CEGIS
A Geospatial SOA
for Cuyahoga County, OH

By:

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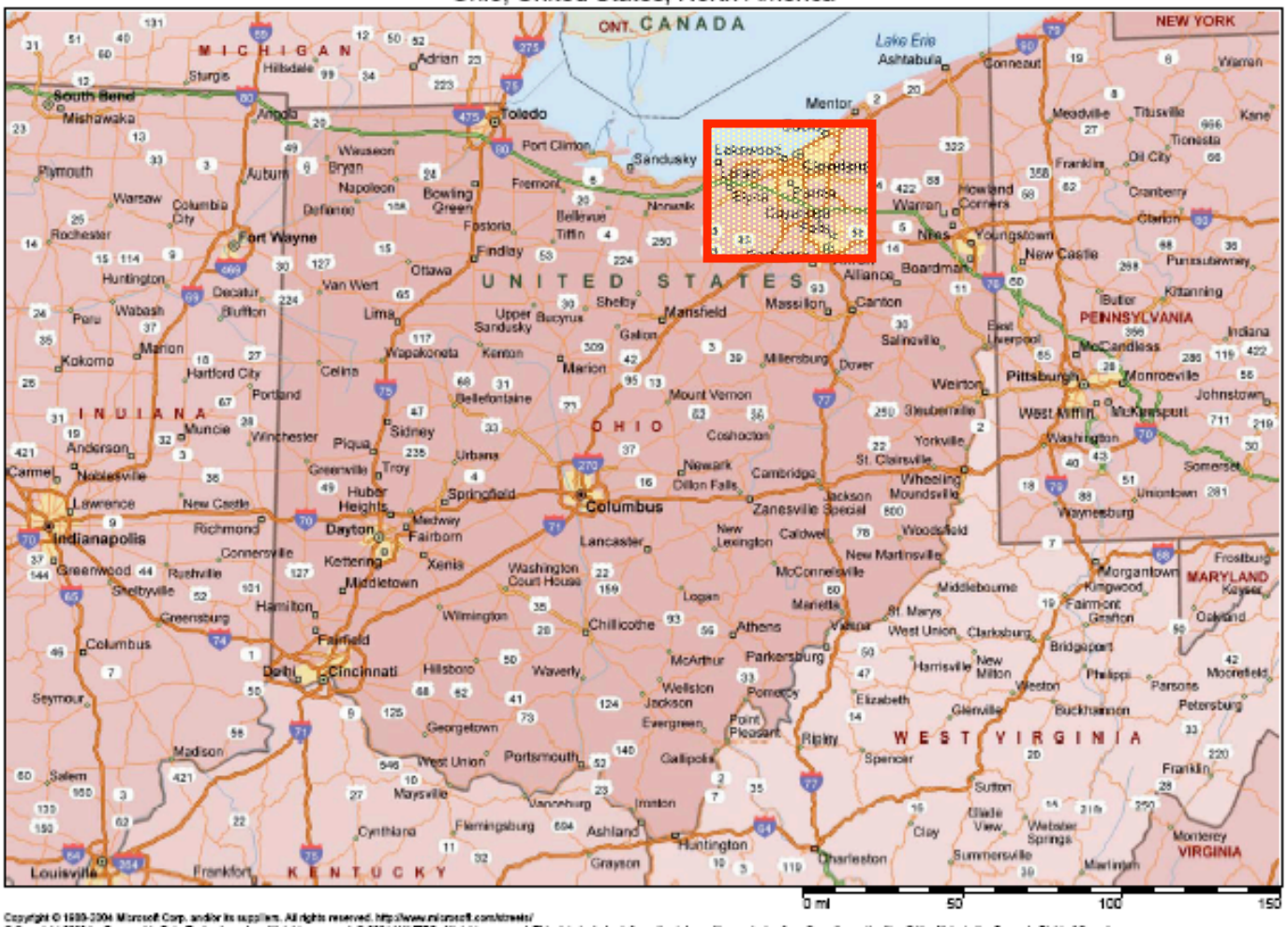
Ohio, United States, North America



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What is CEGIS?

- The Cuyahoga County Enterprise GIS Office
  - Currently Under the County Engineer
  - Funded by Department of Homeland Security Grants
  - Governed by a 5 –member Steering Committee
    - GIS Coordinator
    - County Engineer's Office
    - County Auditor's Office
    - County Information Services Center (CIO)
    - County Commissioners
  - Advised by a broader Working Group
    - Emergency Services, Planning Commission, County Board of Elections, City of Cleveland, NEORSD, etc.

Why implement CEGIS?

- The timing was right for CEGIS
  - Funding sources (HLS, HB361, LBRS) etc.
  - Technological advancements:
    - Geospatial data interoperability and portability
    - Linearly scalable SOA
  - Cross-Jurisdictional Data Sharing Agreements
    - City of Cleveland, NEORSD
  - Benefits:
    - Modernized landbase
    - Horizontally integrated geospatial applications
    - Fits current IT business model

As-Is GEA

- Over 30 county agencies with their own desktop GIS in place or planned.
- No coordinated effort to standardize or integrate geospatial data or applications
- MOU between County, City and NEORSD to build parcel map

To-Be GEA Strategic Architecture:

- Geospatial is the catalyst for change.
- Support the investments and respect the accomplishments of the existing GIS user community
- Build the sustainable geospatial data framework
- Offer “least common denominator” desktop mapping tools for use by all
- Let IT do its job
- Committed Steering Committee and Advisory Group
- Demonstrate success early and often
- “Spatial” is Oracle’s most powerful differentiator

Tactical Architecture:

- Oracle IT Framework
  - Database (10g, Spatial)
  - Fusion Middleware (Collaboration Suite, BPEL, BAM, Web Services Manager, Content Services, Application Server, MapViewer)
- Mission-Critical GIS/Orchestrated Applications for County & Regional Agencies
  - Engineer, Auditor, Emergency Services, Board of Elections, Child & Family Services, Prosecutor, Planning Commission, Board of Health, Metro-Parks, Municipal PSAPs, and many others…
  - Existing GIS products throughout the county: MapInfo, Bentley, AutoDesk, Intergraph, ESRI

