KN(owl)edge

The Linked Data Platform at Kuehne + Nagel

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Agenda

Introduction and Overview

Live Demo

Challenges and Success Factors

Q & A

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Semantic Web @ Kuehne + Nagel
What makes the story interesting

Kuehne + Nagel's first semantic web application will manage the incident communication for mission critical applications.

- ➢ Semantic Web gets mission critical

- ➢ Top Level Management is aware about it

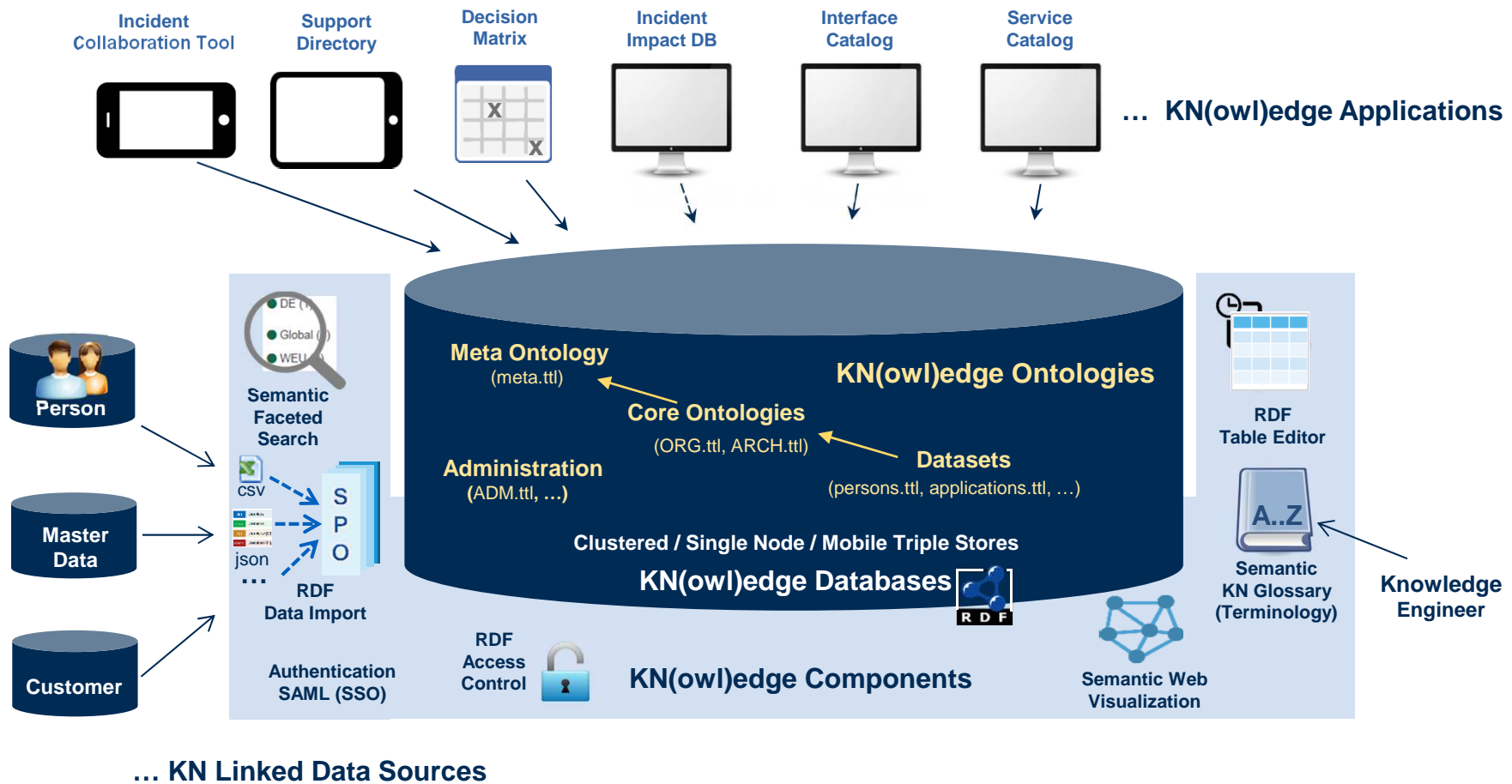- ➢ Semantic Web is used for Global Knowledge Management

