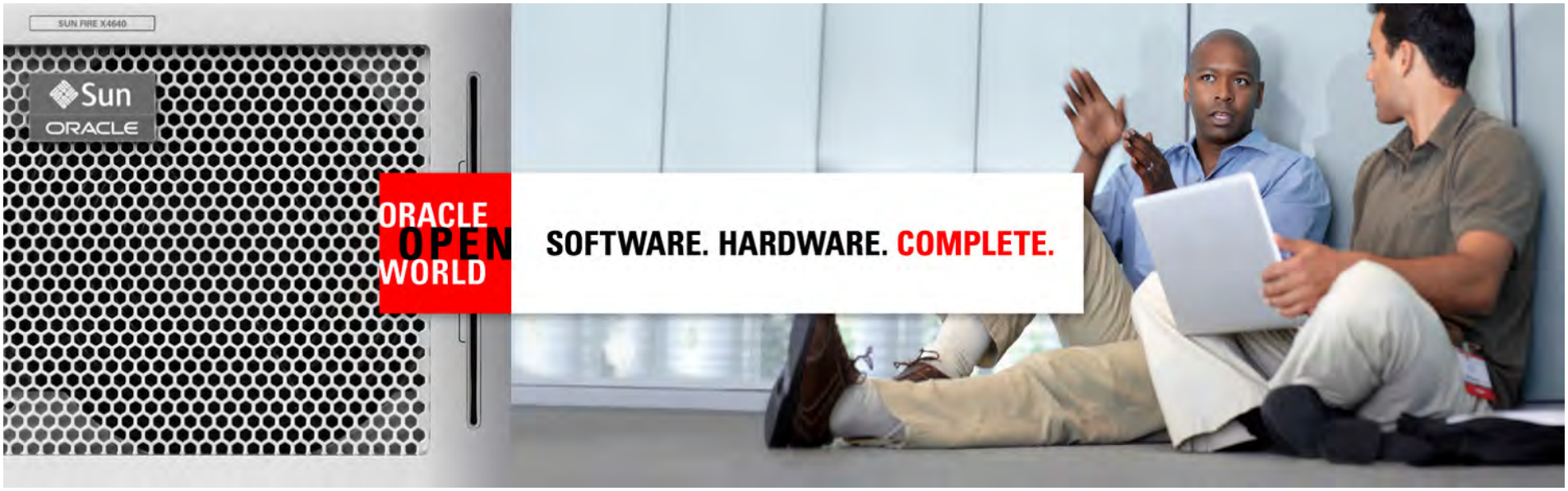

ORACLE®

Oracle Spatial 11*g* Release 2 Customer Roundtable

Moderator:
Xavier Lopez
Director, Oracle Spatial and Semantic Technologies

Oracle OpenWorld

Latin America 2010

December 7–9, 2010

Oracle OpenWorld

Beijing 2010

December 13–16, 2010

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Spatial at OOW 2010 - Sessions

Date/Time	Title	Location
Tuesday, Sept 21		
11:00 a.m.	Managing Critical Infrastructure with Autodesk Topobase and Oracle Technology	Palace Hotel Presidio
11:00 a.m.	The Smart Grid Choice: Oracle Utilities Smart Grid Roadmap Overview	Palace Hotel Sea Cliff
12:30 p.m.	Oracle Spatial 11g Release 2 Customer Roundtable	Moscone South Room 200
Wed., Sept 22		
11:30 a.m.	Oracle Spatial 11g Release 2 New Features Deep Dive	Moscone South Room 200
11:30 a.m.	How to Build a Spatial Data Warehouse for NIS Telecom, Using Oracle Locator	Hotel Nikko Mendocino I/II
4:45 p.m.	Best Practices with Oracle Spatial 11g and Fusion Middleware's MapViewer	Moscone South Room 200

Spatial at OOW 2010 - Sessions

Date/Time	Title	Location
Thursday, Sept 23		
11:00 a.m.	How to Build Network Applications with Oracle Spatial Network Data Model	Hotel Nikko Golden Gate

Spatial at OOW 2010 – Hands-On Labs

Date/Time	Title	Location
Thursday, Sept 23		
10:00 a.m.	Using Java to Build Maps with Oracle Spatial and Fusion Middleware MapViewer	Hilton SF Franciscan A/B/ C/D
11:30 a.m.	Implementing Oracle Spatial Web Services	Hilton SF Franciscan A/B/ C/D
1:00 p.m.	Tracking Moving Objects with Oracle Spatial and Oracle Complex Event Processing	Hilton SF Franciscan A/B/ C/D

Spatial at OOW 2010 – Develop Sessions

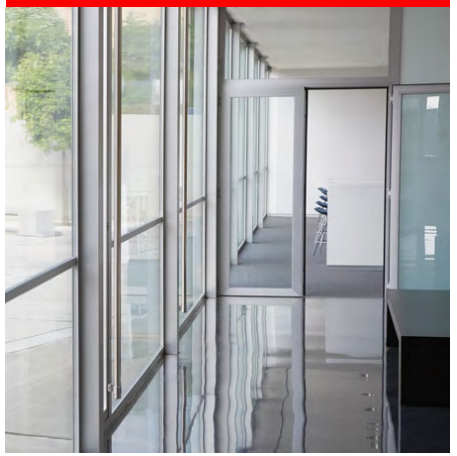
Date/Time	Title	Location
Tuesday, Sept. 21		
2:30 p.m.	Building Mashups Using Oracle Spatial and Fusion Middleware MapViewer	Hotel Nikko Nikko Ballroom I

Spatial at OOW 2010 – JavaOne Sessions

Date/Time	Title	Location
Monday, Sept. 20		
2:30 p.m.	Beyond Smartphones: Rich Applications and Services for the Mobile Masses	Hotel Nikko Nikko Ballroom I

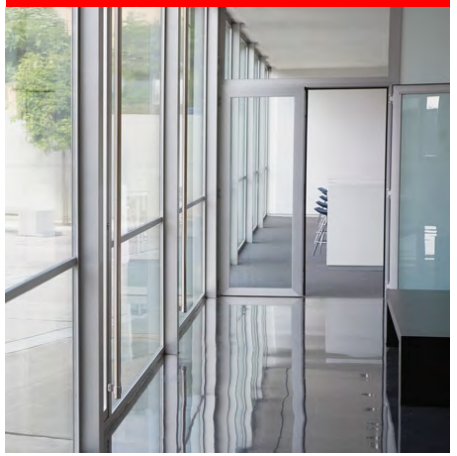
- DEMOgrounds
  - Advanced Geospatial Analysis with Oracle Spatial- *Moscone West, W-042*
  - Oracle Spatial for Mapping and Business Applications- *Moscone West, W-043*

Agenda



- Oracle Spatial 11*g* Release 2 Overview
- Customer Presentations

Today's Panelists



- Glenn Kronschnabl
  CIO
  CoreLogic Spatial Solutions

- Parag Parikh
  Product Management Director
  CURRENT Group

- Michael Smith
  Physical Scientist, Remote Sensing/GIS Center
  US Army Corps of Engineers

- Nick Salem
  Director, Software Engineering
  TARGUSinfo

Resources

- Slides from today's panel will be available at the OOW website after the conference
- SIN SrL (Italian Ministry of Agriculture) slides will be archived (speaker cancellation)
  - Location intelligence in support of monitoring and management of Italy's national agricultural policy, using Oracle BI/maps, topology data model
- GM OnStar podcast
  - www.oracle.com/goto/spatial → Podcasts tab

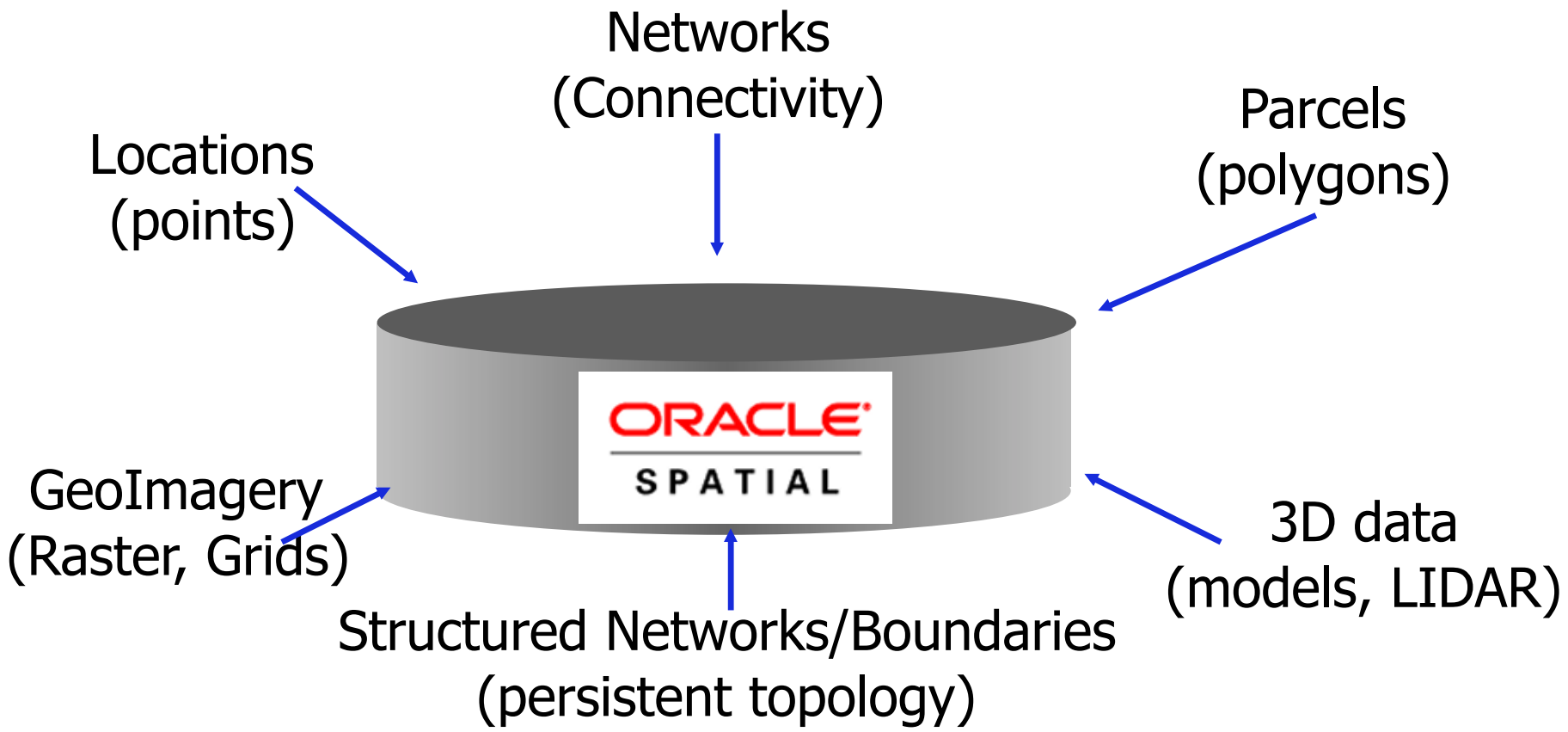
Complete. Open. Integrated.

Four Foundations ...

- Products
  - Oracle Spatial, Oracle Locator, Oracle Mapviewer
  - SOA Architecture
- Partnerships With Leading Spatial Vendors
  - Software vendors (e.g. Bentley)
  - Integrators,
  - Data suppliers
  - Service providers
- Commitment To Standards
  - Open GIS Consortium, OpenLS, ...
  - SQL, LIF,
  - ISO TC-211, TC-204
- Integration with Oracle applications
  - E-Business Suite
  - Location Based Services

SQL3/MM Spatial

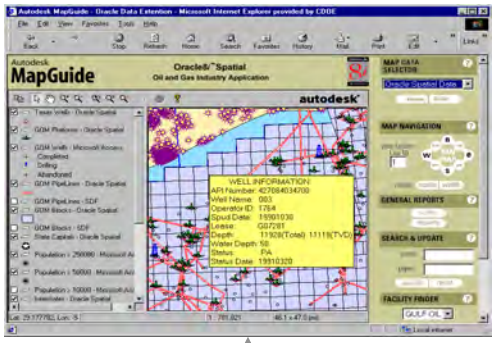
Manage ALL Geospatial Data Types



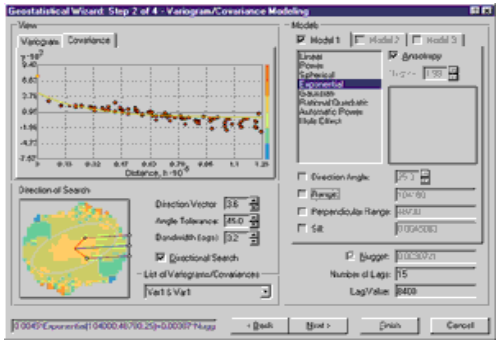
Consolidating Geospatial Data Management

