



# Technical Presentation of the CDPH Laboratory Data Interchange (LDI) System and its Current Status

A Short Review of the LDI LIMS Application  
Components, Function & Connection Strategy

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# The Task

- Achieve Secure electronic transfer of lab data between partners (multi-year effort);
  - Connect the state labs to Clinical labs, Environmental labs, County/City PHLs and to other partner labs in CA to permit Electronic Data Interchange (EDI)
  - Connect to CDC or other state/federal agencies for secure EDI of test request and results data as needed and feasible, consistent with patient privacy, etc.
  - Provide automated electronic notification of lab results for notifiable diseases via the CAL-Reddie system to local Health officers, State & Federal partners
  - Provide electronic alerts and status notifications to lab partners (i.e., submitters, surge labs, health officers, CDC, etc.) re processing status of test requests, etc.
    - Direct e-mail with secure link
    - Notification via the Department's Secure Health Alert Network System (CAHAN)
  - Automate routing of samples to surge labs in emergencies
  - \*Provide a means to integrate HIT/HIE (EHR) reporting when feasible
- Do it all using PHIN-Compliant or Compatible standards and methods (i.e., PHIN/PHLIP vocab., HL-7, LOINC, SNOMED-for clinical; use other appropriate standards for environmental/food labs, etc. when available); use standard data elements and formats.

# What is LDI and What does it do?

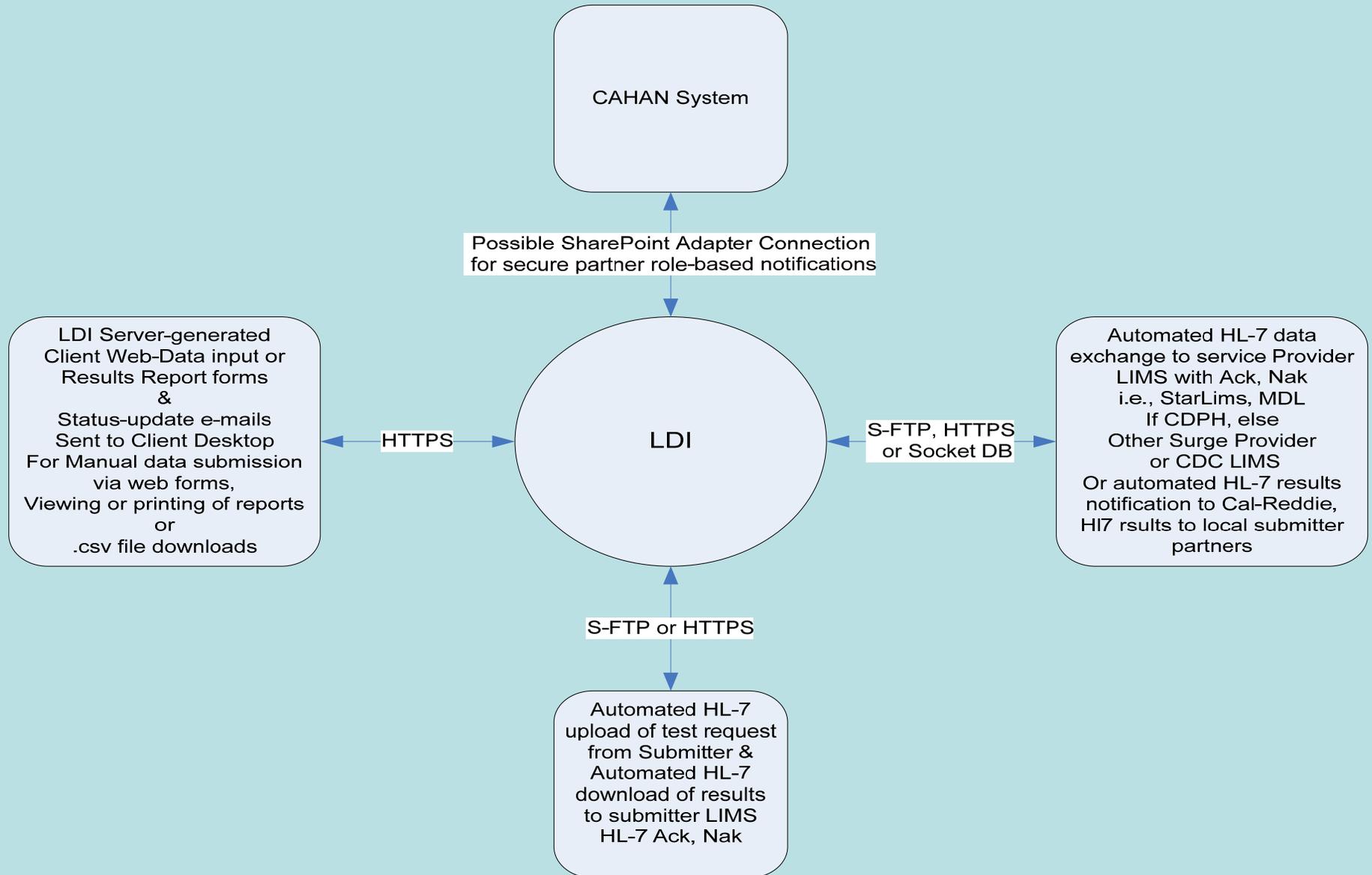
- **LDI = A Laboratory Data Interchange System**
- **LDI = A free-standing network system that interacts with Partner LIMS (various vendors) and other data systems to exchange laboratory data via the internet.**
  - Provides a standards-based, stand-alone **secure Internet Interface** between **CDPH & Partners; i.e., Laboratories, LIMS, etc.**
  - Provides **HTTPS Web forms to users** for manual data entry & reporting
  - Uses **HL-7 messages** and standard codes (LOINC, SNOMED) for automated system-to-system data exchange
  - Uses **SFTP server or PHIN-MS** to transport data via encoded/encrypted files to/from CDC, Hospital, private clinical and Public Health LIMS (various vendors)
  - Incorporates **BizTalk server and PHIN-MS** applications for **multiple message mapping and data exchange capability.**



