



Matlab Binding for Babel

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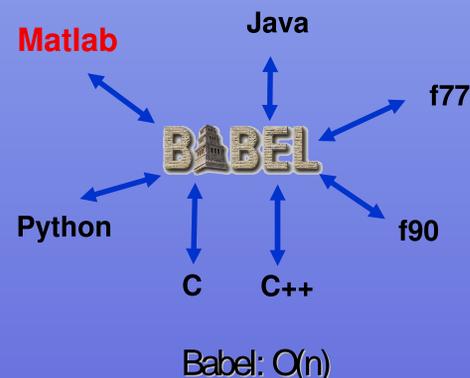
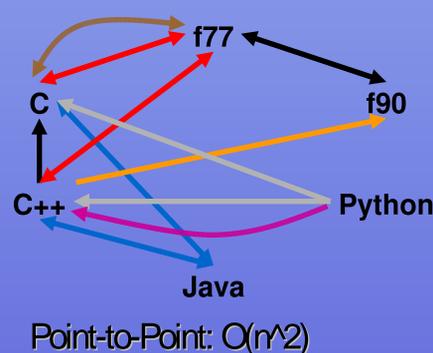
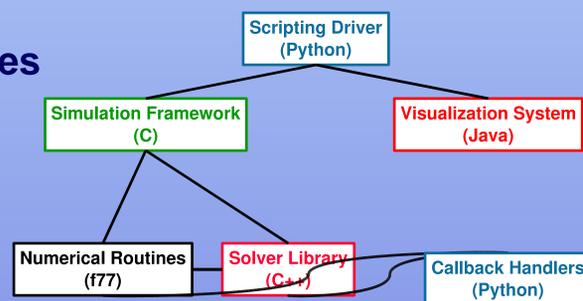
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Babel is a tool addressing language interoperability efficiently for scientific applications. It automatically generates glue code to allow communication between different programming languages in a single application. The Matlab binding will provide Matlab users an easy access to high-performance data types and algorithms wrapped by Babel.

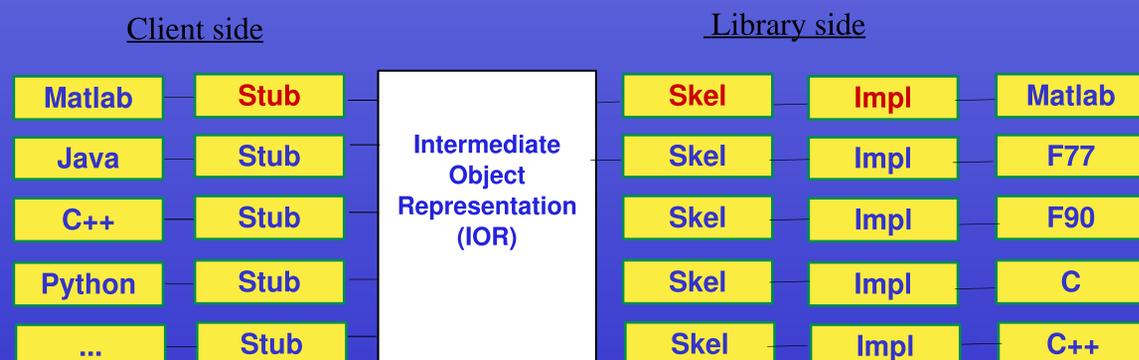
Problem

- Scientific applications mix languages
- Most approaches: point-to-point between languages
- Babel: n-way bridge between languages
Re-use software as language-transparent library



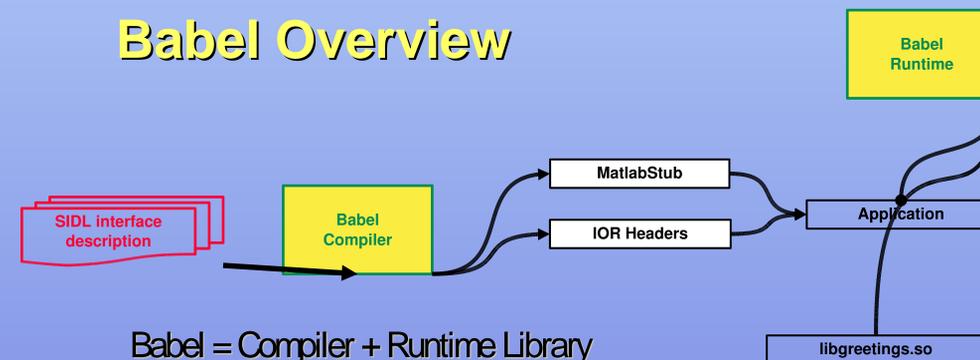
Method

Implement glue code generator for each supporting language
client side : Stub, server side: Skeleton and Implementation



<http://www.llnl.gov/CASC/components>

Babel Overview



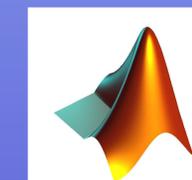
Matlab Binding (Client side)

- Use SIDL interface to access library
- Using Babel compiler to generate glue code
- Start Matlab
- Create object and access library

`myCode.sidl`

```
Package Hello 1.0 {
  class World {
    string getMsg();
  }
}
```

```
>> Babel -cMatlab myCode.sidl
>> Matlab
>> myObj = Hello_World();
>> s = getMsg(myObj)
"Hello world !!"
```



Status and Future work

We are implementing the Matlab client code generator to create C and Matlab stub for Babel data types. Later on we will generate server side glue code to "plug in" Matlab library.