Oracle Spatial – A Unifying Framework at the Utah Department Of Transportation

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UDOT CONNECTING COMMUNITIES

Today's Goals

- UDOT background
- Asset Management at UDOT
- Role of Oracle Spatial
- Look at the road to the future

Utah Department of Transportation is responsible for:

- Over 6,000 miles of highways
- Snow removal, signage, bridges, repairs, building, and maintenance
- Traffic Operations – monitoring road conditions, accidents and safety

Organization's Strategic Goals:

- Goal 1: Take Care of What We Have
- Goal 2: Make the System Work Better
- Goal 3: Improve Safety
- Goal 4: Increase Capacity

Measuring Performance

Signing and Striping

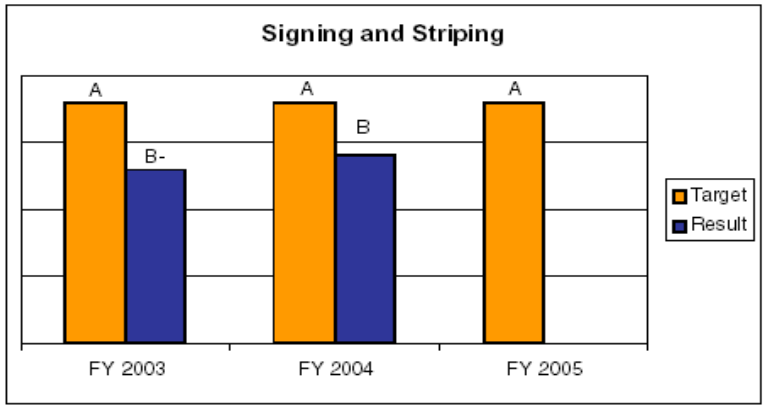
Take Care of What We Have

Goal: Signing and striping play an integral role in assuring both mobility and safety on Utah's roadways. By efficiently using its resources, UDOT can provide these high-value services to our customers at a minimal cost.

Measure: UDOT uses a computerized maintenance rating system known as MMQA+. Maintenance stations across the state compile data, which is then entered into MMQA+. The system analyzes the data and assigns a letter-grade performance rating.

Performance Target: The target MMQA+ grade for signing and striping during FY 2004 was A. A grade of A represents excellent daytime and nighttime visibility. A grade of B represents good daytime visibility and fair nighttime visibility. A grade of C represents fair daytime and nighttime visibility.

Results: In FY 2004, UDOT achieved a grade of B in signing and striping.



PERFORMANCE MEASURES

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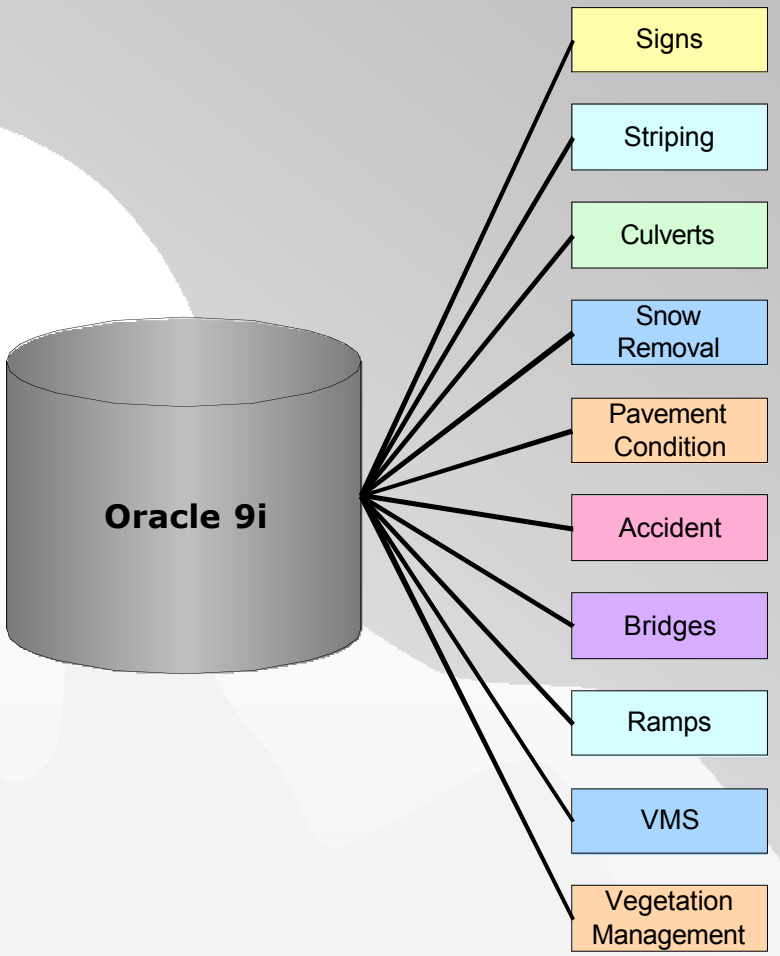
Challenges facing UDOT:

