



# ***Using Microsoft BizTalk in Laboratories***

**This presentation describes the use of Microsoft BizTalk  
Message Integration Engine BizTalk at the California  
Department of Public Health Division of Communicable  
Disease Control.**

# Introduction

- **CDPH is replacing Rhapsody with BizTalk as the StarLims Message Broker.**
- **BizTalk will also be used to integrate other LIMs, users and data requestors.**

# Introduction

- **Topics**
  - CDPH Environment
  - The BizTalk Message Integration Engine
    - Feature Demonstration
  - The Basic BizTalk Installation
  - How BizTalk is used at CDPH Labs

# The CDPH Environment

- **Laboratory Information Mgmt Systems**
  - CDPH has two LIMs
  - StarLims – Used by
    - Viral and Rickettsial Disease Laboratory
    - Environmental Labs
  - Microbial Disease Laboratory System (MDL) – A custom developed LIMS that is used MDL and subunits
  - All MDL Labs will be transitioning to StarLims.

# The CDPH Environment

- **Laboratory Data Interchange (LDI) System**
  - Through LDI, Users can
    - Enter test requests
    - Print a completed request form that includes bar code labels.
    - See Test Request status
    - See Test Results

# The CDPH Environment

- **BizTalk Message Integration Engine**
  - The Message Broker for StarLims
  - Integrates all interfacing
    - Users
    - Systems
    - Data Requesters

# The CDPH Environment

- **How Users Interface with the Labs**
  - Submitting Requests - Send requests through
    - US mail
    - Fax
    - LDI
    - HL7 Messages
  - Receiving Results - Receive results through
    - US Mail
    - Fax & Phone Call
    - LDI
    - HL7 Messages – Future

# The CDPH Environment

- **Other Interfaces**

- CDC

- PHLIP FLU

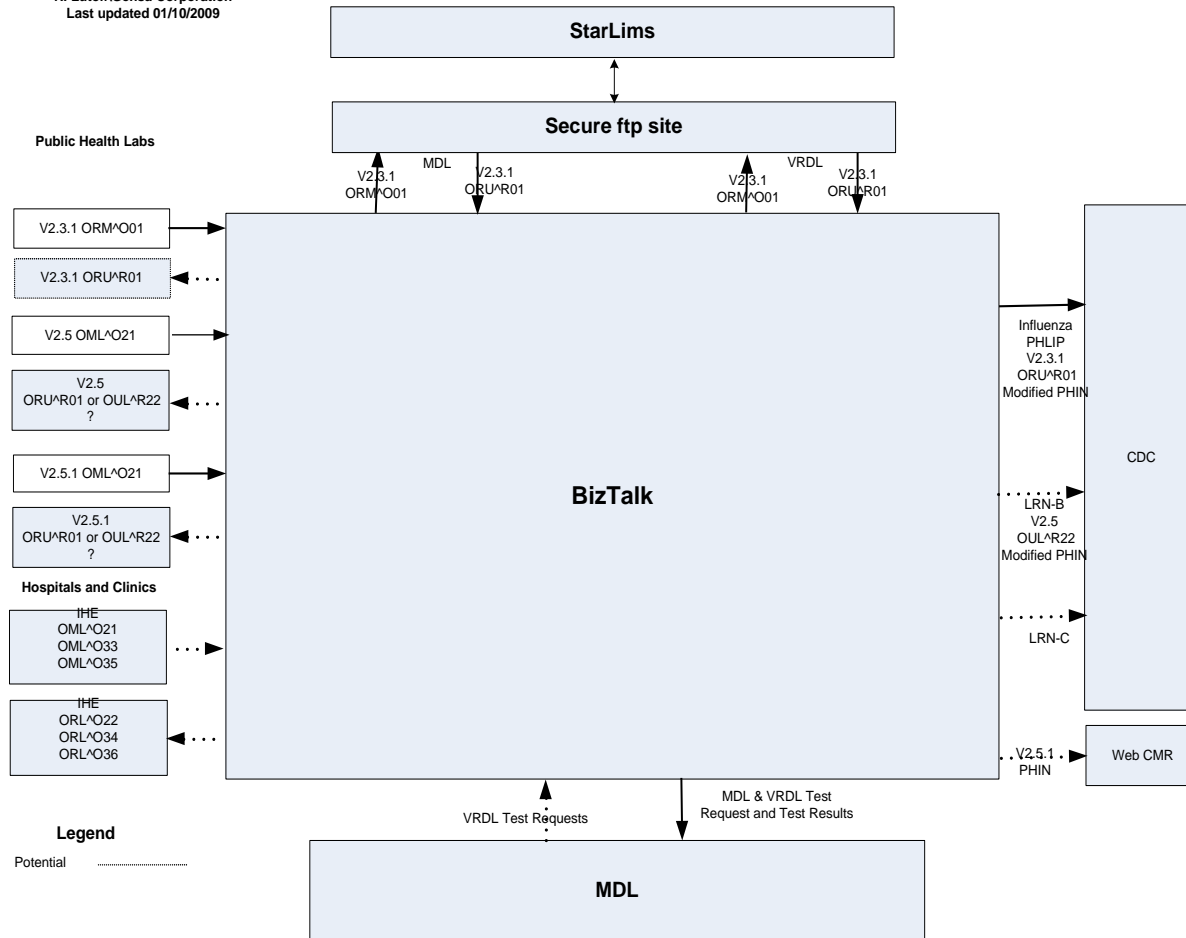
- LRN – Future

- California

- Web-Confidential Morbidity Report/Electronic Laboratory Reporting – Future

# The CDPH Environment

LDI BizTalk System Interfaces  
 R. Lutolf/Gensa Corporation  
 Last updated 01/10/2009



