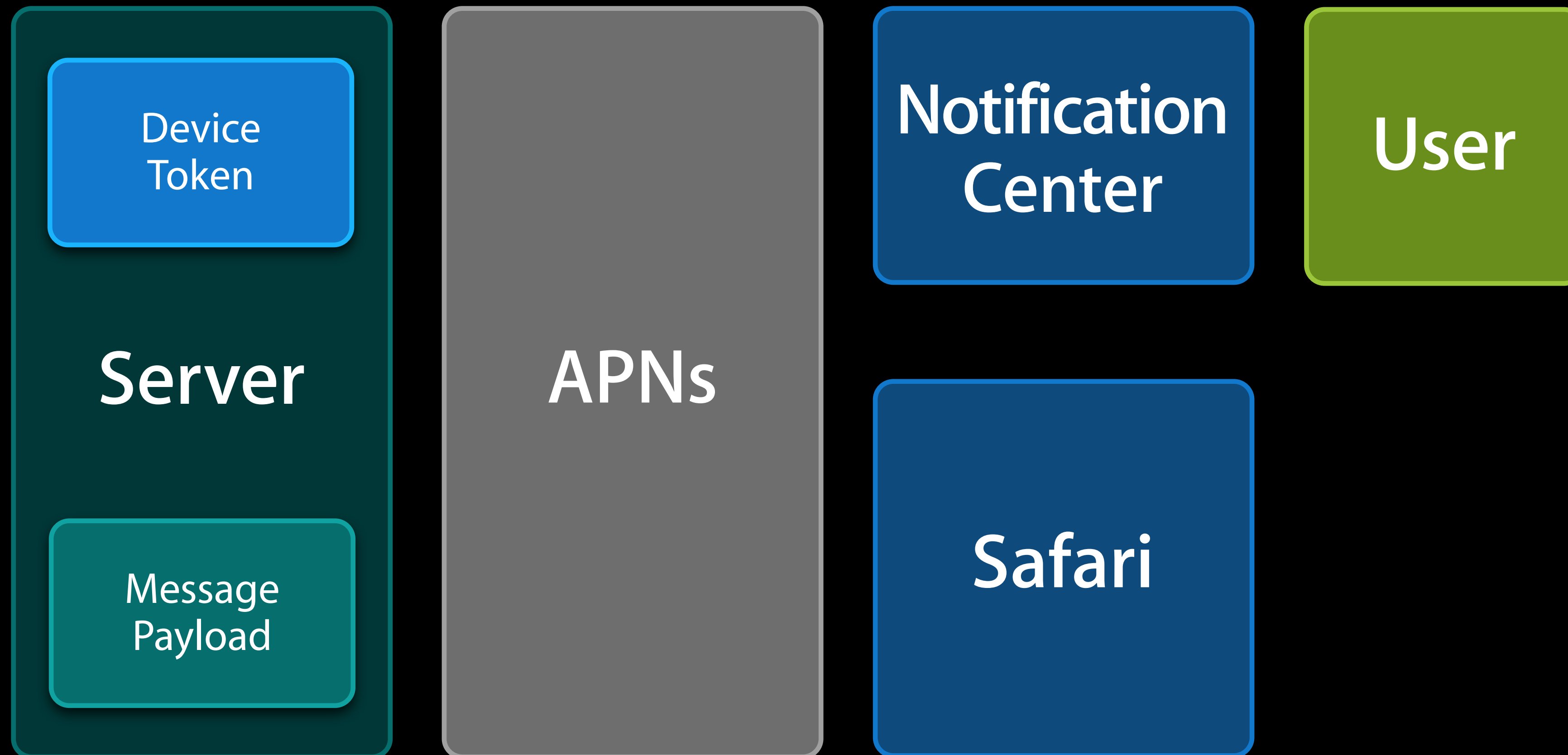
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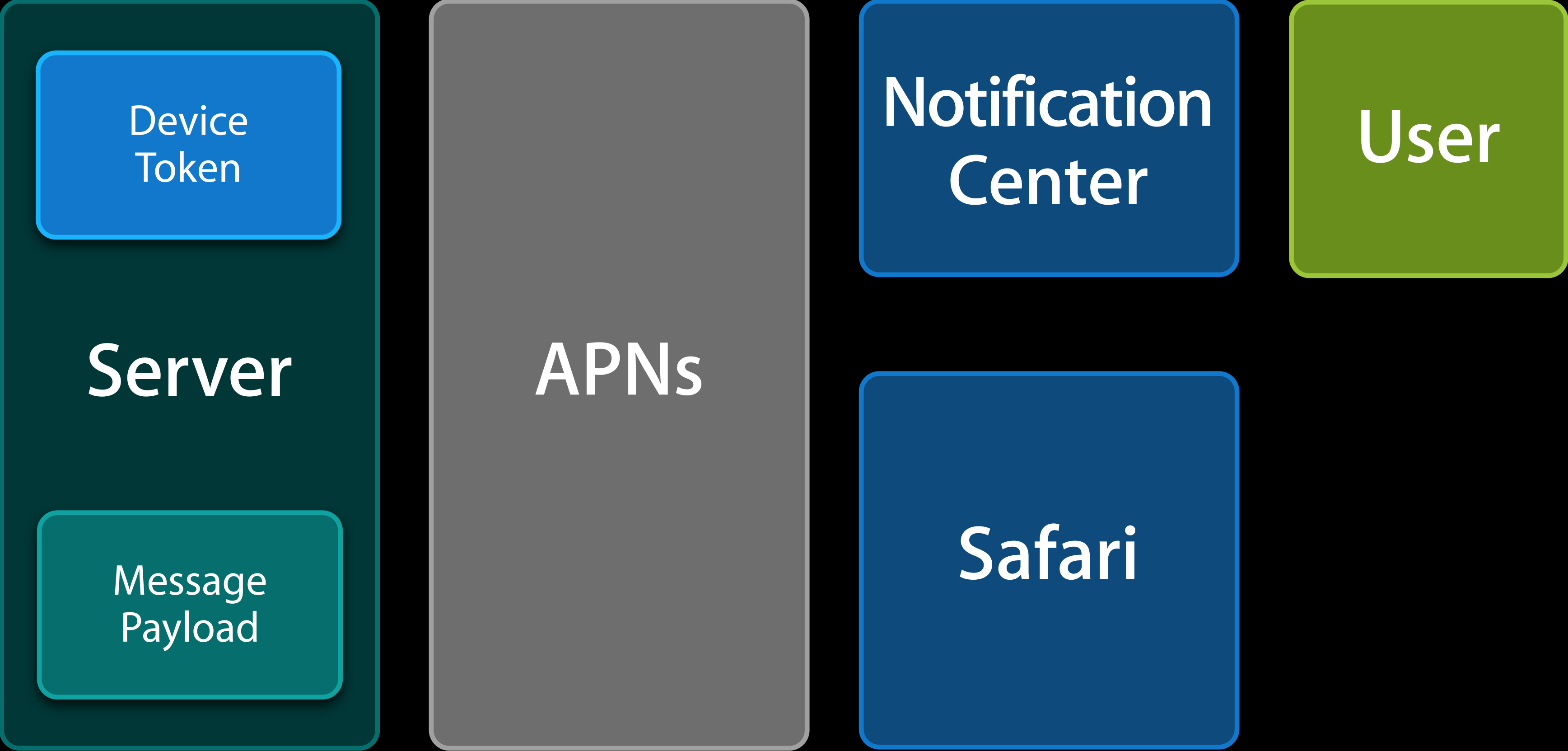
Subscribing



