# Business Applications

## *Health Care*

**John Ryan**
Healthcare Industry Manager
Sun Microsystems, Inc.

# Speakers

- Panelists
  - **Tim Brinson**, Co-Chair CORBAmed, Protocol Systems, Inc.
  - **Neil de Crescenzo**, IBM
  - **Jim Hollister**, Oracle
  - **Mickey Hollison**, Lotus
  - **Kang Wang Ph.D.**, W3Health
- Moderator
  - **John Ryan**, Healthcare Industry Manager, Sun Microsystems, Inc.

# Health Care's Changing Dynamics

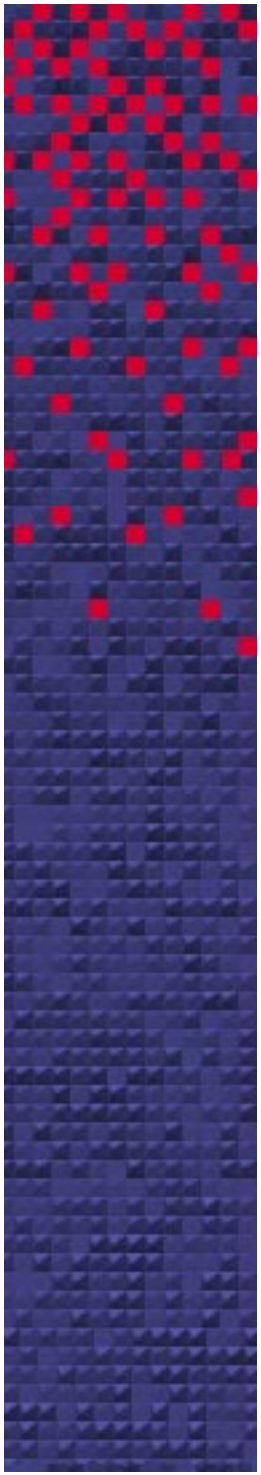
- Mergers, acquisitions and consolidation
- Hospital, payer and physician networks are competing for contracts
- Challenges: reduce cost, deliver quality care and provide access to services
  - Health Care Cybervision: http://www.hccybervision.com

# Health Care Information Technology Drivers

- Reimbursement maximization → Cost minimization
- Care maximization → Health optimization
- Financial/billing → Clinical
- Regulatory requirements
- Customer demand for information

# Health Care Information Technology Requirements

- Leverage legacy systems/assets
- Ubiquitous access to applications and data
- Flexibility, scalability and connectivity
- Security/confidentiality
- Incorporation of applications standards



# Introducing:
# Java Healthcare Initiative

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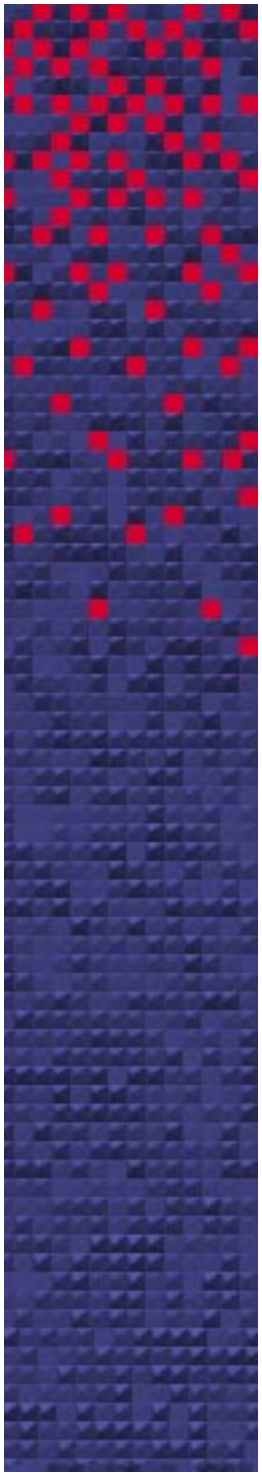
**dub.dublin@sun.com,713-964-7020**
**tim@Protocol.com, 503-526-4392**
**dsink@us.ibm.com, 919-254-3648**



**Tim Brinson**
Protocol Systems, Inc.
co-Chair CORBAmed

# A Quick Overview

- Protocol Systems, Inc.
- The healthcare IT problem
- The need for interoperability
- Standardization
- Longitudinal patient records
- Integrating Java and CORBA

# Protocol™ Systems, Inc.

- That is not a wire ‘Protocol’
- The Flexible Monitoring™ company
- Small, portable vital signs monitors
- Unix central station
- CORBA/Java to the world

# The Healthcare IT Problem

- Historically independent systems
- Conservative due to risks
- Proprietary lock-in was accepted
- Legacy systems

# The Need for Interoperability

- Healthcare crisis
- Consolidation
- Distributed patient records
- Need for integration
- Use new technology

# Standardization

- Standards Development Organizations
  - HL7, X.12, DICOM, CEN TC 251
- Consortia
  - OMG -> CORBAmed DTF
- Others
  - MS-HUG, AWG
- What about Java?