- Effectively allocating increasingly limited resources to deal with:
  - Increased congestion
  - Increased user costs
  - Decreased economic growth and productivity
  - Faster deterioration of highways

Core Data

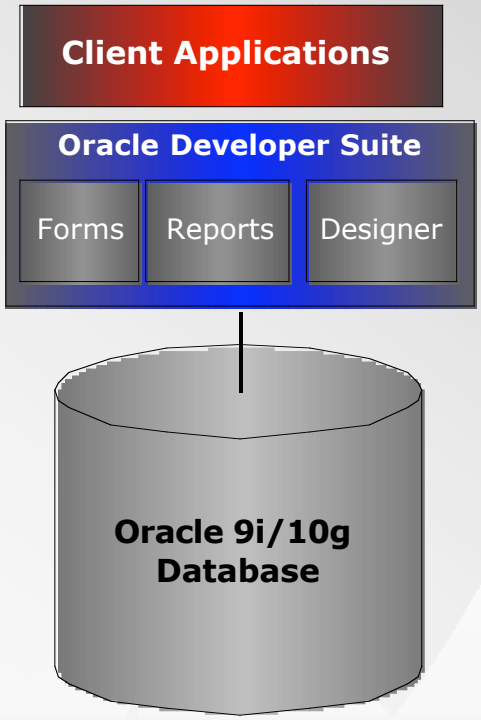
- Highway Routes
  - LRS enabled
- Business data referenced to routes
  - Assets
  - Incidents
  - Projects



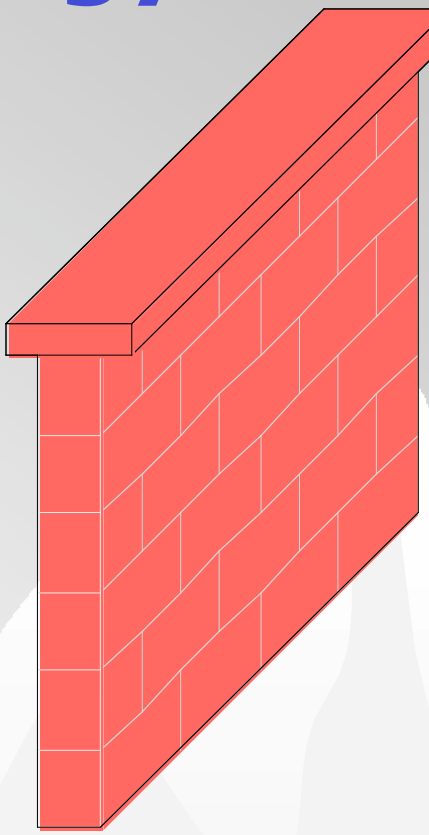
Technical Requirements and Business Drivers