Asset Management

Engineering



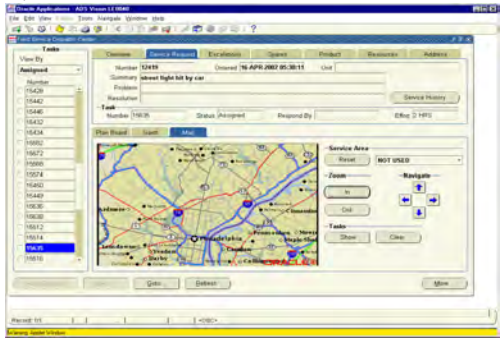
Planning



Compliance Monitoring

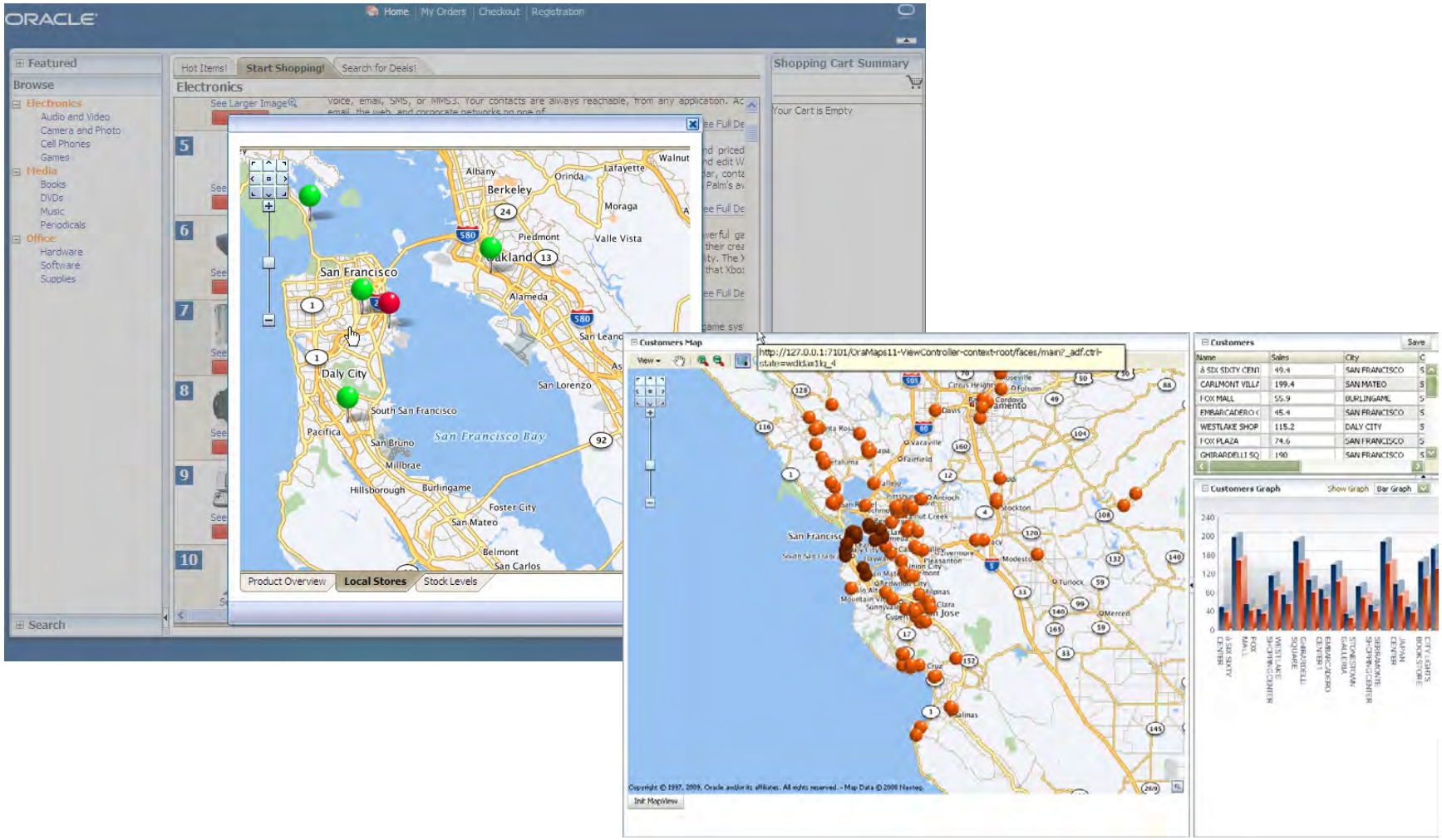
ORACLE SPATIAL

Business Intelligence

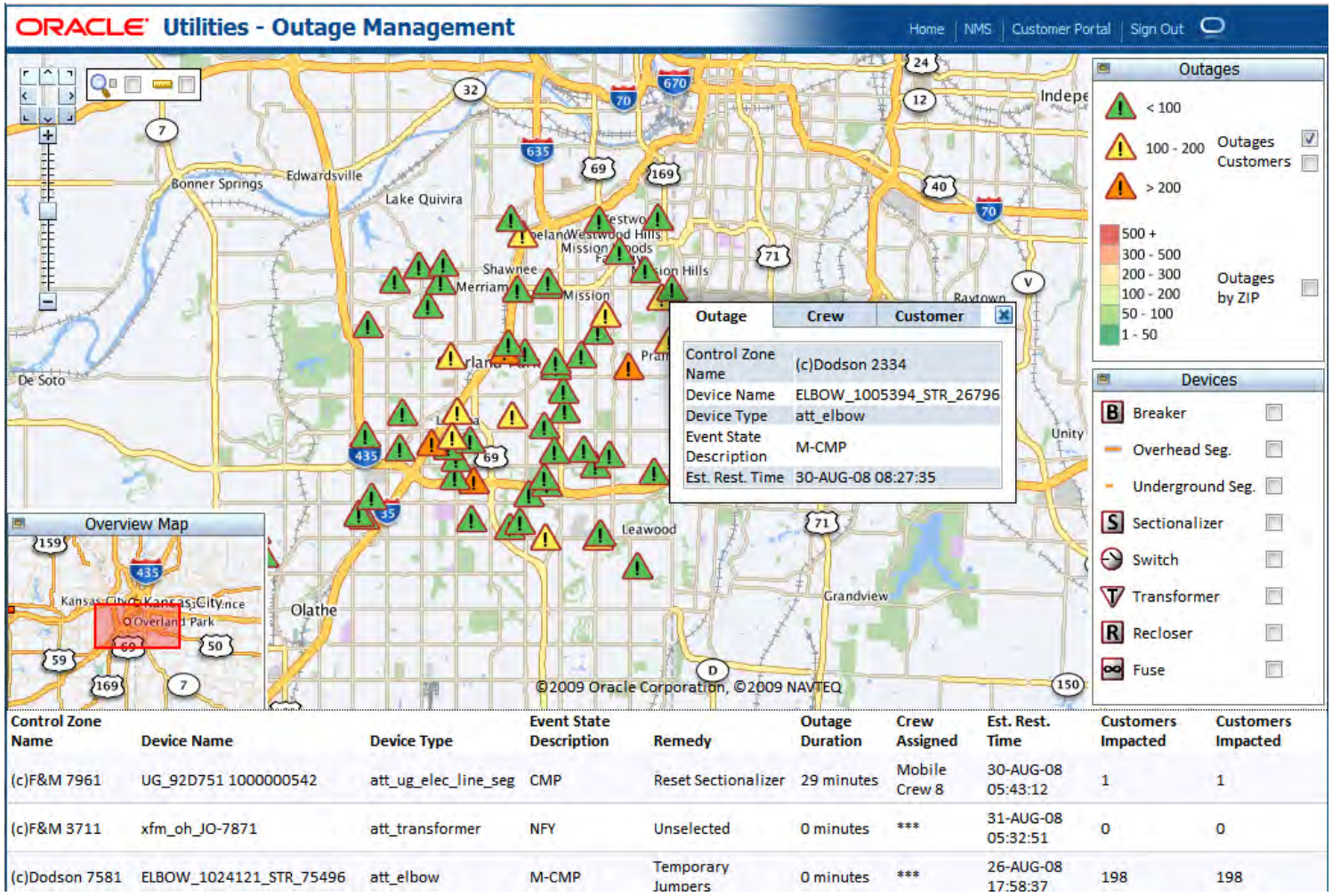


Multiple Apps
Multiple Users

Develop applications with Java IDE



Utilities Application



Control Zone Name	Device Name	Device Type	Event State Description	Remedy	Outage Duration	Crew Assigned	Est. Rest. Time	Customers Impacted	Customers Impacted
(c)F&M 7961	UG_92D751 1000000542	att_ug_elec_line_seg	CMP	Reset Sectionalizer	29 minutes	Mobile Crew 8	30-AUG-08 05:43:12	1	1
(c)F&M 3711	xfm_oh_JO-7871	att_transformer	NFY	Unselected	0 minutes	***	31-AUG-08 05:32:51	0	0
(c)Dodson 7581	ELBOW_1024121_STR_75496	att_elbow	M-CMP	Temporary Jumpers	0 minutes	***	26-AUG-08 17:58:37	198	198

Location-enabled Business Intelligence

Visualization & Analytics

What is cool and new…

- From the “Crowd”
  - Social Content
  - Open Source content
- From industry
  - Richer COTS spatial datasets
  - 3D – Beyond Visualization / Real World - Simulation …
  - Sensors -- Real Time and Assisted Activities


Speakers
SOFTWARE.
HARDWARE.
COMPLETE.
TAPE
~AC ⎓DC
STANDBY
XSCF
ORACLE

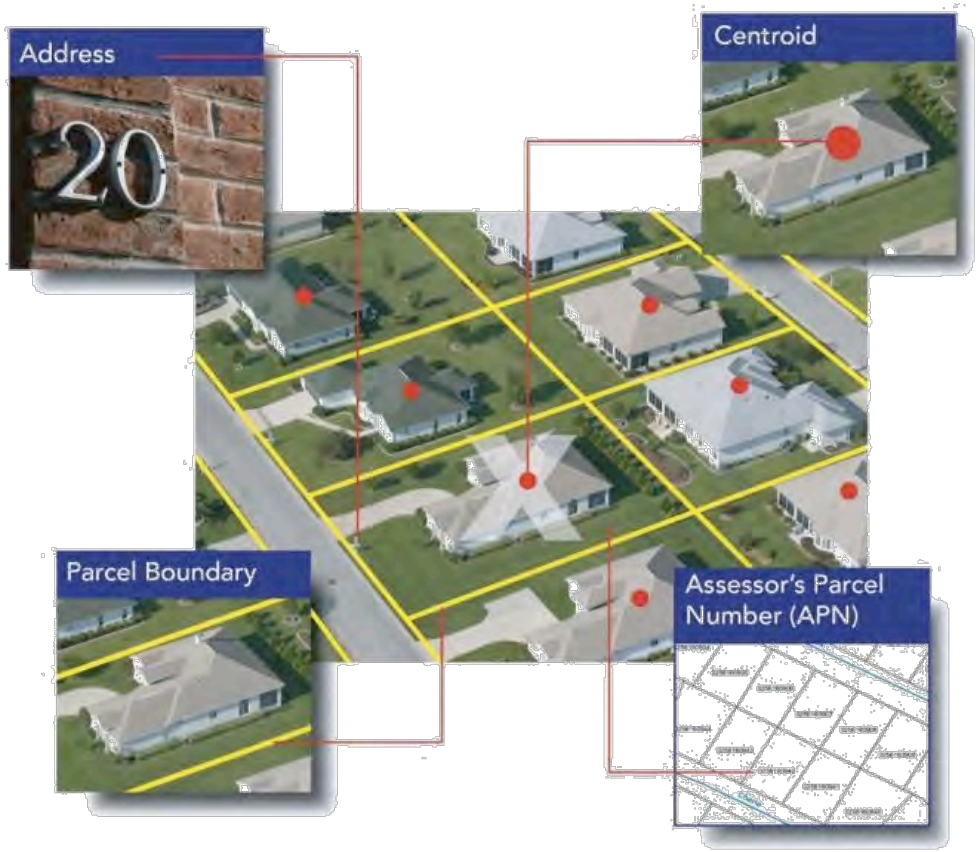
CoreLogic Spatial Solutions

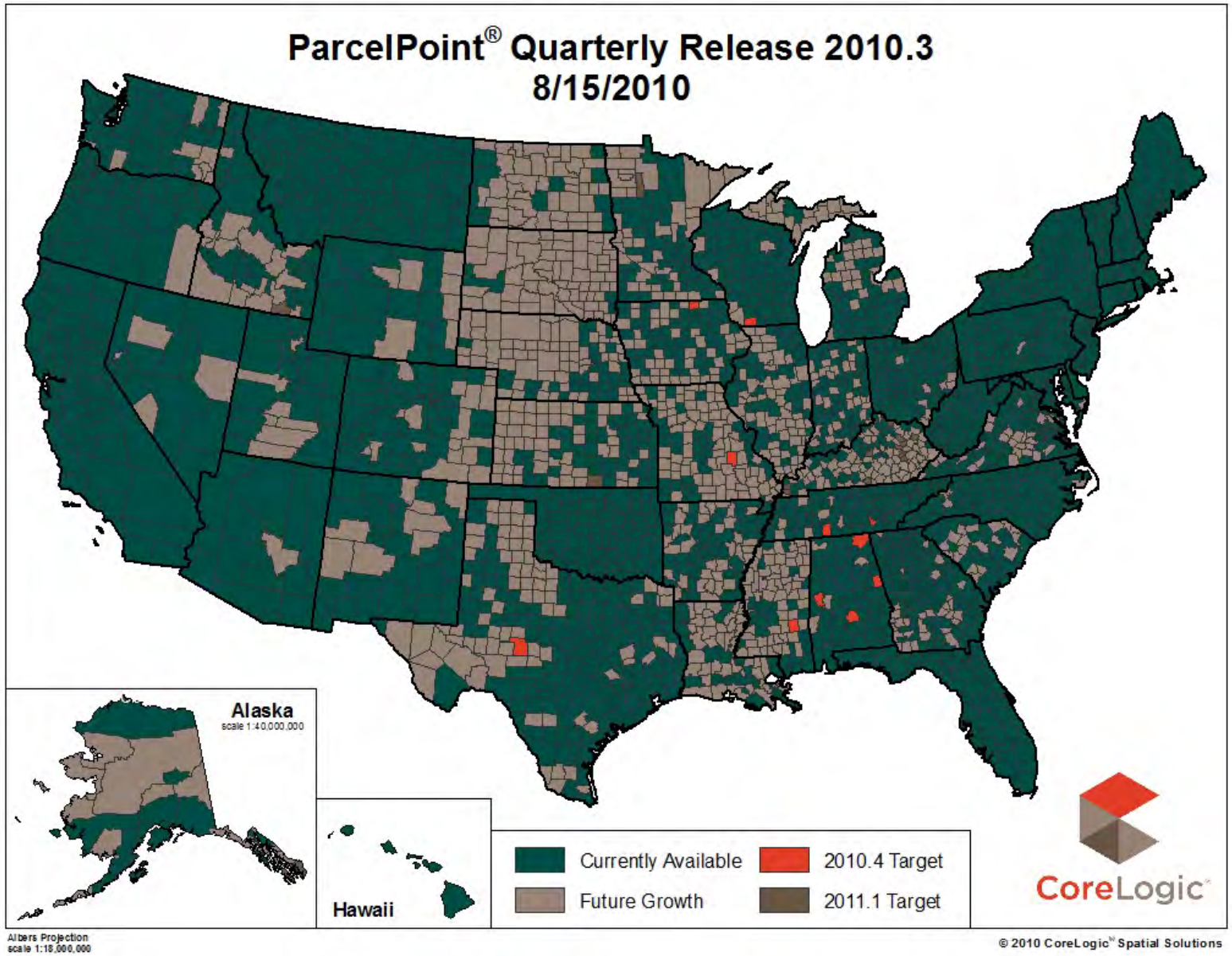
- CoreLogic – a $2B company with over 10K employees worldwide

