Nepomuk in KDE

Sebastian Trüg
maintainer and lead developer of the Nepomuk semantic desktop in KDE

trueg@kde.org
Outline

- Why should I use Nepomuk
- What should I use Nepomuk for
- How do I use Nepomuk
Homework

- **Subscribe to the Nepomuk-KDE ML!**

- **Check Techbase!**
  - [http://techbase.kde.org/Projects/Nepomuk](http://techbase.kde.org/Projects/Nepomuk)

- **Get used to SPARQL!**

- **Ask me!**
  - [trueg@kde.org](mailto:trueg@kde.org)
Why should I use Nepomuk?

- Better interoperability
- The better user experience
- We have the opportunity to be ahead of the competition
- You can tell people that you work on the semantic desktop
Nepomuk in KDE
Sebastian Trueg (Mandriva)

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What should I use Nepomuk for?

- Store file annotations
- Tag files
- Comment files
- Relate files to persons or websites
- Relate files to projects or tasks
- Remember file access
  - Remember when downloading and uploading files
What should I use Nepomuk for?

- Store file annotations
- Store PIM annotations
  - Tag emails and persons
  - Relate persons to projects
  - Relate emails to projects
  - Relate tasks to emails and persons
  - Merge different contacts under one person
  - Show meta information for emails and persons
What should I use Nepomuk for?

- Store file annotations
- Store PIM annotations
- Create things
  - Create projects, tasks, events, places, etc.
  - Sync things with Akonadi
  - Map things to web references (DBPedia)
  - Create things from web pages (forget bookmarks!)
What should I use Nepomuk for?

- Store file annotations
- Store PIM annotations
- Create things
- Remember user events
  - Remember app usage
  - Remember file open with context
What should I use Nepomuk for?

- Store file annotations
- Store PIM annotations
- Create things
- Remember
- Query
  - Search for files
  - Look for resources related to the current doc
  - Annotate semi-automatically

A challenge and opportunity for KDE

1. Introduction
   The appearance of a new comer on a mass market is a rare and difficult event. If Sony succeeded introducing the game market, it is due to the PS1 being the first mass market 3D games able console. Apple did the same on the phone market: providing a richer user experience through an innovative user interaction. In less than 2 years, they captured a third of the phone market in value in the US. They entered the market and took a fair part of it due to the perfect timing of their innovation. With about 1.2% of the desktop market, Linux is still very much in a catch up situation for the conquest of the desktop. And linux does not deserve that. Our KDE2 software are today nice, ergonomic, resource adapted, they should have a fair market share and they dont.

   I think that we are today facing a technological and a market opportunity. The technological opportunity is the use of semantic technologies on the desktop, the market one is the netbook emergence. I am going to detail in the next paragraphs what I mean and what we could do to benefit of it.

2. Semantic technologies
   I consider as being semantic technologies, everything allowing to attach a 'meaning' to anything accessed with a computer. This meaning may be automatically or manually done, what is important is that the same 'meaning' may be attached to all elements in a computer: a mail, a file, a web page, a sound, a video, a photography, ... you name it. The key is that the elements to which 'meaning' are 'attached' may be of very different nature. However, when doing a search on this 'meaning' all elements of different nature will be provided by the computer. So it must be possible to store these 'meanings', to attach these 'meanings', to search for them and eventually to share them.

   Around 2000, everybody thought that these technologies would be used first on the web. In 2009 there are uses of semantic technologies on the web (wikipedia, in the search engine Quaero, ...) but it can not be seen as a huge success, it is still a residual use.
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How do I use Nepomuk?

**Simple resource access:** Nepomuk::Resource

```cpp
Nepomuk::Resource file( myFilePath );
file.addTag( Nepomuk::Tag( "Fancy stuff" ) );
QString desc = file.description();
QList<Nepomuk::Tag> allTags
    = Nepomuk::Tag::allTags();
```
How do I use Nepomuk?

• **Fancy** Nepomuk::Resource usage: CMake

```cpp
set(foo_SRC main.cpp)

find_file(FOO_SOURCE foo.trig
    PATHS "${KDE4_DATA_INSTALL_DIR}" ENV XDG_DATA_DIRS
    PATH_SUFFIXES "apps/nepomuk/ontologies"
)

nepomuk_add_ontology_classes(
    foo_SRC
    ONTOLOGIES
    ${FOO_SOURCE}
)
```
How do I use Nepomuk?

- **Fancy** Nepomuk::Resource usage: Cpp

```cpp
#include "bar.h"

Nepomuk::Bar myBar("hello");
Nepomuk::Bar anotherBar( uri );

myBar.addTag( Nepomuk::Tag( "foobar" ) );
myBar.setFoobar( 42 );

Nepomuk::Foo myFoo;
myFoo.setLabel("My Foo");
myBar.addFoo( myFoo );
```
How do I use Nepomuk?

- **Performing queries**

using namespace Soprano;

Model* model = Nepomuk::ResourceManager::instance() -> mainModel();

QString query = QString("prefix nao:%1 "
"select ?x where { "
"%2 nao:hasTag ?t . "
"?r nao:hasTag ?t . }" )
    .arg(Node::resourceToN3(Vocabulary::NAO::naoNamespace()))
    .arg(Node::resourceToN3(file.resourceUri()));

QueryResultIterator it
    = model -> executeQuery( query, Query::QueryLanguageSparql );
How do I use Nepomuk?

- Iterating query results

```cpp
while(it.next()) {
    Nepomuk::Resource file( it["r"] );
    ShowFile( file );
}
```
How do I use Nepomuk?

- **Ontologies**
  - NIE: NFO, NMO, NCO, NCAL, NEXIF, NID3
  - NAO
  - and others...

- **CMake magic**

  ```
  soprano_add_ontology(foo_SOURCES
    ${CMAKE_CURRENT_BINARY_DIR}/foo.rdfs
    "FOO"
    "Nepomuk::Vocabulary"
    "rdfxml")
  ```
How do I use Nepomuk?

- **Ontology usage**

```cpp
#include "foo.h"

QUrl uri = Nepomuk::Vocabulary::Foo::Bar();

QString query = QString("select ?r where { ? a %1 . }")
    .arg(Node::resourceToN3(uri));
```
How do I use Nepomuk?

- **Annotations**
  - `playground/base/nepomuk-kde/annotationplugins`

```cpp
Resource res = getResource();
AnnotationPluginFactory::instance()
    ->getPluginsSupportingAnnotationForResource( res.resourceUri() );

AnnotationPluginWrapper* wrapper = new AnnotationPluginWrapper();
connect( wrapper, SIGNAL(newAnnotation(Nepomuk::Annotation*)),
    this, SLOT(addNewAnnotation(Nepomuk::Annotation*)) );
connect( wrapper, SIGNAL(finished()),
    this, SLOT(slotFinished()) );

AnnotationRequest req;
req.setResource( res );
req.setFilter( filter );
wrapper->getPossibleAnnotations( req );
```
How do I use Nepomuk?

```cpp
void slotNewAnnotation( Nepomuk::Annotation* anno )
{
    showAnnotation( anno->comment() );
    m_annotatations.append( anno );
}

void slotCreateAnnotation( Nepomuk::Annotation* anno )
{
    anno->create( m_resource );
}
```
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