

Connecting to IIS Using an Open Source Software Application

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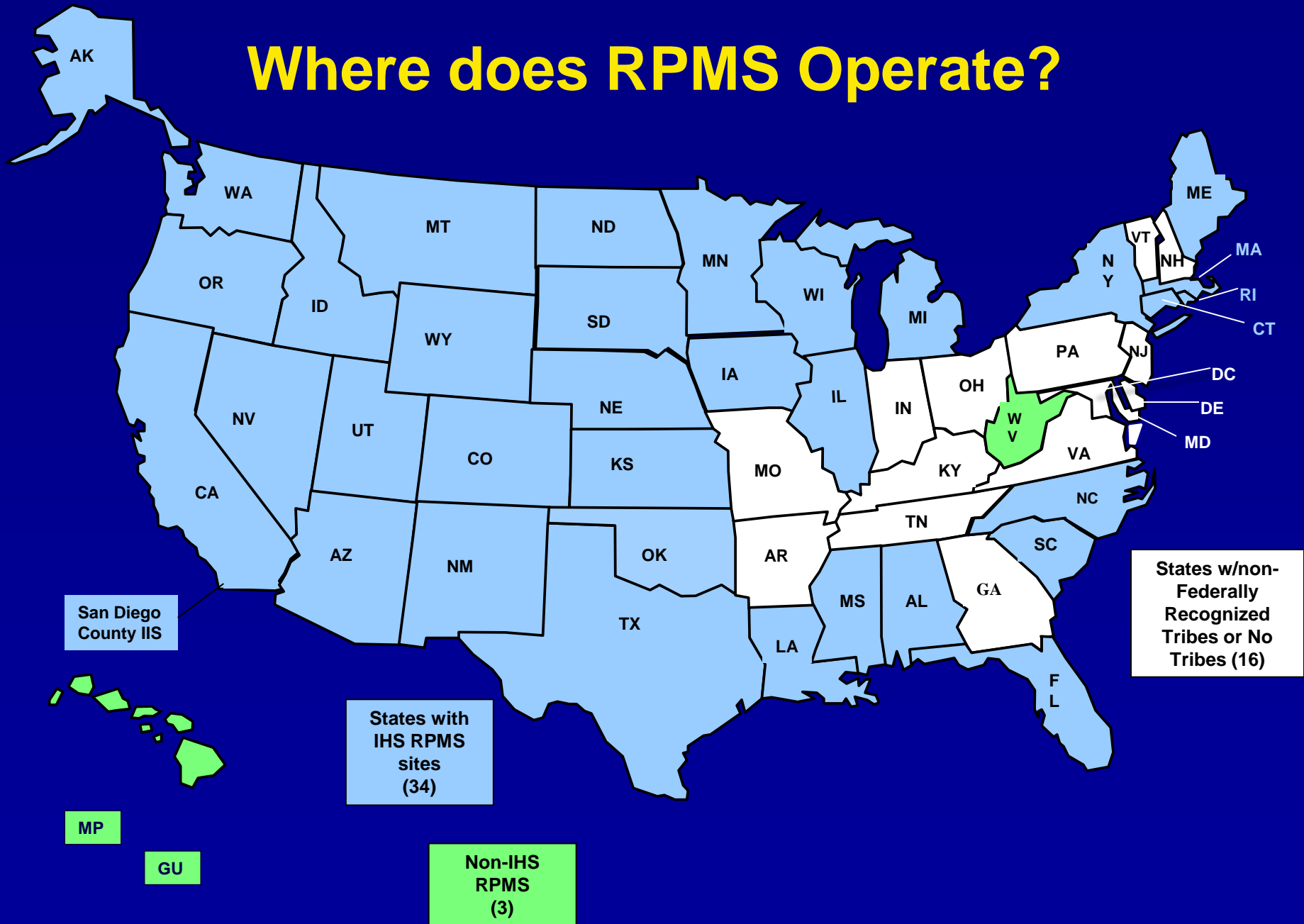
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Introduction

- The Indian Health Service certified EHR system is the Resource and Patient Management System (RPMS)
- Since 2002, IHS has been committed to RPMS provider participation in immunization interfaces with IIS
- Meaningful Use: increased interest , increased resource support for interface within IHS, IIS

Where does RPMS Operate?

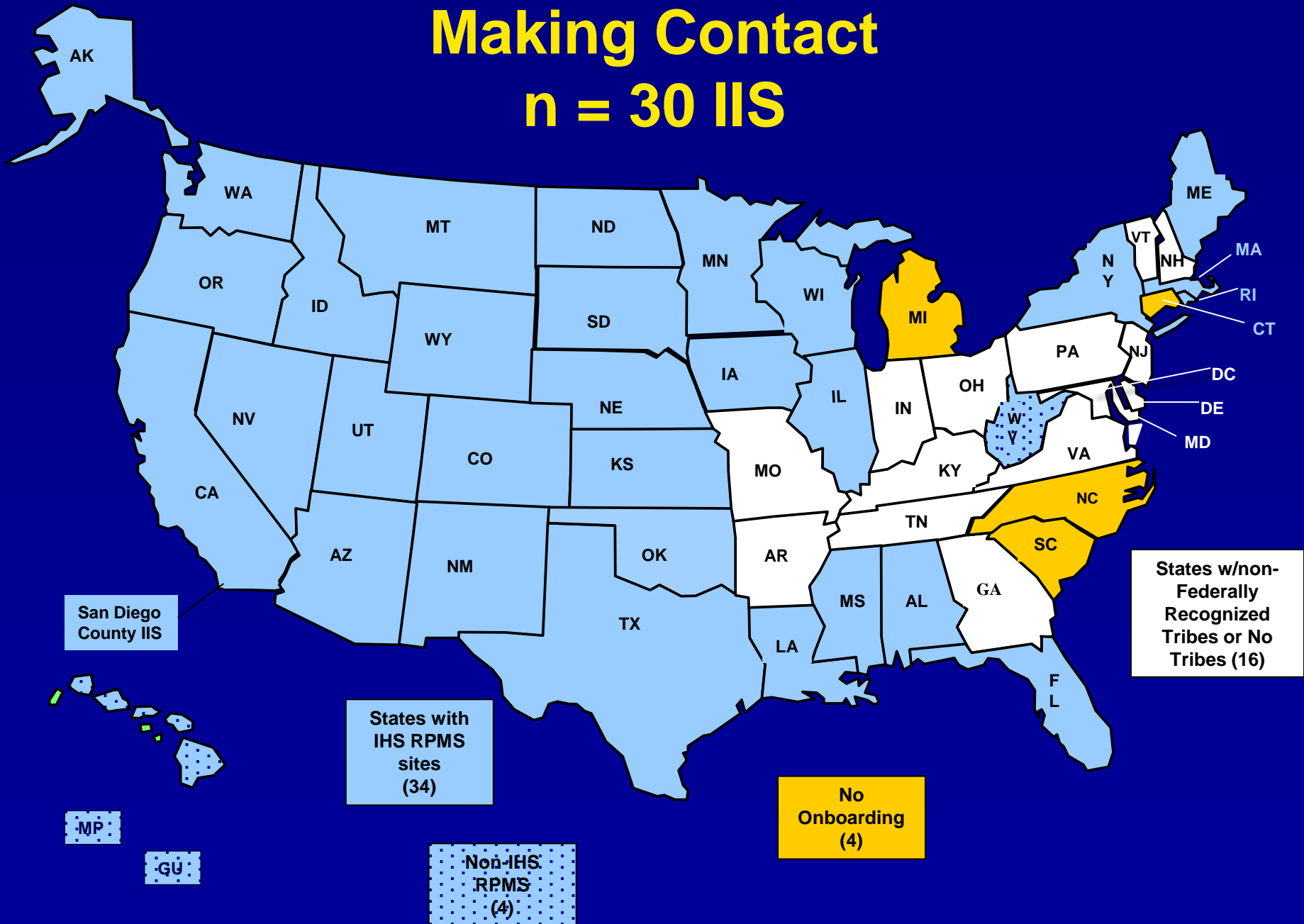


Implementation

- Indian Health Service prefers the use of real time automated transmission interfaces
 - Interface software: HL7 2.31 or 2.5.1
 - Transport software: HTTPS or web services capability
- Interface is supported by national development team, regional support teams and implemented locally by IT and clinical providers

Making Contact

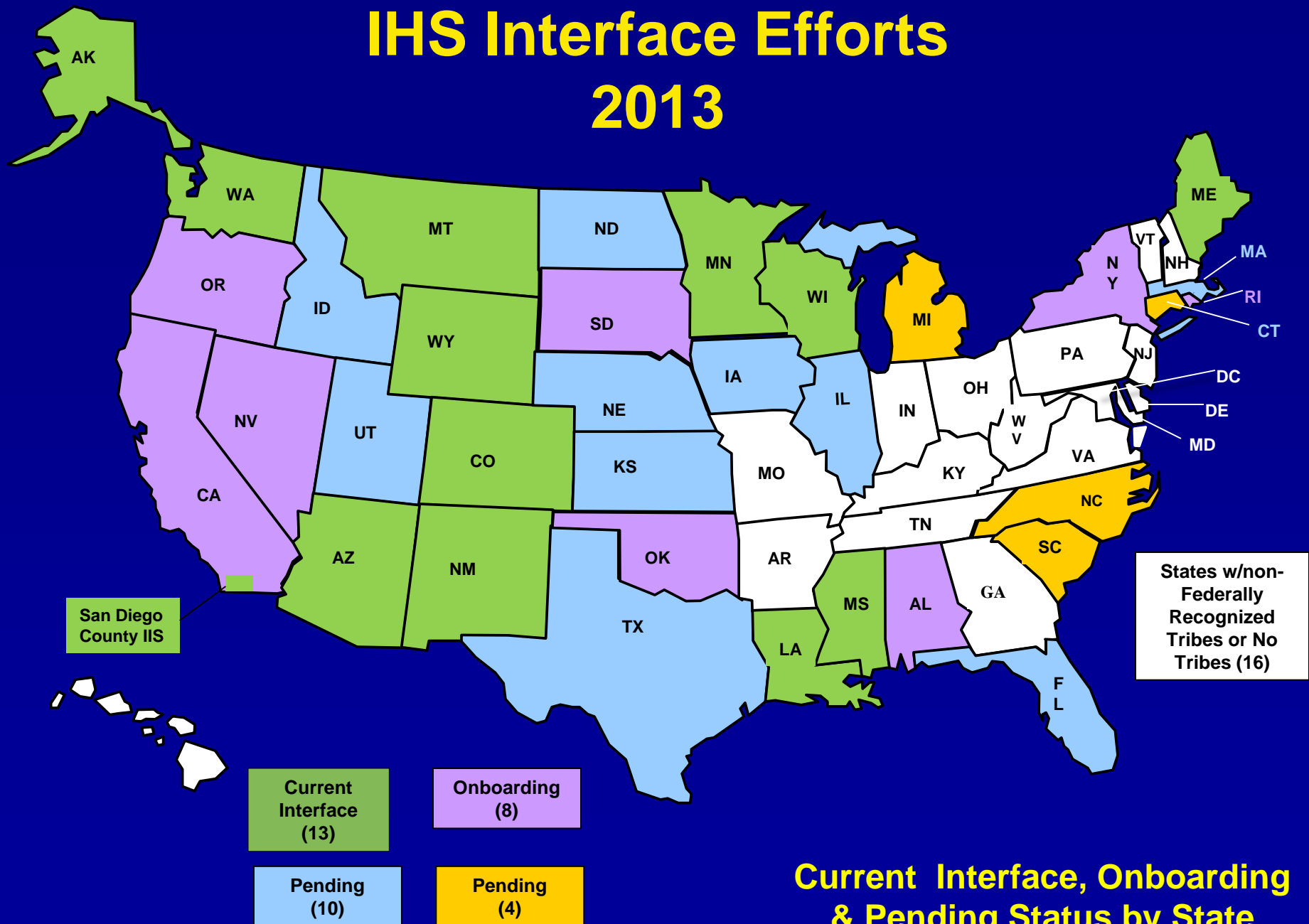
n = 30 IIS



Working with IIS

- From 2006 – 2009, Indian health facilities using RPMS interfaced with IIS in 8 states, using automated and manual transmission standards.
- From 2010 to the present, 5 additional interfaces were added
- RPMS providers in 22 states anticipate entering the onboarding process as part of MU 2.

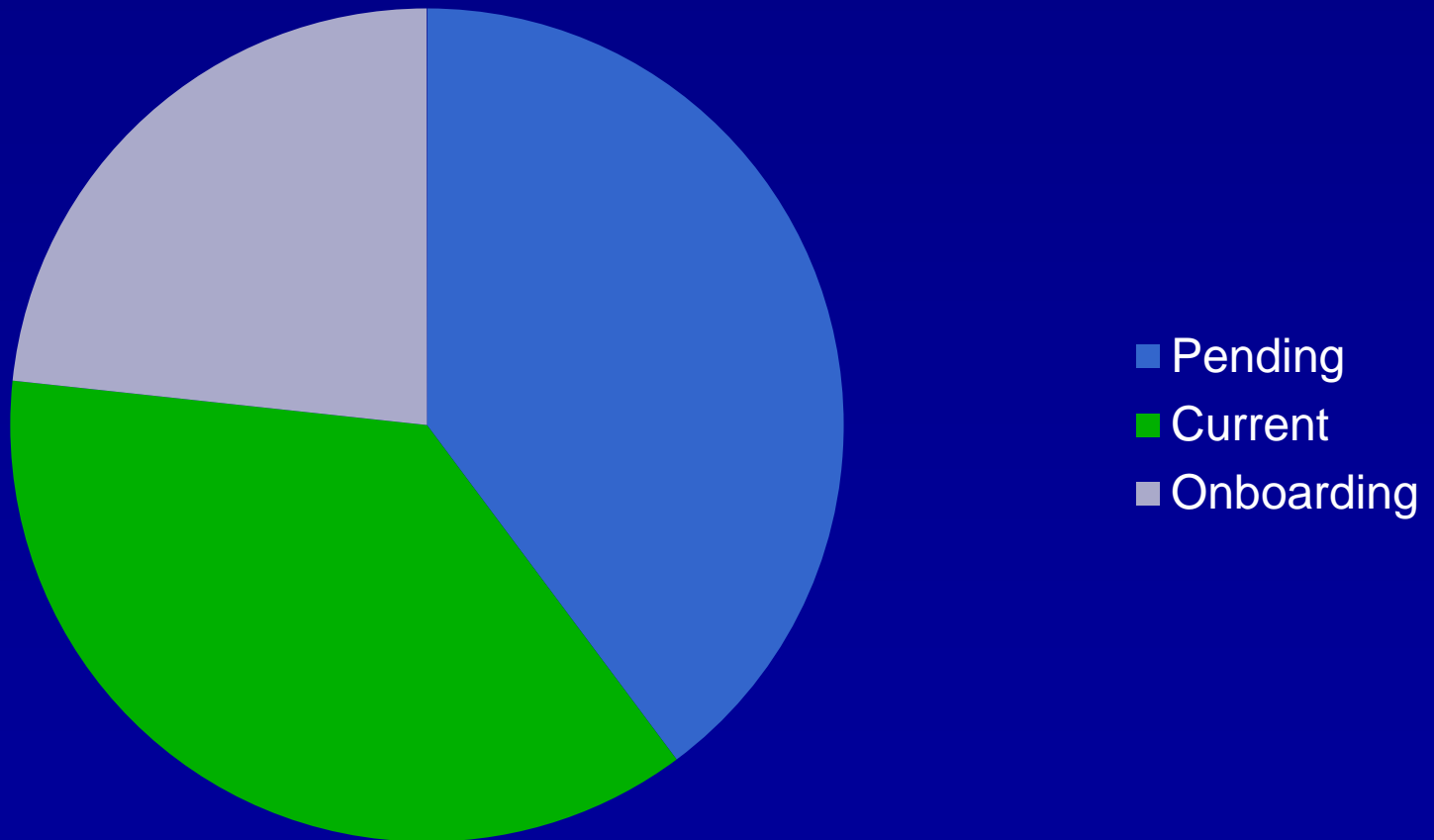
IHS Interface Efforts 2013



**Current Interface, Onboarding
& Pending Status by State**

The Dilemma

With HL7 message and transport capability,
why aren't we more interoperable?



