



## Developers Integration Lab (DIL)

**Nationwide Health Information  
Network Interoperability**

**Presented By**

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- **DIL Background**
- **DIL Phase 1 – Plan**
- **Developers Integration Lab**
  - Architecture
  - Plan for Phase 1
  - DIL Delivery
- **DIL Demo**
- **DIL Phase 2 – Plan**
- **Discussion**

## **To date, the following testing approaches have been utilized by ONC:**

- CONNECT development contractor would provide system level testing, mostly SoapUI tests
- Nationwide Health Information Network testing workgroup (define test cases and test scenarios)
- Nationwide Health Information Network validation (On-Boarding) team would validate participants
- S&I Framework test and infrastructure team currently maintains both a manual Nationwide Health Information Network conformance test lab and an automated Interoperability test lab

## Completed Tasks

- Standup the DIL (25 Sites) – 5 Sites operations
- Standup the DIL Root Certificate Authority (CA) – Self Service -
- Standup the DIL UDDI – Self Service -
- Standup the DIL GUI / Profile Management -

## Pending Tasks

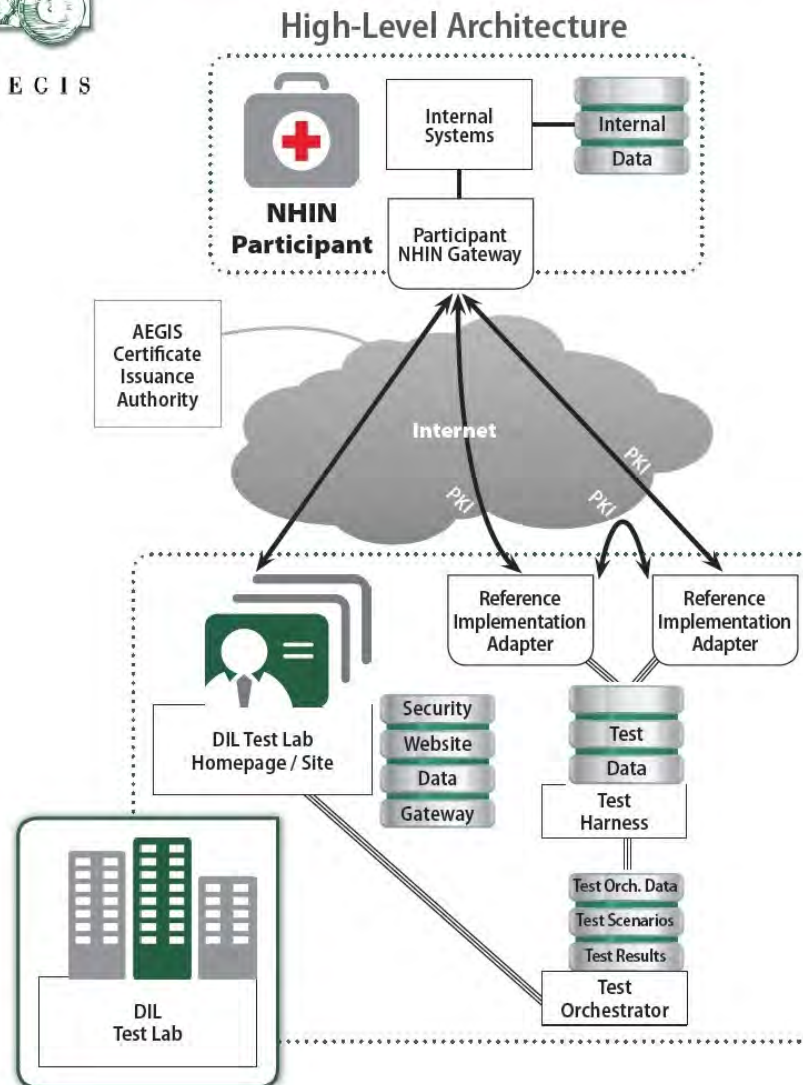
- Performance Testing Round 1 (25 Sites) (CONNECT 3.2 Plan)
- Deferred (A-Sync) Testing (CONNECT 3.2 Plan)

