

Making technology work

MiHIN Governance Work Group

• January 27, 2010



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Technical architecture for the MiHIN Assumptions, design and services



Technical Architecture Review

The MiHIN Architecture Plan v 1.0 recommends a comprehensive statewide technical architecture that:

- Performs 4 main functions
 - Interconnecting providers by messaging and aggregating data via Community HIEs
 - Connecting Community HIEs through a MiHIN state-wide backbone
 - Provide shared clinical and administrative services and applications
 - Provide an NHIN gateway for sharing data with other states and the federal government
- Meets prioritized clinical requirements for meaningful use (as defined by the ONC)
- Encourages community HIEs and State systems to interoperate with the statewide architecture
- Supports relevant security protocols
- Is scalable (can add workload) and extensible (can add functionality)



Architecture Decisions

- The MiHIN architecture has an overarching goal to be compliant with the national standards for healthcare interoperability recognized by the Secretary of the Department of Health & Human Services (HHS)
- The backbone will be a NHIN-compatible design with four layers:
 - A NHIN Gateway
 - A MiHIN Backbone
 - Several Community or Private HIE's
 - All Michigan stakeholder organizations
- The NHIN Gateway will connect to other states (backbones) and the Federal Government
- The Backbone will provide cross community (HIE) interoperability and state-wide shared services
- HIEs will provide first level data aggregation and data normalization and local services
- Stakeholder organizations will be the primary data sources and consumers



Role of the HIE vs. the Backbone

• HIE

- Aggregates patient, administrative and clinical data from source institutions
- Provides “first mile” interfaces for this data using standard or non-standard approaches (“do what works”)
- Provides the primary data repository for this data
- Normalizes data to standard terminologies
- Provides first level of exchange among HIE participants
- Provides local user directory and security services
- Provides a mechanism (often a portal) for user access
- Can provide connection to user applications such as ePrescribing
- Provides the gateway to the MiHIN Backbone



Role of the HIE vs. the Backbone

• Backbone

- Aggregates patient information only (stores no clinical data)
- Provides a backbone for HIE to HIE communications
- Provides core infrastructure for backbone including
 - State-wide EMPI
 - Record locator
 - Messaging gateway
 - Provider index
 - Security services and auditing
- Provides cross community (HIE) core services such as subject discovery (patient inquiry) and Query for Documents
- Provides state-wide shared services and a service registry
- Provides the gateway to the NHIN



Architecture Models Considered

•Single HIE

- This model has one HIE for the entire state and all provider organizations plug into this HIE
- Used successfully in small states (Vermont, Delaware, etc)
- Not recommended for Michigan due to the number and scope of providers and because there are already HIEs in progress

•Single HIE Vendor for all State HIEs

- Single HIE vendor that provides HIEs for regions and then provides a custom backbone between HIEs
- Not the primary model in any state and only one vendor is doing this
- Could be less costly but not recommended due to the proprietary nature of the backbone and long term interoperability



Architecture Models Considered (con't)

• HIEs playing the role of both HIE and Backbone

- Each HIE builds the infrastructure for connecting organizations as well as the cross-HIE capabilities as a backbone
- This is the model being developed in New York and possibly California
- Creates a highly interoperable and flexible network
- Not recommended due to cost and complexity

• Backbone with Stakeholder Organizations plugged in Directly

- This is a Backbone with only standards compliant organizations allowed to connect
- This is the Minnesota model
- Depends on vendor EHR systems becoming fully standards compliant or organizations standing up the middleware (akin to our Private HIE)
- Can be cost effective but vendors have made very slow progress towards being standards compliant
- We are recommending this as part of our approach



Architecture Models Considered (con't)

- **Backbone with multiple HIEs**

- The HIE connects organizations and the Backbone connects HIEs
- The closest model is in Virginia but many states considering
- Creates a highly interoperable network but requires a middle layer to be developed for backbone connectivity
- Keep standards at the core and pushes non-standards to the edges
- This is our recommended approach because it promotes both standards-based interoperability and timely implementation



