Biomedical Informatics Research Network

- Infrastructure and services to support collaborative biomedical research
  - Organized around coordinating center and testbeds
Transition and Status

- BIRN CC Transition from UCSD to new team completed May 2009.
- BIRN Executive and Steering Committees functioning
- Working Groups operating
  - Operations
  - Security
  - Data Management
  - Information Integration
  - Genomics
  - Knowledge Engineering
BIRN Approach

• Use-case driven requirements, bottom up design
• Well defined roadmaps, features, functions
• Layered architectural approach
  – Promote reuse across communities
• Move to software and services model
  – BIRN not defined by the “rack”
• Outreach to new communities
  – More than the testbeds
Governance

BIRN Executive Committee

Steering Committee

New and Existing Users/Collaborators

Community Outreach

Data Management

Knowledge Engineering

Genomics

Information Integration

Operations

Security

TBD

Working Groups

BIRN CC Functions
Infrastructure
Communication
Personnel

Biomedical Informatics Research Network
Common User Needs

• Data sharing
  – Among well defined communities, e.g. CVRG
  – Facilitate sharing with the public
• Infrastructure, e.g. grid FTP for sharing
• Data Integration
  – Mediation across data sources / query
• Security
  – Registration, credentials
Science teams have found BIRN’s Wiki hosting useful for building their communities and orienting new members. BIRN’s email list manager makes it easy to share information with team members, fostering a sense of community and keeping members “in the loop.”

BIRN’s user registration website allows new users to sign up and obtain security credentials to access BIRN services. BIRN’s online credential service stores user credentials so that they can be retrieved and used from any computer system to access BIRN services.

Data access software gives BIRN teams a simple way to share data on their systems with other team members. Data movement tools give team members ability to upload/download or transfer data from site to site. Metadata services allow teams to describe their data in scientific terms and keep track of what data exists and where to get it.
<table>
<thead>
<tr>
<th>Collaboration Support</th>
<th>Data Sharing Features</th>
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<tbody>
<tr>
<td>A group policy management service allows teams to define groups and assign BIRN service privileges (access control) to groups.</td>
<td>Data publication tools allow teams to upload data and metadata together, improving the accessibility of new data.</td>
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<tr>
<td>An online capability registry allows users to browse and search for BIRN capabilities and data collections and allows teams to “advertise” the capabilities they provide.</td>
<td>A data mirroring service allows BIRN sites to mirror (copy and keep up-to-date) collections of data on local servers for improved accessibility.</td>
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<td>Our data access software supports the group access controls defined in the group policy management service.</td>
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<td>A first release of query tools allows users to perform structured queries across multiple (heterogeneous) data sources.</td>
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BIRN Testbeds

• Function BIRN
  – Using Grid FTP
  – Data and tools transferred from old BIRN CC
  – Supplement on infrastructure

• Mouse BIRN
  – MBAT demos with new communities, including NPRC

• Morph BIRN
  – Data and tools supported
FBIRN Data Grid

Data Publishers and Upload Data

Register and Upload Data

Query HIDs

Locate and Retrieve Data

Replica Location Service

Data Grid

GridFTP Servers

Data Transfers and Replication

Replica Location

Data Users
FBIRN Data Integration: HID and XNAT

User query: find all male patients over 50 with t1 scans

Results integrated from XNAT and HID

HID results

XNAT query

SQL query

HID query

XML query

Human Imaging Database
Oracle DB

EXtensible Neuroimaging Archive Toolkit
Web service API
New BIRN User Groups

- Cardio Vascular Research Grid - CVRG
  - Data sharing solution built on MEDICUS
  - Data integration
  - Working through detailed use case

- National Primate Research Center Consortium
New BIRN User Groups

• National Database for Autism Research - NDAR
  – NDAR reps working with BIRN WGs
  – Following FBIRN/Grid FTP model

• CFIDS - foundation supporting chronic fatigue syndrome research
  – Sharing data between six sites
  – BIRN on their agenda for mid-Sept meeting
  – www.CFIDS.org
New BIRN User Groups

- Three projects are RO1s from the PA
  - Northwestern - Schizophrenia MRI and tool
  - UCI - Ontology project
  - UCSD - HeadIT - Electrophysiology data and tool

- Preliminary interactions
  - CTSAs at Harvard, Chicago
  - National Eye Institute
  - National Institute of Neurological Disorders
BIRN website

- Launches October
- http://www.birncommunity.org