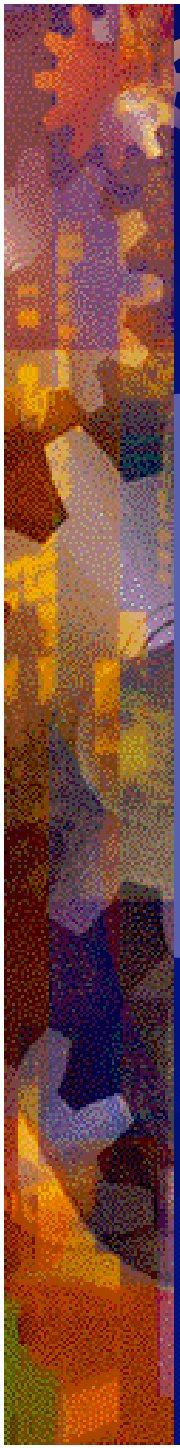


Integrating Location and Business Information Using Oracle Spatial in the Alaska Land Information Management System

Richard Clement

Alaska Department of Natural Resources

Oracle Spatial Users Conference 2005

SIZE AND DISTANCE COMPARISON

Slide credit: Alaska BLM Mapping Sciences

Data Sharing & Open Standards

"The Open GIS Consortium envisions the full integration of geospatial data and geoprocessing resources into mainstream computing and the widespread use of interoperable, commercial geoprocessing software throughout the information infrastructure."

OCG 1996

gIS not GIS - Geoprocessing integrated into the everyday workflow.

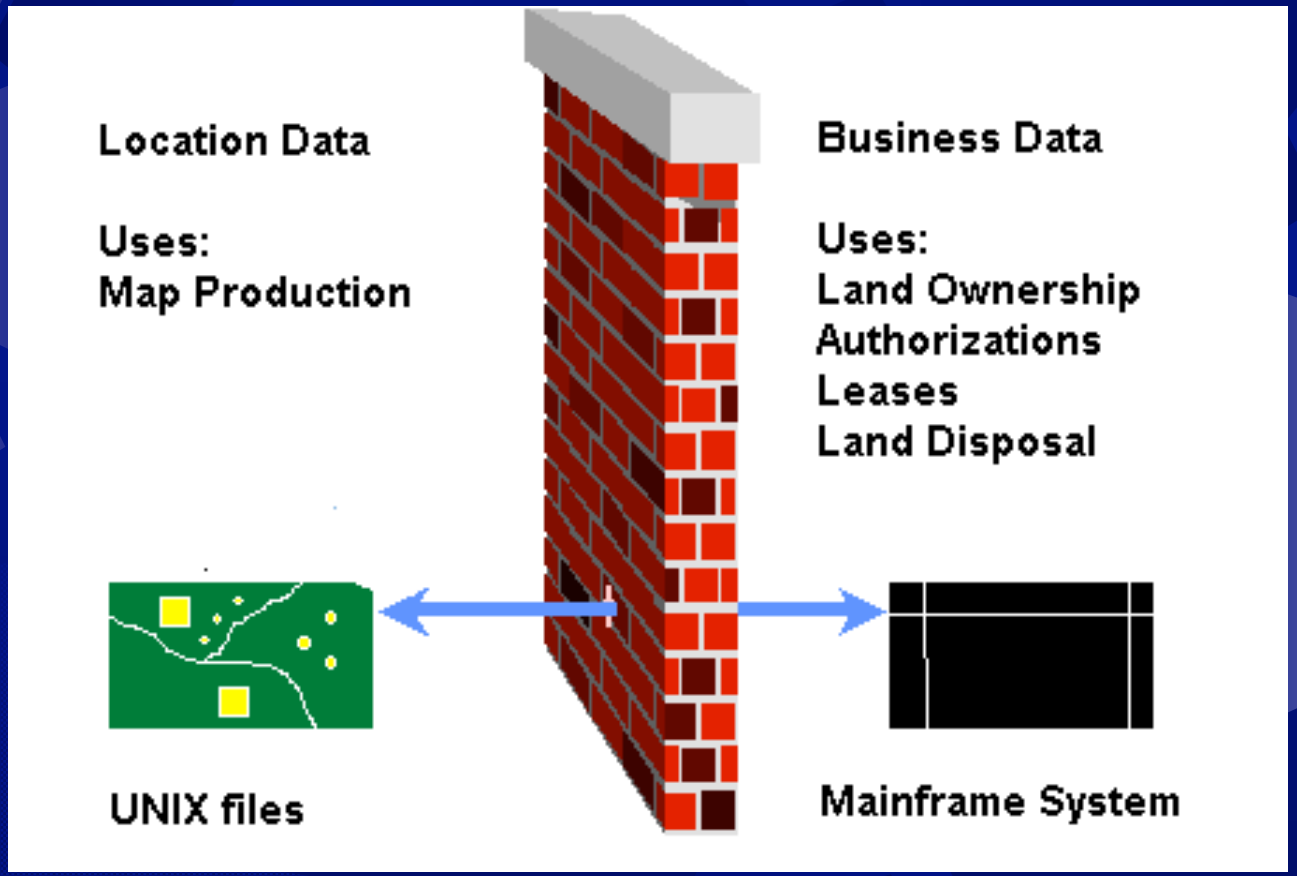
OGC
Open GIS Consortium, Inc.

