Intro to Python on BlackBerry 10

Toronto BB Dev Group

July 29, 2013

How to make a BB10 app

1. Install the NDK (800MB)

2. Install Tart (½ MB)

3. Type `tart template MyApp`

4. Type `tart package MyApp`

... step 1 could be eliminated.

What is Python?

- 1.0 in 1994... 2.0 in 2000... 3.0 in 2008...
- General-purpose, object-oriented, high level
- Compiled (bytecode), runtime/interpreter
- Strongly typed (not like JavaScript or Perl)
- Dynamically typed (not like C++ or Java)
- Readable, flexible, memory management, etc
- Extensive library support, "batteries included"

What is BB-Python

- /usr/bin/python3.2
- http://blackberry-py.microcode.ca
- Subprojects: Tart and PySide
- Tools, samples, documentation, community

BB-Python History

2011	2012	2013

A   B C   D   E   F

A) PB sim, Python 2.7 system updater

B) PB 2.0 beta, Python 3.2 PIM

C) "BBX Python", C++ launcher, Qnx/Python

D) Tart conceived, PySide ported

E) Tart created

F) Tart 1.0 released

Tart Architecture

- C++ launcher, Cascades/Qt main thread, Python secondary thread(s)

- Asynchronous bidirectional messaging

- Separate business logic and UI

Anatomy of a Tart App

- We provide:
  - `TartStart` (precompiled): launcher
  - `blackberry_tart.py`: glue
  - Tart framework (.py): support code, most optional
  - `tart.js`: glue
- You provide:
  - `app.py` et al: "backend", business logic
  - `main.qml`: QML/JavaScript (UI)

Some Numbers

- HelloWorld: 49K (or 38K)

- Build real app (Battery Guru): 2s

- Python-QML-Python msg round-trip: 1.6ms

- SLOC (non-comment):

  - Python: 4248

  - JavaScript: 77

  - C/C++: 775

Supported BB10 Features

- Cascades: everything QML supports
- Notification, Invocation, BPS,
- NFC, Bluetooth
- Payment, Advertising, BBM, PIM?, Location?
- OpenGL
- All pure native via ctypes (as we go)
- Anything: custom wrapper or TartStart

Pyggles

- Python ctypes wrapper

- Full OpenGL ES (1.1, 2.0, 3.0)

- Drawing class, render thread

- Alpha stage

Limitations and Warts

- Things where C++ may be required, e.g. Push (until 10.2)

- JSON messages, date handling

- For some devs: Python/JavaScript alternation

Tools

- `tart package`

- `tart quickdeploy`

- Cascades LiveView

- CLI: telnet to Python prompt in your app

BB-Python Community

- @BBPyProject: 202 followers (142 tweets)
- Mailing list: 39 members
- IRC #bbx-python: 6-8 regulars :-(
- Bitbucket: 18 watchers, 2 forks
- BBM Channel: 4 subscribers (new)

Projects Using Python on BB

- ## Using Tart:

  - **Battery Guru**, **Fuel Traqke**r, **White Noise** (@EngenuityApps)

  - **Authomator**, **LottoTrackr** (@PulsecodeEng)

  - **PasswordMaker**, **TheWord** (George R.)

  - *ThoriumBREED* (@squizm)

  - OpenWhatsapp* (@tgalal, used custom Tart variant)

- ## Using PySide:

  - BB10: **Mieru** (@M4rtinK)

  - BB10: **SeriesFinale** (@MickePrag) (with Cascades!)

  - PlayBook: *Grandfather Clock* (@VoiceOfPholy)

  Legend: **released app**, *work in progress*

PySide

- QtQuick (PB/BB10) and Cascades (BB10)
- Compatible, community support
- Heavier: 4-15MB+ package, 5-8s+ launch
- Needs maintainer, more users...
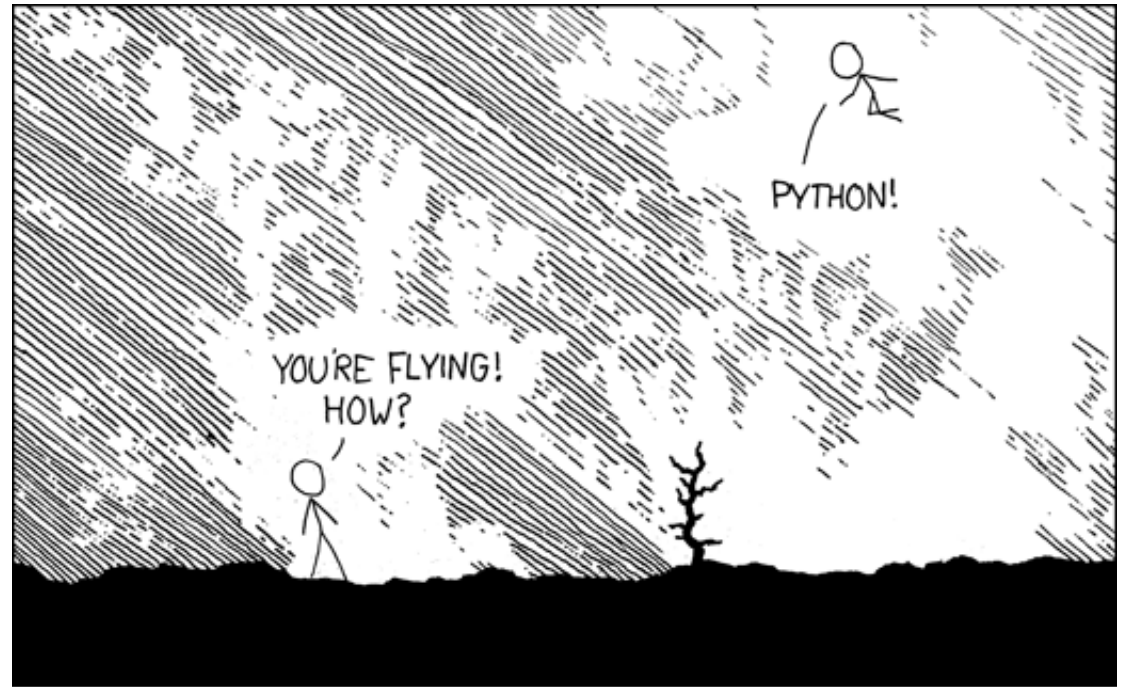- PySide project status?

Future Directions

- Python 3.3
- "native" message passing
- Integrate with Qt main thread?
- Integrate with signals/slots/Qt meta stuff
- Wrap more APIs, higher level layers
- QNX builds of libs, e.g. NumPy, PIL
- Feedback from community?

Questions?

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Visit http://xkcd.com/353/ or just type:

    >>> import antigravity

Contact Info

- http://twitter.com/@BBPyProject

- BBM Channel C00040FD3

- #bbx-python on IRC at Freenode.net

- Mailing list:
  http://www.engcorp.com/mailman/listinfo/blackberry-python

- BBPyProject@gmail.com

- Developer support forums: Cascades, or Native...