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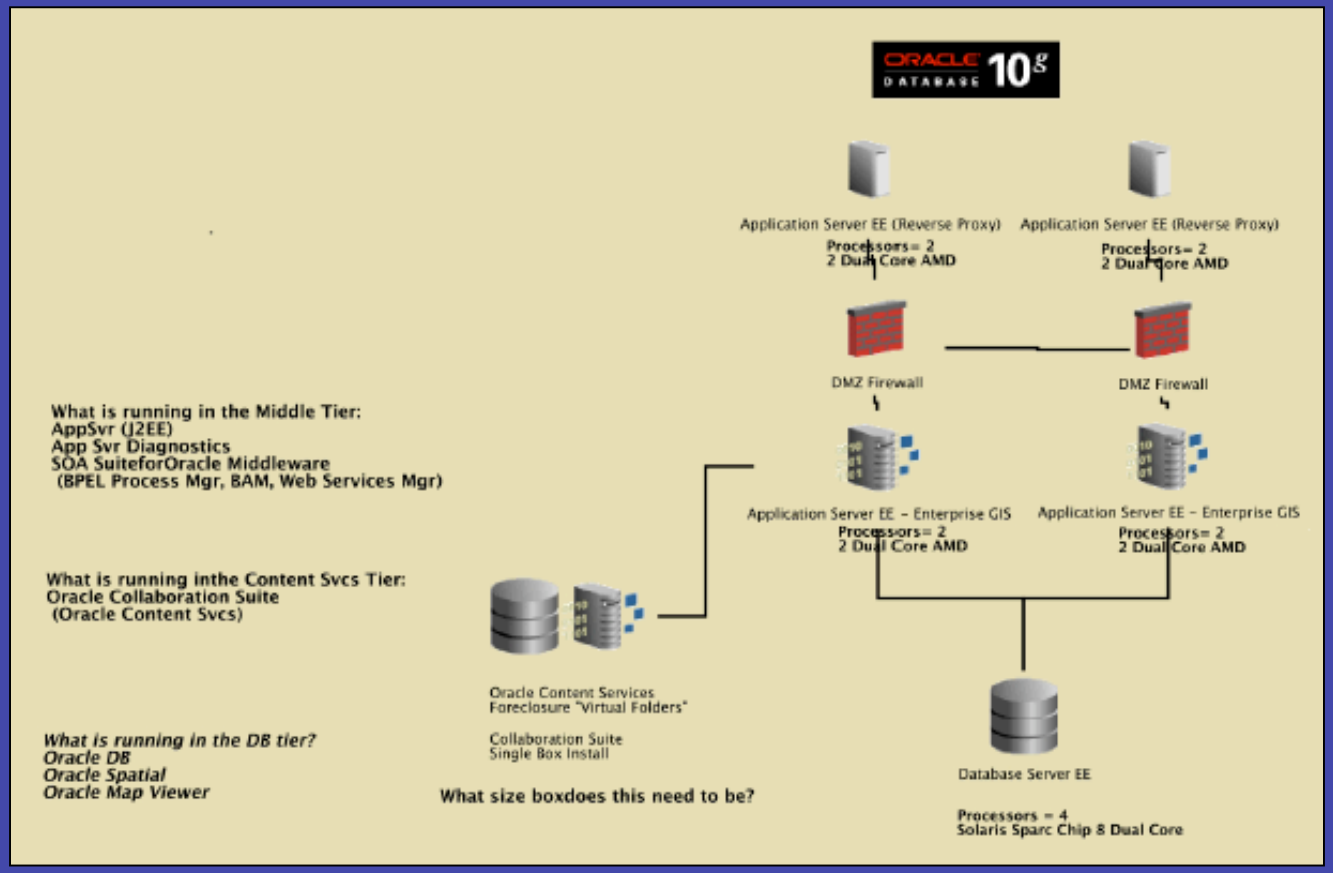
CUYAHOGA COUNTY Enterprise Geographical Information System