The Numbers -

- 103,000,000 acres of land managed by the department
- 20,000 maps must be kept current
- 8,000 spatial databases must be maintained
- 0 users have direct access to location data

The Problem -

- Data isolation



The Problem -

- Multi-vendor access to location data
  - ESRI
  - MapInfo
  - AutoDesk
  - Other applications used by customers

The Solution -

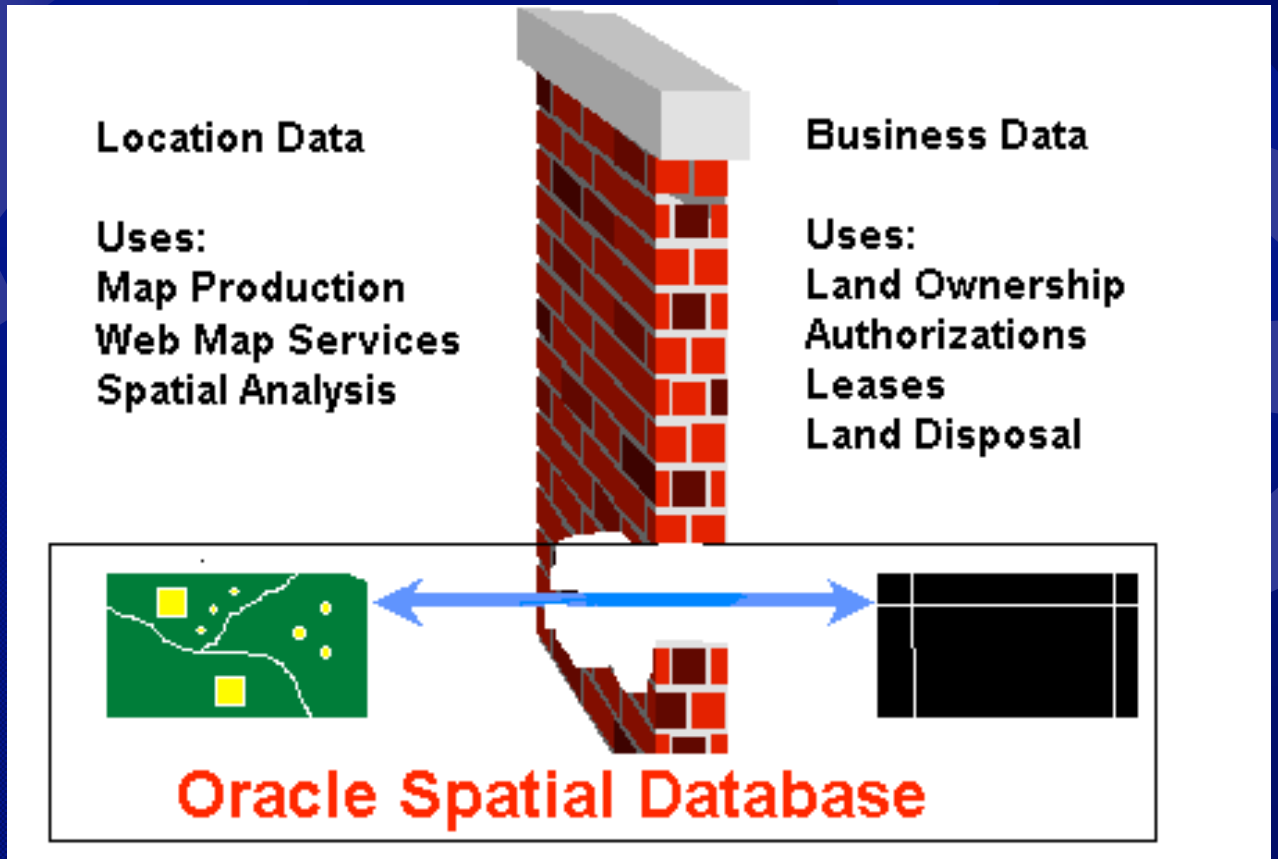
- Build new system based on open standards
- Leverage OGC standards which were being adopted by the vendor community
- Implement COTS where applicable
- Enable a development environment that “bridges the gap” between traditional GIS and business systems

