

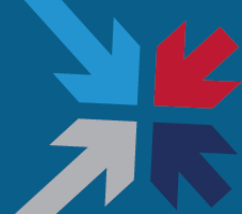


Direct Project

March 2011



Agenda

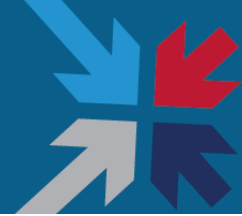


- » What is Direct?
- » Why is Direct needed?
- » How does Direct fit in with other types of exchange?
- » What are the key issues to think about?
- » What is needed to implement Direct?
- » What is the end state for Direct?
- » Where is Direct implemented today?
- » Who has committed to implement Direct?

- » Appendix: Overview of the Direct Project

What is Direct?

Secure Directed Exchange via the Internet



b.wells@direct.aclinic.org

The Direct Project specifies a simple, secure, scalable, standards-based *transportation mechanism* that enables participants to send encrypted health information directly to known, trusted recipients over the Internet.

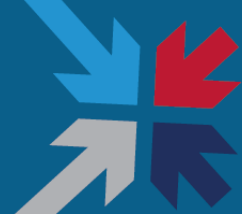


h.elthie@direct.ahospital.org

- » **Simple.** Connects healthcare stakeholders through universal addressing using simple *push* of information.
- » **Secure.** Users can easily verify messages are complete and not tampered with en route.
- » **Scalable.** Enables Internet scale with no need for central network authority that must provide sophisticated services such as EMPI, distributed query/retrieve, or data storage.
- » **Standards-based.** Built on well-established Internet standards, commonly used for secure e-mail communication; i.e., SMTP (or XDR) for transport, S/MIME for encryption, X.509 certificates for identity assurance

Why is Direct needed?

To provide an alternative to legacy mechanisms



When current methods of health information exchange are inadequate:



Communication of health information among providers and patients still mainly relies on mail or fax

- Slow, inconvenient, expensive
- Health information and history is lost or hard to find in paper charts

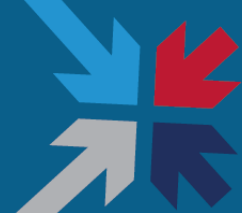
Current forms of electronic communication may not be secure

- Encryption features of off-the-shelf e-mail clients not often used in healthcare communications today

Physicians need to transport and share clinical content electronically in order to satisfy Stage 1 Meaningful Use requirements

- Need to meet physicians where they are now

Why is Direct needed? To facilitate Meaningful Use



Direct Project facilitates the communication of many different kinds of content necessary to fulfill meaningful use requirements.



b.wells@direct.aclinic.org

Examples of Meaningful Use Content

» Patients:

- ✓ Discharge instructions
- ✓ Clinical summaries
- Reminders
- Other Health information

» Public Health:

- ✓ Immunization registries
- Syndromic surveillance
- Laboratory Reporting

» Other Providers/Authorized Entities:

- ✓ Clinical information
- ✓ Labs – test results
- ✓ Referrals and other transitions in care – summary of care record

Why is Direct needed?

To enable standardization of directed exchange



Direct Project Principles

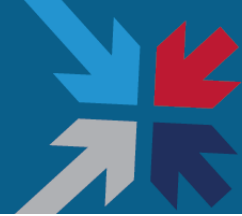
- » Universal addressing and transport
- » Identity assurance and encryption from sender to receiver
- » Open source to ease implementation
 - The history of the Internet shows the power of **permissively licensed open source** in driving standardization, e.g., TCP/IP, HTTP
- » Low barrier to entry for scalable, market-based solutions
- » Rapid and easy availability to a wide variety of participants. Direct Project's BSD-licensed software stack enables:
 - Client-side connectivity, for EHRs, EHR Modules, PHRs, etc.
 - Server-side connectivity for "out of the box" HIOs and Health Information Service Providers (HISPs)
 - **Easily accessible high-quality code** trivially available to developers, including high quality documentation



Implications

- » **Any legitimate healthcare participant** with a need to push health information should be able to obtain the right products or services to send Direct messages.
- » Direct available to participants by a **variety of vendors and through a variety of mechanisms**:
 - Direct-enabled EHRs, LISs, HISs, PHRs
 - Downloadable reference library
 - Web-based services
 - Email client plug-in
- » Success metric for Direct: **Ubiquitous penetration over the next year**

How does Direct fit in with other types of exchange?