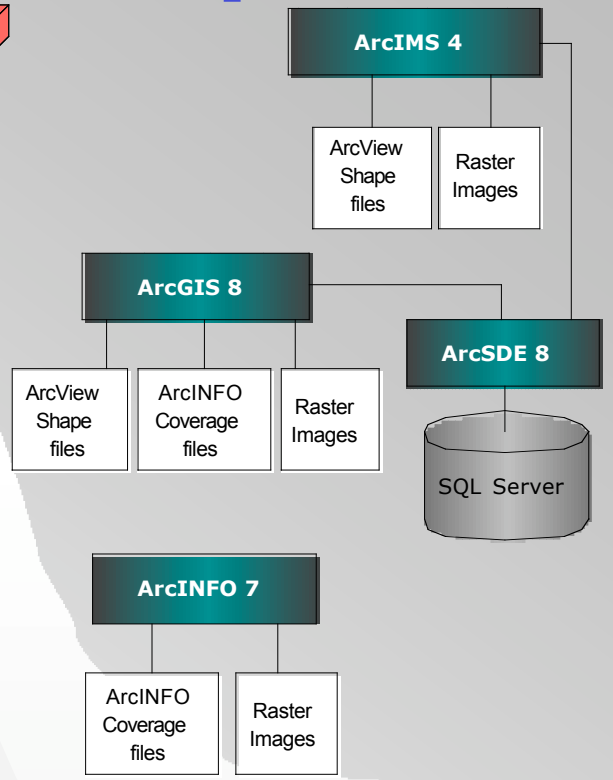
Role	Technical Requirement	Business Purpose
Maintenance Managers and Field Operators	Need applications that provide advanced tools like maps, to improve operation and management of critical assets.	Provide compelling evidence of the value of assets at specific condition level and location to efficiently apply limited resources.
Application Developers	Integrate business and spatial data in the most efficient, scalable, and open way possible to flexibly deal with end user needs.	Efficiently and effectively deal with constituents needs utilizing existing applications, skill sets, technology.

The Technology Landscape was:



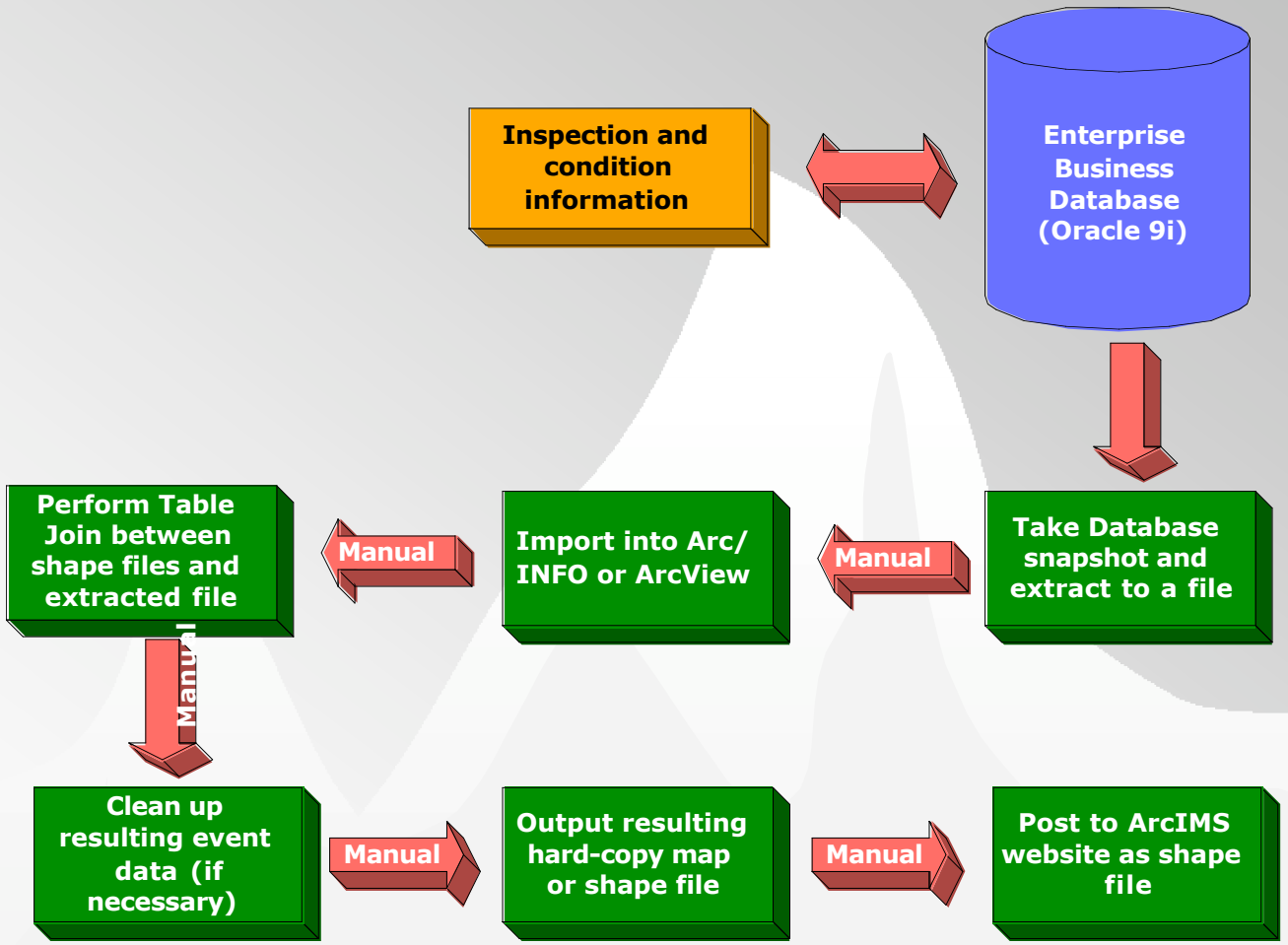
Enterprise Business Data and Applications



