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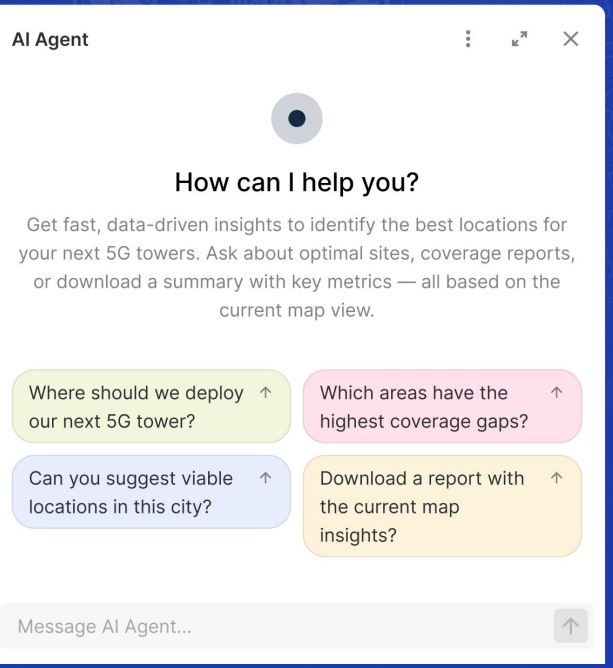
Geospatial Sovereignty in the Age of AI

Sovereignty without isolation
A layered approach

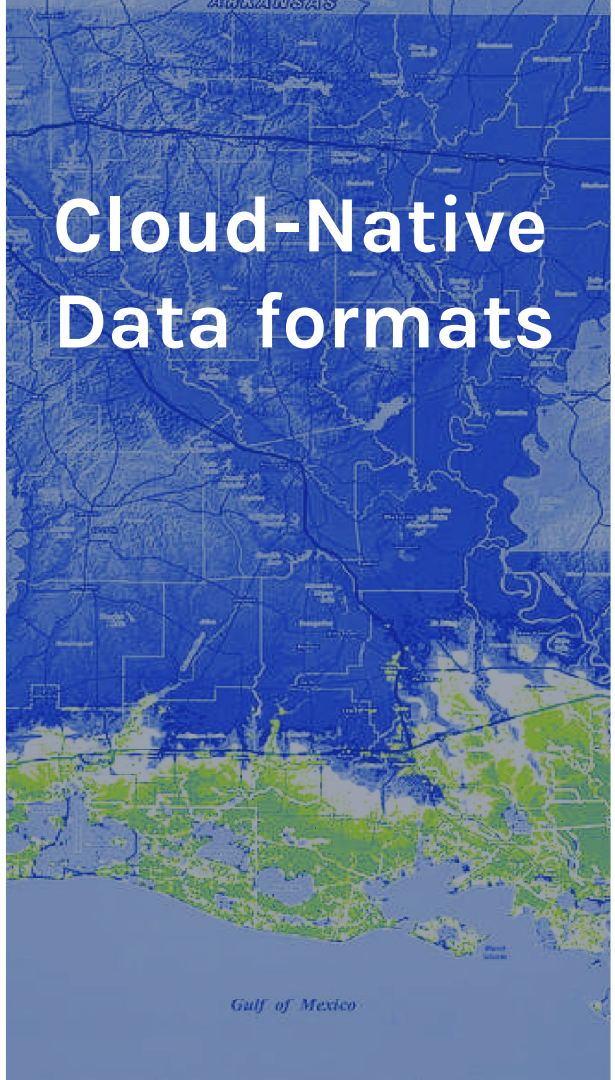
Javier de la Torre

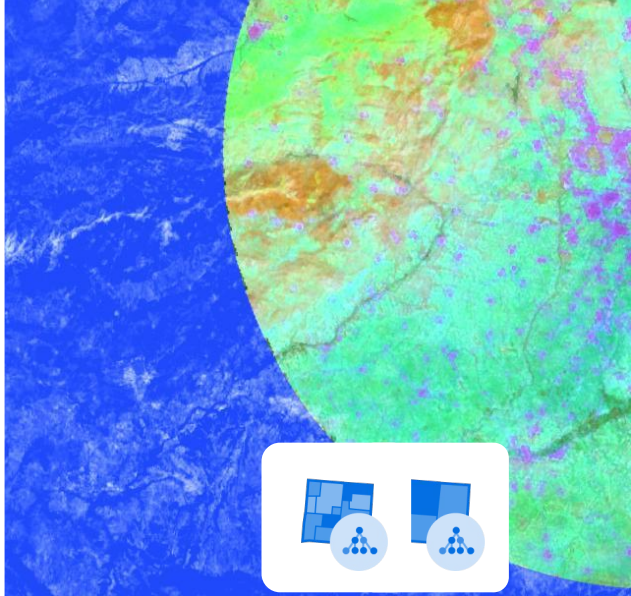
CARTO Founder

Agentic GIS



Cloud-Native Data formats





Geospatial Foundation Models

Geospatial Sovereignty

Why sovereignty matters now

- Geospatial underpins critical systems
- AI amplifies dependency + risk
- Outages + geopolitics are real