# Longitudinal Patient Records

- Paper folder today
- Must be distributed
- ‘Write once, access anywhere’
- Maintain confidentiality

# Integrating Java and CORBA

- Access from anywhere independent of:

  Hardware, Operating System

  → Java

- Access data anywhere independent of:

  Hardware, Operating System, Programming Language

  → CORBA

http://www.protocol.com/engineering/himss97

**Neil Decrescenzo**
Director
Global Healthcare Business Strategy
IBM

**Jim Hollister**
Senior Director Health Industries
Oracle

# Applications in Healthcare

- The New Enterprise
- Application Opportunities
- Oracle's Healthcare Applications
- Moving to Java
- Sustaining Competitive Advantage

# Healthcare's New Enterprise

- Consolidation, Consolidation
- Vertical and Horizontal Flavors
- Focus on Extending the Network
- Managing Resources Effectively
- Seeking New Opportunities
- It's a Zero Sum Game

# The IT Opportunity

- Move from  Transaction Based Cottage Industry to a Knowledge Based Complex Enterprise
- Industrial Strength Applications That Know No Limits
- An Architecture that Combines Operational, Financial, and Clinical Information

# Oracle's Healthcare Applications

- General Accounting
- Budgeting, Modeling
- Operations Analysis
- Materials Management
- Fund Accounting
- Government Accounting
- OLAP with Express

# Moving to Java

- Application Architecture
- Designer 2000
- Developer 2000
- Discoverer 2000
- Application Release 10.7

# Sustaining Competitive Advantage

- Rapid Installation
- Transforming Business Operations
- Self Service Java Applets
- Timely and Relevant Information
- Staying Nimble
- Scaling to Fit Continued Consolidation

# Use WEB and Java™ Technology for Clinical Information Integration

**Kang Wang Ph.D.**

W3Health

# The Problems

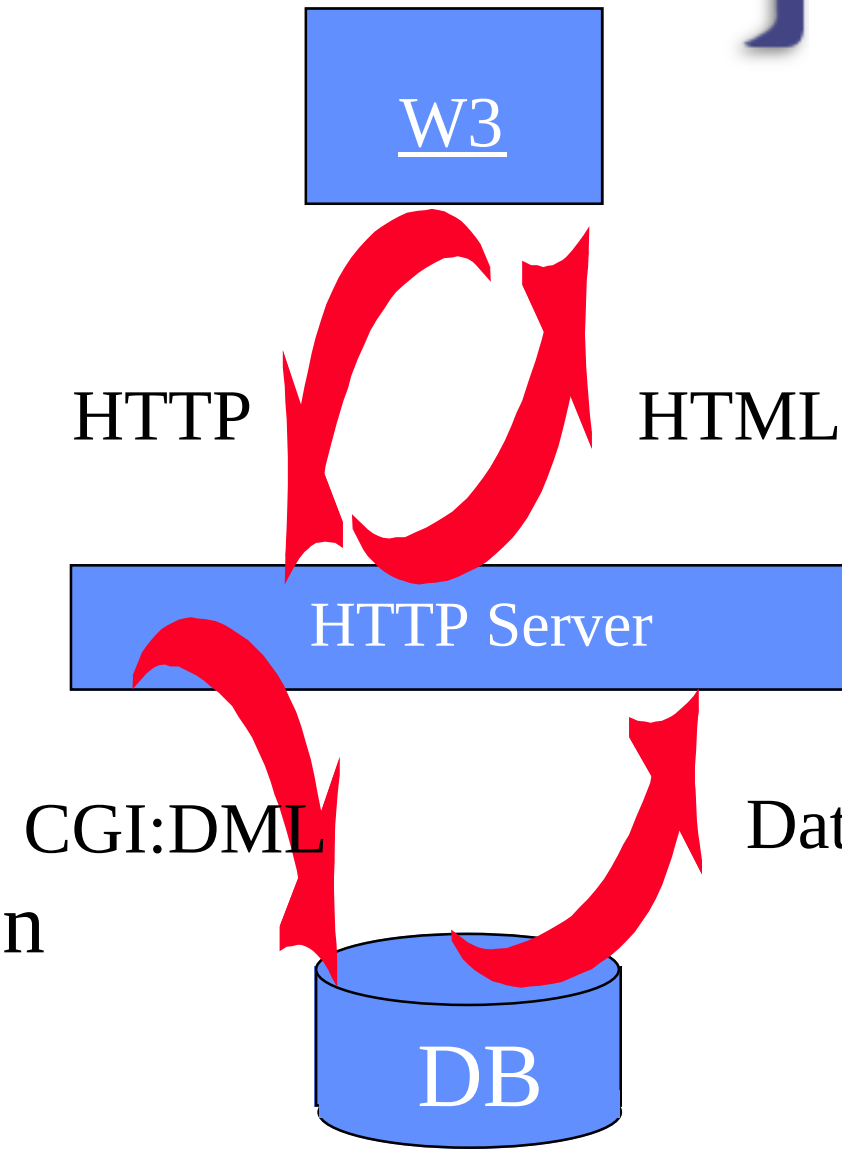
- Heterogeneous application/DB
- Need common UI common medical record
- Need distributed access ability
- Common repositories may not always be the optimal strategy

