



## Geospatial Architecture Subgroup of the MetroGIS Technical Leadership Workgroup

Monday, August 11, 2008  
**DRAFT** Meeting Summary

1:00 to 3:30 p.m.  
Metropolitan Council, Room LLB  
390 Robert St. North, St. Paul

Members Present: David Bitner, Chris Cialek, Jessica Deegan, Jessica Fendos, Josh Gumm, Lesley Kadish, Mark Kotz, Steve Lime, Matt McGuire, Charley McCarty, Nancy Read, Alison Slaats and Hal Watson,  
Members Absent: Dan Ross, Don Cheney, Brian Fischer, Mike Dolbow, and Ron Wencil  
Staff Present: Randall Johnson (MetroGIS Staff Coordinator)

### 1. Welcome and Introductions

Mark Kotz called the meeting to order at 1:35 p.m. and thanked the members for agreeing to participate on this group. Each of the attendees then introduced themselves.

### 3. Charge from MetroGIS and GCGI Involvement

Kotz explained that this subgroup was created to assist the MetroGIS Technical Leadership Workgroup in developing recommendations for how to proceed on six shared-application related tasks recently assigned to it by the MetroGIS Coordinating Committee. Kotz went on to provide a brief overview of two of these tasks, which are the responsibility of this Geospatial Architecture Subgroup:

- To identify issues and solutions related to trusting and using web services
- To define a more fully fledged mechanism – a broker – to discover and acquire or use geospatial data, web services, applications and other resources.

He then that noted MetroGIS leadership felt is important and appropriate to seek participation of Governor's Council on Geographic Information (GCGI) Standards Committee members and other state representatives to participate in this effort because the topics apply statewide and any efforts to implement a broker must be coordinated with state agencies. Given the expertise possessed by the individuals present, Kotz stated that he assumed that everyone is familiar with the concept of web services and asked if there were any questions about the tasks assigned to the subgroup. No questions or comments were offered.

### 2. Approve Agenda

The meeting summary was accepted as proposed with the exception that the group agreed to consider Item 6 before Item 5.

### 4. Appoint a Chairperson

Kotz asked if anyone wished to volunteer to serve as chairperson, noting that he would accept this responsibly if the members so wished. The group accepted Kotz to serve as chairperson of this Geospatial Architecture Subgroup of the MetroGIS Technical Leadership Workgroup.

### 6. Issues Associated with Relying on Other Organization's Web Sites

McGuire provided an overview of material that was presented in agenda packet, beginning on page 4. Central points of his presentation included:

Trust Issues: The following three statements were offered to frame discussion and resolve trust issues important to implementing a system to effectively share web services among organizations:

- How can I know how reliable a web service is?
- What if the provider changes the parameters?
- How can I know they won't just stop the service someday?

Trust Strategies for Web Service Networks. Five strategies McGuire identified in the literature were highlighted. The “centralized” option was pointed out as the strategy that most closely aligns with the vision outlined in the GIS Enterprise Conceptual Architecture Design that has been previously endorsed by the GCGI. The responsibilities listed in the agenda packet for the Enterprise Broker and Enterprise Service Provider roles were not discussed by the group.

Quality of Service: Nine measures of “quality of service” as listed in the agenda materials were summarized by McGuire. A wide ranging discussion ensued during which the group concurred:

- “Trust” means knowing what to expect or that a service or application behaves as expected, but does not necessarily require a specific level of service. It is more a predictable level of service
- The term “Broker” entails two major components – a machine environment (enterprise broker) and human administrative environments (broker administrator). All concurred that the presence of the human environment would add substantive value.
- A “broker” is not designed to guarantee service but rather to monitor performance and report the results for users to judge for themselves if a particular service is appropriate for their needs.
- There is a need for criteria upon which to accept or reject a service for inclusion in a broker environment.
- A question about whether the “broker” in question will be used for mission critical/life dependent applications led to a wide ranging discussion. Comments included:
  - Recognition for the need for clear and complete documentation, performance monitoring with the ability of users to offer ratings to others to use when deciding the suitability of a particular service.
  - Recognition that even if a particular service/dataset is not meant to be used as a component of critical support tools, that a rapidly increasing number of individuals/organizations are using these resources more often, thereby, the need for complete and accurate documentation is increasing in importance.
  - Johnson encouraged the group to integrate the concept of “endorsed regional dataset” into its recommendation, regarding its expectations for producers of web services. For example, he noted that over 200 datasets are downloadable via www. DataFinder.org but that only 8 of them are “endorsed regional solutions”. This distinction is important and a fundamental function of MetroGIS because it means that specific custodial roles and responsibilities have been agreed upon and endorsed by the MetroGIS Policy Board and that a willing and able custodian organization(s) has accepted responsibility to carry them out. Only a few such solutions exist because they are limited to shared information needs that have designated as priorities of the stakeholder community by the MetroGIS Policy Board.

Kotz offered several suggested next steps for discussion:

- Clarify what comprises comprehensive documentation of a web service and suggesting that a good starting point might be to review lessons learned from the GeoServices Finder project, in particular, that project team’s investigation of best practices and standards promoted by the OGC, FGDC, etc. Bitner commented that this may be a good reason to follow-up with OGC on their encouragement to MetroGIS to become a member.
- Beginning with the list presented by McGuire, agree on a list of key characteristics that must be addressed to achieve “trust” in a web service. The group concurred that Item 5a should be modified from “accurate/complete” to conform with specifications” and add an Item 10- Longevity/Temporal

- Further define the roles of the Broker (both machine and human) and the Enterprise Service Provider with respect to quality of service and trust.
- Implement a testbed broker through which to test and refine through actual use. The test site should include a means for the user to offer comments about anything they wish to comment on in addition to the ability to rate satisfaction with a particular service. Qualitative feedback is as important as quantitative.
- Develop a template or model for a Service Level Agreement.

The group concluded this discussion by concurring that its eventual recommendations might very well call for a new approach that merges functionality supported by DataFinder and GeoServices Finder into a new more intuitive “portal”.

It was also agreed that for the time being this workgroup’s “tie” to the Mn Drive to Excellence initiative should be limited to keeping D2E’s leadership apprised of this group’s efforts.

## 5. Broker

Alison Slaats, MetroGIS DataFinder Manager, summarized why the “broker” topic is currently a priority initiative by MetroGIS –

- more types of data and information related products available
- users want access to more products,
- need to convey more information about the products to help users evaluate suitability for their needs,
- need a better way to search (searching only by catalogue listings is no longer effective).

Slaats also called attention to past “portal” development related work by MetroGIS and the Governor’s Council on Geographic Information (GCGI) as well as a paper authored by ESRI that frame the issues and offer preferences that will be useful to carrying out the group’s charge.

She closed her comments with a suggestion to use DataFinder as a testbed to help decide the appropriate path for achieving next-generation broker/portal functionality, that is, whether to pursue refinements to existing DataFinder and GeoServices Finder applications or elect to consolidate their functionality into something new. She suggested that such a testbed involve:

- investigating “off the shelf” broker/portal solutions as a place to start the design process
- refining roles and responsibilities and identifying candidate organizations willing and capable to support these responsibilities
- defining the roles for MetroGIS and GCGI. Alison Slaat’s presentation slides:  
[http://www.metrogis.org/teams/workgroups/shared\\_app/phase2/meetings/broker.ppt](http://www.metrogis.org/teams/workgroups/shared_app/phase2/meetings/broker.ppt)

Slaats then presented a table of major broker functions, together with subordinate activities in each major category, (see Attachment A) that she assembled from the sources mentioned above and which she augmented from her personal understanding. A wide ranging discussion ensued. Highlights are as follows:

- Clarification from Cialek that LMIC has no plan in the works to modify the existing MN GeoGateway or GeoServices Finder applications. LMIC is deferring work related to the next generation broker until outcomes of the Mn Drive to Excellence initiative are known.
- The GCGI paper cited by Slaats does a good job of identifying the breath of behind the scenes administrative responsibilities required to successfully administer a “broker” function.
- There is a need to decide how to best leverage the two means of supporting searches – Z39.50 searches of multiple nodes in real time (Mn GeoGateway) versus data harvesting via use of crawlers and caching of the results to search against (Geospatial One Stop).
- In the course of creating a broker, the group concurred that it needs to be careful not to create unintended bottlenecks that would hamper producers from being able to make their data or

services available via the broker. (Provide tools to empower the producer to publish themselves to the extent they wish to do so to minimize the barriers to publishing data.)

- The concept of pursuing a federation of local brokers, coordinated via a centralized system of registration, was acknowledged as a design objective. All concurred that this outcome is consistent with an objective of the current Drive to Excellence initiative. This concept (system of federated local brokers) was acknowledged as a key to interfacing with non-traditional producers (e.g., Historical Society) and, thereby, a key to growing the system of searchable resources and participants.
- The group needs to be clear on definitions (e.g., replace “portal” with “front end”)
- The group needs to be clear on the components of a broker (front end, standards, machine to machine communication, human versus machine, etc.)
- The solution should provide users with an efficient way to obtain temporal versions of data.
- “Provide Training and Assistance to Prospective Service Providers” should be added to the matrix of activities for the Broker Administrator.
- It was agreed that the geographic extent of data and services need not be the entire region or the entire state, in the case of the eventual state implementation. All data and service holdings are candidates to be included in the search mechanism.

