

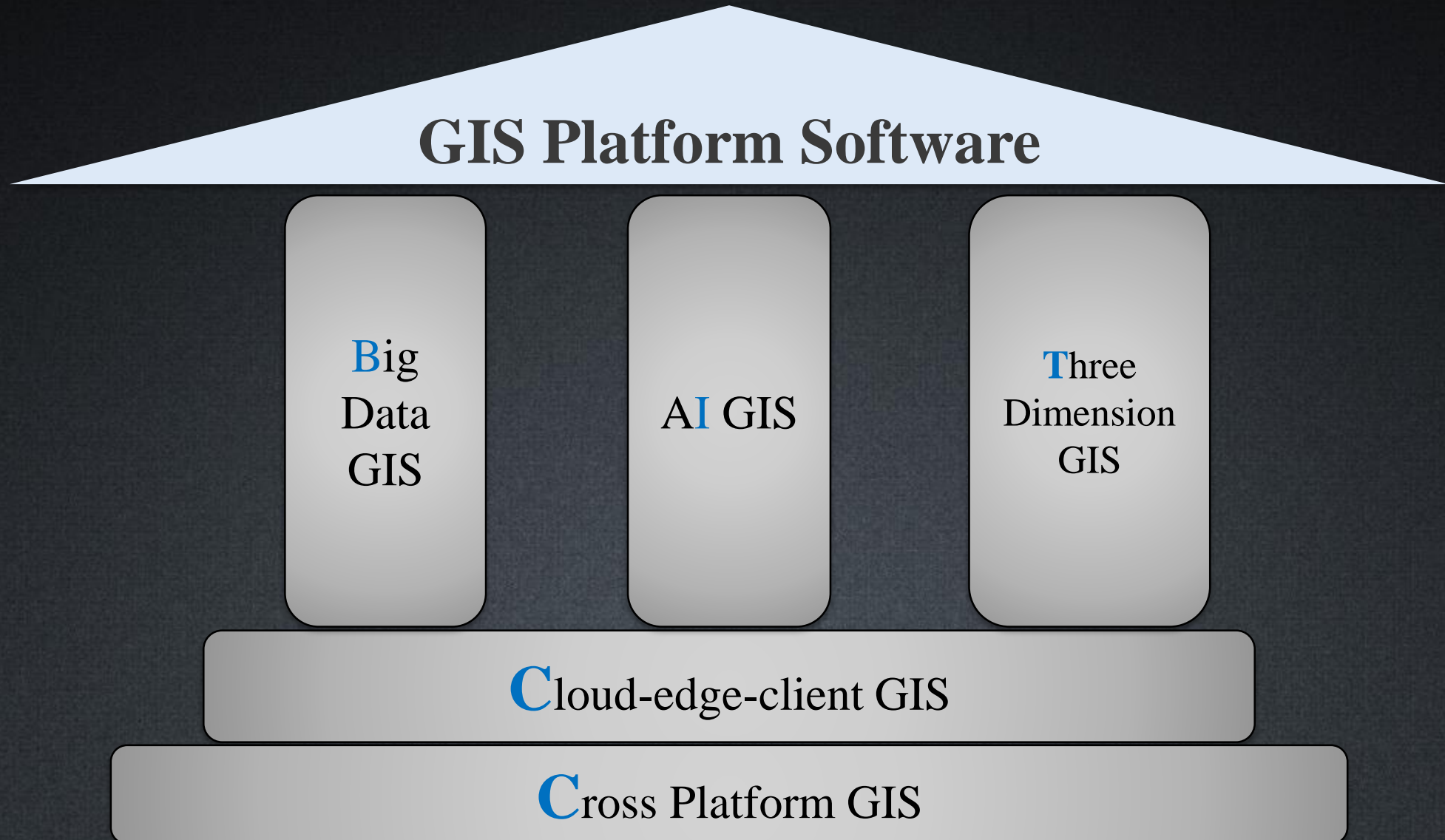
SuperMap GIS 10i(2022) 3D Technology

V10.1.0

Mohsen Hosseinpour : Supermap Comapany Agent in Iran

بِه نام خدا

5 Technologies of GIS Platform Software(BitCC)



Big Data GIS



Cloud GIS

Big Data GIS
Support Technology

Cross-platform GIS

An aerial, grayscale view of a city with a large river winding through it. Overlaid on the city are numerous glowing blue lines that form a complex, interconnected network, resembling a data visualization or a transportation network. The lines are more concentrated in certain areas, particularly along the river and in the central urban core. In the top-left corner, there is a small vertical toolbar with a plus sign, a minus sign, and a directional arrow icon.

Visualization of BigData



AI (Artificial Intelligence)

The diagram consists of three concentric circles. The outermost circle is light blue and labeled 'AI (Artificial Intelligence)'. Inside it is a medium blue circle labeled 'Machine Learning'. Inside that is a dark blue circle labeled 'Deep Learning'. This illustrates that Deep Learning is a subset of Machine Learning, which is a subset of Artificial Intelligence.

Machine Learning

Deep Learning

AI+GIS



Deep-Learning Based Oblique Photography Building Extraction

Windows
10.0.17134.1

The detect result of palm trees



New Generation of Three Dimensional GIS

New Generation of 3D GIS Application

WebGL

VR

3D Printing



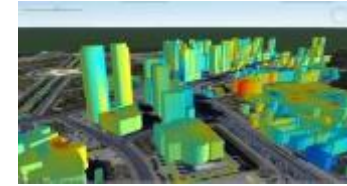
Oblique Photogrammetry



BIM/CIM



Point Cloud



3D Field



3D Terrain



Manual Modeling



Symbolic 3D Scene



Underground Pipeline

2D & 3D Integration Technology

data model

scene construction

spatial analysis

software form

Multi-Source Data Supported



3D Terrain



Oblique Photogrammetry



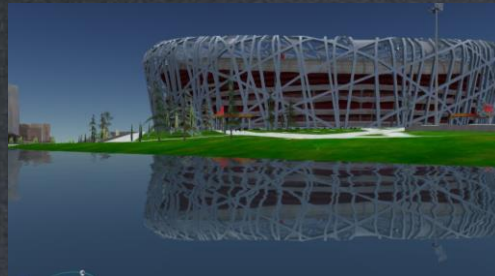
BIM



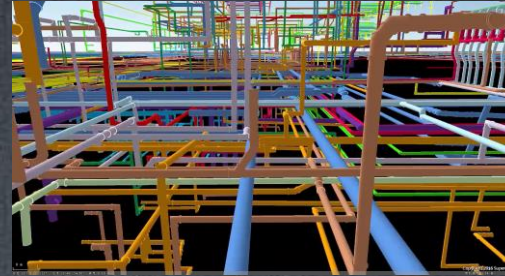
Point Cloud



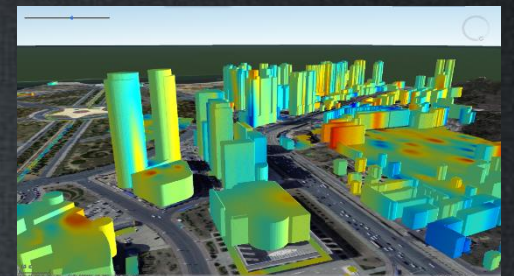
Artificial Model



Water Surface

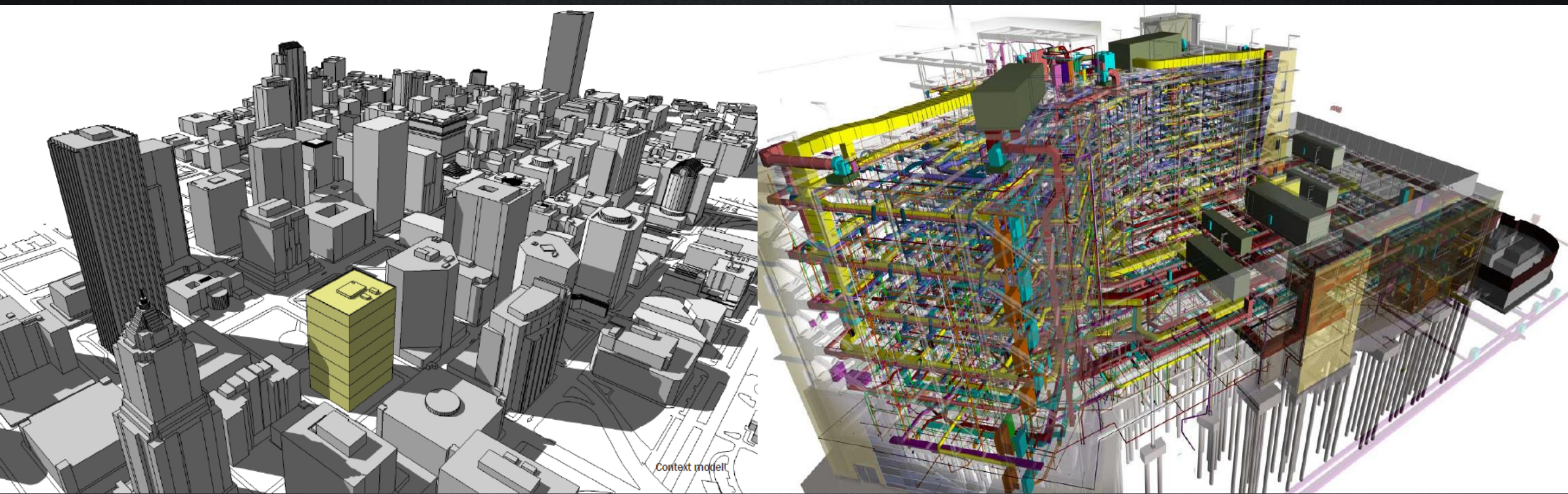


Underground Pipeline



3D Field

BIM



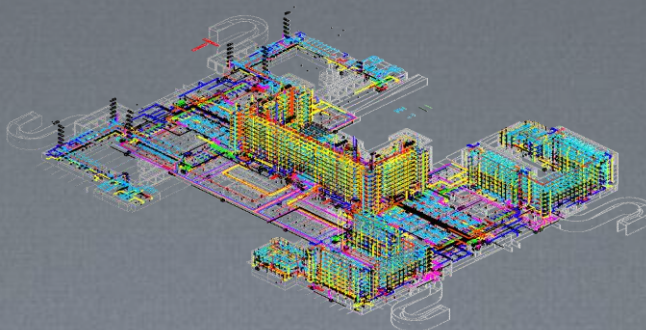
BIM + GIS = Full Life Cycle

BIM

Design



Build



Operation

?