# Solutions

- Keep “legacy” systems
- Unified architecture/CMR
- Internet/Java™: efficient, secured integration

# First-Generation Web Design

- Single data-model
  - Often implicit
  - Difficult to maintain
  - Unsuitable for unifying multiple heterogeneous systems
- Remote, multi-platform viewing
- Rapid development of view-only function

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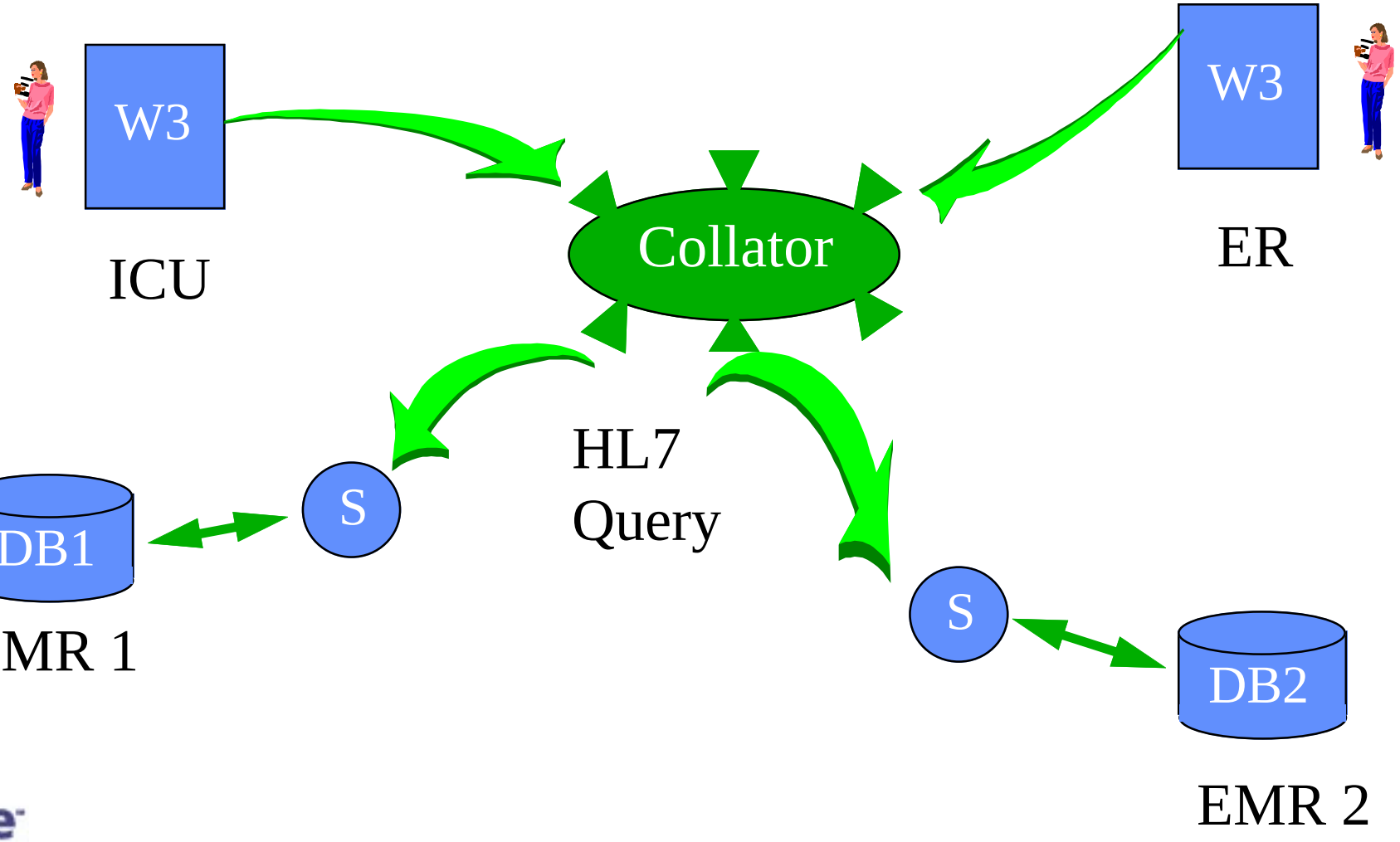
# Data Flow: Query

