ERNE

- Virtual specimen bank
- Unifies specimen repositories at many institutions
  - Cross-platform: works with different specimen databases, operating systems, host environments
  - Cross-semantic: unifies different interpretations of collected specimen data

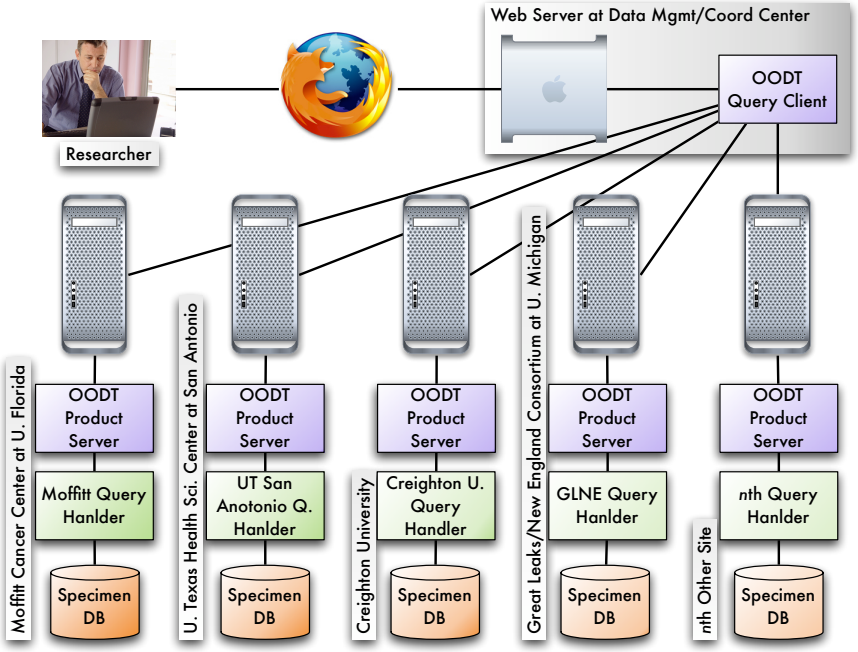
Common Data Elements

- A “language” for describing specimens
- Defines each aspect of a collected specimen
  - Legal values
  - Units
  - Data type

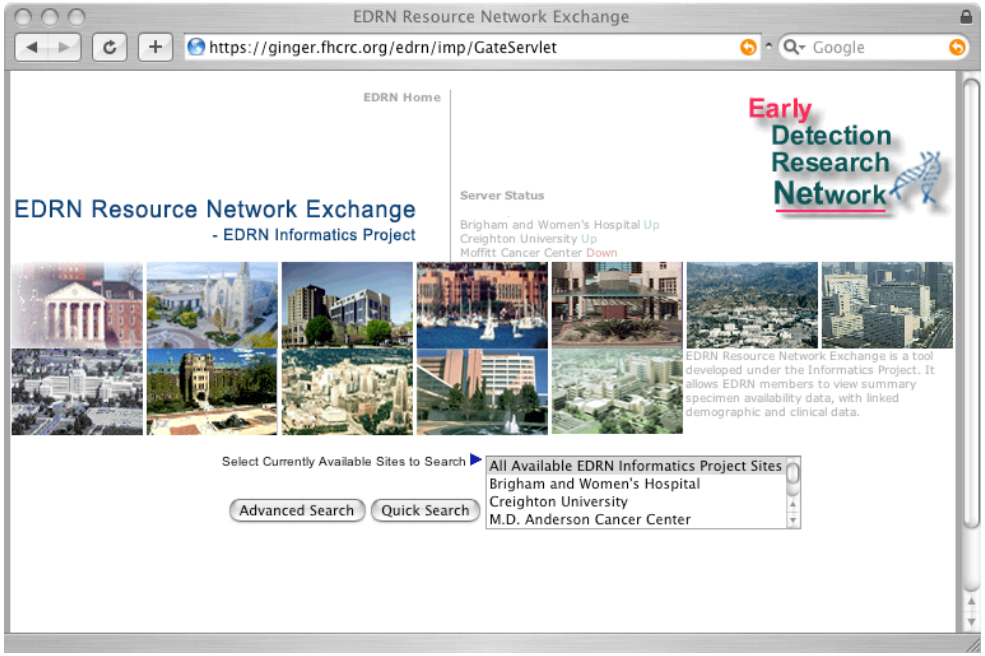
Real Time ETL

- ERNE "product server" runs at each participating site
- Accepts a query for specimens, expressed using CDEs
- Translates the query to the local database, usually some custom SQL
- Translates the results into CDE form
- Built with NASA's Object Oriented Data Technology (OODT)

