



State of New Hampshire

Health Information Exchange Planning and Implementation Project

"Considering alternatives and narrowing options"
Discussion document for Technical Work Group Teleconference

July 14, 2010

Agenda

Welcome and catch up on new developments from last week

Guided Discussion:

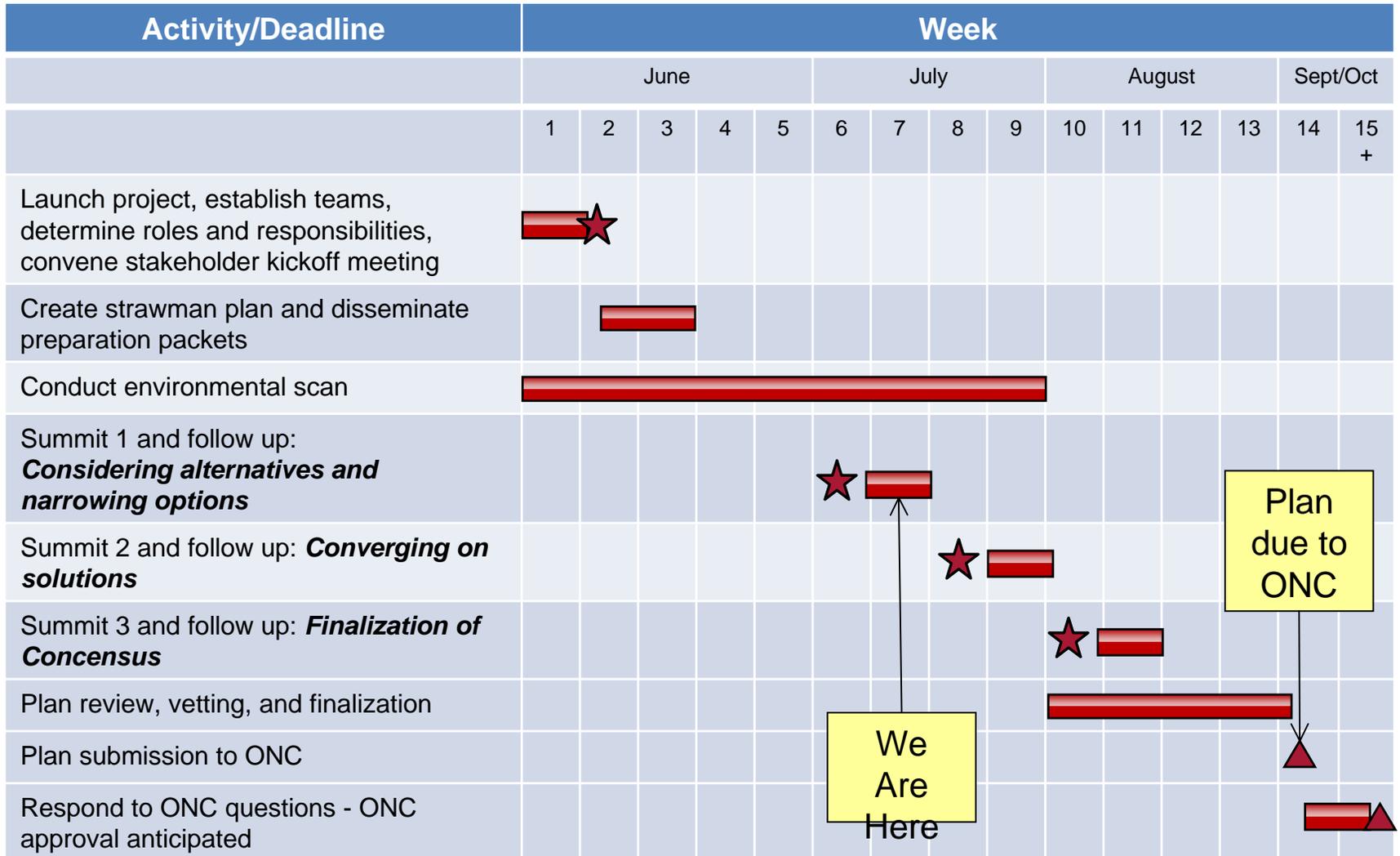
- Phase 1 components under consideration by all workgroups and clarification of technical infrastructure
- Coming to consensus on the Technical elements required for this first phase
- Given time we will repeat this for later phase elements

Wrap up and next steps

Appendix

Review of Approach and High Level Timeline

Segment 1 Timeline: June 1 – October 31



“Converging on Solutions“ – objectives for today

- ❑ Gain consensus on the Technical components required for secure routing among providers for treatment purposes

- ❑ To inform this objective, catch up on new developments from last week
 - Program Information Notice
 - Budget considerations from Finance Workgroup
 - Developments regarding management of opt-out and audit requirements
 - Review of technical options for priority 1 infrastructure components

Considerations from the ONC Program Information Notice

- ❑ State Level HIE cooperative agreement to be viewed as one-time investment
- ❑ Concern that States do not have the time or money to deploy robust HIEs
- ❑ Concern that states are mandating provider and hospital participation as part of sustainability model
- ❑ Strong guidance to leverage existing infrastructure and to identify and fill gaps
- ❑ Guiding Principles
 - Support privacy and security
 - Focus on desired outcomes, especially meaningful use of EHRs
 - Support HIE services and adoption for all relevant stakeholder organizations, including providers in small practices, across a broad range of uses and scenarios
 - Be operationally feasible and achievable, building on what is already working
 - Remain vigilant and adapt to emerging trends and developments
 - Foster innovation

Considerations from the ONC Program Information Notice (cont...)

- ❑ Ensure that all eligible providers have at least one option available to them to meet the HIE requirements of MU in 2011 – Concrete and operationally feasible plan to address and enable; E-prescribing, Receipt of structured lab results, Sharing patient care summaries across unaffiliated organizations
- ❑ Fulfill six responsibilities:
 - Initiate a transparent multi-stakeholder process – analyze and understand HIE currently taking place in state, complete gap analysis, and address gaps
 - Monitor and track MU HIE capabilities in state
 - x% clinical Laboratories send results electronically
 - x% pharmacies accept electronic prescribing and refill requests
 - x% Health Departments electronically receiving immunizations, syndromic surveillance, and notifiable lab results
 - x% Health Plans support electronic eligibility and claims transactions
 - Assure trust of information sharing must be consistent with and address the elements in: http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10731_848088_0_0_18/NationwidePS_Framework-5.pdf
 - Set strategy to meet gaps in HIE capabilities for MU – specifically
 - Building capacity of public health systems to accept electronic reporting of immunizations, notifiable diseases, and syndromic surveillance reporting from providers
 - Enabling clinical quality reporting to Medicaid and Medicare
 - Ensure consistency with National policies and standards
 - Align with Medicaid and Public Health

Considerations from the ONC Program Information Notice (cont...)

❑ Strategy to Meet Meaningful Use

- Fill gaps identified in environment scan
- Invest federal dollars and matching funds to enable eligible providers to have at least one option for the following Stage 1 meaningful use requirements in 2011:

Allocated
to Edge

- - E-prescribing
 - Receipt of structured lab results
 - Sharing patient care summaries across unaffiliated organizations

Our
Focus

- Address future strategy to address other required information sharing capabilities including:
 - Building capacity of public health systems to accept electronic reporting of immunizations, notifiable diseases, and syndromic surveillance reporting from providers
 - Enabling electronic MU and clinical quality reporting to CMS

Catch up on other workgroup progress and additional discussions

- ❑ Budget discussion from Finance Workgroup
 - ~\$1.3 M available annually to stand up and operate HIE
 - Drives decision to start with basic elements in phase 1
 - Additional elements may be added in later phases given the ability to finance each

- ❑ Discussion with legislator regarding concerns with current law
 - Management of opt-out
 - Management of audit log requirement

Technical consideration for phase 1 building block (starting at the bottom)

Merged medical record

- Same as below, plus...

Clinical document repository & viewer

- Same as below, plus...

Secure routing to patients

- Same as below, plus...

Secure routing among healthcare entities

- Same as below, plus...

