



Khronos Fast Forward

3D Formats and glTF: What's new in 2022

Introduction

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glTF History Lesson



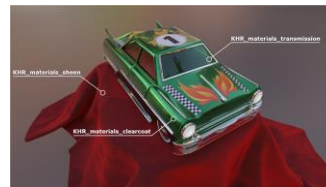
glTF 1.0
Primarily for WebGL
Uses GLSL for materials

2015



glTF 2.0
Native AND Web Apps
Metallic-Roughness and
Specular-Glossiness PBR

2017



**Draco Mesh
Compression**
10-20X
compression ratios

2018



**PBR Extensions
Wave 1**
Transmission
Clearcoat
Sheen

**Material
Variants**
3D Commerce
use cases

2020



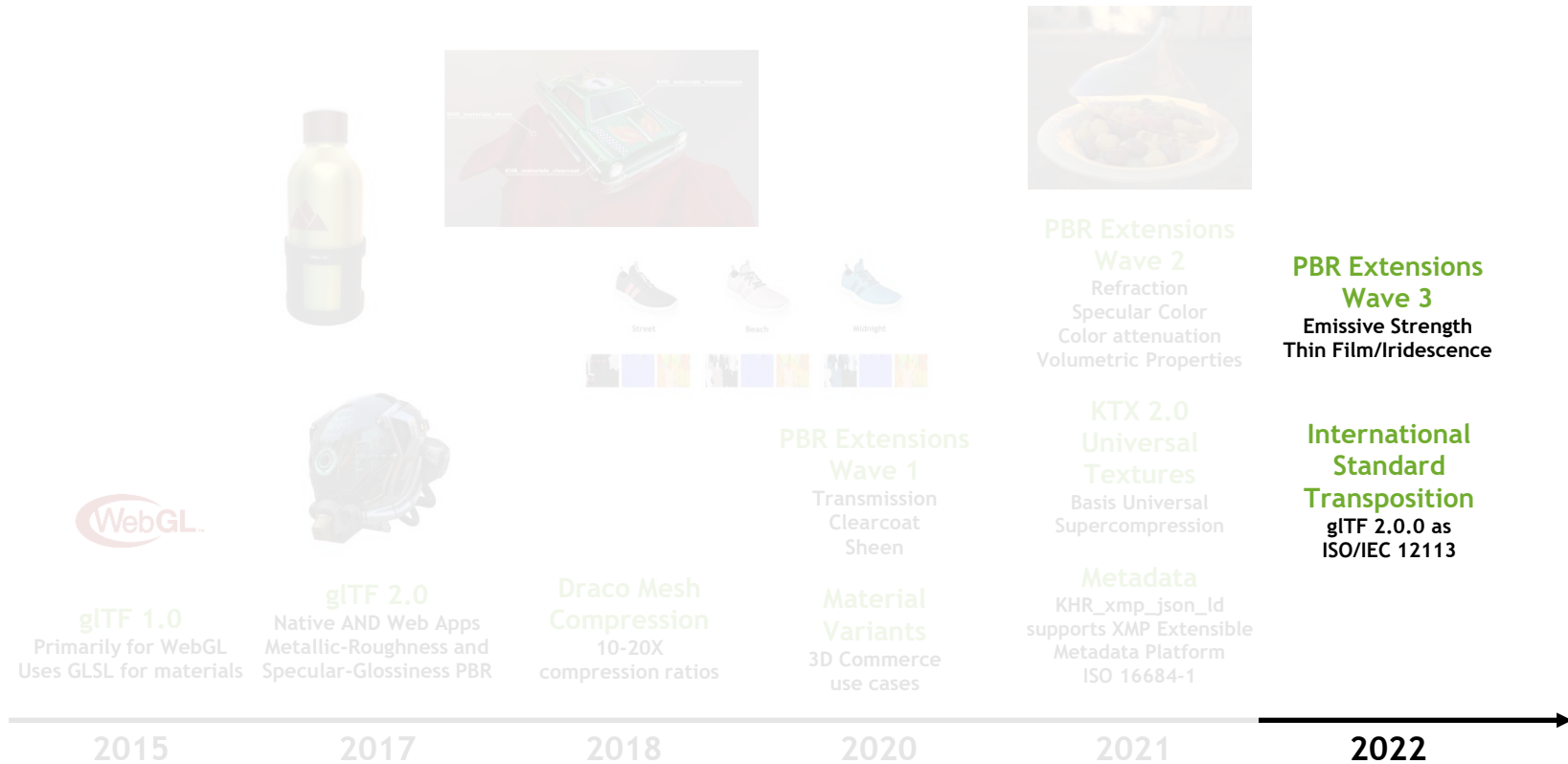
**PBR Extensions
Wave 2**
Refraction
Specular Color
Color attenuation
Volumetric Properties

