Future of Software

Community-Based Software Development Under Time Pressure

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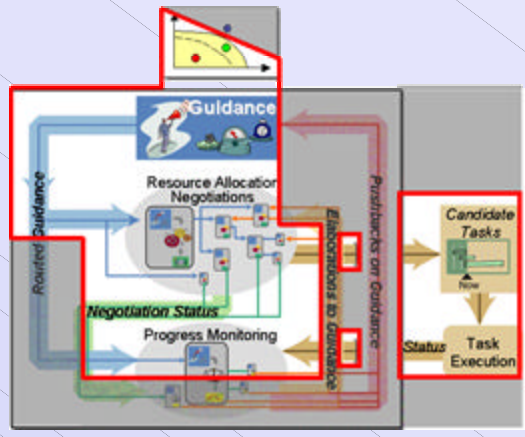
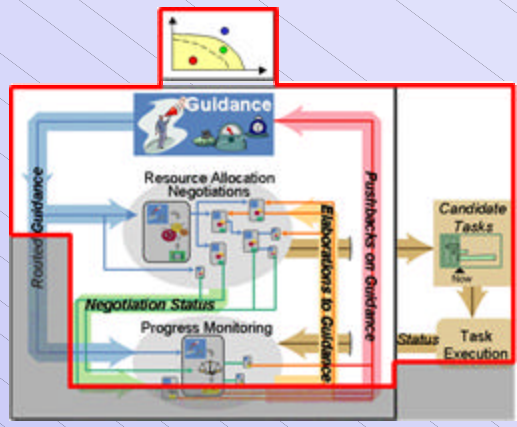
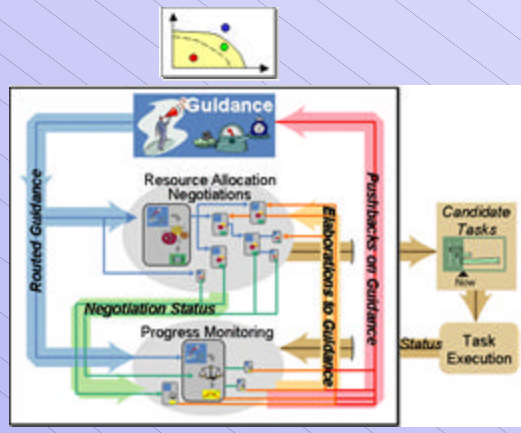
Needs

- Practical applicability in days/weeks, not months/years
  - Better now beats perfect later
  - Life's a moving target
  - Gotta see it to know if we like it
  - Didn't know we wanted it before we got it
- Challenges
  - Make "build it now, fix it later" work
  - Put those pesky users in the loop







Emerging Promising Technologies

...it's not top-down structured, nor is it really bottom-up, either. It's really more like assembling a jigsaw puzzle -- you create pieces and lay them out with some blind faith that eventually you'll see how to fit them together.

-- Craig Milo Rogers

- Component-based, web-based software
- Extreme programming
- Brute force, complexity, heterogeneity
- Probes, gauges, monitors
- New insights in APIs (read the code)
- New user-centered software development tools