The Direct Project provides HIEs with a **low cost way to enable simple push messaging** to their healthcare constituents

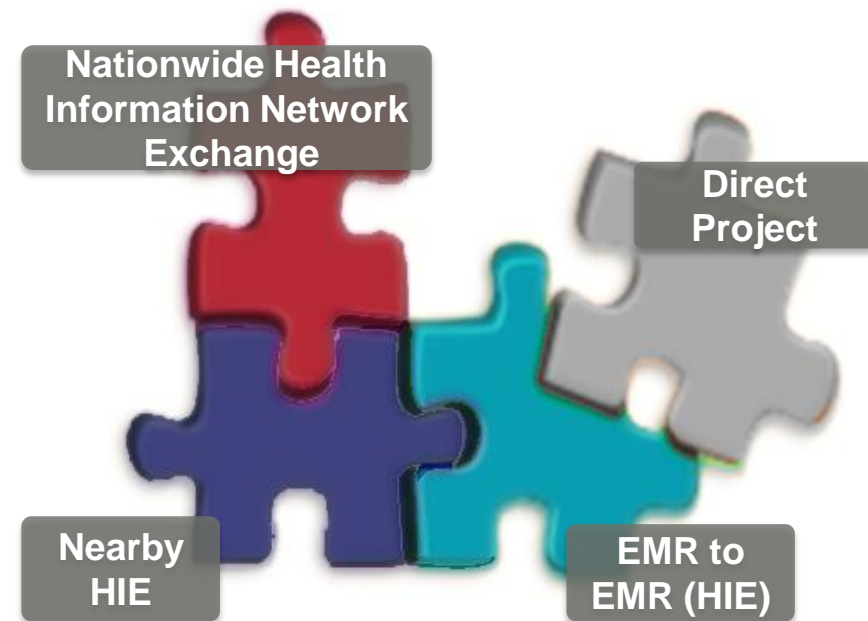
The Direct Project **doesn't replace** other ways information is exchanged electronically today, but it might **augment** them

The Direct Project supports **simple use cases** in order to speed adoption, but other methods of exchange might be suited for other scenarios, e.g., simple provider referrals vs. real-time population health statistics

The Direct Project was designed to **coexist gracefully** with **existing protocols** for data exchange, e.g., web services, client-server, etc.

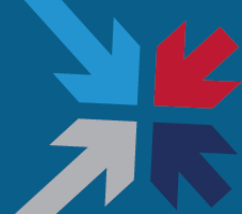
The Direct Project seeks to replace slow, inconvenient, and expensive methods of exchange (e.g., paper and fax) and provide a future path to **advanced interoperability**.

The Direct Project specifications will be incorporated into the **Nationwide Health Information Network**



Health information exchange:
a puzzle with many pieces

What are the key issues to think about?



Challenges

Lowered exchange costs may encourage more health systems to “go it alone”?

National exchange participants may compete for simple exchange capabilities?

Balancing State HIE goals with FTC Fair Information Practice (FIPs) guidelines?

Strengths

Offers connectivity for rural providers, local labs, State hospitals, etc.

Services offered through state exchange or federated with community and regional exchanges

Lowers the cost of providing MU transactions

May help support comprehensive state-level interoperability

Opportunities

Provides standards-based migration paths for providers

Fills in the gaps in coverage with national exchange partners

The commoditization of secure routing through the Direct Project does not threaten existence/business case of comprehensive state HIE efforts, as many states have long term plans for comprehensive interoperability solutions that can be layered over Direct Project

What are the key issues to think about?