**KTX 2.0
Universal
Textures**
Basis Universal
Supercompression

Metadata
KHR_xmp_json_Id
supports XMP Extensible
Metadata Platform
ISO 16684-1

2021

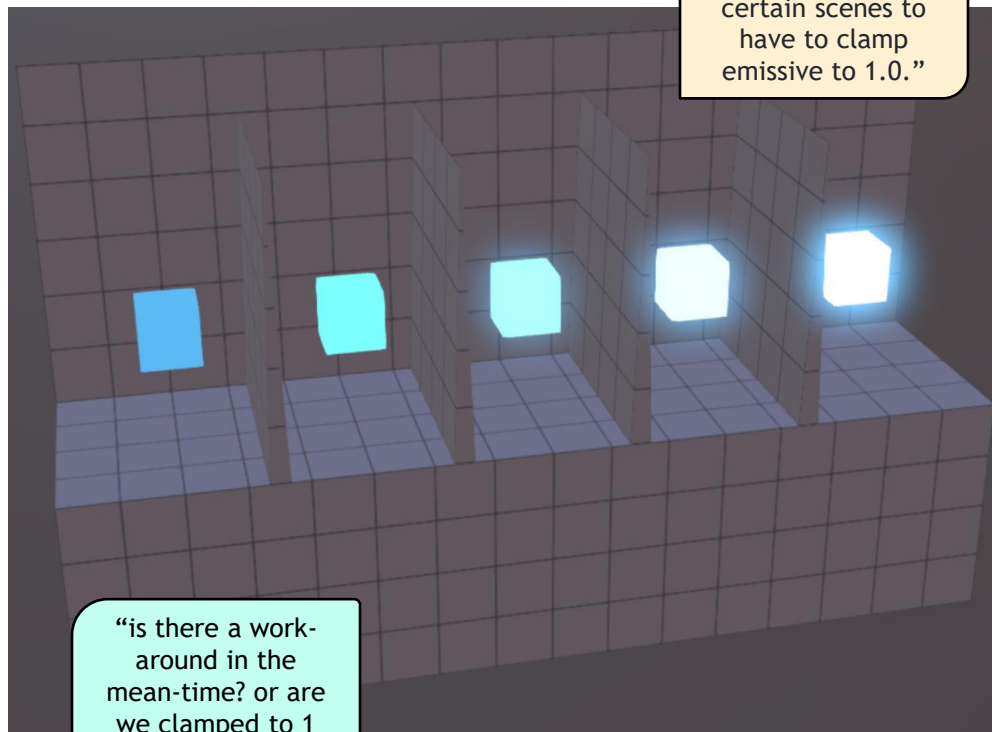
glTF Evolution in 2022



KHR_materials_emissive_strength

Adds **emissiveStrength** scalar factor to emissive materials

Without this extension, light emission is controlled via **emissiveFactor** and **emissiveTexture** in glTF 2.0 materials and is clamped to [0.0, 1.0] range

