Spatial Direct in the City of Richmond

Web Based Solutions to Infrastructure and Asset Management

GIS Inquiry Tool

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History

- In the early 1980s the City of Richmond incorporated the use of GIS. A Bellingham company named Geographic Technology Incorporated (GTI) developed the GIS package for Richmond which was based on Wang technology (GDMS or Geographic Data Management System).
  - Each user's request to extract/convert data to AutoCAD or to other format required a custom program to be written.

History

- In 1996, Environmental Systems Research Institute (ESRI) bought GTI. The City of Richmond moved to the ESRI suite of tools which included ArcSDE.
  - Research was conducted to find software that would allow the City to implement this migration.
  - During the 1996 ESRI conference in San Diego, City staff discovered the Safe Software company.
  - Safe Software incorporated into their FME product a WANG reader that allowed the City of Richmond to migrate data from WANG to ArcSDE successfully.

ArcSDE and FME

- Since that time, the City of Richmond uses FME to do data extract/conversion from ArcSDE to various data formats.
  - AutoCAD (most popular).
  - ESRI arc/info coverage.
  - ESRI arc/info export (E00).
  - ESRI arc/info Geodatabase (access).
  - ESRI arc/info shape.
  - MapInfo MID/MIF.
  - Microstation design.

ArcSDE and FME

- There are approximately 3 to 4 requests a week from internal staff to do data extract/conversions.
  - In most cases FME is able to handle these requests without the need for custom programming.
  - Before the City of Richmond's GIS inquiry tool and SpatialDirect, only staff with FME software were able to perform these requests.

GIS Inquiry Tool

- Phase One
  - The City of Richmond creates the GIS inquiry to supply staff members with GIS data. SpatialDirect was incorporated for staff members to download vector data.
- Phase Two
  - The City of Richmond launched the public GIS inquiry by removing sensitive information from the staff site and making it accessible through the city's main web page.

GIS Inquiry Tool

- Phase Three
  - Will allow the public to purchase additional information and download vector data through the public web-mapping site.

FME

- The decision was made not to use ArcSDE data directly in the GIS Inquiry tool because of security reasons.
  - The City uses an overnight FME process to create shapefiles from the ArcSDE database onto an isolated web server.

