Doom Games

Some games that I tinkered with

Gerph, May 2024

0. Introduction

Introduction

How I'll do this talk

I'll be talking about Doom, Heretic and Hexen. There are 7 parts to the talk...

1. Leaked Doom

2. Doom+

3. Heretic

4. Hexen

5. One off pressie

6. Hexen (2024)

7. Heretic (2024)

Introduction

Who am I?

- I'm Charles, but known as Gerph in most things online.

- I worked on these games, numerous patches and applications back in the day.

- I worked at RISCOS Ltd, and produced RISC OS Select.

- I've written the only other implementation of RISC OS - RISC OS Pyromaniac.

- Began working on Doom in 1997.

1. Doom

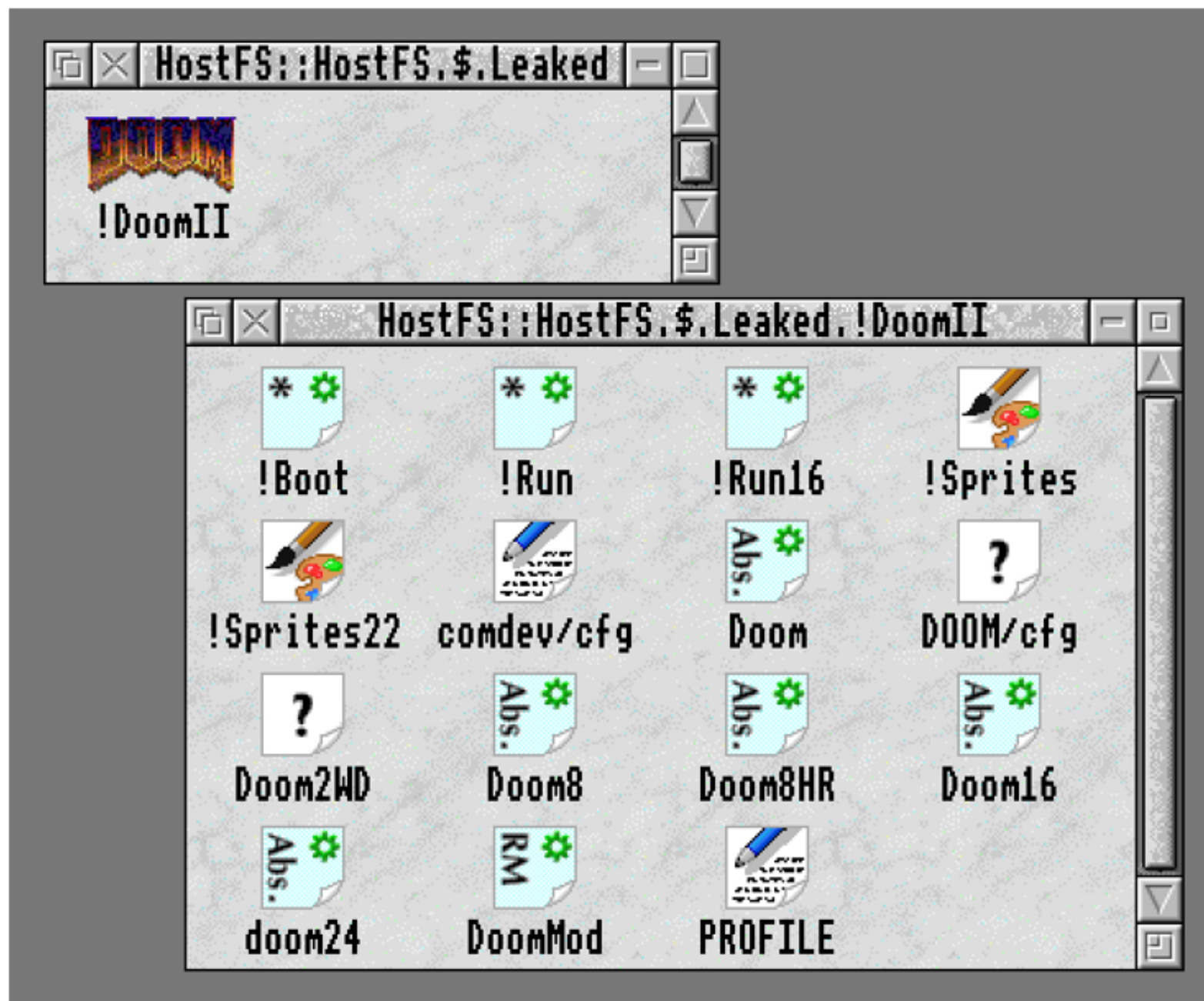**Early 1997**

Doom

What is Doom?

- Doom is a first person shooter, by id Software.
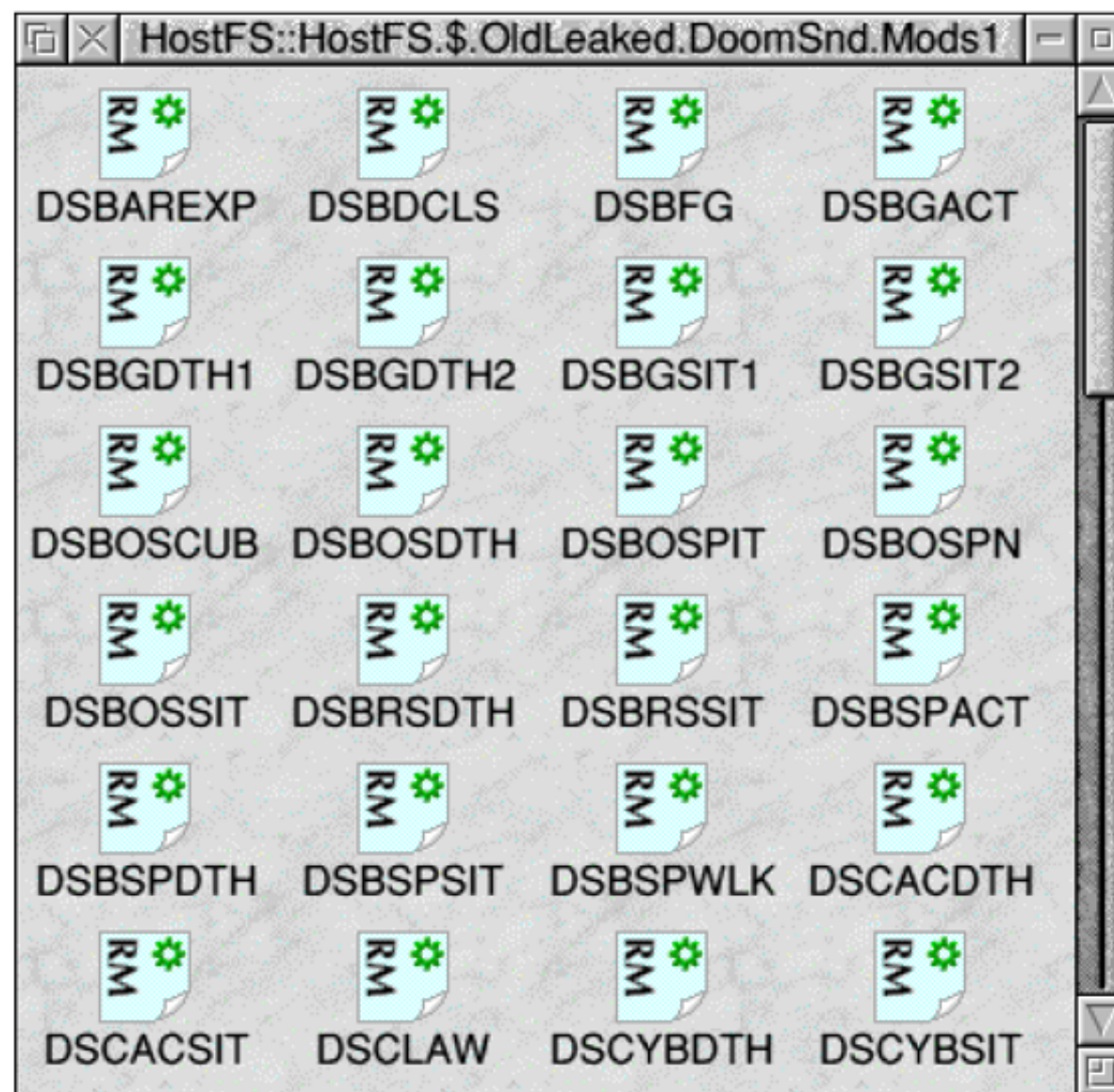
Doom