Deployment Architecture



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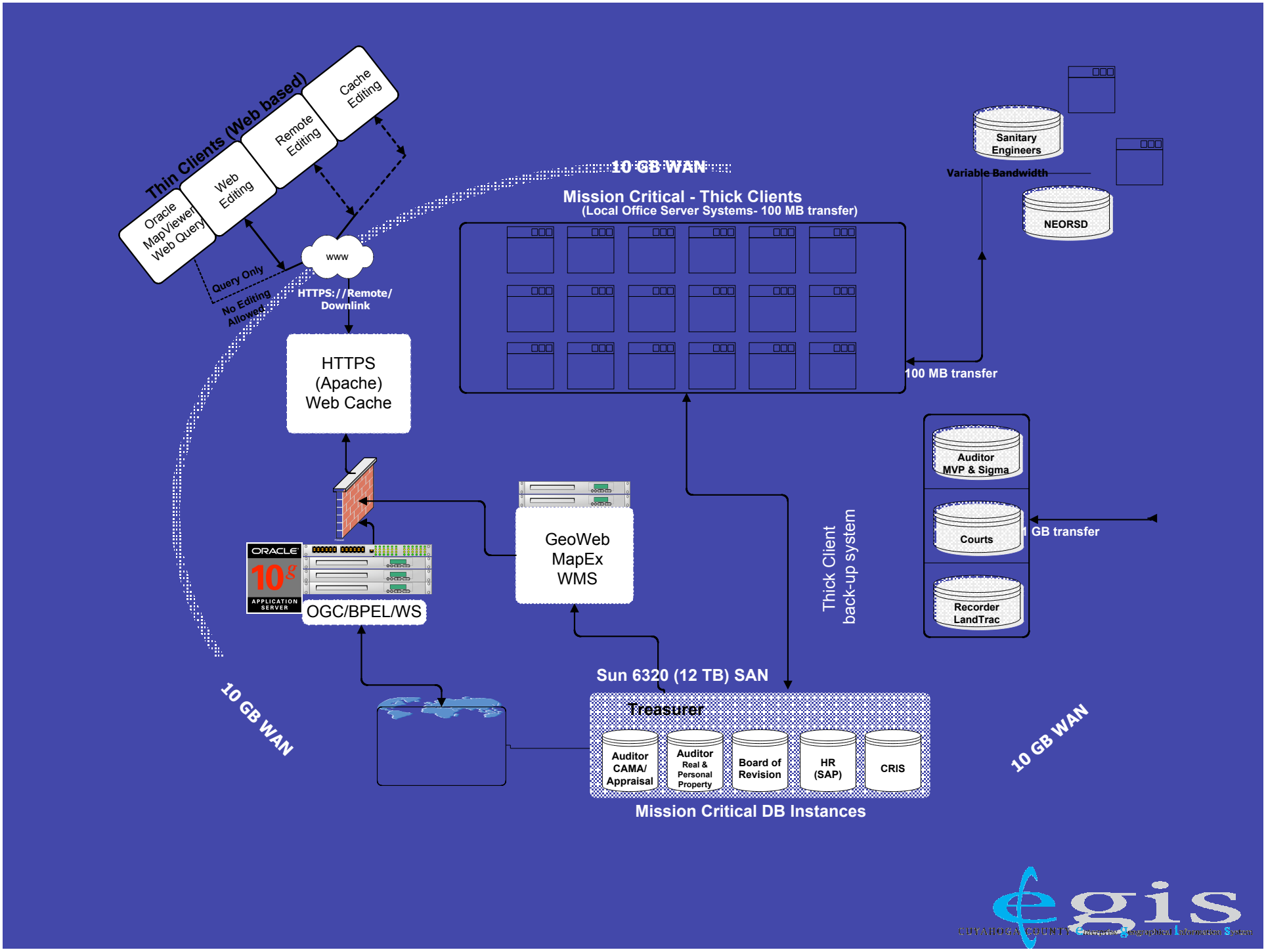
Thin Clients (Web based)
Oracle MapViewer Web Query
Web Editing
Remote Editing
Cache Editing
Query Only
No Editing Allowed
www
HTTPS://Remote/ Downlink
10 GB WAN
Mission Critical - Thick Clients
(Local Office Server Systems- 100 MB transfer)
Sanitary Engineers
Variable Bandwidth
NEORSD
100 MB transfer
HTTPS (Apache) Web Cache
Auditor MVP & Sigma
Courts
Recorder LandTrac
GB transfer
GeoWeb MapEx WMS
Thick Client back-up system
ORACLE 10g APPLICATION SERVER
OGC/BPEL/WS
Sun 6320 (12 TB) SAN
Treasurer
Auditor CAMA/ Appraisal
Auditor Real & Personal Property
Board of Revision
HR (SAP)
CRIS
Mission Critical DB Instances
10 GB WAN
10 GB WAN
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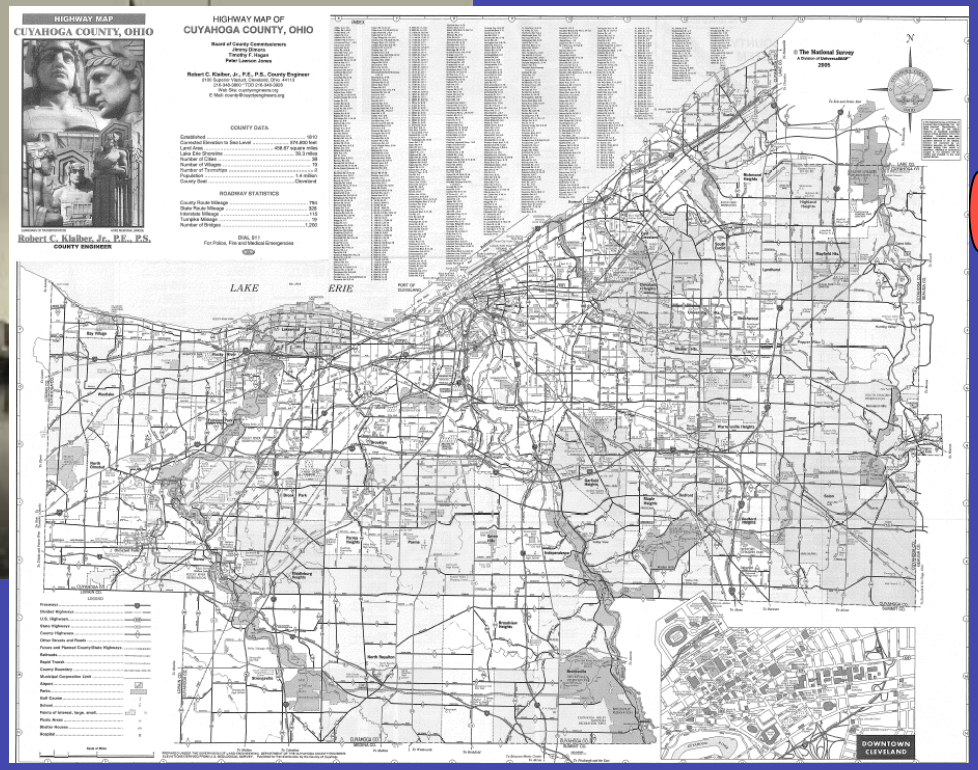
County Engineer's Office



