



Buildings in Virtual Reality with CityEngine

- **Daniel Chantlos**
 - » GIS Analyst



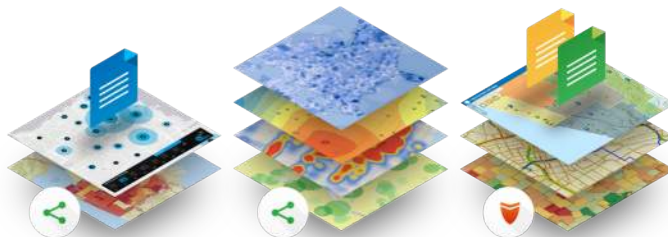
Austin, Texas

- **Population: 975,000 (2.2 million metropolitan area) (2018)**
- **Growth: 500 people/day to Texas; 105 people/day to Austin**
- **Unemployment rate: 2.9%**
- **Silicon Hills: One of the largest tech hubs in the US**
- **National/international entertainment events**



Project Scope

- Stonelake Capital Partners (Texas real estate private equity firm)
- 33+ acre site with an existing 481,000 SF office building leased to IBM
- The Domain ([Map Link](#))
 - ✓ Upscale shopping and living development located in North Austin
 - ✓ 100+ stores/restaurants , 800+ residential units and Class A office space
- Construct 8 new buildings for commercial use (Office/Living)
- New buildings will be the tallest outside of Downtown Austin
- Objective: Create a virtual reality tour of this groundbreaking project for Stonelake Capital Partners.



Advanced GIS Capabilities

- **3D Data**

- ✓ <https://maps.pape-dawson.com/Alamo3D>

- **Virtual Reality**

- ✓ Immersive virtual experience



Scenarios in Virtual Reality





The use of the term “virtual reality,” ...was first used in the mid-1980s when Jaron Lanier, founder of VPL Research, began to develop the gear, including goggles and gloves, needed to experience what he called “virtual reality.”

-The Franklin Institute





CityEngine – 3D Software

- 3D modeling software developed by Esri R&D Center Zurich
- Urban Planning, Architecture, Archeology, Film, Gaming
- Industry Standard 3D/2D Formats
 - ✓ Collada, OBJ, FBX, KMZ/KML, GDB, SHP, DWG
- Get Map Data
 - ✓ Select real-world location
 - » Satellite Imagery
 - » Smart street and building footprint data (OpenStreetMap)
 - Generate dynamic 3D streets by type
 - Generate dynamic 3D buildings by style & height



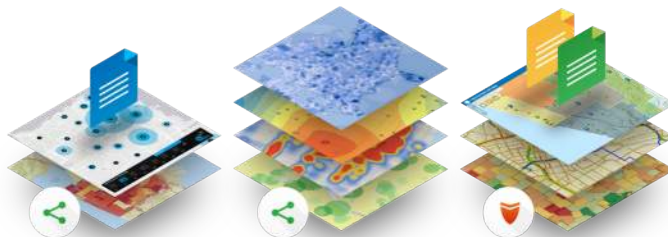
Oculus Go – ArcGIS 360 VR

- **Oculus (Company)**
 - » Industry leader for Virtual Reality hardware and software
 - » First VR headset - Oculus Rift debuted in 2012
- **Affordable all-in-one VR headset**
 - » Virtual Reality on the go without a PC
 - » 5.5 inch display, 64 GB internal storage
- **Esri Labs – ArcGIS 360 VR**
 - » Virtual Reality scene viewer for CityEngine 3D models



Project Scope (Review)

