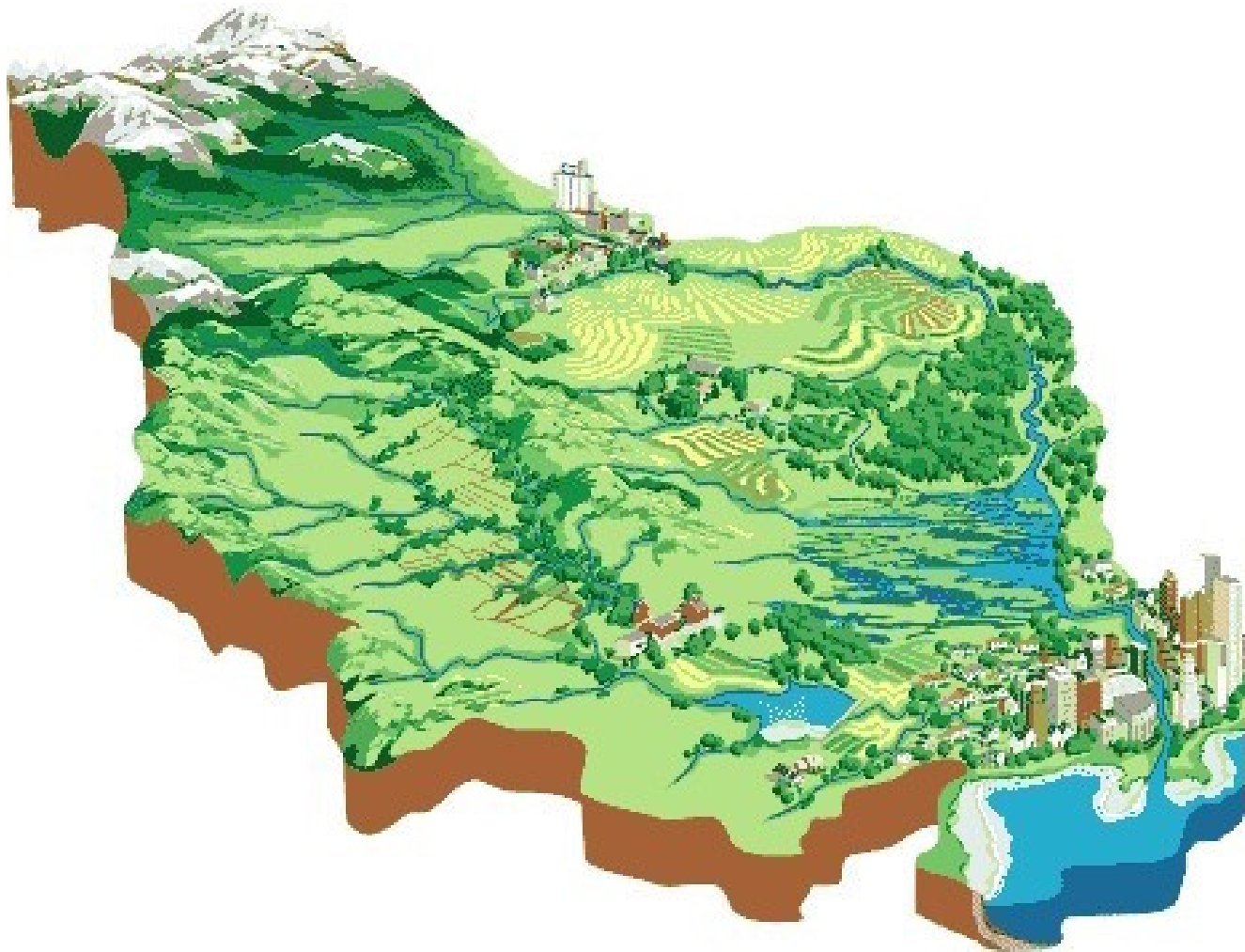


# Infrastructure Management Solutions for Water Distribution Systems

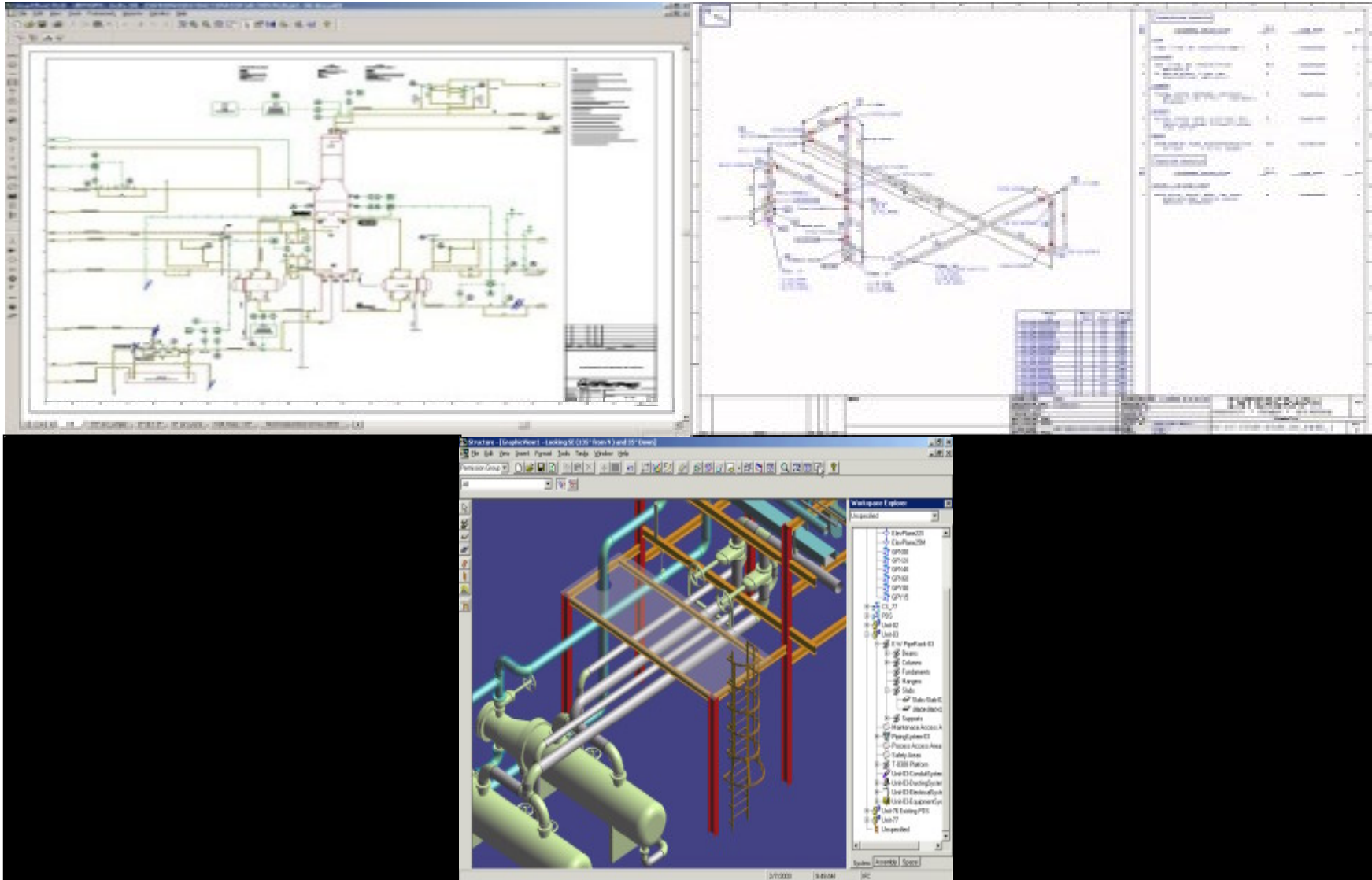
Ashish Arora

Thursday, February 06, 2014



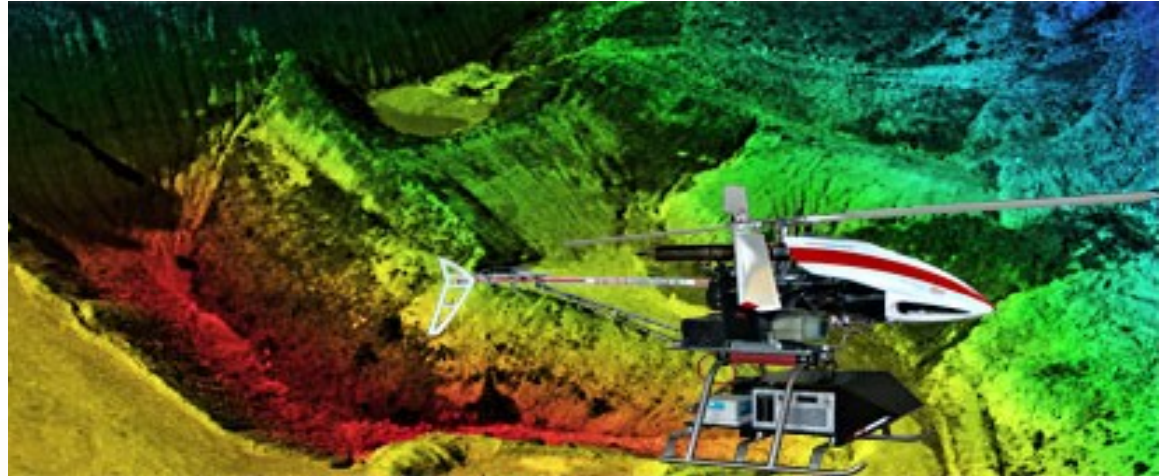