# LDI Batch Request via HL7

- Requesting New Tests can be automated via HL7 messaging from submitter LIMS
- Currently, this is done via a Secure-FTP site
- Files of HL7 transactions (requests) can be uploaded to the CDPH SFTP site
- The files are processed via BizTalk
- Test Requests are stored just as if they were entered via the web interface
- Results can be returned to submitter via web form interface or by HL7 results file transfer.

# LDI Interactions





# The LDI Web Interface

MDL Management - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://dhssacweb15/extramdl/app/>

Microbial Disease Laboratory Online

Navigation: Laboratory Actions  
Laboratory Actions  
Previous Submissions  
New MDL Request  
New VRDL Request  
Specimen Receiving  
Shipments  
User Management  
Lab Info  
Personnel

**Welcome to the California Department of Public Health**

**Laboratory Data Interchange Website**



This site is for authorized laboratories to submit test requests to and retrieve results from:

**Microbial Disease Laboratory**  
**Viral & Rickettsial Disease Laboratory**

Please select destination from the drop-down menu in the top right corner.

[Update Profile](#)

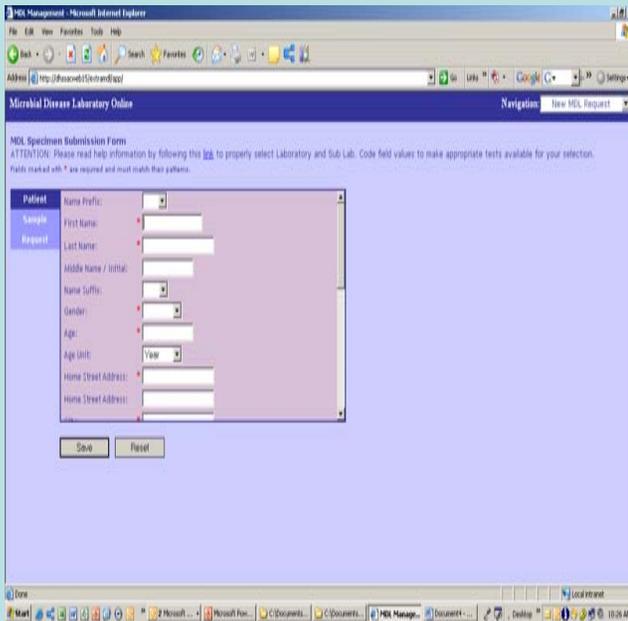
Please send Questions and Problem Reports to [LDI administrator](#).

