

# ***AUTOMATING THE DEVELOPMENT OF MULTI-PLATFORM PRODUCTS***

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# AUDIO MODELING

- Leading company in the development of **virtual instruments** emulating expressive acoustic instruments based on **physical modeling**
- Officially born in 2017, but the products have been on the market since **2011**
- 2 product lines:
  - **SWAM** (Synchronous Waves Acoustic Modeling): Virtual instruments
  - **Camelot Pro**: Live performance management platform
- 3 partners, 6 employees, and around 10 collaborators
- Partnerships with *Fatar/Studiologic, Yamaha, Roland, ROLI, moForte/Wizdom Music, Enhancia, Aodyo*

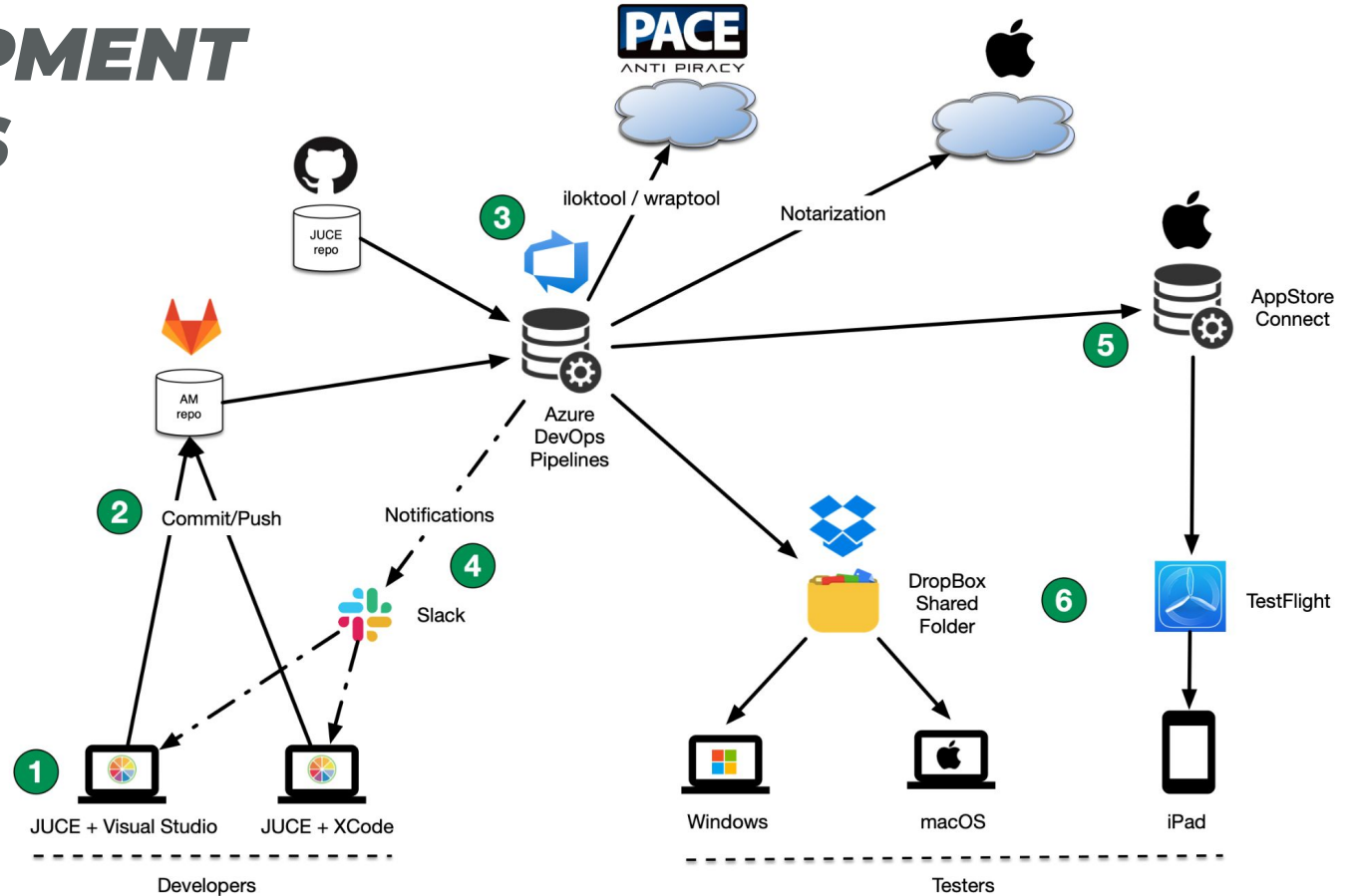
# THE CHALLENGES

- Our audio software:
  - Plug-in formats: **VST, VST3, AAX, AU, AUv3, Standalone, NKS instruments**
  - Platforms: **Windows, macOS, iOS**
- Adhering to the **specifications** of each plug-in format and platform
- Keeping a **fast release pace**
- Allocating time and energy to staying in touch with our **community** to constantly be aware of **new emerging needs**























# **JUCE** AND CONTINUOUS INTEGRATION (CI)

- What is **JUCE**
- What is **Continuous Integration** (CI)
- The advantages in combining them together
- Step-by-step overview of our development process

# DEVELOPMENT PROCESS



# INTO PIPELINE

1.  Run Eden SDK Installer  
Command line
2.  Build Projucer  
Xcode
3.  Remove Xcode resources unused on macOS  
Shell script
4.  Make directory for AAX plugins  
Command line
5.  Install Developer ID Application  
Install Apple certificate
6.  Install Developer ID Installer  
Install Apple certificate
7.  Run Projucer (1st Product)  
Command Line
8.  Generate Version Number  
Shell script
9.  Generate Release Notes  
Bash
10.  AAX: remove arm64e arm64 - Clarinet  
Shell script
11.  Xcode build (1st Product)  
Xcode
12.  Run Projucer (2nd Product)  
Command Line
13.  AAX: remove arm64e arm64 - Bass Clarinet  
Shell script
14.  Xcode build (2nd Product)  
Xcode
15.  Wraptool  
Shell script
16.  Download installer license  
Download secure file
17.  Run Installer  
Command line
18.  Notarization  
Command line
19.  Publish Pipeline Artifact  
Publish Pipeline Artifacts
20.  Upload installer to DropBox  
Command Line
21.  Post Success  
Slack Notification
22.  Post Error  
Slack Notification

# **THE SOLUTION DEVELOPED BY PACE**

- Specifications of the **AAX** plug-in format
- **iLok USB key** and **iLok Cloud**
- **wraptool** and the unique solution developed by **PACE**

# TECH STACK

- Versioning ⇒ **GitLab** (or **GitHub**) + **Sourcetree**
- Compilers ⇒ **Apple XCode** and **Microsoft Visual Studio**
- Frameworks ⇒ **JUCE**, **VST SDK**, **Audio Units**, **AAX SDK**
- Installer maker ⇒ **InstallBuilder** (VMWare)
- Notarization ⇒ **Fastlane**
- CI ⇒ **Microsoft Azure DevOps**
- Auxiliary Tools ⇒ **Slack**, **Trello**, **DropBox**, **Google Drive**

Applications are required to be **digitally signed** with certificates proving the developer's authenticity.

- **Apple Developer Program** (macOS e iOS) ⇒ 99 €/year
- **Code Signing Certificate** (Windows) ⇒ app. 80 €/year



# GOAL

- Making great audio software **accessible** for all

# CONTACTS

- Audio Modeling website **audiomodeling.com**
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