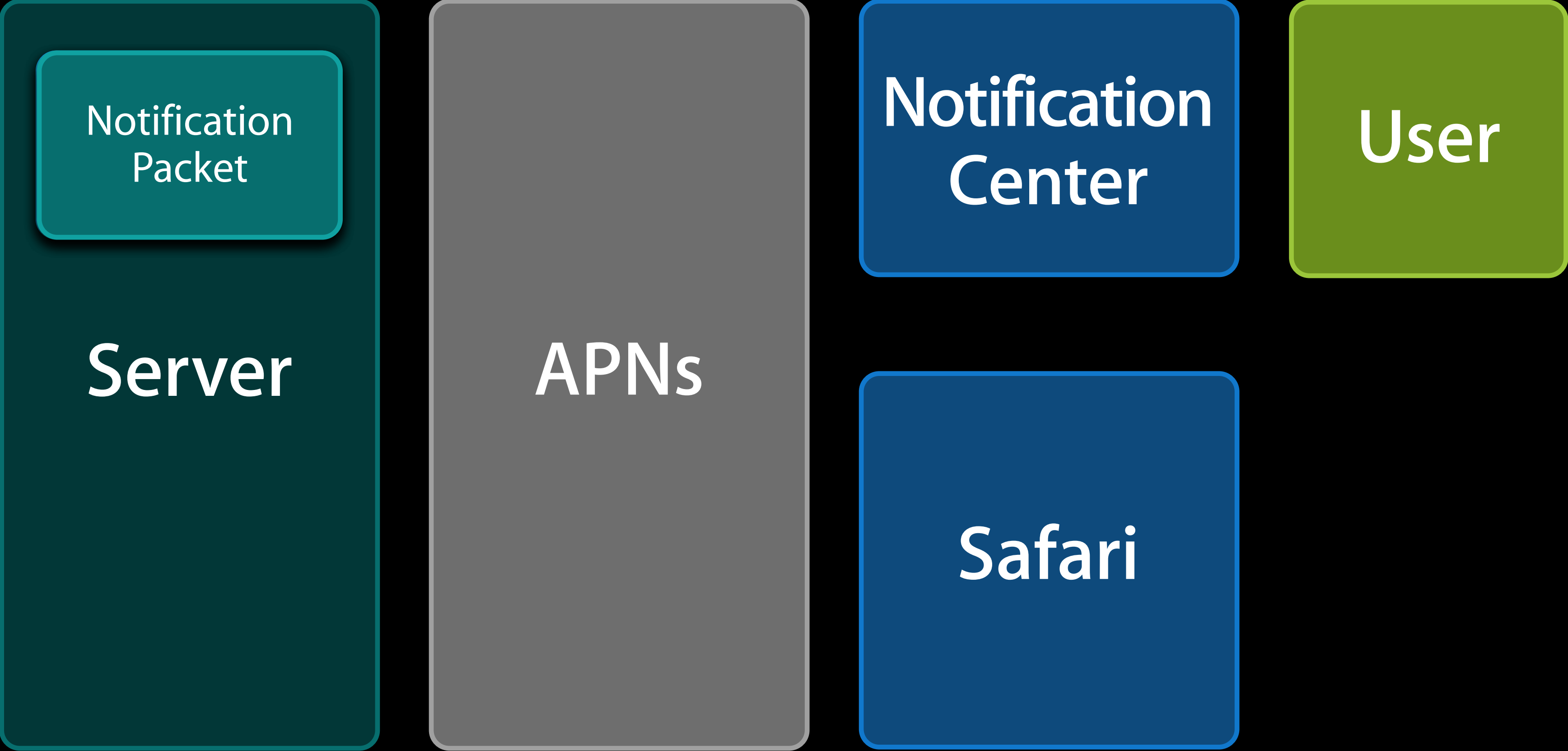
Subscribing



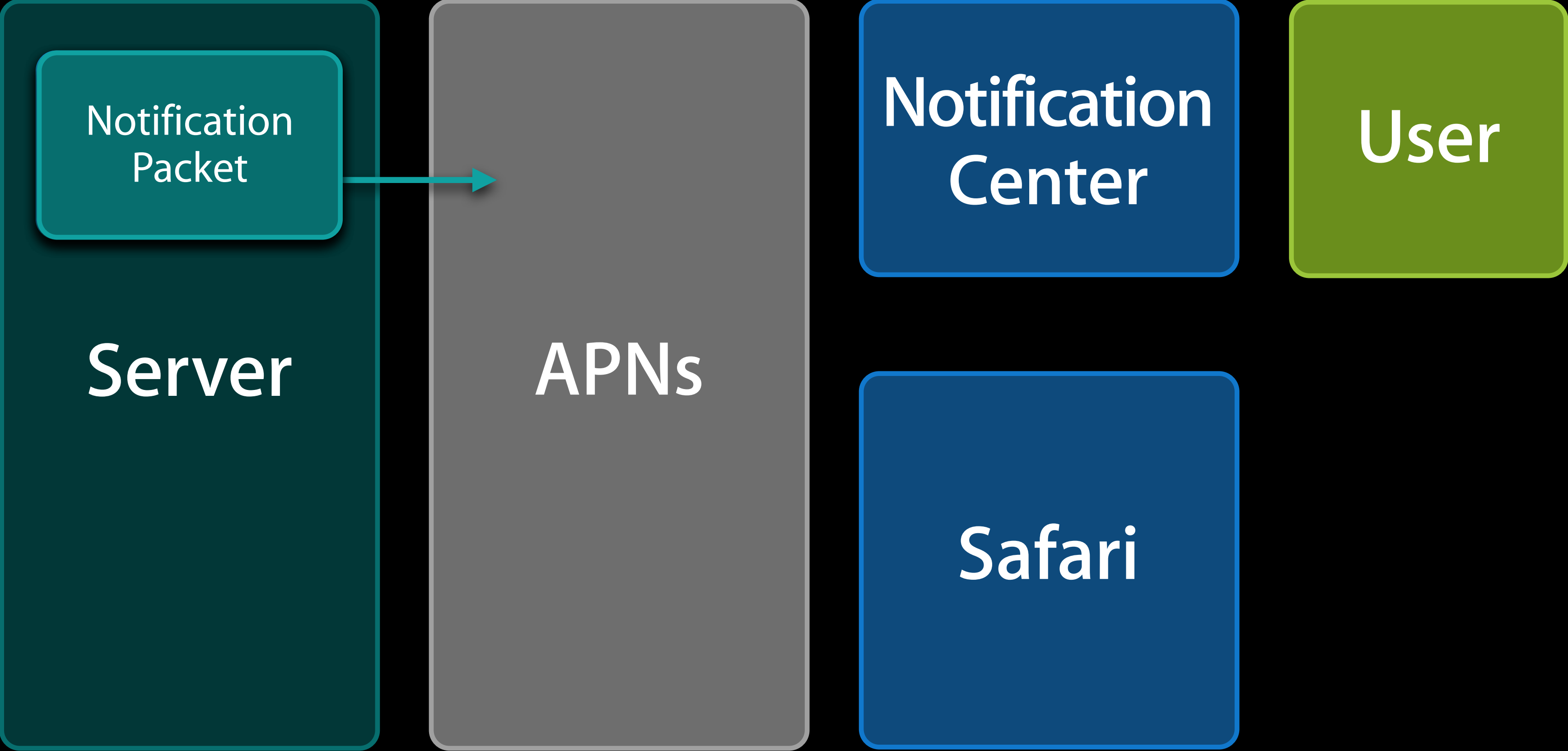
Delivering



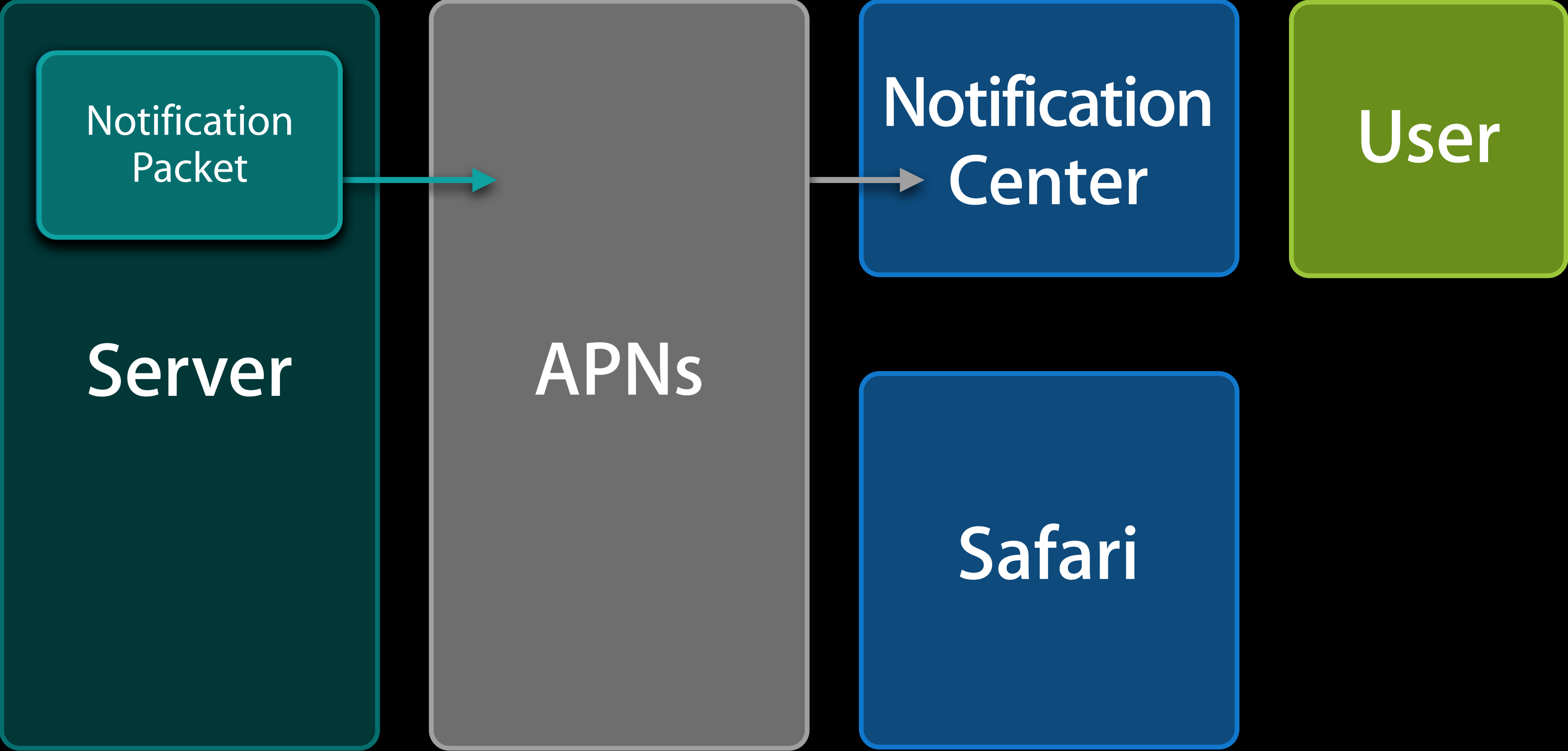
Delivering



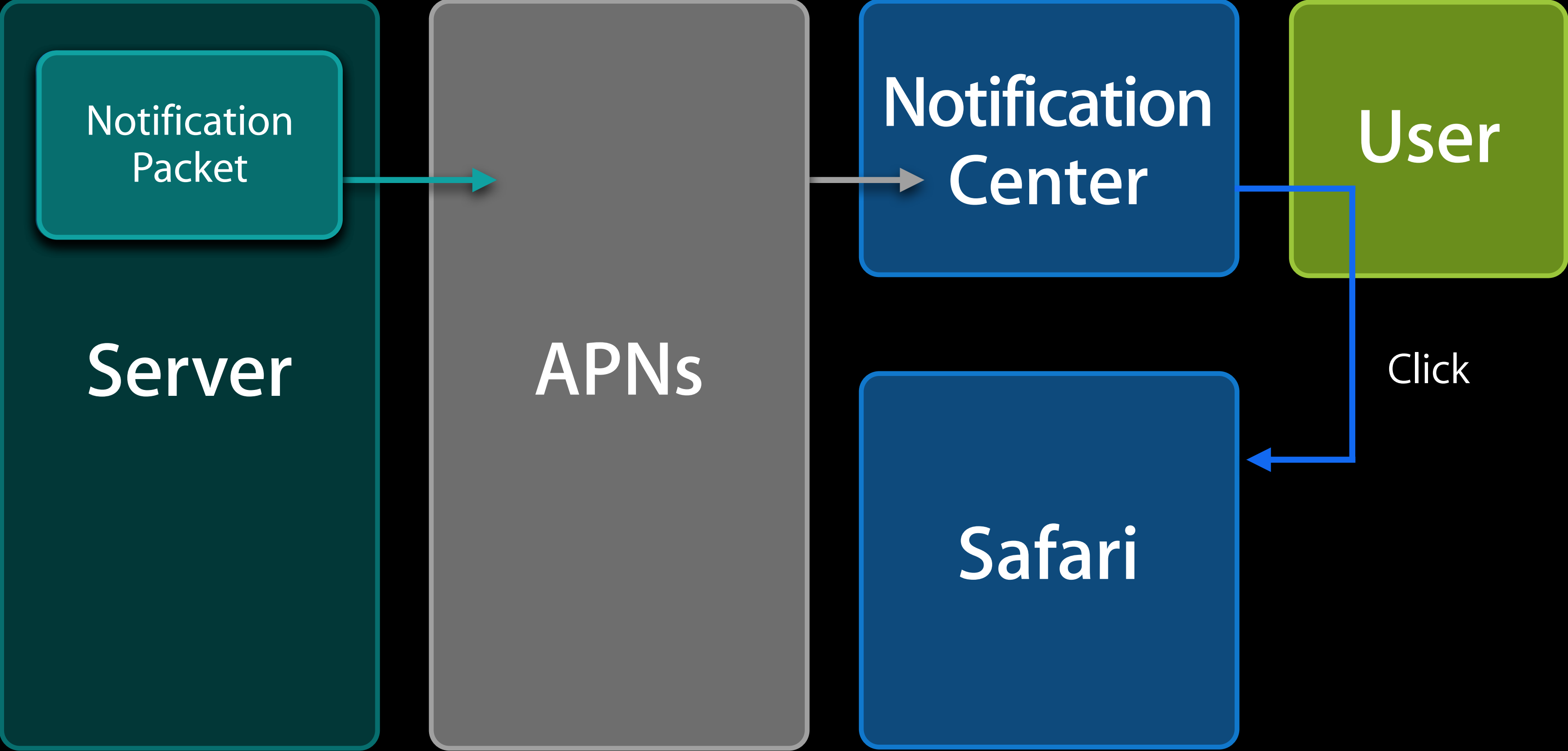
Delivering



Delivering



Delivering



Demo

Brian Weinstein
Safari Engineer

What You Will Learn

- Background
- How it works
- Implementation
- Best practices

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Implementation

What You Need to Do

Get Website Push Certificate

Add Notification Support to Your Server

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1 Ask on Your Website

2 Write Web Service Back End

3 Send Push Notifications

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Certificates, Identifiers & Profiles

iOS Developer

iOS Apps

Certificates

- All
- Pending
- Development
- Production

Identifiers

- App IDs
- Pass Type IDs
- Website Push IDs

Devices

Provisioning Profiles

Website Push IDs



0 Website Push IDs Total

Name	ID
------	----

Certificates, Identifiers & Profiles

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iOS Apps

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Website Push IDs

+ [edit icon] [search icon]

0 Website Push IDs Total

Name	ID
------	----

Register - Website Push IDs - Apple Developer

Developer Technologies Resources Programs Support Member Center Search Developer

Certificates, Identifiers & Profiles iOS Developer

iOS Apps

- Certificates
 - All
 - Pending
 - Development
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- Identifiers
 - App IDs
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 - Website Push IDs
- Devices
- Provisioning Profiles

Register Website Push ID

ID Registering a Website Push ID

Register a Website Push Identifier (Website Push ID). Registering your Website Push IDs lets you generate Apple-issued certificates which are used to digitally sign and send push notifications from your website to OS X.

Website Push ID Description

Description:
You cannot use special characters such as @, &, *, ', "

Identifier

Enter a unique identifier for your Website Push ID, starting with the string 'web'

ID:
We recommend using a reverse-domain name style string (i.e., com.domainname.appname).

Cancel Continue

Register - Website Push IDs - Apple Developer

Developer Technologies Resources Programs Support Member Center Search Developer

Certificates, Identifiers & Profiles iOS Developer

iOS Apps

- Certificates
 - All
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 - Development
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Certificates, Identifiers & Profiles

iOS Developer

iOS Apps

Certificates

- All
- Pending
- Development
- Production

Identifiers

- App IDs
- Pass Type IDs
- Website Push IDs

Devices

Provisioning Profiles

Website Push IDs



1 Website Push IDs Total

Name	ID
Bay Airlines	web.com.example.bayairlines



Name: Bay Airlines

ID: web.com.example.bayairlines

Settings

Certificates, Identifiers & Profiles

iOS Developer

iOS Apps

Certificates

- All
- Pending
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Identifiers

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Devices

Provisioning Profiles

Website Push IDs



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Settings

Add - iOS Certificates - Apple Developer

Developer Technologies Resources Programs Support Member Center Search Developer

Certificates, Identifiers & Profiles iOS Developer

iOS Apps

Certificates

- All
- Pending
- Development
- Production

Identifiers


- App IDs
- Pass Type IDs
- Website Push IDs**

Devices

Provisioning Profiles

Add iOS Certificate

Select Type Request Generate Approval

 **About Creating a Certificate Signing Request (CSR)**

To manually generate a Certificate, you need a Certificate Signing Request (CSR) file from your Mac. To create a CSR file, follow the instructions below to create one using Keychain Access.

Create a CSR file.
In the Applications folder on your Mac, open the Utilities folder and launch Keychain Access.

Within the Keychain Access drop down menu, select Keychain Access > Certificate Assistant > Request a Certificate from a Certificate Authority

- In the Certificate Information window, enter the following information:
- In the User Email Address field, enter your email address
- In the Common Name field, create a name for your private key (eg. John Doe Dev Key)
- The CA Email Address field should be left empty
- In the "Request is" group, select the "Saved to disk" option
- Click Continue within Keychain Access to complete the CSR generating process

Cancel Back Continue

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Certificates, Identifiers & Profiles

iOS Developer

iOS Apps

Certificates

- All
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Identifiers

- App IDs
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- Website Push IDs

Devices

Provisioning Profiles

Add iOS Certificate



Select Type Request Generate Download



Generate your certificate.

With the creation of your CSR, Keychain Access simultaneously generated a public and private key pair. Your private key is stored on your Mac in the login Keychain by default and can be viewed in the Keychain Access application under the "Keys" category. Your requested certificate will be the public half of your key pair.

Upload CSR file.

Select .certSigningRequest file saved on your Mac.

Choose File... CertificateSigningRequest.certSigningRequest

Cancel Back Generate

Certificates, Identifiers & Profiles

iOS Developer

iOS Apps

Certificates

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Provisioning Profiles

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Select .certSigningRequest file saved on your Mac.

Choose File...



CertificateSigningRequest.certSigningRequest

Cancel

Back

Generate

Apple Developer Technologies Resources Programs Support Member Center Search Developer

Certificates, Identifiers & Profiles


iOS Developer

iOS Apps


- Certificates
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Add iOS Certificate

Select Type Request Generate Download

 **Your certificate is ready.**

Download, Install and Backup
Download your certificate to your Mac, then double click the .cer file to install in Keychain Access. Make sure to save a backup copy of your private and public keys somewhere secure.

	Name:	Website Push ID: web.com.example.bayairlines
	Type:	Website Push
	Identifier ID:	Bay Airlines
	Expires:	Jun 10, 2014

[Download](#)

Documentation
For more information on using and managing your certificates read:
[App Distribution Guide](#)

[Add Another](#) [Done](#)

Apple Developer | Technologies | Resources | Programs | Support | Member Center | Search Developer

Certificates, Identifiers & Profiles


iOS Developer

Add iOS Certificate

Select Type | Request | Generate | Download

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	Expires: Jun 10, 2014

[Download](#)

Documentation
For more information on using and managing your certificates read:
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[Add Another](#) | [Done](#)

Keychain Access

Click to lock the login keychain.

Keychains

- login
- iCloud
- System
- System Roots

Category

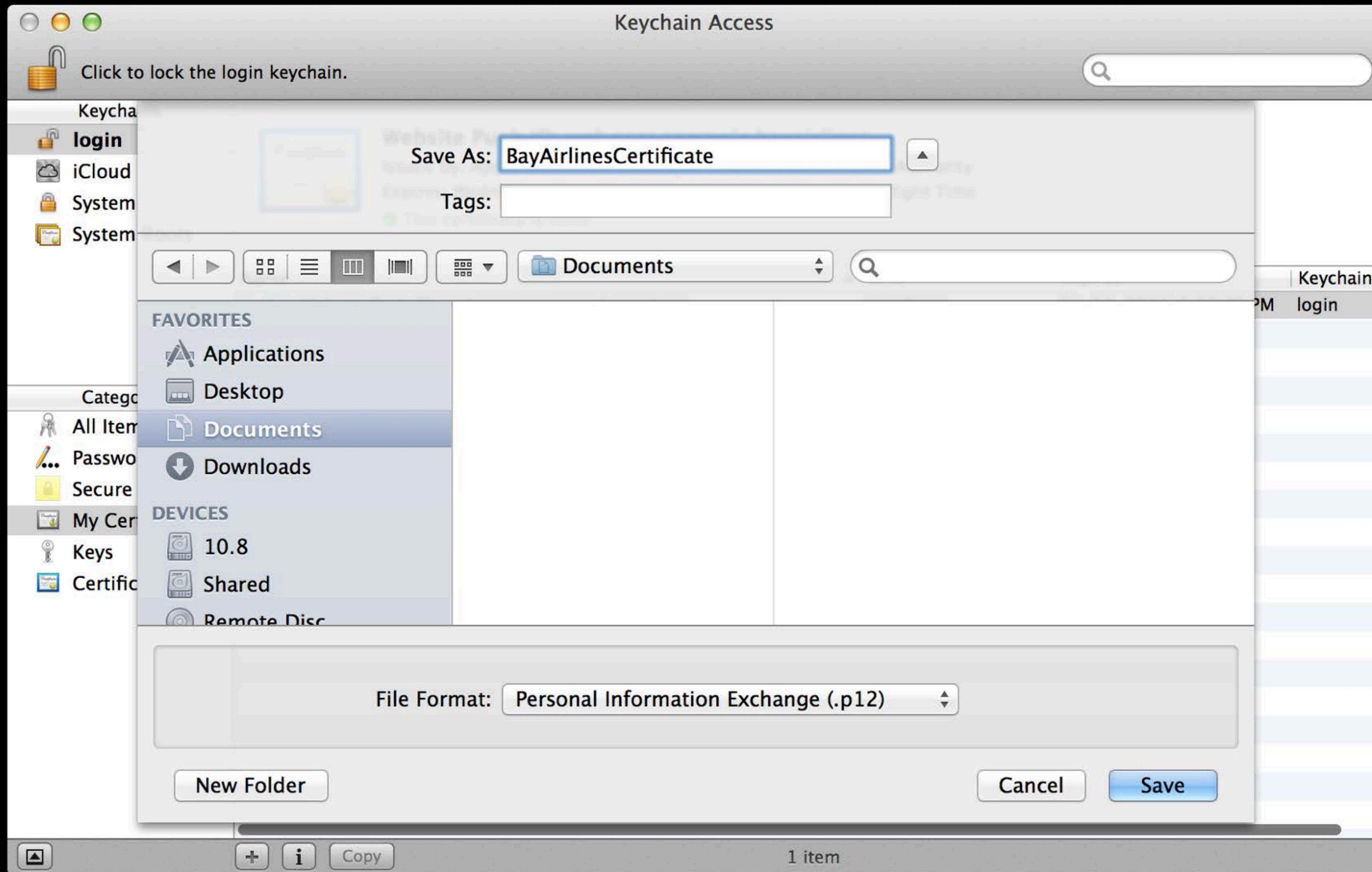
- All Items
- Passwords
- Secure Notes
- My Certificates
- Keys
- Certificates

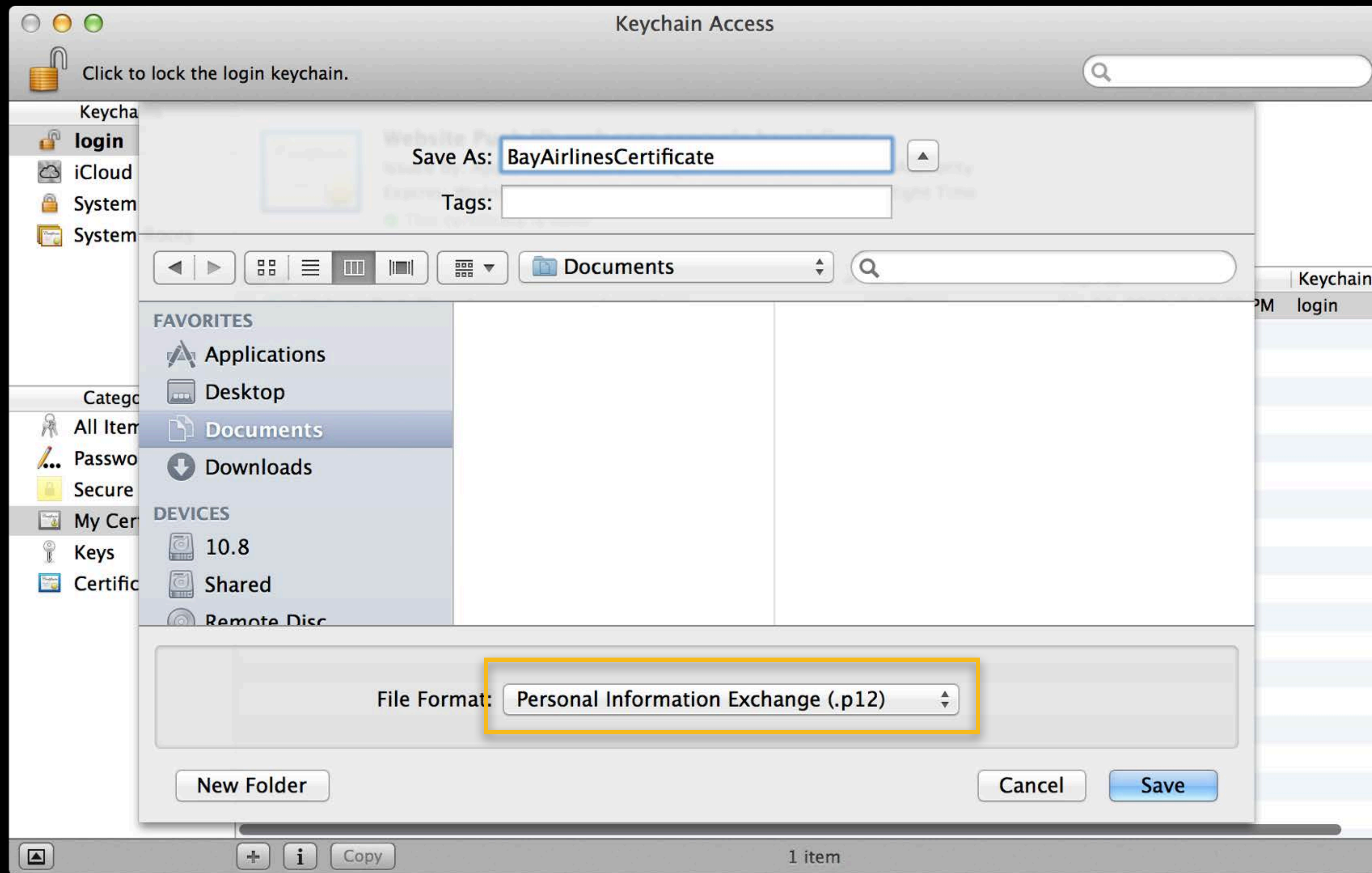
Website Push ID: web.com.example.bayairlines
Issued by: Apple Worldwide Developer Relations Certification Authority
Expires: Wednesday, June 11, 2014 at 8:17:20 PM Pacific Daylight Time
✔ This certificate is valid

Name	Kind	Expires	Keychain
Website Push ID: web.com.example.bayairlines	certificate	Jun 11, 2014, 8:17:20 PM	login

+ ⓘ Copy 1 item

- New Identity Preference...
- Copy "Website Push ID: web.com.example.bayairlines"
- Delete "Website Push ID: web.com.example.bayairlines"
- Export "Website Push ID: web.com.example.bayairlines" ...**
- Get Info
- Evaluate "Website Push ID: web.com.example.bayairlines" ...