- Product Focus:
  - Deliver enterprise-wide, location-based information solutions that improve accuracy, increase the value of data and provide the vital insights that drive critical business decisions
  - Geospatial technology as an analytical tool (not a visualization tool)
  - Use accurate location information as the catalyst to tie together CoreLogic datasets to make them more useful and increase their value
  - Provide proprietary analytical layers that identify and reduce risk
  - Use location-based solutions to provide entry to new markets for other CoreLogic products

Foundation: ParcelPoint® & PxPoint™

- Parcel is the legal extent of each taxable U.S. property address
- Estimated 145M parcels nationwide; we have 125M loaded and standardized (estimated 90%+ of the population)
- Parcel-based geocoding utilizes parcel centroids (geometric center of parcel)
- Parcel and parcel-based geocoding improves site-specific risk assessment




ParcelPoint® Quarterly Release 2010.3
8/15/2010
Alaska
scale 1:40,000,000
Hawaii
Currently Available
Future Growth
2010.4 Target
2011.1 Target
CoreLogic
Albers Projection
scale 1:18,000,000
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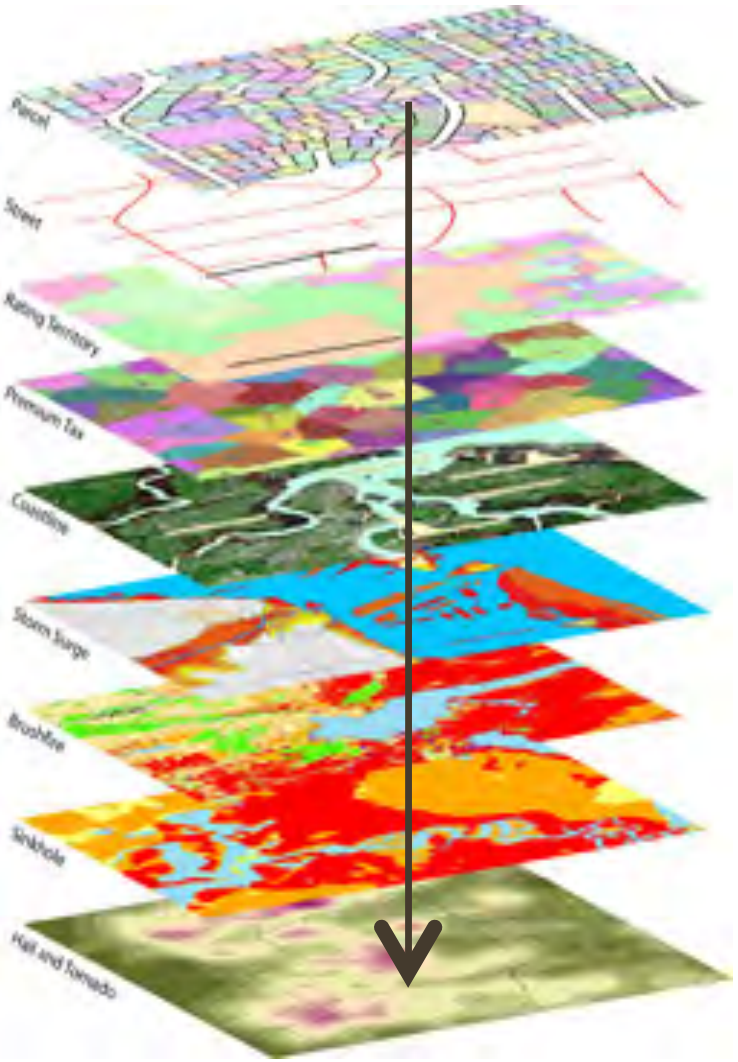
Drilling Down: Hazard Layers

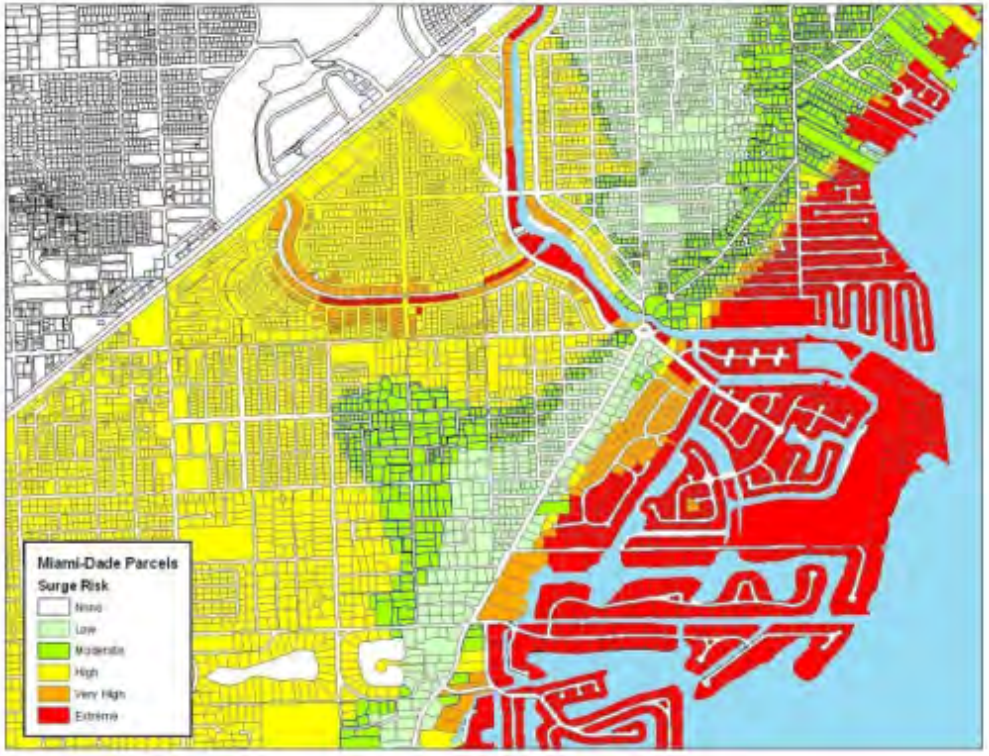
Hazard risk databases are modeled at the most detailed level possible. Risk level is determined by proximity to hazard combined with hazard attributes.

- Coastal Risk
  - Determine if damage was due to wind driven ocean water
- Damaging Winds
  - Straight line, tornado and hurricane
- Wildfire
  - Accurate estimates of loss potential from brushfire
  - WUI identification
  - FIREBreak+ - most extensive brushfire risk model
- Florida Sink Hole
  - Models detailed geographic and geological data to determine the relative potential for sinkhole loss
- Earthquake
  - Models soil type, fault activity, distance to fault and magnitude, distance to bedrock and slope for parcel level MMI scores
- Flood
  - Most extensive and accurate set of flood plain information available



Example: Storm Surge Risk

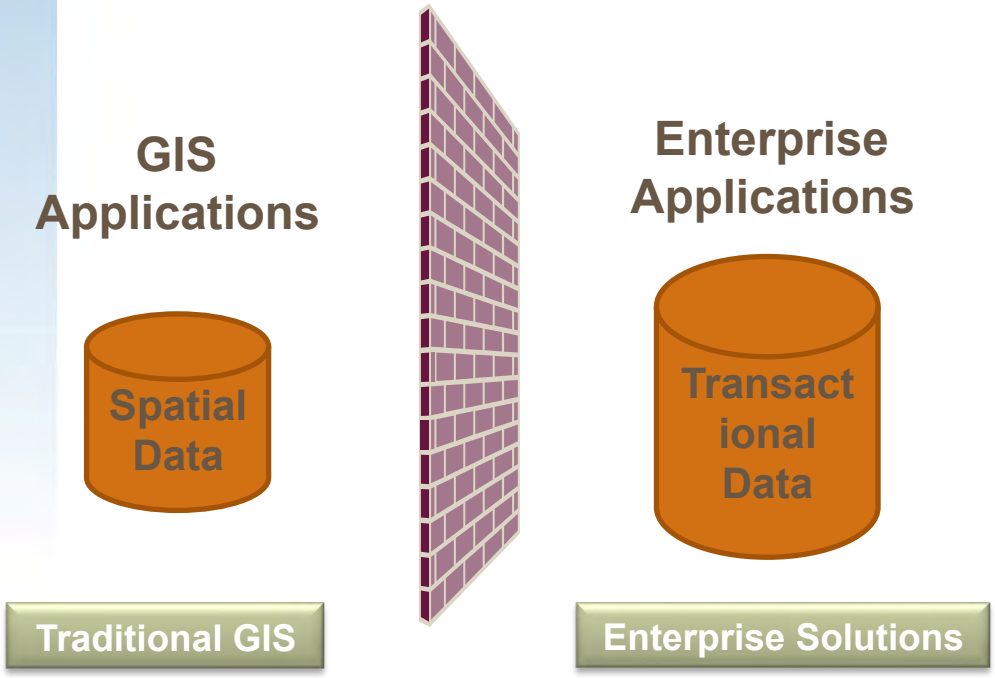
- **Provides detailed models and understanding of subsurface and surface geography accurate to parcel level**
- **Maximum storm surge potential can be modeled from both off-shore and on-shore variables**
- **Five categories of risk are generated for every 30 meter coastal region grid cell**
- **Risk categories range from Extreme to Low**



Alabama
Connecticut
D.C.
Delaware
Florida
Georgia
Louisiana
Massachusetts
Maryland
Maine
Mississippi
North Carolina
New Hampshire
New Jersey
New York
Pennsylvania
Rhode Island
South Carolina
Texas
Virginia

Oracle Spatial 11g Release 2: Benefits to CoreLogic

Old Way

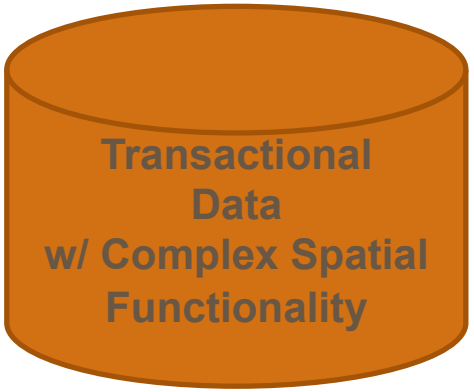


Silos: Technology & Staff

Vs.

