Developments in the GPN
Shibbolized Virtual Organization
Testbed

Oklahoma Supercomputing Symposium
Oct. 3, 2007

William G. Spollen, Denis C. Hancock,
Mohammed Khalililia, Gordon K. Springer

Division of Information Technology/Research
Support Computing, University of Missouri-Columbia
Points to make today:

• Entitlement server (ES)
  – ES and Service Provider (SP) mutually authenticate each other when communicating
  – Public key encryption for authentication and privacy

• Multiple VOs, possibly with overlapping resources (e.g., GPNVO and UMVO)

• Possibly distributed entitlement servers

• Administration of entitlements highlights the fine-grained authorization

• Session ID database allows admin to see activity
Sept. 24, 2007
NSF: What is the intellectual merit of the proposed activity?

“To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? … Is there sufficient access to resources?”

From “Important Notice No. 130: Transformative Research”,

Shibboleth can provide a single sign-on to access resources at several institutions.
Original Shibboleth Protocol
Entitlement Server Integration with Shibboleth
User

1: request by URL

Entitlement Server

Service Provider

Identity Provider

TCP/IP uses public key encryption for authentication and privacy

Page
The resource that you have attempted to access requires that you log in with your Institution's User ID and Password.

Select your University or Organization: University of Missouri - Columbia

If you belong to a GPN member organization but do not see your institution in the list, please contact Rahul Deshmukh, GPN Technical Coordinator, at deshmukh@ksu.edu.

Copyright 2007, The Great Plains Network
GPN-VO BioSci
Bioinformatics Tools

User: spollenw@missouri.edu

Please select one of the following analysis tools:

- WWWBlast: Run the Web Version of the Blast Tool
- mpiBlast - Raptor: Run the MPI Version of the Blast Tool on Raptor
- mpiBlast - Lewis: Run the MPI Version of the Blast Tool on Lewis
- ClustalW: Run the ClustalW Utility
- DeCypher: Run the DeCypher Bioinformatics Engine (UMC Only)
- UALR Resources: Access Resources at UALR (UArk, Little Rock)

Print This Page

Please send comments to: wwwadm@rnet.missouri.edu
This debug illustrates the communication between ES and SP
Please select a role:

- [ ] Administrator
- [ ] Root Administrator

Virtual Organization: greatplains.net

Submit

Close Window

Print This Page

Page Generated Tue Oct 2 23:14:36 2007
Please send comments to: wwwadm@rnet.missouri.edu
Please use the following options in order to accomplish your task.

Your privilege level: admin
Your virtual organization: greatplains.net

Please select one and fill the text boxes below accordingly:

- Add a new entitlement - Fill User Name, Institution Name, Virtual Organization Name, Entitlement value
- Delete an existing entitlement - Fill User Name, Institution Name, Virtual Organization Name, Entitlement value
- Lookup an existing entitlement - Fill User Name, Institution Name, Virtual Organization Name, Entitlement value
- Display all entitlements of the user - Fill User Name, Institution Name, Virtual Organization Name value
- Display all the users with the entitlement - Fill Entitlement value
- Display all records
- Logout

User Name: spottenw
Institution Name: missouri.edu
Virtual Organization: greatplains.net
Entitlement value: urn:mace:greatplains.net

The values "user", "admin" or "root" are reserved. Please use only if appropriate!

Submit
### GP.Middleware Shibboleth VO Entitlement Management

<table>
<thead>
<tr>
<th>Index</th>
<th>VO</th>
<th>Institution</th>
<th>UserName</th>
<th>Entitlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>greatplains.net</td>
<td>missouri.edu</td>
<td>spollerw</td>
<td>root</td>
</tr>
<tr>
<td>2</td>
<td>greatplains.net</td>
<td>missouri.edu</td>
<td>spollerw</td>
<td>urn.mace:greatplains.net.bioisci</td>
</tr>
<tr>
<td>3</td>
<td>greatplains.net</td>
<td>missouri.edu</td>
<td>spollerw</td>
<td>urn.mace:greatplains.net.biogrid</td>
</tr>
<tr>
<td>4</td>
<td>greatplains.net</td>
<td>missouri.edu</td>
<td>spollerw</td>
<td>urn.mace:greatplains.net:GPNVO</td>
</tr>
<tr>
<td>5</td>
<td>greatplains.net</td>
<td>missouri.edu</td>
<td>spollerw</td>
<td>urn.mace:greatplains.net:repository</td>
</tr>
<tr>
<td>6</td>
<td>greatplains.net</td>
<td>missouri.edu</td>
<td>spollerw</td>
<td>admin</td>
</tr>
<tr>
<td>7</td>
<td>greatplains.net</td>
<td>missouri.edu</td>
<td>spollerw</td>
<td>urn.mace:greatplains.net:missouri.edu:decipher</td>
</tr>
</tbody>
</table>

### UMVO

<table>
<thead>
<tr>
<th>Index</th>
<th>VO</th>
<th>Institution</th>
<th>UserName</th>
<th>Entitlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>umsystem.edu</td>
<td>missouri.edu</td>
<td>spollenw</td>
<td>urn.mace:greatplains.net:UMVO</td>
</tr>
<tr>
<td>2</td>
<td>umsystem.edu</td>
<td>missouri.edu</td>
<td>spollenw</td>
<td>admin</td>
</tr>
<tr>
<td>3</td>
<td>umsystem.edu</td>
<td>missouri.edu</td>
<td>spollenw</td>
<td>root</td>
</tr>
</tbody>
</table>

Return to the Administration Page
Entitlements administered by the Great Plains Network allow...

<table>
<thead>
<tr>
<th>Namespace</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>urn:mace:greatplains.net:GPNVO</td>
<td>GPNVO Entitlement</td>
</tr>
<tr>
<td>urn:mace:greatplains.net:biosci</td>
<td>BioSci Entitlement</td>
</tr>
<tr>
<td>urn:mace:greatplains.net:biogrid</td>
<td>BioGrid Entitlement</td>
</tr>
<tr>
<td>urn:mace:greatplains.net:repository</td>
<td>Data Repository Entitlement</td>
</tr>
<tr>
<td>urn:mace:greatplains.net:missouri.edu:DeCypher</td>
<td>DeCypher Entitlement</td>
</tr>
<tr>
<td>urn:mace:greatplains.net:uark.edu:webmpi</td>
<td>Web MPI Entitlement</td>
</tr>
</tbody>
</table>
... fine-grained authorization

- peter urn:mace:greatplains.net:GPNVO
- paul urn:mace:greatplains.net:GPNVO
  urn:mace:greatplains.net:biogrid
- mary urn:mace:greatplains.net:GPNVO
  urn:mace:greatplains.net:repository
- spollenw urn:mace:greatplains.net:GPNVO
  urn:mace:greatplains.net:biogrid
  urn:mace:greatplains.net:biosci
  urn:mace:greatplains.net:repository
  admin
When Peter asks for Biotools he is refused:

```
GPN-VO Repository
Menu Selections

Error! Entitlement Authorization Failure
```

Close Window
Print This Page
<table>
<thead>
<tr>
<th>Name</th>
<th>IP Address</th>
<th>Entitlement</th>
<th>Shibboleth Session ID</th>
<th>Login Time</th>
<th>Last Activity Time</th>
</tr>
</thead>
</table>

Session ID database allows admin to see activity.