

# Python 3 and Qt 5 with QML

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# Overview

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# Background

- 2007: PyGtk / Hildon on N800/N810
- 2009: PyMaemo / Hildon on N900
- 2011: PySide / Qt 4 on N9
- 2013: PyOtherSide on Sailfish OS
  
- On other platforms:
  - SL4A, PyS60, BB-Tart, ...

# Comparison: License/Versions

- PyQt: GPL'd and commercial bindings
  - Qt 4 and Qt 5
  - Python 2 and Python 3
- PySide: LGPL'd bindings + generator
  - Qt 4 only at the moment
  - Python 2 and Python 3
- PyOtherSide: ISC/BSD QML Plugin
  - Qt 5 (Qt 4 support available in Git history)
  - Python 3 (Python 2 still works, but unsupported)

# Comparison: Performance

- Startup time (to first visible screen)
  - PySide/PyQt: CPython + Python code + Bindings + Qt
  - PyOtherSide: Qt only (Python loading delayed until use)
- Responsiveness
  - PySide/PyQt: Synchronous by default
  - PyOtherSide: Asynchronous by default
- Library size (space usage, memory footprint)
  - PySide: QtCore ~ 2.8 MiB, QtGui: ~ 12.5 MiB, ...
  - PyOtherSide: ~ 145 KiB

# Comparison: Usage

- PySide/PyQt
  - Python interpreter uses Qt/QML to display UI
- PyOtherSide
  - QML uses Python as a data provider / backend

# API Overview: QML Methods

```
void addImportPath(path)
```

```
void setHandler(event, callback)
```

```
QVariant evaluate(expr)
```

```
void importModule(name, callback)
```

```
void call(func, args, callback)
```

# API Overview: QML Signals

`received(data)`

`error(traceback)`



# API Overview: Python Module

```
import pyotherside  
pyotherside.send(*args)  
pyotherside.atexit(f)
```

# API Overview: Image Provider

```
def func(image_id, size):  
    return (pixels, (width, height), format)
```

```
pyotherside.set_image_provider(func)
```

```
Image {  
    src: 'image://python/<image_id>'  
}
```

# Current Status

- Desktop Platforms fully supported
- Sailfish OS
  - Best support: Already in Mer and Sailfish OS repositories
- Blackberry 10
  - Python 3 from system, ship Qt 5 and PyOtherSide in app
- Android
  - Ship Python 3 + Qt 5 + PyOtherSide in app

# Roadmap

- Embed Python scripts in Qt Resources
- Static linking of libpython + modules
- Support for PyPy (JIT)
- Wrapping Python objects as QML/JS values

# Snakes on a Boat

# Q&A

Project: <http://thp.io/2011/pyotherside/>

Source: <http://github.com/thp/pyotherside/>

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