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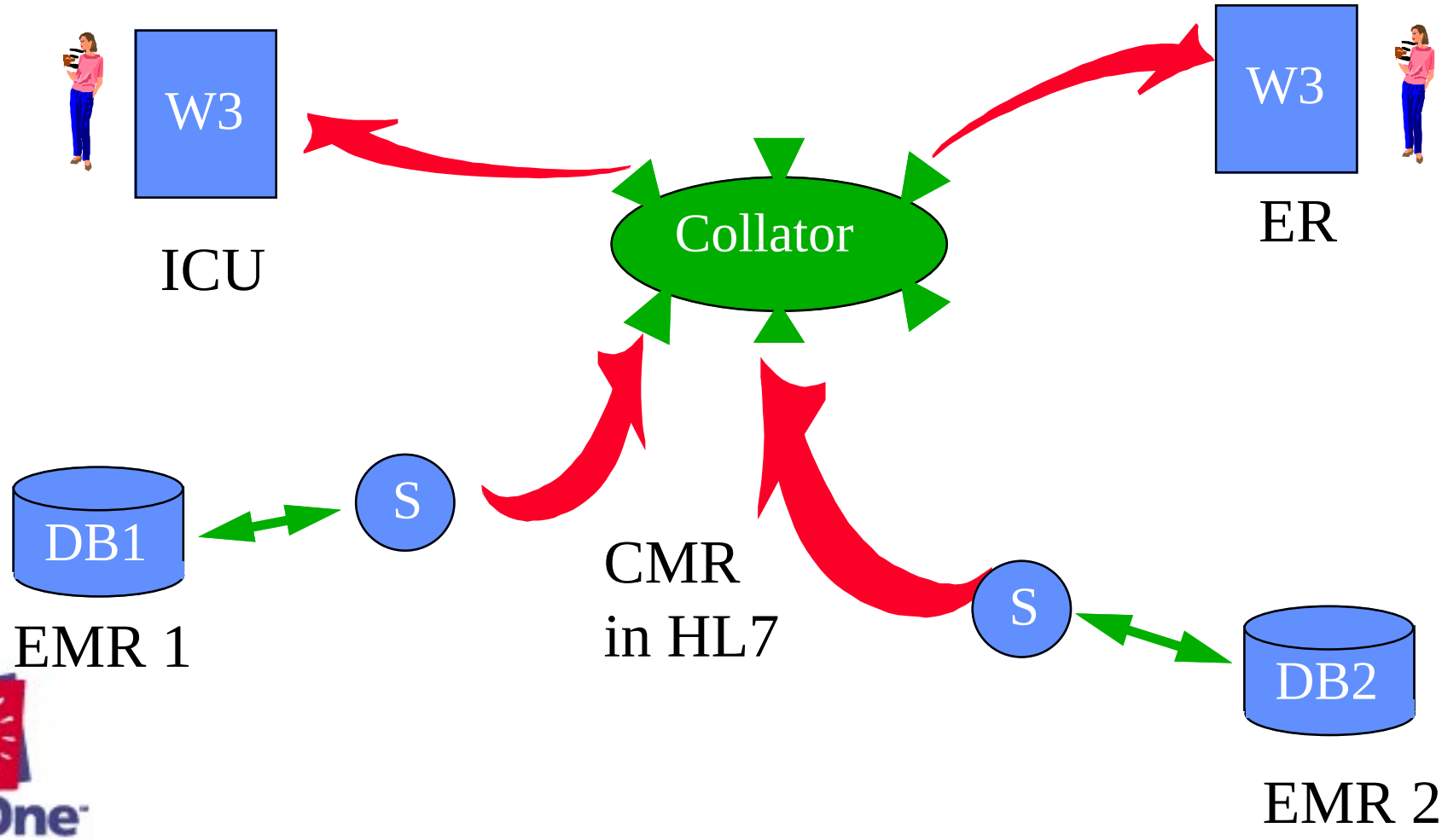
# Data Flow: Response