What You Need to Do

Get Website Push Certificate

Add Notification Support to Your Server

1 Ask on Your Website

2 Write Web Service Back End

3 Send Push Notifications

What You Need to Do

Get Website Push Certificate

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Ask on Your Website

Query permission

Ask on Your Website

Query permission

```
var result = window.safari.pushNotification.permission(  
    websitePushID  
);
```

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var result = window.safari.pushNotification.permission(  
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```

- Three permissions

```
result.permission = "default"  
                  "denied"  
                  "granted"
```


Ask on Your Website

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- Three permissions

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Ask on Your Website

Query permission

```
var result = window.safari.pushNotification.permission(  
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```

- Three permissions

```
    "default"  
    "denied"  
    result.permission = "granted"
```

Ask on Your Website

Query permission

```
var result = window.safari.pushNotification.permission(  
    websitePushID  
);
```

- Three permissions

```
    "default"  
    "denied"  
    result.permission = "granted"
```

- When permission is granted

```
    result.deviceToken = "96385da7....88aaebaf"
```

Ask on Your Website

Request permission

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

- Base URL to your web service
- Must be https

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

- How your website passes information to your web service
- Dictionary of strings

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
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    userInfo,  
    callback  
);
```

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

- When user confirms

```
callback({  
    permission: "granted",  
    deviceToken: "96385da7....88aaebaf"  
});
```

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
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);
```

- When user confirms

```
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```

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

- When user denies

```
    callback({  
        permission: "denied"  
    });
```