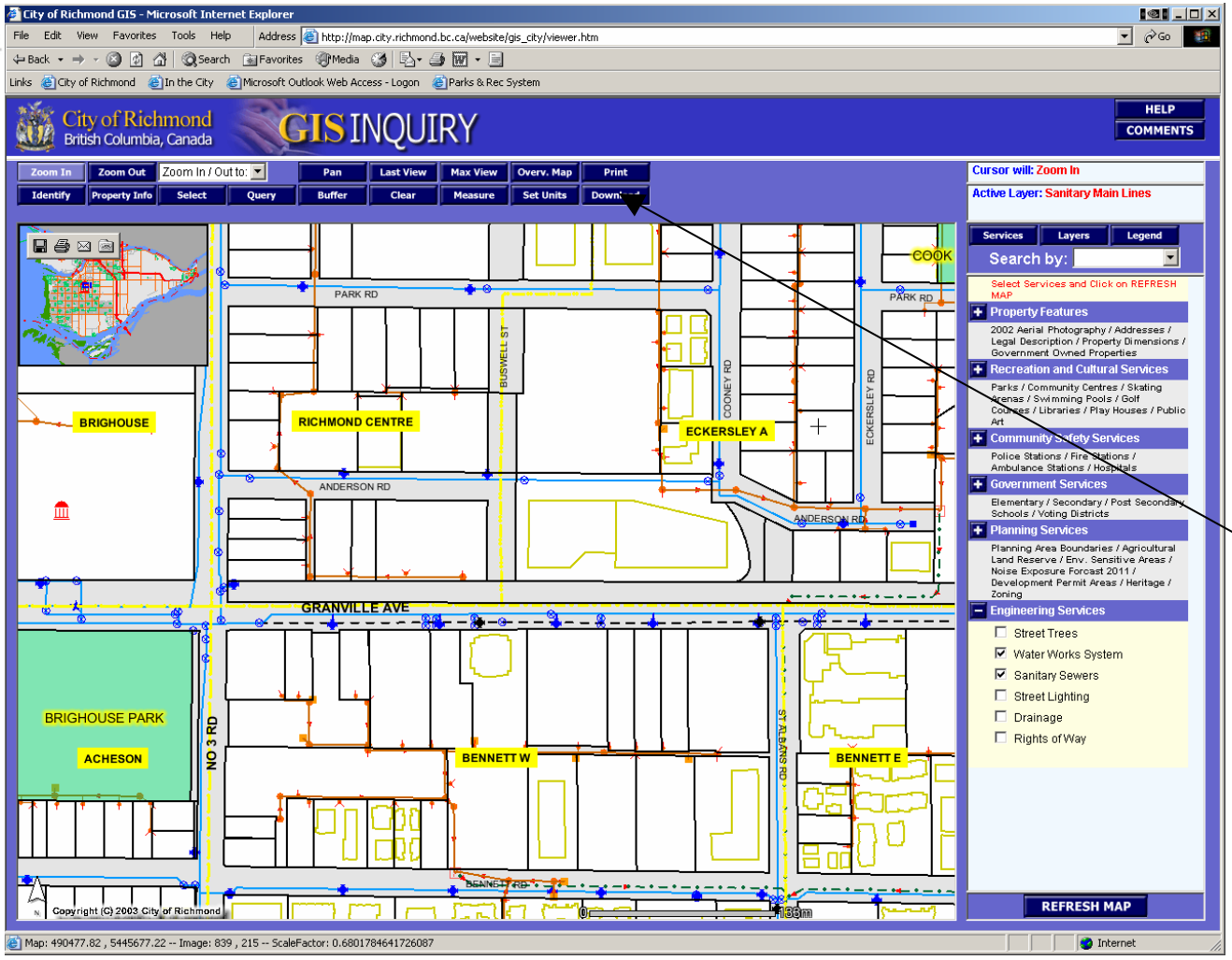
Benefits

- Consistent performance
  - If the ArcSDE or internal network goes down for any reason, or maintenance is required, the website can still be up 24 hours a day, 7 days a week.
- Security
  - The public has no possible access to the City's ArcSDE database.