Leaked RISC OS Doom

Doom

Sound samples

- I created many sound sample modules to play the game's sound.

Doom

Networking

- Networking required a separate module to do the communication.

- Initially networking was Econet based.

- Serial and UDP based modules were also created.

- A management tool that could negotiate with other players was created.

- At home, my brothers and I played.

- It was also tested with friends - we organised games over IRC.

Doom

DoomWads launcher

Doom

R-Comp releases Doom

- R-Comp organised things with Eddie for a proper release, fully licensed.

- I was asked to write proper network drivers - after my final year exams finished.

- I updated the launcher to give it better support for PWADs.

2. Doom+

July 1998 - May 1999

Doom+

What was Doom+? (1)

The goal of Doom+ was to add cool things to the game. But also...

- It got faster.

- It got better PWAD support.

- It got smoothed walls.

- It got an in-game map.

- It got better networking.

- It got fixes.

Doom+

What was Doom+? (1)

- Doom+ was meant to add cool things to the game.

- It got faster.

- It got better PWAD support.

- It got smoothed walls.

- It got an-in game map.

- It got better networking.

- It got fixes.

- It got a CD juke box.

In my notes:

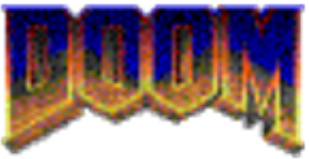> Doom, one of the few Acorn games with a built in CD jukebox.

Doom+

What was Doom+? (2)

- In-game clock.

- Deathmatch counters for kills.

- Named players in network games.

- Monster and secret counts on screen.

- Translucent fireballs and other effects.

- Bouncing menu titles.

Doom+

What was Doom+? (2)

- In-game clock.

- Deathmatch counters for kills.

- Named players in network games.

- Monster and secret counts on screen.

- Translucent fireballs and other effects.

- Bouncing menu titles.

A contemporary note about Acorn...

> *Lethargy is setting in at the moment. It's so hard to concentrate when you are always wondering what the point is. I know I am continuing on this, but since Acorn isn't Acorn anymore. Well... you get the idea.*

Doom+

Release
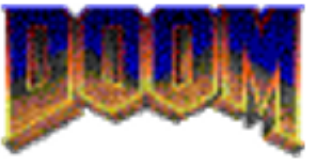
- Doom+ came second in the Acorn New Service awards for 1999.

- Acorn Arcade's review gave the Doom+ release a rating of 83%.

3. Heretic

October 1998 - February 1999

Heretic

What is Heretic?

- Doom, in a fantasy setting.

