SuperMap GIS Boosts Smart Transportation

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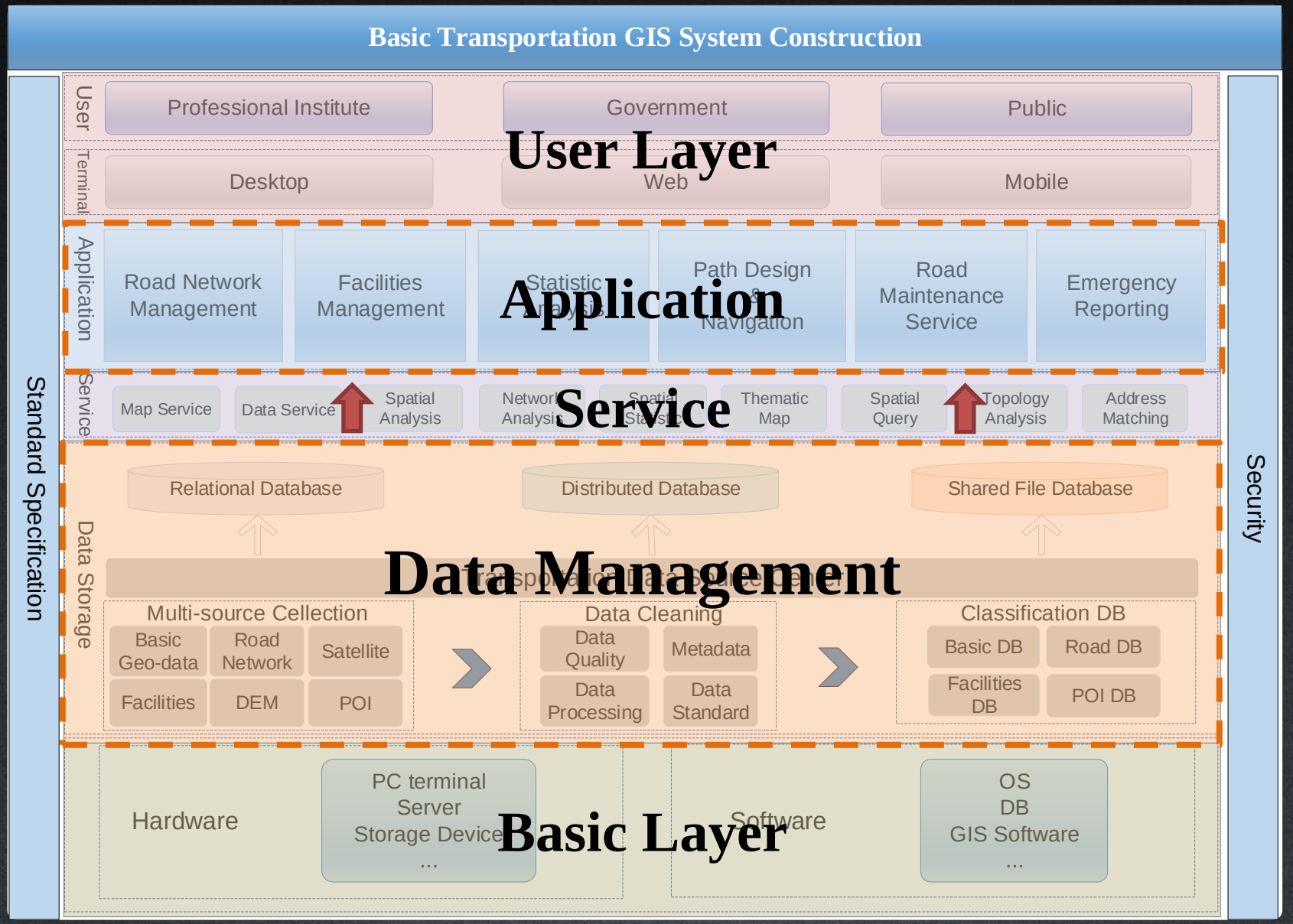
SuperMap Solution for Transportation

- Basic Transportation GIS System Construction
- “One Map” Platform of Transportation
- New Development of Transportation - 3D GIS Technology
- New Development of Transportation - Big Data Technology

Basic Transportation GIS System Construction

SuperMap

Basic Transportation GIS System Construction



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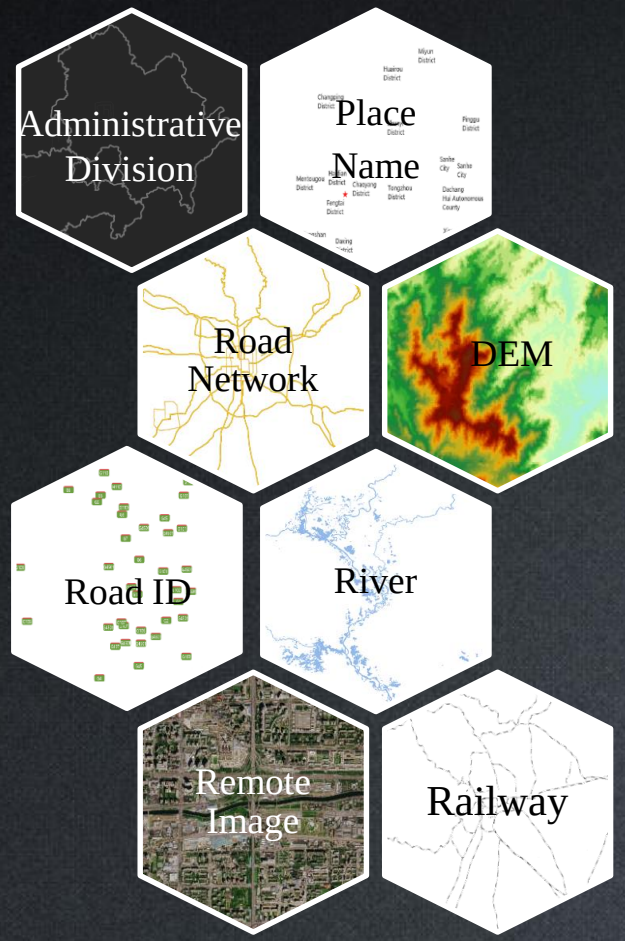
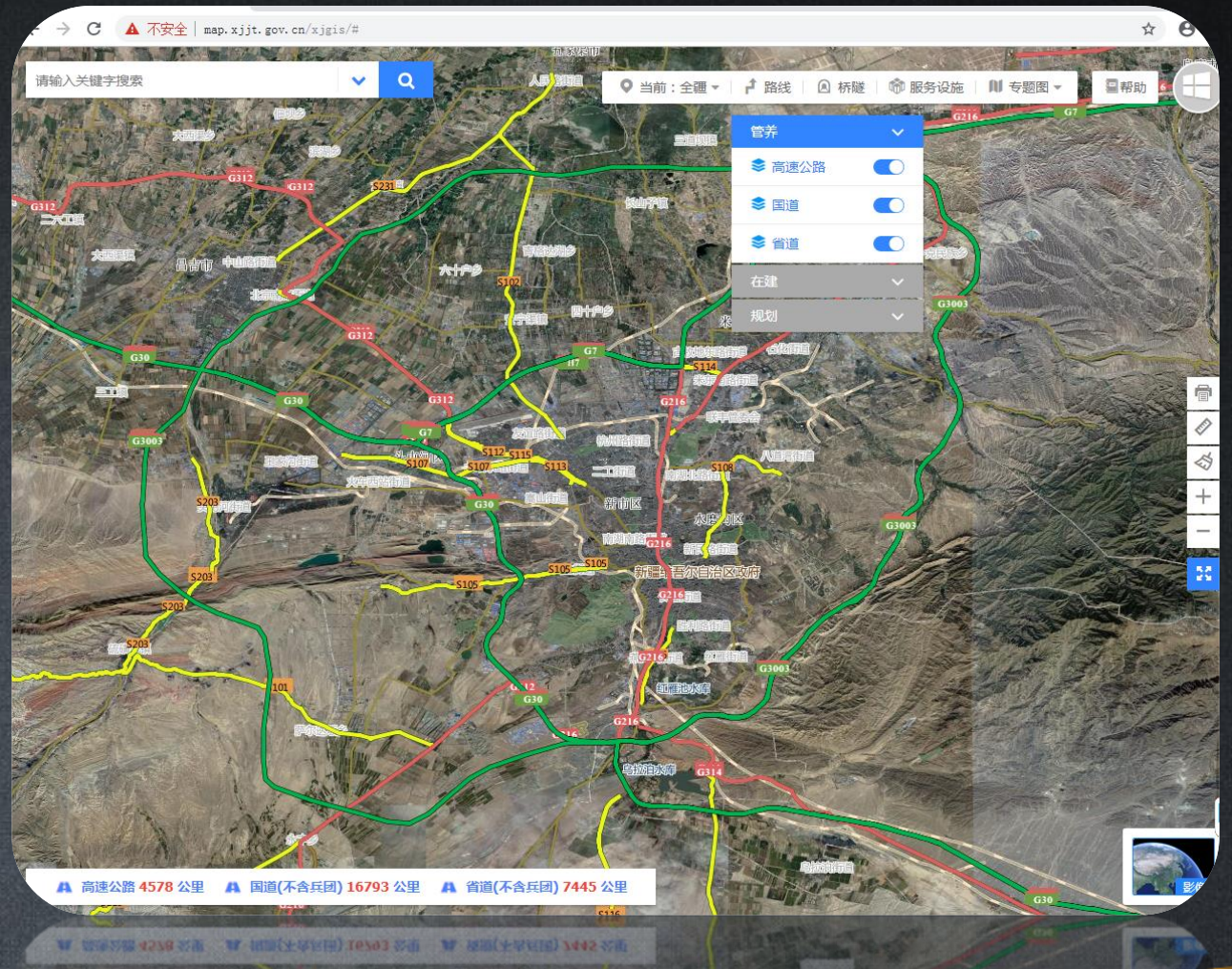
Multi-source Data Integration

