The Role of SOA in the Nationwide Health Information Network: An Update

OMG SOA in Healthcare Conference
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ONC

- Overview of Nationwide Health Information Network program
- SOA principles in action
- Q&A

What is the Nationwide Health Information Network (NwHIN)?

- A set of **policies, standards** *and* **services** that enable the Internet to be used for secure and meaningful exchange of health information to improve health and health care.

- Enables a **variety of health information exchange scenarios** – from less complex to very robust
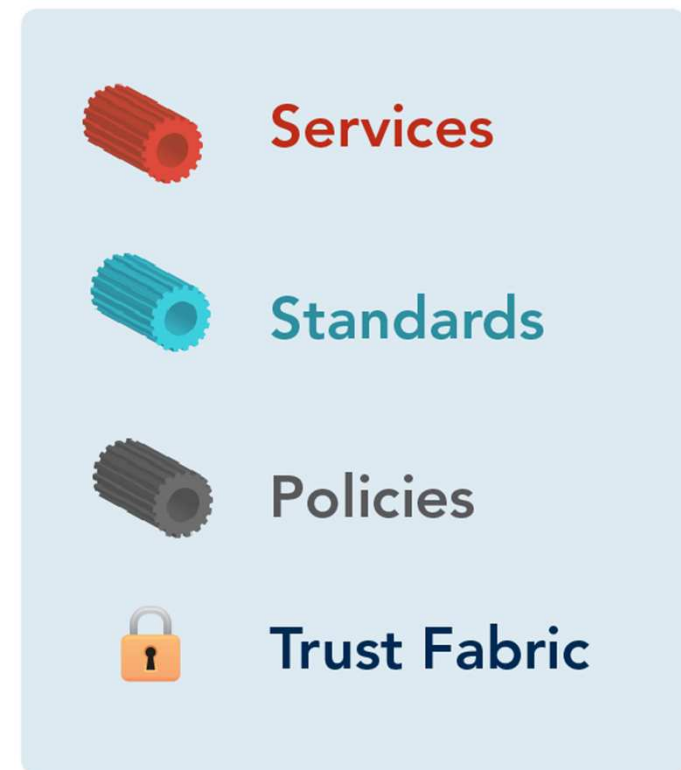
Services

Standards

Policies

Trust Fabric

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The active use of standards and services
within a policy framework for health information exchange nationwide

NwHIN gateway **Specifications**	NwHIN CONNECT **Software**	NwHIN **Exchange**	**Direct** Project

- *Specifications* define the ways in which information is exchanged

- *Software* conforms to the specifications to enable interoperability

- *Exchange* is a community of organizations that use the specifications and the software under a legal and policy agreement

- *DIRECT* is a project to that extends the specifications to meet new needs for information exchange

ONC NwHIN Roles – Enabler, Curator, and Enforcer

- **Enabler** to solve common challenges for healthcare exchange among enterprise, including Government agencies and private sector

- **Curator** to identify common standards, services and policies that could be adopted for NwHIN governance, including strong coordination role with federal partners