# BizTalk Integration Engine

## A general purpose Message Integration Engine

- General Purpose in that it isn't limited to integrating systems thru HL7 messaging.
  - Blah Blah
  - BizTalk replaces Rhapsody as the StarLims Message Broker.
- 
- Add some more here

# BizTalk Integration Engine

- **Versions**

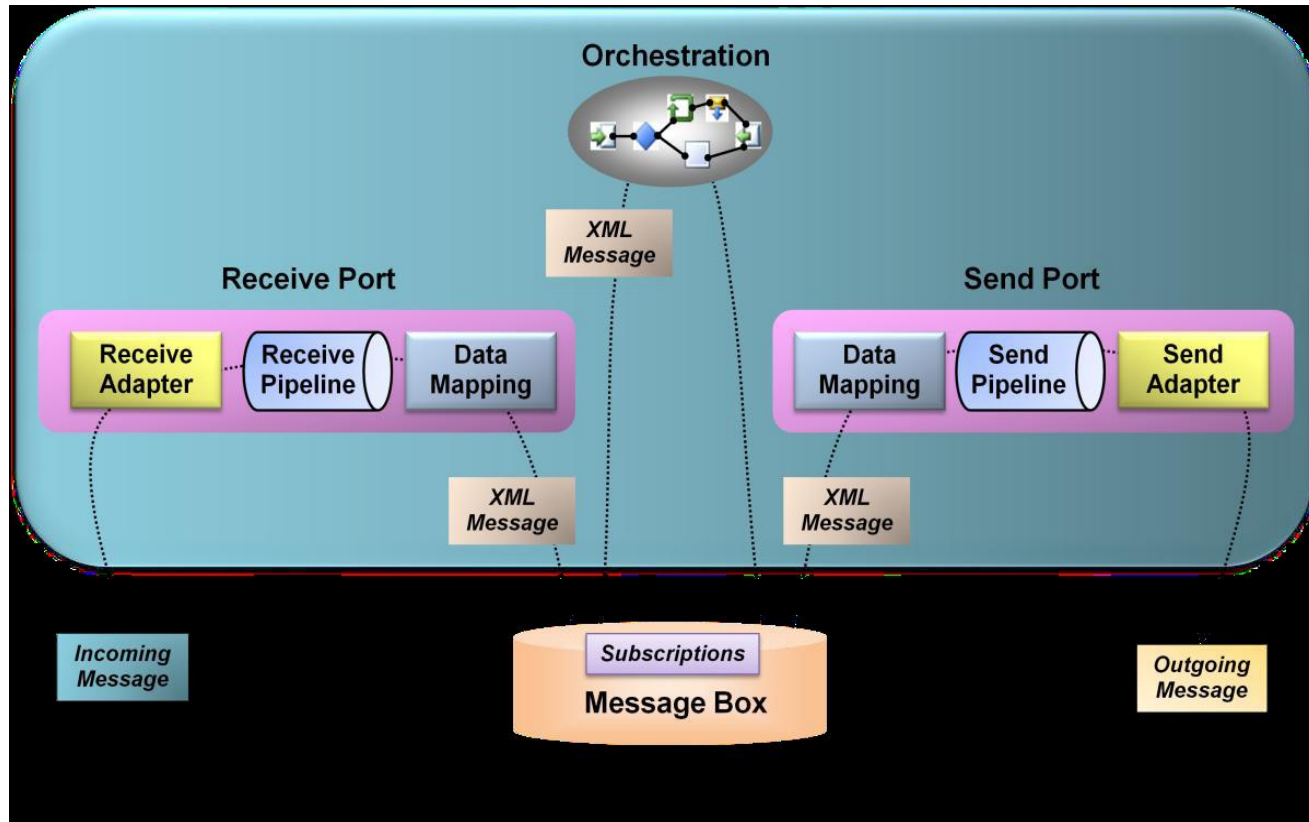
- Enterprise Edition: This edition is ideal for enterprise customers and large organizations looking for an advanced BPM and SOA platform with unlimited scalability. It now includes BizTalk adapters and accelerators.
- Standard Edition: This edition is a comprehensive BPM and SOA solution for midsize businesses or departmental solutions. It also includes BizTalk adapters and accelerators, HIS, RFID, and EDI in the box.
- Branch Edition: This edition enables a true “hub and spoke” scenario when paired with the Enterprise Edition; Branch Edition will help organizations make new intra-organizational and departmental connections for intelligent data and process sharing.
- Developer Edition: Limited to designing, developing, and testing solutions, Developer Edition is the ideal solution for application development in preproduction environments.