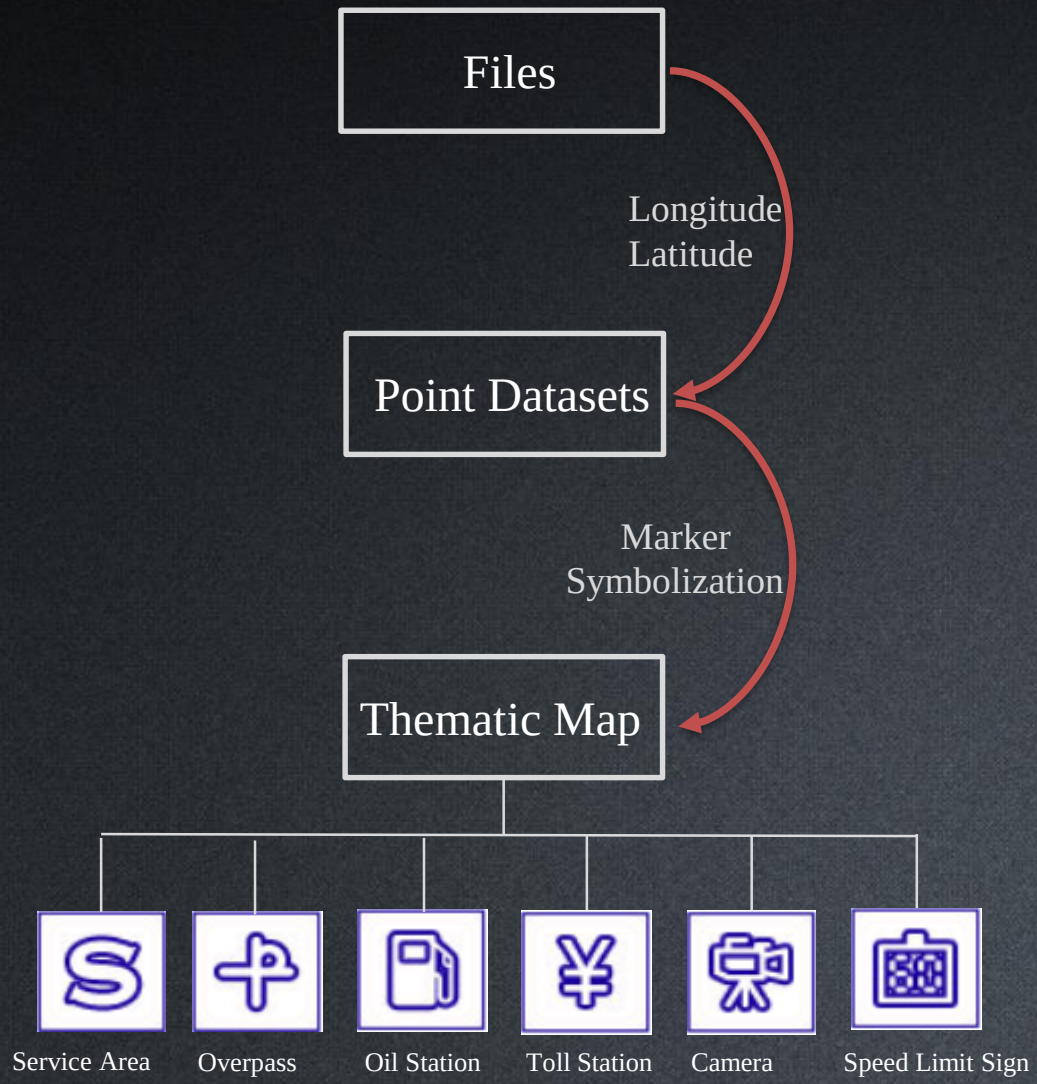


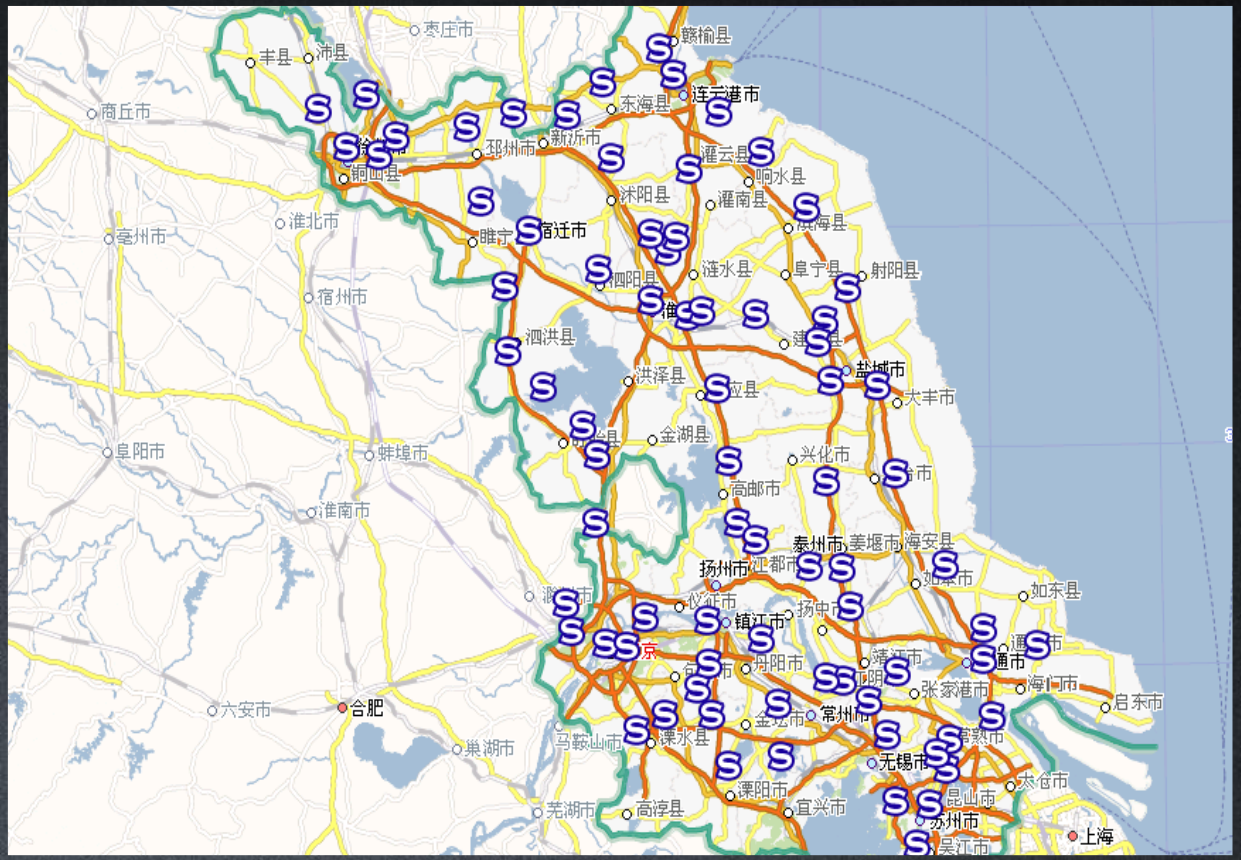
Integration



SuperMap

Transportation Facilities Management





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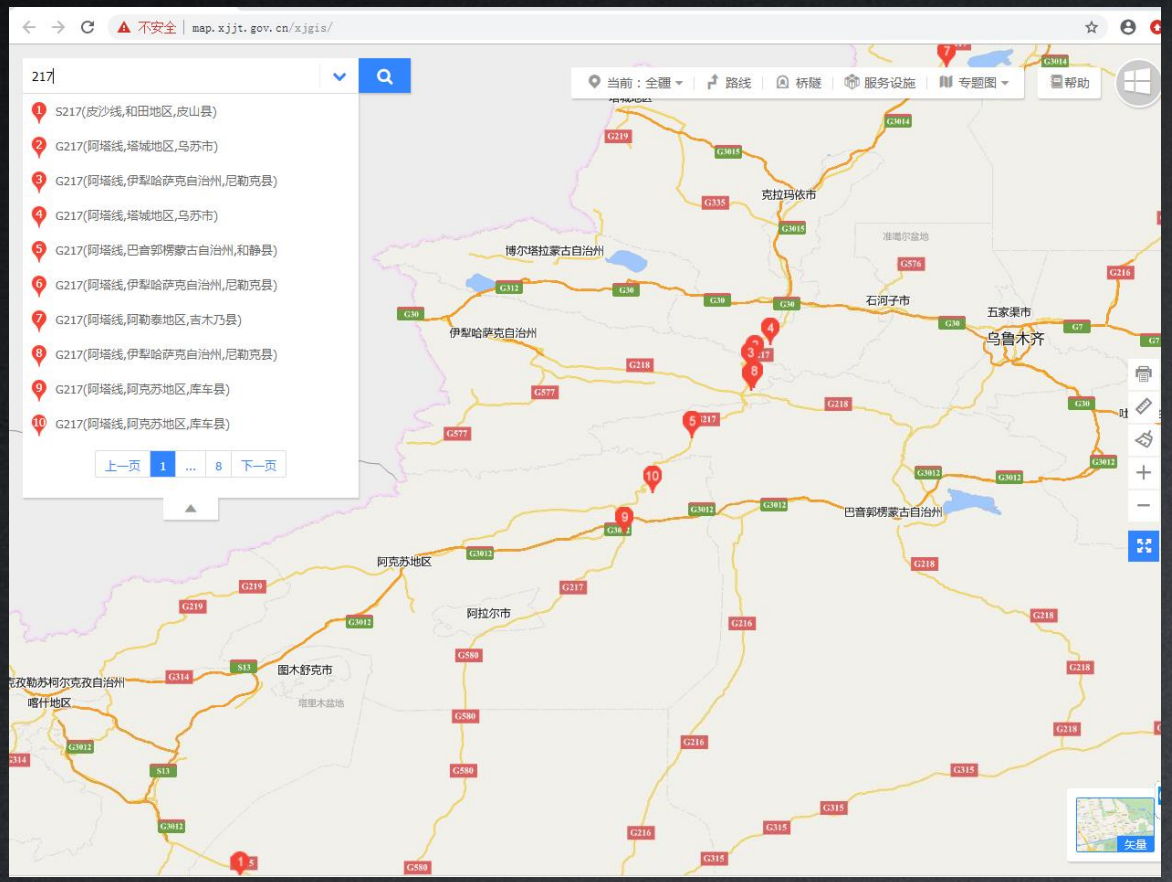
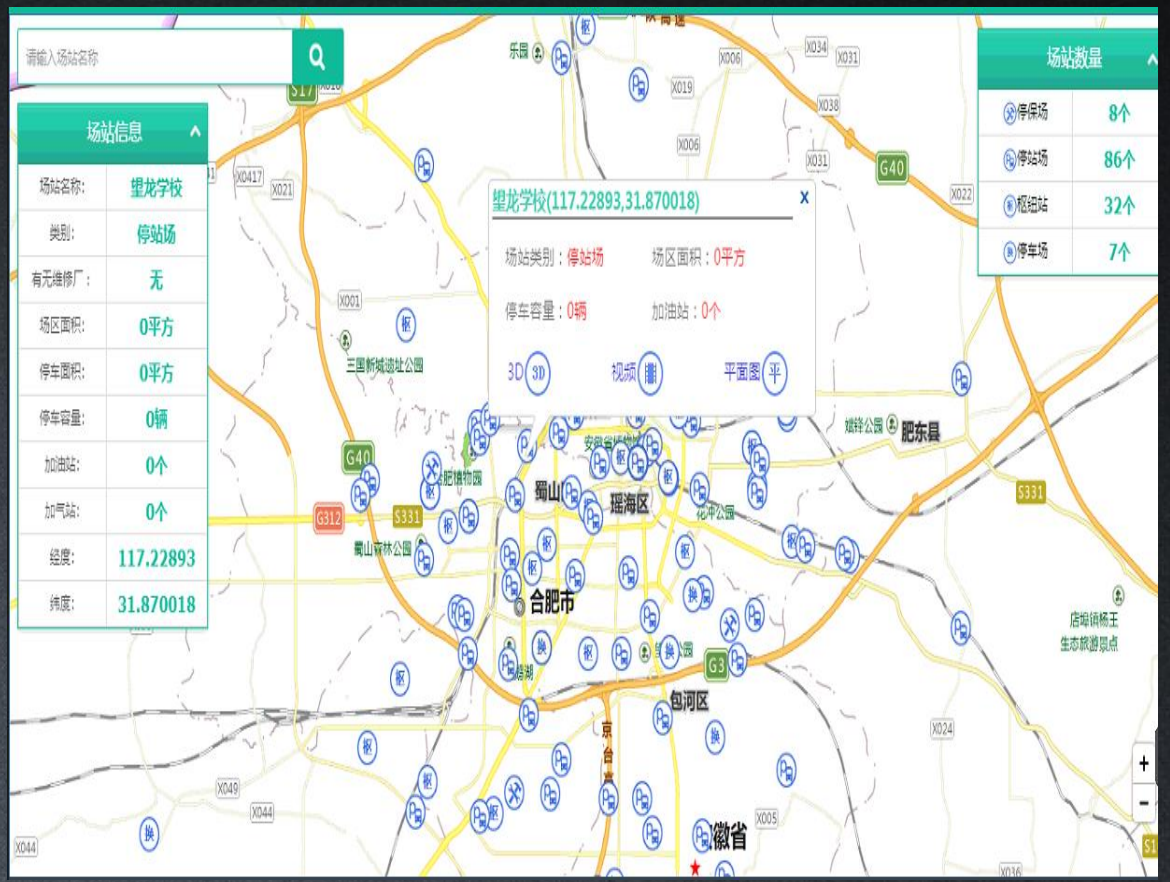
Transportation Elements Query



Road Section Query



Car Park Information Query

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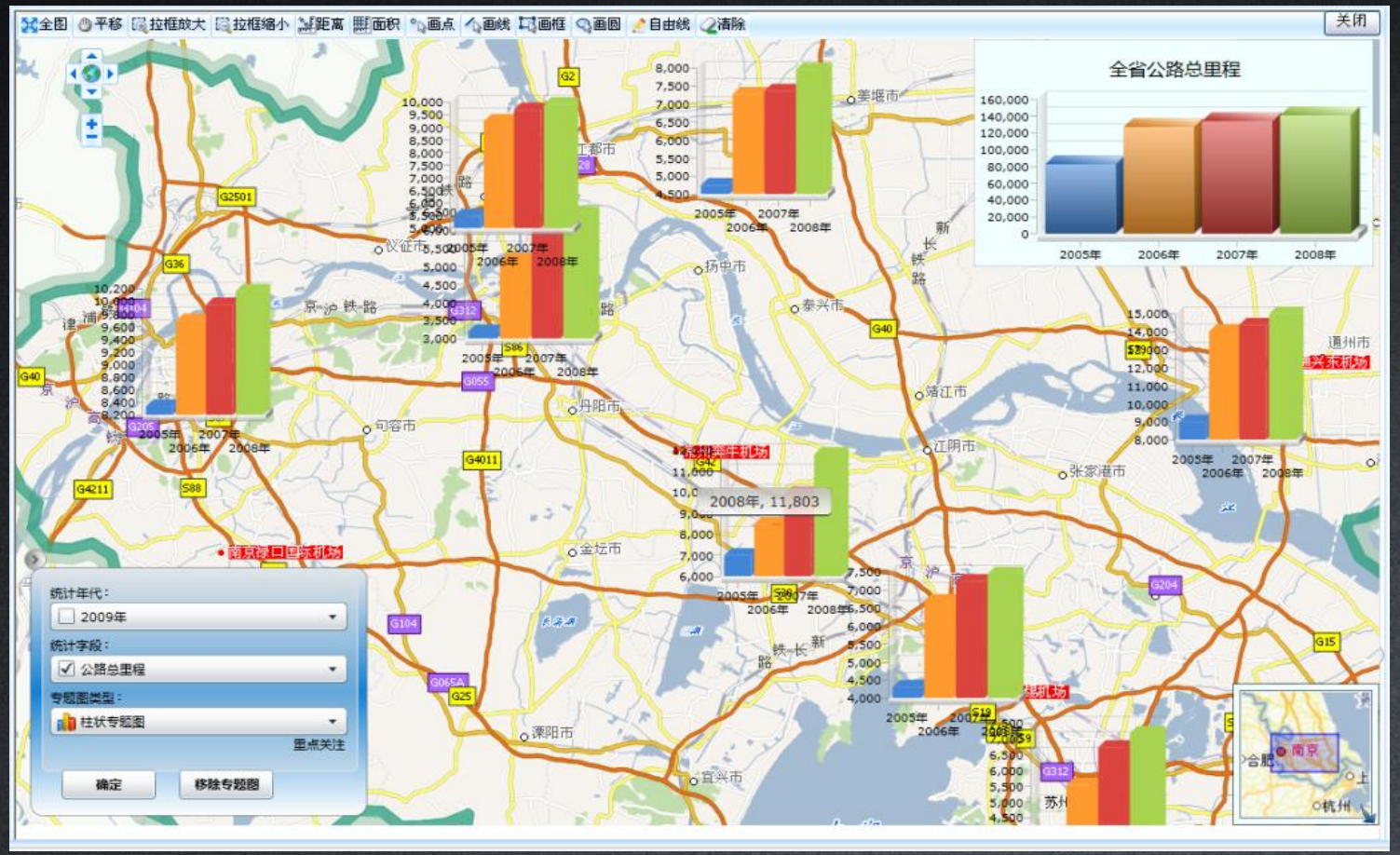
The Statistic of Road Length



- Contents
  - Road length statistics
  - Construction fund statistics
  - Maintenance cost statistics
  - Traffic flow statistics
  - Transport statistics

- Types
  - Column
  - Pie diagram
  - Line
  - Bubble

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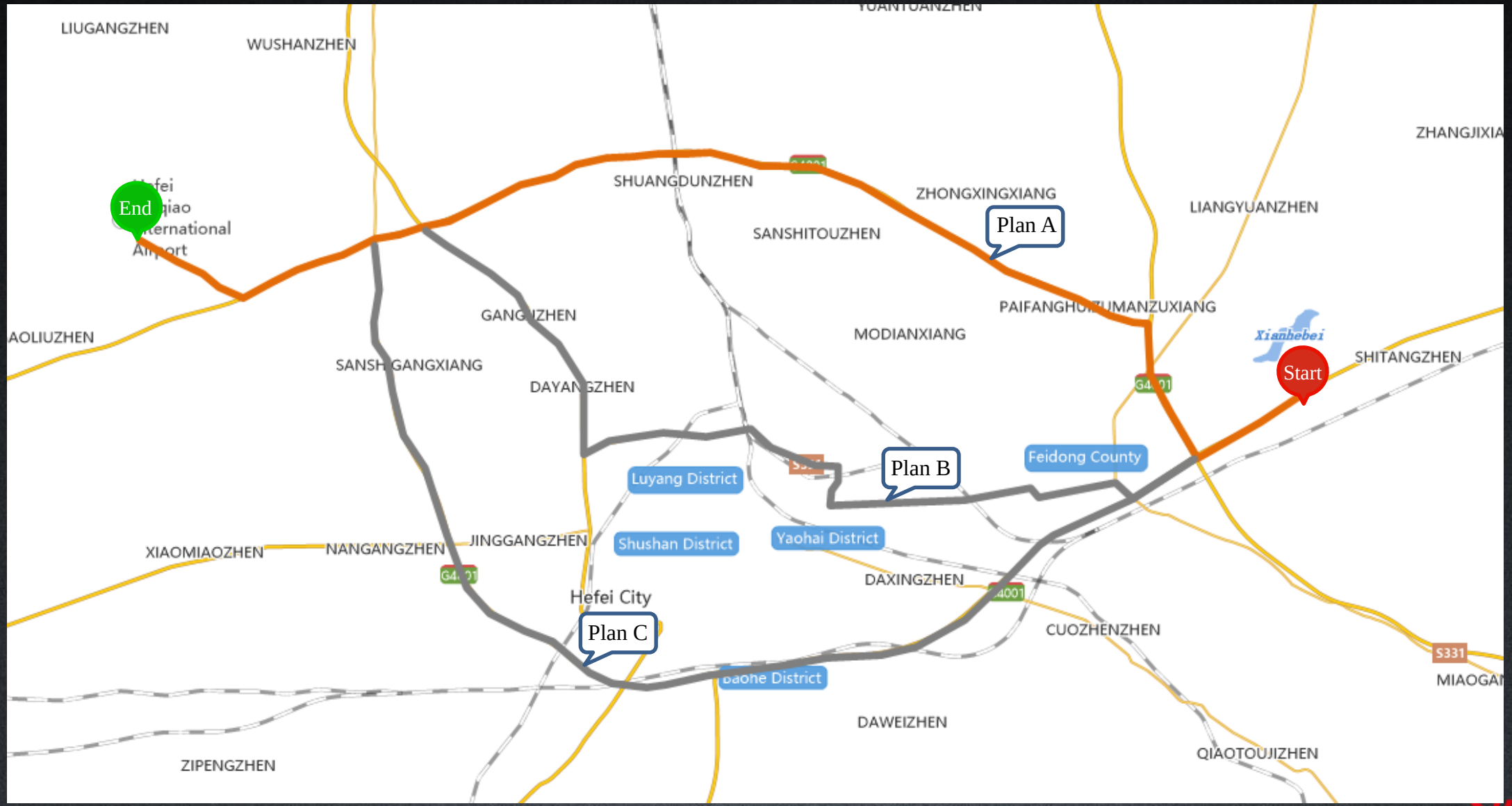
Route Design



Path Navigation

Dongcheng District chemical industry community, Beijing

Distance:18.5Km

- Starting from the initial point
- Going straight 84m and then turn right
- Going straight 43m and then turn left
- Going straight 52m and then turn left
- Going straight 12m and then turn left
- Going straight 98m and then turn right
- Going straight 151m and then turn left
- Going straight 185m and then turn left

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Road Maintenance Service

- The information management and maintenance of national roads
  - Accept patrol inspection task.
  - Report the problems found in the process of patrol inspection .
  - View the latest issues' status.

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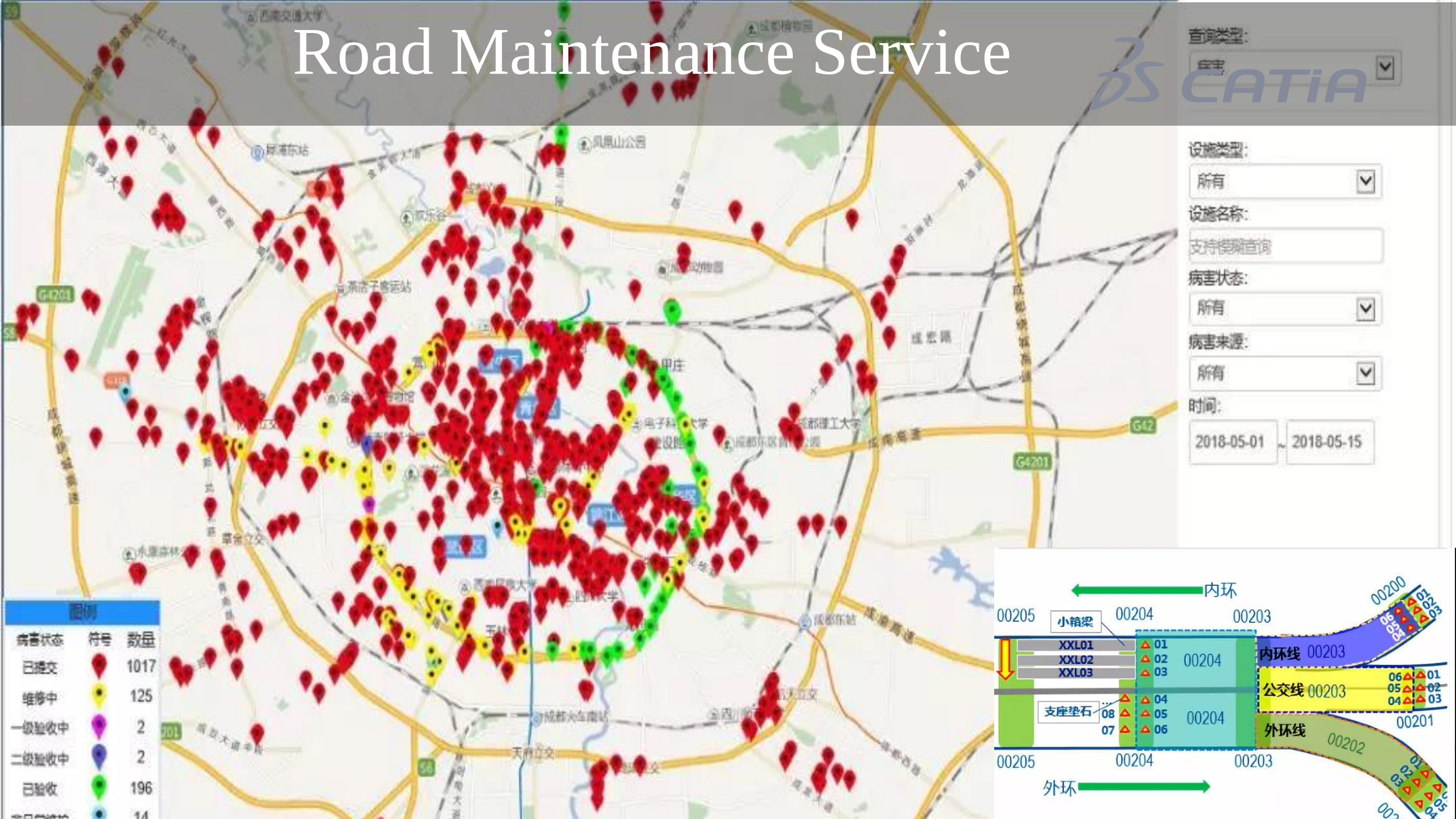
Road Maintenance Service



Emergency Reporting

- For the emergency, GPS is used to locate the incident, fill in the form information quickly, assist multimedia means such as photographing, hand drawing, audio, etc., clearly display the site status, and report in real time based on the mobile network

Emergency events

Location

Report

Checking

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“One Map” Platform of Transportation

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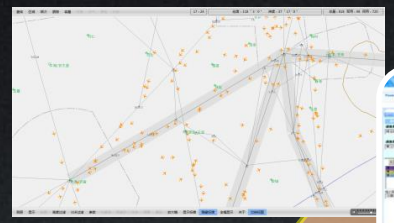
Transportation Current Situation - Strong Foundation of GIS Application