Local intranet

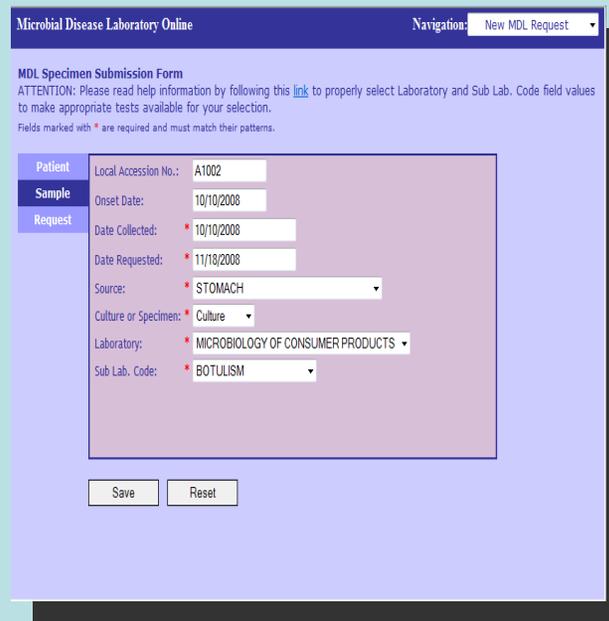
Start | Inboxes - Microsoft ... | The Laboratory D... | LDI Briefing-RonR... | C:\Documents an... | MDL Manageme... | 1:46 PM

# LDI Web Data Input Forms

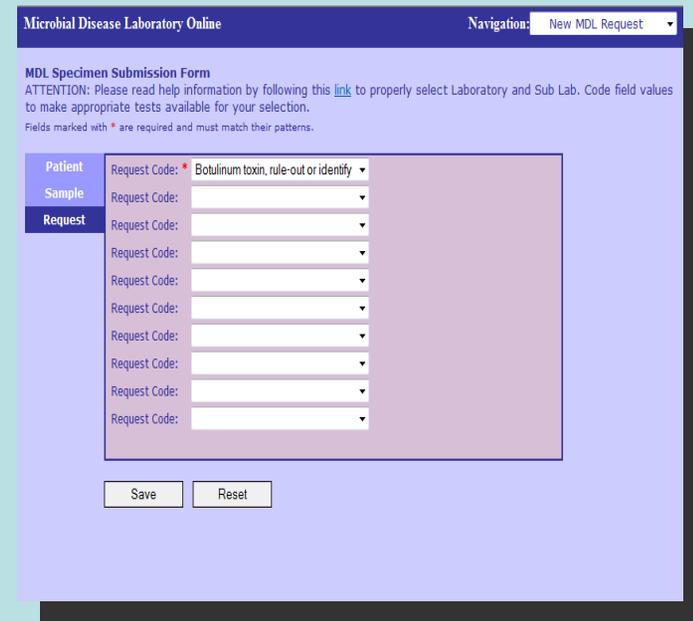
Patient Data Input Form



Sample Data Input Form

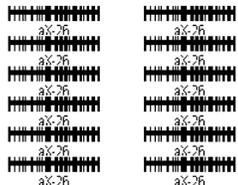
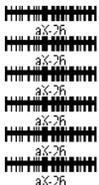