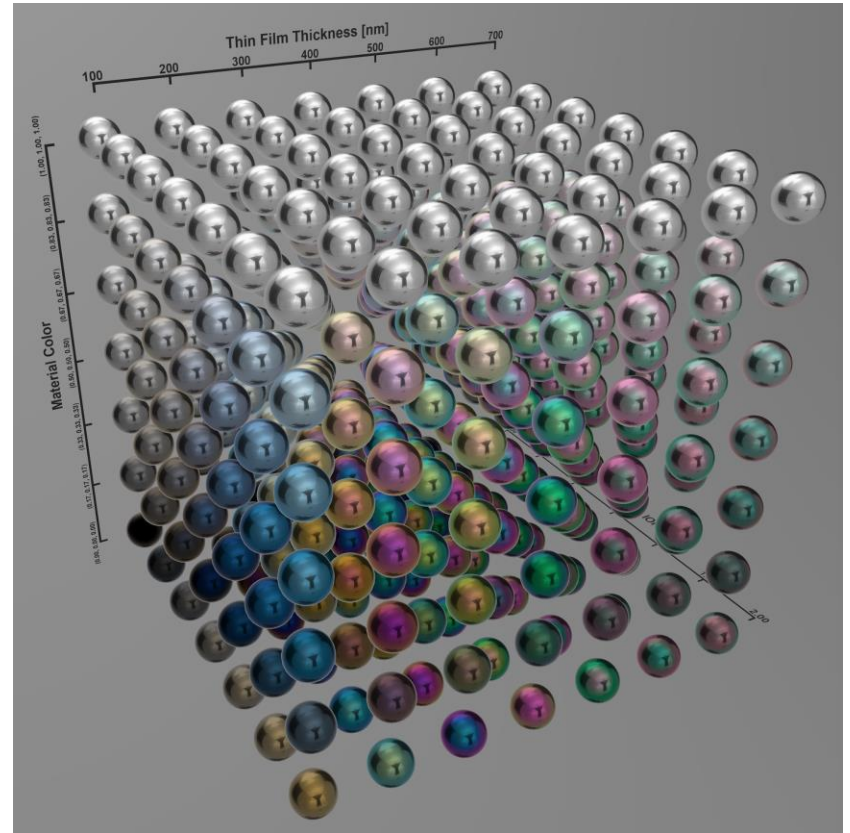


“It really wrecks certain scenes to have to clamp emissive to 1.0.”

“is there a work-around in the mean-time? or are we clamped to 1 until a new version?”

KHR_materials_iridescence

Adds a thin, semi-transparent layer that allows for inter-reflections and interference. Common in soap bubbles, oil films, insect wings, etc.