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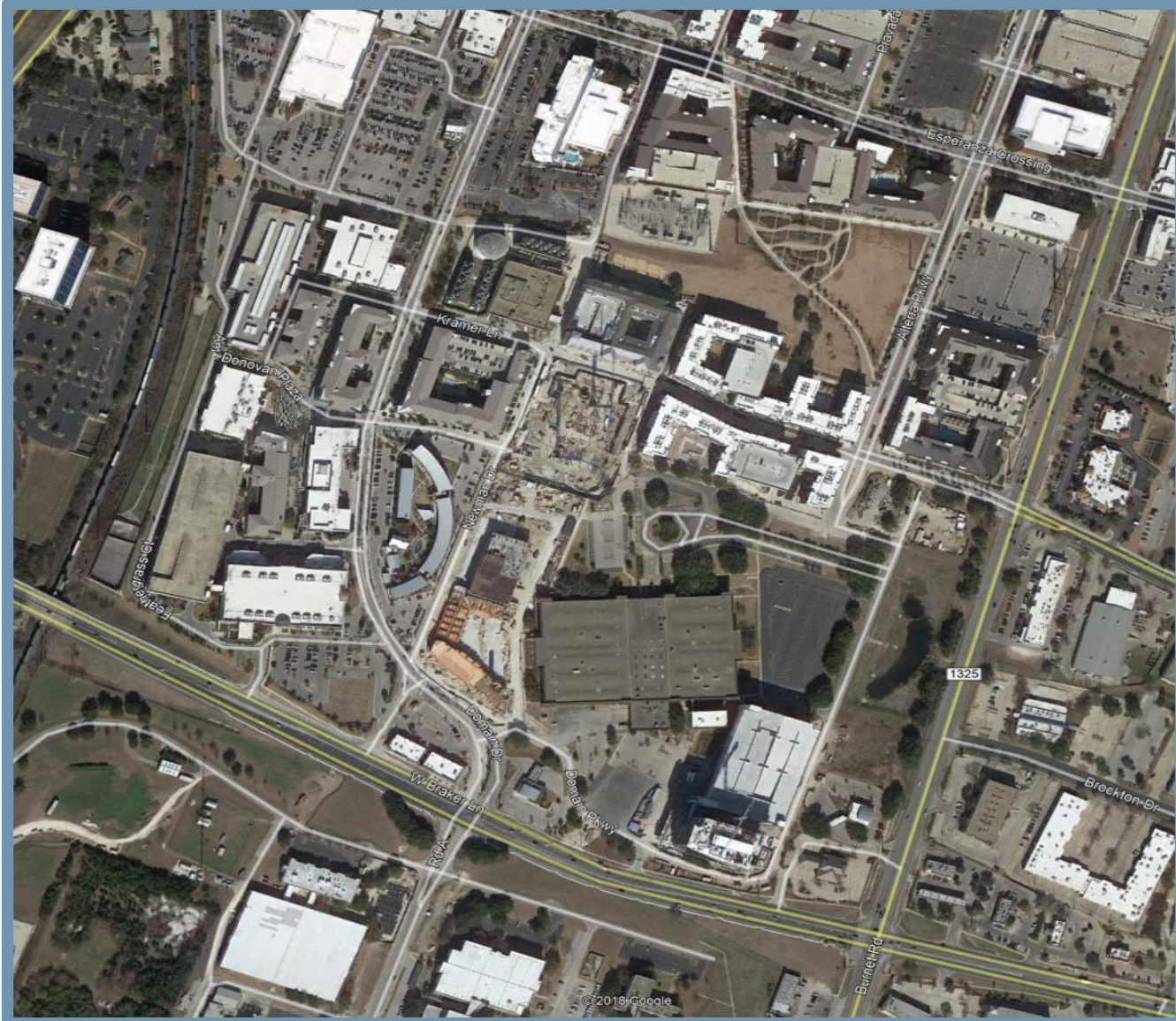
2005



