moz://a

State of WebGPU

API and implementation

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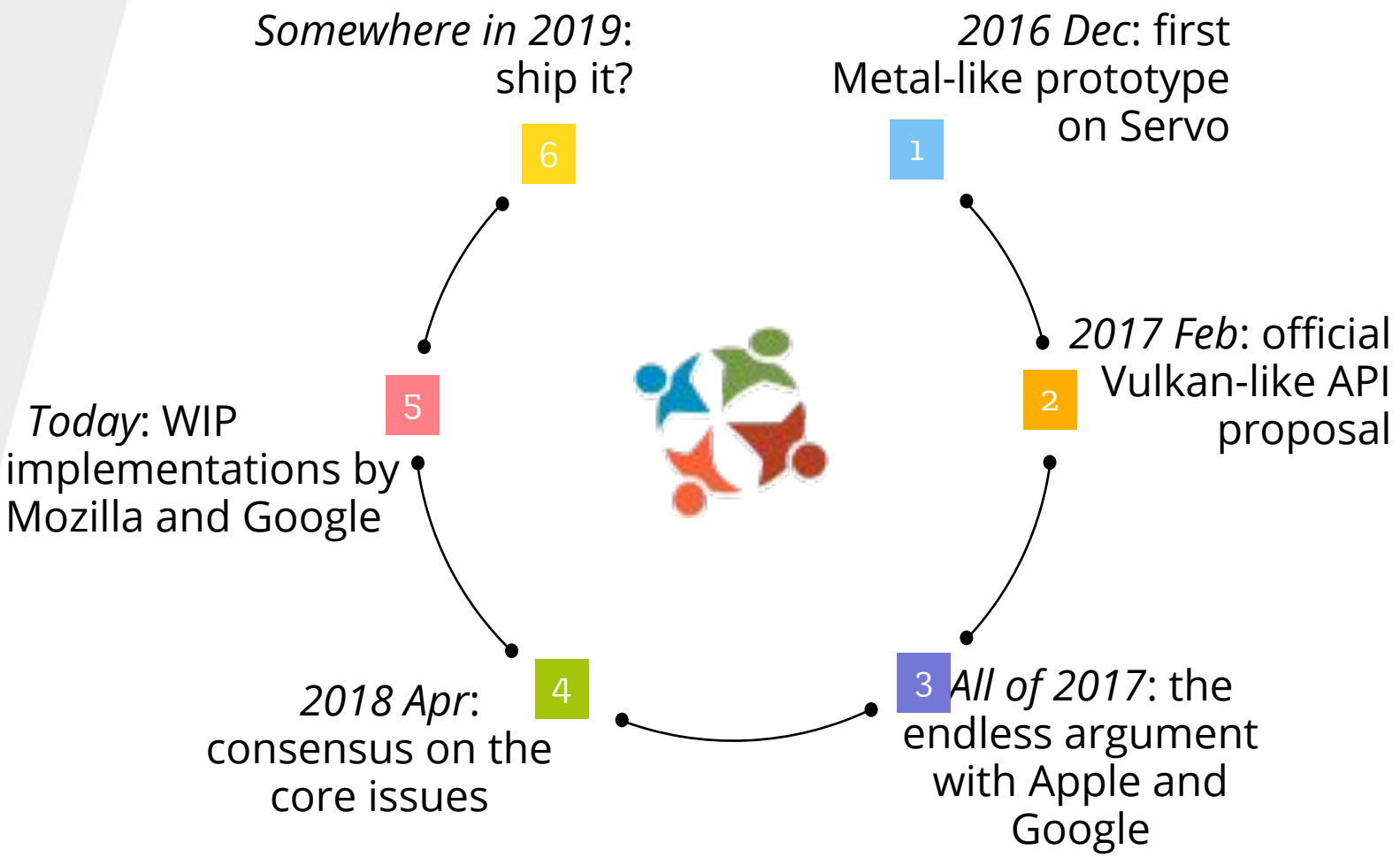
Dzmitry Malyshau
Graphics Engineer

Timeline

of Mozilla's WebGPU efforts



Extreme Portability

who is going to use it?

Status: API

graphics API designed by browser vendors

Actual WebIDL

- still heavy WIP, but at least agreed upon!
- not automatically validated yet
- simple and rich: takes advantage of the type system

Concepts

API is meant to provide the power of Vulkan/D3D12 with the simplicity of Metal.

Could be described as Metal with Vulkan resource binding model.