# BizTalk Integration Engine

- **Software Requirements**
  - Operating Systems
    - Windows 2003 32 & 64 bit
  - Database Software
    - SQL Server 2000 and 2005
  - Optional Other
    - Microsoft IIS
    - Microsoft SharePoint

# BizTalk Integration Engine

- Architecture



# BizTalk Integration Engine

- **The BizTalk Message Box is the heart of the system**
  - Messages are published to the Message Box
  - Messages are subscribed from the Message Box
- **BizTalk stores all messages as xml.**
- **All other BizTalk functionality is oriented to receiving the messages, validating them, converting them, translating them and sending them.**

# BizTalk Integration Engine

- **Some BizTalk Terminology**
  - Artifacts – All of the BizTalk Server components (in the diagram) are called artifacts.
    - Ports – Receive and Send ports are used to communicate with other applications. Can be in the same organization or different organizations. Ports can contain three components
      - Adapters
      - Pipelines
      - Data Mapping

# BizTalk Integration Engine

- **Adapters – Physical interface Common adapters are**

File

HTTP

FTP

SMTP

SOAP

SQL Server

Oracle

POP3

SharePoint

Base EDI

Host Files

WebSphere MQ

- **We are using a Secure FTP and SQL Server Custom Adapters at CDPH**

# BizTalk Integration Engine

- **Pipelines – Process messages so they can be stored in the Message Box. Processing can include**
  - *Authenticating the sender or receiver*
  - *Validating that the message meets some agreed standard. Agreed to by the Sender and the Receiver*
  - *Converting the validated message to or from xml*

# BizTalk Integration Engine

- **Data Mapping – Map different definitions for common elements**
  - In LDI, mapping might be used to relate a V2.3.1 Test Request Message to a V2.5.1 Test Request Message.
- **Schemas –Xml schema definitions are the key to reading, modifying and creating messages**
  - Xml schema definitions are used to define various HL7 messages.

# BizTalk Integration Engine

- **Accelerators**

- Collections of schemas and pipelines tailored to a business area. They are “accelerators” because they provide “prebuilt” functionality for the developer. BizTalk Accelerators include.

- HL7
    - HIPAA

# BizTalk Integration Engine

- **Orchestrations**
  - Provide a means to incorporate business processes into BizTalk message processing
  - In LDI, we will use orchestrations for error processing.

# BizTalk Integration Engine

- **BizTalk Tools**
  - Business Rules
  - Business Activity Monitoring
  - Orchestration Designer
  - HL7 Accelerator Configuration
  - Admin tool
  - Schema Generator
- **Demonstration**

# Creating Message Definitions

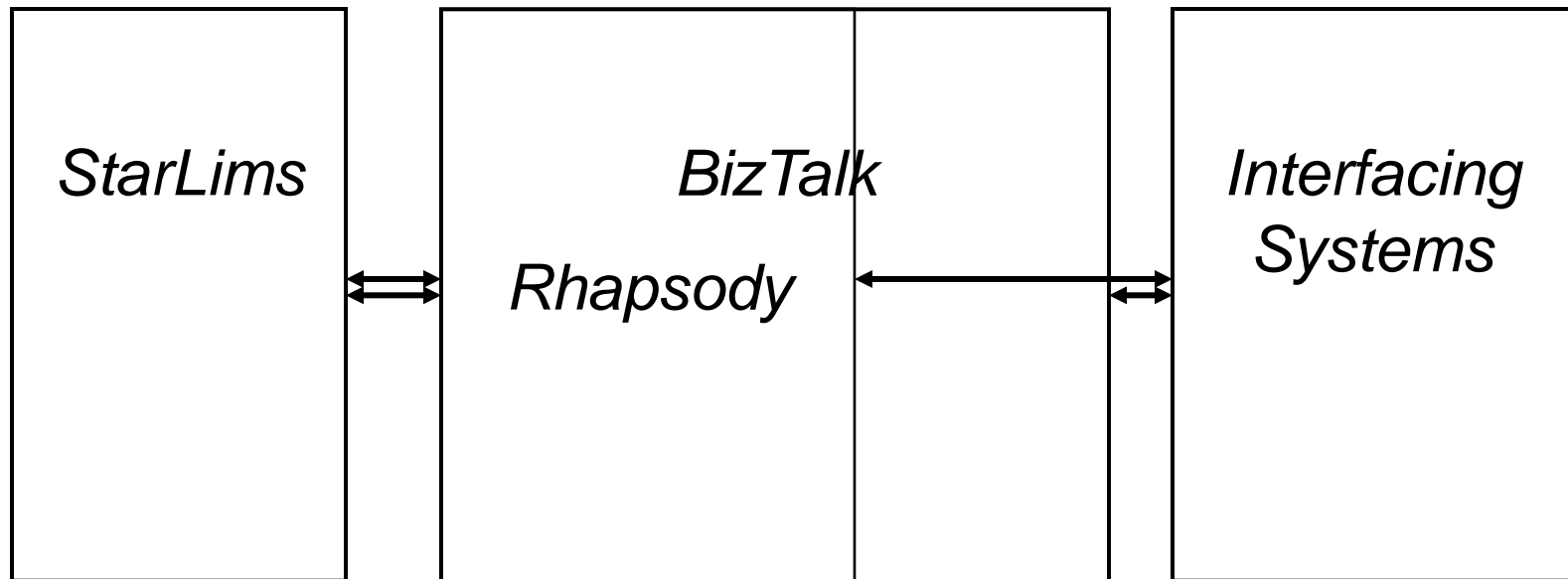
- **BizTalk HL7 Accelerator comes with definitions for PHIN v2.3.1 through V2.5**
- **The schema generator works with HL7 database to create new definitions E.g. V2.5.1**
- **The following schemas define a message**
  - Segments – From HL7
  - Tables – From PHIN/VADS. The vocabulary
  - Datatypes – From HL7
  - MSH
  - ACK
  - The Trigger/Event – e.g ORM ^O01

