Introduction to OVERTE

Open Source desktop and VR social platform

Presenter:
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Organization:
Overte e.V.

Who Am I?

- Software developer and Systems administrator
- Focused on Linux and Free Software
- Work in Desktop Virtualization
- Joined Second Life 17 years ago
- Was one of the first third party viewer developers
- Eventually started looking for greener pastures
- Former Vircadia core team member
- Current chairman of Overte e.V.

We used to call it “Metaverse”

“The Metaverse is a collective virtual shared space, created by the convergence of virtually enhanced physical reality and physically persistent virtual space, including the sum of all virtual worlds, augmented reality, and the Internet.

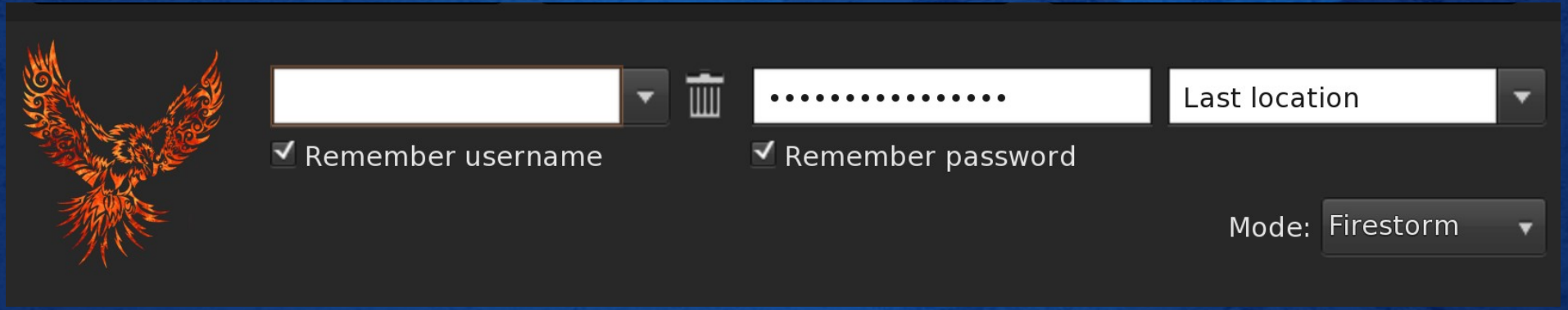
The word "metaverse" is a portmanteau of the prefix "meta" (meaning beyond) and "universe"; the term is typically used to describe the concept of a future iteration of the internet, made up of persistent, shared, 3D virtual spaces linked into a perceived virtual universe.” (Wikipedia)

What are are

- A 3D environment with VR support
- With avatars
- Multiuser
- Modifiable at run time
- Scriptable
- Web-like architecture
- You can do anything you like with it
- Apache 2.0 License
- Similar examples: Second Life, VR Chat, NeosVR

What are aren't

- Focused on money
- Anything related to the blockchain
- Sellers of virtual land or NFTs
- A grid



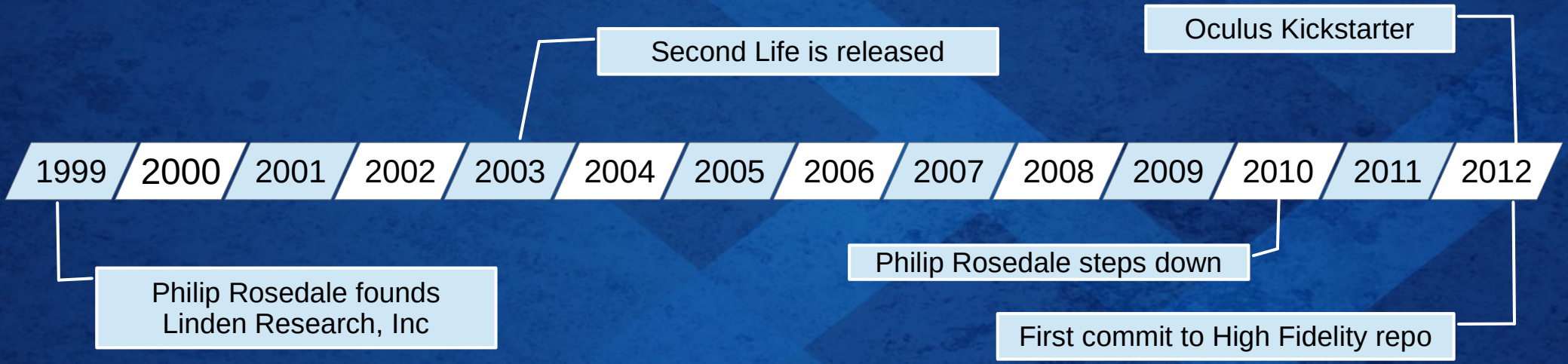
What is it like?