Secure routing among providers

- Overarching architectural considerations
- Local architectural considerations
- Technical components

Today we will be focusing on gaining consensus on phase 1 technical elements

Phase 1 Focus Use Cases

HIE Building Block	What	From whom	To whom	Phasing
Secure routing to providers	Consult note -- Summary of care record	Specialist	PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring Hospital	1
Secure routing to providers	Hospital discharge summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital discharge summary	Hospital	Hospital	1
Secure routing to providers	Hospital ED visit summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Imaging reports	Hospital	PCP or specialist	1
Secure routing to providers	Key clinical information summary	Hospital	Hospital	1
Secure routing to providers	Key clinical information summary	PCP or specialist	Hospital	1
Secure routing to providers	Lab results	Hospital	PCP or specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP	Specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP or specialist	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	PCP or specialist	1

Agenda

Welcome and catch up on new developments from last week

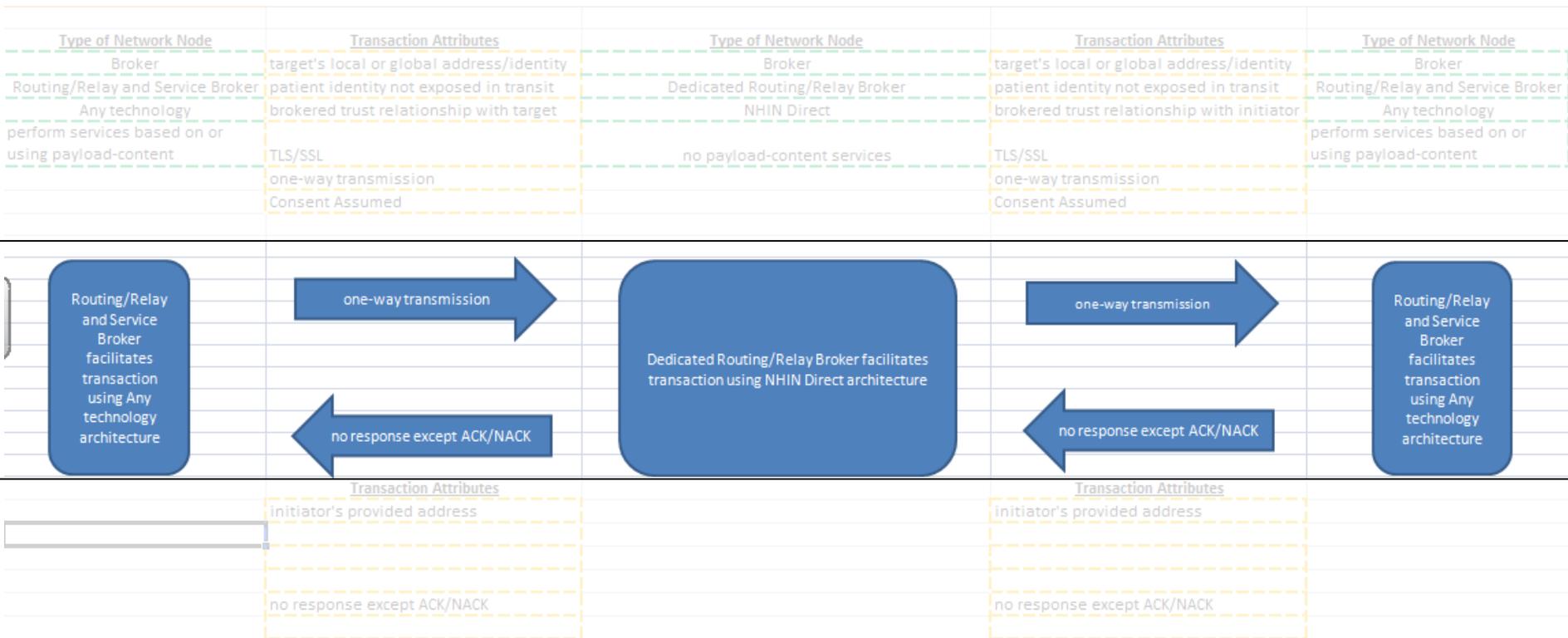
Guided Discussion:

- Phase 1 components under consideration by all workgroups and clarification of technical infrastructure
- Coming to consensus on the Technical elements required for this first phase
- Given time we will repeat this for later phase elements

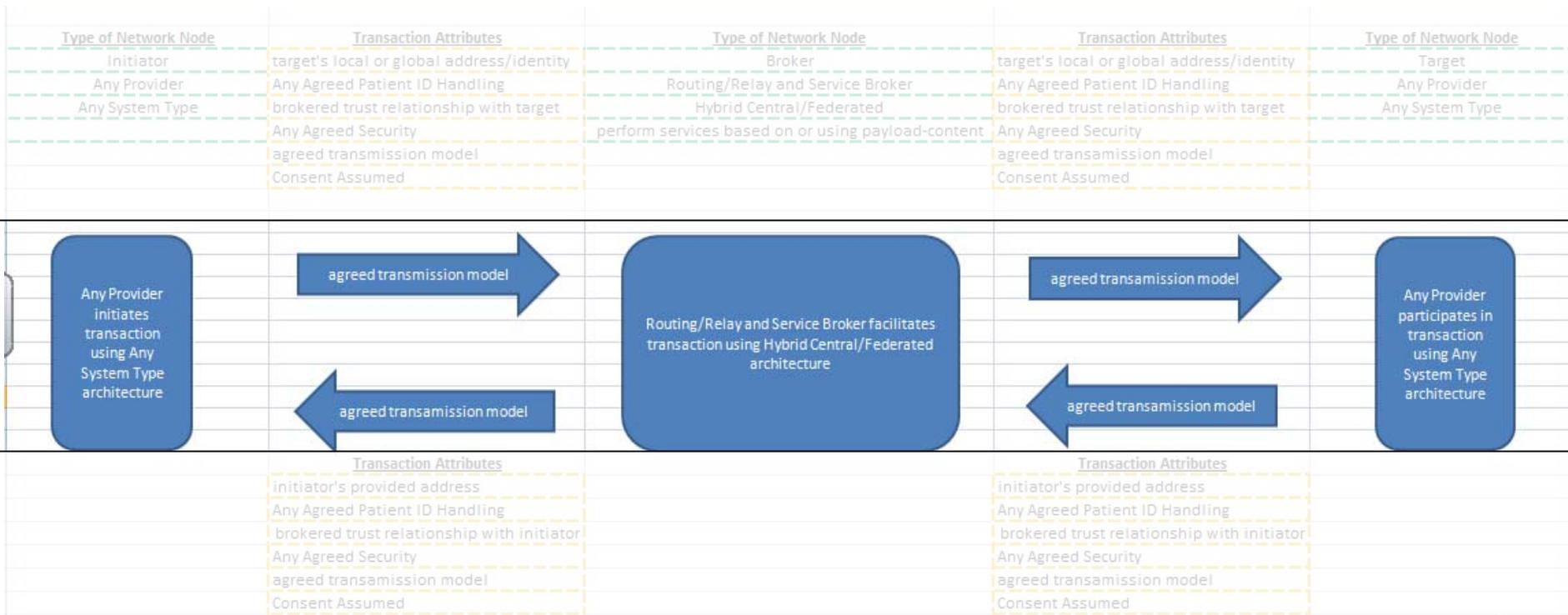
Wrap up and next steps

Appendix

Discussion Diagram #1: Transaction Brokering



Discussion Diagram #2: Local Edge Delivery



Decision #1: Secure Routing (Brokered Directed Point-to-Point Transactions)

HIE Building Block	What	From whom	To whom	Phasing
Secure routing to providers	Consult note -- Summary of care record	Specialist	PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring Hospital	1
Secure routing to providers	Hospital discharge summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital discharge summary	Hospital	Hospital	1
Secure routing to providers	Hospital ED visit summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Imaging reports	Hospital	PCP or specialist	1
Secure routing to providers	Key clinical information summary	Hospital	Hospital	1
Secure routing to providers	Key clinical information summary	PCP or specialist	Hospital	1
Secure routing to providers	Lab results	Hospital	PCP or specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP	Specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP or specialist	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	PCP or specialist	1

Decision #2: Structured Data (Payloads with discrete data elements using industry standards)

HIE Building Block	What	From whom	To whom	Phasing
Secure routing to providers	Consult note -- Summary of care record	Specialist	PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring Hospital	1
Secure routing to providers	Hospital discharge summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital discharge summary	Hospital	Hospital	1
Secure routing to providers	Hospital ED visit summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Imaging reports	Hospital	PCP or specialist	1
Secure routing to providers	Key clinical information summary	Hospital	Hospital	1
Secure routing to providers	Key clinical information summary	PCP or specialist	Hospital	1
Secure routing to providers	Lab results	Hospital	PCP or specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP	Specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP or specialist	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	PCP or specialist	1

Continuity of Care Document
(CCD),

Continuity of Care Record
(CCR?)

Decision #3: Provider Network, but Agnostic to Provider Type

HIE Building Block	What	From whom	To whom	Phasing
Secure routing to providers	Consult note -- Summary of care record	Specialist	PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital admission notification	Hospital	Referring Hospital	1
Secure routing to providers	Hospital discharge summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Hospital discharge summary	Hospital	Hospital	1
Secure routing to providers	Hospital ED visit summary	Hospital	Referring physician and/or PCP	1
Secure routing to providers	Imaging reports	Hospital	PCP or specialist	1
Secure routing to providers	Key clinical information summary	Hospital	Hospital	1
Secure routing to providers	Key clinical information summary	PCP or specialist	Hospital	1
Secure routing to providers	Lab results	Hospital	PCP or specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP	Specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP or specialist	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	Hospital	1
Secure routing to providers	Request for key clinical information	Hospital	PCP or specialist	1

No technical implications to architecture based on type of provider organization, nor type of system used at edge (e.g. – EHR, HIS, etc.)