Today

Enterprise Applications w/ Complex Spatial Functionality

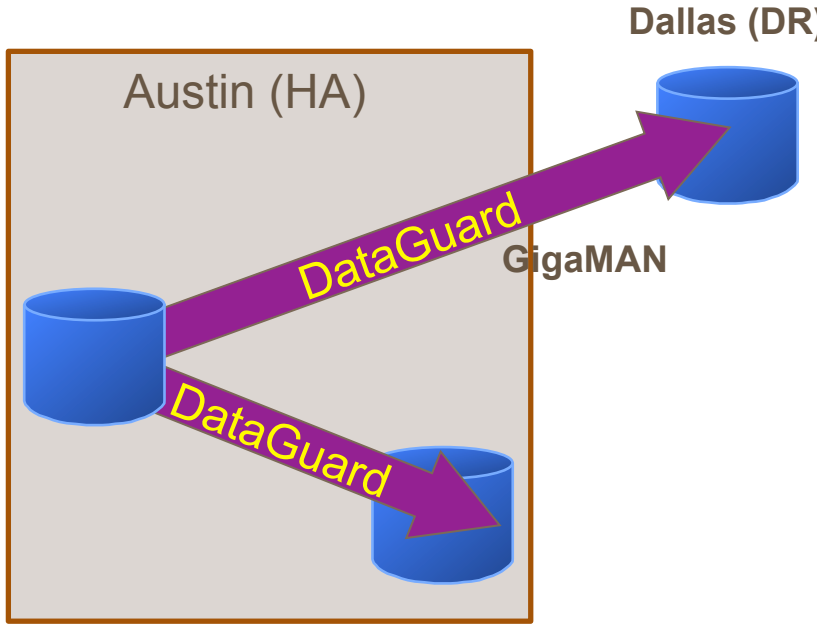


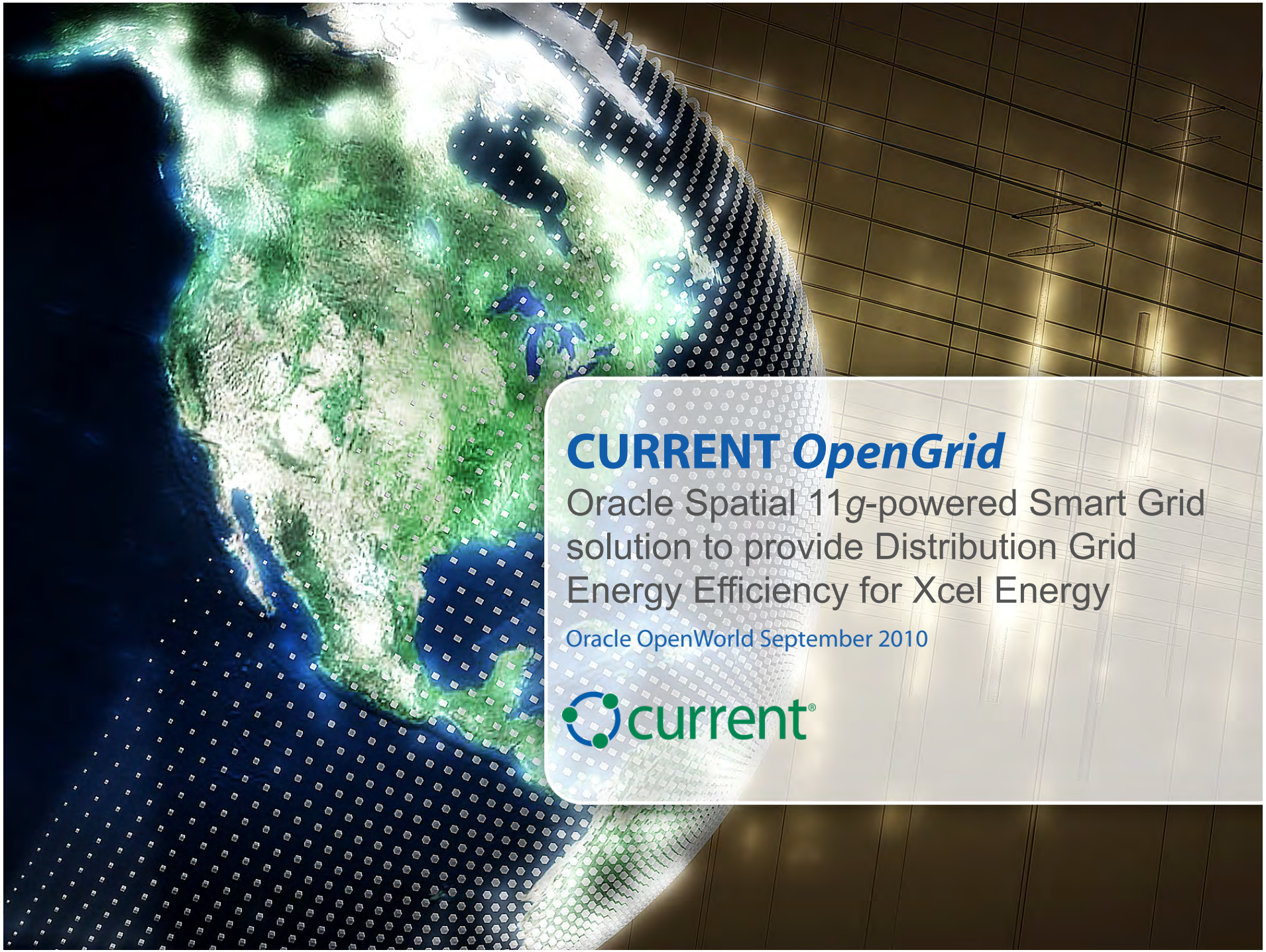
No Silos

Oracle Spatial 11g Release 2: Benefits to CoreLogic

- Enterprise GIS capabilities
- Leverage traditional DBA & Developer skills
- Reduce data management cost
- Spatial Content Overview
  - 59 Vector Layers (1.8B nodes in ParcelPoint layer)
  - 6 GeoRaster
- 11g Release 2 features
  - SDO_AGGR_SET_UNION
  - SDO_INTERIOR_POINT
- Applications
  - GeoServer – WMS mapping
  - Custom complex spatially driven web apps w/ Glassfish and WebLogic

HP ProLiant DL580 G5 servers
32GB RAM
4 quad-core Intel Xeon 2.4GHz
SUSE Linux 10.2 64-bit
Oracle 11.2.0.1 64-bit





CURRENT *OpenGrid*

Oracle Spatial 11*g*-powered Smart Grid solution to provide Distribution Grid Energy Efficiency for Xcel Energy

Oracle OpenWorld September 2010

current®

CURRENT Background

Providing Smart Grid solutions in North America, Europe, Australia, and Asia

CURRENT holds over 70 Smart Grid related patents with as many pending

Grid Efficiency

Deployed solutions for VAR Control, Dynamic Voltage Optimization using Real-time PowerFlow with State Estimation to support an advanced Measurement & Verification (M&V) engine.

Grid Reliability

Intelligent Sensing Infrastructure and Prognostic Event Management systems deployed worldwide with over 35,000 sensors in operation.

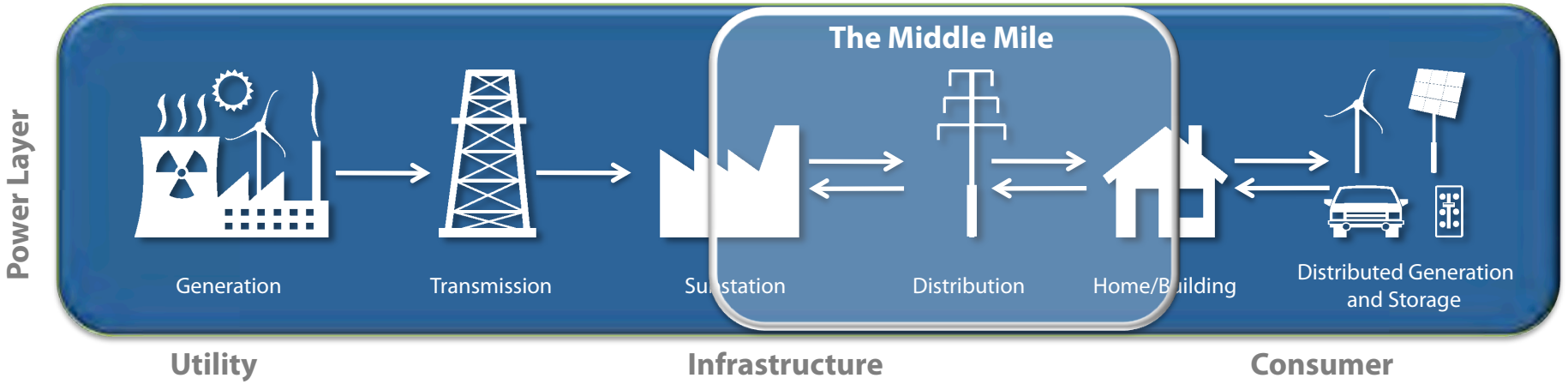
Thought Leadership and Affiliations:

GridWise Alliance, Smart Grid Australia, IEEE, Joint US -China Cooperation on Clean Energy, OPEN Meter Consortium, ADDRESS Consortium and PRIME Alliance

Recent Recognition:

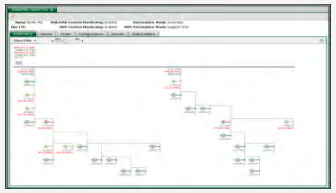
- Top 50 Going Green East 2009 & 2010
- Top Ten Smart Grid Innovators in the World by GreenBeat
- World Economic Forum Technology Pioneer
- Dow Jones Ten Most Innovative Clean Tech Companies in Europe

SMART GRID FOR DISTRIBUTION



CURRENT Solutions

OpenGrid® OPTIMIZATION



Grid Control System

LV Sensing Engine

DNP 3rd party HW Control

OpenGrid® DISTRIBUTION

Event Management System

LV Sensing Engine

MV Sensing Engine

OpenGrid® METERING

Meter Collection System

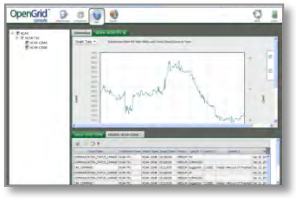
Station Data Concentrator

Solutions -> Electric Grid Efficiency & Optimization

The CURRENT *System Optimization* software suite consists of Volt/VAR Control and Dynamic Voltage Optimization solutions

Energy "auditing" system for validating demand savings and "clearing" into ISO, G&T, or Energy Efficiency environment

OpenGrid™ optimization



Grid Control System

3rd party HW Control

LV Sensing Engine

Dynamic electric grid control system to improve power factor and reduce feeder voltage in order to reduce the resultant load without impacting power quality or customer behavior.

(1) Volt/VAR control – Makes power delivery more efficient by compensating for reactive loads that cause increased losses

Reduces power delivery technical losses.

(2) Dynamic Voltage Optimization - Load can be reduced by optimizing delivery voltages, which results in reduce customer bills and power purchases

(a) Enables demand to be managed more **dynamically** to increase grid efficiency and capacity without impacting consumer behavior

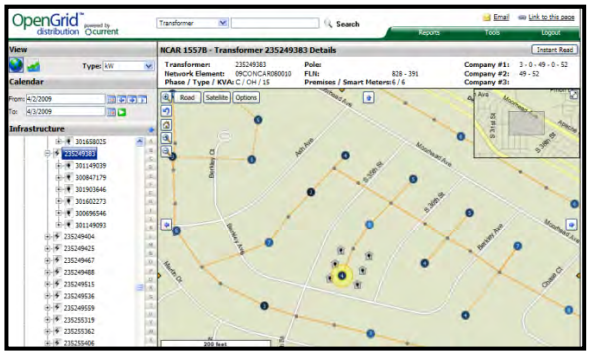
(b) Enables the **integration of distributed energy resources** into the distribution grid

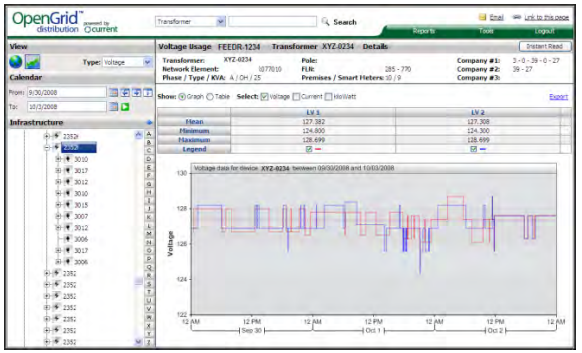
***(4) OpenGrid* Measurement & Verification** – Network simulation based M&V system to measure the energy savings achieved by System Optimization.

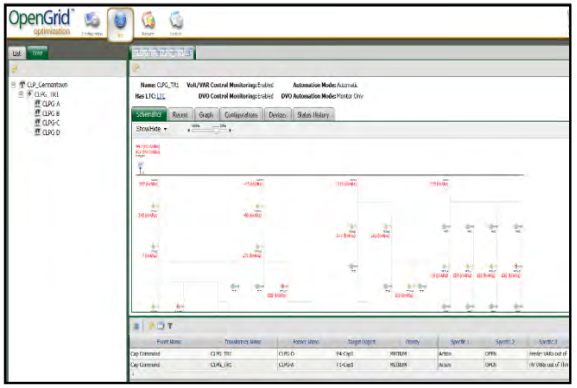
Critical for regulatory compliance and financing proof of value.

Smart Grid Deployed – The Xcel Energy Example

- Fourth largest investor-owned electric utility in the U.S. serving more than 3.3 million electric customers
- Key Objectives: Improve power factor, reduce electric total load, monitor and analyze grid conditions
- Solution: CURRENT *OpenGrid* system, sensing equipment and two-way communication network to provide
  - Feeder Automation - monitoring power flow, outages and asset device health to provide centralized Volt-VAR control and Dynamic Voltage Optimization
  - Transformer Monitoring - real-time decisions based on current grid conditions
  - Project Information:
    - Four feeders automated and 23 monitored
    - Current and Voltage Sensors: 4,192 transformers monitored
- Technology: *OpenGrid* Optimization, Real-Time Power Flow Analysis, Oracle Spatial 11g, Oracle Web Logic
- Oracle Spatial Advantages:
  - Unified graphic and non-graphic data storage with SQL spatial query
  - Enterprise system enables ease of integration and scalability
  - Supports "as-built" and "as-operated" modeling of very large networks and
  - Capability to associate real-time and historic data with network topology provides "actionable intelligence" to improve electric grid reliability and efficiency