In response to a question about coordination with the state’s Drive to Excellence initiative, Kotz commented that the MetroGIS Policy Board has previously decided that MetroGIS should move forward on initiatives that have implications beyond the Metro Area, as opposed to waiting for the state to implement solutions, but also to keep the state apprised of the group’s activities. No one raised a concern with this intent.

Slaats and Kotz then offered the following suggested next steps:

- Refine list of broker functions
- Define role for MetroGIS (what should it try to do now, what should wait for state?)
- Compare desired functions to off the shelf product capabilities
- Determine if an off the shelf product should be used and if additional design work will be needed to meet all desired functions
- Recommend a course for achieving the desired functions (Implementation Plan)

The group concurred that the following ideas should be added to the list of next steps:

- Research activities in progress in other states, in particular, North Carolina, and internationally, that can be leveraged for this project.
- Include in the implementation plan, creating a testbed to the “kick the tires” on a next-generation functionality to facilitate implementation on a larger scale.
- Include an assessment of user needs to clarify the functionality that users desire really want. (*so we are not building something we don’t need*)
- Articulate the benefits of sharing services and of achieving a system that effectively supports sharing of services.

## 7. Next Meeting

It was agreed:

- To continue to address the two assigned tasks as a single subgroup,
- That two hour meetings are appropriate,
- That 1, possibly 2 meetings should be planned on in September. It was agreed that each member would explore related activity in other parts of the country that might provide examples of broker and front end implementations to share at the next meeting.
- That Kotz will look into setting up demonstrations of “off the shelf” portal software for an upcoming meeting. The purpose of these demonstrations is to develop a list of research questions and begin to define functionality to be included in a testbed through which the MetroGIS community would aid in testing and refining.

**8. Other Issues**

*None offered*

**9. Adjourn**

The group adjourned at 3:20

*Prepared by Randall Johnson*

*MetroGIS Staff Coordinator*

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## Broker/Node Discussion

*Initial function list*

<p><b>Service Search</b></p> <ul style="list-style-type: none"><li>- Spatial data</li><li>- Metadata search</li><li>- Structured interface</li><li>- Catalog (list)</li><li>- Cross-selling (recommendations)</li></ul>	<p><b>Inform</b></p> <ul style="list-style-type: none"><li>- News/discussion forum</li><li>- Standards &amp; cookbooks</li><li>- Thesauri &amp; gazetteers</li></ul>
<p><b>Service Discovery</b></p> <ul style="list-style-type: none"><li>- Metadata viewer</li><li>- Map viewer</li><li>- Link to content provider</li><li>- Connect to service</li><li>- Download service</li></ul>	<p><b>Administration</b></p> <ul style="list-style-type: none"><li>- Catalog maintenance</li><li>- Harvesting</li><li>- Security &amp; User management</li><li>- Hardware/network support</li><li>- User profiles (preferences)</li><li>- Back-end database</li><li>- Service Approval &amp; trustworthiness</li><li>- Service Monitoring</li><li>- Metrics of usage</li></ul>

## Broker/Node Discussion

Initial functions vs. sites analysis

<b>Functions (needs?)</b>		<b>MetroGIS DataFinder</b>	<b>LMIC GeoGateway</b>	<b>DNR Deli</b>	<b>MNDOT Base Map</b>
<b>Search</b>	Metadata search	Yes	Yes	No (yes via LMIC)	No (yes via LMIC)
	Structured search interface	Yes	Yes	No (yes via LMIC)	No (yes via LMIC)
	Spatial data	Yes	Yes	Yes	Yes
	Catalog (list)	Yes	Yes	Yes	Yes
	Cross-selling (recommendations)	No	No	No	No
<b>Discovery</b>	View Metadata	Yes	Yes	Yes (Full/Brief)	Yes
	Download data	Yes	Yes	Yes	Yes
	Download user-defined subset of data	Yes (Cafe)	Yes (NorthStar mapper)	Yes	No
	Map viewer (to view data)	Yes (Cafe)	Yes (NorthStar mapper)	No	No
	Services available	Yes (all downloadable data)	Some data available	Some data available	No
<b>Administration</b>	Catalog maintenance	Yes	Yes	Yes	Yes
	Harvesting				
	Security & User management	Yes (FTP only)			
	User profiles (preferences)	No	No	No	No
	Back-end database	Yes	?	Yes	?
	Hardware/network support	Yes	Yes	Yes	Yes
	Service Approval/trustworthiness	No			
	Service Monitoring	No (ad hoc only)			
Metrics of usage	Yes	Yes	Yes	?	
<b>Info rm</b>	News/discussion forum	Yes (RSS)			
	Standards				Projection Files
	Thesauri/gazetteers				