



Creating a Research Network Using the Biomedical Informatics Research Network (BIRN)

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What is a Research Grid?

A Research Grid is system that 'connects' users

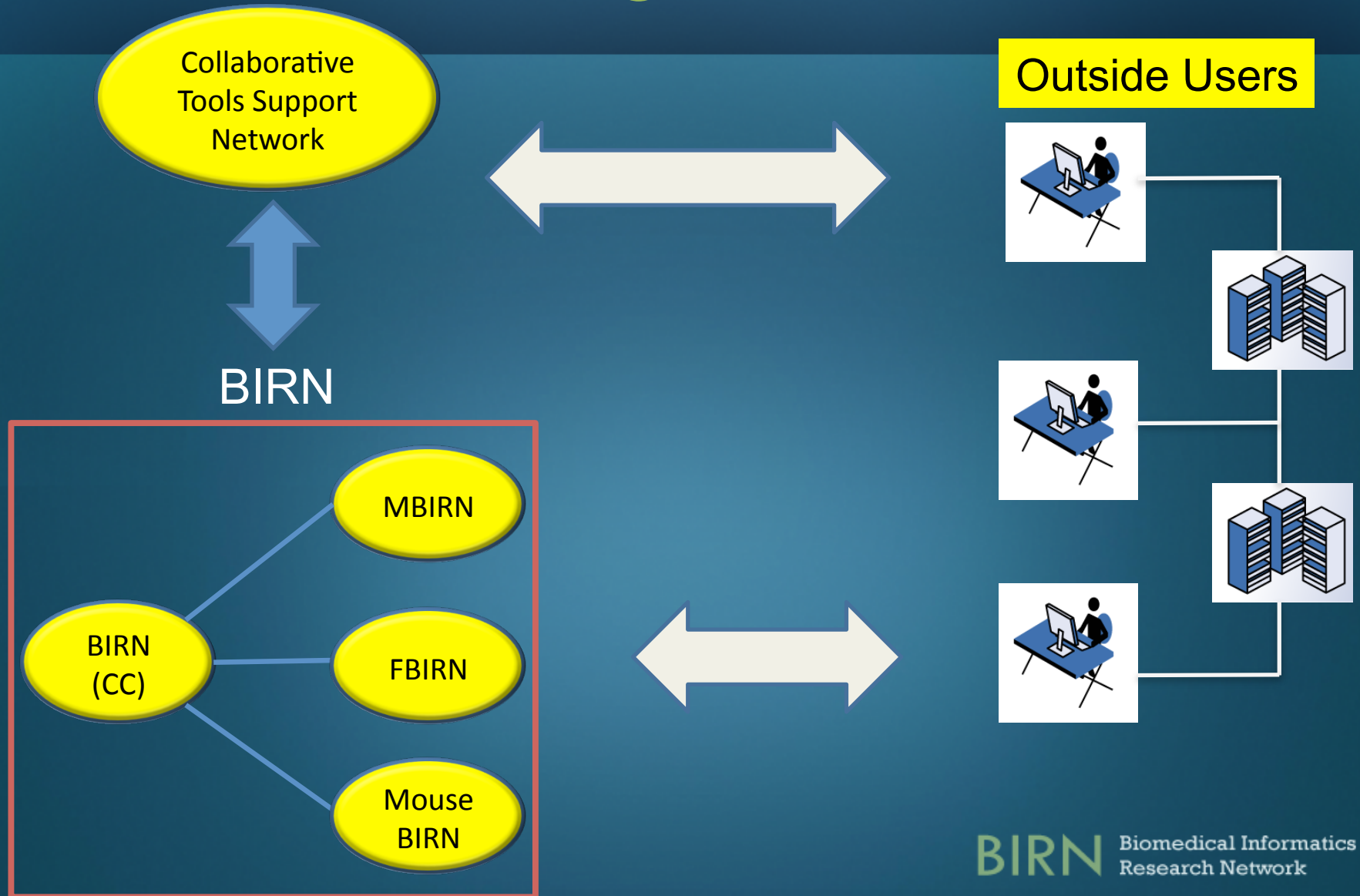
What is a Research Grid?

