Managing Event-Based Spatial Data in a Public Health Environment

ESRI Health User Conference

October 2006

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DATA & EVENTS

Handling Data During an Event (or Emergency)

Emergency Preparedness

- Handling Event-Based Data:
  - Can you prepare for all emergencies or events?
  - How can you best prepare for most events?
  - What are common questions that will need to be answered in most events?
  - What data do I need to help answer those questions?
  - How quickly can the information be mapped and shared?

Spatial Data in an Emergency

INPUT
- What shape is the data in?
- What's spatial about the data?
- Getting the data into GIS
- What other base layers do you need?

OUTPUT
- Sharing data statically: making a map
- Sharing data interactively: ArcIMS, Google Earth
- Health Event Analyst Toolset (HEAT)

Data Challenges

- Data may be confidential (individual case data)
- Turn around time usually very quick
- Data/Results may be shared among large diverse group of users
- Results may or may not need to be shared with public

Data Challenges

- Data may be unavailable
- Data may be coming from different sources
  - Printed / faxed / hand-written (requires data entry)
  - Excel spreadsheet, Access Database
  - Export from DB: .csv, .dbf, .txt, etc.
  - Shapefile or Geodatabase feature class
  - Enterprise Geodatabase feature class

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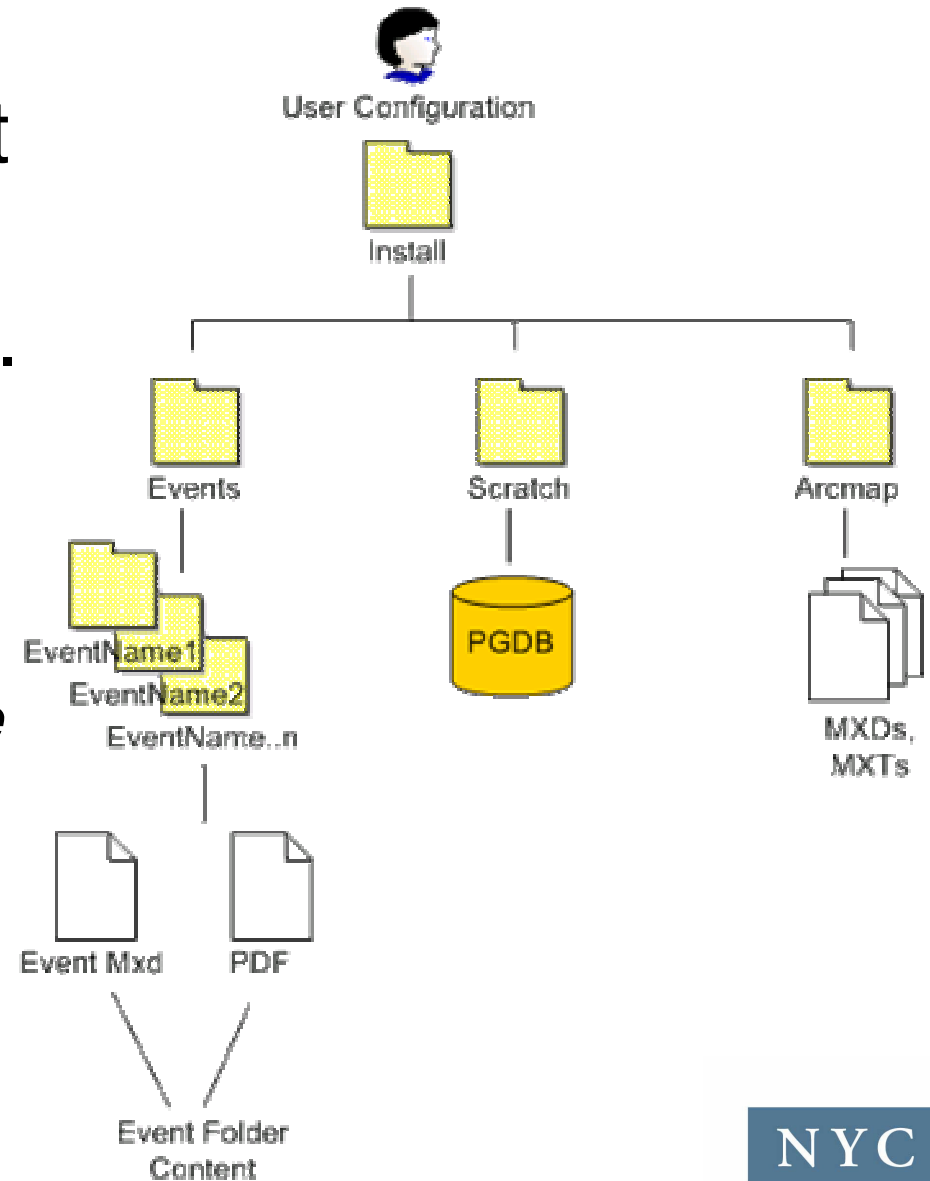
Defining Event-Based Data