- Highway Survey and design
- Road maintenance
- Channel maintenance
- Vehicle monitoring
- Boat monitoring
- Traffic survey
- Traffic resource integration
- Public travel service
- Traffic emergency disposal
- Traffic credit evaluation system
- Transit city
- Traffic economic statistics
- Intelligent traffic management

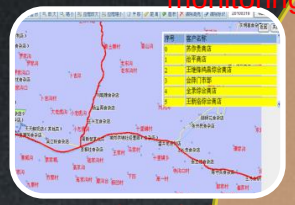

Civil aviation aircraft monitoring


Travel Service

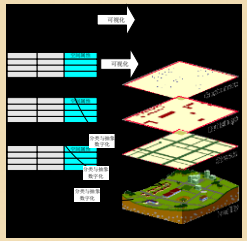

Dynamic road condition information

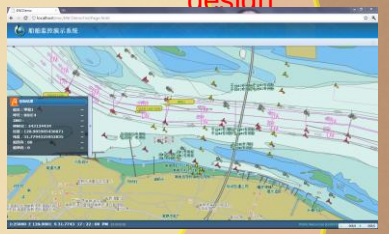

Traffic resource integration

Traffic survey and design


Post / Logistics


Road maintenance



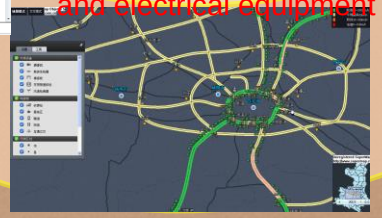

Channel maintenance

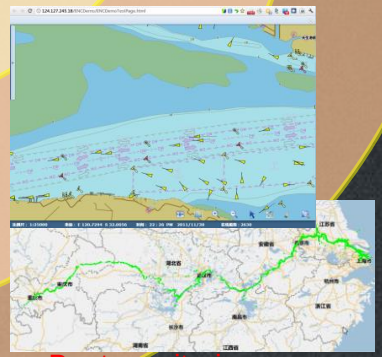

Transportation Emergency


Railway safety monitoring


Vehicle monitoring


Supervision of mechanical and electrical equipment


National road running monitoring


Boat monitoring


Traffic meteorology


Railway basic facilities management

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Challenge of Transportation GIS

- Strong demand for space information application
- Spatial information construction is repeated and decentralized
- Lack of standards in spatial information application
- Lack of sharing mechanism and technical methods of spatial information
- The impact of internet electronic map

Deepening Industry Application ----DIKW model：from data to wisdom

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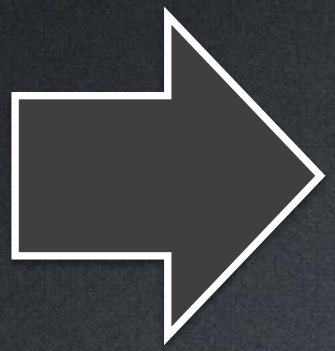
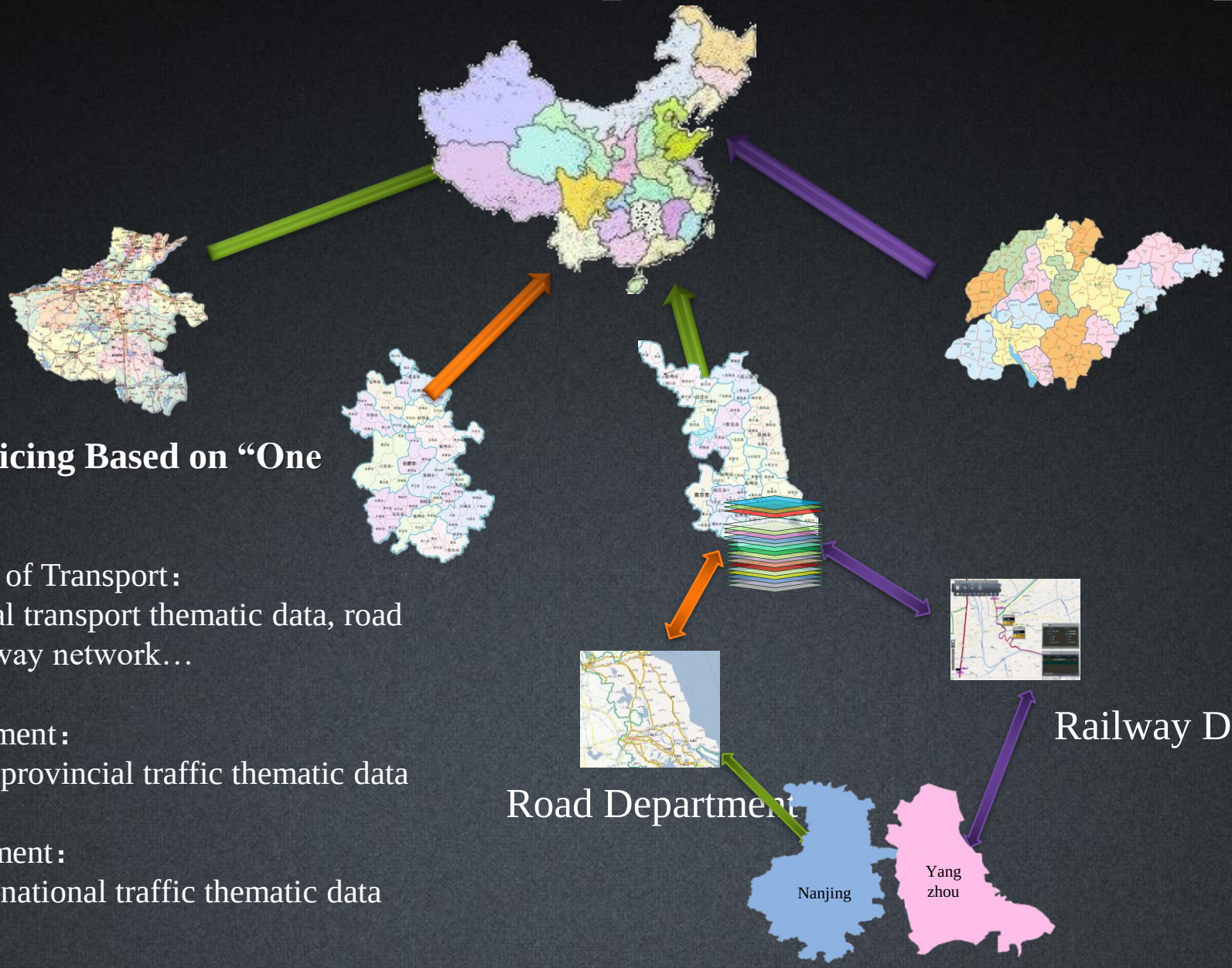
Transportation “One Map” Solution

“One Map” Platform of Transportation (GIS -T)



- Integrated transportation industrial spatial resource
- Provide the application foundation of traffic spatial information
- Be the platform of spatial information sharing within the transportation industries

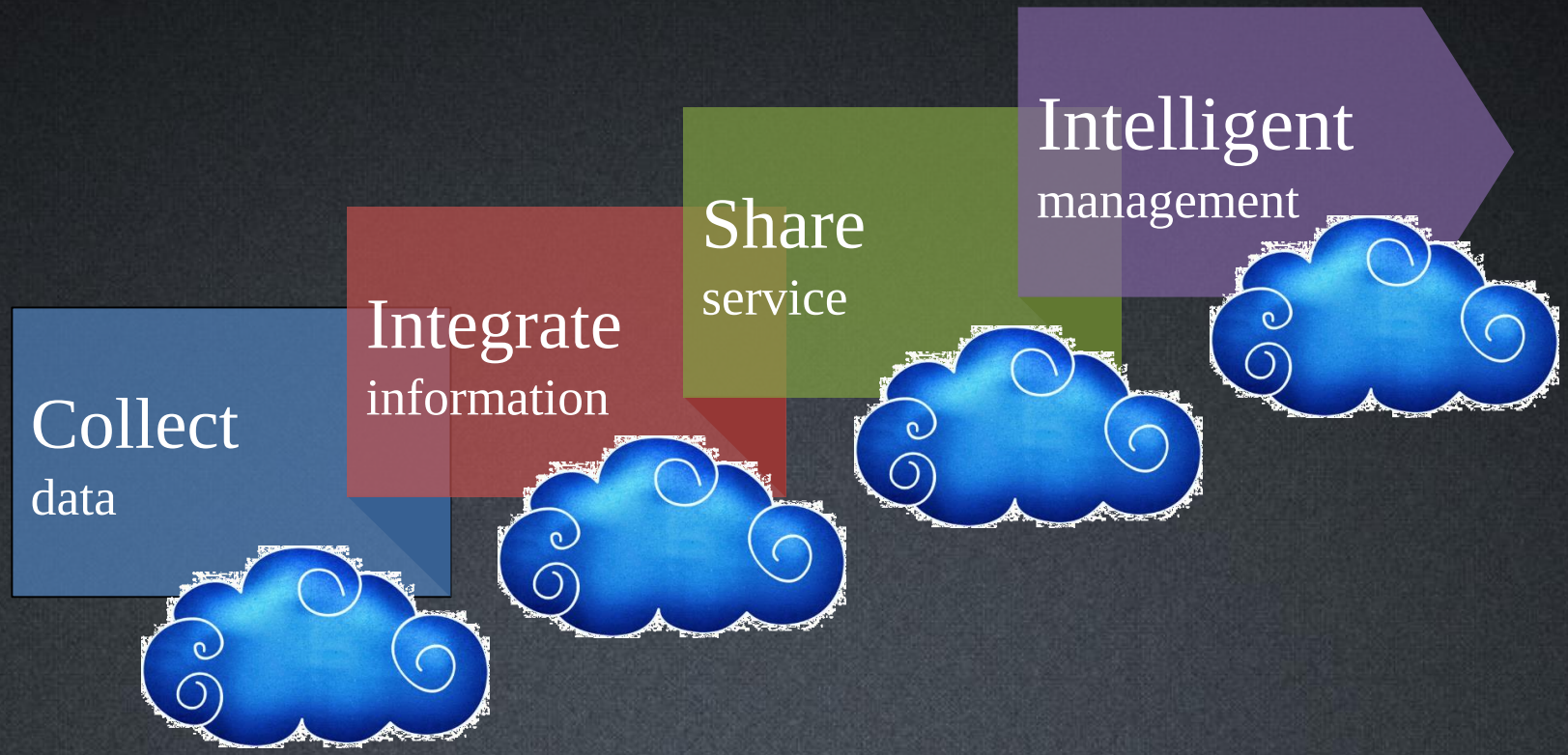
The Main Ideas of Transportation “One Map”



Information Space Splicing Based on “One Map"

- City Department of Transport：
  - Provide local transport thematic data, road network, railway network…
- Province Department：
  - Aggregation of provincial traffic thematic data
- National Department：
  - Aggregation of national traffic thematic data

Transportation “One Map” Development Line



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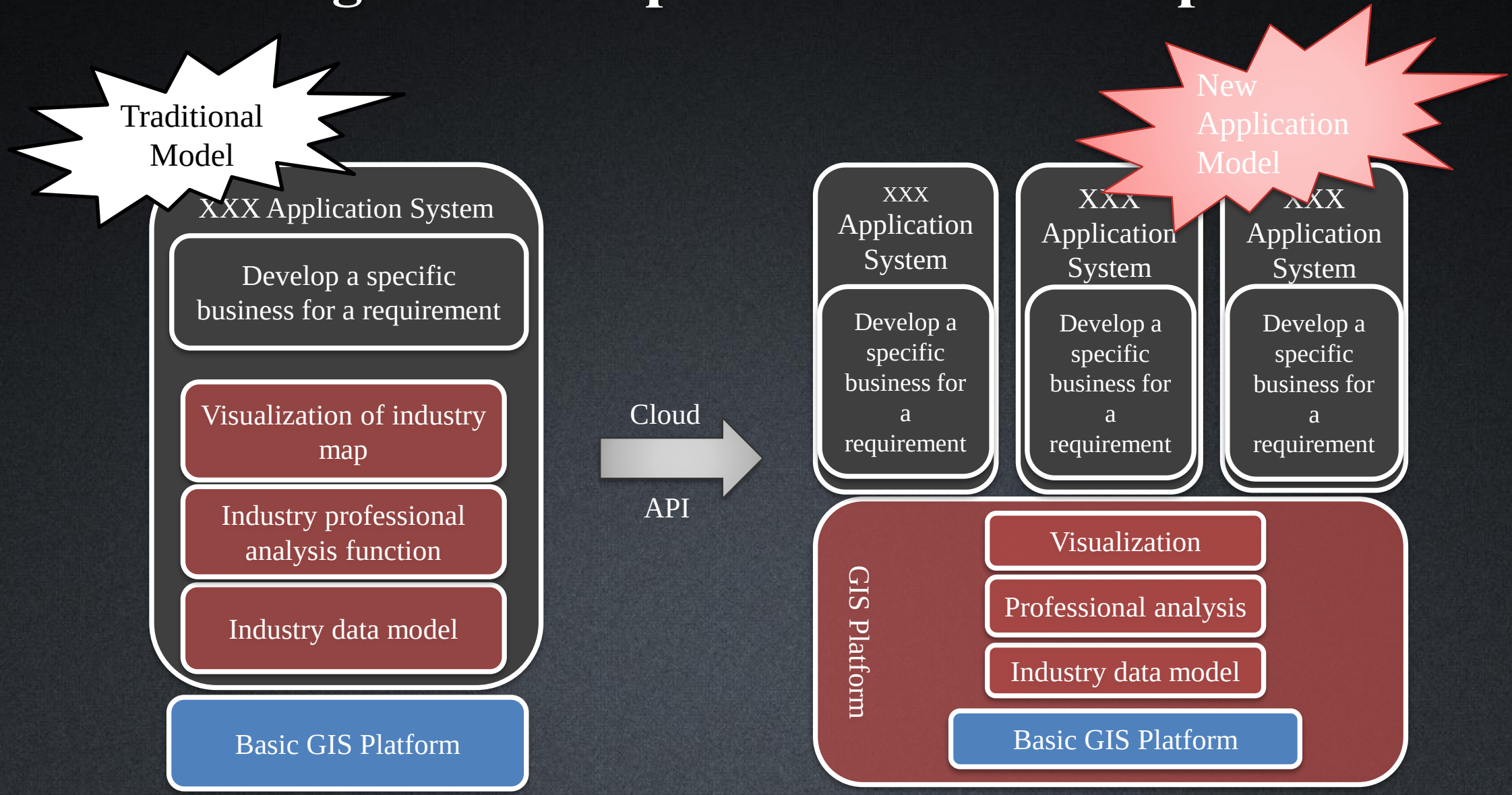
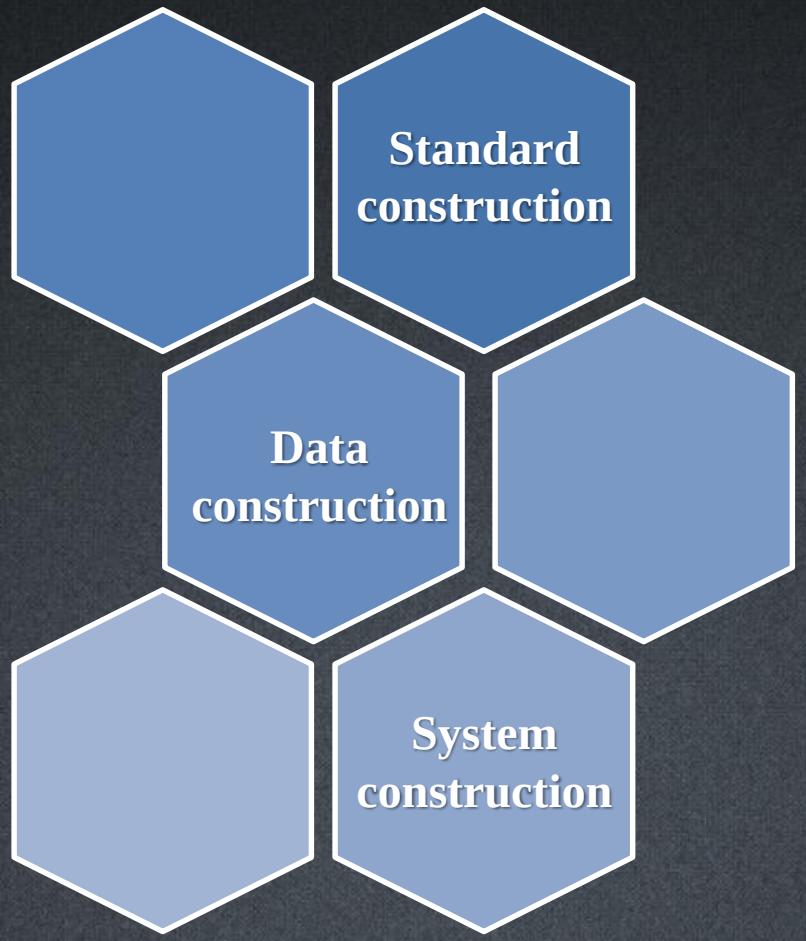
Breakthrough of Transportation “One Map” Platform