# Network Capture and Design

## ➤ Hexagon Design Engineering & Schematics



# Asset mapping

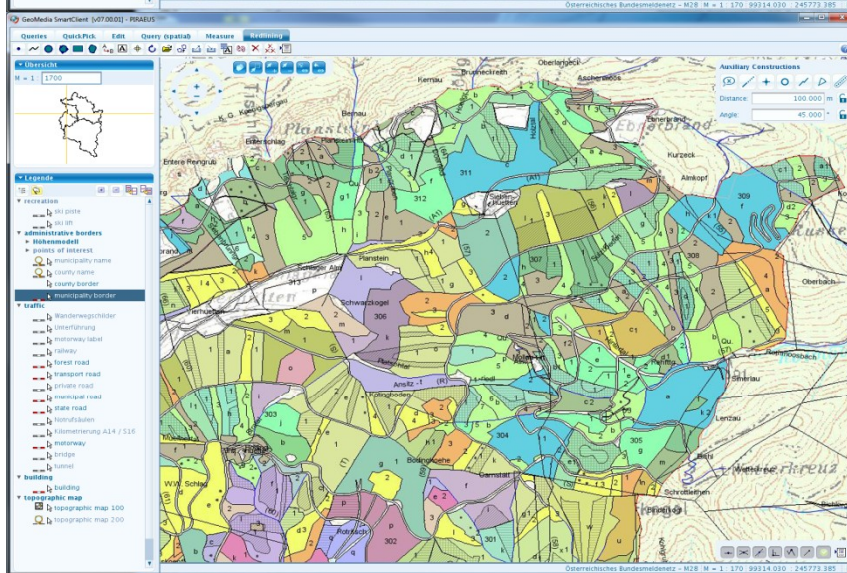
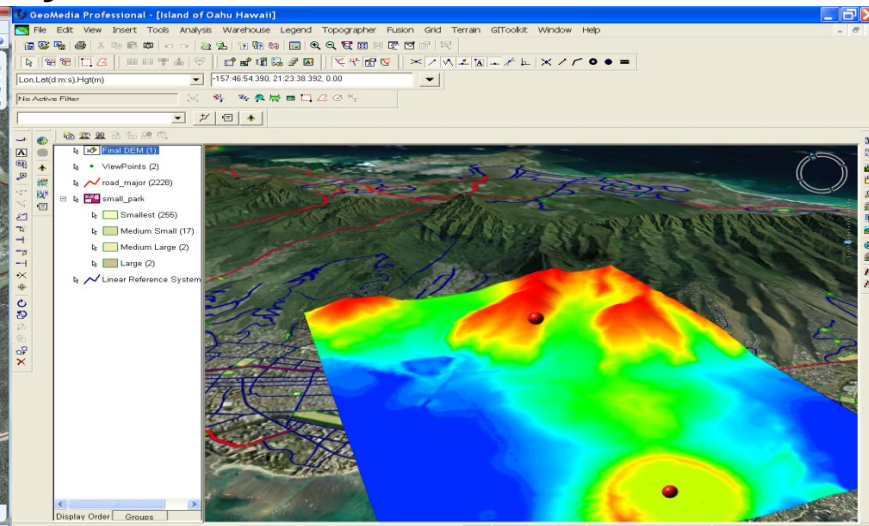
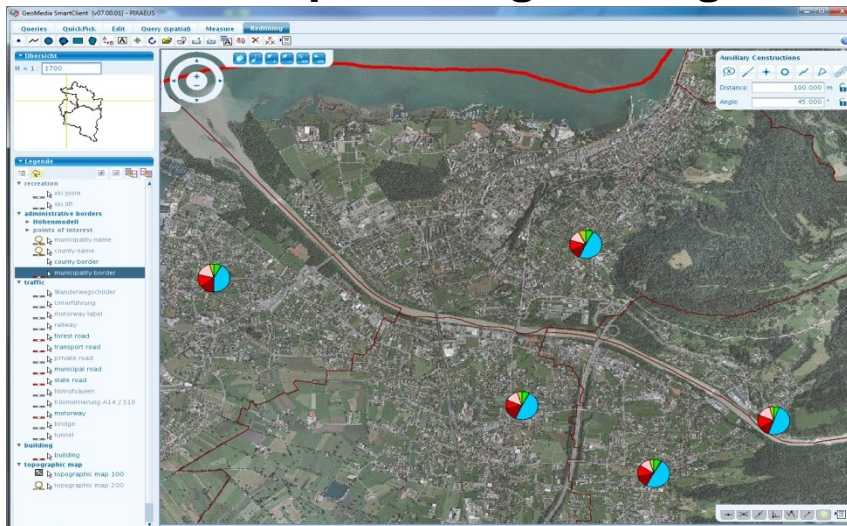
- **Hexagon Image/Data Capture**





