

Creating a Transportation Spatial Database with Interoperability between ArcGIS & MicroStation

Maryland State Highway
Administration

GIS-T March, 2004



Topics Today

- **Overview of Project**
- **Technology Used**
- **Project Concepts**
- **Demo**



Transportation Spatial Database

- **Interoperability**
 - GIS and Cartography - support for products
 - Data sharing
 - Same investment in fewer, richer data sets
- **Enhanced Road Centerline Data**
 - Consolidate number of centerline files
 - Increase spatial accuracy
 - Sharing data with local governments
 - Multiple LRS Systems
- **Serve Internal and External Customers**
 - Accessibility
 - Increase data capabilities
 - Ease of Use
 - Flexibility



The Road to Better Products

- **Strategic Plan - Completed 2000**
- **Requirements Study - Winter 2002**
- **Development Began 2nd Qtr 2003**
- **Completed 4th Qtr 2003**



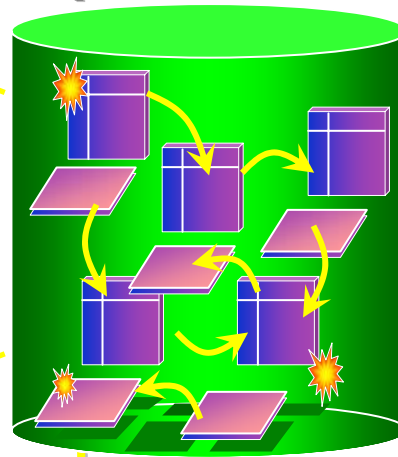
Project Goal

ArcGIS
Editing

Spatial Database

MicroStation
Editing

Data Viewer



Cartographic
Publishing

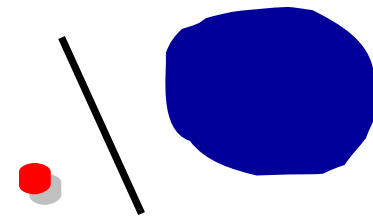
ArcIMS

Need Common Foundation: Data



Interoperability Challenges

- “Standard” geometry supported
- Symbology definition in the database for MicroStation and ArcGIS
 - Color, weight, style, fill, etc.
- Attributes
- Annotation (?)

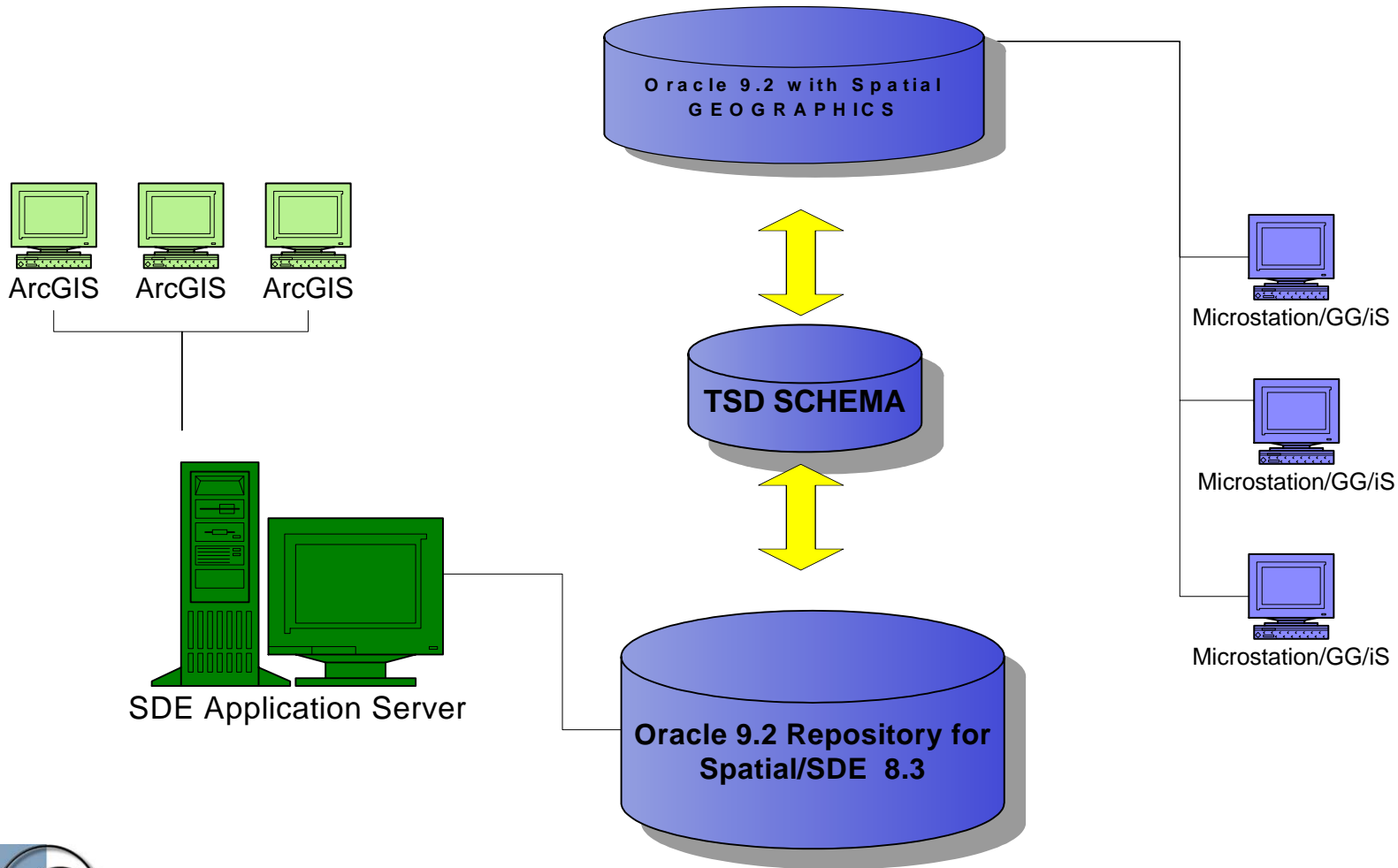


Technology Options

- **ESRI CAD/Client**
- **FME for data conversion**
- **Bentley ArcGIS Connector**
- **Custom Solution - ESRI ArcObjects**

