About Me
About Me

KDE

(Kopete, knotify)
About Me

TROLLTECH®
About Me

- QStyleSheetStyle
- Itemviews
- Animation Framework
- QtScript (porting to JSC and V8)
- QObject, moc
- QML Debugger
- Modularisation
- ...
About Me

Offering Qt help and services: Visit http://woboq.com

C++ Code browser: http://code.woboq.org
Outline

1. Event Loop
2. Private Implementations
3. Containers
4. Signals and Slots
Not In This Talk

- Threading
- StateMachine, Animations
- ItemModels
- QVariant, QMetaType
- IO, Plugins
Event Loop

(Demo)
1. Event Loop
2. Private Implementations
3. Containers
4. Signals and Slots
2. Private Implementations
   - d pointers
   - Implicit Sharing
- Hide the implementation.
- Allow keeping binary compatibility.
- Nice side effect: reduced compile time.
class FooPrivate;
class Foo {
    public:
        /* public members */
    private:
        const QScopedPointer<FooPrivate> d;
};

// In the .cpp file:
class FooPrivate {
    /* ... */
};

Foo::Foo() : d(new FooPrivate) {
    /* ... */
}
d pointer: Hierarchy
Case Study

QTimeLine
Private Implementations
- d pointers
- Implicit Sharing
Implicit sharing

(Copy on write)

- QString, QByteArrayList, ...
- QList, QVector, ...
- QHash, QSet, QMap, ...
- QImage, QPixmap, QPen, QPalette, ...
Outline

1. Event Loop
2. Private Implementations
3. Containers
4. Signals and Slots
3 Containers

- Sequential containers
- Associative containers
- String and ByteArray
- Smart Pointers
QList vs. QVector

http://doc.qt.digia.com/qq/qq19-containers.html

qlist.h qvector.h
QList vs. QVector

QVector
- Consecutive Items
- Allocated space at the end

QList
- List of pointers
- Space on both sides
- Shared implementation
In QList, small movable are stored inline.

1  if (QTypeInfo<T>::isLarge || QTypeInfo<T>::isStatic)

   QDECLARE_TYPE_INFO, QTypeInfo
QVarLengthArray<T, int = 256>
QLinkedList
3 Containers

- Sequencial containers
- Associative containers
- String and ByteArray
- Smart Pointers
QMap in Qt 4
QMap in Qt 4
Benchmarks Qt 4.8

Qt 4.8

Iterations vs. Number of elements

Qt 4.8

QMap
QHash
std::map
std::unordered_map
3 Containers

- Sequential containers
- Associative containers
- String and ByteArray
- Smart Pointers
Containers

- Sequential containers
- Associative containers
- String and byteArray
- Smart Pointers
Smart Pointers

- QSharedPointer, QWeakPointer
- QSharedDataPointer, QExplicitlySharedDataPointer
- QPointer
- QScopedPointer
Outline

1. Event Loop
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4. Signals and Slots
4 Signals and Slots

- Moc
- Emitting a Signal
- Connection in Qt5
4 Signals and Slots

- Moc
- Emitting a Signal
- Connection in Qt5
## Relative Indexes

### QTimeline

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Connections
4 Signals and Slots
- Moc
- Emitting a Signal
- Connection in Qt5
Questions

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