Potential Phasing Options



Direct can be used to address a number of healthcare scenarios, enabling HIEs to deliver value to stakeholders even while robust HIE services are being stood up and adopted. Examples:

Scenario	Solution	Sequence of Directed Exchange (one-way and two-way pushes)
Simple Referral	Direct + Clinical Summary	Provider → Provider: Clinical Summary
Admission to/Discharge from Hospital	Direct + ADT Notification	Hospital → Primary Care: ADT Notification Primary Care → Hospital: Clinical Summary
Public Health Reporting from Providers	Direct + IIS	Provider → Immunization Information System (IIS): Reportable Disease Diagnoses
Public Health Reporting from Labs	Direct + ELR	Lab → Immunization Information System (IIS): Reportable Lab Test Results
Immunization Query/Retrieve	Direct + ADT + IIS	EHR → HISP/IIS: ADT Notification HISP/IIS → EHR: Updated Immunization Info

What is needed to implement Direct?

Participant Perspective



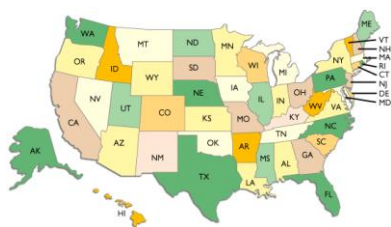
Directed Exchange Participants,
e.g., Physicians,
Labs, Registries, etc.

- Create an account with a **Health Information Services Provider (HISP)**:
 - Provides a Direct Address, e.g., “b.wells@direct.aclinic.org”
 - Obtains and often manages a security certificate (may be provided by an independent “Certificate Authority”)
 - Manages HIPAA-level security by, for example:
 - Providing pass-through routing of encrypted documents, or
 - Encrypting documents on participant’s behalf, through a business agreement

- **Use a Direct-enabled client** for sending and receiving Direct messages, e.g.,:
 - Direct-enabled email client, e.g., Outlook or Webmail
 - Direct-enabled EHR
 - Web portal, often powered by the HISP

- Obtain the **Direct addresses for other healthcare participants** with which to exchange clinical data:
 - Participants can be providers, labs, PHRs, state agencies, etc.
 - Obtain Direct address through “in-band” mechanism (e.g., provider directory) or “out of band” mechanism (e.g., phone)
 - Provider directories not required but certainly add value
 - Messages between participants must be sent to/from Direct addresses

What is needed to implement Direct? Healthcare Community Perspective

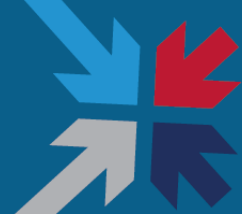


Healthcare Communities,
e.g., States, SDEs,
Beacons, etc.

Direct functionality can be enabled for community members through different approaches

- 1. Encourage market-based solutions** by establishing parameters for trust
 - Create a conducive environment for market-driven solutions through enabling policies, certification criteria, etc.
 - Leverage other HIE services, e.g., directories
 - 2. Offer complete set of services** to all community members
 - Can use RFP process or other mechanism to select or set up HISPs and/or Certificate Authorities
 - Need to think through how market-driven solutions can participate
 - 3. Fill in the gaps** by providing services to under-served participants, e.g., rural and remote providers and labs
- **Different approaches can be adopted** for different components of Health Information Exchange in the same community, including:
- Meaningful Use objectives, e.g. transitions of care, reporting to public health and immunization registries, etc.
 - HIE architectural components, e.g., HISPs, Certificate Authorities, Provider Directories, etc.

What is the end state for Direct?



Direct standards and specifications are developed by a group of public-private stakeholders, using an open and transparent collaborative process.



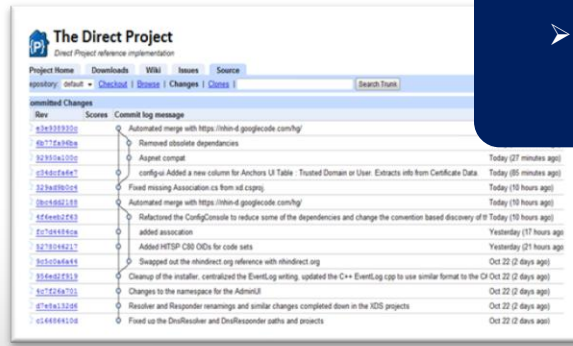
Direct Project Output:

- Standards and Service Definitions
- Implementation Guides
- Reference Implementation
- Pilot project testing and real-world implementation

Vendors incorporate reference implementation into HIT products

Wide-scale adoption of Direct standards by late 2012

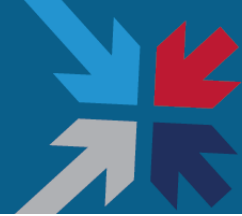
➤ Opportunity for States and HIEs to build on and drive adoption



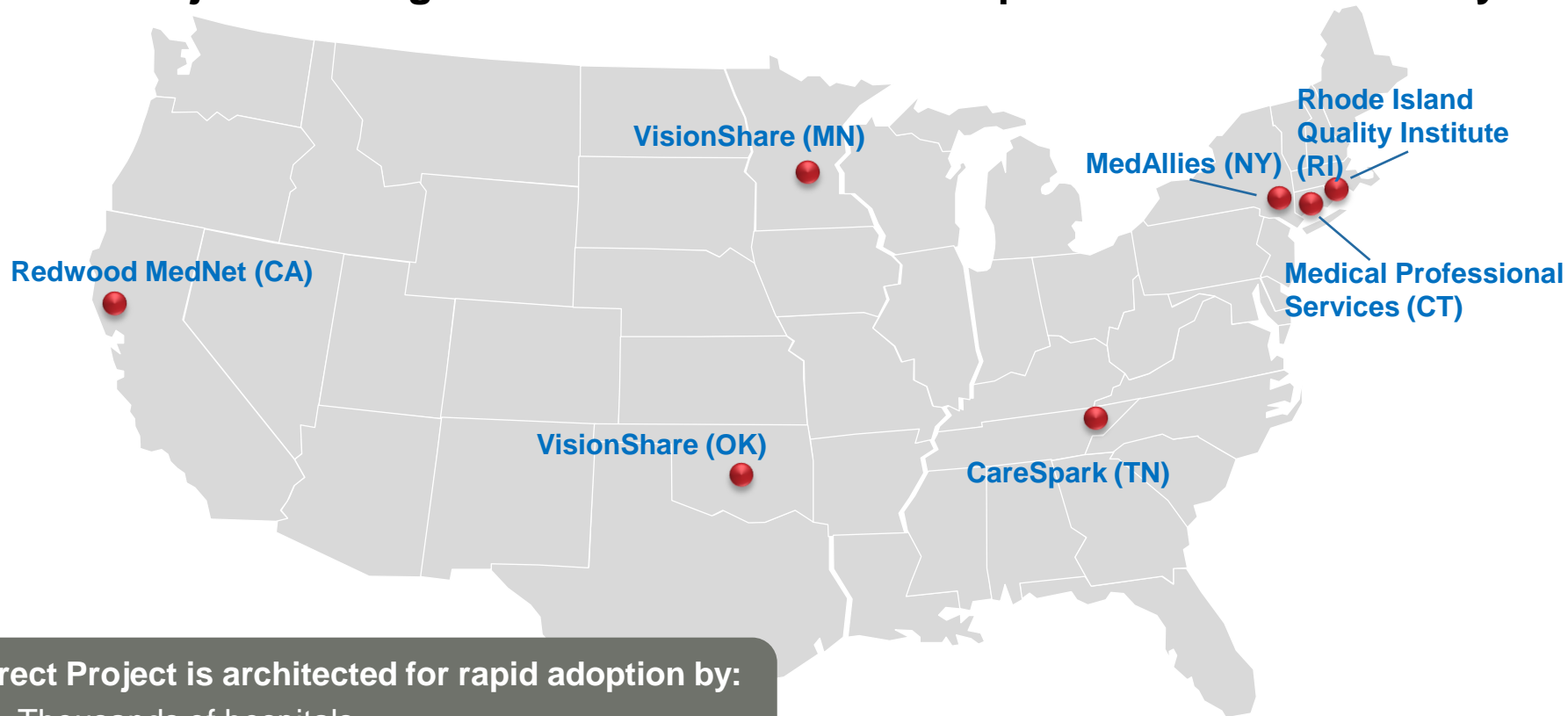
First phase grounded in real-world pilot projects implemented by early 2011

Incorporation of HITPC, HITSC, and ONC policy guidance

Where is Direct implemented today?



