Game Audio Middleware

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Game Audio Flowchart

- **Game** (Physics, Graphics, AI etc.)
- **Game Audio Code**
- **Middleware Engine Code**
- **Audio Output**

- **Sound location**
  - **Level Editor** (Maya, Unity, Unreal)
  - **Behaviour Editor** (Wwise, FMOD Studio, Unity3D)
  - **Commercial DAW** (ProTools, Nuendo, Logic)

- **Sound_tag**
  - **audio_event**
  - **audio_data**

- **Middleware Code**
- **Hardware Code**
  - Independent
  - Dependent
Wwise

- Audiokinetic is based in Montréal
- Launched 2006
- 900+ page manual
- Forum: https://www.audiokinetic.com/qa/
- Authoring tool available for PC & Mac
- Plugins for Unity, Unreal, CryEngine & more
- AkCube open source game available (Mac/PC)
- Limbo demo game available for PC
FMOD Studio
FMOD Studio

- Firelight Technologies is based in Melbourne, Australia
- Launched 2012
- 200+ page manual
- Forum: http://www.fmod.org/support/qa/
- Authoring tool available for PC & Mac
- Plugins for Unity & Unreal
- EarthWarrior3D open source PC game available
Fabric Audio

- Tazman Audio is based in Brighton, UK
- Launched version 1.0 in **2011**
- 50+ page manual
- Forum: [http://www.tazman-audio.co.uk/#!moot-forum/c1nh8](http://www.tazman-audio.co.uk/#!moot-forum/c1nh8)
- Runs on all Unity platforms
- **Unity 5 demos** available
- Will be released as a **stand-alone** soon
Pure Data

LibPD4Unity
Pure Data

- Pure Data by Miller Puckette in San Diego
- Launched in 1996
- *Designing Sound* by Andy Farnell is a good reference book and is 600+ pages
- Android, iOS, Mac & Windows platforms
- Runs on PC & Mac with Unity
- In early development but free & open source
Usage Comparison Chart

Middleware Use in Large & Indie Titles

From GameSoundCon 2014 Survey of 500+ game audio professionals
Cost Comparison Chart

First Tier Budget Ranges

- Fabric: Budget Low $100,000, Budget High $500,000
- FMOD Studio: Budget Low $100,000, Budget High $500,000
- Wwise: Budget Low $150,000, Budget High $1,500,000

* Free version of Wwise only supports 200 sound objects

Tier Cost is per platform

- Wwise
- Fabric
- FMOD Studio

First Tier Cost

Budget Low $0, $500,000, $1,000,000, $1,500,000, $2,000,000, $2,500,000, $3,000, $3,500

Budget High $150,000, $500,000, $500,000, $1,500,000, $500,000
## Platform Comparison Chart

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Which to Choose?

- Wwise used more for AAA games & overall
- FMOD Studio used more with Indies
- Fabric supports all Unity platforms
- Pure Data is free but risky

- All solutions lower time & cost to developers
Indie Games = Make your Own :) 

- Retro City Rampage
Questions?

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