Accessibility And Interoperability

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Introduction

Most applications are written for users capable of seeing the screen, and of using both a keyboard and a mouse in normal speed.

For a number of people, this expectation creates huge obstacles.

Specialized assistive technologies have been written that allow these users to access the computer.

It is difficult to convert the graphical information into something these assistive technologies can handle.

Special interfaces for assistive technologies allow assistive technologies to access essential information in the running applications.
Overview

- The Current Situation
  - Qt Accessibility Architecture
  - GNOME Accessibility Architecture
- Bridging Between the Two Architectures
- KDE Based Assistive Technologies
The Current Situation
The Qt Accessibility Architecture was added to Qt for providing support for the Microsoft Active Accessibility (MSAA) technology on Windows.

MSAA was not designed to be the only source of information that is used by assistive technologies.

On Unix systems an interface for assistive technologies cannot rely on other protocols, so they have to be complete.

Trolltech currently work on extending their accessibility architecture.
For all widgets in the application accessibility objects are created that can be enquired by the assistive toolkits.

Only the base classes for these objects are part of the Qt library, the actual implementation of the accessibility information is hidden in a plug-in.

For widgets that are implemented outside of Qt it is possible to install additional plug-ins.

When accessibility-related information changes the widgets have to call a static method in order to inform the assistive toolkits.
Bridging Between the Two Architectures
Bridging To ATK

- Mozilla
- Qt/KDE application
- ATK
- ATK <-> AT-SPI Bridge
- AT-SPI
- Links to Library
- RPC/IPC (CORBA)
- ATK <- AT-SPI Bridge
- Qt (with accessible plug-in)
- Qt Accessibility Broker
- AT client
- Java Application
- Java Accessibility Framework

ATK <-> AT-SPI Bridge
Bridging To AT-SPI

Gtk+/Gnome application

GTK+ (with GAIL)

ATK

ATK <-> AT-SPI Bridge

Qt/KDE application

Qt (with accessible plug-in)

Qt Accessibility Bridge

GTK+/Gnome application

Qt/KDE application

Java Application

Java Accessibility Framework

Links to Library

RPC/IPC (CORBA)

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KDE Based Assistive Technologies
For KDE based assistive technologies, we can define an API that provides all needed functionality using Qt and KDE objects.

We need an additional bridge between AT-SPI and this KDE/Qt based interface. If we write the interface to match AT-SPI closely, this bridge can be lightweight.

Matching the API to AT-SPI would also leave the opportunity open to move AT-SPI onto D-BUS or DCOP if this should find the support by the GNOME Accessibility Project.
Trolltech is currently working on extending the Qt Accessibility Architecture to meet the ATK/AT-SPI requirements.

As soon as we know what the new interfaces look like we can start to both write the bridge and the accessibility implementation plug-in for KDE.

In the meantime it is possible to look for other accessibility issues (as for example hard coded time out values, fixed font sizes etc.).