FHA
Federal Health Architecture

Connect to Care

The Role of SOA in Improving Health Quality

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Challenges in Health Care Quality Today

At least 1.5 million preventable adverse drug events occur in the United States each year

- Among the recommendations of a 2006 Institute of Medicine report, "... regulatory agencies should encourage the adoption of practices and technologies that will reduce medication errors." *(Preventing Medication Errors, IOM, July 06)*

Lack of reliable health information for providers and hospitals

- Leads to 1 in 7 hospital admissions when care providers do not have access to previous medical records
- 12% of physician orders are not executed as written
- 20% of laboratory tests are unnecessary, requested because previous studies are not accessible *(The President's IT Advisory Committee)*

Real World Business Priorities for Federal Agencies

The secure exchange of interoperable health information within the federal government, and with the public and private sectors, can support agency priorities such as:

- Supporting **Wounded Warrior,** to enable the continuum of care between public and private healthcare systems for the 30,000 service personnel wounded in Iraq and Afghanistan
- Creating electronic records and authorization to ease the backlog in SSA processing of **disability and claims** applications, now at 755,000 which is up from 311,000 in 2000
- Ensuring pharmaceutical product safety and efficacy using outcomes data in the real world, a benefit of P**ost-Market Surveillance of drugs and durable medical goods**
- Federal, state, and local **Bio-surveillance** efforts to spot disease outbreaks or bioterrorism incidents and to track cases of contagious diseases
- Health IT for **Emergency response** to **Pandemics/Disasters** to assist in managing triage systems, evacuation efforts and the health of displaced citizens

Presidential Executive Orders

Executive Order 13335 – April 27, 2004

- **Announces commitment to the promotion of health IT**
- **President Bush calls for widespread adoption of interoperable EHRs within 10 years**
- **Establishes the Office of the National Coordinator (ONC)**

Executive Order 13410 – August 22, 2006

- **Requires federal agencies to perform the following:**

As each agency implements, acquires or upgrades health information technology systems used for the direct exchange of health information between agencies and with non-Federal entities, it shall utilize, where available, health information technology systems and products that meet recognized interoperability standards.

Federal Agencies with a Healthcare Activity and Participating in FHA

Department of Health and Human Services	Department of Veterans Affairs / Veterans Health Administration
Department of Defense / Military Health Systems	Department of Justice / Bureau of Prison
Department of State	Department of Agriculture
Department of Transportation	Department of Energy
Department of Homeland Security	National Aeronautics and Space Administration
Federal Communications Commission	Social Security Administration
Environmental Protection Agency	National Institute of Standards Technology
National Science Foundation	Office of Personnel Management
HHS-National Institute of Health, National Cancer Institute, National Library of Medicine	
HHS-Centers for Medicare & Medicaid Services	
HHS-Centers for Disease Control	
HHS-Indian Health Service	
HHS-Food & Drug Administration	
HHS-Substance Abuse and Mental Health Services Administration	
HHS-Office of the Assistance Secretary for Public Health Emergency Preparedness	
HHS-Agency for Healthcare Research and Quality	
HHS-Office of the Assistance Secretary for Planning and Evaluation	
HHS-Health Resources and Services Administration	

Today's Health IT Environment: What are the Federal Agencies doing?

Implement HITSP harmonized standards

Adopt use of CCHIT Certified Products

Employ NHIN Compliant Services to exchange health information

Today's Health IT Environment:

What steps are required for Agencies to implement solutions

How does an agency implements acquire, or upgrade health information technology systems used for the direct exchange of health information?