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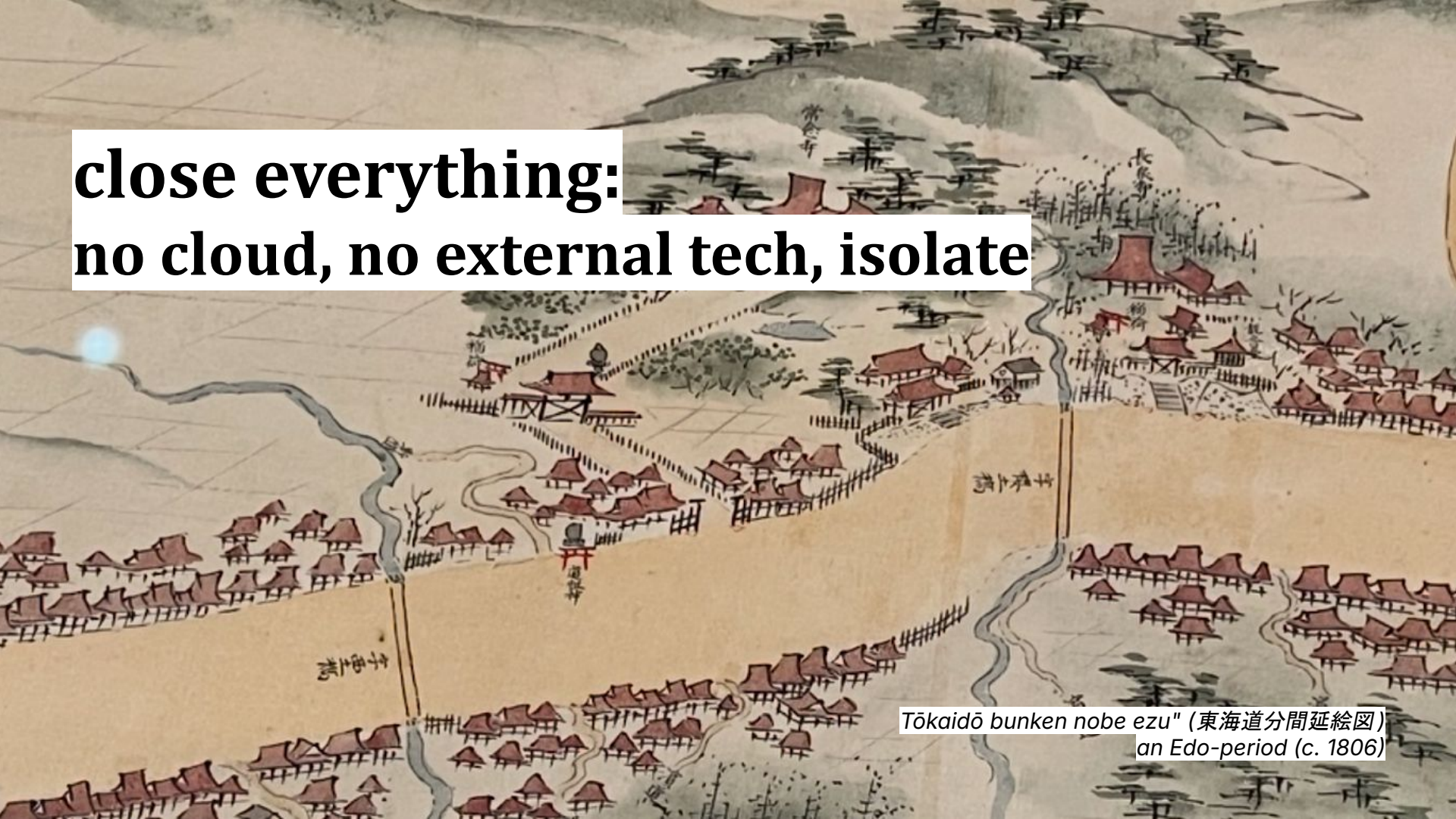
close everything:
no cloud, no external tech, isolate



Tōkaidō bunken nobe ezu" (東海道分間延絵図)
an Edo-period (c. 1806)

Sovereignty ≠ Isolation

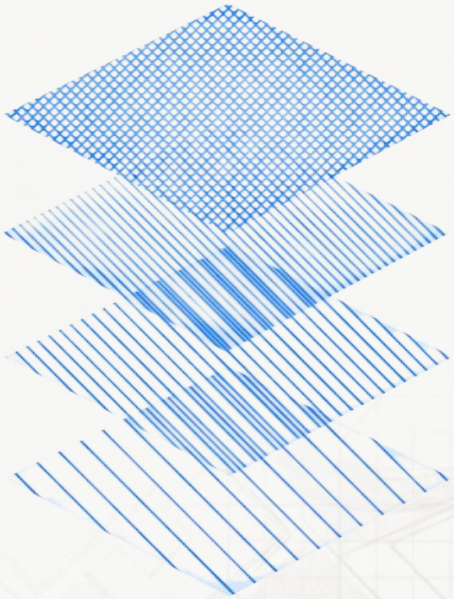
- Don’t freeze your stack
- Avoid losing competitiveness
- Design for safe collaboration