Consensus Effort: Architecture of Transaction

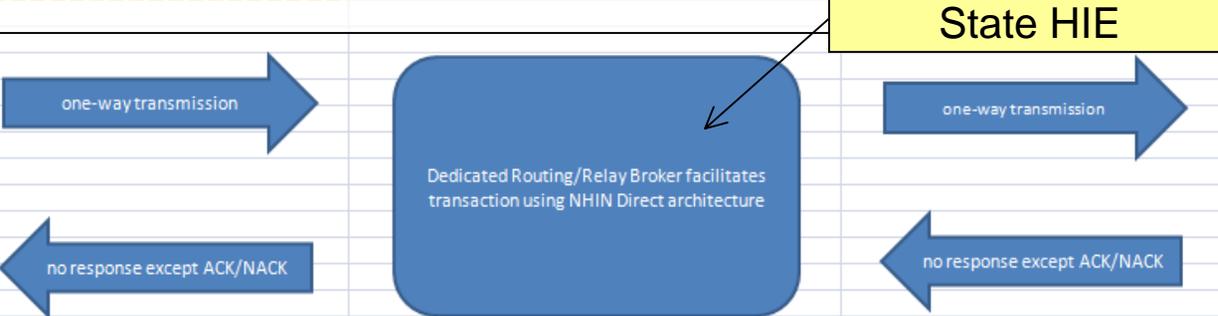
HIE Building Block	What	From whom		To whom	Phasing
Secure routing to providers	Consult note -- Summary of care record	Specialist		PCP	1
Secure routing to providers	Hospital admission notification	Hospital		Referring physician and/or PCP	1
Secure routing to providers	Hospital admission notification	Hospital		Referring Hospital	1
Secure routing to providers	Hospital discharge summary	Hospital		Referring physician and/or PCP	1
Secure routing to providers	Hospital discharge summary	Hospital		Hospital	1
Secure routing to providers	Hospital ED visit summary	Hospital		Referring physician and/or PCP	1
Secure routing to providers	Imaging reports	Hospital		PCP or specialist	1
Secure routing to providers	Key clinical information summary	Hospital		Hospital	1
Secure routing to providers	Key clinical information summary	PCP or specialist		Hospital	1
Secure routing to providers	Lab results	Hospital		PCP or specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP		Specialist	1
Secure routing to providers	Referral -- Summary of care record	PCP or specialist		Hospital	1
Secure routing to providers	Request for key clinical information	Hospital		Hospital	1
Secure routing to providers	Request for key clinical information	Hospital		PCP or specialist	1

How are transactions conducted across the state, among disparate entities in a standard manner?

Consensus Point #1: Hospital Systems as Edge System Brokers

A central statewide HIE exists to facilitate exchange between local networks with established infrastructure

Open question: Is there a default network for the disenfranchised?



Implication:

- All local ambulatory providers are, or will eventually become, a part of a local network, likely facilitated by a hospital/hospital-system (or possibly the state)

Type of Network Node

Broker

Routing/Relay and Service Broker

Any technology

perform services based on or using payload-content

Transaction Attributes

target's local or global address/identity
patient identity not exposed in transit
brokered trust relationship with target

TLS/SSL
one-way transmission
Consent Assumed

Type of Network Node

Dedicated Routing/Relay Broker
NHIN Direct

Transaction Attributes

target's local or global address/identity
patient identity not exposed in transit
brokered trust relationship with initiator

one-way transmission

Type of Network Node

Broker

Routing/Relay and Service Broker

Any technology

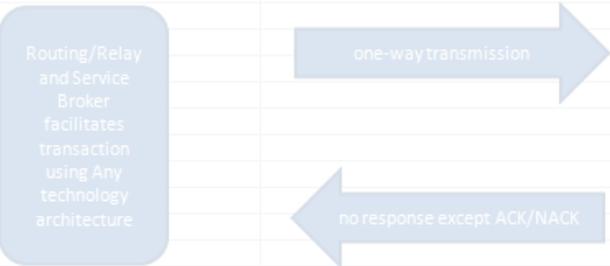
perform services based on or using payload-content

Hospital System

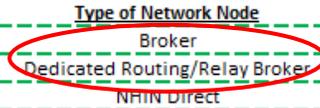
Hospital System

Consensus Point #2: State HIE Narrowly Facilitates Exchange

The HIE is minimal infrastructure to support routing of transactions, logging of transactions (without payload details), and security / trust brokering



Transaction Attributes
initiator's provided address
no response except ACK/NACK



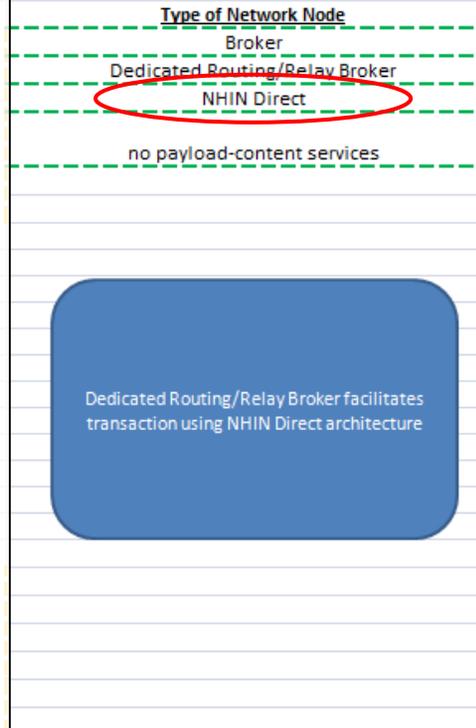
Type of Network Node
Broker
Dedicated Routing/Relay Broker
NHIN Direct
no payload-content services

Implication:

- HIE could maintain trust relationships with proxies (i.e. hospital networks), or facilitate initial credential exchange. Probably better to let HIE maintain trust to proxies for flexibility in logging evolution, etc.
- Can federate logging of patient identity out to proxies who can keep it or push to edges

Consensus Point #3: Use NHIN Direct as Protocol for Central Exchange

NHIN Direct is the emerging standard for point-to-point exchange, and will have reference pilots (which the state can participate in), addressing standards, open source code and functional modules, and a list of vendors that support the protocol at the edge and as intermediaries



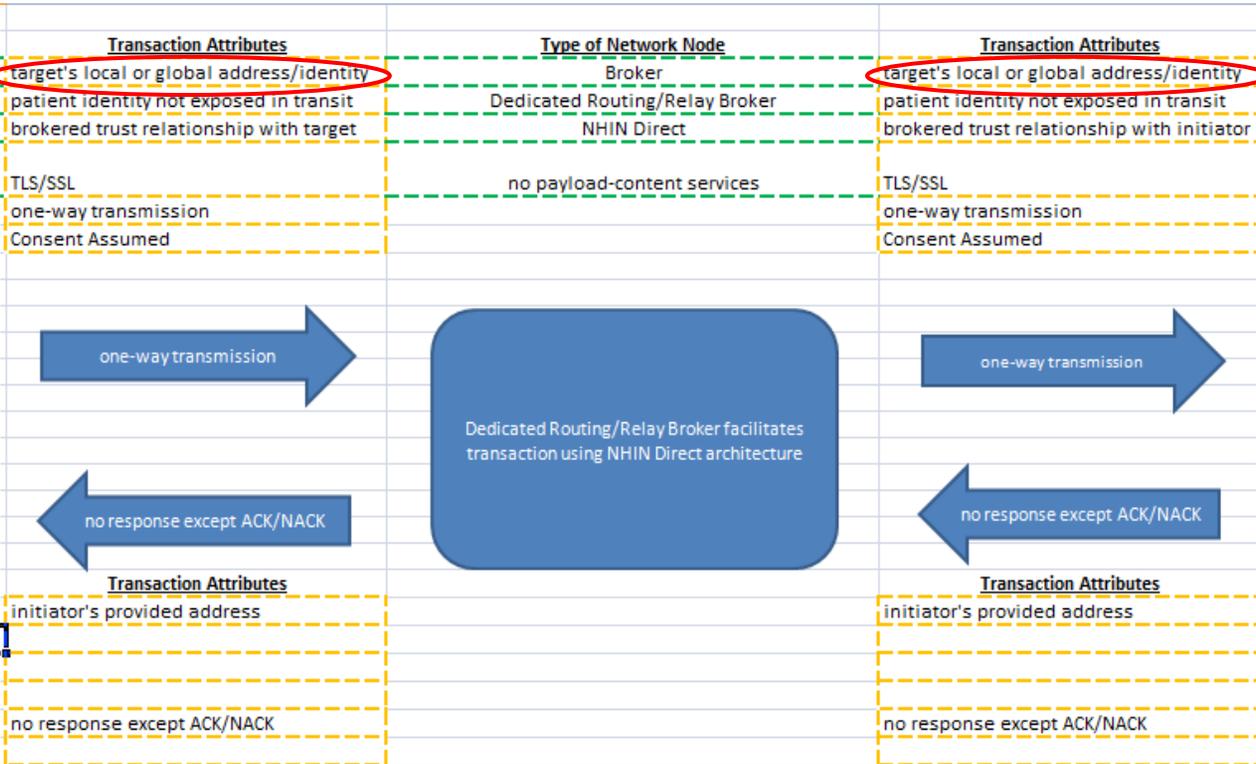
Implication:

- SMTP is primary transmission protocol, but SOAP/XDR is an allowed protocol
- Proxies and Edges can still use local protocols if desired



Consensus Point #4: Allow local and global addressing of endpoints

We can have all proxies deal with precise addressing, or allow central HIE resolve addresses