Ask on Your Website

Request permission

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

- When user denies

```
callback({  
    permission: "denied"  
});
```

What You Need to Do

Get Website Push Certificate

Add Notification Support to Your Server

1 Ask on Your Website

2 Write Web Service Back End

3 Send Push Notifications

What You Need to Do

Get Website Push Certificate

Add Notification Support to Your Server

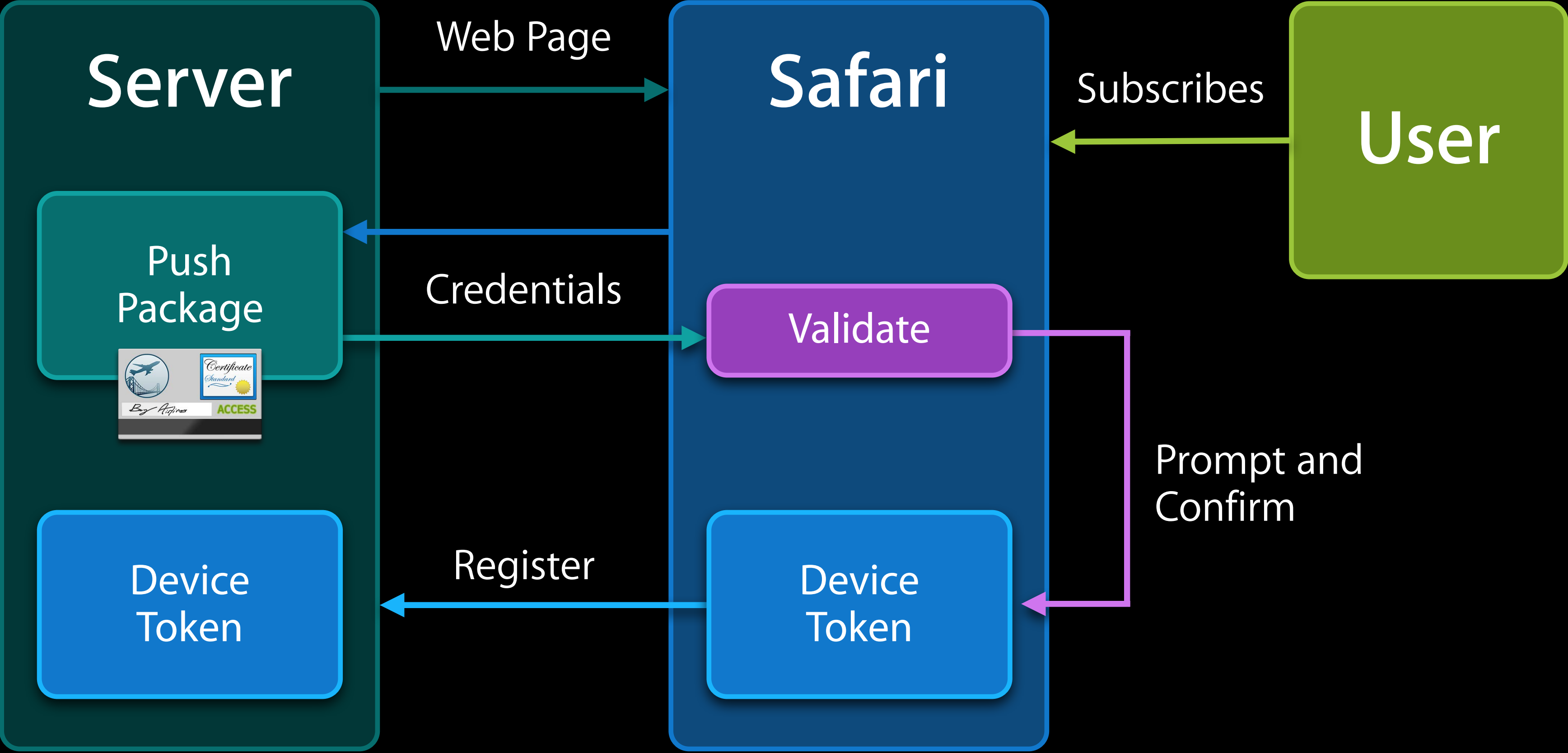
1 Ask on Your Website

2 Write Web Service Back End

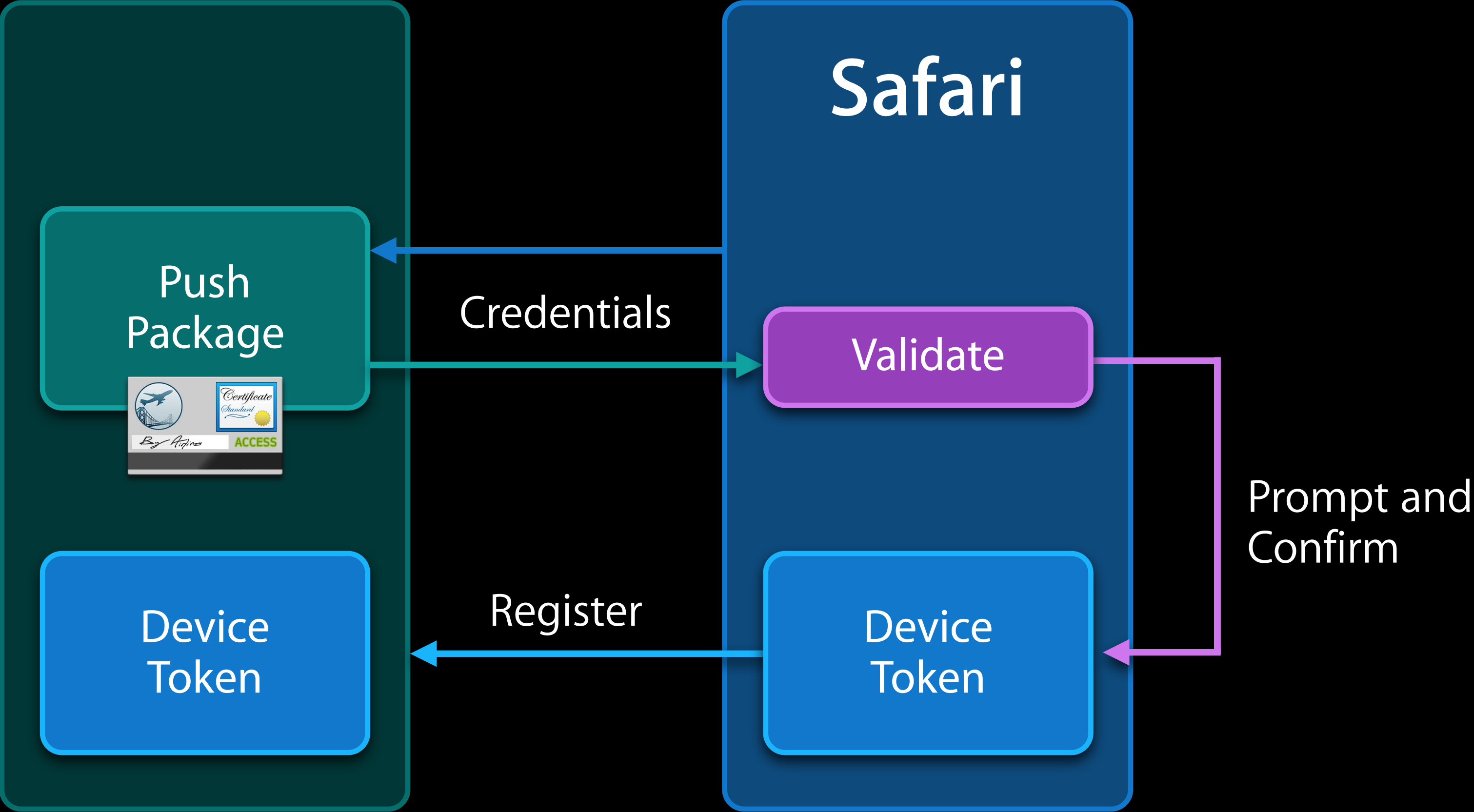
3 Send Push Notifications

Write Web Service Back End

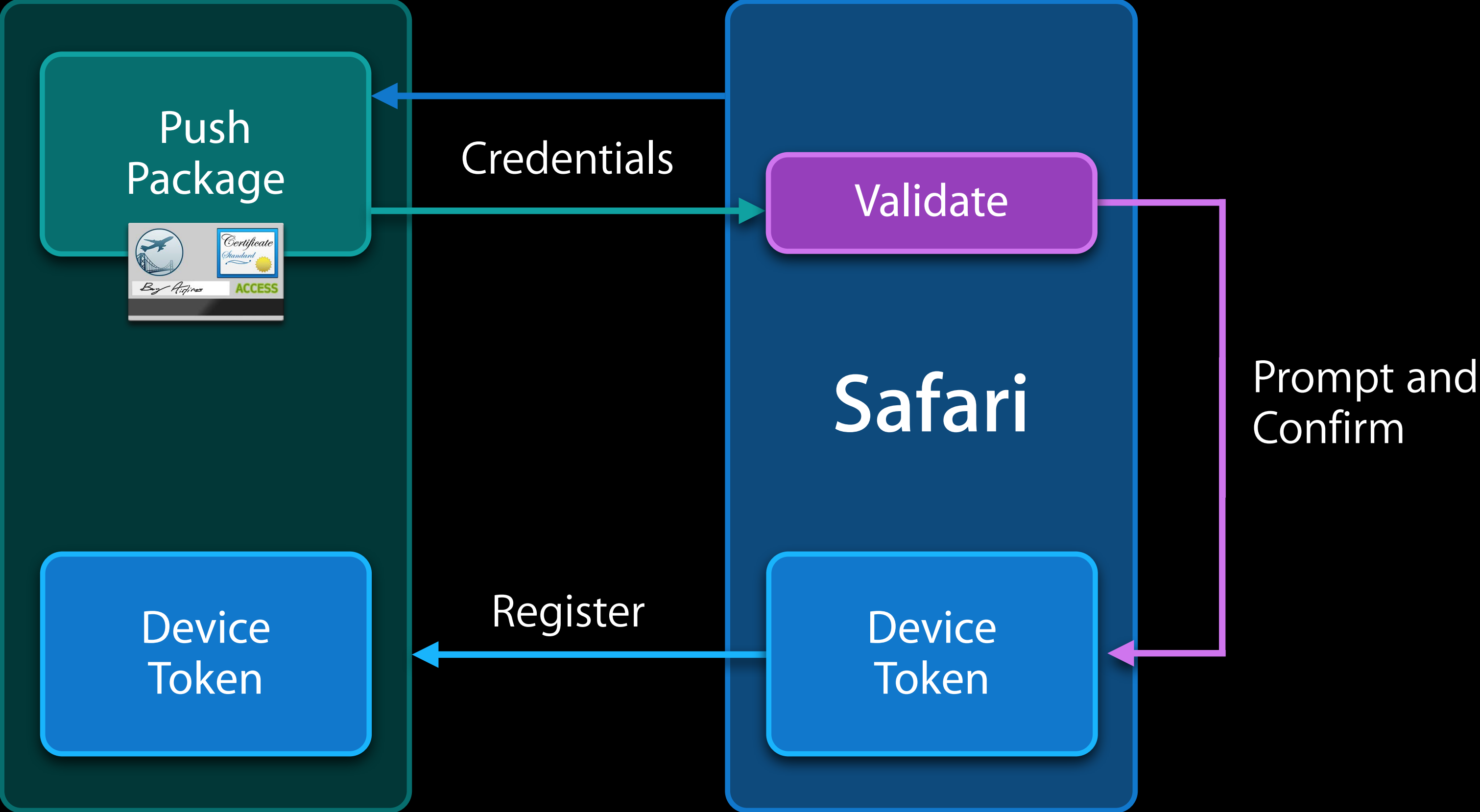
Write Web Service Back End



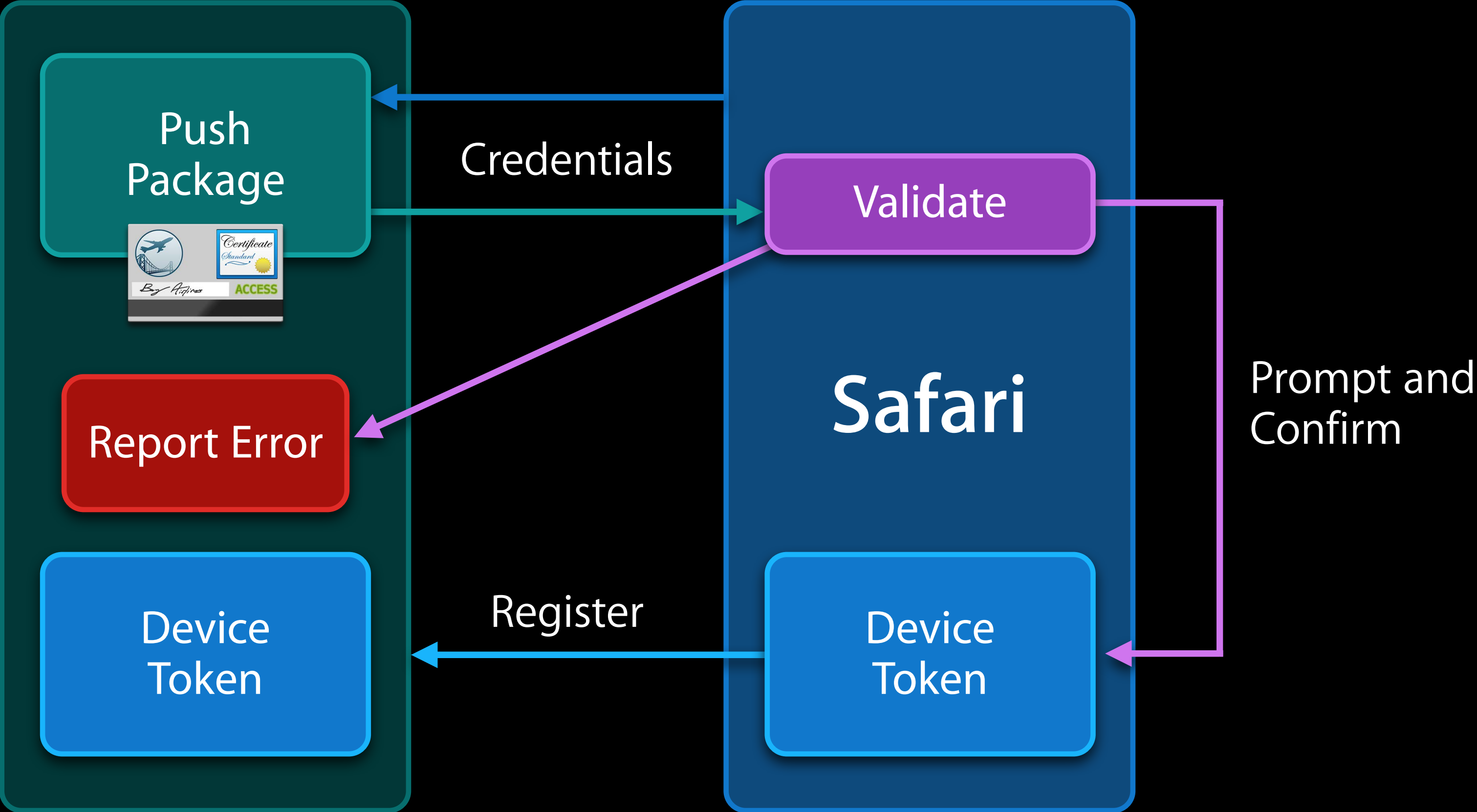
Write Web Service Back End



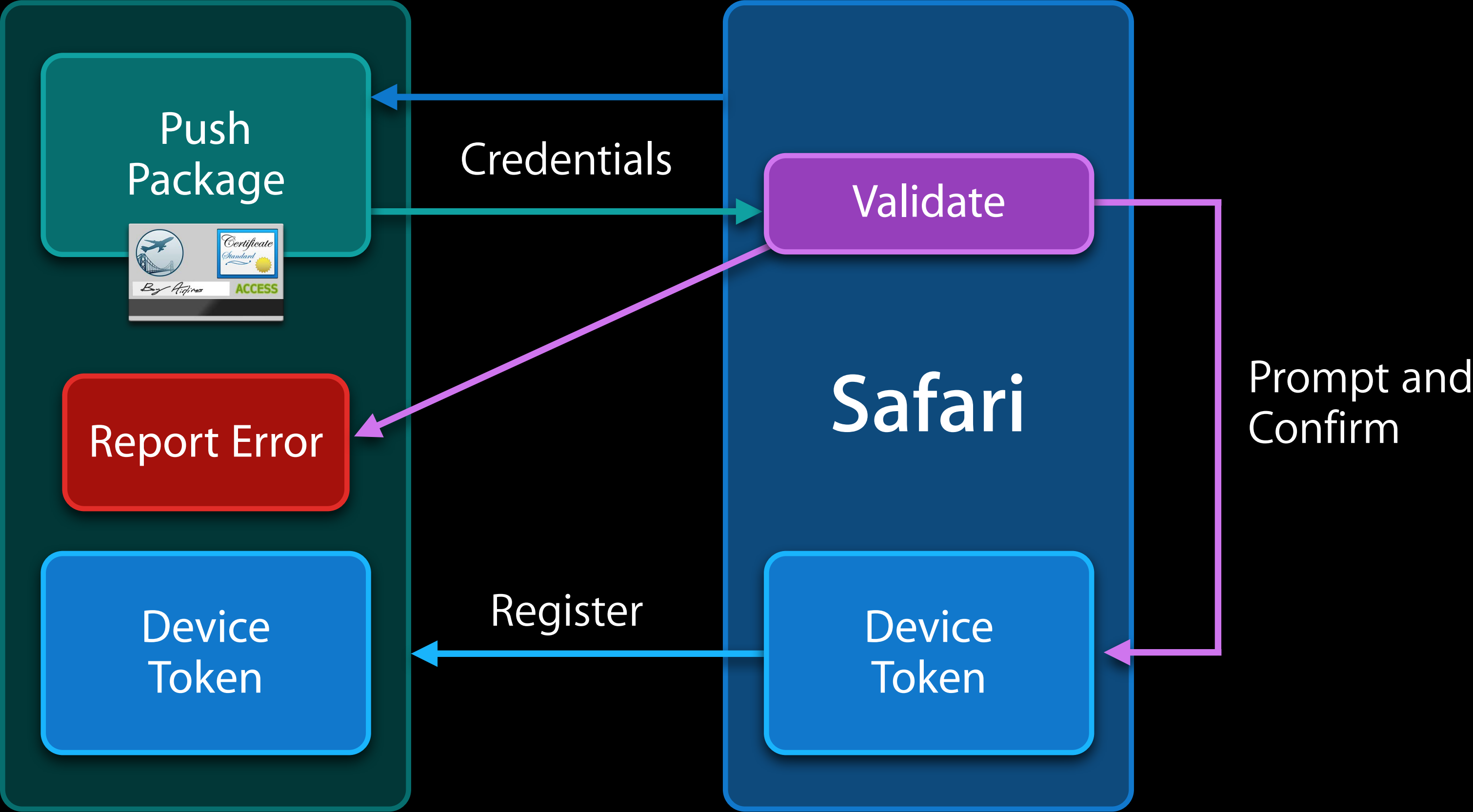
Write Web Service Back End



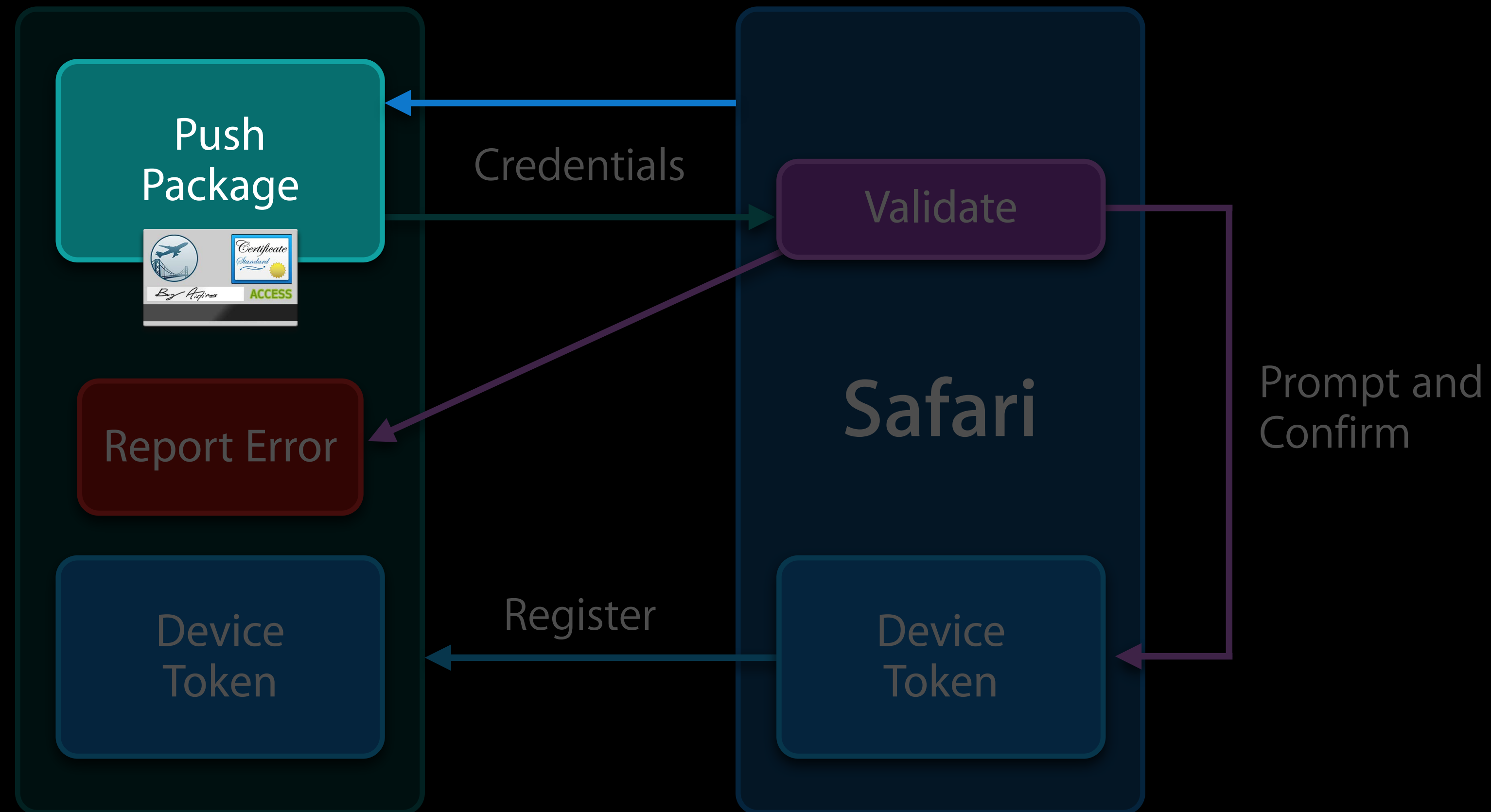
Write Web Service Back End



Write Web Service Back End



Write Web Service Back End



Write Web Service Back End

Return push package

- POST

 - `/v1/pushPackages/<websitePushID>`

- HTTP body is userInfo serialized as query string

Write Web Service Back End

Return push package

- POST

`/v1/pushPackages/<websitePushID>`

- HTTP body is userInfo serialized as query string

```
window.safari.pushNotification.requestPermission(  
    webServiceURL,  
    websitePushID,  
    userInfo,  
    callback  
);
```

Write Web Service Back End

Return push package

- POST

- /v1/pushPackages/<websitePushID>

- HTTP body is userInfo serialized as query string

- {
 "login": "brian@bayairlinesflyer.com",
 "frequentFlyerID": "2941035"
}

Write Web Service Back End

Return push package

- POST

/v1/pushPackages/<websitePushID>

- HTTP body is userInfo serialized as query string

```
{  
  "login": "brian@bayairlinesflyer.com",  
  "frequentFlyerID": "2941035"  
}
```

Write Web Service Back End

Return push package

- POST

- /v1/pushPackages/<websitePushID>

- HTTP body is userInfo serialized as query string

- {
 "login": "brian@bayairlinesflyer.com",
 "frequentFlyerID": "2941035"
}

- login=brian@bayairlinesflyer.com&frequentFlyerID=2941035

Write Web Service Back End

Return push package

- POST

 - /v1/pushPackages/<websitePushID>

- HTTP body is userInfo serialized as query string

```
{  
  "login": "brian@bayairlinesflyer.com",  
  "frequentFlyerID": "2941035"  
}
```

```
login=brian@bayairlinesflyer.com&frequentFlyerID=2941035
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```


Directory Structure of Push Package

BayAirlines.pushpackage/

icon.iconset/

icon_16x16.png

icon_16x16@2x.png

icon_32x32.png

icon_32x32@2x.png

icon_128x128.png

icon_128x128@2x.png

website.json

manifest.json

signature

← **Icons**

Used in notifications, Notification Center, Safari, and System Preferences

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

Directory Structure of Push Package

BayAirlines.pushpackage/

icon.iconset/

icon_16x16.png

icon_16x16@2x.png

icon_32x32.png

icon_32x32@2x.png

icon_128x128.png

icon_128x128@2x.png

website.json

manifest.json

signature



Defines website

Checked during validation, used in notifications and Notification Center

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

```
{  
  "webServiceURL":  
    "https://bayairlines.com/webService",  
  "websitePushID":  
    "web.com.example.bayairlines",  
  "websiteName":  
    "Bay Airlines",  
  "allowedDomains":  
    ["http://bayairlines.com"],  
  "authenticationToken":  
    "userID=1096172013",  
  "urlFormatString":  
    "http://bayairlines.com/%@?flight=%@"  
}
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

```
{  
  "webServiceURL":  
    "https://bayairlines.com/webService",  
  "websitePushID":  
    "web.com.example.bayairlines",  
  "websiteName":  
    "Bay Airlines",  
  "allowedDomains":  
    ["http://bayairlines.com"],  
  "authenticationToken":  
    "userID=1096172013",  
  "urlFormatString":  
    "http://bayairlines.com/%@?flight=%@"  
}
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

```
{  
  "webServiceURL":  
    "https://bayairlines.com/webService",  
  "websitePushID":  
    "web.com.example.bayairlines",  
  "websiteName":  
    "Bay Airlines",  
  "allowedDomains":  
    ["http://bayairlines.com"],  
  "authenticationToken":  
    "userID=1096172013",  
  "urlFormatString":  
    "http://bayairlines.com/%@?flight=%@"  
}
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

```
{  
  "webServiceURL":  
    "https://bayairlines.com/webService",  
  "websitePushID":  
    "web.com.example.bayairlines",  
  "websiteName":  
    "Bay Airlines",  
  "allowedDomains":  
    ["http://bayairlines.com"],  
  "authenticationToken":  
    "userID=1096172013",  
  "urlFormatString":  
    "http://bayairlines.com/%@?flight=%@"  
}
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

```
{  
  "webServiceURL":  
    "https://bayairlines.com/webService",  
  "websitePushID":  
    "web.com.example.bayairlines",  
  "websiteName":  
    "Bay Airlines",  
  "allowedDomains":  
    ["http://bayairlines.com"],  
  "authenticationToken":  
    "userID=1096172013",  
  "urlFormatString":  
    "http://bayairlines.com/%@?flight=%@"  
}
```


Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

```
{  
  "webServiceURL":  
    "https://bayairlines.com/webService",  
  "websitePushID":  
    "web.com.example.bayairlines",  
  "websiteName":  
    "Bay Airlines",  
  "allowedDomains":  
    ["http://bayairlines.com"],  
  "authenticationToken":  
    "userID=1096172013",  
  "urlFormatString":  
    "http://bayairlines.com/%@?flight=%@"  
}
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

Directory Structure of Push Package

BayAirlines.pushpackage/

icon.iconset/

icon_16x16.png

icon_16x16@2x.png

icon_32x32.png

icon_32x32@2x.png

icon_128x128.png

icon_128x128@2x.png

website.json

manifest.json

signature

← **Manifest**

JSON dictionary of SHA1 checksums

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

Directory Structure of Push Package

BayAirlines.pushpackage/

icon.iconset/

icon_16x16.png

icon_16x16@2x.png

icon_32x32.png

icon_32x32@2x.png

icon_128x128.png

icon_128x128@2x.png

website.json

manifest.json

signature

icon_16x16.png

icon_16x16@2x.png

icon_32x32.png

icon_32x32@2x.png

icon_128x128.png

icon_128x128@2x.png

website.json

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

```
{  
  "icon.iconset/icon_16x16.png":  
    "865f...17e1",  
  "icon.iconset/icon_16x16@2x.png":  
    "1a47...35ca",  
  "icon.iconset/icon_32x32.png":  
    "aa75...fbb6",  
  "icon.iconset/icon_32x32@2x.png":  
    "88e8...351d",  
  "icon.iconset/icon_128x128.png":  
    "0509...6228",  
  "icon.iconset/icon_128x128@2x.png":  
    "e956...6611",  
  "website.json":  
    "9683...b3a8"  
}
```

Directory Structure of Push Package

```
BayAirlines.pushpackage/  
  icon.iconset/  
    icon_16x16.png  
    icon_16x16@2x.png  
    icon_32x32.png  
    icon_32x32@2x.png  
    icon_128x128.png  
    icon_128x128@2x.png  
  website.json  
  manifest.json  
  signature
```

