GDC 09

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Fail Now!

Jason Page

Audio Manager

Sony Computer Entertainment Europe

R&D

Fail Now!

» This presentation:Saving time

> » Why it's important
> » Methods and procedures to achieve it.

Who I am..

» Jason Page

Audio Manager: SCEE R&D Audio

21 years industry experience

- Game programmer
- Audio programmer
- "musician and SFX" creator

Currently manage R&D audio team

- Libraries, DSP effects, tools, technology
- White papers, sample code, support, presentations…

Ka-Ching!

» Games cost a lot of money to make

Taking chances is a risk

Without chances, games are dull

- Sequel after sequel
- Similar "seen it all before" genres

» How long before the public get bored?

Or, more to the point:

» How can we keep pushing boundaries

» …But without the cost?

Fail NOW!!

» 1) Fail often (at first)

Try out new ideas

- ☺ "Research" phase
- ☹ "Prototype" phase

Aim for the moon (for both)

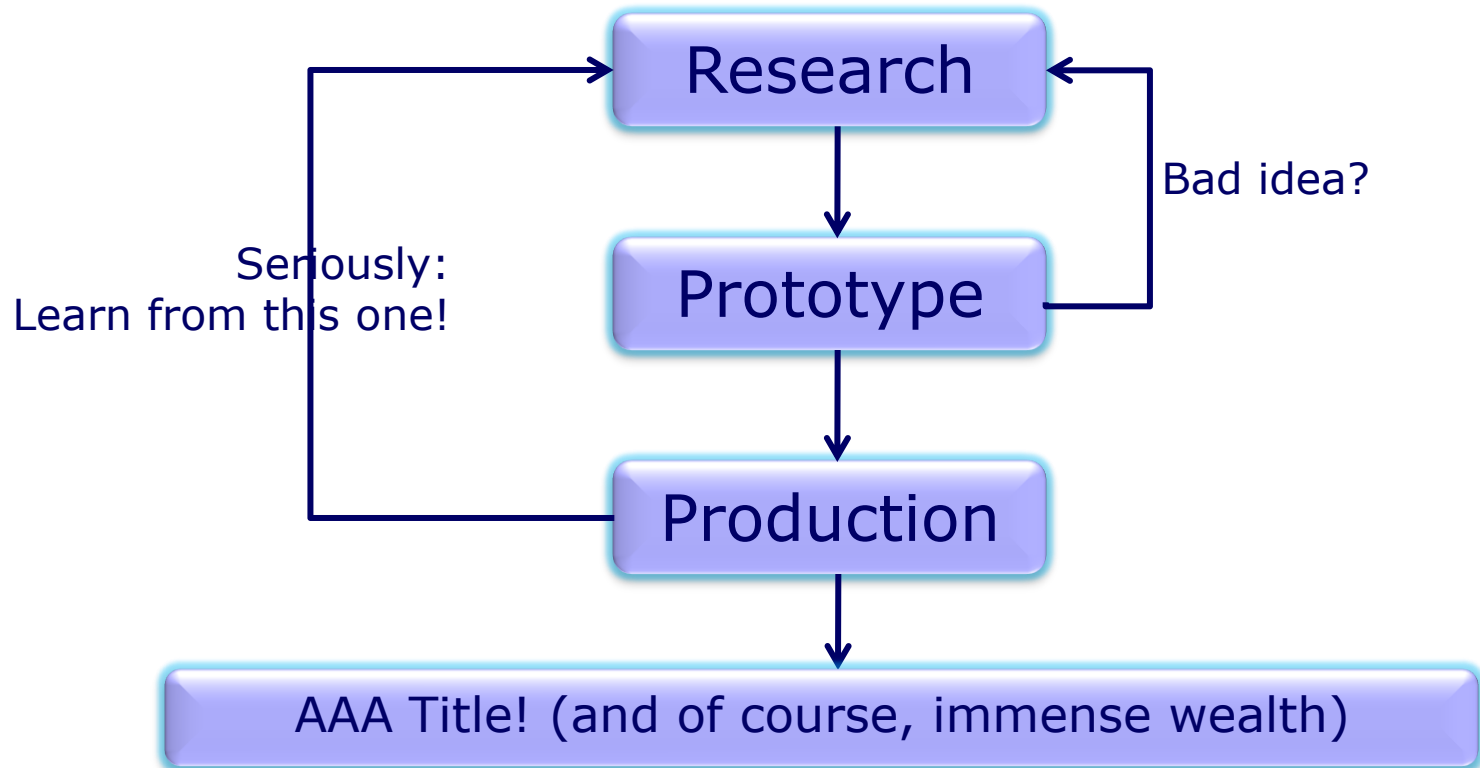» 2) Fail cheaply

Find out if it's not going to work before:

- ☹ You've hired the orchestra
- ☹ You've bought the new studio
- ☺ You've hired extra staff
- ☹ You've told everyone that it would work…☺

Fail NOW!!

```
          ┌──────────────────→ ┌─────────────┐ ←──────┐
          │                     │  Research   │        │  Bad idea?
          │                     └─────────────┘        │
          │                            │               │
          │      Seriously:            ↓               │
          │   Learn from this one! ┌─────────────┐ ────┘
          │                     │  Prototype  │
          │                     └─────────────┘
          │                            │
          │                            ↓
          └──────────────────→ ┌─────────────┐
                                │ Production  │
                                └─────────────┘
                                       │
                                       ↓
         ┌──────────────────────────────────────────────┐
         │  AAA Title! (and of course, immense wealth)    │
         └──────────────────────────────────────────────┘
```

This is how game development works
   ☢ (Hopefully)
Audio development should follow this too

The producer…

» They should understand:

Audio need R&D phases
⊕ As with the rest of the game.

Failing is OK
⊕ Within reason (and budget)

» Educate them!

How to fail well.

» ## Its your job to learn this

Failing within budget

Failing without the producer knowing

⊕ (they'll be happy then)

Research phase..THINK!

» What are you aiming for?

How will this improve over:

1. Your companies previous titles?
2. Your competitions titles?

» How much of your vision requires:

1. New technology to be created?
2. New technology to be bought?
3. Extra resources (staff, for example)?

Research phase..THINK!

» Allows for:

Effective prototyping

Understanding from game teams
- Audio requirements may affect game code
  - File access
  - Memory requirements

Understanding from management
- It's their budget

Music Creation

» Wrong note, crappy chorus, bad mix

Can be fixed without others knowing
- You don't need to plan the whole piece of music on paper before trying things out.

Doesn't dent the budget

You can hear results instantly
- Good tools exist!

Game audio (SFX)

» Game audio creation tools:
    FMod
    WWise
    SCREAM
    XAct

» Allow for SFX creation without the need for a programmer…Mostly

Reinventing Wheels

» How many people are still creating new footsteps for their games?

» How many SFX have we got, which could be reused?

    Both samples and scripts

» ~15 years of games with samples

    Of course, you need to take care

        ☣ General 6000 Series!

(Usually)
Tools aren't the bottleneck

» Putting it all together is:

Test in-game

Mix in-game

» Implementing = time & resources:

Need audio engineer(s) & programmer(s)

⊕ Before you even get the "wouldn't it be nice if…" moments

Prototyping: Problem

You can't prototype until the game code is in a stable state.

(It's quite normal for game audio to not be involved until the last minute)

Prototyping: Solution 1

» Work to video

Doesn't have to be a video of the game:

Any video of a similar scene will do:
- Saving Private Ryan for FPS games

Videos of another game (similar genre)
- Even if it's someone else's game

Prototyping: Solution 2

» Are you working on a sequel?

Prototype using previous games code

» Seriously, how different is integration going to be?

Still quicker to prototype this way and make modifications later

Prototyping

» You can be far more certain that audio will work during production.

   Saves time mixing/testing later

   Try new things with minimum risk

» But, you will need a programmer
   (or more)

Audio Programmer

» Implement new ideas in code
   Modify existing audio code

» Has to understand audio terminology
   Has to work very closely with engineers

» Vital to the research/prototype stage
   Engineer + scripting tools is not enough

Problem:

» Compile times

Complete games can take *ages*

1. Programmer modifies code
2. Programmer compiles code
3. Everyone plays Solitaire
4. Programmer tests code
5. Everyone has forgotten what it originally sounded like anyway.

» Make sure you're only compiling the bits that you need to.

� (So you're not, ahem, "left hanging around" ☺)

Prototyping Music

» Again, use available music for testing

Can be film or game music.
Make sure that the style works
Make sure that the SFX sit well still.

» Easier to sell ideas to management
Prototyping allows for "known entities"

