



Advancing Care With the NHIN and CONNECT

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Overview

- The National Health IT Agenda
- The Nationwide Health Information Network (NHIN)
- CONNECT
- Discussion with Dr. Todd Rowland and Rodney Cain:
Health Information Exchange, Advanced Networks and
Rural Health Care

➔ A Nation's Call to Action

“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



- US 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
- ✓ Improve quality of care
- ✓ Decrease the costs of care
- ✓ Promote meaningful use of EHRs

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

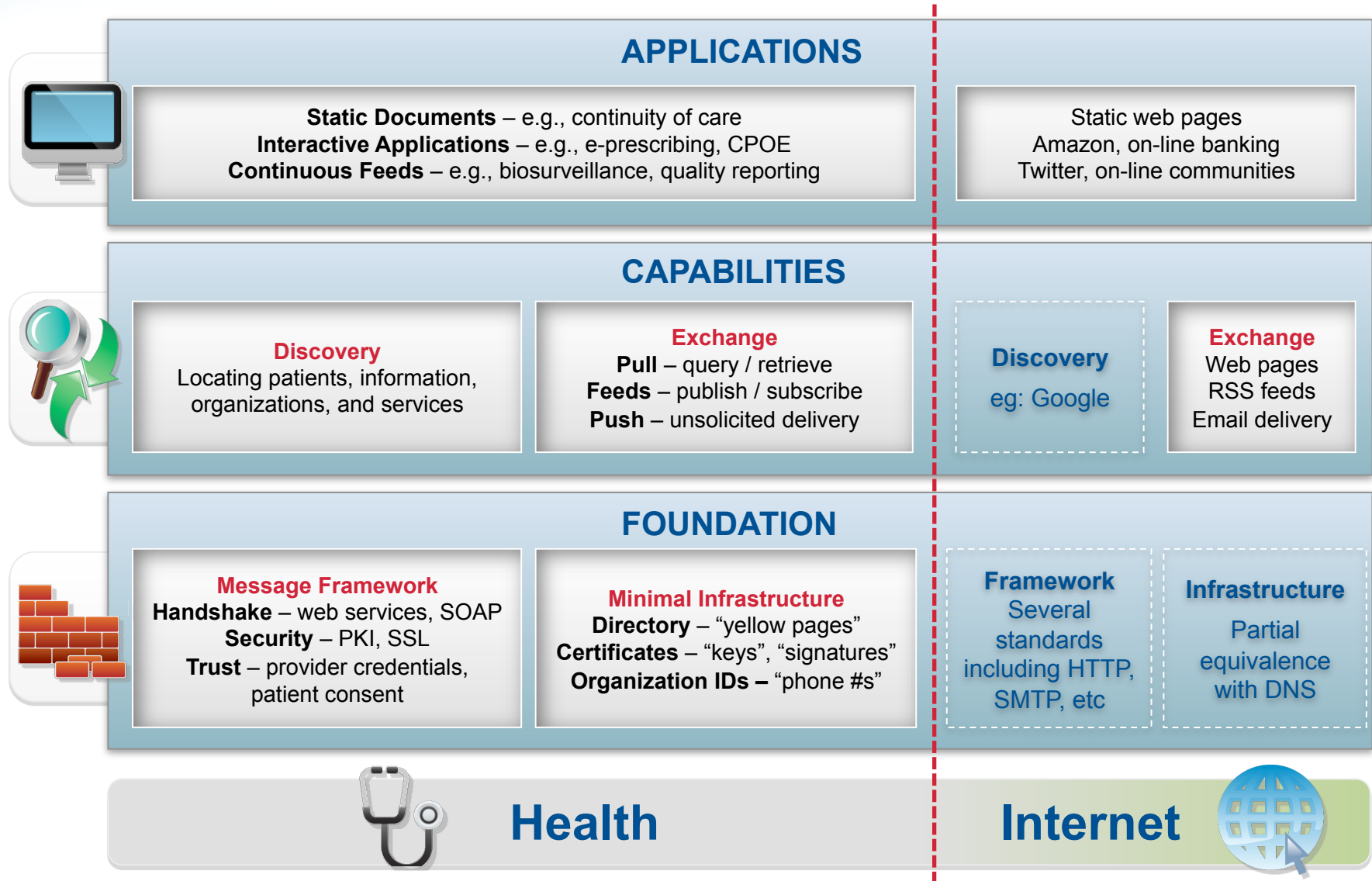
➔ The Nationwide Health Information Network Moving U.S. Health IT Forward