# Creating Message Definitions

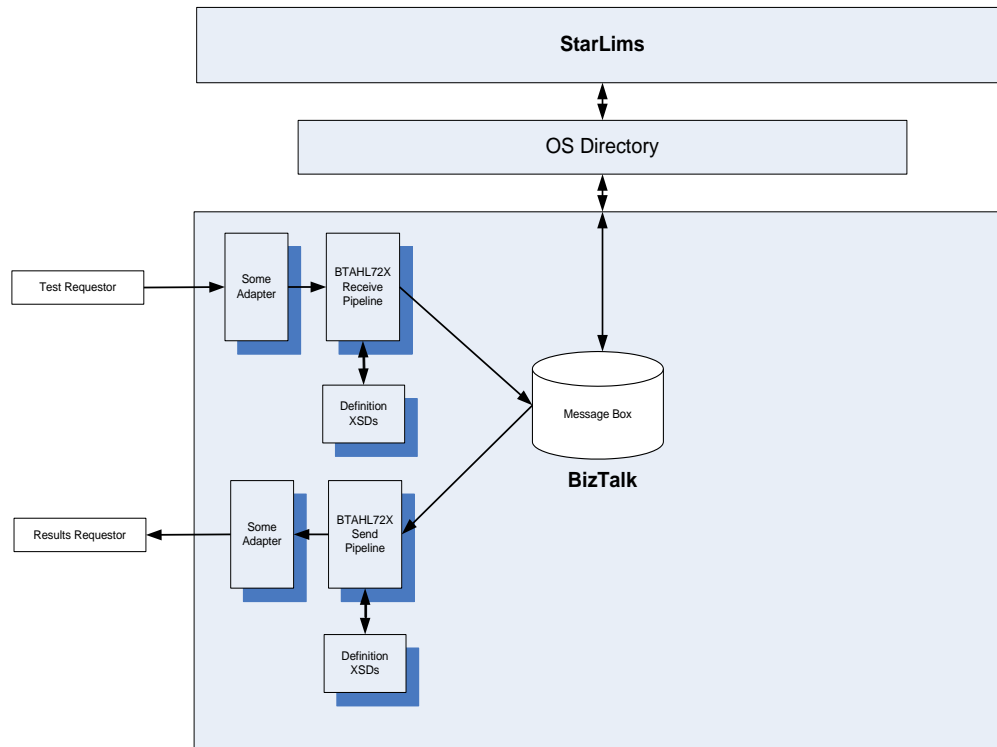
- **For Non-PHIN Messages, you need to manually create the definition schemas.**
- **CDPH has two messages that require modification from the PHIN message.**
  - The test request messages that Users submit. CDPH requires some EPI information that isn't in the PHIN (OR PHLIP) Standard Messaging Guide.
  - The PHLIP Flu Test Result