2011



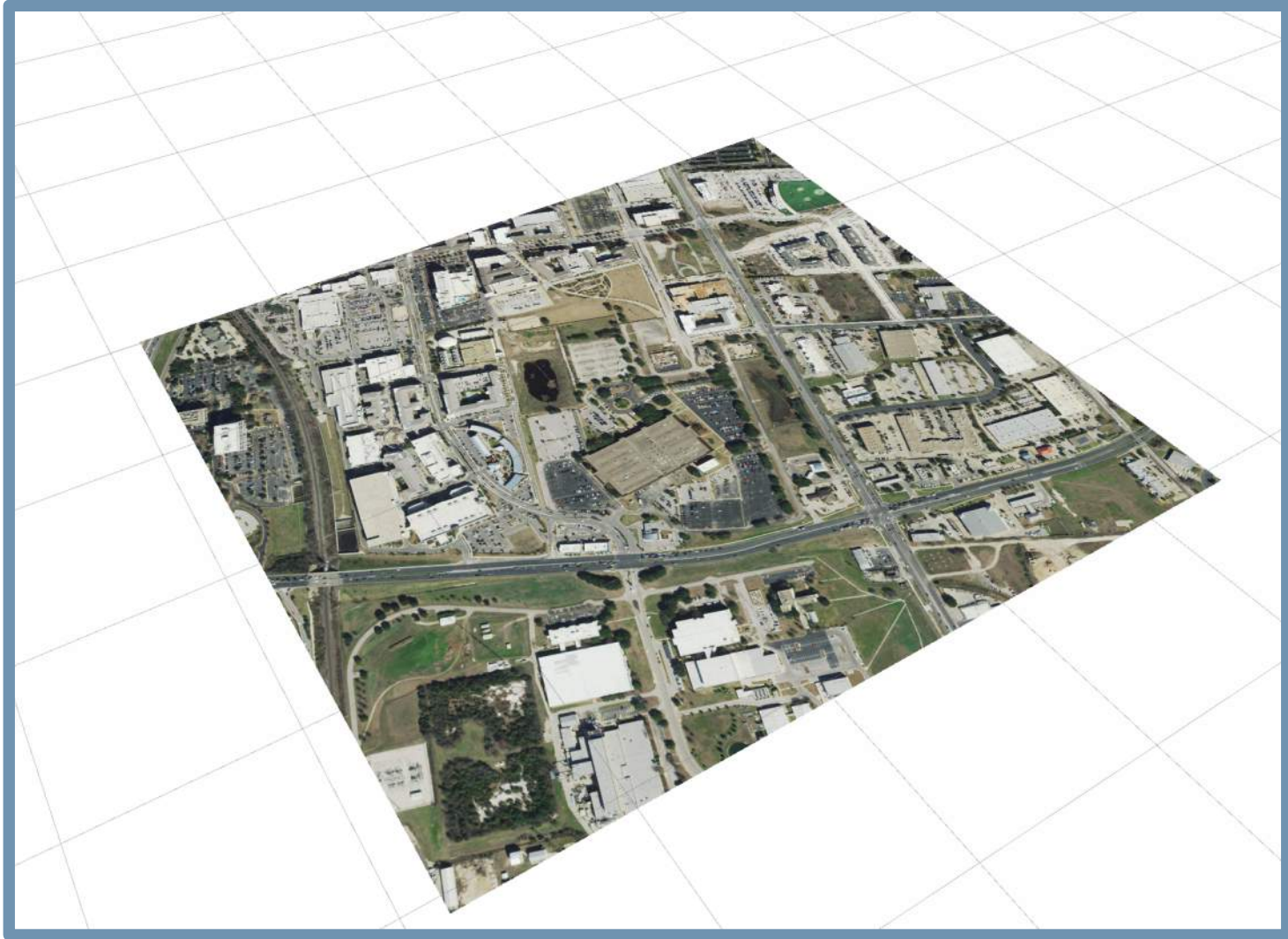
Present Day