The NHIN:

- Provides the foundation for the exchange of health information that supports meaningful use.
- Supports both the local and nationwide exchange of health information.
- Offers a trust framework for information sharing.
- Includes a common infrastructure necessary for network security and connectivity.
- Contains specifications for interoperable services.
- Promotes sharing accurate health information.

NHIN Services Architecture





CONNECT

The Federal Response to the NHIN

CONNECT is a federally-developed software solution that allows agency systems to exchange health information securely. It is an open source solution built to be:

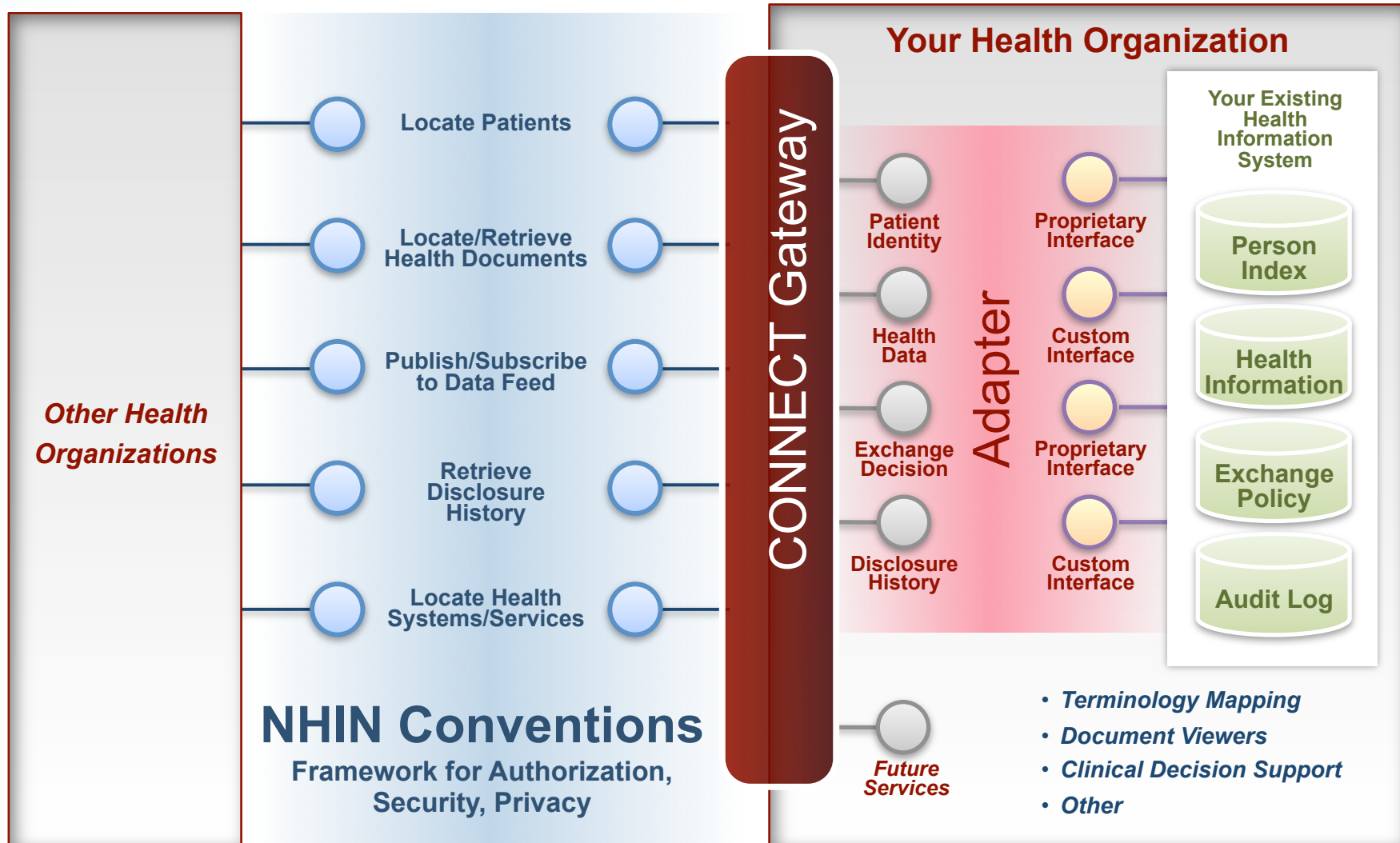
- Platform for Participation
- Platform for Innovation