Test Request Input Form



# Sample Processing & Report Form

- System produces a Test Request Report
- Report contains mailing labels and custom sample and container bar-codes to use for shipping sample to lab
- User ships sample to Lab
- Lab receives shipment
- System emails receipt and acceptance notification to user
- Lab performs requested lab work

<b>From:</b> MDL Extranet Test Application 850 Marina Bay Parkway MS E1-164 Richmond CA 94804-6403		<b>Specimen Labels</b> 	
<b>To:</b> Microbial Disease Laboratory c/o Specimen Receiving MS B-105 850 Marina Bay Parkway Richmond, CA 94804-6413		<b>Container Labels</b> 	
<b>From:</b> MDL Extranet Test Application 850 Marina Bay Parkway MS E1-164 Richmond CA 94804-6403		<b>Spare</b> 	
<b>To:</b> Microbial Disease Laboratory c/o Specimen Receiving MS B-105 850 Marina Bay Parkway Richmond, CA 94804-6413		<b>Attachment Labels</b> 	
		<b>Spare</b> 	
		<b>Worksheet Labels</b> 	

	California Department of Public Health Microbial Diseases Laboratory E-164 850 Marina Bay Parkway Richmond CA 94804-6403 (510) 412-3700 Test Request Report

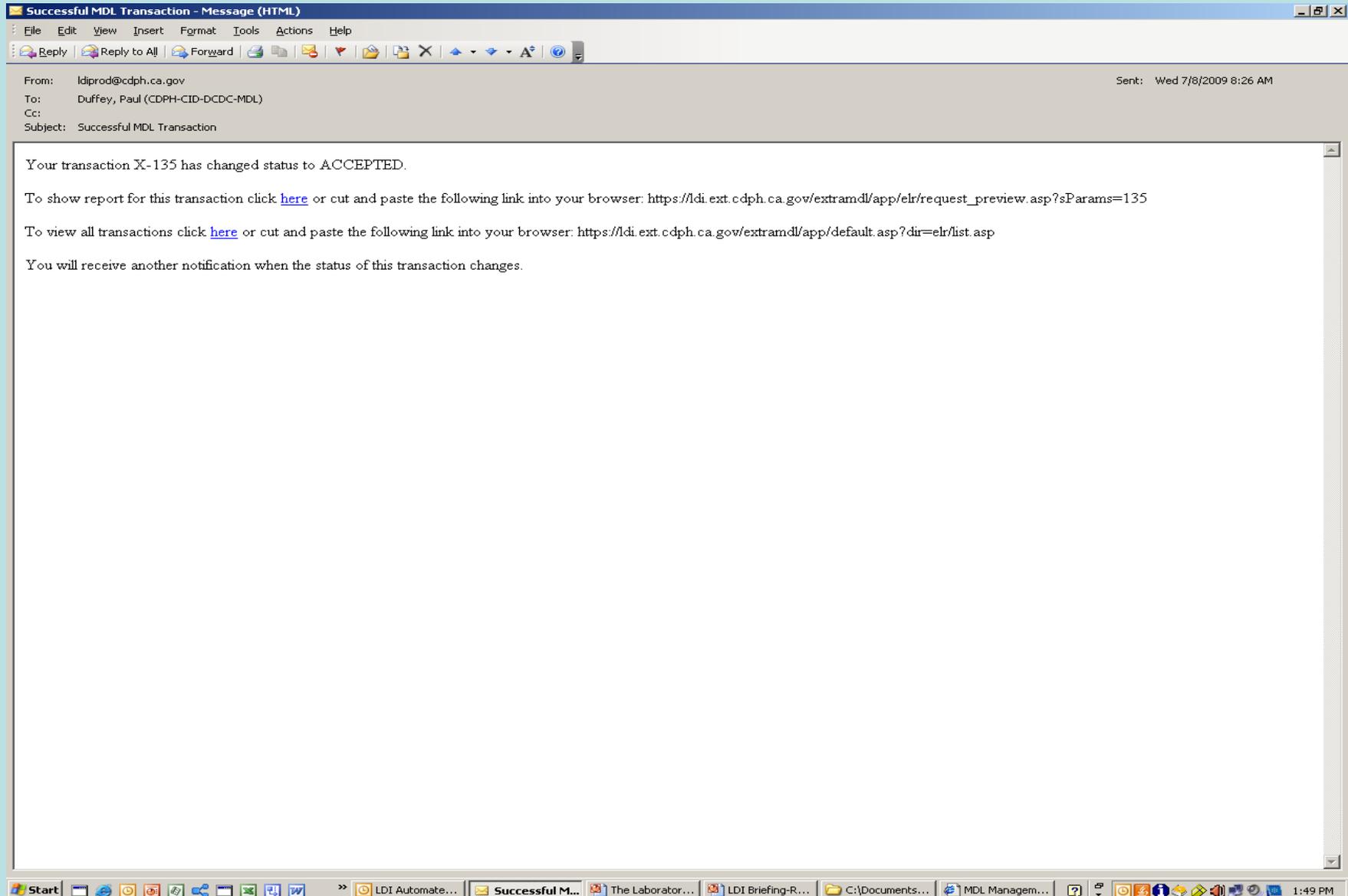
Transaction	
Transaction date	02-21-2008
Submitted by (logon id)	chuck
Transaction ID (X-Number)	X-26
Accession Number	Feb 21 20

