

Enabling Biomedical Collaboration with the Biomedical Informatics Research Network (BIRN)



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What is BIRN?

BIRN is a national initiative to advance biomedical research through data sharing and online collaboration. Funded by NCRR, BIRN provides data-sharing infrastructure, software tools, strategies and advisory services – all from a single source.

BIRN focuses on the biomedical research community's intensive data sharing and analysis needs evident in fields such as biomedical imaging and genetics.

BIRN provides a software-based framework based on the needs of research teams for sharing significant quantities of data – rapidly, securely and privately – across incompatible computing systems. Groups may choose whether to share data internally or with external audiences. In either scenario, hardware and data remain under the control of individual user groups.

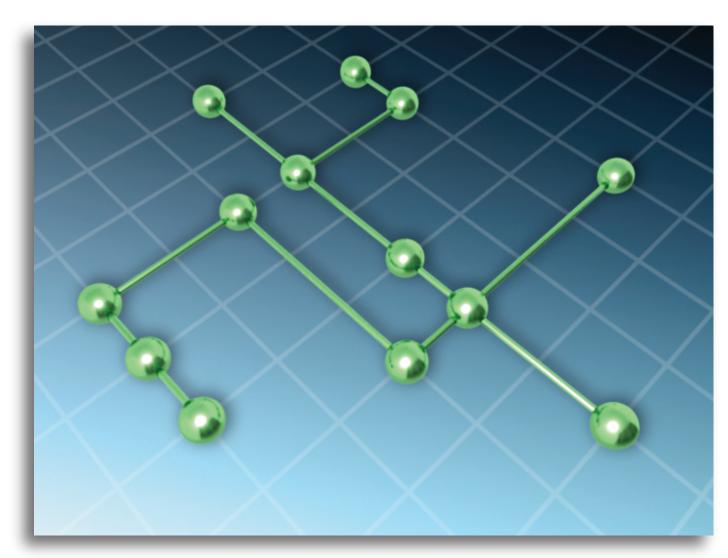
We also offer data-sharing software tools specific to biomedical research, best practices references, expert advice, and other resources. BIRN is actively developing new data-sharing tools, authorization capability, and knowledge engineering tools to help researchers make sense of new information in unique ways.

BIRN fast facts:

- Begins with user needs in a 'bottom-up' approach.
- Does not require extensive retooling or strict standards compliance by users.
- Employs leading-edge, grid software-based approach.
- Involves users as technology development partners.

Sharing Data and Tools through BIRN

- Facilitate collaborative research through sharing of research data
- Use BIRN capabilities to enhance your own infrastructure
- Find data by querying across heterogeneous data sources
 Manage users and access control to data



1) Build a grid-based Research Network to your group's specifications

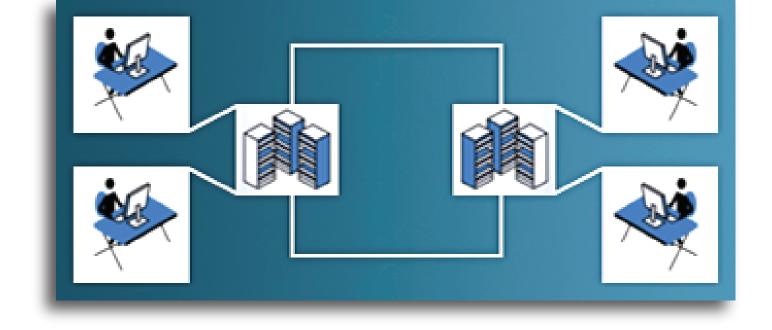
- BIRN's Data Management tools support both federated and central repository data storage models. Data transfer is accomplished using GridFTP, part of the Globus toolkit.
- Data in separate data stores can be queried using the BIRN Mediator. All databases are supported (relational, xml, flat files, MySQL...)
- Domain models for the data can be constructed using our Knowledge Engineering tools and linked to outside information relating to your data.
- Group and User Management tools, including single-sign on, allow groups to seamlessly manage data access.
- BIRN's Operations tools can help monitor the data flow between sites.
- Genomic data can be accommodated using our SNPLim database.



2) Use the BIRN Capability Kit to enhance your existing systems

BIRN provides integrated capabilities in the following areas:

- Data Management
- Knowledge Engineering
- Information Integration
- Operations
- Security
- Genomics



3) Share data and tools within your group or with the public

• Use grid-based tools to share data from multiple sources. Query this data without having to modify your underlying data.

BIRN Sites and Collaborators UW GH Brigham & Women's Harvard UCSF Stanford UCDavis UCLA UCI Catlech UCSP UCLA UCI Catlech Wash U. Baylor Legend Main BIRN site Collaborators: Function Mouse NHPRC CVRG BIRN PA Awardees Others

BIRN is a nationwide consortium that:

- Consists of technology development sites as well as specialized domain-knowledge sites.
- Facilitates data sharing in the biomedical community.

Working Groups:

BIRN is structured as capability-specific Working Groups. Each Group works directly with users on their specific projects and also coordinates cross-disciplinary efforts among Groups for cross-cutting projects.

Knowledge Engineering: Construction of domain data model, linking of data to outside information sources.

Genomics: Storage of genomic data using SNPLim, linking of genomic and additional data, sharing of genomic data.

Security: Screen new user request for community membership, new user identity, single sign-on for users, access control policy, address potential security issues.

Operations: Capability registry, monitoring of data sharing processes.

Information Integration: BIRN Mediator, assistance with mapping of individual data source schemas to domain model.

Data Management: Scalable data sharing tools based on GridFTP, integration of data stores and other BIRN services. Support of large and small data transfers. Data location registry for federated systems.