KUEHNE+NAGEL

Short History
of semantic web at Kuehne + Nagel

~ 2014	**Idea of Semantic Web for EAM** Experiments with Protégé and semantic media wiki
Oct15-Jan16	**Evaluation of Semantic Web for EAM** Evaluation of semantic web for incident impact analysis (student project)
Feb 2016	**Internal Project of the Month** Internal presentation of semantic web with a prototype for incident communication
Apr 2016	**"Boundaryless EAM with Semantic Web Tools"** Project presentation at the Open Group London Event and Members Meeting
May-July 2016	**KN Semantic Web Platform** Evaluation of linked data platform topics (student project)
May-Dec 2016	**Incident Collaboration Project** Implementation of the first semantic web application at Kuehne + Nagel
Sep 2016	**"KN(owl)edge – the Linked Data Platform at Kuehne + Nagel"** Presentation of the KN semantic web platform at the SEMANTiCS 2016

KN(owl)edge
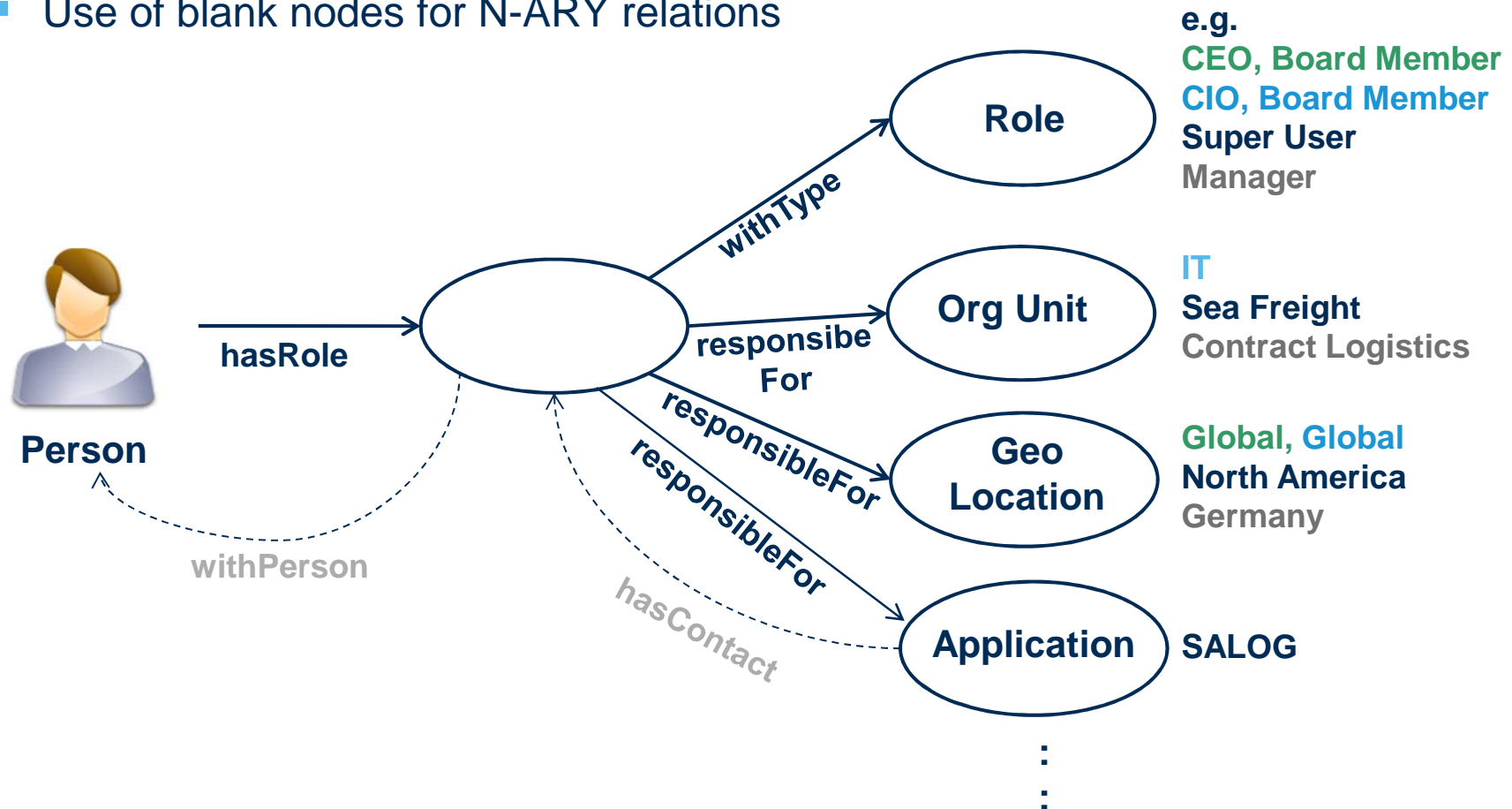## Vision and High Level Architecture