Direct Project is being demonstrated in real-world pilots across the country

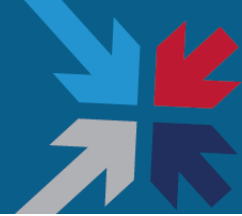


Direct Project is architected for rapid adoption by:

- Thousands of hospitals
- Hundreds of thousands of physicians
- Millions of providers
- Tens (or hundreds?) of millions of patients
- Many other stakeholders in healthcare

Where is Direct implemented today?

Example: MN – Immunization Registry



- » Objectives:
 - To demonstrate the use of Direct Project communication protocols, security model, and addressing mechanism to securely **submit immunization data from providers into a state immunization information system**
 - To demonstrate user story: Primary care provider sends patient immunization data to public health

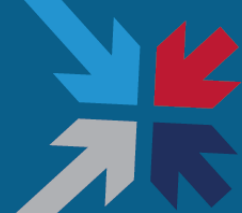
- » Participants:
 - HISP: VisionShare
 - Direct Project Source: Hennepin County Medical Center. Others TBA.
 - Direct Project Destination: Minnesota Department of Health (MDH)

- » Deployment Model:
 - Direct Project Source System: Hospital EHR
 - Direct Project Destination System: Immunization Information System (IIS)
 - Key System Components: **Reuse of existing PNHIMS infrastructure**

- » Key Milestone: As of January 12, 2011 Hennepin County Medical Center is sending **production** immunization data to the MDH immunization registry as described above.

Where is Direct implemented today?

Example: NY - Summary Care Records



- » Objectives:
 - To demonstrate Direct Project User Stories, including (but not limited to):
 - Primary care provider refers patient to specialist including summary care record
 - Specialist sends summary care information back to referring provider
 - Hospital sends discharge information to referring provider
 - **Provide advanced support to clinicians** through enabling of proactive delivery of clinical information to other providers for patient care.

- » Participants:
 - HISP: MedAllies
 - Direct Project Participants (Hudson Valley):
 - Various eClinicalWorks practices representing **100s of physician deployments**
 - Several larger physician practices utilizing NextGen
 - Half dozen hospitals with **disparate inpatient EHRs and HISs**
 - Integration Partners: eClinicalWorks, Greenway Medical, Siemens, EPIC, Allscripts, NextGen Healthcare, Kryptiq

- » Deployment Model:
 - Messaging mechanism: EHR-to-EHR (Hospital-Provider, Provider-Provider)
 - Key System Components: **SMTP backbone, XDR protocol**

- » Key Milestone: Aim to support Patient Centered Medical Home by March/April 2011

Where is Direct implemented today?

Example: CT – Heterogeneous IT Environment



» Objectives:

- To demonstrate the feasibility of using Direct protocols to connect and **securely share clinical information among a diverse group of provider settings** with a heterogeneous set of HIT tools
- To demonstrate five Direct Project User Stories, including:
 - Primary care provider refers patient to specialist including summary care record
 - Primary care provider refers patient to hospital including summary care record
 - Specialist sends summary care information back to referring provider
 - Hospital sends discharge information to referring provider
 - Laboratory sends lab results to ordering provider

» Participants:

- HISPs: MedPlus, Microsoft, eClinicalWorks, Covisint
- End-Points: Microsoft HealthVault, Care360, Quest, eClinicalWorks, DocSite, Middlesex Hospital
- Others: The Kibbe Group, American Academy of Family Physicians, Community Health Center

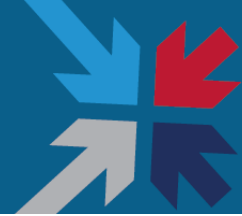
» Deployment Model:

- Messaging mechanism: **EHR-to-EHR, EHR-to-PHR, EHR-to-Portal, EHR-to-Email** (among practices, hospitals, and labs)
- Key System Components: DNS for HISP resolution and certificate discovery, SMTP backbone using S/MIME

- » Key Milestone: improve quality of care across a heterogeneous delivery system to support ACO goals and outcomes.