Directory Structure of Push Package

BayAirlines.pushpackage/

icon.iconset/

icon_16x16.png

icon_16x16@2x.png

icon_32x32.png

icon_32x32@2x.png

icon_128x128.png

icon_128x128@2x.png

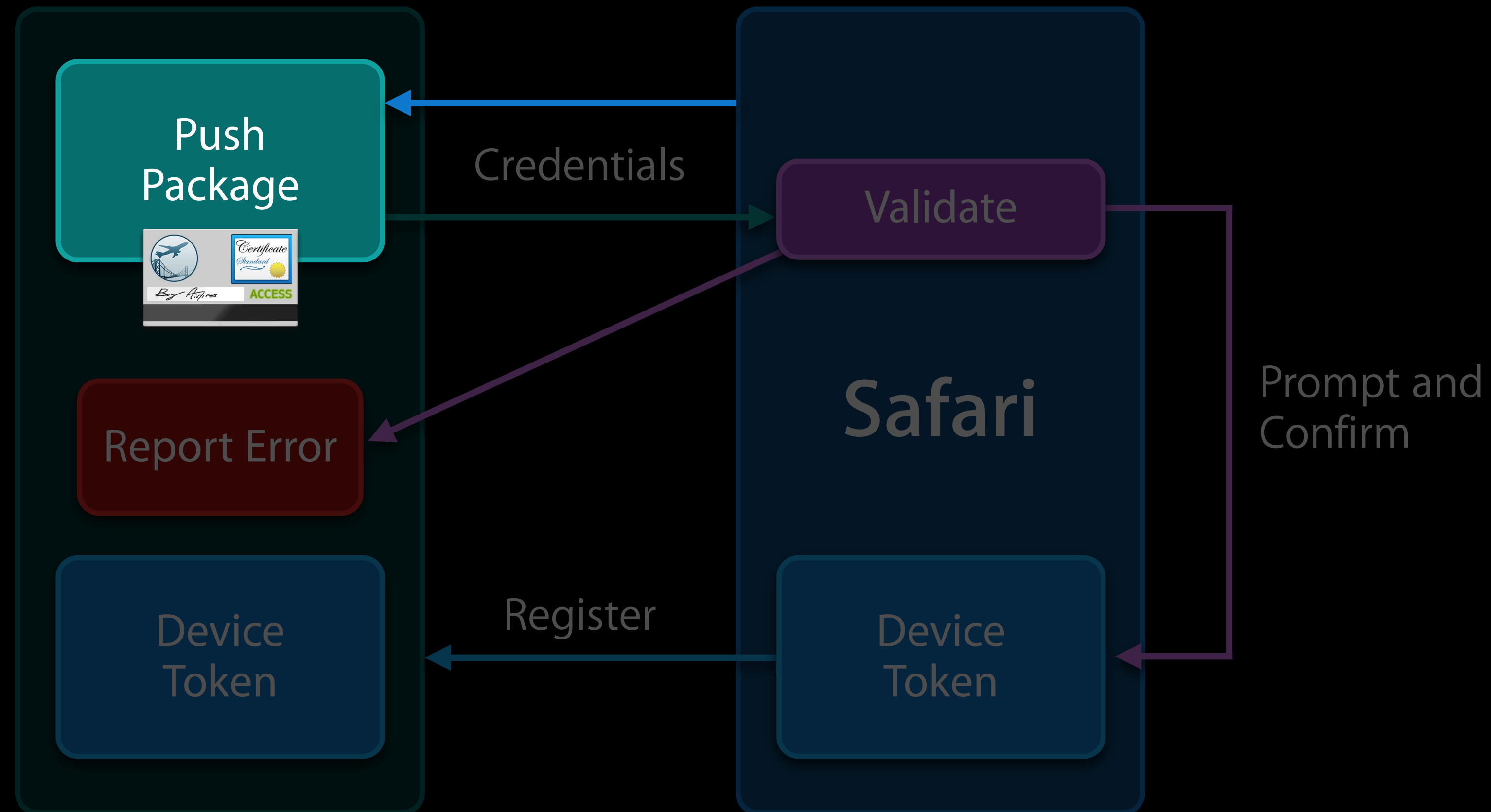
website.json

manifest.json

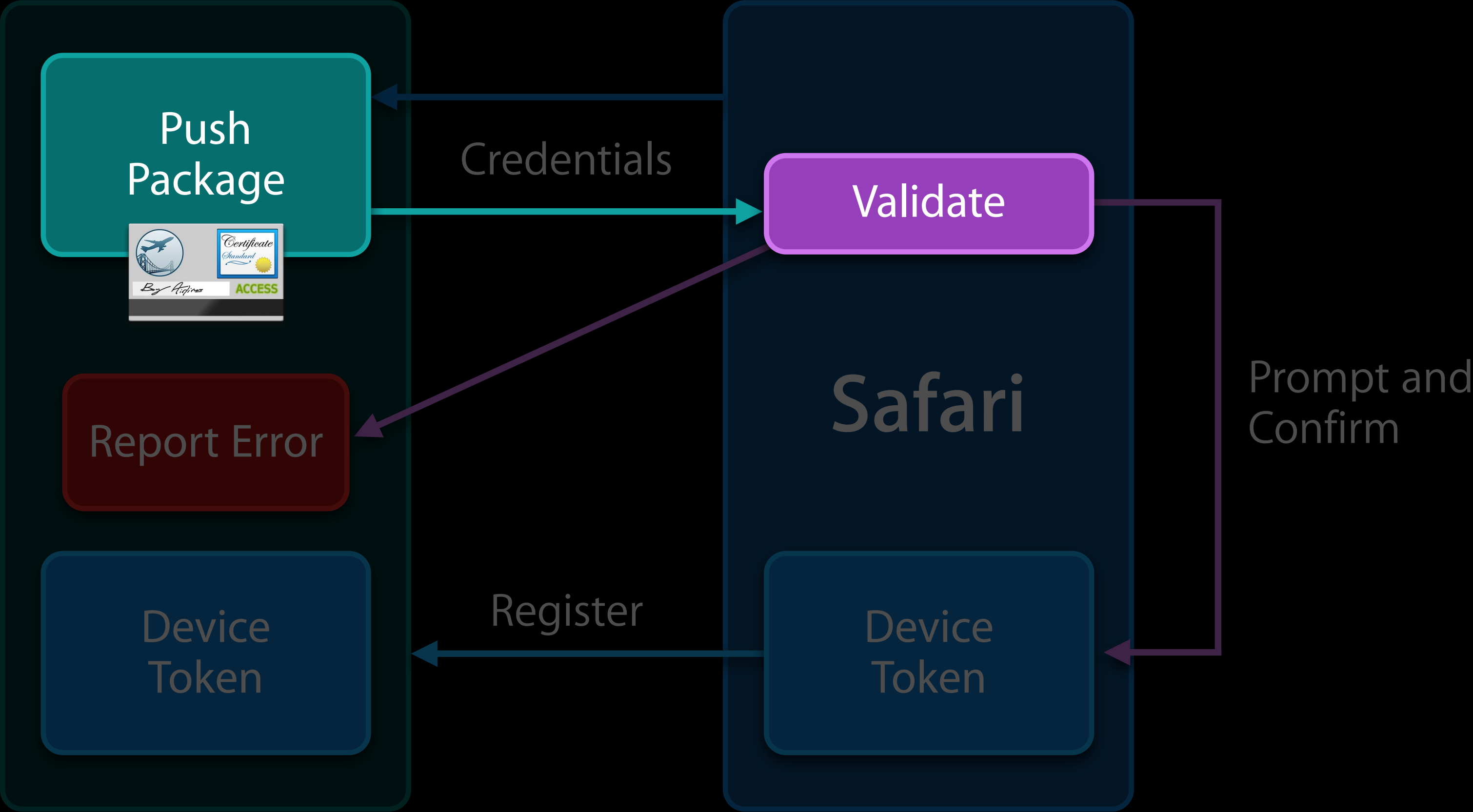
signature

← Signature of manifest.json

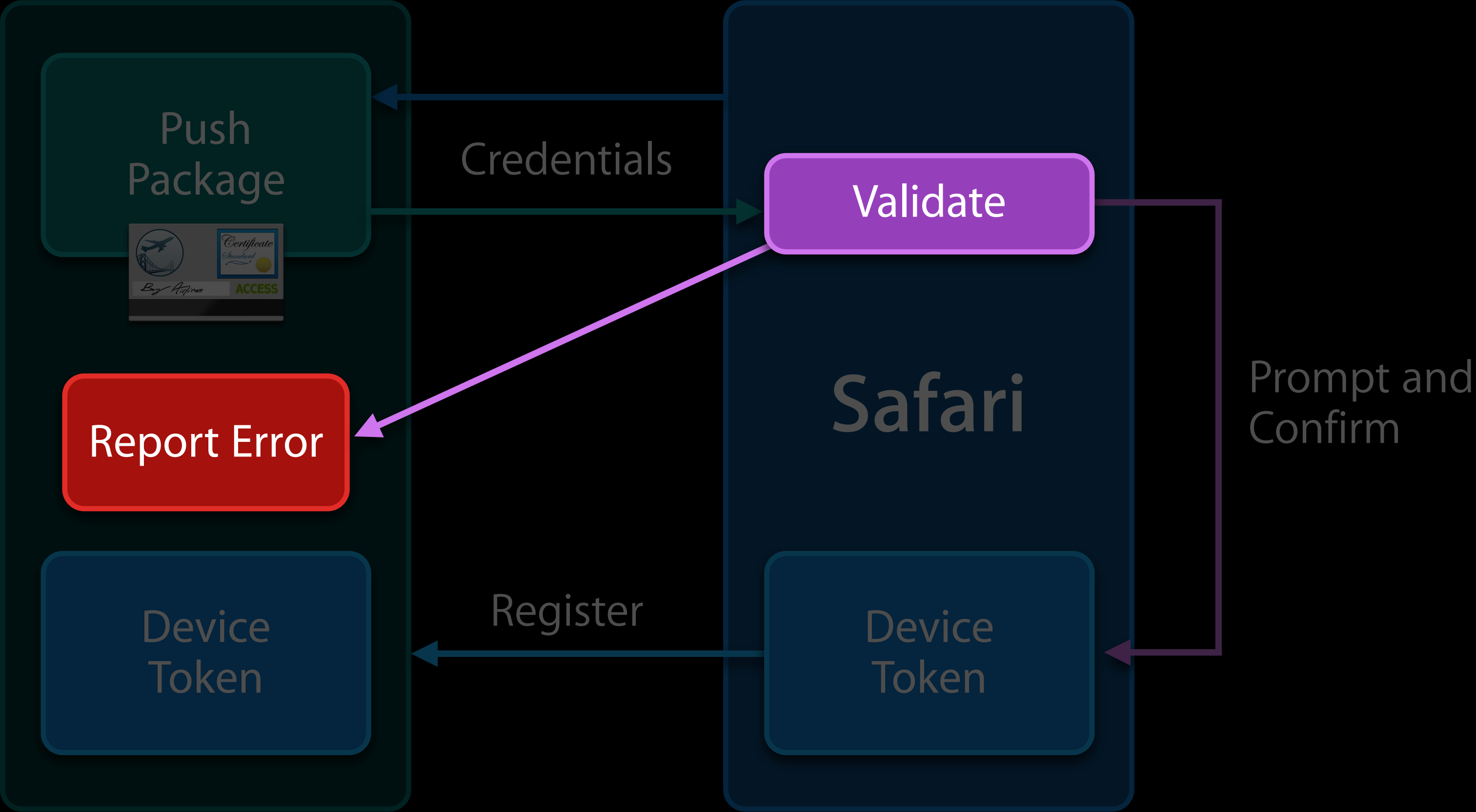
Write Web Service Back End



Write Web Service Back End



Write Web Service Back End



Write Web Service Back End

Logging errors

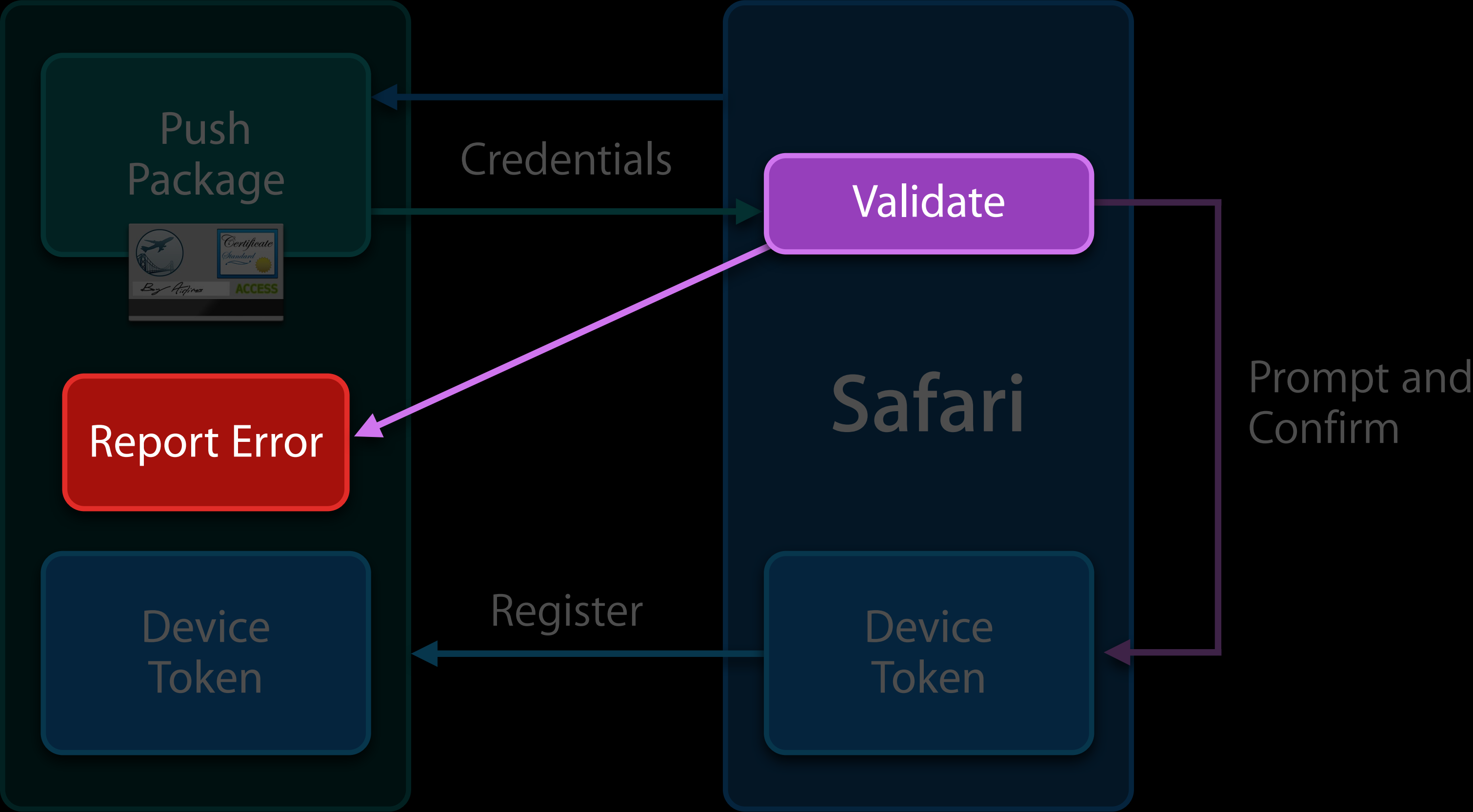
- POST

 /v1/log

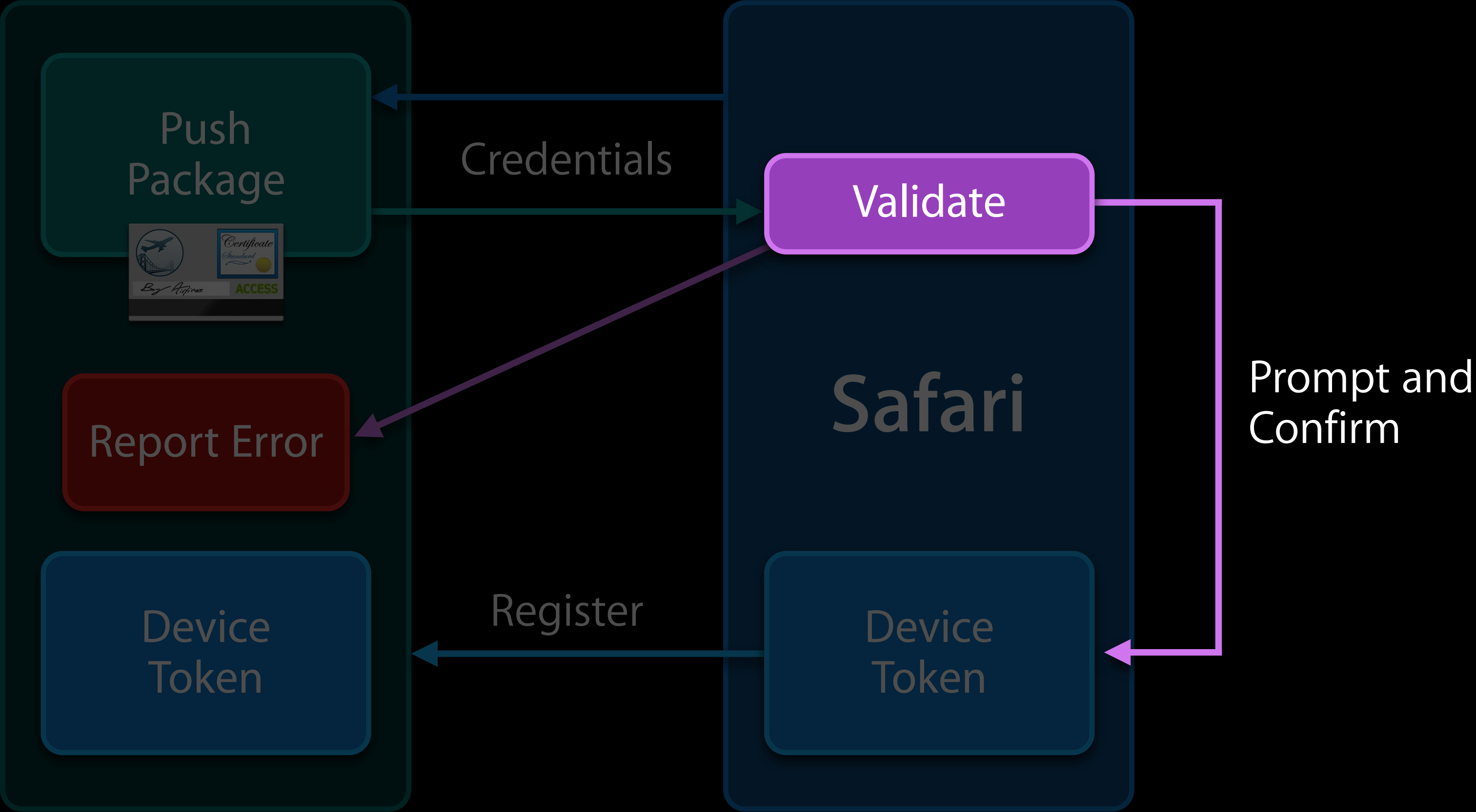
- HTTP body

```
{"logs": ["Referrer URL http://bayairlines.com/ is not in  
the list of allowed domains."]}
```