Autodesk

ORACLE

INTERGRAPH

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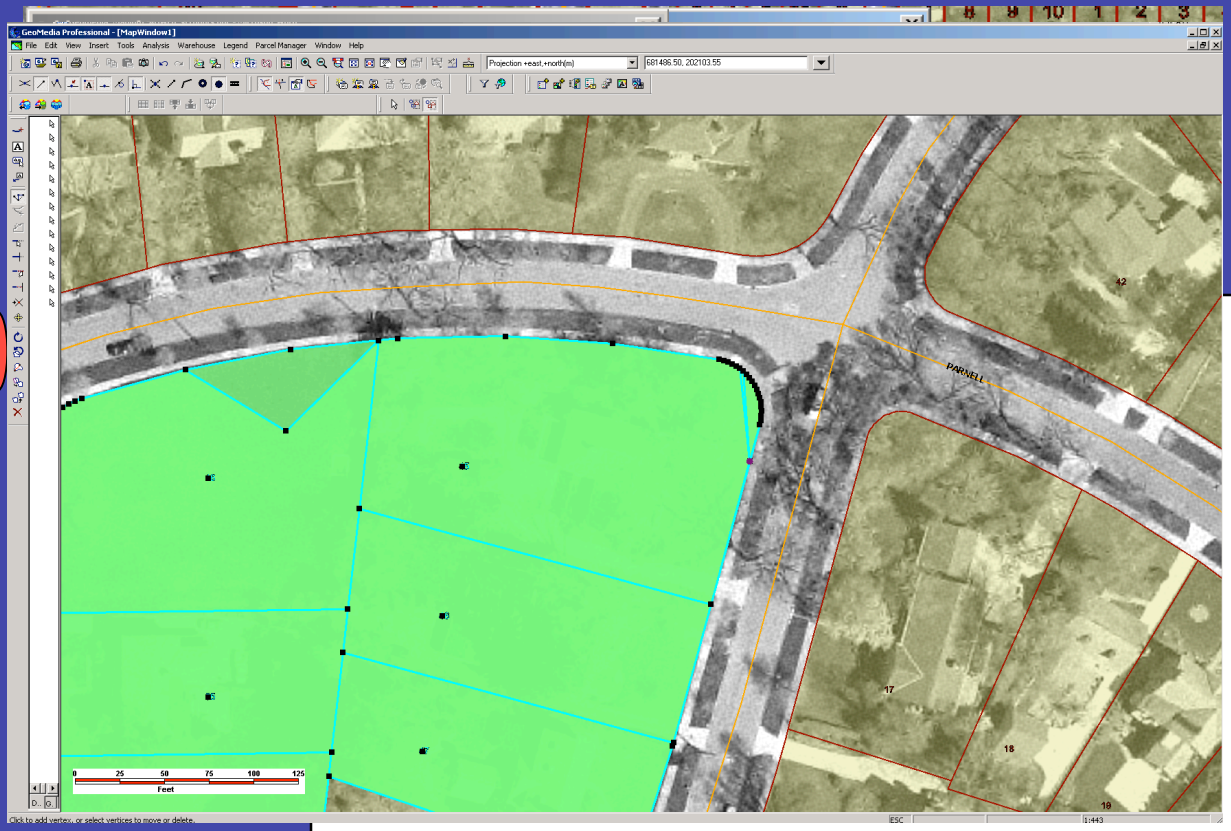
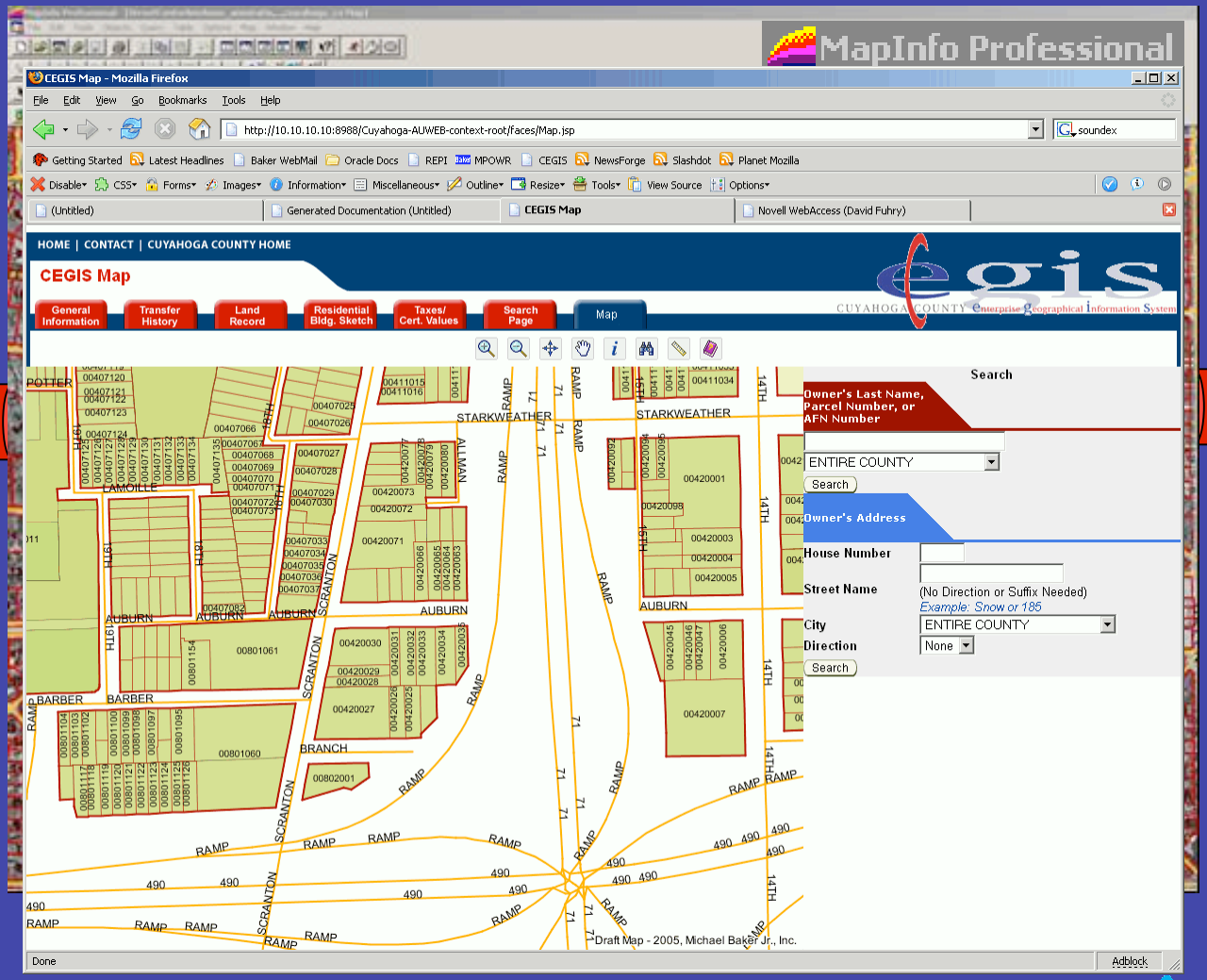
Parcel Map Maintenance



exec GTM.CommitRevisionSet('Parcel_RS');

County Auditor's Office



MapViewer

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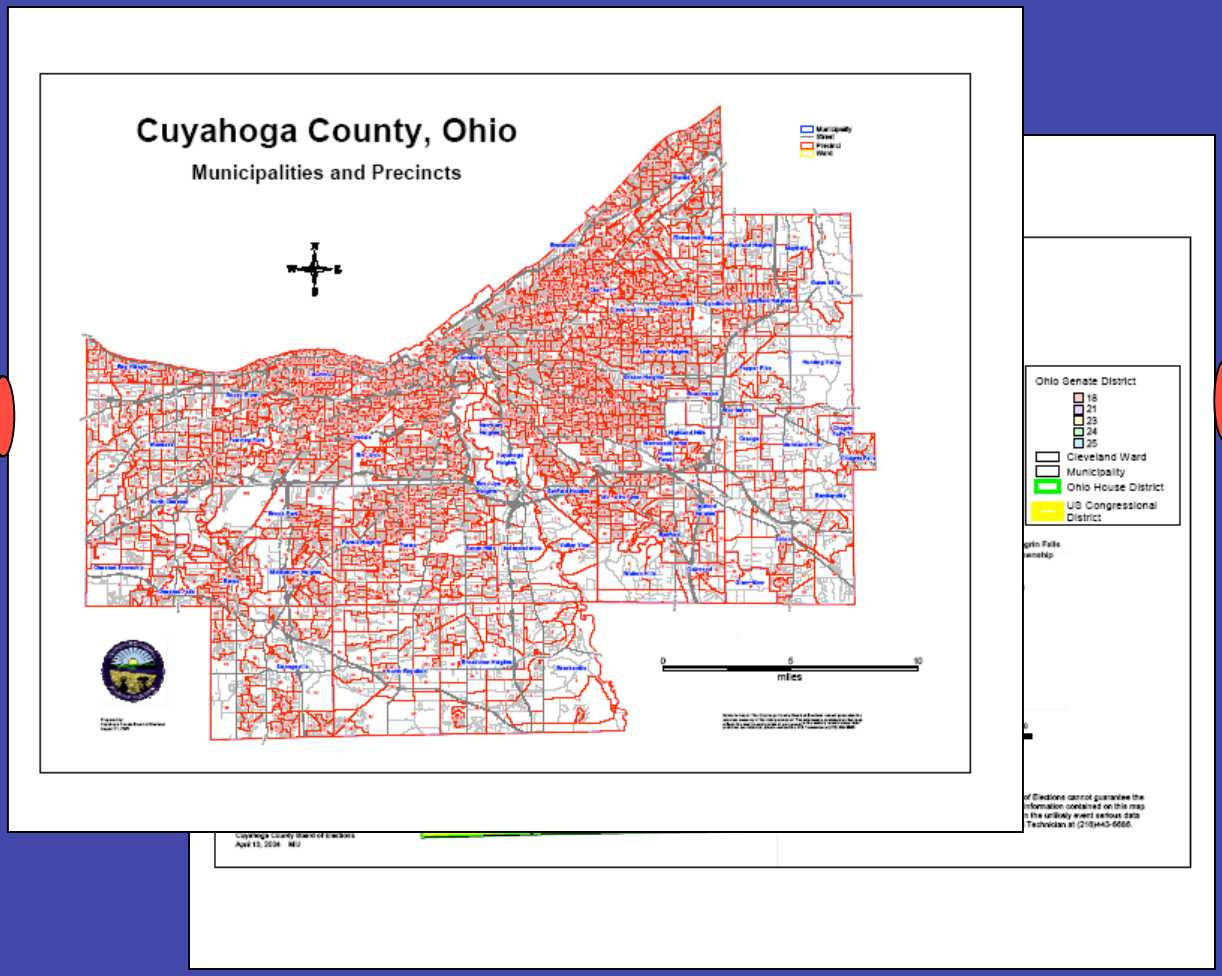
Board of Elections



