Interactivity

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Interactivity

- glTF as-is *currently* handles static content

- Interactive use cases currently hard code on a per-application basis.

- **Problem:** Interactive content is not portable!
  - Impossible for shared content between runtime engines
  - Difficult (at best) for interoperability workflows
Interactivity: High Level

This new glTF extension:
- Provides node-based standard for interactivity (static geometry + behaviors)
- Empowers development of simple interactive applications
  - (Games, Education, Design Review, e-commerce...)

Nespresso_Interactive.mp4
Interactivity: Principles

An interactivity Graph:
- set of connected Nodes
- Directed Acyclic Graph

All serialized as glTF extension JSON -> (events, nodes, types, variables)
Interactivity: Node Categories

- **Math Nodes**
  - Arithmetic, Comparison...
- **Type Conversion Nodes**
- **Control Flow Nodes**
  - Ex: For loop, Branch
- **State Manipulation Nodes**
  - Variable
  - Pointer
    - (via KHR_animation_pointer)
  - Animation Control
- **Event Nodes**
  - Lifecycle Event Nodes
    - Ex: On Start, On Tick
  - Custom Event Nodes (user-defined)
Interactivity: Limitations

For Security, Portability, Ease of Implementation:

- No dynamic allocation
  - no object instantiation
  - no array variables
  - no dynamic strings
- No network access
- No file system access
- No multi user
Interactivity: Example Graph

- 3D sofa that bounces in a looping 3D animation, spinning and displaying a new variable whenever you click it.
Interactivity: Example Graph

Start of the Graph:
- Initiates 'bouncing' animation for the sofa
- Custom event calls an endless loop.
Interactivity: Example Graph

Fabric Clicked:
- node/OnSelect trigger
- the sofa undergoes a 360-degree rotation
Interactivity: Example Graph

Next Variant:
- During rotation, the sofa material switches to the next available variant.
Interactivity: Examples
Interactivity: Resources & Getting Involved

• Invitation for Public Comments (blog post) issued in June
• Draft Specification on Github
• Leave feedback on the Khronos GitHub pull request
• Check out the Khronos webinar on interactivity
• Explore the glTF Interactivity Graph Authoring Tool, a work-in-progress DCC React App
  - open source, public implementation
• Several companies actively working with standard (Adobe, Amazon, Google)

All Resources can be found from blog post: