



Agenda and Meeting Minutes

Title / Purpose:	First MiHIN Technical Workgroup Meeting		
Meeting Date:	Dec 17, 2009	Facilitator:	Mike Gagnon
Place:	Capital View, Lansing Mi Conference Room B-C	Time:	9:00 AM – 12:00 noon
		Conf Call #:	1-888-394-8197 Passcode: 869479

Topic 1:	Workgroup Organization and Rules of Engagement
Materials:	Presentation
Presenter:	Mike Gagnon
Topic 2:	Finalize goals, objectives and strategies
Materials:	Goals, Objectives and Strategies Document
Presenter:	Mike Gagnon
Topic 3:	Overview of Early Adopter and Technical Assessment Results
Materials:	EA Analysis (in presentation)
Presenter:	Mike Gagnon
Topic 4:	Update on RFI responses
Materials:	None
Presenter:	Samer Naser
Topic 5:	Continue review of Conceptual Architecture
Materials:	Conceptual Architecture Diagram Conceptual Architecture Narrative
Presenter:	Mike Gagnon

DISCUSSION	Topic 1:		
ACTION ITEMS	PERSON RESPONSIBLE	DEADLINE	
1.			
2.			
3.			
4.			
DISCUSSION	Topic 2:		
ACTION ITEMS	PERSON RESPONSIBLE	DEADLINE	



DISCUSSION	Topic 3:		
ACTION ITEMS	PERSON RESPONSIBLE	DEADLINE	
DISCUSSION	Topic 4:		
ACTION ITEMS	PERSON RESPONSIBLE	DEADLINE	



MiHIN Technical Workgroup

Meeting 1





Technical Workgroup Agenda

- Review the Workgroup Charter
 - Review the workgroup “Rules of Engagement”
 - Review Goals, Objectives and Strategies
 - Overview of ARRA Funding and HIE Cooperative Agreement
 - Review of the Early Adopter Analysis and Technical Assessments
 - Update on the Vendor RFI Responses & Vendor Involvement
 - Review of the Conceptual Architecture
 - Focus for the next two meetings
- 



Review the Workgroup Charter

- Workgroup Mission
 - Develop a Technical Architecture which is consistent with the overall MiHIN goals
 - Assess stakeholder readiness for HIE
 - Select and design the necessary interoperability and connectivity standards
 - Develop a security framework that balances the protection of patient data with appropriate use
 - Review vendor products and services and make recommendations
 - Review the technical portions of the MiHIN strategic and operational plans to be submitted to the ONC
- Workgroup Leadership
 - Co-Chairs: Ken Theis, Michigan Department of Information Technology CIO, Rick Warren, Allegiance, CIO
 - Facilitator: Mike Gagnon, MiHIN Lead Technical Architect
- See the Technical Work Group Charter for more details



Rules of Engagement

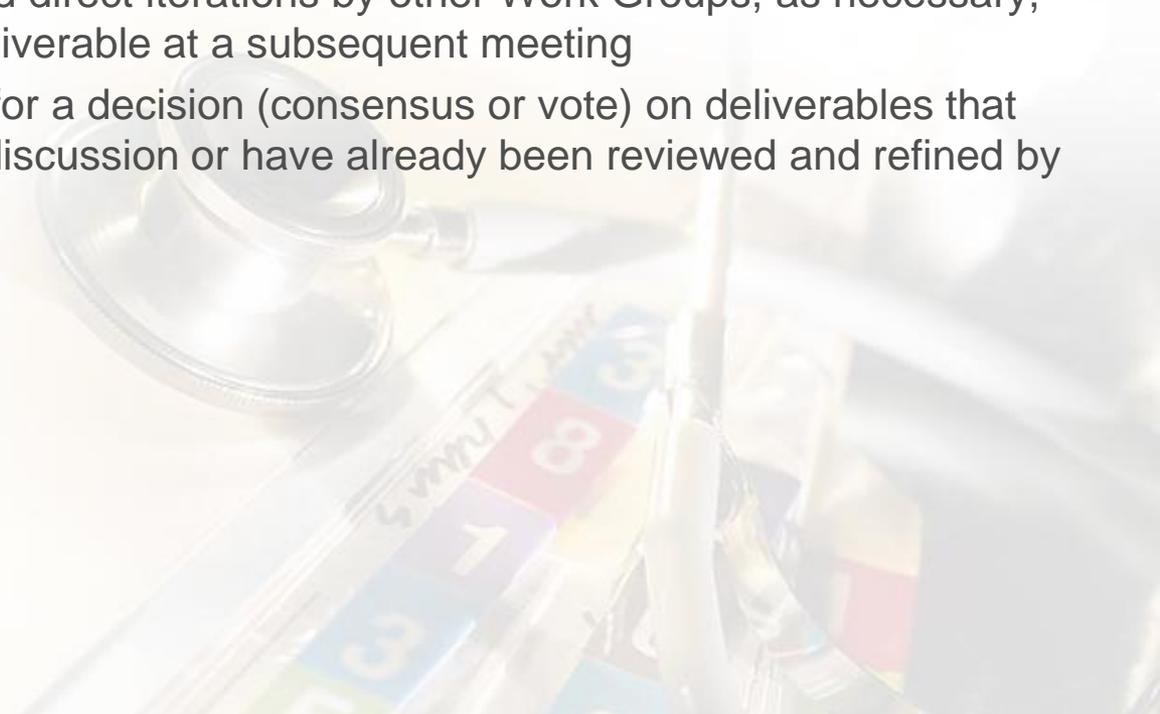
Open Meetings

- All meetings conducted by the Work Groups will be open to all interested stakeholders
 - Voting Work Group Members as well as interested stakeholders will review and discuss items to be refined prior to vote
 - A public comment period will be included at the end of each agenda and will be offered after each vote.
 - When possible, discussion of a decision and the vote on a decision will take place one meeting apart.
 - Agendas and documentation to be reviewed at each meeting will be posted to the MiHIN website and emailed to all workgroup members at least 2 days before each meeting
 - Approved meeting minutes will be posted within 1 week after each meeting.
 - All workgroups will begin meeting face-to-face and will decide on alternative options like web-conference and teleconference for subsequent meetings.



Rules of Engagement

Meeting Approach

- Agenda items fall into three categories:
 - Review only – enable Work Group members to become familiar with information, to ask and/or respond to questions to guide the development of future deliverables
 - Review and refine – provides the opportunity for the Work Group members to review a draft, comment, question, and direct iterations by other Work Groups, as necessary, before approving the final deliverable at a subsequent meeting
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- 



Rules of Engagement

Decision Making

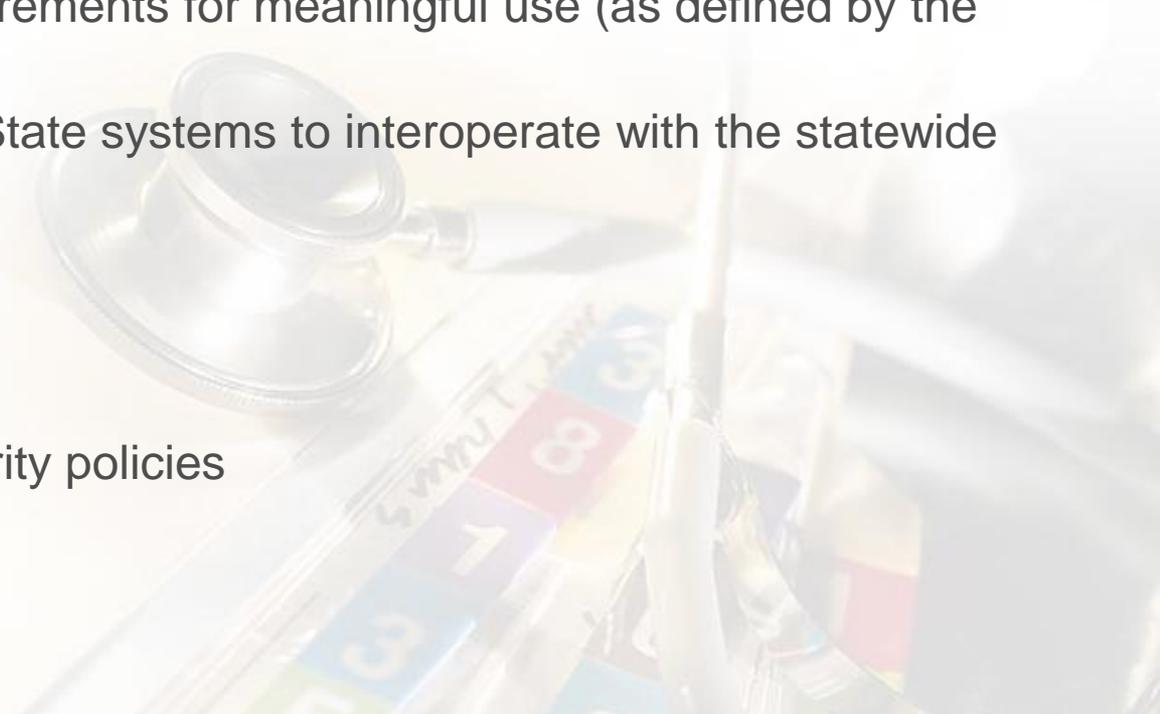
- When a vote is called, the following process will be followed:
 - Only Voting Work Group Members are allowed to vote
 - A quorum of Voting Work Group Members must be present in order to vote
 - A majority vote rules
 - When possible, items that require a vote will be clearly noted on the agenda





Goals and Objectives

Develop a comprehensive statewide technical architecture that:

- Performs 4 main functions
 - Aggregating data and interconnecting providers via Community HIEs
 - Connecting Community HIEs through a MiHIN state-wide backbone
 - Provide shared clinical and administrative services and applications
 - NHIN connectivity for sharing data with other states and the federal government
 - Meets prioritized clinical requirements for meaningful use (as defined by the ONC)
 - Allows community HIEs and State systems to interoperate with the statewide architecture
 - Supports auditing
 - Supports data analytics
 - Is cost-effective to maintain
 - Implements privacy and security policies
- 



Strategies

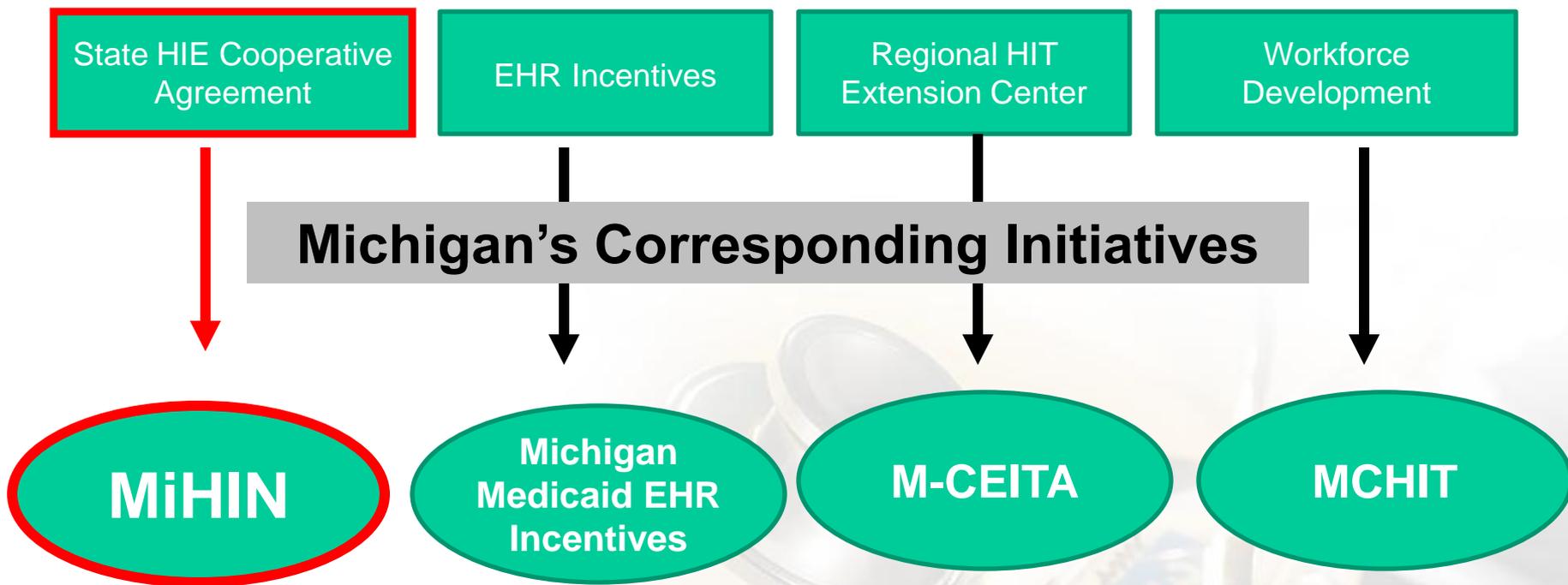
- Vendor agnostic
- Support multiple communication protocols within reason (FTP, SOAP, Sockets, etc).
- This will be a hybrid architecture that will not be entirely federated or centralized
- Comply with the latest interoperability standards but be practical enough to get something working
- Undertake an incremental approach to implementing a statewide architecture
- We will be consistent with Industry Standards (web services, etc) when not in conflict with our design
- Our primary focus will be on designing Information Exchange, not end-user applications
- Interoperate with existing state and regional healthcare delivery systems
- Our objective for real-time communications is to use web services where feasible
- The infrastructure and all external communication paths must be highly secure and HIPAA compliant
- The architecture must be extensible (capable of adding new functions or services easily)
- The architecture must be scalable (capable of adding more users, transactions or other volumes of work easily)
- Will support delegated user authorization, authentication & administration



Overview of ARRA Funding and HIE Cooperative Agreement



American Recovery & Reinvestment Act of 2009 HIT Opportunities





State HIE Cooperative Agreement

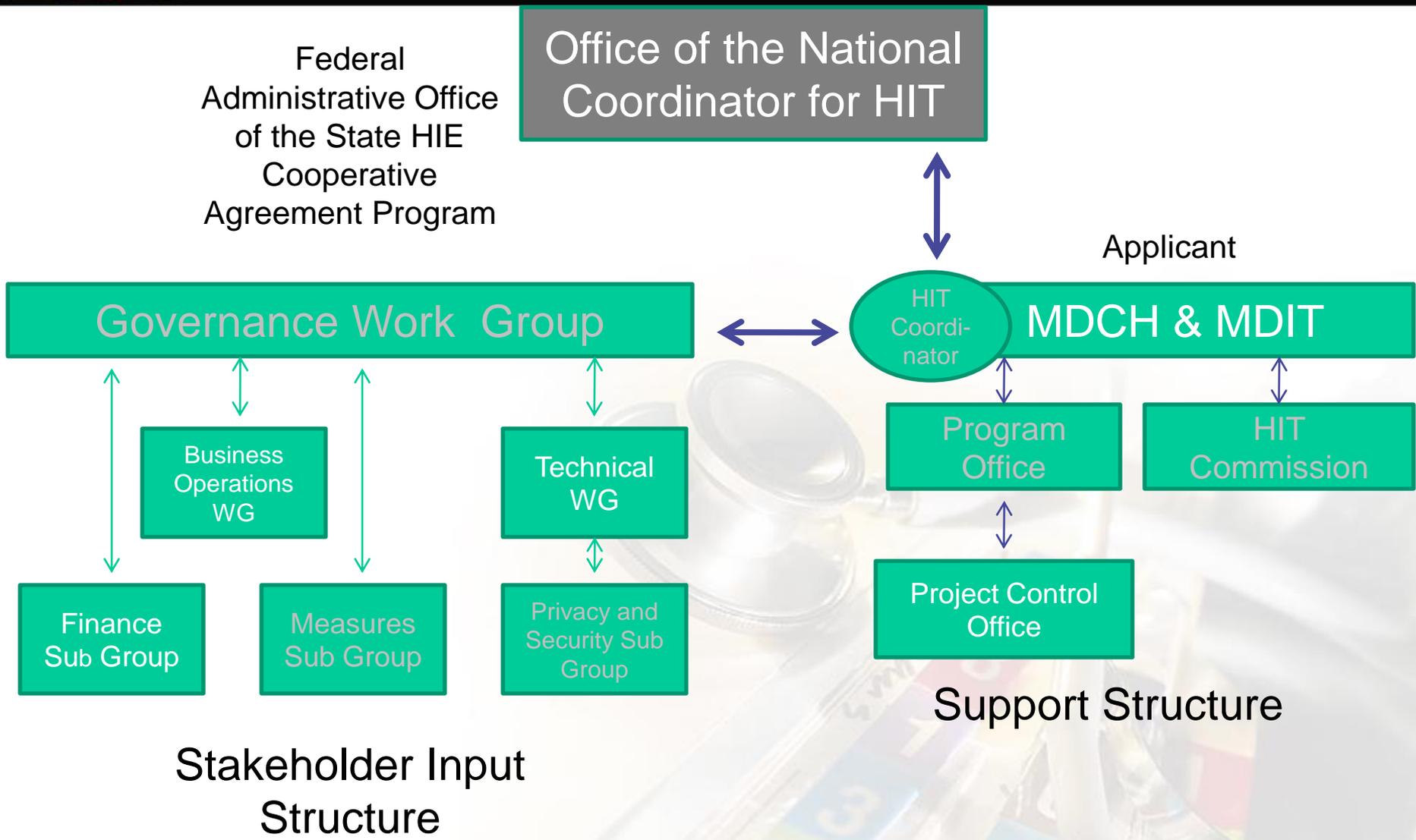
Total Amount of Funding Available:	\$564,000,000
Award Floor	\$4,000,000
Award Ceiling	\$40,000,000
Approximate Number of Awards:	56
Program Period Length	Four years
Letter of Intent Due:	11-Sep-09
Application Due:	16-Oct-09
Award Announcements:	15-Dec-09
Estimated Start Date:	15-Jan-10