# ➔ DIL Phase 1 - Architecture



A E G I S


## Developers Integration Test Lab (DIL)



# Nationwide Health Information Network Interop Lab



# Nationwide Health Information Network Interoperability Test Platform



## NHIN Test Platform - Interoperability

[Switch to Conformance](#)

Test One, Inc. - Active Test Results

Refresh

Active Scenarios

Scenario	Progress	Results	Last Execution	
<a href="#">Scenario 1</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>	3 Passed;	29 Mar, 2011 10:09 PM	<a href="#">Definition</a>
<a href="#">Scenario 2</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>	3 Passed;	29 Mar, 2011 10:15 PM	<a href="#">Definition</a>
<a href="#">Scenario 3</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>	3 Passed;	4 Apr, 2011 05:24 PM	<a href="#">Definition</a>
<a href="#">Scenario 4</a>	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>			
<a href="#">Scenario 5</a>	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>			
<a href="#">Scenario 6</a>	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>			
<a href="#">Scenario 18</a>	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>			
<a href="#">Scenario 28</a>	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>			
<a href="#">Scenario 62</a>	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>			



## NHIN Test Platform - Interoperability

[Switch to Conformance](#)

Test One, Inc. - Active Scenario Results

Return

Refresh

Connection Information

Community ID: 2.16.840.1.113883.3.720  
 Assigning Authority ID: 2.16.840.1.113883.3.720  
 IP Address: nhiniop.aegis.net

Test Scenario

Name: Scenario 3 - Node 2 requests information on Jennifer B. Fleming (F, DOB 8/7/1940)  
 Execution Unique Identifier: 2.20110329.220429.694.3  
 Activated On: 29 Mar, 2011 10:04 PM  
 Last Executed On: 4 Apr, 2011 05:24 PM

Test Results

[Execute Scenario](#)

Test Case	Current Result	Description	Action
<a href="#">PDR-4.1</a>	PASS	Testing Tool transmits to the candidate a synchronous patient discovery request with Patient Name, Gender and Date of Birth as described, with no patient id feed (living subject id element).	<a href="#">NHIN Spec</a> <a href="#">Clear Result</a>
<a href="#">QDR-4.4a</a>	PASS	Testing Tool transmits a synchronous find documents query request to the candidate using the parameters as described. Note: Candidate may return merged documents and/or documents converted to a different format.	<a href="#">NHIN Spec</a> <a href="#">Clear Result</a>
<a href="#">RDR-3.2</a>	PASS	Testing Tool transmits a synchronous retrieve document request for more than one document to the Candidate. Note: Candidate may return merged documents and/or documents converted to a different format.	<a href="#">NHIN Spec</a> <a href="#">Clear Result</a>

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# Developers Integration Lab



## ➔ Objectives

- Provide an environment for participants to experience gateway-to-gateway communication earlier in the development / implementation phase of the candidates HIT projects.
- Provide an independent testing environment for emerging Nationwide Health Information Network specifications (and implementations) for the CONNECT platform or other commercial gateway products (Axolotl).
- Provide an independent testing environment for future CONNECT releases.
- Provide an integration environment to support code contribution from the open source community, including federal partners.

## ➔ Benefits



- Aid with improving the Nationwide Health Information Network validation (on-boarding) process, by ensuring candidates possess the requisite knowledge before being scheduled for conformance testing
- Provide a platform for non-CONNECT gateway products to test Nationwide Health Information Network conformance and interoperability – example Axolotl
- Provide a community approach to Open Source development contribution and integration which poses little to no impact the CONNECT development team
- Provide for independent and enhanced testing capabilities

**Login**

Developers Integration Lab - The DIL

User Name

Password

## DIL Test Platform

Test One, Inc. - Test Execution Refresh

Active Test Group

	Test Case	Progress
	<a href="#">Patient Discovery Initiator</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>
	<a href="#">Query for Documents Initiator</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>
	<a href="#">Retrieve Documents Initiator</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>
	<a href="#">Patient Discovery Responder</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>
	<a href="#">Query for Documents Responder</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>
	<a href="#">Retrieve Documents Responder</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>

