

# The MDPHnet Distributed Querying Approach for Public Health

Jeffrey Brown, PhD  
Micheal Klompas, MD, MPH  
MDPHnet Research Team  
October 18, 2012



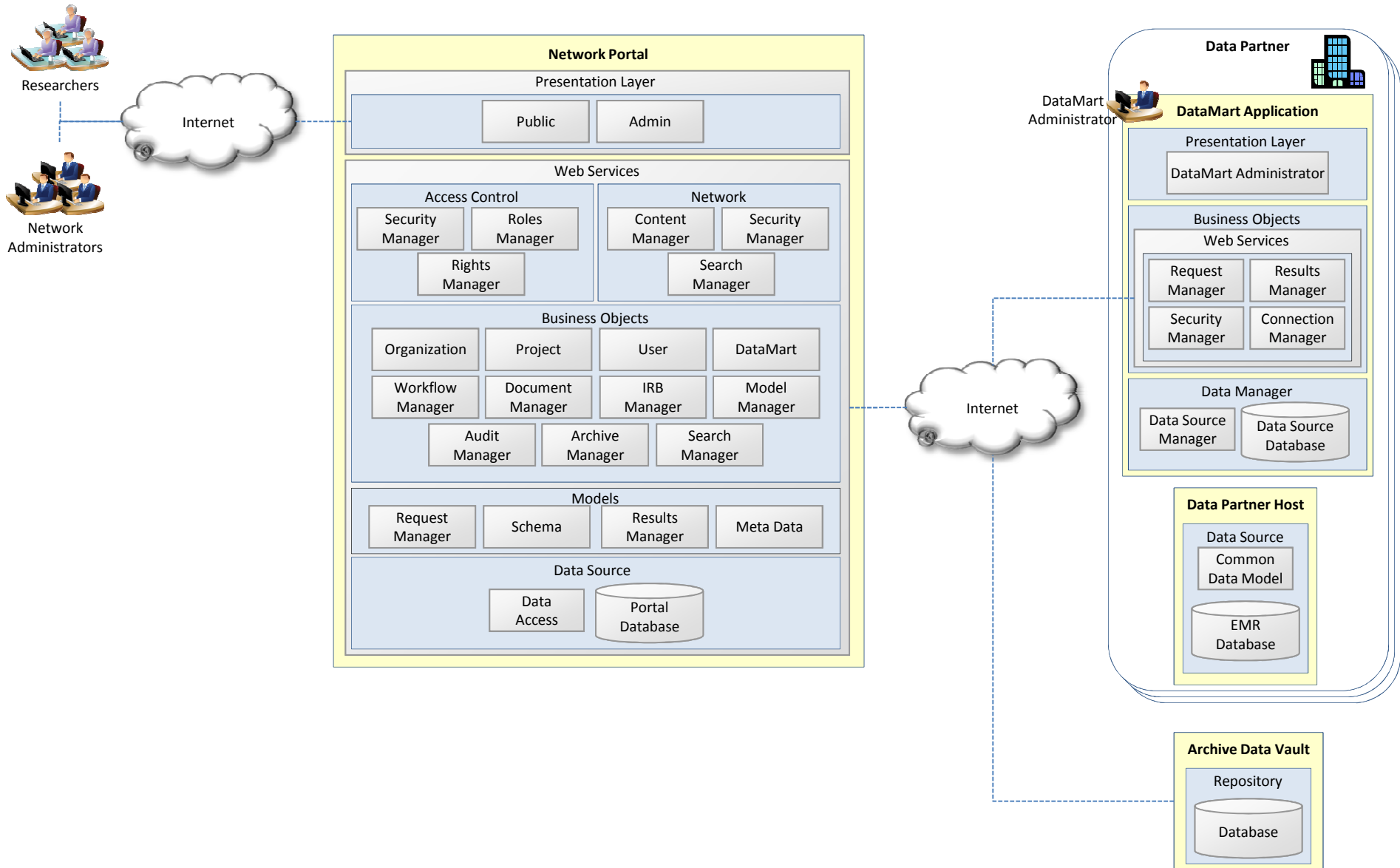


# Approach to Distributed Querying

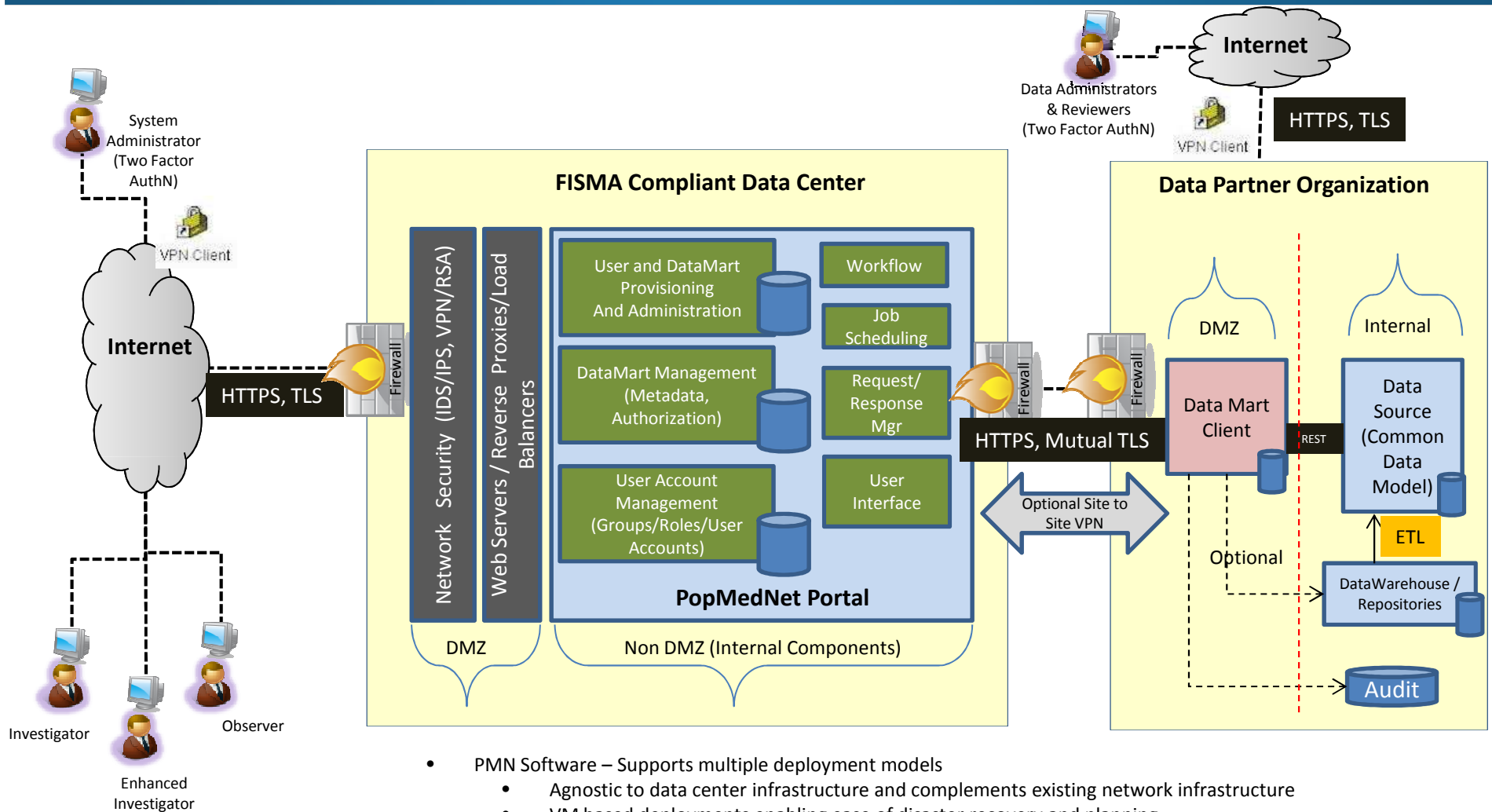
# Distributed Querying Guiding Principles

- Data partners maintain control and analyze their data
- Standardize the data using a common data model
- Data partners' ongoing involvement is needed to interpret findings
- Little or no exchange of person-level data is needed
- Secondary use can't interfere with primary use
- Few data elements are needed to answer most questions
- Distribute code to partners for local execution
- Provide results, not data, to requestor

# PopMedNet Architecture Overview



# PopMedNet Architecture – Deployment Overview



- PMN Software – Supports multiple deployment models
  - Agnostic to data center infrastructure and complements existing network infrastructure
  - VM based deployments enabling ease of disaster recovery and planning
  - Seamless overlay of VPN Connections (Remote Access, Site to Site, Two Factor User Authentication)
  - Supports consolidation of remote sites into the data center for central management (Data Partner Components can be hosted in a central data center similar to the PMN Portal)
  - Secure End to End connection (Encrypted Transport using X.509 certificates)
  - Supports industry standard RBAC configuration for users
  - Supports Data Source provisioning based on RBAC and additional data source specific metadata
  - Data Partners execute queries using PULL model instead of PUSH model