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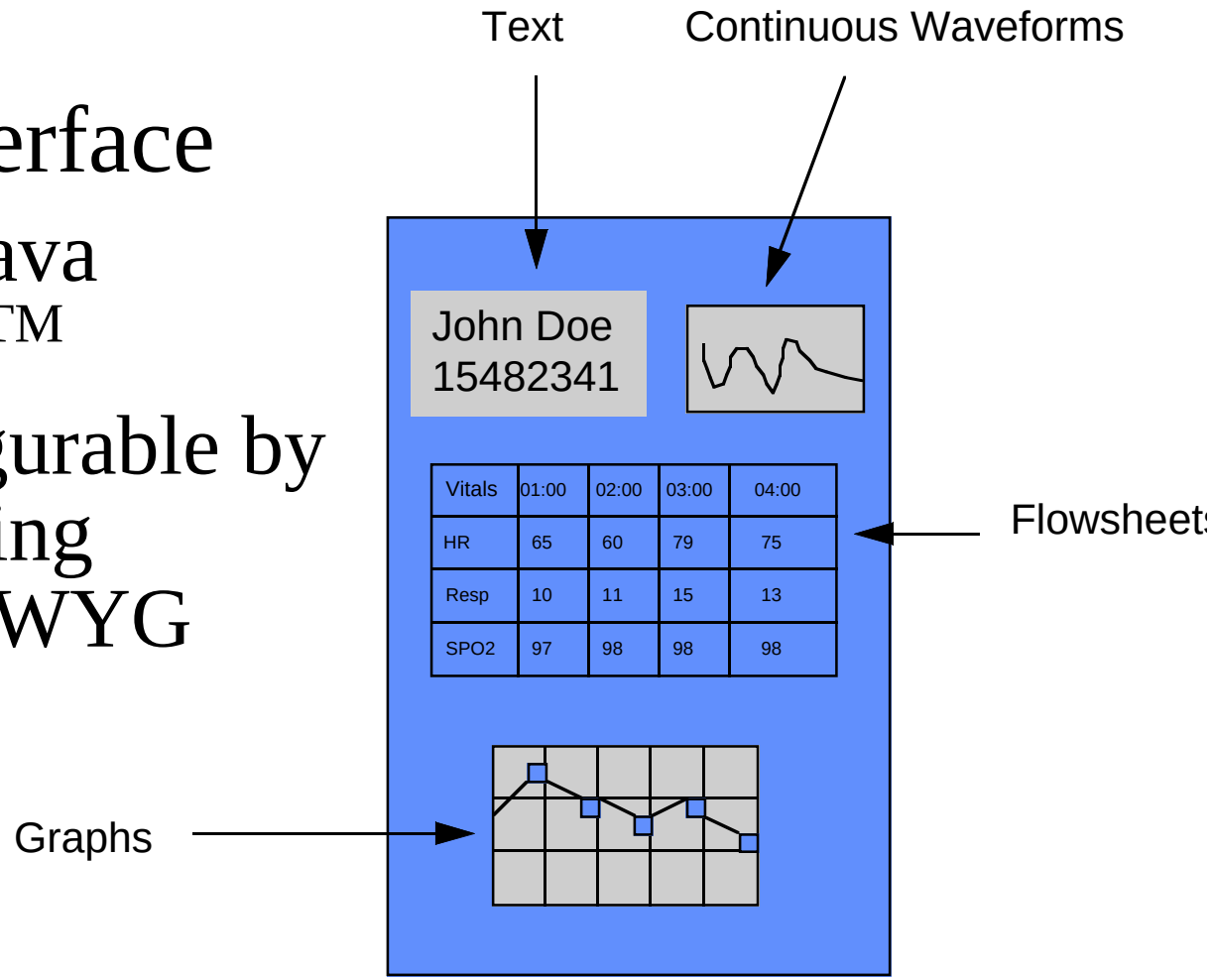
# Modular Implementation

- User interface
  - Java/Java Beans™
  - Configurable by emerging WYSIWYG tools

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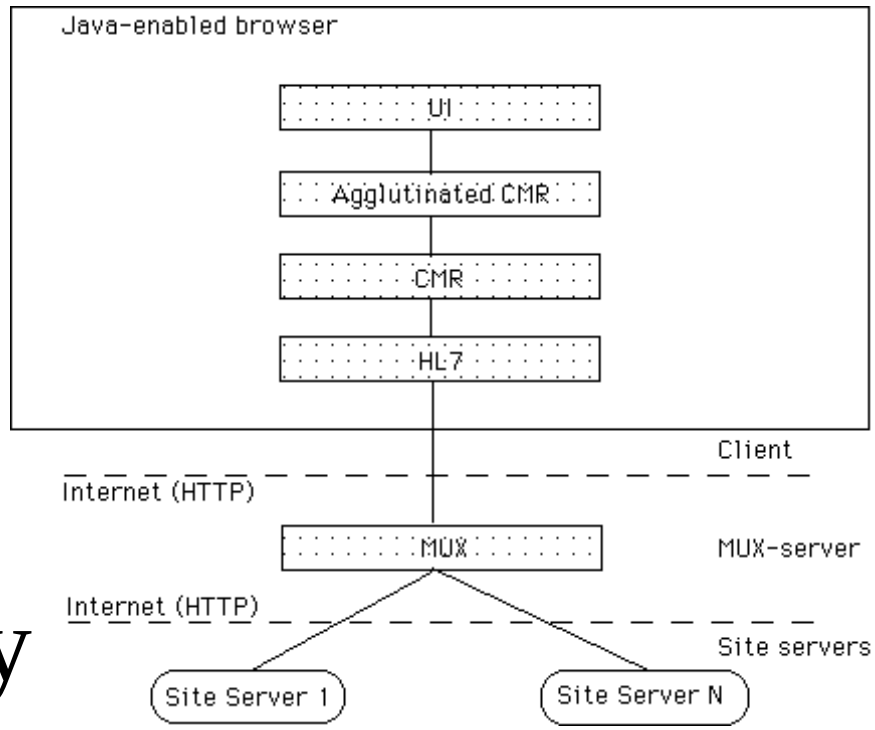
# Modular Implementation