# LDI Test Request Message

# Replacing Rhapsody with BizTalk



# Replacing Rhapsody with BizTalk



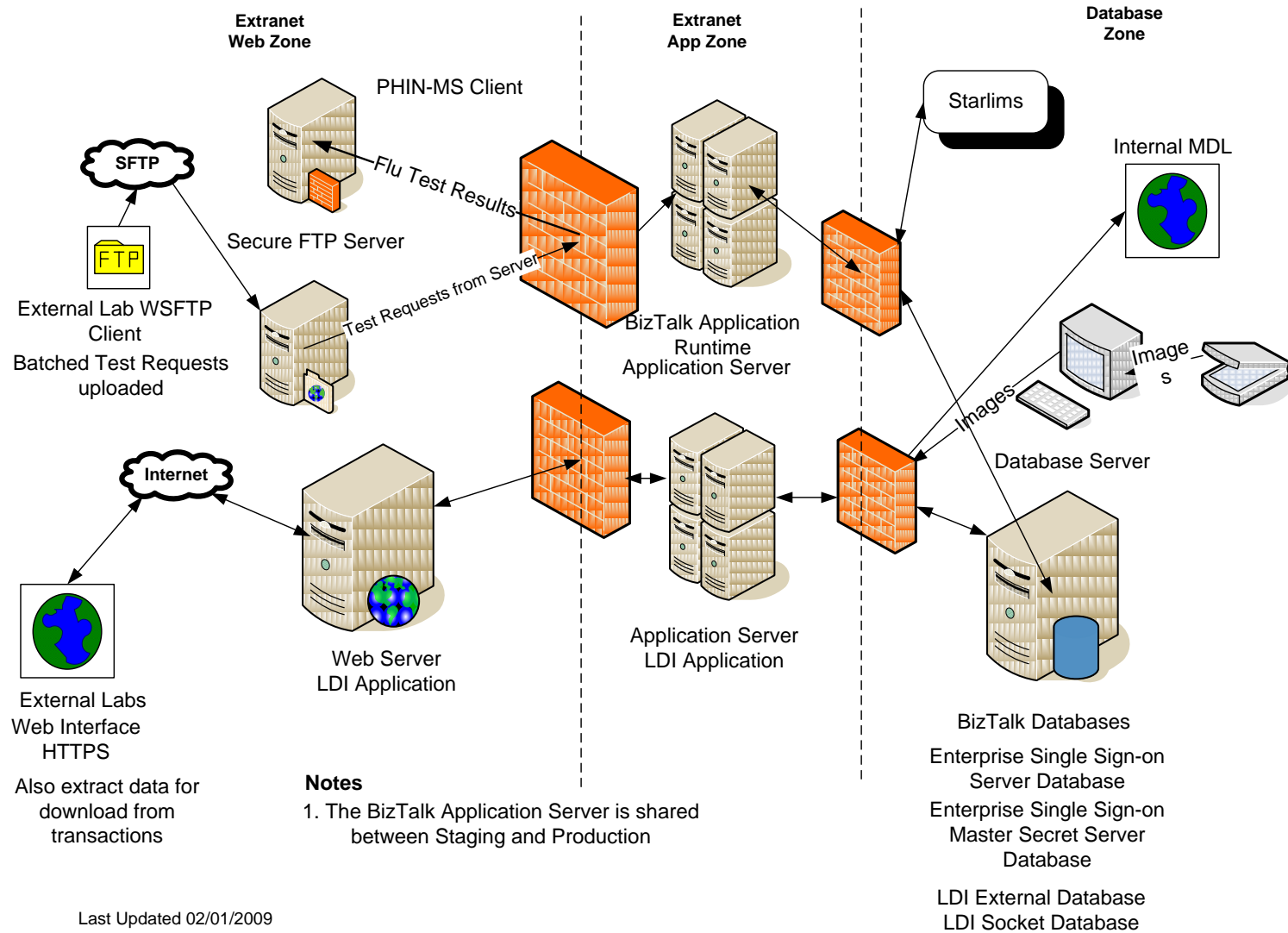
# Replacing Rhapsody with BizTalk

- **1. Create Version and Message Schema Definitions**
- **2. Create BizTalk Application (or Not)**
- **3. Configure HL7 Interfaces**
  - With the BTAHL7 Configuration
- **4. Create Receive Ports and End Ports**
  
- **Demonstration**

# CDPH Use of BizTalk

- **Integrate two LIMs**
  - Routing based on LOINCs
- **Single Messaging Access Point for**
  - Requests
  - Results
- **Potentially single access point for all electronic access types**
  - Web Interface
  - HTTPS