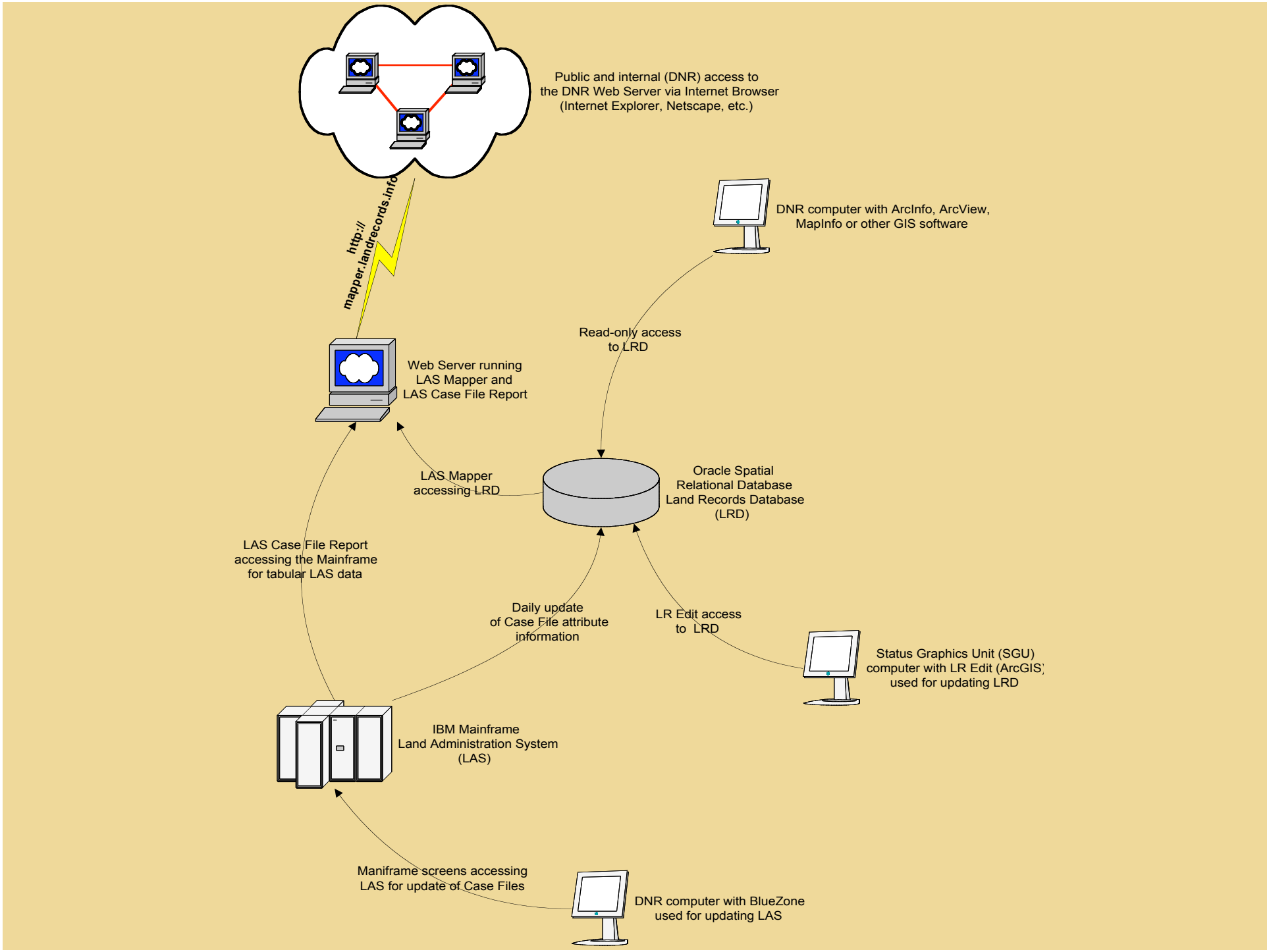
The Tasks -

- Design Oracle Database for Location and Business data
- Convert 8,000 ArcInfo coverages to Oracle Spatial - Safe FME
- Build IMS - MapInfo MapXtreme for Java
- Develop Cartographer/QC workflow