Identify Needs

Architect Solutions

Plan Investments

Implement Solutions

Measure Progress

FHA Tools and Services

Secure Exchange of Interoperable Health Information

Federal Implementation Tools and Services

** Available for use by state, tribal, local governments & others*

	Health Information Exchanges	Standards Adoption	Interoperability Architecture	Investment Planning and Progress Reporting	HIT Education
TOOLS	NHIN-Connect (C) Gateway* NHIN-C Software Development Kit for agency connectivity to NHIN-C* NHIN-C Community Portal*	HITSP Engagement Plan SDO Engagement Plan Standards Catalogue Terminology Distribution Specification	Health Information Interoperability Architecture Framework (HIIAF)* Federal Transition Framework (FTF) AHIC Use Cases Business Process Models (BPM)*	Investment Planning and Information Reporting Guide* Health Information (HI) Survey - Systems Inventory - Implementation Planning - Standards Compliance Methodology	Instructor-led Training Courses Computer Based Training Courses – Interoperability Specifications – Health info exchange – Architecture – Investment planning – Implementation
SERVICES	Agency Health Information Exchanges Requirements Definition NHIN Implementation Support	Agency Participation Planning Support - HITSP - SDO - Terminology Distribution	Agency Transition Planning Support	Agency Investment Planning Support Implementation Planning Support	Webinars Briefings On-site Presentations

Nationwide Health Information Network Initiative

FROM THE NATIONAL HIT AGENDA:

…foster widely available services that facilitate the accurate, appropriate, timely and secure exchange of health information

…information that:

- follows the consumer
- supports clinical decision
- integrates public health needs

The Nationwide Health Information Network

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Nationwide Health Information Network (NHIN)

- **Trial Implementation Awards to 9 state & regional Health Information Exchanges (HIEs)**
- **Federal agencies join as the 10th participant**
  - Established the "CONNECT" consortium to build solution
- **NHIN Cooperative to test, implement and demonstrate core services in 2008**
  - Support for consumer access controls ("consumer choice")
  - Lookup and retrieval of clinical information
  - Exchange of patient summary records
- **Test implementations of the first 7 priority scenarios**
  - Lab result reporting; medication history exchange; quality and public health; etc.
- **Expansion plan to include other types of HIEs, such as**
  - Multi-community integrated delivery systems
  - Health plans, Health data banks

How the Federal Effort was Started

- **Upon release of NHIN trial implementations RFP, Feds were energized to determine how to connect to the emerging NHIN**
- **FHA governance chartered the "Connect" initiative to define a strategy, plan and requirements for connecting to the emerging NHIN**
- **Six principles guided the development of the strategy**

- **Inclusivity**
- **Collaboration**
- **Proactivity**
- **Incrementalism**
- **Reuse**
- **Continuity**

NHIN<>Connect:
Connecting federal agencies to NHIN

Nationwide Health Information Network-Connect (CONNECT) initiative, a cross-agency collaboration.

- **The CONNECT initiative articulates a coherent federal strategy to enable the exchange of health information within and with stakeholders**

CONNECT Tools

- **The Gateway solution**

  When implemented, a uniform implementation of the NHIN standards and service interface specifications that federal agencies can deploy into their operational environments.

  At the end of the first year of NHIN Trial Implementations, agencies will receive the released gateway solution, a deployable package that includes the CONNECT Gateway software and an adapter software development kit (SDK).

The NHIN and SOA: Services

The NHIN provides an infrastructure for the interoperable exchange of health information based on a set of common web services implemented by all participating entities (NHIE), including the following capabilities:

- **Subject Discovery** – ability to determine whether other NHIEs have corresponding records for an identity such as a patient or a medical provider
- **Query for Documents** – ability to get a list of records available for a given identity from other NHIEs
- **Retrieve Documents** – ability to retrieve a specific set of documents for a given identity from other NHIEs
- **Document Routing** –ability to address and route messages between NHIEs to ensure they reach individual entities within an NHIE, such as a lab or a provider
- **Consumer Preferences Profile** – ability to store and exchange information concerning a consumer's preferences with respect to the sharing of their health information with other NHIEs