Isolation is the fastest way to fall behind

Tōkaidō bunken nobe ezu" (東海道分間延絵図)
an Edo-period (c. 1806)

A layered reference architecture

A blueprint for sovereignty without isolation



Layer 1: Data (own the formats)

Layer 2: Compute (own the execution choices)

Layer 3: AI (own the intelligence boundary)

Layer 4: Semantics & IDs (stay interoperable)

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Layer 1: Data (own the formats)

- Open Table Formats: GeoParquet + Iceberg (analytics-ready)
- Object storage: S3-compatible as the common substrate
- Avoid GIS silos with cloud-native specs

It’s Official:

GEOMETRY and GEOGRAPHY are just data types in Parquet and Iceberg

The End of Special Treatment: Spatial Joins the Cloud-Native Stack

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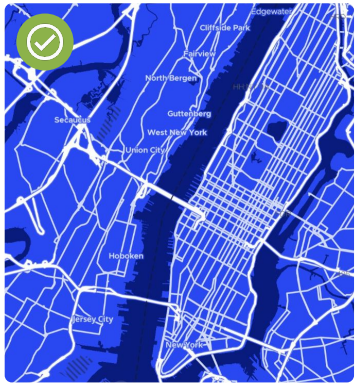
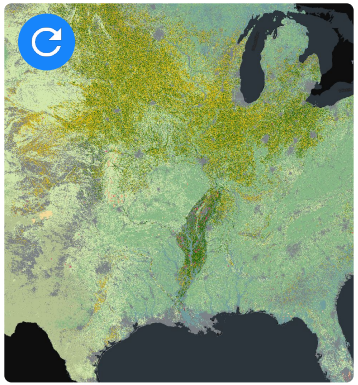


Vector Data

Points, polygons, lines, describing places, roads, geography…

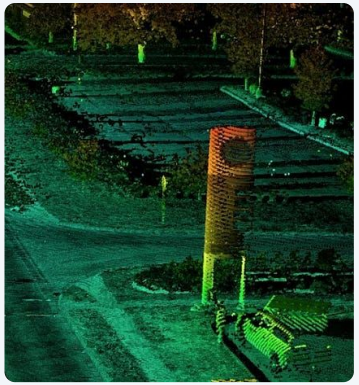


Raster Data

Array data representing models, imagery, weather, pollution...

Trajectory Data

Trajectories. Vehicle telemetry, routes, boats, flights. Anything moving over time.



LiDAR, BIM…

LiDAR from cars, radar, 3D buildings.

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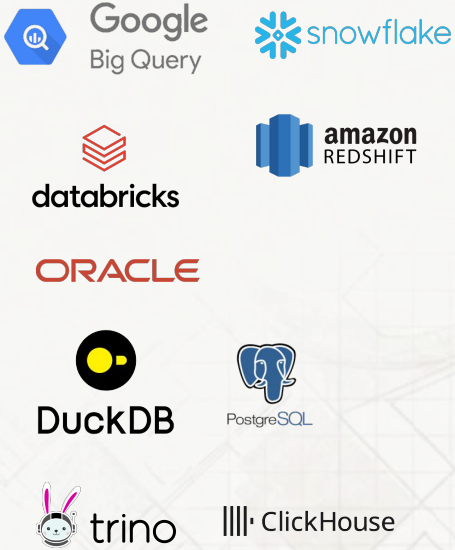
Layer 2: Compute (own the execution choices)

- Multi-engine: DW / Spark / DB / Edge
- Multi-location: on-prem / sovereign / cloud
- Workload-based placement



Layer 3: AI (own the intelligence boundary)

- Model optionality (swap providers) OpenAI Compatible API
- Tool standardization (MCP-style)
- Guardrails: provenance + policy


Layer 4: Semantics & IDs (stay interoperable)

- Common models + stable IDs
- OGC APIs (Features/Tiles/Records/Processes)
- Collaboration with OSM/Overture (GERs IDs)

Open Geospatial Consortium

OVERTURE MAPS FOUNDATION

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Beyond tech: what must accompany it

- People + training
- Procurement + governance
- Legal + licensing (incl. AI training)

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Sovereignty without isolation

- Build on standards (OGC APIs + open table formats)
- Design for multi-cloud + on-prem (portable by default)
- AI optionality: frontier today, local tomorrow
- No single points: resilience + exit strategy

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The BIG migration towards Agentic GIS is the opportunity!

TRADITIONAL GIS

If you have a traditional GIS application with hundreds of layers and options...

MIGRATION & MODERNIZATION

AGENTIC GIS (SOVEREIGN)

Now is the time to modernize it taking into consideration sovereignty

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Thanks!

Javier de la Torre
jatorre@carto.com