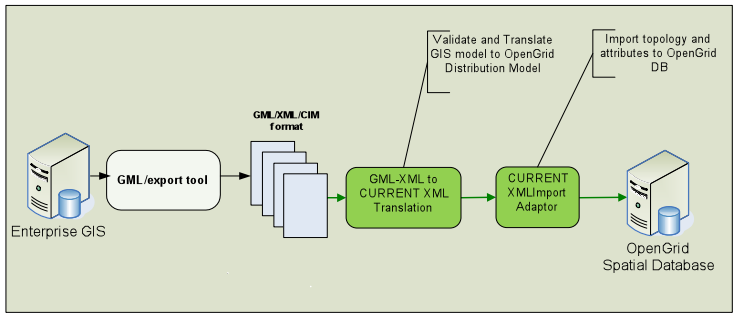


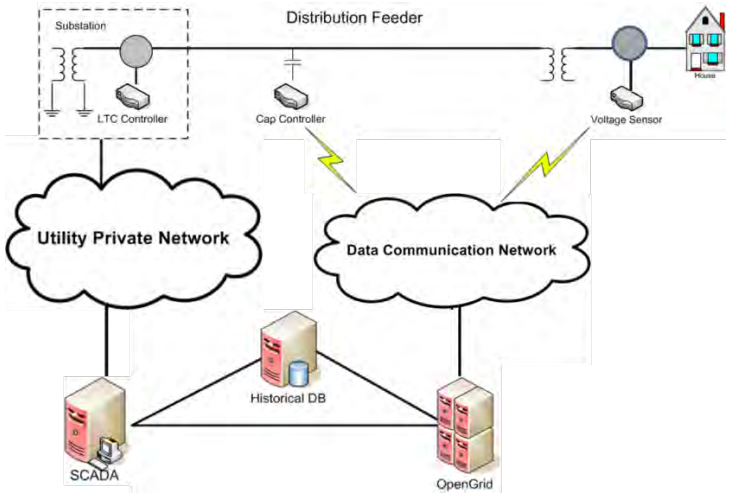


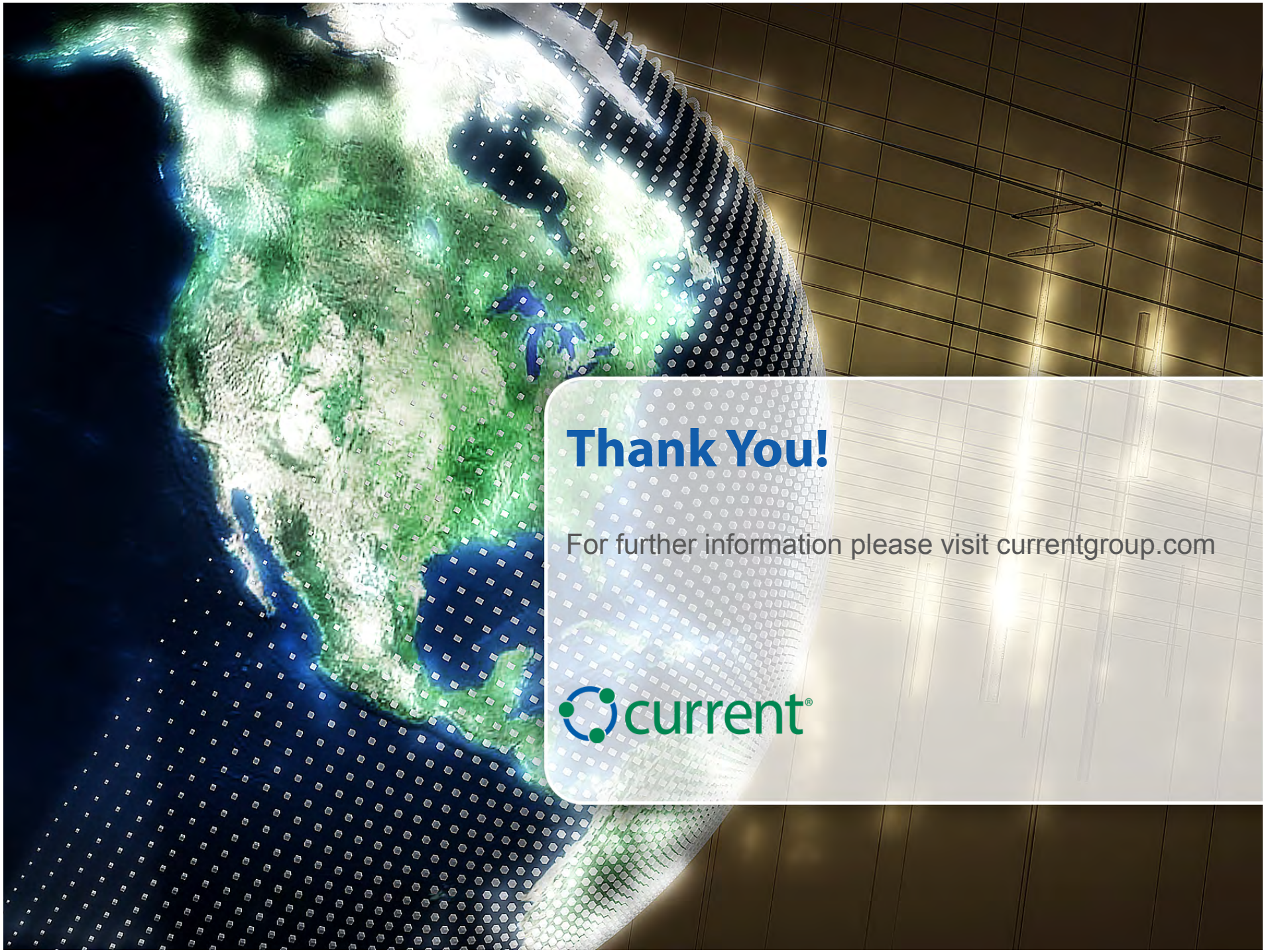


Unified Network Topology Management Using Oracle Spatial

- Centralized management of Network Elements and Electrical Grid Devices
- Geographic model based on Oracle Spatial without any proprietary abstraction
- Network model based on standard Oracle Spatial 11*g* Release 2 Network Data Model feature
- Schematic and Geographic Viewer
  - Manages "as-operated" view of the electrical distribution network
  - Model communication network element status and configuration
  - Node and Links populated using two-port modeling
  - Path and Path Link used to enable topology management
- Geocoding - Identify street location of sensors and network elements
- Network Analysis - Utilize network model generated schematics
- Load-On-Demand (LOD) based Network Modeling
  - Shortest Path – Enables optimum path for VAR and Voltage optimization
  - Tracing with direction and shortest path enables efficient grid operation
  - Enable user define "Search" using various constraint
  - Cost, Depth, Distance, Minimum Bounding Rectangle (MBR)
  - User defined constraints to plan for Electric Network Contingency






Thank You!
For further information please visit currentgroup.com
current®

The Mission of the RS/GIS Center

The Remote Sensing & GIS Center of Expertise provides mission-essential support to all components of the Army Corps of Engineers, Department of Defense, State, and Regulatory Agencies, as well as non-governmental organizations and private industry.

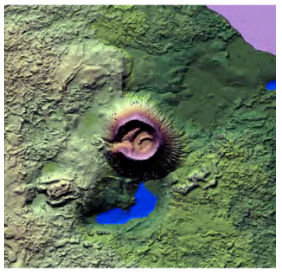
Diversified research personnel to support Remote Sensing, GIS and enterprise geospatial requirements throughout the Army Corps of Engineers and related DoD agencies.

The Remote Sensing/GIS Center is an Army Corps of Engineers Designated Center of Expertise.

**Recipient of the Oracle Spatial 2010 Innovator Award.





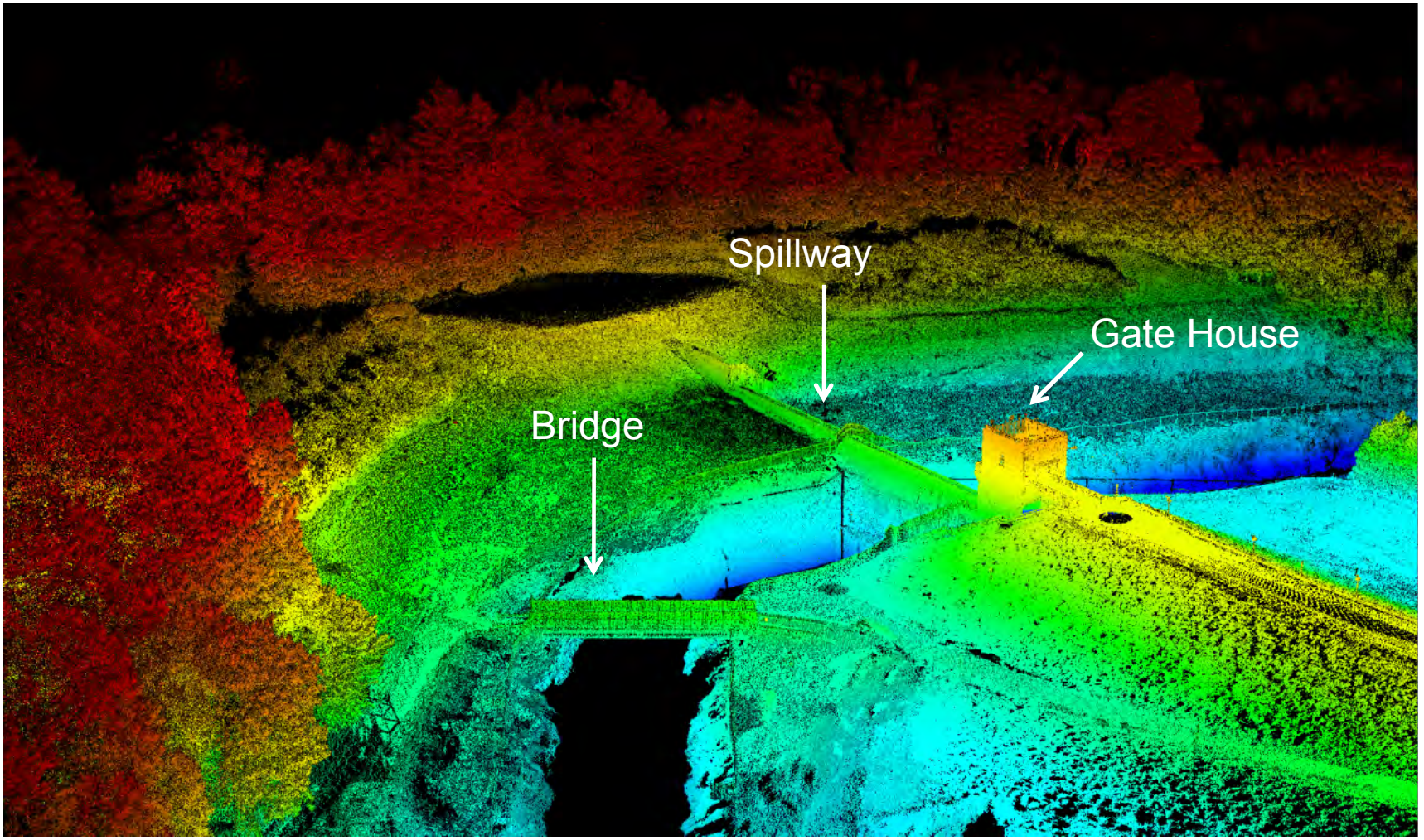


US Army Corps of Engineers

Raw LiDAR Point Cloud

Color-scaled by elevation (red= high – blue=low)