CONNECT Success to Date:

- DoD, VA, IHS, SSA, CDC, NCI & NDMS demonstrated exchange with private sector organizations in 2008
- Adding more agencies in 2009
- Four agencies in limited production in 2009
- 20+ private sector organizations have pledged to build solutions around CONNECT
- State and private sector organizations have also opted to adopt and use CONNECT

CONNECT and the NHIN



External NHIN API



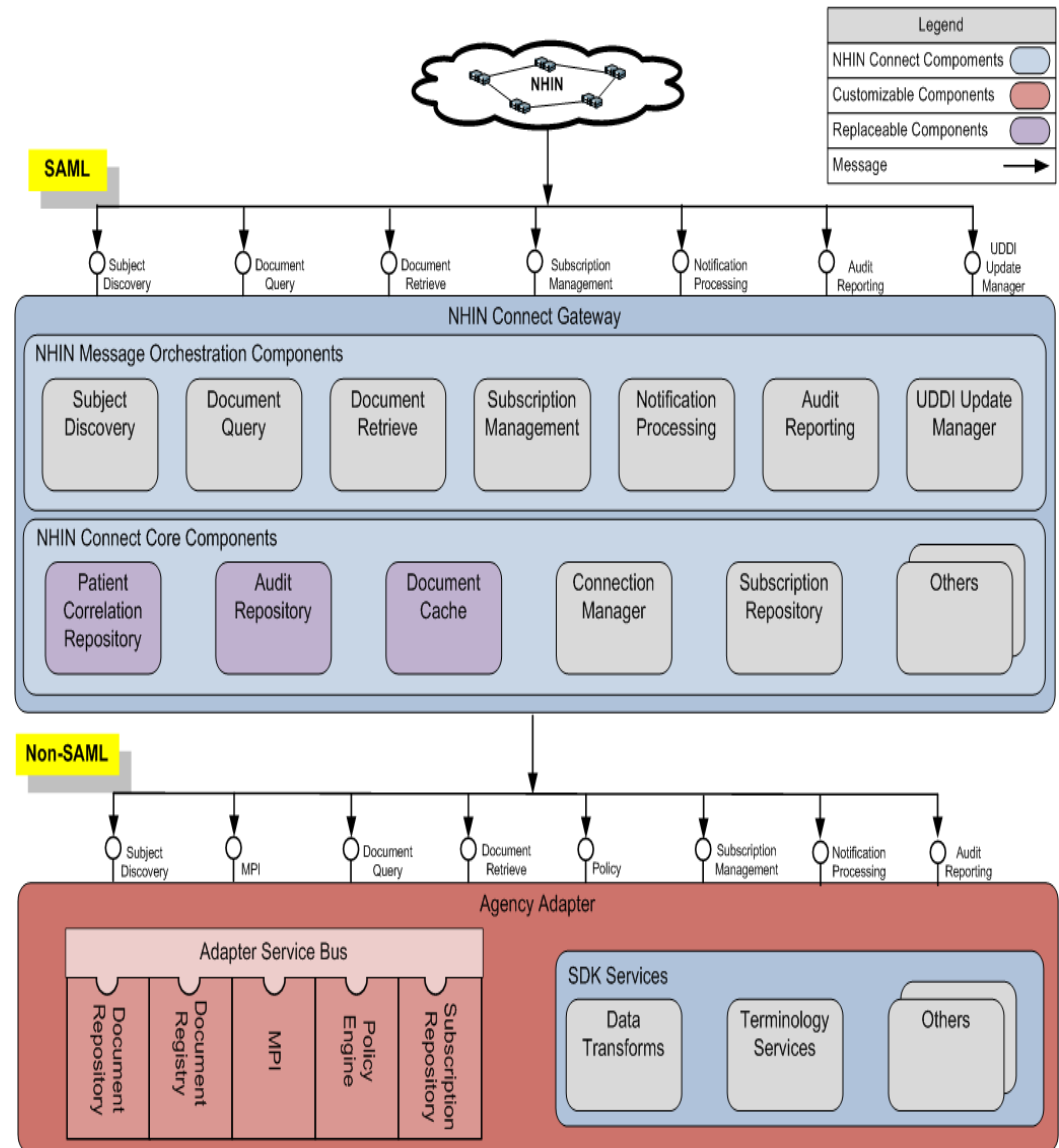
Internal CONNECT API



Proprietary/Custom Interface











CONNECT Architecture Overview

- Flexible, extensible architecture built on Java
- Fully implements all client and supplier interfaces for existing NHIN services
- All components have web service interfaces
- Adapters can be created for any existing health information systems
- Implementers can use supplied enterprise components, or substitute their own





CONNECT Will Support Recommended Meaningful Use Exchange Goals

-  Provide access to comprehensive patient health data for patient's health care team
-  Use evidence-based order sets and CPOE
-  Apply clinical decision support at the point of care
-  Generate lists of patients who need care and use them to reach out to patients (e.g., reminders, care instructions, etc.)
-  Report to patient registries for quality improvement, public reporting, etc.
-  Provide patients and families with timely access to data, knowledge, and tools to make informed decisions and to manage their health
-  Exchange meaningful clinical information among professional health care team
-  Communicate with public health agencies
-  Ensure privacy and security protections for confidential information through operating policies, procedures, and technologies and compliance with applicable law
-  Provide transparency of data sharing to patient