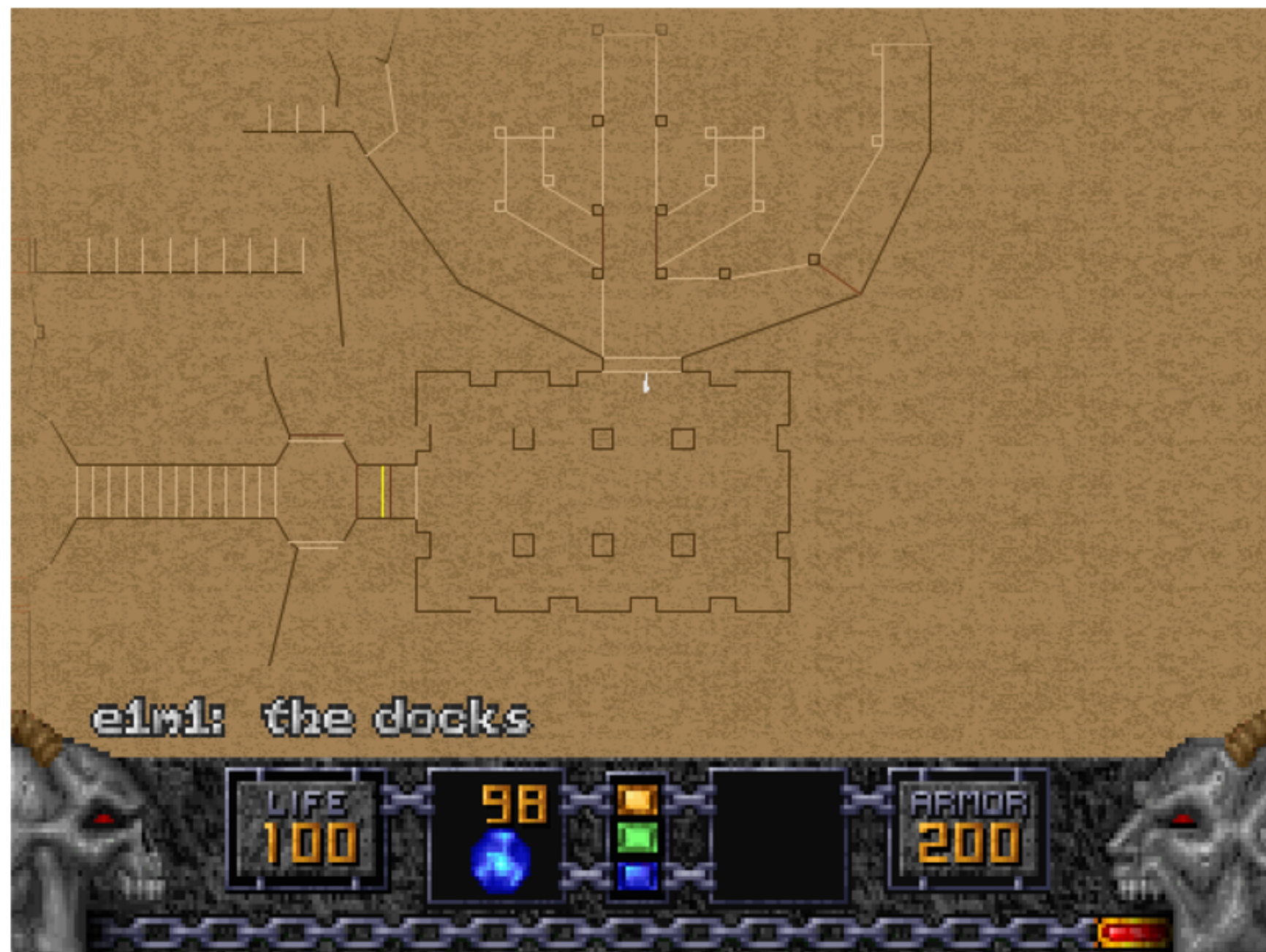- Licensed from Raven software by R-Comp.

Heretic

Launcher

Heretic

New features

4. Hexen

October 1998 - February 1999

Hexen

What is Hexen? (1)

- So much more than Heretic.

- Licensed from Raven Software.

Hexen

What is Hexen? (2)

Hexen

Development

- Initial work was done at the start of Heretic development - proving it worked.

- Focused on Heretic before returning to Hexen.

- Initial version only got 20 frames per second at 320x200.

- Very slow startup.

- Having learnt a lot from Heretic, Hexen then became easier.

- Lots of optimisations to apply from Doom and Heretic.

Hexen

New Features

> *WTF is a PolyObject ?!*

Hexen

New Features

> WTF is a PolyObject ?!