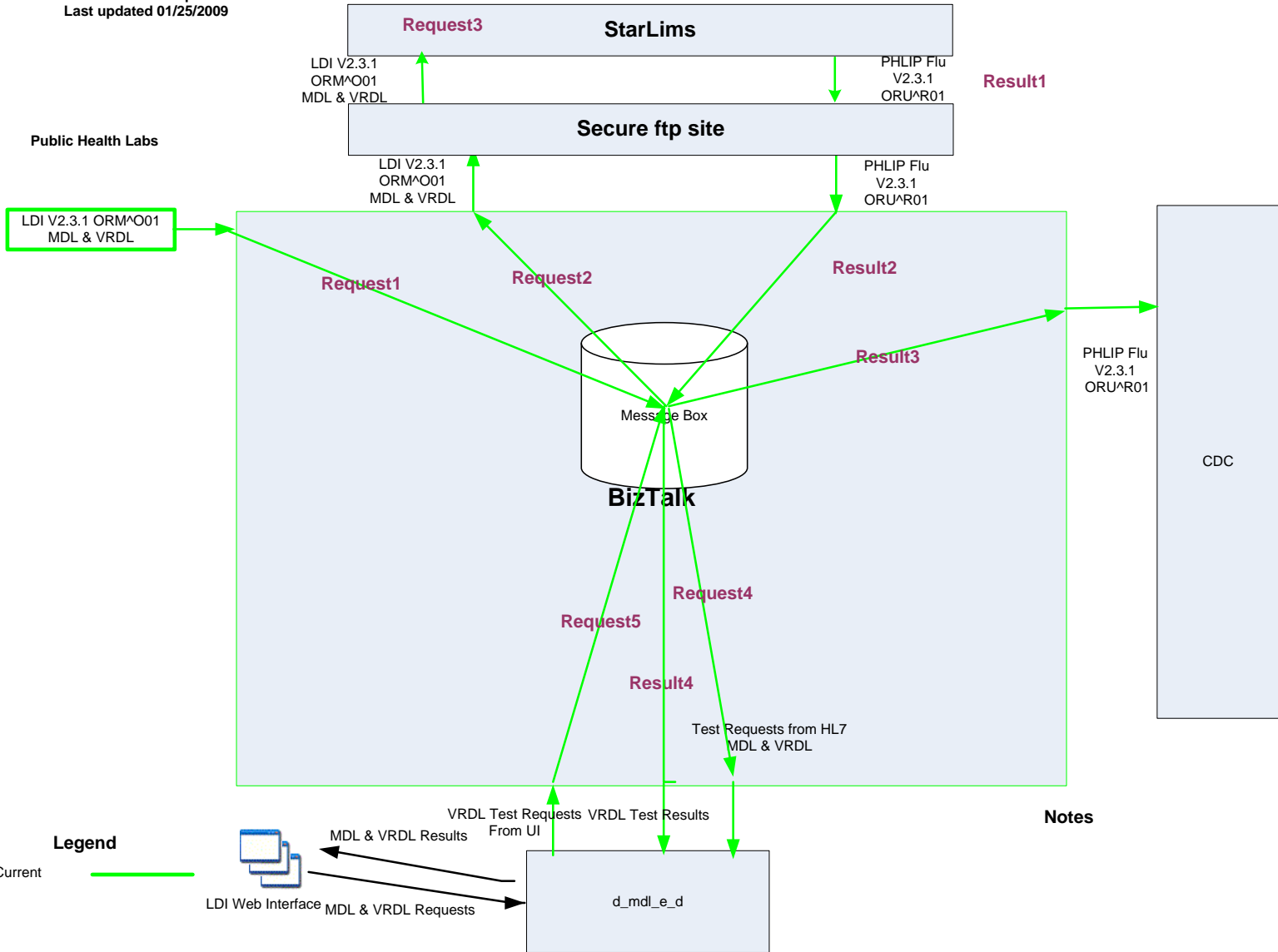
## CDPH LDI Configuration



Last Updated 02/01/2009

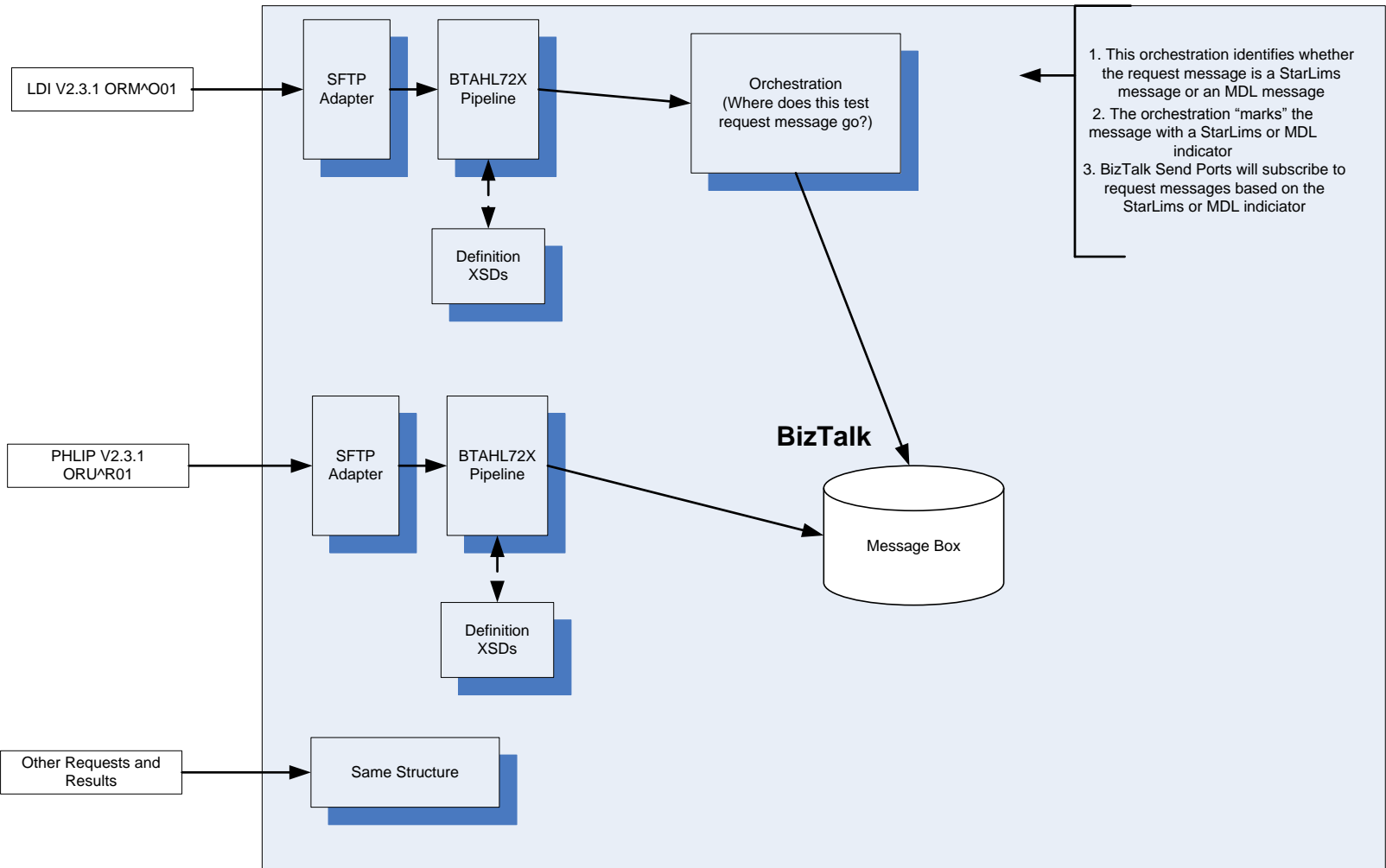
# LDI Message Flow

R. Lutolf/Gensa Corporation  