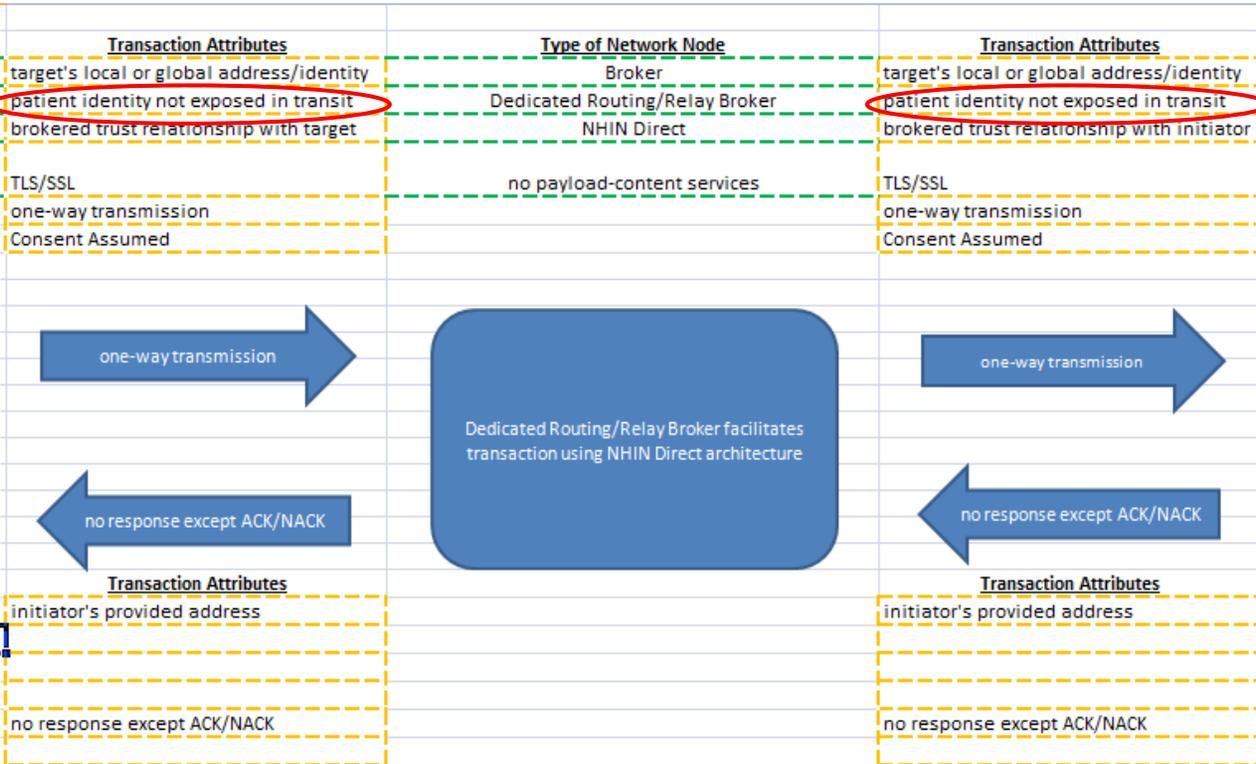


Implication:

- Directory service needed centrally
- MPI for providers, and provider locator service needed centrally

Consensus Point #5: Protected Health Information not exposed to central HIE

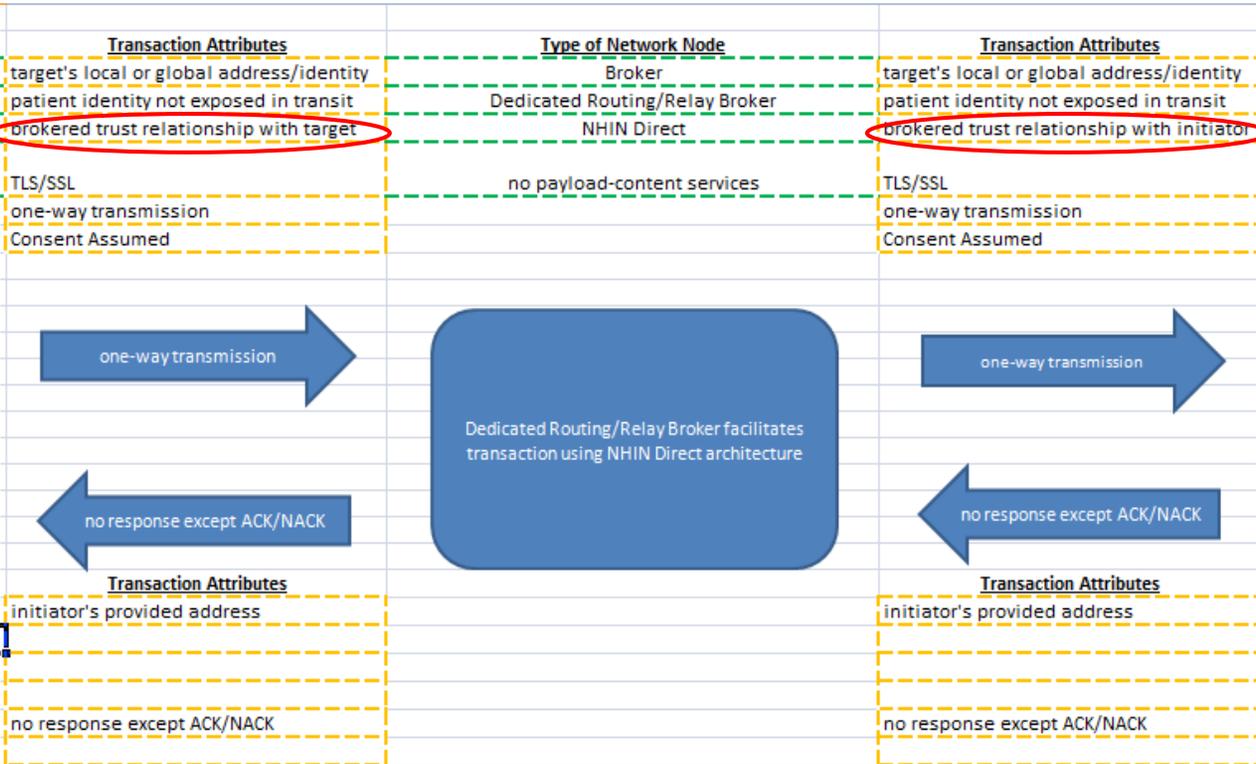
NHIN Direct has this as a tenet, but in general, the privacy leanings make it prudent to be a “conduit” that just knows addressing details



Implication: • NH logging requirement for patient identity is federated to local networks to handle

Consensus Point #6: Trust relationships are brokered by HIE and/or local networks

The HIE can trust networks, who in turn can trust edge systems. The local networks would in turn trust the central HIE

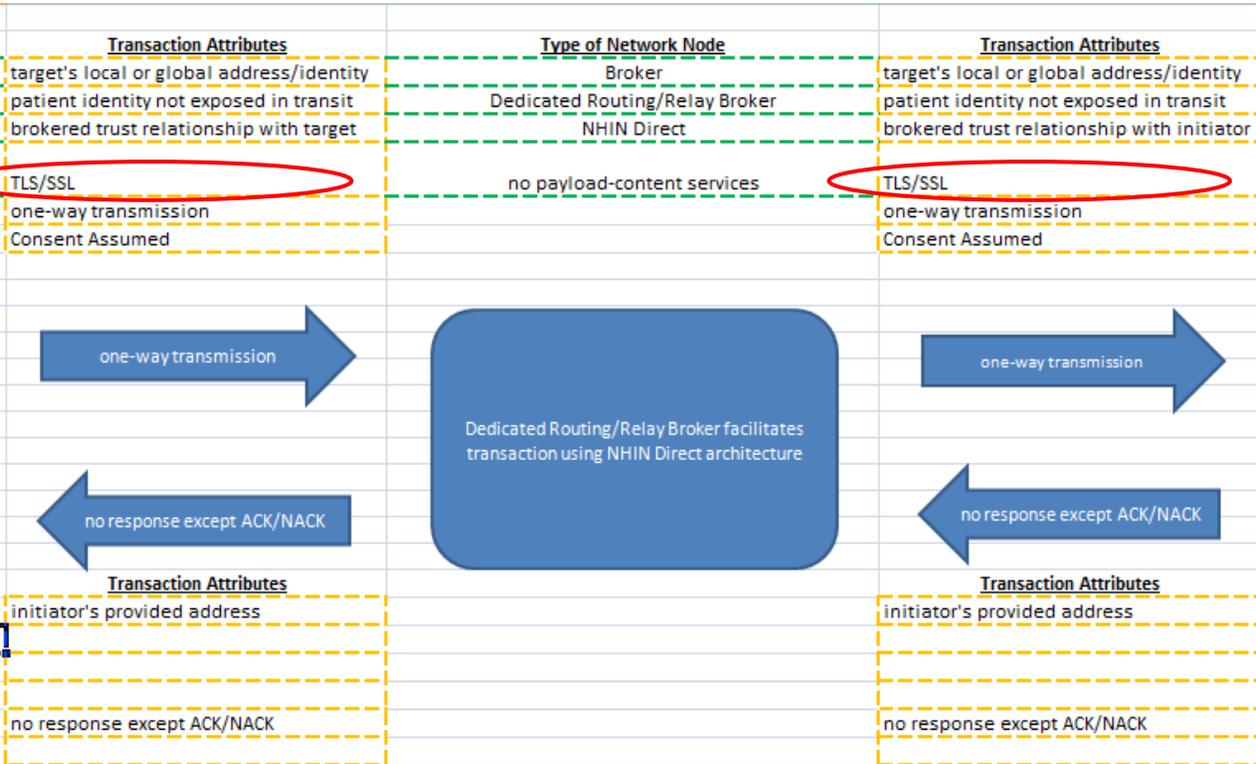


Implication:

- Central HIE can hold keys, certs, etc., for local networks without edges or local networks having to maintain those for all network nodes

Consensus Point #7: Transport Layer Security is used as a baseline of transaction encryption, and other encryption can be layered on

The HIE can trust networks, who in turn can trust edge systems. The local networks would in turn trust the central HIE

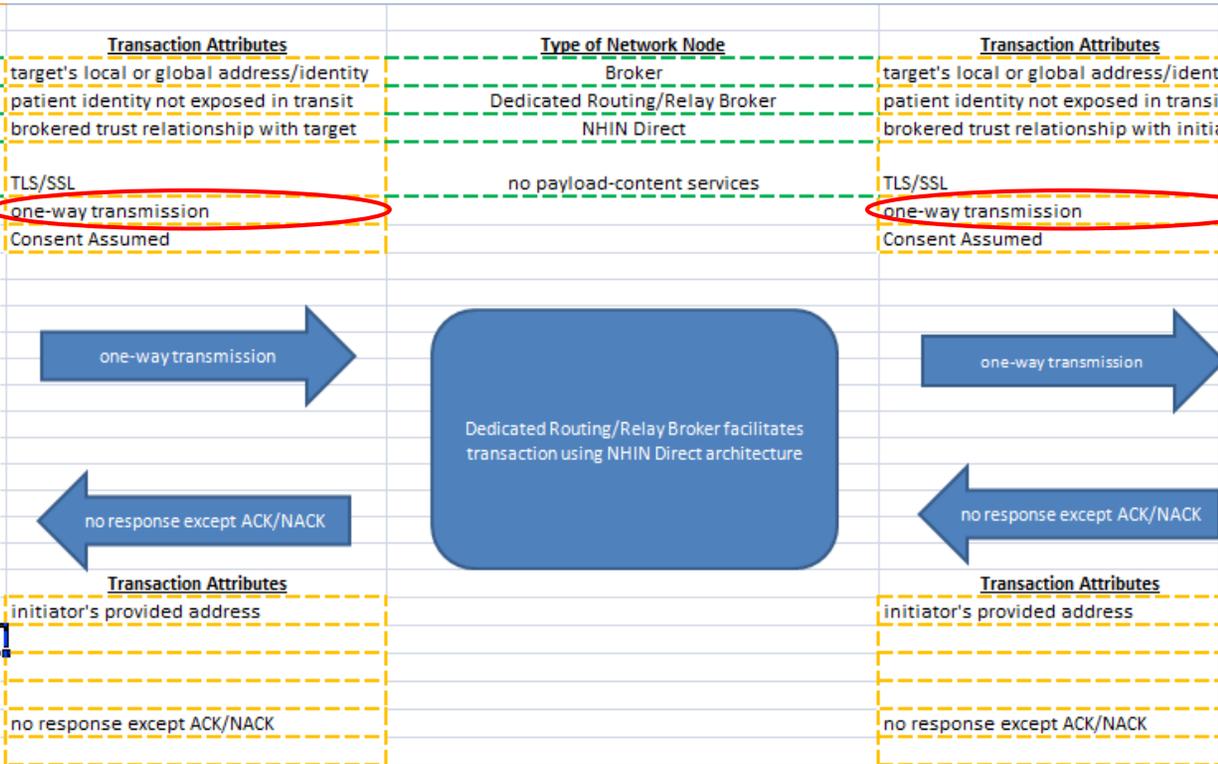


Implication:

- **Certificate authority needed, or paradigm for accepting certificates into local trust stores**

Consensus Point #8: Transactions are unsolicited, unidirectional (excluding ACK/NACK)

NHIN Direct supports this paradigm, and it seems to be a line of demarcation for additional privacy controls around consent

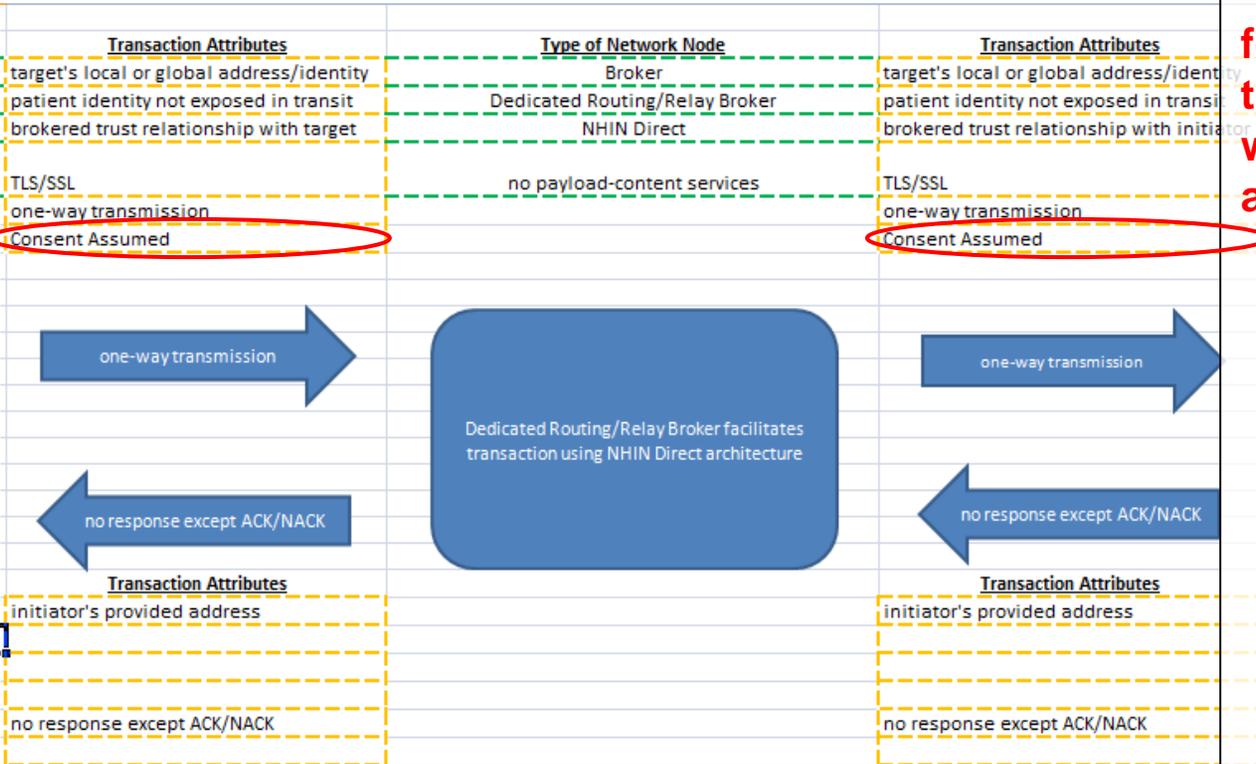


Implication:

- Local networks need to listen for asynchronous transactions coming from HIE

Consensus Point #9: No Consent Representation required for transaction

While this could be embedded in the payload, the main point is that management of consent is federated to the edges, and HIE doesn't record, enforce, etc.

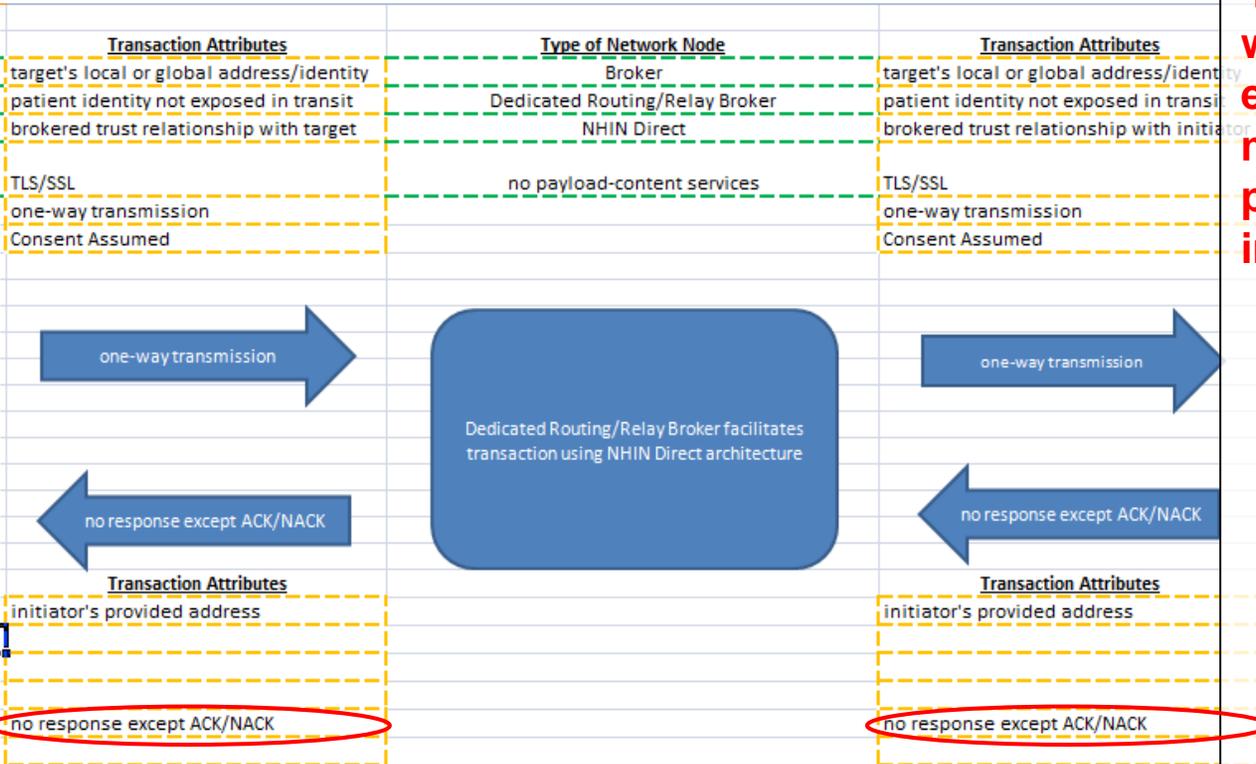


Implication:

- local models for consented transactions will control access

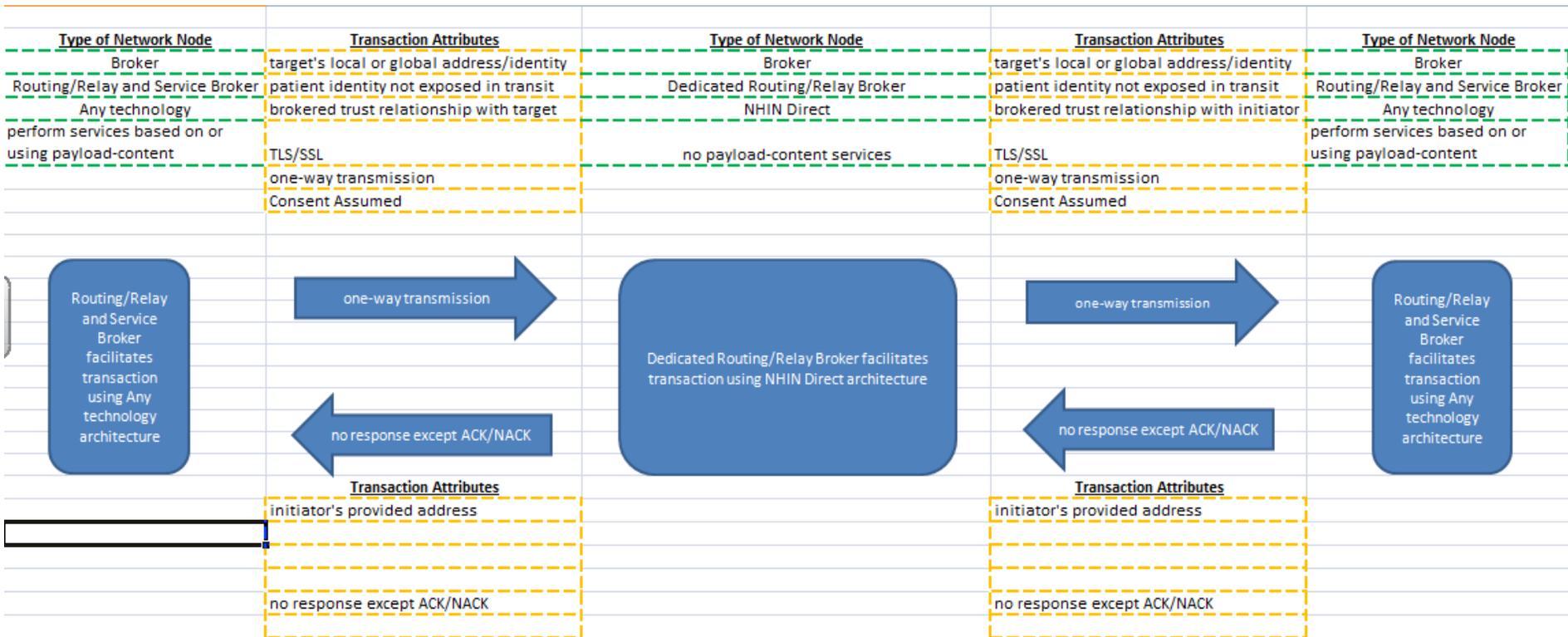
Consensus Point #10: Acknowledgement of successful transactions sent to initiator

Last meeting, it was noted that this is expected for valid transactions

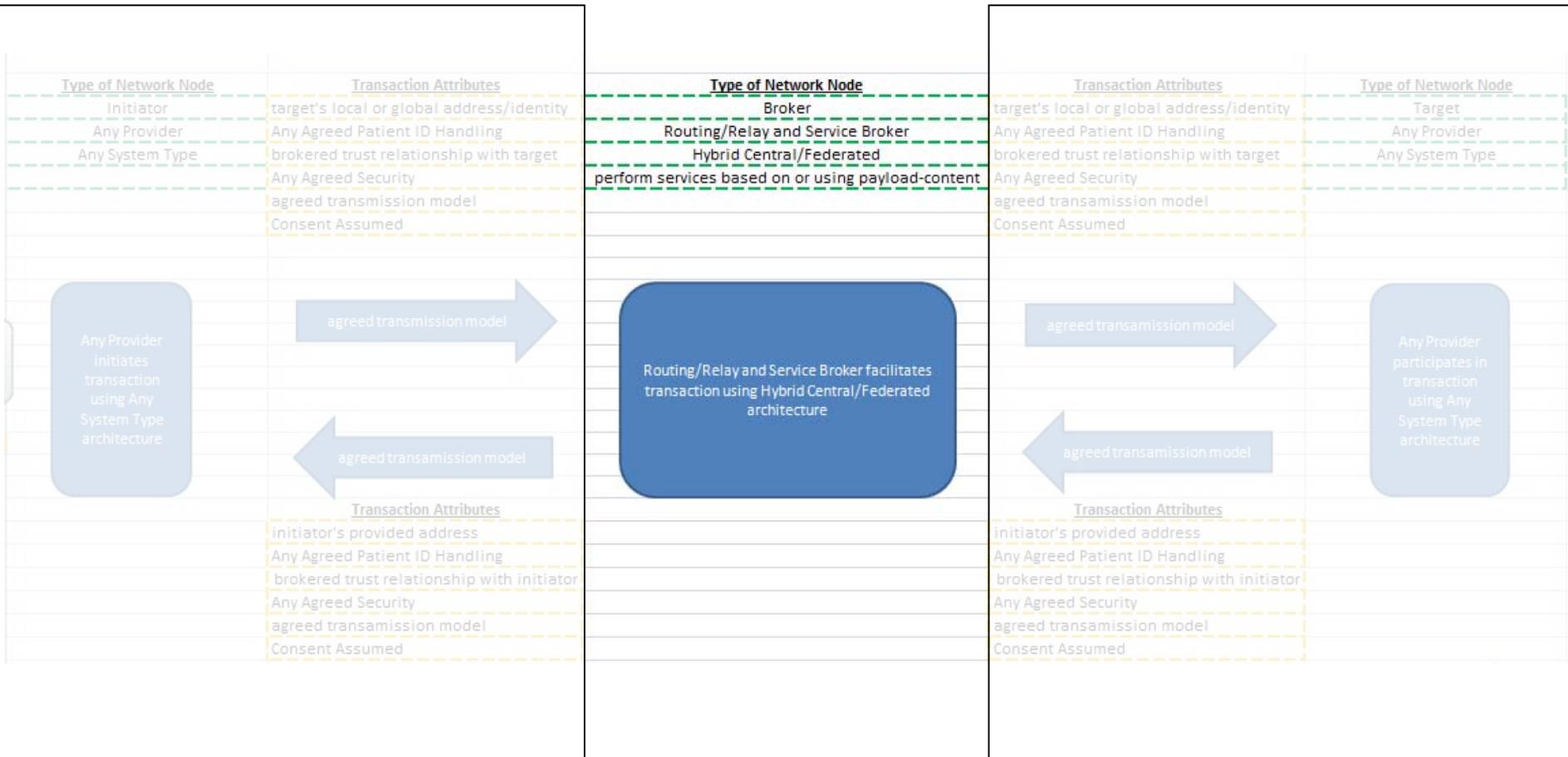


Implication: Local networks will have to engineer the method to provide this indicator