State HIE Cooperative Agreement

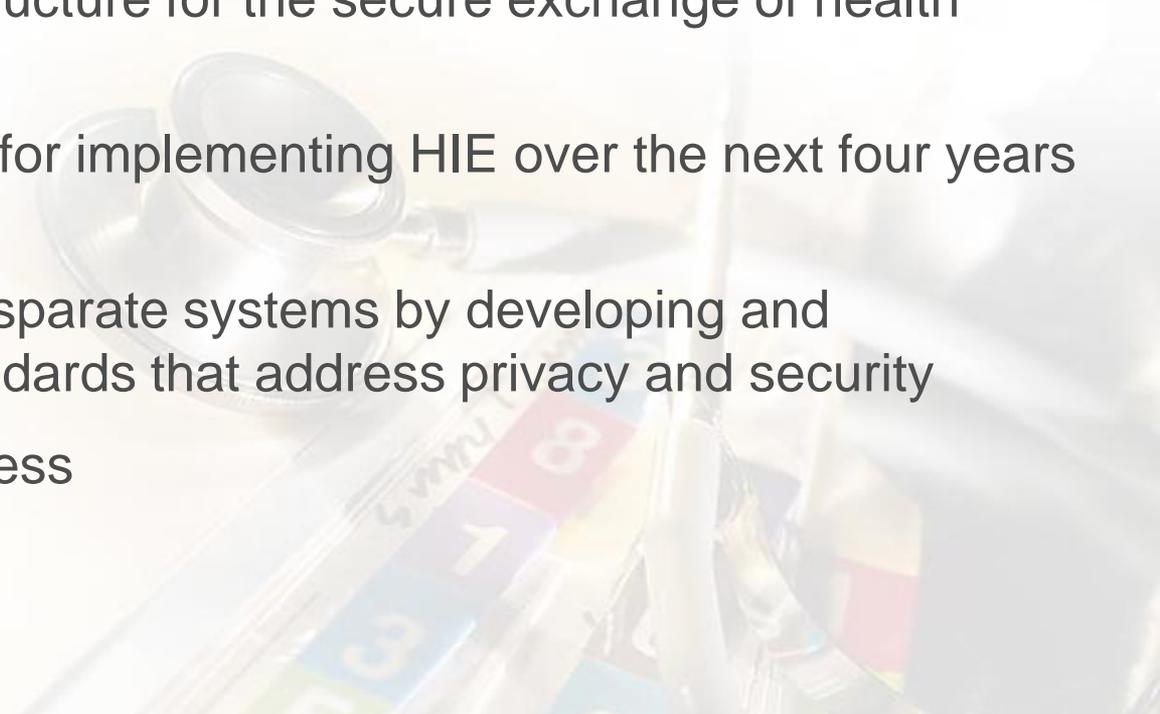
- Purpose: continuously improve and expand HIE services to reach all health care providers in an effort to improve the quality and efficiency of health care.
- Cooperative agreement recipients will evolve and advance the necessary governance, policies, technical services, business operations, and financing mechanisms for HIE over a four-year performance period.
- Activities under this program must support interoperability that lets patient data follow the patient across political and geographic boundaries.
- Awardees will become partners in building the nationwide HIE infrastructure.

Project Structure





MiHIN Project Goals

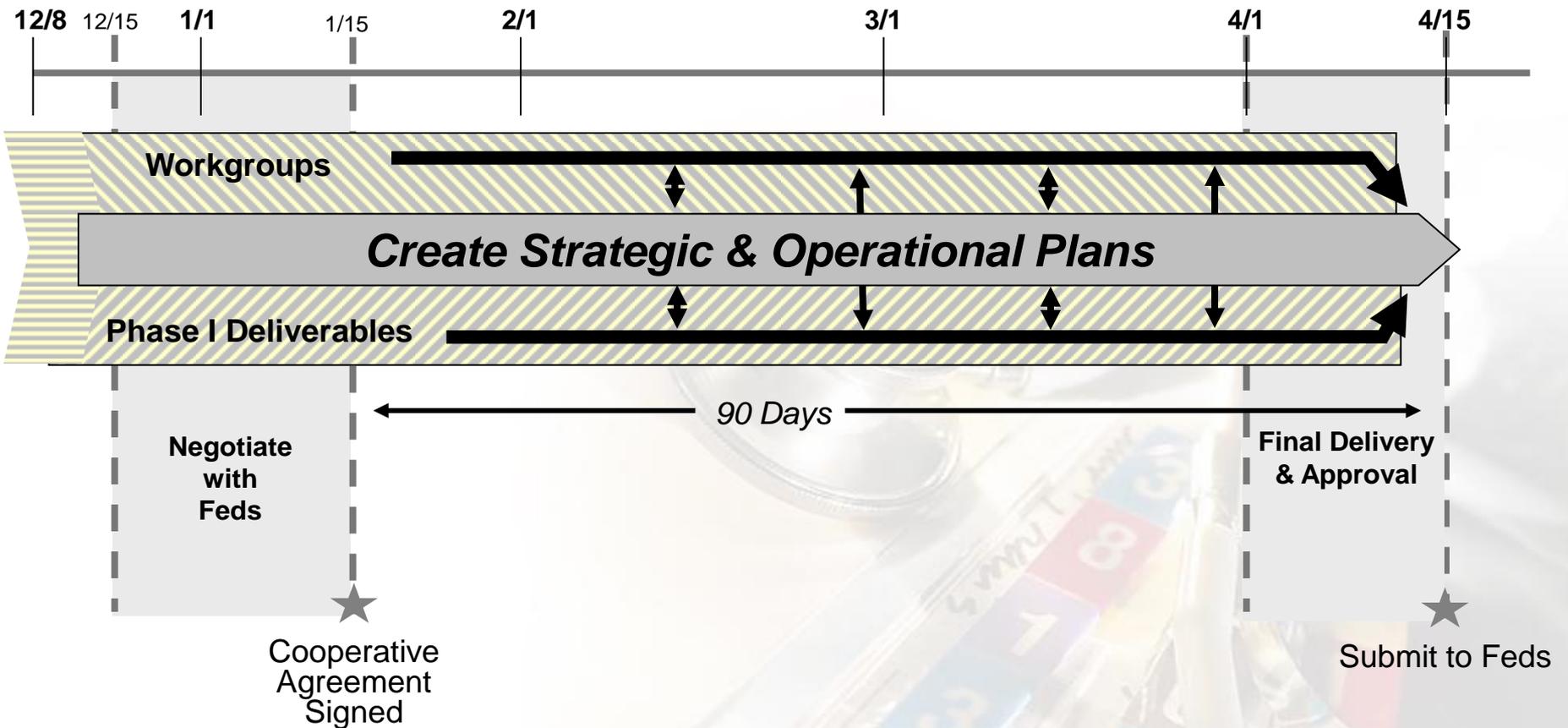
- Support the implementation of the ONC priorities for health information exchange including NHIN connection
 - Establish Long-term Governance Structure
 - Establish a Financial Sustainability Plan
 - Develop a statewide infrastructure for the secure exchange of health information
 - Create an incremental plan for implementing HIE over the next four years across Michigan
 - Ensure interoperability of disparate systems by developing and implementing technical standards that address privacy and security
 - Develop measures for success
- 

