Programming Microservices with Jolie

Saverio Giallorenzo
Hi

Saverio

Post-doc at **Computer Science and Engineering Department** of the **University of Bologna**

Topics:
- Choreographic Programming;
- Jolie and Microservices;
- Session Types;
- Process Calculi.
Why a language?

- To give to programmers a proper vocabulary to express:
  - APIs => Interfaces
  - Communication Patterns => Behaviours
  - Architectures => Deployments

- And to avoid distractions (objects ≠ services)
The Jolie Way

APIs

interface MyInterface {
    OneWay: sendNumber( int )
}

include "MyInterface.iol"
outputPort B {
    Location: "socket://localhost:8000"
    Protocol: sodep
    Interfaces: MyInterface
}

main {
    sendNumber @ B ( 5 )
}

include "MyInterface.iol"
inputPort B {
    Location: "socket://localhost:8000"
    Protocol: sodep
    Interfaces: MyInterface
}

main {
    sendNumber( x )
}
The Jolie Way

Deployment

```plaintext
include "MyInterface.iol"
outputPort B {
  Location: "socket://localhost:8000"
  Protocol: sodep
  Interfaces: MyInterface
}

main {
  sendNumber @ B ( 5 )
}
```

```plaintext
include "MyInterface.iol"
inputPort B {
  Location: "socket://localhost:8000"
  Protocol: sodep
  Interfaces: MyInterface
}

main {
  sendNumber( x )
}
```

```plaintext
interface MyInterface {
  OneWay: sendNumber( int )
}
```

include "MyInterface.iol"
The Jolie Way

Behaviour

```jolie
interface MyInterface {
  OneWay: sendNumber( int )
}
```

```jolie
include "MyInterface.iol"
outputPort B {
  Location: "socket://localhost:8000"
  Protocol: sodep
  Interfaces: MyInterface
}
```

```jolie
main {
  sendNumber @ B ( 5 )
}
```

```jolie
include "MyInterface.iol"
inputPort B {
  Location: "socket://localhost:8000"
  Protocol: sodep
  Interfaces: MyInterface
}
```

```jolie
main {
  sendNumber( x )
}
```
The Jolie Way

interface MyInterface {
    OneWay: sendNumber( int )
}

include "MyInterface.iol"
outputPort B {
    Location: "socket://localhost:8000"
    Protocol: sodep
    Interfaces: MyInterface
}
main {
    sendNumber @ B ( 5 )
}

include "MyInterface.iol"
inputPort B {
    Location: "socket://localhost:8000"
    Protocol: sodep
    Interfaces: MyInterface
}
main {
    sendNumber( x )
}
Demo
We just scratched the surface

```java
outputPort A {
    Location: "socket://A_URL:80/"
    Protocol: sodep
    Interfaces: MobileInterface
}
outputPort B {
    Location: "socket://B_URL.com:80/"
    Protocol: soap
    Interfaces: DesktopInterface
}
outputPort C {
    Interfaces: BlindInterface
}
embedded {
    Java: "blindServer.service" in C
}
inputPort M {
    Location: "socket://myApp.com:80/"
    Protocol: http
    Aggregates: A, B, C
}
```

Others:
- Redirection
- Courier
Contacts

https://github.com/jolie/jolie

“This is the programming language you are looking for”
Contacts

http://www.jolie-lang.org

Thanks@Audience( greetings )