Spatial Direct

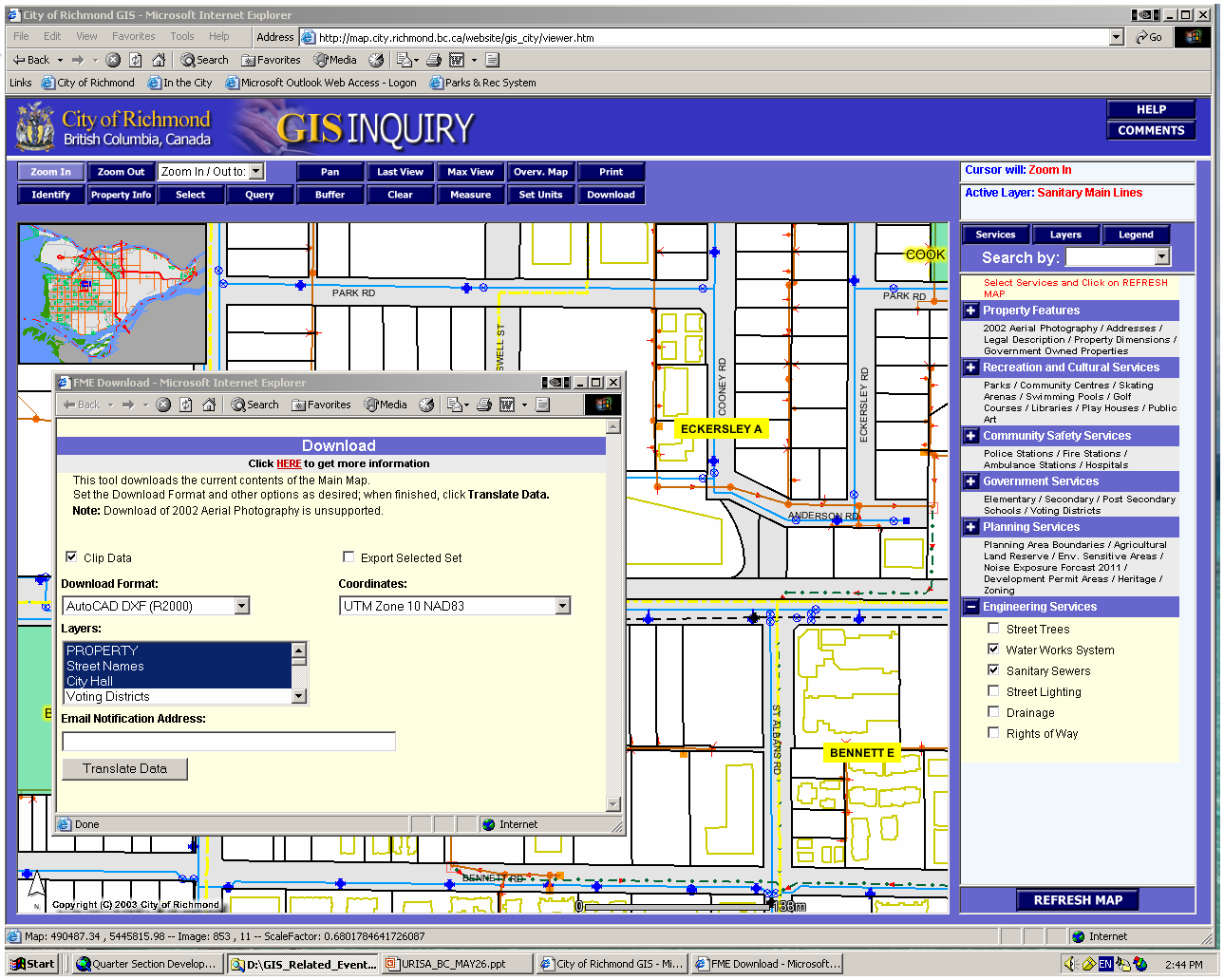
- SpatialDirect is part of FME software that is responsible for providing the download functionality.
  - SpatialDirect is responsible for automating the process between the internet user and FME. The user selects the parameters and SpatialDirect creates the requests command lines that FME understands.

