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Oracle Spatial Users Conference

March 13, 2008

Seattle Convention Center

Seattle, Washington, USA

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Bryan Hall

Spatial Architect

Jeff Walawender

Senior Java Developer

L3 communications

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Reengineering Desktop Thick Workgroups into Web Rich Enterprise Clients

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Outline

- The Basic Requirements
- How? - What doesn't work
- Our solution
- Putting Oracle and FOSS to work
- Architecture
- Short Demo
- Q&A Period

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The Basic Requirements…

Something like (µStn and ArcGIS) but make it:

- Common Access Card (JavaCard) Enabled
- Web-Based - no installation allowed
- Useable on a low-bandwidth, high latency network
- Redraw the screen – FAST
- Integrate with other enterprise business systems
- Support all locations on a seamless map
- Work like a you're using a file, not a database
- Output D-Size prints directly to local plotters
- Promote ad-hock mashups of local data
- Support a linked Multiple Window Interface

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From an engineering standpoint…

How?

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A Web 2.0 client?

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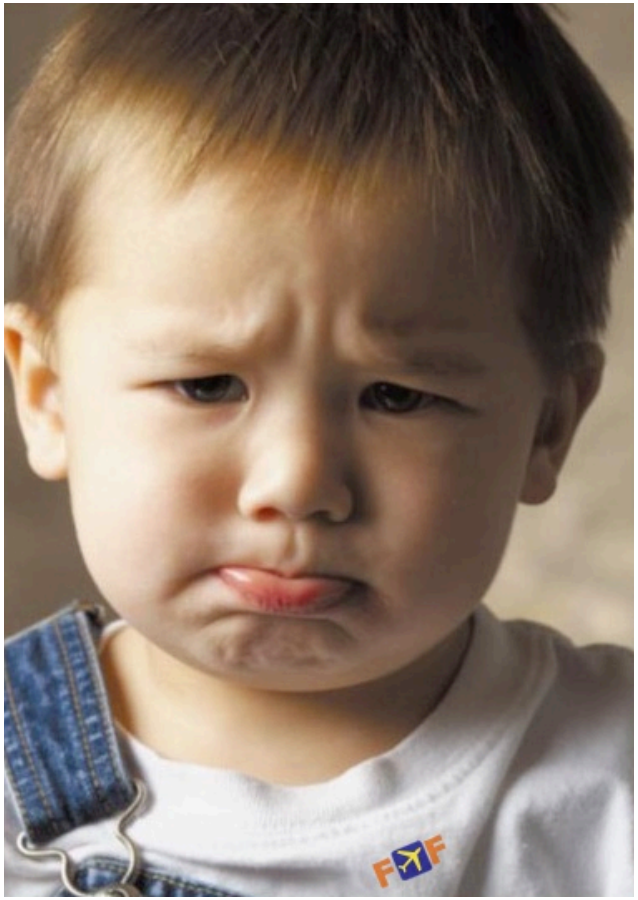
Darn, that won't work!



Now what?

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A remote thick client?

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Strike Two!

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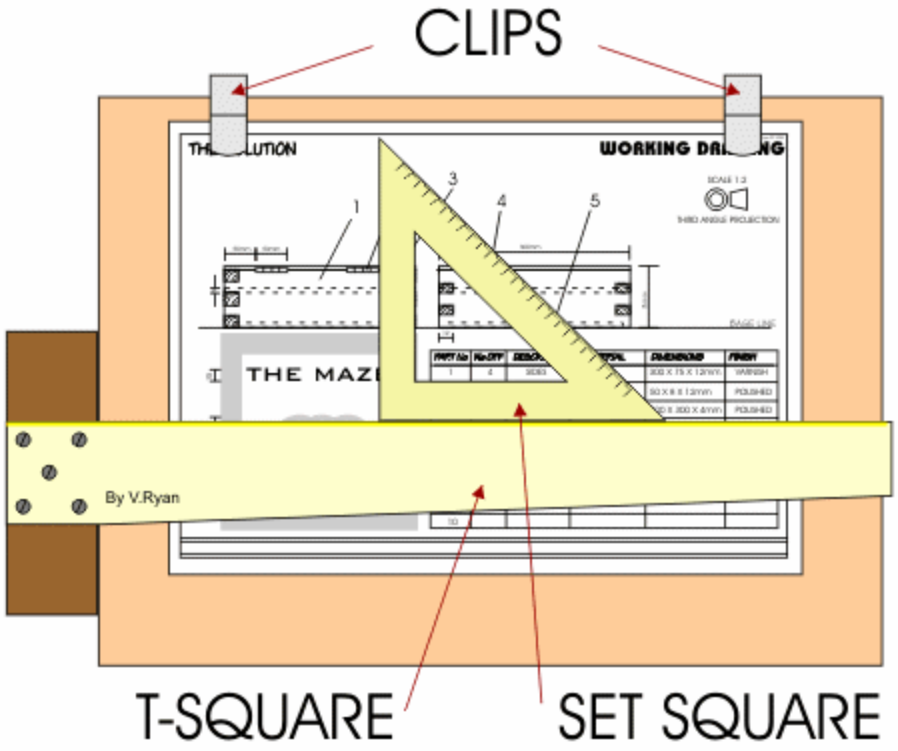
Back to the drawing board…

It needs to:

- Run <u>as</u> a desktop
- Persist data like a desktop
- Refresh the screen like a desktop
- But <u>cannot</u> be installed - like a desktop



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Eureka Moment

- How about using Java Web Start technology and that Oracle Berkeley Java DB together with Oracle Spatial and Workspace Manager?