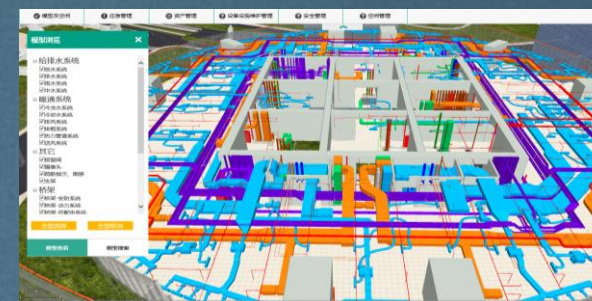
BIM+GIS



Urban Design
Planning Approval

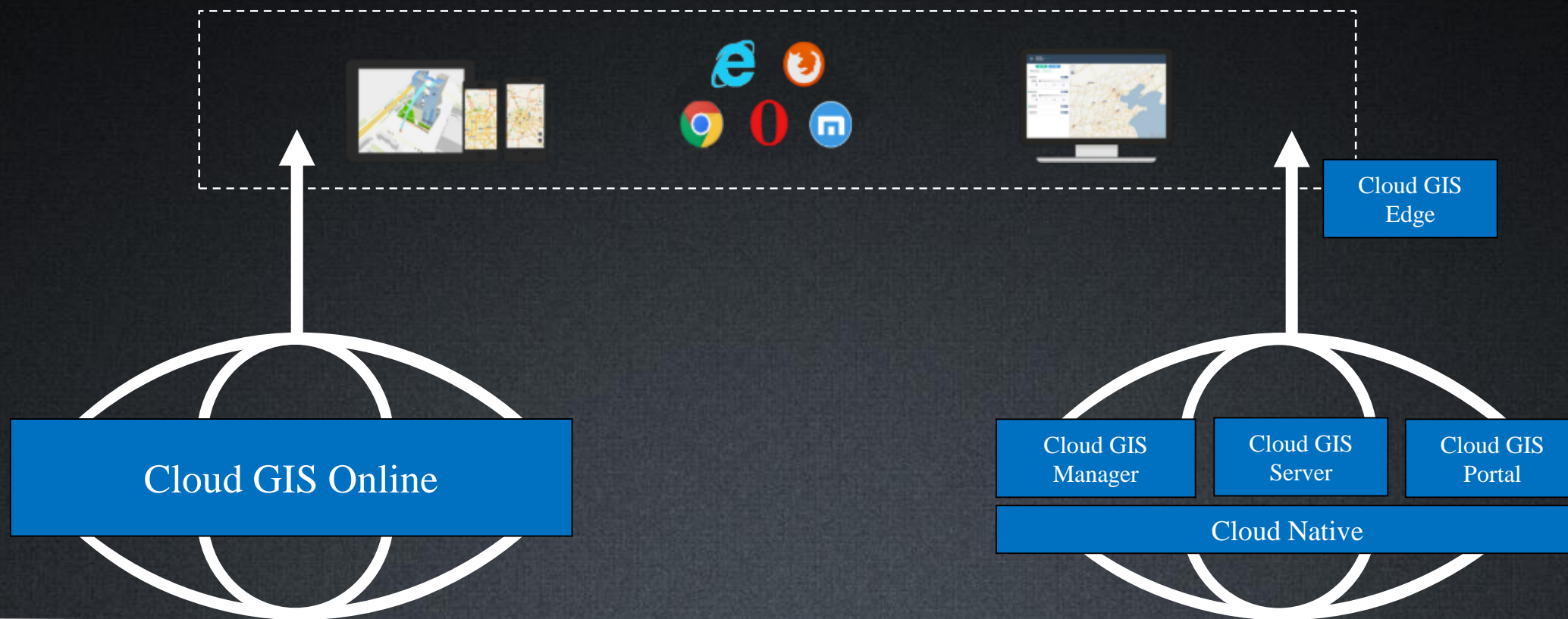


Construction Supervision



Maintenance &
Operation

Cloud & Terminal Integration GIS



docker

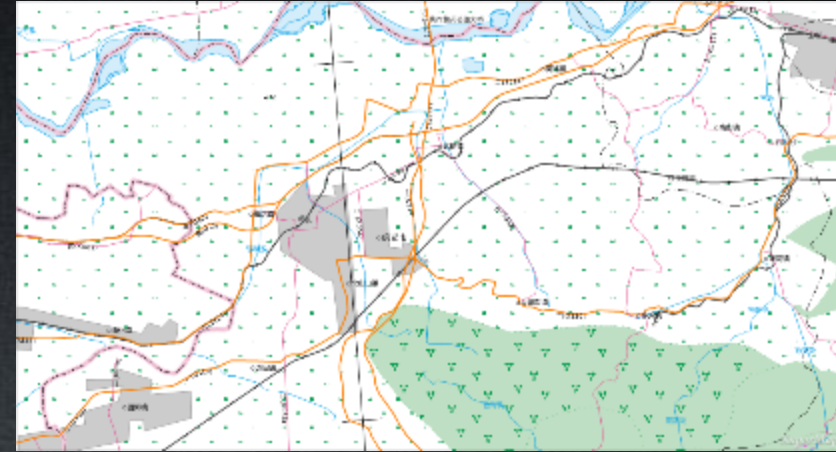
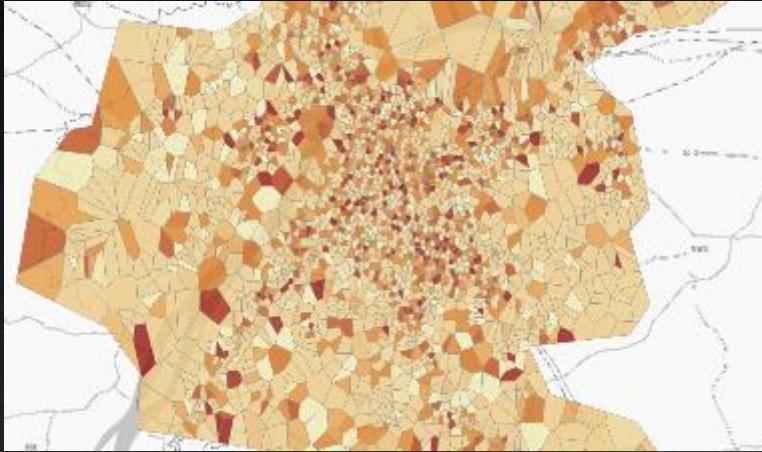


kubernetes

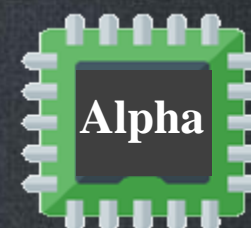
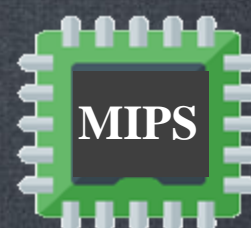
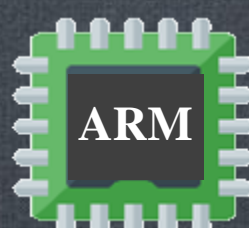
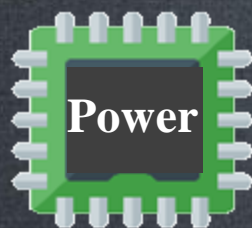
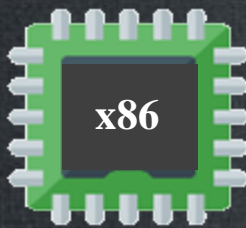