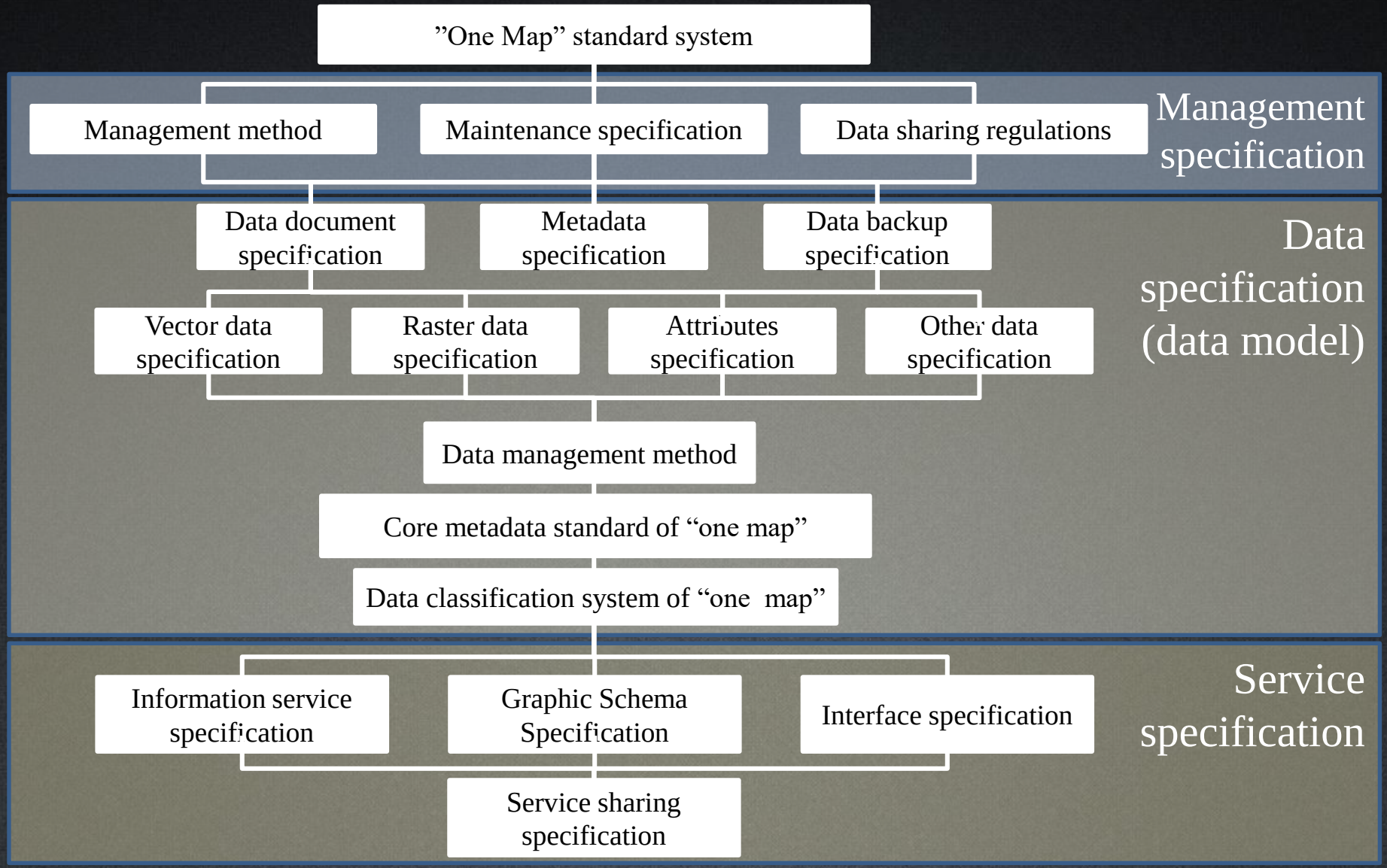


SuperMap

Construction contents for “One Map”



Standard Construction for “One Map”



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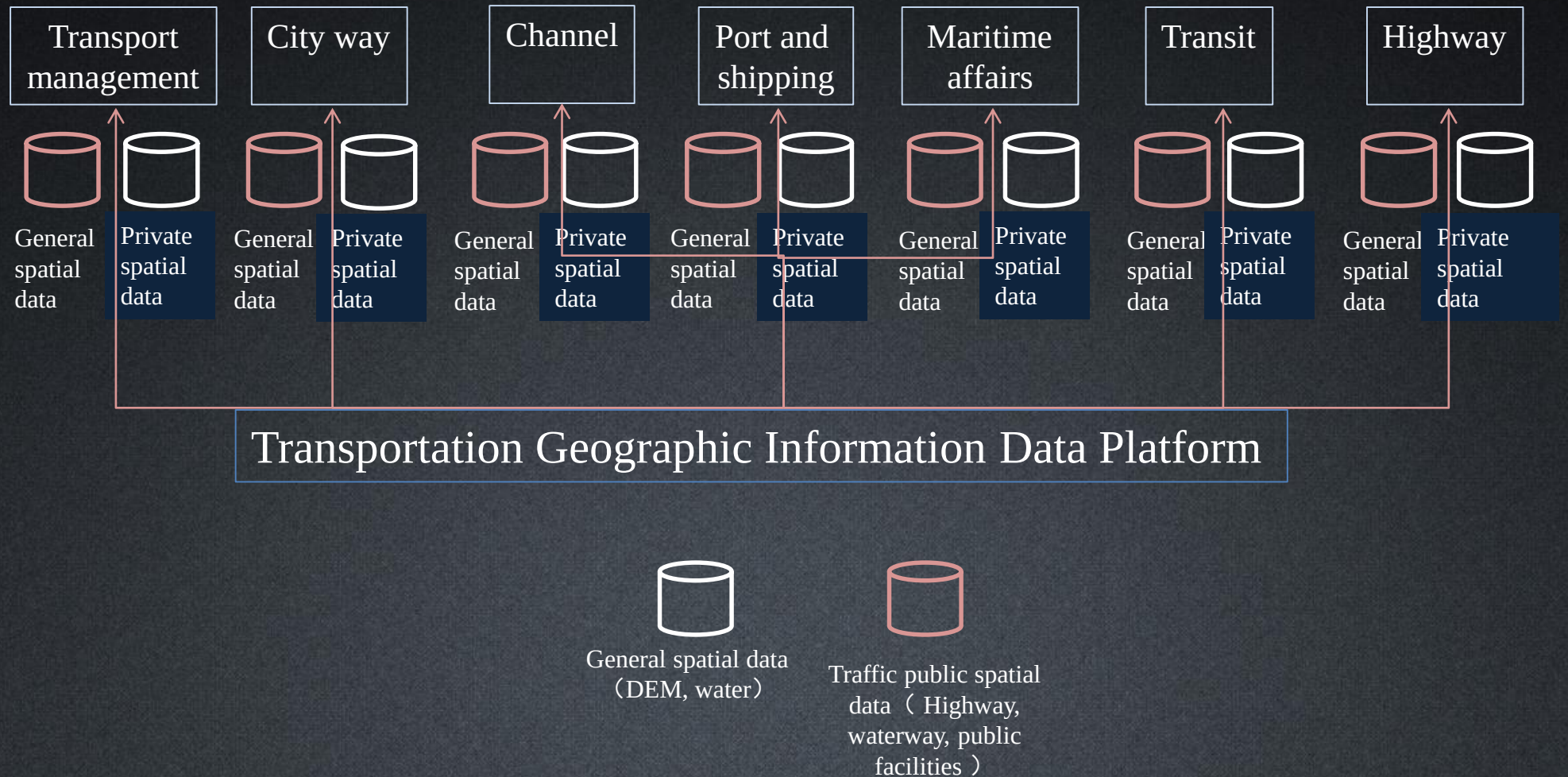
Data Construction for “One Map”



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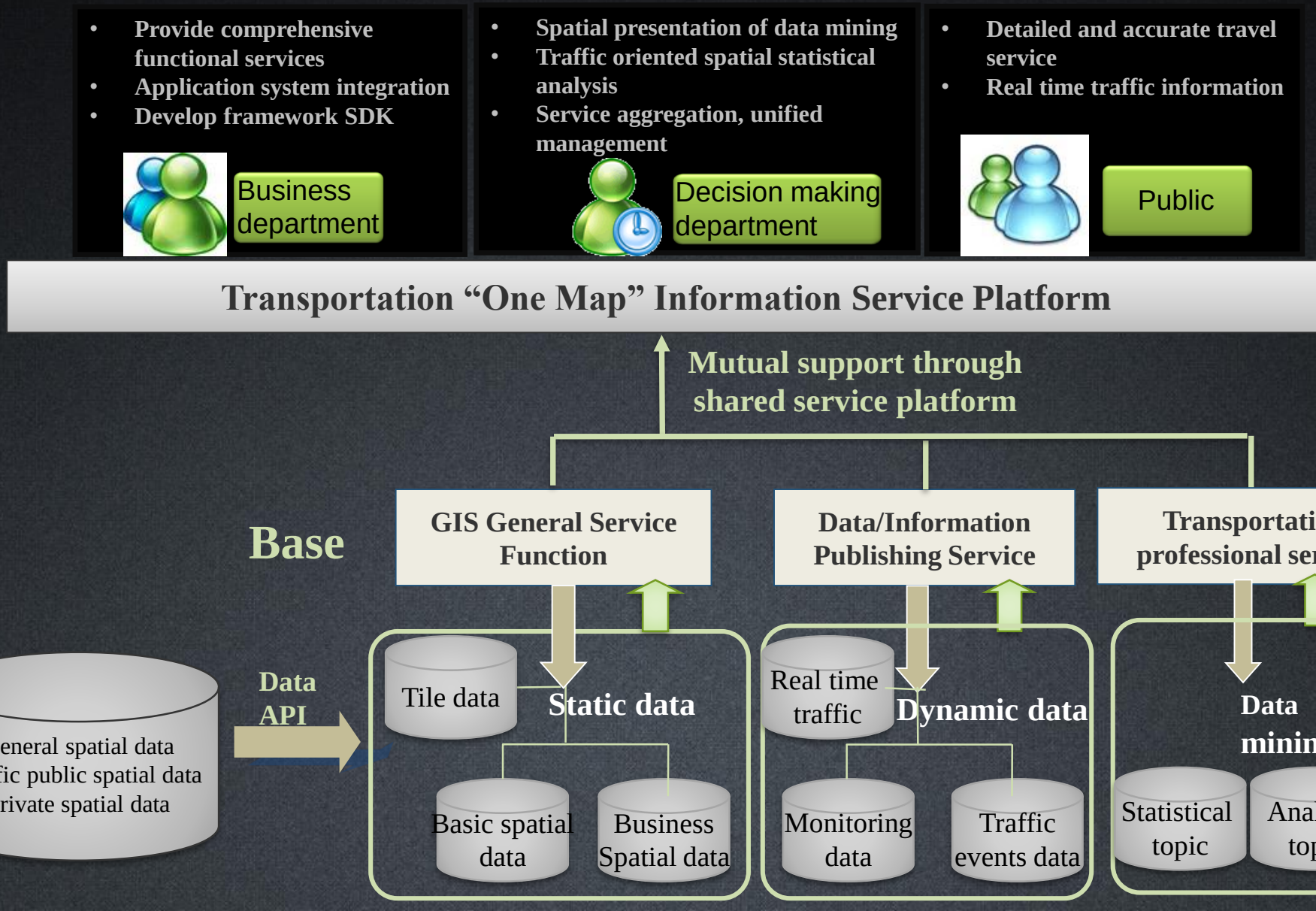
Data classification and service application integration



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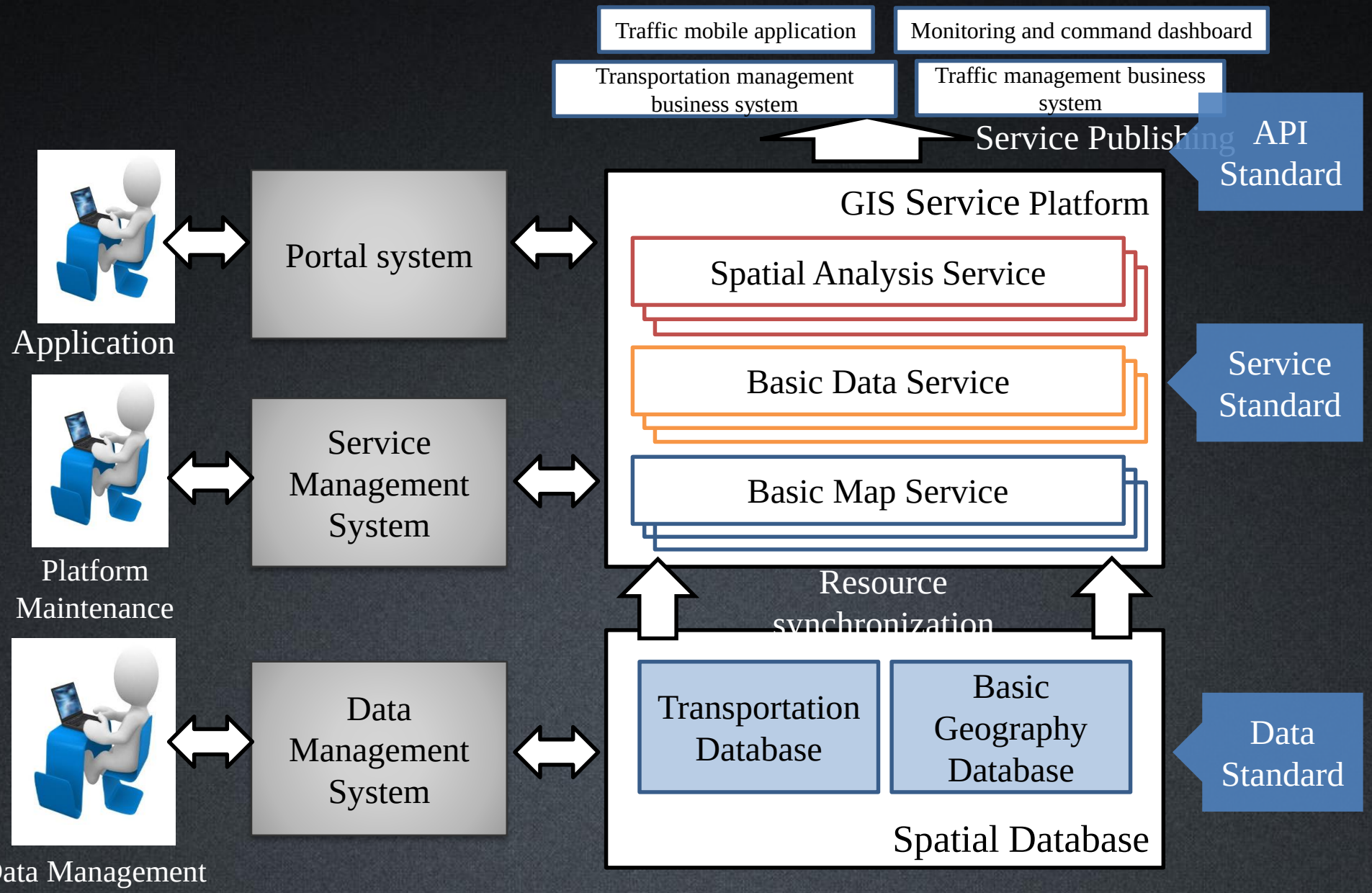
System Construction for “One Map”



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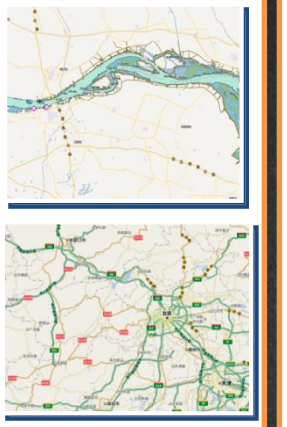
“One Map” Supports for Transportation Industry

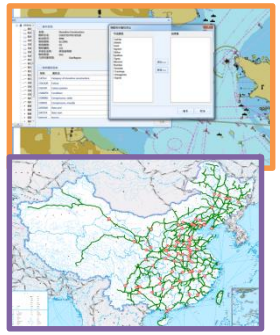
Government

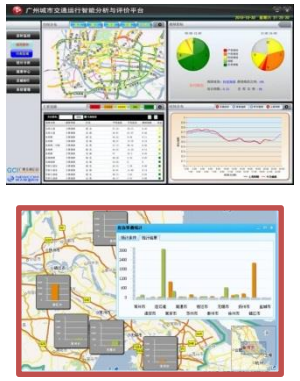
Public

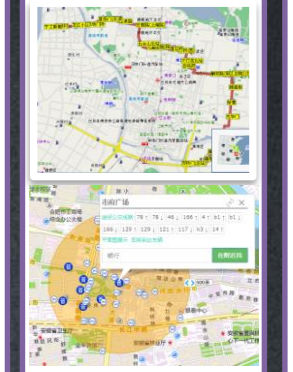
Enterprise

Integrated map center	Public travel service	Resource center	Decision making	Monitoring and early warning	Public traffic	Freight transport









