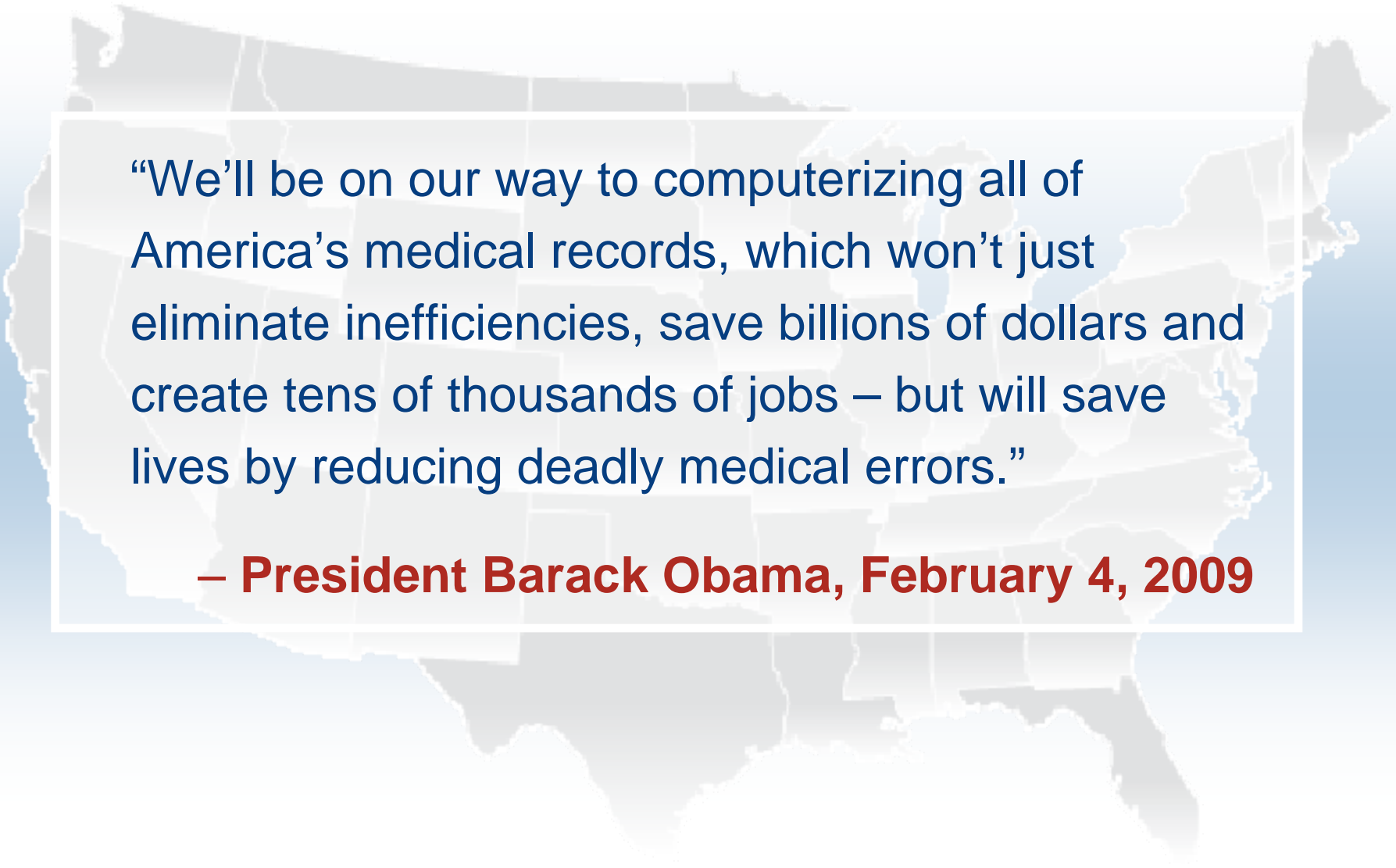




CONNECT: SOA for Healthcare



A Nation's Call to Action

A faint, light gray map of the United States serves as a background for the text box.

“We’ll be on our way to computerizing all of America’s medical records, which won’t just eliminate inefficiencies, save billions of dollars and create tens of thousands of jobs – but will save lives by reducing deadly medical errors.”