➔ Federal Agencies Deploying CONNECT

Federal Agencies	Piloting CONNECT	In Production w/CONNECT
 Centers for Disease Control	★	
 Centers for Medicare and Medicaid Services	★	
 Department of Defense	★	
 Department of Veterans Affairs	★	
 Food and Drug Administration	★	
 Indian Health Service	★	
 National Disaster Medical System	★	
 Social Security Administration		★



➔ Vendors Building Solutions with CONNECT



Providing integration and implementation support.



Offering “CONNECT in a box” packaged with Cisco router



Incorporating CONNECT into its open source PHR offering



Providing integration, support services and adaptor development



Integrating with Initiate’s master patient index by developing the customized adapter



Evaluating ways CONNECT can enable data exchange between rural health care providers within a region and across the country



Developed a cross enterprise security and privacy authorization component and made it open source for the CONNECT community. The component was included in the CONNECT release 2.1



Creating an open source healthcare integration engine for CONNECT to fast track the last mile of integration between CONNECT and edge systems



Offering implementation support for CONNECT



Providing product support for the Sun components in CONNECT and offering integration support from CONNECT to their open source MPI.



Created an open source XDS.b to support federated document repositories and a document registry that will be incorporated into CONNECT 2.2. The company is also offering implementation services



➔ The Path Forward CONNECT as a Private/Public Cooperative

CONNECT was released as open source code to keep costs low and to promote widespread adoption. CONNECT is now transitioning to an open source community.