Current MiHIN Timeline

Goal

4/15/10 - Submit Strategic & Operational Plans to Feds

Current Approach & Schedule





Early Adopter and Technical Analysis



Early Adopter and Technical Analysis

Systems	Registration (ADT)	Ambulatory EHR	Inpatient EHR/CIS	CPOE	ePrescribing / Med Mgmt	Laboratory	Radiology	Radiology PACS	Pathology	Pathology Imaging	Inpatient Pharmacy	Outpatient Pharmacy	Cardiology	Cardiology Imaging	Cardiology EKGs	Mammography Imaging	Endoscopy Imaging	Oncology	Operating Room	Master Patient Index	Psychiatric
Organization 1	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Yellow	Green	White	Green	Green	Green	Green	Green	Red	Green	Green	Red
Organization 2	Green	Green	Yellow	Yellow	Yellow	Green	Green	Green	Green	Red	Green	Green	Green	White	Green	Green	Red	Green	Green	Green	Red
Organization 3	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red
Organization 4	Green	Green	Yellow	Yellow	Green	Green	Yellow	Light Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Red
Organization 5	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red
Organization 6	Green	Green	Green	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Red
Organization 7	Green	Green	Green	Yellow	Yellow	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Light Green	Green	Green	Green	Red
Organization 8	Green	Green	Yellow	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red	Green	Green	Green	Red
Organization 9	Green	Green	Green	Yellow	Yellow	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Yellow	Green	Yellow	Green	Red



Early Adopter and Technical Analysis

Electronic Health Information	Onsite Lab	Reference Lab	POL	Dictated notes	Dictated Rad Reports	Nursing Documentation	Discharge Summaries	Problem Lists	MAR	Allergies	Orders	PACS Images	ED Records	ICU Records	Psych Records	Home Care Records	Dialysis	Oncology	Cardiology	Office Encounter Notes	Advance Directives	Other Scanned Documents
Organization 1	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Yellow	Yellow	Yellow	Green	Green	Red	Yellow
Organization 2	Green	Green	Red	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Red	Red	Red	Yellow	Green	Green	Green	Yellow
Organization 3	Green	Green	Yellow	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Red	Yellow	Yellow	Green	Yellow	Green	Green	Green
Organization 4	Green	Red	Red	Green	Green	Green	Green	Yellow	Green	Red	Yellow	Green	Green	Red	Red	Red	Red	Red	Red	Green	Yellow	Yellow
Organization 5	Green	Green	Red	Green	Green	Yellow	Green	Green	Green	Green	Yellow	Yellow	Green	Yellow	Red	Yellow	Green	Green	Green	Green	Green	Yellow
Organization 6	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Red	Green	Yellow	Yellow	Yellow	Green	Green
Organization 7	Green	Green	Red	Red	Green	Red	Red	Red	Red	Red	Red	Green	Green	Green	Yellow	Green	Red	Red	Green	Yellow	Red	Yellow
Organization 8	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Green	Yellow	Red	Red	Yellow	Yellow	Green	Green	Yellow	Green
Organization 9	Green	Green	Yellow	Green	Green	Yellow	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green	Yellow



Early Adopter and Technical Analysis

Functional Capabilities										
Healthcare Organization Name	Clinical System Capabilities				Patient Flow (Admission, Discharge and Transfer) System			Electronic Prescribing / Medication Management		
	Remote Access via the Internet	Drug interaction alerts	Patient Scheduling by Physician Offices	Electronic Insurance Eligibility Checking	Status	Electronic Referral Creation	Electronic Eligibility Tracking	Status	None. Vendor and Application is:	
Organization 1	Yes	Yes		Yes	Fully operational	No	Yes	Fully operational		
Organization 2	Yes	Yes		Yes	Fully operational	Yes	Yes	Partially operational	DrFirst and NextGen	
Organization 3	Yes	Yes	Yes	Yes	Fully operational	Yes	Yes	Fully operational		
Organization 4	Yes	Yes	Yes	Yes	Fully operational	Yes	No	Fully operational		
Organization 5	Yes	Yes		Yes	Fully operational	Yes	Yes	Plan to implement within 1 year	TBD	
Organization 6	Yes	Yes	Yes	Yes	Fully operational	Yes	Yes	Partially operational		
Organization 7	Yes	Yes	Yes		Fully operational	No	No	Partially operational	McKesson	Meds Manager
Organization 8	Yes	Yes	Yes	Yes	Fully operational	Yes	Yes	Partially operational		
Organization 9	Yes	Yes	Yes	Yes	Fully operational	Yes	Yes	Partially operational	Cerner	Millennium

Early Adopter and Technical Analysis

Business Services

Transcribing and Interpreting											
Healthcare Organization Name	Transcribing Dictated Notes		Speech Recognition for Dictated Notes		Interfacing Dictated Notes	Outside Agency for Dictated Notes			Outside Agency for Interpreting Radiology or Other Images		
	Status	Desc	Status	Desc	Interfacing to Other Systems	Outside Agency	Desc of Outside Agency	Outside Agency Interfacing to EHR	Status	Desc of Outside Agency	Outside Agency Interfacing to EHR
Organization 1	Yes	softmed	Yes	dragon in pathology pilots in ICU radiology	hl7	Yes	transolutions inc soap transcription service van belkum transcription service	hl7	Yes		dictation
Organization 2	Yes	for the Intensivists and ED	Yes	Radiologists	Direct feed to EMR	Yes	CareTech - Medquist	Direct Feed	Yes	Harris-Burkhill and NightHawks	Access to RIS and PACS
Organization 3	Yes	some but also use coded documentation templates	Yes	Dragon speak in use and then they cut and paste into the Cerner record	HL7 interfaces	No			No		
Organization 4	Yes		Yes		Via escription and HI7 messaging	Yes		HL7 interface	No		
Organization 5	Yes	Utilize third party transcription services.	Yes		ETL process.	Yes		File Transfer.	No		
Organization 6	Yes	transcription service inhouse and outsourced	Yes	Dolby, Dragon Nuance	Integrated into EMR and stored in patient record	Yes		Files sent nightly	Yes	outsourced direct radiology group	Group uses DMC systems via RISC PACS and Dolby
Organization 7	No		No		HL7 Text	No			Yes	Wet Reads Only Final read from the Rad	
Organization 8	Yes	Partial. Physicians mostly input electronically.	Yes	Dragon.		No			Yes		
Organization 9	Yes	All clinical transcription is directly interfaced to our Cerner package.	Yes	we use speech recognition in some of our physician offices.	They are directly imported into our ambulatory EHR.	Yes	We have many different agencies transcribe across our system and they are interfaced to Cerner.	Interfaced to Cerner as preliminary and final	Yes	We have a Nighthalk service that reads our films and dictates.	All Nighthalk dictations are interfaced into Cerner.



Early Adopter and Technical Analysis

Standards	Transactional							Content					Terminology				
	Current or Planned EHR CCHIT Certificate	HL7 v2.x	HL7 v3.0 CDA	DICOM (Imaging)	IHE Technical Framework(s)	NCPDP Script	ANSI X12	Continuity of Care Document (CCD)	National Drug Code (NDC)	CPT	ICD9	ICD10	LOINC (Labs)	SNOMED	UMLS RxNorm	First Data Bank	Multum (Cern)
Organization 1		Green	Red	Green	Red	Red		Yellow	Green	Green	Green	Yellow	Yellow	Yellow	Red	Green	Green
Organization 2	Red	Green	Yellow	Green	Yellow	Red		Yellow	Green	Green	Green	Yellow	Green	Green	Red	Green	Red
Organization 3	Green	Green	Red	Green	Green	Green		Yellow	Green	Green	Green	Yellow	Green	Green	Red	Green	Green
Organization 4	Green	Green	Yellow	Green	Yellow	Yellow		Green	Red	Green	Green	Yellow	Green	Green	Red	Red	Green
Organization 5	Red	Green	Yellow	Green	Red	Yellow		Yellow	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Green	Green
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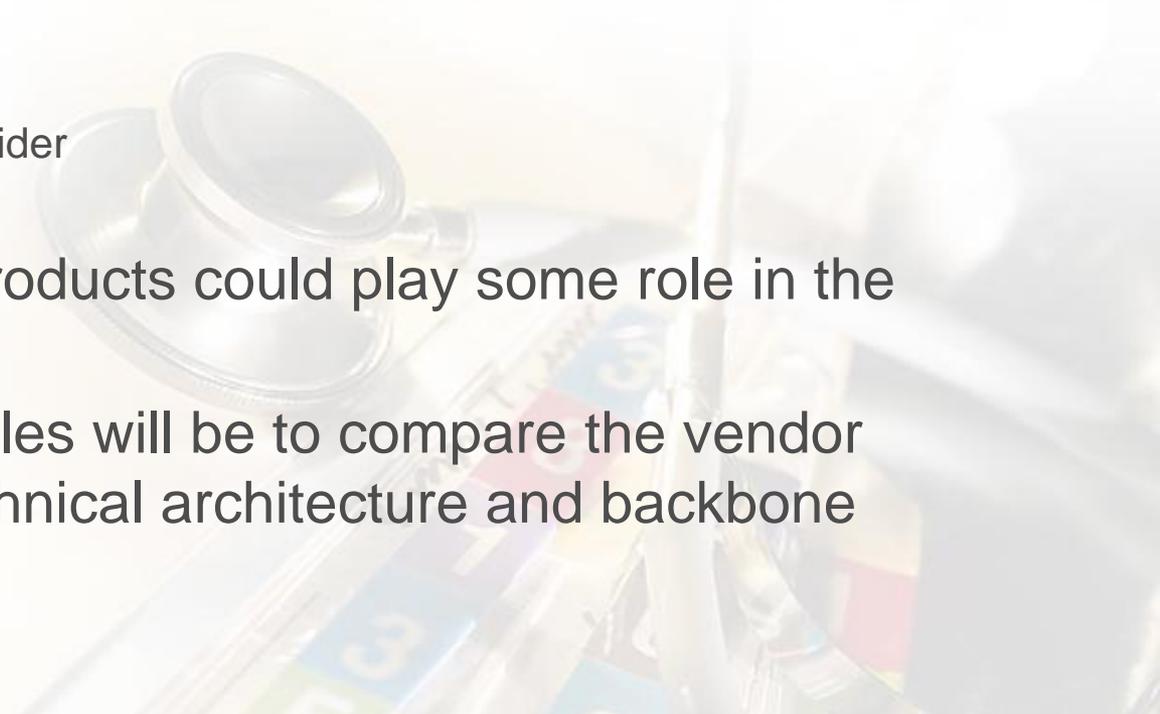


Update on RFI Process





Update on RFI Process

- RFI was sent out on October 9th
 - Collected 30 vendor responses
 - Vendor responses can be categorized into the following:
 - System Integrator
 - Hosting Provider
 - Backbone Vendor
 - HIE Vendor
 - Services or Component Provider
 - Hybrids of the above types
 - Nearly all the vendors products could play some role in the broader MiHIN
 - One of the workgroup roles will be to compare the vendor products against the technical architecture and backbone requirements
- 



Vendor Participation

- Forming a Vendor Collaboration Team which will be facilitated by S2A
- The focus of this Vendor Technical Collaboration Team will be to assist the MiHIN Technical Workgroup and the Project Control Office (PCO) in the development of the MiHIN Backbone architecture, interoperability standards, system security, shared services definition and implementation.
- Upon approval from this workgroup we will begin recruiting vendor representatives and hope to convene this group before the end of the year.

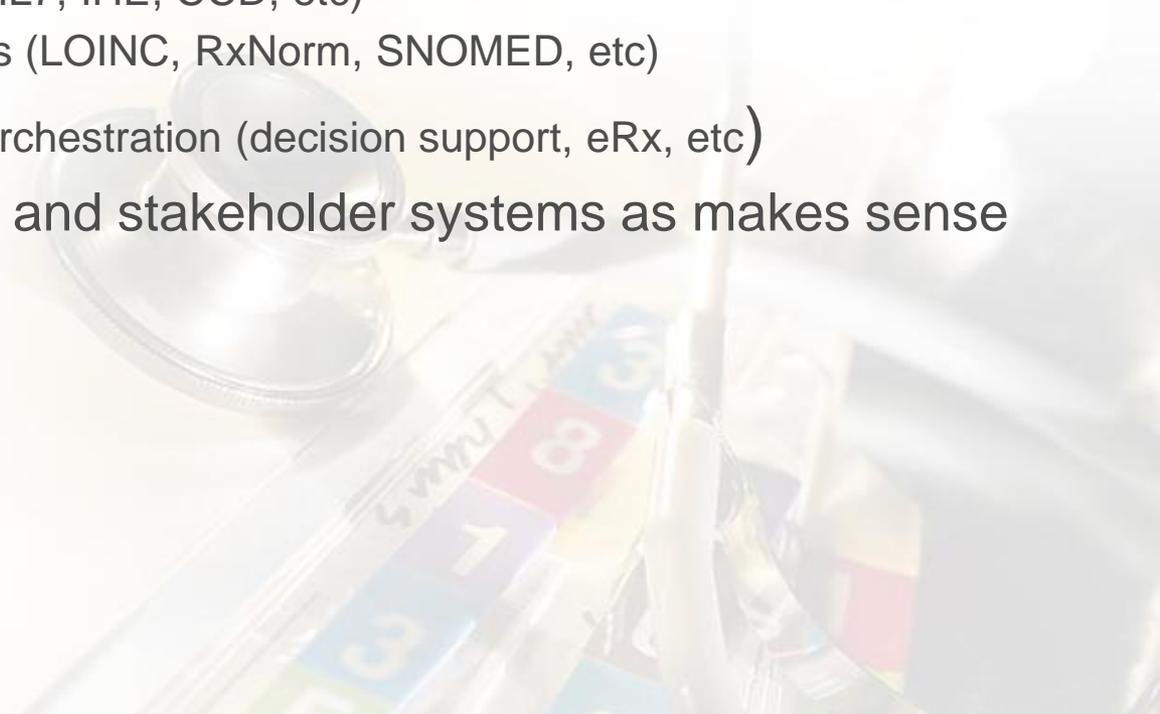


Review of the Conceptual Architecture





Conceptual Architecture

- The MiHIN will be implemented using a service-oriented architectural paradigm (SOA), implemented through web services operating through an enterprise service bus (ESB)
 - Will utilize a four-tier protocol stack
 - Tier 1 Connectivity, Transport & Security
 - Tier 2 Message Standards (HL7, IHE, CCD, etc)
 - Tier 3 Terminology Standards (LOINC, RxNorm, SNOMED, etc)
 - Tier 4 Healthcare Services Orchestration (decision support, eRx, etc)
 - Will leverage existing state and stakeholder systems as makes sense
- 