# PopMedNet Design Features

- Any data model from any source
- Flexible and secure distributed querying options
  - Execution of custom analytic code
  - Menu-driven queries
- Role-based access control
- Data partner autonomy
- Query execution options from fully automated to manual
- Auditing
- Software-enabled governance

# Security Features

- FISMA compliant tier III data center
- 3rd-party secure audit completed
  - Enhanced system procedures
    - Securely store credentials as Salted Hashes
    - No maximum password length, require expiration, enforce history
    - Use cryptographically secure random values for session IDs (.Net Type 4 GUID)
    - Cookies marked as 'SECURE', 'SESSION' & 'HTTPONLY' and the cookie domain
  - Transmission
    - Require/force Secure Socket layer (SSL) for all communications
    - Enable strongest cipher suites and Transport Layer Security (TLS) versions
  - Web Service and Portal Authorization
    - Ensure all submissions are performed via POST method
    - Do not publish WSDL
    - Limit the number and size of file submissions
- Passed multiple independent security audits and penetration tests

# PopMedNet Website



**PopMedNet™**

*Distributed Research Network Technologies for Population Medicine*

**HOME**

ABOUT

FEATURES

RESOURCES

PROJECTS

CONTACT



You are here: [Home](#)

| [Login](#)

The PopMedNet™ software application enables simple creation, operation, and governance of distributed health data networks. It facilitates distributed analyses of electronic health data to support medical product safety, comparative effectiveness, quality, medical resource use, cost-effectiveness, and related studies.

- Provides secure, customized, private portals, and file transfer capabilities that allow users to query data held by disparate partners
- Allows participating partners to maintain physical and operational control over their data
- Supports both menu-driven analyses and distribution of complex analytic programs
- Accommodates any network size, from single datasets held by two organizations to multi-year projects encompassing dozens of organizations and multiple projects
- Accommodates any data model
- PopMedNet allows users to send questions to the data

[www.popmednet.org](http://www.popmednet.org)

[HOME](#) | [ABOUT](#) | [FEATURES](#) | [RESOURCES](#) | [PROJECTS](#) | [CONTACT](#)

[Privacy Statement](#) | [Terms Of Use](#) | [Disclaimer](#) | [Acknowledgements](#)

© 2010. Harvard Pilgrim Healthcare Institute. All Rights Reserved.





# Existing Networks

# PopMedNet Networks

- SPAN: Scalable PArtnering Network for CER (AHRQ)
- PEAL: Population-Based Effectiveness in Asthma and Lung Diseases Network (AHRQ)
- Mini-Sentinel (FDA)
- HMO Research Network (HMORN)
- MDPHNet (ONC): MA Department of Public Health
- Several ONC QueryHealth Pilots



# Implementing *MDPHNet*

# MDPHnet Overview

- Funded by ONC and coordinated by MA eHealth Collaborative (MeHI)
- Distributed public health surveillance query capability for Massachusetts DPH
  - Menu-driven query capability
- Based on the ESP data model ([esphealth.org](http://esphealth.org)) that is used for other public health surveillance systems
- 2 large medical group practices represents ~1million patients and hundreds of clinics
  - Mass League of Community Health Centers
  - Atrius Health
- Go-live planned for November 2012

# Governance

- MDPHnet Governance Rules Document developed and approved by all stakeholders
- Governance document describes:
  - Overview of network activities and types of participants
  - Scope and use cases
  - Current organizational structure
  - Guiding principles
  - Network implementation policies (e.g., Network roles, query types, expectations for member organizations, DataMart settings, security policies)
  - Network usage

# MDPHnet Phased Implementation

## ✓ Phase I

- Menu driven ad-hoc querying
- Request scheduler functionality

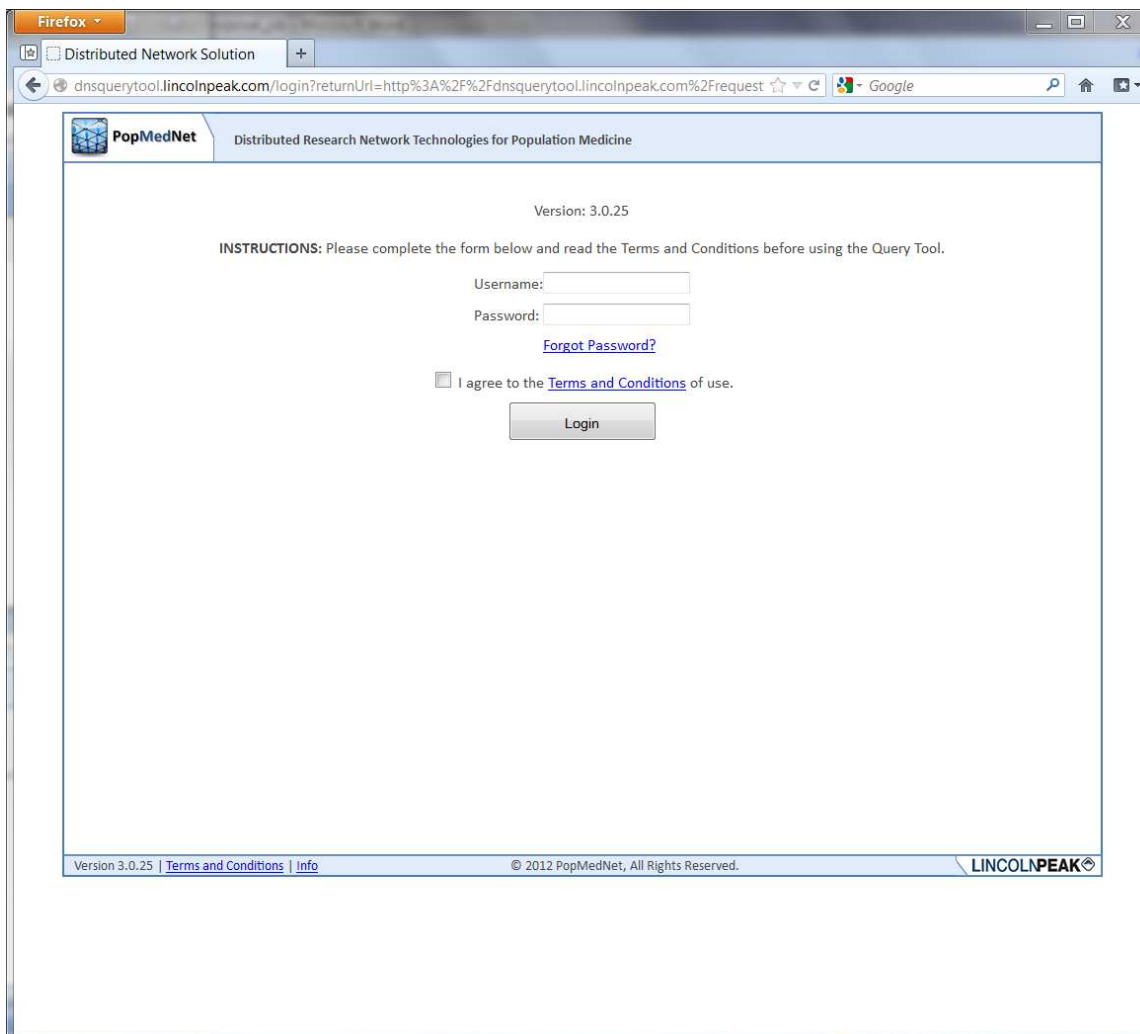
## ✓ Phase II

- Diabetes and ILI report query types
- Enhancements to menu-driven querying
- Granular access control
- Project Management functionality



