



Prácticas TSR

Laboratorio 2:sesión I

Juan Sánchez (jsanchez@dsic.upv.es)

Despacho 2D08



Estudio del patrón REQ - REP

- ▶ I.I Copie los programas **hwclient.js** y **hwserver.js** y ejecútelos en dos consolas de su máquina virtual.
- ▶ Deben mostrar algo parecido a lo siguiente

The image shows two overlapping terminal windows from a virtual machine. The background window is titled 'Mate Terminal' and shows the execution of 'hwclient.js'. It displays a series of requests being sent to a server, each followed by a reply containing the word 'World'. The foreground window, also titled 'Mate Terminal', shows the execution of 'hwserver.js'. It displays the server listening on port 8000 and receiving a series of requests, each containing the word 'Hello'.

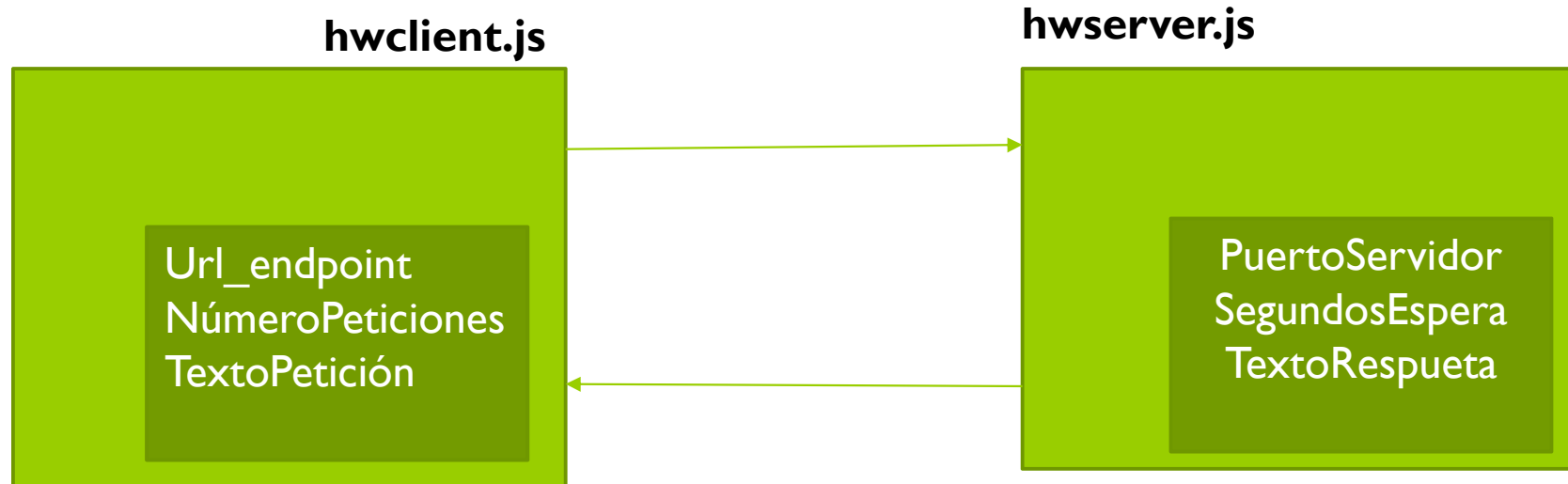
```
root@tsr-2007-1718.dsic.cloud's password:
[root@TSR-2007-1718 zmqbasico]# node hwclient
Connecting to hello world server...
Sending request 0 ...
Sending request 1 ...
Sending request 2 ...
Sending request 3 ...
Sending request 4 ...
Sending request 5 ...
Sending request 6 ...
Sending request 7 ...
Sending request 8 ...
Sending request 9 ...
Received reply 0 : [ World ]
Received reply 1 : [ World ]
Received reply 2 : [ World ]
Received reply 3 : [ World ]
Received reply 4 : [ World ]
Received reply 5 : [ World ]
Received reply 6 : [ World ]
Received reply 7 : [ World ]
Received reply 8 : [ World ]
Received reply 9 : [ World ]
[root@TSR-2007-1718 zmqbasico]#
```

```
root@tsr-2007-1718.dsic.cloud's password:
[root@TSR-2007-1718 zmqbasico]# node hwserver
Listening on 8000...
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
Received request: [ Hello ]
```



Estudio del patrón REQ - REP

- ▶ 1.2 Modificación de los programas anteriores: introducir parámetros desde la línea de comandos al servidor y al cliente.





