Overview

- NeOn Project Introduction
- The NeOn Toolkit (Core and Plugins)
- Supported OWL2 Features
- The NeOn Foundation
- Conclusion
NeOn Project Overview

- “Lifecycle Support for Networked Ontologies”
- Methods and tools for ontology engineering
- Focus on networked ontologies
NeOn Toolkit

- Built on Eclipse and the OWL API (v3) in Java
- Platform-independent (builds for Windows, MacOS, Linux)
- Complete ontology development functionality
- Extensible via plugins
- Available plugins cover the entire ontology engineering lifecycle
- Business-friendly Eclipse Public License (EPL)
■ Project management involved in creating ontologies
■ Methodological guidelines for ontology engineering activities
■ Implemented in gOntt plugin
■ Scheduling ontology projects
■ Helping in the execution of ontology projects
Patterns are used in many areas as "templates" or abstract descriptions encoding best practices of some field.

The SemanticMediaWiki ODP portal
- Various types of patterns
- Exemplary ontologies

XD NeOn plugin
- Access to ODP registry
- ODP selection, specialisation, and annotation
- Ontology debugging against design patterns and good practices
Inspired from software engineering, ontology modularisation refers to the design of ontologies as sets of components that can be developed and managed independently.

Module plugins implement methods and algorithms for module extraction, partitioning, and composition.
- NTK allows “pluggable” reasoners via the OWL API (we currently provide HermiT and Pellet)
- Plugins available for materialisation, querying, and resolving inconsistencies
- RaDON – Repair and Diagnosis in Ontology Networks: Implementation of novel scalable methods and algorithms for repair and diagnosis in ontology networks
Investigate the value of ontology summarisation techniques based on key concepts to provide better visualisation and navigation of ontologies.

Key concept extraction: Integration of cognitive criteria with lexical statistics, formal and topological criteria.

Implemented in the KC-Viz plugin.
NeOn Toolkit 2.3 Features

- **New OWL2 features**
  - Creation of new datatypes
  - AnnotationProperty taxonomy: creation and presentation in Navigator
  - Domain and range of AnnotationProperties
  - New ObjectProperty characteristics
  - Sub-property chains

- **Lots of usability enhancements**
  - Improved navigation/operation of toolkit with the keyboard
  - Indicate progress while restoring workspace after restart
  - Organization of views
  - Organization of plug-ins on update-site
  - Accessibility of plug-ins
  - Appearance of Preferences for NeOn Toolkit and plug-ins

- **Lots of improvements for the MAC**

- **Additional ontology tabs**
  - Source view for ontologies (Functional Syntax, Manchester Syntax, OWL/RDF, OWL/XML)
  - Ontology statistics panel
  - Graphical view of Import statements

- **Template for populating the properties of individuals**

- **Source view for entities**
  - Manchester Syntax

- **Import/export of ontologies to different formats**
  - Functional Syntax, Manchester Syntax, OWL/RDF, OWL/XML, Turtle

- **Domain view displaying applicable properties for a class**

- **Display number of direct/indirect individuals per class**

- **Improved search facility**
  - Incl. “Find References” for entities
OWL2 Features

- Complete support of OWL 2 ontologies
  - Loading
  - Representation
  - Serialising
  - To the extent the OWL API v3.0.0 does

- Partial GUI-level coverage of OWL 2, some features are not implemented
  - N-ary data ranges (also not yet supported by OWL API v3.0.0)
  - Inverse object property expressions
  - Anonymous individuals
  - Complex data ranges
  - Disjoint union
  - Disjoint properties
  - Negative property assertions
  - HasKey axioms
  - Axiom annotations

- All other 88* OWL 2 features are supported by the NeOn Toolkit GUI

* According to http://www.w3.org/TR/2009/REC/owl2-quick-reference-20091027/
Incorporated July 2010

Objectives

- To develop and promote the uptake of advanced semantic technologies.
- To promote high standards in ontology engineering and semantic application design and development through the development and release of robust methods and tools and examples of best practices.
- To educate students, users and practitioners in semantic technologies through the publication of research outputs, learning resources and training events.

The foundation offers partnerships with organisations which use the NTK or would like to contribute in its development

Training and sponsoring opportunities available
Conclusion

- Stable version NTK 2.3.2 available for download
- 30+ plugins available
- Enhanced version (with focus on usability) planned for Q4 2010
- Work underway on ontology design patterns for OWL2

- Business-friendly Eclipse Public License (EPL)
- NeOn Foundation up and running, partnerships possible