# Analytics

## ➤ Geospatial Engineering & Analysis





# The Need!

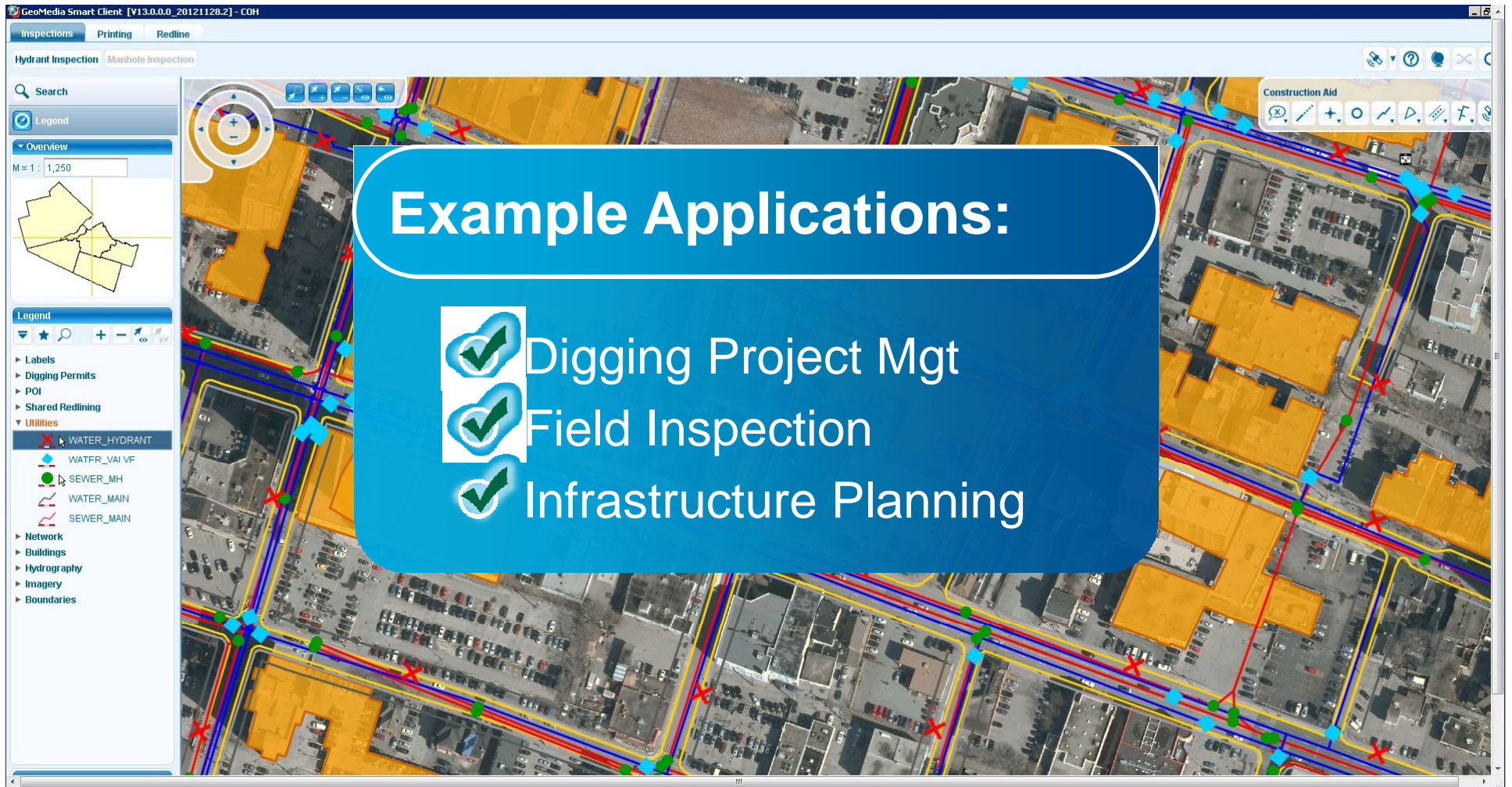
How can  
cost-effective  
Works with

Introducing  
**GeoMedia®**  
**Smart Client**  
*A Smarter Way to  
Enable Your World*

easy-to-use,  
People Public  
experts?



# Public Works Asset Management



The screenshot displays the GeoMedia Smart Client interface. The main window shows an aerial map with overlaid utility lines in red, blue, and yellow. A central blue text box lists three applications: Digging Project Mgt, Field Inspection, and Infrastructure Planning, each with a green checkmark icon. The left sidebar contains a search bar, a legend, and a list of layers including Labels, Digging Permits, POI, Shared Redlining, Utilities (with sub-items WATER\_HYDRANT, WATER\_VAI VF, SEWER\_MH, WATER\_MAIN, SEWER\_MAIN), Network, Buildings, Hydrography, Imagery, and Boundaries. The top menu bar includes Inspections, Printing, and Redline. The bottom status bar shows the scale M=1:1,250.

**Example Applications:**

- ✓ Digging Project Mgt
- ✓ Field Inspection
- ✓ Infrastructure Planning

What is required to enable Public Works workflows across your enterprise?



**Simple-to-follow business workflows**



**Controlled user access**



**Data integrity**

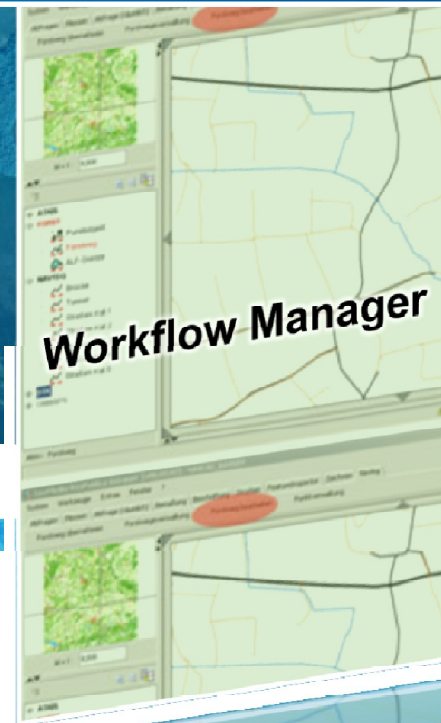
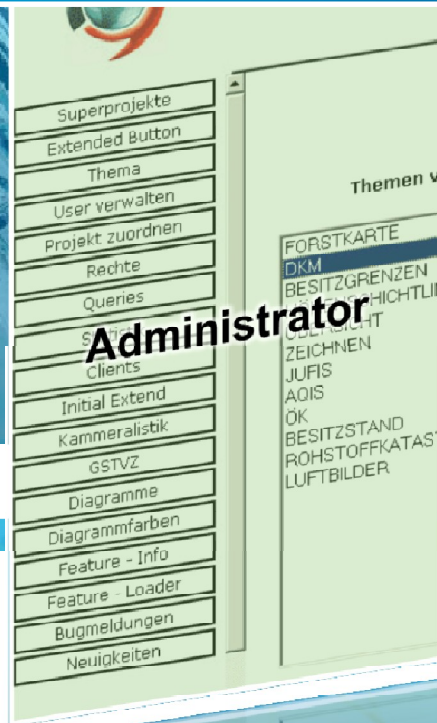
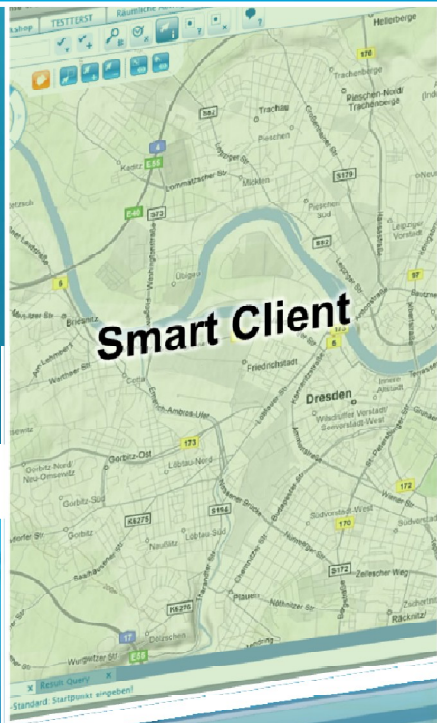