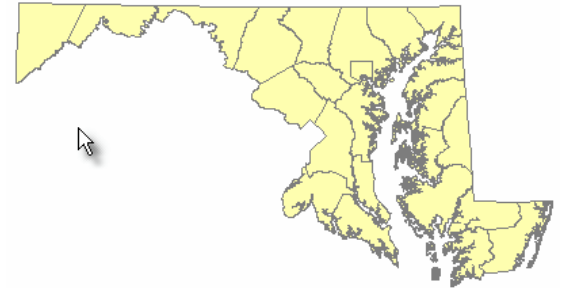


TSD Architecture



BASE Concept

- **Base is statewide view**
- **Base is most spatially accurate data**
- **Base edits must be approved QA/QC**
- **Modified features go to retire table**



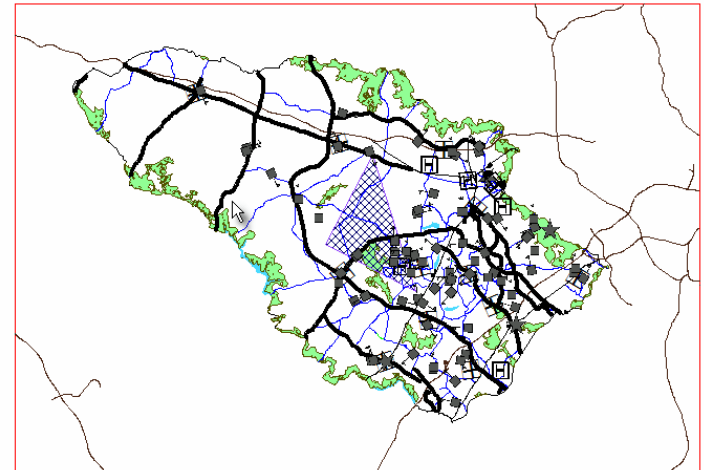
Products/Template Concept

- Products are made up of base features and cartographic adjustments
- Templates are a collection of layers
- A layer is a filtered feature class (spatially and attribute)
- Layer have two symbol types
 - IPlot/ArcMap & MicroStation
- Template can be copied and clip changed to produce new product



Support for CLIPS

- Any polygon layer can be used as spatial clip
- Two types of Clips
 - Overall Product
 - Individual Layer

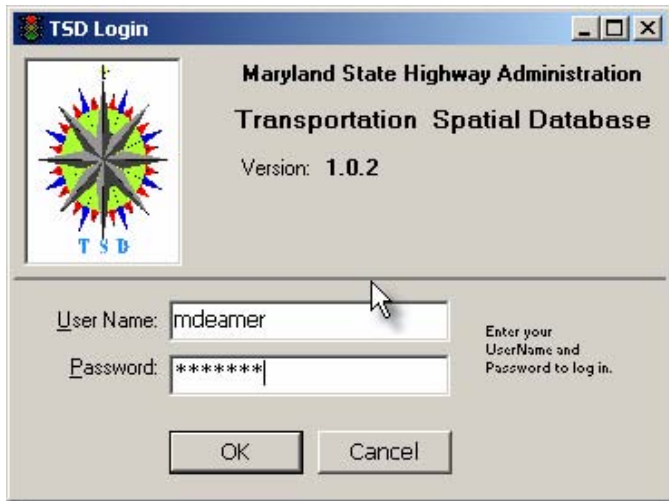


Support for Temporality/ Archive

- **Archive**
 - **Filter datasets**
 - **Create new features**
 - **Read only never change**
- **Temporality**
 - **Compares with base and retire**
 - **Retrieves features active on a specific date**



DEMO Application



TSD Login

Maryland State Highway Administration
Transportation Spatial Database

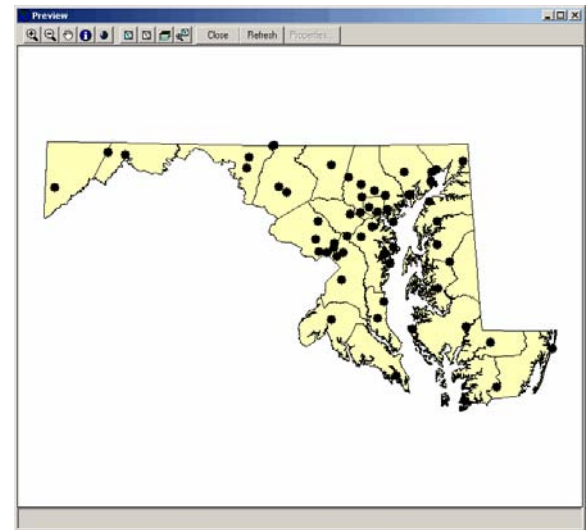
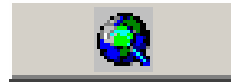
Version: 1.0.2

User Name:

Password:

Enter your UserName and Password to log in.

OK Cancel



In Conclusion

- **Built a useful tool to leverage ArcGIS and Microstation experience at SHA**
- **Built a tool to handle archive and temporality**
- **Built a single storage for all of our Cartographic and GIS data**



Questions?

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- Visits use in our Booth 13

Thank you for your time