Last updated 01/25/2009



# LDI BizTalk Message Framework

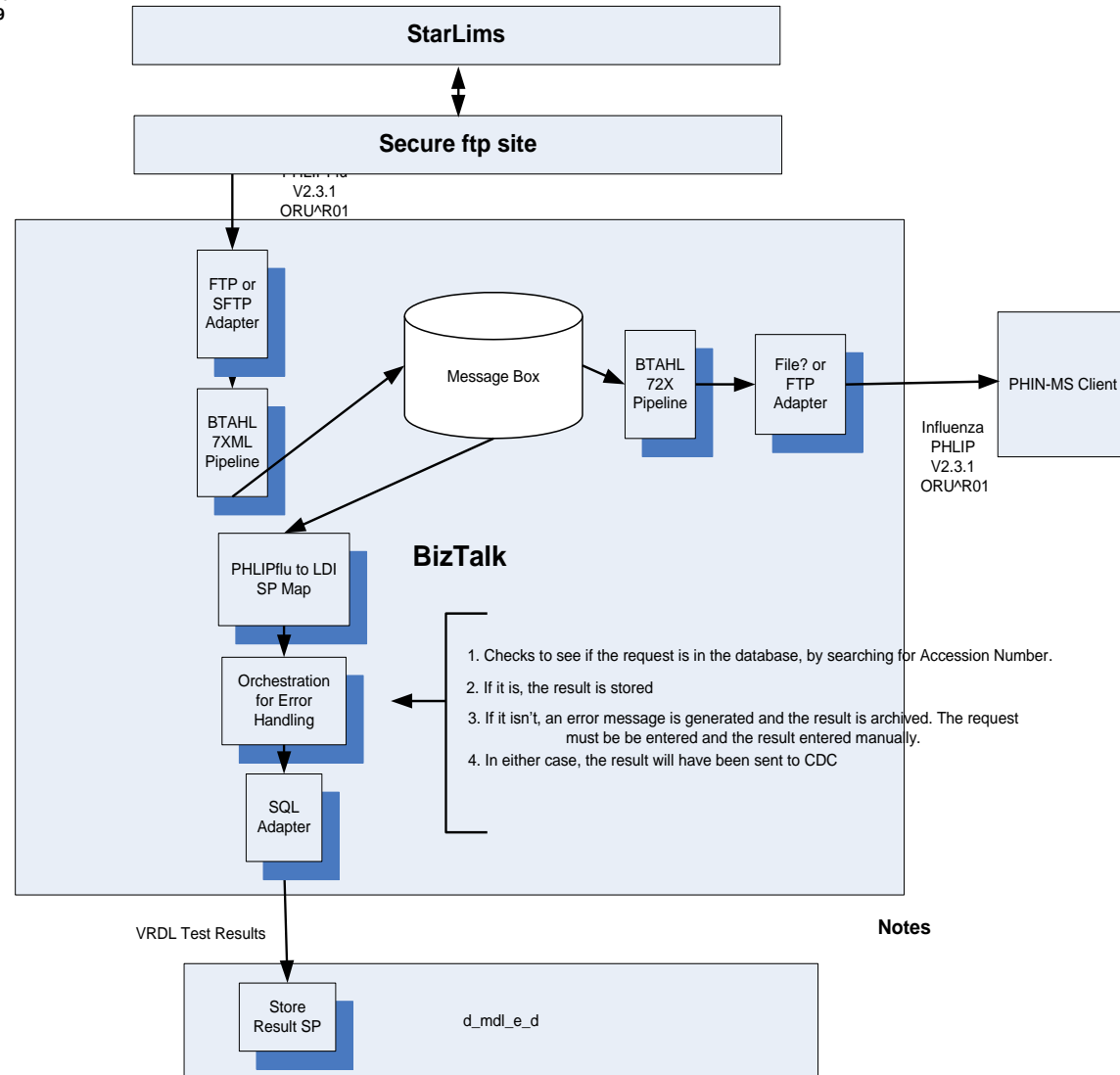
R. Lutolf/Gensa Corporation  
Last updated 01/30/2009



