



# Cloud-Driven Spatial Intelligence

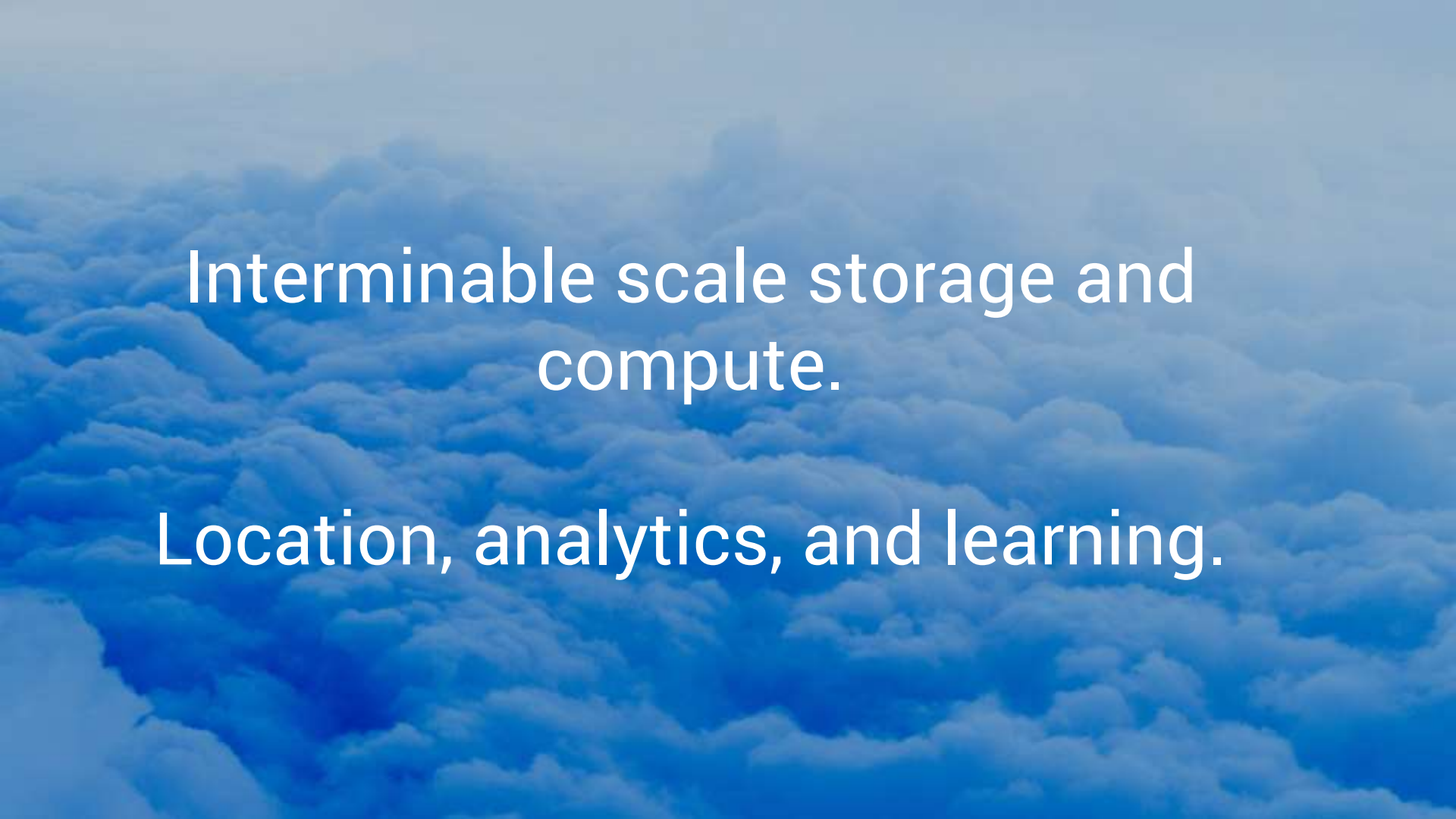
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A man with glasses is looking at a whiteboard. The whiteboard is covered in red and black diagrams and text, including a large 'X' and various lines and shapes. The man is wearing a dark shirt and has a focused expression. The background is slightly blurred, emphasizing the whiteboard and the man's face.