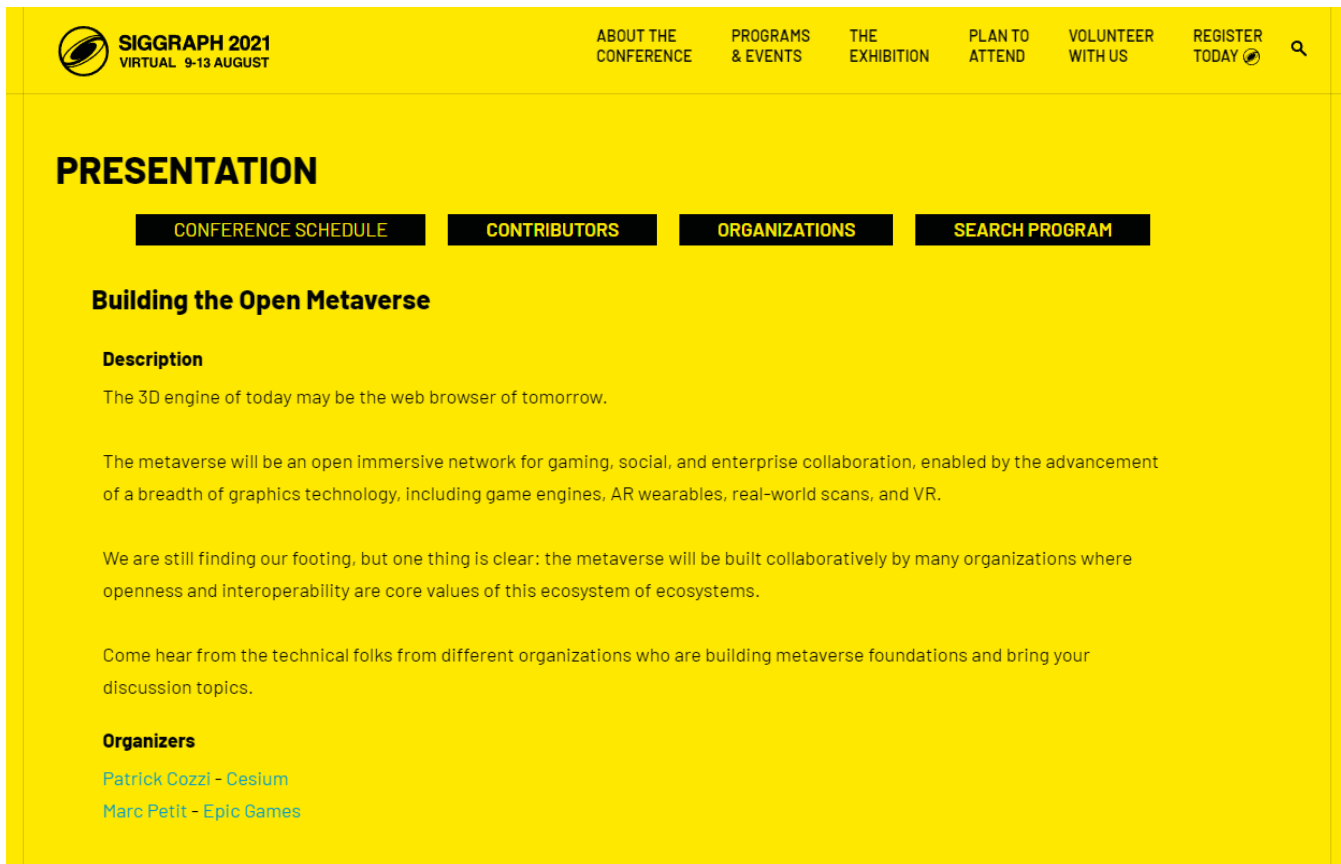
glTF as an International Standard

Last year: glTF 2.0.0 released to improve specification document quality prior to submission to ISO/IEC


Today: ISO/IEC 12133 is Published

The screenshot shows the ISO/IEC 12113 product page. At the top, there is a navigation bar with links for Standards, About us, News, Taking part, and Store. The main heading is "ISO/IEC 12113 Information technology — Runtime 3D asset delivery format — Khronos glTF™ 2.0". Below this, there is an "ABSTRACT" section with a short description of the document. The "GENERAL INFORMATION" section includes details such as "Status: Under development", "Publication date: 2022-07", "Edition: 1", "Technical Committee: ISO/IEC/JTC 1 Information technology", and "ICS: 35.040.30 Coding of graphical and photographic information". At the bottom, there is a "LIFE CYCLE" section with a "NOW" status bar. The status bar is green and indicates "PUBLISHED ISO/IEC 12113:2022" with a "Stage: 60.60" and a progress indicator showing the current stage (60) and the next stage (90).

This time last year...



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VIRTUAL 9-13 AUGUST

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Building the Open Metaverse

Description

The 3D engine of today may be the web browser of tomorrow.

The metaverse will be an open immersive network for gaming, social, and enterprise collaboration, enabled by the advancement of a breadth of graphics technology, including game engines, AR wearables, real-world scans, and VR.

We are still finding our footing, but one thing is clear: the metaverse will be built collaboratively by many organizations where openness and interoperability are core values of this ecosystem of ecosystems.

Come hear from the technical folks from different organizations who are building metaverse foundations and bring your discussion topics.

Organizers

[Patrick Cozzi - Cesium](#)
[Marc Petit - Epic Games](#)

glTF Roadmap

*Behaviors

Anchors

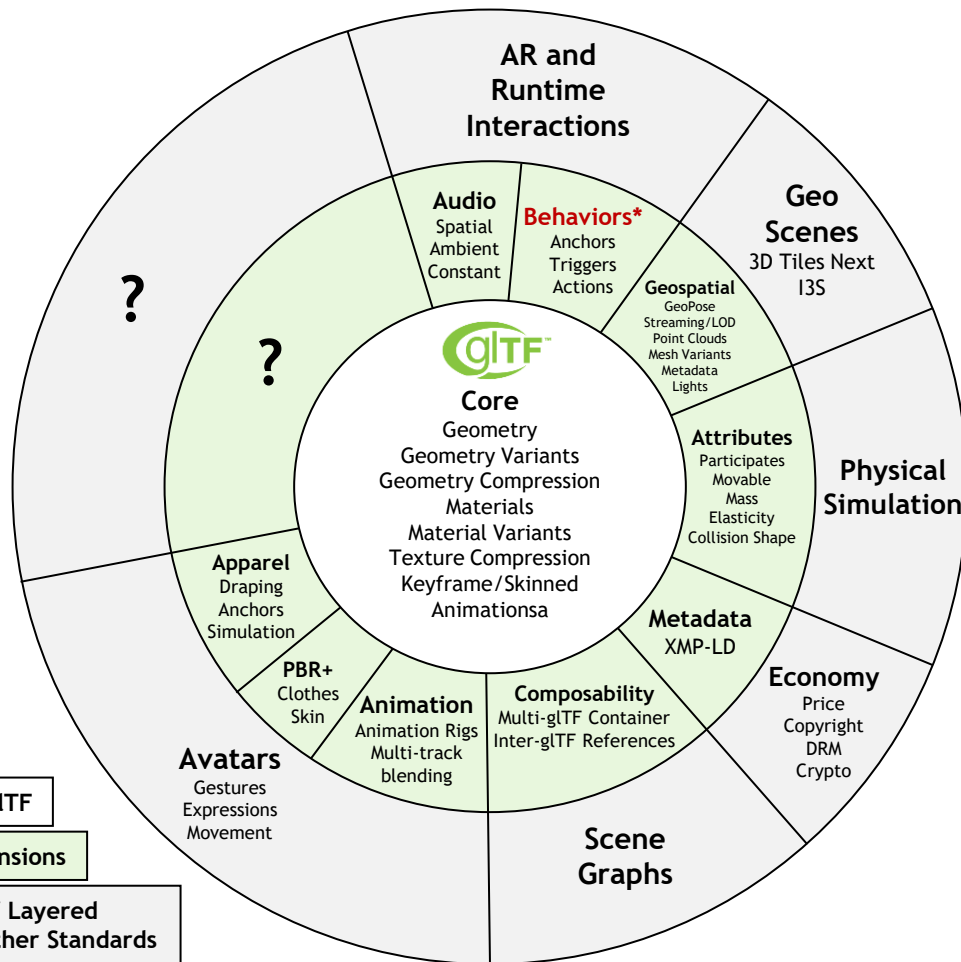
Horizontal Plane
Vertical Plane
Image
Face
Scanned Object