GIS Inquiry Tool

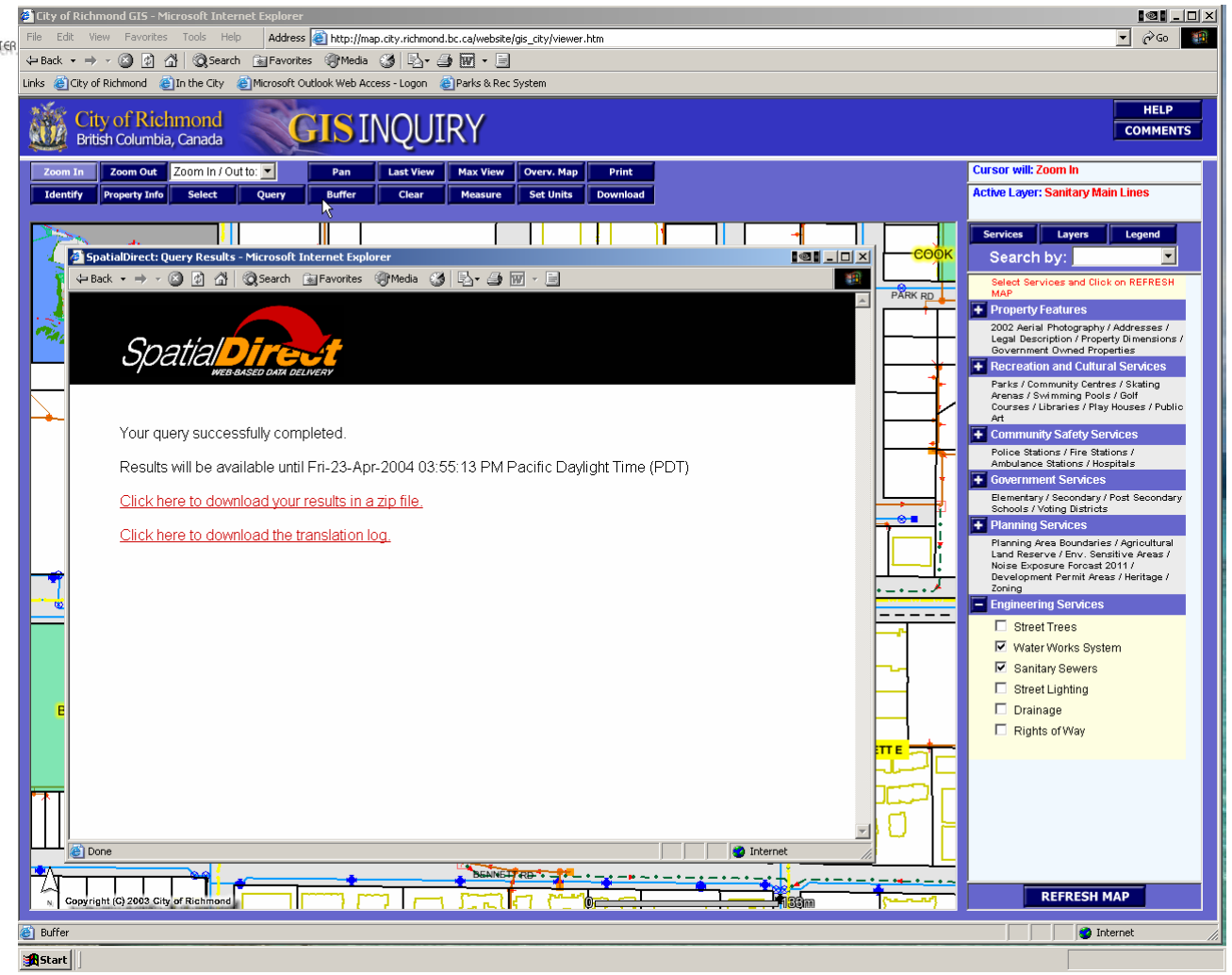


Download Button

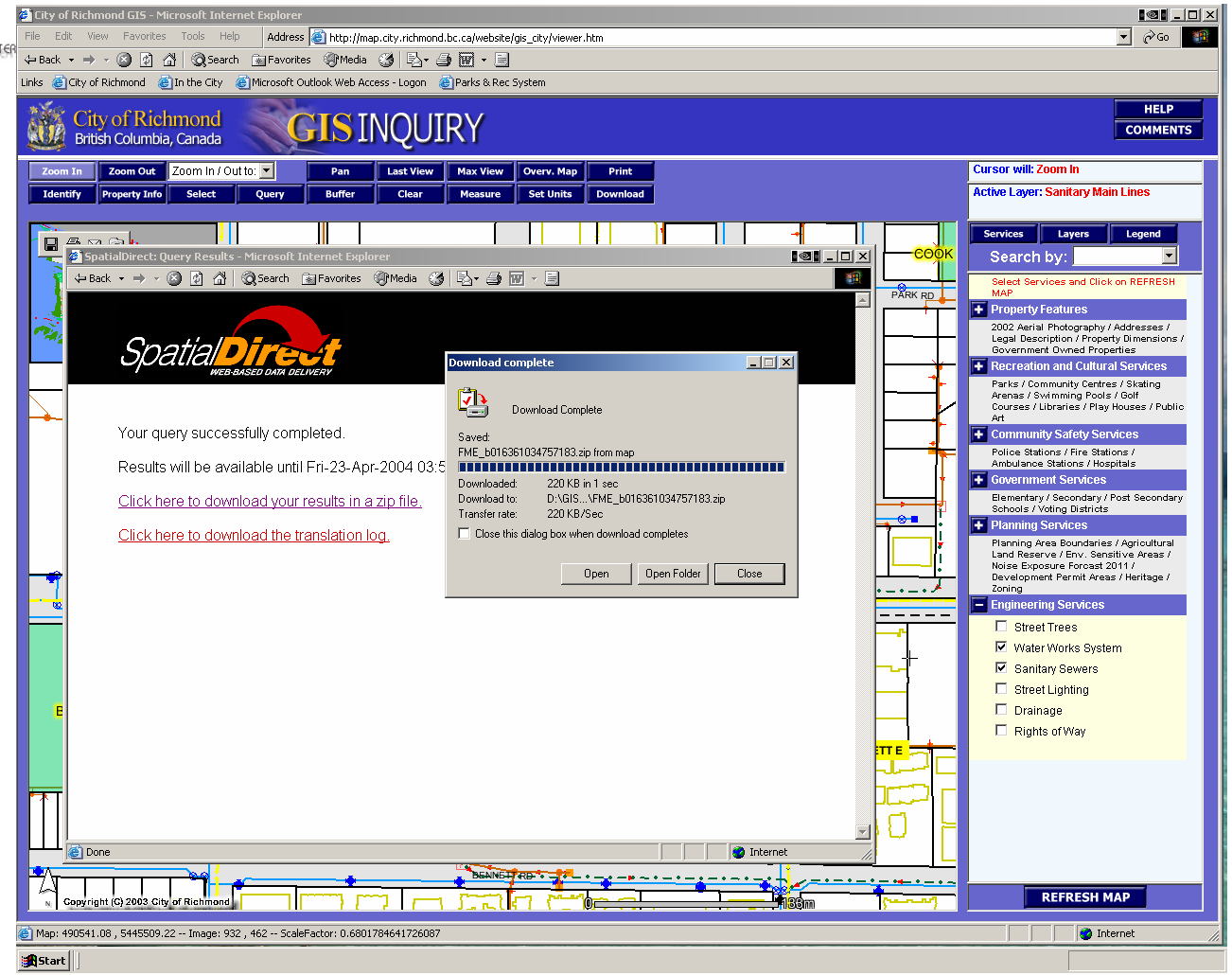
GIS Inquiry Tool – Download Tool



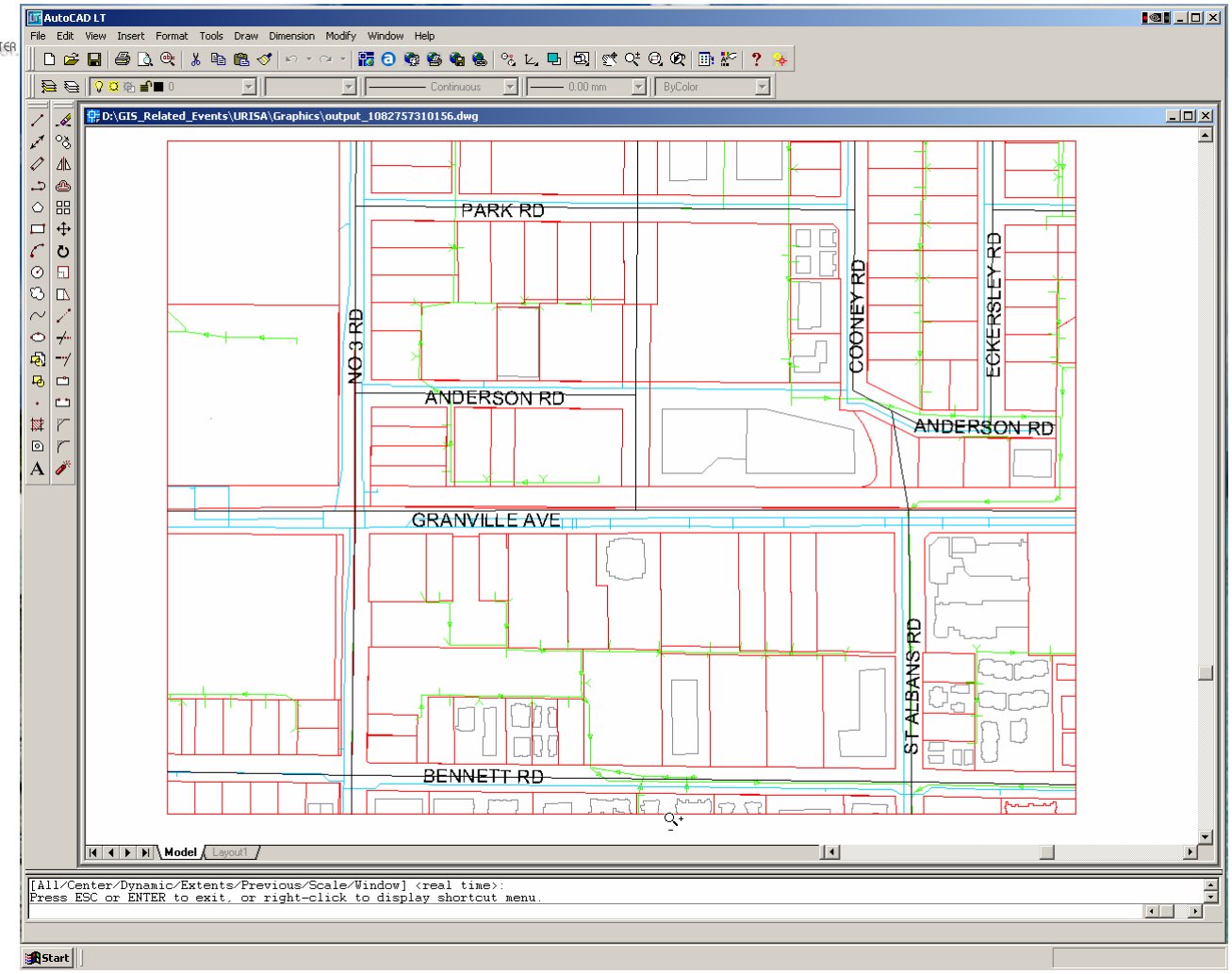
GIS Inquiry Tool – Results of Download



GIS Inquiry Tool – Download Complete



GIS Inquiry Tool – Conversion to CAD



BENEFITS

- SpatialDirect allows staff members to complete data extract/conversion requests on their own.