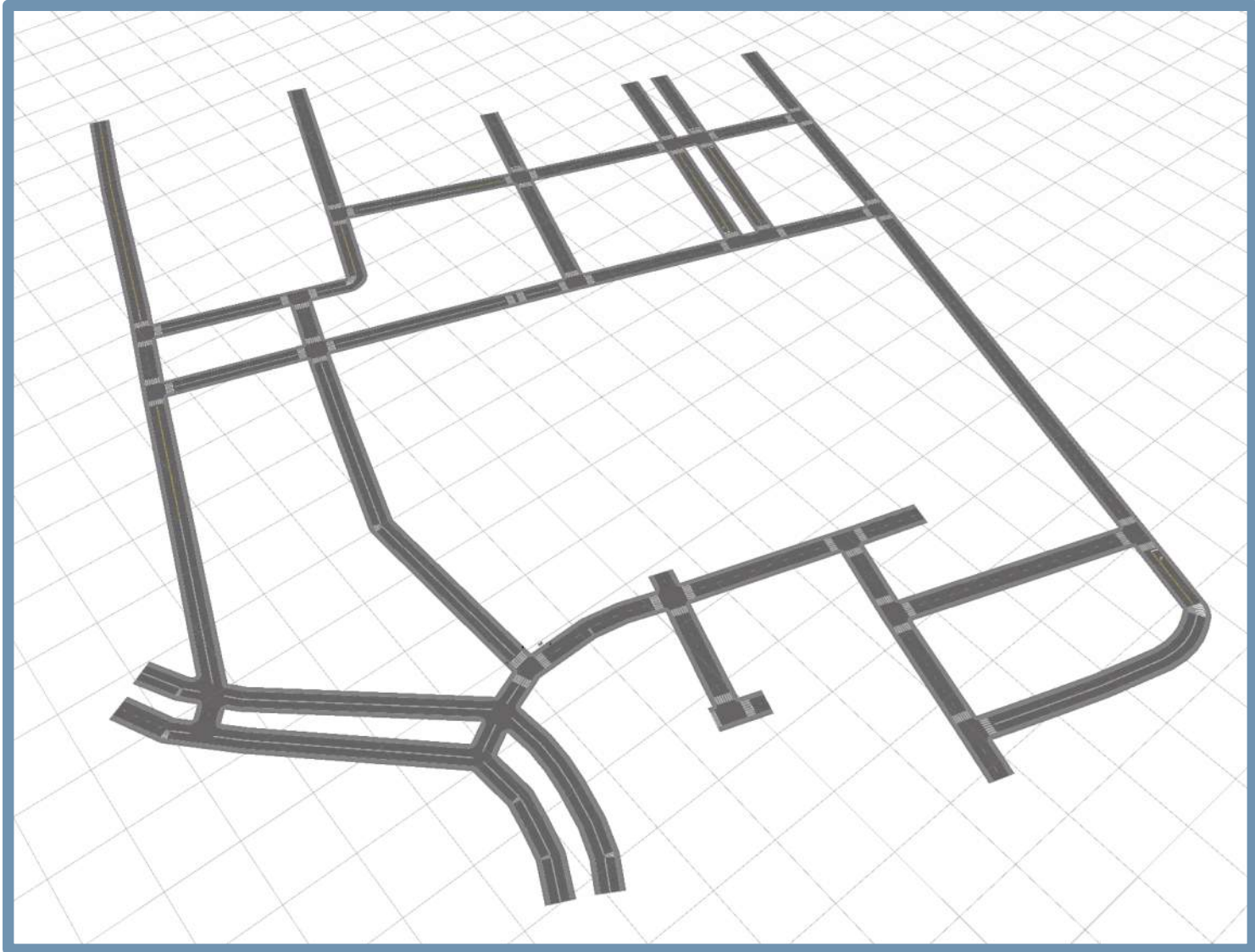
The Domain South End – Preliminary Design