Patient Data	
Name	TestLN6PD, TestFN6PD
Age	1Y
Alias	
Birth Date and Place	02-21-2007 -
Sex	U
Address	123 Any
City	Richmond, CA 94804

Test Requests and Results			
Request (Code)	Result (Code)	Dynamic Result	P/N/Release Date
Culture & identify bacteria from specimen (SPBACSP)	0		



# LDI Transaction Status Notification e-mail





# Results Processing Forms & HL7

- Lab Tech enters results
- User is emailed that results are available

Microbial Disease Laboratory Online

Navigation: Previous Submissions

Previous Submissions List

Print Refresh Report

Date Received: 11/18/2008 Search Reset Clear

Status: [Dropdown]

Actions	Date Received	Accession No	Status	Submitter	Tracking No
🔍	2/21/2008 2:53:14 PM	Feb 21 20	MDL-Received	MDL	
🔍	2/13/2008 1:14:31 PM	Feb 13 20	MDL-Shipping	MDL	
🔍	2/4/2008 4:16:27 PM	Feb 4 20	MDL-Received	MDL	
🔍	2/4/2008 2:36:56 PM	Feb 4 20	MDL-Shipping	MDL	
🔍	2/4/2008 2:20:58 PM	Feb 4 20	MDL-Shipping	MDL	

Microbial Disease Laboratory Online

Navigation: Previous Submissions

Test Request Summary

Date Received: 2/21/2008 2:53:14 PM

Accession No: Feb 21 20

Status: MDL-Received

Submitter Code: DHS DCDC-MDL (MDL Test Account)

Submitter: MDL Extranet Test Application

Tracking No: X-26

Test Request Detailed Codes

Print Refresh

Tests Documents

Test Request	Result	Result Code
SPBACSP		

Microbial Disease Laboratory Online

Navigation: Previous Submissions

Test Request Summary

Date Received: 2/21/2008 2:53:14 PM

Accession No: Feb 21 20

Status: MDL-Received

Submitter Code: DHS DCDC-MDL (MDL Test Account)