Debugging

» Difficult to debug audio

> Many sounds playing at one time
> Many audio formats
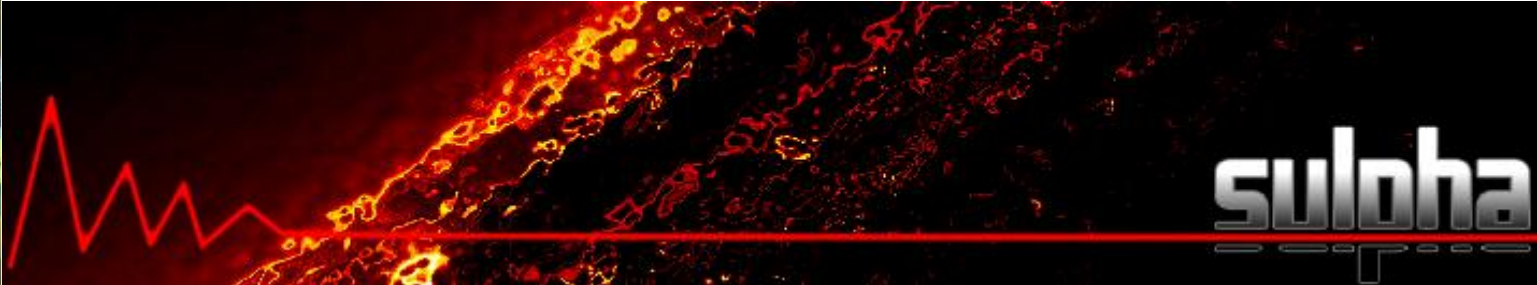> Resident / Streamed audio
> Voices, Busses, DSPs…

» PS3 Sulpha

> New tool from SCE

⚛ Captures all audio from a game
⚛ Allows capture to be replayed / viewed

» Speeds up debugging

   More time can be spent being creative

» Shows system resources used

   You may have more spare than you thought…

» Reveals the mysteries within the black box….

THINK
SERVICES

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Sulpha - C:/openalCapture.sul

Sulpha - C:/openalCapture.sul
File   Playback   Window   Help

Sulpha - C:/openalCapture.sul
File   Playback   Window   Help

DECR   43.193.221.200

OpenAL View

Stream 9
stove.wav
Stream 8
voices2.wav
Strea
sewe
Stream 10
fireloop1.wav
Stream 11
vent.wav
Stream 12
voices1.wav
Stream 13
bar1.wav
Stream 1
bar2.wav
Stream 2
driploop1.wav
Stre
fire

Stream Instance Window - 15 / 512

Stream Grid

13 bar1.wav	1 bar2.wav	5 bar3.wav	14 c.mp3	2 driploop1.wav
10 fireloop1.wav	3 fireloop2.wav	4 machine_hum_loop.wav	6 ps_mono.wav	7 sewerloop.wav
9 stove.wav	11 vent.wav	12 voices1.wav	8 voices2.wav	

Stream 14 Instances
(0) 0 : 0x343bbb40 - [] []
Channels : 1
Type : MP3
Bytes Played : 0
Swapped Buffers : 0 times
Buffer 0 : 0x343bbb40 6708872 bytes
(0) 1 : 0x343bbb40 - [] []
Channels : 1
Type : MP3
Bytes Played : 0
Swapped Buffers : 0 times
Buffer 0 : 0x343bbb40 6708872 bytes
(played 0)

Stream 14 Details
2154: Set Pitch (44100)
2155: Set Volume 8 (Wet, 0)
  0.01 0.03 0.02 0.00 0.01 0.01 0.00 0.00
2269: Set Pitch (44100)
2270: Set Volume 8 (Wet, 0)
  0.01 0.03 0.02 0.00 0.01 0.01 0.00 0.00
2384: Set Pitch (44100)
2385: Set Volume 8 (Wet, 0)
  0.01 0.03 0.02 0.00 0.01 0.01 0.00 0.00
2499: Set Pitch (44100)
2500: Set Volume 8 (Wet, 0)
  0.01 0.03 0.02 0.00 0.01 0.01 0.00 0.00
2566: Set Pitch (44100)
2567: Set Volume 8 (Wet, 0)
  0.01 0.03 0.02 0.00 0.01 0.01 0.00 0.00
2681: Set Pitch (44100)
2682: Set Volume 8 (Wet, 0)
  0.01 0.03 0.02 0.00 0.01 0.01 0.00 0.00

Filter
☑ Grey out stopped streams   ☑ Display name   ☑ Sort by name (Stream)
☑ Grey out closed streams   ☑ Draw Offset   ☐ Sort by name (Asset)
☐ Show closed streams   ☑ Draw Pitch   ☐ Filter by name
☐ Show stopped streams   ☑ Draw Volumes
Grid Size

API Errors : 1   Size : 78.36 MB   00:00:29.08 / 00:00:52.80   163,829 / 297,412   CPU   23%   Buffer   0%

API Errors : 1   Size : 78.36 MB   00:00:10.31 / 00:00:52.80   58,124 / 297,412   CPU   23%   Buffer   0%

Conclusion

» Take audio seriously yourself:

Show management what is required

Show them how it benefits the company

Show them how it can be done

» Research / Prototyping

Invaluable in today's market

» Implementation / Debugging

Can make or break a game.

Find the shortcuts to save time

Thank you

» Jason_Page@scee.net