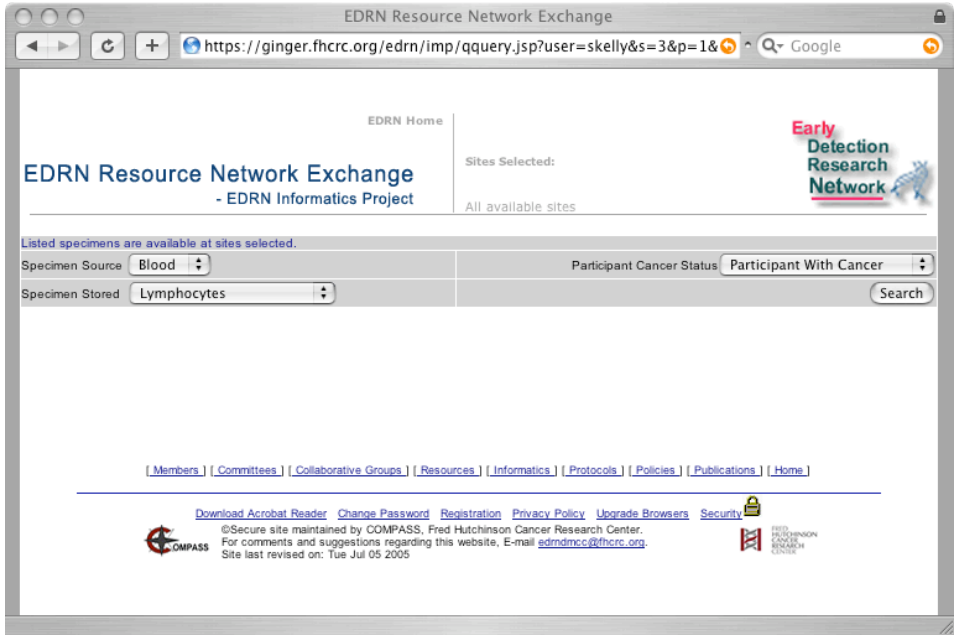
Architecture



Welcome Page



Quick Search



Advanced Search

Search Results

EDRN Resource Network Exchange

https://ginger.fhcrc.org/edrn/imp/SearchServlet

EDRN Resource Network... | ERNE Interface to caTiss...

EDRN Home

EDRN Resource Network Exchange

- EDRN Informatics Project

Another Search

Early Detection Research Network

Search Results:

Specimen Source: Blood
Specimen Stored: Lymphocytes
Participant Cancer Status: Participants With Cancer

Protocol ID	Site ID	Site Name	# of Samples	# of Ppts	Contact	
65	80	Creighton University	1091	707	patrice@creighton.edu	Details
105	85	M.D. Anderson	1191	1191	shonn@mdanderson.org	Details

Data Summary (Creighton University, Protocol ID: 65)

CDE Category		Number of Samples	Number of Participants
Gender	Male	379	211
	Female	712	496
Race	White	968	619
	Black or African-American	2	2
	American Indian or Alaskan Native	1	1
	Native Hawaiian or other Pacific Islander	3	2
	Unknown	117	83
Smoking History	Smoked Regularly	331	214
	Not Smoked Regularly	727	484
	Unknown	33	9

Data Summary (M.D. Anderson, Protocol ID: 105)

CDE Category		Number of Samples	Number of Participants
Gender	Male	653	653
	Female	538	538
Race	White	938	938
	Black or African-American	170	170
	American Indian or Alaskan Native	1	1
	Asian	1	1
	Unknown	81	81
Smoking History	Smoked Regularly	1046	1046
	Not Smoked Regularly	145	145

