NHSIA Webinar Series
Key Concepts

June 14, 2012

Slide 1 – Key Concepts

Good afternoon. Welcome to the National Human Services Interoperability Architecture (pronounced niss-e-a) webinar series. To avoid hearing background noise from your phones we will mute all your lines now.

At the end, we'll open the lines to take questions.

The speakers today are Joe Bodmer from the Administration for Children and Families and Valerie Barnes from the Johns Hopkins University Applied Physics Laboratory.

<brief bio for Joe>

Slide 2 - Webinars will be held Thursdays at 1 PM Eastern

This is the second in series of 5 webinars to introduce the National Human Services Interoperability Architecture (NHSIA, pronounced niss'-e-a).

This series is intended as an overview of the several hundred pages of NHSIA information being made available on the ACF web site. The time in the webinars is limited. But we hope that the webinars will provide sufficient information to allow you to explore the detailed documentation and examine the topics of most interest to you in more detail.

We will post the webinar files and the architecture documents on the new ACF website over the coming weeks. The site is almost ready for launch!

We'll let you know as soon as the materials are available.

Slide 3 – Outline

This webinar explains several key concepts that are at the heart of NHSIA.

Please feel free to enter comments or questions in the Chat window throughout the webinar. At the end of the session we will also open the phone lines to take questions.

Slide 4 - This webinar summarizes key concepts in NHSIA

The cube in the lower right corner shows the different viewpoints used to explain the architecture. Each viewpoint explains a different aspect of the architecture.

So, for instance, in the Capability Viewpoint (the blue box at the top) you'll find the required high-level operational capabilities described in terms easily understood by decision makers and used to communicate a strategic vision. The Capability VP also includes an informal NHSIA scorecard you can use to keep track of progress towards those capabilities. The Capability VP also includes a performance reference model.

Moving to the green Business Viewpoint box … The Business Viewpoint describes business processes and operational scenarios.

And so on. The names of the viewpoints are pretty self-explanatory.

Various aspects of the key concepts are addressed across the NHSIA viewpoints. White papers listed on the left provide additional details about some of the key concepts.

Slide 5 – NHSIA Goals

So, what are the goals of this interoperability architecture?

Slide 6 - NHSIA Provides a Framework and Roadmap To Achieve Common Goals

If you sat in on the Overview webinar, you've seen this slide before. So, let me just hit the high points. NHSIA provides a framework or a blueprint for moving from today's (as-is) siloed situation to a future (to-be) state where some significant goals have been achieved.

The intent is that the architecture identifies some business processes that are common across human services. In the context of those processes, the architecture suggests which information exchanges are good candidates for standardization. The architecture points out the benefits of sharing the information technology infrastructure – both in terms of hardware and architectural patterns. With a common approach, it should be possible to have more comprehensive performance management.

On the right you see a list of goals for the architecture: more efficient and effective processes, better access to information… all leading to improved delivery of human services and better outcomes for clients.

Slide 7 – NHSIA Goals (NHSI Architecture)

So, the goals for the architecture are to provide a basis for common understanding, interoperable systems, standards, and reuse. This means the architecture is intended to …

- Establish a common vocabulary for conversations among human service agencies, programs, and the information technology teams that support them
- Provide a business and technical framework for stakeholders to independently develop interoperable systems
- Promote sharing and reuse of processes, applications, services, data, and infrastructure across human services domains and programs by …
    - Describing a service-oriented environment
    - Leveraging lessons learned
    - Leveraging proven architectural patterns
    - Leveraging activities in the health and education domains
- Promote the development and use of standards for data exchange
- Promote the development of standard data structures required to enable data exchange (e.g., provider registries)
- The impact of building services following the guidance provided by the architecture should be improved effectiveness and efficiency in providing human services.

Slide 8 – Worst-case Today: Silos

This illustrates a worst-case situation today.

Without a national human services enterprise architecture, each human services program may have developed its own processes and systems.....

- Stove-piped, duplicative capabilities, processes, and systems
- Lost opportunities for shared return on investment.

Slide 9 - Common Processes, Shared Capabilities, Shared Information

With NHSIA.....

- Stakeholders have a framework for understanding processes common across programs
- Stakeholders can identify capabilities that can be shared/ re-used across programs
- Stakeholders can work towards establishing shared IT services that will enable these capabilities
- Federal and state partners can work towards a strategy that encourages and supports smart deployment of capabilities

Slide 10 - Support the NIEM Process To Define Exchange Standards

This slide shows the National Information Exchange Model (NIEM) lifecycle for developing and implementing standards for information exchange. It's a 6-phase process. NHSIA provides guidance for the first two phases: scenario planning and analyze requirements.