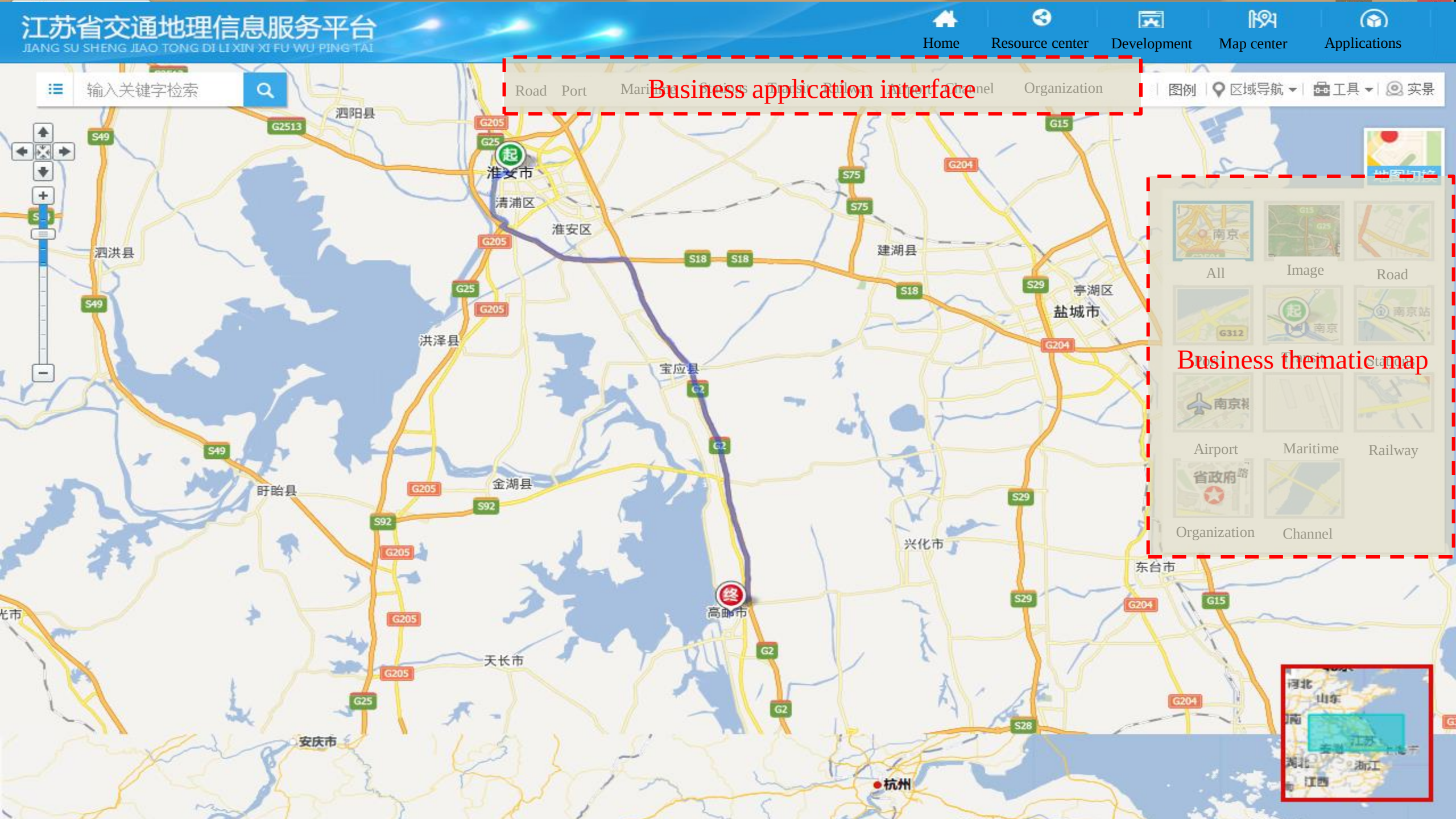
Map Service

Data Service

Functional Service

Transportation “One Map” Service Platform

SuperMap


江苏省交通地理信息服务平台
JIANG SU SHENG JIAO TONG DI LI XIN XI FU WU PING TAI
Home
Resource center
Development
Map center
Applications
输入关键字检索
Road
Port
Organization
Business application interface
图例
区域导航
工具
实景
All
Image
Road
Airport
Maritime
Railway
Organization
Channel
Business thematic map
泗阳县
泗洪县
淮安市
清浦区
淮安区
洪泽县
宝应县
建湖县
盐城市
亭湖区
盱眙县
金湖县
兴化市
东台市
高邮市
天长市
安庆市
杭州


新疆交通应急指挥监控信息管理系统
TGIS
Monitoring
Data Center
Management
Exit
Resources
Duty
Command
Emergency
Command
Plotting
Plan
地图当前区域：
博尔塔拉蒙古自治州
伊犁公路总段
任务：前往果子沟地区救援及恢复交通
联系信息：徐刚 13899810300
资源 编辑 删除
博乐公路总段
任务：前往果子沟地区协助救援及恢复交通
联系信息：李琦 13999701535
资源 编辑 删除
解放军驻乌鲁木齐某部队
任务：协助派出直升机前往灾区空投救灾物资并救助伤员
联系信息：内线电话
资源 编辑 删除
首页 前页 后页 末页 1 / 1 [5]
新增
新增资源
托里县
S201
S221
阿拉山口岸
S304
温泉县
艾比湖
赛里木湖
精河县
乌苏县
S313
S315
尼勒克县
Traffic Emergency Command Platform of Xinjiang

New Development of Transportation - 3D GIS Technology

SuperMap

The Necessity of Transportation Construction from 2D to 3D GIS

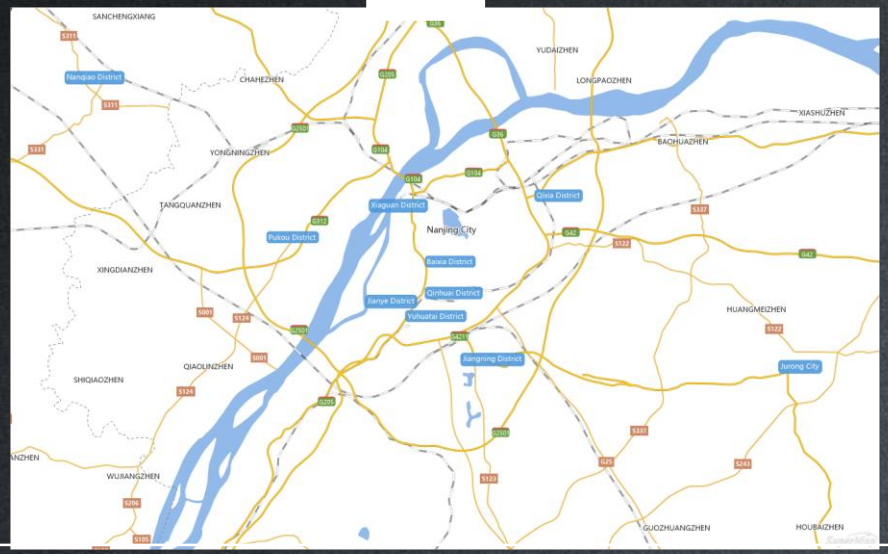
Viaduct, tunnel construction cannot be supported well

The design effect is not intuitive

Vertical spatial problem cannot be checked

Problem

Solving



Traditional 2D GIS

3D New GIS

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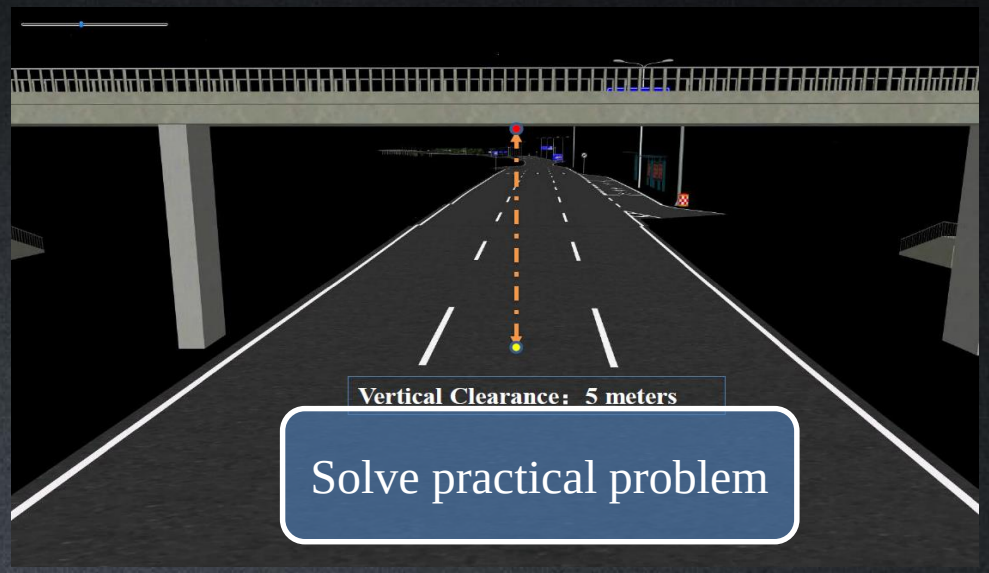
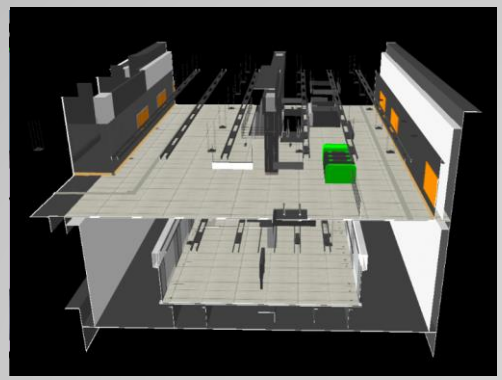
3D GIS Assists with Transportation Construction



Multi-Source 3D Data Integration

Oblique photography

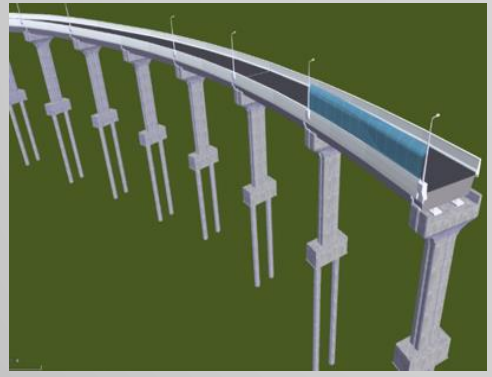


BIM

Point cloud

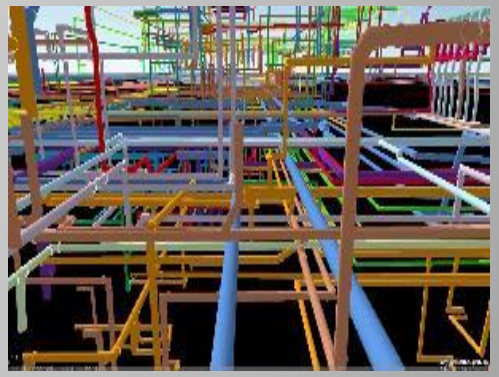
3D scene

3D terrain



Fine model

Symbolization



3D pipeline

Matching Multi-Source 3D Data

Vector
Image
Terrain
Oblique Photography
BIM
Point Cloud

Structured data

Database

Distributed Analysis Service

Data Fusion

1 Coordinate transformation

Uniformity

3D Tool

GIS Tool

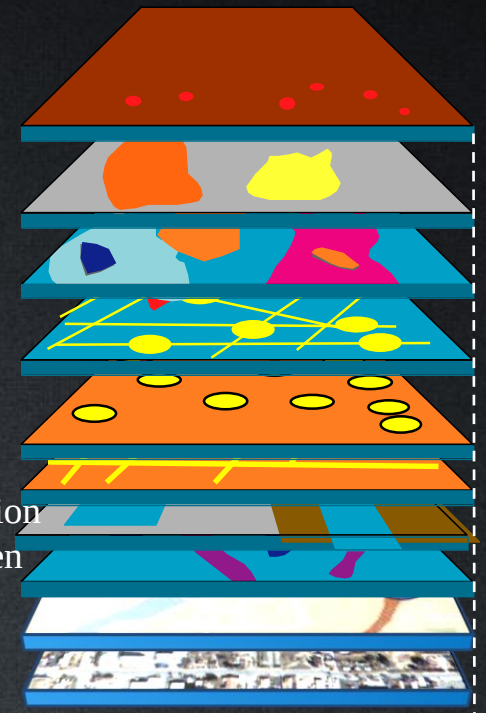
2 Data Fusion

Rationality

3D Tool

GIS Tool

- Model integrity
- Model depth
- Space geometry information
- Attributes information
- Consistency between graph and model



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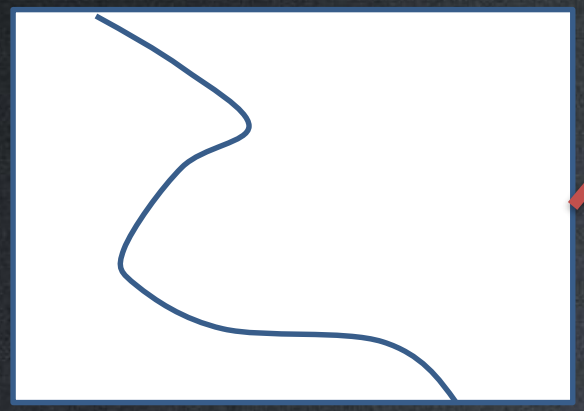
3D Symbolization