Architecture Decisions

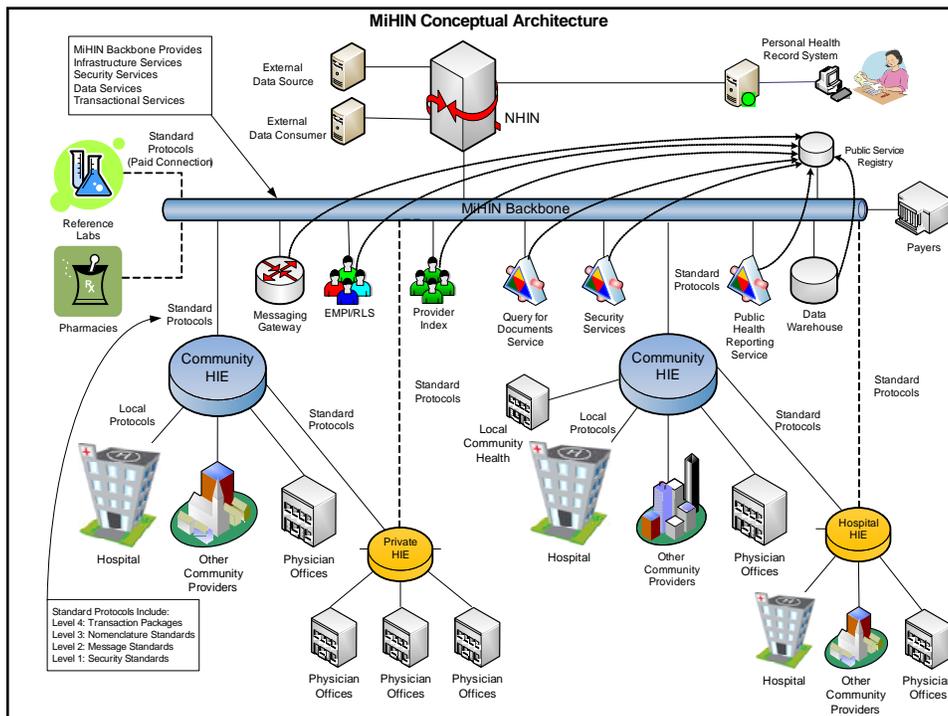
The MiHIN proposed architecture design:

- Will be most compliant with standards at the highest layers and least at the lowest layers
- Provides for high interoperability but low functionality at the highest layers with low interoperability but high functionality at the lowest layers
- Allows standards to evolve “downward” from the backbone to the stakeholder systems
- Allows functionality to evolve “upward” from stakeholders and HIEs to the backbone



Assumptions

- The MIHIN will be designed as an open network where any vendor service can “plug in” and compete not on the basis of connectivity but on functionality, services and pricing
- The backbone is not an HIE and thus individual provider organizations will not plug into the backbone. Only HIEs will plug into the backbone
- The state has decided not to implement a state-sponsored HIE for the reasons of cost, support and issues of potential competition with existing HIE efforts
- We will consider having at least two HIEs as pilot sites
- We will pilot a reasonable number of use cases as determined by the Business Operations Workgroup
- The piloted use cases should exercise the core functions of the backbone (messaging gateway, EMPI, provider directory and Query for Documents)
- Several opportunities for leveraging existing systems were identified but due to the complexity of this, final decisions will be made closer to implementation time



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Business Operations Work Group Recommended Use Cases



Use Case Ranking

Electronic clinical laboratory ordering and results delivery

1. Deliver Lab Results
2. Deliver Lab Results (Additional Results)
3. Deliver Imaging Results

Electronic public health reporting

1. Immunization event to MCIR
2. Immunization history from MCIR
3. Syndromic result to MSSS



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Finance work group update



Finance Workgroup Deliverables

- Budget comprising implementation and operational costs
- Long-Term Finance Model
- Financial Sustainability Business Plan
- Financial components of the Operational & Strategic Plans



Finance Workgroup Activities

- Reviewing HIE financial models
 - Legislated tax
 - Subscription fees
 - Transaction fees
- Reviewing Value propositions
- Defining “Compelling Reasons for Investment”
- Reviewing work of Technical Workgroup and Business Operations that impacts Finance



Finance Workgroup – Business Plan Development

- Develop Financing Principles
- Identify and Prioritize Funded Activities:
 - Governance
 - Technical Services
 - Operating Services
- Assess Available Funding Sources and Mechanisms
- Develop Financial Sustainability Budget:
 - Timing and priorities
 - Technology and Operating Costs
 - Anticipated net revenue
 - Adoption rates and volumes
 - Risks and practical implications
- Develop Financial Sustainability Plan