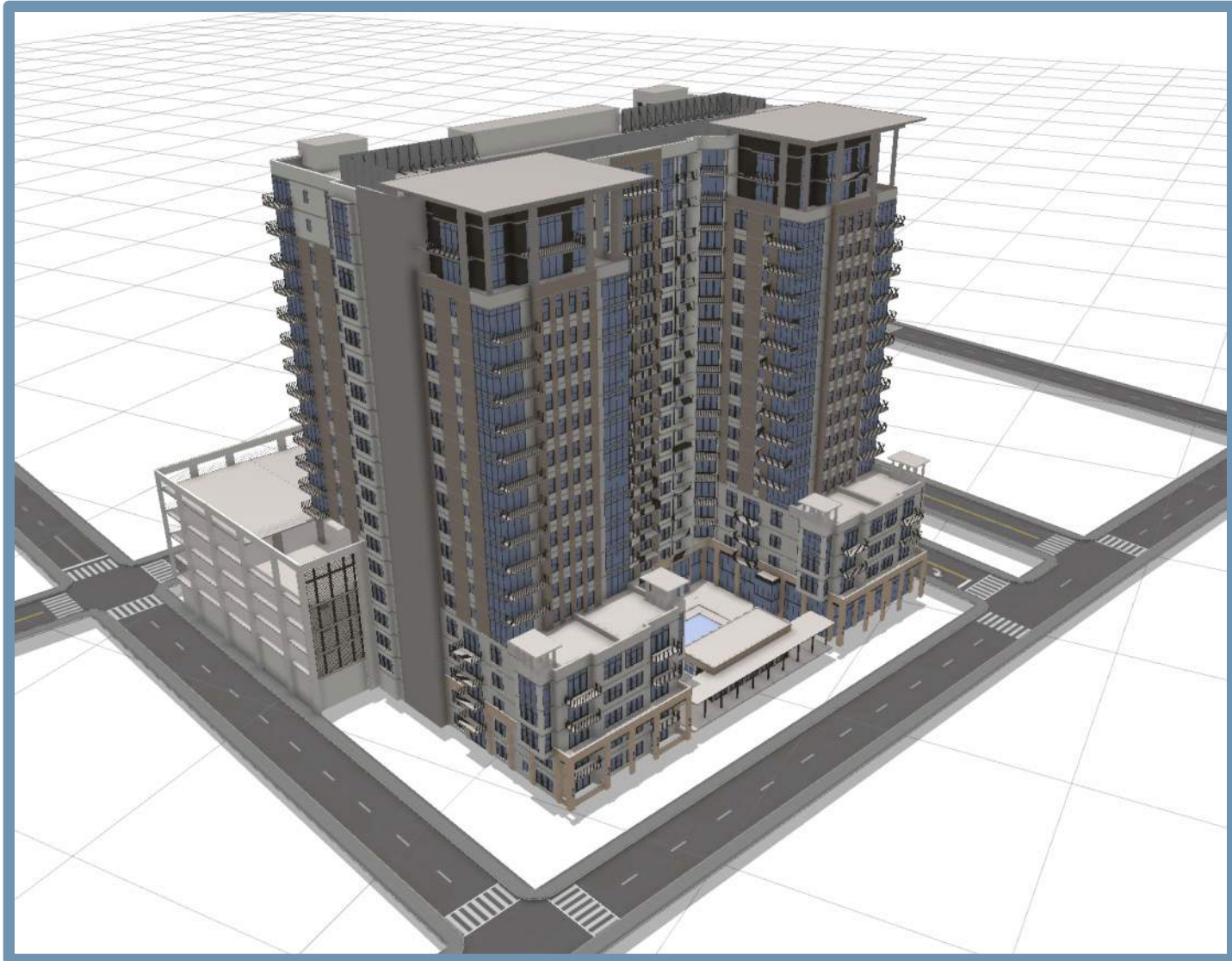
Progress - Aerial Imagery



Progress – Street Network



Progress – 3D Buildings



Progress – Assets (Cars, People, Street Lights)



Progress – Assets (Trees)



Progress – Assets Combined



Progress – Assets Combined with Shadow Angle



Progress – Completed



Progress – Completed



Project Summary

- CityEngine Domain Process
- **Objective Completed**
 - ✓ Create a virtual reality tour of this groundbreaking project for Stonelake Capital Partners.



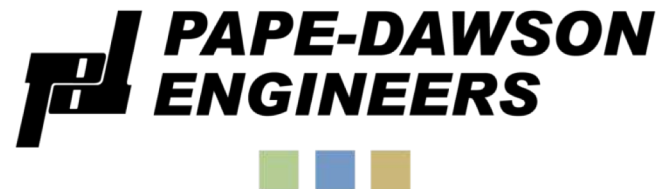
Lessons Learned

- CityEngine offers an extensive library of tutorials included with a software license
- 3D file types – use as few different file types as possible
 - ✓ .OBJ files
- ArcGIS 360 VR - beta development
 - ✓ Delete application to remove old VR scenes
- Patience
- Patience
- Patience



LESSONS LEARNED

THANK YOU



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QUESTIONS?