Incident Collaboration Tool

Support Directory

Decision Matrix

Incident Impact DB

Interface Catalog

Service Catalog

… KN(owl)edge Applications

Person

Master Data

Customer

Semantic Faceted Search

CSV

json

…

RDF Data Import

Authentication SAML (SSO)

RDF Access Control

S P O

Meta Ontology
(meta.ttl)

KN(owl)edge Ontologies

Core Ontologies
(ORG.ttl, ARCH.ttl)

Administration
(ADM.ttl, …)

Datasets
(persons.ttl, applications.ttl, …)

Clustered / Single Node / Mobile Triple Stores

KN(owl)edge Databases

KN(owl)edge Components

Semantic Web Visualization

RDF Table Editor

A..Z

Semantic KN Glossary (Terminology)

Knowledge Engineer

… KN Linked Data Sources

Incident Collaboration Tool
The User Story

"The Incident Manager wants to know, whom he should inform in case of an (severity 1) incident"

Incident → Help Desk → Incident Manager

Incident Collaboration Tool

Data Stewards

provide organizational knowledge concerning the different roles

Incident Communication

SMS

IT Support   Super User   Business Manager   IT Manager   Client Contact (internal)   ...

KN(owl)edge Ontologies
Role model

- Use of blank nodes for N-ARY relations

e.g.
CEO, Board Member
CIO, Board Member
Super User
Manager

Role

withType

IT
Sea Freight
Contract Logistics

Org Unit

responsibe
For

hasRole

Person

responsibleFor

Global, Global
North America
Germany

**Geo
Location**

withPerson

responsibleFor

hasContact

Application

SALOG

KN(owl)edge Components
Selective key components

- **Semantic Faceted Search**

faceted search like used by modern web sites (Amazon, eBay, Linkedin, …) based on semantic web data

- **RDF Table Editor**

excel-like table editing for semantic web data (RDF)

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Key Challenges
What issues did we discover

- Data Quality / Semantic Heterogeneity

- Semantic Web Experts (they are rare)

- JavaScript framework (there are many)

- Blank Nodes are tricky

- OWL Model agility / generalization / partitioning / cross referencing

- SPARQL adoption (COUNT, OPTIONAL, UNION, …)

- … The Undiscovered Country

Critical Success Factors
What are key things to consider

- Have Management Support

- Implement a Data Governance Approach (Data Trustee)

- Focus on your Use Case (Keep It Simple and Smart)

- Allow Evolution (Agile Data Structure)

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Thank you !

Any further questions?