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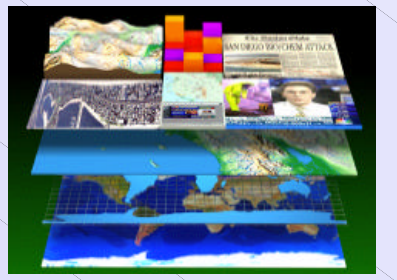
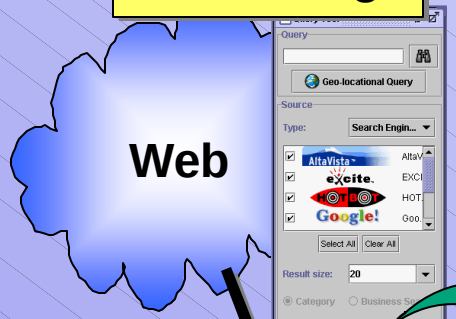
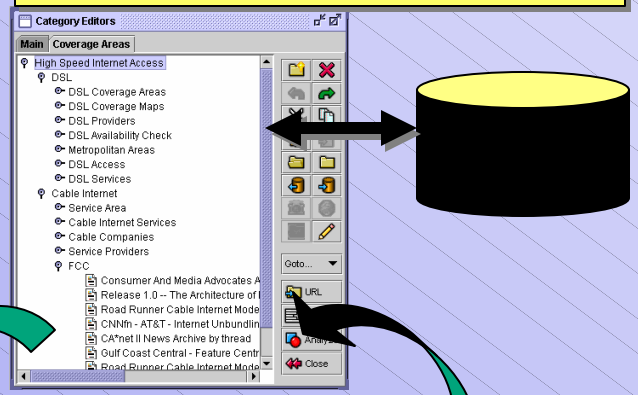
GeoWorlds: Component-Based Architecture



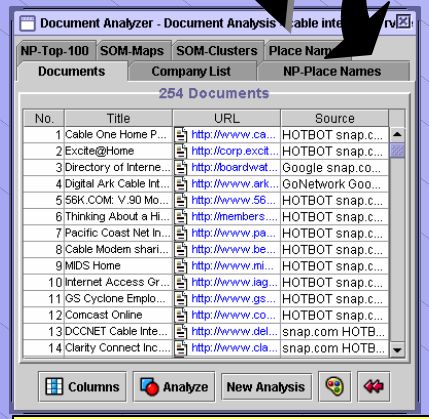
Information Gathering



Information Organization

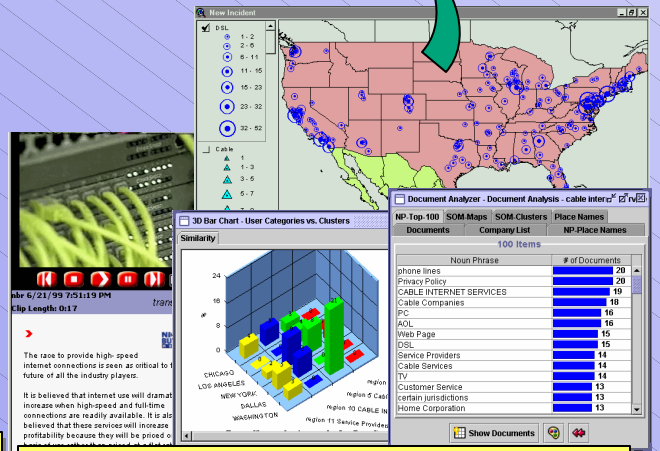


Document Collection

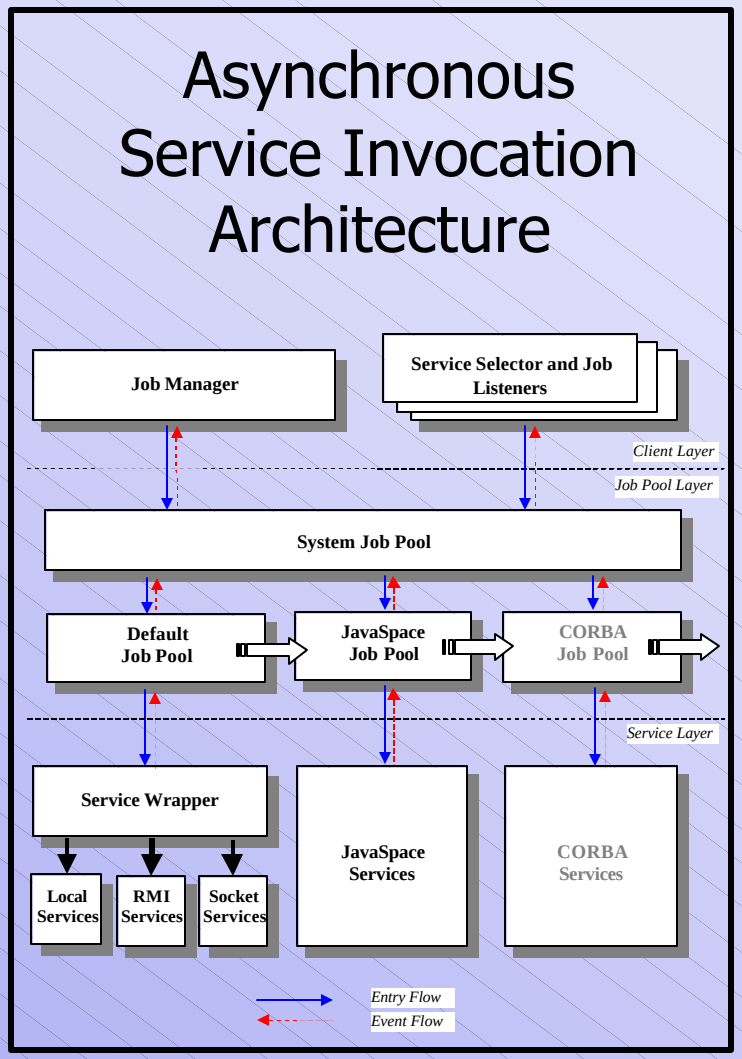


Document Analysis

Information Visualization



Asynchronous Service Invocation Architecture



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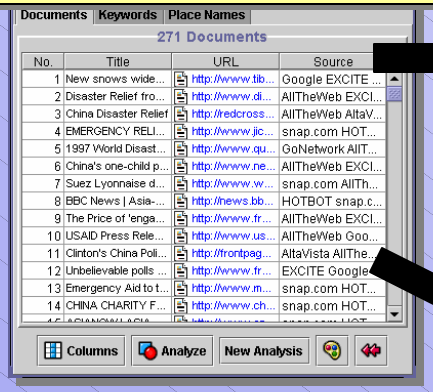
Scripting and Data Fusion (In-Young Ko)

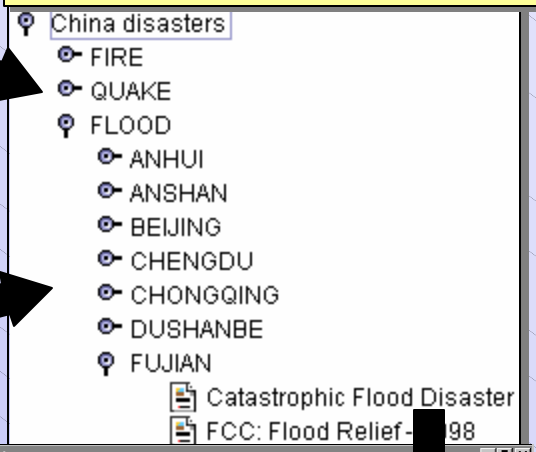
Identify Recurring Disaster Areas in China, e.g. Locations of Floods

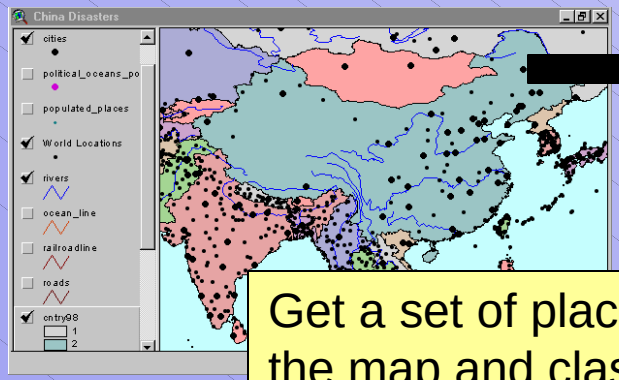
Retrieve a Web document collection about “China disasters”



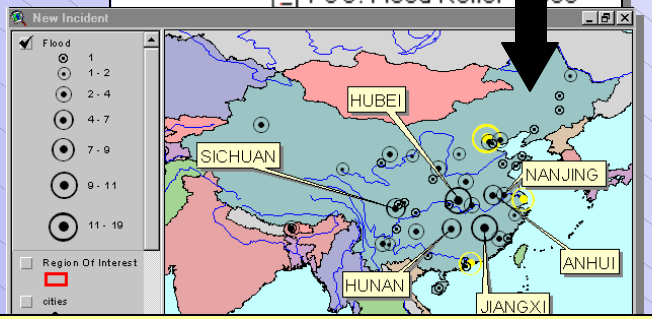
Classify documents based on the disaster types mentioned

Cross-product between place names and the disaster type categories





Get a set of place names from the map and classify the documents based on them



Plot the document clusters on the map to figure out the major flooding areas

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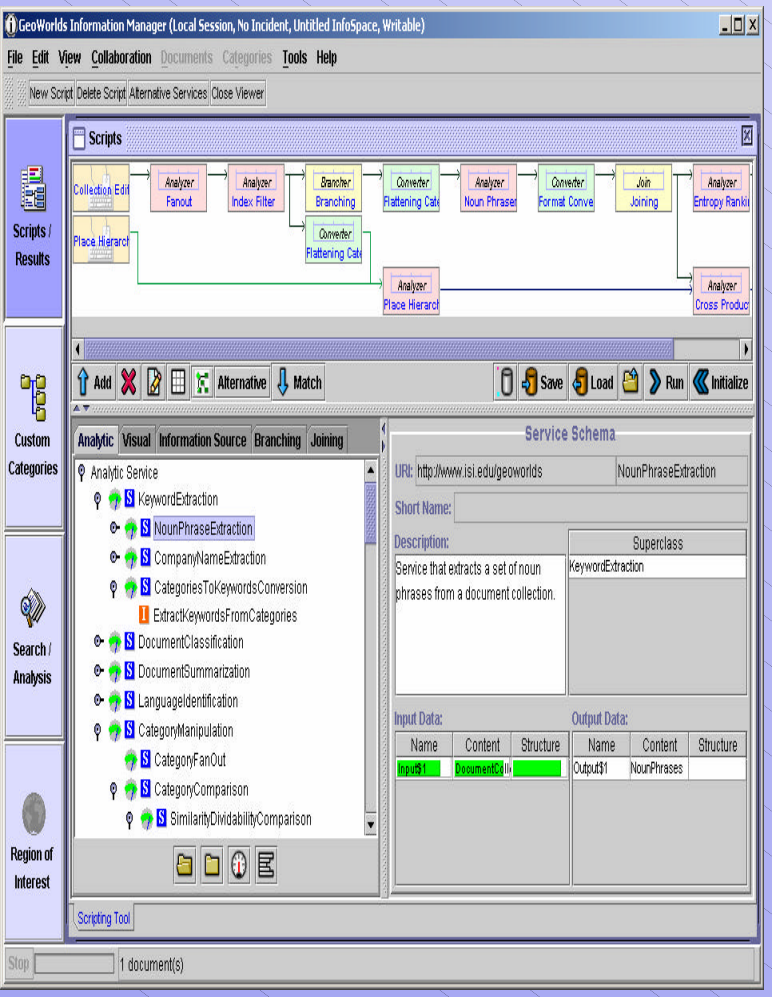