- A Research Grid is system that connects users to data, information about that data, domain knowledge and computational resources.
- The problem (and solution) is part technical and part sociological.

Overview

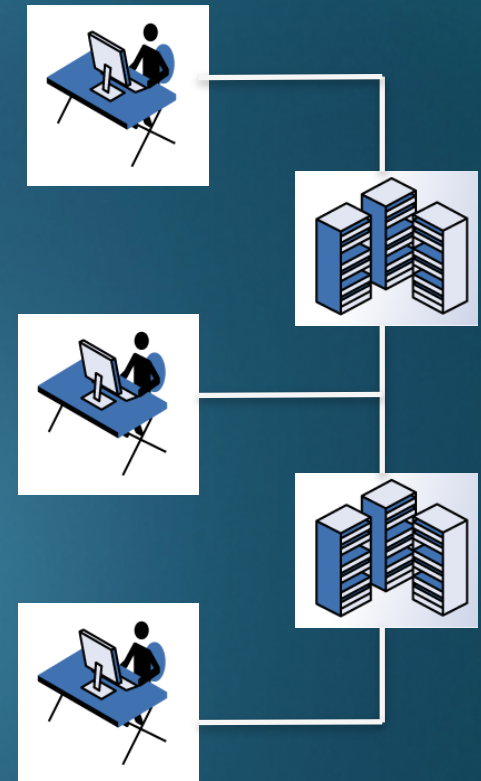
- The main goal of the BIRN is to enable collaborative bioscience
- User Requirements:
 - share data (internal and/or external)
 - share tools
 - develop, add to, merge ontologies
 - query across disparate data sources
 - utilize high-performance computing resources

BIRN Organization



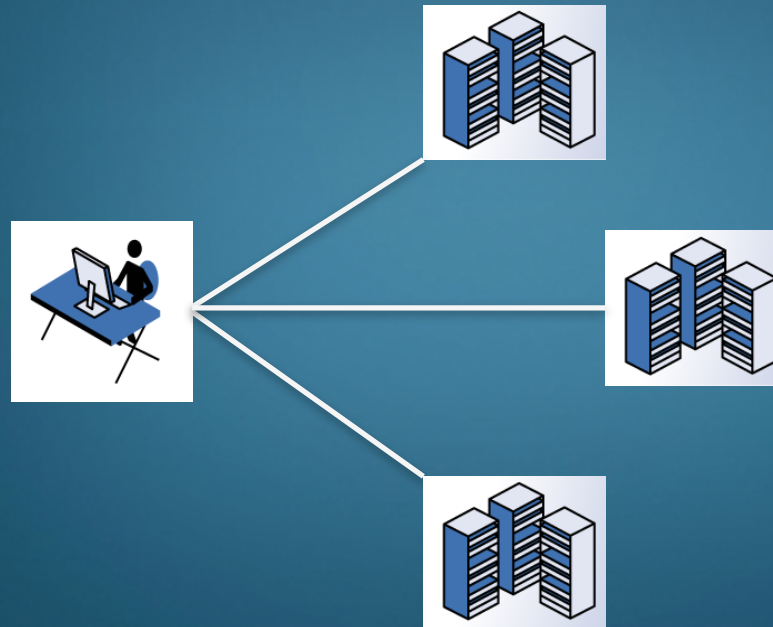
Capabilities

- **Data Management**
 - data transfer
 - data replication
 - data de-identification
 - user authentication



