Entity Services in Action with NISO STS

Matt Turner
CTO, Media & Entertainment
@matt_turner_nyc
#mlw17
Agenda

- How we define data today
  - Starting with an allegory and some dramatic foreshadowing
  - Warning: features conceptual recursion
- MarkLogic Entity Services
- NISO STS – Standard for Standards
- Demonstration
INSIDE THE HUNT FOR RUSSIA’S MOST NOTORIOUS HACKER

by Garrett M. Graff | Illustrations by Chad Hagen

With 39 arrests around the world—stretching across four nations—investigators managed to disrupt the network. But crucial players slipped away. One top mule recruiter in the US fled west, staying a step ahead of investigators in Las Vegas and Los Angeles before finally escaping the country inside a shipping container. More important, Slavik, the mastermind himself, remained almost a complete cipher.
What makes the shipping container so successful?

It is (very well) DEFINED!!
Benefits of Definition

- Interoperability
- Specialized roles
- Universal application
  - It's an *intermodal* container
Shipping Container Definition In Action

ISO 668

Standards Body  Manufacturers  Businesses
How Do We Define Data Today?

Application code
Relational schemas, domain models, ERDs
ETL scripts, stored procedures
translated

referred

Application code

Relational schemas, domain models, ERDs

ETL scripts, stored procedures

! =

INTERNATIONAL STANDARD
ISO 14289-1
Data Modeling

What We Need

- True description of data, actionable in the database
- Enabling specialization
- Universally applied to multiple functions
Entity Services
Iterative, model-driven data integration

- Describe real-world entities, attributes, and relationships in a Semantic model
- Automatically derive services, transformations, configuration from the model
- Govern context and data together
- Iterative and evolutionary: Use only as much as you need
Entity Type Model

- Entities (noun)
  A Customer is something that exists as part of my business/mission.

- Properties (adjective)
  Customer entities have a Name that is of type string and is required.

- Relationships (verb)
  Customers place Orders.
Entity Services Model in Action

Model

Conversion Code

Search Options

Template Driven Extraction

Generated Code

Data Architect

End User Application

End User Application

End User Application

Developers
Shipping Container Definition MODEL In Action

ISO 668

Standards Body

Manufacturers

Businesses
Introduction to Standards

- Fundamental content for (nearly) every industry

What are standards?

International Standards make things work. They give world-class specifications for products, services and systems, to ensure quality, safety and efficiency. They are instrumental in facilitating international trade.

- Impact: Standards are at the start of nearly everything!
FUNDAMENTAL INDUSTRY INFORMATION

Standards Content

- Created for and with industry
- Expressed as precisely worded documents
- Complex workflows enhanced with MarkLogic
  - Delivering information (not PDFs) to customers
- But: NO STANDARD FOR STANDARDS …
NISO STS: A Standard for Standards

- Released in April 2017
- Based on a standard (ANSI/JATS) and adapted by ISO for their use
  - Recognized to have broader value to the standards community
  - Transformed by NISO to become standard for standards
- Goals
  - Ease publication of standards
  - Increase interoperability of standards
  - Aid distribution of standards
  - Improve the future of standards publishing
- Creates document description standard to every part of the industry
Entity Services Demo
STS Demo

- STS data Model and entity description
- Generate converter + mappings
- Generate envelope documents
- Generate search options
- Install in application (Old Skool framework)
- Search and explore standards
- Generate TDE
  - SQL over the documents!
- Explore normative reference relationships
NISO STS Samples

- 44 Freight Container Standards
  - Content from the ISO
  - 1396 files, including images, diagrams
  - STS format*
  - Loaded in a MarkLogic database

*ISO STS, not NISO STS – I am not a time traveller
"Standard": {
  "properties": {
    "urn": {"datatype": "string"},
    "doc_number": {"datatype": "string"},
    "title": {"datatype": "string"},
    "doc_type": {"datatype": "string"},
    "originator": {"datatype": "string"},
    "secretariat": {"datatype": "string"},
    "pub_date": {"datatype": "string"},
    "release_date": {"datatype": "string"},
    "scope": {"datatype": "string"},
    "norm_refs": {
      "datatype": "array",
      "items": {
        "$ref": "#/definitions/Std_ref"
      }
    }
  }
}
STS Demo

- STS data Model and entity description
- Generate converter + mappings
- Generate envelope documents
- Generate search options
- Install in application (Old Skool framework)
- Search and explore standards
- Generate TDE
  - SQL over the documents!
- Explore normative reference relationships
Casting Off
RECAP

**Entity Services**

- Puts you data model into action
- Lets you model what you need
- Lets specialized resource focus on their roles
- Makes data easily available to developers
Entity Services Model in Action

Model

Conversion Code

Search Options

Template Driven Extraction

Generated Code

End User Application

End User Application

End User Application

Data Architect

Developers
Questions?

Matt Turner
CTO, Media & Entertainment
@matt_turner_nyc
#mlw17
CASTING OFF

References

- Entity Services GitHub: https://github.com/marklogic/entity-services
- Entity Services Guide: https://docs.marklogic.com/guide/entity-services
- NISO STS: http://www.niso.org/workrooms/sts/
- Ninety Percent of Everything
Thank You!

- Stephane Chatelet, Director Information Technologies, ISO
- Holger Apel, Software Manager, ISO
- Bruce Rosenblum, CEO Inera Systems and Chairman of NISO STS working group
Happy Sailing!