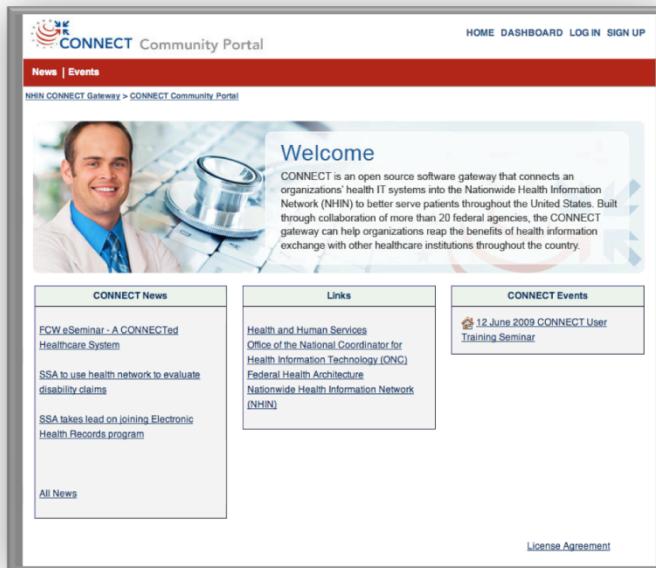
- Attracting leadership from major open source movements such as Apache and Mozilla
- Promoting participation from government, vendors, private sector care providers, payors and any other organization with a stake in the success of U.S. health IT

The CONNECT Community will ultimately be a powerful lever in promoting interoperable health IT throughout the country while maintaining ***open and transparent government.***





➔ Public availability of CONNECT solution



Released under a “non-viral” license that makes it easy to develop solutions using the CONNECT software code base

A website where interested parties can download the CONNECT solution at:
www.connectopensource.org

CONNECT Roadmap and Upcoming Events

- CONNECT version 2.2 released September 30
- Next open source community Code-A-Thon in November (west coast, date and location TBA)
- CONNECT version 2.3 to be released January 5, 2010

➔ Health Exchange Will be a *Commodity*; Data is the *Value*

STEP ONE:

HIE should be easy, like the phone service. Open standards and architecture will prompt industry development.

STEP TWO:

In clinical care, HIE must be common-place, used like the phone or fax machine.

STEP THREE:

Data provides value HIE becomes about the data, not about the exchange. Transport becomes a commodity.

CONNECT is about step one.

Meaningful use is meant to prompt step two.

Entrepreneurs will bring step three.



Discussion with Dr. Todd Rowland and Rodney Cain

➔ How the NHIN and CONNECT Can Advance Care for Rural and Underserved Populations

- **Improve Access to Care**
 - Implement telemedicine capabilities
 - Simplify and expedite access to health and disability benefits
 - Establish “Medical Homes”
- **Improve the Quality and Cost-Effectiveness of Care**
 - Provide true continuity of care between settings for chronic care
 - Implement standardized quality reporting and comparative effectiveness research
 - Identify disparities in care among specific populations
- **Enhance Public Health**
 - Detect adverse events associated with medical products
 - Perform syndromic surveillance
 - Support case reporting for notifiable conditions (labs and clinicians)
 - Emergency preparedness and response

➔ Looking Ahead: Leveraging Advanced Networks to Create Innovative Health Information Exchange Solutions

- **Low Latency, High Quality of Service**
 - Remote Care and Consultation
 - Remote Monitoring
- **Massive Capacity**
 - 3D Imagery
 - Large Clinical Research Datasets
 - Genomic Datasets
- **Distributed Computing**
 - Population Health Monitoring and Analysis
 - High-Performance Health Computing (e.g. Proteomics, Neuroscience)

➤ The NHIN and CONNECT can enable...

- ...Rich and detailed clinical data for patients available in an interoperable, highly computable format
- ... Access to data for clinicians, researchers and others from many more sources than they have access to today
- ...Exchanges of health information among stakeholders in the healthcare value chain that is secure and nearly instantaneous while protecting patient privacy rights
- ...Patient access to health information (through third-party PHR solutions) that would enable them to be informed consumers and active partners in their care
- ...Health “mash-up” applications built on web services that could integrate clinical records, research findings, population health data, and other sources



➔ The Patient is Waiting



Health Information Exchange supporting
meaningful healthcare reform for ***all*** Americans

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