# LDI BizTalk PHLIPFlu Design

R. Lutolf/Gensa Corporation  
Last updated 01/27/2009

Public Health Labs

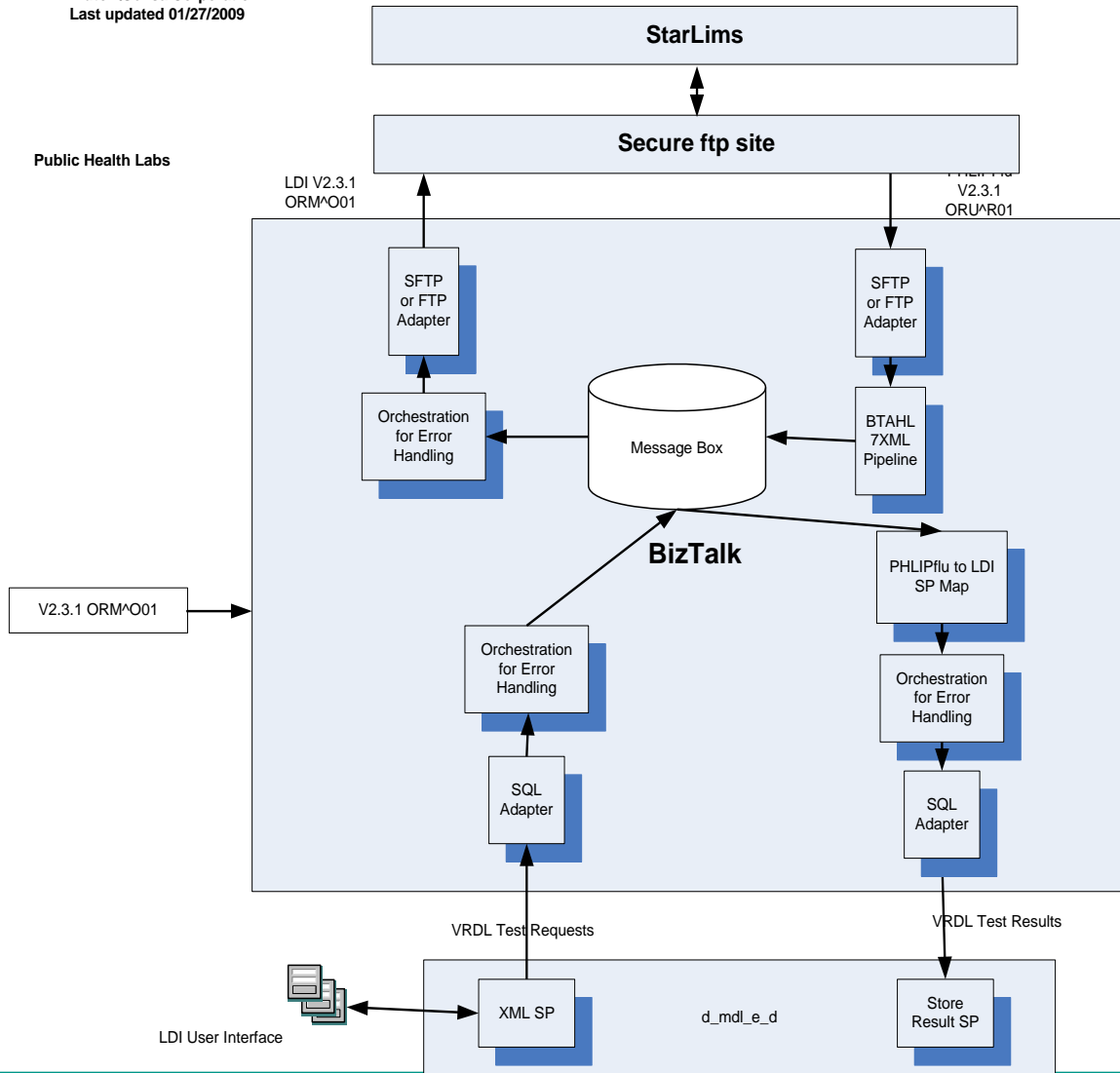


Legend

# LDI BizTalk/StarLims Design

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Last updated 01/27/2009

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# Questions?