Distribuované systémy a výpočty (01)

Jan Janeček

KP FEL ČVUT

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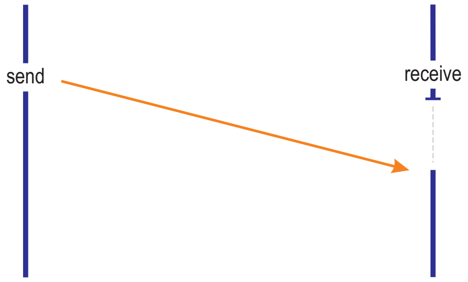
- asynchronní komunikace
  - přímá
  - nepřímá
- synchronní komunikace
- příjem na více kanálech



přímá asynchronní komunikace

- odeslání zprávy

  send *expr* to *receiver*

- příjem zprávy

  receive *var* from *sender*

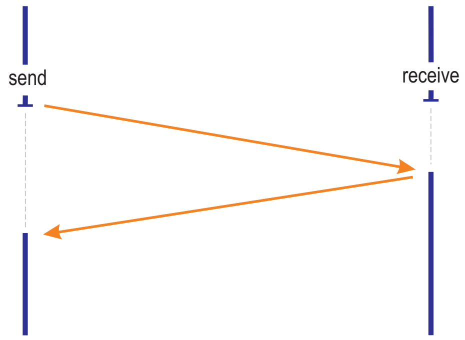
nepřímá asynchronní komunikace

- odeslání zprávy

  send *expr* to *channel*

- příjem zprávy

  receive *var* from *channel*



přímá synchronní komunikace

- odeslání zprávy

  send E to R

- příjem zprávy

  receive V from S

přímá synchronní komunikace

- odeslání zprávy

  R ! E

- příjem zprávy

  S ? V

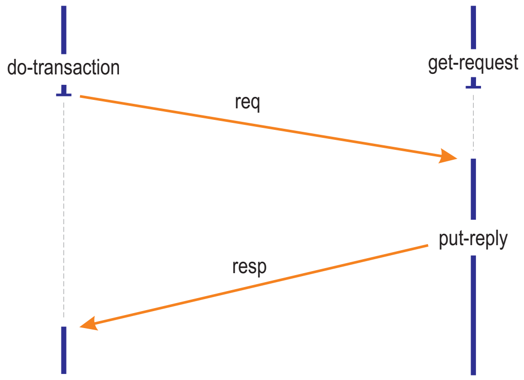
jednoduchý select

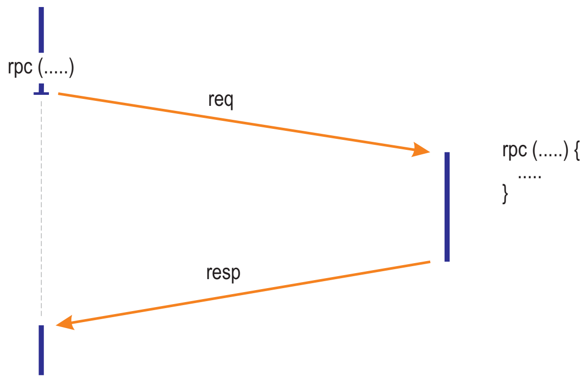
select
  receive msg_1 from ch_1 $\Rightarrow$ $stat_1$
  or receive msg_2 from ch_2 $\Rightarrow$ $stat_2$
  or receive msg_3 from ch_3 $\Rightarrow$ $stat_3$
end

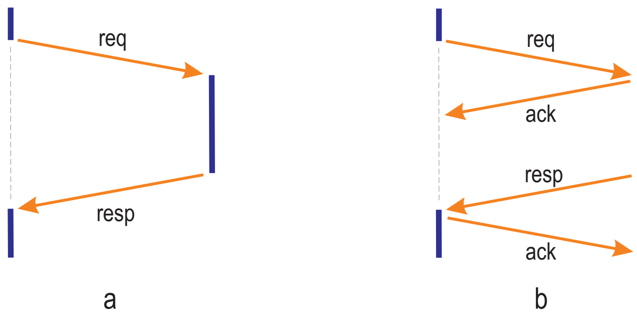
strážený (guarded) select

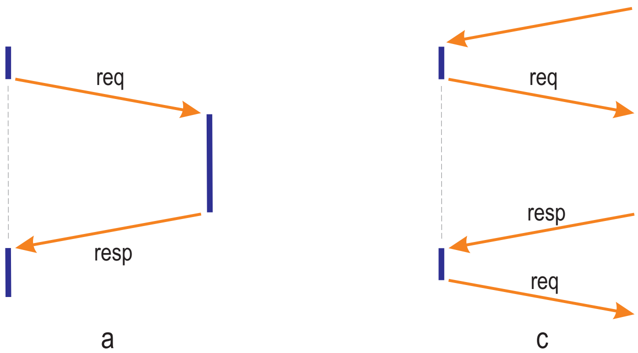
select
  when $cond_1$ receive msg_1 from ch_1 $\Rightarrow$ $stat_1$
  or when $cond_2$ receive msg_2 from ch_2 $\Rightarrow$ $stat_2$
  or when $cond_3$ receive msg_3 from ch_3 $\Rightarrow$ $stat_3$
end

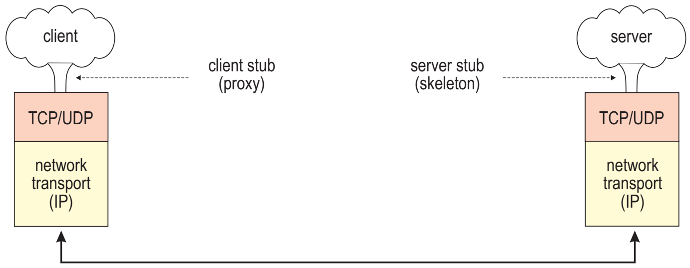
- transakce (Amoeba)
- RPC mechanismus
- sémantika RPC volání
- podpora RPC volání
- rendez-vous