One year later with 4 developers…

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Custom Java rich client

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- Integrate with other enterprise business systems
  - √ All tiers – Client, Mid, and DB

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  - √ Oracle Workspace Manager with sessions!

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  - √ Integrate GeoTools for WFS and Shapefile inclusion

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- Support a linked Multiple Window Interface
  - √ Mini-Windows, Multi-Screen Interface

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The details… Putting Oracle and FOSS products to work

Client

- Oracle Berkeley Java Database for persistent cache
- GeoTools for Shapefile and WFS support
- iText for PDF export

Mid-Tier

- OC4J/OAS
- FME for exports to shapefile, PGDB, AutoCAD, µStn
- GeoServer reading from Oracle for LIVE WFS feeds
- JDBC Java geometry to SDO geometry conversion

ORACLE BERKELEY DB

GeoTools The open source Java GIS toolkit

iText

ORACLE APPLICATION SERVER

FEATURE MANIPULATION ENGINE

POWERED BY GeoServer

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The details… Putting Oracle and FOSS products to work

Database

- Workspace Manager - allows all workers to make changes independently, in the same tables
- Spatial Geometric operations support complex object creation, movement, and rotation in the database
- Spatial LRS supports segment offset and “cable break location” operations
- GeoRaster used to create a master ortho catalog to enable tile creation for local distribution
- On the fly projection to UTM for exported data

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Current System Snapshot

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- About 2,000 total users
- About 60 Active users at any one time
- 243 Sites Supported
- 330 Active workspaces
- 600,000 Duct nodes
- 200,000 Communication ducts
- 18,000 Manholes
- 1 Table per item (manhole, duct) shared by all users
- 1 Application service on a 2 core server
- 1 Database instance on a 4 core server

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High-level Architecture

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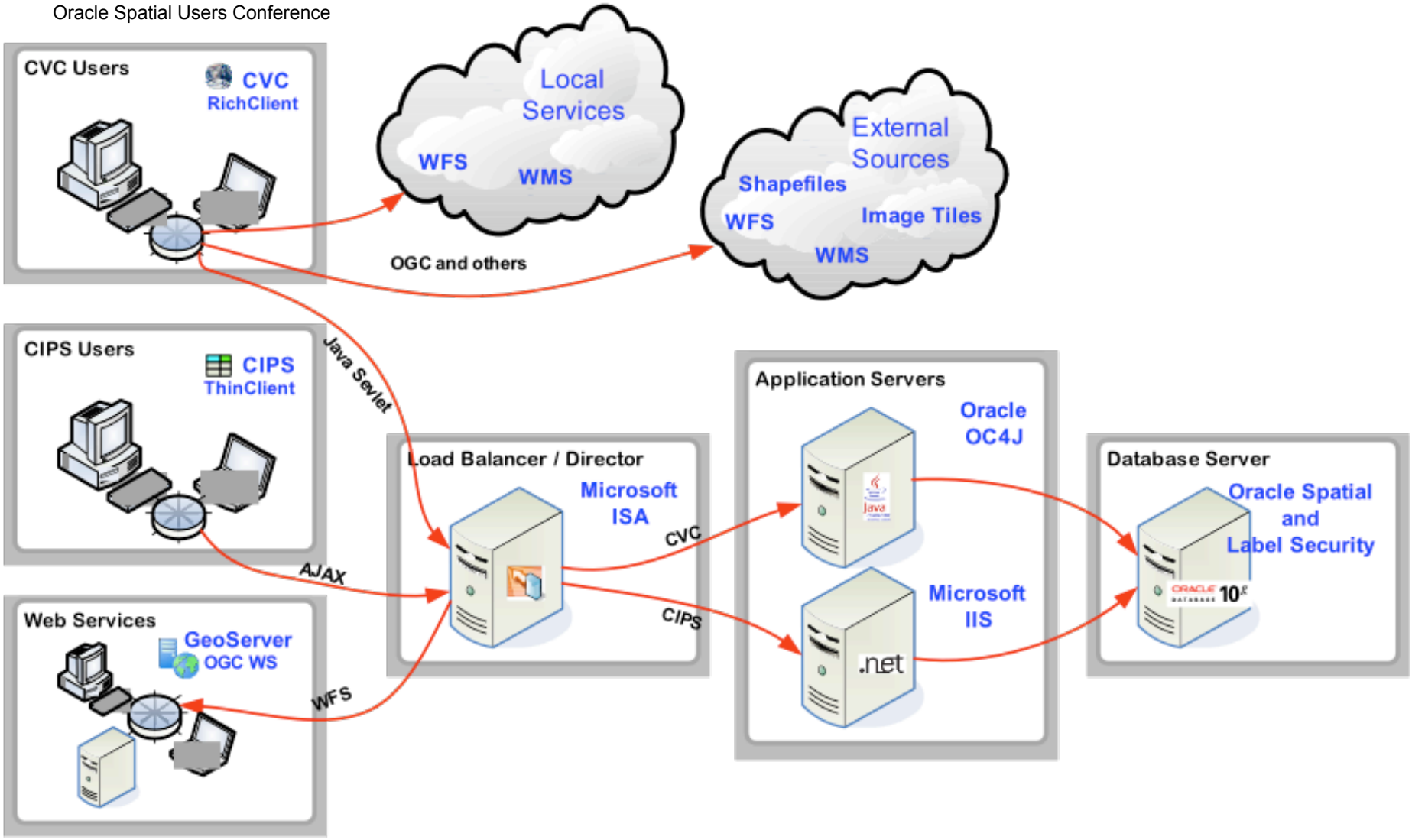

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The Demonstration…

CIPS / CVC Tool Shown using:

- Oracle 10gR2
- Oracle OC4J Server
- Java Web Start Client

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