# ***MDPHnet*** Screenshots

# Portal Login

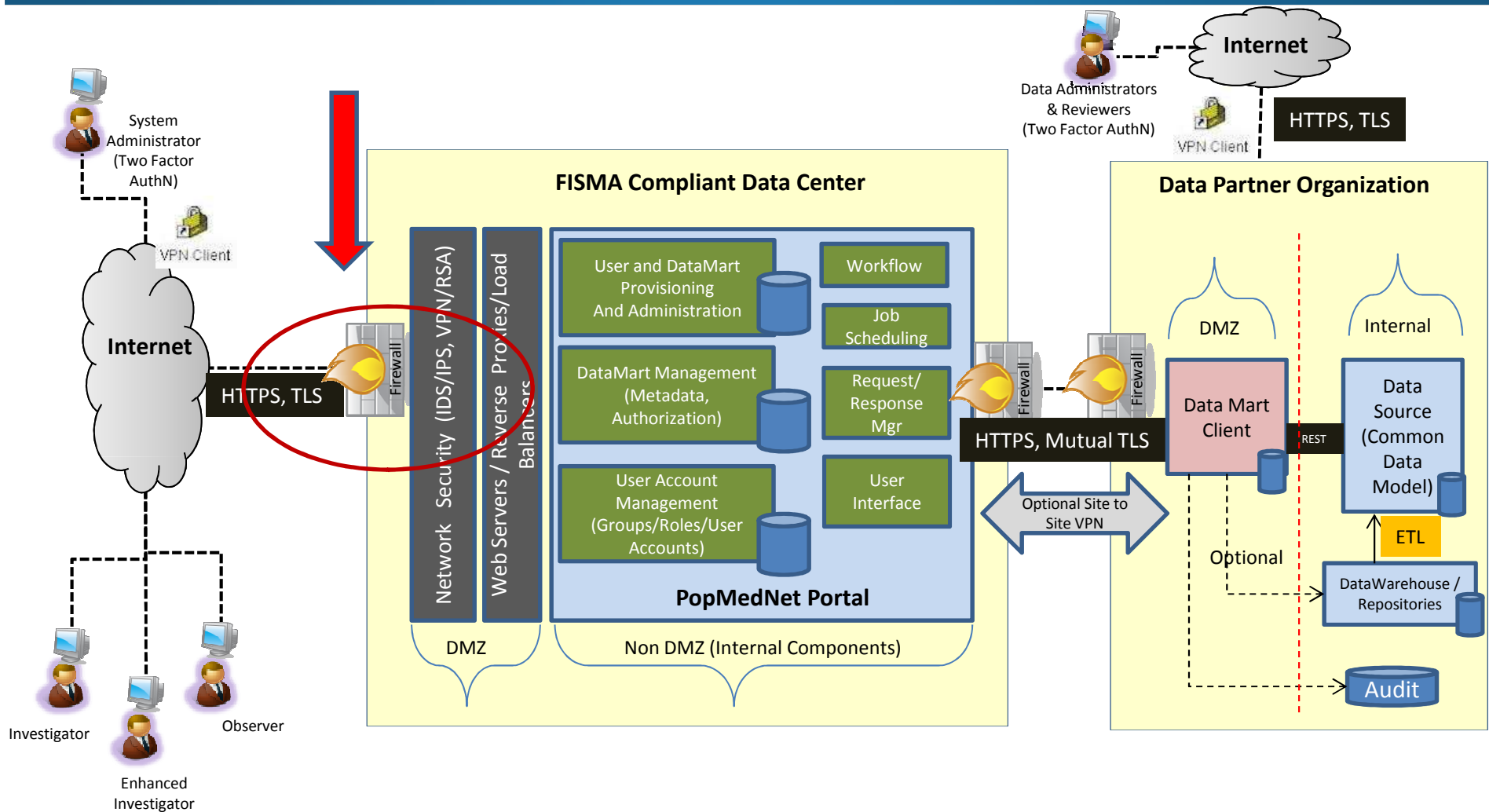


The screenshot shows a web browser window with the following content:

- Browser Tab:** Distributed Network Solution
- Address Bar:** dnsquerytool.lincolnpeak.com/login?returnUrl=http%3A%2F%2Fdnsquerytool.lincolnpeak.com%2Frequest
- Page Header:** PopMedNet Distributed Research Network Technologies for Population Medicine
- Version:** 3.0.25
- Instructions:** INSTRUCTIONS: Please complete the form below and read the Terms and Conditions before using the Query Tool.
- Form Fields:**
  - Username:
  - Password:
  - [Forgot Password?](#)
  - I agree to the [Terms and Conditions](#) of use.
  -
- Page Footer:** Version 3.0.25 | [Terms and Conditions](#) | [Info](#) | © 2012 PopMedNet, All Rights Reserved. LINCOLNPEAK



# PopMedNet Architecture – Deployment Overview



# PMN Dashboard

Firefox  
Distributed Network Solution  
dnsquerytool.lincolnpeak.com  
PopMedNet  
Distributed Research Network Technologies for Population Medicine  
Welcome, MSullivan  
Home Requests Profile Resources Reports Network Contact Us Logoff

**What's New**

**Notifications**

Date	Event	Message
No Notifications		

**Requests**

Name	Id	Date	User	Status	Type
<a href="#">ICD-9 Diagnosis - 98</a>	206	08/22/2012 10:26 AM	MSullivan	Draft	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - Mike test</a>	202	08/21/2012 03:56 PM	MSullivan	4/6 completed	ICD-9 Diagnosis
<a href="#">Inci: ICD-9 Diagnoses (3 digit codes) - 11</a>	201	08/21/2012 03:54 PM	MSullivan	Draft	Inci: ICD-9 Diagnoses (3 digit codes)
<a href="#">Inci: ICD-9 Diagnoses (3 digit codes) - 8 (t</a>	165	08/16/2012 07:04 PM	MSullivan	Draft	Inci: ICD-9 Diagnoses (3 digit codes)
<a href="#">Inci: ICD-9 Diagnoses (3 digit codes) - TE</a>	128	08/15/2012 07:16 AM	MSullivan	1/2 completed	Inci: ICD-9 Diagnoses (3 digit codes)
<a href="#">ICD-9 Diagnosis - 58</a>	116	08/13/2012 10:44 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 43</a>	67	08/08/2012 11:16 AM	MSullivan	Draft	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1</a>	8	08/02/2012 09:38 AM	MSullivan	Scheduled	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy 8)</a>	47	08/02/2012 08:00 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy 7)</a>	40	08/01/2012 08:00 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy 6)</a>	35	07/31/2012 08:00 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy 5)</a>	26	07/30/2012 08:00 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy 4)</a>	22	07/29/2012 08:00 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy 3)</a>	19	07/28/2012 08:00 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy 2)</a>	16	07/27/2012 08:00 AM	MSullivan	Completed	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 5</a>	12	07/26/2012 06:35 PM	MSullivan	Approval	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 4</a>	11	07/26/2012 06:33 PM	MSullivan	Approval	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - 1 (Copy)</a>	9	07/26/2012 04:37 PM	MSullivan	Approval	ICD-9 Diagnosis

Showing 20 requests per page

New

Version 3.0.25 | [Terms and Conditions](#) | [Info](#) © 2012 PopMedNet, All Rights Reserved. LINCOLNPEAK

# Select A Request Model

The screenshot shows a web browser window displaying the PopMedNet application. The page title is "Distributed Research Network Technologies for Population Medicine". The user is logged in as MSullivan. The main content area is titled "Requests" and contains a table with the following data:

Name	Id	Date	User	Status	Type
<a href="#">ICD-9 Diagnosis - 98</a>	206	08/22/2012 10:26 AM	MSullivan	Draft	ICD-9 Diagnosis
<a href="#">ICD-9 Diagnosis - Mike test</a>	202	08/21/2012 03:56 PM	MSullivan	4/6 completed	ICD-9 Diagnosis
<a href="#">Inci: ICD-9 Diagnoses (3 digit codes) - 11</a>	201	08/21/2012 03:54 PM	MSullivan	Draft	Inci: ICD-9 Diagnoses (3 digit codes)
<a href="#">Inci: ICD-9 Diagnoses (3 digit codes) - 10</a>					Inci: ICD-9 Diagnoses (3 digit codes)
<a href="#">Inci: ICD-9 Diagnoses (3 digit codes) - 9</a>					Inci: ICD-9 Diagnoses (3 digit codes)
<a href="#">ICD-9 Diagnosis - 58</a>					
<a href="#">ICD-9 Diagnosis - 43</a>					
<a href="#">ICD-9 Diagnosis - 1</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					
<a href="#">ICD-9 Diagnosis - 5</a>					
<a href="#">ICD-9 Diagnosis - 4</a>					
<a href="#">ICD-9 Diagnosis - 1 (C</a>					

A modal dialog box titled "Choose Request Type" is open over the table. It contains the text "Please choose a model, then click a request type to create a request". Below this text is a dropdown menu with the following options:

- ESP Query Builder
- ESP Query Builder
- File Distribution
- Summary: Incidence Queries
- Summary: Most Frequently Used Queries
- Summary: Prevalence Queries

The dialog box has "Cancel" and "New" buttons at the bottom.

