Enabling Collaboration Using the Biomedical Informatics Research Network (BIRN)

Carl Kesselman, Ph.D.
Information Sciences Institute,
University of Southern California
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BIRN Capabilities

- BIRN’s mission is to enable collaborative bioscience/biomedicine
- Capabilities:
  - share data
  - provide user and group security
  - query across disparate data sources
  - construct data processing workflows
  - collaborative infrastructure (wikis,...)
Collaboration Model

• How do we support creation and operation of collaborations?
• VO lifecycle question
  – Identify users
  – Provision out services
  – Aggregate services
• Consider the following model: collaborative groups nucleate around PI or project
Typical Multi-site Study
Current Scenario

Wiki → User → Data Transfer

Provision accounts & groups

Request accounts & groups

Mgmt. → User → Mgmt.
BIRN Use Cases

• Support multiple-VOs
  – Different security and application requirements
• Support browser based access and thick clients
• Support multiple identities
  – Browser based single sign-on
  – X.509 certificate for grid-based tools
• Provision multiple applications
  – Centrally manage users and groups, and allow access to various applications
Collaborations as Groups

- Identify project members
- Assign roles and privileges based on a per group basis
- Must be “self administered”
- Must be possible to apply policy to a wide range of services
  - Data, analytic, collaboration, ....
BIRN Security

- Vet new user requests for community membership
- Provide new user identity or leverage existing
- Provide single sign-on for users
- Manage and enforce access control policy
- Manage user groups for projects within community
Requirements

• Identity Management System
  – Ability to create new accounts
  – Options to leverage existing accounts (campus account)
  – Access to X.509 certificate
• Group Management
  – Autonomous management of group
  – Configurable vetting policies per group
  – Customized registration per groups
• Single-sign on to various applications
  – Create account and groups once, use multiple applications
GO Solution Features: Group Management

• BIRN community as a group
  – Hierarchy of groups
  – Group membership as GO profile identity
• Per group vetting
  – Policies: Automatic add of user or notification of registration authority
  – User information: customized forms to collect user information
• Interfaces:
  – Web interface for administration
  – REST API for query
GO Solution Features: Provisioning

- Provision various applications with users and group information
- Choose set of groups to provision
  - E.g. Provision GridFTP server with FBRIN users only
- Choose identity type to provision
  - One of the identity types from the profile can be chosen
- Example: Provision GridFTP server and Confluence with users from group “FBIRN”
  - GridFTP server with DNs of users in FBIRN group in GridMap files
  - Confluence with InCommon identity of users in FBRIN group
Sample Walk-through

- User creates a GO identity
- User requests membership to FBIRN
- FBIRN specific form collects user information
- User submits information
- Triggers an email to the FBIRN administrator
- Administrator logs into GO, approves/rejects user request
Sample Walk-through

- Accepted user is added to FBRIN group
- User can now:
  - Log into Confluence and look at FBRIN issues
  - Obtain a short-term X.509 Certificate from GO CA.
  - Transfer data from FBIRN GridFTP server using the certificate
- User requests membership to an experiment group under FBIRN, “Phase12010”
  - Customized form and vetting process as before
  - Once accepted, user can access data on server protected by group “Phase12010”
Upgrade Scenario

- Secure access to documents
- Secure access to data
- Manage accounts and groups
- Data Transfer (Globus GridFTP)
- Wiki (Confluence)
- Provision accounts and groups
Upgrade Features

• Simplify user experience
  – Single username/password and group management
  – Consolidated web presence for various user interfaces

• Security standards compliance
  – Users can use Campus credentials (planned)
  – Use standard client tools like browsers

• Autonomous community management
  – Manage users and groups, policies without blocking on service administrator
  – Enforce community specific policies
Group Features

• Vetting policy
  – Auto approval, administrator approval
  – Information needed for approval processing
  – Customizable notifications to administrators and users

• Visibility policy
  – Of user, group, group membership
Collaboration Management

Browse Groups
- BIRNCommunity
  - Brain Morphometry
    - T1-weighted MR-based brain morphometry
    - Deformation-based morphometry
    - Voxel-based morphometry
  - Taub Institute
- Function BIRN
  - FBIRN Best Practices Committee
  - Federated Informatics Research Network
  - System Administrators
- Non Human Primate Research
  - New England National Primate Research Center
  - California National Primate Research Center
  - Wisconsin National Primate Research Center
  - Wake Forest University Primate Center
- Caribbean Primate Research Center
  - The Laboratory of Primate Medicine
  - Sabana Seca
  - The Virology Laboratory
  - Cayo Santiago
  - National Center for Research Resources
  - Southwest National Primate Research Center

Browse Groups
Browse and join groups in the BIRNCommunity

My Profile
View and change your account settings, including contact information and security credentials.

In the Spotlight
Welcome!
Welcome to the new BIRNCommunity experience, while we are in development please forward any issues or suggestions to ranantha@mcs.anl.gov.

Placeholder
This is data that would come from the BIRNCommunity.org site's own news feed, which we hope to implement shortly.
BIRN Customized Web Presence

Sign Up... BIRN has partnered with Globus Online to provide us with our community platform and tools. If you already have a Globus Online account [click here].

Full-Name: Rachana Ananthakrishnan
Email: ramanba@umcs.anl.gov
Username: rachana
Password: [entered]
Confirm Password: [entered]
Terms of Service: Last Updated: 10-Nov-2010

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Register

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Join BIRNCommunity

Full Name: Rachana Ananthakrishnan
E-Mail Address: ranantha@mcs.anl.gov
Current Project: FBIRN
Contact Phone Number: 123456789
Organization: University of Chicago
Institution: Computational Institute

Submit  cancel
Email validation is required before your request can be accepted.

Check your email inbox and proceed to the location provided, and we'll have you on your way.

Can't find your validation email?

Confirm your email address: ranantha@mcs.unl.gov

Resend
Create New Group

Name Group > Review and Set Policies > Review Settings and Activate

Name Group

Group Belongs To
- BIRNCommunity
  - Change
- FBIRN

Group Name
University of Chicago

Description
Group of FBIRN users at University of Chicago

Create Group  Cancel
Configure Group

Configure New Group

Set Policies

Group Visibility
- Public (visible to all)
- BIRN Community Members only (visible to all)
- Visible within parent group (FBIRN)
- Private (by invitation only)

Member Name Visibility
- Public (visible to all who can view group)
- Visible within parent group (FBIRN)
- Visible to this group's members only
- Visible to this group's admins only

Required Fields to Join Group
- User Name
- Full Name
- E-Mail Address
- Current Project Name
- Institution
- Organization
- Address
- City
- State
- Zip Code
- Phone

Who Can Invite New Members
- Any member of BIRN Community
- This group's members and members of FBIRN
- This group's members only
- Admin only

Who can request membership?
- Anybody can request membership to this group.
- Any member of the BIRN Community can request membership.
- Only members of FBIRN can request membership.
- Requests to join are disabled, membership to this group is by invitation only.

Approvals
- Auto approve member once all policies are met
- auto approve admin invited member once all policies are met, others require admin approval
- admin approval required

Continue Finish Later
Summary

• Pushing on managing collaboration lifecycles
  – Group management, application provisioning
• Hosted services as a critical part of the infrastructure
• Focus on self-management services that enable collaborations to organize and provision