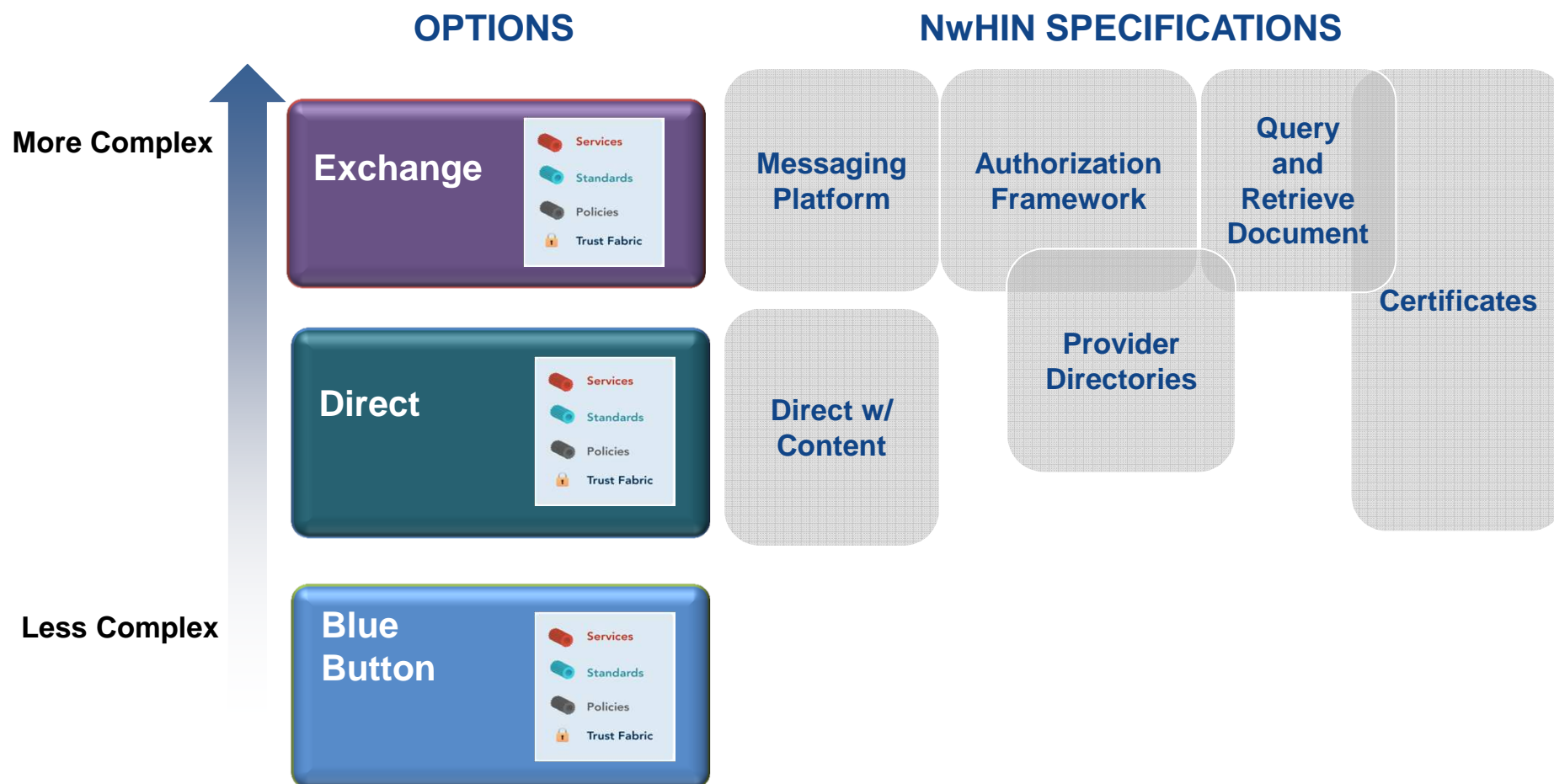- **Enforcer** to establish and oversee NwHIN governance
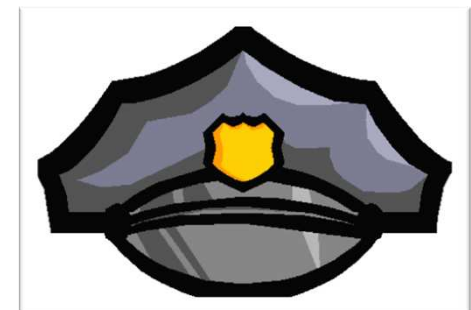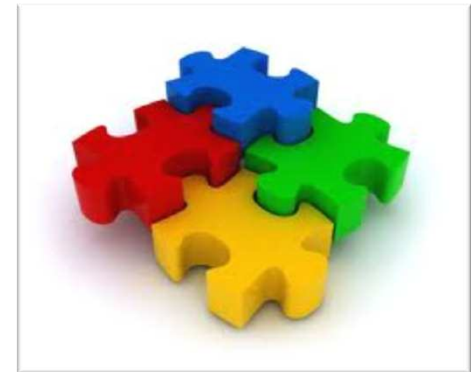
The NwHIN Has Been Evolving to Meet Market Demands