Hexen

New Features

> *WTF is a PolyObject ?!*

Hexen

New Features

> *WTF is a PolyObject ?!*

Hexen

New Features

> *WTF is a PolyObject ?!*

Heretic and Hexen

Release

- My notes say a StrongARM got 15.4 FPS at 640x480 in 256 colours.

- Heretic and Hexen were released together in a pack.

- An Acorn Gaming review back in '99, they were given a 5 out of 5 rating.

- An Acorn Arcade review gave the pack an 80% rating.
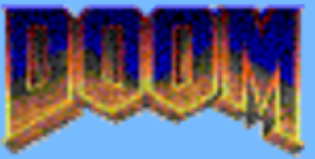
5. One-off pressie

December 1999

One-off pressie

Christmas release

- Only went to a few testers.

- Had falling snowflakes.

- Introduced the jump key.
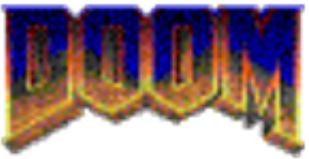
6. Hexen (2024)

January 2024 - February 2024

Hexen (2024)

Why go back to Hexen?

- Returning to things that I've enjoyed is good for my mood.

- A different sort of challenge.

- I actually get to see something concrete that I've achieved!

Hexen (2024)

Anatomy of a game
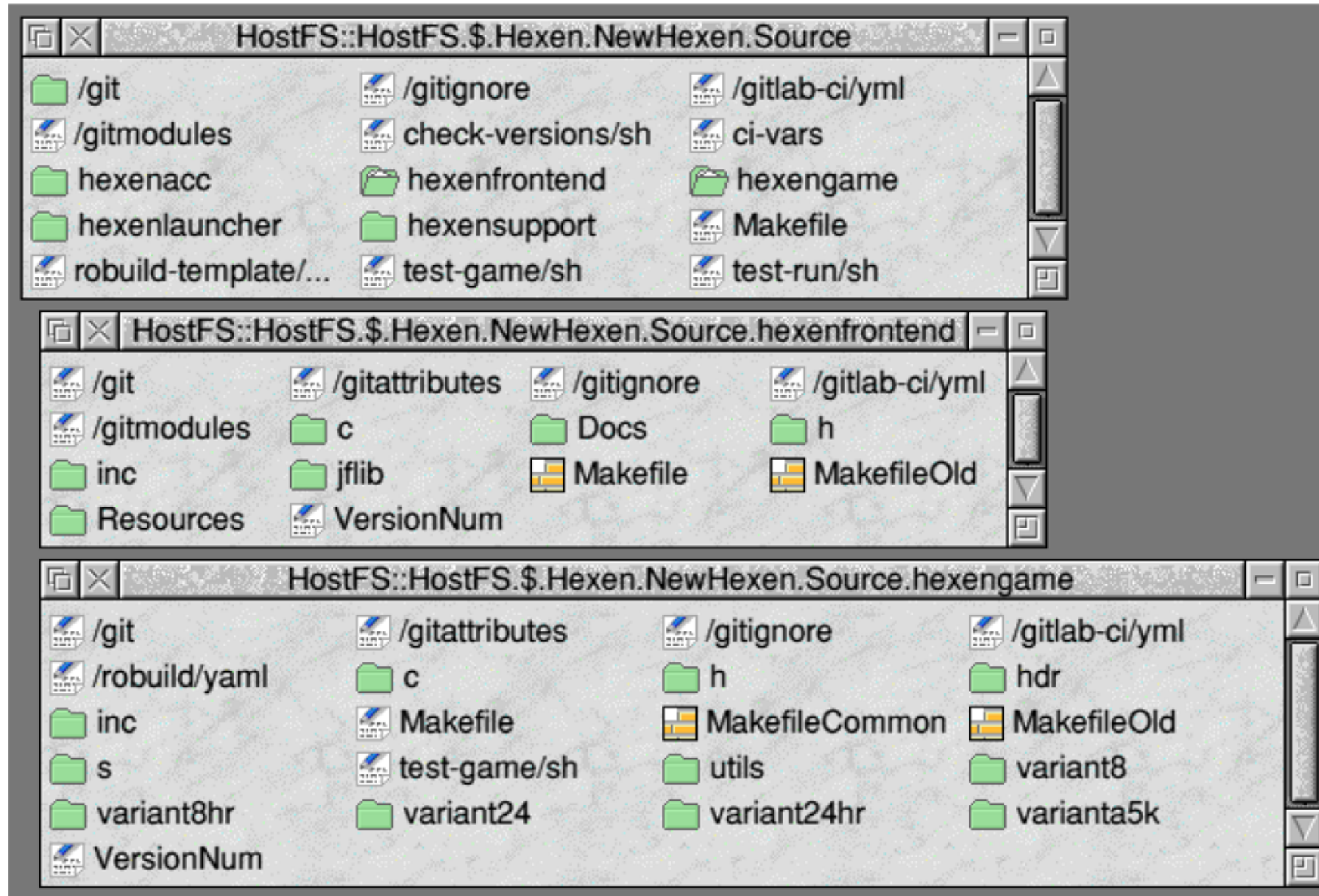
Hexen (2024)