- Modular
  - Communications
  - CMR
  - Configurable UI
- Portable
  - Java
- Inter-operability
  - JavaBean

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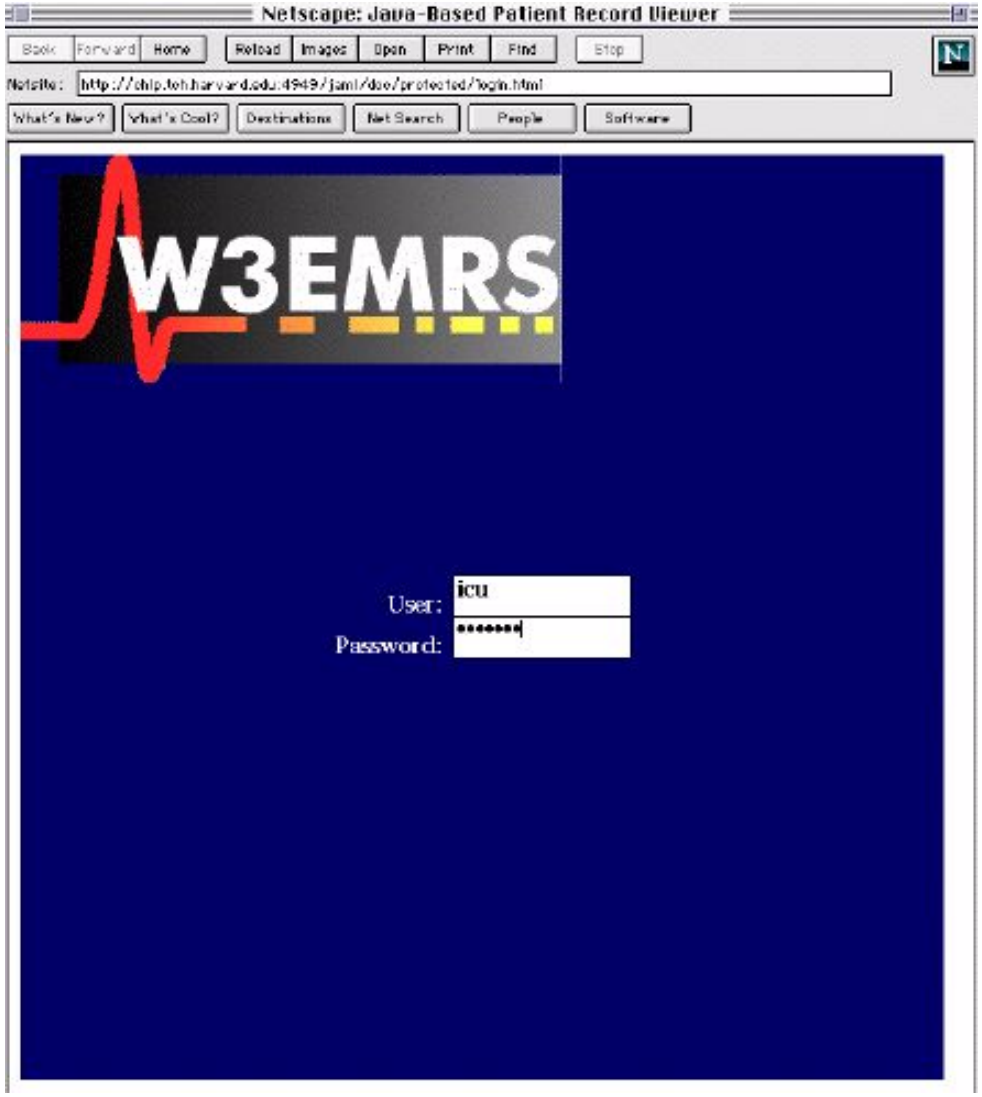
# Security and Confidentiality

- Authentication
  - Client sites, agglutinators, site servers
- Password+one time password
- Patient consent
- Common confidentiality policy