# Data is Everything.

Companies win or lose based on how they use it.



Interminable scale storage and  
compute.

Location, analytics, and learning.

# Cheaper, Faster, More Iterations



## **Real-World Use Case:**

*Pre-processing 1PB of Landsat*

*30,000 CPUs - GCE Preemptible VMs*

## **April 2015 Cost:**

*\$9,800*



## **September 2016 Cost:**

*\$3,600*

## **July 2017 Cost:**

*\$2,800*



## **Skylake w/ Advanced Vector Extensions**

*Imagery Compression: 38.3%*

## **Skylake w/ Advanced Vector Extensions**

*Imagery Expansion: 23.7%*



# Google Cloud SQL

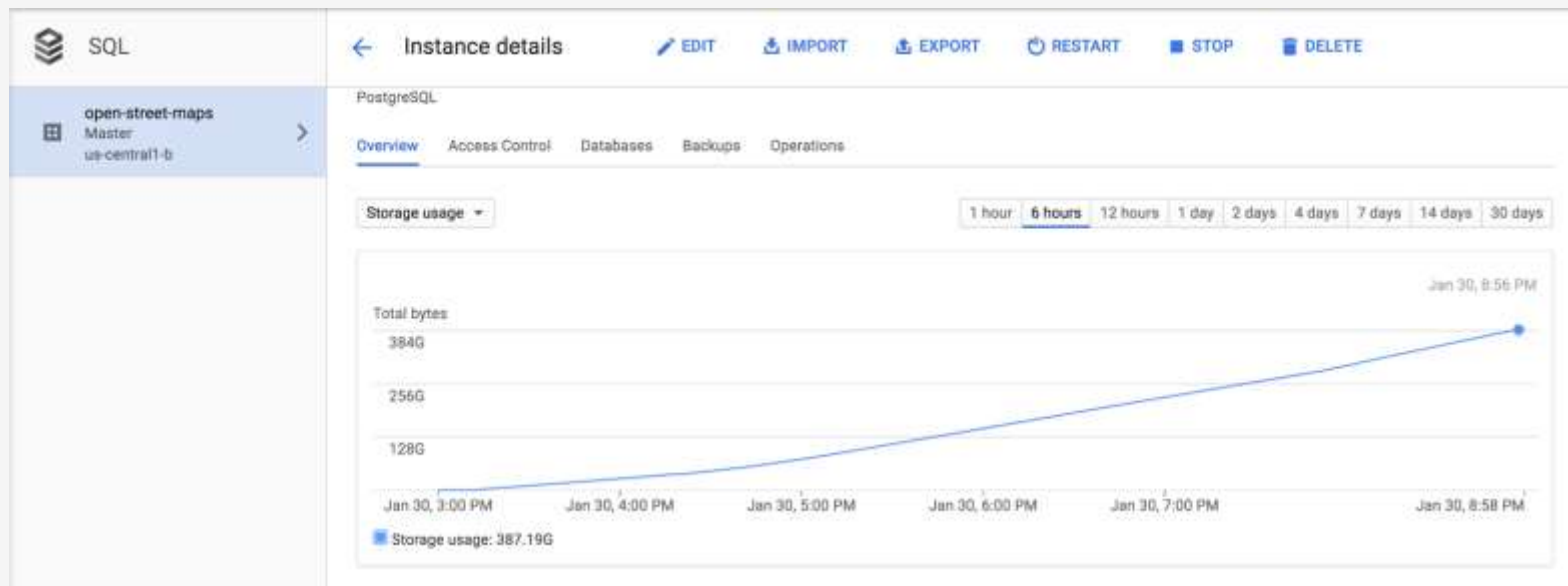


**Fully-managed database service** makes it easy to set-up, maintain, manage, and administer **MySQL** and **PostgreSQL** databases in the cloud

## PostgreSQL

- Vibrant open source community with 15 years of active development
- Strong standards compliance
- Extensibility including powerful geospatial capability

