

LUMI^{DB}

Access to spatial data.

Wherever the work happens.

Workshop

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Spatial data at an inflection point.

Capture has scaled. Access hasn't

Point cloud volumes are growing exponentially across transport, utilities, and mining sectors.

The industrial world is being digitized at petabyte scale, but the data is locked in a pre-cloud era.

In utilities, transport, and mining, high-frequency scanning has moved from a niche task to a core operational requirement. The infrastructure to move that data from sensor to application is still broken.

The pain we solve

Scanned data is unreachable from the tools that need it

Scattered Data

Data is stored across drives, portals, and emails. It is unclear where to search or who to ask.



Leads to

Underutilized data

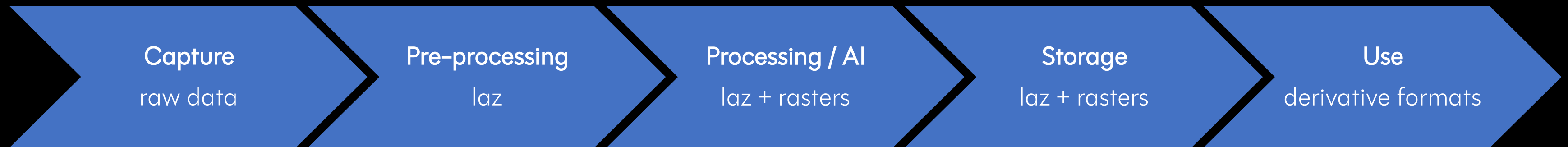
90% of captured scans sit idle in archives because they are too difficult to use.

Bottlenecks

Massive point clouds require experts to crop and export subsets manually.

