

Semantic Web (Web 3.0)

Big Data for Business

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It's big

3.0



Web 3.0 Definitions

Definition: The predicted third generation of the World Wide Web, usually conjectured to include semantic tagging of content

- Who's in charge?
 - W3C has consolidated the resources
- Value add positions, and platforms
 - PaaS
 - Structured design, implementations
- OORDBMS
 - Object Oriented Relational Database Management System

Web 3.0 Definitions (cont.)

- RDF – Resource Description Framework (RDFS: RDF Schema)
 - General method for describing information
- Simple Knowledge Organization System
 - Its main objective is to enable easy publication and use of such vocabularies as linked data
- SPARQL – Recursive Acronym, SPARQL and RDF Query Language
 - Allows for a query to consist of triple patterns (triple-stores holds these), conjunctions (logic), disjunctions (logic), and optional patterns
- Triple Store – A purpose built database for the storage and retrieval of triples (triple patterns)
 - These are ancillary to the idea of Web 3.0 and have been provided by many vendors
- OWL – Web Ontology Language
 - OWL is a collection of ontology languages for authoring ontologies or vocabularies
- Vocabularies – Definition of concepts and relationships on the Semantic Web
 - No clear division between what is referred to as a vocabulary, or an ontology
 - Per the W3C: “The trend is to use the word “ontology” for more complex, and possibly quite formal collection of terms, whereas “vocabulary” is used when such strict formalism is not necessarily used or only in a very loose sense.”

Web 3.0 Definitions – Vocabulary (or Ontology)

An example of the use of a vocabulary, or ontology:

A bookseller may want to integrate data coming from different publishers.

The data can be imported into a common RDF model, eg, by using converters to the publishers' databases. However, one database may use the term "author", whereas the other may use the term "creator".

To make the integration complete, an extra definition should be added to the RDF data, describing the fact that the relationship described as "author" is the same as "creator". This extra piece of information is, in fact, a vocabulary (or an ontology), albeit an extremely simple one.

Web 3.0 – OORDBMS

Object Oriented Relational Database Management System

- Some debate as to what constitutes an ODBMS
- A basic support for classes of objects and the inheritance properties and methods by subclasses and their objects
- An easier way (for a programmer/DBA) to understand what you're doing to the data.

Web 3.0 – Platforms

Vendors have found a marketplace

Salesforce

PaaS concepts and use cases

The Future Now

Has great descriptions and reviews for existing platforms

ZUEBOX

Linked data and consulting service to implement Web 3.0

FANGGLE

Vertical cloud product utilizing Web 3.0 concepts

Web 3.0 – Tools

Software solutions have been created

FacetApp

PaaS along with OntoApp as a modeling tool/solution

Oracle

Complete tools from modeling to production

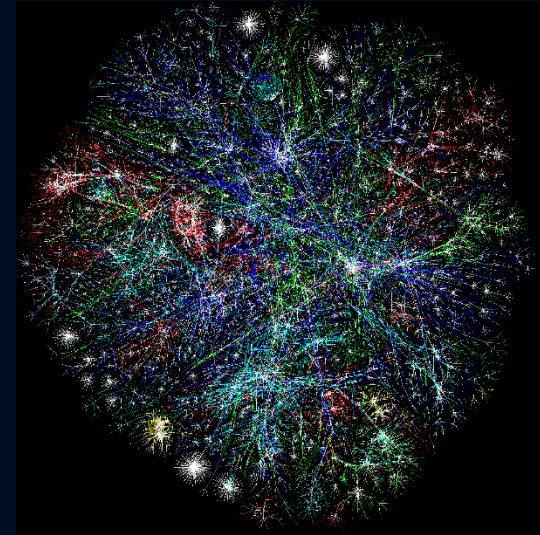
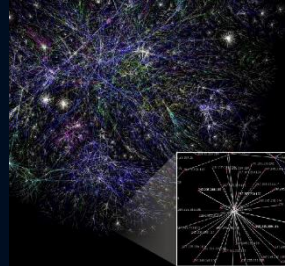
IBM

Their best product has to be Watson, just spun off last year as a business division

Salesforce

Consulting and programmer services augment their PaaS

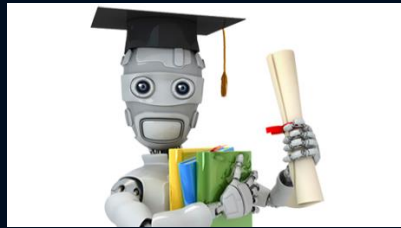
Web 3.0 – Contentions



It's a big web, and only getting bigger

We need to do something...but what?