Converting to 32bit (1)

- For C code, add `-apcs 3/32` and link with StubsG.

- For assembler, also add `-apcs 3/32` but then the code needs updating.

Instead of:

```
LDMFD    fp, {v1-v2, fp, sp, pc}^
LDMFD    sp!, {r0-r4, pc}^
MOVS     pc, lr
```

You use:

```
LDMFD    fp, {v1-v2, fp, sp, pc}
LDMFD    sp!, {r4-r5, pc}
MOV      pc, lr
```

Converting to 32bit (2)

Hexen (2024)

Video limitations

- Low resolution modes might not be available - using sprites allows them to work.

- Low colour depths (like 256 colours) might not be available - using ColourTrans allows them to work.

- VSync events may not work reliably - using the OS_Byte 19 to wait for the VSync allows that.

- Multiple screen banks might not be available - we can use single buffering.

- Higher resolutions than before are available - Hexen supports up to 8192x8192.

- Widescreen modes (16:9 or 16:10) are possible - Hexen moves weapons around to make them better fit these modes.

Hexen (2024)

Rock 4 C+ at 1920x1080

Hexen (2024)

Fixing the lighting

Hexen (2024)

Automated testing

- Builds the whole release on macOS (Front end, game * 5, module, ACC tool) in about 24 seconds.

- Builds on Linux (two sets of the above release) when pushed to source control in about 2 minutes.

- Tests on Linux by sending to the build service with a WAD file and running like:

```
WimpSlot 4800K
echo Run Hexen with the WAD file
/<Hexen$Dir>.Bin.Hexen8HR -file <Here$Dir>.Hexen/WAD -x 320 -y 256
  -startmessages -fastdemostart -fpsmeter -fpsticker -warp 1 -timer 10s
echo Exited ok
```

- Tests through the build service in different combinations take around 7 minutes.

- Emails are sent to notify me whether it worked or not.

Hexen Demo!

8. Heretic (2024)

February 2024 - April 2024

Heretic (2024)

Converting to 32bit

Heretic (2024)

More testing (1)

Heretic (2024)

More testing (2)

Heretic (2024)

Release

Heretic Demo!

7. Conclusion

Conclusion

How did it go?

- It's fun doing the old games.

- Testing with RISC OS Pyromaniac has been very useful.

- I've had a chance to play with modern hardware.

Where to now?

- Not sure - it's beginning to feel a lot like work.

- Probably get Doom+ finished at some point.

Conclusion

Finally...

> *How does it feel to be nearly 50 and be revisiting the games you did over 20 years ago?*

Conclusion

Finally...

> *How does it feel to be nearly 50 and be revisiting the games you did over 20 years ago?*

- A bit old.

- Some things have faded through disuse.

- Definitely don't have the same energy from back then.

- But in others, experience really helps.

- Things were still very familiar.

- Still fun to do.

Questions

I'll take any questions that people have.

Slides and Info: **http://presentation.riscos.online/doom-games/**