Finance Workgroup – Next Steps

- Continue research toward financial model
- Iterative process based on output from other workgroups
- Look to other state examples
- Look to further federal guidance



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Governance models Narrowing the options



Governance Model – Decisions already made

- **The State will not be the governance entity**
- **By 12/31**
 - Entity established and operating
 - Board named and in place
 - Pilots selected



Governance Model – Decisions to be made today

- **The types of technology and operating services that the MiHIN will comprise**
- **The major roles that MiHIN governance will assume**
 - Policy
 - Strategy
 - Funding
 - Standards
 - Performance
- **Agree on the preliminary governance structure**



Governance Model – Decisions to be made next

- **Finalize governance structure**
- **Type of organization/legal entity**
- **Decisions related to establishing governance**
 - Formation
 - Board
 - Contracting
 - Flow of funds
 - Other



TECHNOLOGY SERVICES

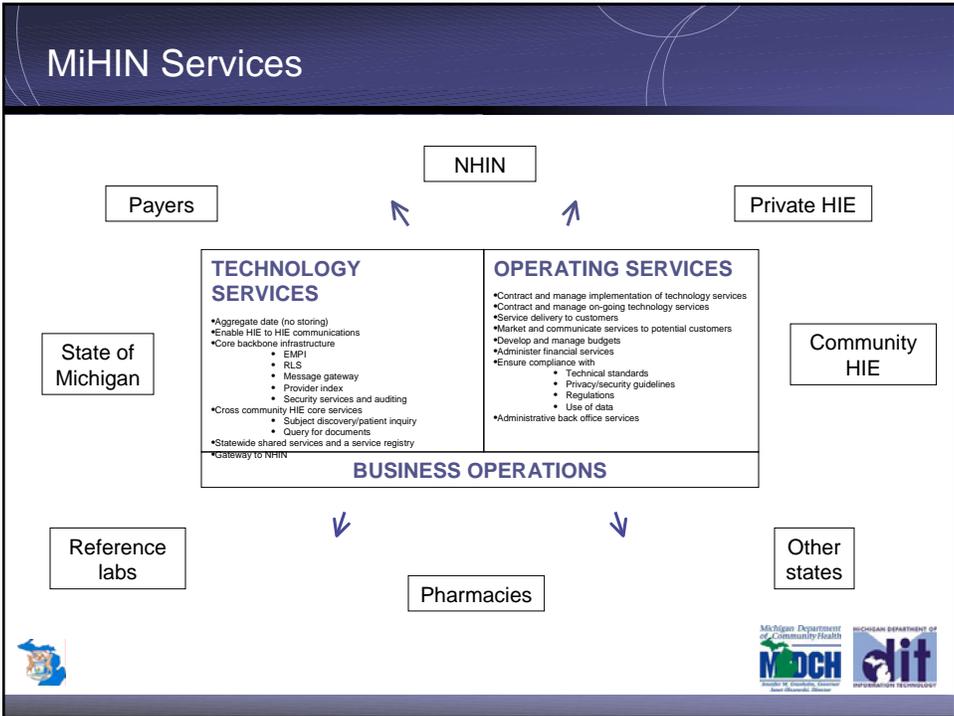
- Aggregate data (no storing)
- Enable HIE to HIE communications
- Core backbone infrastructure
 - EMPI
 - RLS
 - Message gateway
 - Provider index
 - Security services and auditing
- Cross community HIE core services
 - Subject discovery/patient inquiry
 - Query for documents
- Statewide shared services and a service registry
- Gateway to NHIN



OPERATING SERVICES

- Contract and manage implementation of technology services
- Contract and manage on-going technology services
- Service delivery to customers
- Market and communicate services to potential customers
- Develop and manage budgets
- Administer financial services
- Ensure compliance with
 - Technical standards
 - Privacy/security guidelines
 - Regulations
 - Use of data
- Administer back office services





Role delineation – example

| | Select one or the other | | Source of Governance Select only one | | |
|-------------------------------------|-------------------------|------------|---|-----------------|-------------------------------|
| | Business operations | Governance | MiHIN entity | External entity | State government (leg/reg/EO) |
| Technology | | | | | |
| Technical services – implementation | X | | | | |