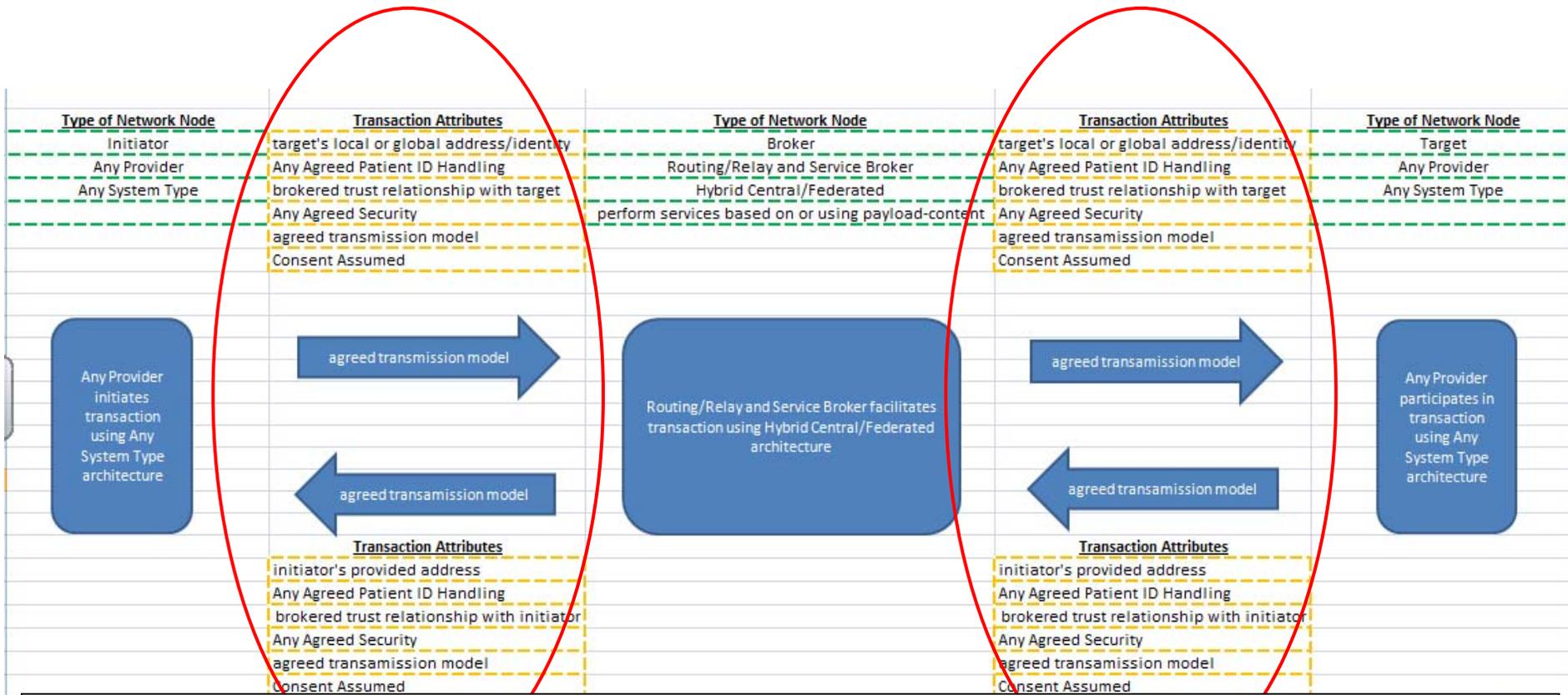
Now, all of this gets compressed into one logical broker to discuss edge transactions...



Voila... three boxes into one



Consensus Point #11: Local transactions happen according to local architectural and policy frameworks



The same infrastructure in place today persists, with only accommodations added for interaction with state HIE, and listed implications

Agenda

Welcome and catch up on new developments from last week

Guided Discussion:

- Phase 1 components under consideration by all workgroups and clarification of technical infrastructure
- Coming to consensus on the Technical elements required for this first phase
- Given time we will repeat this for later phase elements

Wrap up and next steps

Appendix

Wrap up and next steps

- ❑ Next Summit: **7/22/2010, 12pm – 4pm ET**, (877) 449-6558 Access Code 7352914860
- ❑ Next conference call: **7/28/2010, 10am – 12pm ET**, (877) 449-6558 Access Code 7352914860
- ❑ Meeting summary to be distributed to all workgroups
- ❑ Offline consideration of
 - Consensus points
 - Costs of infrastructure change (especially in local networks)

Agenda

Welcome and catch up on new developments from last week

Guided Discussion:

- Phase 1 components under consideration by all workgroups and clarification of technical infrastructure
- Coming to consensus on the Technical elements required for this first phase
- Given time we will repeat this for later phase elements

Wrap up and next steps

Appendix

NH RSA 332-I:3 Use and Disclosure of Protected Health Information; Health Information Exchange.

□ Audit Requirements -

- HIE “shall maintain an **audit log of health care providers who access protected health information**, including:
 - (a) The **identity** of the health care provider accessing the information;
 - (b) The **identity of the individual** whose protected health information was accessed by the health care provider;
 - (c) The **date** the protected health information was accessed; and
 - (d) The **area of the record that was accessed.**”

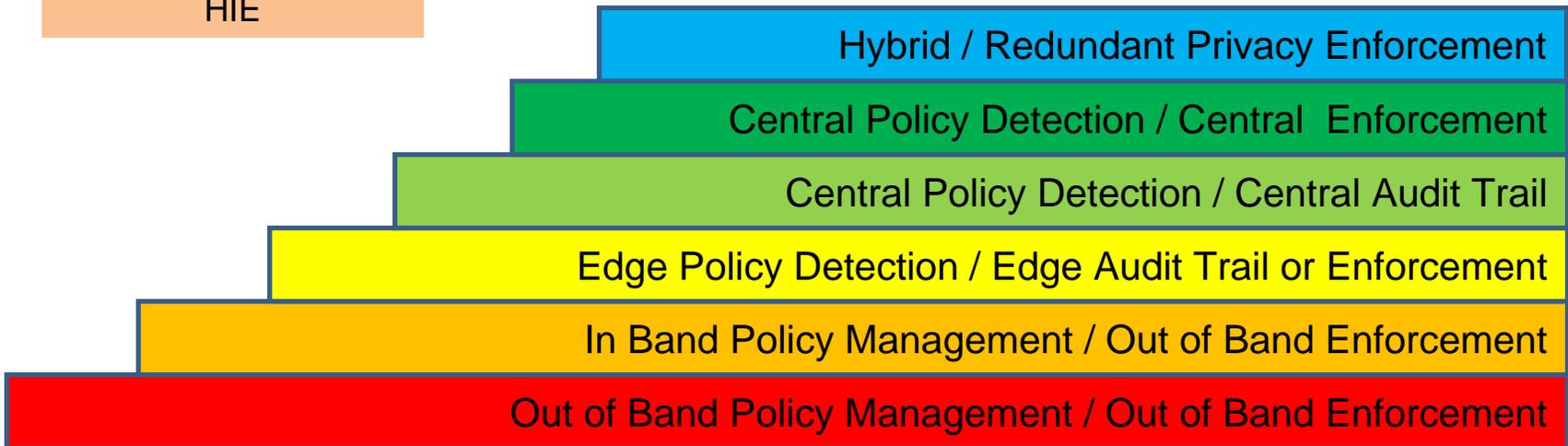
□ Certification -

- HIE “shall be certified, when federal certification standards are established, to be in compliance with nationally accepted interoperability standards and practices.”

Progression of Privacy Management

There are different tiers of privacy protection which may be implemented in an HIE