- Staff from different departments use this download function.
  - Engineering
  - Parks
  - Planning

GIS Inquiry Tool Technology

- City of Richmond configuration
  - Windows 2000 server
  - Tomcat web server
    - Serves the web site, ArcIMS & FTP site
  - ArcIMS web mapping GIS Inquiry Tool
  - SHAPE source data
    - derived from the corporate ArcSDE database
  - SpatialDirect data download technology

SpatialDirect Components

- Four components to a standard configuration:
  - FME Server
    - FME running continuously in server mode
  - QServer
    - Translation queuing, load balancing, fault tolerance
  - Translation Servlet
    - Converts web browser translation requests and passes them to the QServer as FME commands
  - Process Monitor
    - Monitors status of other SpatialDirect components

SpatialDirect Components

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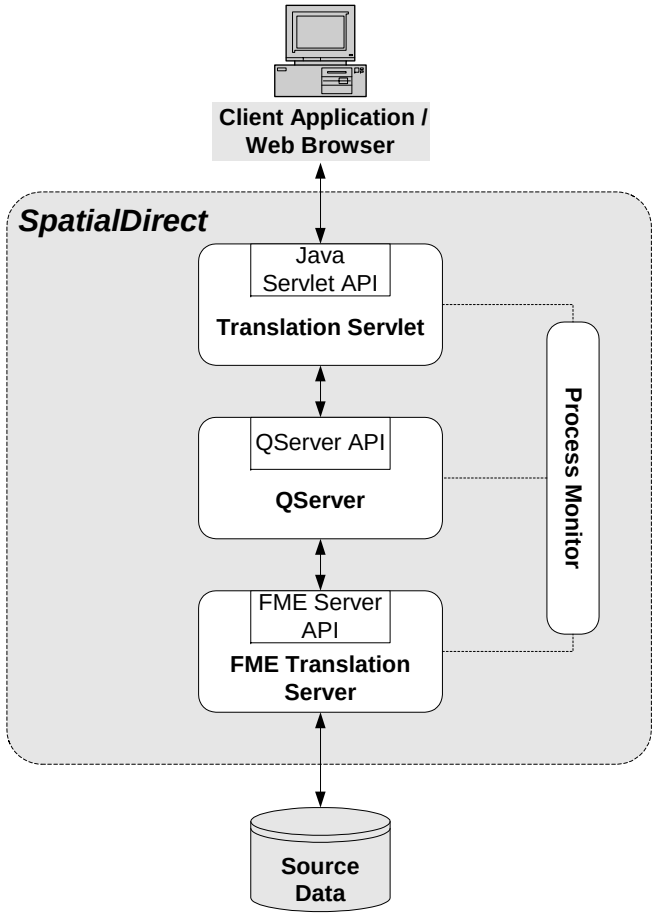