- Design and build multi-user editing and mapping software - ESRI Desktop Suite
- Training!

The Benefits -

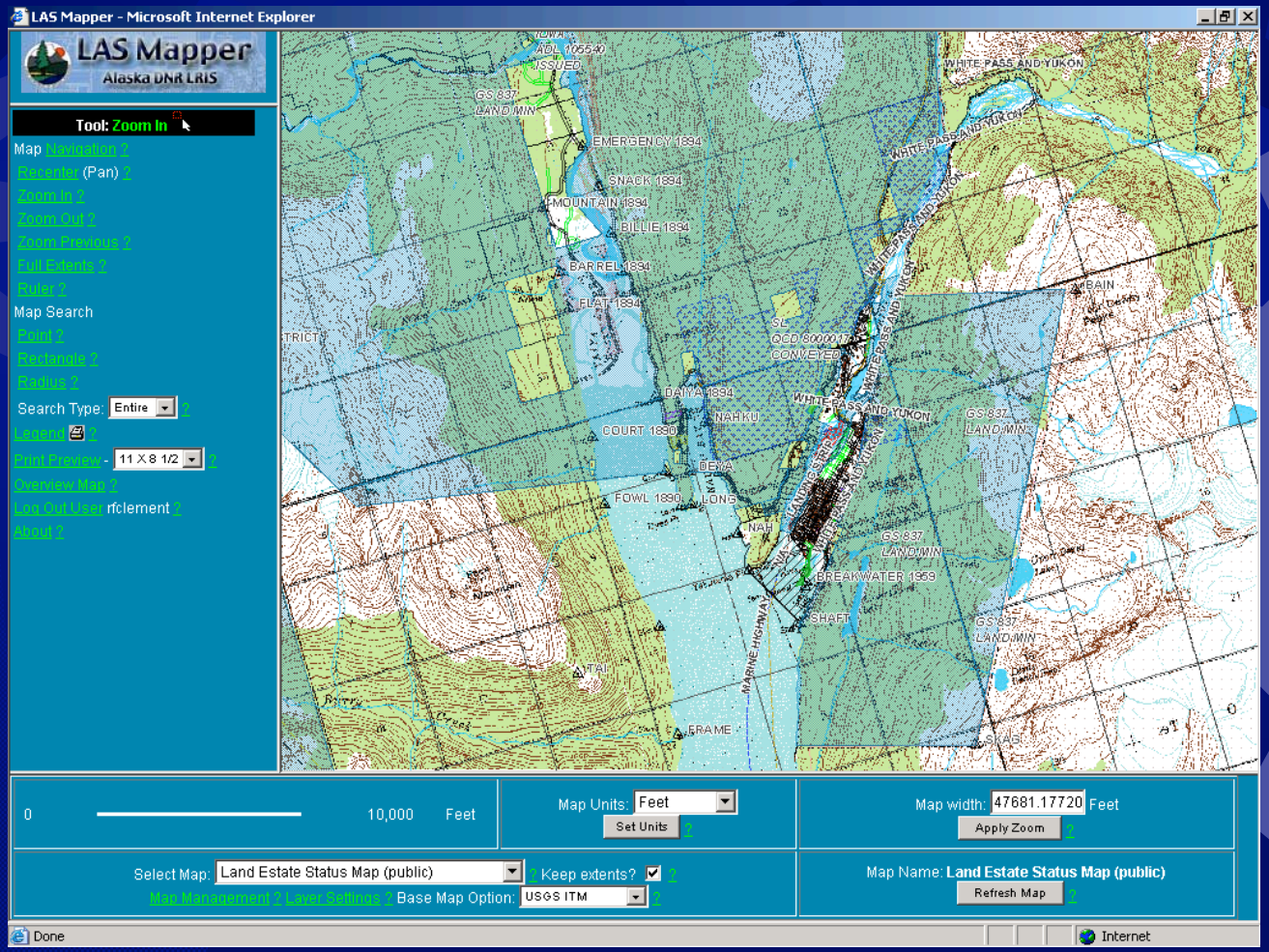
- One seamless database containing location and business data




