Developing a Campus-wide Base Map for Planning, Design and Construction

June 21, 2007

Presenters

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Agenda

- UCR Campus Background
- Opportunity for a Campus-wide GIS
- Data Development
- Data Distribution
- What's Next

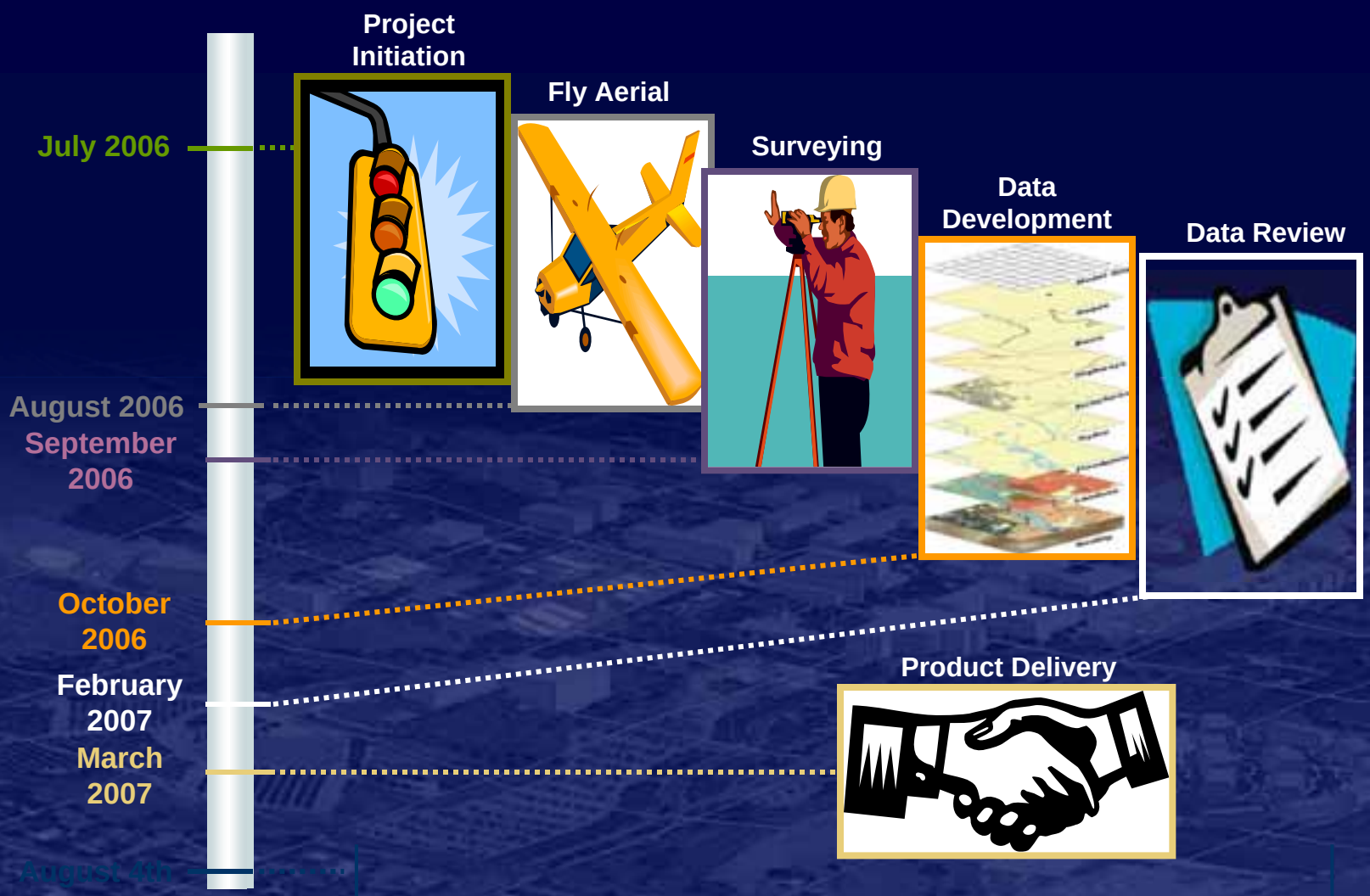
UCR Campus Background

- 1,112 Acre Campus, located 3-miles east of downtown
- Current enrollment of approx. 17,000 students
- Enrollment expected to increase almost 35% over the next 10 years
- Campus Gross Square Footage (GSF) expected to grow from 5.6 mil to 11 mil.

