Mobile Advantages of ArcGIS 9.1
The Distributed Geodatabase Takes the Enterprise to the Field.

- Introduction of Burbank Water and Power
- Burbank’s GIS Infrastructure and Process
- The ESRI Distributed Geodatabase
- A TabletPC Solution
- Conclusion and Q&A
Burbank Water and Power (BWP)

- Located 12 miles North of Los Angeles
- BWP - formed in 1913, municipal utility
- Electric, Water, and Telecom (dark fiber)
- Burbank’s population is just over 100,000 in 17 square miles (dense)
- Home to NBC, Disney, ABC, Warner Bros many other media companies
BWP’s Enterprise GIS

- **ESRI ArcGIS 8.3 → 9.1**
  - SDE on an Oracle database
  - ArcInfo/Editor/View → ArcGIS Engine
  - ArcReader, ArcPad

- **Miner&Miner**
  - ArcFM
  - ArcFM Viewer → ArcFM Redliner
    - ArcEngine Runtime License
The Key to an Enterprise GIS

- Maintaining, Working With, and Replicating One Data Repository.

- Managing Distributed Data
  - Disconnected
  - Occasionally Connected
Not the Enterprise Approach
Network Infrastructure

802.11 Wireless Technology

- Existing infrastructure
- Substation Hot-Spots
- Occasionally Connected
- Daily Updates
Network Infrastructure
Wireless Mesh
- Advanced Wireless Routing Protocol: TBRPF (Topology Broadcast, Reverse Path Forwarding)
- Most scalable wireless protocol on the market
- Distributed, no central entity required

Ease of Use
- Self-discovery, self-configuring, and self-healing.

Advanced security within the mesh
- WEP or AES
Firetide Wireless

2.4 GHz Saturated

Testing 5.8 GHz
Business Process

- Print Maps and Map Books Quarterly.
  - Maps go to the field
  - Maps are Redlined when general operations and maintenance work is done.

- Maps are turned in to GIS editors
  - Editor reprints page for Field Crew
  - Editor makes edits and posts to the default version for quarterly Map Books.

- The Cycle Continues…
Problems with This Approach

- Printed Maps and Map Books
  - Difficult to decipher through Doughnut Grease and Coffee Stains.
  - Tons of paper waste
  - Time consuming collation and distribution
  - Color printer costs and consumables
  - Revision Problems

- Printed Today – Not Current Tomorrow
Solution

- Replace Field Supervisors Desktop Computer with TabletPC
  - Attrition and Priority Scheduling

- Implement a Mobile Redline and Data Management System.
  - Redline in ArcGIS Engine Application
  - Synchronize Redlines to an Enterprise Version
The Data Path

Enterprise GDB

Electric Background

Redline

Post Distributed Geodatabase

Rec and Post Distributed Geodatabase

Personal Notes Geodatabase

Replica GDB
Single Generation Replication

- Known As Disconnected Editing (Check out and Check in)

- Available Today in 8.3 and ArcGIS 9.0
Multi-Generation Replication (9.1)

- Allows you to create a child replica of a versioned geodatabase
- Allows multiple data synchronizations between replica geodatabases
- The replica is itself a versioned geodatabase
Versioning Requires SDE

- Microsoft Desktop Engine (MSDE)
  - Available with ArcGIS
  - Free, Light Weight SQL Server
  - Runs on a Lap Top or TabletPC
Replica Access Types

- Multi-Generation Replication Supports 2 Access Types
  - One Way Replication – child is read-only
  - Two Way Replication – child is read-write
Back to the Data Path

Enterprise GDB

Electric Background

Redline

One Way Replication

2-Way Replication

Replica GDB

No Replication
Replication Agents

◆ Set Up Jobs to Run with Windows Task Scheduler

◆ Scheduling options:
  – Daily, weekly, monthly, one time only, etc.
  – Can set day of week, time to start, etc.
Synchronization

- Replicas do not need direct connectivity for synchronization.

- Synchronization can be done through exchange of geodatabase update-grams.

- A geodatabase *update-gram* is a package of data that describes the changes made to a geodatabase replica since the last synchronization.
Replica Log

- Records information each time a replica sends or receives changes.

![Replica Log](image)

<table>
<thead>
<tr>
<th>LogDate</th>
<th>Event</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/16/03 1:30:00 PM</td>
<td>Sent Changes</td>
<td>Success</td>
</tr>
<tr>
<td>12/16/03 1:15:00 PM</td>
<td>Rec Changes</td>
<td>Success</td>
</tr>
<tr>
<td>12/16/03 12:15:00 PM</td>
<td>Sent Changes</td>
<td>Success</td>
</tr>
</tbody>
</table>
Scenario

- Create a Redline Session
  - ArcFM Session Manager

- Make Redline Layer Edits
  - Graphics Tab

- Post Edits to an ArcFM Editor
  - ArcFM Session Manager
The Decision Movie
Demo

Noam Arbel
Conclusion

- **ArcGIS 9.1 Further Supports Field Operations**

  Protect and Enhance Investments in GIS

  Extend your ArcGIS – Go Mobile!

- **ArcGIS 9.1 Makes Mobile Data Manageable!**
Questions