The Old Way

The fragmented manual pipeline

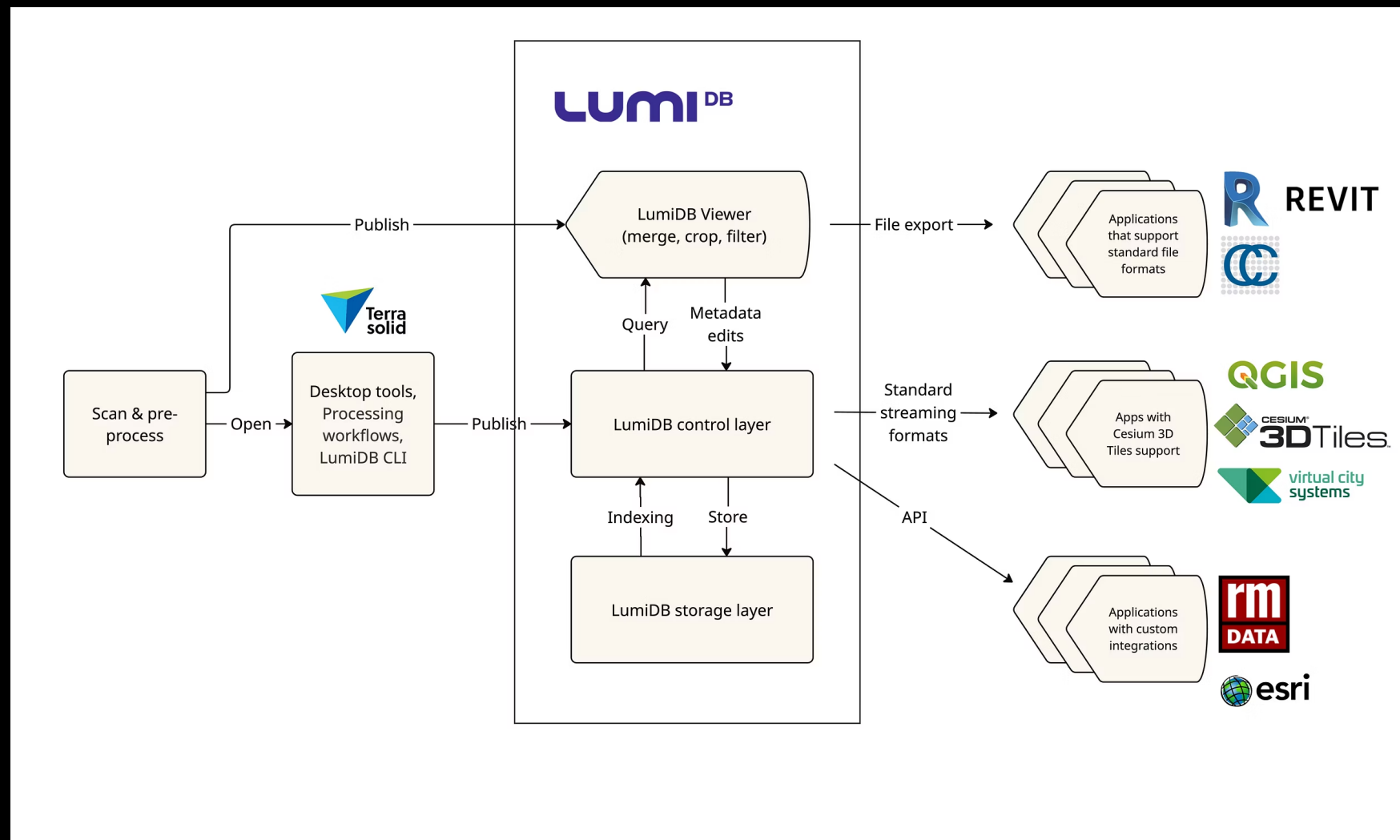


Data moves on physical drives or slow FTP into generic storage. Surveyors hand-crop point clouds for every request. Rasters get reformatted per client. Vectors get repackaged into shapefile zips. Project bundles get dropped into folders nobody can search.

Every handoff makes a duplicate file. Every tool, every person, every AI model needs a human specialist to prepare the data first. The result is 3× storage bloat, version chaos, and the most expensive data your organization collects sitting unreachable after the first project.

The solution

LumiDB is the spatial data warehouse for industrial 3D



The access layer that exposes your full archive to every customer, every CAD and GIS tool, and every workflow that needs it.

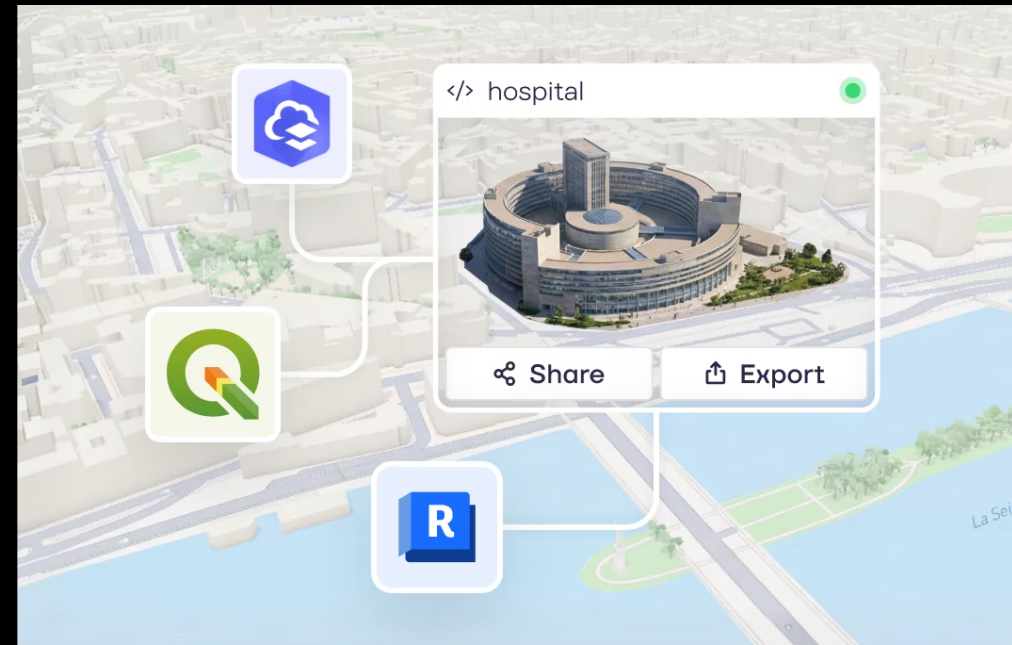
Point clouds, rasters, vectors, and project bundles, indexed at petabyte scale, queryable in milliseconds, streamable to the tools your team already runs.

The key capabilities



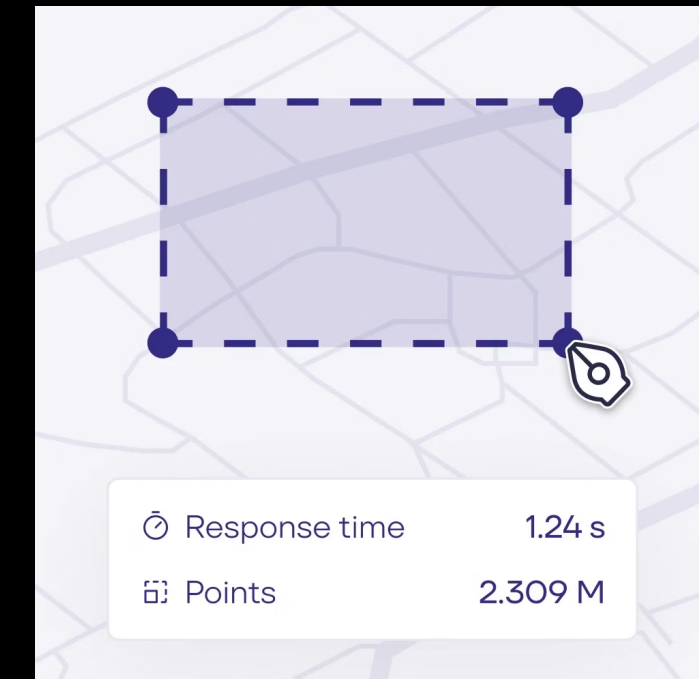
Sharing for Customers

Live, branded project workspaces clients open in a browser.