Conceptual Architecture

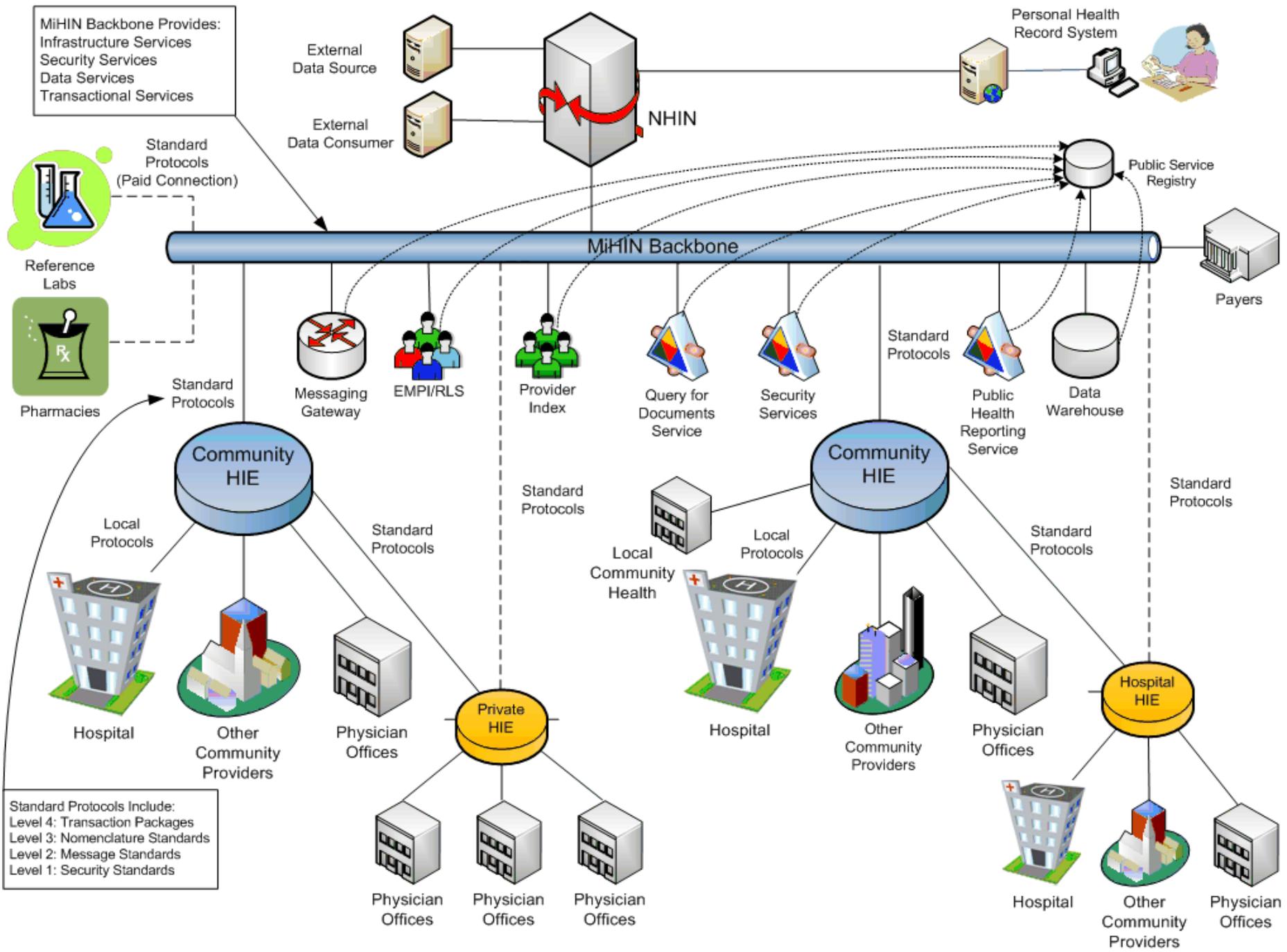
- Will provide the following core services:
 - EMPI/RLS
 - Master Provider Index
 - Query for Documents (XDS)
 - Security
 - Service Registry
 - Will initially focus on the ONC HIE priorities of
 - Lab orders and results
 - Public health reporting
 - Eligibility checking
 - Quality reporting
 - ePrescribing
 - Medication Management
 - Coordination of Care
- 



Conceptual Architecture

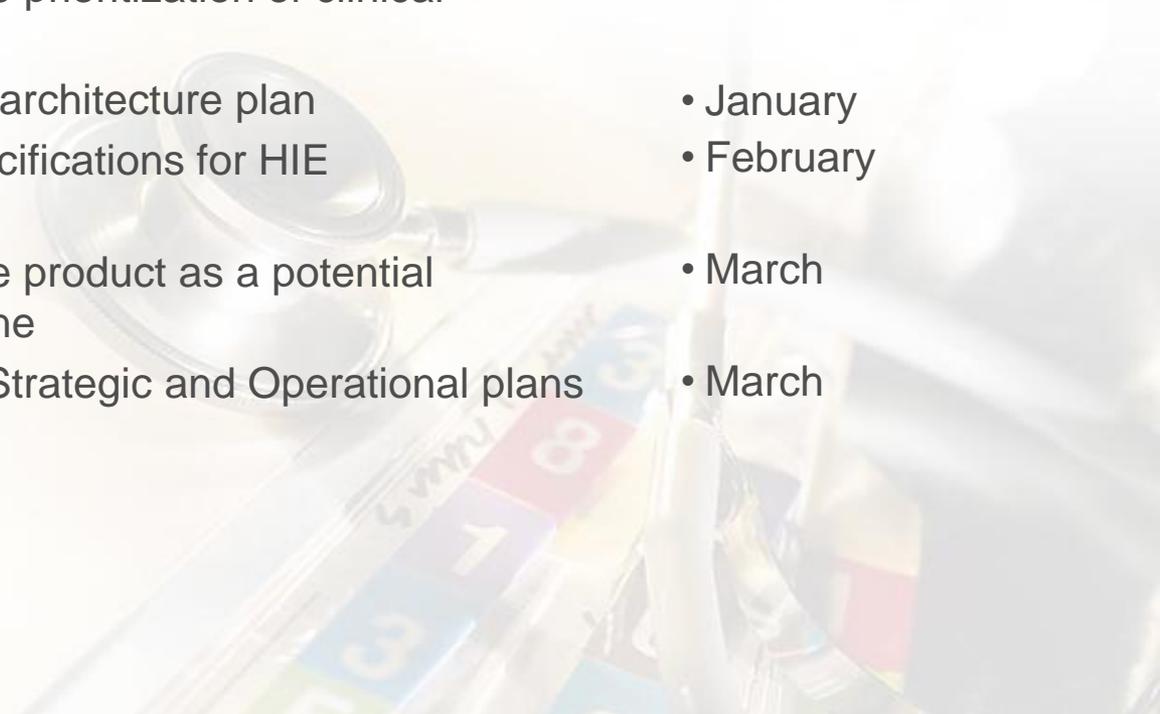
- Will connect to the following State of Michigan Systems
 - Vital Records (Birth and Death Systems)
 - Michigan Disease Surveillance System
 - Michigan Syndromic Surveillance System
 - Michigan Care Improvement Registry
 - CHAMPS Medicaid System
 - State Lab Systems
- 

MiHIN Conceptual Architecture



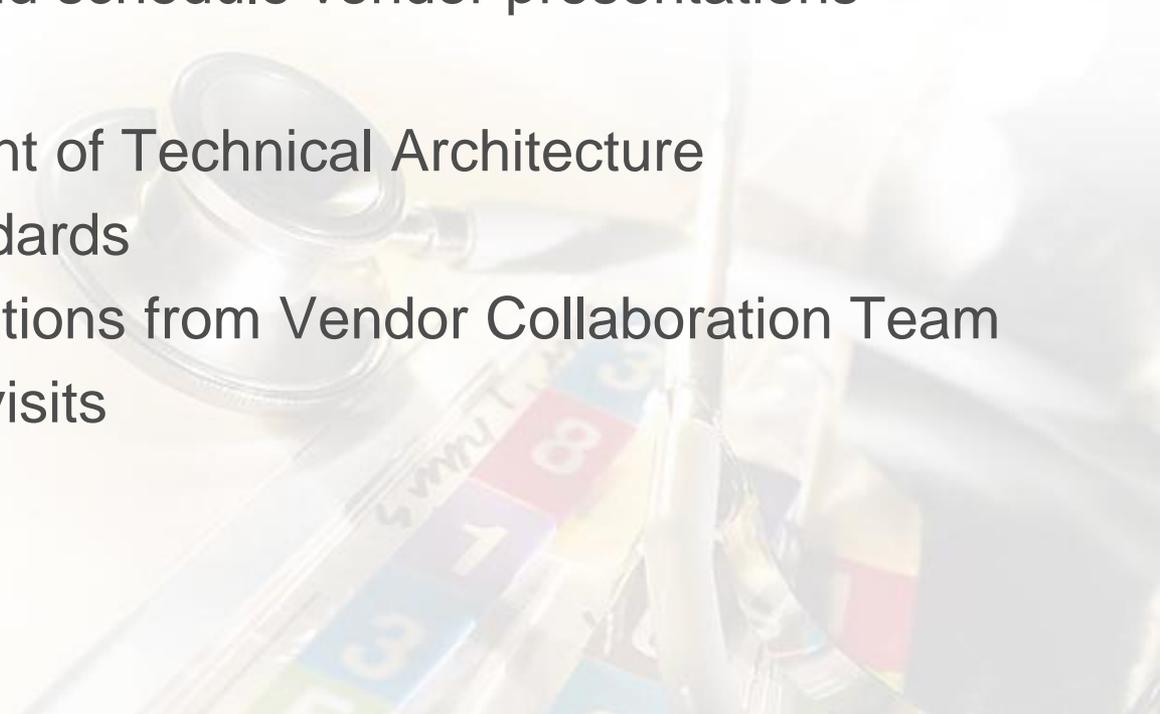


High Level Project Timeline

- Assess HIE progress and technological capabilities among existing HIE efforts
 - Review results of SOM Technical Environment Analysis & Stakeholder Technical Assessments
 - Review vendor RFIs and host vendor presentations
 - Work with the Business Operations workgroup to ensure that the infrastructure design can meet the prioritization of clinical requirements
 - Review and approve the detailed architecture plan
 - Review and approve detailed specifications for HIE Interoperability and Security
 - Review the Connect Open Source product as a potential solution for the statewide backbone
 - Assist in the development of the Strategic and Operational plans to be submitted to the ONC
- December
 - December
 - December -January
 - January
 - January
 - February
 - March
 - March
- 



Future Workgroup Meetings

- Meeting 2
 - Overview of National Standards
 - Review more detailed technical architecture and begin to make recommendations
 - Review RFI report and schedule vendor presentations
 - Meeting 3
 - Continue development of Technical Architecture
 - Review specific standards
 - Review recommendations from Vendor Collaboration Team
 - Review any Vendor visits
- 

MiHIN Technical Work Group Charter

DRAFT
December 2009

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MiHIN Vision (Conduit to Care, 2006)

The MiHIN will foster development of HIE that will reduce the overall cost of care while at the same time increasing the quality of care and patient safety.