– President Barack Obama, February 4, 2009

➡ The Current State of Affairs: A Disjointed, Expensive Healthcare System



- U.S. spent approx. \$2.2 trillion on health care in 2007 (\$7,421/person). This comes to 16.2% of GDP, nearly **twice the average of other developed nations**. (Source: www.whitehouse.gov)



- **Only about 8% of the nation's 5,000 hospitals** and **17% of its 800,000 physicians** currently use the electronic health record (EHR) systems envisioned for the whole nation. Most of today's systems are still not interoperable. (Source: *CNN*)



- **Due to lack of interoperable EHRs**, tests are duplicated, information is unavailable at the point of care, public health information is difficult to track and health organizations carry a heavy administration burden.

➡ The National Health IT Agenda



The American Recovery and Reinvestment Act (ARRA) invests \$19 billion in computerized medical records that will help to reduce costs and improve quality while ensuring patients' privacy.

ARRA promotes the national agenda by helping:

- ✓ Increase access to care
- ✓ Decrease the costs of care
- ✓ Improve quality of care
- ✓ Promote meaningful use of EHRs

**ARRA and the President's reform agenda focus on building
*open and transparent government.***

Federal Health Architecture Advancing the Agenda



FHA ensures federal participation in ONC-led initiatives such as the NHIN, NHIN Direct, EHR adoption, and CONNECT

- E-gov initiative managed by ONC within HHS
- 26+ federal agencies participate in FHA



CONNECT **Meeting Multiple Objectives**

CONNECT promotes the widespread adoption of interoperable health IT.

It uses nationally recognized standards, conventions and trust agreements, to address multiple complex objectives simultaneously.


















CONNECT is a federally funded, Open Source software solution that is a:

- Platform for Participation
- Platform for Innovation

**Reform
Objectives**

**Transparent Government
Objectives**























**Meaningful Use
Objectives**

Federal Adopters	Test/Demo	Production
Centers for Disease Control & Prevention		 2010*
Centers for Medicare & Medicaid Services	 2010*	
OFM (esMD)	 2010*	
OCSQ (PQRI)	 2010*	
OCSQ (C-HIEP)	 2010*	
CMSO (MITA Claims Submission)	 2010*	
Department of Defense		 2010
Department of Homeland Security	 2010*	
Department of Veterans Affairs		 2009
Food and Drug Administration	 2010*	
Federal Communications Commission	 2010-2011*	
Indian Health Service		 2010*
National Cancer Institute	 2010-2011*	
National Disaster Medical System		 2010*
Social Security Administration		 2009

Non-Federal Adopters

Test/Demo

Production

Center for Healthy Communities, Wright State University, Healthlink			 2010-2011*
Central Virginia Health Network/MedVirginia			 2010*
Community Health Information Collaborative (CHIC)			 2010-2011*
Emdeon		2010*	
EPIC		2010*	
HealthBridge			 2010-2011*
Indiana State Department of Health			 2010*
Iowa Department of Public Health		2009	
Iowa Health Systems		2010*	
Kaiser Permanente			 2009
MedVirginia			 2009
MEDNET in Partnerships			
Community Health Information Collaborative (aka HIE-Bridge)			 2010*
LACIE –Lewis and Clark Information Exchange		2010*	
Emdeon		2010-2011*	
Hielix – Phase 1 Contract for the State of North Dakota Statewide HIE			 2010*
New York State Department of Health			 2010*
Orange County ER Connect		2009	
Redwood MedNet			 2010
Regenstrief Institute, Inc.			 2010-2011*
Southeastern Michigan Health Association			 2010-2011*
Thayer County Health Services			 2009
Washington State Department of Health			 2010*



➔ Vendors Solutions with CONNECT



A E G I S



Reflection Technologies





CONNECT as SOA

- Scope: The focus has been on the secure interoperable exchange of health information between organizations
- Systems Inventory: EHRs, PHRs, Practice Management Systems, Lab Systems, Pharmacy Systems
- Services Inventory: The NHIN Service Specifications