What can you do with it?

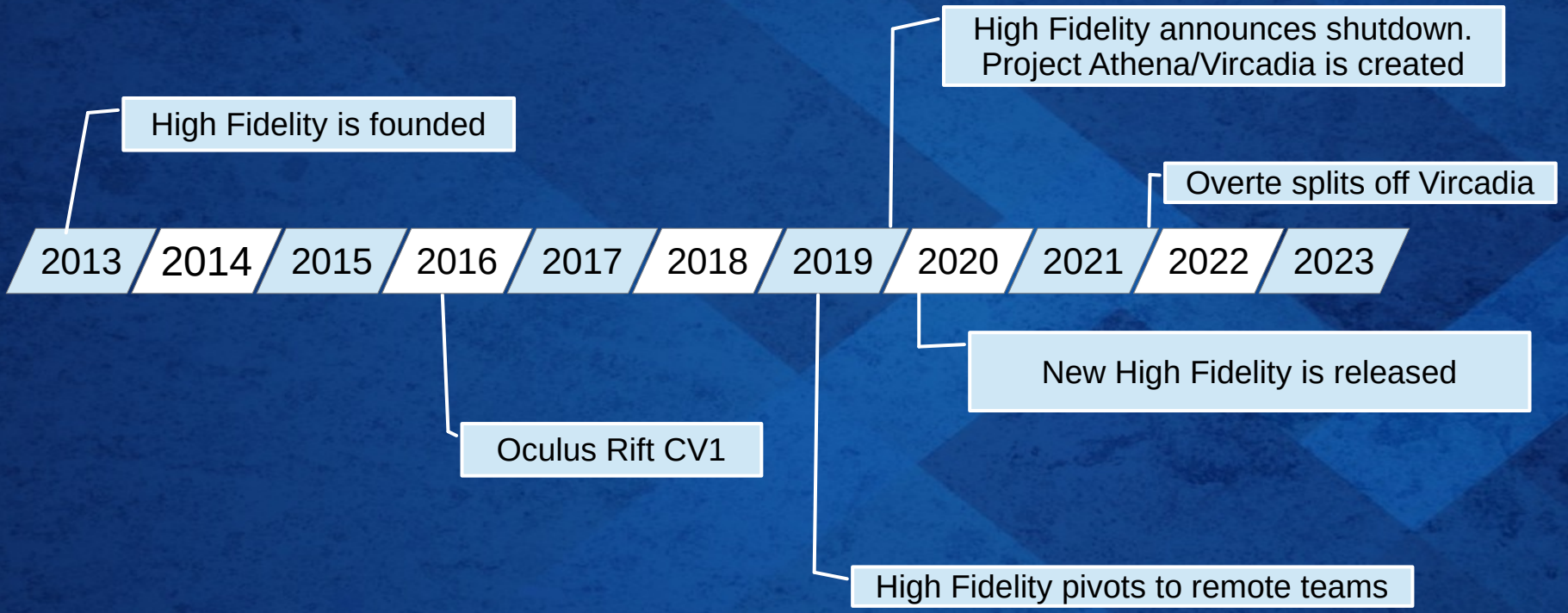
- Socialization
- Meetings
- Simple games
- Events
- Anything you’d like

Where did this come from?

The Timeline



The Timeline, part 2



Overte and Vircadia

- Overte started from dissatisfied Vircadia contributors (including core team members)
- Overte rejects cryptocurrency, Vircadia welcomes it
- Overte is a non-profit, Vircadia has commercial ambitions
- Overte is a democracy, Vircadia has a BDFL
- Overte has a desktop client, Vircadia is switching to WebGL
- Vircadia includes a non-free HiFiAC audio codec

Summing it up

- Overte is a continuation of the old High Fidelity
- A 10 year old codebase
- With over 85000 commits and 400K LOC
- Originally developed by a company with ~70 employees and ~$70M investment
- Now being developed by a group of volunteers

What went wrong?