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MapInfo Professional

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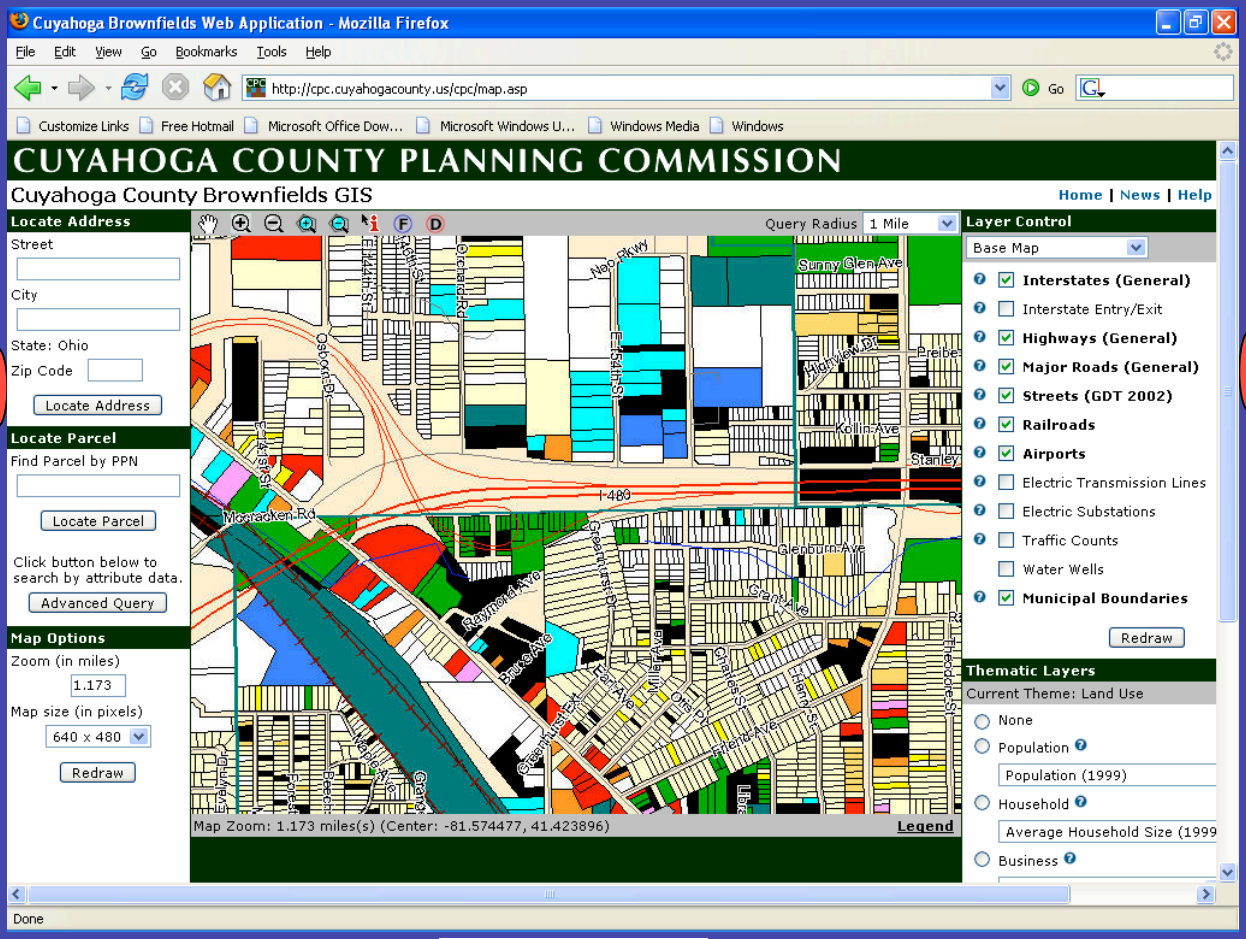
Planning Commission