FusionSphere
HUAWEI

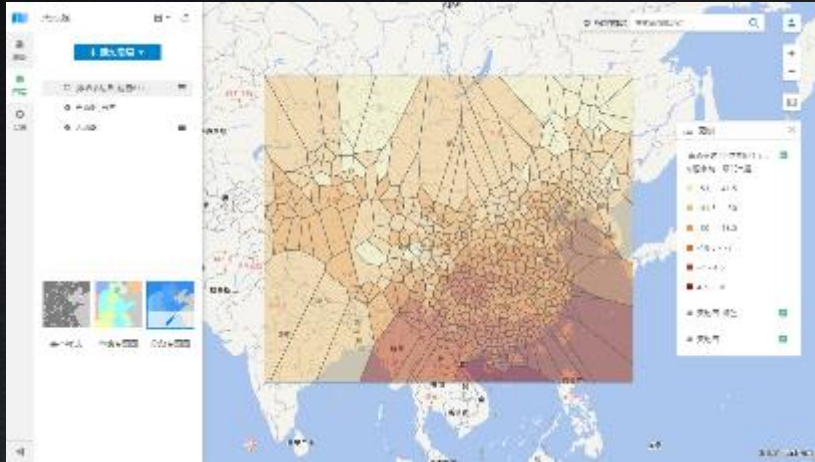
Cross-platform GIS



SuperMap GIS



Build your Application Center



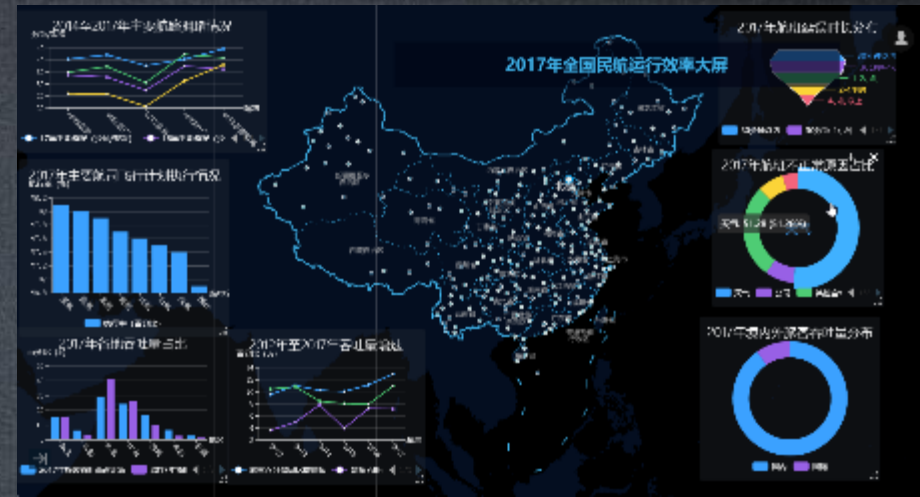
Online Mapping



Application Customize



Data Insight

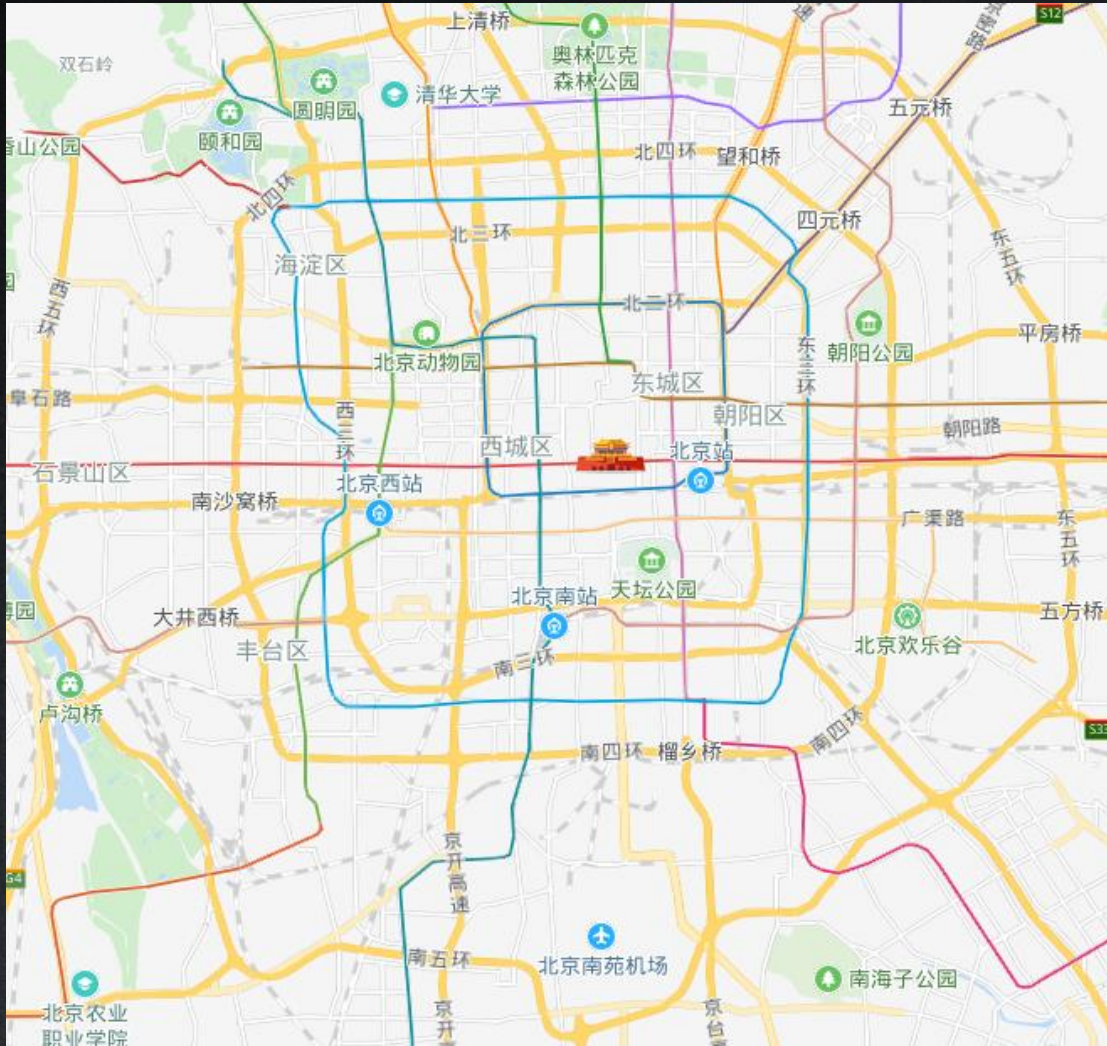


Big Screen

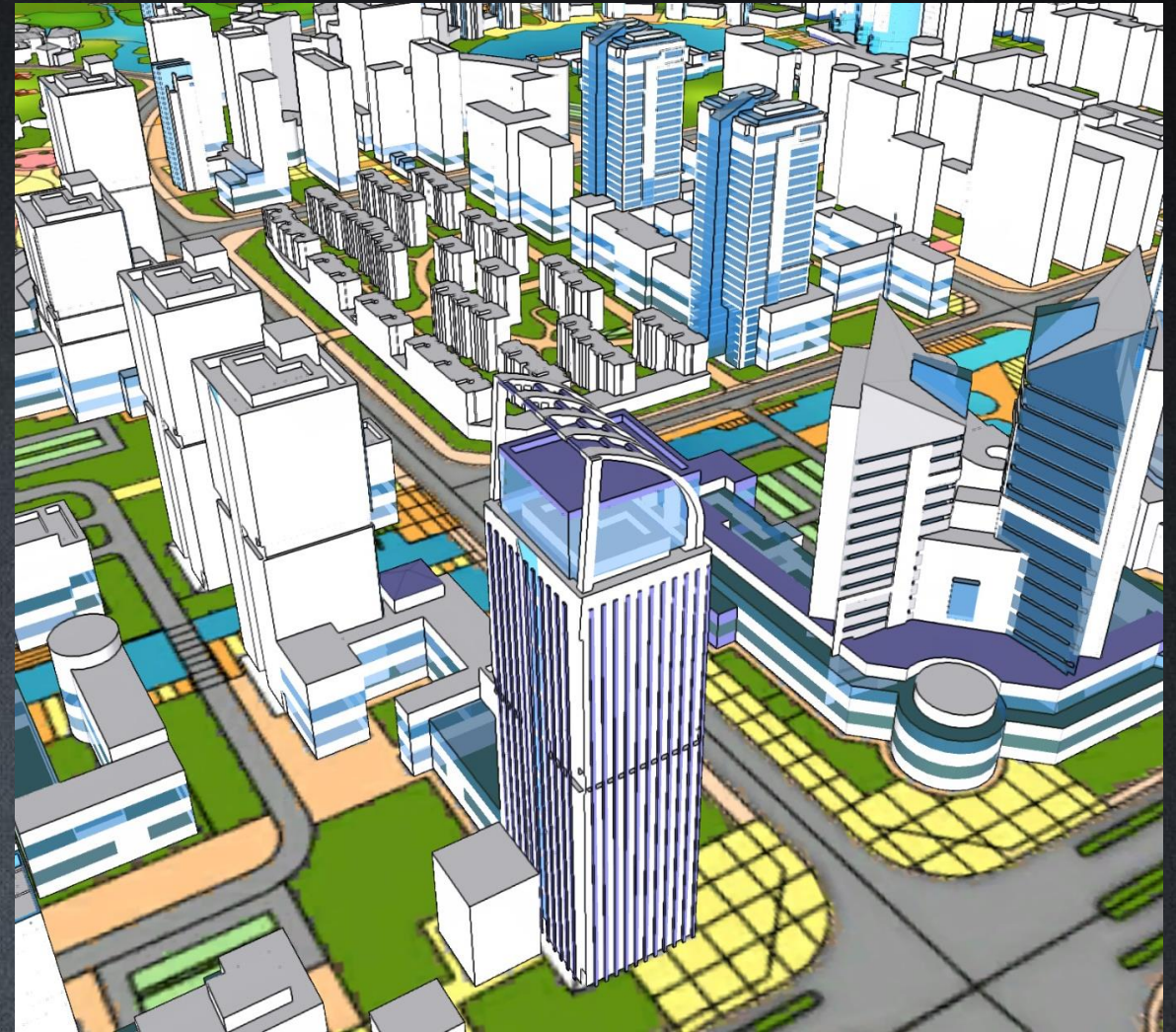


Data Model

Object Model-represent Discrete Objects

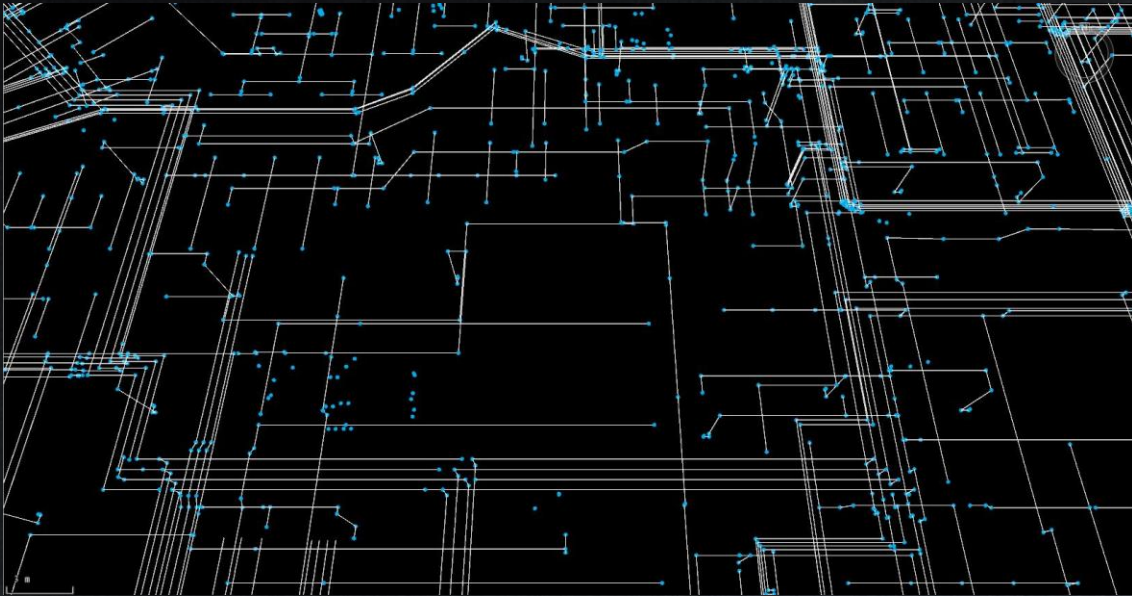


2D Point, line, Polygon

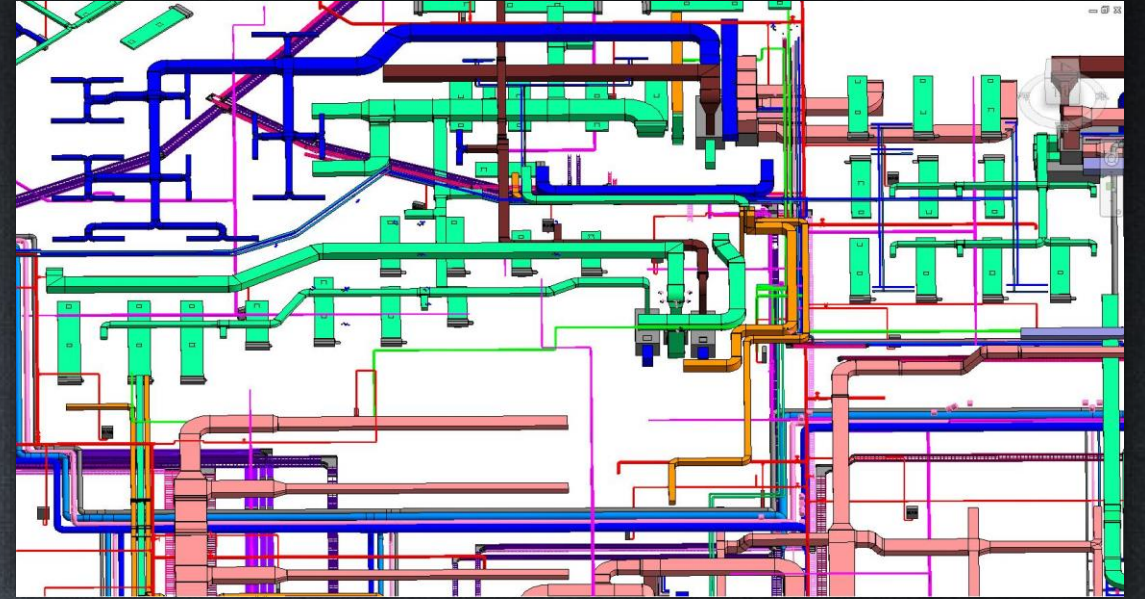


3D Point, line, Polygon, Solid

Network Model - Represent Connection Relationships



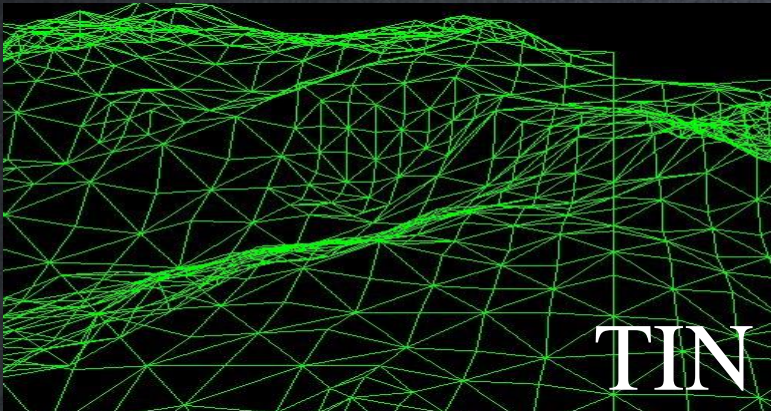
3D Network Data Model



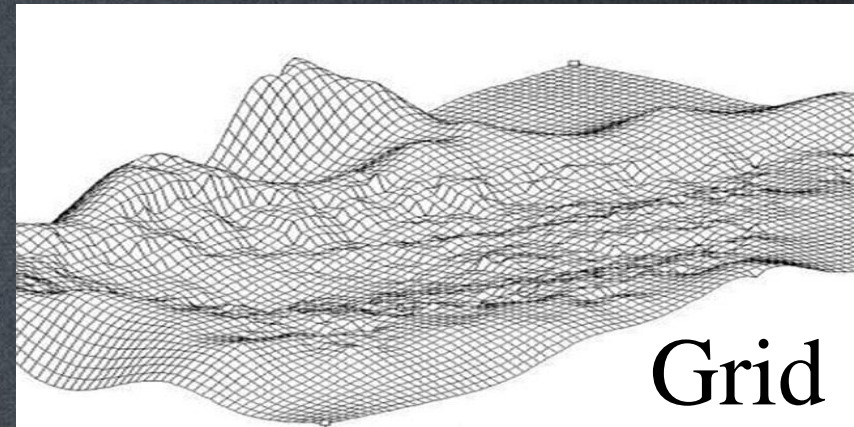
BIM: Road, Pipeline ...

Field Model - Represent Continuous Surfaces (2.5D)