- **It can offer a range of interoperability options addressing needs of diverse participants. For example,**
  - Blue Button - Download
  - Direct – Secure email
  - Exchange – Query/response exchange

- **ONC's role**
  - Continue to evolve and develop specifications -- including to address requirements outlined in PCAST report
  - Establish conditions of trusted exchange (CTEs) via certification, Governance rule and conformance testing to promote market adoption
  - Move "operational" elements—such as Connect development and Exchange operations—to participating organizations and private sector

Flexible, Modular Way to Maximize Re-Use

OPTIONS

More Complex

Exchange
- Services
- Standards
- Policies
- Trust Fabric

Direct
- Services
- Standards
- Policies
- Trust Fabric

Less Complex

Blue Button
- Services
- Standards
- Policies
- Trust Fabric

NwHIN SPECIFICATIONS

Messaging Platform

Authorization Framework

Query and Retrieve Document

Certificates

Direct w/ Content

Provider Directories

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Exchange Participation Metrics

- 4 Federal Agencies exchanging in Production: VA, DoD, SSA and CDC
- 8 non federal agencies in production:
  - Beacon communities (WA and IN)
  - Regional HIOs (NC, OH, VA)
  - Integrated Delivery Network (CA, OR)
  - IPA (CA)

- 2 additional federal agencies planning for production in 2011: CMS, IHS
- 32 non federal agencies in engagement to join Exchange in 2011-2012

Exchange

- **Current Status**
  - NwHIN Exchange has evolved from pilot to production activity and should transition to function as an independent community of exchange partners
  - Mainly uses Connect for implementation of the specifications
  - Uses DURSA for policy framework

- **Challenges/Lessons Learned**
  - Substantial testing is needed to assure interoperability due to lack of standards, unclear specifications and lack of automated testing
  - Connect software requires substantial fixes
  - Current DURSA process is for limited number of organizations and may not work for large number of multiparty agreements
  - Scalability of Exchange operations is needed to support anticipated expansion

Exchange Operations – Latest Update

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Number of Organizations in Production	Number of Organizations currently On Boarding	Estimated Number of Organizations in Production for 2011
13	41 (11 HIES, 9 Beacons)	35

- **VLER Update**
  - Multicare Health System scheduled to start Interoperability testing week of 7/11
  - Part of VLER Puget Sound initiative; go Live 9/25/11
- **Federal Agency Update**
  - SSA going through re-validation for CONNECT 3.1; finished Conformance testing; scheduled for Interoperability testing week of 7/11; go Live 9/14/11
- **Operational Efficiency**
  - SSA revalidation Conformance testing finished in 35 minutes

- ONC remains committed to establishing modular implementation specifications, clear standards (via S&I framework) and robust testing to assure interoperability and eliminate partner level testing

- ONC is committed to developing Conditions of trusted Exchanges (CTEs) and Governance rules for scaling policies

- ONC is working with federal partners, to develop a short term solution for Connect software issues and implementing architectural modularity for long term growth in distributed environment

- Combination of clear, modular, testable specifications and future automated testing/certification process would allow nationwide scalability of the NwHIN