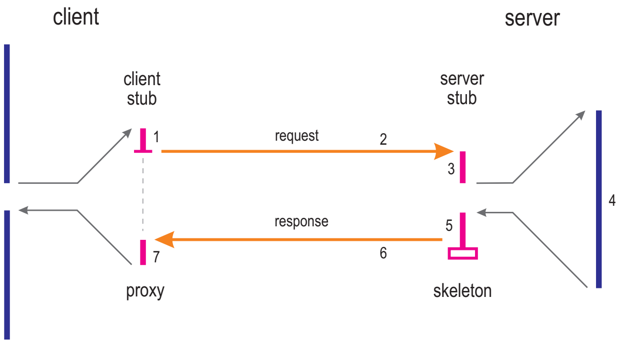


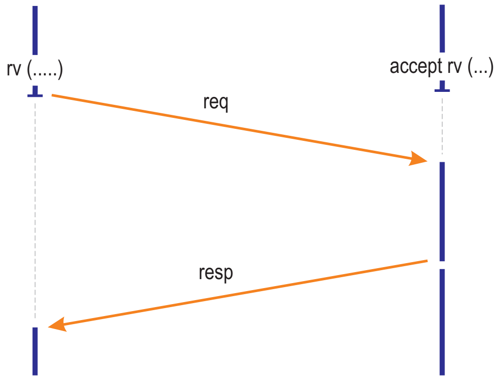












client **server**

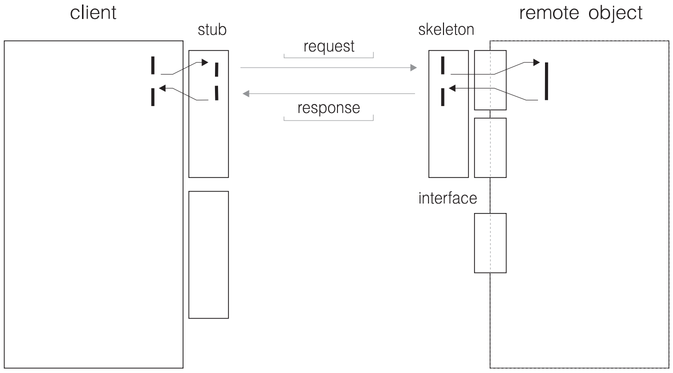
accept pname (fplist)

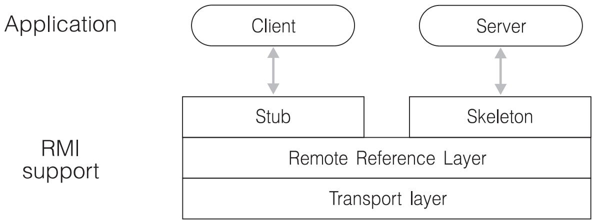
call pname(aplist)

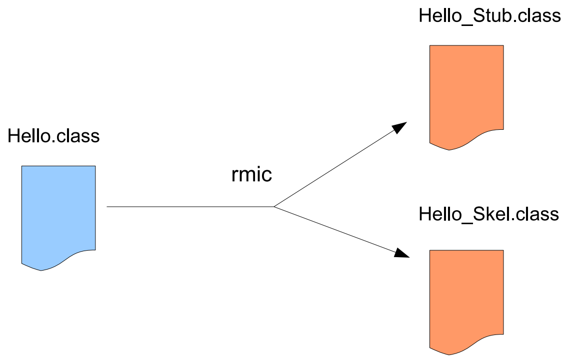
begin

...

end








```
package hello;
public interface Hello extends java.rmi.Remote {
  String sayHello(String s) throws java.rmi.RemoteException;
}
```

```
  package hello;
  import java.rmi.*;
  import java.rmi.server.UnicastRemoteObject;
  public class HelloImpl extends UnicastRemoteObject implements
Hello {
     private String greeting = "Hello";
     public HelloImpl(String s) throws RemoteException {
       super();
       greeting = s;
     }
     public String sayHello(String s) throws RemoteException {
       return greeting+" "+s+"!";
     }
```

```java
  public static void main(String args[]) {
    try {
      System.setSecurityManager(new RMISecurityManager());
    }
    catch(Exception e) {
      System.out.println(e); return;
    }
    try {
      HelloImpl obj = new HelloImpl("Salut");
      Naming.rebind("//java/HelloServer",obj);
      System.out.println("HelloServer bound in registry");
    }
    catch(Exception e) {
      System.out.println(e);
    }
  }
}
```

```java
package hello;
import java.rmi.*;
public class HelloClient {
  static String message = "";
  public static void main(String[] args) {
    try {
      Hello obj = (Hello)Naming.lookup("//java/HelloServer");
      message = obj.sayHello("client");
    }
    catch(Exception e) {
      System.out.println(e);
    }
    System.out.println(message);
  }
}
```

```java
package hello;
import java.awt.*;
import java.rmi.*;
public class HelloApplet extends java.applet.Applet {
  String message = "";
  public void init() {
    try {
      Hello obj =
(Hello)Naming.lookup("//"+getCodeBase().getHost()
                  +"/HelloServer");
      message = obj.sayHello("client");
    }
    catch(Exception e) {
      System.out.println(e);
    }
  }
  public void paint(Graphics g) {
    g.drawString(message,25,50);
  }
```

```html
<HTML>
<title>Hello World</title>
<center><h1>Hello World</h1></center>
The message from the HelloServer is:
<p>
<applet codebase="../.."
  code="examples.hello.HelloApplet"
  width=500 height=120>
</applet>
</HTML>
```