Who has committed to implement Direct?

(As of March 1, 2011)



- » 40+ vendors have committed to roll-out Direct-enabled functionality, and ~20 states include Direct in their approved State HIE plans

EHRs

4Medica	Greenway
Allscripts	Med3000
Care360	NextGen
Cerner Corporation	OpenEMR
eClinicalWorks	Polaris
Epic	RelayHealth
GE Healthcare	Siemens
	WorldVista

PHRs

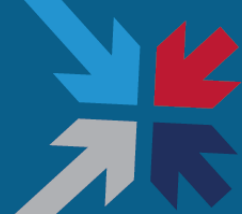
Dossia
Microsoft HealthVault
NoMoreClipboard.com
RelayHealth

HIEs & HIOs

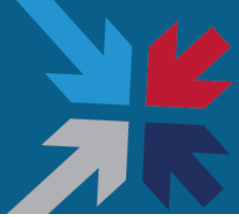
AAFP	max.md
Ability	MedAllies
Akira Technologies	MedCommons
Atlas Development	MEDfx
Axolotl	Medicity
CareEvolution	MedPlus
Covisint	Mirth
Garden State Health Systems Inc	MobileMD
GSI Health	ProviderDirect
Health Information Network of South Texas (HINSTx)	RedwoodMedNet
Inpriva	Secure Exchange Solutions
Kryptiq Corporation	Surescripts
Lifepoint Informatics	Techsant Technologies

States

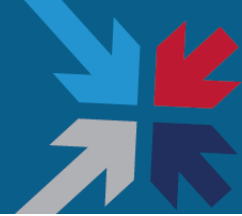
Alabama
California
Florida
Illinois
Iowa
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New Hampshire
New Jersey
North Carolina
Ohio
Oregon
Rhode Island
South Carolina
Texas
Vermont
West Virginia
Wisconsin



Q&A

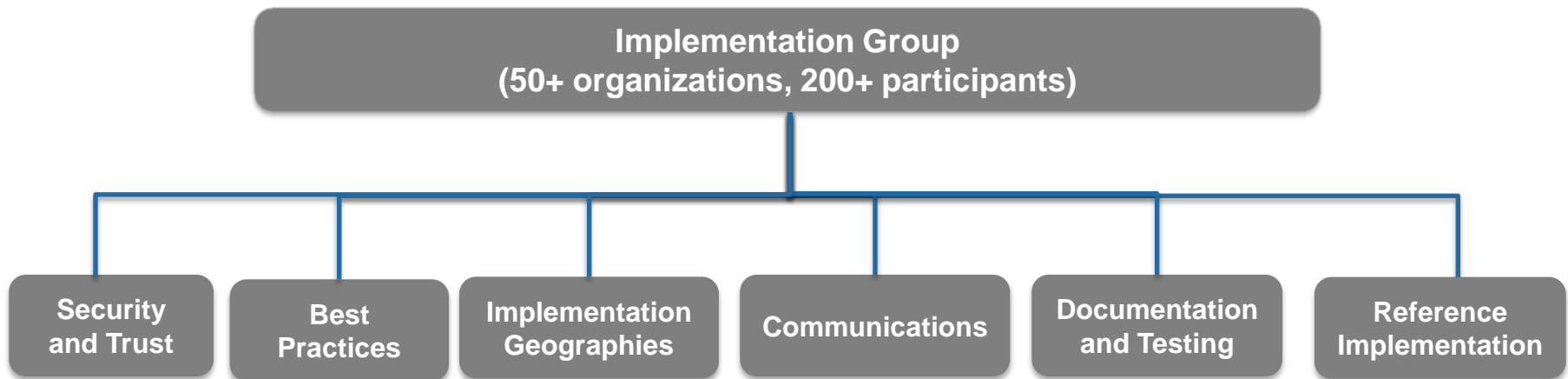


Overview of the Direct Project



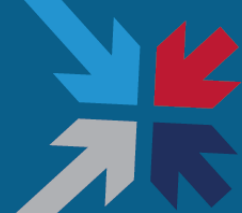
The Direct Project represents over 50 organizations and over 200 participants.

