Vulkan Guide

Khronos Group

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Logistics Overview

What is Vulkan?

1. Vulkan is a new generation graphics and compute API
2. Vulkan provides high-efficiency, cross-platform to modern GPUs used in a devices like pc/mobile/ embeded platforms
3. Vulkan provide a way for developers to program their modern GPU hardware
4. The Khronos Group is created and maintains Vulkan.

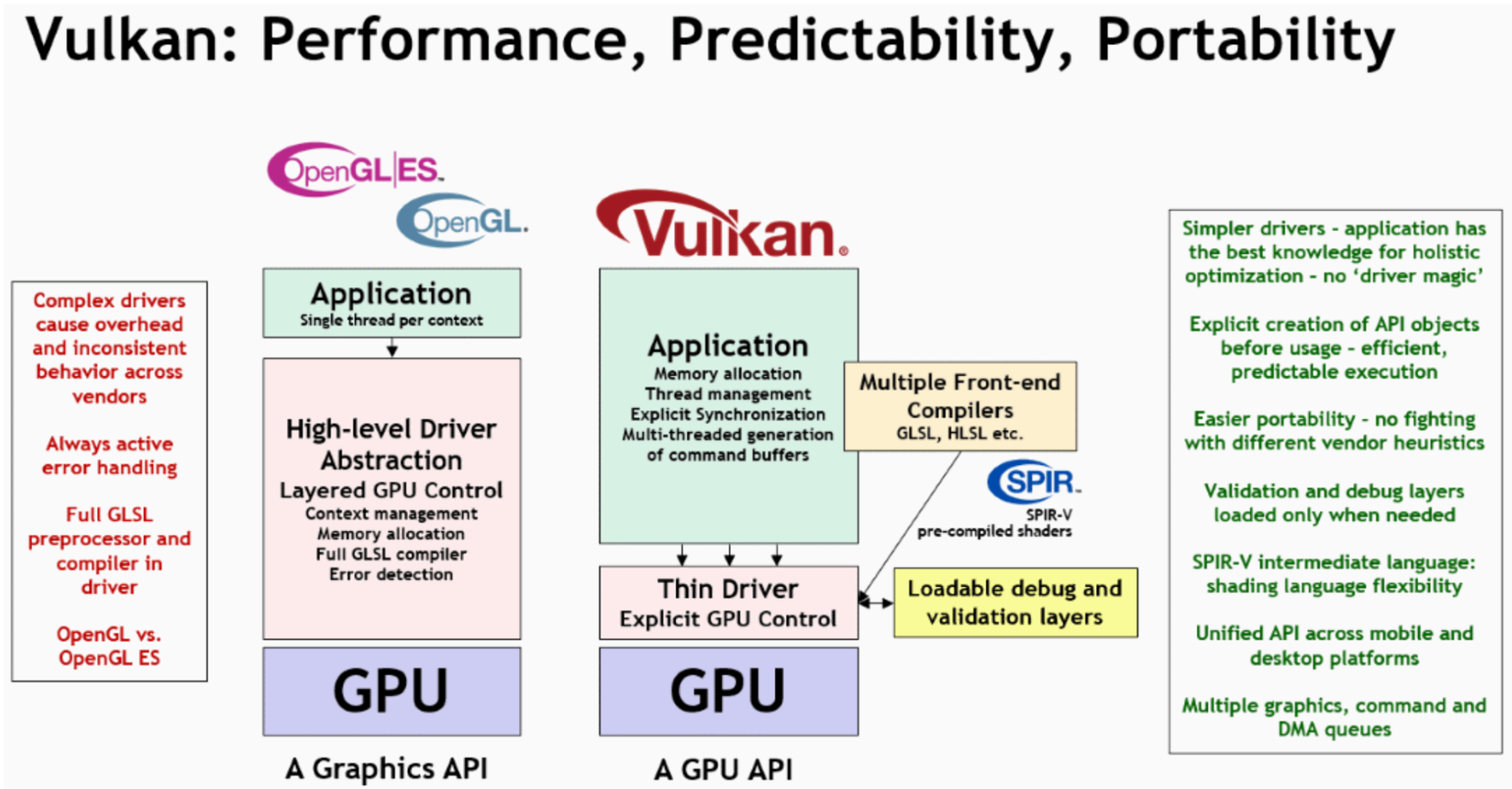
Vulkan and OpenGL

Difference

1. OpenGL is also a 3D Graphics API
2. Vulkan is not a replacement for OpenGL
3. Vulkan is an explicit API allows for more explicit control of the GPU

Feature	OpenGL ES	Vulkan
State management	Global state	State objects
API execution model	Synchronous	Asynchronous
API threading model	Single threaded	Multi-threaded
API error checking	Extensive runtime checks	Only via layers
Render pass abstraction	Inferred render passes	Explicit render passes
Memory allocation	Client-server pools	Shared memory pool
Memory usage	Typed allocations	Typed views