The NHIN and SOA: Platform

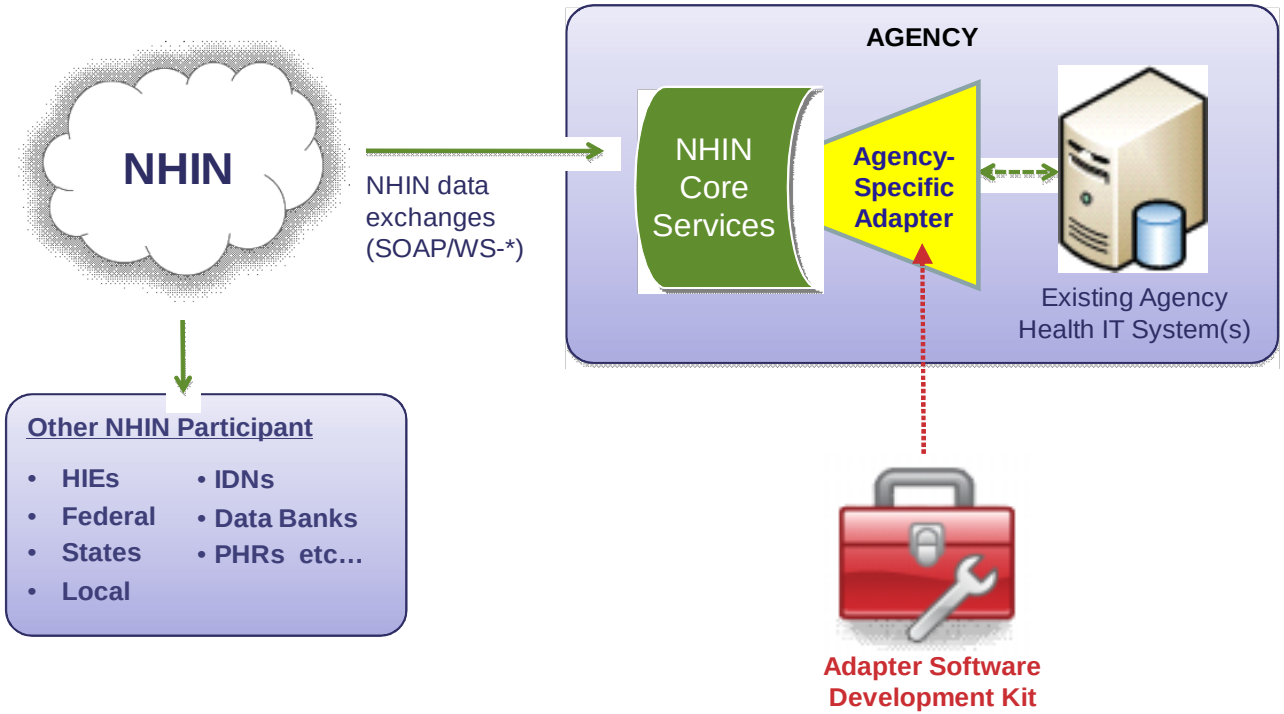
Underlying messaging platform for communication between NHIEs is based on an SOA platform:

- Messages: SOAP
- Service Descriptions: WSDL
- Service Discovery: UDDI
- Attachments: MTOM
- Addressing/Routing: WS-Addressing
- Security: WS-Security
- Authorization Assertions: SAML

NHIN is leveraging the existing Web Services Interoperability Profiles wherever possible:

- WS-I Basic Profile
- WS-I Basic Security Profile

The Federal "CONNECT" Gateway Solution



- Federal agencies are working together to create solution to connect to the NHIN – "CONNECT" project
- The Gateway utilizes an Enterprise Service Bus (JBI/JSR208) so agencies can utilize SOA to extend the Gateway to meet their specific needs and integrate with their existing systems
- Developed as open source, using open standards

SOA and the future of Federal Health IT

- **Agencies will need to be increasingly interoperable with each other, and with non-Federal partners (state/local government, private sector)**
- **Approach to SOA will be conservative, emphasizing proven and mature technologies to address concerns re:**
  - Security, privacy and confidentiality of data
  - Huge existing technology infrastructures
  - Extraordinary mission-criticality requirements
- **SOA deployment will occur through a combination of:**
  - Acquisition of SOA-enabled COTS solutions for healthcare
  - Use of SOA for enterprise integration of existing systems

Why is this important?

Secure exchange of interoperable health information serves the needs of the:

- **Wounded Warrior**
- **Applicants for Disability Benefits**
- **Emergency response to Pandemic/Natural Disaster victims**
- **Cancer Patients**

The Patient is Waiting