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## DIL Test Platform

Test One, Inc. - Active Test Group Results Return Refresh

Connection Information

Home Community ID: 2.16.840.1.113883.0.400  
 Assigning Authority ID: 2.16.840.1.113883.0.400  
 IP Address: dilhn000.dil.aegis.net

Test Group

Name: Patient Discovery Initiator – Request information on James Alan. Hamilton (M. DOB 07/02/1980) from Node 1.  
 Execution Unique Identifier: 2.20110928.210234.678.1001  
 Activated On: 28 Sep, 2011 09:02 PM  
 Last Executed On: 28 Sep, 2011 09:04 PM

Messages Received between Timed Window

Test Results

The below listed Test Cases must be initiated by the Participant.

	Test Case	Current Result	Description	Action
	<a href="#">PDI-1.1a</a> NHIN Spec	<span style="background-color: green; color: white; padding: 2px;">PASS</span>	Participant transmits to Testing Tool a synchronous patient discovery request with Patient Name, Gender and Date of Birth as described. (You can choose to send a feed which includes your patient id or not, depending on your systems preference. (Note that the test case verifies only the requested parameters, although your system can send	<span>Clear Result</span> <span>Start Timer</span> <span>SearchMessages</span>

DIL Test Platform - Windows Explorer  
https://diltm001.aegis.net:1001/Member/MySelfRegistration

File Edit View Favorites Tools Help  
Favorites DIL Test Platform Page Safety Tools

### DIL Test Harness

Participant Registration Clear **Save** Cancel

(\*) indicates required fields **Step 2d - Save Registration**

**Login Information**

\*Account Name   
\*Account Password

**Participant Information**

\*Candidate Name   
\*Community ID   
\*Assigning Authority ID   
\*Machine Name

\*Contact Name   
\*Contact Phone   
\*Contact Email

**Participant Attributes**

\*Does your system exchange information as an initiator (requestor), responder, or both?  Initiator  Responder

\*Does your system send social security numbers in its messages?  Allowed  Not Allowed

\*Does your system return patient information (documents) in a single file, or does your system return patient information (documents) in multiple files?  Single  Multiple

**Message from webpage**

This action will submit the registration information for this N-BN Candidate. Ensure the information is correct before proceeding.

OK Cancel



The screenshot displays a web browser window titled "DIL Test Platform - Windows Explorer" with the URL <https://dihn000.aegis.net/portal/combine/GatewayProfile>. The page content is titled "DIL Test Harness" and "Test One, Inc. - Gateway Profile Information". A "Save" button is visible in the top right corner of the main content area.

**Gateway Profile Information:**

- \*Machine Name:
- \*Community ID:
- \*Default Assigning Authority ID:

**Secured Endpoints:**

- Patent Discovery:
- Query for Documents:
- Retrieve for Documents:

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Trusted sites | Protected Mode: Off | 100%



## DIL Test Platform

### Test One, Inc. - Download Certificates

#### Overview

In cryptography, a certificate authority or certification authority (CA) is an entity that issues digital certificates. The digital certificate certifies the ownership of a public key by the named subject of the certificate. This allows others (relying parties) to rely upon signatures or assertions made by the private key that corresponds to the public key that is certified. In this model of trust relationships, a CA is a trusted third party that is trusted by both the subject (owner) of the certificate and the party relying upon the certificate.

Additional information regarding CA can be found at [Certificate Authority Wiki](#).

#### Download and Install Instructions

Please download your DIL private certificate here [dilhn000.dil.aegis.net.p12](#)

Please download the DIL Root certificate here [AEGISROOTCA.pem](#)

Please download the DIL Cross certificate here [AEGISDILCA.pem](#)

Certificate Install Instructions can be found here [Certificate\\_Install\\_Instructions.pdf](#)

