

# PyAMF in 10 minutes (or less)

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# Talk Disclaimer

This speaker

- is not a computer science major
- does not have a day job that involves writing code
- last took a programming language class in college (pascal, the advanced class at Tulane in 2001)
- writes code as a hobby/passion for a would-be web startup

# Where does Flex fit in the Python world?



- Python is a great/cool/etc. language that can do many things
- For anything with a rich/web interface, you need a graphical or browser interface
- Via current python-based web applications (Django, Zope, Plone) you can generate dynamic pages via python scripts
- But in the end, what goes to the browser must be HTML, Javascript, or Flash (usually)

# Where does Flex fit in the Python world?



- Flex is a GUI-based extension of the Flash runtime
  - Think buttons, sliders, etc. that run as a SWF in the browser with ActionScript logic
- Flex provides a stateful interface with the user without page reloads
- With the Flash player in 95% of browsers, Flex runs almost everywhere (plus the Flash player can autoupdate itself)

# Where does Flex fit in the Python world?



- Flex also gives the option of generating a RIA (rich internet application) via AIR
  - Can live on the user's desktop
  - Does not need the browser
- A browser-based Flex application can be easily converted to a RIA

# Flex/Python Bottom Line

- Flex can be a great front-end for a python web application
- But how can it (Flex) communicate with Python?
  - Out of the box, Flex can
    - HTTPService (yes)
    - WSDL
      - SOAP (yes)
      - XML (yes)
    - RemoteObject (Java, no thanks)

# So where is the glue?

- PyAMF
  - A Python library for AMF
  - Enables python applications to communicate with Flex via AMF
  - MIT-style license



# What is in PyAMF?

- [AMF0](#) encoder/decoder for legacy Flash Players (version 6-8)
- [AMF3](#) encoder/decoder for the new AMF format in Flash Player 9
- Support for [IExternalizable](#), [ArrayCollection](#), [ObjectProxy](#), [ByteArray](#), [RecordSet](#), [RemoteObject](#) and [more](#)
- Remoting gateways for [Twisted](#), [Django](#), [Pylons](#), [TurboGears2](#), [Web2Py](#) and any compatible [WSGI](#) framework

# How to write Flex?

- Get the SDK first
- Code editor
  - Any text editor (vi, emacs, etc.) since it is an XML file
  - Adobe Flex Builder
    - Eclipse-based or plugin (Linux version in alpha)
    - The best (because of the GUI)
  - FlashDevelop (.NET so Windows only)
    - 2nd best (no GUI)
    - Code assist
  - Spket (Eclipse plugin)
    - Also handles JS, Silverlight

# What is in PyAMF?

- Authentication/setCredentials support
- Python AMF [client](#) with HTTP(S) and authentication support
- Service Browser (DescribeService header) requests supported
- [Local Shared Object](#) support
- [Adapter Framework](#) to integrate nicely with third-party Python projects

# Think about the data...

- For most Flex apps, the data rendered/entered/exchanged is not like typical web pages
  - Small chunks of data asynchronously modified or updated
- For this type of data need (or load), a more incremental data format would help
  - Something small
  - Something fast

# Action Message Format (AMF)

- Starting with Flash 6, Adobe added a fast binary messaging format based on SOAP that used RPC
- Big plus...message size is about 10% of an XML-based message
- Originally it was used/restricted to Adobe's Live Cycle Data services (Java-based)
- Open sourced also

# AMF Data Formats

- Byte (8-bit)
- Int (16-bit)
- MediumInt (24-bit number)
- Long (32-bit number)
- Double (64-bit number)
- UTF8 (UTF8 string shorter than  $2^{16}$  (65,536) bytes)
- LongUTF8 (UTF8 string possible longer than  $2^{16}$  bytes)

# Example Time

<http://blog.pyamf.org/archives/authentication#more-7>

# Why this is cool (at least to me)

- This gives a Python developer a great front end (beyond traditional HTML/Javascript) for a Python-based web application
- It lends/encourages a modular architecture



# Links

- Flex
  - <http://www.adobe.com/products/flex/>
- PyAMF
  - <http://pyamf.org/>