In the Scenario Planning area NHSIA helps to identify the high-level business cases and the information needed to support them.

- The Business Viewpoint captures and defines core business areas and business processes
- Initial Information Exchanges were identified through the Business Viewpoint vignettes

In the Analyze Requirements area NHSIA helps to identify the business context, create a model for information exchanges, and map data to the existing NIEM vocabulary.

- To provide the context for exchanges, the Business Viewpoint identifies inputs and outputs. Those are mapped to supporting information flows.
- The Information Viewpoint's Conceptual Data Model (CDM) provides basis for NIEM exchanges. A separate Information Exchanges spreadsheet identifies several high-priority exchanges.
- The Information Viewpoint also maps those data requirements from the CDM to existing NIEM vocabulary elements.

Slide 11 – Key features of NHSIA

Slide 12 – Key Architectural Features

This is the same list of key features we stepped through at a very high level in the Overview webinar. Now we'll dig a little deeper. Each slide in this section has the scroll in the upper right corner to indicate which features are illustrated on the slide.

Slide 13 - Business Processes Map to HS Programs: Client Management

This shows a set of Client Management processes from the NHSIA Business Model.

Each row maps one of those business processes to various health and human services programs.

This is just a snapshot of a subset of the complete list of business processes.

The concept here is that, at a high level, different human services programs share common business processes.

Slide 14 - As-Is Worst Case: Each User Must Access Each Data Source Separately

Now we'll illustrate how the architecture supports different aspects of human services programs.

This slide shows how today, in some cases, users access data sources separately – see all those different colored lines? This might involve multiple logins and passwords, custom interfaces, no common vocabulary across systems. Some information is still in paper form, so phone calls and faxes might be required.

Bottom line: In some counties and states today, it may be difficult and time consuming (if not impossible) for a case worker to assemble all the information necessary to make good recommendations and decisions on behalf of clients.

Slide 15 - Allow More Convenient & Extensive Access to Data

In this series of slides, yellow illustrates what is changing.

A key early step to improve the current situation would be to put in place a shared service-oriented architecture infrastructure.

A service-oriented architecture allows software on one computer to use an IT service (e.g., to access case information about a particular client) on another networked computer. In tech-speak, this means software "consumes" an IT service and information that have been "exposed." The "infrastructure" we refer to is the hardware, underlying operating systems and other foundational software, and networks where the users' software applications and data reside.

Part of establishing a service-oriented architecture (or SOA) might include putting in place single sign-on and controlled access to information and systems based on attributes (role, organization, etc.) of the user.

To start, it may be that only a few critical systems are service-enabled. Each jurisdiction will tackle what makes sense to them. The concept here is that NHSIA describes an end-state in which modernized systems are sharing the underlying infrastructure and IT services.

Slide 16 - Use Shared Infrastructure & Clouds to Share, Reduce, & Simplify IT Infrastructure

The architecture also recognizes that, increasingly, systems are not viewed as monolithic packages of software, hardware, and data unique to each program.

So here we see a cloud and one or more data centers. Some applications may run in the cloud or in a data center.

Portals may provide access to software applications that run in a data center or the cloud. Security is addressed via common identity management and access control. Shared information is accessible via the software applications.

The bottom line on this slide: NHSIA promotes a shared infrastructure and clouds to share, reduce, and simplify the IT infrastructure across multiple human services programs.

Slide 17 - Standardized NIEM Transactions Enable Integrating Data

This slide is about sharing information using standardized transactions.

For instance, the goal is that a case worker can access information from different agencies using standard information exchanges based on a common vocabulary. The architecture provides a context

for defining those exchanges, primarily using the NIEM vocabulary. Once standard transactions are defined, they can be used by multiple software applications.
So on this diagram many of the lines are green – indicating that those information exchanges have shifted to the NIEM standard. ACF is the steward for the Human Services Domain in NIEM. Stakeholders will be involved in defining the information exchanges.

Slide 18 - Provide Core Services to Allow Finding and Accessing Critical Information
After the service-oriented architecture is in place and appropriate information exchanges are in place, a jurisdiction will be able to establish a hub and host core IT services in it. This illustration assumes the county has its own IT environment, so we are showing a county hub. The yellow list includes security services (for identity management and access control, for instance) as well as core services to share information about persons, cases, providers, and programs. All of those core services could be hosted in the county hub so that any authorized application and user can use them.
Example IT service:
Provide Individual Case Summary. Supply a summary of a specific case associated with a specific person.