Detail Page

EDRN Resource Network Exchange

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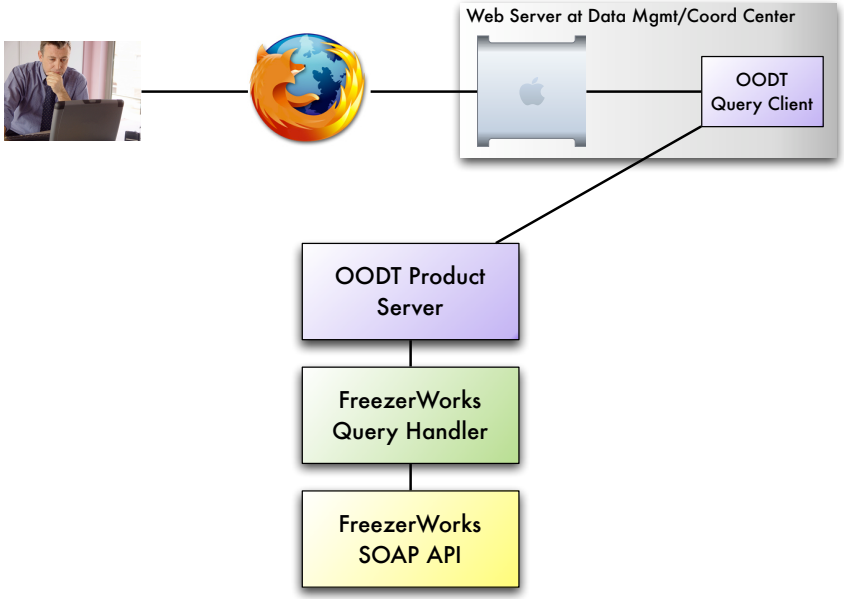
Backends

- Each “product server” performs a site-specific query
- Usually some flavor of SQL for site-specific databases
- Other backends possible
  - FreezerWorks
  - caTissue Core

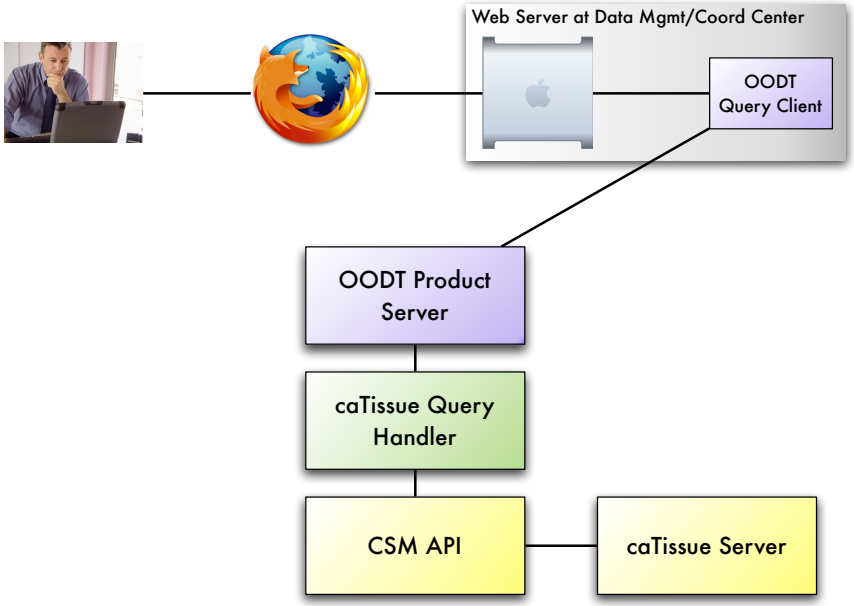
FreezerWorks Integration



caTissue Core

- Tissue inventory system
- Part of caBIG
- Supports
  - Tracking, collection, storage
  - QA
  - Derivation, alliquoting, etc.

caTissue Core



Linking ERNE

- ERNE CDEs overlap with data tracked by caTissue Core
- Goal: ERNE "product server" that queries caTissue Core API
  - Developed prototype demonstration system
  - ERNE queries to caTissue Core v1.0

Future Development

- Update ERNE "product server" for caTissue Core v1.2
- Reverse link:
  - Enable caTissue Core to query ERNE network