# Cloud SQL Automatic Storage Increase



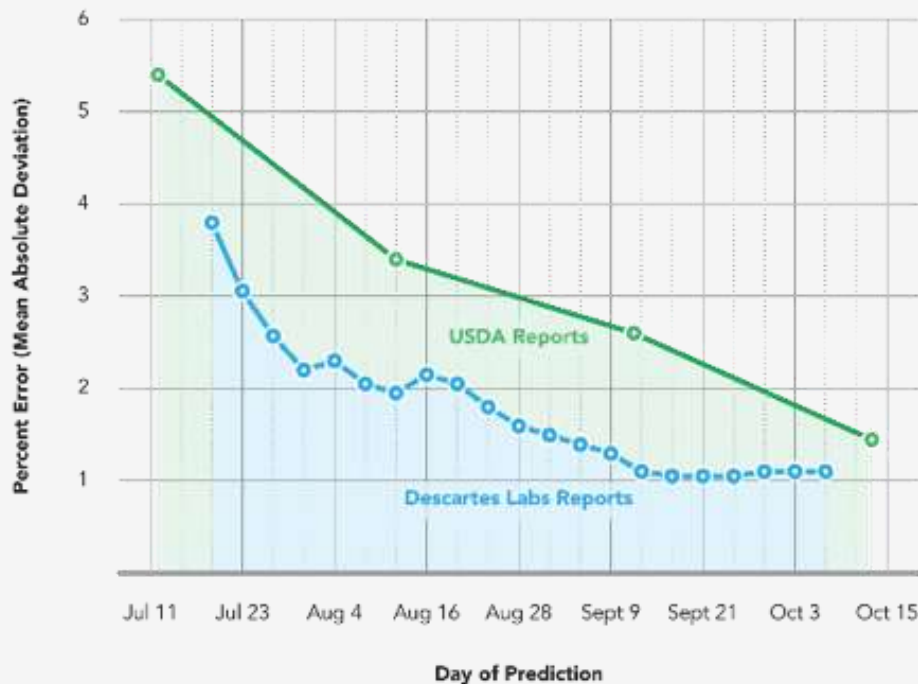
# Descartes Labs: Agricultural Models

2015 - US corn production model

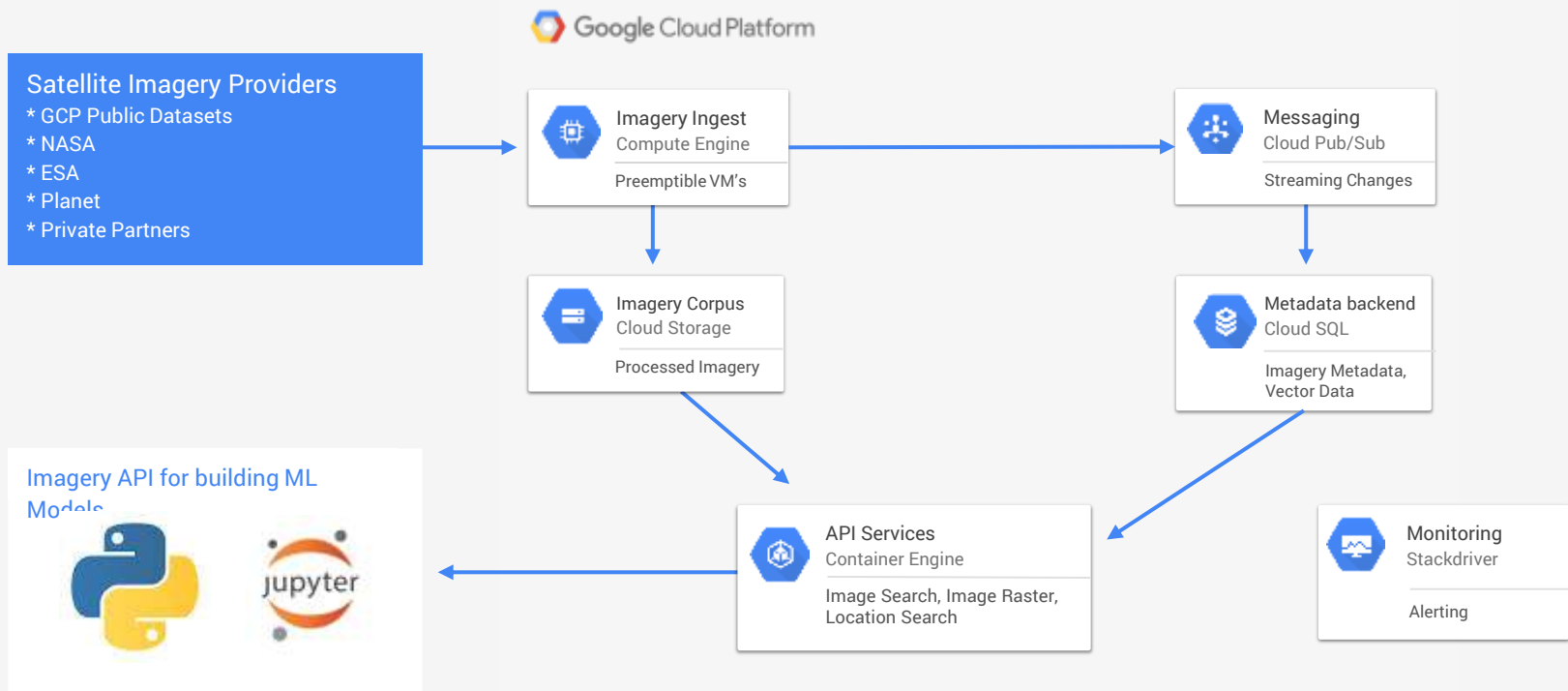
Required over 4 quadrillion pixels

Tested over 1,000 candidate models

Descartes Labs ML team uses the Descartes Labs Platform every day to improve our analytic products and perform analysis for clients