Direct Project

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- **Current Status**
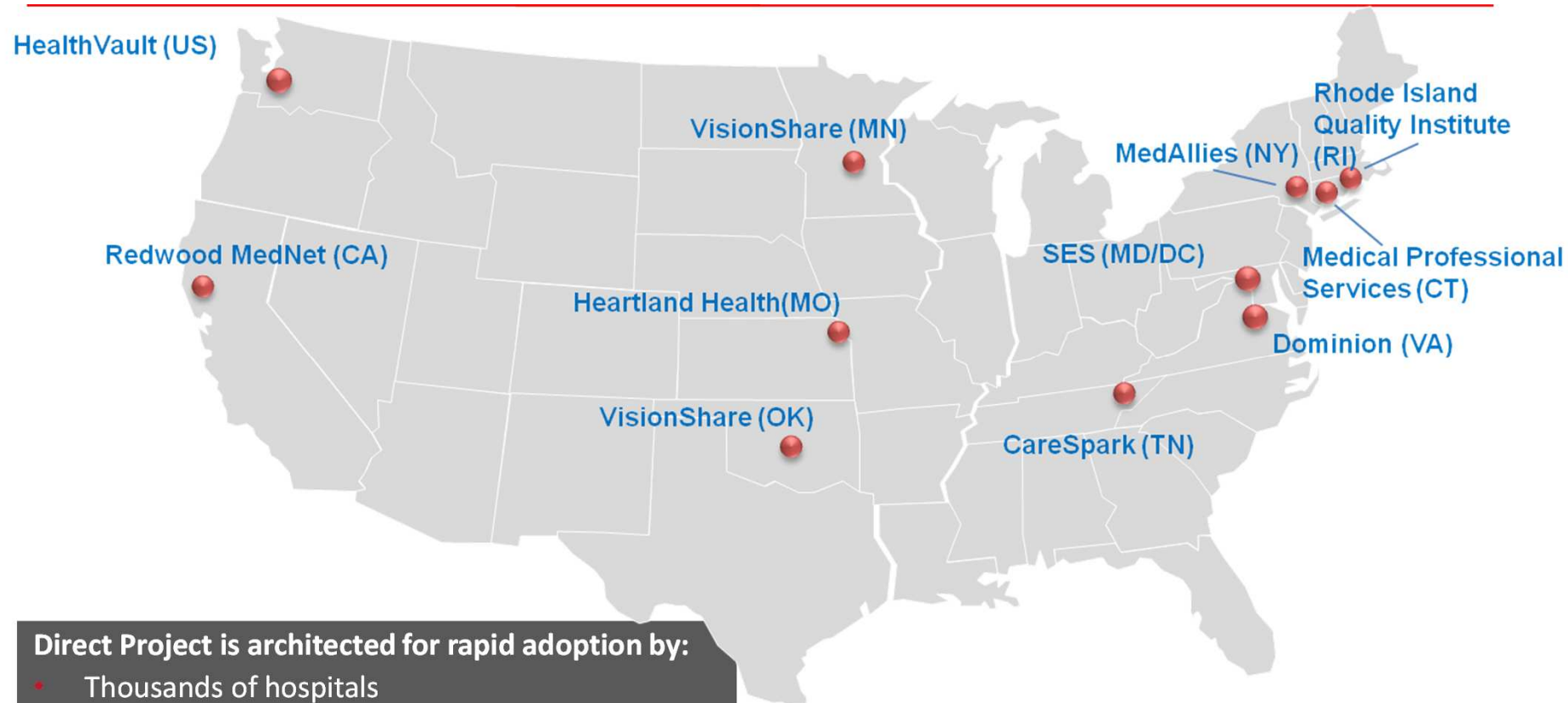 - New type of private/public partnership – "do-ocracy"
  - Open process without standard govt. contracting mechanisms
  - Specifications in 90 day, Reference implementation in 90 days
  - Widespread adoption

- **Challenges/Lessons Learned**
  - Need to scale the process for other activities
  - Need scalable trust/policy for certificate issuance
  - Need provider directories with certificate lookup

Where is Direct?

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

HealthVault (US)

VisionShare (MN)

Rhode Island Quality Institute (RI)

MedAllies (NY)

Redwood MedNet (CA)

SES (MD/DC)

Medical Professional Services (CT)

Heartland Health(MO)

Dominion (VA)

VisionShare (OK)

CareSpark (TN)

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

Direct Project – ONC's Future Plans

- ONC committed to using Direct processes for S&I initiatives targeted at Certificate interoperability, Provider directories and Standards based packaging

