Tracking Santa with open source geospatial software

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Analytical Graphics, Inc.
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+ Monitor system of sensors, control the North American aerospace
+ 1955, Sears ad with a Santa phone number
+ Misprint, reached Colonel Harry Shoup, crew commander at NORAD’s headquarters
+ 1997, AGI created Santa tracking website
+ Site crashed when 100 people tracked Santa at same time.
+ Problem fixed subsequent years by working with internet providers such as IBM
+ Today’s site features interactive games and activities
+ 2012, Cesium team created 3D web map
+ With partners such as Microsoft, 20 million unique visitors from 220 countries

+ Volunteer effort
+ Partners volunteering to build website
+ Thousands of volunteers answer phone calls and emails
Developing the application

- Open source Cesium library used for 3D visualization
- Open datasets used to create STK World Terrain
- Open formats
  - gITF for models
  - CZML for updating Santa’s location
  - Quantized-mesh terrain
+ WebGL - cross platform including Chrome, Firefox, Internet Explorer and Safari
+ 3D visualization accessible to many people because it can run on many different kinds of devices
+ Increased smart phone usage
• CZML to update Santa’s position
• Display clickable billboards at locations Santa has already visited
+ Add an animated 3D model in 2013
+ glTF files are compact and easy to parse. COLLADA is great for model editing applications but too heavy to render efficiently on the web
+ Artist create the model in MODO and export it as a COLLADA model
+ Optimized model by removing extra nodes
+ Open source COLLADA-2-glTF converter to convert the model to glTF
+ Quantized mesh was designed to be efficient for streaming on the web
+ Generally seen better performance than with traditional height maps
+ Terrain and imagery tiles are cached
+ Project featured in several different blogs, like Mozilla hacks, NVIDIA’s and Internet Explorer
Thank you!

Questions?

Track with us!
NORAD
Tracks Santa
www.noradsanta.org