Interface Challenges

IHS:

- IHS system de-centralized, locally administered
- Local staff need support for complex real-time exchange
- Local systems installed on various platforms, environments
- One software, 34 states
- Implementations depend on forthcoming enhancements

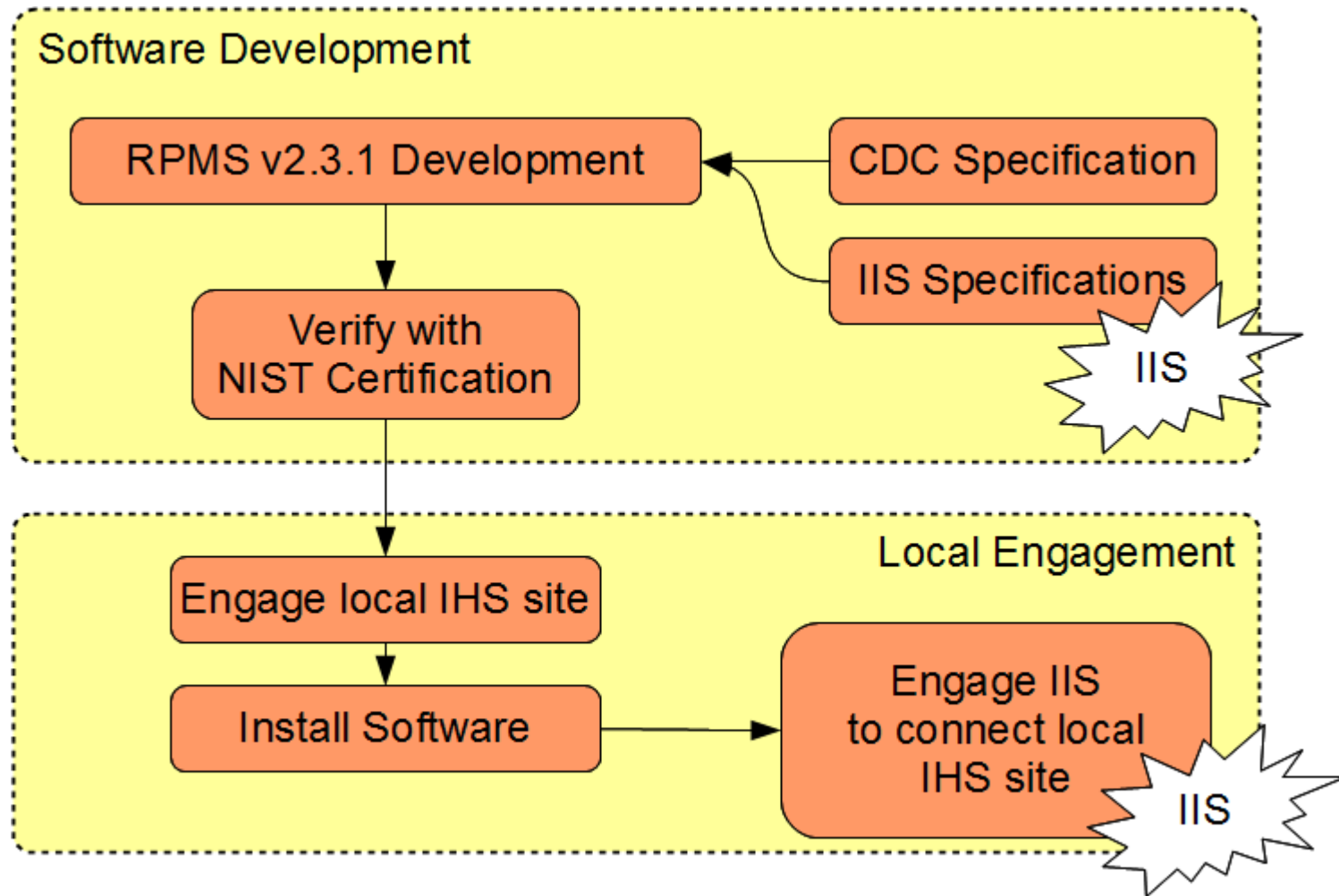
IIS:

- Varied interpretation of the HL7 standard
- Varied transport standards used
- Complex security requirements
- Variability in acknowledgments (ACK) and their interpretation

IHS Meeting the Challenge

- Streamline onboarding process
- Enact an active and informed development process
- Minimize onus of testing on local sites
- Maximize local participation and manage provider expectations
- Put an EHR certified product into 35 production interfaces

Development Process: HL7 2.3.1



Why change the process?

ONE MESSAGE:

Clinics utilizing RPMS can demonstrate meaningful use by submitting test messages to state IIS

MANY PARTNERS:

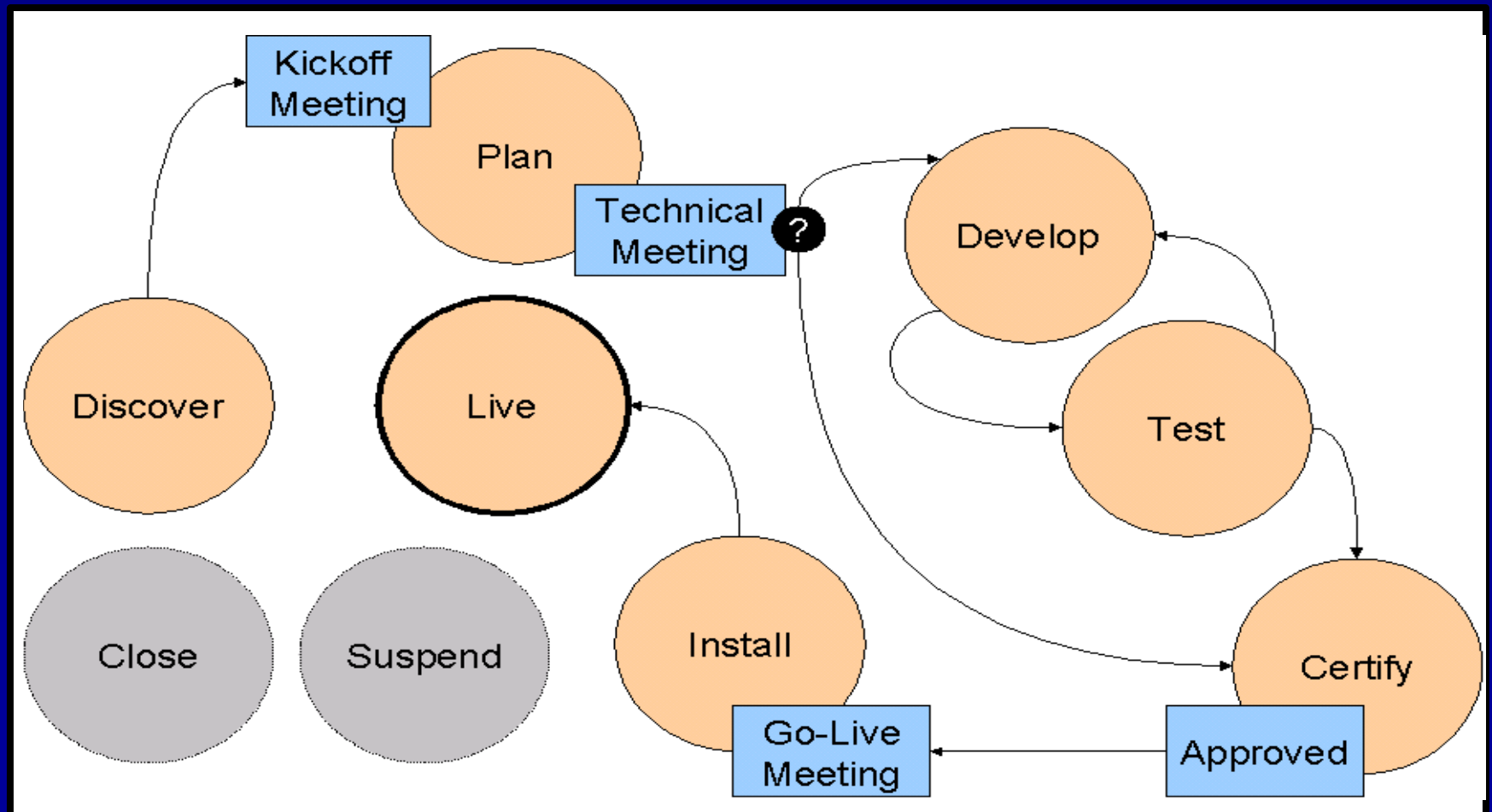
Every IIS is free to adapt the CDC HL7 standard to meet local requirements according to:

- local or state law and regulations
- specific IIS needs or expectations.

These differences:

- ✓ Make it hard for a national organization, such as IHS, to create a standard interface with all IIS.
- ✓ Differences are hard to see at first and can only be determined after attempting to interface.

Onboarding Process: HL7 2.3.1

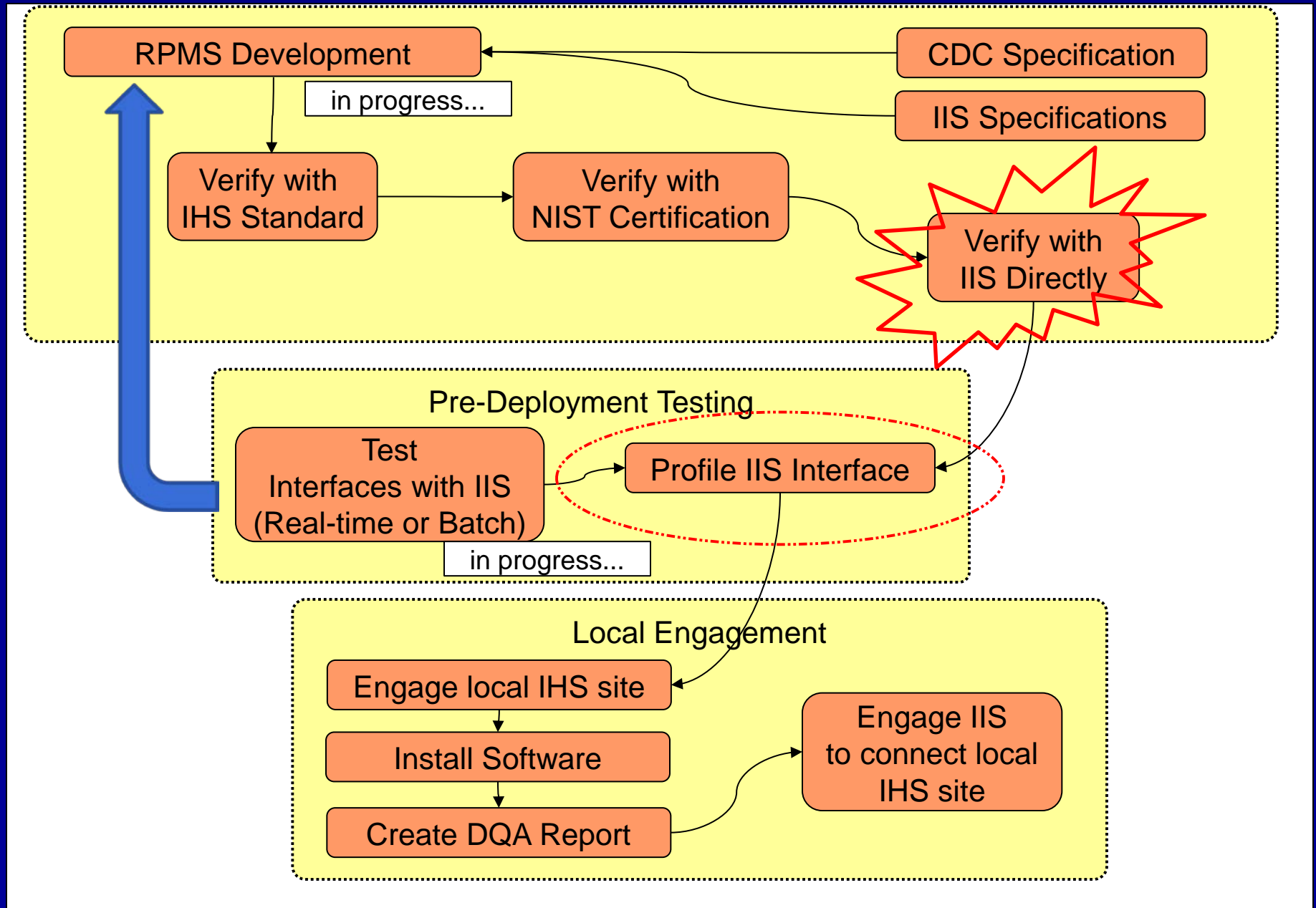


IIS Profiling Project

Purpose: Create a system to automatically profile IIS to determine which kind of messages are acceptable and which are not.

- The Data Quality Analysis (DQA) Tool allows users to evaluate HL7 messages
- IHS enhanced a transport tool called the Simple Message Mover (SMM)
- SMM is configured to each IIS
- Can be centralized at the regional level, allowing IHS implementation with minimal installation, training

Profile Process: HL7 2.5.1



Method

- Contacted IIS to explain process and request test accounts
- Review IIS guide and develop a report template.
- Establish test connections to real-time or batch interface, install third party software as needed.
- Submit several hundred test messages to verify expected responses to known error conditions.
- Used feedback to detect message variations and develop a unified profile representing IIS.

Results

- Profiling Project connected to 12 IIS
- Attempted connection to 12 additional IIS
 - no real-time connection
 - discussed with IIS but project ended
 - IIS transitions
 - no available test servers

Results

- IIS not prepared to allow access to test
- Some IIS required direct support
- IIS use many kinds of transport methods
- Process required study and installation of third party software, thus,
- Connecting with IIS: explaining the project, obtaining approval to move forward took more time than expected.

Results

Requests for these test accounts were novel:

- IIS did not understand the purpose or need to provide IHS with a testing account for a process that would not directly result in bringing on a specific IHS facility
- IIS expected that the messages sent would “pass”, and be the final result of IHS development, rather than preliminary messages that were sent to verify that development was on course.