Sequence of Operation

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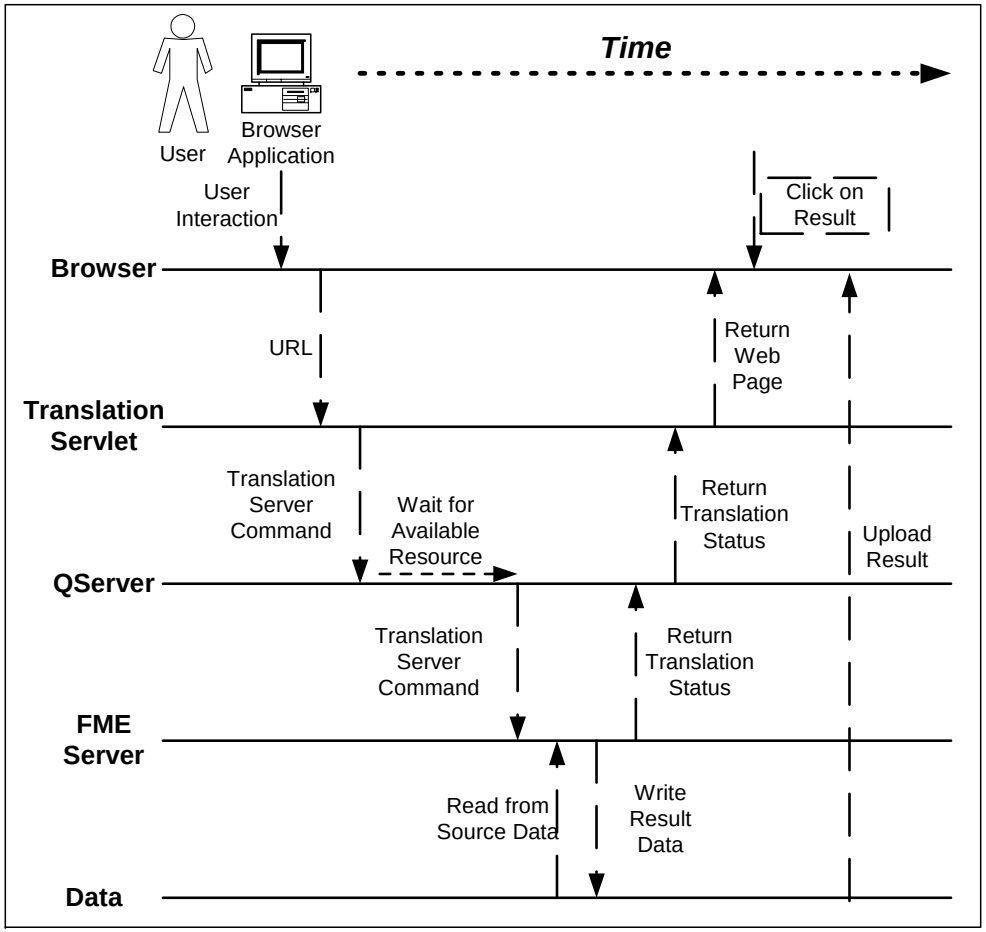