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MapXtreme

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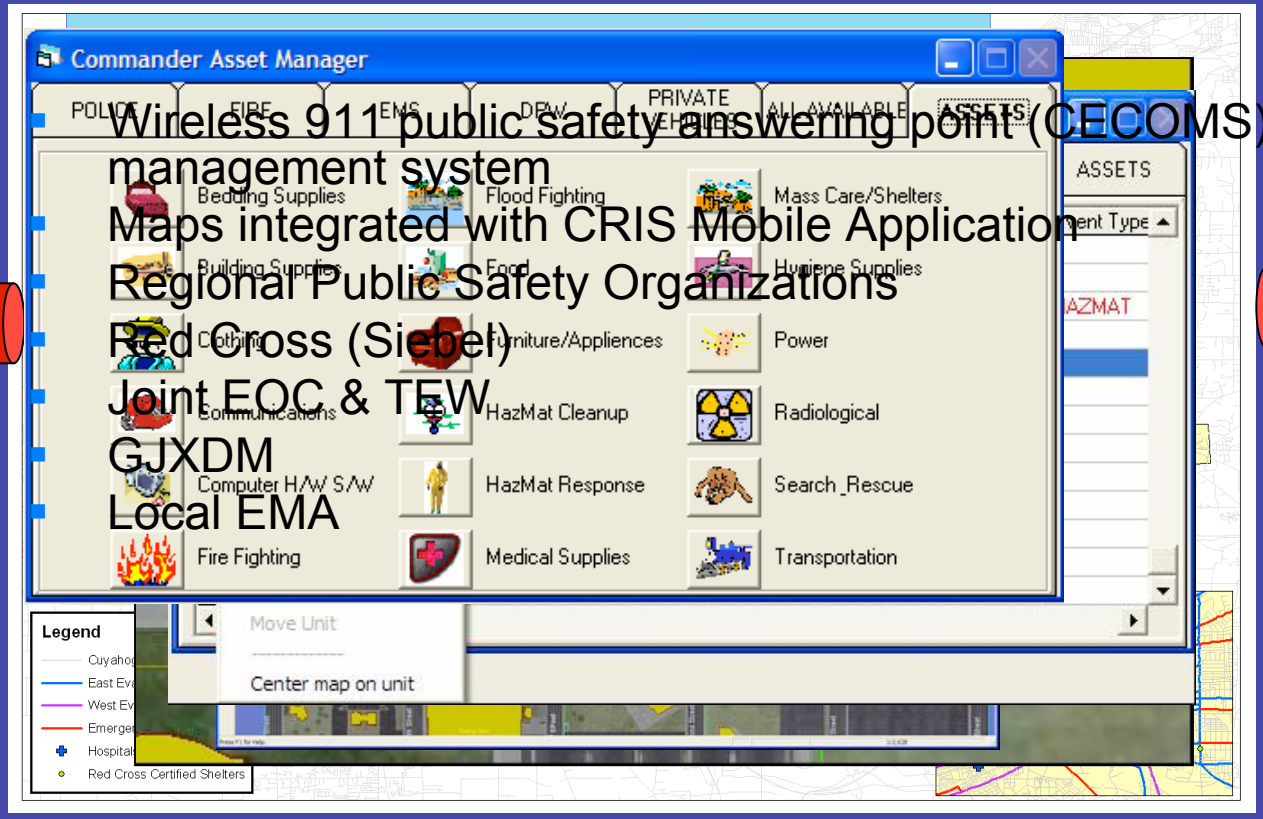
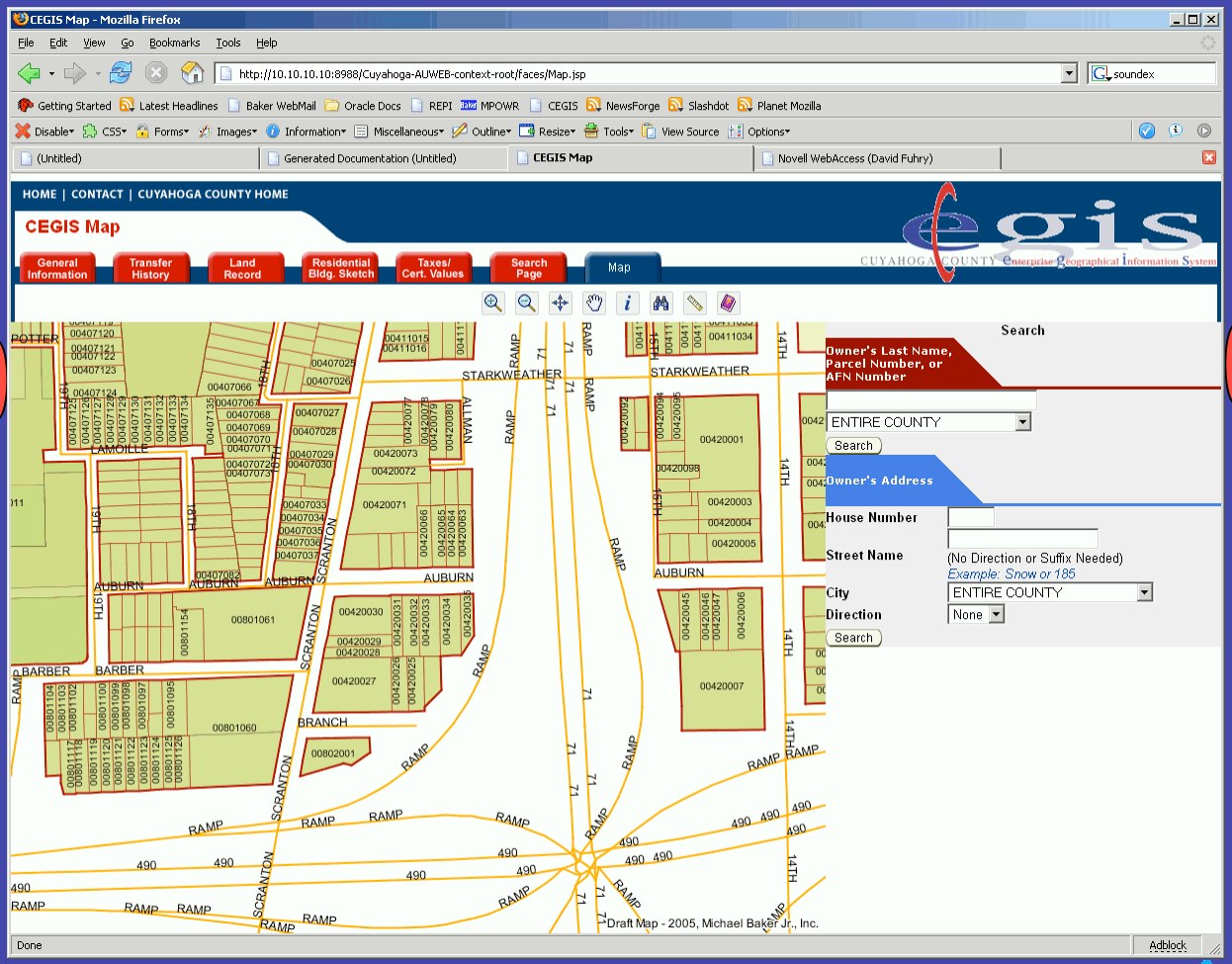
Emergency Services



- Wireless 911 public safety answering point (CECOMS) incident management system
- Maps integrated with CRIS Mobile Application
- Regional Public Safety Organizations
- Red Cross (Siebel)
- Joint EOC & TEW
- GJXDM
- Local EMA