Submitter: MDL Extranet Test Application

Tracking No: X-26

Test Request Detailed Codes

Refresh

Tests Documents

Actions

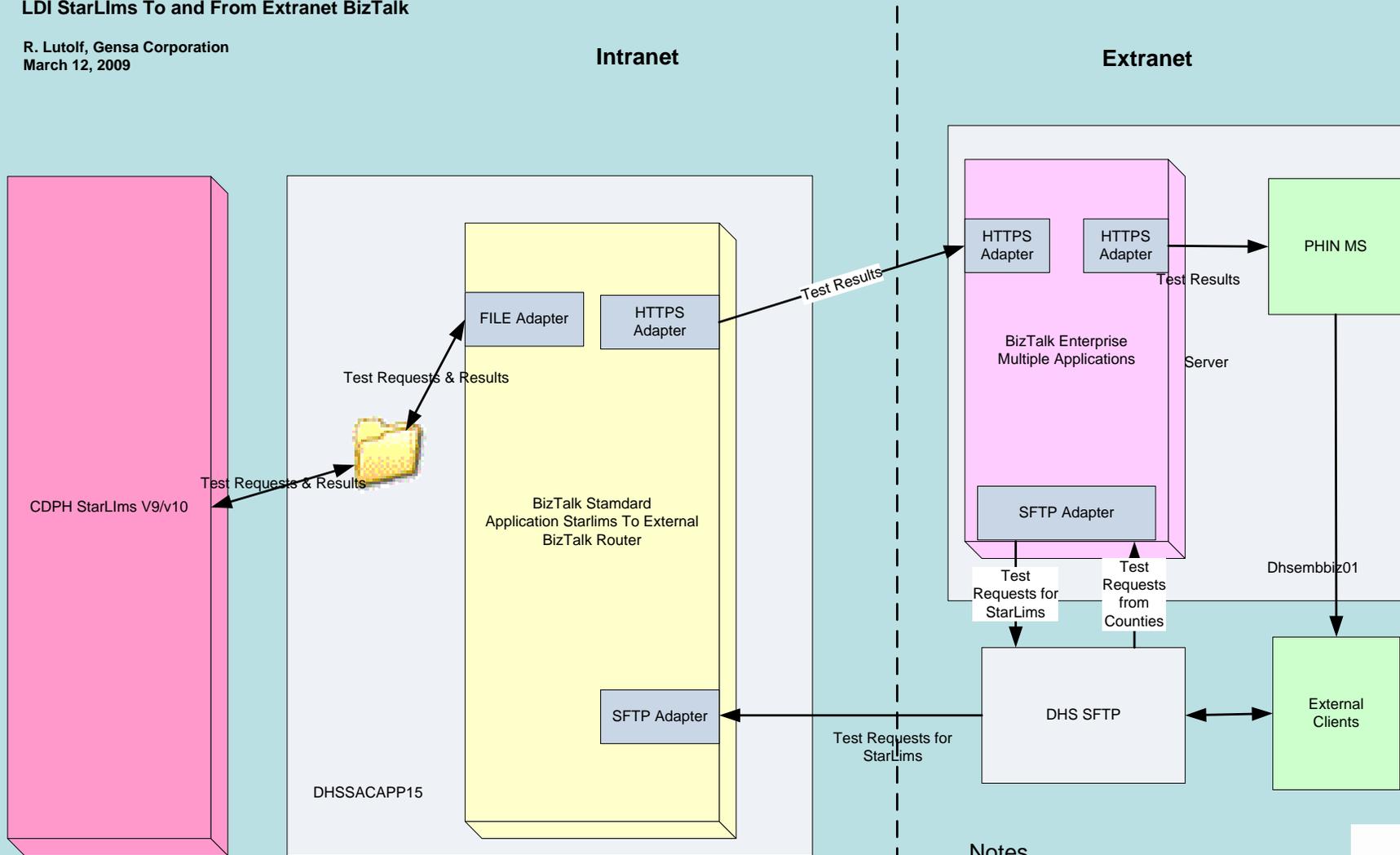
Print

- User looks up Previous Submission
- System displays test results and any relevant uploaded documentation

