Abstract:

The project aims to develop a service that write backs metadata changes to the given file additionally to develop a plugin system to support different file formats.

Google Summer of Code Project Proposal

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Proposal Title: Metadata Writeback

Motivation for Proposal :

Nepomuk is one of the most unique piece of software, it not only offers metadata management it offers manipulation of metadata as well, with ability to metadata syncing implemented recently the data not confined to one system anymore.

Now the future of Nepomuk already looks bright with ability to search similar images,searching a video using subtitles or implementing web extractor to fetch information from the web, the chance to work on project like this and learn lot of new things like Resource Description Framework(RDF) or extracting metadata using Strigi would be very exciting.

Now the goal of this project is to implement a writeback service that will write back any metadata changes that is supported by the file (ratings,comments,tags etc) to the file itself and a plugin system to add support for new file formats easily.

This greatly enhances the Nepomuk's cross platform ability, as the metadata is saved within the file itself and it also increases Nepomuk's integration with applications like Digikam and Amarok.

This project will basically fit with Nepomuk's data management service, it can be regarded as extension of the data management service thus changes made to the file will be preserved when moved to a different system.

Implementation Details :

The project can be divided into three parts as follows,

1. Core Part
2. Interface Part

3. Optimization Part

1) Core Part:

Writeback Service: The job of this service will be consist of loading the correct plugin which can be accomplish by using KServiceTypeTrader to identify which plugin is required then loading the plugin using KPluginLoader , then its other work would be monitor the virtuoso back end of soprano for any metadata changes which can be accomplished using APIs of Nepomuk data management services, finally we will be using third party libraries to perform the writeup. (e.g. Amarok's metadata writing (Taglib) for audio files, Digikam for images)

Plugin System: This system will be implemented using a base plugin class which will be inherited by every plugin thus making it easier to manage all the plugins, then developing a interface so the plugins can access the service using DBUS.

2) Interface Part

DBUS: It will be used to control the writeback service , since other Nepomuk services use the same interface it will be provide consistency and it will be used by plugins to access the writeback service.

User Interface: A simple user interface to enable/disable plugin will made with the help of KPluginSelector.

3) Optimization Part

The entire process should be automated and it should take little time and resource to accomplish it, if it takes considerable amount of time or resource it can get in the way of the important jobs of system, so optimization will have important part in the entire project.

One way to accomplish would be saving the metadata changes and performing the writeback only when system is in a idle state (i.e. when CPU usage is less then 5-10% and the file where the writeback is going to performed is not accessed by any other process), thus minimizing the user intervention as possible.

Tentative Timeline:

Before May 23 –
- To familiarize myself with Nepomuk's data management API.
- To learn more about KDE classes and DBUS
- Read about amarok's,digikam's metadata writing system and tracker services.

- Implementing demo services
- Staying active and clearing any doubts regarding the future goals with my mentor.
- Do more junior jobs get familiar with the code of Nepomuk.

May 23 to June 7 –
- I have final exams till 28th, i will be unavailable during this time.
- Start Implementing Writeback service.
- Learn more about Nepomuk from Randa '11.

June 6 to June 13 -
- Implement Nepomuk data mangement API to writeback service.
- integrate Taglib with writeback service to write metadata to audio files.

June 13 to June 27 -
- Implement loading correct plugin functionality in writeback service.
- Start working on the plugin system.
- Implement DBUS interface to writeback service.

June 27 to July 25 -
- Implement the plugin system entirely.
- Connect it with writeback service using DBUS methods.
- Design plugins for audio files and images.
- Setup a environment to test both plugins and writeback service.
- Make a simple user interface to enable/disable plugins.
- Start optimizing the writeback service.

July 25 to August 8 -
- Finish the optimization.
- Test writeback service performance.
- Fix any critical problems if encountered.

August 8 to August 15 -
- Document the code.
- Fix any bugs encountered and clean the code.
- Prepare the branch to be merged with master.

August 15 to August 29 -
- Document any undocumented code.
- Merge the branch with the master.
- Start developing plugins most frequently encountered file formats.

Obligations:
   I have my end semester exams from 17th of May to 28th of May during this time i won't be able to make any progress in the project, besides that i have no other obligations as such, so i

plan to use my free time entirely on GSOC for the summer.

About Me:
  Hey, I am Smit Shah a student of Information Science in R.V. College of Engineering, Bangalore. I am currently in my 3rd year and i have some experience with C/C++ before, i have also made some patches for Nepomuk in the past 3 weeks, this in turn has given me valuable experience with KDE classes and Qt.

   I realized in my 3 weeks stay that making some difference for the better in Nepomuk or anything for that matter makes me happy the most , i think be it any community (gaming,open source etc) the greatest satisfaction comes from making differences albeit even small ones, thus i plan to make the difference through my coding/developing ability.

   After my GSOC i am planning to develop various plugins to add support for different files formats in metadata writeback service, then i would like continue and work on internal Nepomuk to implement metadata sharing or any other projects required in the future.