At the bottom of the page, there is a footer with the following text: "Version 3.0.25 | [Terms and Conditions](#) | [Info](#) | © 2012 PopMedNet, All Rights Reserved. LINCOLNPEAK

# Select A Request Type

The screenshot shows the PopMedNet web application interface. A table of requests is visible, with columns for Name, Id, Date, User, Status, and Type. A modal dialog box titled 'Choose Request Type' is open, displaying a list of request types. The dialog box includes a 'Summary' dropdown menu and a 'Cancel' button. The request types listed are:

- Summary: Prevalence Queries
- Prev: Dispensings by National Drug Code
- Prev: Enrollment
- Prev: HCPCS Procedures
- Prev: ICD-9 Diagnoses (3 digit codes)
- Prev: ICD-9 Diagnoses (4 digit codes)
- Prev: ICD-9 Diagnoses (5 digit codes)
- Prev: ICD-9 Procedures (3 digit codes)
- Prev: ICD-9 Procedures (4 digit codes)
- Prev: Pharmacy Dispensings by Drug Class
- Prev: Pharmacy Dispensings by Generic Name

The dialog box also features a 'Cancel' button at the bottom right. The background table shows several requests, including 'ICD-9 Diagnosis - 99', 'Inci: ICD-9 Diagnoses (3 digit codes) - 12', and 'MFU: ICD-9 Diagnoses (3 digit codes) - 3'. The footer of the page indicates 'Version 3.0.25 | Terms and Conditions | Info' and '© 2012 PopMedNet, All Rights Reserved.' The LINCOLNPEAK logo is visible in the bottom right corner of the page.

Multiple request types available:

- ✓ Menu-driven Query
  - ✓ Several query types
- ✓ File Distribution

# Set Request Parameters Via Forms

The screenshot shows a web browser window displaying the PopMedNet interface. The page title is "Distributed Research Network Technologies for Population Medicine". The user is logged in as "MSullivan". The main content area is titled "Request" and contains the following sections:

- ICD-9 Diagnosis:** Compose queries that target populations using 3, 4, and 5 digit ICD-9 diagnosis codes that produce counts stratified by code age, race, sex, and period.
- Form Fields:**
  - Name: ICD-9 Diagnosis - 100
  - Priority: High
  - Due Date: 08/31/2012
  - Purpose of use: PUBHLTH
  - Level of PHI Disclosure: Aggregated
  - Description: (empty text area)
  - Activity: <None>
  - Activity Description: (empty text area)
- Run Mode:**
  - Run Immediately After I Click "Submit"
  - Schedule to Run Later
- ICD 9 Codes:** 250 , 401 , 405
- Observation Period Range:** Start Period: 08/22/2000, End Period: 08/22/2012
- Age Range:** Min: 18, Max: 65
- Gender:** Sex: Male anc
- Race Selector:**
  - Race
  - Unknown
  - American Indian or Alaska Native
  - Asian
  - Black or African American
  - Native Hawaiian or Other Pacific Islander (NHOPI)
  - White
  - Hispanic
- Report Selector:**

Variable	Setting
<input checked="" type="checkbox"/> Age	5 Year Age Group
<input checked="" type="checkbox"/> Sex	
<input checked="" type="checkbox"/> Period	Monthly
<input checked="" type="checkbox"/> Race	
<input checked="" type="checkbox"/> Center	

# Set Request Parameters Via Wizards

Search by specific code (including decimal, for 4 and 5 digit codes), range of codes (e.g., 250-251, 250.1-255.1, or 296.00-296.99) or keyword to identify codes for the query; wildcards (\*) can be used. Select up to 10 codes.

The code set used for the specifications for HCPCS, ICD-9 Diagnosis (3, 4 and 5 digit) and ICD-9 Procedure (3 and 4 digit) query types are provided by Ingenix, Inc.

Type in a text query:  Or choose a category:

**Search Results**

Code	Name
250	DIABETES MELLITUS
[add] 250.0	DIABETES MELLITUS WITHOUT COMPLICATION
[add] 250.00	DM - DIABETES MELLITUS
[add] 250.01	DM - TYPE 1 DIABETES MELLITUS
[add] 250.02	DM - TYPE 2 UNCNRDL
[add] 250.03	DM - TYPE 1 UNCNRDL
[add] 250.1	DIABETES WITH KETOACIDOSIS.

Page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#)

**Selected Codes**

Code	Name
[remove] 250	DIABETES MELLITUS
[remove] 401	ESSENTIAL HYPERTENSION
[remove] 405	SECONDARY HYPERTENSION

Close

18 65 Male anc

- Black or African American
- Native Hawaiian or Other Pacific Islander (NHOPI)
- White
- Hispanic

- Race
- Center



# Set Request Scheduling

The screenshot shows the PopMedNet web application interface. The main page displays details for an ICD-9 Diagnosis request, including fields for Name, Priority, Due Date, and Purpose of use. A 'Schedule Request' dialog box is open, allowing the user to configure a recurring request submission. The dialog box includes options to pause the job, select a recurrence pattern (Daily, Weekly, Monthly, Yearly), and specify the range of recurrence (Start and End dates, or No end date). The background page shows the request details for 'ICD-9 Diagnosis - 100', with a level of PHI disclosure set to 'Aggregated'. The 'Run Mode' is set to 'Schedule to Run', and the 'ICD 9 Codes' are '250, 401, 405'. The 'Observation Period' is from '08/22/2000' to '08/22/2012'. The 'Age Range' is from '18' to '65'. The 'Sex' is 'Male'. The 'Race' options are checked for 'Asian', 'Black or African American', 'Native Hawaiian or Other Pacific Islander (NHOPI)', 'White', and 'Hispanic'. The 'Period' is set to 'Monthly' and the 'Center' is checked.

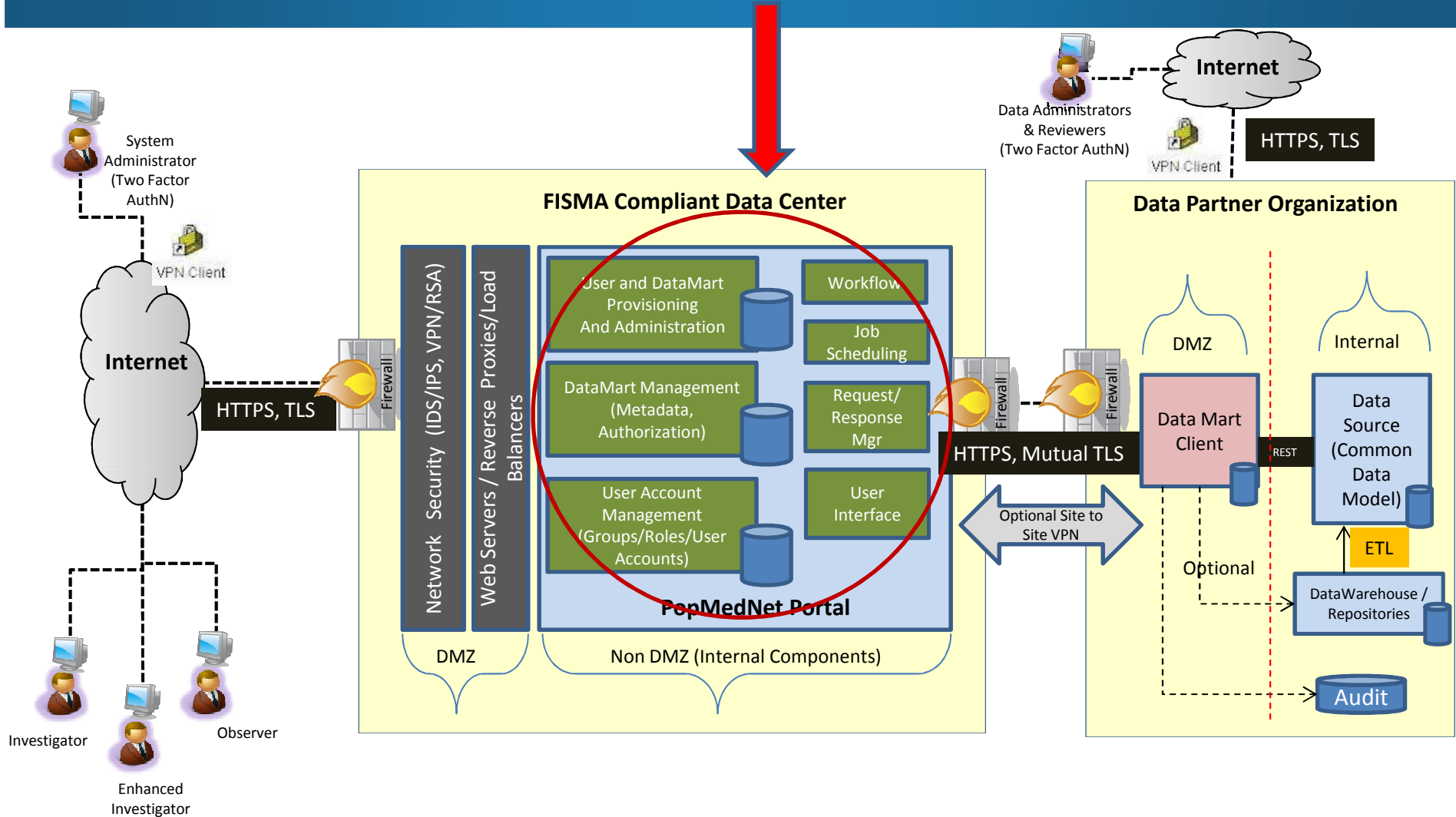
**Request Details:**

- Name: ICD-9 Diagnosis - 100
- Priority: [Dropdown]
- Due Date: [Dropdown]
- Purpose of use: [Dropdown]
- Level of PHI Disclosure: Aggregated
- Activity: <None>
- Run Mode:  Schedule to Run
- ICD 9 Codes: 250, 401, 405
- Observation Period: Start Period: 08/22/2000, End Period: 08/22/2012
- Age Range: Min: 18, Max: 65
- Sex: Male
- Race:  Asian,  Black or African American,  Native Hawaiian or Other Pacific Islander (NHOPI),  White,  Hispanic
- Period: Monthly
- Center:

**Schedule Request Dialog:**

- Schedule a Recurring Request Submission
- Pause Job
- Recurrence pattern:  Daily,  Weekly,  Monthly,  Yearly
- Every 1 day(s)
- Every weekday
- Range of recurrence: Start: 08/22/2012, at: 09:00
- No end date
- End by: 08/22/2012
- Close

# PopMedNet Architecture – Deployment Overview





# Select Data Providers to Query

### DataMart Routing

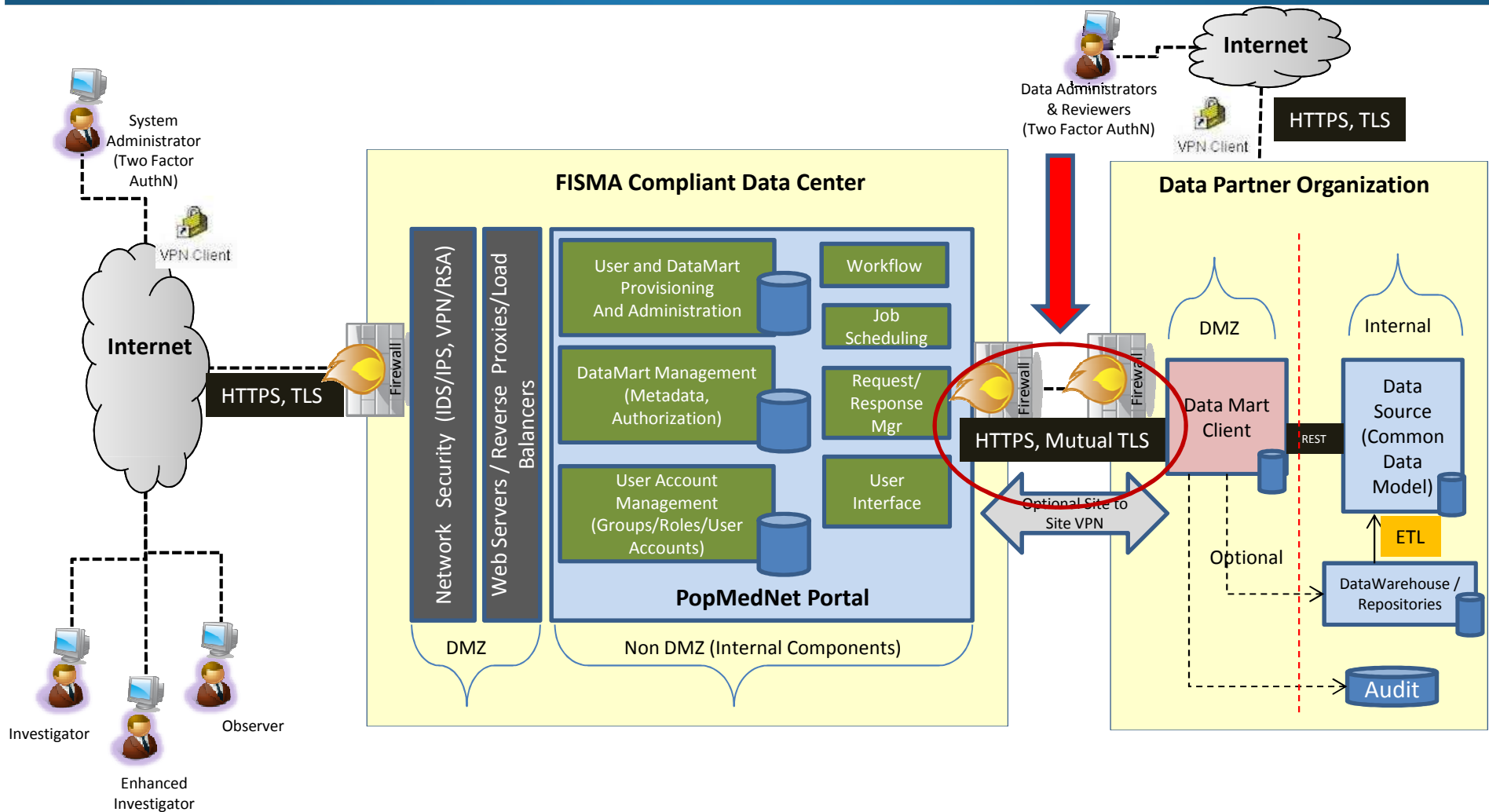
Please select DataMarts to which this query will be sent

<input checked="" type="checkbox"/> DataMart	Organization
<input checked="" type="checkbox"/> LPP - Atlanta Auto DM	LPP - Atlanta
<input checked="" type="checkbox"/> LPP - Atlanta Manual DM	LPP - Atlanta
<input checked="" type="checkbox"/> LPP - Boston Auto DM	LPP - Boston
<input checked="" type="checkbox"/> LPP - Boston Manual DM	LPP - Boston
<input checked="" type="checkbox"/> LPP - India Auto DM	LPP - India

Page:

Version 3.0.25 | [Terms and Conditions](#) | [Info](#) © 2012 PopMedNet, All Rights Reserved. LINCOLNPEAK

# PopMedNet Architecture – Deployment Overview



# DataMart Administrator Processes Request

## Administrative Workflow In Box

DataMart Client

MDPHnet PMN 3.0

DataMarts: All Status: All Dates: 30 Days

DataMart Name	Priority	Due Date	Request Id	Created By	Request Name	Status	Request Time	Response Time	Response By
LPP - Boston Auto ...	High	8/31/2012	210	MSullivan	ICD-9 Diagnosis - ...	Completed	8/22/2012 12:13 PM	8/22/2012 12:15 PM	
LPP - Boston Man...	High	8/31/2012	210	MSullivan	ICD-9 Diagnosis - ...	Completed	8/22/2012 12:13 PM	8/22/2012 12:18 PM	
LPP - Boston Man...	Low		205	LPPInvestigator	ICD-9 Diagnosis - ...	Submitted	8/22/2012 3:54 AM		
LPP - Boston Auto ...	Low		205	LPPInvestigator	ICD-9 Diagnosis - ...	Completed	8/22/2012 3:54 AM	8/22/2012 12:14 PM	
LPP - Boston Man...	Low		203	ABahl	ICD-9 Diagnosis - ...	AwaitingRespons...	8/22/2012 2:11 AM		
LPP - Boston Man...	Medium	8/31/2012	202	MSullivan	ICD-9 Diagnosis - ...	Completed	8/21/2012 3:56 PM	8/21/2012 4:00 PM	
LPP - Boston Auto ...	Medium	8/31/2012	202	MSullivan	ICD-9 Diagnosis - ...	Completed	8/21/2012 3:56 PM	8/21/2012 3:58 PM	
LPP - Boston Auto ...	Low		198	BSwan	ICD-9 Diagnosis - ...	Completed	8/21/2012 9:56 AM	8/21/2012 11:35 AM	
LPP - Boston Man...	Low		198	BSwan	ICD-9 Diagnosis - ...	Completed	8/21/2012 9:56 AM	8/21/2012 9:57 AM	
LPP - Boston Man...	Low		192	ABahl	ICD-9 Diagnosis - ...	Completed	8/21/2012 5:20 AM	8/21/2012 12:32 PM	
LPP - Boston Man...	Low		197	LPPInvestigator	ICD-9 Diagnosis - ...	Submitted	8/21/2012 3:54 AM		
LPP - Boston Auto ...	Low		197	LPPInvestigator	ICD-9 Diagnosis - ...	Completed	8/21/2012 3:54 AM	8/21/2012 11:35 AM	
LPP - Boston Auto ...	Low		193	LPPInvestigator	ICD-9 Diagnosis - ...	Completed	8/20/2012 3:54 AM	8/21/2012 11:36 AM	
LPP - Boston Man...	Low		193	LPPInvestigator	ICD-9 Diagnosis - ...	Submitted	8/20/2012 3:54 AM		
LPP - Boston Man...	Low		177	ABahl	ICD-9 Diagnosis - ...	AwaitingRespons...	8/20/2012 2:43 AM		
LPP - Boston Auto ...	Low		177	ABahl	ICD-9 Diagnosis - ...	Completed	8/20/2012 2:43 AM	8/21/2012 11:35 AM	
LPP - Boston Auto ...	Low		190	BSwan	ICD-9 Diagnosis - ...	AwaitingRespons...	8/19/2012 1:44 PM		
LPP - Boston Man...	Low		190	BSwan	ICD-9 Diagnosis - ...	Completed	8/19/2012 1:44 PM	8/19/2012 1:47 PM	
LPP - Boston Man...	Low		122	BSwan	ICD-9 Diagnosis - ...	Submitted	8/19/2012 1:43 PM		

