



Inria
INVENTORS FOR THE DIGITAL WORLD



RAPP

PAL Workshop, Bordeaux, 2014

HOP as the *Lingua Franca* of RAPP

Ludovic Courtès

agenda

1. teams

2. RAPP

3. conclusion

1

teams



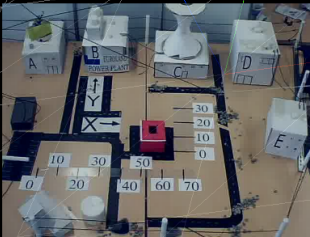
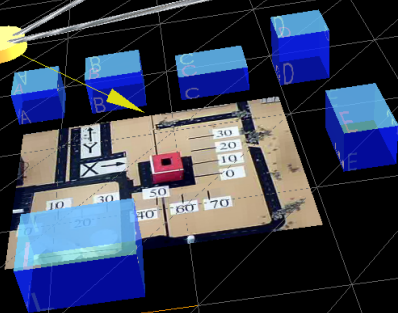
Hephaistos research team

50 ▾ -15 ▾ -30 ▾ move

0 points | 01:07

(40, 90, 58)

abort





- **two-tier programming language**
- **native of the Web**


```
service helloServerDate () {  
    return Date.now ();  
}
```

```
service hello () {  
    var sdate = <DIV> { };  
    return <HTML> {  
        <BUTTON> {  
            onclick: ~ {  
                ${helloServerDate} ()  
                .post (function (now) {  
                    ${sdate}.innerHTML =  
                        new Date (now).toString ();  
                })  
            }, "What time is it?"  
        }, sdate  
    }  
}
```

```
service helloServerDate () {  
  return Date.now ();  
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<http://.../helloServerDate>

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      onclick: ~ {  
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    }  
  }  
}
```

browser code



2

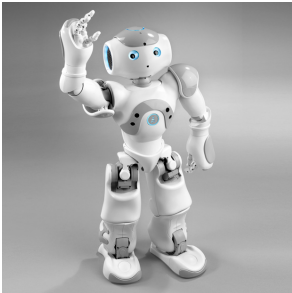
RAPP

**platform to deliver robotic applications
for social inclusion**



phidgets.

RAPP

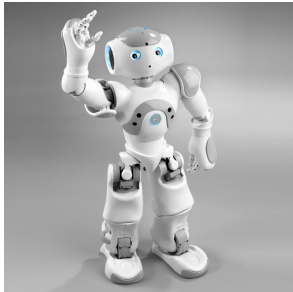




C/C++



ROS





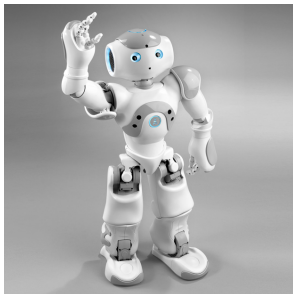
HTTP, JSON, etc.



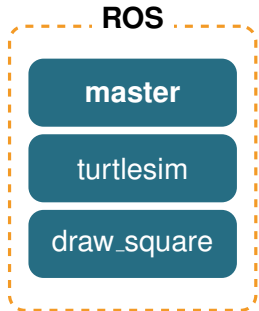
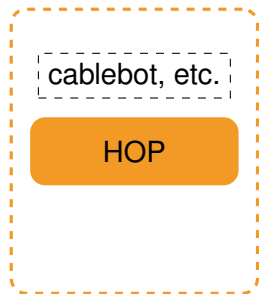
C/C++