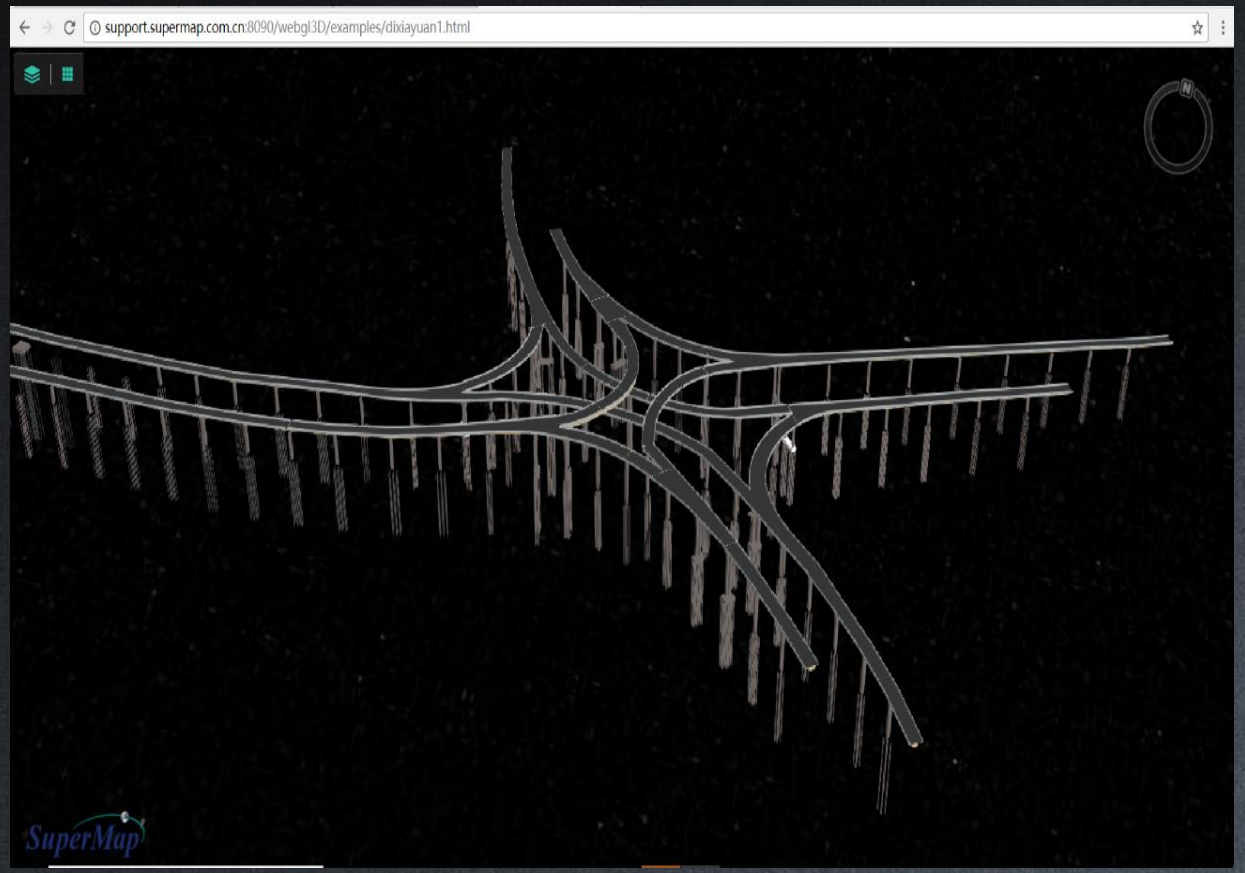
Oblique photography

2D vector data

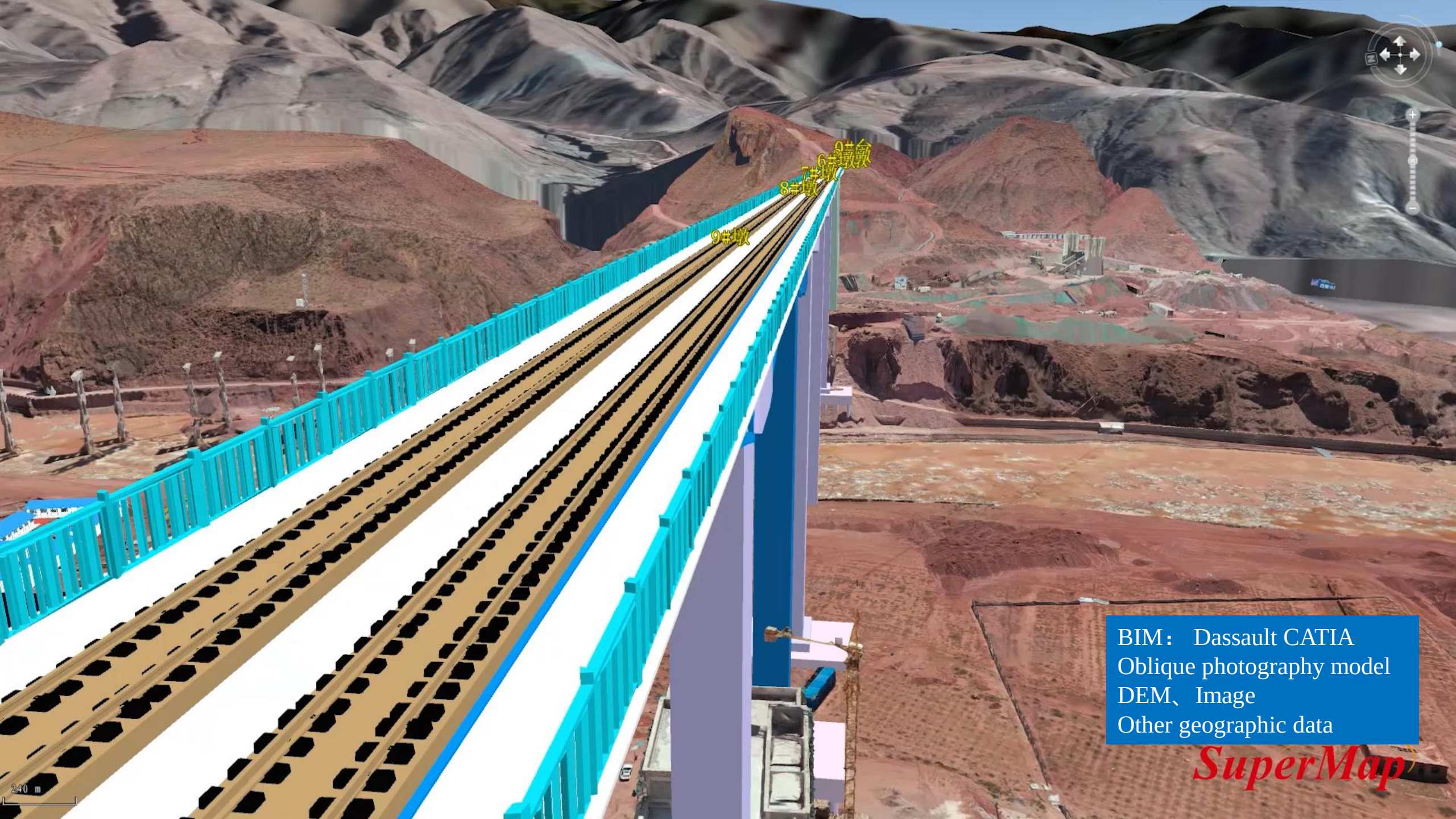
SuperMap

3D Symbolization

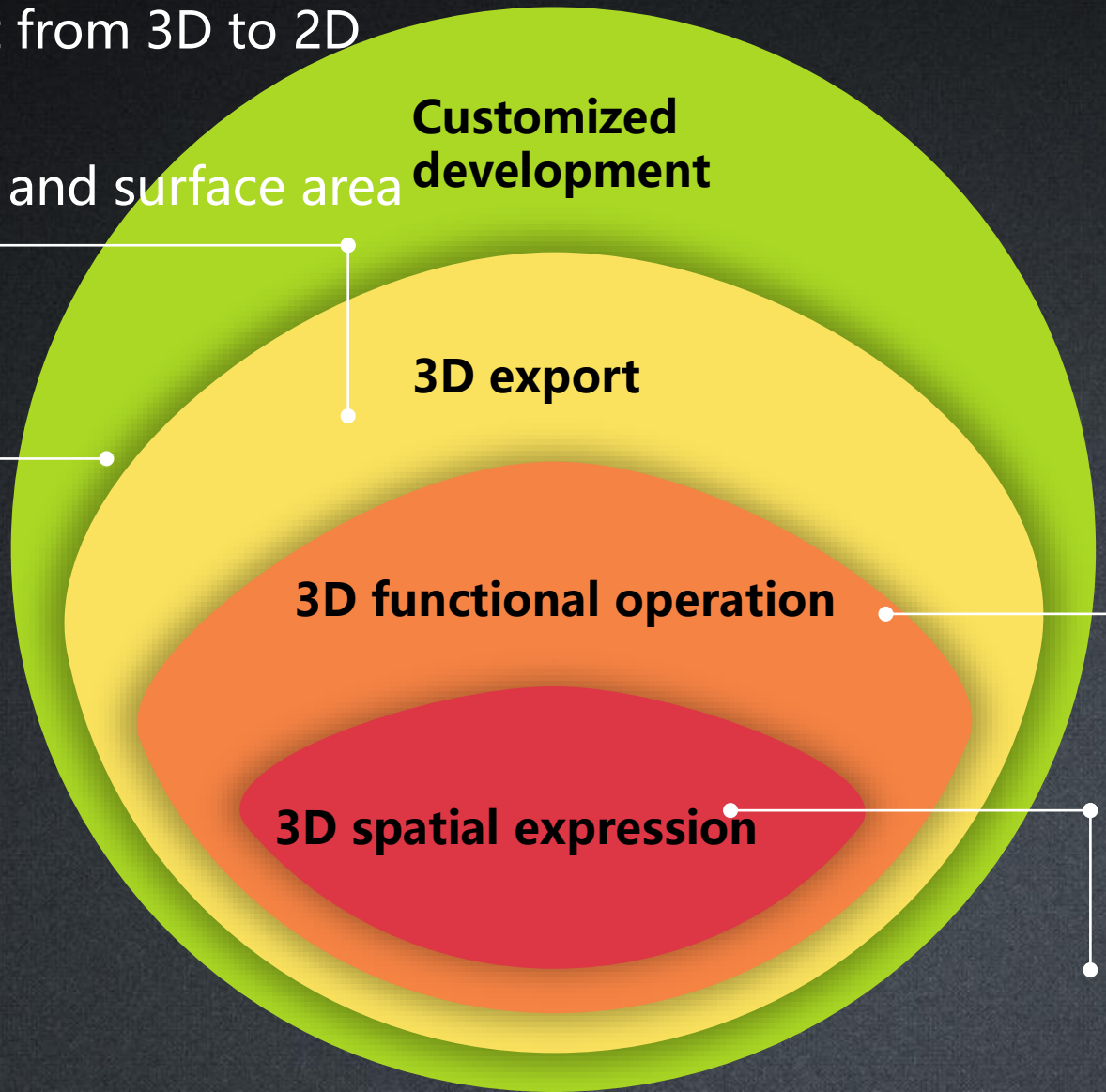
Integrate 2D and 3D Visualization



SuperMap

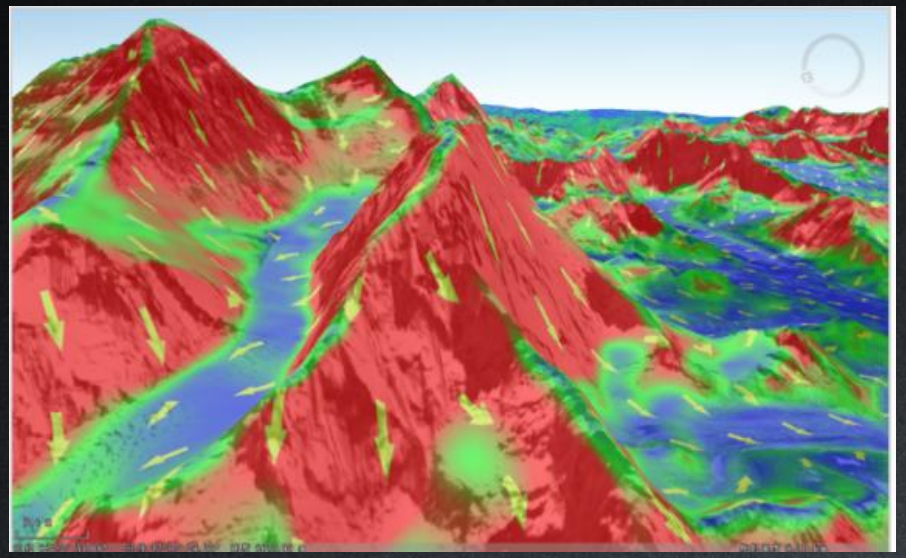

9#墩
6#墩
7#墩
8#墩
9#墩
240 m
BIM： Dassault CATIA
Oblique photography model
DEM、 Image
Other geographic data
SuperMap

2D and 3D Integrated Spatial Analysis Operation

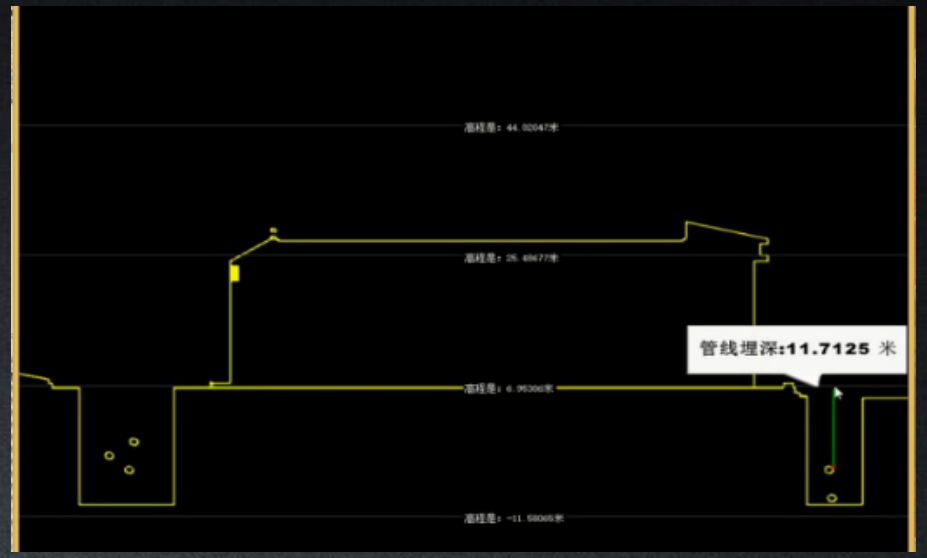


- Convert from 3D to 2D
- 3D Print
- Volume and surface area
- WebGL
- Spatial operation
  - Merge, intersect, substract …
- Spatial relation
  - Contain, intersect, separate …
- Spatial Analysis
  - Buffer, visibility
  - Flooding
- Measurement
  - Vertical height
  - Horizontal length
- Realistic object
- Abstract space
  - Shadow body, visible body, skyline …

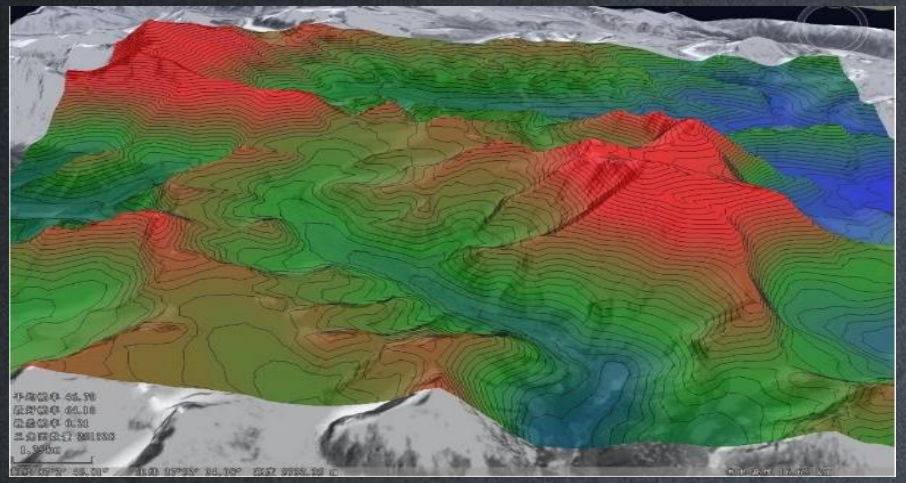
SuperMap



3D Slope & Aspect Analysis



Profile Analysis



3D Isoline Analysis

3D Buffer Analysis

SuperMap

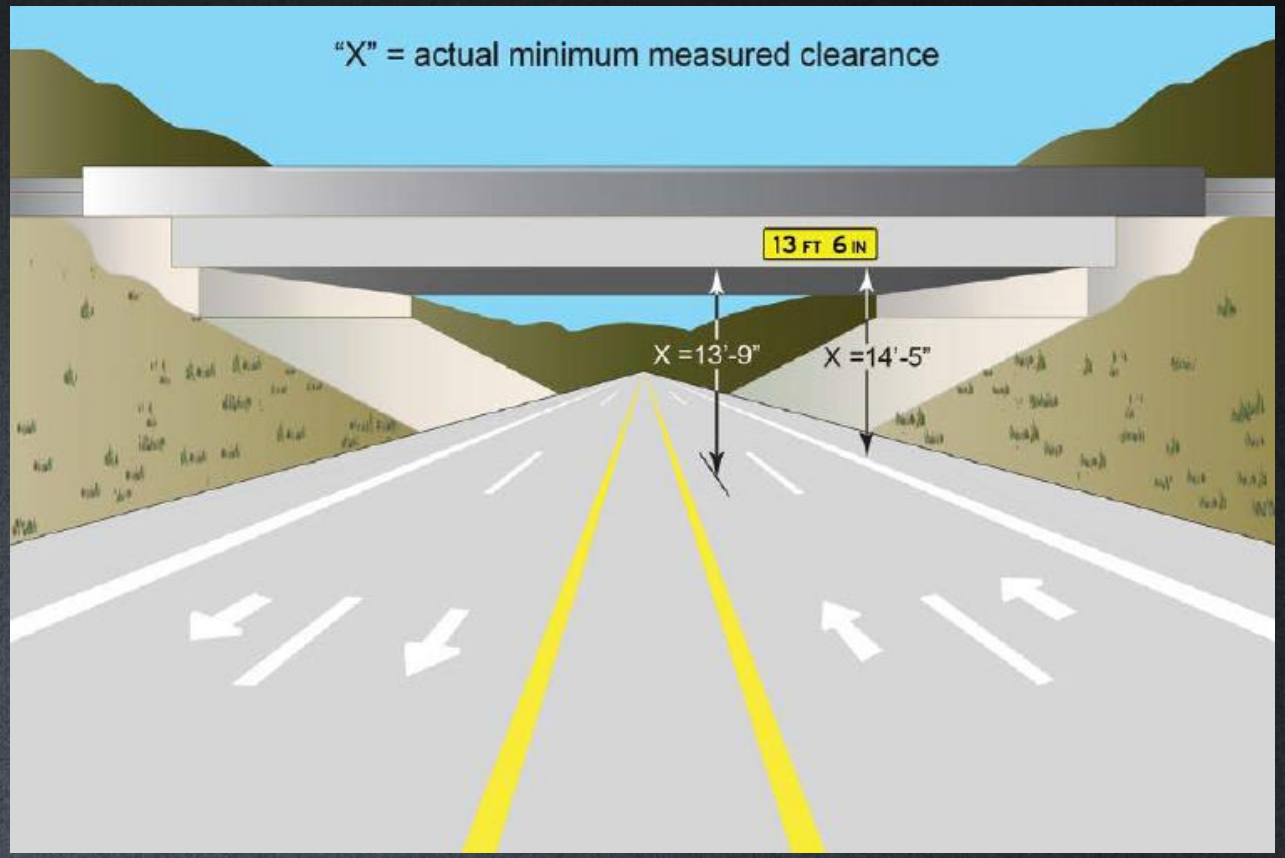
Minimum Vertical Clearance

VERTICAL CLEARENCE

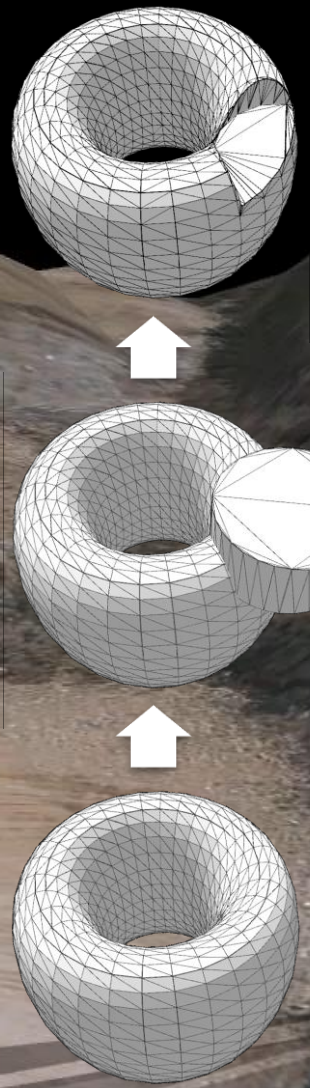
✓Minimum vertical clearance of 5m should be ensured over the full width of the roadway at all underpasses and similarly at overhanging cliffs and any semi-tunnel sections etc

✓The vertical clearance should be measured with regard to the highest point of carriageway(the crown or the super elevated edge of the carriageway)

✓Allowance for any future raising/strengthening of pavement is also be made)



3D Spatial Operation (Intersect, merge, subtract)