Geo-enabling existing web applications



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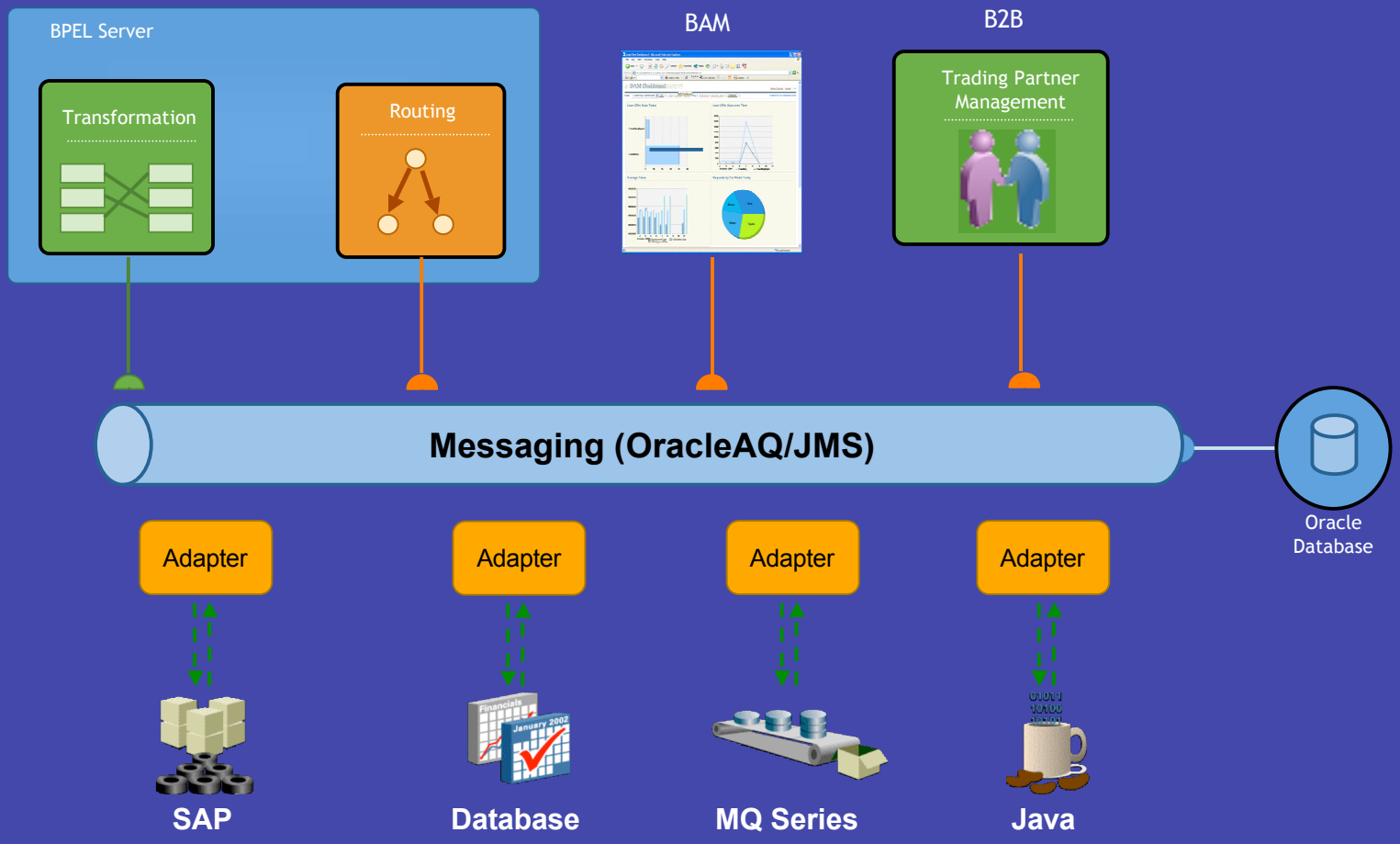
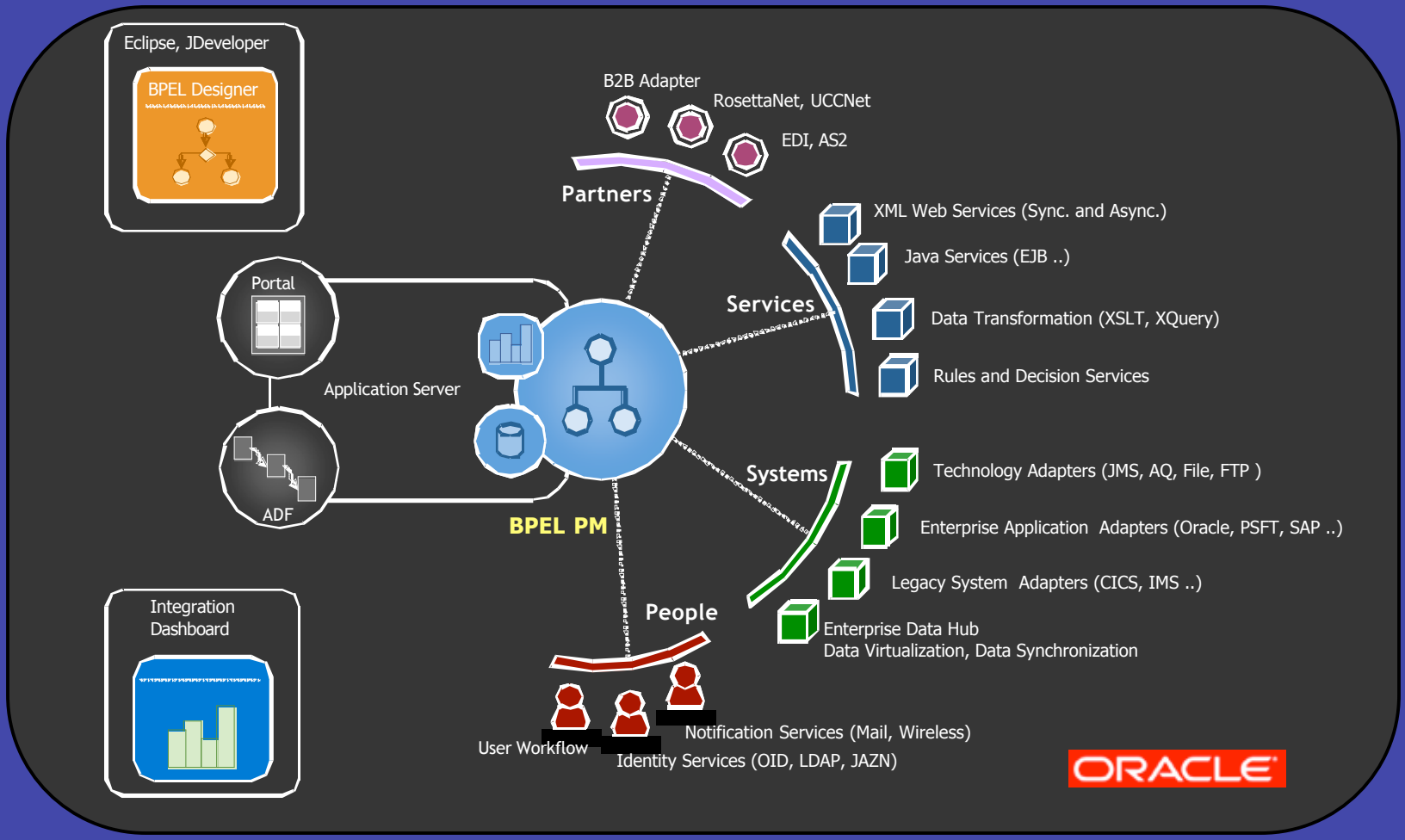
SOA Implementation