Oblique Photography

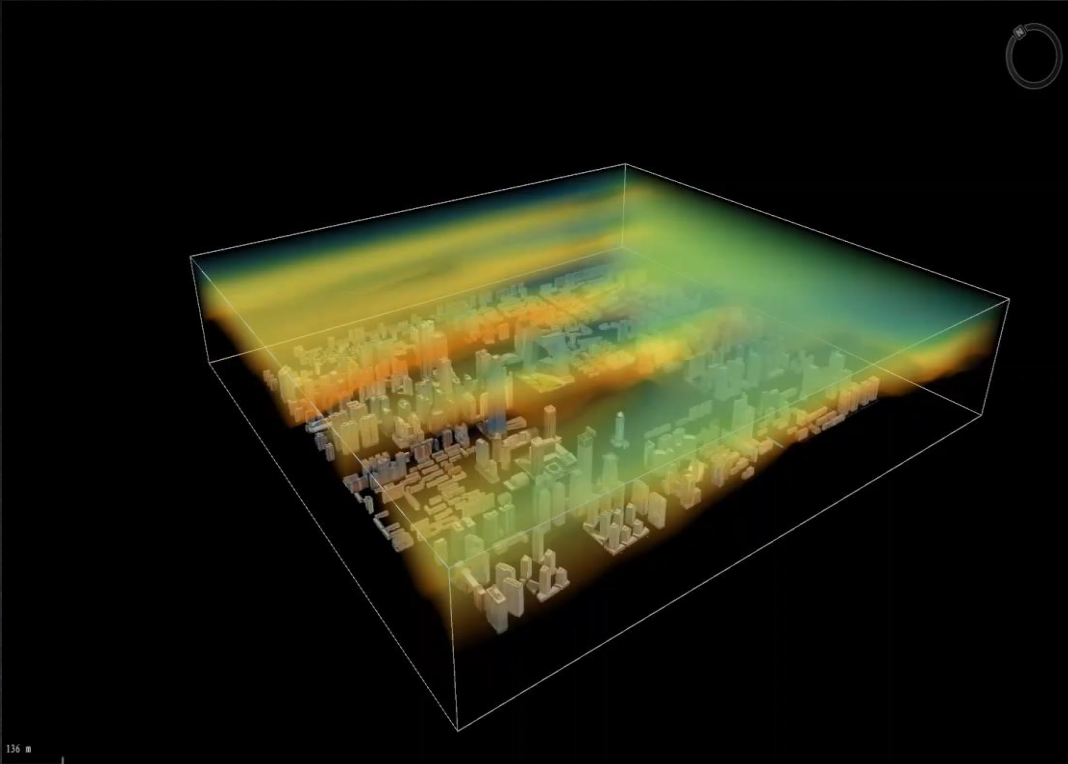


Terrain

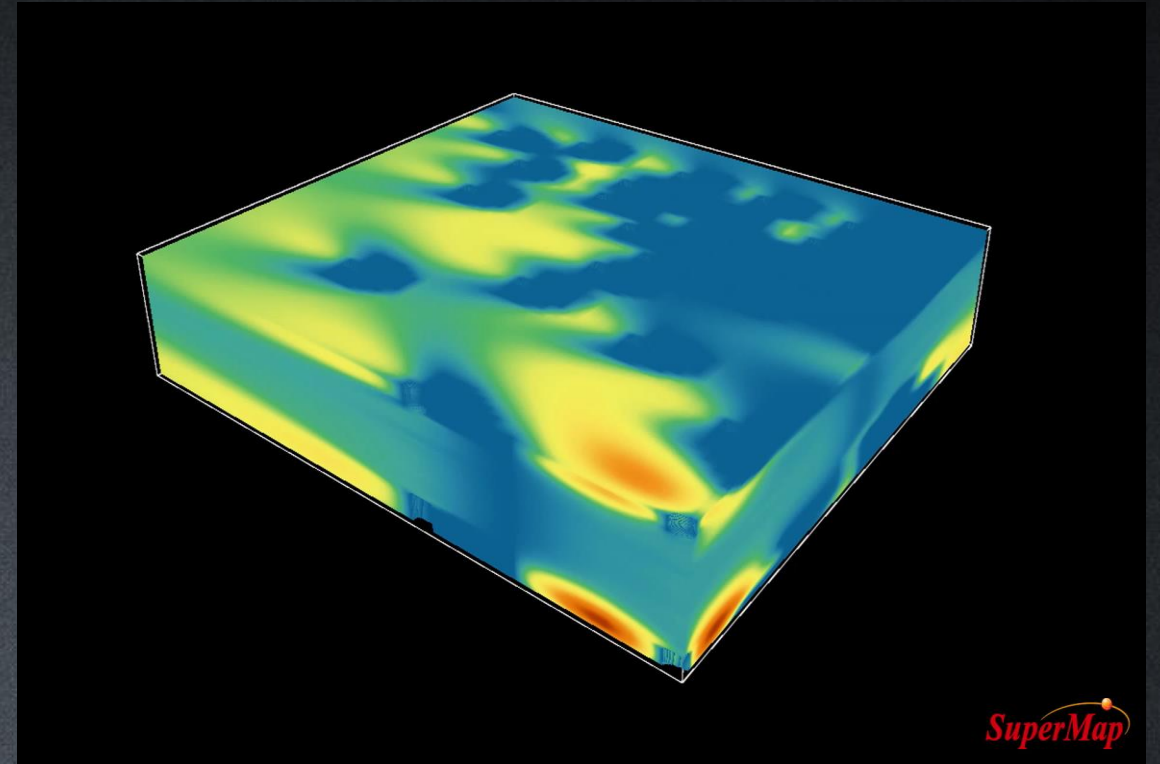


Voxel Grid - More Applications

——Direct Loading

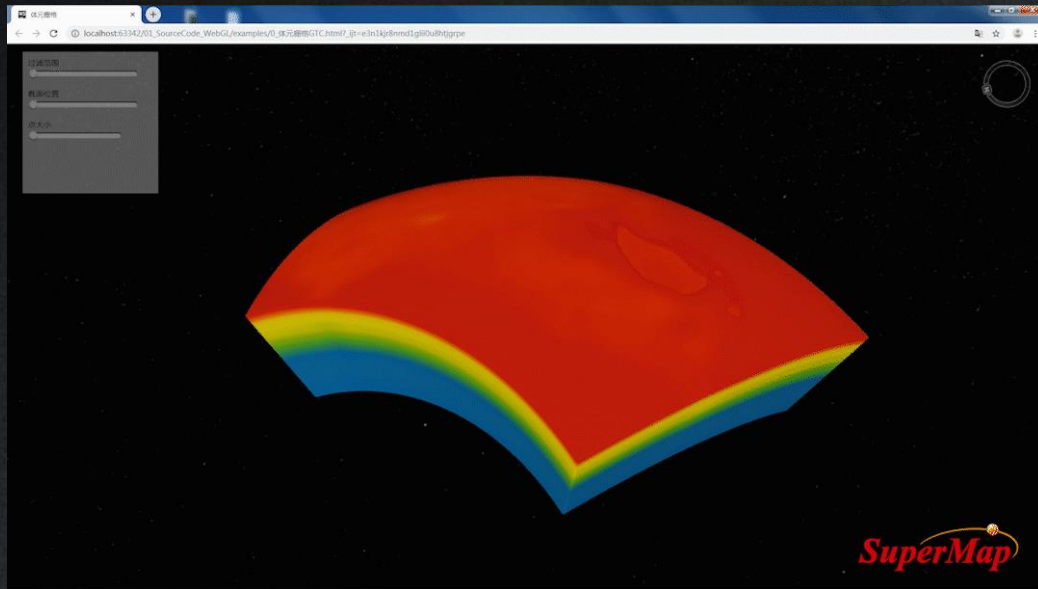


Pollution Field-filter And Dissipate



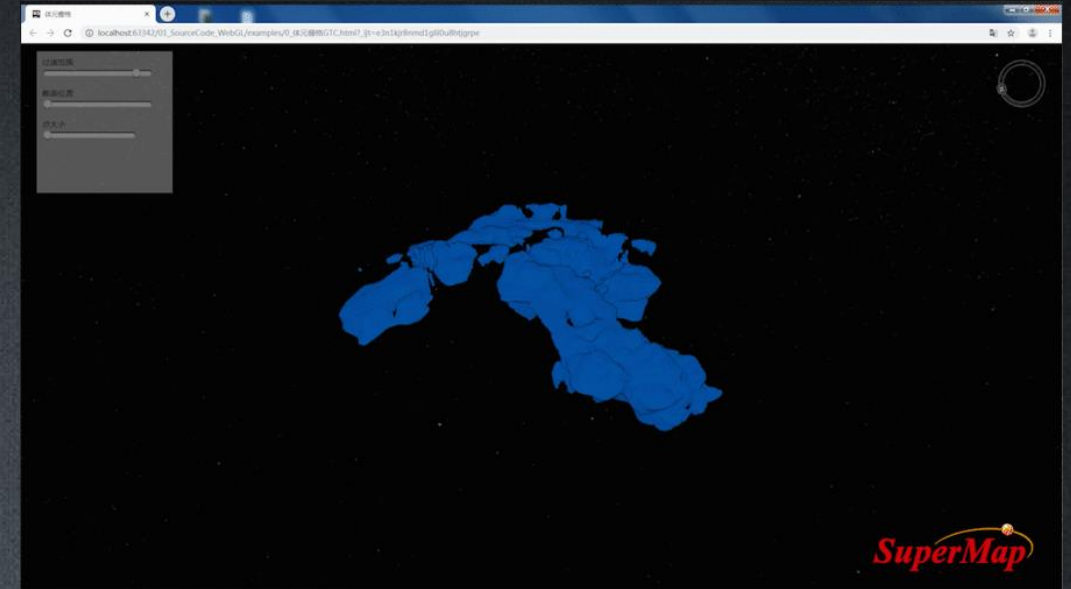
Pollution field - Dynamic Section

Extracting 3D Model of Wave Velocity Value in Seismic Wave Velocity Field



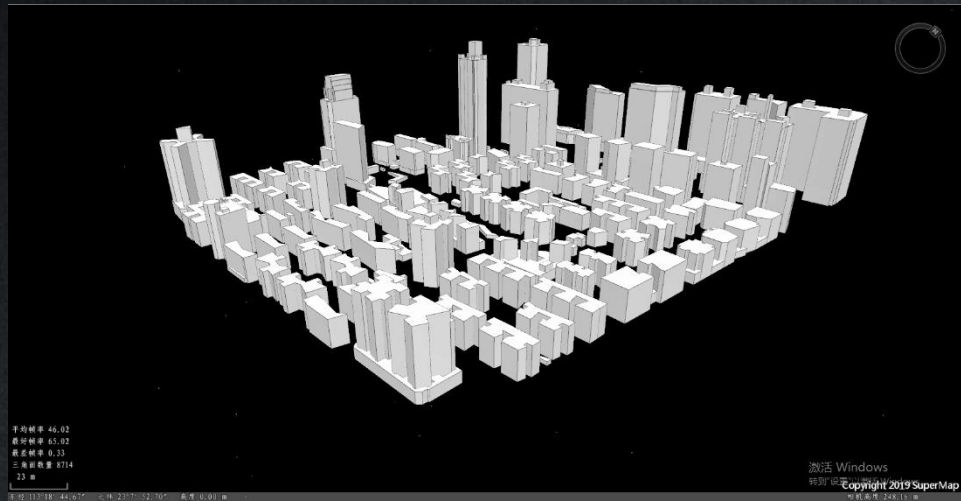
Seismic Wave Velocity Field
(Voxel Grid)

➔
Extract
Isosurface



3D Model of an Instant
Wave Velocity Value

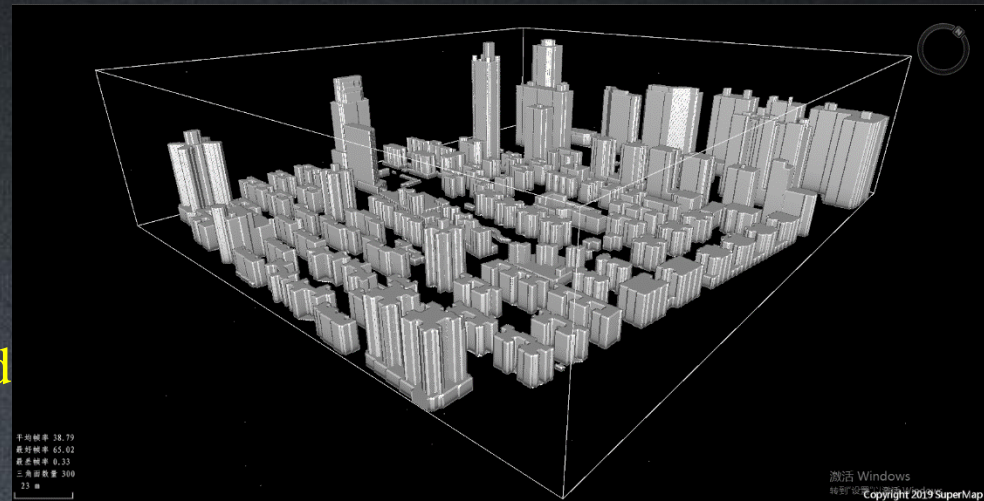
Superposing Heterogeneous Property Field on Solid



Building Model (3D Model)



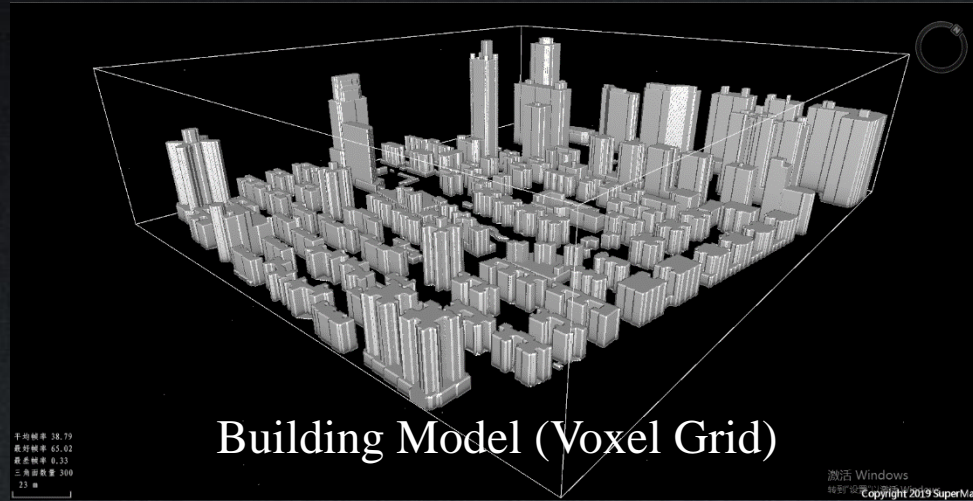
Pixelated



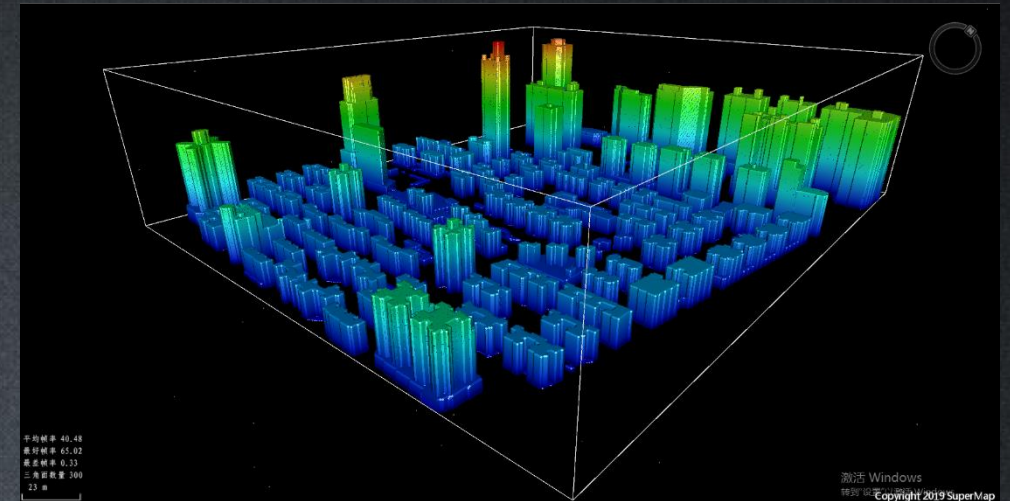
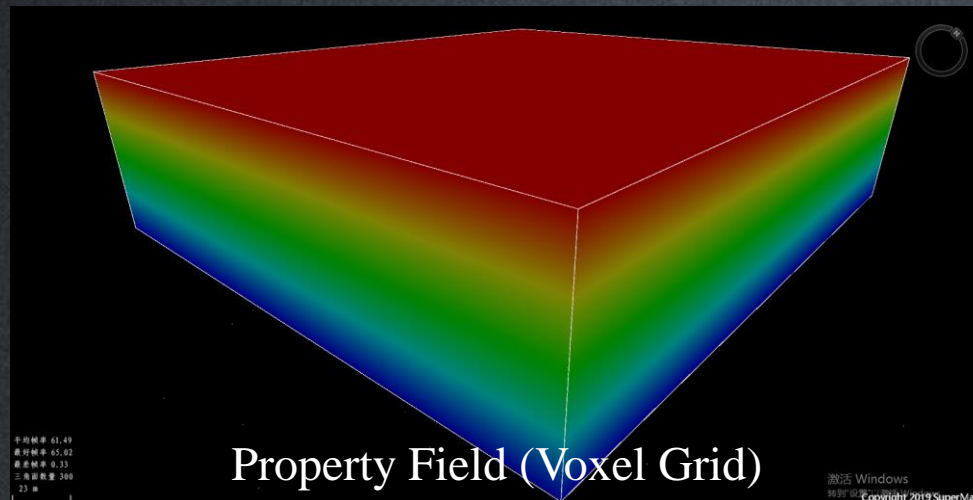
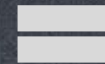
Building Model (Voxel Grid)