RS/GIS



US Army Corps of Engineers

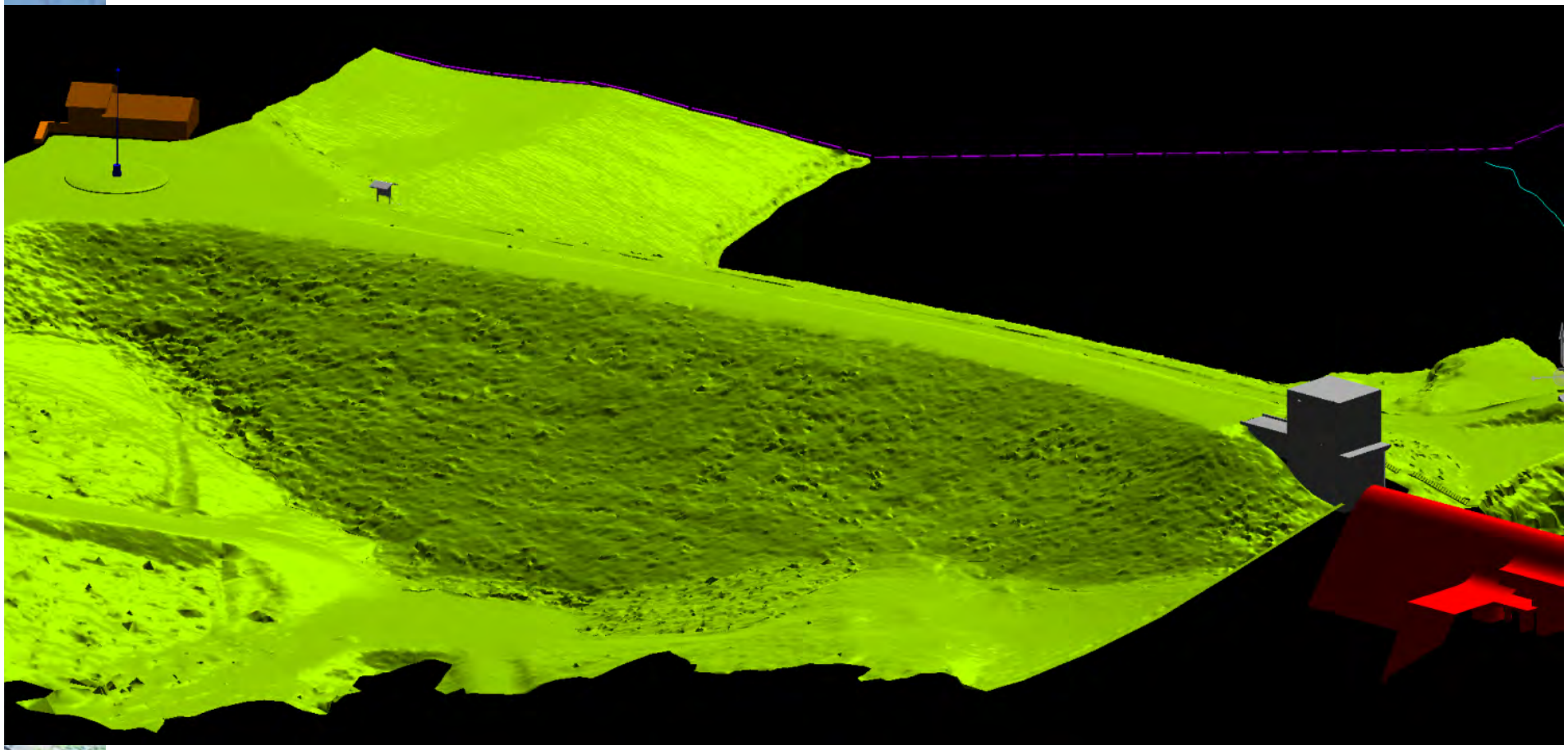
RGB 3D Point Cloud

RS/GIS

US Army Corps of Engineers

Digital Terrain Model

RS/GIS

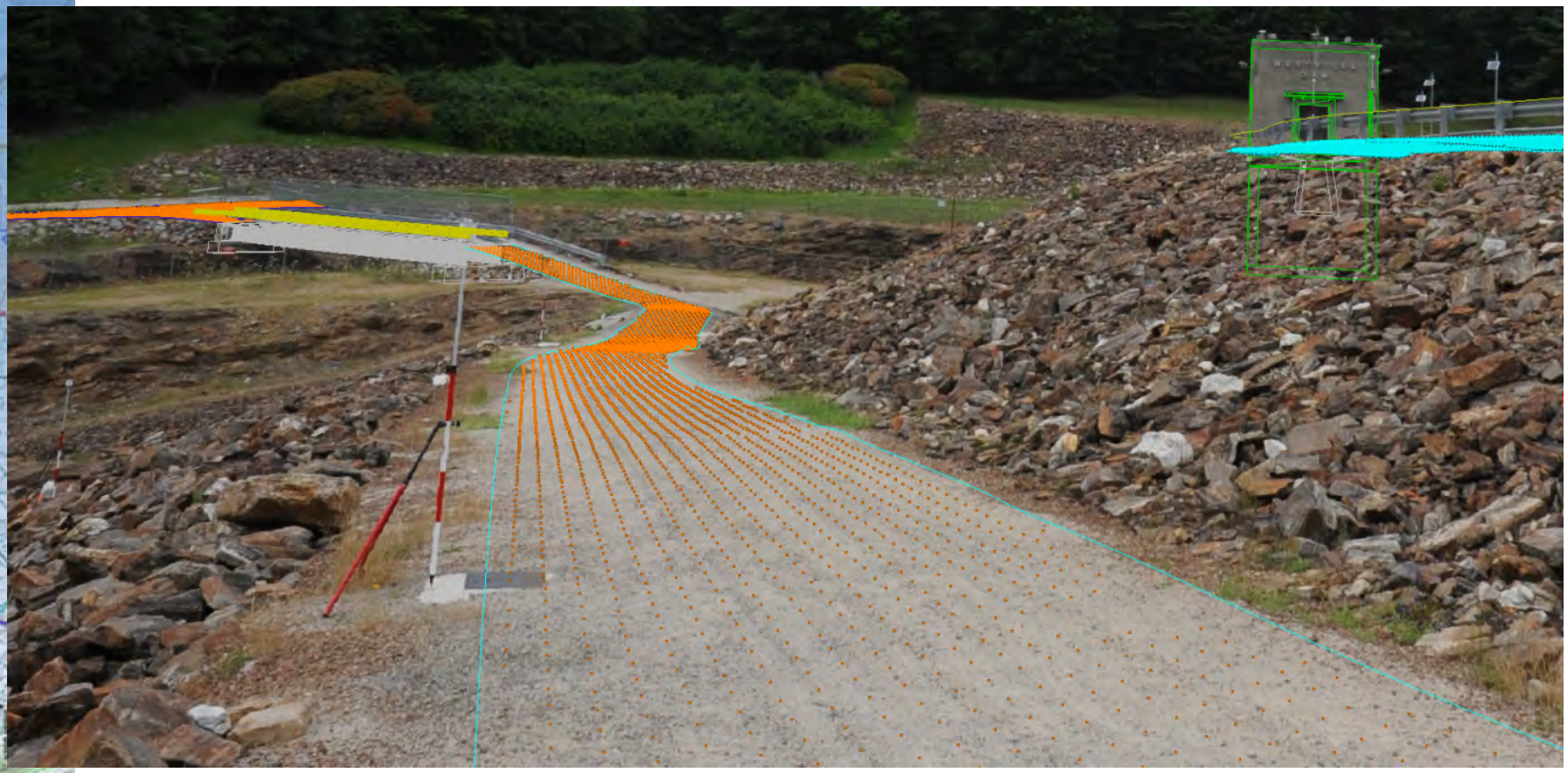


US Army Corps of Engineers

Gravel Path Along Face

Calibrated image, sampled point cloud and extracted features

RS/GIS

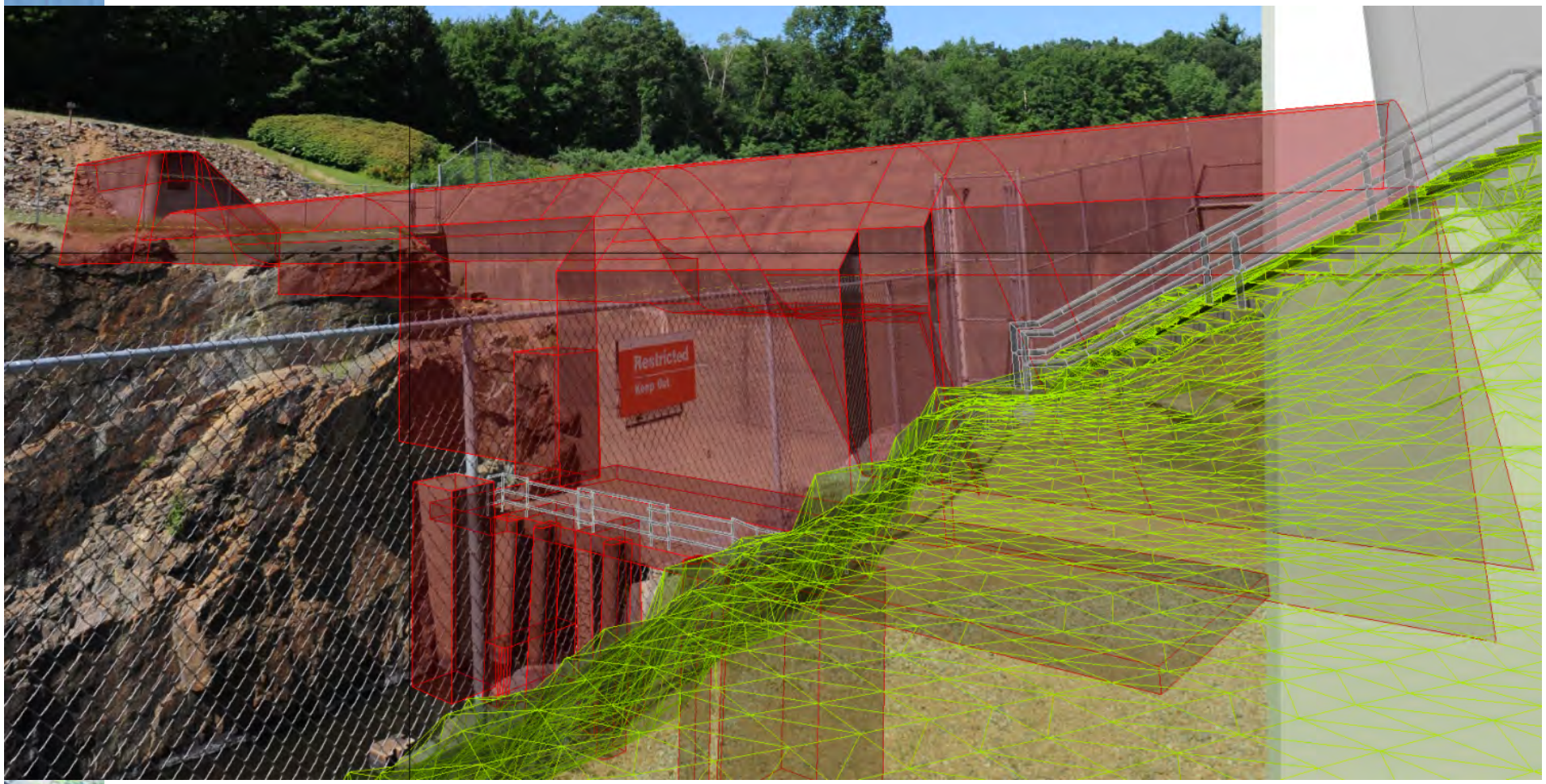


US Army Corps of Engineers

Spillway

Feature extraction and Bare earth terrain model

RS/GIS



US Army Corps of Engineers

Lidar / Point Cloud Issues

RS/GIS

- Large volumes of point data acquired by sensors
  - LIDAR (ground-based, aerial, aquatic)
  - Sensors used to collect data inside buildings
- Millions of points used to model a scene
- POINT CLOUD (SDO_PC) data type introduced to efficiently manage this type of point data
- TIN (SDO_TIN) to create triangulation of such points

Oracle Spatial Benefits to Point Clouds

- Manage along with other spatial / non spatial data
  - User / role-based access to Point clouds or even sections of point clouds
- Scalable, seamless access to N point clouds
  - Each point cloud has spatial extents, each block has a spatial extent. Provides high level overview of data
- Transaction management
  - Multiuser access just like any database data
- Versioning (Oracle Total Recall)
  - Can enable saving of all updates/deletes on data for configurable time periods
- Compression (SecureFiles Compression)
  - We've been getting about 40% compression (medium) over LAS files

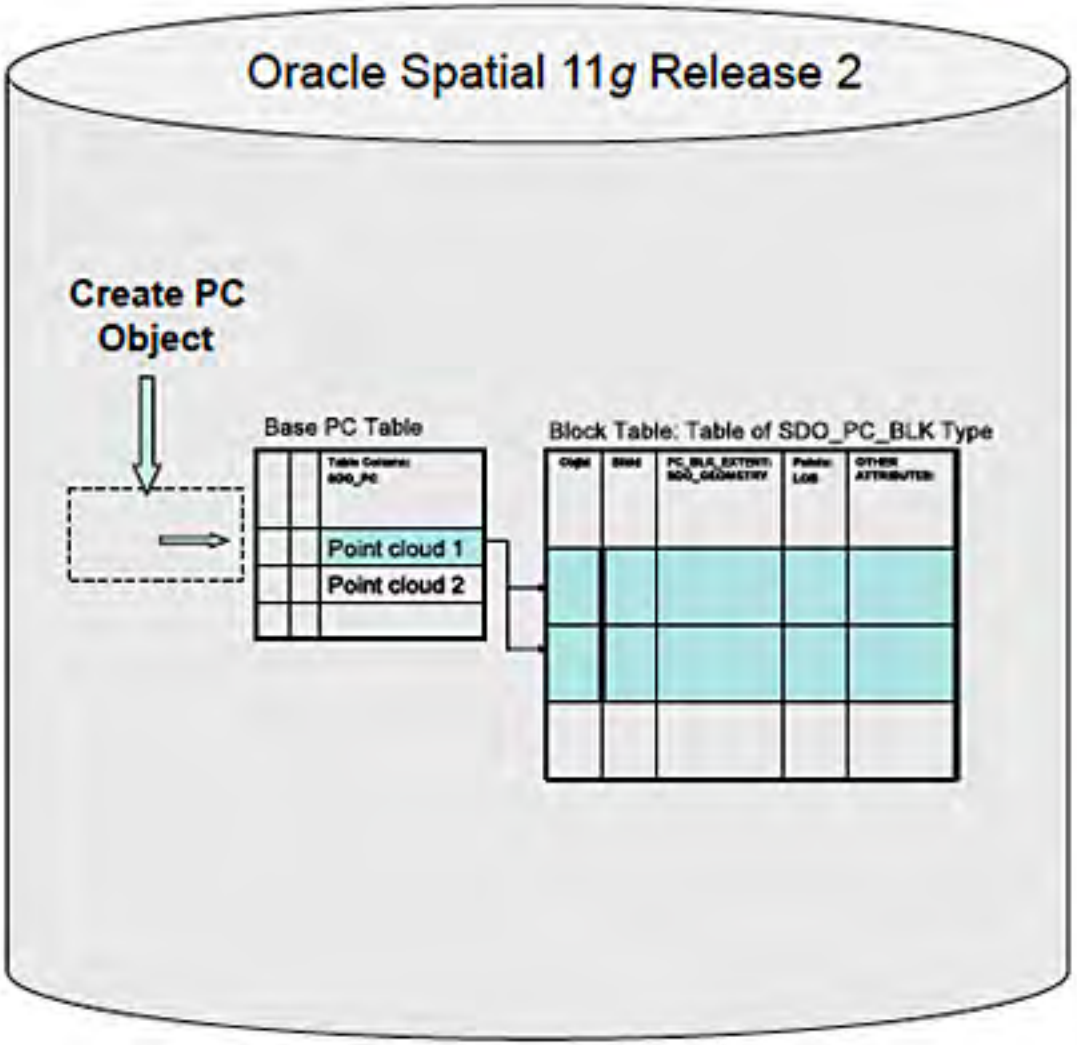
Oracle Spatial 11*g* Point Cloud Creation Workflow

US Army Corps of Engineers

RS/GIS

libLAS workflow

1). las2oci
   a). Reprojection / indexing (if necessary)
   b). loading
   c). Post-procedures (boundaries, load metadata)



US Army Corps of Engineers

libLAS ->libPC

RS/GIS

- Creation of separate open-source library to provide a high level toolbox to enable application programmers to work with an abstract view of Point Clouds (PC).