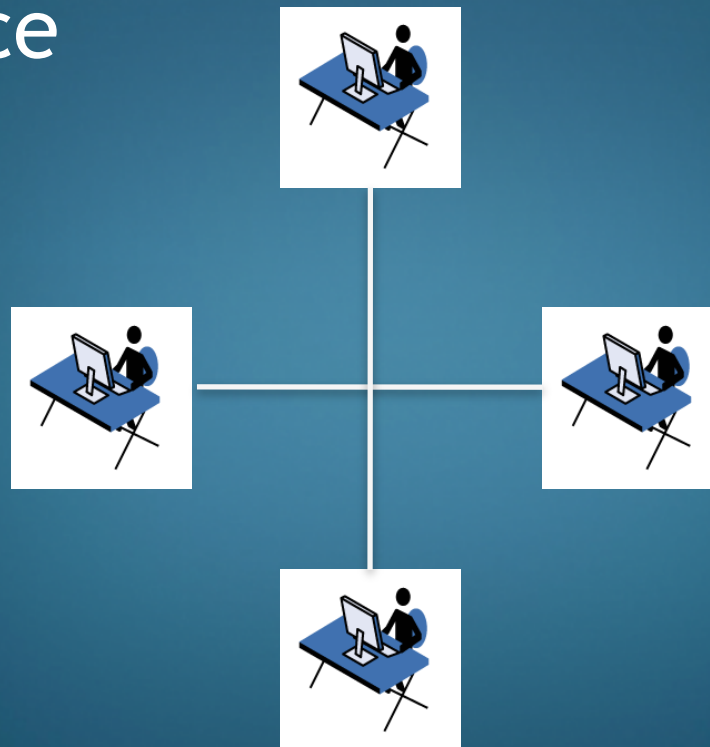
Capabilities

- Information Integration
 - querying across disparate data stores
 - mapping of database schemas



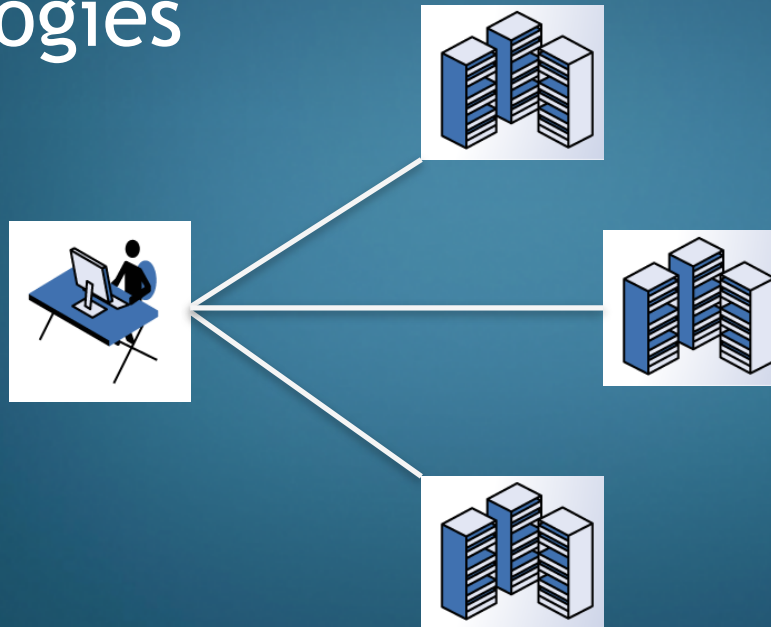
Capabilities

- Connecting the Group
 - mailing lists
 - wiki space



Capabilities

- Knowledge Engineering
 - text mining
 - establishment or expansion of domain ontologies



BIRN Capabilities (Now)

Collaboration Tools	Security Services	Data Sharing
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.

BIRN Capabilities (Coming Soon)

Collaboration Support	Data Sharing Features	
A group policy management service allows teams to define groups and assign BIRN service privileges (access control) to groups.	Data publication tools allow teams to upload data and metadata together, improving the accessibility of new data.	Our data access software supports the group access controls defined in the group policy management service.
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.	A data mirroring service allows BIRN sites to mirror (copy and keep up-to-date) collections of data on local servers for improved accessibility.	A first release of query tools allows users to perform structured queries across multiple (heterogeneous) data sources.