Superposing Heterogeneous Property Field on Solid

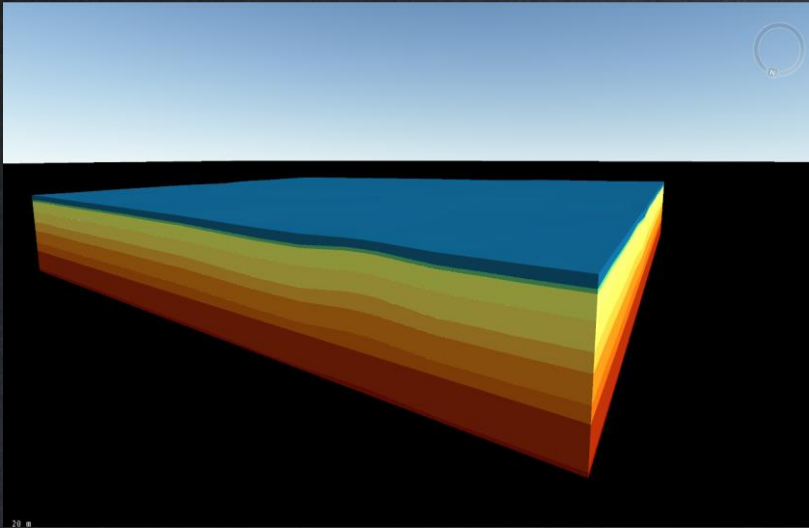


Algebraic Operation



Solid

Representing 3D Object with Well-defined Boundaries



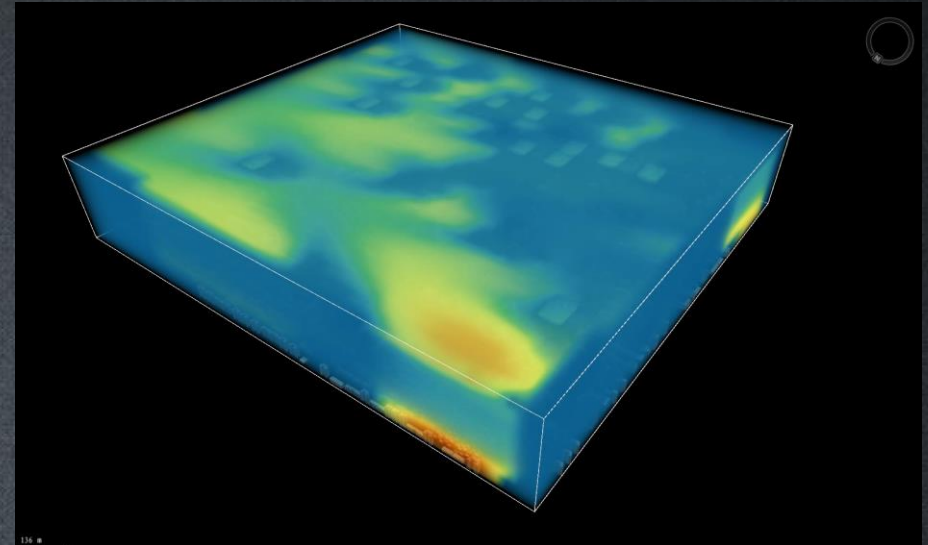
Voxelization



Extract
Isosurface

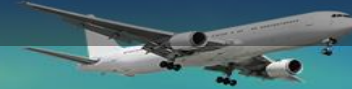
Voxel Grid

Representing 3D Object with Continuous and Heterogeneous Attribute Field





Sky: TIM、Voxel Grid



Surface: Solid、TIN、Grid、Network

Underground: Solid、TIM、Voxel Grid、Network

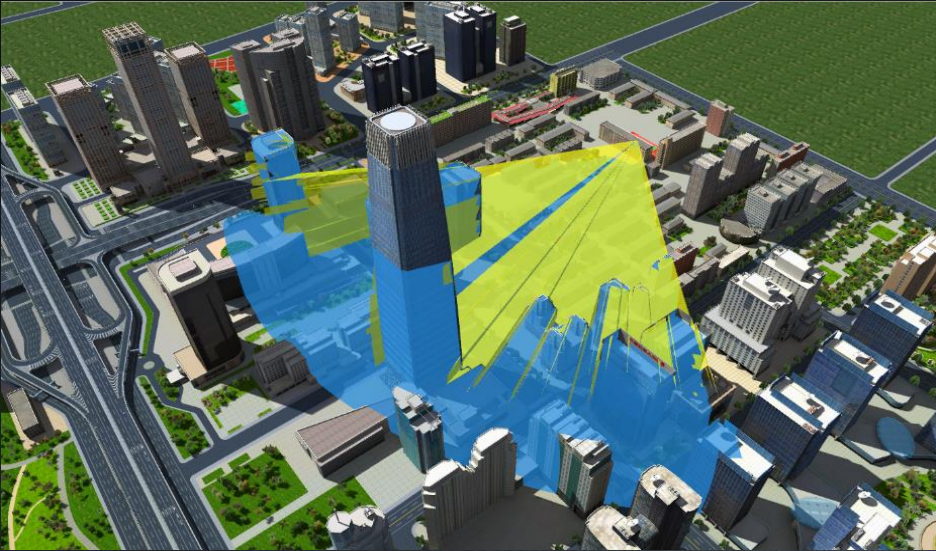
3D Spatial Operation



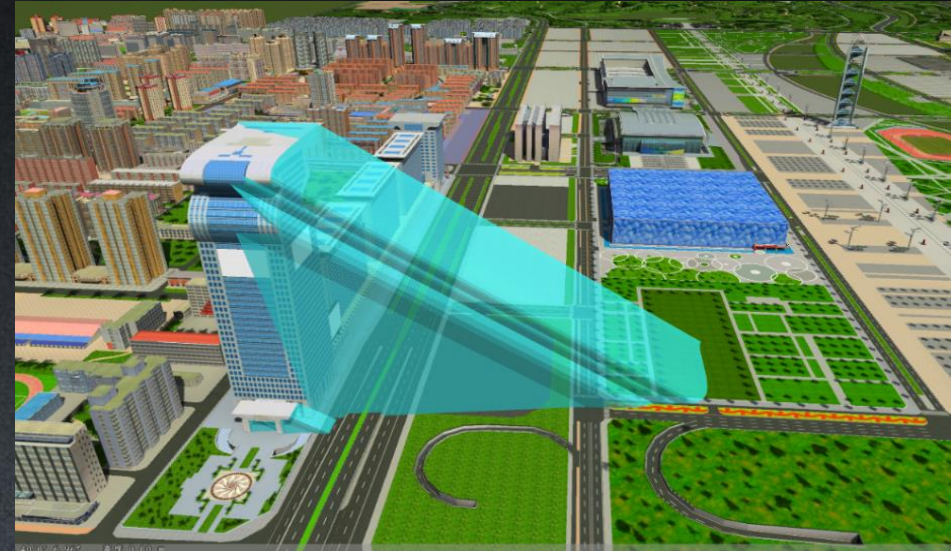


3D Spatial Relationship Judgment

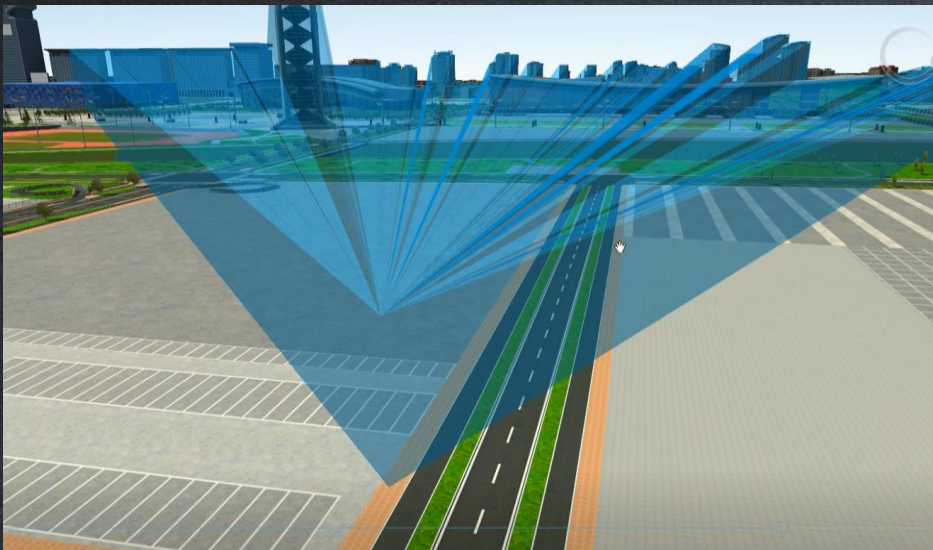
3D Feild Model (Spatial Analysis)



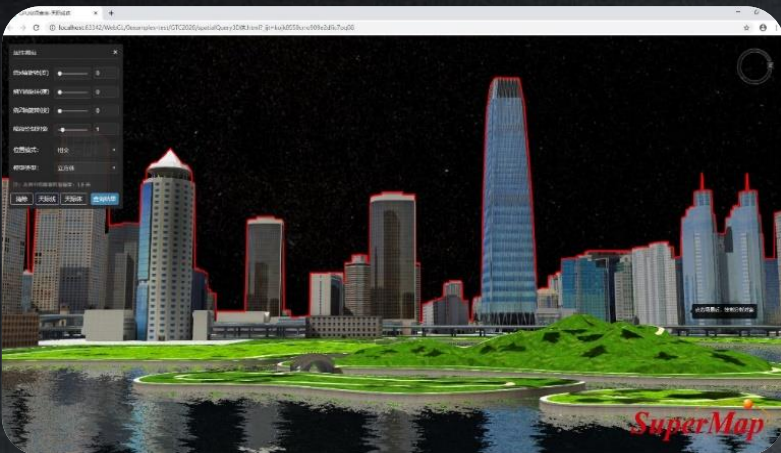
Visible Analysis
Skyline Analysis



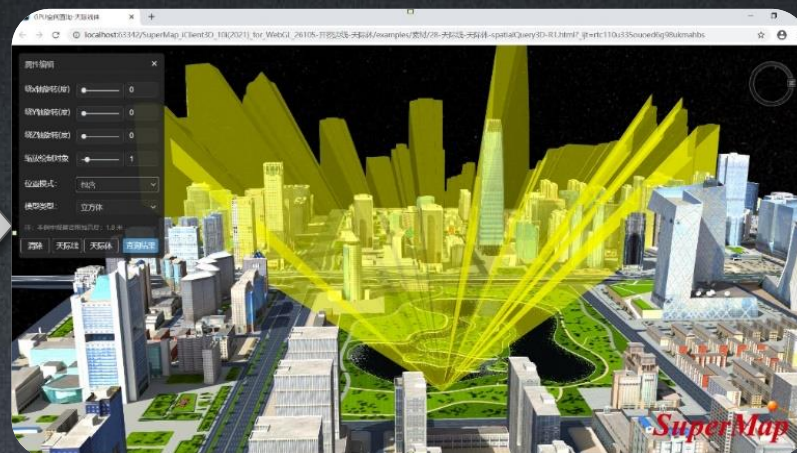
Shadow Analysis
Openness Analysis



3D Spatial Query Based on Solid Analysis (GPU) ★ New (2020+)



Obtain Real Time Skyline

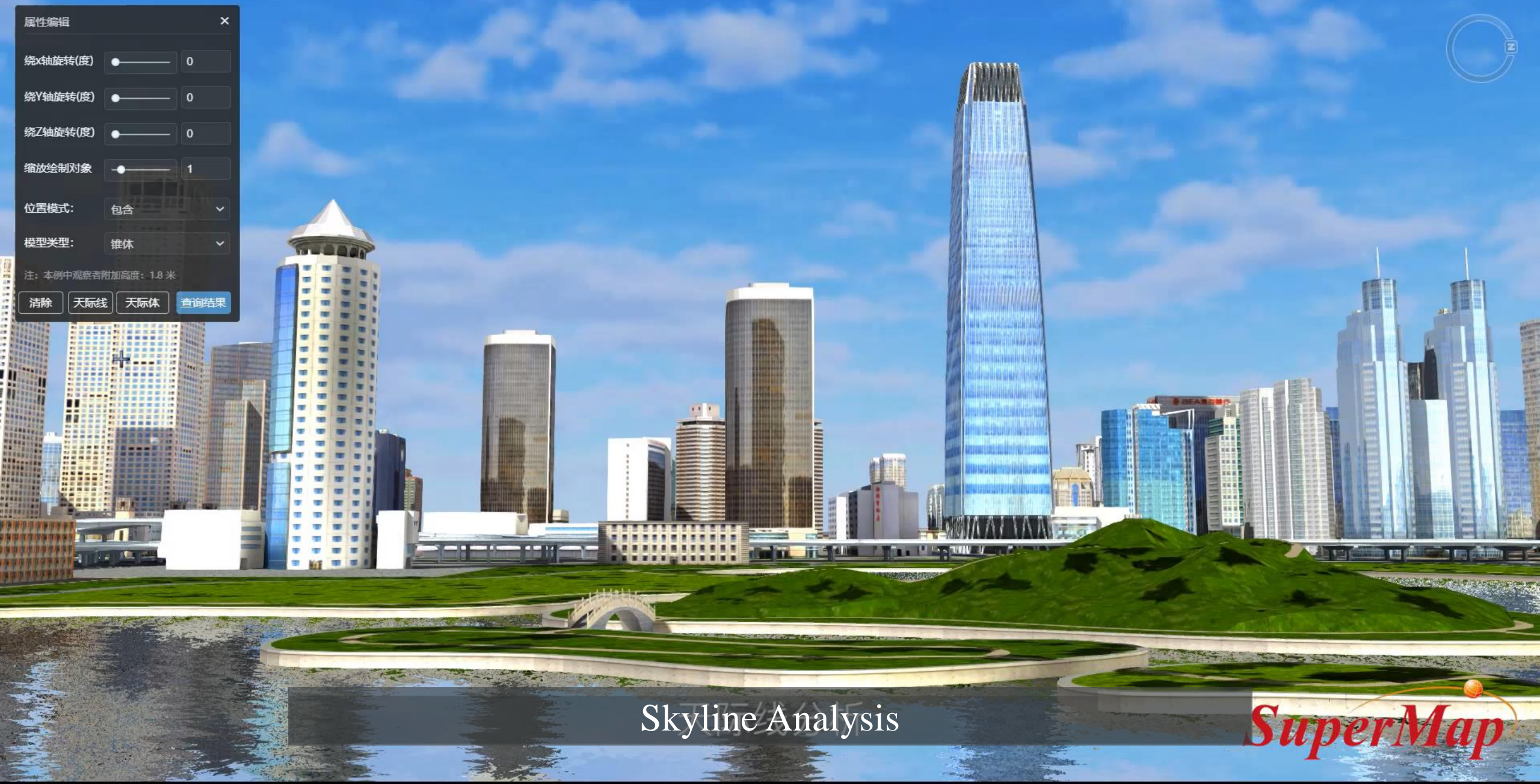


Extract Skyline Height Limit 3D Model



Search Buildings Intersected
with Height Limit Model

3D Spatial Query Based on Solid Analysis (GPU)





