

NSDI Cooperative Agreements Program

Geospatial Platform Cloud Service Testbed

Interim Report

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Interim Report

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Collaborating Organizations: None

Executive Summary

Despite the many personnel issues of the past six months, we have been able to get beyond the testing phase and have a production ArcGIS for Server 10.1 server running in Amazon's EC2 cloud. The move of data up to it is not yet complete, but we hope to have the majority up on the server in November to begin speed and stability testing against our newly upgraded GIS servers on-site at Coeur d'Alene Tribe's Technology Building.

Project Narrative

This project got off to a rough start last spring. One of our IT Techs retired in February putting a strain on the IT Department which the GIS Program is a part of. Then, our Network Manager left for another job in March. Our Senior GIS Analyst, Berne Jackson, had to fill in as interim Network Manager for the next four months and this diverted him from the project. We lost one of our GIS Techs, Jennifer Grew, in July who had been spearheading this project for our group, and then we lost our other GIS Analyst, Jason Trook, to another job in August. He had also been involved in this project. Consequently, we did not really get started until into August when Berne Jackson was able to allot some time to the project. We were also not able to spend much time on it in October due to the major hardware and ArcGIS 10.1 software upgrades that Berne Jackson had the responsibility of doing.

We have been trying to attend the biweekly phone/web meetings. These meetings seemed to be aimed at the other CAP grant projects (at least in the early months), and so there was some confusion on our part as to our participation in the Amazon "sand box" that had been set up to do training and prototyping. Apparently, our project was different than most of the others and we were not supposed to have access to the sand box. We were given credentials to it and so we did some early experimentation there. When it was discovered that we had Amazon incidents there, we were invited to leave and get our own Amazon account set up. It took over a month to get this account set up with Amazon and approved through our accounting/contracting system. It also took some time to get access to ESRI's AMI's.

While we were waiting for access to the ArcGIS Server AMI's, Berne Jackson created a Windows/ArcGIS Server EC2 server from scratch and uploaded ESRI software and some data to it for some testing purposes. Also, it would make a good comparison task when the AMI's and ESRI's Cloud Builder were available and let us see how Amazon billed for the server time. Generally, he found that building the ArcGIS Server was little different than setting one up on a physical computer. Certainly, the Windows server has different ways of configuring getting through Amazon's firewall, but overall the experience was similar.

When the ESRI AMI's became available, Berne Jackson attempted to use the Cloud Builder software, but was unable to get the software to authenticate to the Tribe's Amazon account. This may take some further help from ESRI to make work. Since it is very simple to create these servers from Amazon's website, it seems there is little advantage in using the Cloud Builder software. However, if we ever get it to work, it may show us otherwise. Alternately, he built a new EC2 server directly from Amazon's website using the available ESRI AMI for a Windows/SQL Express ArcGIS 10.1 server. While this came with all of the ESRI software already installed, it still needed to be configured and licensed. The difference between the server built from scratch and the one using the AMI amounted to the time it takes to upload the software and install it, approximately 45 to 60 minutes. So far, we have seen little other advantage to using the ESRI AMI.

Next Steps

In the coming months, we hope to get more data uploaded to the server so we can begin testing. Right now, Berne Jackson has move a small amount of vector data and some ArcMap projects to the test server to begin configuration of the server and to build some web maps. As we are primarily a Flex mapping shop, we will probably use a combination of web maps we have already built and some created using the Flex Application Builder from ESRI. We have experimented with this map builder a little and it shows great promise as a rapid application building solution.

We are hoping to eventually use multiple servers to experiment with Amazon's load balancing capabilities, but that may depend upon what data we will be eventually hosting in the cloud. We may eventually put some of our high resolution 6 and 12" imagery and derived products from our 1 meter LiDAR on the site. Much of this will depend on the availability of staff within our group.

It will be interesting seeing if we can easily get OGC services running and available. Our experience with this in the past has been limited and not very successful. Configuring and keeping a WMS service for the National Map running on past versions of ArcGIS Server has been problematic for us. Perhaps it will be better in 10.1 and maybe there will be some help from the group around this issue.

We have recently hired a new Tech, Terri Stamper, and we are in the process of hiring a new Analyst. Hopefully we will have this new person on board in November and the plan is to get them involved with this project. By the beginning of December, we hope to be back to our normal staff numbers. Much of the work will still be done by Berne Jackson, but he is hoping to move some of the load off to the new Analyst.

As our IT Director has great reservations about doing anything in the Cloud, it is unlikely we will be able to put any of the Tribe's sensitive data in and EC2 server. Fortunately it should not hamper this test project. The long term availability of this test site after the grant period is over is probably unlikely. Hopefully if funding is available, we will be able to continue it.