Use Case - Function BIRN

- 10 sites, all acquiring data
- Analysis software development is ongoing
- Data stays at each acquisition site
- Each site is involved in multiple projects

Goal: Publicly available federated source of imaging data, clinical assessments, derived data 'repository' and analysis tool suite.

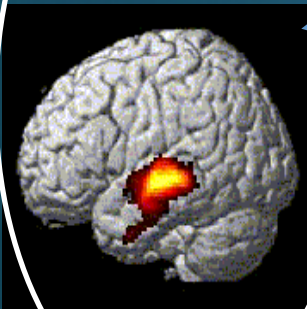
FBIRN Data Integration Goal

Are chronic, but not first-onset patients, associated with superior temporal gyrus dysfunction?

Integrated View

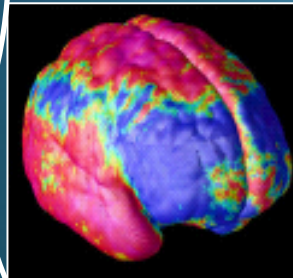
Mediator

Wrapper



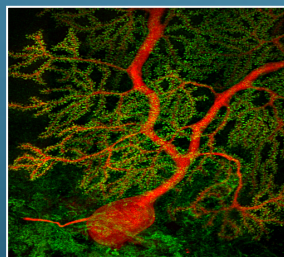
fMRI

Wrapper



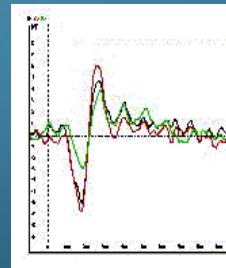
Structure

Wrapper



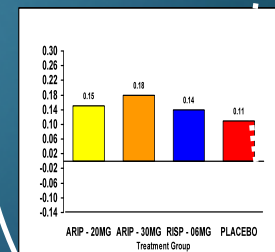
Receptor Density

Wrapper



ERP

Wrapper



Clinical

Wrapper

Web

**PubMed,
Expasy;
Brain Map
fMRIDC**

Source: Jessica
Turner, FBIRN

FBIRN Biomedical Informatics
Research Network

Dissemination of Best Practices

FBIRN Best Practices for Multi-site fMRI studies (Function-BIRN.FBIRN_Best_Practices) - XWiki - Windows Internet Explorer

https://xwiki.nbirn.org:8443/xwiki/bin/view/Function-BIRN/FBIRN_Best_Practices

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FBIRN Best Practices for Multi-site fMRI studies (Func...

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BIRN WIKI
BIOMEDICAL INFORMATICS RESEARCH NETWORK

Log-in
Register

Function-BIRN: \${pdoc.displayTitle.replaceAll('&(?!#)', '&')} > FBIRN Best Practices for Multi-site fMRI studies

FBIRN Best Practices for Multi-site fMRI studies

In which we delineate as best we can the accumulated wisdom of having performed both traveling subjects and multi-site clinical studies; and having developed tools for uploading, storing, curating and maintaining fMRI data on the SRB. (For more general information on BIRN, please see <http://www.nbirn.net>.)

This is a work in progress. Differing opinions may be expressed here. The answer to most of these questions is: "It depends." We try to flesh out here what it depends on.

*If you are logged-in as Birn_users, you should log out. This page is viewable to the public, and viewable/editable by FBIRN Wiki users only. Thanks!

FAQ

Multi-center fMRI reference list

- List of multi-center fMRI references

Calibration

- Why can't I just put functional or structural imaging data together from different sites without any worries?
- Can I do a multi-site study at all if some of the sites have different scanners?
- What pre-study measures should be performed at all sites?
- What is the agar phantom for and what should I do with it?

Done

Internet 100%