THE AEROSPACE CORPORATION

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TWOEFAY

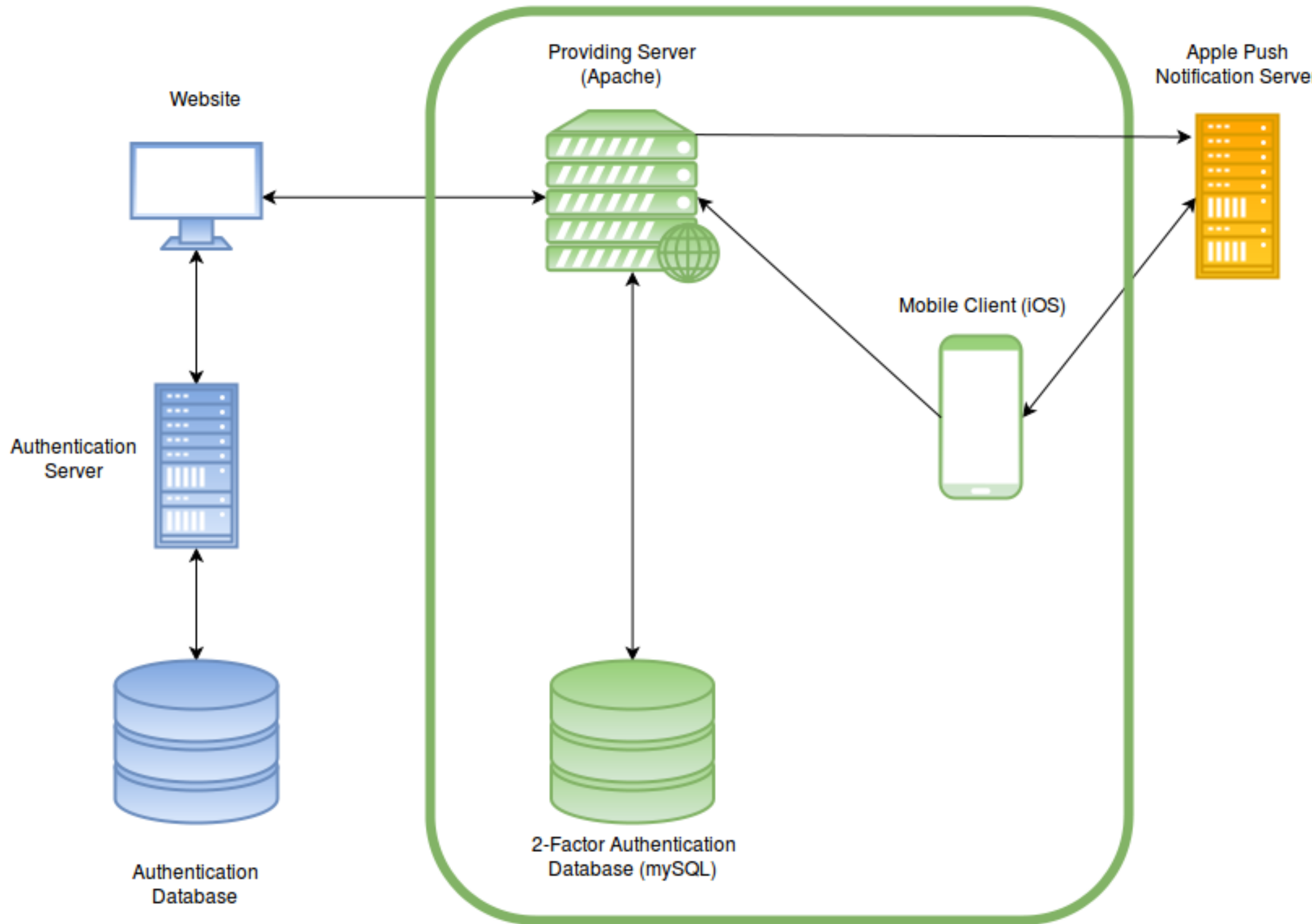# INTRO & PROBLEM STATEMENT

▸ Current log-in systems: 1-factor authentication (password)

▸ Easy to get hacked

▸ Adding additional factors raises security

▸ Problem Statement: **Create a multi-factor authentication system that easily integrates into existing website log-in systems**

MOTIVATION

▸ Easier to use –> More likely to use

▸ Simplifies website security:

  ▸ Integrate twoefay into log-in system

  ▸ Install app on iPhone

  ▸ 3-factor: password, phone, fingerprint

DEMO

Website

Authentication
Server

Authentication
Database

Providing Server
(Apache)

Apple Push
Notification Server

Mobile Client (iOS)

2-Factor Authentication
Database (mySQL)

WHAT WORKED. WHAT DIDN'T,

▸ Initial development in Java + JS + JSP + XML + … atop Tomcat

▸ Various issues with HTTP/2.0

  ▸ Not yet standardised

  ▸ Required for the APN communication

  ▸ Certificate verification woes

  ▸ Harder to debug

DESIGN CHOICES

▸ Standardised on Python for frameworks and ease of prototyping

▸ Apple Push Notification Service (APN) to alert users when they need to authenticate

  ▸ Requires HTTP/2.0, TLS 1.2+, JSON

▸ Swift instead of Objective-C for the iOS app

FOR THE FUTURE…

▸ Limitations:

  ▸ iOS client only - Android / Windows for the future

  ▸ Client-specific app - app should be able to integrate with 1+ log-in sites

  ▸ No back-up methods - Email / SMS for alternative log-in

THANK YOU!