A) They made the wrong product
   - HiFi's structure is very hard to monetize
   - What they made clashes with their business model

B) They chose the wrong business model
   - Should have been an OSS company
   - Perhaps with community support

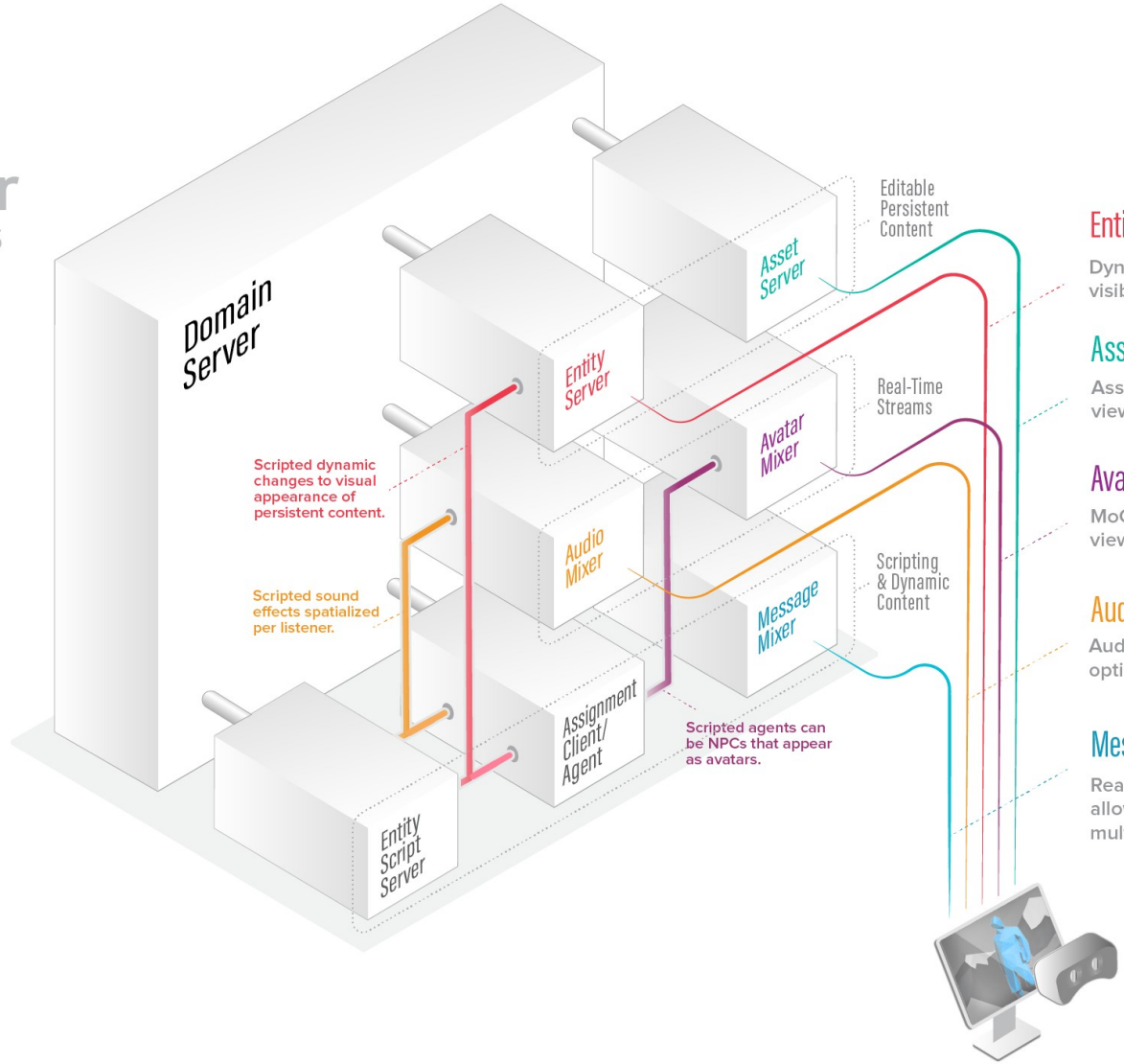
What is the tech like?