**Efficient enterprise workflows**



# Our Solution

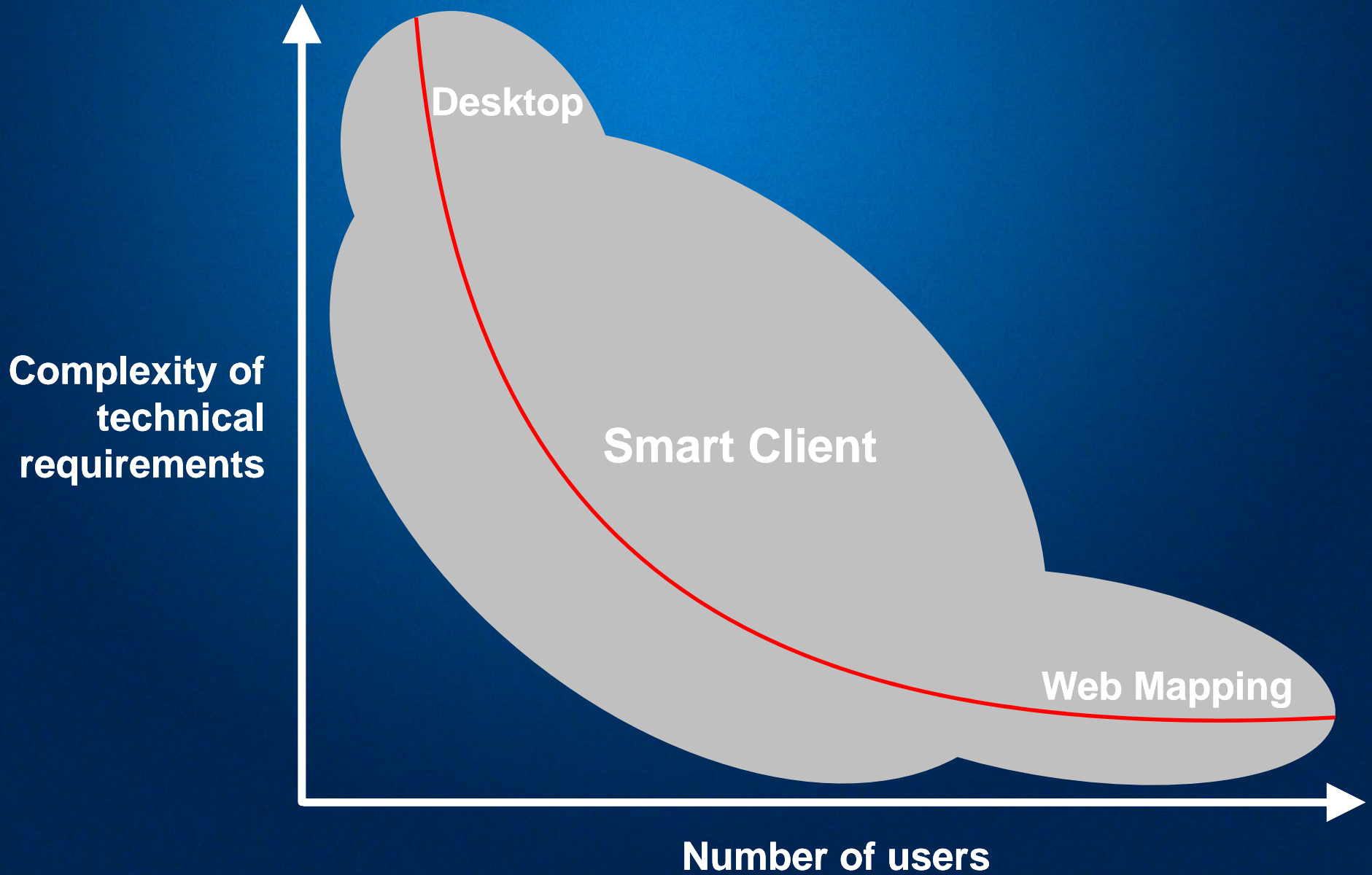
## GeoMedia Smart Client



## Geospatial Server – GeoMedia WebMap



# Extending the Desktop and Web



Complexity of technical requirements

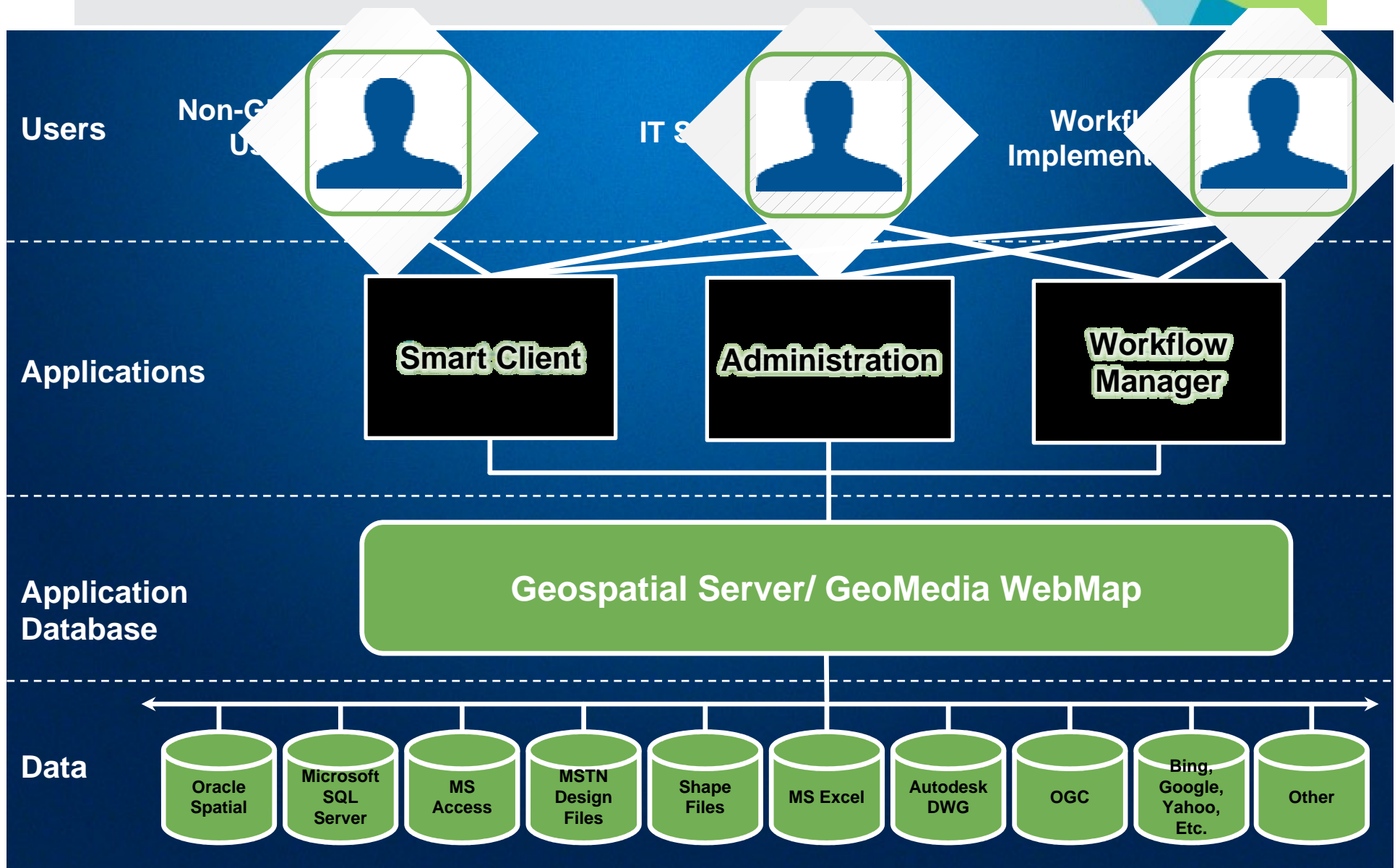
Desktop

Smart Client

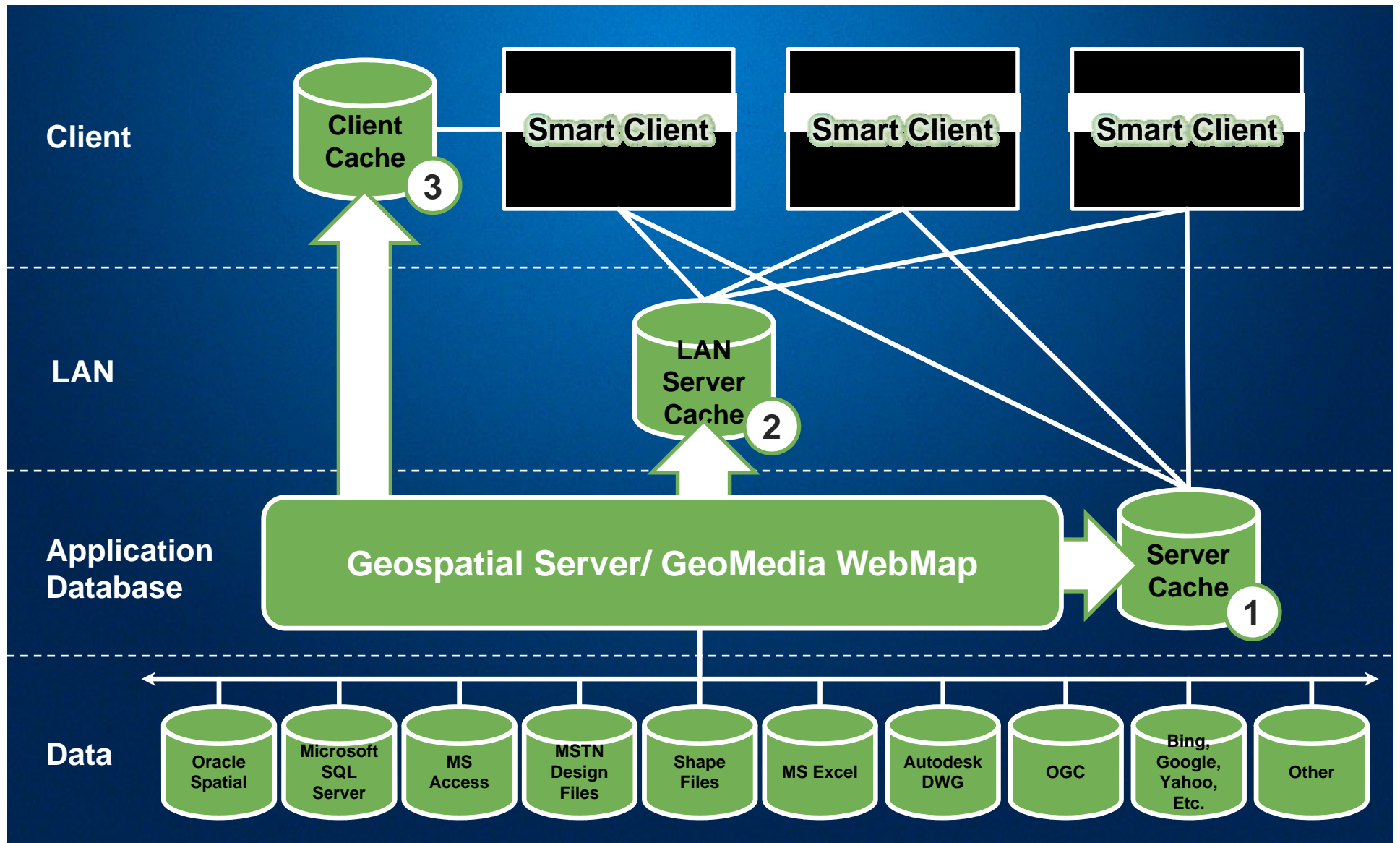
Web Mapping

Number of users

# Architecture



# High-Performance Caching

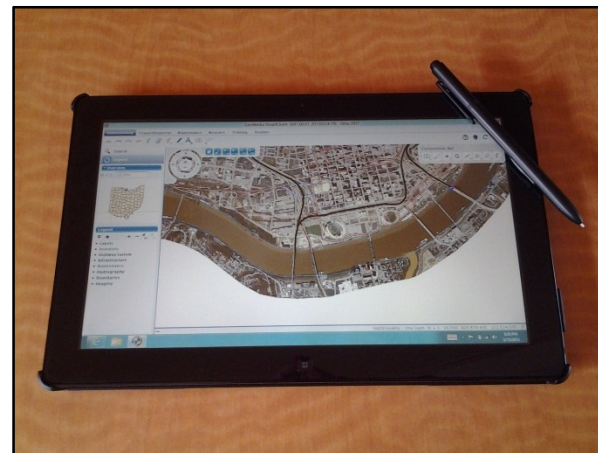
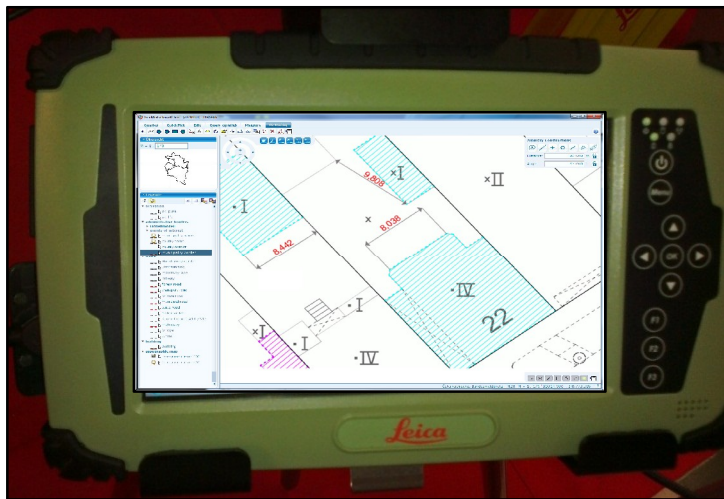




# Mobile Devices and GeoMedia Smart Client



- *Any JAVA supported device*
- *No Internet browsers required*



# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface. The main window shows an aerial map with overlaid utility lines in red, blue, and yellow. A dialog box titled 'Approve permit' is open, containing the following information:

- Permit Status:** Utilities
- Approval:**
  - APPROVEDUSER:\* Bill McArthur
  - DATE TIME\* 2/14/2013
  - Approved:
- Project information:**
  - Project Number: 303
  - Project Description: Root intrusion in sewer pipe - Review ASBUILT for connection size
  - Start Date: 2/17/2013
  - End Date: 2/21/2013
- Requestor information:**
  - Requestor Name: Jeff Tomlinson
  - Requestor Phone: 1-970-461-2779

Buttons at the bottom of the dialog include 'Save', 'Open Report', 'EXIT', and 'Delete'. The background map shows a street grid with utility lines and various colored markers (red 'X's, blue diamonds, green circles) indicating specific locations or features.



# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface. The main map shows an aerial view with overlaid utility lines in various colors (red, blue, yellow, green). A red polygon highlights a specific area on the map. The 'Approve permit' dialog box is open, showing a list of affected utilities. The dialog box has a breadcrumb trail: Home > Digging Permits > Approve permit. It contains two sections: 'Water main' and 'Sewer main'. The 'Water main' section lists 5 items, and the 'Sewer main' section lists 5 items. Each item has a search icon in the 'Actions' column.

Water main						
ID	Water size	Status	Unit 1	Unit 2	Actions	
18718	300		HA16V106	HA16T032	🔍	
20189	450		HA16V030	HA16T050	🔍	
20191	150		HA16V029	HA16T051	🔍	
18775	300		HA16C008	HA16V106	🔍	
18754	450		HA16C008	HA16V030	🔍	

Sewer main					
ID	Type	Size	Slope	Actions	
36623	COMBINED	375	.5%	🔍	
36624	STORM	1350	.3%	🔍	
35471	STORM	1200x1350	1%	🔍	
36665	COMBINED	900	0%	🔍	
35549	COMBINED	900x1350	.98%	🔍	

**Defining and managing digging permits – reviewing related utilities**

# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface. On the left, a legend lists various utility types such as WATER\_HYDRANT, WATER\_VALVE, SEWER\_MH, WATER\_MAIN, SEWER\_MAIN, SEWER\_MH\_LEAD, and TRANSMISSION\_LINE. The main map area shows an aerial view of Smith Avenue with overlaid utility lines in various colors (red, blue, green, yellow). A technical drawing is overlaid on the map, showing a cross-section of a proposed 1.68m C.W. & C. pipe with various annotations and dimensions. On the right, a data table displays a list of water and sewer main assets.