Write Web Service Back End



Write Web Service Back End

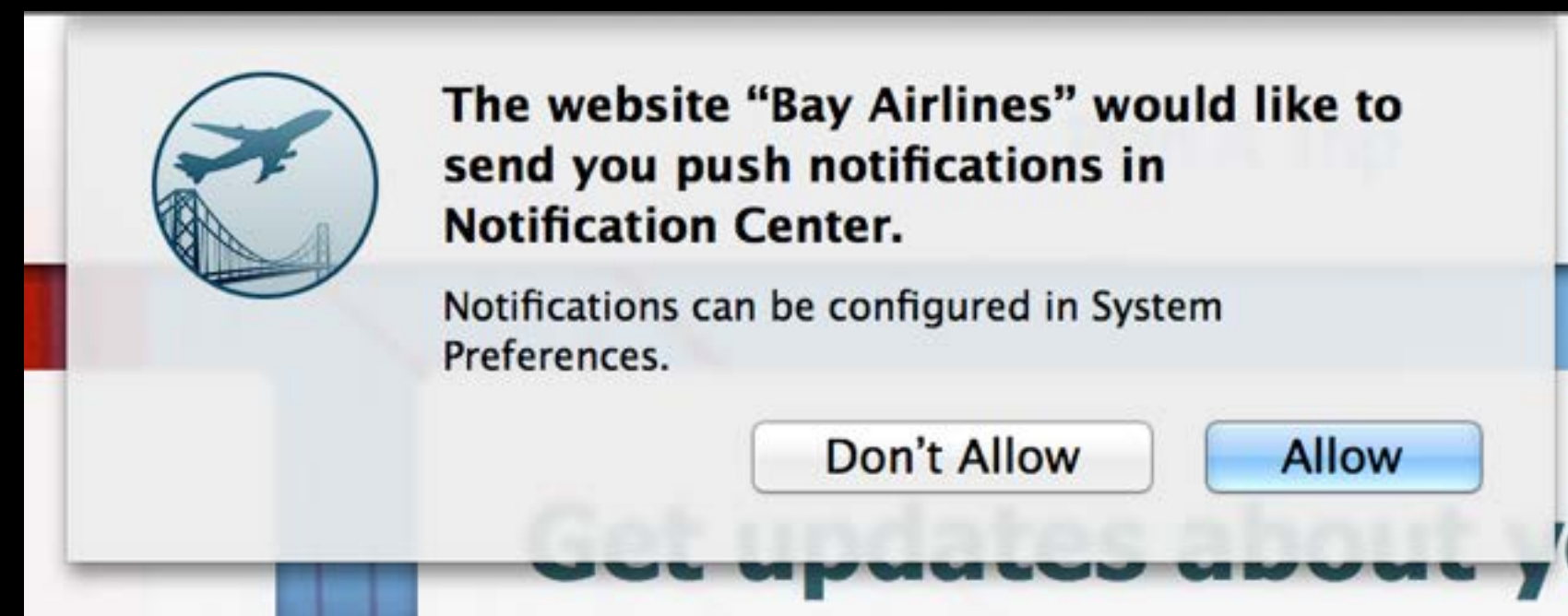


Push Notification Dialog

Push Package

Icons

websiteName

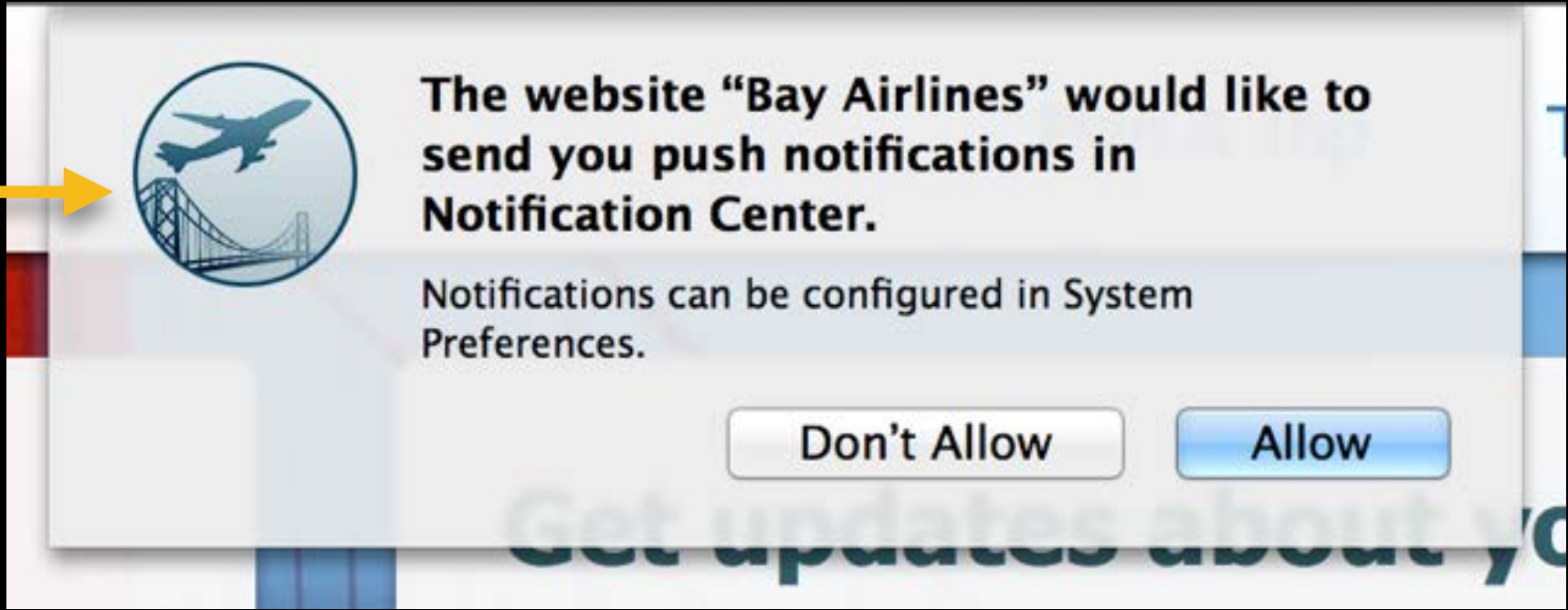


Push Notification Dialog

Push Package

Icons

websiteName

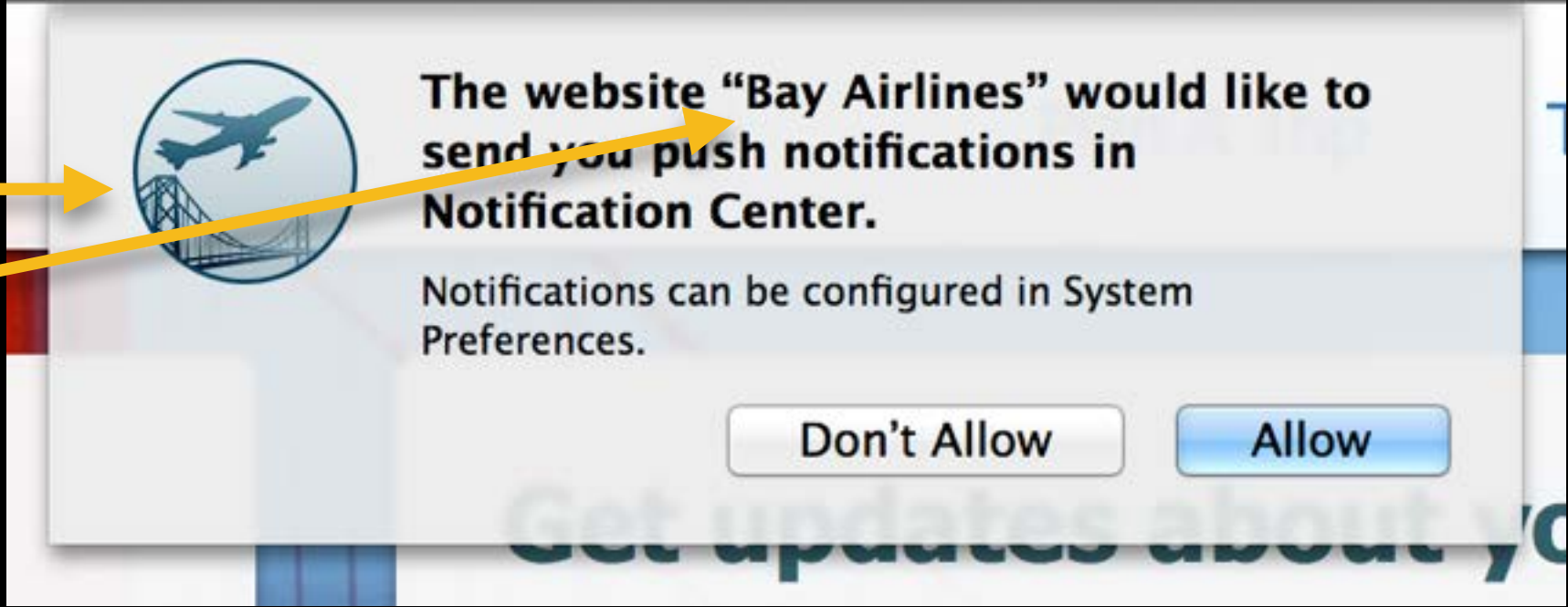


Push Notification Dialog

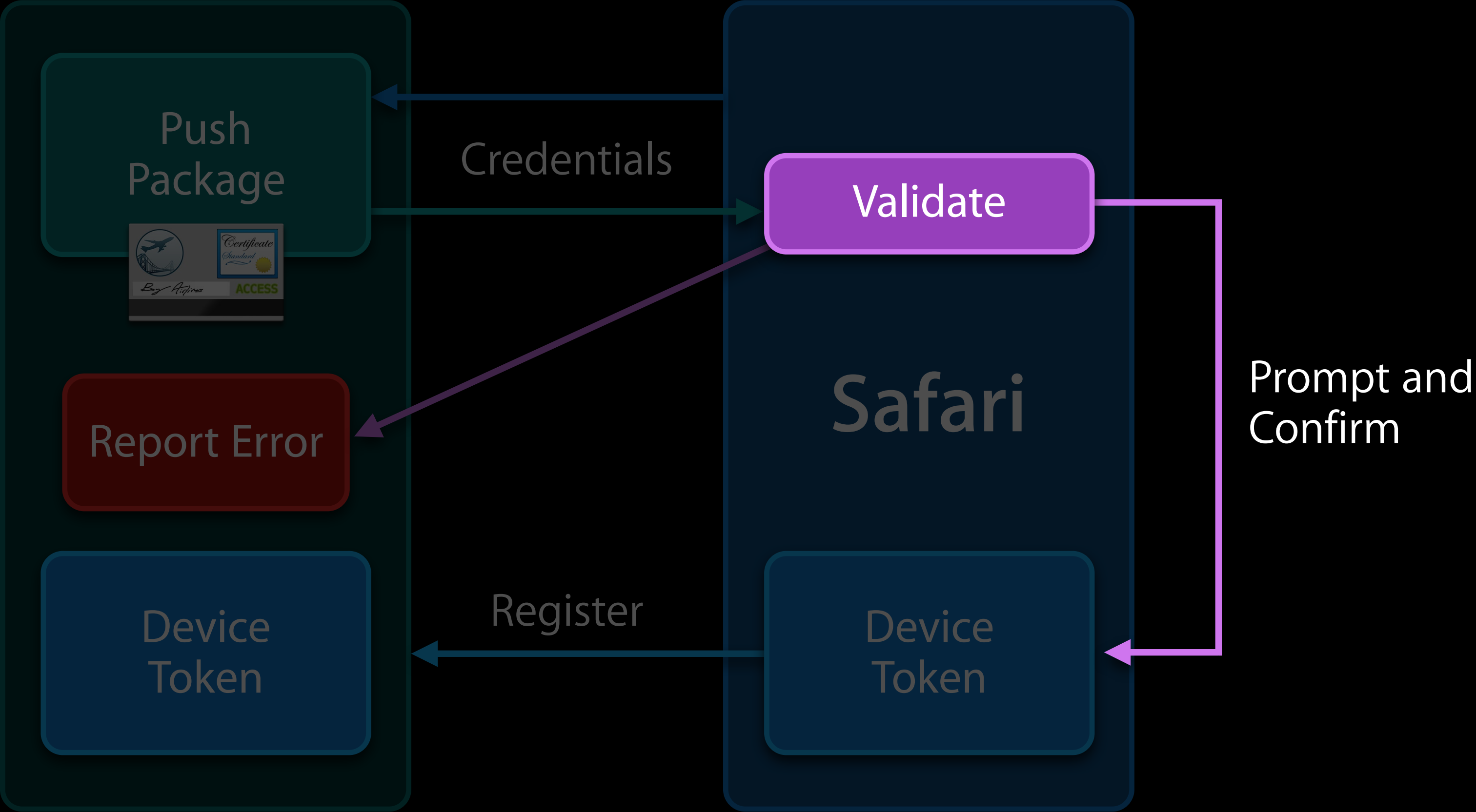
Push Package

Icons

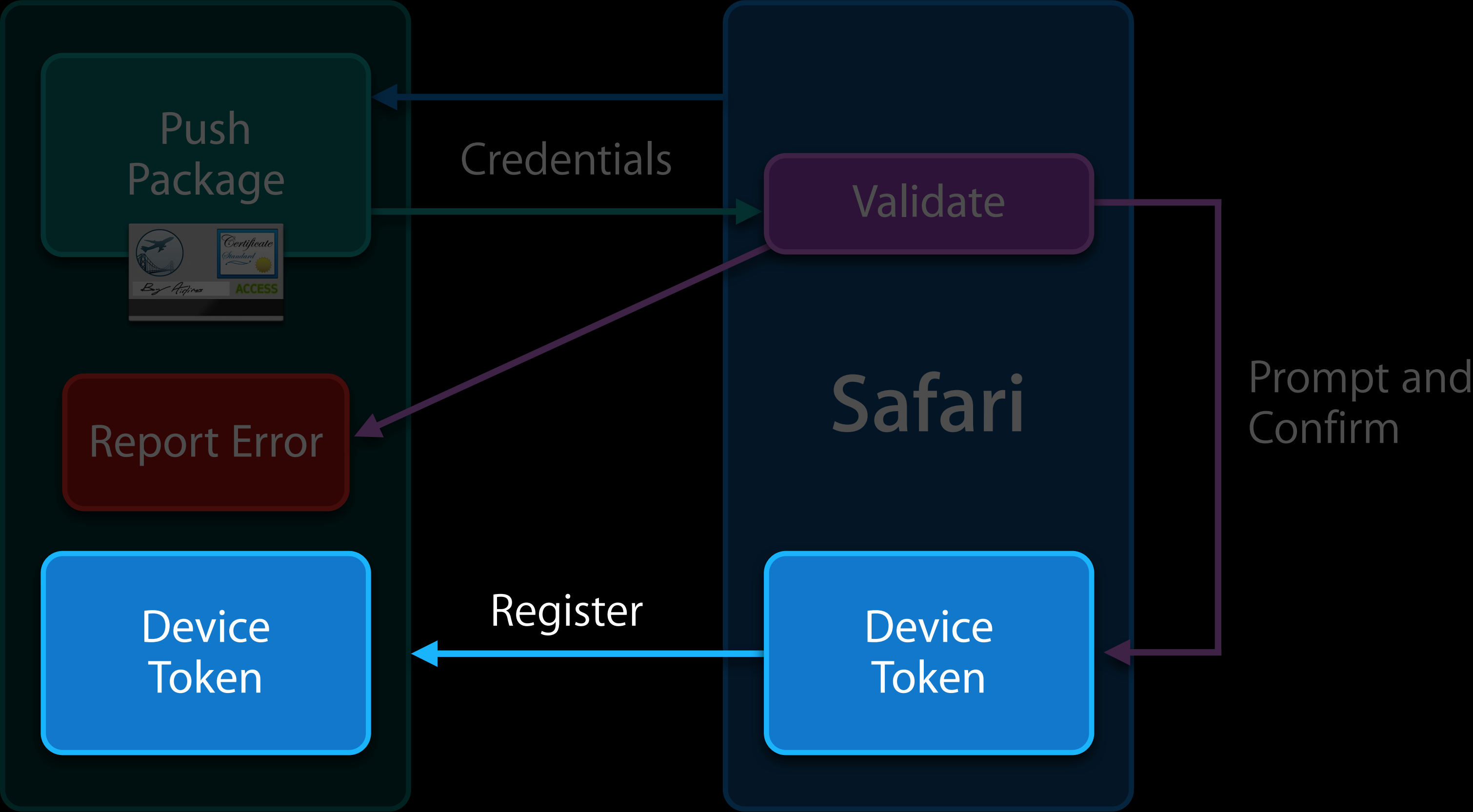
websiteName



Write Web Service Back End



Write Web Service Back End



Write Web Service Back End

Register user's device token

- POST

`/v1/devices/<deviceToken>/registrations/<websitePushID>`

- HTTP Authorize header field

`ApplePushNotifications <authenticationToken>`

Write Web Service Back End

Unregister user's device token

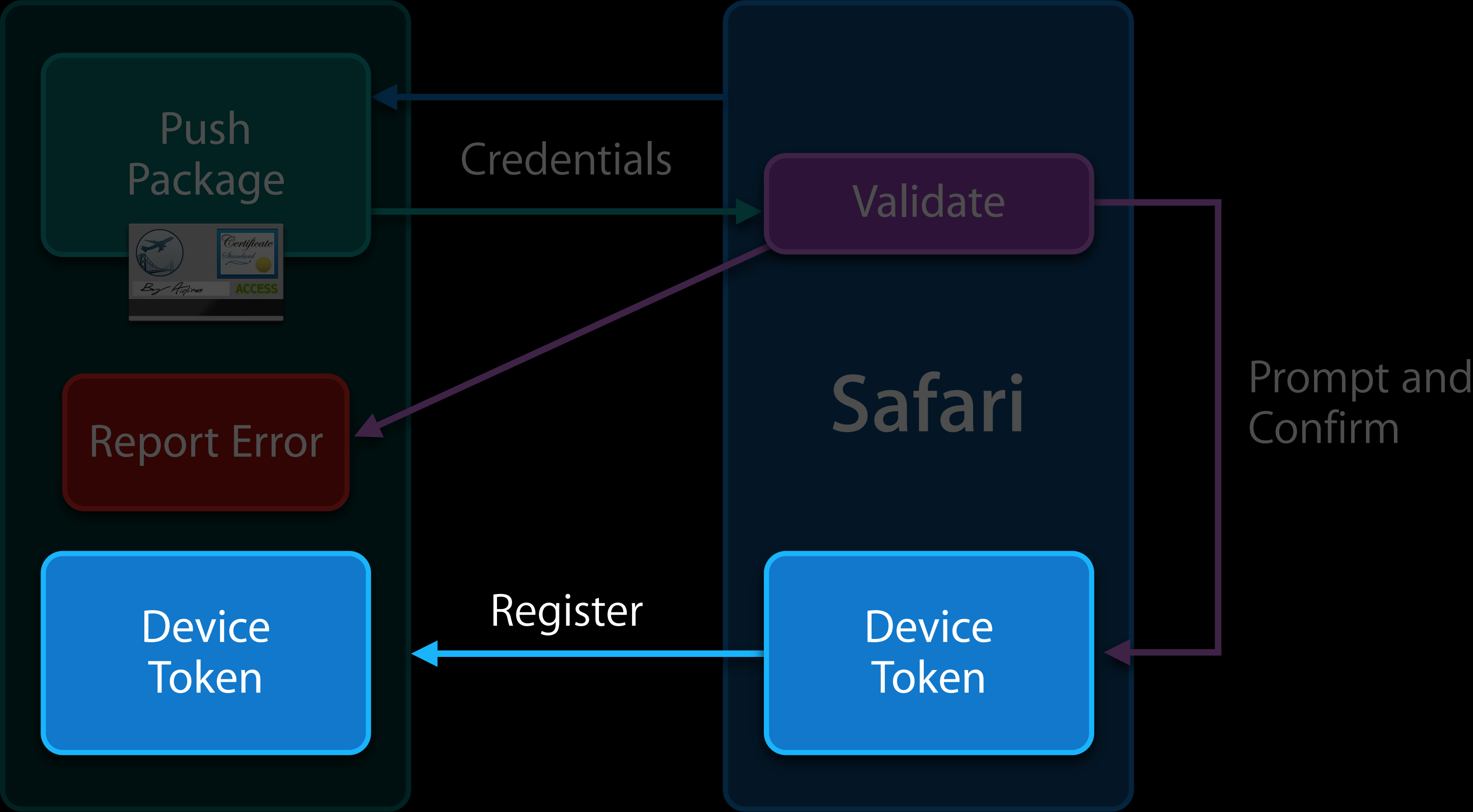
- DELETE

`/v1/devices/<deviceToken>/registrations/<websitePushID>`

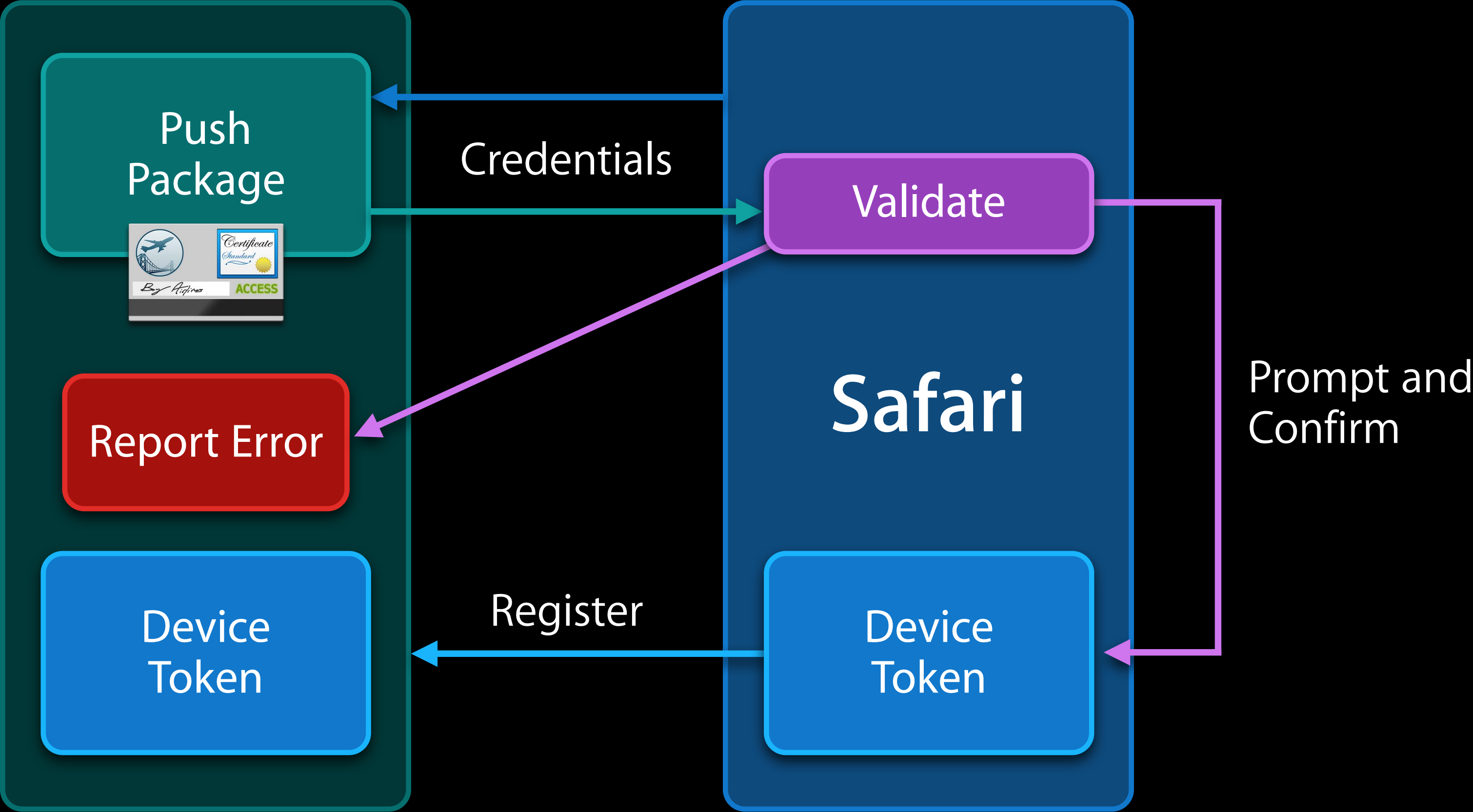
- HTTP Authorize header field

`ApplePushNotifications <authenticationToken>`

Write Web Service Back End



Write Web Service Back End



What You Need to Do

Get Website Push Certificate

Add Notification Support to Your Server

1 Ask on Your Website

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3 Send Push Notifications

What You Need to Do

Get Website Push Certificate

Add Notification Support to Your Server

1 Ask on Your Website

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3 Send Push Notifications

Send Push Notifications

- Similar to pushing notifications for apps

Send Push Notifications

- Similar to pushing notifications for apps

```
{
  "aps": {
    "alert": {
