Pulse
Apelon Newsletter

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In This Issue

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Upcoming Events

InterSystems DevCon2009
March 22-25
Phoenix, AZ

HIMSS09
April 4-8
Chicago, IL

More Event Info

This edition of our newsletter is about data standardization and interoperability. Owing to the new HIT stimulus package, a discussion of standards is particularly timely. These articles also illustrate our practical focus; start with a basic idea and grow through experience (instead of spending a long time on design in isolation from users).

First, John Carter provides an update on the activities of some of the key Standards Development Organizations. Then, Tony Weida writes about data standardization issues in a recent practical implementation of interoperability services. Jack Bowie's product-focused article discusses Termworks, a Software-as-a-Service application for semantic normalization of clinical data. It's a cool tool for simple mapping projects.

Finally, thanks to all of you who took the time to visit us at HIMSS AsiaPac09. If you will be attending the HIMSS conference in Chicago next month, we cordially invite you to stop by booth #1042 and say hello. Many of Apelon's team will be in attendance and we look forward to speaking with you about your challenges and experiences. Visit the link on the left for further information on the conference.

As always, we welcome queries and feedback to pulse@apelon.com or write me directly at scoady@apelon.com.

Regards,

Stephen Coady
President and CEO
APELON

Apelon and Standards Development Organizations (SDOs)

Apelon customers want to share and reuse healthcare data ... that's why they work with us. We always advise our clients to take a standards-based approach, because information standards, although still changing and evolving, are the best way to ensure that electronic healthcare information technology delivers its promised value.

Apelon consultants have been leaders in healthcare information standards for more than a decade. Here are links and some summary information about the standards development organizations we participate in. For more information about Apelon's standards-related activities, contact Apelon VP John Carter at jcarter@apelon.com.

HL7

HL7 started more than 20 years ago defining standard text-based messaging formats, such as for exchanging lab results. Today, HL7 still defines message formats, but also conceptual standards like the Reference Information Model or RIM, document standards like the Clinical Document Architecture, and even complex syntaxes like GELLO that are almost like programming languages. Currently, Apelon is participating actively in HL7's migration toward Services-Oriented Architecture specification through the Common Terminology Services version 2 project. Apelon's Russ Hamm is a co-chair of the HL7 Vocabulary Work Group and a leader of CTS2.

Apelon's Russ Hamm, Rob McClure, David Sperzel and Tony Weida are actively contributing to forthcoming information model and vocabulary products of the Security Working Group with particular focus on role-based access control (RBAC), and the Community-Based Collaborative Care (CBCC) Working Group regarding privacy policies and consent directives.

IHTSDO

The International Health Terminology Standards Development Organisation (they're Danish and so that's how they spell it) directs the development and adoption of SNOMED CT. Since Apelon software has played a key role in shaping SNOMED CT and since SNOMED CT is emerging as the recognized and de facto standard for exchanging many types of data, we remain actively involved in IHTSDO's ongoing development of this important resource. Apelon's Jack Bowie currently serves as co-chair of the IHTSDO's Affiliate Forum.

caBIG

The US National Cancer Institute's Cancer Bioinformatics Grid initiative is defining standards and infrastructure for sharing research data among its many grant-funded projects. Although caBIG is not exactly an accredited standards development organization, it has many of the same features: a public, consensus-based process, formal criteria for creating and approving work products, and a commitment to sharing health data across enterprise boundaries. Under contract, Apelon provides support to the Vocabulary and Common Data Elements Workspace.

IHE

Integrating the Healthcare Enterprise develops "Integration Profiles," sometimes picking from existing standards, or developing new specifications when necessary. Driven mostly by industry participants, IHE focuses on solving practical interoperability problems. Apelon has been an IHE member since 2006.

HITSP

To paraphrase the old BASF ad, the Health Information Technology Standards Panel doesn't really make standards, but they make standards more usable. By picking among the several, often overlapping standards that are available to meet a given use case, adding constraints and resolving ambiguities, HITSP Interoperability Specifications allow system developers to make sense of the standards patchwork ... hopefully without spending ten years figuring out all the details. Representing the Veterans Health Administration, Apelon's John Carter participates actively in two cross-cutting HITSP committees, focusing on vocabulary and data element definitions.

If your enterprise needs help navigating the complex world of standards development or building standards-based data sharing, Apelon consultants can help!

Consultants' Corner - Apelon Terminology Interchange

The Apelon Consulting Group (ACG) applies its broad range of biomedical informatics expertise to satisfy customer requests ranging from custom terminology software and content to consulting on enterprise terminology strategy and terminology asset management best practices. Those elements all come together in our Distributed Terminology System (DTS) based Apelon Terminology Interchange for the Intel® SOA Expressway for Healthcare (SOAE-H). After rigorous technical evaluation, Intel selected Apelon as their certified ISV ecosystem partner for terminology. ACG personnel collaborated closely with Intel colleagues on specification, implementation, integration, validation, packaging and marketing of this very exciting new initiative.

Joseph Natoli, Platform Architect at Intel responsible for the features, value proposition, ecosystem, roadmap and architecture of Intel's Service Oriented Architecture platform: SOA Expressway, said "Data normalization is a critical component of the Intel SOA Expressway for Healthcare architecture. We selected Apelon as our interoperability partner based on their extensive knowledge and experience in health data standards, and commitment to SOA principles, such as the HL7/ISO standard Common Terminology Services (CTS) web services interface. We have worked closely with Apelon engineers and consultants to create an integrated product and services solution to semantic interoperability within SOAE-H that meets the needs of a wide range of healthcare organizations and environments."

Intel's SOAE-H product ensures high velocity transmission of healthcare information within and across enterprises, e.g., for a Health Information Exchange (HIE). SOAE-H supports standard document formats such as CDA and CCD with legacy and modern message formats such as EDI, X12 and HL7. To facilitate interoperability, SOAE-H also adopts standard terminologies including CPT, DICOM, HL7, LOINC, RxNorm and SNOMED CT for its *canonical* domains like Anatomy, Chief Complaints, Procedures, Outcomes, etc. Apelon consultants have developed canonical value sets (terminology subsets) suitable for each domain. Our *Interchange Update Service* ensures that SOAE-H customers always have access to the latest standard / canonical content. Of course, a participating system will often continue using its own non-canonical code systems, so participation in an SOAE-H exchange necessitates a suite of mappings to and from canonical value sets. To promote effective creation and maintenance of those mappings, Apelon developed the *Interchange Mapper* user interface, a DTS Editor extension with a comfortable spreadsheet-like user interface which marries the terminology matching prowess of Apelon TermWorks to the ongoing terminology asset management capabilities of DTS. For customers who prefer to outsource their mapping requirements, Apelon offers the services of our knowledgeable and experienced consulting team.

The Apelon Terminology Interchange provides an HL7 / ISO standard CTS web service based on the Apelon DTS server that smoothly integrates with SOAE-H. The Terminology Interchange expedites runtime data normalization by batch conversion to and from canonicals (using a CTS extension to be proposed for standardization in HL7's forthcoming version 2 of CTS). Terminology interchange is controlled by a comprehensive set of metadata that describes all currently loaded local code sets, standard terminologies, canonical value sets, mappings, applications contexts, etc. That metadata is easily configured using the *Interchange Architect* user interface, another intuitive, purpose-built extension of the DTS Editor.

Both the Intel and Apelon solutions are based on Service-Oriented Architecture (SOA), so customers enjoy a flexible, open platform for data exchange. Further details are available in our white paper: *The Apelon Terminology Interchange: Data Interoperability in an SOA Environment*, available to you upon request.

To learn more about the Apelon Terminology Interchange for SOAE-H and other ACG interoperability initiatives, please contact Apelon's SVP for Consulting Services, Tony Weida at tweida@apelon.com.

Product Forum - TermWorks

We've focused this issue of Pulse on data standards: how they can be developed, evaluated and applied. Since few existing clinical applications use these standards natively, however, it is common for organizations to develop "mappings" between local code sets and standards such as SNOMED CT or LOINC.

Historically, the development of mappings has been a tedious, manual process. Apelon's TermWorks is a proven tool that can greatly simplify map development. We believe that there is no *fully-automated* mapping process; the objective of a mapping tool should not be to "get everything right the first time" but to select from the thousands of potential matches in a terminology to a manageable set that can be more easily reviewed, validated, and/or corrected, by knowledgeable users.

TermWorks is unique in its four key attributes: a service-oriented architecture, access to authoritative content, powerful yet flexible matching algorithms, and ease of setup and use.

Service-Oriented Architecture - TermWorks is offered as a web service. Apelon hosts the servers that maintain the terminologies and supply the matching algorithms. TermWorks customers simply subscribe to the TermWorks web service for as long as they need.

Authoritative Content - A mapping tool can only be effective if it provides access to complete, up-to-date versions of the target data standards. Apelon maintains the latest version of all standards on its TermWorks servers to ensure that customers have access to all the data sources they need.

Robust Matching Algorithms - While target-specific mapping tools have been developed, these applications increase the user's burden due to idiosyncratic, and inconsistent, features, functionality, and user interfaces. TermWorks incorporates a consistent set of powerful lexical matching algorithms such as *stemming, term completion*, *word-order normalization*, *abbreviation processing*, and *synonym and entry term checking*. Also available are semantic features for *hierarchy navigation*, *concept detail review*, definition of personal *subsets*, and an advanced *matching language*.

Easy Setup and Use -TermWorks is offered as a service; there is no hardware to acquire or software to configure. To make mapping even easier, TermWorks includes a Microsoft Excel plug-in that makes matching capabilities available from this familiar Office application. Matching a list of terms to SNOMED CT is as simple as highlighting a column of phrases and selecting Search. TermWorks automatically fills in columns with the best SNOMED match. Users can subsequently review all the identified matches, browse hierarchies, select alternatives, and track progress, all from the Excel spreadsheet. Once the data mappings have been completed, the Excel-based mapping data can be easily exported to other applications such as interface engines, data repositories, EHRs or our own DTS for integration, ongoing maintenance, and deployment.

While most TermWorks customers take advantage of the Excel interface, the TermWorks Web Services API is also available to provide terminology services to other HIT applications[1].

For more information on TermWorks, including a Flash demonstration, click here.

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1. Richesson, et. al., A Web-based SNOMED CT Browser: Distributed and Real-time Use of SNOMED CT During the Clinical Research Process, Medinfo, 2007.

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www.apelon.com

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Apelon, Inc. | 100 Danbury Rd | Ridgefield | CT | 06877