Yet Another GUI for Erlang

Like a Fish needs a Bicycle.

Why did I do it?

- GUI tools for testing and troubleshooting
- Wanted to write some C

Why Yet Another?

- GS/Tcl is
  - slow
  - ugly
  - bizarre
  - no GUI builder
- ErlGTK
  - no longer supported

Why GTK2?

- Elegant design
- Open Source de facto standard (with Qt)
- Runs on Unices and Windows, but not MacOS
- Looks good
- Excellent GUI builder (Glade)
- Strangely familiar...
  - Garbage collection
  - Runtime type checking
  - Introspection

gtkNode

- C-node
- Each widget appears as a registered Erlang process
- Behaviour is specified by the config file from Glade
- Communicates with the Erlang node through messages

Glade

- Defines and names widgets
- Specifies properties of widgets
- Layout
- Events
  - Ignore
  - Handle by GTK callback
  - Send Erlang message

OO

- GTK is object oriented, but implemented in C
- Each method is a C function call

```
gtk_class_method(widget,args...);
```

- From Erlang, it looks like this (conceptually);

```
Widget ! {class_method, [Args]},
```

- It is implemented thusly;

```
GtkNode ! {class_method, [Widget|Args]},
```

Type safety

When gtkNode receives a message it checks;

- Widget exists
- Method exists
- Widget is of correct class for method
- Right number of args
- Right type of args

If one of these fails, gtkNode sends an error tuple.

Otherwise it calls the method and sends the result to the Erlang node

Typical

GTK's basic types are;

- floats
- integers
- strings
- widgets (boxed pointer)
- structs (boxed pointer)
- booleans
- macros

Mapped to Erlang;

- float
- integer
- list
- atom
- atom
- true/false
- atoms

Code generator

- The code generator decides which GTK functions can be safely called from Erlang (about half)
- For each safe function it generates C wrapper code that does the type checking
- The code generator works by analyzing the C header files.
- Written in Erlang and Python (stolen from PyGtk)

Odds and Ends

- messages can be stacked for efficiency
- recommended usage is through gtkNode.erl

available from jungerl:

http://jungerl.sourceforge.net