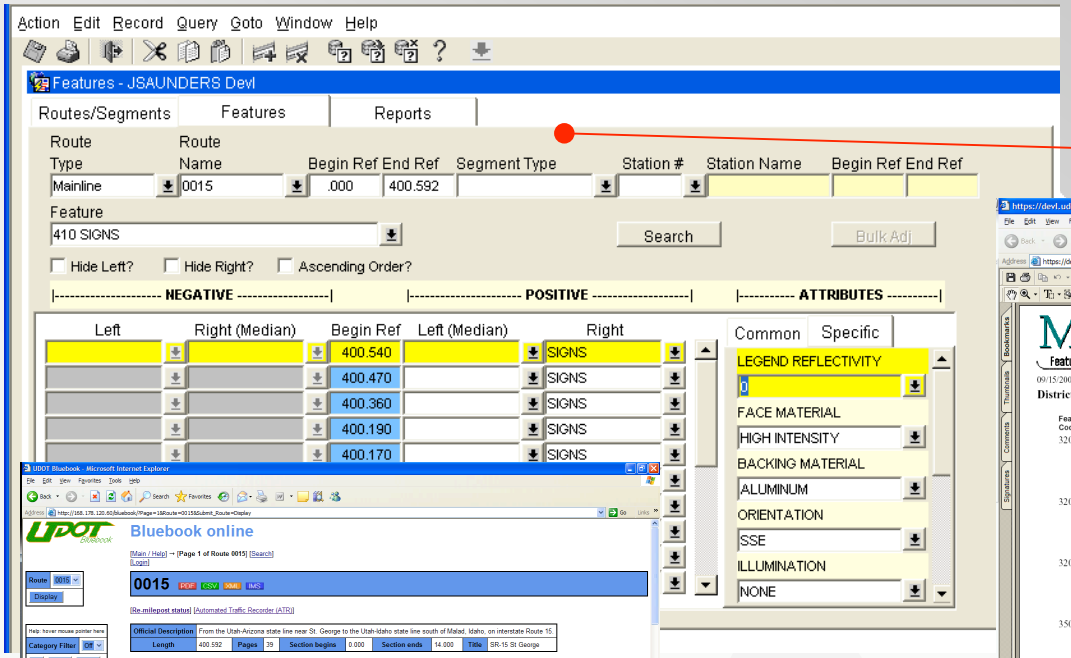


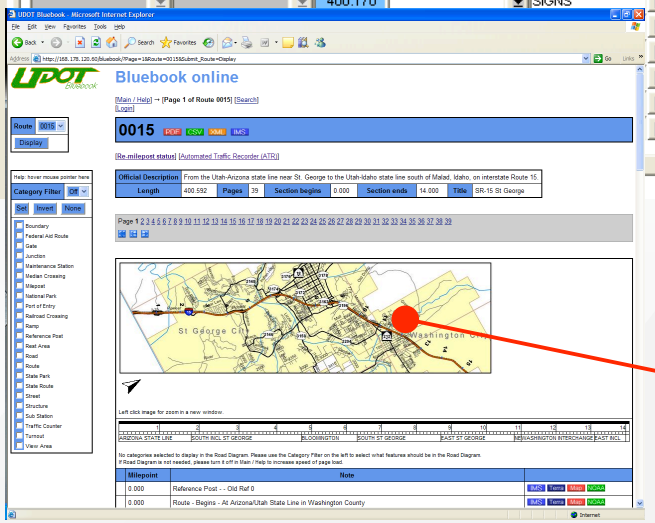
Mapping data

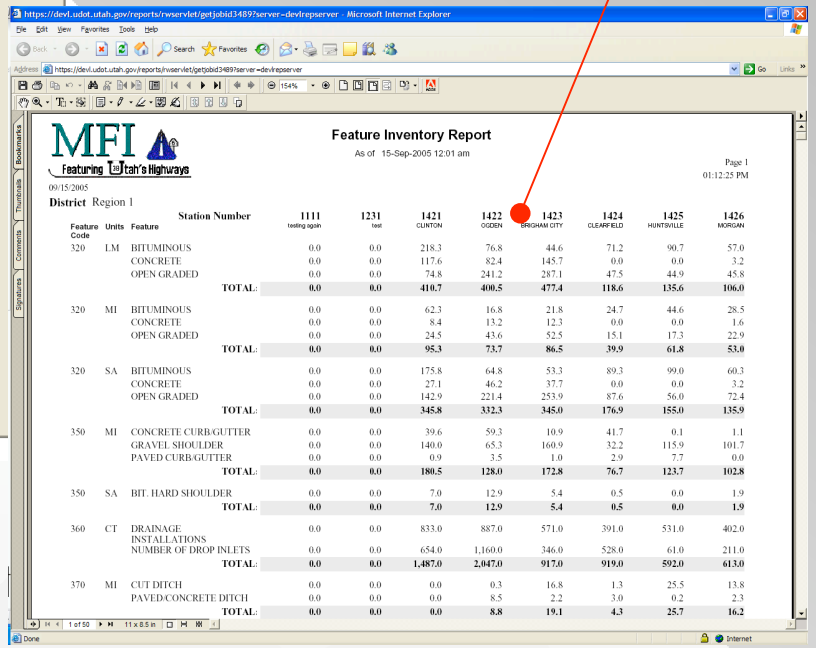
To visualize business data:



End-user applications were:







Dynamic Tabular Reports and Queries

Static Image Maps

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The Issues

- The storage of business data in robust, scalable RDBMS and core spatial data in files resulted in inefficiencies in:
  - Resources
  - Time
  - Scalability
  - Security
  - Interoperability
  - Data Availability