- Following the GDAL model
  - Input/Output driver model
    - Oracle Point Clouds (SDO_PC)
    - LAS, TerraSolid, TopoDot, BAG (Bathymetric), MG4, Fledermaus, CSV, …
    - Compressed reading/writing (LASZIP)
  - Transformation
    - Chainable Filtering
    - Reprojection (horizontal and vertical)
    - Write your own
    - Schema support

TARGUS*info*

Company Overview

Caller Identification

Offline/Online Lead Verification & Scoring

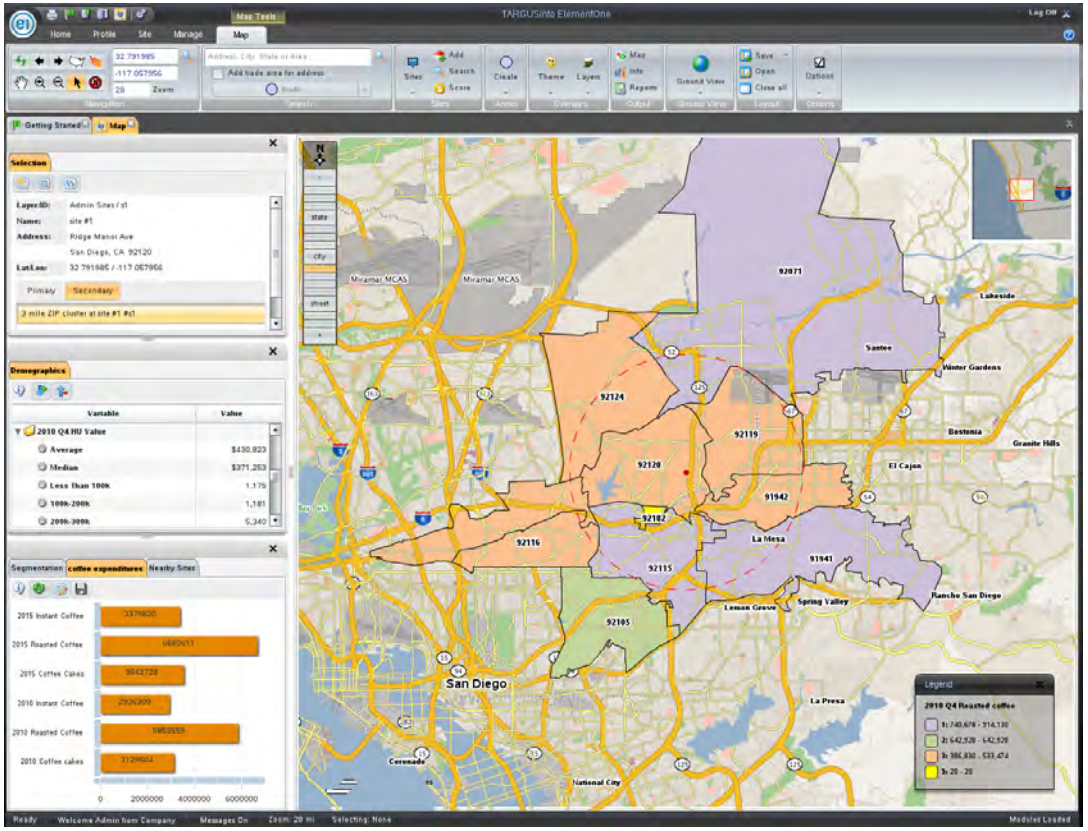
Verified Audience Targeting

- Founded in 1993 - $120MM+ in 2009 revenue
- 220+ employees / 7 offices, including DC, NY, SF and CHI
- Proprietary relationships w/ 210+ authoritative data sources
- 21 U.S. Patents and others pending
- Will process ~96B real time transactions in 2010
- 1,100+ clients

A few of TARGUS*info*'s clients

TARGUS*info* ElementOne Analytics Platform

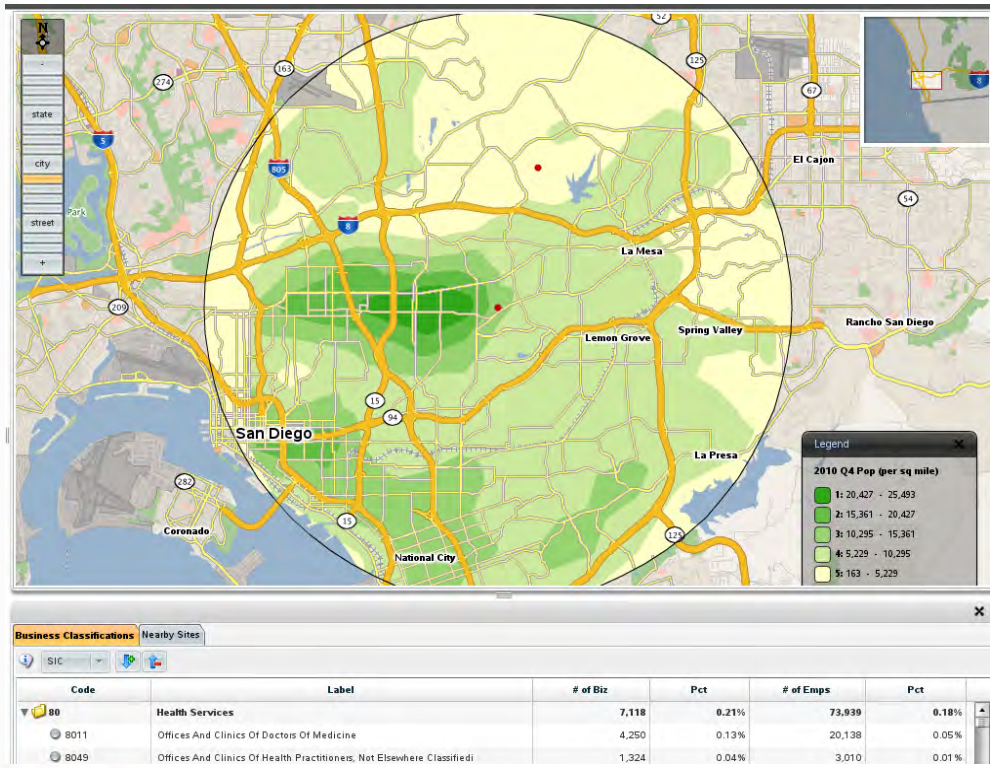
Technology and Tier Layout



- Database Tier
  - Oracle Database 11*g* Release 2 Enterprise Edition
  - Oracle Spatial
  - Oracle Partitioning
  - Oracle Data Guard
- Mid-Tier
  - Oracle WebLogic 11*g*
  - Oracle Fusion Middleware MapViewer 11*g*
- Front-Tier
  - Adobe Flex
- OS - SUSE 11 SP1

TARGUS*info* ElementOne Analytics

Use of Oracle Spatial 11*g* Release 2 Spatial Features



- SDO_TIN for Heat Map
- SDO_UTIL and SDO_GEOM for various geography creation and manipulation
  - SDO_BUFFER for polygon smoothing
  - SDO_INTERSECTION, SDO SDO_UNION, SDO_DIFFERENCE, POINT_AT_BEARING, POLYGONTOLINE, SDO_CONVEXHULL, & CONVERT_RADIAN for polygon creation and manipulation
  - SDO_MBR, SDO_AREA & SDO_CENTROID for polygon utility functions
- SDO_CS for Google Projection
- SDO_VALIDATE, RECTIFY_GEOM, and SIMPLIFY for polygon cleansing

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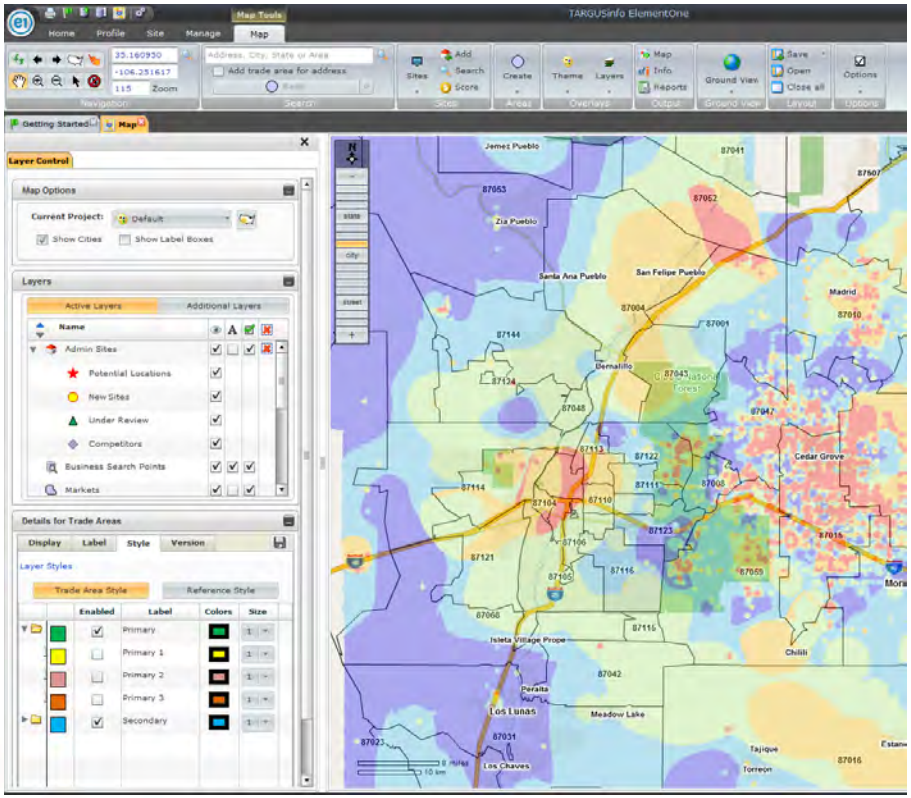
Benefits of Oracle Spatial 11*g* Release 2 Spatial Features

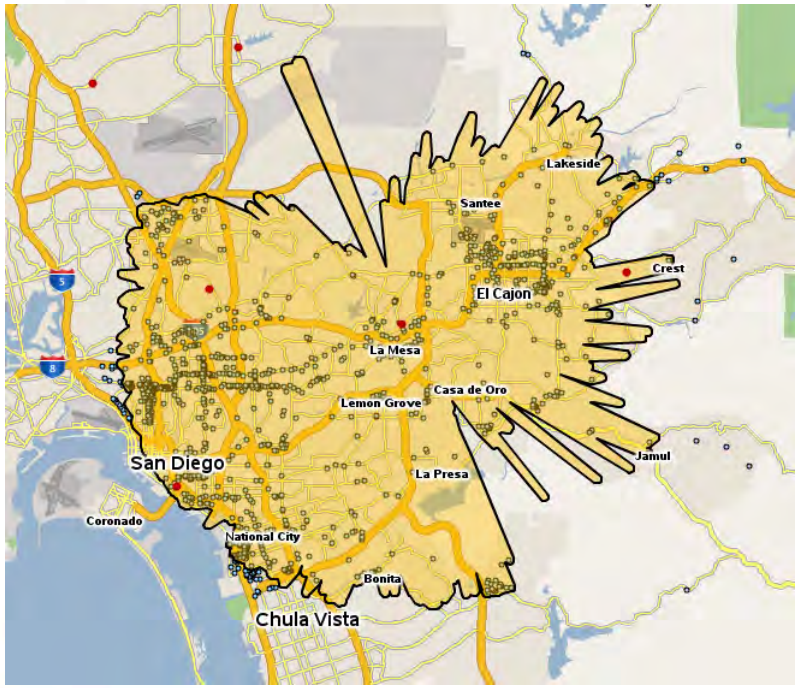


- Benefits of MapViewer 11*g*
  - Tight integration with Oracle Spatial
  - Cached tile maps for high performance, scalability and portability
  - Use of bind variables for scalability
  - Highly flexible – full control over map detail and labels
- Benefits of Geo-Raster Image
  - Display and query of highly detailed markets and trade areas
- Scalable and High Performance
  - Handle large datasets (ZIP4 points, large customer and transaction level files)
  - Partitioning and SDO_JOIN

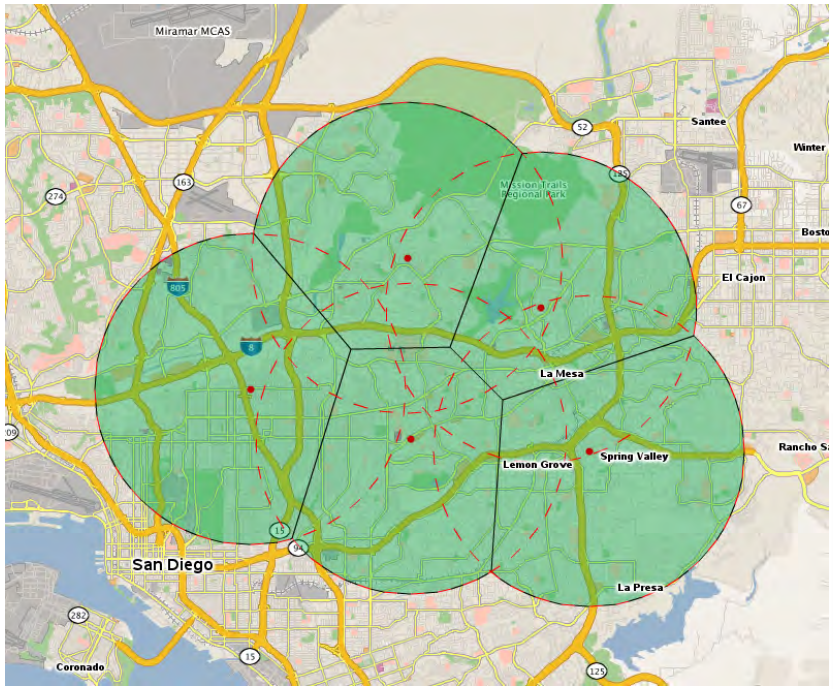
TARGUS*info* ElementOne Analytics

Some Trade Area Creation Examples

Customer Threshold Trade Area



Non-OverlappingTrade Area



Location Intelligence in support of monitoring and management of national agricultural policy

Pierpaolo Guerra

Head of unit for Innovation on geospatial technologies SIN SrL

pierpaolo.guerra@sin.it

SIN

Sistema Informativo Nazionale per lo sviluppo dell'agricoltura

SIAN: National Agriculture Information System

Centralized System for the agricultural, forestry, food and fishery sector of the Italian government

- **7.000 million €** of EU aid to farmers
- **2.000.000** farms managed
- **5.000** office/departments connected; over **30.000** registered users
- **400** web based applications
  - **11 million** hits/day
  - **30 Tb** database
  - **200** data processing systems