# HL-7 & other File formatting & Transport

## LDI StarLims To and From Extranet BizTalk

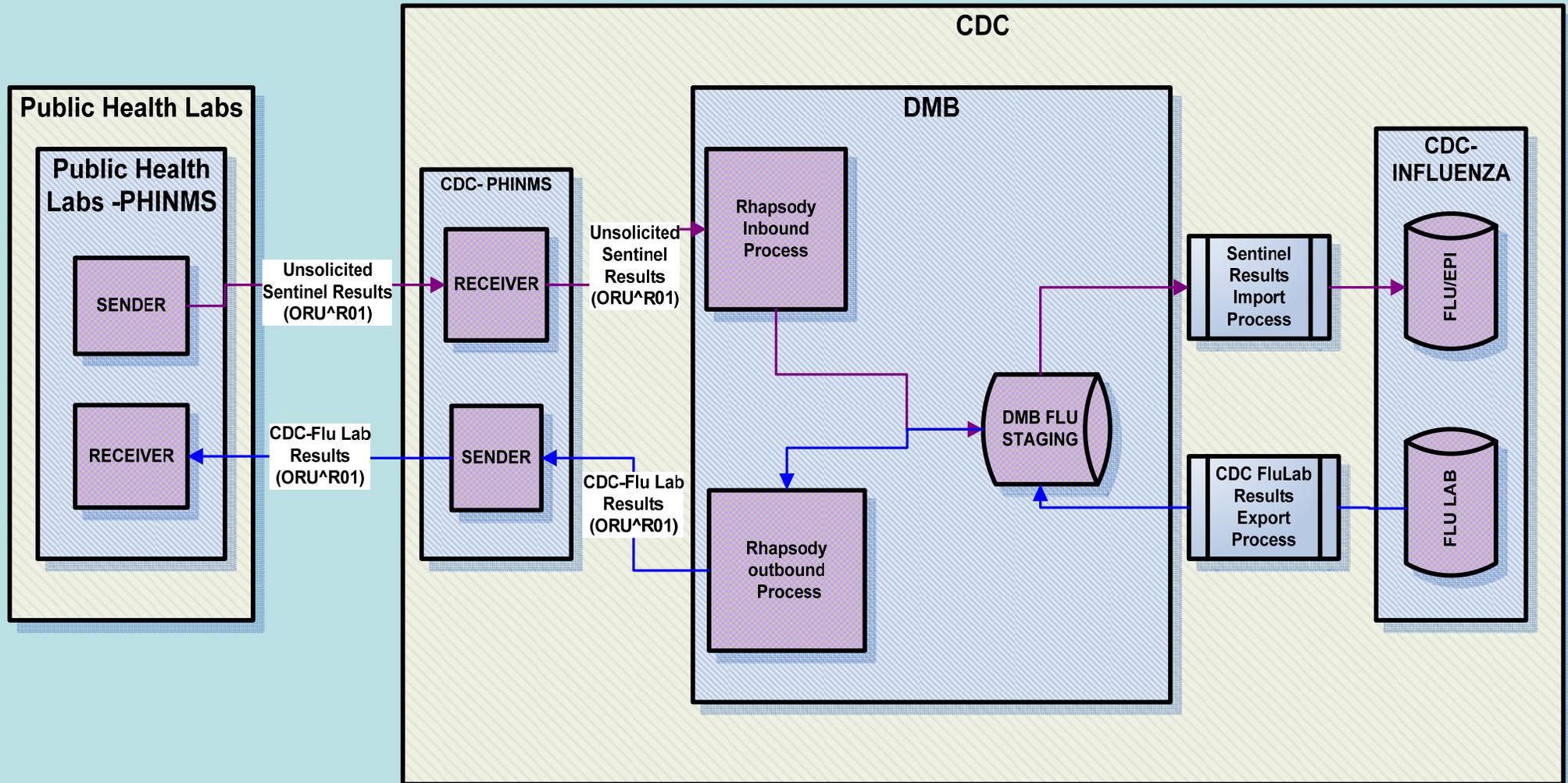
R. Lutolf, Gensa Corporation  
March 12, 2009



### Notes

1. This shows the flow for Staging or Production. There will be two sets of BizTalk applications. One for Staging and One for Production.

# Data and Message Brokering (DMB) Electronic Data Exchg. with CDC



# Questions?