# JAMI

**http://gray.lcs.mit.edu:4949/index_public.html**

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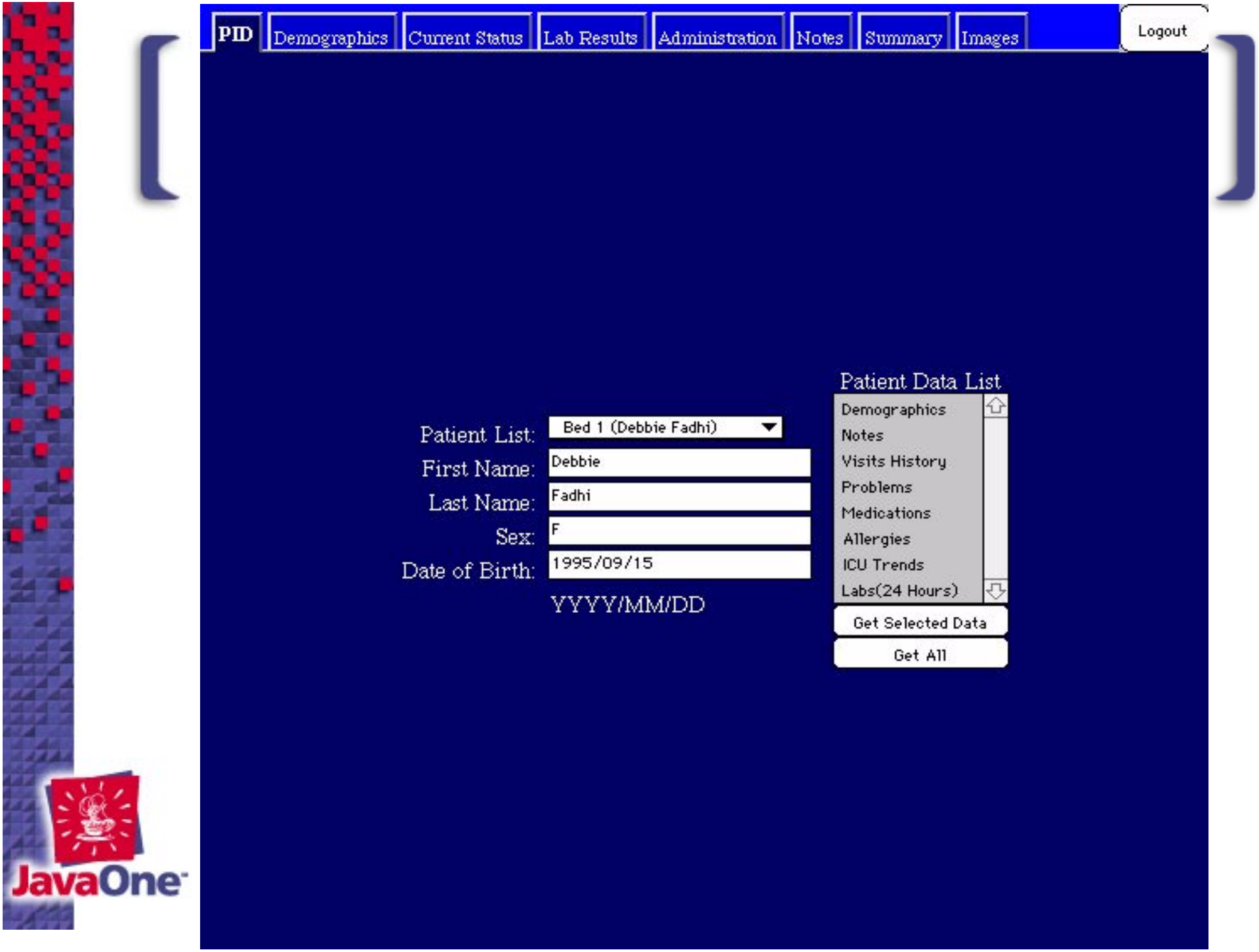
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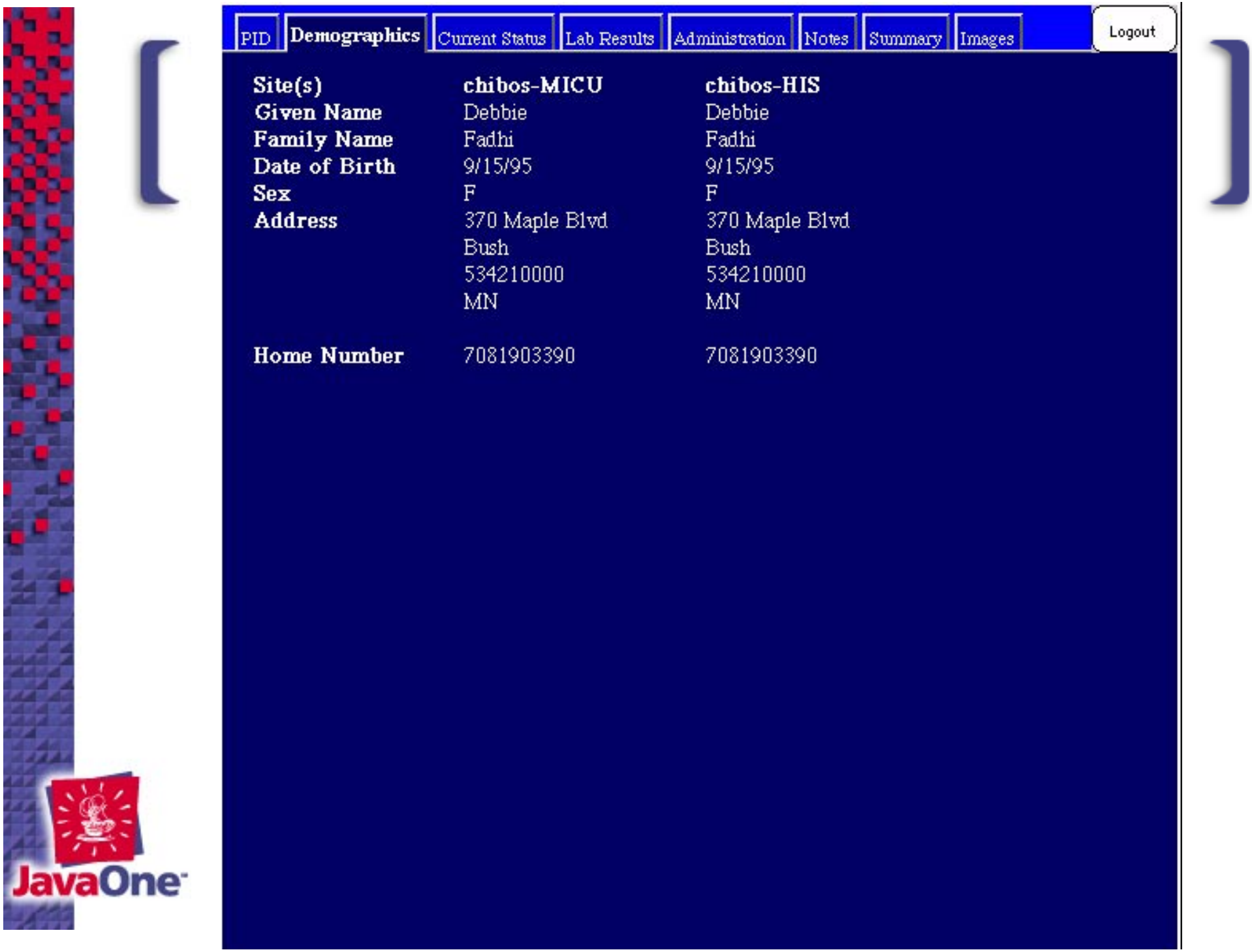
Demographics
Current Status
Lab Results
Administration
Notes
Summary
Images
Logout
Patient List:
Bed 1 (Debbie Fadhi)
First Name:
Debbie
Last Name:
Fadhi
Sex:
F
Date of Birth:
1995/09/15
YYYY/MM/DD
Patient Data List
Demographics
Notes
Visits History
Problems
Medications
Allergies
ICU Trends
Labs(24 Hours)
Get Selected Data
Get All