Public and internal (DNR) access to
the DNR Web Server via Internet Browser
(Internet Explorer, Netscape, etc.)
http://
mapper.landrecords.info
DNR computer with ArcInfo, ArcView,
MapInfo or other GIS software
Read-only access
to LRD
Web Server running
LAS Mapper and
LAS Case File Report
LAS Mapper
accessing LRD
Oracle Spatial
Relational Database
Land Records Database
(LRD)
LAS Case File Report
accessing the Mainframe
for tabular LAS data
Daily update
of Case File attribute
information
LR Edit access
to LRD
Status Graphics Unit (SGU)
computer with LR Edit (ArcGIS)
used for updating LRD
IBM Mainframe
Land Administration System
(LAS)
Maniframe screens accessing
LAS for update of Case Files
DNR computer with BlueZone
used for updating LAS

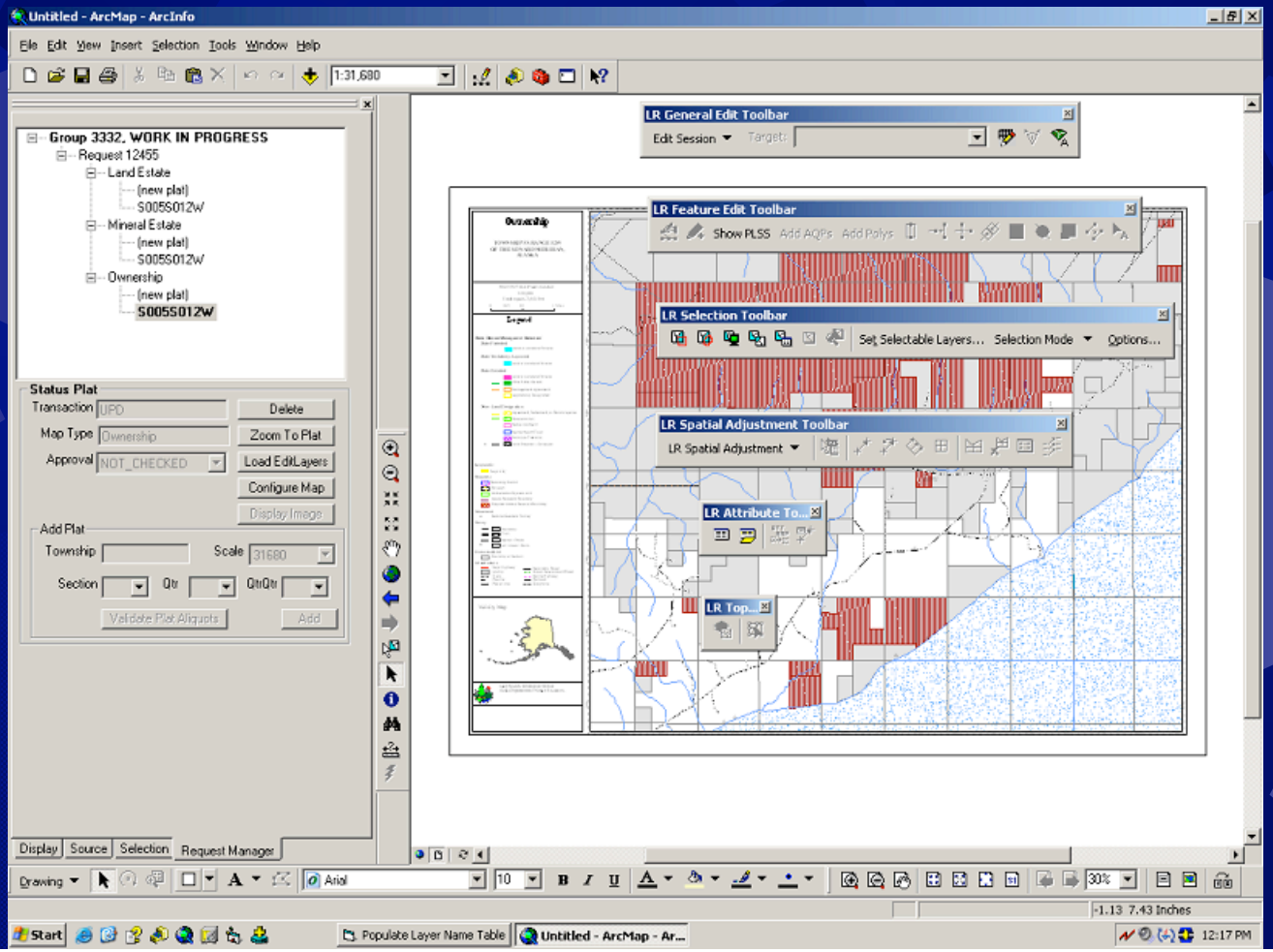
The Benefits -

- Unlimited access to location and business data via the web



The Benefits -

- COTS-based editing and mapping system