Page size: 25  Start with Windows  Automatic Refresh Refresh Details Settings Close Exit

Ready Connected

# DataMart Administrator Processes Request

DataMart Client - Request Detail

Network: PMN 3.0 DataMart: LPP - Boston Manual DM Request Time: 08/22/2012 12:13 PM

Request Id: 210 Request Name: ICD-9 Diagnosis - 100 Status: AwaitingResponseApproval

Submitted By: MSullivan Email: msullivan@lincolnpeak.com

Priority: High Due Date: 8/31/2012 Activity:

Activity Desc:

Submitted To: LPP - Boston Auto DM, LPP - Boston Manual DM

Description:

Note:

Request  File View

File	DocumentId	MimeType	Size	IsViewable
<a href="#">ESPRRequest.xml</a>	967	application/xml	1306	
<a href="#">ESPRRequestArgs.xml</a>	968	application/lpp-dns-uiargs	1966	
<a href="#">ESPRRequestHQMF.xml</a>	969	application/xml	34743	<input checked="" type="checkbox"/>

Response  File View

Code	Description	5 Year Age Group	Sex	Observation_Perio	Race	Center	Patients
250.00	DIABETES UN...	20-24	M	2010-02	Black or African...	Center A-M	1
250.00	DIABETES UN...	35-39	F	2012-01	Black or African...	Center N-Z	1
250.01	DIABETES UN...	55-59	M	2010-06	American India...	Center N-Z	1
250.32	DIAB COMA NE...	55-59	F	2011-06	Black or African...	Center 0-9	1
250.32	DIAB COMA NE...	60-64	F	2011-08	American India...	Center A-M	1
250.33	DIAB COMA NE...	60-64	F	2009-07	Unknown	Center A-M	1
250.41	DIAB RENAL M...	35-39	M	2010-10	American India...	Center N-Z	1
250.42	DIAB RENAL M...	35-39	M	2010-10	American India...	Center A-M	1
250.42	DIAB RENAL M...	50-54	M	2010-09	Unknown	Center N-Z	1
250.42	DIAB RENAL M...	55-59	F	2009-11	Unknown	Center A-M	1
250.43	DIAB RENAL M...	60-64	F	2011-12	American India...	Center N-Z	1

Run Hold Reject Add File Delete File Export Results.. Upload Results Close

Administrator Can Review Query Input...

# DataMart Administrator Processes Request

DataMart Client - Request Detail

Network: PMN 3.0      DataMart: LPP - Boston Manual DM      Request Time: 08/22/2012 12:13 PM

Request Id: 210      Request Name: ICD-9 Diagnosis - 100      Status: AwaitingResponseApproval

Submitted By: MSullivan      Email: msullivan@lincolnpeak.com

Priority: High      Due Date: 8/31/2012      Activity:

Activity Desc:

Submitted To: LPP - Boston Auto DM, LPP - Boston Manual DM

Description:

Note:

Request  File View

File	DocumentId	MimeType	Size	IsViewable
<a href="#">ESPRequest.xml</a>	967	application/xml	1306	<input type="checkbox"/>
<a href="#">ESPRequestArgs.xml</a>	968	application/lpp-dns-uiargs	1966	<input checked="" type="checkbox"/>
<a href="#">ESPRequestHQMF.xml</a>	969	application/xml	34743	<input checked="" type="checkbox"/>

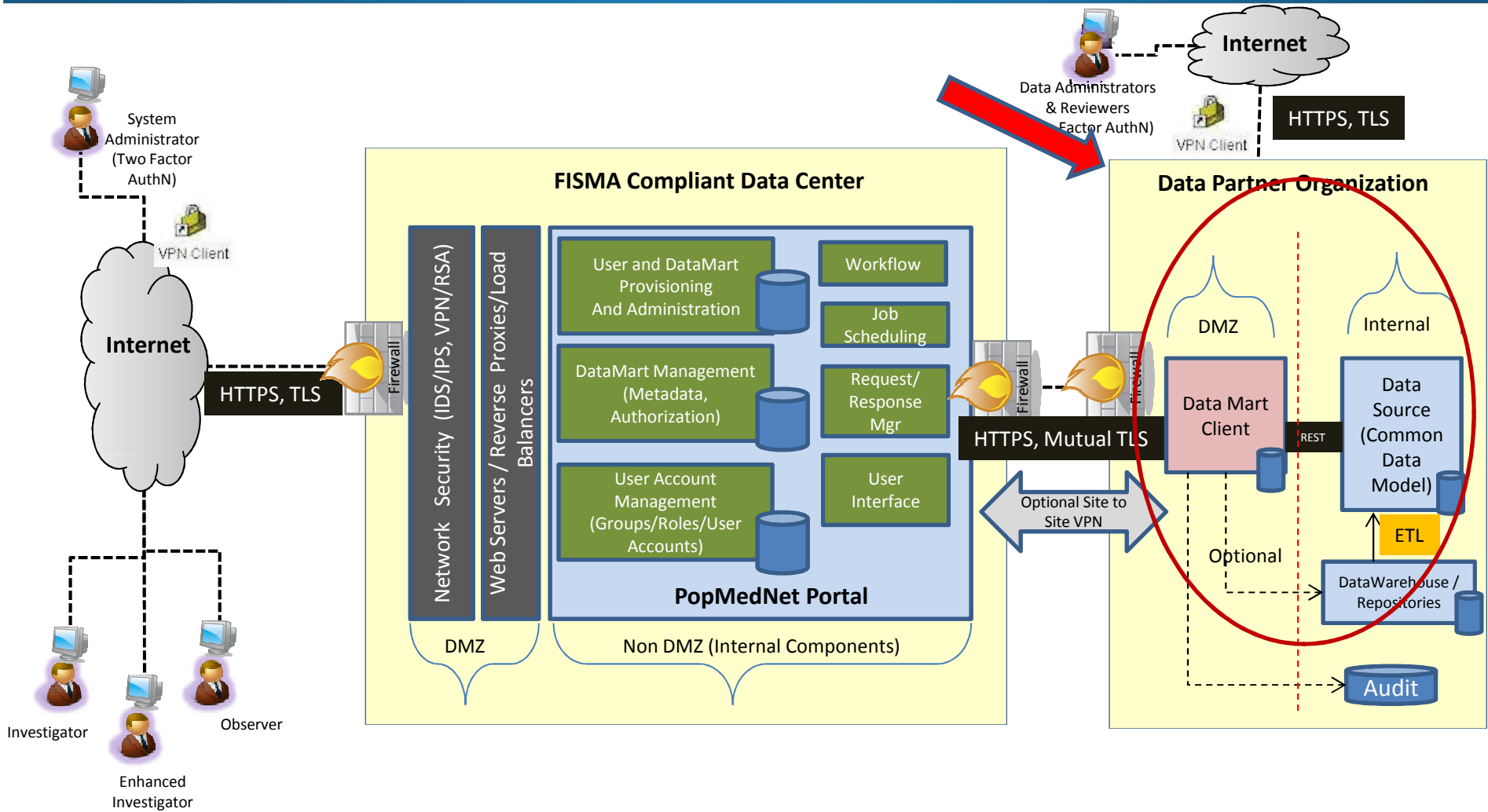
Response  File View

Code	Description	5 Year Age Group	Sex	Observation_Perio	Race	Center	Patients
250.00	DIABETES UN...	20-24	M	2010-02	Black or African...	Center A-M	1
250.00	DIABETES UN...	35-39	F	2012-01	Black or African...	Center N-Z	1
250.01	DIABETES UN...	55-59	M	2010-06	American India...	Center N-Z	1
250.32	DIAB COMA NE...	55-59	F	2011-06	Black or African...	Center A-M	1
250.32	DIAB COMA NE...	60-64	F	2011-08	American India...	Center A-M	1
250.33	DIAB COMA NE...	60-64	F	2009-07	Unknown	Center A-M	1
250.41	DIAB RENAL M...	35-39	M	2010-10	American India...	Center N-Z	1
250.42	DIAB RENAL M...	35-39	M	2010-10	American India...	Center A-M	1
250.42	DIAB RENAL M...	50-54	M	2010-09	Unknown	Center N-Z	1
250.42	DIAB RENAL M...	55-59	F	2009-11	Unknown	Center A-M	1
250.43	DIAB RENAL M...	60-64	F	2011-12	American India...	Center N-Z	1

Run    Hold    Reject    Add File    Delete File    Export Results...    Upload Results    Close

...and output, and sends results back to the requestor

# PopMedNet Architecture – Deployment Overview





# Results Upload to Portal

The screenshot shows the PopMedNet web portal interface. The browser address bar displays `dnsquerytool.lincolnpeak.com/request/210`. The page header includes the PopMedNet logo, the title "Distributed Research Network Technologies for Population Medicine", and a user greeting "Welcome, MSullivan". Navigation links for Home, Requests, Profile, Resources, Reports, Network, Contact Us, and Logoff are visible.