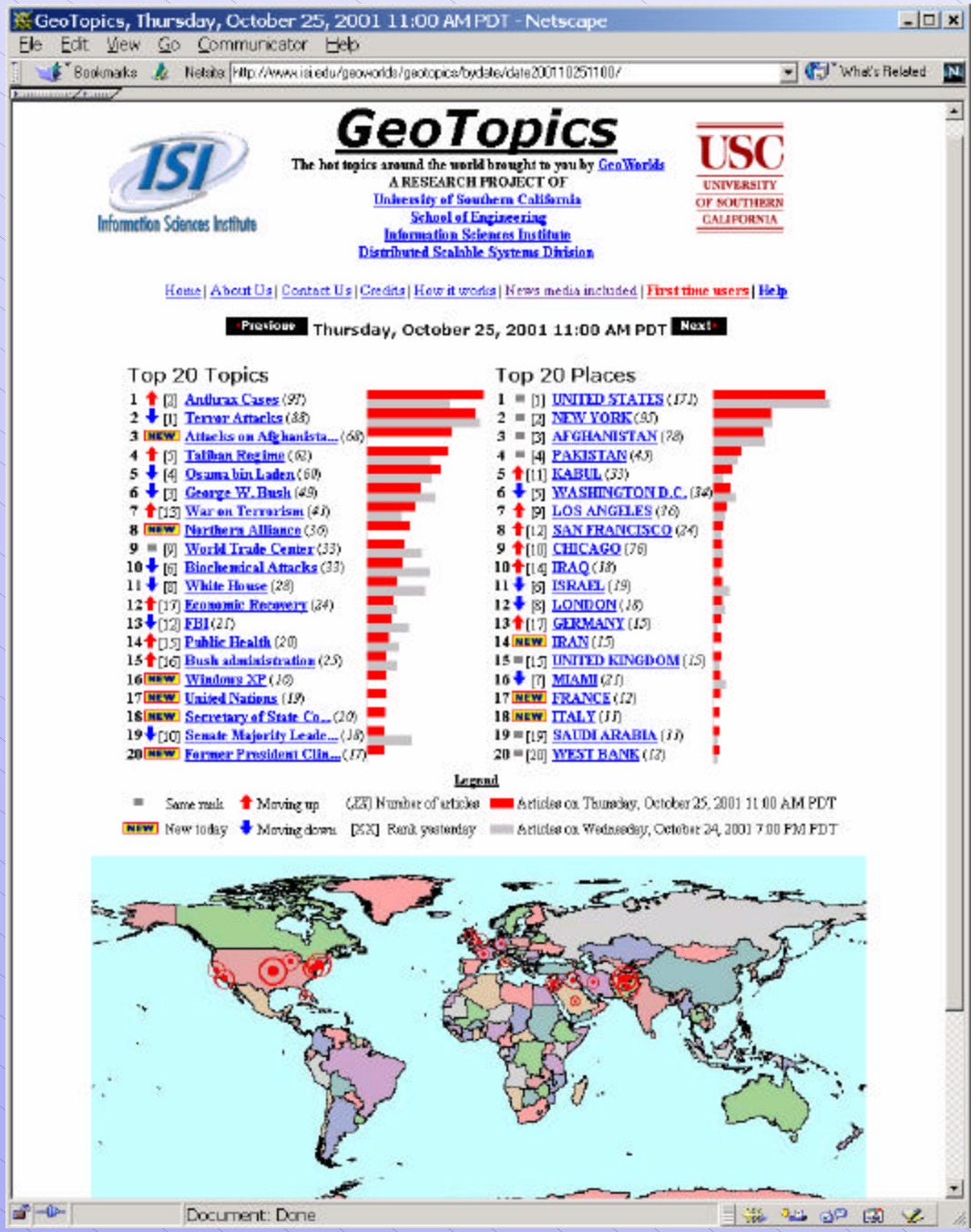
Large Apps in a Hurry





New Directions

...Actually, I'd rather there weren't any comments. If I want to know what it does, I'm better off reading the code.

-- Pedro Szekely

- Extraction / reverse engineering / re-engineering tools
- Wrapper generators
- Run-time monitoring and repair
- Structure modeling and mapping
- Collaborative requirements refinement