Technical Work Group Mission

Broad stakeholder involvement is critical to the success of the MiHIN. Toward that end, the Technical Work Group is tasked with assisting the MiHIN Leadership and Project Team to:

- Develop a Technical Architecture which is consistent with the overall MiHIN goals
- Assess stakeholder readiness for HIE
- Select and design the necessary interoperability and connectivity standards
- Develop a security framework that balances the protection of patient data with appropriate use
- Review vendor products and services and make recommendations
- Review the technical portions of the MiHIN strategic and operational plans to be submitted to the ONC

Technical Work Group Membership

The Technical Work Group was developed with the intent to have broad stakeholder representation in the decision making for the MiHIN project as well as to align with ONC guidelines. The Work Group will be led by 2 co-chairs, 1 public and 1 private, who are appointed by the State of Michigan. Co-chairs of the Business Operations and Technical Work Groups as well as chairs of the Finance, Measurement and Privacy and Security Sub Groups will serve as members of Governance Work Group. Initial terms will run November 10, 2009 through April 15, 2010

Work Group Leadership

- Ken Theis, Co-chair
- Rick Warren, Co-chair
- Mike Gagnon, Facilitator

Roles and Responsibilities

- Work with project facilitators to lead the successful completion of WG deliverables as defined in the project plan within the specified timeframe
- Assign workgroup members to specific tasks/deliverables
- Assure balance of input from stakeholders to gather broad representation so that no one sector unduly influences the deliverables
- Appoint another representative from a similar stakeholder group (meeting minimum requirements) to fill a vacancy that occurs during the initial term
- Assure input from outside experts, advisors and vendors as needed to complete deliverables
- Serve as a full member of the WG

Voting Work Group Members

All interested stakeholders are invited to participate in Technical Work Group Meetings. However, only voting Work Group Members will be asked to develop consensus around key decision, voting if needed. Through a broad, open and transparent nomination and voting process that was begun at the MiHIN Kick-off meeting on November 10, 2009 and concluded November 24, 2009, the initial Governance Voting Work Group members through April 15, 2009:

Work Group Meetings Rules of Engagement

It is the intent of the State of Michigan to use an open and transparent process and to facilitate collaborative decision-making among broad stakeholders for key components of the MiHIN project. Toward this end, meetings will be conducted as follows:

Open Meetings

- All meetings conducted by the Work Groups will be open to all interested stakeholders
 - Voting Work Group Members as well as interested stakeholders will review and discuss items to be refined prior to vote.
 - A public comment period will be included at the end of each agenda and will be offered after each vote.
 - When possible, discussion of a decision and the vote on a decision will take place one meeting apart.
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Decision Making

When a vote is called, the following process will be followed:

- Only Voting Work Group Members are allowed to vote
- A quorum of Voting Work Group Members must be present in order to vote
- A majority vote rules

When possible, items that require a vote will be clearly noted on the agenda.

MiHIN Vendor Technical Collaboration Team

Introduction

Any project with the scope of the MiHIN requires collaboration and involvement from numerous parties. To provide guidance to the project, the current MiHIN leadership is forming workgroups for Governance, Business Operations and Technical Specifications. There will also be sub-workgroups for Privacy and Security, Finance and Performance Measurement. One of the goals of the Technical Workgroup is to develop the system architecture and standards that can be implemented into highly interoperable infrastructure. While following national standards are very important they are not sufficient to implement the necessary infrastructure. Because most national standards are architecture agnostic they fall short of being true implementation specifications.

A successful approach used in other Health Information Exchange (HIE) projects is to engage both stakeholder IT resources and a broad base of Health Information Technology (HIT) and HIE vendors in the design and standards setting process. We are calling this team the **Vendor Technical Collaboration Team**. In some HIE projects this team might be merged with the Technical Workgroup. However to mitigate any conflict of interest we have decided that we should keep this team separate from the MiHIN Technical Workgroup which will be creating requirements that would eventually become part of an RFP that some of these vendors might bid on. The work of this team will ensure that any design work done by the Technical Workgroup can be implemented by a large majority of the HIT and HIE vendors.

Charter

The focus of this Vendor Technical Collaboration Team will be to assist the MiHIN Technical Workgroup and the Project Control Office (PCO) in the development of the MiHIN Backbone architecture, interoperability standards, system security, shared services definition and implementation.

Why do we need a Vendor Technical Collaboration Team?

- The nature of this project is to create a backbone and state-wide Health Information Exchange infrastructure that is capable of allowing any vendor to interoperate as long as they follow national and state-wide standards
- The success of this backbone hinges on its ability to interoperate with broad array of stakeholder and vendor systems
- While there are some national standards most of them are developed to be vendor and architecture agnostic. Applying these standards to a particular architecture takes significant work.
- By getting a number of vendor organizations to develop a consensus on how to implement specific functions and services of the backbone we ensure higher interoperability and encourage more competition for specific services going forward
- There is strong precedence for this at the national and at state levels
- The ONC is looking for states and regions to develop standards and submit them for national review and acceptance

Goals of the MiHIN Vendor Technical Collaboration Team

To assist the MiHIN Consultants in:

- the design of the MiHIN Backbone technical architecture
- recommending approaches for the implementation of the backbone

- defining the interoperability standards that should be implemented for the backbone and the integration with all community HIE organizations and EHR vendors
- the definition of the terminology (nomenclature) standards that should be implemented for the backbone
- the development of security standards and processes for the backbone
- the development of shared services definitions and technology deployment
- assisting in the backbone implementation and testing during implementation

Participants

- Co-chairs of the MiHIN Technology Workgroup
- MiHIN Project Control Office Consulting Team
- Key State of Michigan Department Staff
- Backbone or HIE Vendors Technical Staff
- EHR Vendors Technical Staff
- Select others from the MiHIN Technical Workgroup

Process for Forming the Vendor Technical Collaboration Team

The Vendor Collaboration Team will be assembled and facilitated by the MiHIN Dewpoint/S2A consulting team. The selection process will encourage broad vendor participation to meet the goals described above. Each of the 30 RFI respondent organizations will be contacted and encouraged to nominate a member of their organization to participate. Other organizations that we know of who can add to the process will also be invited. We will also post this on the MiHIN and Dewpoint web sites and ask for open nominations. Nominations will be done online via Survey Monkey. Vendors will have 10 working days to respond before we begin meetings but others members can be added later. Please see the Criteria for Selecting Vendors and Guidelines for Membership below.

Criteria for Selecting Vendors

1. Vendors are defined as those organizations that currently have HIT or HIE products, implement open source HIE products, or develop software for interoperable healthcare services and market and sell these products or services
2. Vendors may have full service HIE products or individual products such as security services, master patient indices, messaging gateways or other products
3. Vendors who re-sell other vendors products generally will not be allowed unless they provide significant value-added services such as software enhancements that promote interoperability
4. Vendors must be CCHIT certified or for those products not yet covered by CCHIT certification they must demonstrate commitment to national standards for Health Information Technology interoperability
5. Vendors who have been actively involved in national and regional HIE standards efforts are encouraged to participate
6. Vendors with operating HIE systems being used by Regional Health Information Organizations (RHIOs) or backbone products used by national, state or regional consortiums are encouraged to participate
7. Consultant organizations (other than the PCO consultant team) will not be allowed unless they meet one of the other vendor criteria above
8. Vendors will not be able to develop system requirements and will not be voting members of any MiHIN Workgroup

9. Michigan stakeholder organizations that have existing technology which may be leveraged for the MiHIN are not considered Vendors for the purposes of this process, thus they may be voting members of the MiHIN workgroups.
10. In some cases more than one representative from an organization may be allowed to participate if they bring additional skills to the team.