Multi-source Data

Multi-source 3D Data Integration



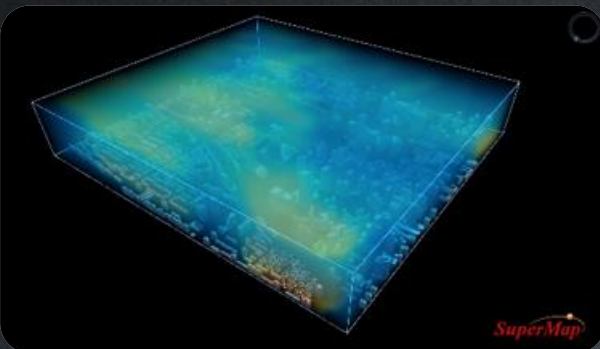
Terrain



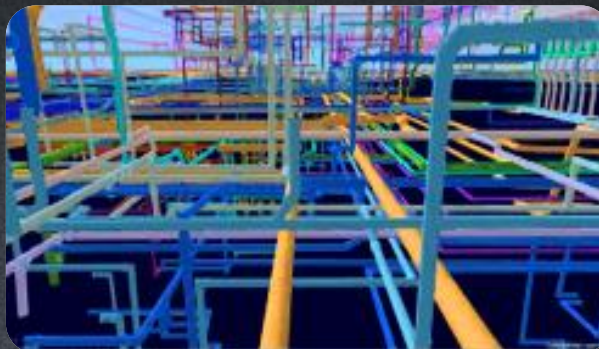
Oblique Photography Model



BIM



Field Data



Pipeline



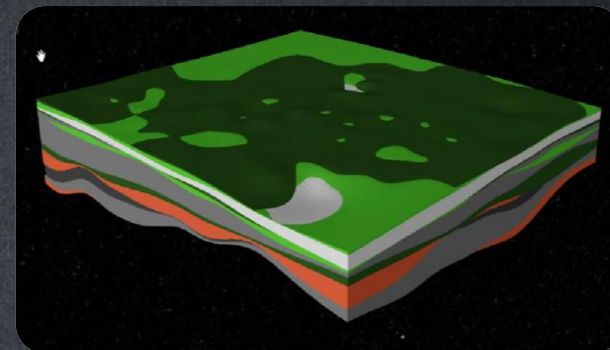
Point Cloud



Water Body

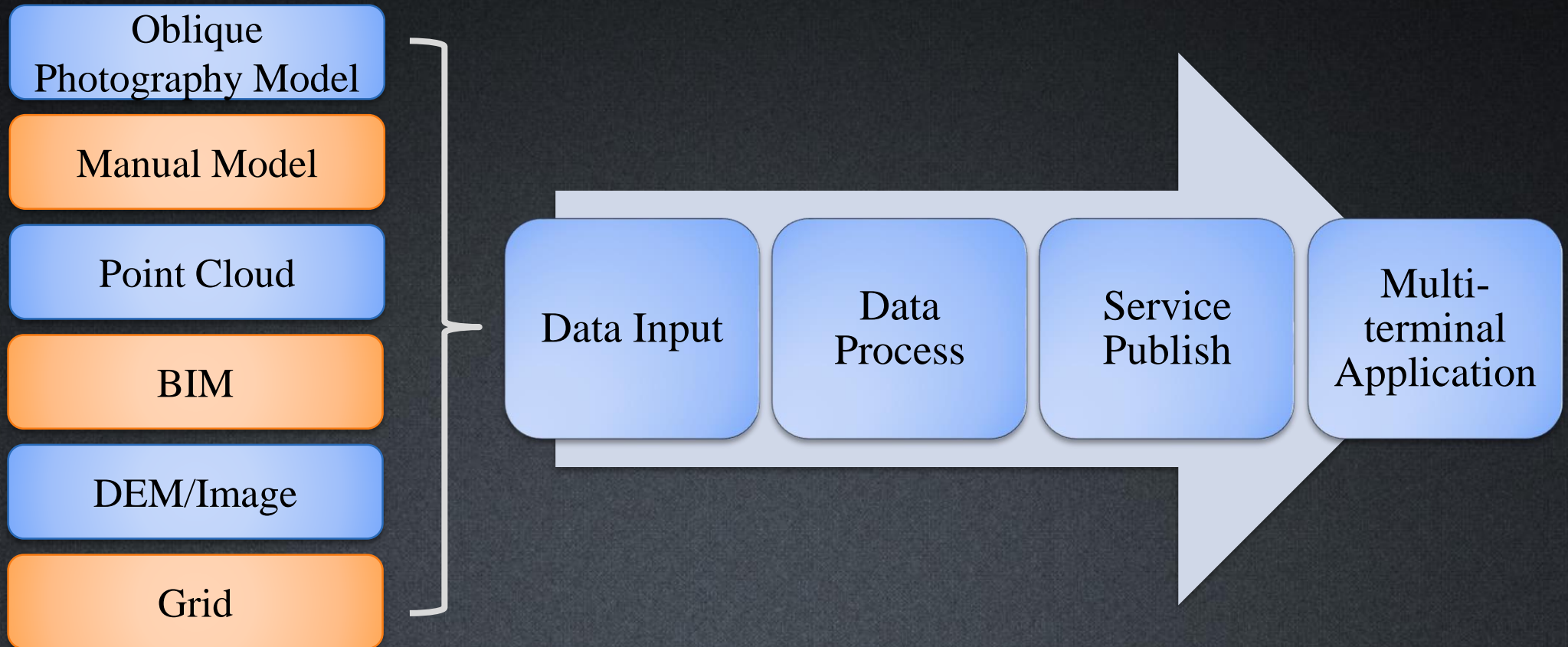


Fine Model



Geological Body

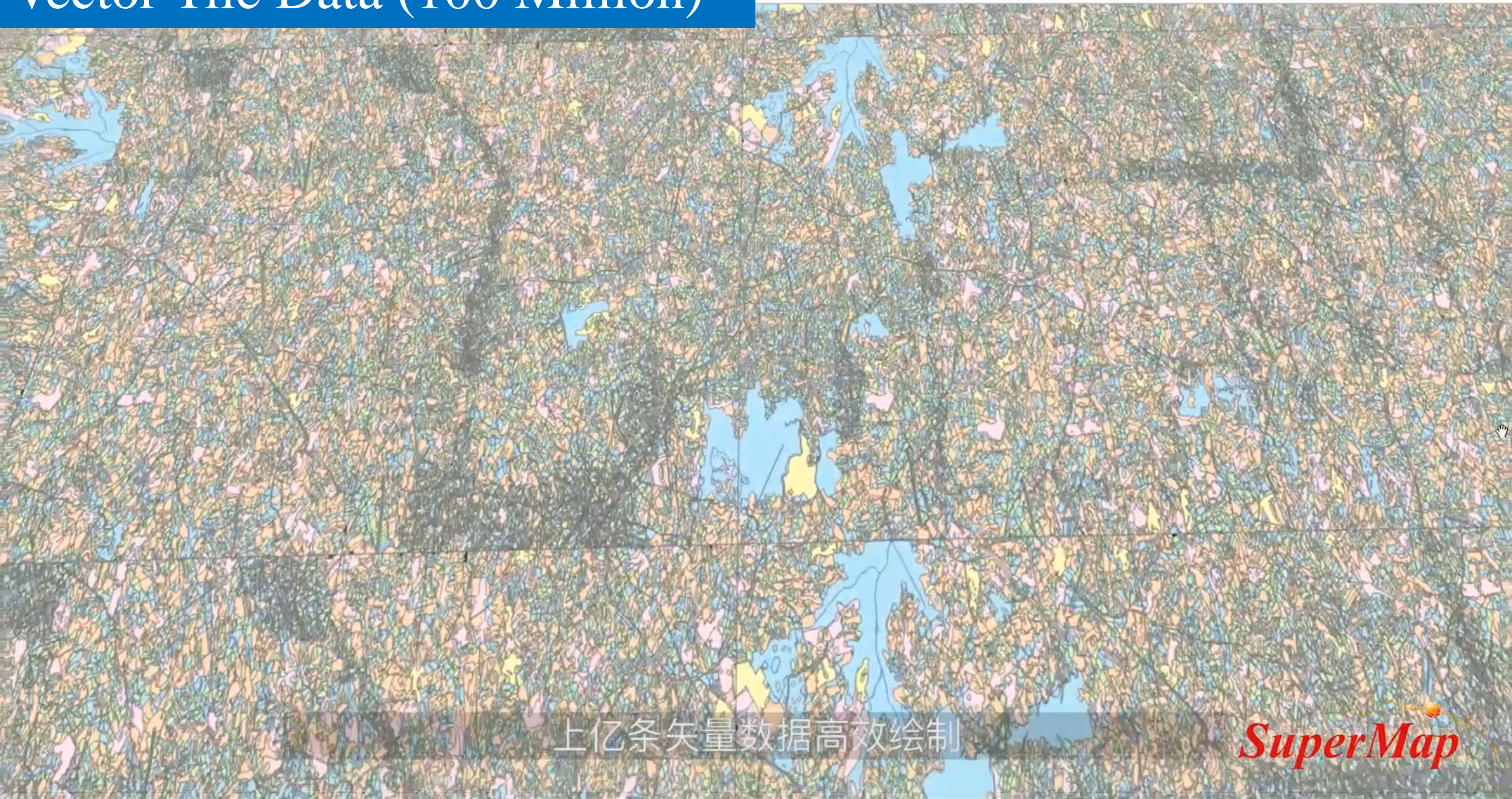
3D Data Full-process Management Based on Distributed Technology



Vector Data (Vector Tile)



Vector Tile Data (100 Million)