      "title": "Flight A109 Gate Changed",
      "body": "Your gate has changed to A4.",
      "action": "View"
    },
    "url-args": ["gate-change", "A109"]
  }
}
```

Send Push Notifications

- Similar to pushing notifications for apps

```
{
  "aps": {
    "alert": {
      "title": "Flight A109 Gate Changed",
      "body": "Your gate has changed to A4.",
      "action": "View"
    },
    "url-args": ["gate-change", "A109"]
  }
}
```

Send Push Notifications

- Similar to pushing notifications for apps

```
{
  "aps": {
    "alert": {
      "title": "Flight A109 Gate Changed",
      "body": "Your gate has changed to A4.",
      "action": "View"
    },
    "url-args": ["gate-change", "A109"]
  }
}
```

- Maximum size for message payload is 256 bytes

Send Push Notifications

- Similar to pushing notifications for apps

```
{
  "aps": {
    "alert": {
      "title": "Flight A109 Gate Changed",
      "body": "Your gate has changed to A4.",
      "action": "View"
    },
    "url-args": ["gate-change", "A109"]
  }
}
```

- Maximum size for message payload is 256 bytes
- Always connect to production environment

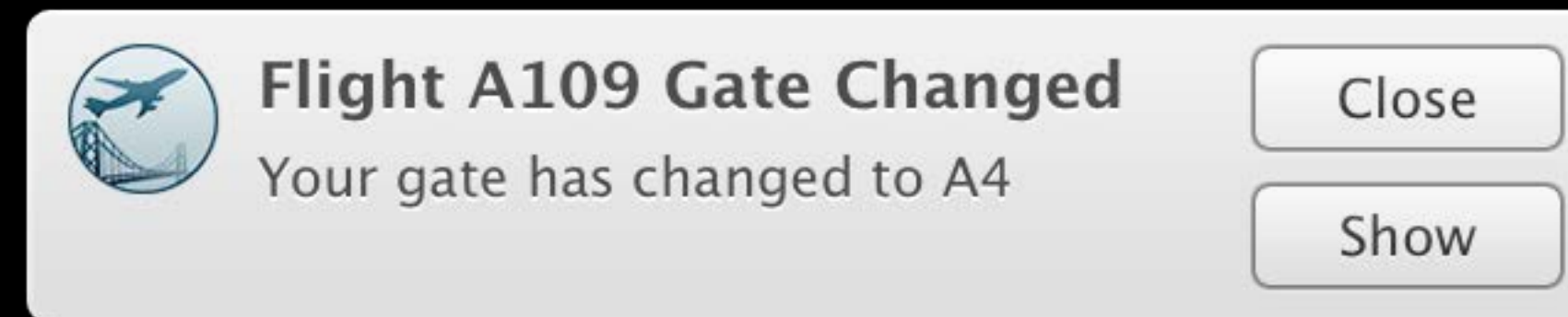
Push Notifications and Notification Center

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

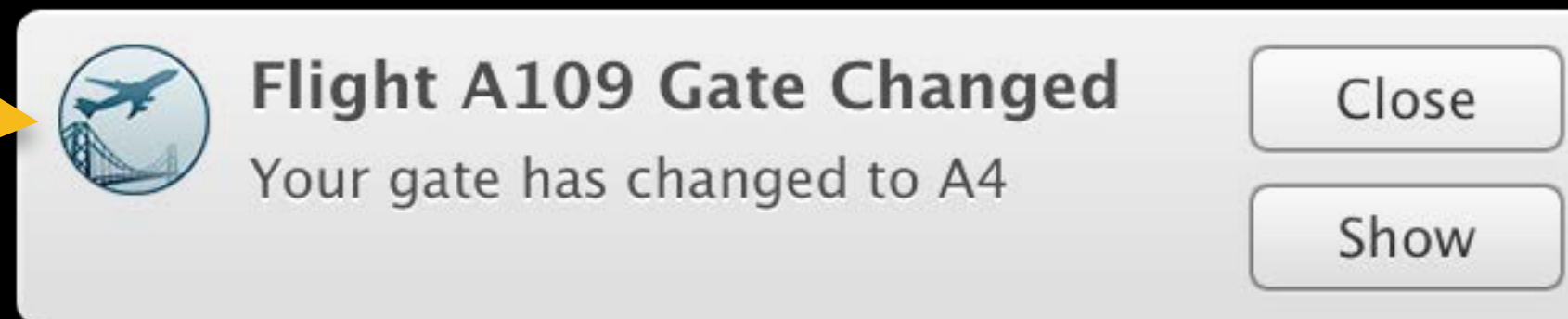
Push Notifications and Notification Center

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Push Notifications and Notification Center



Push Notifications and Notification Center



Push Notifications and Notification Center



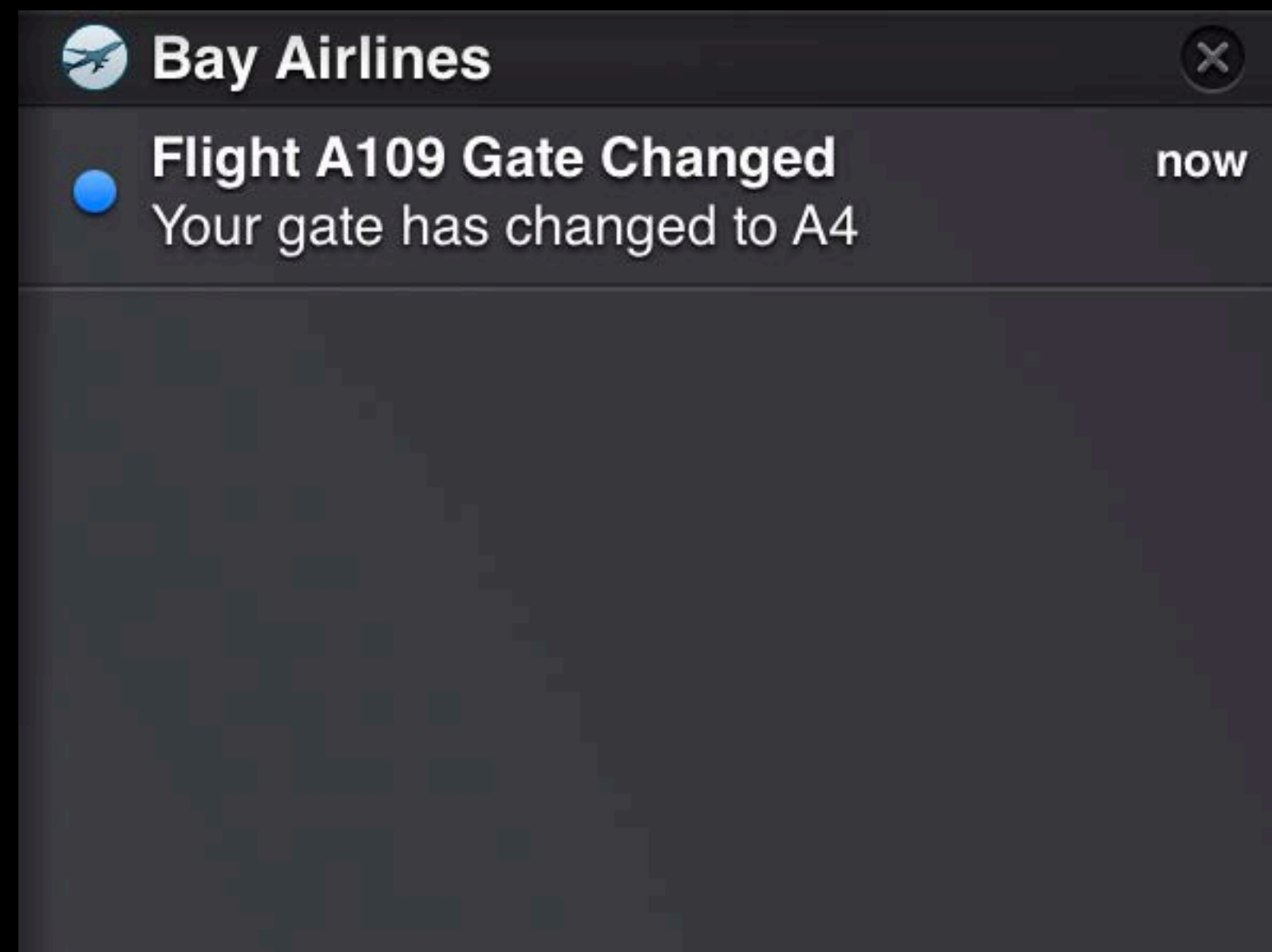
Push Notifications and Notification Center