Water main					
ID	Water size	Status	Unit 1	Unit 2	Actions
18718	300		HA16V106	HA16T032	🔍
20189	450		HA16V030	HA16T050	🔍
20191	150		HA16V029	HA16T051	🔍
18775	300		HA16C008	HA16V106	🔍
18754	450		HA16C008	HA16V030	🔍

Sewer main				
ID	Type	Size	Slope	Actions
36623	COMBINED	375	.5%	🔍
36624	STORM	1350	.3%	🔍
35471	STORM	1200x1350	1%	🔍
36665	COMBINED	900	0%	🔍
35549	COMBINED	900x1350	.98%	🔍

Defining and managing digging permits - reviewing related drawings



# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface for a hydrant inspection. The main window shows a map with overlaid utility lines in various colors (red, blue, yellow). A 'Hydrant Info' window is open, displaying the following data:

HYDRANT_ID:*	HA16H070
XCOORD:	591944.33424
YCOORD:	4790050.00861
ZCOORD:	
INSP_DATE:	2/11/2013
HYDRANT_MODEL:	Hamilton Water Works
W_MAIN_SIZE:	4.5
HYDRANT_READING:	220
MAIN_READING:	300
PITOT_PRESSURE:	225
TESTER_NAME:	McArthur
RESIDUAL_PRESSUR:	190
OBSERVED_FLOW:	6
COMMENTS:	General flush before construction begins

A photo viewer window titled 'Fire hydrant 009.jpg - Windows Photo Viewer' is open, showing a white fire hydrant being tested with a high-pressure water stream. The photo shows a white fire truck and a red and white traffic cone in the background.

**Inspecting assets – hydrants with photos**

# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface for a hydrant inspection workflow. The main window shows a map with various asset layers. A 'Hydrant Info' form is open, displaying the following data:

- HYDRANT\_ID: HA16H070
- XCOORD: 591944.33424
- YCOORD: 4790050.00861
- ZCOORD: [Empty]
- INSP\_DATE: 2/11/2013
- HYDRANT\_MODEL: Hamilton Water Works
- W\_MAIN\_SIZE: 4.5
- HYDRANT\_READING: 220
- MAIN\_READING: 300
- PITOT\_PRESSURE: 225
- TESTER\_NAME: McArthur
- RESIDUAL\_PRESSURE: 190
- OBSERVED\_FLOW: 6
- COMMENTS: General flush before construction begins

Overlaid on the map is a 'HYDRANT FLOW TEST' document from the Orinda Fire Protection District. The document includes the following sections:

- TEST DATE:** 5-4-00
- TESTER NAME:** DATA, Ho, CARROLL
- HYDRANT FLOW TESTED:**

HYD. NO.	LOCATION	STATIC PRESSURE (PSI)	RESIDUAL PRESSURE (PSI)	FLOW (GPM)	TIME OF DAY	OFFICER	Observed	Avail
28	63 ORCHARD RD	98	28	30	12:40	2/2	915	970
- ADDITIONAL PRESSURE READING:**

LOCATION	STATIC PRESSURE (PSI)	RESIDUAL PRESSURE (PSI)	RECORDED AT (CHECK ONE)
77 ORCHARD RD	110	65	<input checked="" type="checkbox"/> HOSEBIB <input checked="" type="checkbox"/> HYDRANT NO. H10402
- CONDITION OF FLOW HYDRANT:**
  - HYD. NO.: 28
  - OUTLET SIZE: 2 1/2
  - HOSE APPROXIMATE LENGTH: 212
  - ACCESSIBILITY: YES
  - HYDRANT: YES

Inspecting assets – hydrants with related documents



# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface for a hydrant inspection. The main window is divided into several sections:

- Map View:** Shows an aerial view of a city block with various utility lines overlaid in different colors (red, blue, yellow, green).
- Hydrant Info Form:** A central panel for entering inspection data.
 

HYDRANT_ID#	HA16H070
XCOORD:	591944.33424
YCOORD:	4790050.00861
ZCOORD:	
INSP_DATE:	2/11/2013
HYDRANT_MODEL:	Hamilton Water Works
W_MAIN_SIZE:	4.5
HYDRANT_READING:	220
MAIN_READING:	300
PITOT_PRESSURE:	225
TESTER_NAME:	McArthur
RESIDUAL_PRESSUR:	190
OBSERVED_FLOW:	6
COMMENTS:	General flush before construction begins
- Technical Drawing:** A detailed cross-section diagram of a hydrant assembly, showing various components like the nozzle, piston, and valve. It includes a parts list table:
 

QTY	NAME OF PART	REV	MATERIAL	SPECIFICATION
1	NOZZLE	1	BRASS	BRASS 1000
1	PISTON	1	BRASS	BRASS 1000
1	VALVE	1	BRASS	BRASS 1000
1	SEALANT	1	BRASS	BRASS 1000
1	EXTENSION KIT PARTS	1	BRASS	BRASS 1000

Inspecting assets – hydrants with related drawings



# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface. The main window shows an aerial map with overlaid utility lines in red, yellow, and blue. A 'Hydrant Info' window is open, displaying the following data:

HYDRANT_ID#	HA16H070
XCOORD:	591944.
YCOORD:	4790050
ZCOORD:	
INSP_DATE:	2/11/20
HYDRANT_MODEL:	Hamilt
W_MAIN_SIZE:	4.5
HYDRANT_READING:	220
MAIN_READING:	300
PITOT_PRESSURE:	225
TESTER_NAME:	McArthu
RESIDUAL_PRESSUR	190
OBSERVED_FLOW:	6
COMMENTS:	General

A blue callout box at the bottom of the map area contains the text: **Inspecting assets – hydrants with related documents**. The status bar at the bottom right shows: UTM17ned03 M = 1 : 750 | 591,600,414 : 4,709,990,063 | E





# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface for a manhole inspection workflow. The main window shows an aerial map with overlaid utility lines in various colors (red, blue, yellow, green). A 'Manhole Info' window is open, displaying the following data:

Sewer Manhole information		Associated sewer mains	
Manhole ID:	HH09E018		
HANSEN	42515		
Compxy:			
Manhole Type:	COMBINED		
Capture type:	aerial		
Auadata ID:			
Inspection Date:*	2/11/2013		
Upload Photo	Select...		

A 'Storm04.jpg - Windows Photo Viewer' window is open, showing a close-up photograph of a manhole cover. The cover is circular with a textured surface and has the text 'STORM' and 'MADE IN USA' visible. The background of the photo viewer shows a street scene.

A blue callout box at the bottom of the screenshot contains the text: **Inspecting manholes with photos**