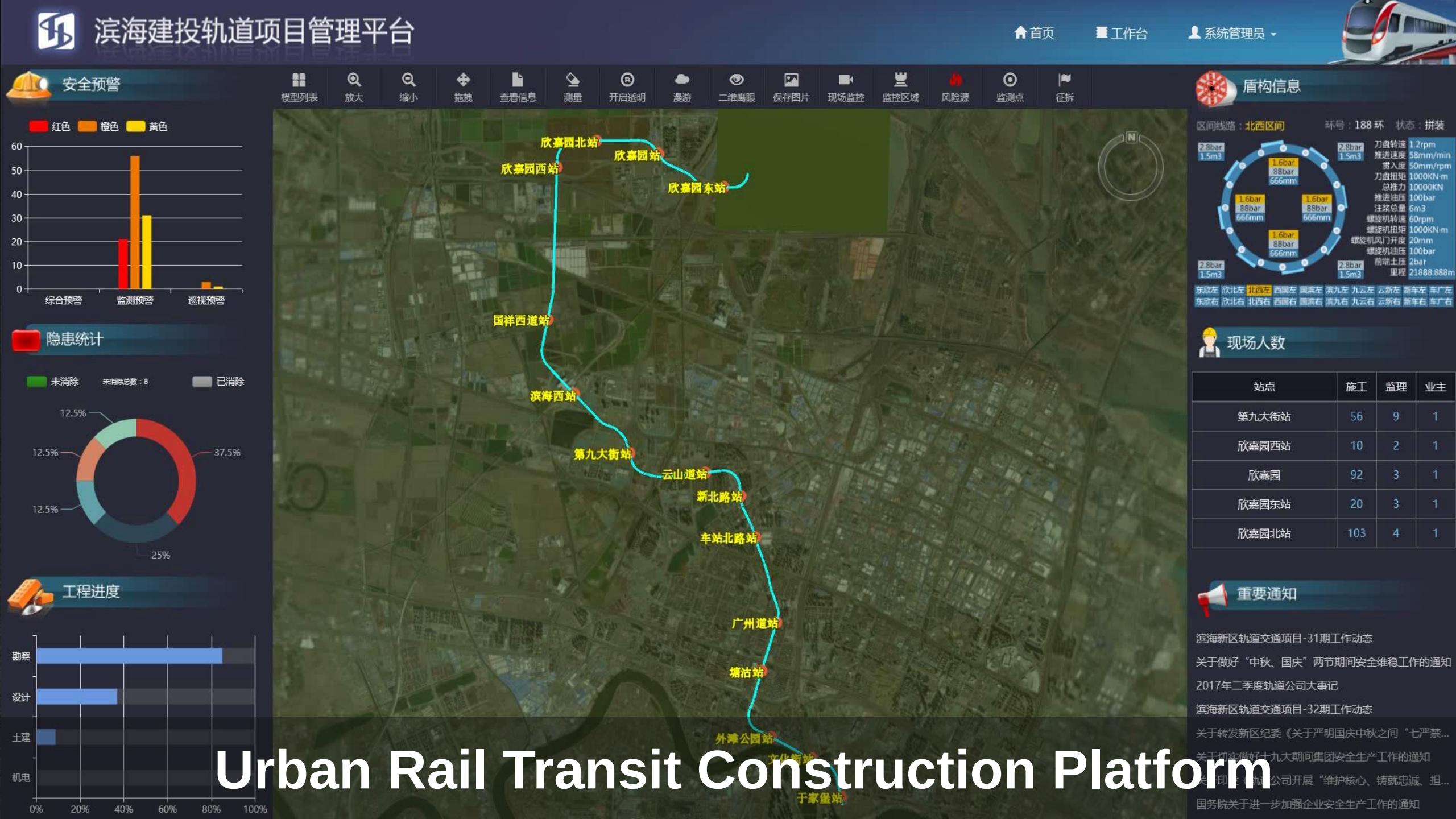


The tunnel body model is built by convex hull, and the spatial operation between

convex hull and mountain body is realized to dig the tunnel

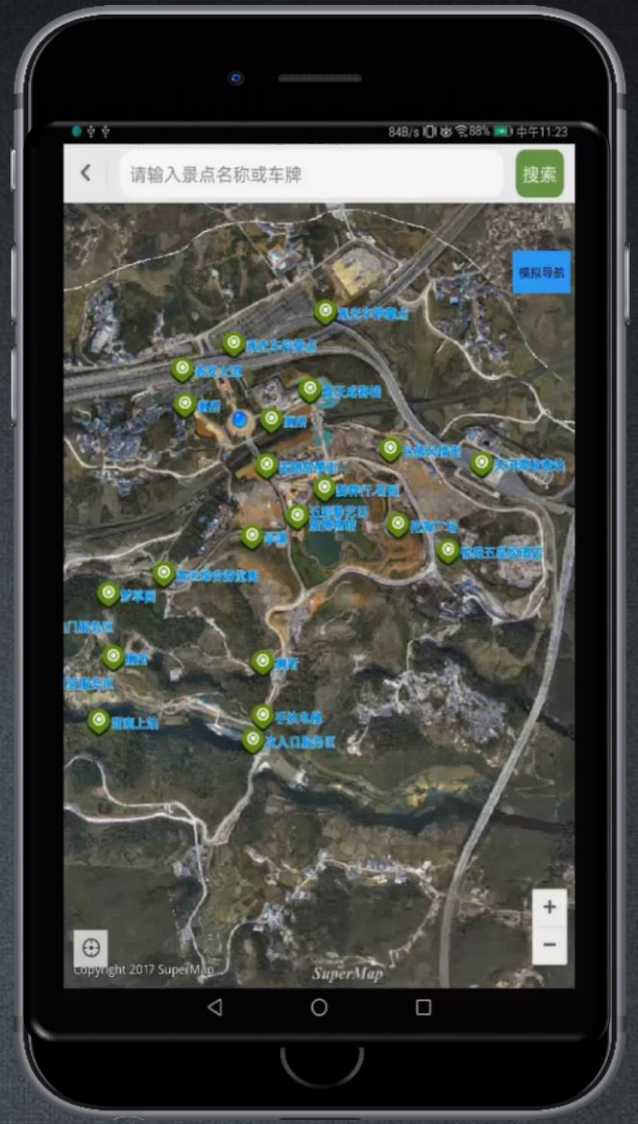
SuperMap


模型列表
拖拽
查看信息
测量
开启透明
漫游
二维鹰眼
现场监控
监控区域
风险源
监测点
征拆
征拆列表
征拆列表
塘沽站~外滩公园站区间
烟台道小区
过街天桥一
过街天桥二
文化街站~于家堡站区间
鸿运小区
滨海西站~第九大街站区间
泵站地面附属用房
云山道站~新北路站区间
滨海网球学校
车站北路站
加油站
麦当劳
广州道站
中国石油加油站
文化街站
永利供热公司
新华路立交桥+过街天桥
塘沽铁路支线
塘沽站
过街天桥
公共厕所
过街天桥二
烟台道小区
3D Spatial Relation Analysis
Contain, disjoint, intersect, overlap, cross, within
版权信息 © 滨海建投轨道


滨海建投轨道项目管理平台
首页
工作台
系统管理员
安全预警
红色
橙色
黄色
60
50
40
30
20
10
0
综合预警
监测预警
巡视预警
隐患统计
未消除
未消除总数：8
已消除
12.5%
12.5%
37.5%
12.5%
25%
工程进度
勘察
设计
土建
机电
0%
20%
40%
60%
80%
100%
模型列表
放大
缩小
拖拽
查看信息
测量
开启透明
漫游
二维鹰眼
保存图片
现场监控
监控区域
风险源
监测点
征拆
欣嘉园北站
欣嘉园站
欣嘉园西站
欣嘉园东站
国祥西道站
滨海西站
第九大街站
云山道站
新北路站
车站北路站
广州道站
塘沽站
外滩公园站
文化街站
于家堡站
盾构信息
区间线路：北西区间
环号：188 环
状态：拼装
2.8bar
1.5m3
1.6bar
88bar
666mm
刀盘转速 1.2rpm
推进速度 58mm/min
贯入度 50mm/rpm
刀盘扭矩 1000KN·m
总推力 10000KN
推进油压 100bar
注浆总量 6m3
螺旋机转速 60rpm
螺旋机扭矩 1000KN·m
螺旋机风门开度 20mm
螺旋机油压 100bar
前端土压 2bar
里程 21888.888m
东欣左 欣北左 北西左 西国左 国滨左 滨九左 九云左 云新左 新车左 车广左
东欣右 欣北右 北西右 西国右 国滨右 滨九右 九云右 云新右 新车右 车广右
现场人数
站点 施工 监理 业主
第九大街站 56 9 1
欣嘉园西站 10 2 1
欣嘉园 92 3 1
欣嘉园东站 20 3 1
欣嘉园北站 103 4 1
重要通知
滨海新区轨道交通项目-31期工作动态
关于做好“中秋、国庆”两节期间安全维稳工作的通知
2017年二季度轨道公司大事记
滨海新区轨道交通项目-32期工作动态
关于转发新区纪委《关于严明国庆中秋之间“七严禁...
关于切实做好十九大期间集团安全生产工作的通知
关于印发轨道公司开展“维护核心、铸就忠诚、担...
国务院关于进一步加强企业安全生产工作的通知
Urban Rail Transit Construction Platform

Mobile Terminal Application

- Integrated 2D and 3D visualization
- Integrated 2D and 3D navigation
- Integrated indoor and outdoor navigation

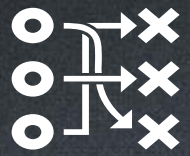


New Development of Transportation - Big Data Technology

Big Data GIS Technology System (From 2017)

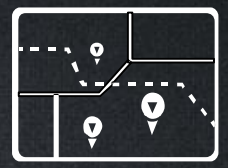
Core Technology of SuperMap Big Data

Big Data Storage Management



Big Data Distributed Analysis

Stream Data



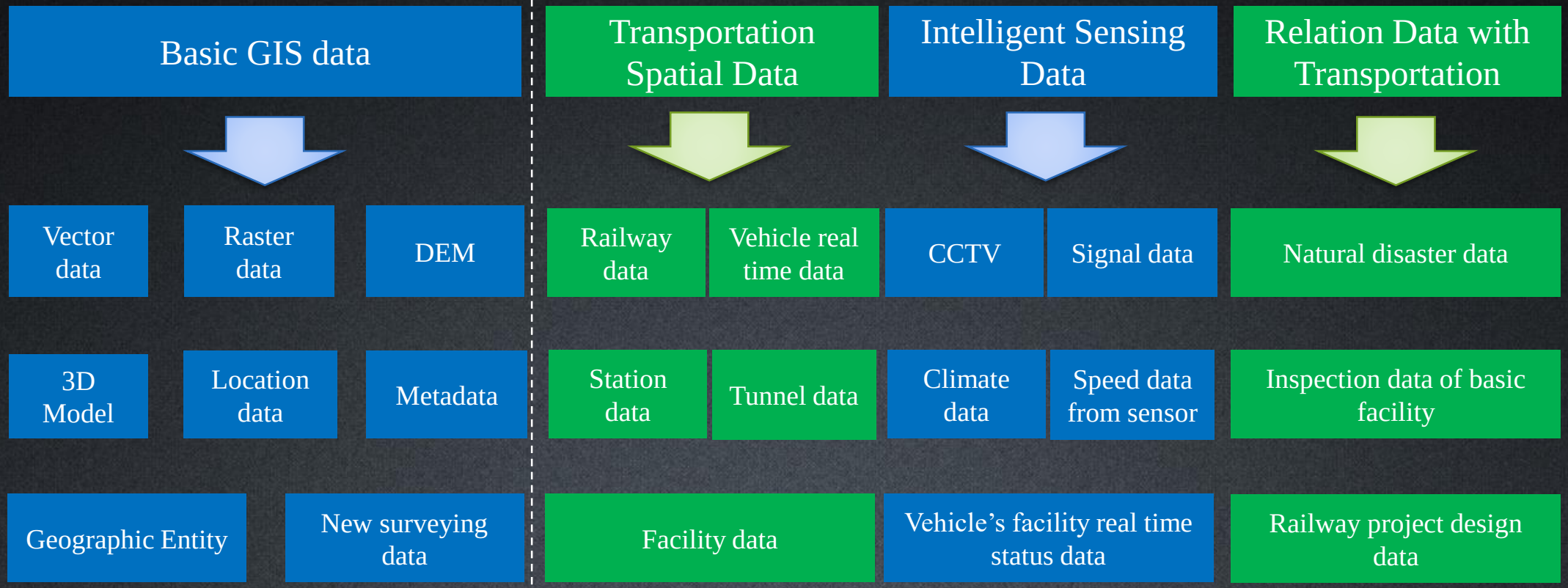
Big Data Visualization

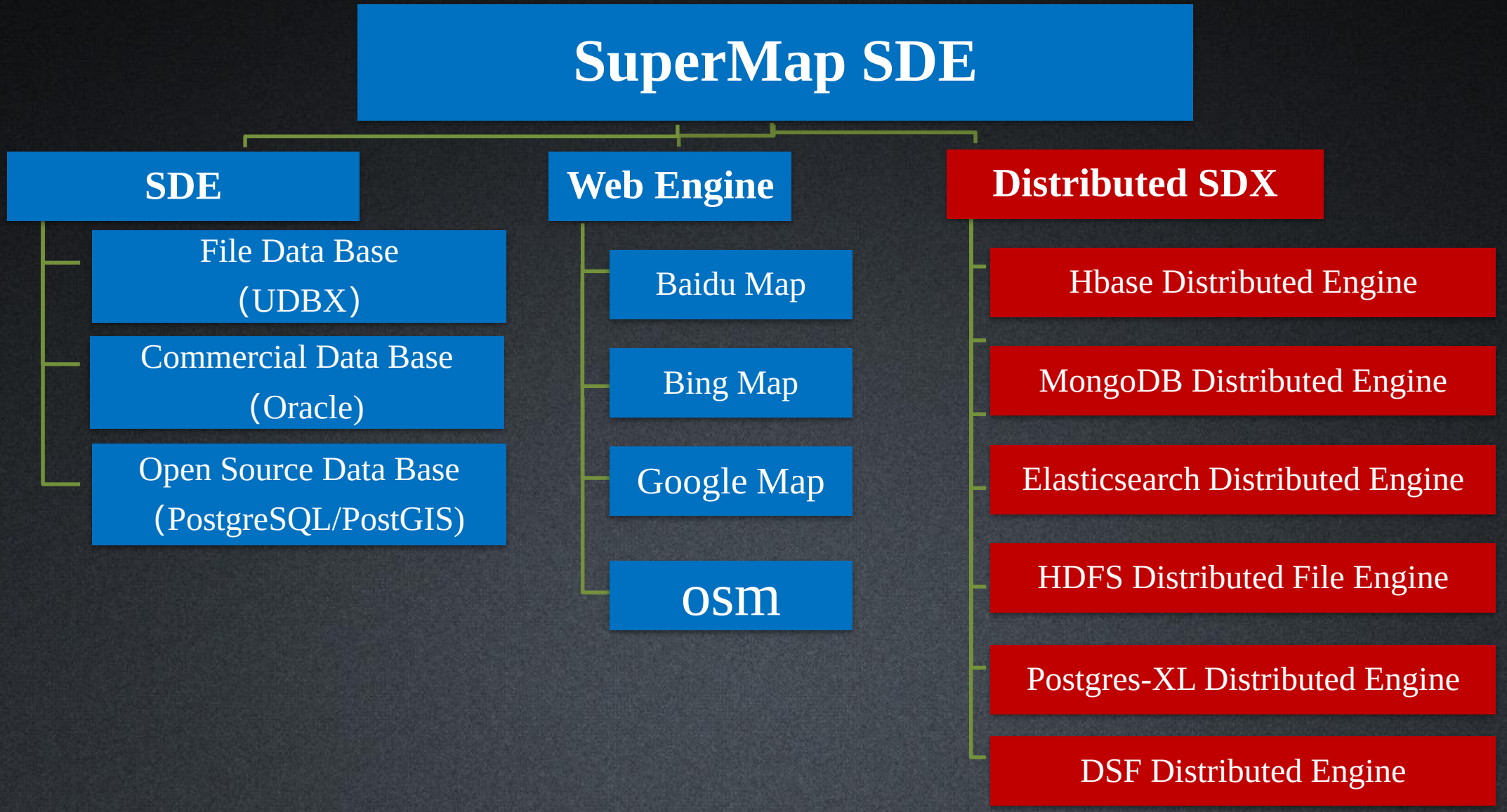
Cross Platform GIS

Basic Technology of GIS Big Data

Cloud Integrated GIS

Multi-source Transportation Big Data




SuperMap SDE
SDE
File Data Base (UDBX)
Commercial Data Base (Oracle)
Open Source Data Base (PostgreSQL/PostGIS)
Web Engine
Baidu Map
Bing Map
Google Map
osm
Distributed SDX
Hbase Distributed Engine
MongoDB Distributed Engine
Elasticsearch Distributed Engine
HDFS Distributed File Engine
Postgres-XL Distributed Engine
DSF Distributed Engine

Amount of 450 million line data displayed smoothly based on HBase database

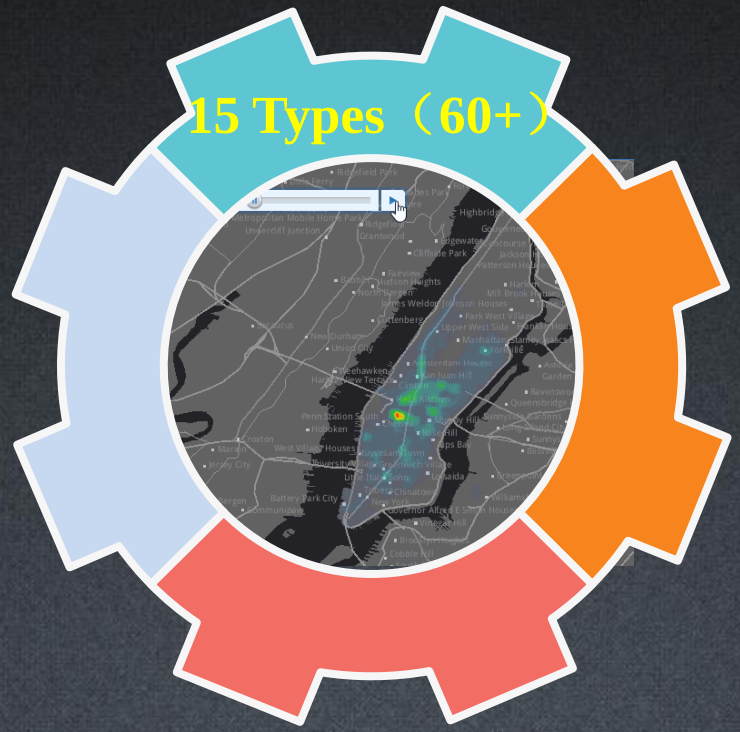
Big Data Analysis Operators

Spatial Big Data

- Hot Spots Analysis
- OD Analysis
- Trajectory Reconstruction
- Multivariate Grid Creation
- ...

Classic GIS Distributed Reconstruction

- Overlay Analysis
- Buffer Analysis
- Region Statistics
- ...