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

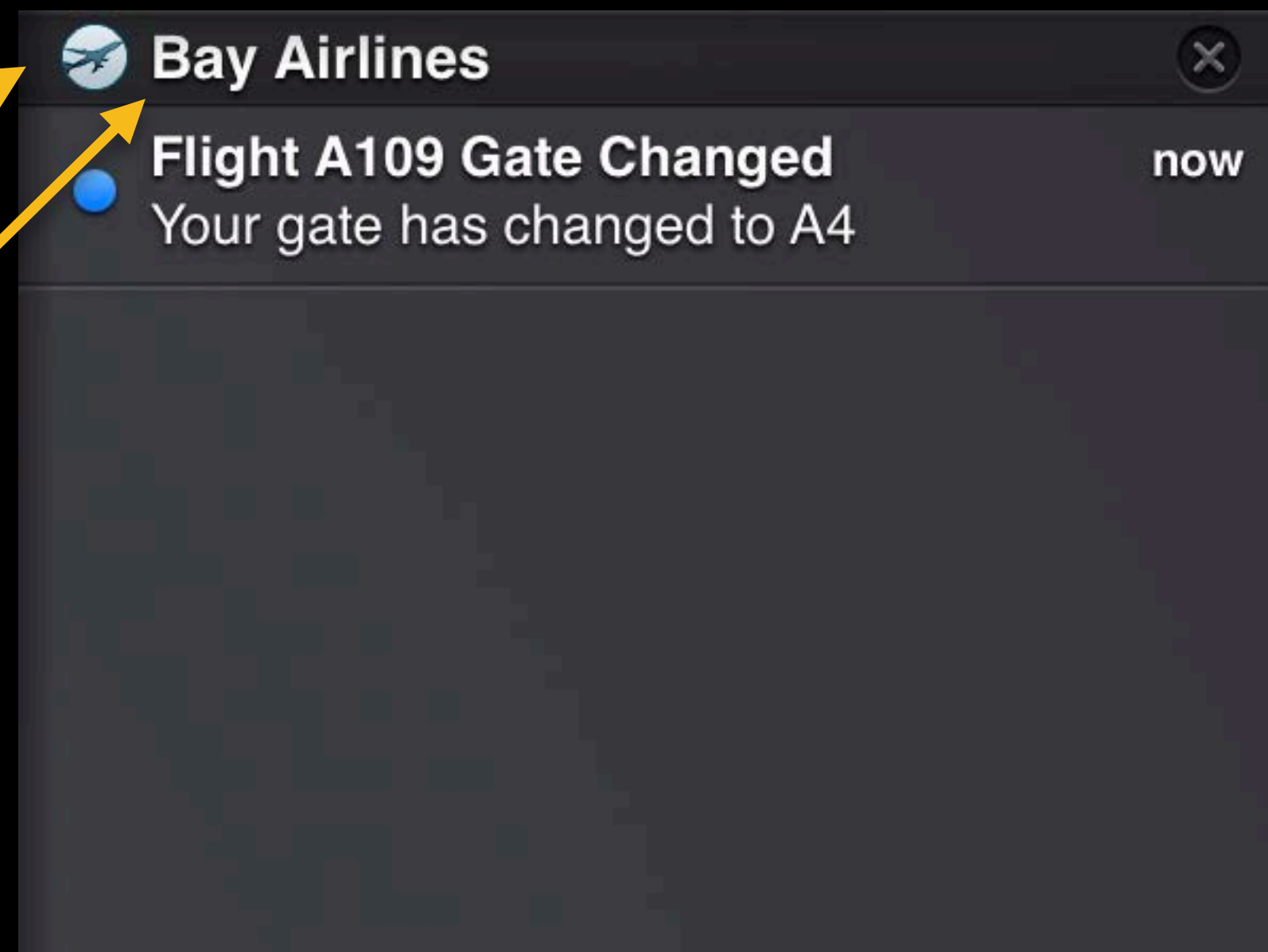
Push Notifications and Notification Center

Push Package

Icons

websiteName

urlFormatString



Notification Payload

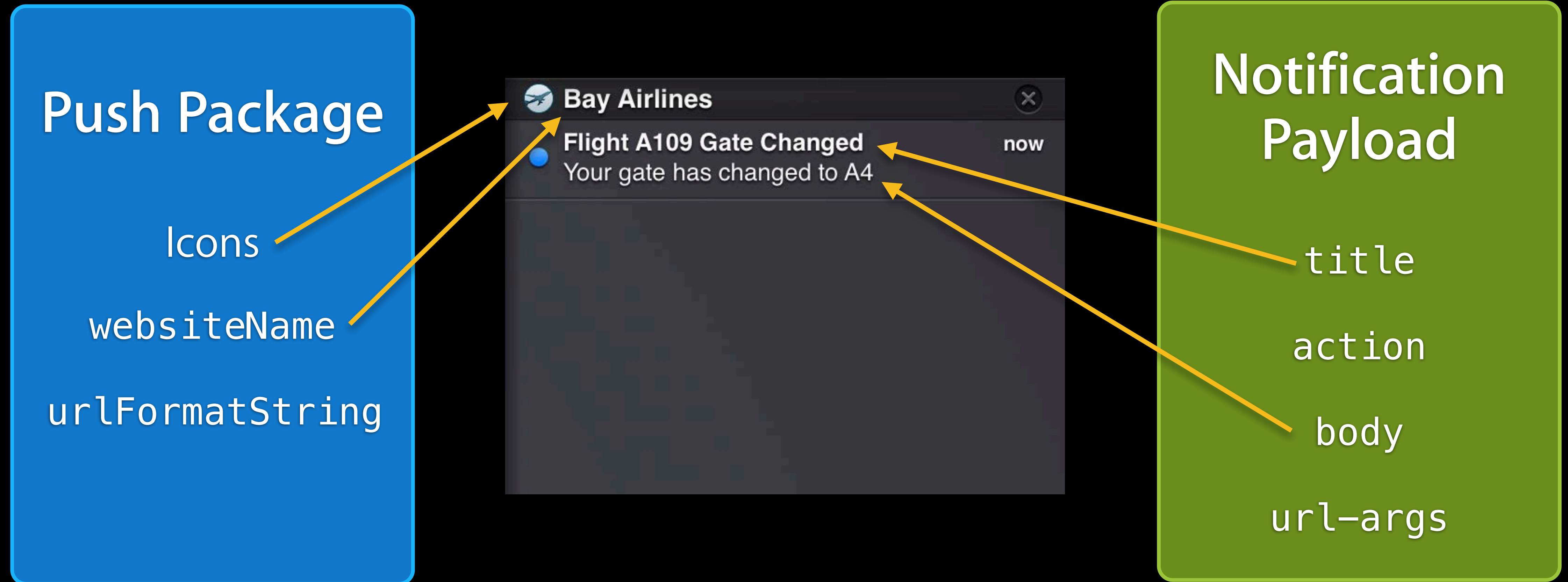
title

action

body

url-args

Push Notifications and Notification Center



Push Notifications and Notification Center

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Push Notifications and Notification Center

`http://bayairlines.com/%@?flight=%@`

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Push Notifications and Notification Center

`http://bayairlines.com/%@?flight=%@`

`["gate-change", "A109"]`

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Push Notifications and Notification Center

`http://bayairlines.com/%@?flight=%@`

`["gate-change", "A109"]`

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Push Notifications and Notification Center

<http://bayairlines.com/gate-change?flight=A109>

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Push Notifications and Notification Center

<http://bayairlines.com/gate-change?flight=A109>

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Push Notifications and Notification Center

<http://bayairlines.com/gate-change?flight=A109>

Push Package

Icons

websiteName

urlFormatString



Notification Payload

title

action

body

url-args

Demo

Brian Weinstein
Safari Engineer

What You Will Learn

- Background
- How it works
- Implementation
- Best practices

What You Will Learn

- Background
- How it works
- Implementation
- Best practices

Best Practices

Best Practices

For your notifications

- Think about what notifications are most useful

Best Practices

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- Think about what notifications are most useful
- Use notifications as an additional, not primary means of communication

Best Practices

For your notifications

- Think about what notifications are most useful
- Use notifications as an additional, not primary means of communication
- Take advantage of the URL format string

Best Practices

For your notifications

- Think about what notifications are most useful
- Use notifications as an additional, not primary means of communication
- Take advantage of the URL format string

Push Package
website.json

`urlFormatString:`
`http://%@`

Notification
Payload

`url-args:`
`["bayairlines.com/gate-change?flight=A109"]`

Best Practices

For your notifications

- Think about what notifications are most useful
- Use notifications as an additional, not primary means of communication
- Take advantage of the URL format string

Push Package
website.json

```
urlFormatString:  
http://bayairlines.com/%@?flight=%@
```

Notification
Payload

```
url-args:  
["gate-change", "A109"]
```

Best Practices

For your notifications

- Think about what notifications are most useful
- Use notifications as an additional, not primary means of communication
- Take advantage of the URL format string
- Strip whitespace from your JSON payload

Best Practices

For your web server

- Remove tokens when users unsubscribe

Best Practices

For your web server

- Remove tokens when users unsubscribe
- Take advantage of `userInfo` and `authenticationToken`

Best Practices

For your website

- Think about what kind of service you want to provide



Best Practices

For your website

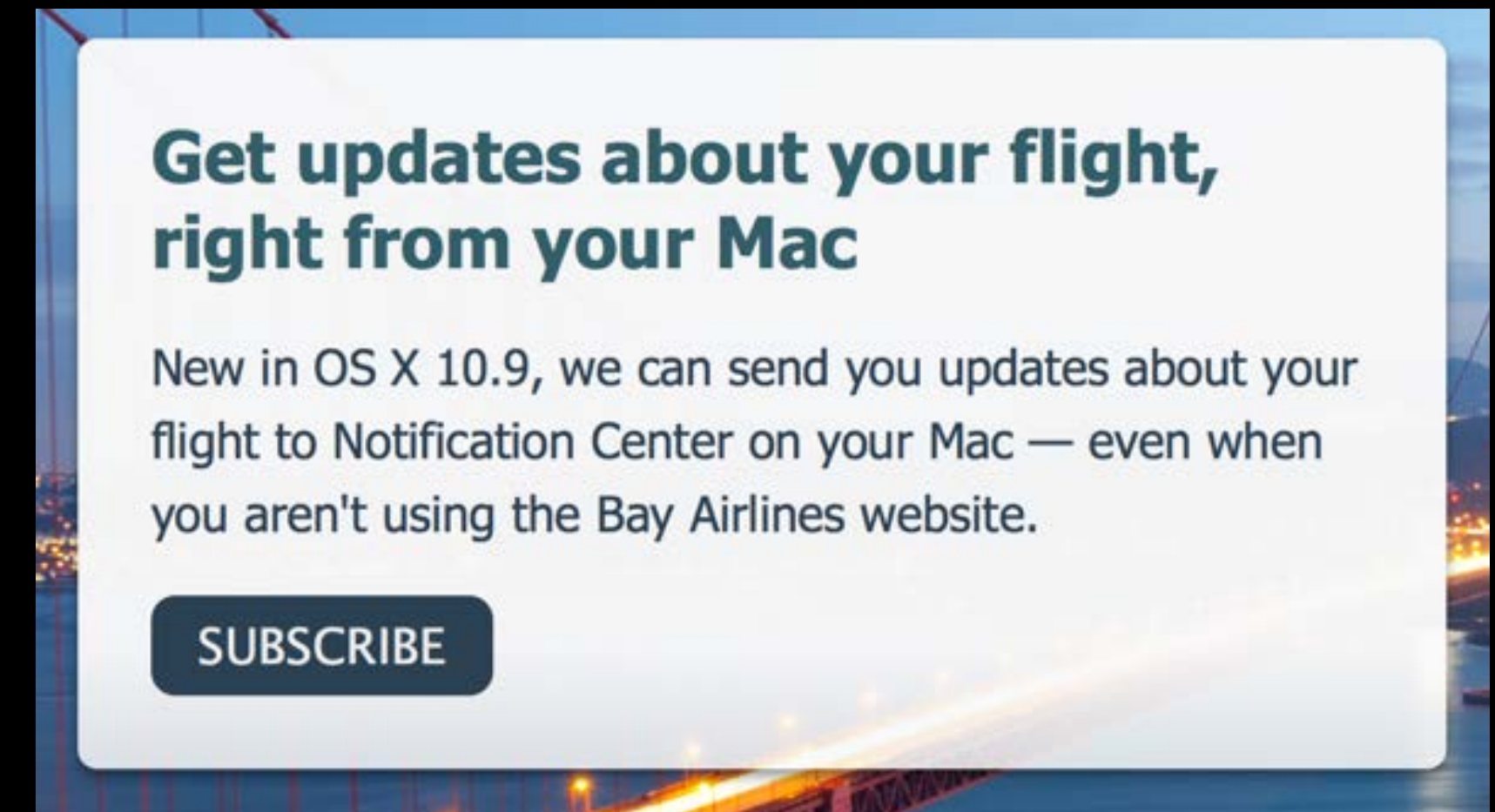
- Think about what kind of service you want to provide
- Check API availability

```
if (window.safari && window.safari.pushNotification) {  
    var result = window.safari.pushNotification.permission(websitePushID);  
  
    if (result.permission === "default")  
        window.safari.pushNotification.requestPermission(...);  
}
```

Best Practices

For your website

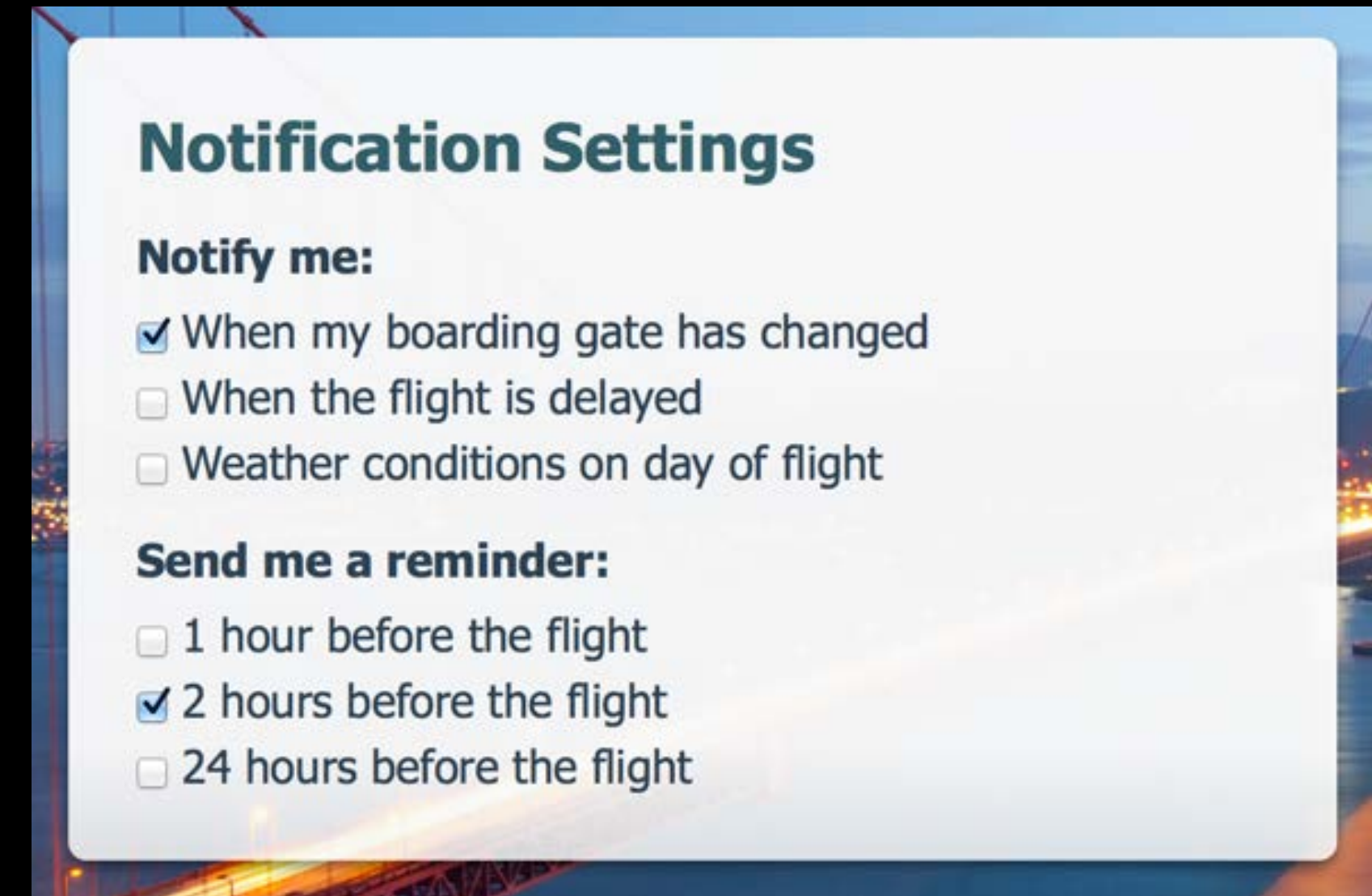
- Think about what kind of service you want to provide
- Check API availability
- Ask at the right time



Best Practices

For your website

- Think about what kind of service you want to provide
- Check API availability
- Ask at the right time
- Give your users control



Notification Settings

Notify me:

- When my boarding gate has changed
- When the flight is delayed
- Weather conditions on day of flight

Send me a reminder:

- 1 hour before the flight
- 2 hours before the flight
- 24 hours before the flight

More Information

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Documentation

Local and Push Notifications for Developers
<http://developer.apple.com/notifications>

Safari Developer Forums

<http://devforums.apple.com/Safari>

Related Sessions

What's New in Safari and WebKit for Web Developers

Mission
Tuesday 9:00AM

Integrating Passbook into Your Ecosystem

Pacific Heights
Wednesday 3:15PM

Labs

Safari and WebKit Open Lab

Media Lab A
Friday 9:00AM

Safari and Web Tools Lab

Media Lab A
Friday 2:00PM

Summary

- Safari 7 supports website push notifications
- App and website push notifications are the same
- Safari validates your website's identity

 WWDC2013