The main content area is divided into three sections:

- Request:** A form with fields for Name (ICD-9 Diagnosis - 100), Priority (High), Due Date (08/31/2012 12:00 AM), Type (ICD-9 Diagnosis), Description, Activity, and Activity Description. A "Copy" button is present.
- Received Responses:** A table showing responses from LPP - Boston Manual DM and LPP - Boston Auto DM, both with a status of "Completed" and a message "Results are ready." Buttons for "View Results", "Group", and "Ungroup" are at the bottom.
- Incomplete Routings:** A table showing four routing entries from LPP - Atlanta, LPP - India, and LPP - Atlanta, all with a status of "Submitted". Buttons for "Add DataMarts" and "Remove DataMarts" are at the bottom.

Footer information includes "Version 3.0.25", "Terms and Conditions", "Info", "© 2012 PopMedNet, All Rights Reserved.", and the LINCOLNPEAK logo.

# Requester Views the Results

**Response** [Show Documents List](#)

Code	Description	5 Year Age Group	Sex	Observation_Period	Race	Center	Patients
250.00	DIABETES UNCOMPL TYPE II	20-24	M	2010-02	Black or African American	Center A-M	4
250.00	DIABETES UNCOMPL TYPE II	35-39	F	2012-01	Black or African American	Center N-Z	4
250.00	DIABETES UNCOMPL TYPE II	5-9	F	2011-01	White	Center A-M	4
250.00	DIABETES UNCOMPL TYPE II	75-79	F	2009-05	Asian	Center N-Z	4
250.00	DIABETES UNCOMPL TYPE II	75-79	M	2009-12	Asian	Center N-Z	4
250.01	DIABETES UNCOMPL TYPE I	5-9	F	2012-01	American Indian or Alaska Native	Center A-M	4
250.01	DIABETES UNCOMPL TYPE I	55-59	M	2010-06	American Indian or Alaska Native	Center N-Z	4
250.01	DIABETES UNCOMPL TYPE I	65-69	M	2010-10	Black or African American	Center 0-9	4
250.01	DIABETES UNCOMPL TYPE I	75-79	F	2009-04	Black or African American	Center 0-9	4
250.01	DIABETES UNCOMPL TYPE I	80-84	F	2010-06	Unknown	Center A-M	4
250.01	DIABETES UNCOMPL TYPE I	85-89	M	2012-01	American Indian or Alaska Native	Center N-Z	4
250.02	DIABETES MELL TYPE II UNCONT OCT93	75-79	M	2011-02	Asian	Center 0-9	4
250.10	DIAB KETOACIDOSIS TYP II	10-14	F	2010-06	Unknown	Center N-Z	4
250.13	DIAB KETOACID TYPE I DM UNCONT OCT93	85-89	F	2010-02	Unknown	Center A-M	4
250.20	DM HYPEROSM COMA TYPE II	70-74	F	2009-11	White	Center A-M	4
250.22	DM W/ HYPEROSMO TYPE II DM UNCONT OCT93	5-9	M	2012-02	American Indian or Alaska Native	Center N-Z	4

Version 3.0.25 | [Terms and Conditions](#) | [Info](#) © 2012 PopMedNet, All Rights Reserved. LINCOLNPEAK



# Or Downloads

The screenshot shows a web browser window displaying the PopMedNet interface. The browser's address bar shows the URL: `dnsquerytool.lincolnpeak.com/response/116/r209%2cr208%2cr207%2cr206`. The page title is "Distributed Network Solution". The PopMedNet logo and navigation menu are visible at the top. The main content area is divided into two sections: "Request" and "Response".

**Request Section:**

- Name:** ICD-9 Diagnosis - 58
- Priority:** Low
- Due Date:** 08/31/2012 12:00 AM
- Type:** ICD-9 Diagnosis
- Description:** (Empty text area)
- Activity:** (Empty text area)
- Activity Description:** (Empty text area)
- Source DataMarts:** LPP - Atlanta Manual DM, LPP - Atlanta Auto DM, LPP - Boston Manual DM, LPP - Boston Auto DM
- Download these results:** (Dropdown menu showing Excel and CSV options)

**Response Section:**

Table with 4 columns: Name, Type, Size, and actions (view/download).

Name	Type	Size	view	download
ESPResponse.xml	x-application/lpp-dns-table	17.47 Kb	[view]	[download]
ESPResponse.xml	x-application/lpp-dns-table	17.47 Kb	[view]	[download]
ESPResponse.xml	x-application/lpp-dns-table	17.47 Kb	[view]	[download]
ESPResponse.xml	x-application/lpp-dns-table	17.47 Kb	[view]	[download]

Footer: Version 3.0.25 | [Terms and Conditions](#) | [Info](#) | © 2012 PopMedNet, All Rights Reserved. LINCOLNPEAK

# Thank You

- For more information:
  - PopMedNet : [popmednet.org](http://popmednet.org)
  - ESP: [esphealth.org](http://esphealth.org)
  - Query Health: [queryhealth.org](http://queryhealth.org)