Slide 19 - Share Supporting Applications Across all Human Services
Within a jurisdiction, supporting software applications may be shared to leverage investments, reduce maintenance, and share information. These "supporting applications" shown in the yellow text box might include document management, workflow management, rules engine, and warehouse / analytics applications, for example.

Slide 20 - Organize New Human Service Applications by Function Instead of Program
As resources permit, jurisdictions may incrementally evolve to more integrated software applications that are functionally oriented and support multiple human services programs. These might include applications to support integrated eligibility, enrollment, case management, and service planning, for example.
Many jurisdictions have already moved in this direction. Vendors provide options for integrated software applications that may group functions differently than shown here. That's fine. The concept is that software applications support multiple human services programs.

Slide 21 - The Hubs Enable National IT Service Sharing & Information Exchange
Deploying hubs and core services across the nation will enable nationwide IT service sharing and information exchange. This notional diagram illustrates the virtual linking of hubs at different levels across the nation.
We've talked about the county hub. At the state level, you might implement IT services that apply to all jurisdictions within the state. One example might be a Master Person Index to find information about human services clients more readily.
At the federal level, as part of the ACA CMS plans to host several data verification services (e.g., for citizenship, income, and social security number).

If all the hubs know about each other, then the IT services each one exposes can be accessed by authorized users.

Slide 22 - Collect Metrics During Routine Operations for Fraud Detection & Performance Assessment

NHSIA promotes the idea of collecting metrics during routine operations for fraud detection and comprehensive performance assessment.

Notionally, this begins with capturing key indicators in performance information repositories. For example, data services would support capturing indicators collected as part of case management operations

There may be PIRs at different "levels"

Key indicators can be used for many different purposes: For instance, they can be used to

- Detect fraud in near-real time. This contrasts with PARIS checks that are done today infrequently via batch jobs.
- Enhance awareness across programs. For instance, a worker in one program could easily see that there is an open case for his client in another program.
- Monitor client status.
- Generate standard reports
    - A common vocabulary, information exchanges, and reporting services enable streamlined reporting & access to program data as-needed
- Assess performance by looking at outcome data from multiple programs through longitudinal studies

So, this concept is that collected indicators can support near-real-time and long-term decision making to assess outcomes.

Slide 23 - Collect and Analyze Performance Information at Each Level to Suit Needs

A bit more here about the performance information repositories… We imagine that there may be integrated performance information repositories at the county, state, and federal levels – each holding the information that level needs.

Analytics tools could process the raw data to show useful outputs and outcomes via dashboards and reports. Some of those analysis products may be stored in back into the repositories.

Standardized interfaces could streamline reporting and information sharing up the chain.

Slide 24 - Example improvements

In this section we'll show you a few specific examples of how the architecture is intended to improve human services operations and outcomes.

Slide 25 - NIEM-based Standards Facilitate Information Sharing

This slide shows two examples of how NIEM-based standards could facilitate information sharing.

The blue section on top shows how a caseworker might get a summary of all the cases associated with a particular person. Data about each case would be gathered from different agencies and bundled together into an overall summary. The summaries would use NIEM transactions.

The green section at the bottom shows identifying a person via a state MPI. Then we see using NIEM-based transactions in connection with federal data verification services.

Slide 26 - Integrated Eligibility and Enrollment

This slide looks at integrated eligibility and enrollment steps. NHSIA promotes the desired end-state:

- ✓ Integrated eligibility determination supports **"One-stop-shop"** to streamline the process for the client
- ✓ Client **intake information is shared** across programs, reducing redundant intake activities by caseworkers
- ✓ Eligibility and enrollment decisions are enabled through shared **verification services**
- ✓ Enrollment decisions are not made in a vacuum because the worker and the system have **visibility into all benefits** provided to client
- ✓ And finally, through leveraging common processes, **eligibility re-verification is facilitated,** either on-demand or as part of an on-going fraud monitoring effort

Slide 27 - Integrated Case Information / Management

Today it can be difficult to see the whole picture of the client because records are isolated in different systems.

NHSIA promotes a more holistic view of the client – needs, benefits being provided, and status – by sharing and managing case information across programs.

Slide 28 - Master Person Index: Find Information More Easily

The master person index concept focuses on a key enabler. Establishing an MPI allows systems and workers to match up records and link to records from distributed systems. Is my Jane Doe the same as yours?

Slide 29 - Master Person Indices Reduce Duplicate Records

This is the kind of information we imagine will be associated with a master person index. The MPI needs enough identifying information to allow users to find the right person. Then pointer information provides a link to systems that hold additional information (e.g., case entries) about that person.

Many states are already planning or have implemented a master person index.