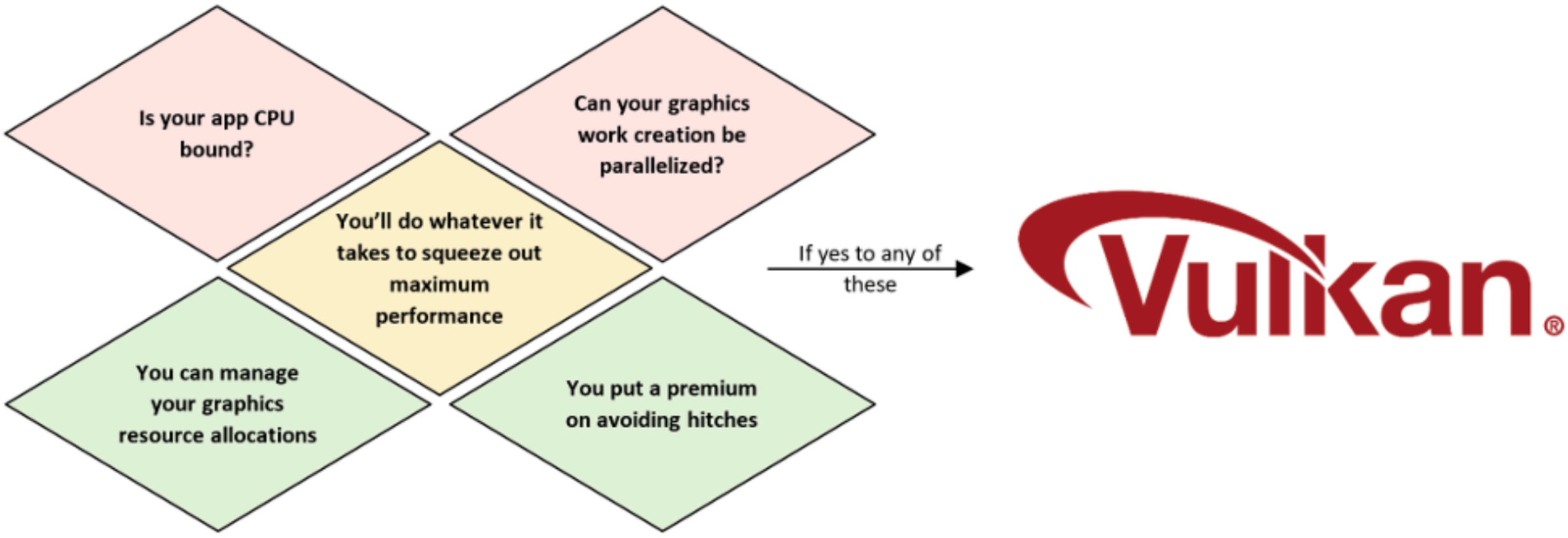
Vulkan and OpenGL



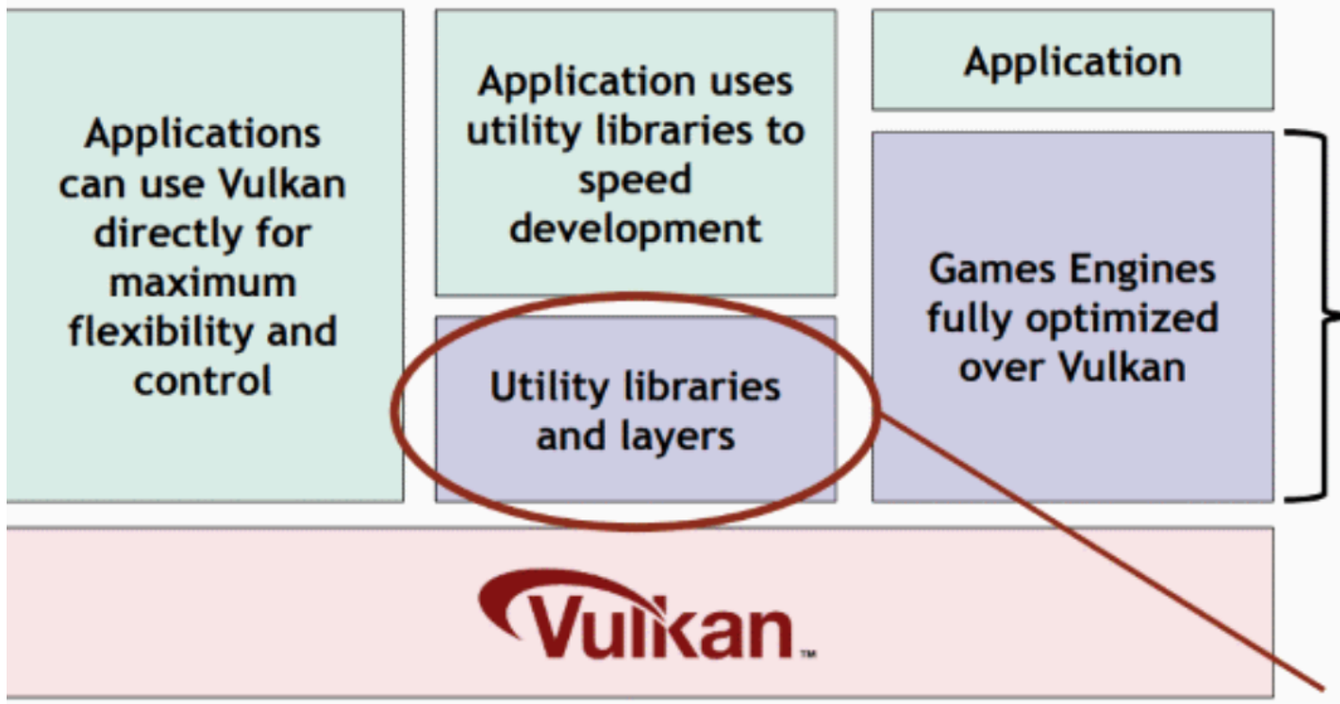
Vulkan and OpenGL

Vulkan puts more work and responsibility into application

1. Why Vulkan put more work and responsibility into application?
    1. For those who use Vulkan correctly can find power and performance improvements



The Power of a Three Layer Ecosystem



The industry's leading games and engine vendors are participating in the Vulkan working group

OXIDE · LUCASFILM Ltd · BLIZZARD ENTERTAINMENT · EA · unity · EPIC GAMES · VALVE

Developers can choose at which level to use the Vulkan Ecosystem

Rich Area for Innovation

- Many utilities and layers will be in open source
- Layers to ease transition from OpenGL
- Domain specific flexibility

The same ecosystem dynamic as WebGL

A widely pervasive, powerful, flexible foundation layer enables diverse middleware tools and libraries