- 25+ State HIEs implementing

- Increase Vendor Support

HISPs	EHRs	PHRs and Labs
CareSpark	Allscripts	
Cerner Direct	Amazing Charts	PHR
eClinicalWorks	Care360	Microsoft HealthVault
Emdeon	eClinicalWorks	
Impriva	e-MDs	Lab
MedAllies	Greenway Medical	LabCorp
MEDfx/Verizon	NextGen Healthcare	LIS @ NorCal Hospitals
Mirth	Polaris EpiChart	(HMS, Meditech, McKesson)
MobileMD	Siemens	Middlesex Hospital
Quest/MedPlus		Quest Diagnostics
Secure Exchange Solutions		
VA		
VisionShare		

Principles for Service Scope

- Determine the appropriate <u>granularity</u> of standards and specifications
  - Not too fine grained (e.g. implementation level) to avoid constraining software development and proliferation of specifications
  - Not too coarse grained (e.g. Business Capability level) which would lead to lack of interoperability
- Develop <u>Building blocks</u> approach towards defining standards and specifications
  - Not tied to unique business functional requirement
  - Reusable components
- Develop product neutral conformance criteria

List of Standards/Packages/Contents part of NwHIN

- **Final metadata analysis**
- **Review Summer workplan**
- **Existing standards review**
  - **Drug Formulary**
  - **ePrescribing**

Emerging standards review
- **Longitudinal Care Plans**
- **Directories**
- **Certificate interoperability**

S&I initiative updates
- **Lab results**
- **Transitions of Care**

Transport standards
- **NWHIN specifications**
- **Direct specifications**

"What I did this summer" review

Apr   May   June   Jul y   Aug   Sep   Oct

- PCAST report
- Initial metadata analysis

- List of Care Team Members
- Hospital Portals vs PHRs
- Advance Directives (value sets)
- Family History (standards?)
- Reportable conditions standard
- Immunizations/Lab reporting PH

- Vocabularies
  - **SNOMED**
  - **ICD10**
  - **LOINC**
  - **UCUM**

Updated Specification Evaluation Criteria

Spec Maturity (High, Low, Moderate)

- Clear and unambiguous
- Testable
- Maintainable
- Fully tested and piloted

Implementable (Yes, No, Pilot)

- Supported in production for a minimum of "x" period of time
- Scalable (able to work on a large-scale, national-level)
- Accomplishes the objective (i.e. works in practice, with limited implementation challenges)

Level of Market Adoption (High, Low, Moderate)