Server
COMPONENTS

Domain Server

Access Control, Security, & Configuration.

The domain server scales individual services based on load.



Entity Server

Dynamic content changes visible to all users in real time.

Asset Server

Asset server delivers viewer optimized LOD.

Avatar Mixer

MoCap streams mixed into viewer optimized stream.

Audio Mixer

Audio streams mixed into listener optimized spatialized streams

Message Mixer

Real-time Pub/Sub services allow for sophisticated multi-node applications.

The Technology

- Fully distributed, scalable virtual world
- Supports Oculus Rift, SteamVR, Windows MR
- Positional audio
- Runs on Windows, Linux and OSX (needs work)
- Very experimental support for Android and Oculus Quest
- Written in C++, Qt 5 and JavaScript
- Everything is scriptable in JavaScript both client-side and server-side

The Code

- Highly modular architecture
- Major parts like the rendering engine are abstracted
- Modern C++
- Heavily multithreaded
- Portable

The Rendering Engine

- Custom 3D engine
- Supports forward and deferred rendering, TAA, haze, bloom, highlighting, cascaded shadow maps, custom shaders, dual quaternion skinning, subsurface scattering
- Supports OpenGL 4.5, 4.1 and OpenGL ES 3.2

The Audio Engine

- Positional audio
- Audio zones
- Negotiable compression
- MIDI support
- Streaming support

The Scripting Engine

- JavaScript
- Based on QtScript (replacement with V8 in progress)
- Access to every facet of the system
- Easily expandable
- Available everywhere:
  - Interface
  - Server-side
  - Client-side

The Physics Engine

- Based on Bullet
- Automatically distributed

How do we organize?

The Organization

- **Overte e.V**, registered in Germany as a non-profit
- **Chairman**: Vadim Troshchinskiy
- **Board**: Vadim, Julian, Catraxx, 74hc595, Kreolis, Micah, (empty seat)
- Yearly assembly (in-world or real-world)

The Contributors

- **Code Contributors**: Adam Ivie, Alezia Kurdis, ArcadeFever, Dale Glass, Daniel Lyne, David Rowe, Fluffy Jenkins, Frost, GitHub, Heather Anderson, HifiExperiments, humbletim, Julian Groß, Kalila L, Kasen IO, ksuprynowicz, Maki, Marcus Llewellyn, Martin Allerton, Mike, motofckr9k, namark, Nick Levesque, paranoimia, Penguin-Guru, Phil Palmer, Robert Adams, Seth Alves, SilverfishVR, steve hocktail, Thijs Wenker, TrellixVulnTeam, Vegaslon, William Lohan
- **Content Creators:** Aitolda, Julian, Basinky, Silverfish, Madders, Alezia Kurdis, 74hc595

Our First Year

- Setting up an official association
- Setting up infrastructure
- Branding
- Community management
- Development
- Events

Our Activity

- Regular in-world meetings:
  - Weekly development/community meeting
  - Gaming and other social events
- Busy Matrix/Discord
- PR code reviews and QA

Achievements

- Creating an official organization
- Improvements to:
  - Linux support
  - UI
  - Renderer
  - Voxels
  - Audio mixer (Opus)
  - SteamVR support
  - Server monitoring
  - glTF support (avatars and models)
  - Zone improvements
  - Crash reporting
  - Create App
  - Metaverse server
  - Authentication
  - Many more

Future Plans

- Qt upgrade
- Scripting engine upgrade (in progress)
- Render engine upgrade
- Audio encoding improvements (in progress)
- Android/Quest support
- Improved screen sharing
- Improved asset management

Join us!

- **Our website**: https://overte.org
- **Discord**: https://discord.gg/4YuQvc8K2f
- **Matrix:** https://matrix.to/#/#overte:matrix.org
- **Mastodon:** https://fosstodon.org/@overte
- **In-world events:** https://calendar.overte.org/
- **Wanted:**
  - Mac developers
  - Android developers
  - C++ developers
  - 3D artists
  - Testers
  - Friendly people

Want more?

- Technical Overte talk on Monday
- Want to know how to:
  - Create objects?
  - Write scripts?
  - Host a server?

https://pt2023.mini.debconf.org/schedule/

Feb 13, 09:00, VA2

Questions?

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