Flexibile Configuration…

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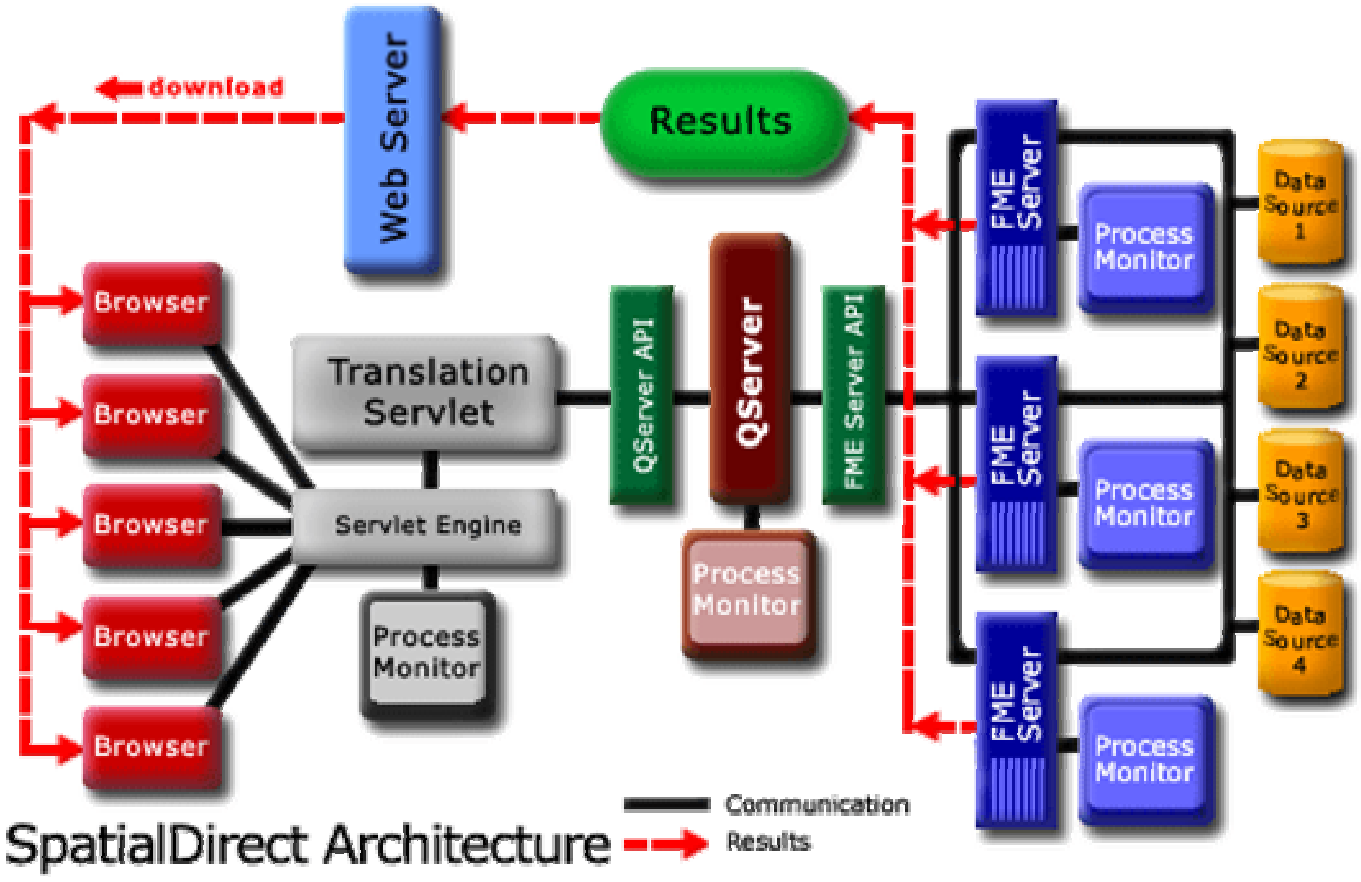

Questions?