#### Dashboard

Setup Test

Test Execution

#### My Information

Participant Info

Gateway Profile

Team Members

#### InfraStructure

Test Harness

Download Certificates

#### Help

Lab Analyzer

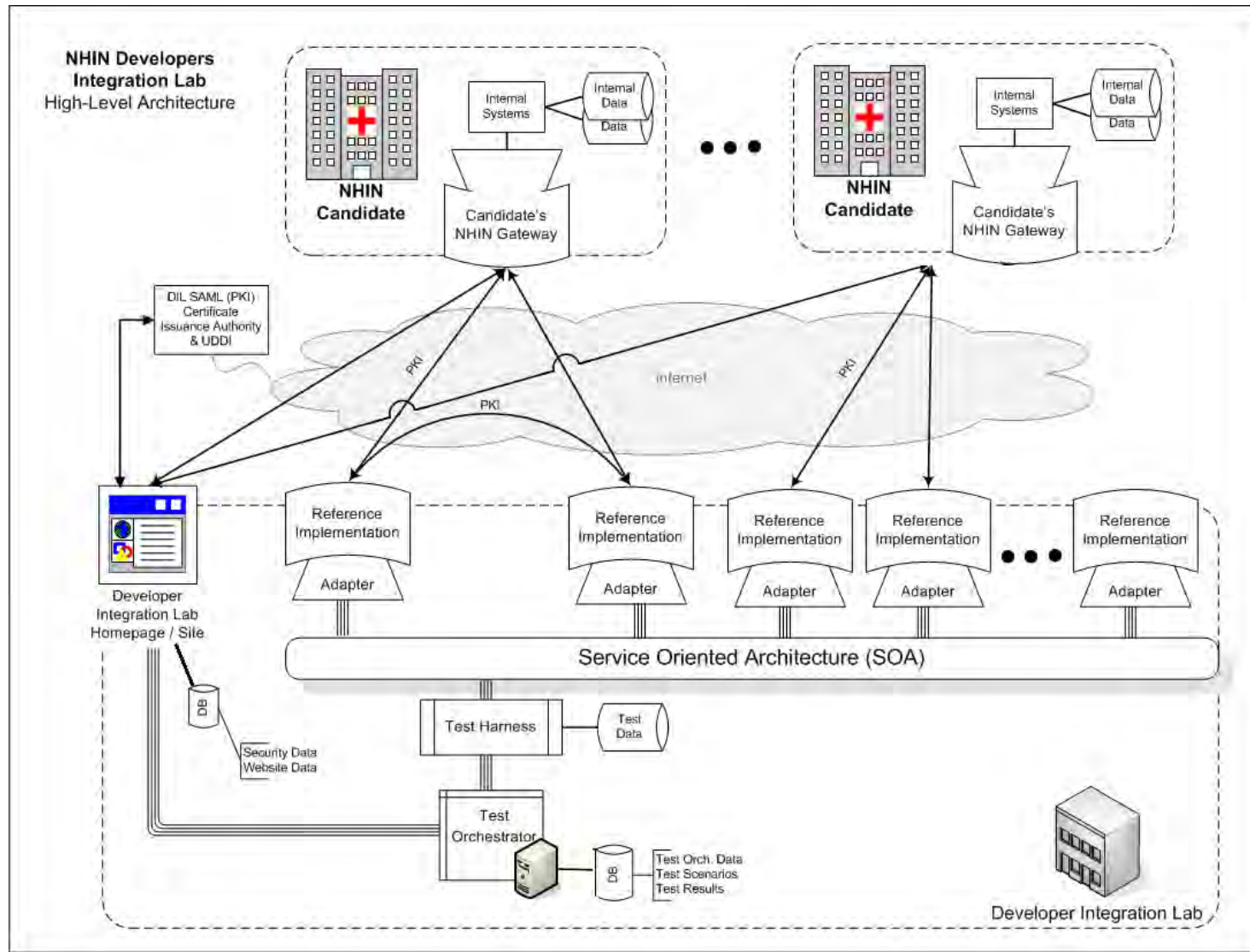
FAQ

Change Password

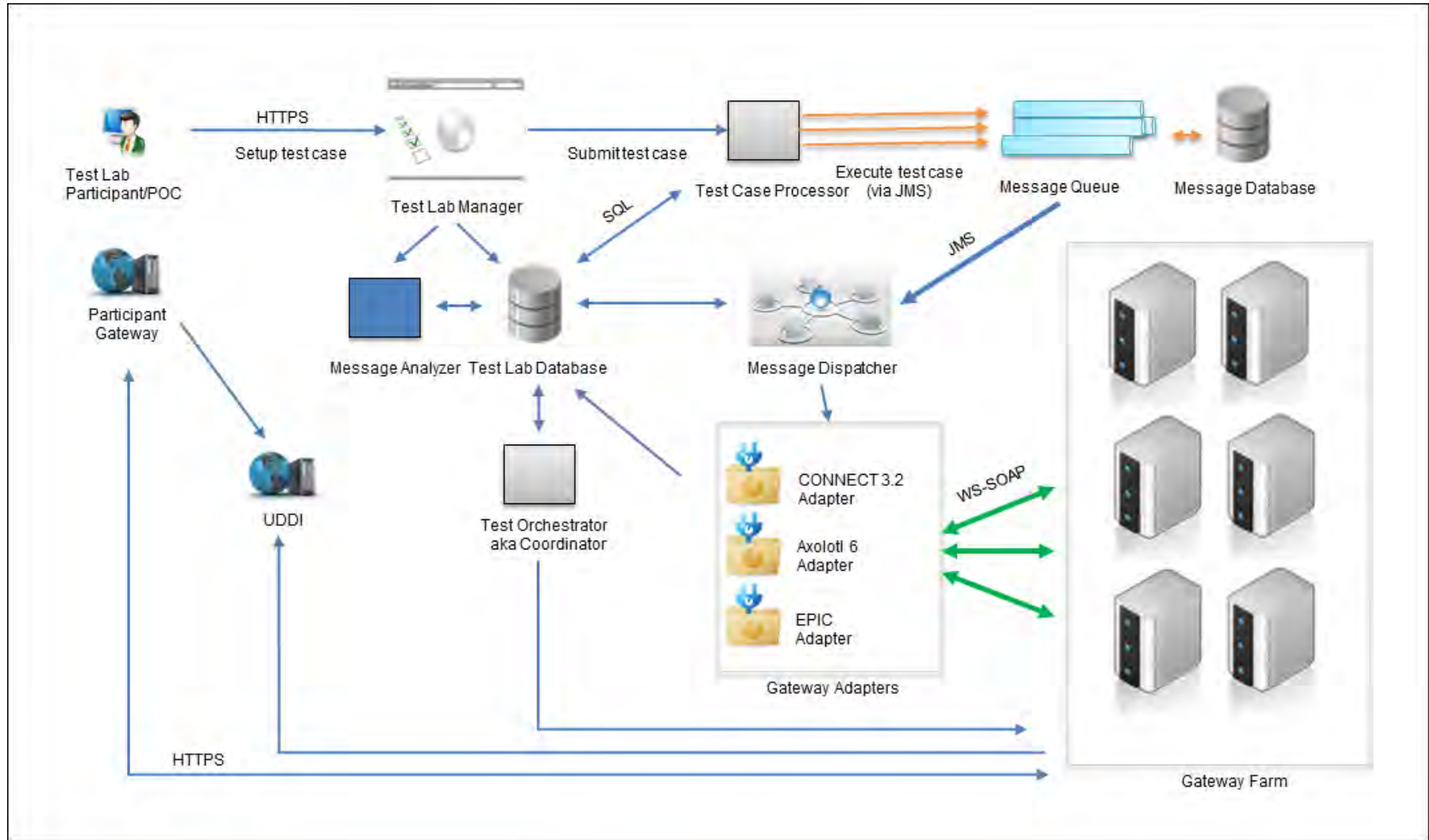
# Developers Integration Lab Phase



# DIL Architecture



# ➔ DIL SOA Integration Design



## DIL Plan for Phase 2

- Standup the DIL (200 additional sites)
- Upgrade the DIL GUI, including Nationwide Health Information Network conformance and interop tests
- Publish an integration lab governance plan
- Continuous integration build server / lab environment
- Implement the regression testing suite
- Implement the performance testing suite
- Performance testing round 2 (200+ sites) (CONNECT 3.2 plan)
- Host CONNECT experimental version w/SAML 2.0 (Metro 2.2+)

# Integration Lab Service