- *Requires tools to orchestrate business process integration and web services orchestration*
- *Business Process Execution Language (BPEL)*
- *Using BPEL and Fusion Middleware to embed and extend geospatial web services*

Business Process Integration



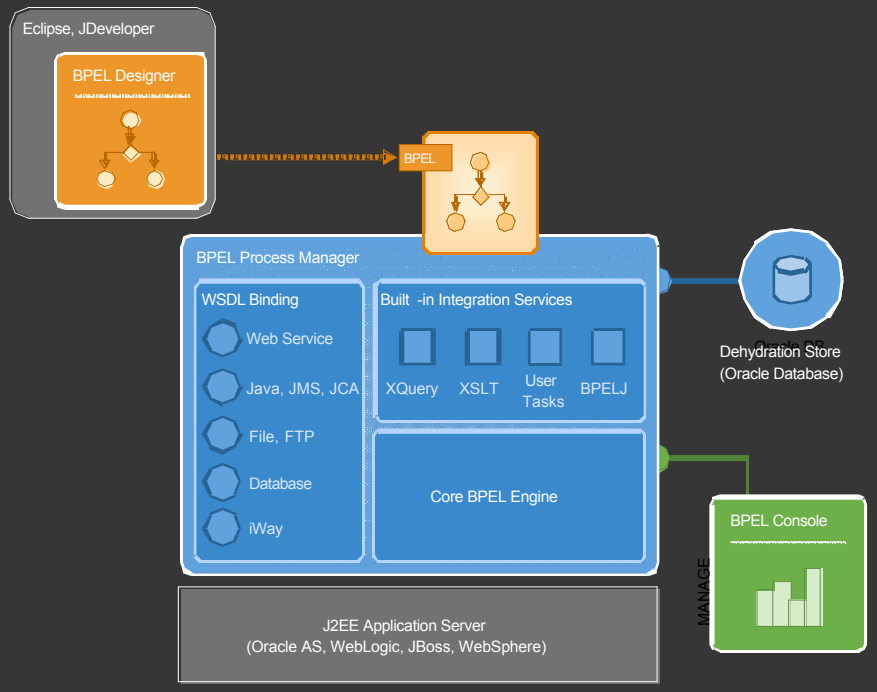
Business Process Integration



Business Process Integration

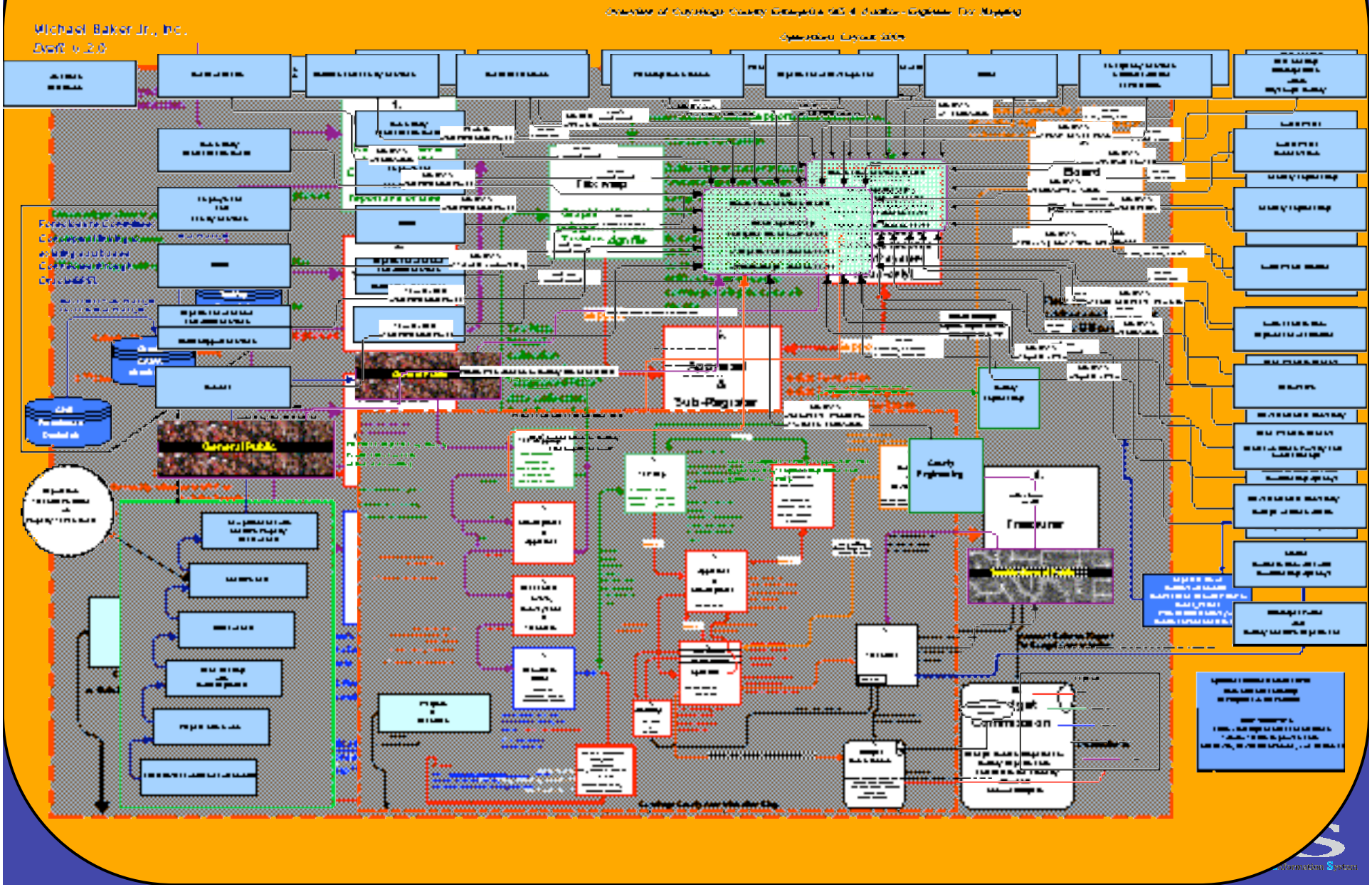
The Oracle BPEL Process Manager

Enterprise-strength infrastructure for designing, deploying and managing BP EL business processes.



- Comprehensive and native BPEL implementation
- Easy-to-use modeling tool
- Scalable and reliable engine
- Flexible binding framework
- Rich management and monitoring
- Support for Oracle AS, WebLogic and WebSphere
- Get up and running in less than 15 minutes!

Why we need it...



Funding & ROI

- Cost Avoidance
  - **Reduce unnecessary capital expenditures**
  - **Reduce operating costs**
- Total Cost of Ownership
  - **Reduce hardware and software maintenance costs**
  - **Future-Proof Technologies**