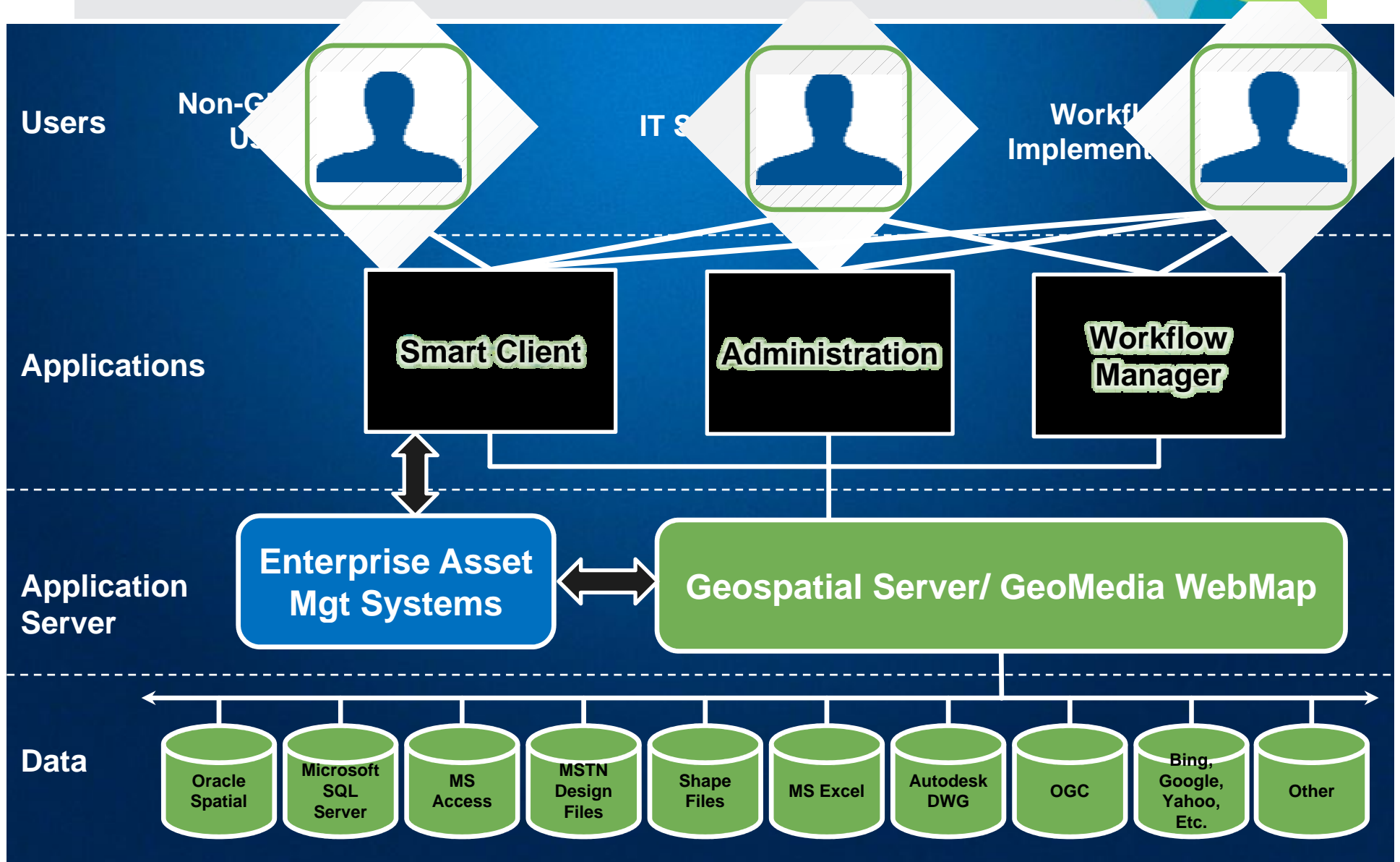
# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface. On the left, a legend lists various asset types such as Buildings, Digger, POI, and Utilities. The main map area shows a street layout with colored lines representing utility networks. A callout window titled 'Open' provides a close-up view of a circular storm manhole cover. The cover has a diamond-patterned grate and is inscribed with 'NEW IRON WORKS', 'STORM', and 'MADE IN USA'. A navigation toolbar is visible at the bottom of the callout window.

**Reviewing asset information from Enterprise Asset Mgt System**



# Architecture with Enterprise Asset Mgt System





# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface. The main map shows an aerial view with overlaid utility lines in various colors (red, blue, yellow, green) and a large orange building footprint. A 'Building Info' window is open, showing the following details:

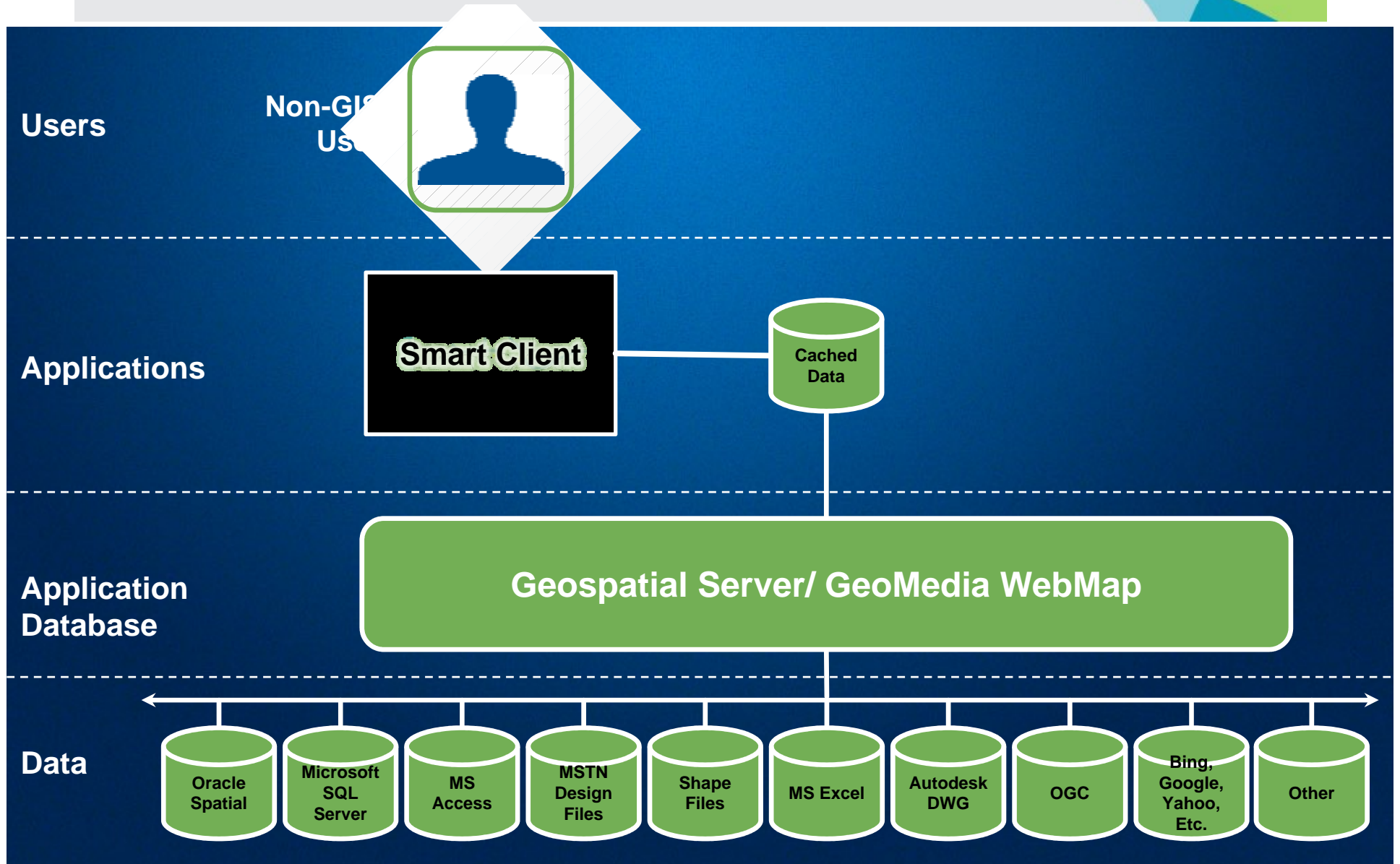
- NAME: Commerce Place CIBC
- PLAN\_NAME: S3-2.dwg
- Building Comments: Notify occupants of interruption in water service on 02/30/2013 at 9:30am
- Upload Photo: Select... (with a dropdown showing 'IMG\_0153.jpg' and a 'Remove' button)

A 'Windows Photo Viewer' window is open, displaying a photograph of the 'WATERSTONE' building entrance. The photo shows a modern building with a stone-clad entrance and a paved plaza.

A blue callout box at the bottom of the screenshot contains the text: **Inspecting buildings with photos**

At the bottom right of the software interface, the following coordinates are visible: UTM17ned33 M = 1 : 1,500 591,054,071 : 4,709,703,197

# Architecture with Disconnected Workflows





# Public Works Asset Mgt Workflows

The screenshot displays the GeoMedia Smart Client interface. The main window shows an aerial map with various utility lines and buildings. A 'Building Info' window is open, displaying details for 'Commerce Place CIBC'. A 'DWG TrueView 2013' window is also open, showing a technical drawing of a building foundation. The drawing includes labels for '1" BASE PLATE', '5/8" BASE PLATE', '1/2" NON-SHRINK GROUT', 'ANCHOR RODS', and 'FOOTING BEYOND'. A blue callout box at the bottom of the drawing viewer contains the text 'Inspecting buildings with drawings'. The software interface includes a search bar, a legend, and a toolbar with various tools for navigation and inspection.