Web 3.0 – Contentions (cont.)



Machine Learning (AI)



Human designed approaches

Why not both?



The Goal

Is consolidation to a single approach necessary?

Web 3.0 – Challenges

Vastness

- Very large landscape
- Duplication, outlining what constitutes the same data

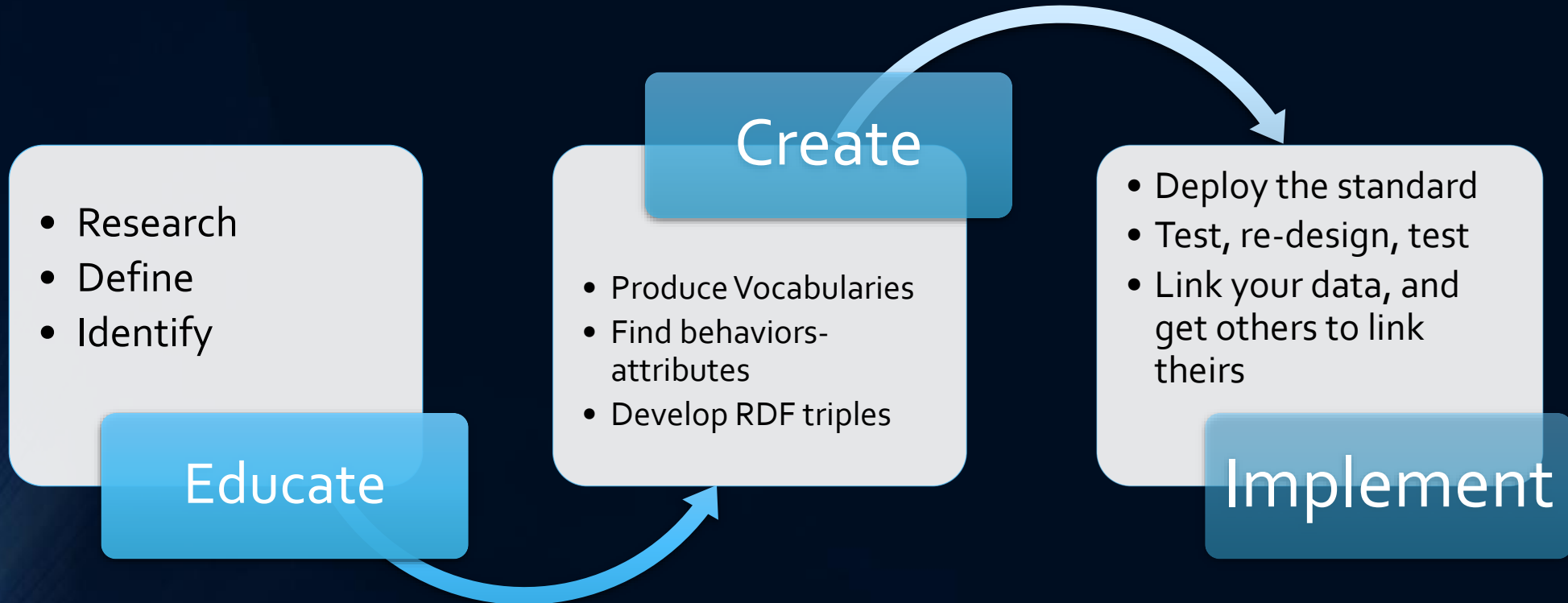
Vagueness

- Fuzzy logic will prevail

Uncertainty, Inconsistency

- Difficult to define/classify/ingest data
- Logical contradictions in ontologies/vocabularies
- Deductive reasoning falls apart; defeasible and paraconsistent seem to stand

Where can we go from here?



Wrap-Up

Question everything

Thank you for your time.
John Dougherty, CIO

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