Triggers

Tap
Proximity
Collision

Actions

Movement
Variant Select Animations
Animate Property Lights
Audio
Add Force
Load scene



Core glTF

glTF Extensions

Runtime / Layered
Extensions / Other Standards

The Asset Lifecycle

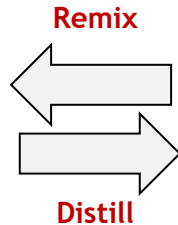


Authoring
Composable Scene Graph
Node-based Materials
Multi-user Synchronization

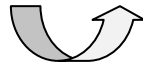


Interchange

Authoring tools and frameworks, such as 3ds Max, Maya, Blender, Houdini, Omniverse, and many others, use USD for authoring interchange and may publish authored assets to glTF for widespread publication

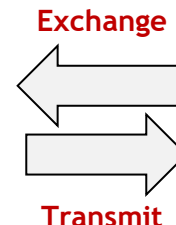


Transmission
Optimized Asset Size
Minimized Unpacking Effort
GPU Runtime Friendly



Optimize

Multiple glTF tools enable validation, editing, and optimization of assets containing geometry, materials, behaviors, attributes and metadata. glTF assets can be imported to authoring tools for remixing



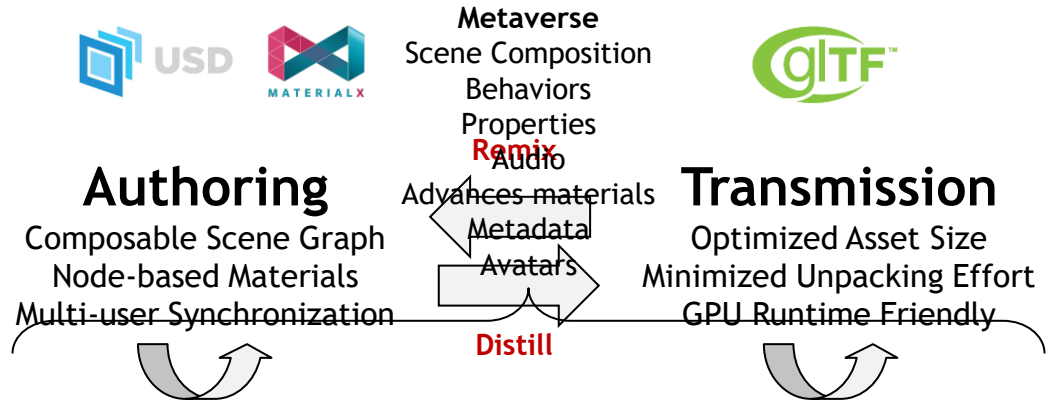
Runtime
Engine Internal
Proprietary
Execution optimized



Use & Augment

Runtimes such as Fortnite, Roblox, and many others, receive transmitted glTF assets and process them however they wish. User created glTF assets can be exchanged with other runtimes