NHIN Exchange Specifications and Operational Infrastructure

Transaction Profiles

Utilize exchange patterns for specific transactions

CMS CARE
Doc Submission

CDC GIPSE
HIEM

MITA
Eligibility Verification

Discovery and Information Exchange Services

Rely on foundations to enable exchange patterns

Discovery

Patient
Discovery

Services
Registry

Pull

Query &
Retrieve Docs

Eligibility
Verification

Push

Doc
Submission

Pub/Sub

HIEM

Messaging, Security, & Privacy Foundations

Enable private, secure, and interoperable communication of health information

Messaging Platform

Authorization
Framework

Access Control
Policy

Operational Infrastructure

Runtime systems that support the NHIN Limited Production Exchange

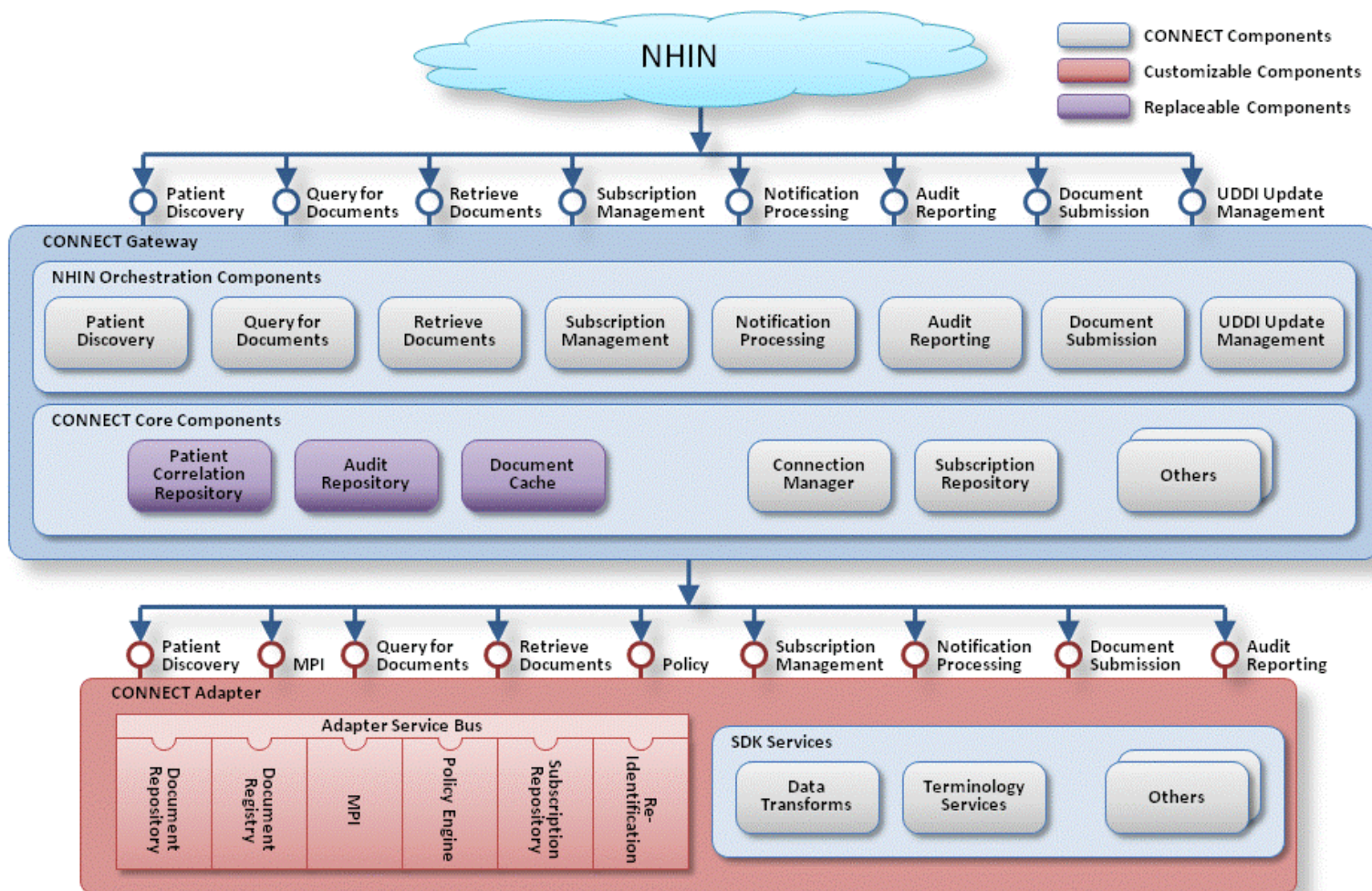
Security Infrastructure
(managed PKI)