Opportunity for Campus-wide GIS

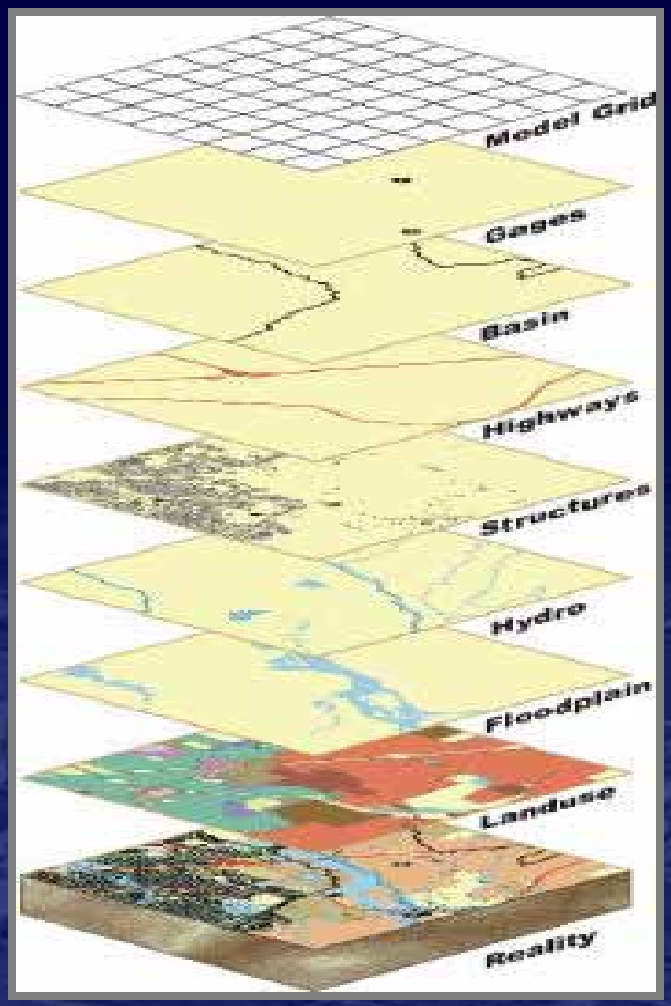
- Opportunity
  - UCR had minimal GIS data on current assets
  - Existing GIS data did not cover entire campus
  - Existing GIS data did not meet accuracy standards
- Solution
  - Produce a campus-wide base map that can be used for planning, design and construction
  - Build the basis for a future campus-wide enterprise GIS system