PID
Demographics
Current Status
Lab Results
Administration
Notes
Summary
Images
Logout
Site(s) chibos-MICU chibos-HIS
Given Name Debbie Debbie
Family Name Fadhi Fadhi
Date of Birth 9/15/95 9/15/95
Sex F F
Address 370 Maple Blvd 370 Maple Blvd
Bush Bush
534210000 534210000
MN MN
Home Number 7081903390 7081903390
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BLOODGAS

| Date | PCO | BICARBONA | PO2 | SaO2 | HEMATOC | HEMOGLO | PT | Partial throm. tim |
|---|---|---|---|---|---|---|---|---|
| 1/28/96:09:25 | | | | | 32.3 | 10.2 G/DL | | |
| 1/27/96:17:58 | 57 M | 30 MEQ/L | 210 M | 99 | | | | |
| 1/27/96:17:41 | | | | | 34.2 | 11.1 G/DL | | |

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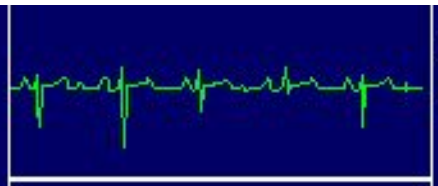
**Debbie Fadhi 1995/09/15 F**

52:20



ECG
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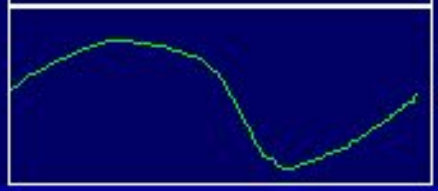

RESP
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**Allergies**

| Source | Name |
|---|---|
| chibos-HIS | Penicillin |

**Medications**

| Last Date | Source | Name | Units | Prescription |
|---|---|---|---|---|
| 2/07/96 | chibos-HIS | PARENTERAL THERAPY | | |
| 2/06/96 | chibos-HIS | PARENTERAL THERAPY | | |
| 2/05/96 | chibos-HIS | PARENTERAL THERAPY | | |

**Problems**

| Source | Date Est. | Name |
|---|---|---|
| No problems available | | |

**Visits History**

| Date | Site | Reason for Visit | Additional Information |
|---|---|---|---|
| 1/27/96 | chibos-HIS | BRONCHIOLITIS | Inpatient |

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# Question & Answer

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- **Jim Hollister**, Oracle
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