Web Services Registry



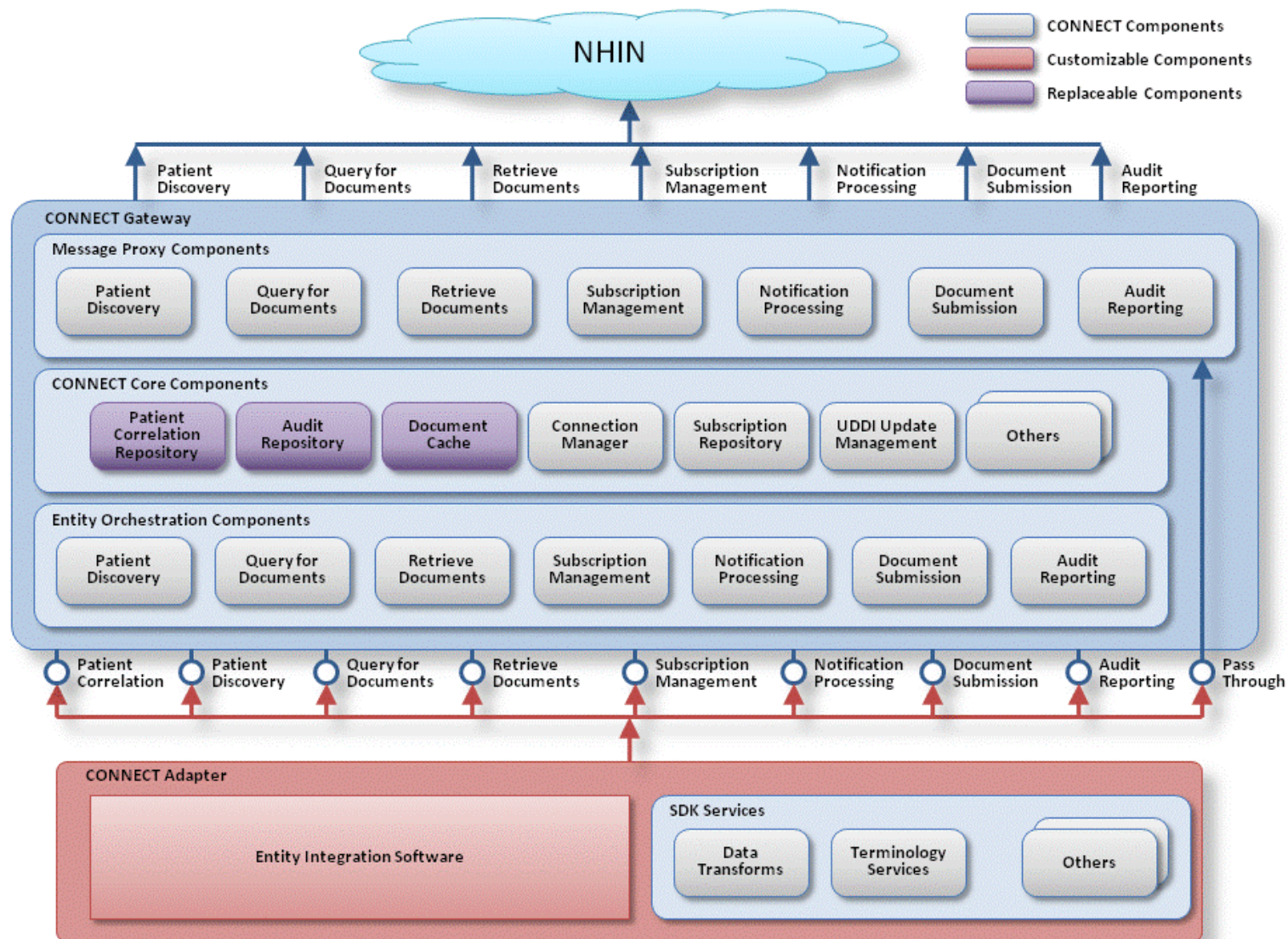


CONNECT Architecture Message from NHIN





CONNECT Architecture Message to NHIN



CONNECT Adapter: Organizational SOA Starter Kit

- **Enterprise Service Components:**
 - Master Patient Index
 - Policy Engine
 - Redaction Engine
 - Audit Services
 - Document Registry/Document Repository
 - Subscription Repository
 - Re-identification Service
 - Entity Integration Services
 - SDK Services

➡ What's cooking for CONNECT 3.1?