- Members participate in the Implementation Group and one or more of 6 workgroups.



Direct Project

Open and Transparent Collaboration



the Direct Project

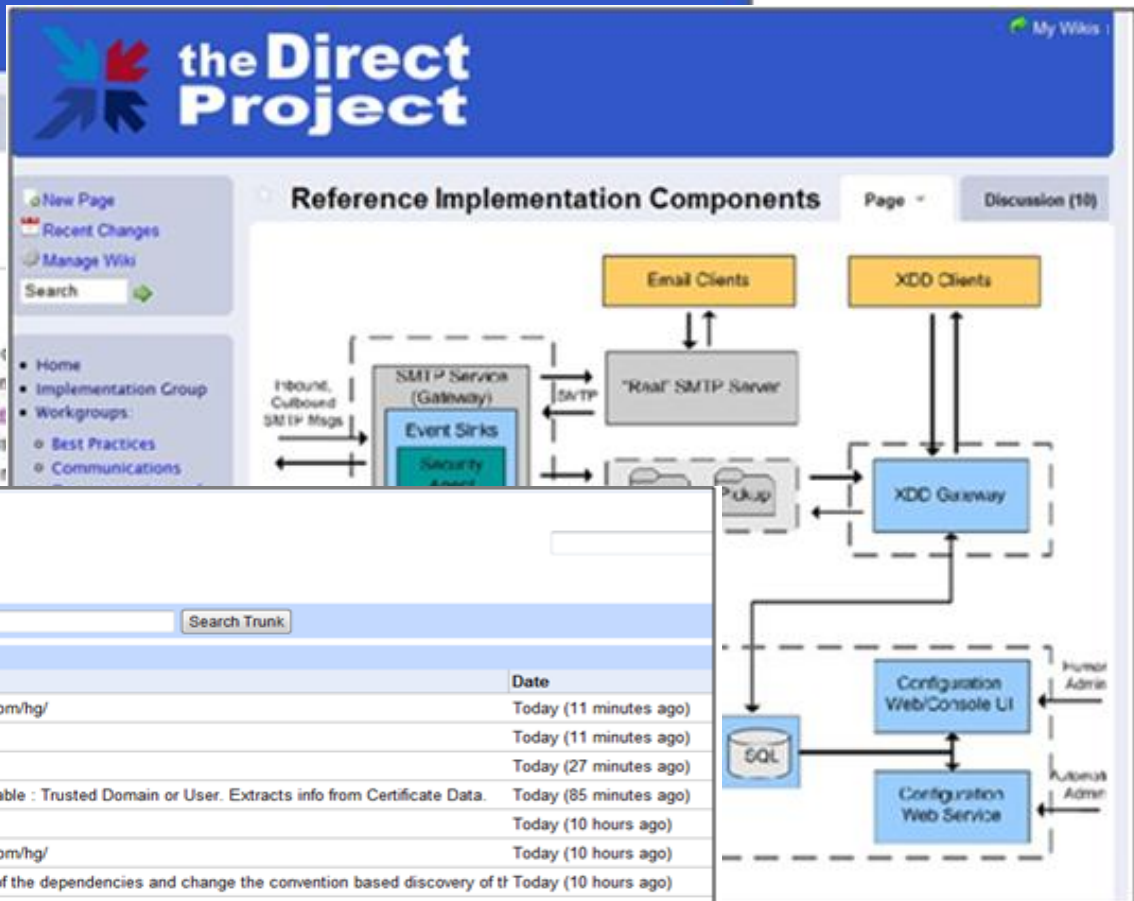
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home Page Discussion (9)

The Direct Project

Recent News

- Call for Consensus by Security and Trust WG
- Call for Consensus by Communications WG on
- Check out the completed [Direct Project Overview](#)
- [Direct Project October Face-to-Face Meeting](#)
- The [Rebranding](#) initiative is now over. The final