Project Timeline



Data Design Process

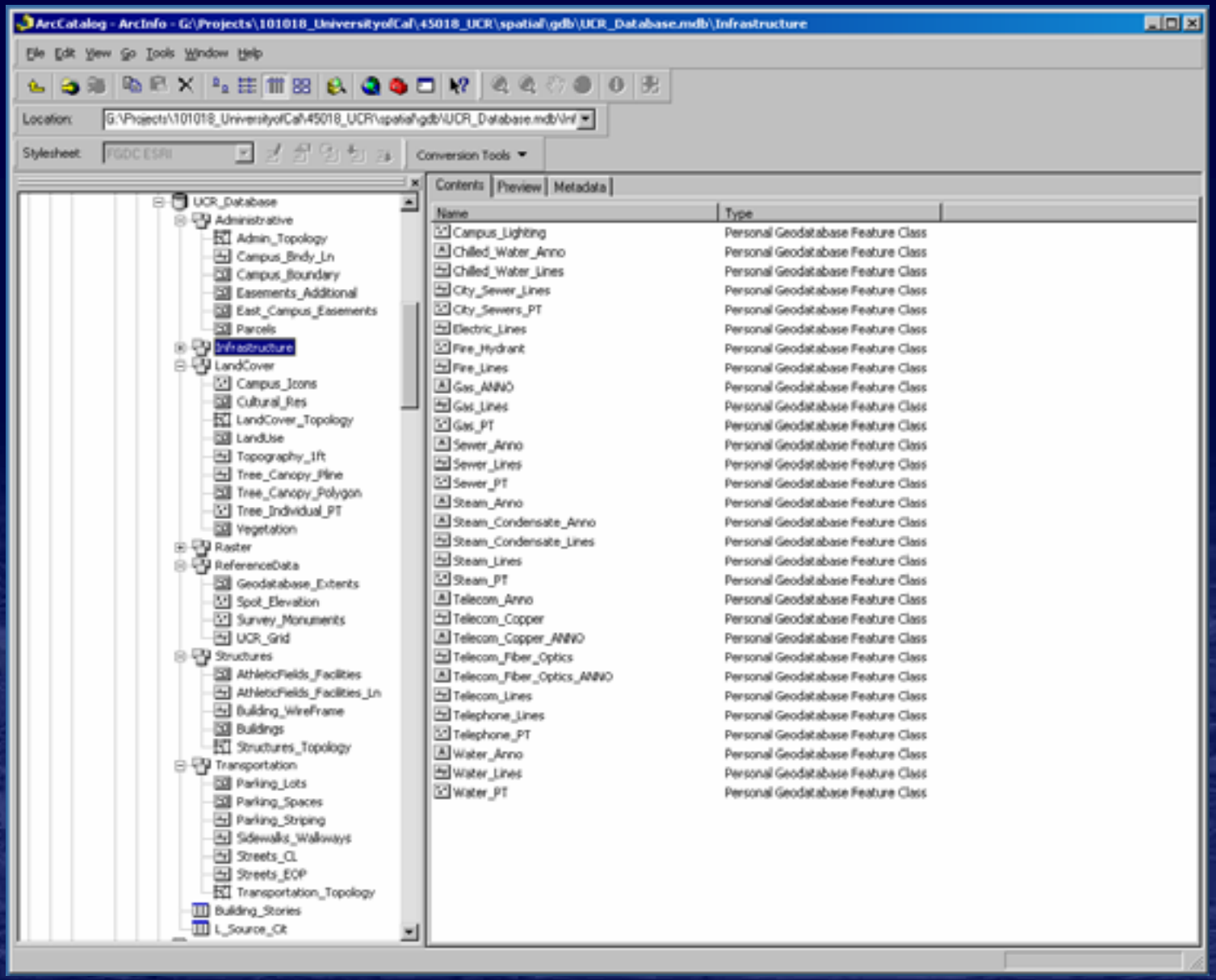
- Identify required layers
- Determine attributes for each layer
- Identify required level of accuracy
- Identify data delivery format(s)
- Data collection methods
  - Information from aerial photograph
  - Data collected by surveyor
  - Data collected by GPS
  - Integrate existing data layers



Campus-wide GIS Data Layers

- Administrative:
  - Campus Boundary
  - Parcels
  - Easements
- Infrastructure:
  - Campus Lighting
  - Infrastructure converted from CAD
- Land Cover:
  - Campus Icons
  - Trees
  - 1ft Topography
  - Vegetation
- Reference Data:
  - Survey Monuments
- Structures:
  - Athletic Fields & Facilities
  - Buildings
  - 3D wire frame
- Transportation:
  - Parking Lots
  - Parking Spaces
  - Parking Striping
  - Sidewalks/Walkways
  - Streets (Center lines)
  - Streets (Edge of Pavement)