Slide 30 - NHSIA in Action

This notional diagram illustrates how many of the key concepts come together. Major steps here use identity management, rules for controlling access to information and IT resources, and a common client release authorization. This is one possible way to use those elements to ensure privacy compliance. The figure shows Jane Doe (in the upper right) authorizing limited release of data about her that is stored in the Shared Person Data. For purposes of this example, let's imagine Jane Doe filled in an electronic common client release authorization to say that she didn't want her health data to be shared to plan human services, but other data could be shared.

- In step 1 (on the left), case worker Mary Smith is trying to plan human services for Jane Doe and logs on to her human services system.

- In step 2, Smith's logon is authenticated. Part of that process retrieves her privileges. Smith is authorized to plan services and access relevant data for that process. The system records the successful authentication. That's the brown box off to the left – showing the audit trail.
- In step 3, Smith requests a set of data about Jane Doe, including health data. The system finds the records via the Master Person Index.
- In step 4, the system checks Smith's credentials against the access rules and confirms that Mary Smith can plan services and access relevant data, including health data. Privacy and security regulations reflected in the rules permit access to authorized individuals like Smith.
- However, according to Jane Doe's client release authorization, Doe does not want someone who is planning human services to view her health data. So, in step 5, when the system checks the common client release authorization for Jane Doe, it recognizes that it must withhold the health data.
- Finally, in step 6, the system retrieves the requested data based on Mary Smith's credentials, the access rules, and the limitations imposed by Jane Doe's client release authorization. The system records accessing Jane Doe's information. That's the brown box at the bottom. The system provides the information to Mary Smith, minus the health data. Because the information is personal about Jane Doe, it is encrypted as it leaves the boundaries of its owning organization.

Slide 31 - Automated Processes Streamline Workflow

Another aspect of the capabilities NHSIA enables is automating processes. This slide identifies some of the workflow activities that could be automated in the eligibility determination, enrollment, and service planning cycle.

For instance, automated verification services can be invoked to check information provided by the client during the process of determining eligibility. Eligibility rules can be checked by software. Notification can be sent automatically, for example, if there is a problem with the data verification.

Skipping around the diagram to the left of the eligibility circle, software could also automatically check the conditions for eligibility on a continual basis.

We're all used to our office software reminding us when we need to go to a meeting. This is the same concept.

Slide 32 - Define Data Accessibility Needed to Support Disaster Response

Systems that reflect the NHSIA approach will facilitate sharing of service history among case workers, providers, and jurisdictions, both during normal operations and extraordinary conditions, e.g., large natural disasters.

Jurisdictions already need to do contingency planning. Once jurisdictions move towards more interoperable solutions, the planning should consider interoperability and the effect of an outage in one organization's systems on other organizations.

As people move from an area struck by a natural disaster like Katrina, having the information available electronically through shared IT services can help.

Slide 33 - NHSIA Core Provides a Solid Foundation for Better Programs and Integrated Services
So, to recap… By establishing a shared, service-oriented infrastructure (shown in the long brown box at the bottom), jurisdictions will lay the foundation for improving IT systems that support human services.
Part of that foundation includes establishing agreements and environments that provide security and access control.
Moving up the diagram, core IT services provide the enabling capabilities to find and share information and to support functional and supporting applications for multiple programs.
Those core services and related information are shared through hubs (shown on the left) hosted in a service-oriented architecture environment.
Repositories (on the right) provide a common environment for information from multiple programs to facilitate fraud detection, performance monitoring, and performance management.
In the end, this interoperable architecture should provide a way forward for improved programs and services to clients.

Slide 34 - Questions and next steps
That concludes the presentation. Now we'll shift to your questions and what comes next.

Slide 35 - Questions?
Please submit any questions you have now via the chat window. Time permitting, we will answer them now. Otherwise we will respond with answers on the ACF web site.
We will also open the phone lines to take questions.
The lines should be open now. If you are not speaking, please mute your phones by pressing *6. To speak, press *6 again.
Questions that occur after we are finished today can be submitted to me using the contact information shown on this slide.
Joe will ask: Who has a question? Joe will answer those that come in over the phone.

Slide 36 - NHSIA Documents Related To This Webinar [slide not shown]
These documents (will be posted on the ACF website) are the ones most relevant to todays' presentation.
We suggest you start with the paper of most interest to you.

Slide 37 - Webinars will be held Thursdays at 1 PM Eastern [slide not shown]
The next webinar in this series is scheduled for two weeks from today.

Slide 38 - Next webinar: Capability and Business Viewpoints [slide not shown]
Here is the draft outline for next time.

Slide 39 - Thank you for participating and see you next time! [slide not shown]