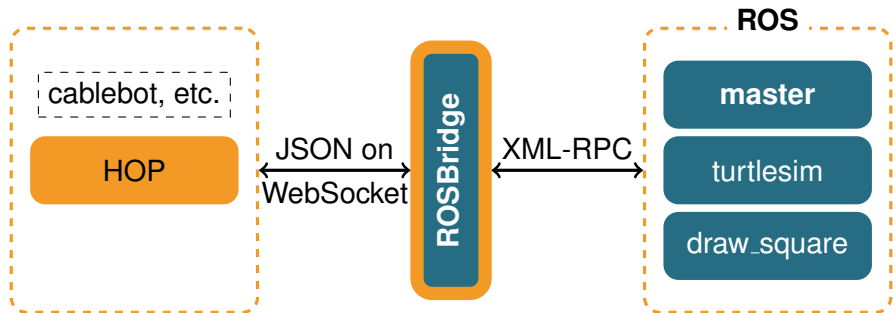
ROS



On-Robot Protocol Soup

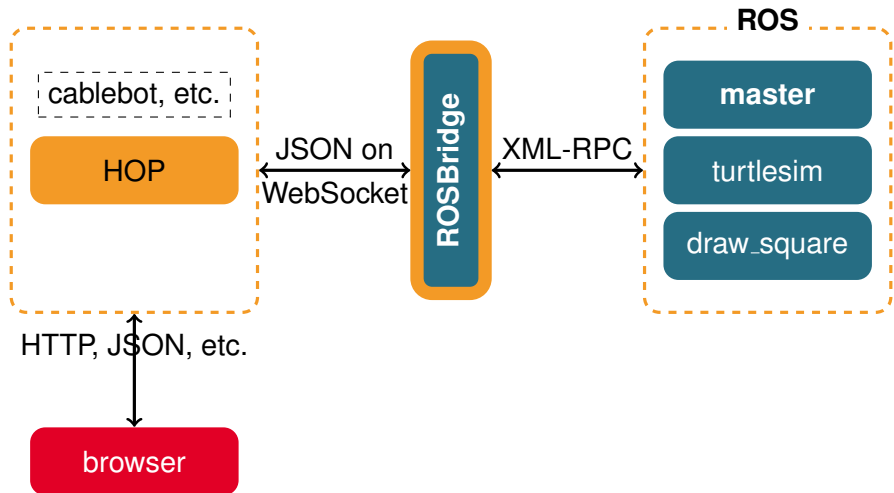


On-Robot Protocol Soup

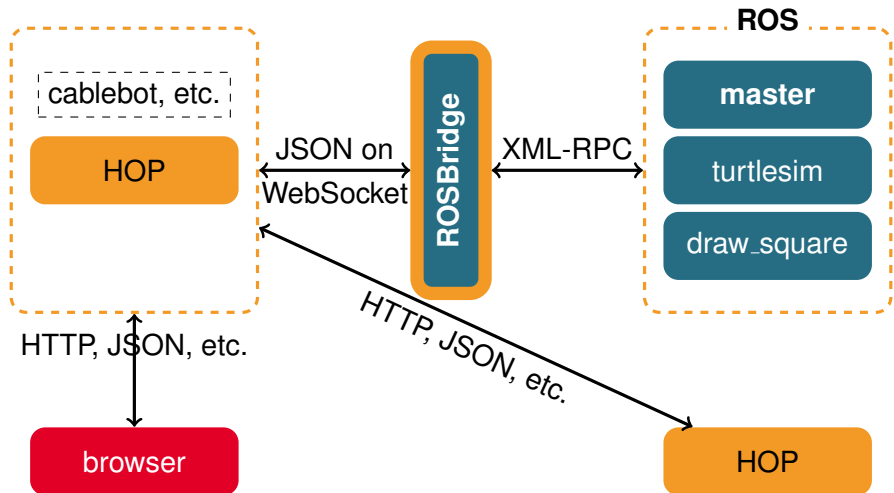


browser

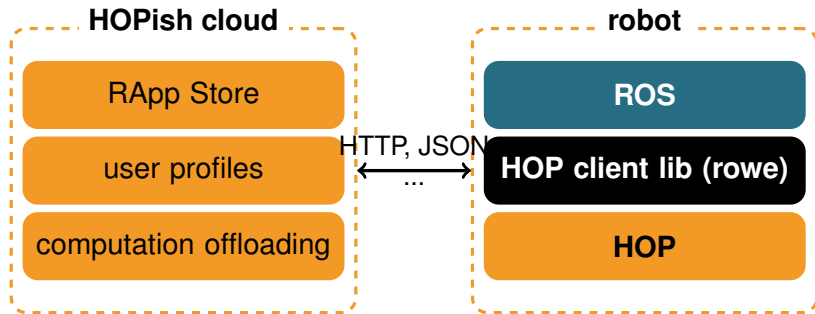
On-Robot Protocol Soup



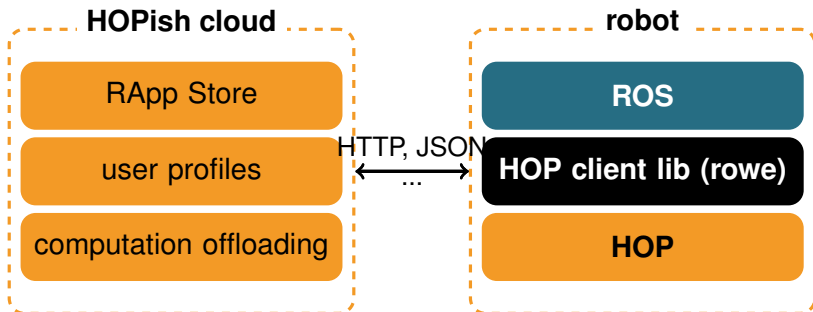
On-Robot Protocol Soup



Robot & Web Services

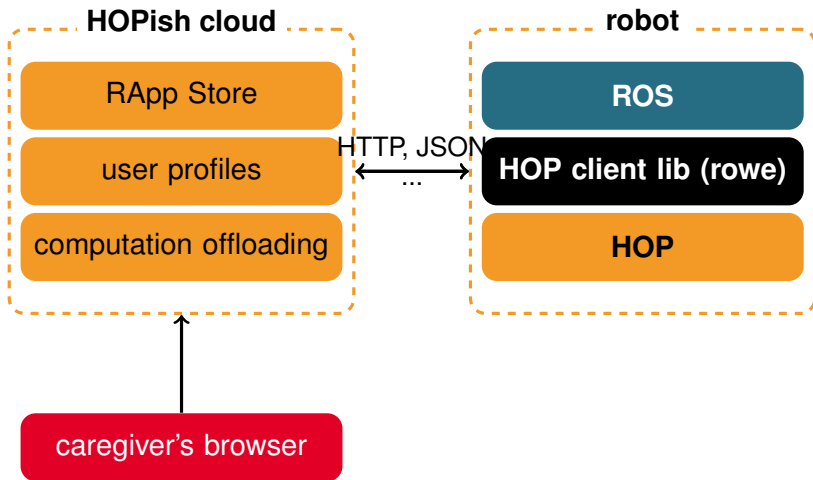


Robot & Web Services

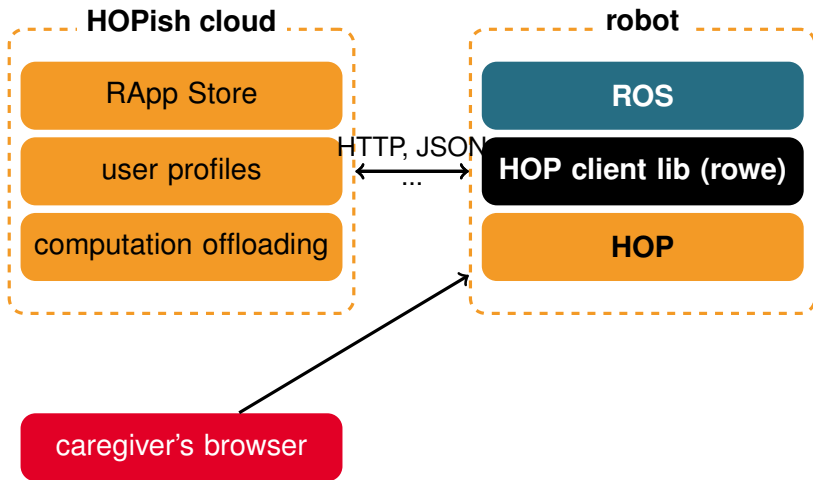


caregiver's browser

Robot & Web Services



Robot & Web Services



File Edit View History Bookmarks Tools Help

RAPP --- Invoking services fr... RAPP --- On-Robot Caregiver...

localhost:9999/hop/rapp

The RAPP Store

Dashboard

Users

user	status
Alice	inactive
Bob	inactive
Craig	active on robot-pluto-9000

demo

File Edit View History Bookmarks Tools Help

RAPP --- Invoking services fr... RAPP --- On-Robot Caregiver...

localhost:9999/hop/rapp

RAPP On-Robot

Caregiver View

Craig

rehabilitation exercise, level 1

skip restart stop

Time	Value
0	60
10	65
20	62
30	68
40	72
50	65
60	55
70	50
80	55
90	60
100	65

3

conclusion

summary

- HOP helps connect **robotic components** together

summary

- HOP helps connect **robotic components** together
- connection with **Web services** made easy

summary

- HOP helps connect **robotic components** together
- connection with **Web services** made easy
- robots turned into **connected objects**

lunch time!

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<http://sed.bordeaux.inria.fr/>

The Inria logo is displayed in a white rounded square. The word "Inria" is written in a stylized, cursive font with a color gradient from red to orange.

Inria