The Direct Project
Direct Project reference implementation

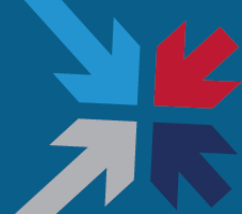
Project Home Downloads Wiki Issues Source

Repository: default [Checkout](#) | [Browse](#) | [Changes](#) | [Clones](#) |

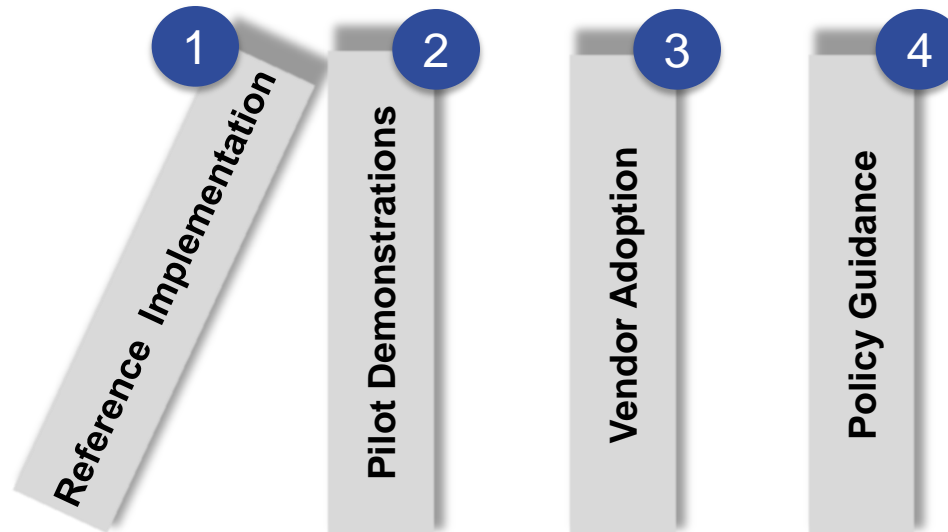
Rev	Scores	Commit log message	Date
e3e938930c		Automated merge with https://nhin-d.googlecode.com/hg/	Today (11 minutes ago)
6b77fa96ba		Removed obsolete dependencies	Today (11 minutes ago)
92950a100c		Aspnet compat	Today (27 minutes ago)
c34dcfa6e7		config-ui Added a new column for Anchors UI Table : Trusted Domain or User. Extracts info from Certificate Data.	Today (85 minutes ago)
329ad9b0c4		Fixed missing Association.cs from xd.csproj.	Today (10 hours ago)
0bc4dd2188		Automated merge with https://nhin-d.googlecode.com/hg/	Today (10 hours ago)
4f6eeb2f63		Refactored the ConfigConsole to reduce some of the dependencies and change the convention based discovery of tt	Today (10 hours ago)
fc7d4484ca		added association	Yesterday (17 hours ago)
5278046217		Added HITSP C80 OIDs for code sets	Yesterday (21 hours ago)
9c5c0a6a44		Swapped out the nhindirect.org reference with nhindirect.org	Oct 22 (2 days ago)
956ed2f919		Cleanup of the installer, centralized the EventLog writing, updated the C++ EventLog.cpp to use similar format to the Cf	Oct 22 (2 days ago)
4c7f26a701		Changes to the namespace for the AdminUI	Oct 22 (2 days ago)
d7e8a132d6		Resolver and Responder renamings and similar changes completed down in the XDS projects	Oct 22 (2 days ago)
c16686410d		Fixed up the DnsResolver and DnsResponder paths and projects	Oct 22 (2 days ago)

Direct Project

Four Steps to Direct



Successful implementation and adoption of Direct relies on four dominoes.



- 1. Reference Implementation:** Solid, simple set of code and strong documentation.
- 2. Pilot Demonstrations:** Successful incorporation of reference implementation in select regions to learn from pilot experience for broader standards adoption.
- 3. Vendor Adoption:** Base interfaces available for purchase and code and software installed in all HIT exchange products.
- 4. Policy Guidance:** Universal addressing is credible and security and privacy issues have established guidance.

What's next for the Direct Project?

