FOSS In Animation Industry
About me

Hello, my name is Frank Rousseau

- FOSS Entrepreneur (CEO at CGWire, Ex-CTO at Cozy)
- FOSS Side-projects (Newebbe, request-json)
- FOSS Contributor (Open Food Facts, Diaspora)
- 15 years of professional activity
- 7 of them in Animation industry
3D Production Pipeline

PRE-PRODUCTION

IDEA

STORY

STORYBOARD

ANIMATIC

DESIGN

PRODUCTION

LAYOUT

R&D

MODELING

TEXTURING

RIGGING/SETUP

ANIMATION

VFX

LIGHTING

RENDERING

POST-PRODUCTION

COMPOSITING

2D VFX / MOTION GRAPHICS

COLOR CORRECTION

FINAL OUTPUT
Animation industry has a proprietary mindset

- Strong notion of IP (Pictures must not leak, they "belong" to producers)
- Leaders: Autodesk, The Foundry, Adobe, Toonboom
- Challengers: SideFX
Reality doesn't fit with a proprietary mindset

- Need to reduce costs
- Complexity of productions increase
- Need for stronger automatization
- Lack of developers
- Artistic singularity is enough to stand out
Big players need more interoperability

- They stick to proprietary DCCs (Digital Content Creation tools)
- Productions are distributed among several studios
- There are more different software involved
- Need to standardize working and output files
- Need for maintenance of libraries used to manage these formats
File formats

- Alembic (.abc) - Animations
- Universal Scene description (.usd) - Scenes
- OpentimelineIO (.otio) - Timeline
- OpenColorIO (.ocio) - Color parameters
- OpenEXR (.exr) - HDR Pictures
- OpenVDB - (.vdb) - FX
OpenCue

- Render Farm / Job Queue Manager
- Developed at Sony
- Acquired by Google
- Open sourced
- Maintained by ASWF
Big studios, Google, Amazon, Microsoft, Intel, NVIDIA, Autodesk, The Foundry, Epic Games, Blender, Linux Foundation
Epic Games

- Unreal Engine
- Not really used in production
- Epic MegaGrants: lot of money given to open source projects
Let's talk about Free Software!
Python is King

- All major tools have their scripting language
- They are now replaced with Python
- Pipeline tooling is built on top of Python
Widely used tools

- FFMPEG, video processing
- Rez, a packaging system to deploy tools and config on many desktop machines
- OpenImageIO / Image Magick, image processing

Culture of self hosting (performances and confidentiality)

- Sysops tooling
- Linux (easier to build a pipeline upon)
- Communication tools: Mattermost, Riot, etc.
Blender is queen

- Very active community
- Last version (2.8) got many improvements
- Many Contributions from big companies (Epic Games, Intel, Ubisoft)
Blender makes user happy

- Becoming the default for TV-Series
- Full productions done with it
- *I lost My Body* is nominated to Oscars, Best Movie at Annecy Festival
**Gimp**
- Not a good reputation (because of the UI)
- Used on some productions

**Krita**
- People love it (Because of the UI)
- Good funding
- Used on some productions, adoption should go better

**Natron**
- The maintainers left
- The only FOSS alternative to Nuke (Compositing)
Small to mid-size studios opens some tools

- Mikros -> Alice Vision (photogrammetry)
- Cube Creative -> Jean-Paul Start (software runner)
- Image Engine -> Gaffer (scene assembly)
- Supamonks/Ubisoft Animation -> Kabaret (pipeline)
- TheYardVFX -> Mangrove (pipeline)

Freelancers too

- Avalon (pipeline)
- Prism (pipeline)
• Use almost exclusively Free software
• Blog with best practices
• They open sourced their Blender scripts
• Shared company (SCOOP)
- Project management tool (Web app, Python / JS)
- Self-hostable
- Licensed under AGPL 3.0
FOSS as an opportunity to bring more collaboration between studios

- Content about pipeline and production management
- Online chat group
- Meetups
To conclude

- Things were bad but gets better
- Big productions are mainly interested by open source for pipeline / automatization
- Small-mid productions are going further
- Free software bring more collaboration between studios
- Blender is life
Thank you!

- frank@cg-wire.com
- https://github.com/cgwire/awesome-cg-vfx-pipeline
- https://landscape.aswf.io/

Picture Credits: Agent 327/Blender Foundation, Minhaj Khan, Sebastien 1066, Felipe G., La Cabane, Rubiano Basquera, dat_boi, Iksrkson, TheAlmightyF, GoOz, ARG3d