Issues

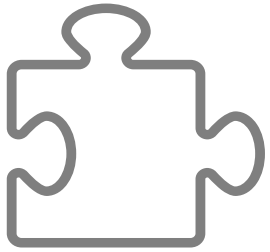
- shader language is still unresolved: WebHLSL versus SPIR-V
- synchronization and multiple queues
- transient resources, avoiding memory allocation hitches
- lightweight WASM
- testing infrastructure

Status: Implementation

putting things together

Firefox:

- initial WebIDL stubs are in place



Missing pieces:

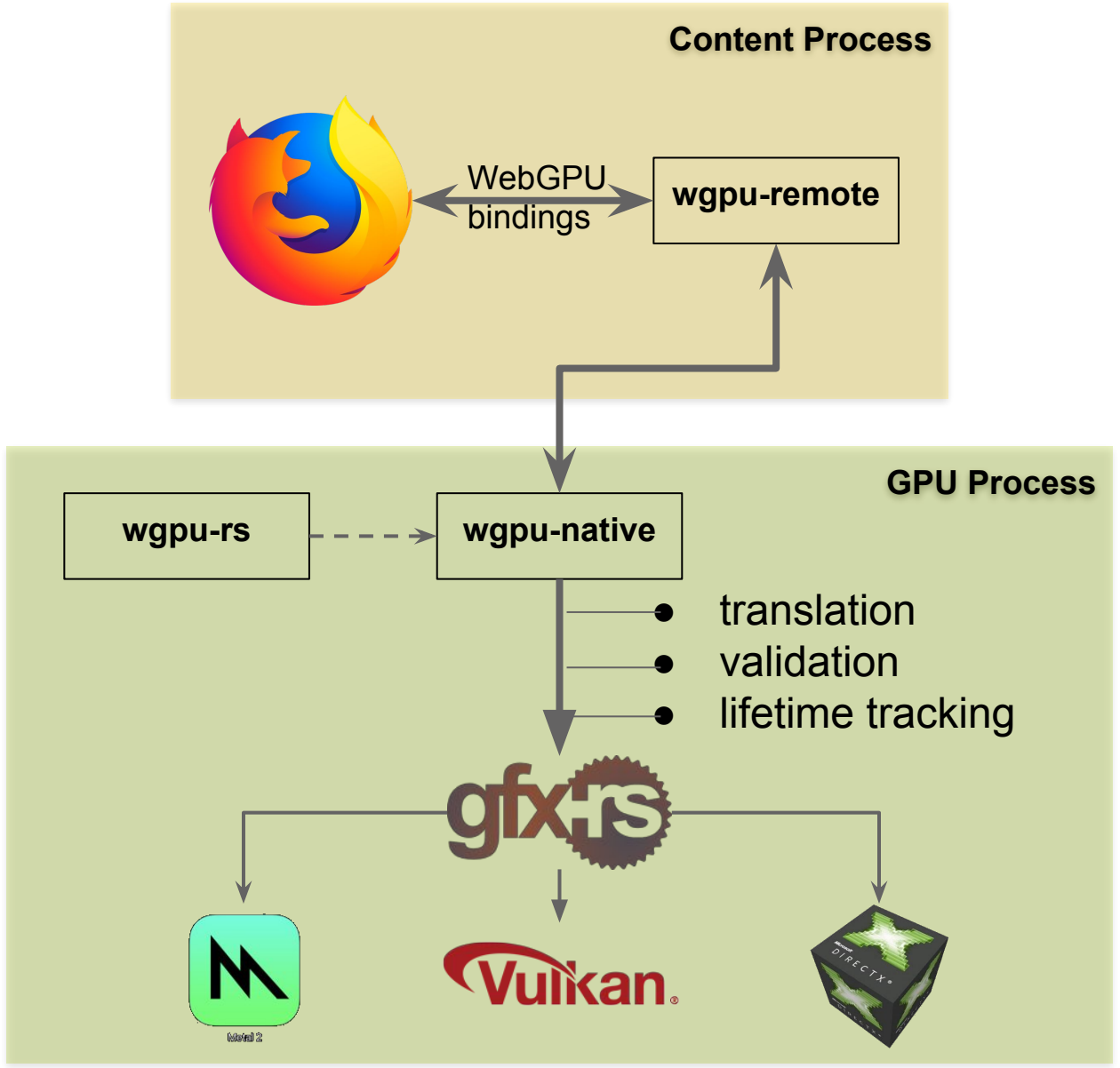
- Remoting layer to transfer WebGPU commands across IPC
- DOM/Swapchain integration and present
- Validation and error handling

Native WebGPU implementation:

- heavy WIP
- based on gfx-rs and rendy
- targets Vulkan, D3D12, and Metal
- exposes C API
- wraps it in Rust

Architecture

module structure of *wgpu*



Thank You