Why manage data as events?

- Events are managed, organized and shared differently from other GIS information, defined by an event boundary.

- An event boundary can encompass an event or series of events that are related in time and space.

- Events follow a common naming convention.

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Defining Event-Based Data

- Events are stored in event folders named by event, type, place, time and date.
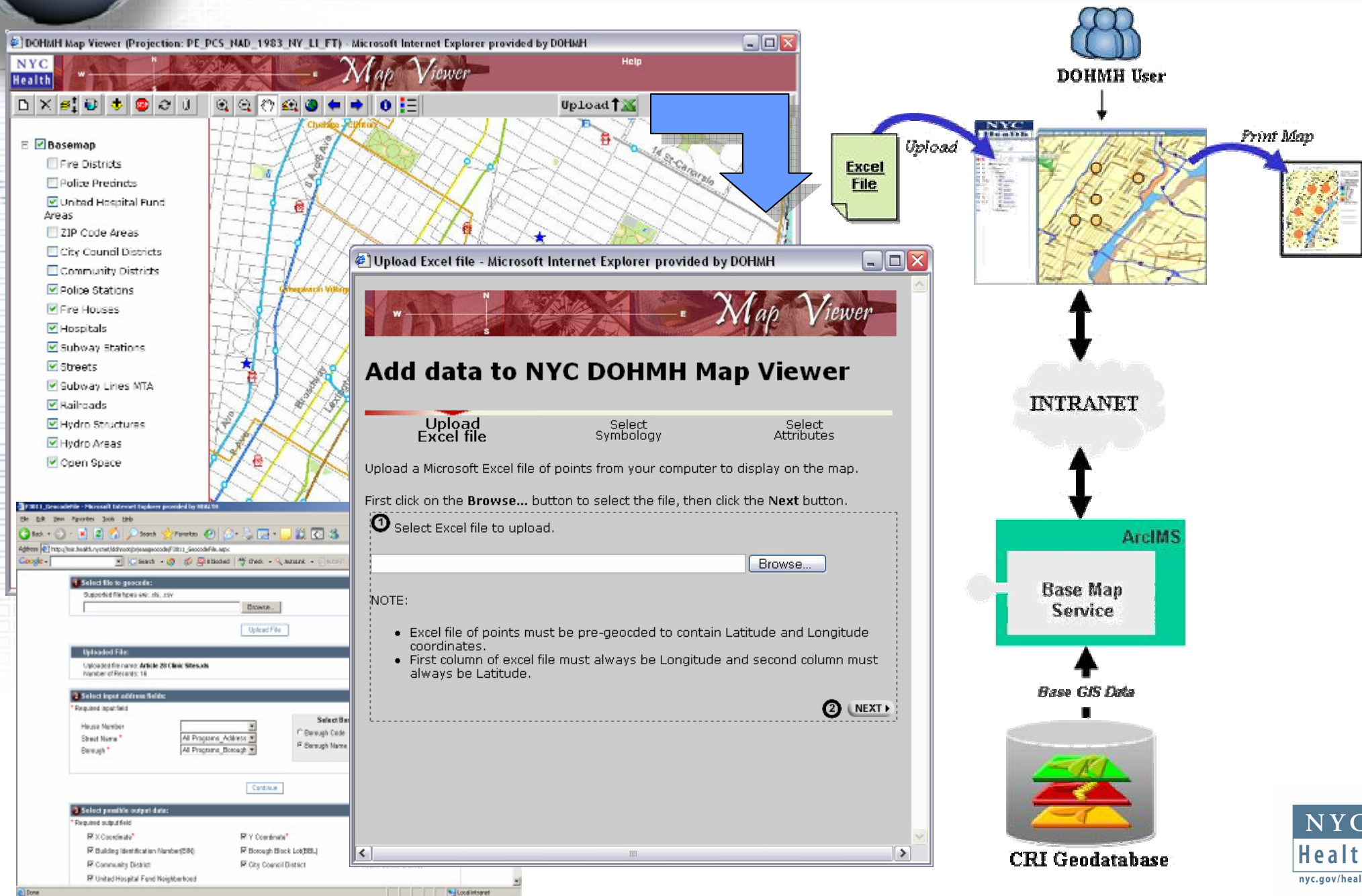
- Naming Convention:

keyword_event_steward_extent_date

User Configuration

Install

Events   Scratch   Arcmap

EventName1
EventName2
EventName..n   PGDB   MXDs, MXTs

Event Mxd   PDF

Event Folder Content

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BUILDING THE EVENT

Getting Data In

On-Line Geocoder & Map Viewer

Health Event Analyst Toolset (HEAT)

- Recognized there were common steps taken during any given event.
- Gave us a process for
  - organizing and managing events
  - easily mapping datasets, both from known and unknown sources
  - sharing data and maps
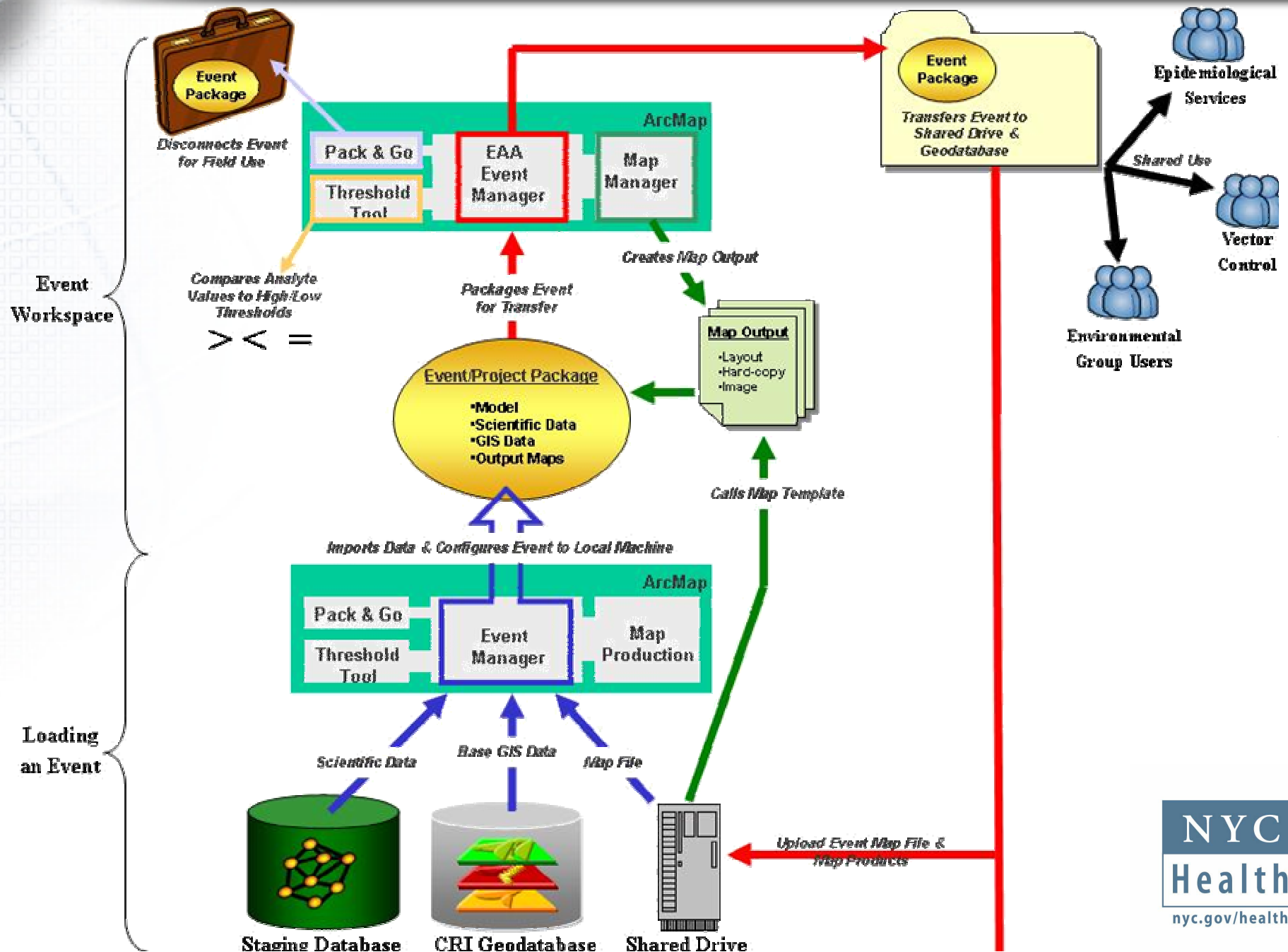- HEAT is a set of custom tools available as an extension within ArcView.