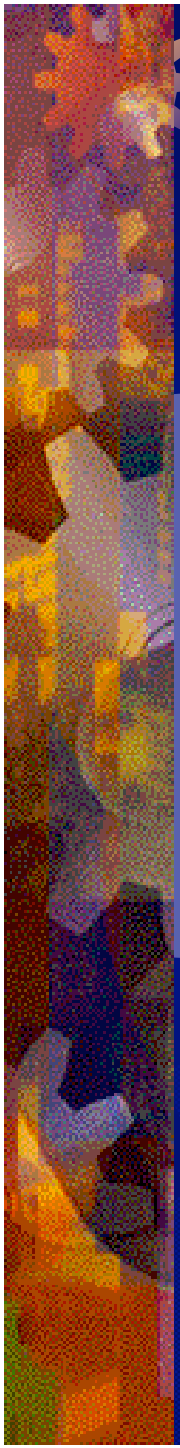
The Benefits -

- Ability to apply spatial business rules in the database

```
CREATE OR REPLACE  PROCEDURE "GIS"."MTRS_ACRE"  (
 p_geom IN MDSYS.SDO_GEOMETRY,
 mo_id IN NUMBER)
AS
  CURSOR c_col IS
    SELECT SUBSTR(a.mtr || a.section_,1,12) mtrs,
    ROUND(sdo_geom.sdo_area(sdo_geom.sdo_intersection
    (a.geom, p_geom, 0.00000005),0.00000005, 'unit=ACRE'),3) acre
    FROM   gis.pls_section a
    WHERE  sdo_relate(a.geom, p_geom,
    'mask=ANYINTERACT querytype=WINDOW') = 'TRUE';
```

The Benefits -

- Create a Java-based Service Oriented Architecture for location functionality
- Programmers have a “common ground” for application development
- Cartographers trained in ArcGIS Desktop know 80% before starting
- Scalability, Performance
- No need for data conversion



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Questions?

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