SuperMap + Apache Spark

Streaming Data

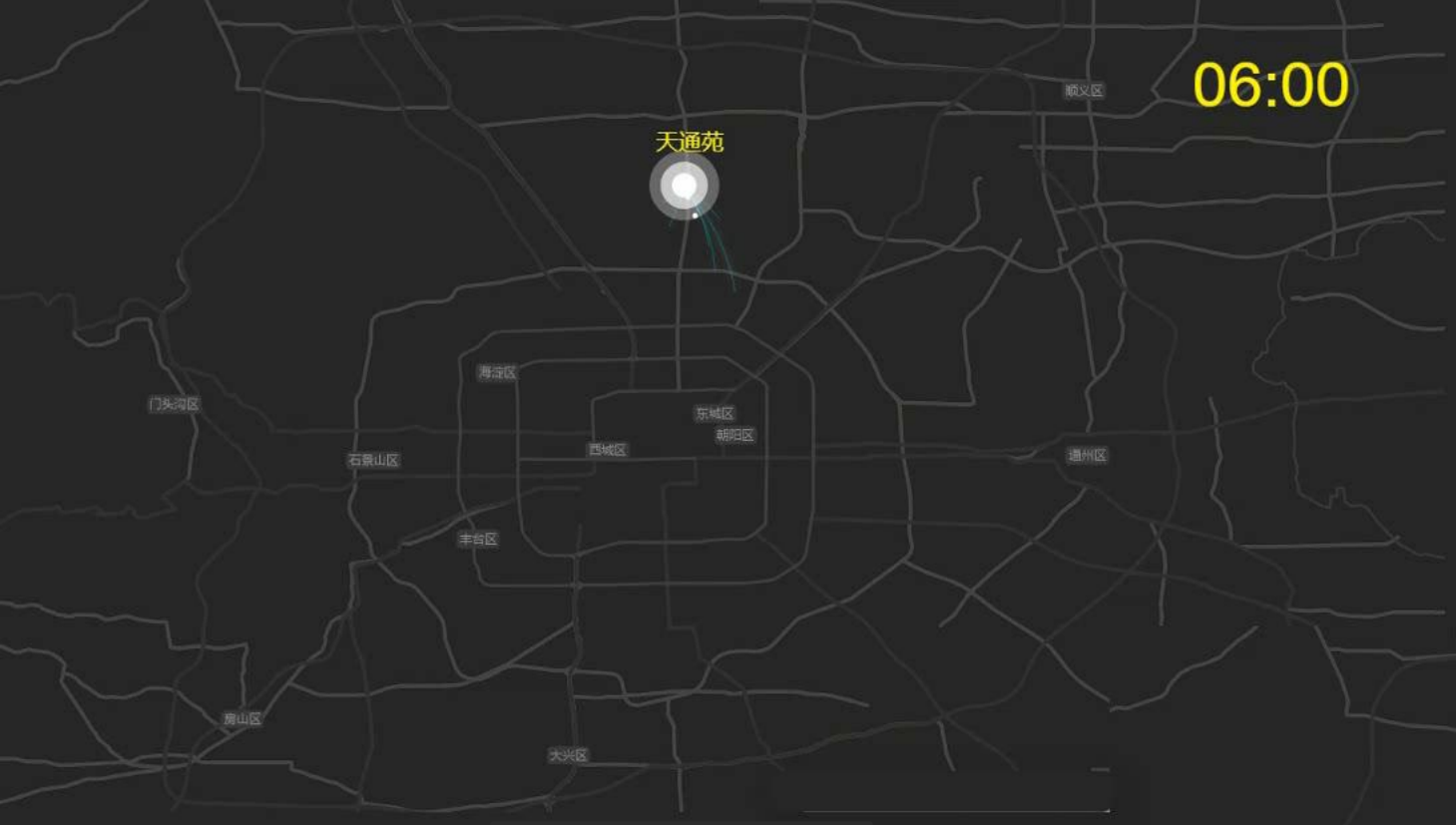
- Road matching
- Geofence
- …

10.0.0

Distributed Spatial Machine Learning

- Cluster Analysis
- Regression Analysis
- Random Forest Analysis
- …

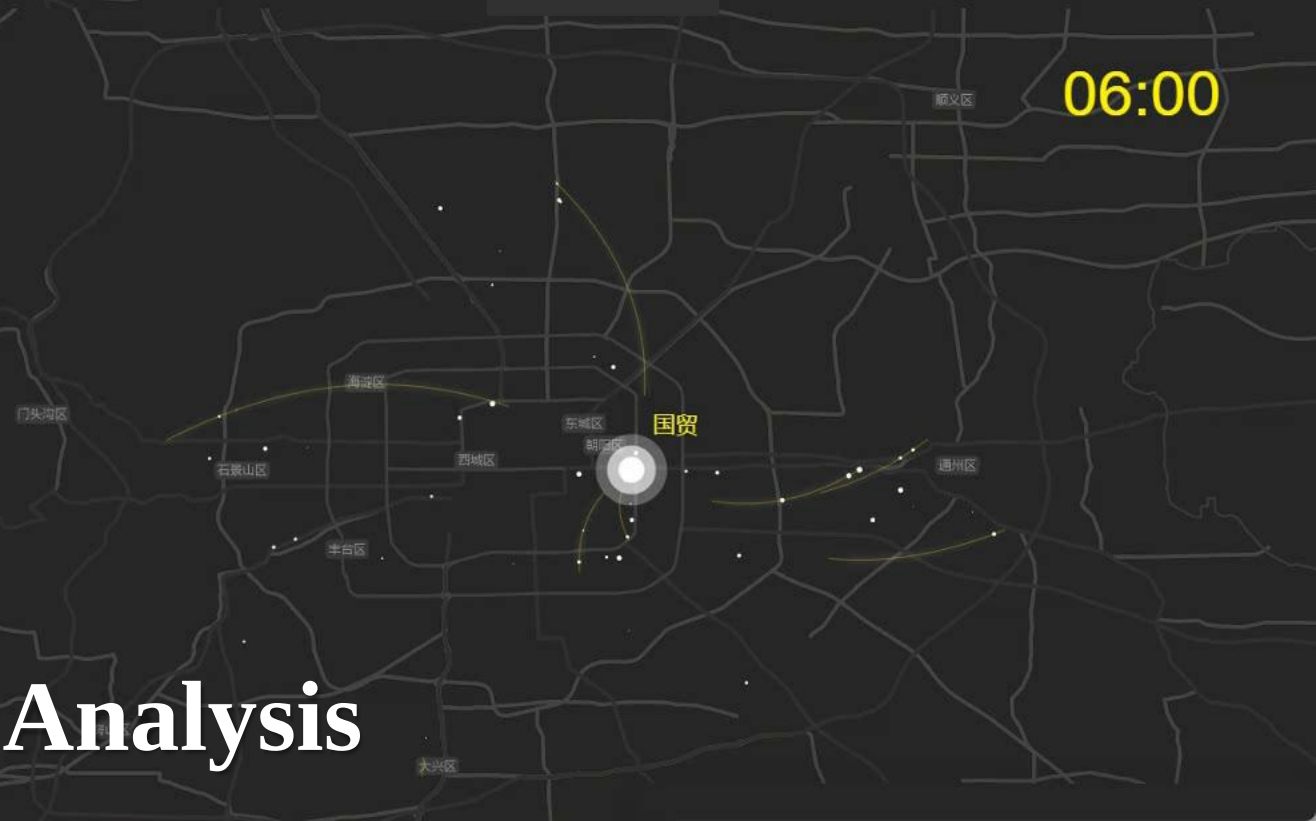
SuperMap



Comparison of morning and evening peak flow between two subways

Tian Tongyuan

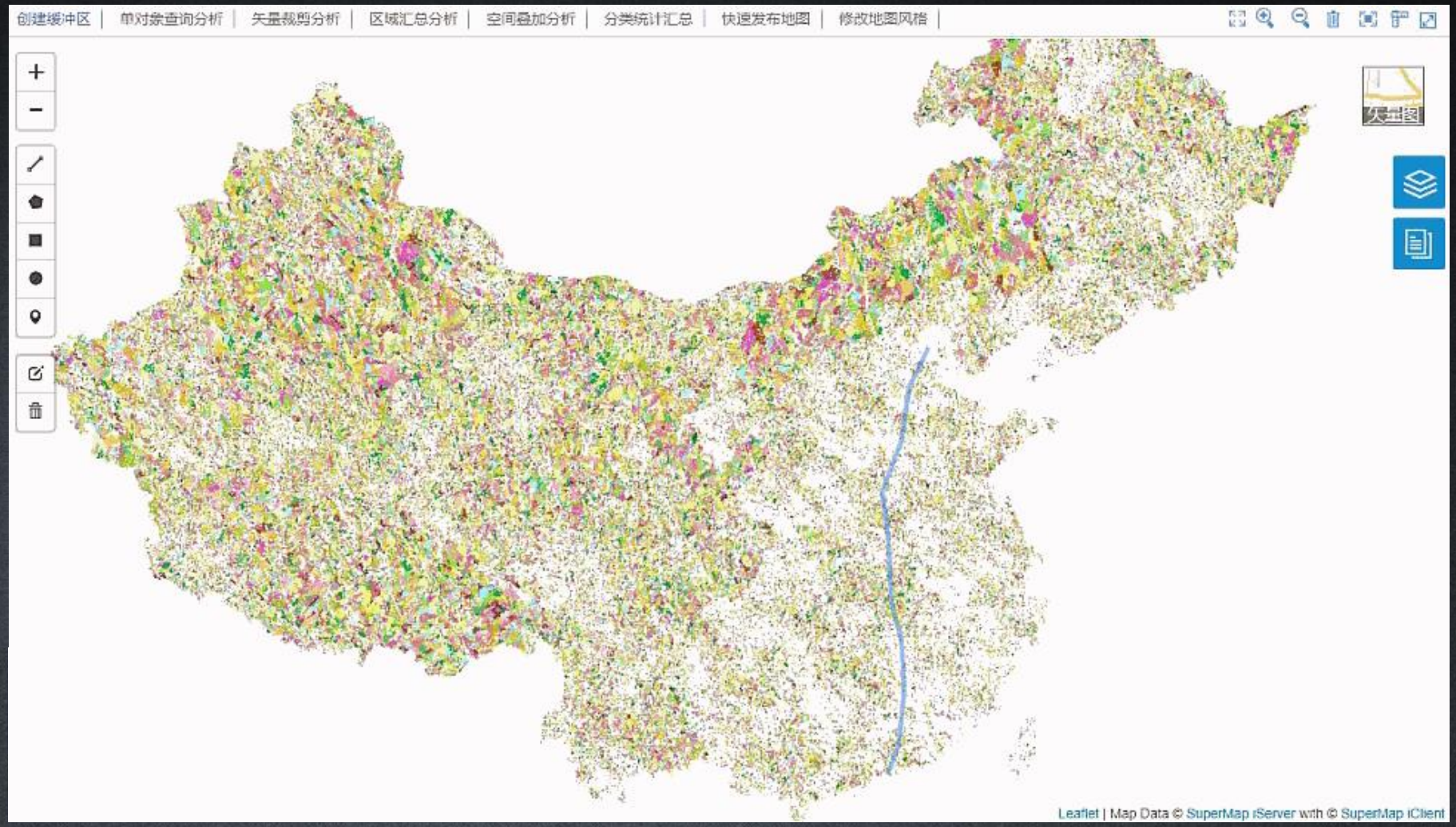
Guo Mao



Dynamic Expression of OD Analysis

Land Parcels Occupied by Planned High-speed Rail

- More than **300,000,000** land parcel （China）
- 10 distributed clusters
- Buffer Analysis & Overlay Analysis
- Complete in **45s**



SuperMap Big Data GIS with IoT

IoT

Sensor
RFID
Camera
Card Reader
GPS

Device Gateway

Network

According to the industry demand of IoT, SuperMap provides the technology program of IoT based on GIS, and provides intelligent technical support for various industries.

iObjects iDesktop iMobile iClient Online

Application

iPortal

iServer

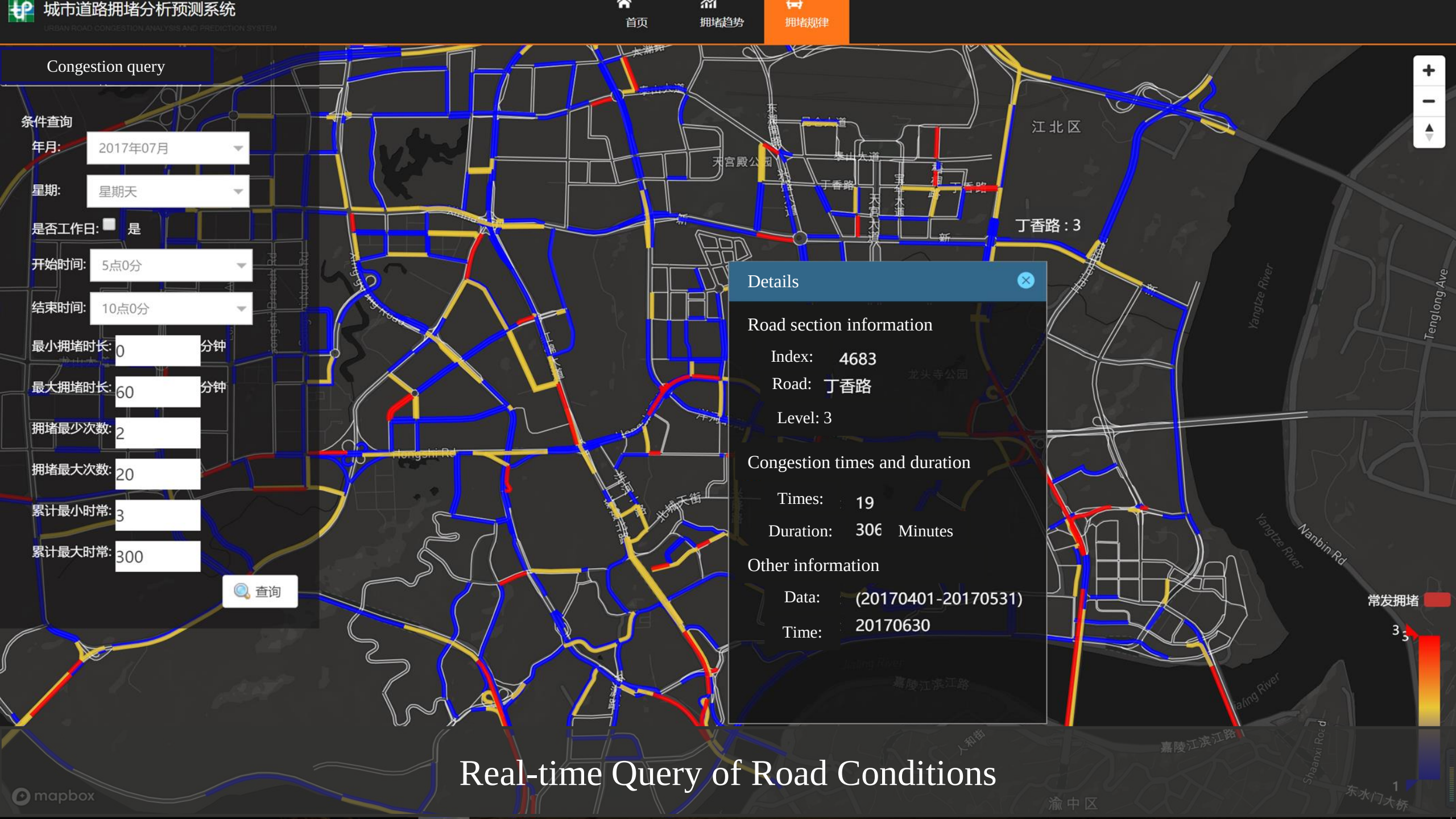
Streaming Data Service

iDataStore

Distributed Service

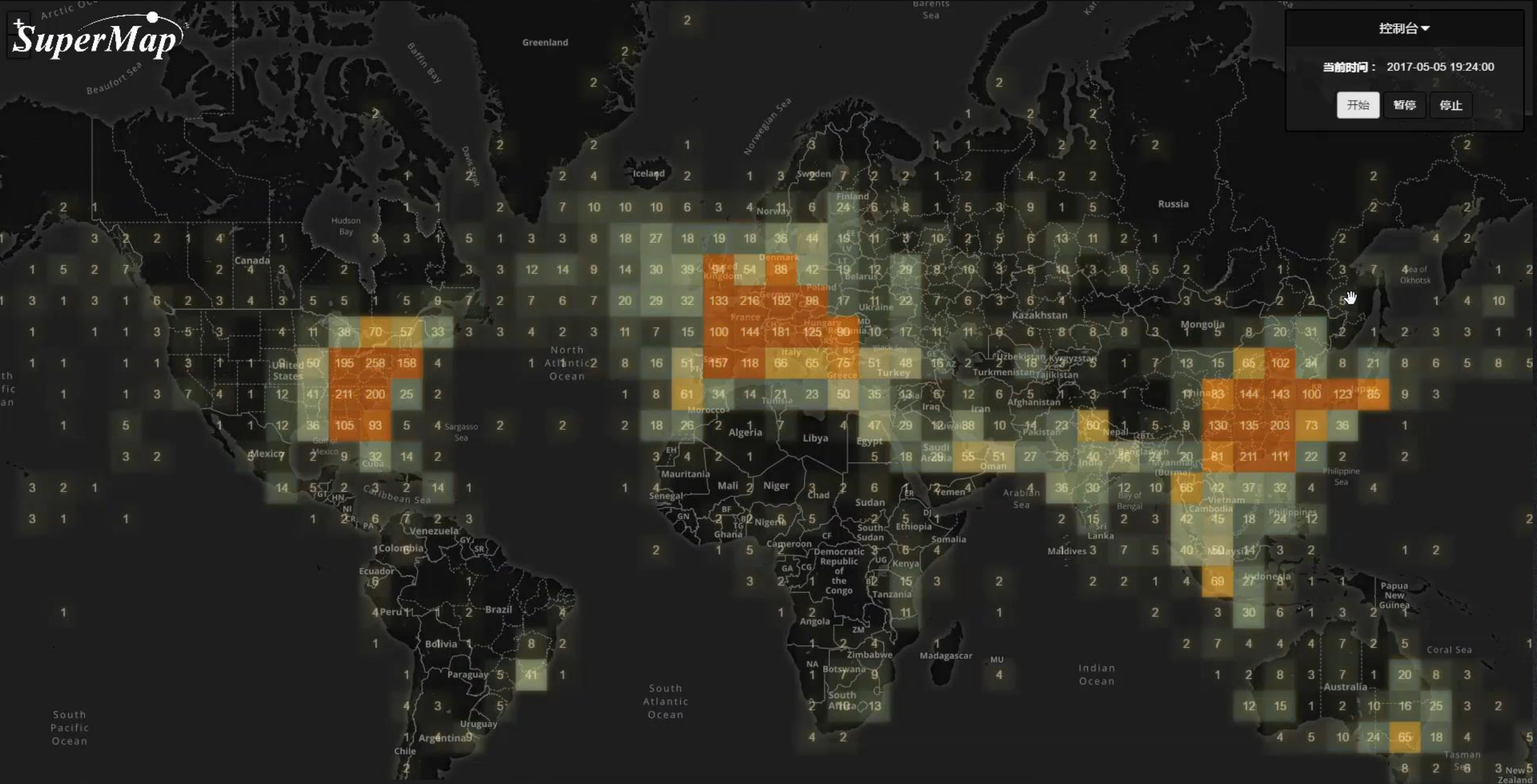
Data Analysis

SuperMap



Real-time Query of Road Conditions

Analysis of the Place Where the Taxies Get off in the Evening Rush Hour



Number of Global Air Planes in a Certain Period of Time

SuperMap

Asia & Oceania center

Thank You!

Email: zhangqin@supermap.com