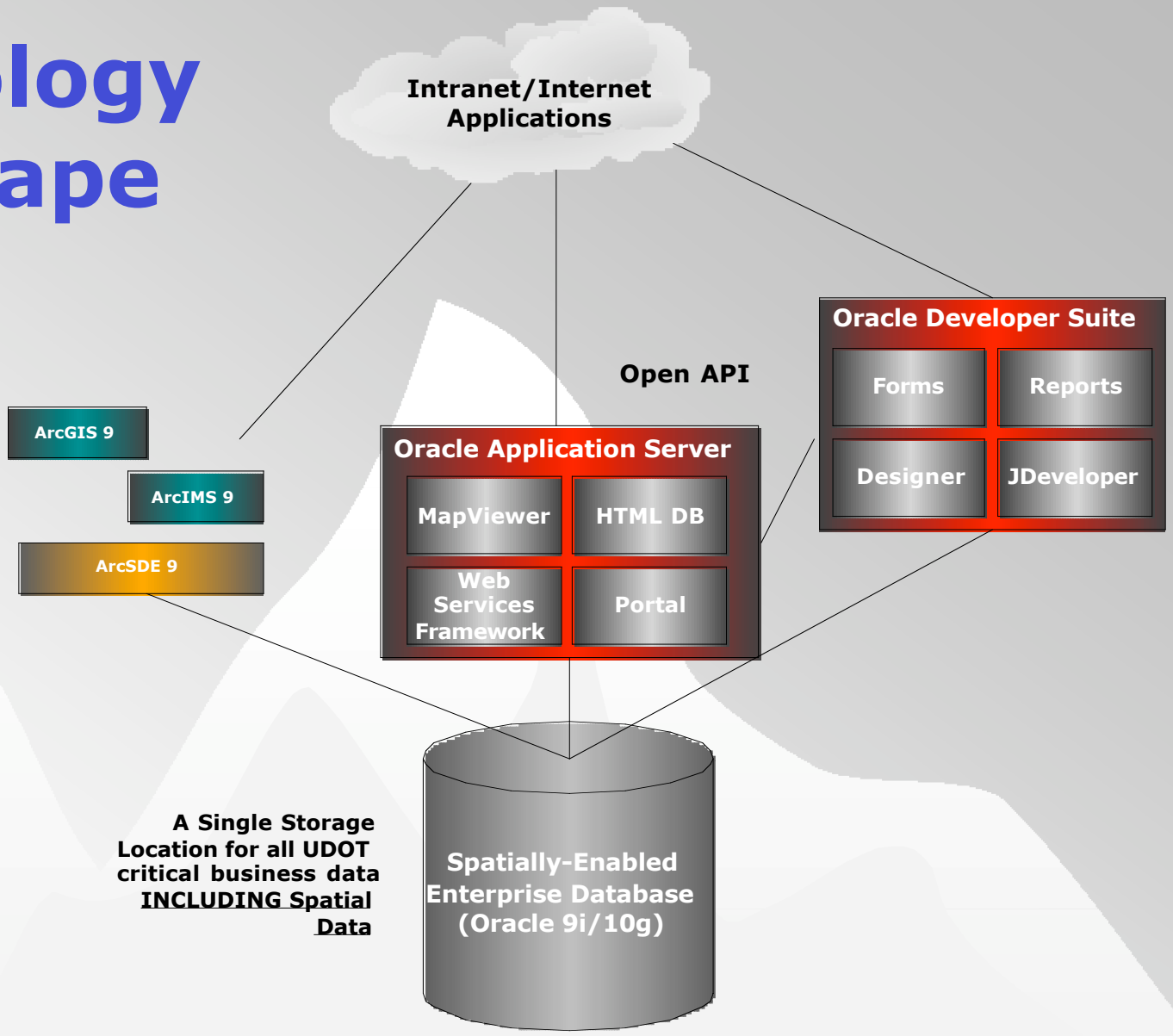
Why Oracle Spatial? Technical Drivers

- Flexible, open architecture
- Centralized enterprise data
- Scalability and security and other traditional benefits of Oracle
- Spatial business rules in the database

Why Oracle Spatial?
Organizational Drivers

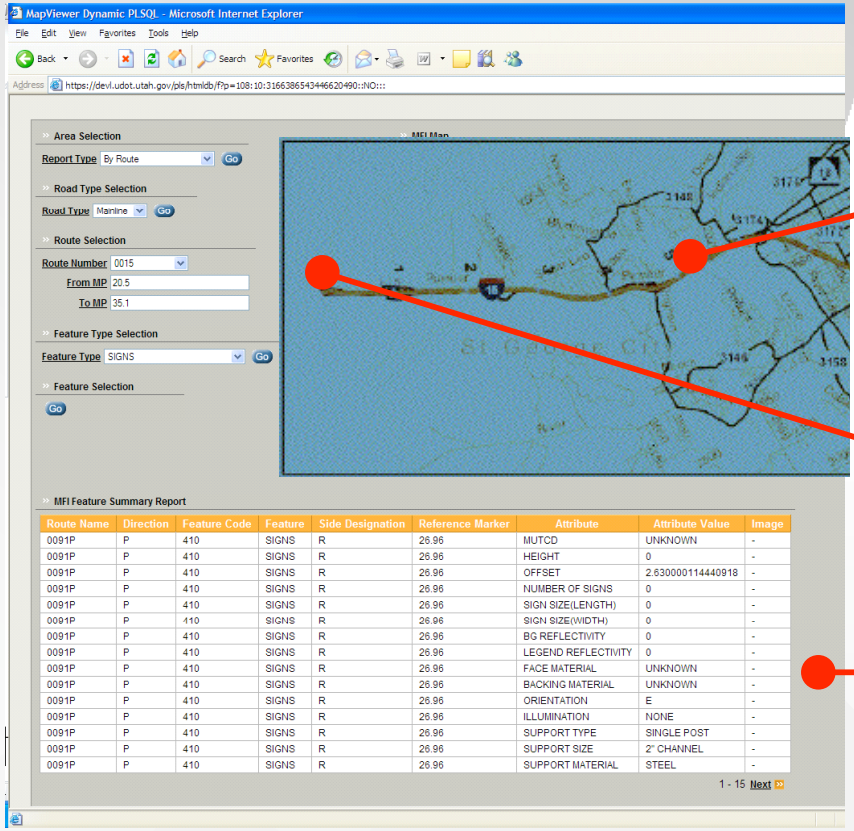
- Extensive investment in Oracle technology and resources
- Limited number of GIS experts
- Primarily interested in location based business data and applications not GIS data

Technology Landscape Now



A Single Storage Location for all UDOT critical business data INCLUDING Spatial Data

End-user applications are:



Route Name	Direction	Feature Code	Feature	Side Designation	Reference Marker	Attribute	Attribute Value	Image
0091P	P	410	SIGNS	R	26.96	MUTCD	UNKNOWN	-
0091P	P	410	SIGNS	R	26.96	HEIGHT	0	-
0091P	P	410	SIGNS	R	26.96	OFFSET	2.630000114440918	-
0091P	P	410	SIGNS	R	26.96	NUMBER OF SIGNS	0	-
0091P	P	410	SIGNS	R	26.96	SIGN SIZE(LENGTH)	0	-
0091P	P	410	SIGNS	R	26.96	SIGN SIZE(WIDTH)	0	-
0091P	P	410	SIGNS	R	26.96	BG REFLECTIVITY	0	-
0091P	P	410	SIGNS	R	26.96	LEGEND REFLECTIVITY	0	-
0091P	P	410	SIGNS	R	26.96	FACE MATERIAL	UNKNOWN	-
0091P	P	410	SIGNS	R	26.96	BACKING MATERIAL	UNKNOWN	-
0091P	P	410	SIGNS	R	26.96	ORIENTATION	E	-
0091P	P	410	SIGNS	R	26.96	ILLUMINATION	NONE	-
0091P	P	410	SIGNS	R	26.96	SUPPORT TYPE	SINGLE POST	-
0091P	P	410	SIGNS	R	26.96	SUPPORT SIZE	2" CHANNEL	-
0091P	P	410	SIGNS	R	26.96	SUPPORT MATERIAL	STEEL	-

1 - 15 Next

Single, centralized, scalable robust data source.

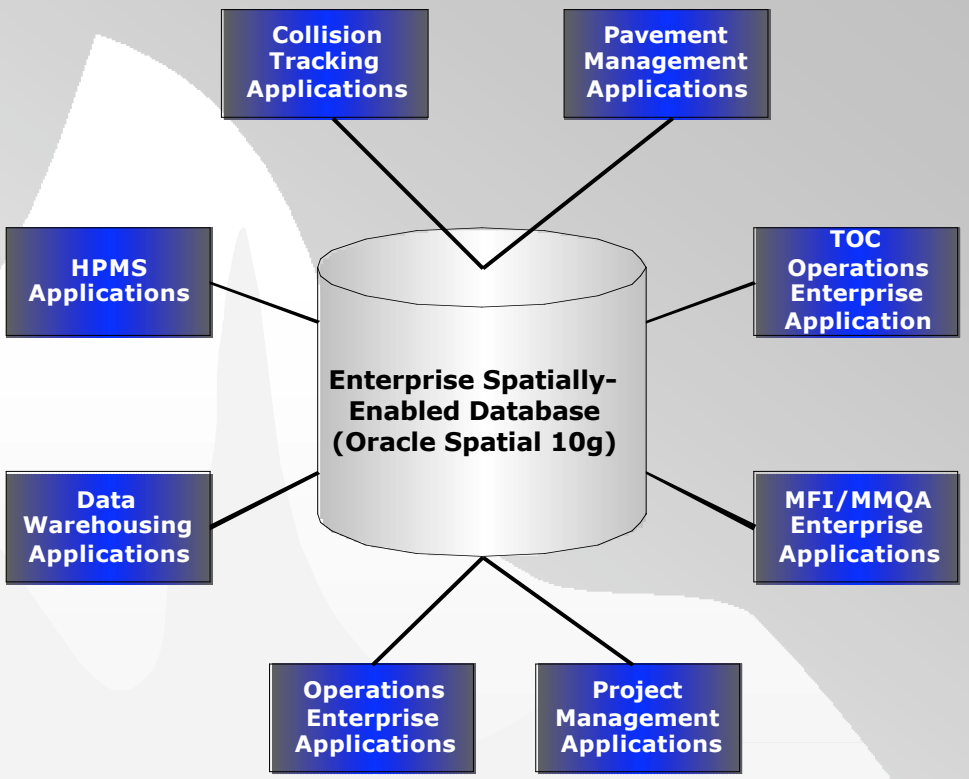
Dynamically generated map based on up-to-date asset Information. (taking advantage of LRS and Dynamic Segmentation

Dynamic query capabilities

Dynamically generated map based on up-to-date asset Information.

The Road to the Future

- Solving collateral objectives
- Further integration of mainstream business data with spatial data
- Application development using MapViewer, HTML DB and others



Thank you for attending!

Q & A