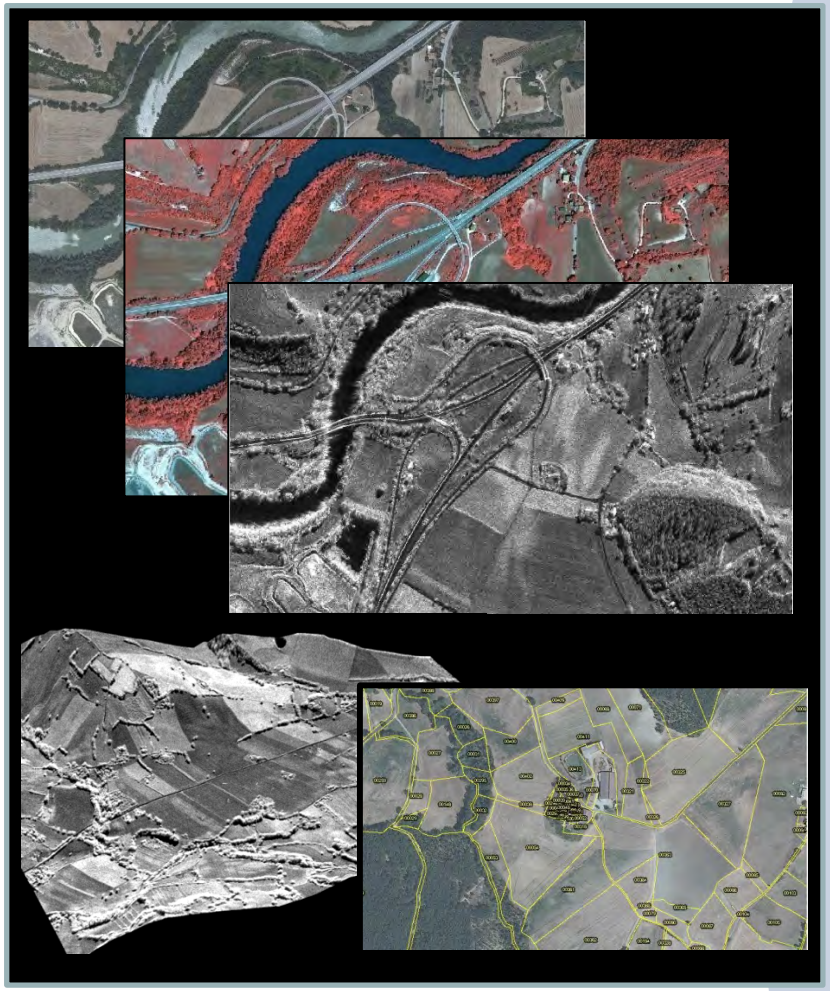
SIN Mission: Manage and develop the SIAN according to Italian Government directives and EU regulations of Common Agricultural Policy.

SIN srl *is a public-private company 51% stake owned by AGEA (Agency of Min. of Agriculture) and 49% by a group of private companies*.

SIAN Geographic Information System

SIAN GIS spatial data stored in a **continuous**, centralized database based on Oracle Spatial 11g, covering the **entire national territory** organized in 3 different information layers:

- **IMAGES:** VHR aerial or satellite images, multispectral or multisensors data (Radar, hyperspectral, …)
- **CARTOGRAPHY**: Cartographic information from different sources: – cadastral data (70 million Parcels), topographic, Digital Terrain Model
- **THEMATIC LAYERS**: Specific thematic information: photo-identification, field survey: Olive groves, wineyards, burned-up forest areas, national forestry inventory, …

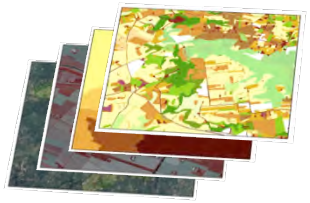


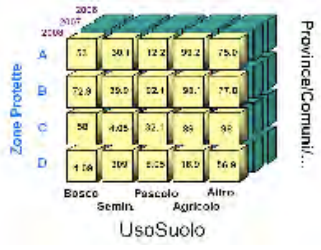
SIAN GIS is one of the richest and most used information systems on land monitoring and management ever realized in Italy and a best practice for the entire EU

SIAN - Location Intelligence - technology

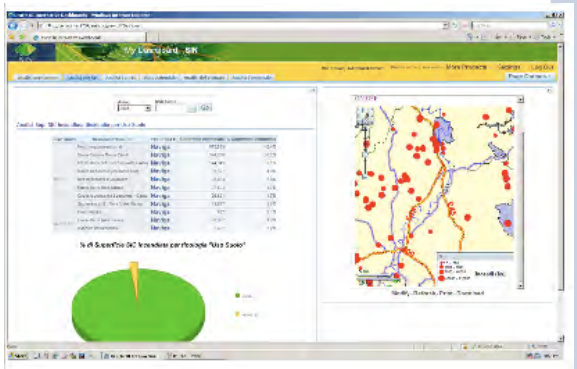
Spatial Database modeled into a **Spatial Datawarehouse** built on Oracle technology stack: **Oracle Database 11g Release 2, Oracle Spatial** Option, **Oracle Maps,** and the **OBIEE** infrastructure

Structuring Persistent **Topology** Data Model → Topology primitives as **GeoDatawarehouse** "**Measures**". → OBI **Location Intelligence** User Dashboard





Star Schema INCENDI



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ORACLE SPATIAL 11g

ORACLE FUSION MIDDLEWARE 11g
BUSINESS INTELLIGENCE ENTERPRISE EDITION

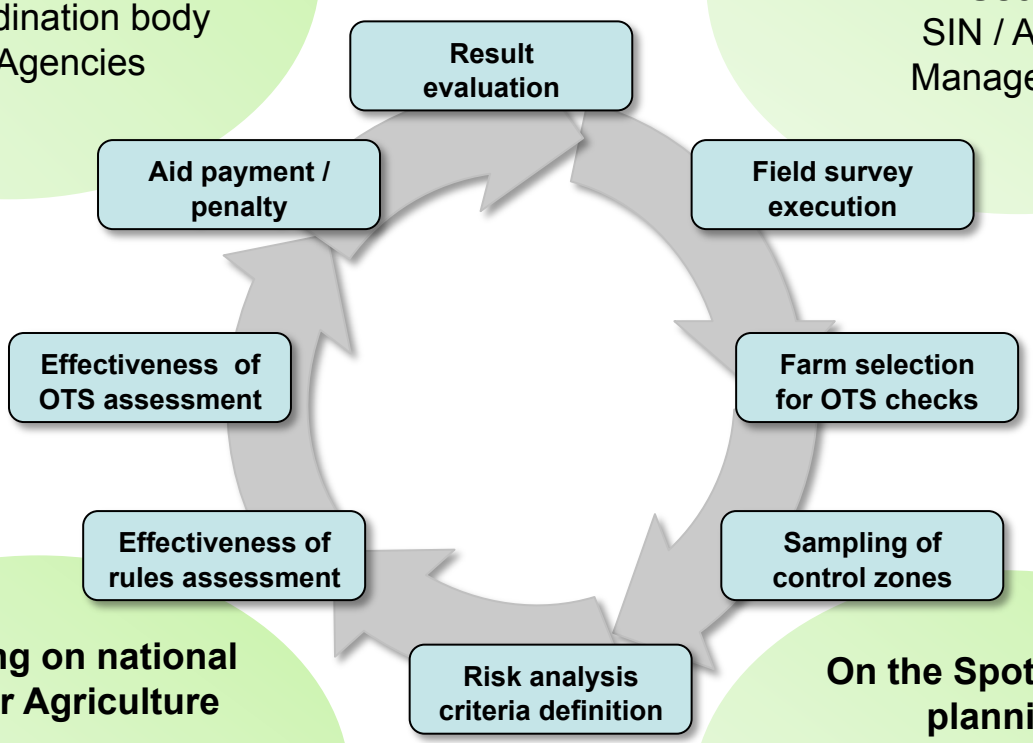
SIAN Location Intelligence - business case

Subsidies payment monitoring

Users
AGEA coordination body
Paying Agencies

Field survey monitoring

Users
SIN / AGEA
Management



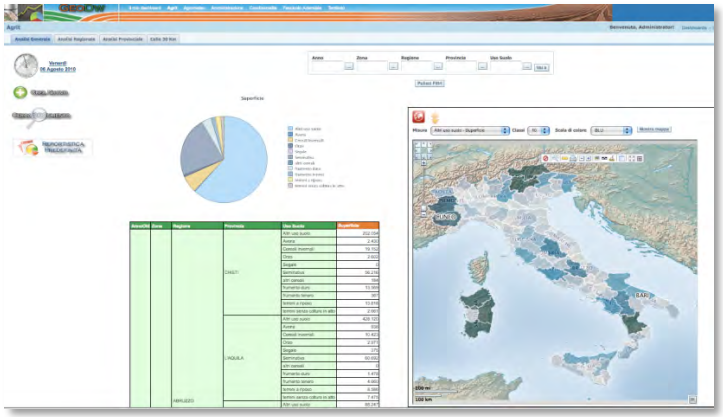
Monitoring on national plans for Agriculture

Users
Ministry of Agriculture
Regional departments

On the Spot checks planning

Users
SIN / AGEA Technical services

SIAN Location Intelligence - Road Map

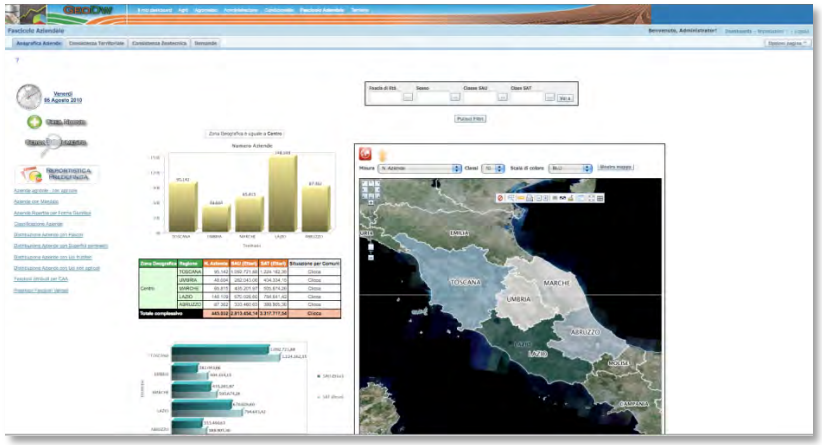


Monitoring on subsidies payment life-cycle in support of AGEA and SIN services

Support in analysis and evaluation of effectivness of European Common Agricultural Policy measures in Italy

Continuous monitoring of agro-forestry territories and support to all public and private stakeholders

Support services for an integrated management of rural areas also by means of online remote sensing monitoring services



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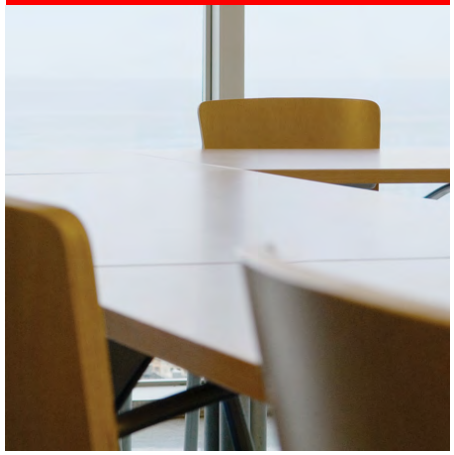
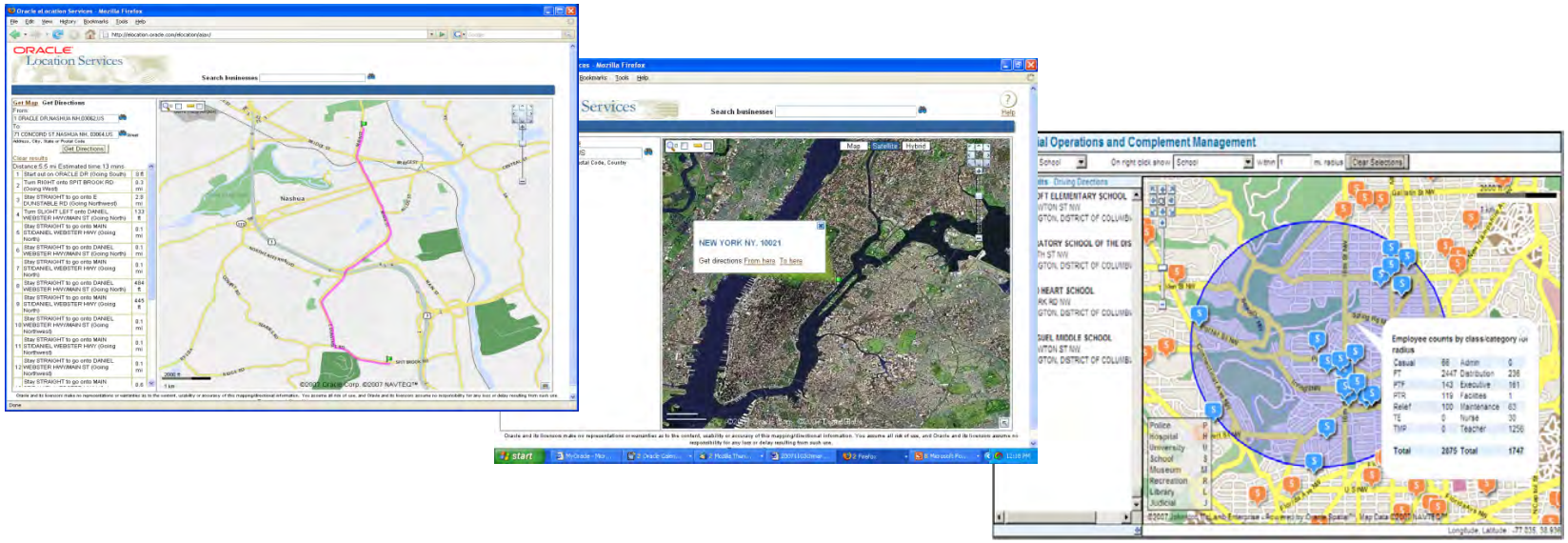
Panel Discussion: Questions & Answers





SOFTWARE. HARDWARE. COMPLETE.