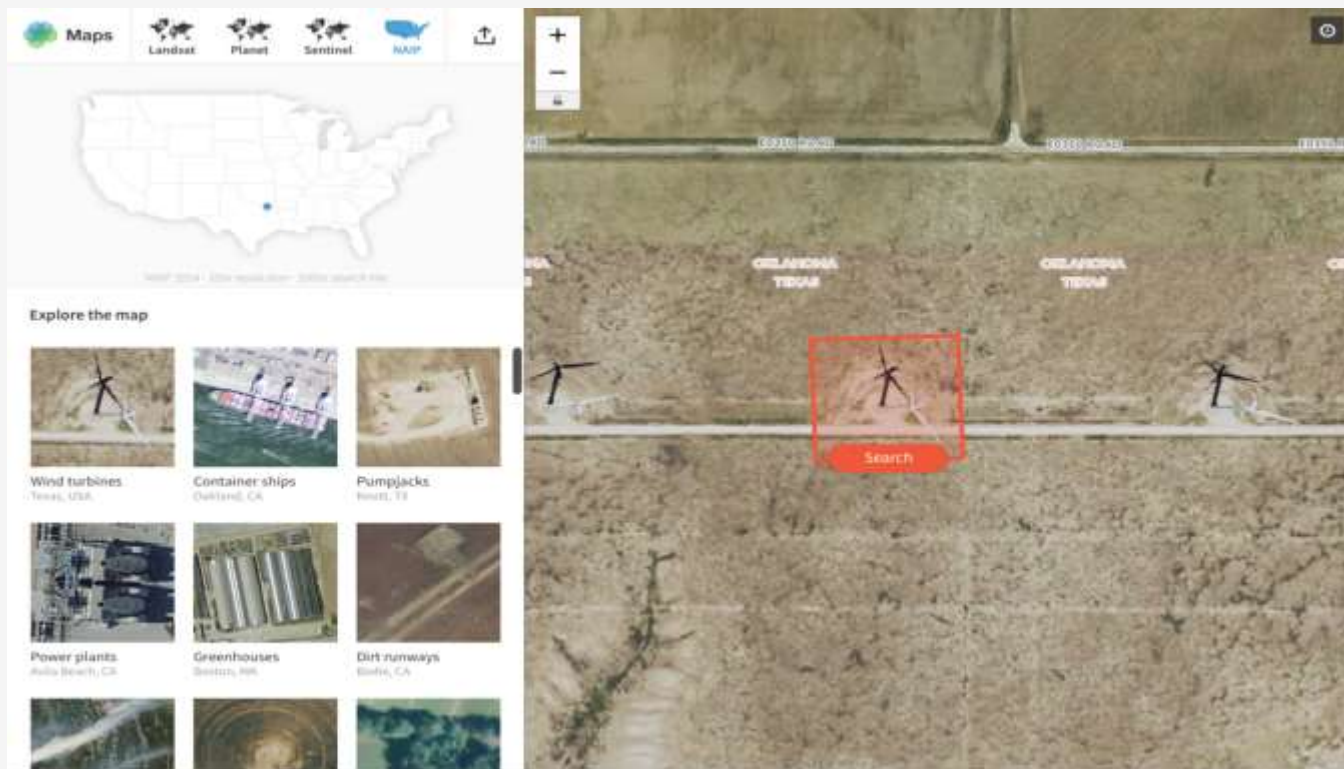
# Descartes Labs: ML Platform





# Descartes Labs: Finding a Needle in a Haystack

<https://search.descarteslabs.com>

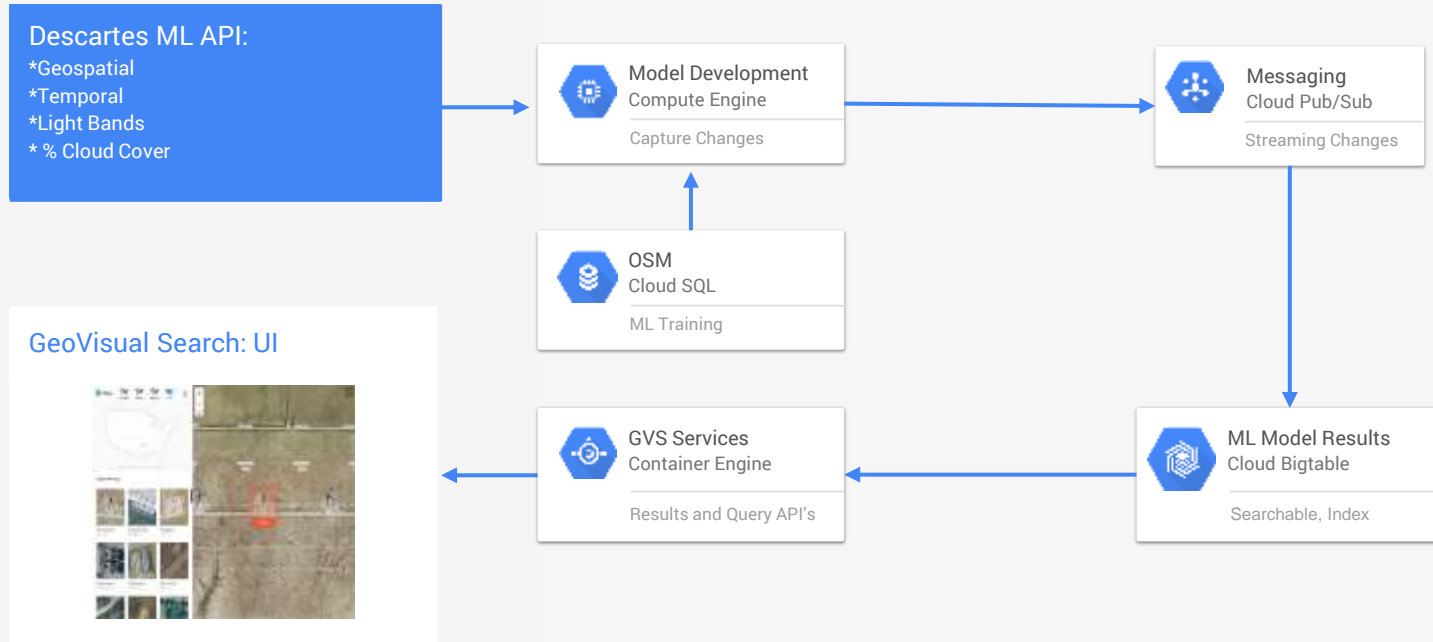


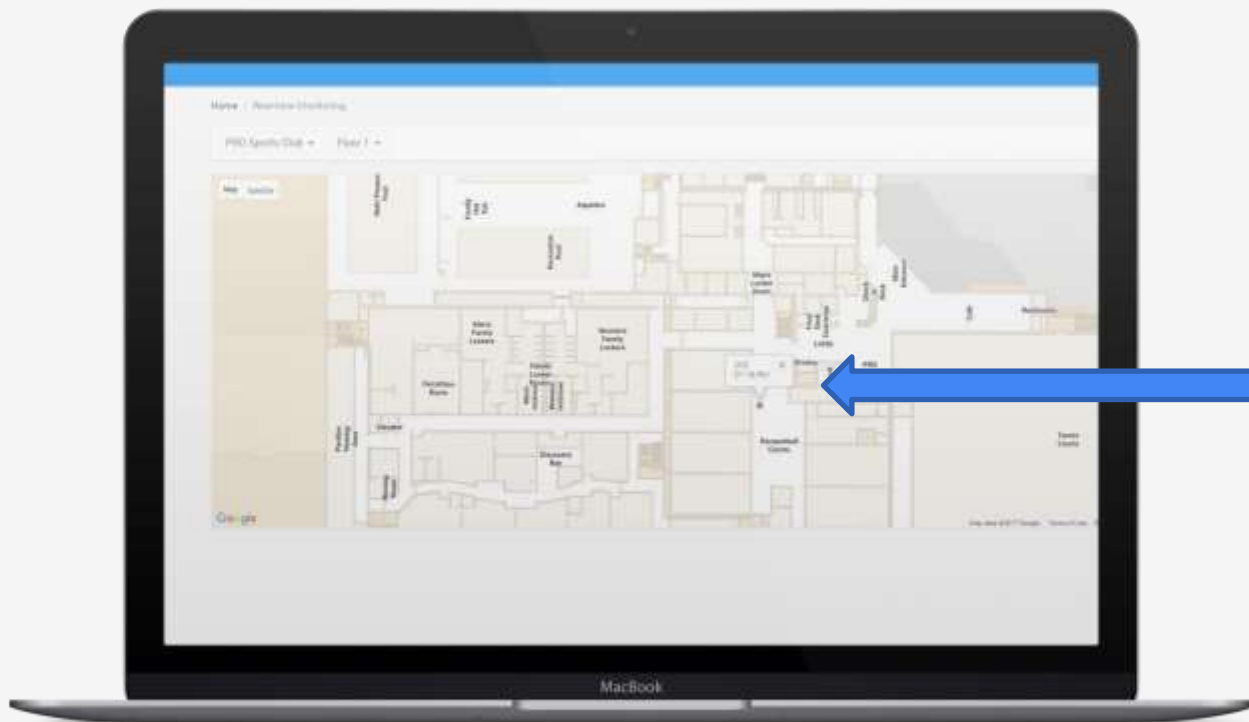
The image shows a screenshot of the Descartes Labs search interface. On the left, there is a navigation panel with a 'Maps' button and icons for 'Landsat', 'Planet', 'Sentinel', and 'NAIP'. Below these is a map of the United States with a blue dot indicating the current location. The main area displays a satellite image of a field with several wind turbines. A red search box is overlaid on one of the turbines, with the word 'Search' written in white on a red background. The interface also includes a zoom control on the top left and a search bar on the top right.