HEAT
HEALTH EVENT ANALYST TOOLSET
DOHMH

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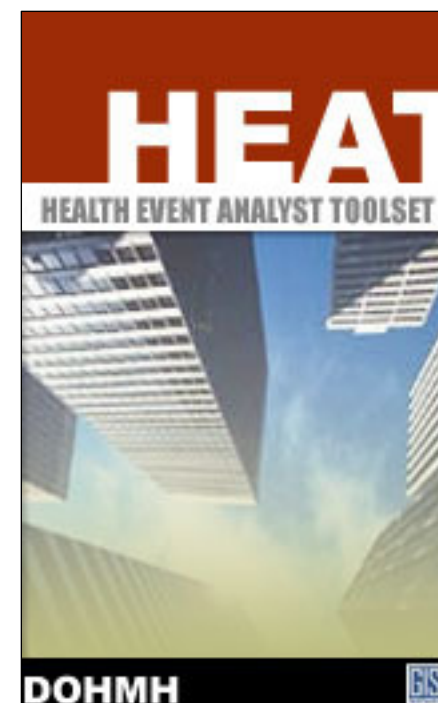
HEAT Conceptual Architecture
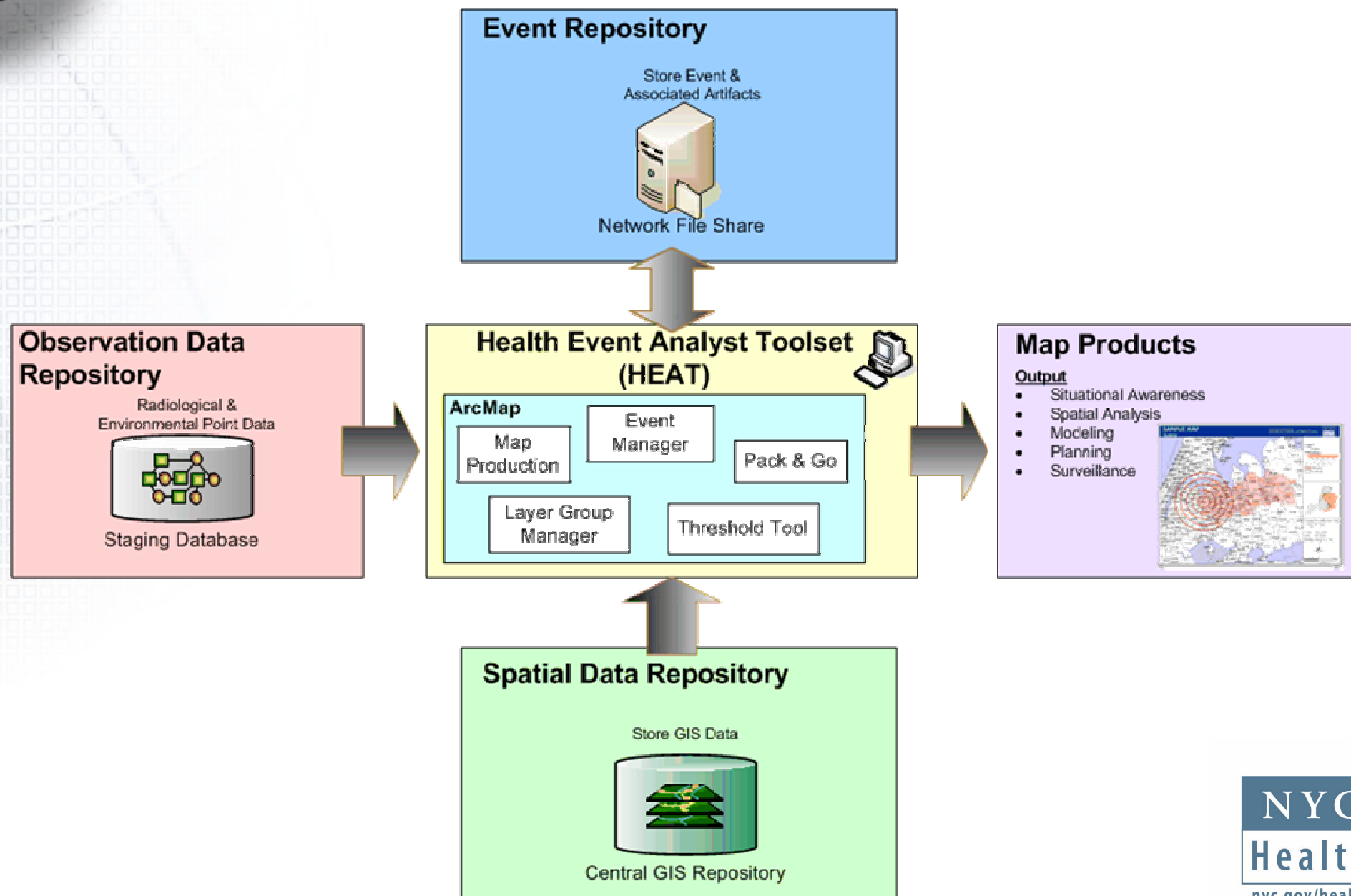
HEAT Conceptual Architecture