Intent vs. Findings

Profiling project intended to yield information about HL7 message structure

In order to do this, RPMS must connect to IIS

Connecting became the challenge and shifted project focus

Messaging Issues Discovered

Deployment of EHR certified, standards based software does not guarantee implementation

- Unanticipated local specifications delay
- Messages rejected that contain unexpected fields
- Off standard fields
- RPMS resources to support interface vary
- Transport capability impacts HL7

Technical Issues Discovered

- Variation in security requirements, i.e., two-factor authentication
- Variation in ACK messages
- Amount of time, effort and skill set required for this work is available to profiling project, not local sites.

Conclusions

- Establishing test connections provided more direct information to IHS development team
- Post profiling engagement of local/regional RPMS teams saved time and effort
- Process is useful beyond RPMS
- Due to time, scope and funding constraints, an expansion project needed for comprehensive profiling feedback.

Summary

- IHS software solutions enable RPMS users to exchange immunization information with state immunization information systems (IIS).
- IHS continues to hone development by using the Simple Message Mover for profiling
- Profiling can verify EHR and IIS adherence to standards
- If profiling feedback were incorporated into a formalized process, such as IIS certification, it could provide information that may bring providers and PHA's closer to interoperability



Enhancement Criteria

- Change must conform to CDC standards
- It must not clash or conflict with current practice, not otherwise specified by CDC standard
- Must not impact RPMS adherence to NIST certification requirements

Method

SMM deployed via a configuration and installation website that allowed:

- rapid test feedback integration
- deployment of updates

Use of website facilitated preparation and transfer of knowledge to regional RPMS support teams