- **CONNECT Core Gateway Refactoring**
 - Java Library Architecture Enhancements
 - Separation of Web Services and Business Logic via component proxies in Spring Framework
 - Enables CONNECT portability to many environments in the future
 - Enables the use of other technologies in the future e.g. REST, XMPP, SMTP, etc
 - Improves CONNECT performance when adapter and gateway reside on the same machine.
 - Reduces the number of web service calls
- **Deferred Document Retrieve and Query Services**

➡ What's cooking for CONNECT 3.1?


- Large Image and File Transfer (LiFT for Document Retrieve
- Large File Support for Document Retrieve
- Logging Enhancements
- Administrative Distribution Service
- Support for Secure and Unsecure connectivity between the Adapter and Gateway
- Performance Testing Enhancements
- Automate Performance Testing as part of testing suite

Work anticipated in CONNECT 3.2

- Support for pluggable protocols and dynamic protocol negotiation
- Support for NHIN Direct
- Emerging Services for Resource Management/Logistics
- Emerging Services to support Meaningful Use and Health Care Reform
- Identity Management Services
- Semantic Services

CONNECT Community Portal

connectopensource.org



The screenshot shows the CONNECT Community Portal website. The header includes the CONNECT logo, navigation links (Home, About, Adopters, Partners, Product, Developer Resources, Communities), and a 'DOWNLOAD CONNECT' button with 'Log In' and 'Click Here' links. The main content area features a large banner with a stethoscope on a laptop, titled 'WHAT IS CONNECT?'. Below this, there's a section for 'YOUR ONRAMP TO THE NHIN!' with links for 'What is CONNECT?', 'What is the NHIN?', and 'Participate!'. A 'Latest Developments' section mentions 'CONNECT Releases Version 2.3 for Download'. The page is divided into four columns: 'Headlines' with news items, 'Events' with upcoming conferences, 'Get Involved!' with links to developer forums, submit code, and submit bugs, and 'CONNECT Spotlight' featuring a case study from the Social Security Administration. The footer includes an 'InfoWorld' award recognition and contact information for the U.S. Department of Health and Human Resources.

CONNECT Community Portal

Home About Adopters Partners Product Developer Resources Communities

WHAT IS CONNECT?

CONNECT is an open source software and community that promotes IT interoperability in the U.S. healthcare system. CONNECT enables secure electronic health data exchange among healthcare providers, insurers, government agencies and consumer services.

[Read more »](#)

YOUR ONRAMP TO THE NHIN!

What is CONNECT? What is the NHIN? Participate!

Latest Developments: CONNECT Releases Version 2.3 for Download

Email Organization [Get Project Updates](#)

Headlines

FEB 10 Use IT as Healthcare 'Force Multiplier' Says Vish Sankaran, Director, FHA BiomedME.com

FEB 09 Sankaran: Use IT as Healthcare 'Force Multiplier' Government Health IT

FEB 04 Dot Mil Docs on NHIN U.S. Department of Defense Military Health System Blog

[Read All News »](#)

Events

APR 28-29 CONNECT Code-A-Thon, Miami, FL Hurry, Limited Spaces Available! [View Details »](#)

MAR 1-4 HIMSS Annual Conference and Exhibition, Atlanta, GA [View Details »](#)

CONNECT Release 2.3 Webinar [View Webinar »](#)

[More Events »](#)

Get Involved!

Participate in the CONNECT community.

[Developer Forums](#)

[Submit Code](#)

[Submit Bugs](#)

CONNECT Blog

[Read the Blog »](#)

CONNECT Spotlight

Coming Soon!

Case Study on the Deployment of CONNECT by the Social Security Administration

InfoWorld **CONNECT Recognized in The Top 100 IT Projects of 2009** [Click Here to Read Article »](#)

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Federal Health Architecture | [CONNECT@hhs.gov](#) | [Privacy Policy](#) | [Disclaimer](#)

Nationwide Health Information Network (NHIN)
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