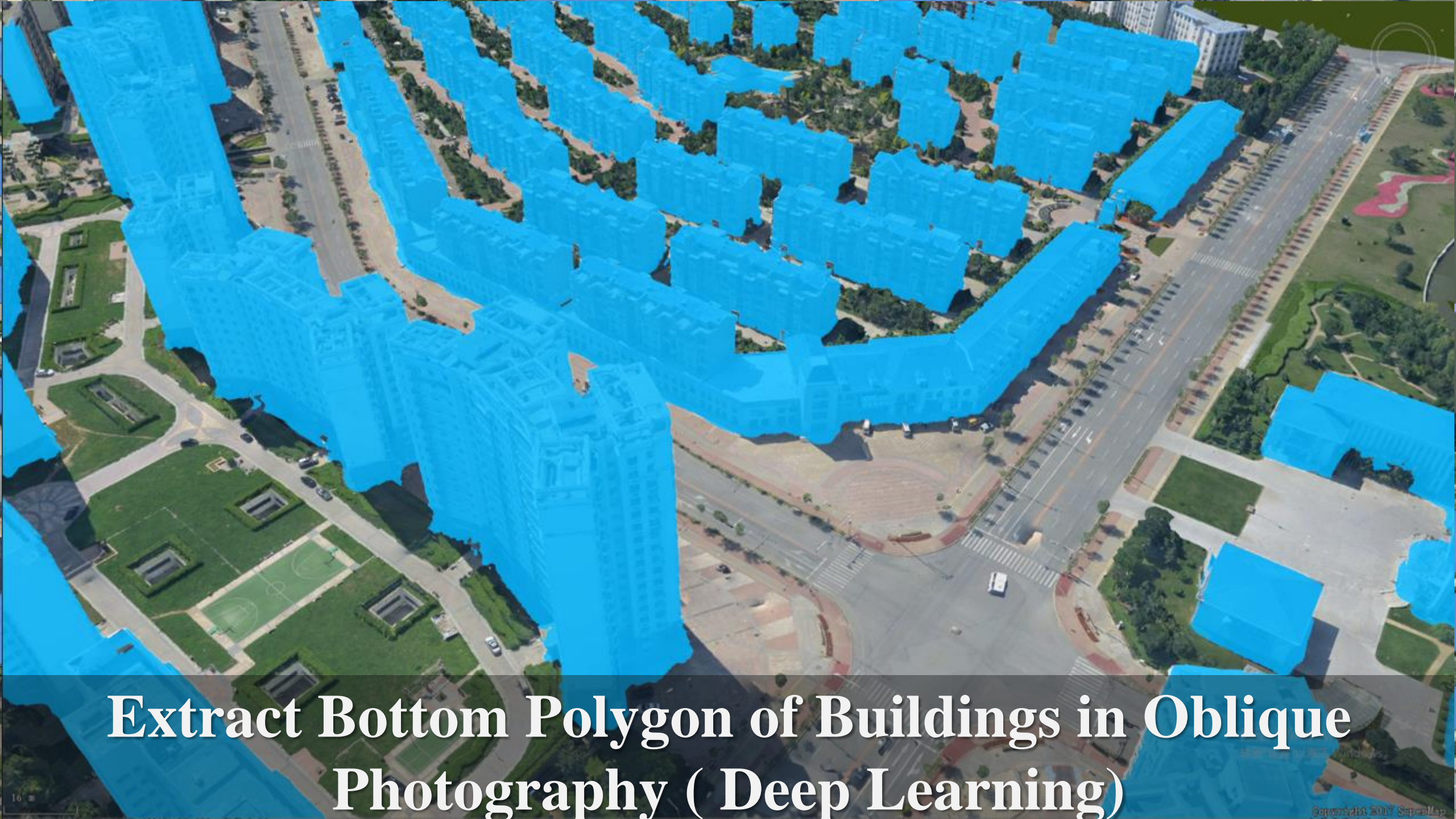


上亿条矢量数据高效绘制

SuperMap

Oblique Photography

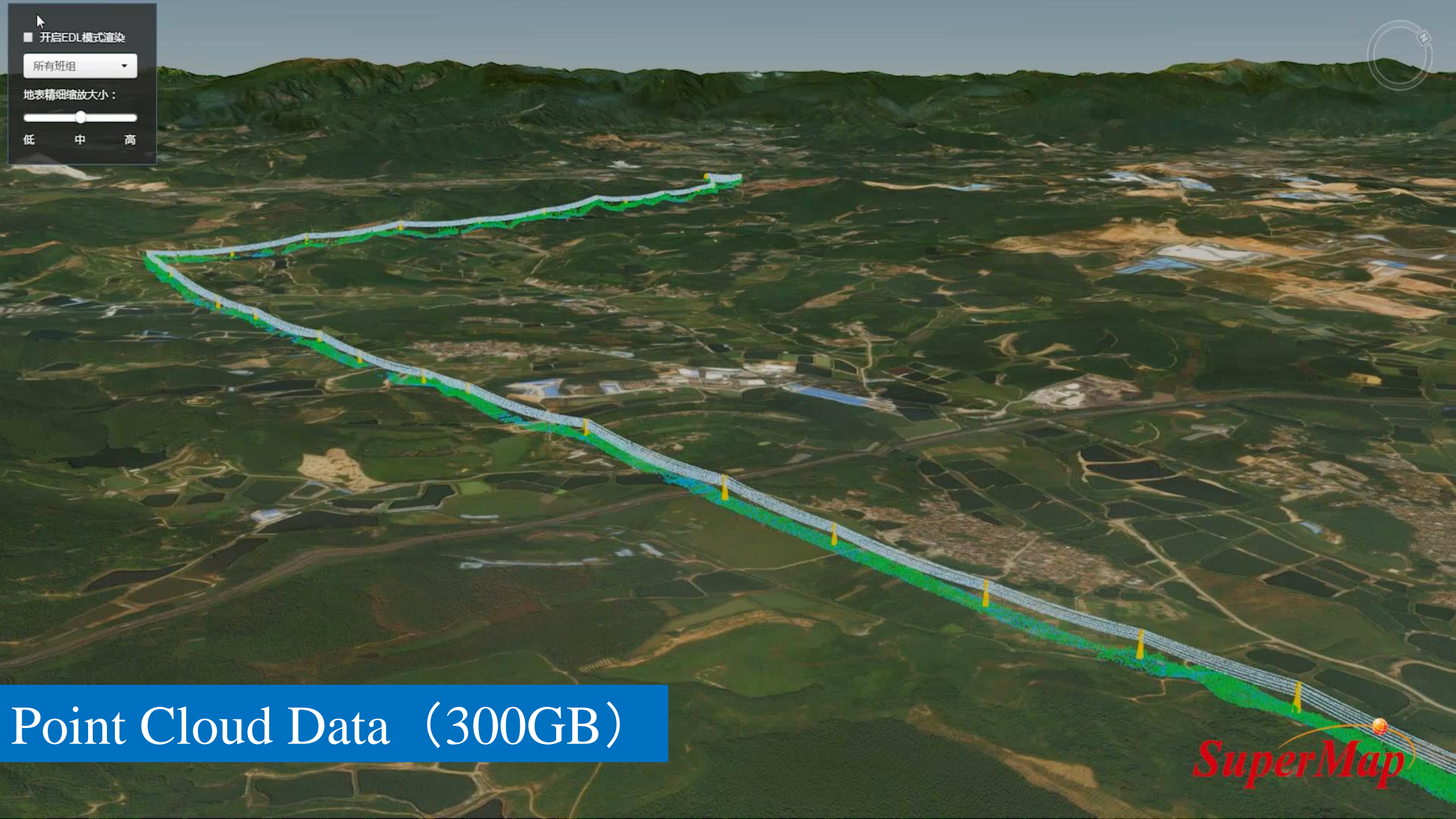




**Extract Bottom Polygon of Buildings in Oblique
Photography (Deep Learning)**

Point Cloud





■ 开启EDL模式渲染

所有班组

地表精细缩放大小：

低 中 高

Point Cloud Data (300GB)

SuperMap

Manual Modeling



An aerial photograph of a city, likely Beijing, showing a dense urban grid. A large, semi-transparent 3D model of a city block is overlaid on the image, showing a grid of green rectangular blocks and a network of roads. The model is positioned in the center of the image. In the bottom left corner, there is a blue banner with white text. In the bottom right corner, there is a red logo with a globe icon. In the top right corner, there is a small circular icon with an 'N' inside.

Manual Modeling Data (500 km²)

SuperMap



3D GIS Interaction

Smart City Operation & Management Platform

17:30:18
2019年05月24日星期五

16 Rainy-Cloudy

PUBLIC SAFETY

Today's Event

332 件

Online Officer

271 人

Online Vehicle

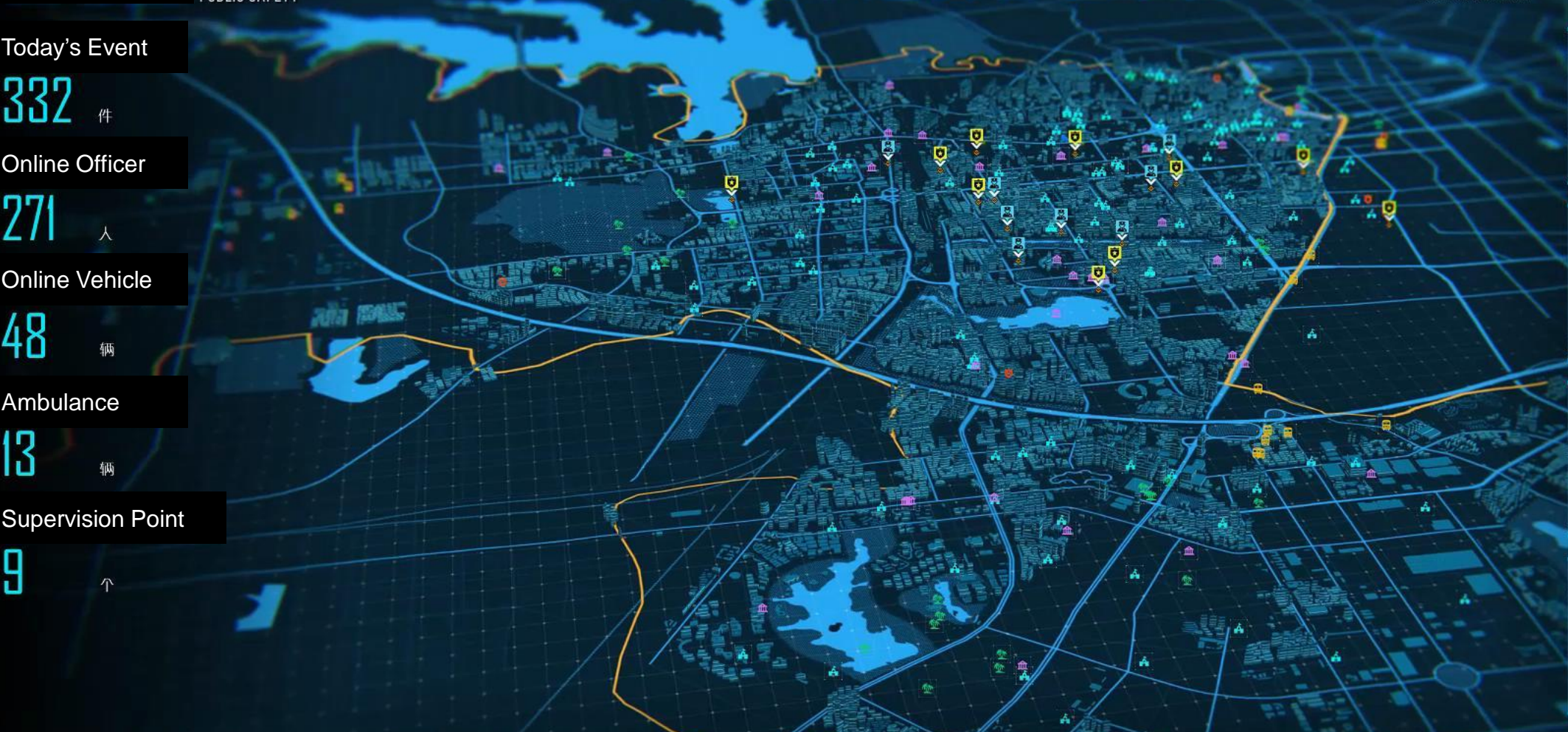
48 辆

Ambulance

13 辆

Supervision Point

9 个



Pyramid Selling Warning Tendency



Accidence Proportion



Transportation

18%

Production

45%

Fire Control

18%

Food

19%

Accidence Tendency



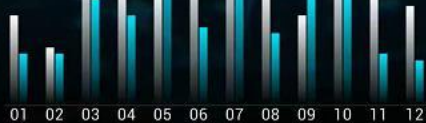
交通安全 安全生产

682 件

Transportation

425 件

Production



Accidence Tendency



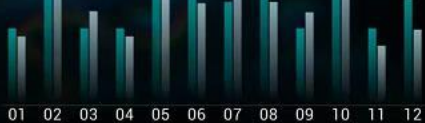
消防安全 食品安全

579 件

Fire Control

461 件

Food



Full Function



Area Clip



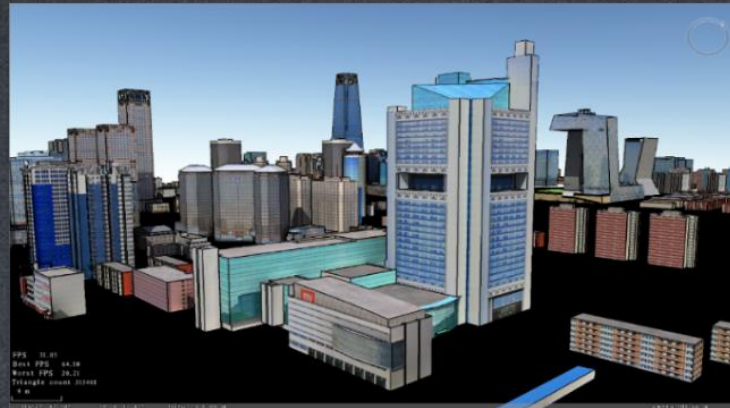
Measure



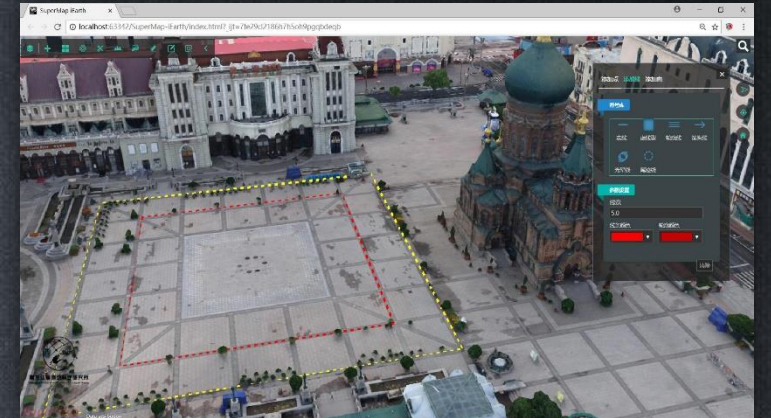
Spatial Analysis



Configure Scene Online

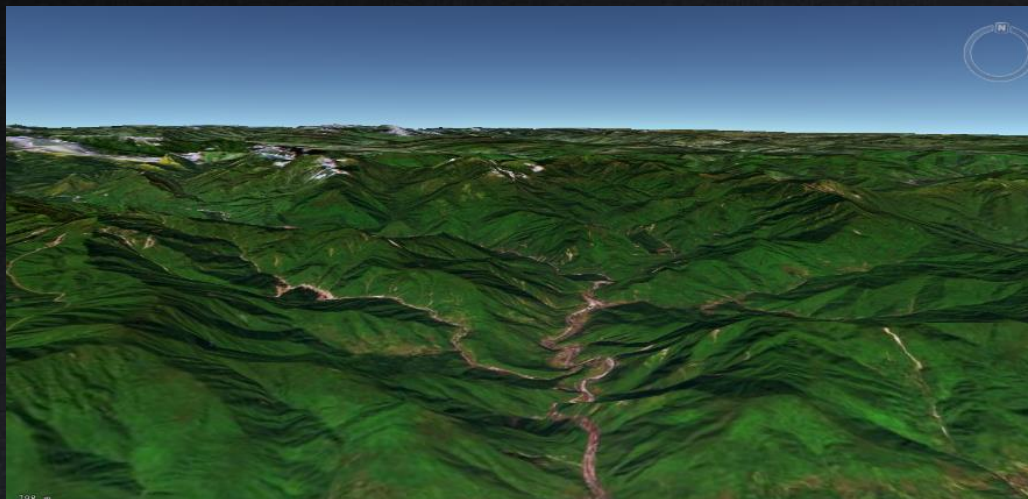


Visualization



Mapping

Carrying Capacity for Large-Scale Scene



TB-level Terrain And Video



Large-scale Vector Data (100 Million+)