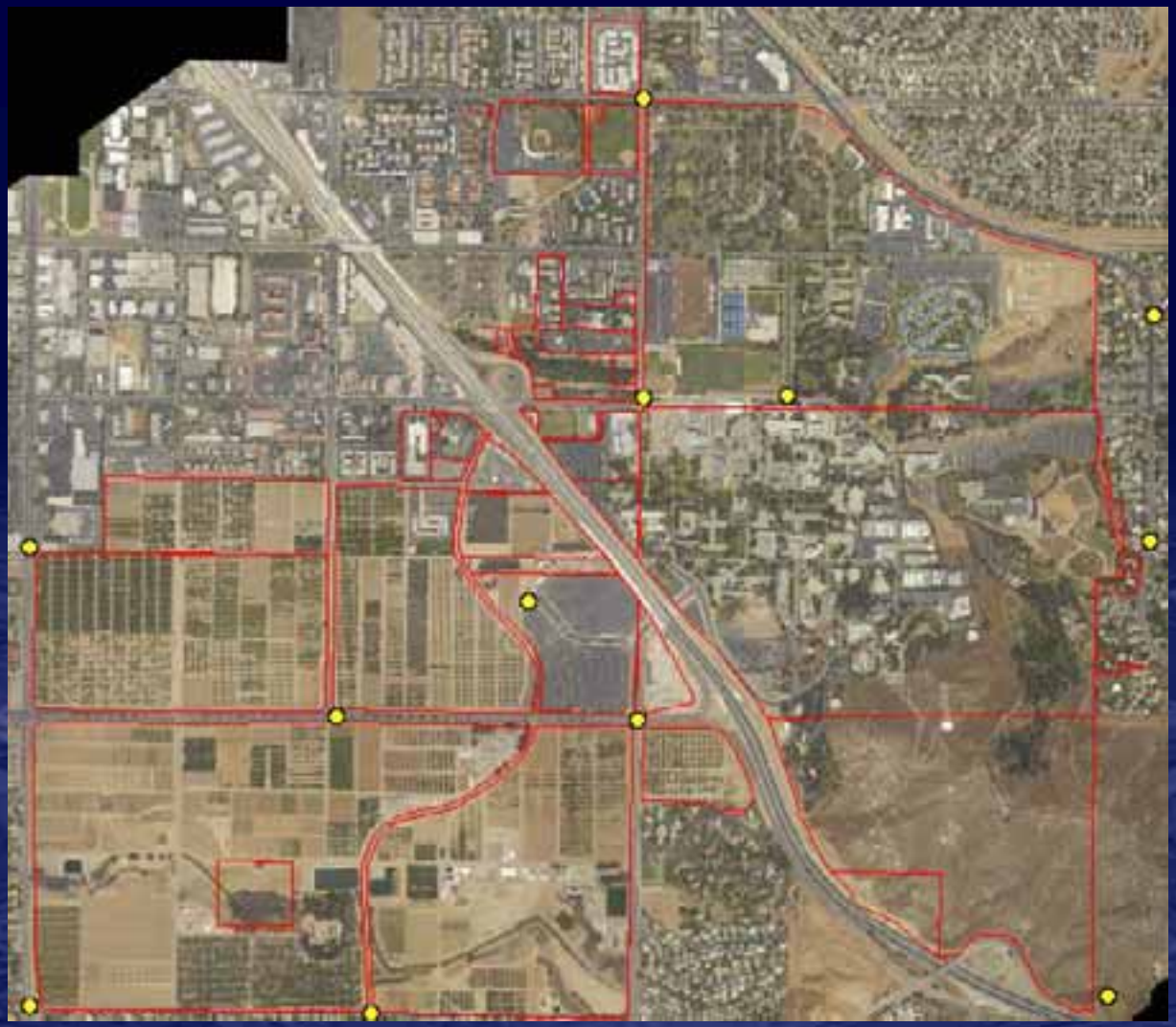
UCR Geodatabase



Infrastructure

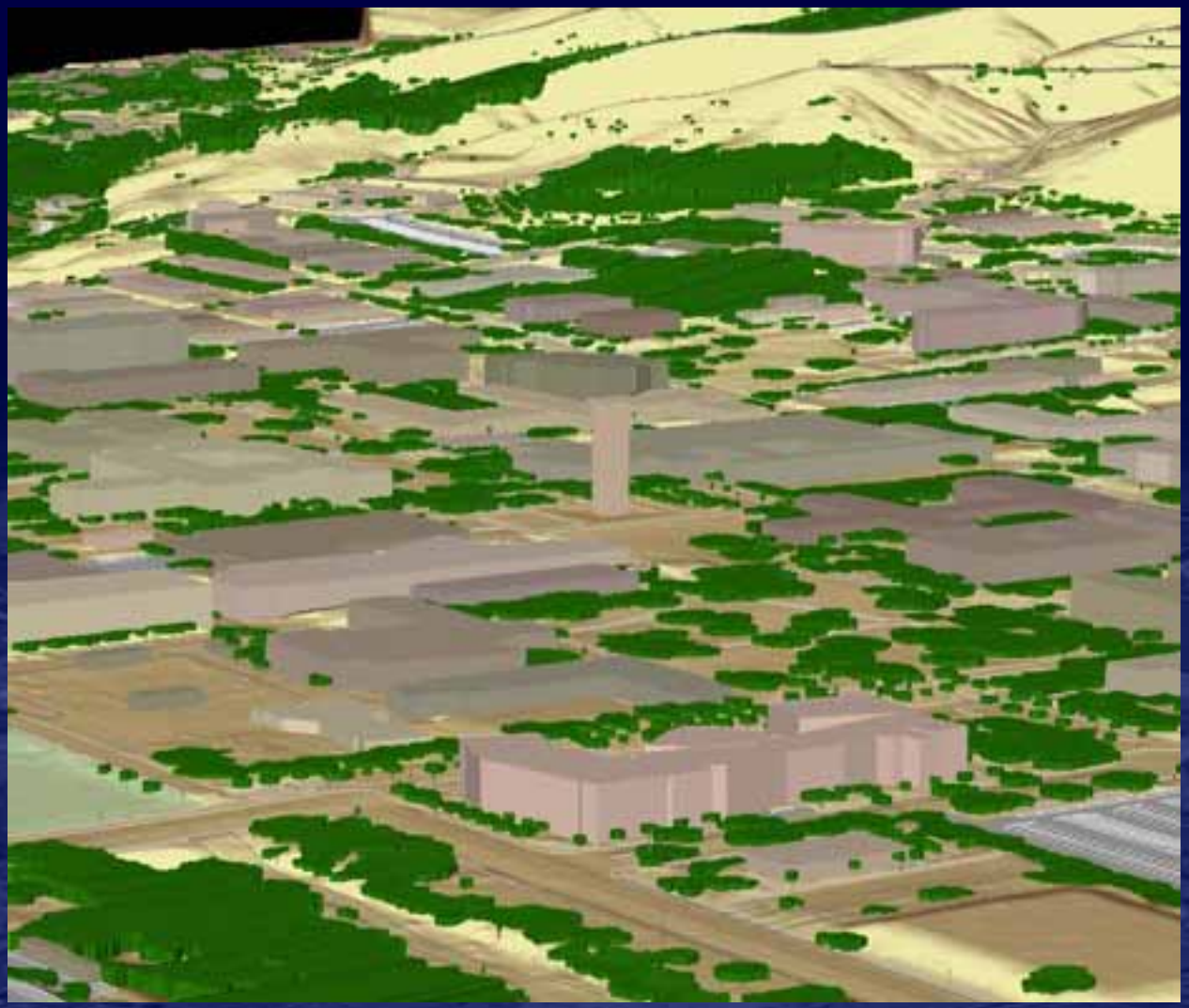
Monuments/Parcels

- CA licensed surveyors used to create reference data
- 13 new monuments placed to set control network
- Parcel boundaries delineated