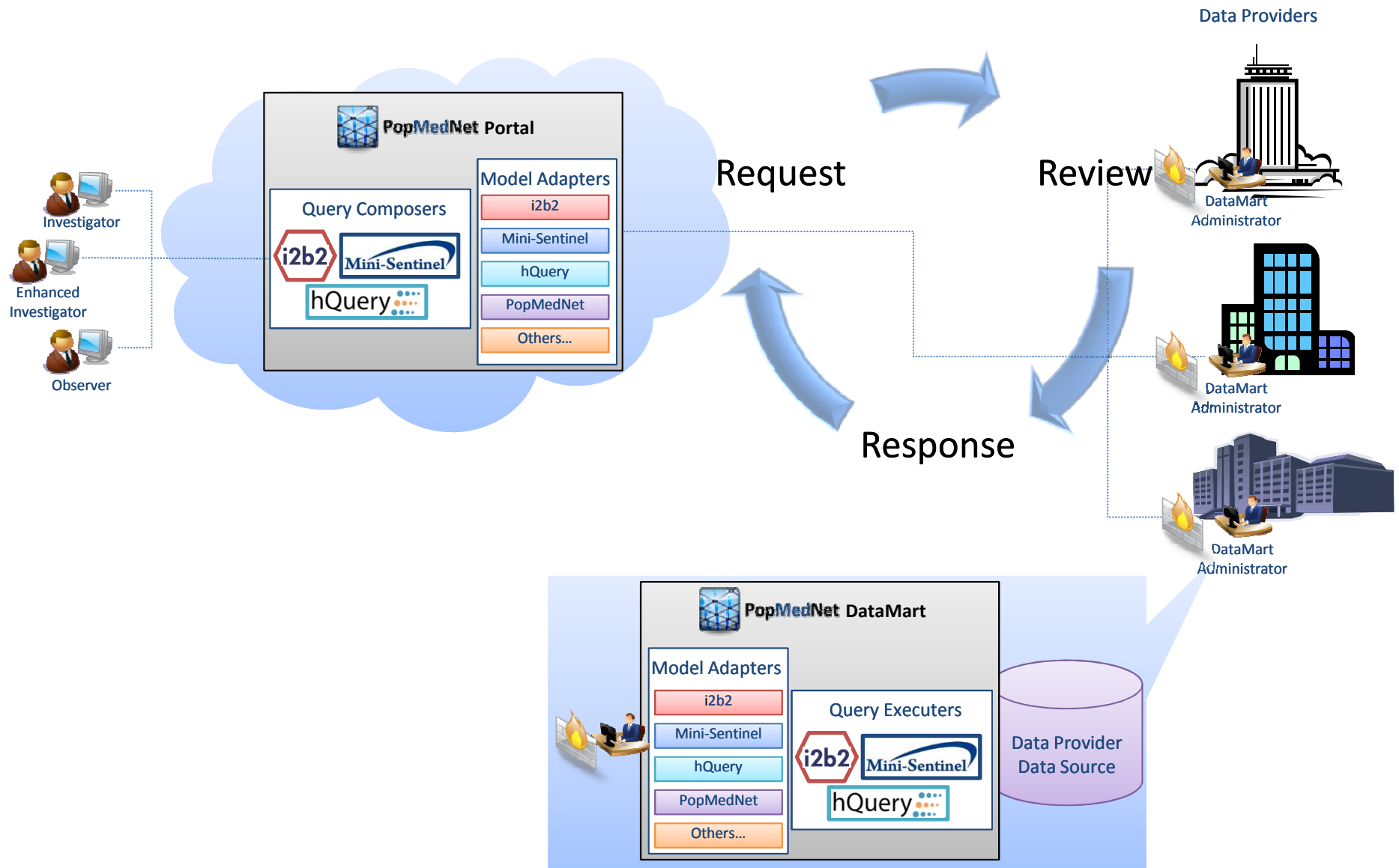


# Engagement with National Initiatives

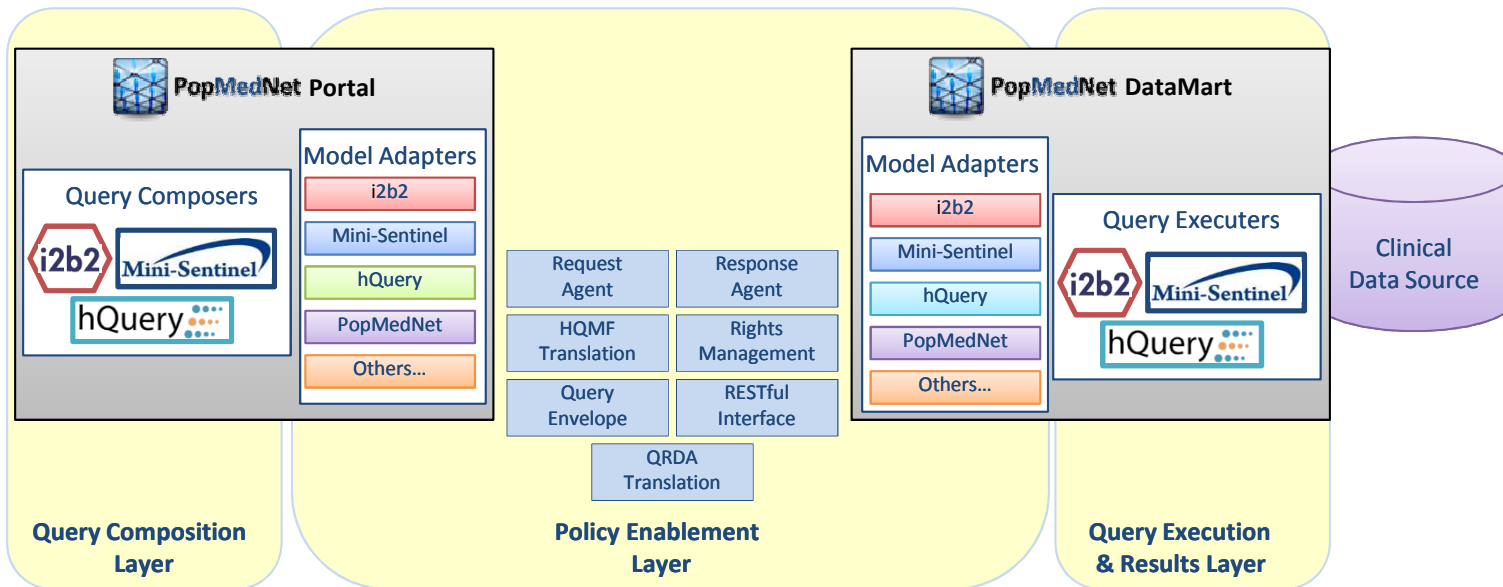
# PopMedNet and National Standards

- PMN is a key component of the ONC's QueryHealth Initiative
- ONC national standard for distributed querying
  - QueryHealth Initiative uses PMN as the distributed querying platform for policy and governance
- Standards & Interoperability (S&I) Framework:  
<http://wiki.siframework.org/Home>

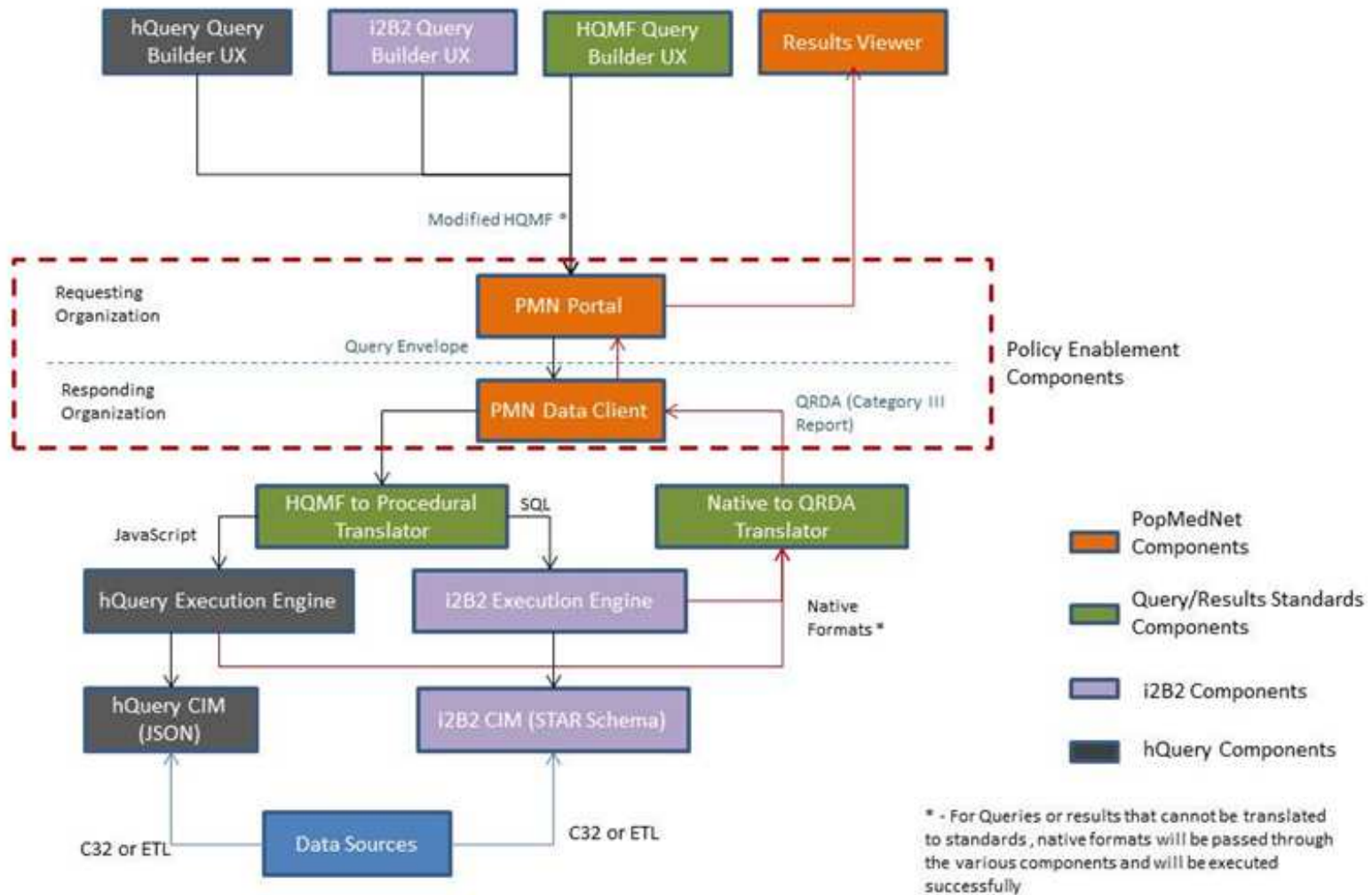
# PopMedNet Overview



# PMN Implements HHS ONC Query Health



# QueryHealth – Query Lifecycle



# Query Health Pilots

Pilot	Focus	RI Queries	RI Policy Layer	Data Sources	Kickoff
NYC & NYS Depts. of Public Health	Diabetes (NYC) Hypertension (NYS)	i2b2	PMN	RHIOs EHR Vendor	May 2012
FDA Mini-Sentinel	Use of clinical data sources for FDA questions	PMN	PMN	i2b2/Beth Israel	June 2012
CDC	National / regional: - Disease syndromes - Situation awareness	i2b2	PMN	Bio-Sense 2	July 2012
<b>Mass. Dept. of Public Health</b>	<b>Diabetes</b>	<b>PMN</b>	<b>PMN</b>	<b>MDPHNet</b>	<b>July 2012</b>
CQM	Quality Measures	hQuery	PMN	EHR Vendor	August 2012



# Query Health Pilot: MDPHnet

- ✓ Implement the Query Health Query Envelope standard
  - Standardize Privacy and Security
  - Query agnostic, content agnostic, facilitates privacy guidance from HIT Policy Committee
- ✓ Map ESP to the Query Health Clinical Element Data Dictionary
  - Query against the CEDD in addition to ESP
- ✓ Use Health Quality Measures Format (HQMF) to issue a query
  - Standardize Structure
  - Query format for distributed population queries to work across diverse platforms