Protected Health Information



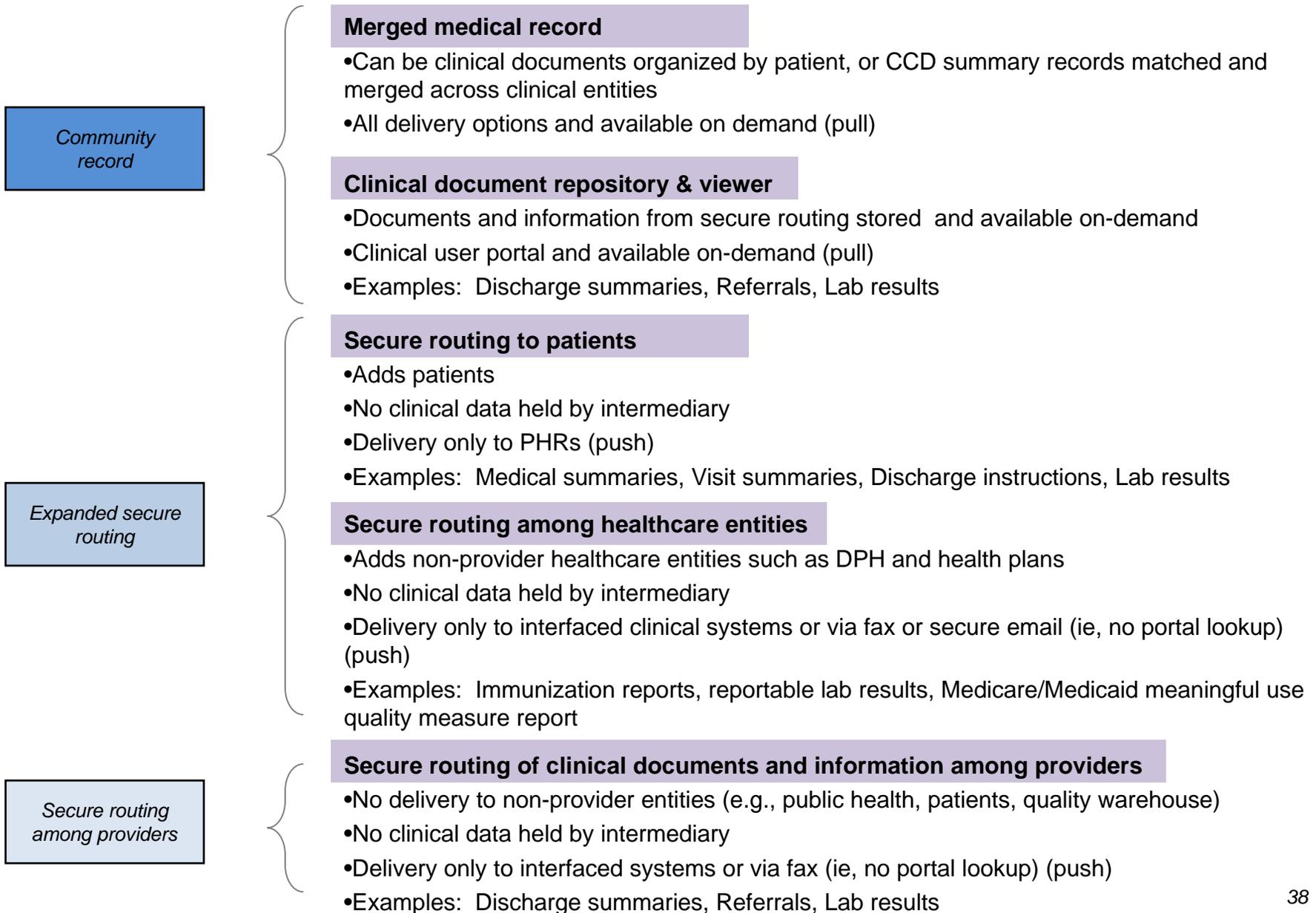
Strawman Phase 2

HIE Building Block	What	From whom	To whom	Phasing
Secure routing to providers	Hospital discharge summary	Hospital	Other care settings	2
Secure routing to providers	Lab order	PCP or specialist	Hospital	2
Secure routing to providers	Lab results	Public health lab	Hospital	2
Secure routing to providers	Lab results	Public health lab	PCP or specialist	2
Expanded secure routing	Immunization record	Hospital	Public health	2
Expanded secure routing	Immunization record	PCP or specialist	Public health	2
Expanded secure routing	Laboratory ordering decision support	Payers	PCP or specialist and hospitals	2
Expanded secure routing	Reportable lab results	Hospital	Public health	2
Expanded secure routing	Syndromic surveillance data	Hospital	Public health	2
Expanded secure routing	Syndromic surveillance data	PCP or specialist	Public health	2
Community record	Community record	Multiple sources	Hospital	2
Community record	Community record	Multiple sources	PCP or specialist	2
Community record	Medication history	Other clinical sources	Hospital	2
Community record	Medication history	Other clinical sources	PCP or specialist	2

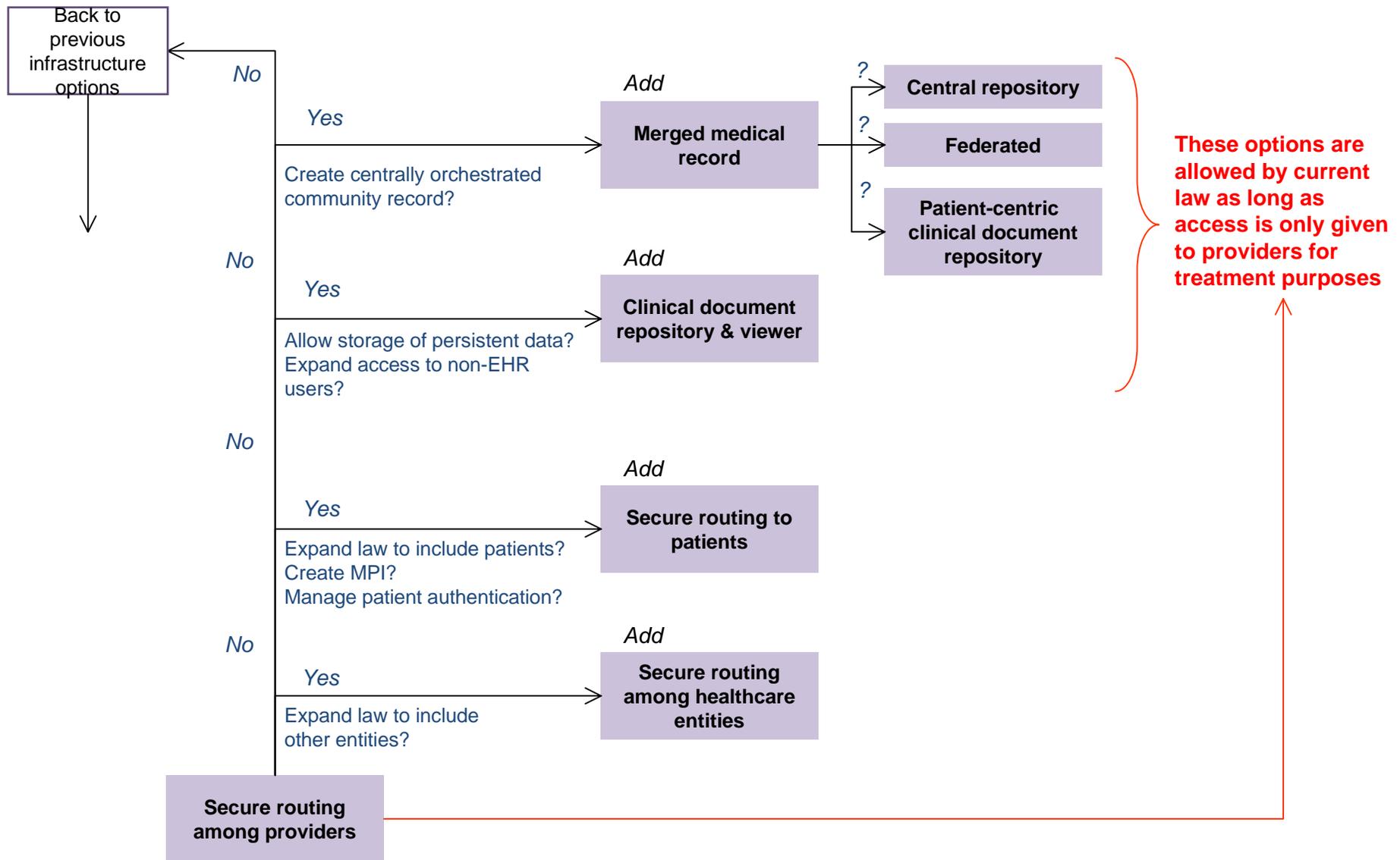
Strawman Phase 3

HIE Building Block	What	From whom	To whom	Phasing
Secure routing to providers	eRX	PCP or specialist	Pharmacy	3
Secure routing to providers	Images	Hospital	PCP or specialist	3
Secure routing to providers	Images	Imaging center	PCP or specialist	3
Secure routing to providers	Imaging order	PCP or specialist	Imaging center	3
Secure routing to providers	Imaging reports	Imaging center	PCP or specialist	3
Secure routing to providers	Lab order	PCP or specialist	National lab	3
Secure routing to providers	Lab results	National lab	PCP or specialist	3
Secure routing to providers	Medication history	Pharmacy	Hospital	3
Secure routing to providers	Medication history	Pharmacy	PCP or specialist	3
Expanded secure routing	Claims submission & eligibility checki	Hospital	Health plan	3
Expanded secure routing	Claims submission & eligibility checki	PCP or specialist	Health plan	3
Expanded secure routing	Discharge instructions	Hospital	Patient	3
Expanded secure routing	General medical summary	PCP or specialist	Patient	3
Expanded secure routing	Post-visit summary	PCP or specialist	Patient	3
Expanded secure routing	Public health alerts	Public health	Hospital	3
Expanded secure routing	Public health alerts	Public health	PCP or specialist	3
Expanded secure routing	Quality measures	Hospital	CMS and/or NH Medicaid	3
Expanded secure routing	Quality measures	PCP or specialist	CMS and/or NH Medicaid	3
Expanded secure routing	Radiation exposure report	Hospital	Radiation exposure registry	3
Expanded secure routing	Radiation exposure report	Imaging center	Radiation exposure registry	3
Community record	Public health case investigation inform	Hospital	Public health	3
Community record	Public health case investigation inform	PCP or specialist	Public health	3

HIE Building Block Options Mapped to Infrastructure Components



Infrastructure Components Logic Tree



Complexity Progression of Building Blocks

HIE building block

Infrastructure components

Added complexity of each block

Merged medical record

Add integrated clinical records

Patient directory (MPI)
Clinical document or clinical data repository

- Persistent data
- Requires patient-matching
- For merging records, minimally requires message structure/format standardization

Clinical document repository & viewer

Add portal access for non-EHR users

Message/document repository
Clinical user portal

- Persistent data
- Requires management of end-user authentication & authorization and support for portal end-users
- Can add patient-matching to organize documents, but not required for document delivery and viewing

Secure routing among health care entities & patients

Add delivery to patients

Patient directory (MPI)
Delivery adaptor (PHR)

- Adds entities not allowed by current NH law
- Requires patient-matching and authentication

Secure routing among health care entities

Add delivery to non-provider entities

Non-provider entity registry (e.g., public health, quality warehouses, social services, etc)

- Adds entities not allowed by current NH law

Secure routing of clinical documents and information among providers

Core infrastructure: Secure routing to providers

Authentication & secure transport
Provider entity registry
Provider directory
Message format translation & validation
Message routing
Delivery acknowledgement
Audit/logging
Delivery adaptors (clinical system, fax, secure email)

- Simplest step up from current state
- No persistent data
- No patient-matching
- Only includes providers
- No portal