LIDAR Data

- One-foot Contours
- Building Heights
- Trees
- Elevation Grid



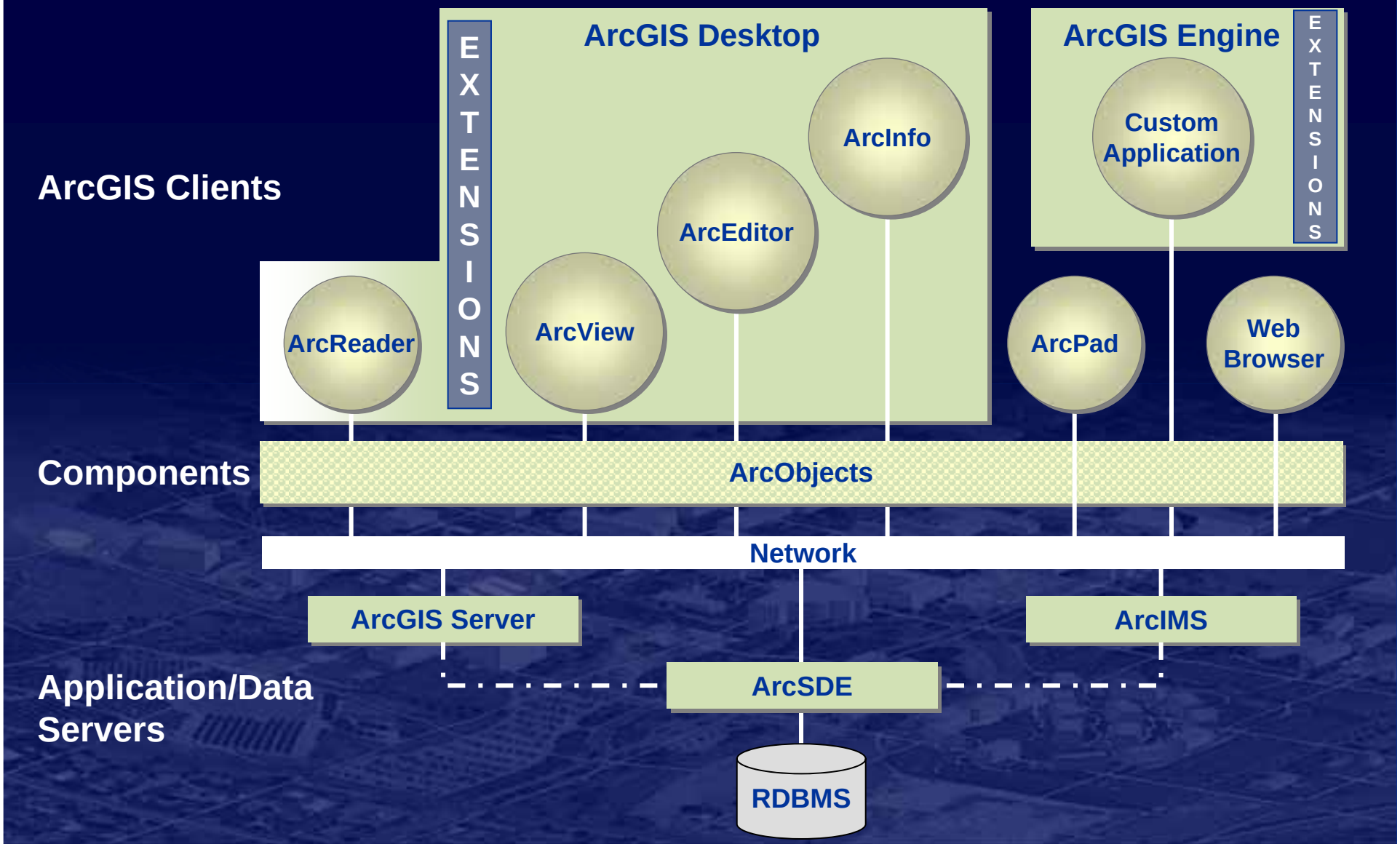
Data Analysis with Rasters

- Creating Surfaces
- Interpolating Topography
- Viewshed Analysis

Data Analysis with ArcScene

- View 3D Data
- Create Visual Simulations
- 3D Fly-through

GIS Data Distribution



What's Next

- GIS Data Integration
- UCR GIS End-user Community
- Potential GIS Analysis
- GIS Data Maintenance

Integration of GIS with Existing Facilities Management System (FMS)

- Buildings data layer contains CAAN number that links to the FMS database
- FMS link will allow GIS to link to multiple systems campus wide
- Capability to run cross referenced queries

Groups that can benefit from GIS

- Physical Plant
- Purchasing / Material Management
- Environmental Health & Safety
- Transportation & Parking Services
- Real Estate Services
- Police
- Office of Design & Construction
- Athletics/Recreation
- Technology

Potential GIS Analysis

- 3-D Visualization of Campus Buildings & Structures
- Identification of better or new pathways (handicap)
- Siting of new campus facilities
- Spatial Inventory of Parking Spots and Type
- Identification of new locations for campus lighting
- Tracking maintenance
- Calculation of impacts from new facilities
- Tracking and analysis of crime type and location
- Routing analysis for large campus events

Conclusion

- UCR now has a seamless campus-wide Geodatabase
- Data will be used for Planning, Design and Construction
- UCR will also utilize data as base for enterprise-wide GIS system
- UCR will make data available to all campus groups

Questions

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