Guidelines for Membership

1. This is not a sales activity and no vendor sales staff will be allowed.
2. While broad participation from Technical Workgroup and vendors is highly desirable membership will be limited to individuals who bring strong technical skills and specific knowledge to the team.
3. Each member must be impartial in their work on this Collaboration Team in much the same manner as working on development of national standards.
4. Members will be asked to complete a Conflict of Interest and Intellectual Property form with Dewpoint/S2a which will describe their affiliations and protect any intellectual property that they may expose during the course of these sessions.
5. Members will be expected to contribute to the work by performing some limited work assignments such as reviewing and commenting on documents, collecting data to be shared with the team and other tasks. In general the requirement for participation will be limited to about 8 hours per month. Some members may be asked to volunteer to complete more extensive work assignments but this will be voluntary.
6. Vendor organizations may nominate one or more individuals for participation on the Collaboration Team however the Collaboration Team leadership will decide on individual participation.
7. Participation is limited to individuals not organizations. Organizations may not substitute at will for individual members but rather can nominate others for membership.
8. Participation by individuals from vendor organizations will not enhance nor hinder a vendor's opportunity to be selected for any State of Michigan or other MiHIN contracts.
9. Any member, as determined by the Collaboration Team leadership, who is not following these guidelines, may be asked to leave the team.

Conceptual Architecture Design Description

This document contains a background of the concepts that led to the development of the conceptual architecture plus a description of its core design concepts, data exchange components, infrastructure components and backbone services.

Background

1. Glossary of Terms
 - a. Michigan Health Information Exchange (MiHIN) – The name of the state HIE organization
 - b. HIE – A Health Information Exchange system
 - c. MiHIN Backbone – The state-wide backbone for HIE interoperability
 - d. Community HIE – A local HIE that is open to all providers and data sources typically in a region
 - e. Private HIE – A vendor sponsored, hospital-based HIE or other privately run HIE
 - f. Regional Health Information Organization (RHIO) – An organization formed to operate an HIE, usually a not-for-profit.
 - g. National Health Information Network (NHIN) – The federal government sponsored architecture and standards which allow for basic interoperability among state backbones and other HIEs.

2. Environment Description
 - a. Nine MTAs; 1 has an HIE system installed but is not exchanging any data (UP); 1 has a contract with Axolotl (Capital area); 5 in various stages of planning and 2 with no plan
 - b. Seven state systems to be integrated; MICR, Vital records birth, death, disease surveillance MDSS, syndromic surveillance MSSS, data warehouse, StarLIMS (labs), Champs Medicaid. Also potential for Corrections System and Bridges.
 - c. State architecture that could be used for HIE: Data warehouse (Teradata), ETL (IBM Datastage, Information Integrator), SSO (Tivoli but also contract with Novell), Data exchange gateway (FTP server, Messageway), Rhapsody, PHIN MS, Business Object reporting environment, SAP BO Data Quality platform
 - d. No current SOA standards but there are some platforms i.e. IBM Websphere
 - e. Regions have been sensitive about the state proposed centralized design
 - f. No current state HIE workgroups but they will be forming soon
 - g. Some large stakeholders may not participating in a region
 - h. Payer mix: BCBS (60%), Medicaid (state Medicaid plus some managed care companies) (20%), Medicare, other private payers, Priority Health, PHP, MCare (20%). Delta Dental is also a player.
 - i. BCBS and Medicaid using X.12 HIPAA transaction code sets. BCBS acts as a clearinghouse
 - j. Department of Military and Veterans affairs (DMVA)
 - k. Large healthcare systems: Trinity, Sparrow, Spectrum, Detroit Mercy, Henry Ford

- I. State employers: Covisint, automakers, DOW Chemical
3. Business/Clinical Phase I Services (Meaningful Use)
 - a. Lab orders and results
 - b. Eligibility checking and claims processing
 - c. Public health reporting
 - d. Quality reporting
 - e. ePrescribing
 - f. Medication Management
 - g. Coordination of Care

Conceptual Architecture Design

The MiHIN will be implemented using a service-oriented architectural paradigm (SOA), implemented through web services operating through an enterprise service bus (ESB), with a four-tier protocol stack.

Our long term plan for the MiHIN state-wide network includes four core capabilities:

- a. Aggregating data and interconnecting providers via Community HIEs
 - b. A MiHIN state-wide backbone for connecting Community HIEs and providing a vehicle for the delivery of shared services
 - c. Shared clinical and administrative services and applications
 - d. NHIN connectivity for sharing data with other states and the federal government
1. Core Design Concepts

The design of the MiHIN Backbone is predicated on there being relatively few direct connections (<25). The idea is based on the common network design principle of segmentation for performance, security and reliability. We expect that a significant amount of the patient data that needs to be exchanged will be within Community or Private HIEs where the patient receives care. Just as networks use bridges, switches or routers to segment traffic we will expect that HIEs will segment traffic that can stay within the HIE and only route transactions to the MiHIN backbone that must cross HIEs.

2. Protocol Stack
 - a. Tier 1 – Connectivity, Transport & Security
 - b. Tier 2 – Message Standards (HL7, IHE, CCD, etc)
 - c. Tier 3 – Terminology Standards (LOINC, RxNorm, SNOMED, etc)
 - d. Tier 4 – Healthcare Service Orchestration (decision support, eRx, etc)

3. Data Exchange Components

NHIN Connectivity

For communicating to the Federal Government and other state backbones.
Effectively for communicating anything outside the MHIN.

MiHIN Backbone

Provides the backbone connectivity and state-wide services for Community HIEs, Private HIEs, ancillary data sources (labs, RxHub) and connection to the NHIN.

Community HIE

1. Locally supported HIE
2. Community HIE can select their own vendor and run the HIE
3. Open to all providers
4. State would require compliance with standards for MiHIN Backbone interoperability

Private HIE

1. HIE supported by a private organization such as a vendor or hospital system often for profit or to promote the needs of a particular organization (hospital system) or affinity group (physician offices)
2. Would not be an option for a Community HIE unless the Private HIE opened the HIE to all providers including competitors and is accepted by a majority of provider organizations
3. Allows private organizations to connect their affinity groups or affiliates
4. Private HIEs will be encouraged to connect to the Community HIE for data interchange with other MTA providers
5. Private HIEs can connect directly to the MiHIN Backbone. In this case state would require compliance with standards for MiHIN Backbone interoperability.

3. Technical Infrastructure Components

MiHIN Backbone



The MiHIN Backbone will be designed as an Enterprise Service Bus architecture. The ESB will be capable of supporting ESB nodes which can provide transaction services. The exact topology of the MiHIN ESB has not yet been designed (single instance or federated for example). The ESB will support one or more service registries for web services provided by secure nodes. Community HIEs will be required to be secure nodes and a four level protocol stack for communication to the ESB will be developed.



EMPI/RLS

Enterprise Master Patient Index/Record Locator Service will be used for subject discovery (patient lookup) and Query for Documents services.



Provider Index

This is an index of all care providers in the state. This could be part of the EMPI listed above or could be part of the User Directory.



Messaging Gateway

Used for all transaction-based services such as Lab Ordering, Results Reporting and Eligibility Checking. Primary function will be interface transactions and message translation. Nomenclature normalization will be expected to happen at the HIE level.



Data Warehouse/Repository

Data repository would be used for local storage of data for Public Health Reporting, Quality Reporting, Medical Research and Chronic Disease Registries.



Identity and Access Management (IAM) Platform

Security services will provide user authentication, access, authorization and auditing services. The User Directory will be a federated design and the MiHIN User Directory will be built by aggregating users from all connected HIEs or State entities.

4. MiHIN Backbone Services

Core

- EMPI/RLS
- Master Provider Index
- Query for Documents (XDS)
- Security
- Service Registry

Business/Clinical Phase I Services

- Lab orders and results
- Public health reporting
- Eligibility checking
- Quality reporting
- ePrescribing
- Medication Management
- Coordination of Care

Connection to State of Michigan Systems

- Vital Records (Birth and Death Systems)
- Michigan Disease Surveillance System
- Michigan Syndromic Surveillance System
- Michigan Care Improvement Registry
- CHAMPS Medicaid System
- State Lab Systems

Business/Clinical Later Phase Services

- Medical research database
- Chronic disease registries
- Patient transfer to post acute care
- And many more.....

MiHIN Conceptual Architecture