Connectors

Live data feeds into the GIS, BIM, and CAD tools your team already runs.



API for Workflows

A REST API and spatial query engine for AI, change detection, and custom pipelines.

Training — getting data in and organized

Part 1



Sign in to LumiDB

Welcome back! Please sign in to continue

Email address or username

Continue ▶

Want early access? [Join waitlist](#)

Does everyone have an account?

Send a note to sampo@lumidb.com and I will add you now.

Data ingestion

1. LAS, LAZ, E57, GeoTIFF / local filesystem or S3
2. Manifest-based import with EPSG/PROJ.4 projection
3. Async task queue, progress tracked
4. Octree spatial index built automatically
5. Every import is an immutable version

Datasets and metadata

1. Dataset: a collection of one or more point cloud files
2. Boundary geometry, point count, classification distribution
3. Source files indexed and individually downloadable
4. User metadata, merge-patch updates: per point and per dataset
5. Aggregated metadata queries built in

Projects and the workspace model

1. Project groups datasets into a working unit
2. Holds persistent annotations
3. The unit of sharing and branding
4. Per-project role assignment

Training — the viewer

Part 2

Viewer fundamentals

1. WebGL rendering with Eye Dome Lighting
2. Basemaps: light, dark, satellite, Esri, or custom
3. Location search (Mapbox)
4. Runs in any modern browser
5. Can visualize all project datasets at once

Color modes and visual inspection

1. Per point attributes:

a. RGB

b. Classification

c. Intensity

d. Source ID

2. Source:

a. Source file

b. Dataset

3. Analytics:

a. Elevation

b. Extra data

Measurements and annotations

1. Point, line, path, area polygon, volume
2. Saved per project, not throwaway
3. Annotations are deliverables in their own right
4. Export as GeoJSON

Cross-sections

1. Draw a line, get a 2D elevation profile
2. Sub-second extraction, arbitrary length
3. Works across merged datasets

Filtering and cropping

1. Classification filter (ASPRS codes)
2. Elevation (Z-range) filter
3. Polygon crop
4. Apply before query, export, or share

Multi-dataset workflows

1. Load many datasets in one view
2. Per-dataset visibility toggles
3. Split-screen comparison for change detection
4. Combined-tileset queries treat them as one

Training — Sharing for stakeholders

Part 3

Access control and sharing links

1. Roles:
 - a. Viewer: View and use tools
 - b. Analyst: Export data, persist measurements
 - c. Editor: Ingest data, control project sharing, move data between projects
 - d. Admin: Control organization sharing, see all organization projects
2. Shareable public link tokens, per-link permissions
3. Coming soon: Custom branding: logo, colors, project name
4. Live handoff, not a file dump
5. Org-scoped isolation under the hood

Training — Connectors for GIS, BIM, CAD

Part 4

ArcGIS integration

1. Official Esri Partner
2. I3S / Scene Layer streaming
3. Read directly inside ArcGIS
4. No file download, no manual prep
5. Coming soon: write processed data back

Open streaming standards (Cesium 3D Tiles, EPT, QGIS)

1. Cesium 3D Tiles: any Cesium-compatible client
2. EPT: QGIS etc.
3. Open standards, no lock-in

Terrasolid publishing

1. Direct export from Terrasolid to LumiDB
2. No intermediate file shuffling
3. Processing to warehouse in one step
4. New version appears in the project workspace

Training — API for automated workflows

Part 5

REST API fundamentals

1. Both ingestion and downstream queries
2. Auth: Clerk JWT, API keys, link tokens
3. Endpoints: query, metadata, import, export, projects
4. Org-scoped, multi-tenant

Programmatic spatial workflows

1. Polygon + classification + reprojection in one query
2. Powers AI inspection, change detection, custom pipelines
3. npm SDK: @lumidb/lumidb
4. Build your own 3D viewer on top of the SDK

Training — Administration and deployment

Part 6

Export and downstream file handoff

1. Async bulk export
2. Output: LAZ, E57
3. Presigned download URLs
4. Source file download by index

Org administration

1. Member management and role assignment
2. Coming soon: API key creation and revocation
3. Coming soon: Tier overview and usage
4. Coming soon: Billing via Stripe

Practical case study

Change detection

1. Scan, classify, publish ground truth to LumiDB
2. Rescan loop
 - a. Rescan
 - b. Classify (TerraScan, Pointly, FLAI)
 - c. Compute difference and store in laz Extra Data attribute (with e.g. TerraScan)
 - d. Publish to LumiDB
3. Use the LumiDB extra data visualization mode and the swipe compare tool

LUMI DB



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