- Currently deployed as production offering by "x" number / percentage of vendors
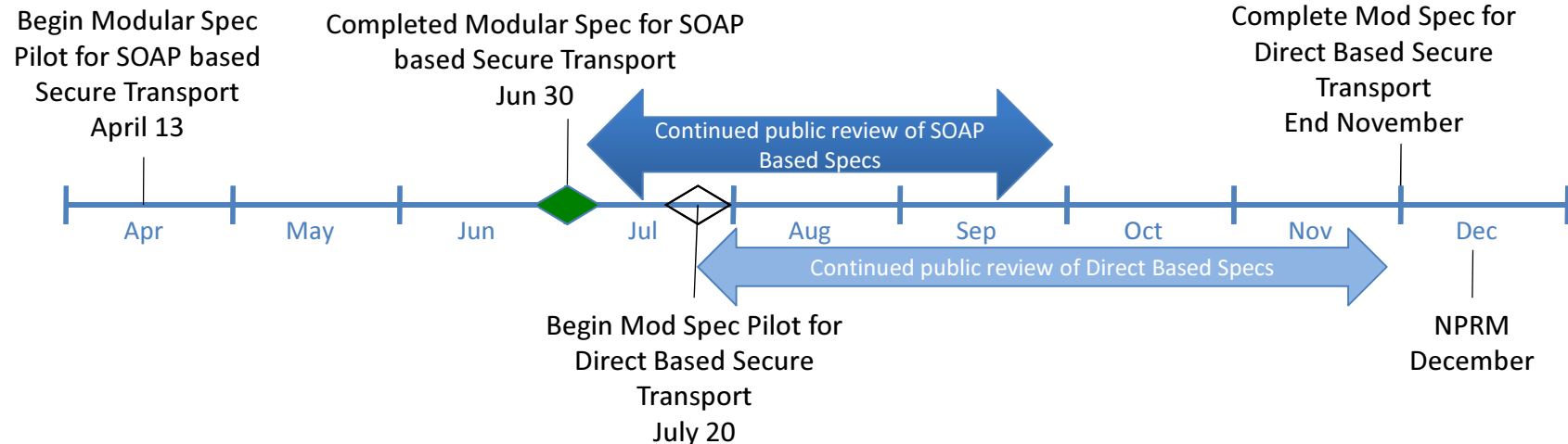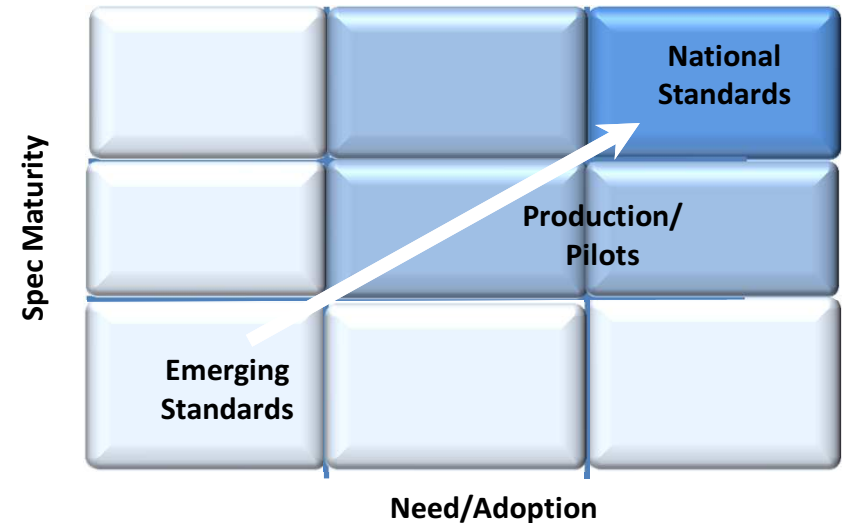- Significant volume potential (e.g. within 12 months; additional vendors, etc.)

Need (High, Low, Moderate)

- Needed for meaningful use
- National HIT agenda, etc.
- Federal agency need

Updated Specification Evaluation Criteria

- **Technical Maturity Lifecycle** (Mature, Maturing, Trough, Emergent)
    - New unproven technology, peak of expectations
    - Trough of disillusionment
    - Few providers surviving and making sustainability plans
    - Mainstream adoption of technology
- **Alternatives Available (Yes, No, Pilot)**
    - Whether alternative technologies exist to accomplish the objective

NwHIN Services

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- **Criteria under development for each standard "area" and assessment of current health IT standards for**
  - **National Standards**
  - **Pilot/Production**
  - **Emerging**

- **Hardening of "Directed Exchange" standards for NwHIN and Meaningful Use**
  - **SOAP Secure Transport**
  - **Direct Transport and Security**

Spec Maturity

National Standards

Production/ Pilots

Emerging Standards

Need/Adoption

Begin Modular Spec Pilot for SOAP based Secure Transport April 13

Completed Modular Spec for SOAP based Secure Transport Jun 30

Complete Mod Spec for Direct Based Secure Transport End November

Continued public review of SOAP Based Specs

| Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

Continued public review of Direct Based Specs

Begin Mod Spec Pilot for Direct Based Secure Transport July 20

NPRM December

Identify and Fill Current Gaps in Specifications

- Reduce "Onion" problem in specifications where specifications are built on other specifications, that refer to other underlying specifications, etc…

- Provide clarity of context and use of the specific elements of specifications, including Required, Optional and Conditional requirements

- Provide associated examples that describe usage

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- *Specifications*

  Building new specifications for security (certificates), directories and standards-based content

- *Software*

  Collaborating with NIST to develop software testing and certification infrastructure

- *Exchange*

  Establishing governance across different communities to assure interoperability and trusted exchange

- *DIRECT*

  Using the collaborative open process for future specification development