P1.20   **CREATING A COMMUNITY DRIVEN PORTAL WITH WEB SERVICES**

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1. Introduction

In 2000, the UPC (Unidata Program Center) began the task of creating a community web portal. The goal was to create a site that provides our community with "point and click" software licensing, content personalization, and web based collaboration tools. Since online licensing was implemented in 2001, the Unidata portal has grown to over 4000 members from 52 countries.

While the portal (http://my.unidata.ucar.edu) has improved the way we distribute information and software by taking advantage of content management and online software licensing, we have yet to implement the personalization and collaboration areas of the site. With those two items still being high level goals, the main focus of recent development has been centered around usability; making it easier for community and staff to take advantage of the tools that are already in place.

As a first step, we built the current portal to be very news-driven. This has worked well to keep the community up to date on UPC related news, but it falls short of being a resource that our broader community can use. We want to do more than tell the community what we are doing, we want our community to share what they are doing as well. Providing this type of interactivity will be the primary goal of any future versions of the Unidata portal.

At this time, we're considering moving forward with a different approach. Rather than trying to provide all of the site's content and functionality, we're going to allow the community to post news and register news feeds and web services that they are interested in. While this process will be moderated, there will still be a wide variety of acceptable topics. This new process will help to keep the site content current and give the Unidata community the opportunity to create a site that can serve a broader set of needs. In order to take advantage of these technologies, the current

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framework will have to be redesigned.

2. RDF (Resource Description Framework) Site Summaries

RSS (RDF Site Summary) is a general term used to refer to XML file formats that are used for news syndication. While there are several versions of RSS formats in use, the majority of web sites use either the RSS-DEV working group version 1.0 or the UserLand version 2.0 formats. The main difference between the two competing formats is that RSS 1.0 is actually an RDF (Resource Description Framework) file. Regardless, both formats generally contain identical information.

RSS news feeds provide a simple means for web sites to syndicate their stories to anyone that wants to display them. The main advantages to using RSS feeds are that minimal effort is needed to display the content, permission does not have to be specifically granted to display the content, and because most RSS feeds are completely automated, they never have to be maintained.

Any web site can use another web site's RSS feed to generate stories that refer readers back to the site of origin for more information. By taking advantage of this, the Unidata site will be able to display news from our member institutions and other science-related sites without having to do anything more than register the location of the feed. With this in place and a steady flow of site content, it will be possible to consider moving forward with site personalization and provide users with the capability to display only the feeds that they are interested in.

3. Web Services

With our new portal framework, currently in design, Unidata community members will also be able to take advantage of web services. These services will allow users to see and use applications, data products, and information from other Unidata member sites without having to leave the Unidata portal and without the necessity for the UPC to maintain those applications, products, and information. This gives community

members more to choose from when they come to our site without the UPC having to add more staff. Unidata will also be sharing its own web services with the community for use in external applications and web pages.