The Asset Lifecycle, Coordination, Cooperation



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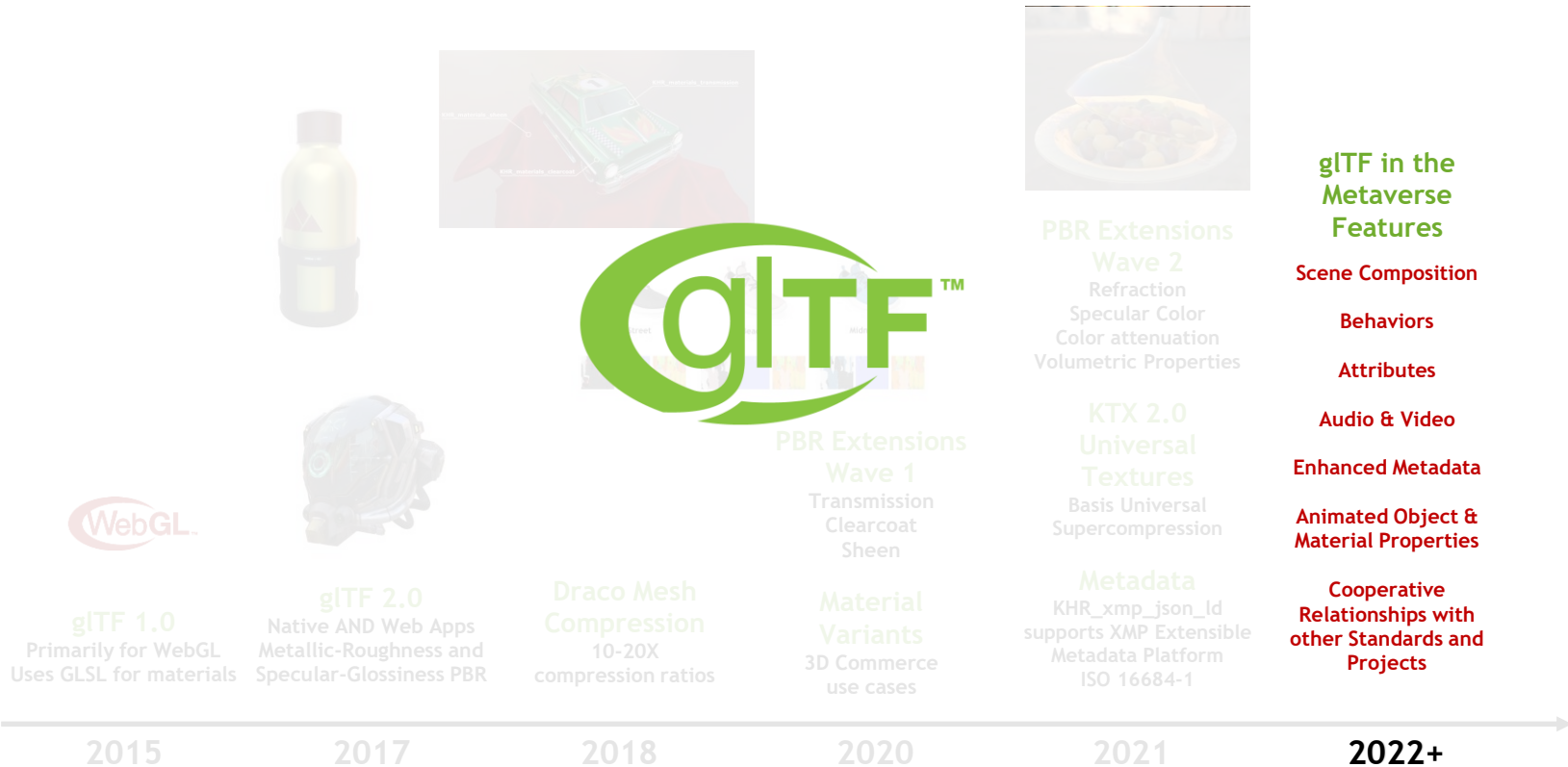
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glTF Evolution, as a ~~Web~~ Delivery Standard



Staying in Touch

At SIGGRAPH 2022:

- BoF: Metaverse and the Future of glTF
 - Wednesday, 27 July 2022 9am - 11am PDT (yesterday)
- BoF: Advanced PBR Material Parameters in glTF
 - Monday, 1 August 2022 9am - 10am PDT
- BoF: How Do We Solve the Challenges of glTF Asset Creation?
 - Friday, 5 August 2022 10am - 11am PDT
- BoF: Using glTF for Geospatial, Metaverse, and Beyond!
 - Wednesday, 3 August 2022 1:30pm - 3pm PDT
- BoF: Delivering Interactive Experiences with glTF
 - Thursday, 4 August 2022 9am - 10am PDT

Staying in Touch

After SIGGRAPH 2022:

- Main repository:
 - <https://github.com/KhronosGroup/glTF>
- glTF Slack Workspace:
 - <https://khr.io/gltfslack>
- News and More:
 - <https://www.khronos.org/gltf/>
- Reach out directly:
 - 3dformats-wgchair@khronos.org