Health Event Analyst Toolset (HEAT)

Five Components:

- Event Manager
- Map Production Tool
- Threshold Tool
- Layer Group Manager
- Pack & Go

HEAT ▼

- Create a new DOHMH Event
- Open Event
- Add Event Data
- Save Event As
- Save Event to Shared Drive
- Set Event Boundary
- View Event Properties

- Layer Group Manager
- Map Production
- Threshold Tool
- Pack and Go

- About HEAT
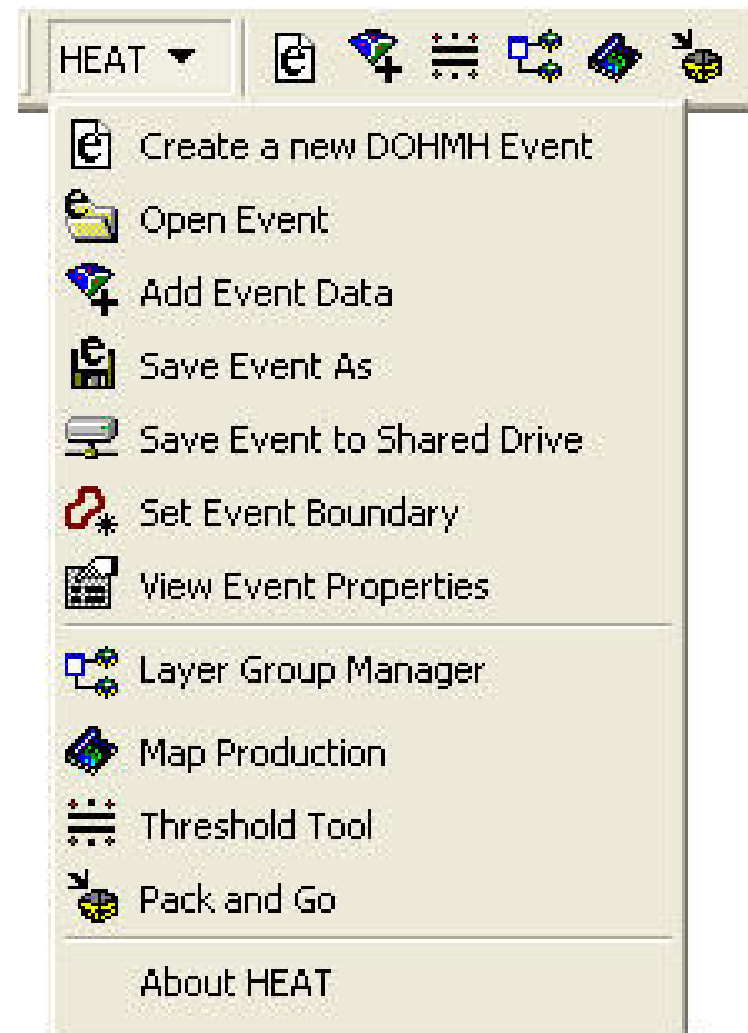
HEAT: Event Manager

- ## Define Event

- ## Load data from any of these sources easily

  - Handheld Data (Staging Database)

  - Env. Exchange Data (Staging Database)

  - Exceedance Data (Staging Database)

  - Other Mobile Source Data (Staging DB)

  - Generic — Excel, DBF, CSV, TXT

- ## Set Event Boundaries

  - By drawing or selecting polygons
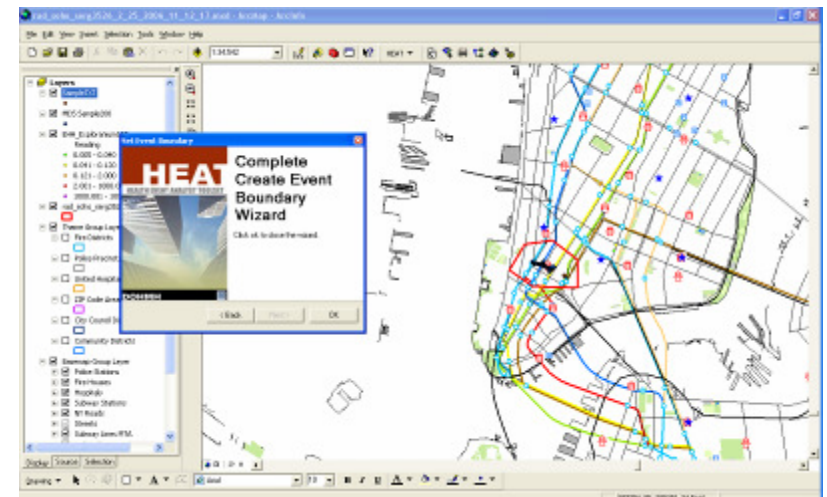
SHARING THE EVENT & RESULTS

Getting Information Out

How do we share the data and results?

Map & Data Products: Each has advantages & limitations, choice will depend on needs of the end user

Share the Data:

- Tabular Output (DBF, convert to MS Excel)
- ESRI Shapefile (shp) – requires ALL supporting files (shp, prj, dbf, sbn, sbx, etc.)
- Geodatabase (Personal or Enterprise)

How do we share the data and results?

Share the Results:
- Static Map (e.g., PDF or JPEG)
- Map Viewer (ArcReader, ArcExplorer)
- Interactive web application ArcIMS/Arc Explorer
- Google Earth