**Inspecting buildings with drawings**

# Public Works Asset Mgt Workflows

**Redlining vector  
features**



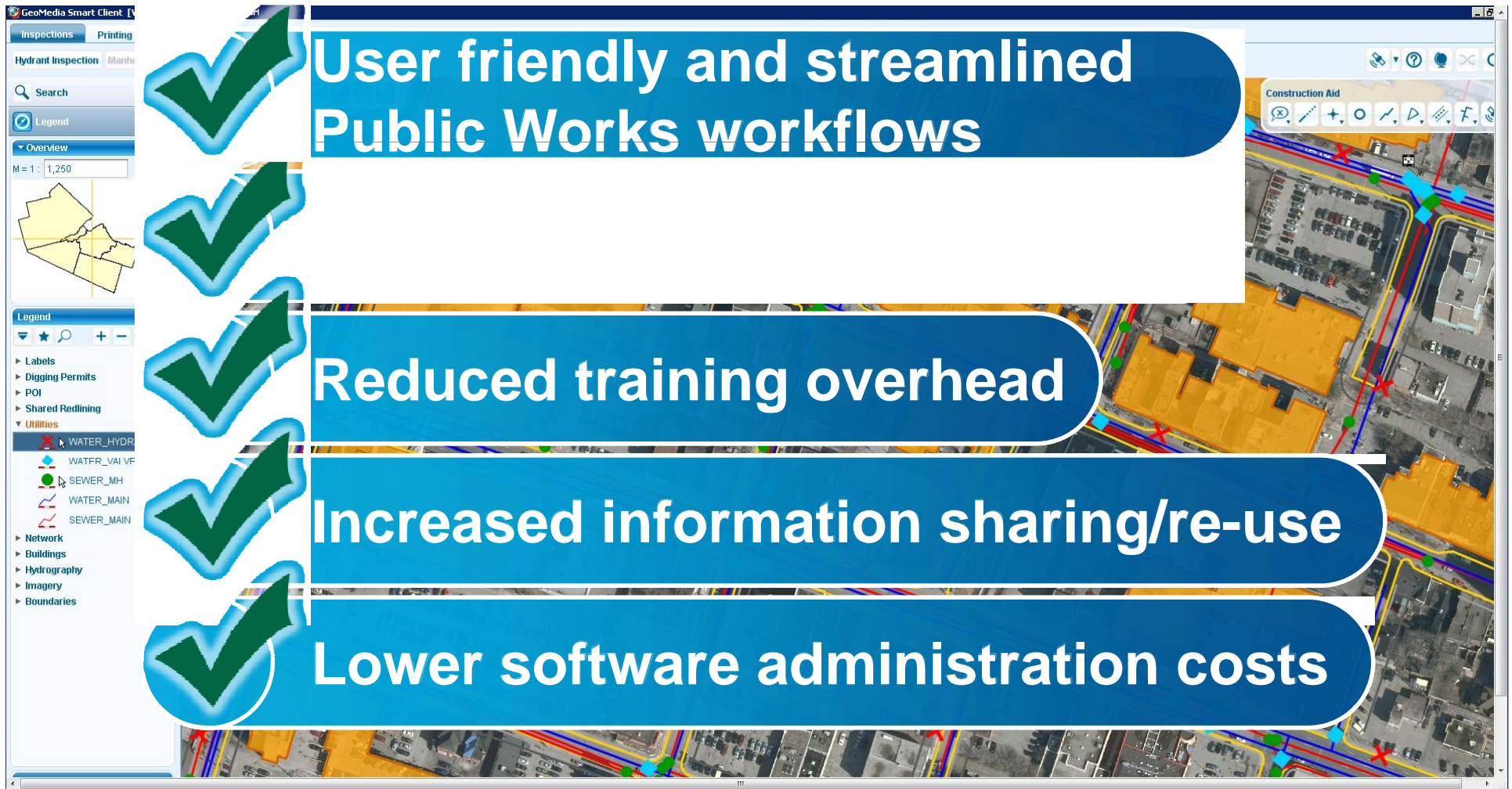
# Administration

- Project** ▲
  - Projects
  - New Project
- Feature** ▲
  - Features
  - New Feature
- Symbology** ▲
  - Manage Libraries
  - New Library
  - Import Library
- Publisher** ▲
  - Publish Orders
  - New Publish Order
  - Publish Jobs
  - New Publish Job
- Application** ▲
  - Actions
  - New Action
  - Print Layouts
  - New Print Layout
  - Start Print Layout Editor
  - Edit Workflow Connection
  - New Workflow Connection
  - Resources
  - New Resource
  - Automate
  - Documentation

Simple Id:  Name:  Entity:   
 Project:  Loader:

Simple Id:	Name: ▲	Entity:			
1	BUILDINGS	CITYOFHAMILTON.BUILDINGS	30	30	COH
2	BUILDINGS_LARGE	CITYOFHAMILTON.BUILDINGS_LARGE	20	20	COH
3	BUILDINGS_TXT	CITYOFHAMILTON.BUILDINGS_TXT	1	1	COH
4	CITY_WATERFALLS	CITYOFHAMILTON.CITY_WATERFALLS	1	1	COH
6	DIGGING_PERMITS	CITYOFHAMILTON.DIGGING_PERMITS	0	0	COH
7	GIMS_PROPERTY	CITYOFHAMILTON.GIMS_PROPERTY	40	40	COH
23	HIGHWAY	CITYOFHAMILTON.ROAD_HIGHWAY_CASING	10	10	COH
24	HIGHWAY_IN_TXT	CITYOFHAMILTON.ROAD_HIGHWAY_IN_TXT	10	10	COH
25	HIGHWAY_OUT_TXT	CITYOFHAMILTON.ROAD_HIGHWAY_OUT_TXT	1	1	COH
9	LAKES	CITYOFHAMILTON.LAKES	6	6	COH
8	LAKE_TXT	CITYOFHAMILTON.LAKE_TXT	1	1	COH
62	Large_Orthos	CITYOFHAMILTON.COH_ORTHOS2	12	12	COH
10	MAJOR_LAKE_FILL	CITYOFHAMILTON.MAJOR_LAKE_FILL	3	3	COH
11	MAJOR_LAKE_TXT	CITYOFHAMILTON.MAJOR_LAKE_TXT	1	1	COH
26	MAJOR_ROAD	CITYOFHAMILTON.ROAD_MAJOR_CASING	10	10	COH
29	MINOR_ROAD	CITYOFHAMILTON.ROAD_MINOR_CASING	10	10	COH
12	MNR_NRVIS_WETLANDS	CITYOFHAMILTON.MNR_NRVIS_WETLANDS	3	3	COH
13	MNR_WOODDED_AREAS	CITYOFHAMILTON.MNR_WOODDED_AREAS	3	3	COH
14	MUNICIPAL_BNDRY	CITYOFHAMILTON.MUNICIPAL_BNDRY	2	2	COH
15	MUNICIPAL_TXT	CITYOFHAMILTON.MUNICIPAL_TXT	2	2	COH

# How Can GeoMedia Smart Client Help Your Public Works operations?



The image displays the GeoMedia Smart Client software interface. On the left, there is a sidebar with a search bar, a legend, and a map overview. The legend lists categories like Labels, Digging Permits, POI, Shared Redlining, and Utilities. The Utilities section includes symbols for WATER\_HYDR, WATER\_VAI VF, SEWER\_MH, WATER\_MAIN, and SEWER\_MAIN. The main window shows an aerial map with overlaid utility lines in various colors (red, blue, green, yellow) and a 'Construction Aid' toolbar at the top right.

- ✓ User friendly and streamlined Public Works workflows
- ✓ Reduced training overhead
- ✓ Increased information sharing/re-use
- ✓ Lower software administration costs





THANK YOU