500KM2 Fine model



TB-level Oblique Photography, Dense Point Cloud



Typical Application

Government Plan

Industrial land

Demolition Management

[Click here to search land information](#)



土方量分析：选择任一修改地形，点击计算



Smart Community

居民信息 视频监控 三维模型 自定义统计

居民列表

共1152条记录

序号	姓名	家庭住址
1	李永江	布尔津镇东区B10-1-502
2	尚凤莲	布尔津镇东区B10-2-202
3	付作新	布尔津镇东区B10-2-301
4	别力克·吐尔吐汗	布尔津镇东区B10-2-302
5	支德龙	布尔津县布尔津镇津东路12-2
6	徐进玲	布尔津镇东区B10-1-202
7	王德元	布尔津镇东区B10-1-201
8	阿依提别克	布尔津镇东区B10-1-302



姓名	李永江	王宗花	李芊玥
性别	男	女	女
年龄	71	28	26
与户主关系	户主	妻子	女儿
证件号	65432119811202201X	654321198207150049	654321201507100021
是否残疾	null	null	null

详细信息

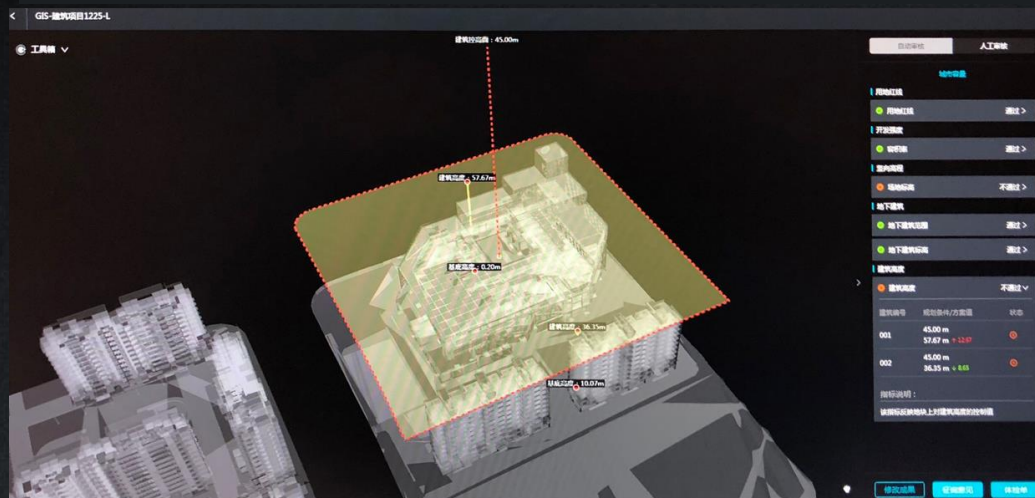
姓名: 李永江
年龄: 71
性别: 男
家庭住址: 布尔津镇东区B10-1-502
联系电话: 13809071234
身份证号: 65432119811202201X



Traffic Planning And Design

Planning Application System

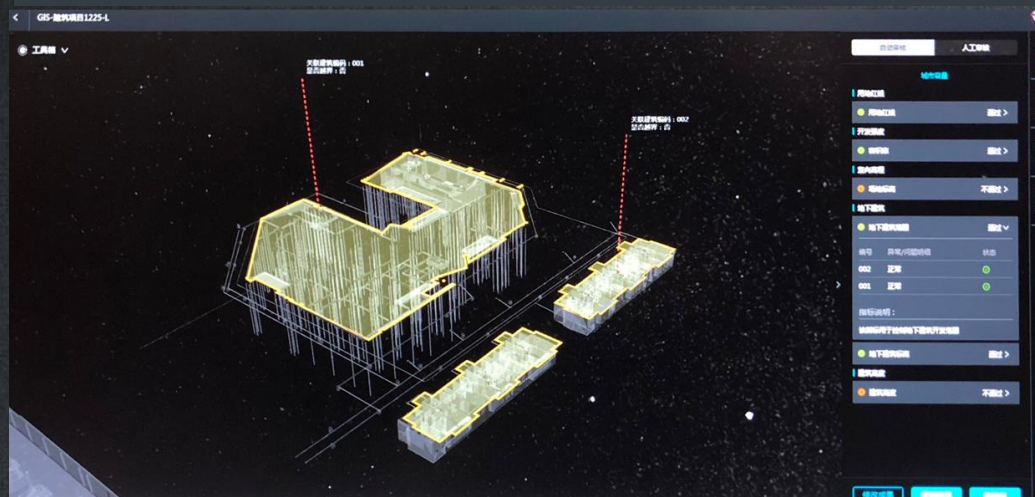
Above-ground Space Verification



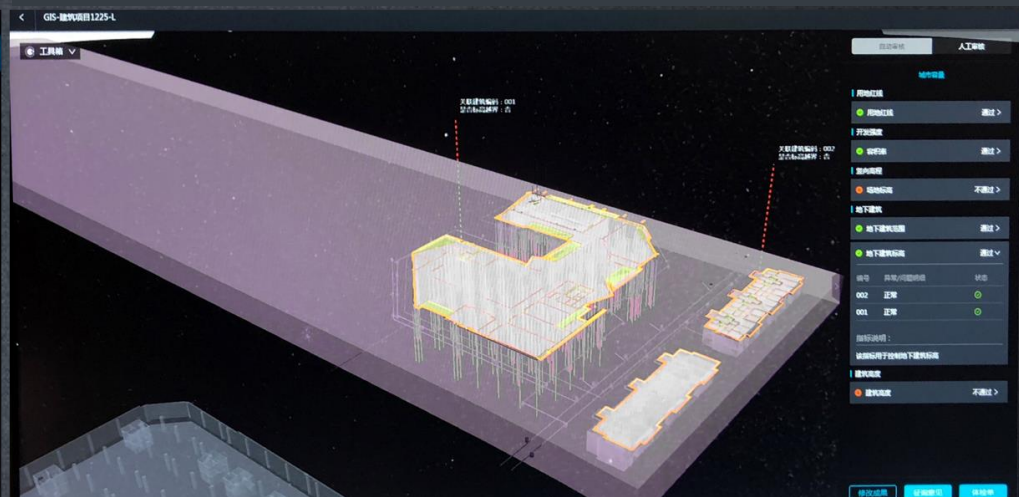
Regulation Range Box



Above-underground Elevation



Above-underground Building Range

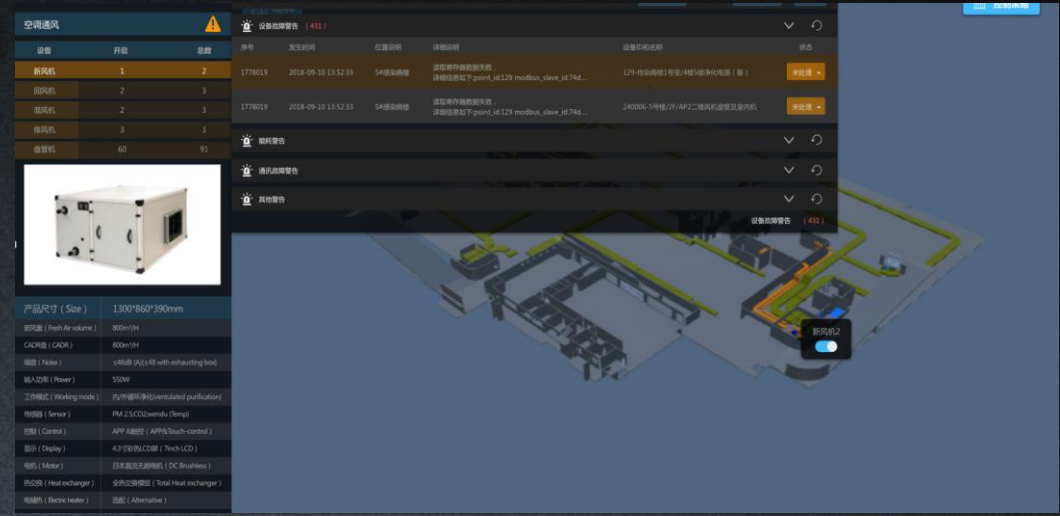


Urban New District Planning

BIM/CIM Application



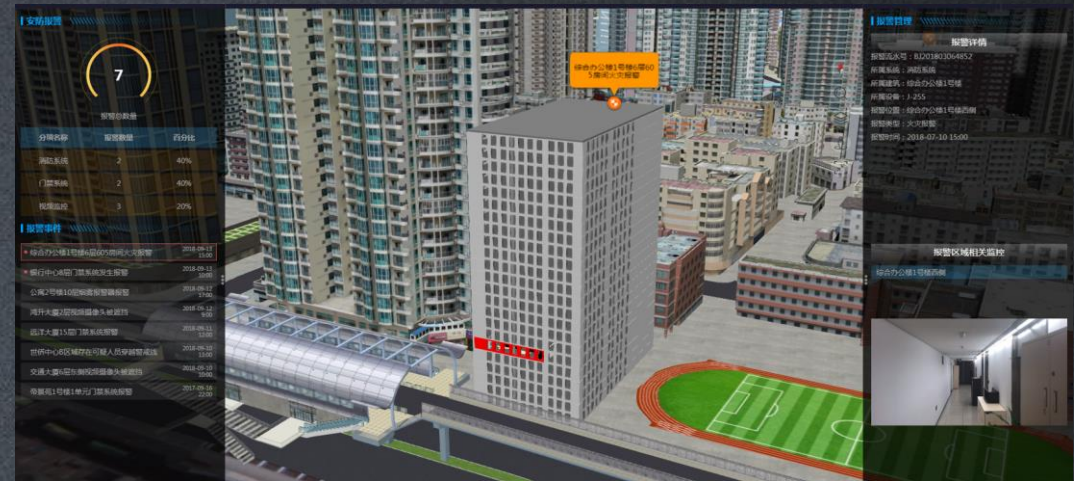
Equipment Check



Facility Maintenance



Park Energy Consumption Analysis And Optimization

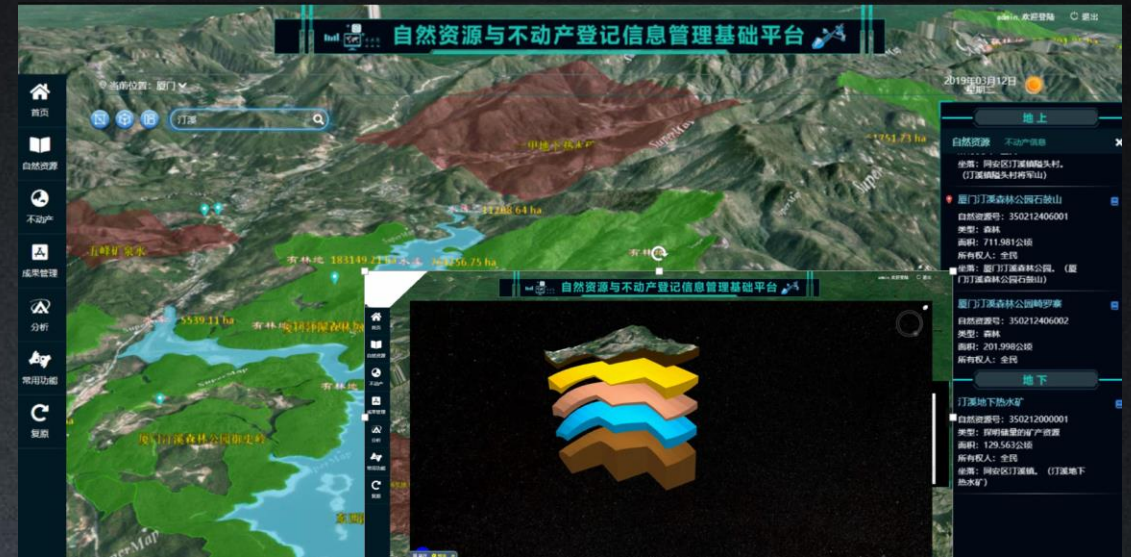


Security Facilities Integration

Natural Resource Space Management



Display Natural Resource Space Layout



Above-ground And Underground Integrated Management



Ecological Regular Line Distribution



Real Estate Management