Share the Data and the Results:
- Pack & Go

HEAT: Map Template Wizard
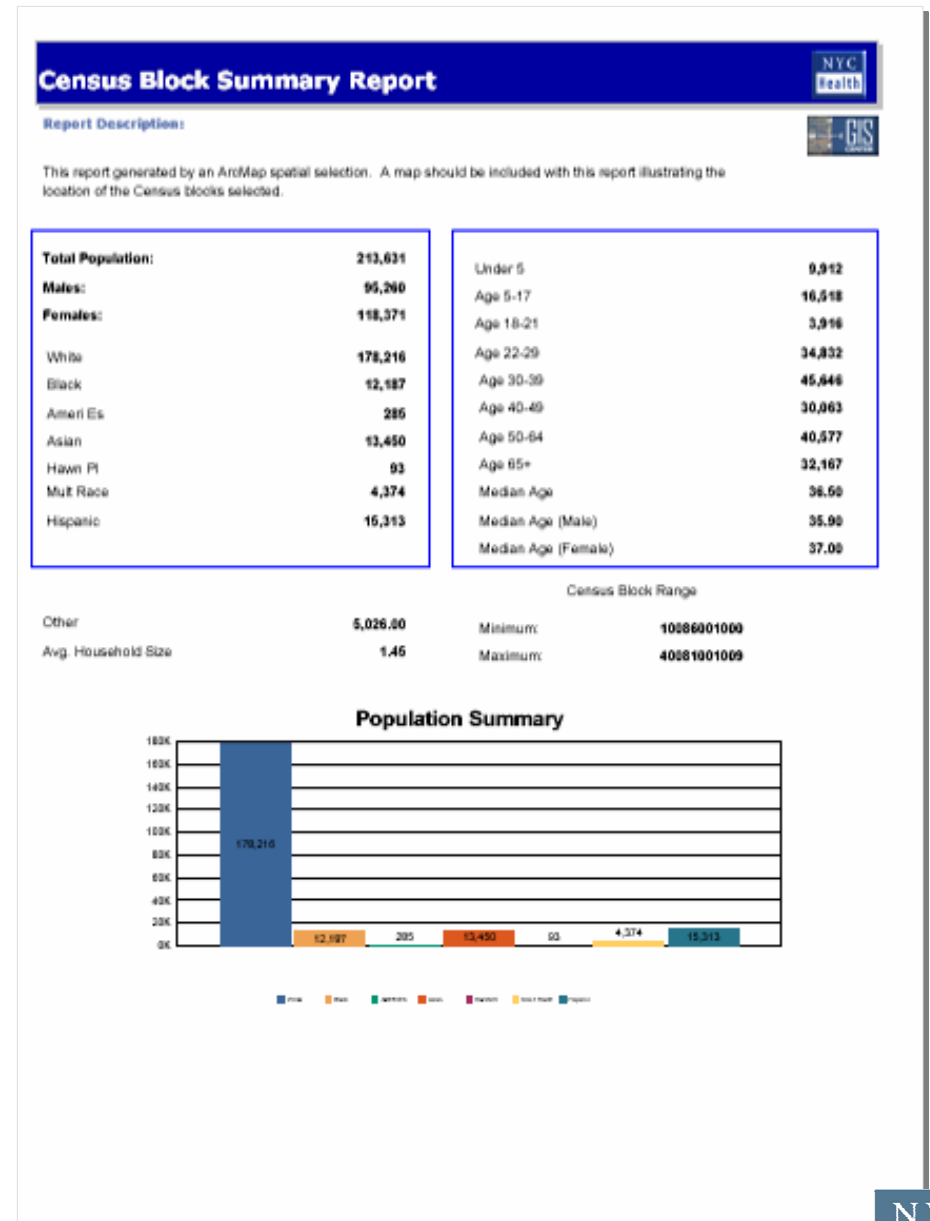
HEAT: Map Template Wizard
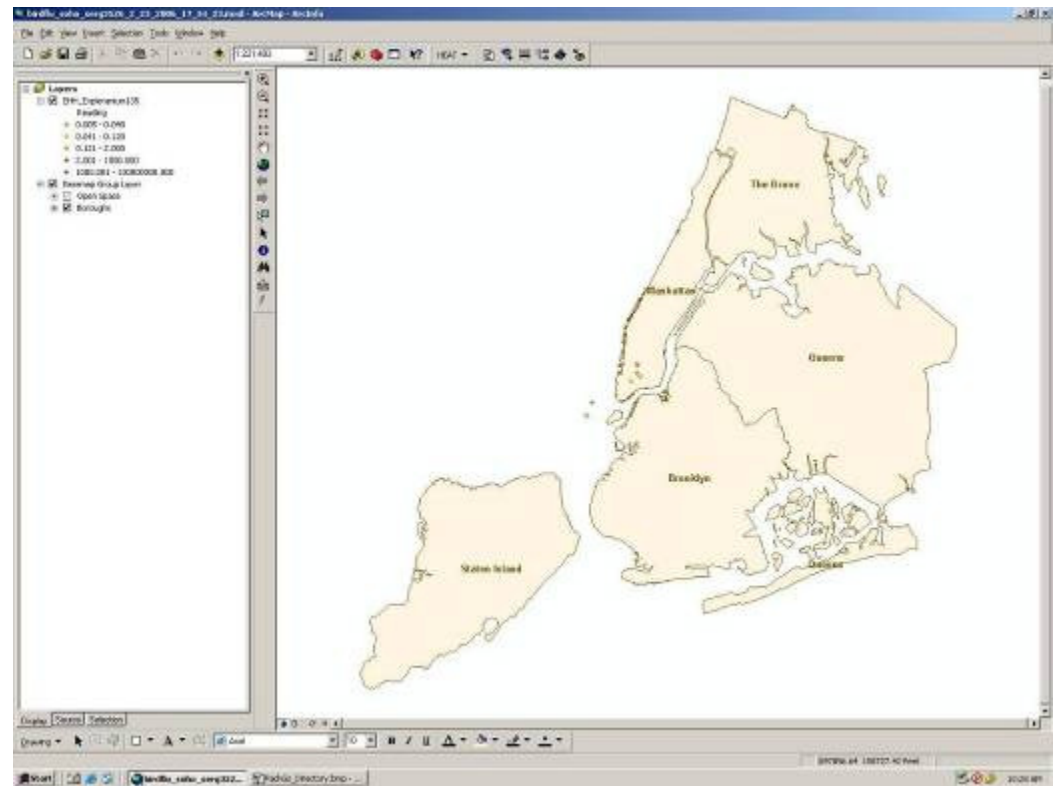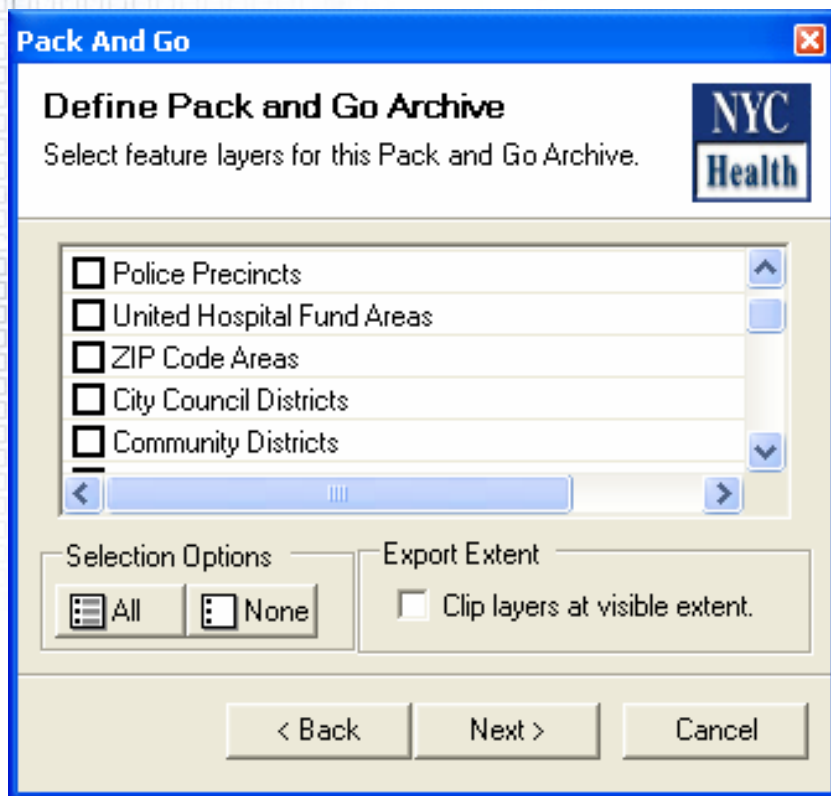
HEAT: Demographic Reports

- On-the-fly demographic reports based off of event boundary (or buffer).

- Reports can be selected from a number of pre-developed templates based off of existing data sets.

HEAT: Pack and Go

- *Pack and Go* creates a self-contained ZIP file of an event with all referenced data so as to perform work in the field away from the network.

Helpful Resources

- NYC DOHMH Best Practices, Naming Conventions, Use Cases – (send e-mail)
- ORC Macro, Inc. A guide for public health agencies developing, adopting, or purchasing interactive web-based data dissemination systems. (undated document) Contract # 200-96-0598, Task Order No 23. Available at: **www.cdc.gov/epo/dphsi/files/WDDSGuideF3.doc** .
- Peters, D. System Design Strategies, An ESRI Technical Reference Document. March 2006. Available at: **http://www.esri.com/library/whitepapers/pdfs/sysdesig.pdf** .

Helpful Resources

- AlaskaPak – National Park Service (www.nps.gov)

For More Information…

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