An on-demand, optimising glTF backend

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Early days: 3D Posts

Building asset variants on demand

- Tear uploaded glTF down to the level of logic & data
- Perform client-specific optimisation and customisation
- Rebuild glTF to specification, for delivery

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Working at scale: 3D Photos

Millions of models, millions of textures...

- Turns out older phones really need compressed textures...
  - Quickly! Build an in-house texture compression service.
- Turns out people quite like 3D Photos...
  - Quickly! Scale to compressing hundreds of textures per second.
  - Still, texture compression is at odds with on-demand generation.

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Texture caching

2\textsuperscript{nd} layer of caching – reuse compressed texture on variants creation

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Extend system for broader adoption

Be the backend for all 3D glTF products

- Generalized the 3D infra to power up products from different apps across the company
  - Facebook 3D post and 3D Photo
  - Oculus Home

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Ongoing Challenges

Uploaded models in busy online virtual worlds

• “Level of Detail” now inescapably required
  • Too computationally expensive to generate on demand
• Streaming textures and geometries
  • Very different aesthetic impact, depending on context
• Configurable asset specification
  • Single asset which holds variations of different material/colour etc.