Explore the map

- Wind turbines  
Texas, USA
- Container ships  
Oakland, CA
- Pumpjacks  
Houston, TX
- Power plants  
Anaheim Beach, CA
- Greenhouses  
Seattle, WA
- Dirt runways  
Bozota, CA

# Descartes Labs: GeoVisual Search



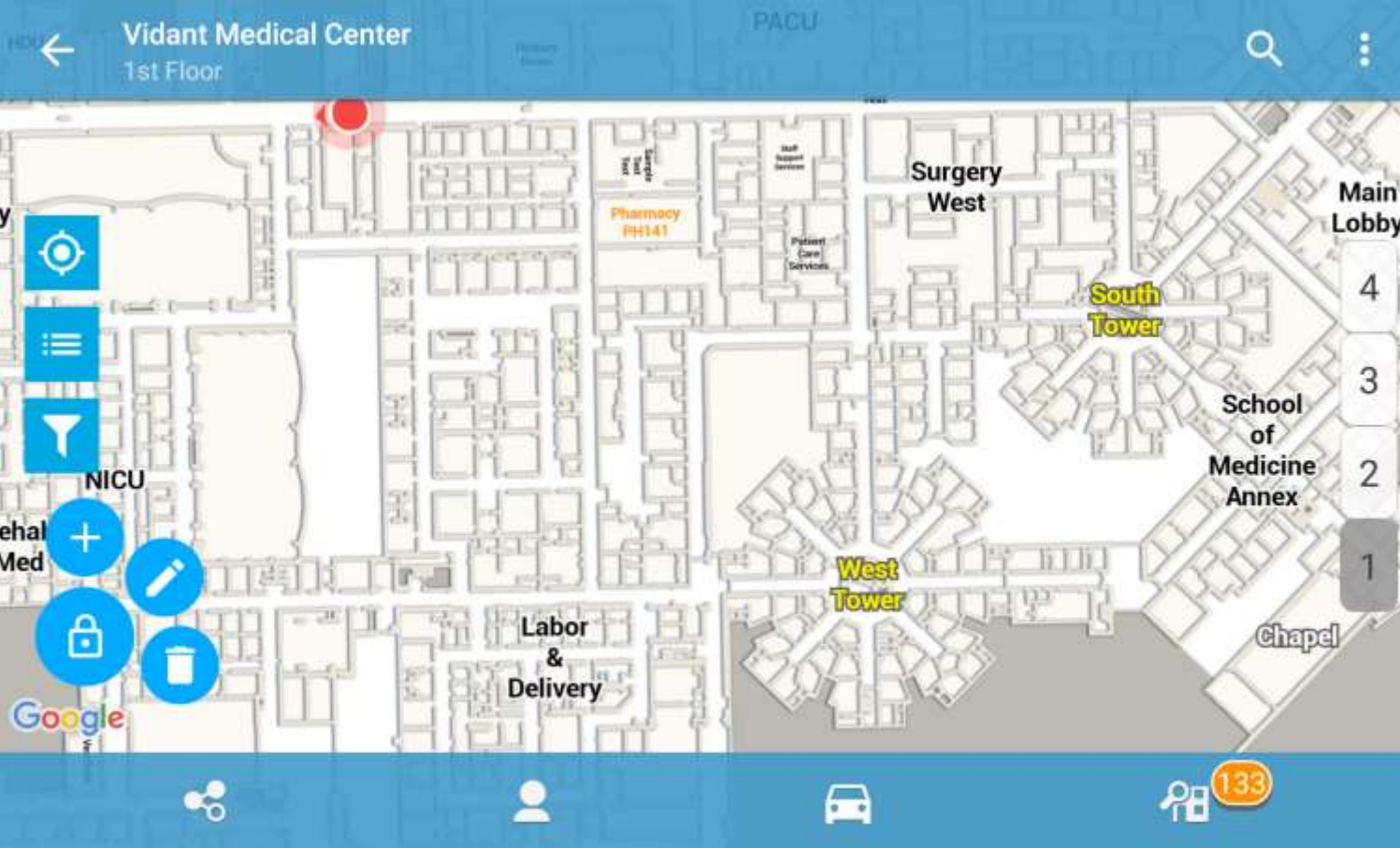


Sports venue  
security –  
tracking location  
of security  
personnel



Increase sales by  
tracking queue  
lengths

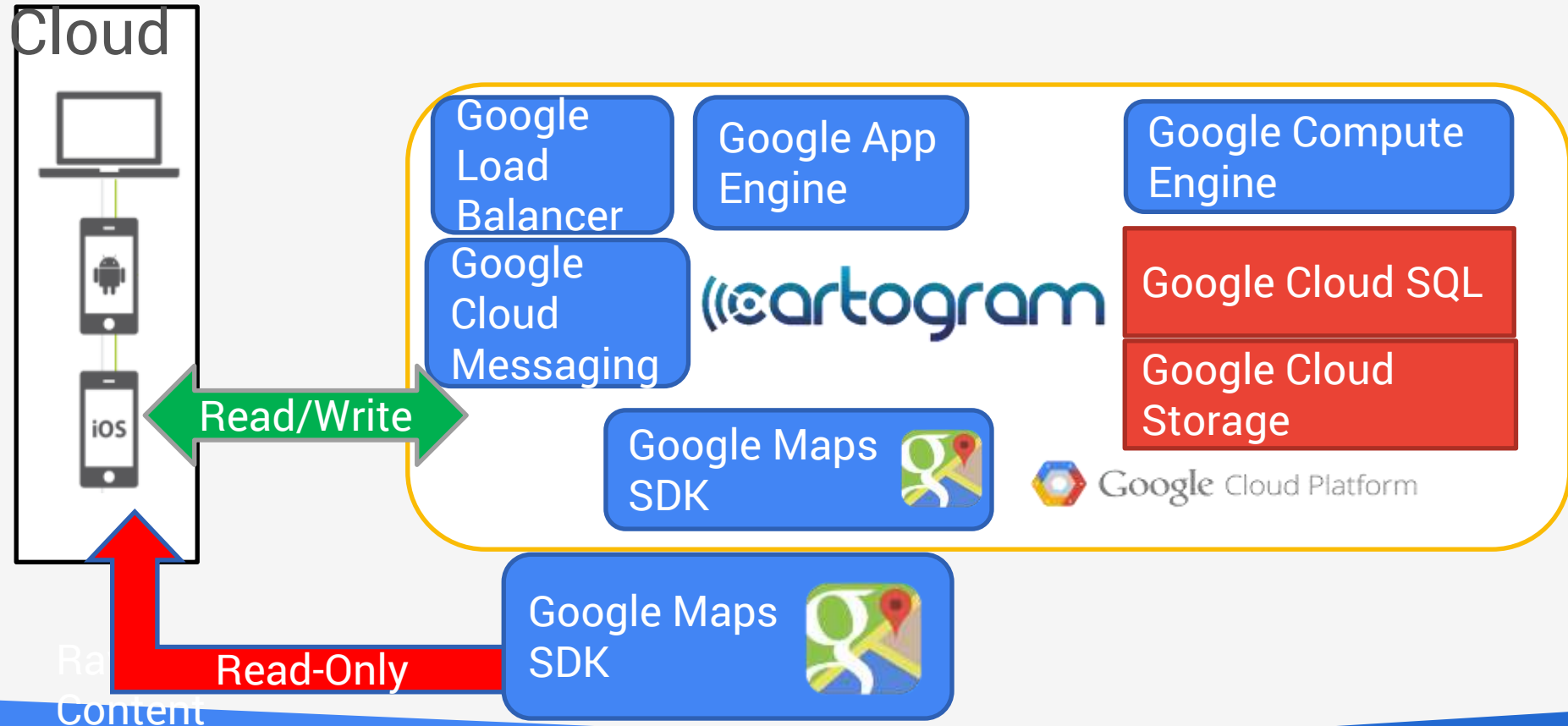




Improve customer service and asset utilization by speeding patients to mobile medical equipment



# Integrated Maps Rendering and Analytics in the Cloud



# Public Geospatial Datasets

<https://cloud.google.com/storage/docs/public-datasets/>

- Landsat: Multispectral images of Earth's land surface, at 15-60m resolution, from 1982-present
- Sentinel-2: Multispectral images of Earth's land surface, at 10-60m resolution, from 2015-present
- NEXRAD: Dataset from network of 160 high-resolution Doppler weather radars

All available for direct use via Google Cloud Storage APIs, free of charge



# Thank you!

<https://cloud.google.com/>

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# Storage & Database Portfolio