Web services provide a method for web-enabled applications to obtain data from other web applications by accepting predefined arguments via XML-RPC, SOAP, or even get and post variables and then returning the requested data in an XML (Extensible Markup Language) formatted file over the internet. Not only do they provide a convenient way to bridge physical space between servers, but also a way for applications written in different languages to communicate with each other.
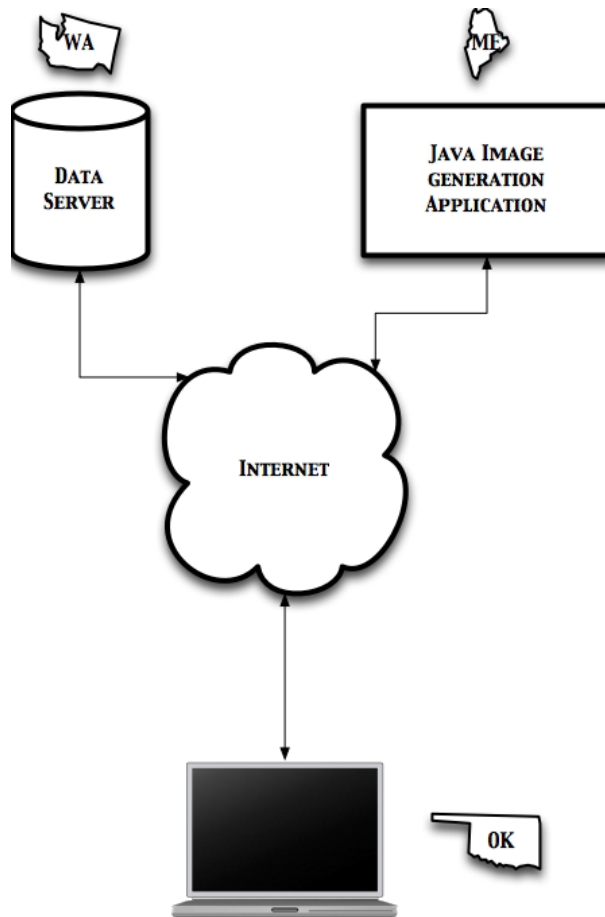
In image 1, a person in Oklahoma is using a web-enabled application on their desktop to retrieve data from a server in Washington. Once the server in Washington receives the request, it locates the requested data and sends it back to the client. The desktop application then sends the data to a Java application running on a server in Maine to have it generate an image. Upon completing the creation of the image, the Java application returns a URL to the client application so that it can display the image to the user.

In image 2, which is a more realistic example, a central authentication server exists to maintain information for several organizations that share a user-base. Only three servers are allowed to use the authentication server and are identified by IP. When a person logs into any of the three allowed systems, the central authentication server is contacted by the client to verify or return user information. If an un-trusted system attempts to connect, they are turned away. What makes this model useful is that the trusted systems and the central authentication can be located in separate locations, anywhere in the world.
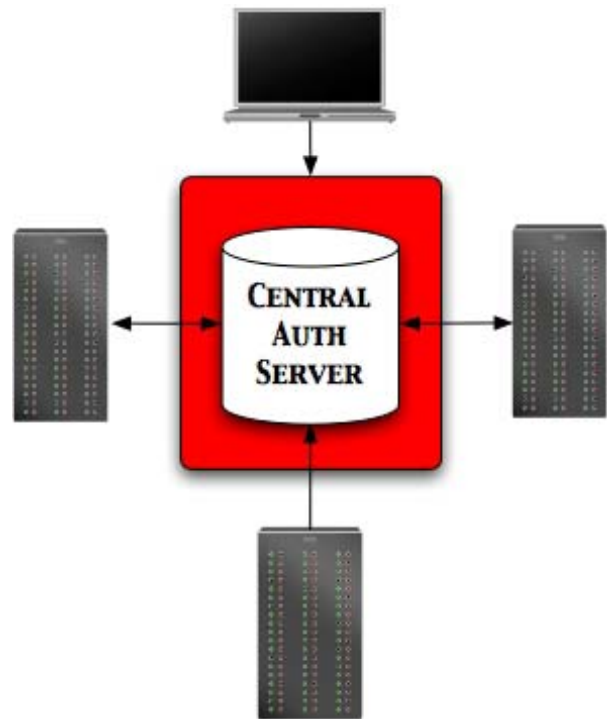
Image 1

Image 2

4. Looking Forward to the Future

By taking advantage of new technologies and staying on the forefront of web development, the UPC intends to create a truly "community driven" site that allows its members to create and share news and applications with other members and visitors to the site. We hope to create a more cohesive community and help foster new collaborations that extend well beyond our current audience, which consists primarily of atmospheric science related backgrounds.

Another positive effect of moving to a web service framework is that it will significantly decrease development time and finally make it possible for the portal to evolve quickly enough to keep up with the increasing needs of the community.

We're very excited about moving in this direction and look forward to working more closely with the community toward building a site that we all share and find relevant.

5. References

XML 1.0 Specification:
http://www.w3.org/TR/1998/REC-xml-19980210

RSS 1.0 Specification:
http://web.resource.org/rss/1.0/

RSS 2.0 Specification:
http://blogs.law.harvard.edu/tech/rss

XML-RPC Home Page:
http://www.xml-rpc.com

SOAP Home Page:
http://www.soapware.org