Estudio del patrón REQ - REP

- Una vez ejecutados sobre la misma máquina virtual

```
Mate Terminal
Archivo Editar Ver Buscar Terminal Ayuda
[root@TSR-2007-1718 1.2]# node hwserver 8000 5 DONE
Listening on 8000
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
```

```
Mate Terminal
Archivo Editar Ver Buscar Terminal Ayuda
[root@TSR-2007-1718 1.2]# node hwclient tcp://localhost:8000 6 WORK
Connecting to hello world server...
Sending request 0 ...
Sending request 1 ...
Sending request 2 ...
Sending request 3 ...
Sending request 4 ...
Sending request 5 ...
Received reply 0 : [ WORKDONE ]
Received reply 1 : [ WORKDONE ]
Received reply 2 : [ WORKDONE ]
Received reply 3 : [ WORKDONE ]
Received reply 4 : [ WORKDONE ]
Received reply 5 : [ WORKDONE ]
```



Estudio del patrón REQ - REP

- ▶ Ahora ponemos el servidor en nuestra máquina virtual y el cliente en linuxdesktop, linuxdesktop tiene instalado Node.js pero no Zeromq, utilice en el home la instrucción: `npm install zmq`
- ▶ Una vez ejecutados servidor y cliente:

```
Mate Terminal
Archivo Editar Ver Buscar Terminal Ayuda
success
[root@TSR-2007-1718 1.2]# node hwserver 8000 5 DONE
Listening on 8000
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
Received request: [ WORK ]
```

```
Mate Terminal
Archivo Editar Ver Buscar Terminal Ayuda
[jsanchez@EVI RL-025-0K ClientLab2]$ node hwclient tcp://192.168.106.116:8000 6 WORK
Connecting to hello world server...
Sending request 0 ...
Sending request 1 ...
Sending request 2 ...
Sending request 3 ...
Sending request 4 ...
Sending request 5 ...
Received reply 0 : [ WORKDONE ]
Received reply 1 : [ WORKDONE ]
Received reply 2 : [ WORKDONE ]
Received reply 3 : [ WORKDONE ]
Received reply 4 : [ WORKDONE ]
Received reply 5 : [ WORKDONE ]
```



Estudio del patrón REQ - REP

- Pruebe la solución anterior con varios clientes.

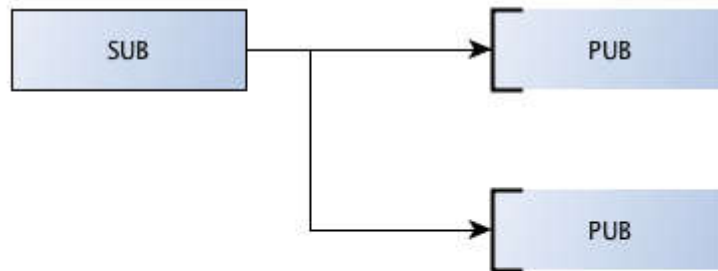
The image shows three overlapping terminal windows from the 'Mate Terminal' application. The background window shows a root user on a machine named 'tsr-2007-1718.dsic.cloud' running the command 'node hwclient tcp://192.168.106.116:8000 6 WORK'. It displays the process of sending 6 requests and receiving 6 'WORKDONE' replies. The middle window shows a user 'jsanchez@EVIRL-025-OK ClientLab2' running the same command, showing the first 3 requests and replies. The foreground window shows the same user running the command, displaying the first 2 requests and replies. All windows show the standard terminal menu: Archivo, Editar, Ver, Buscar, Terminal, Ayuda.

```
root@tsr-2007-1718.dsic.cloud's password:
[root@TSR-2007-1718 1.2]# node hwclient tcp://192.168.106.116:8000 6 WORK
Connecting to hello world server...
Sending request 0 ...
Sending request 1 ...
Sending request 2 ...
Sending request 3 ...
Sending request 4 ...
Sending request 5 ...
Received reply 0 : [ WORKDONE ]
Received reply 1 : [ WORKDONE ]
Received reply 2 : [ WORKDONE ]
Received reply 3 : [ WORKDONE ]
Received reply 4 : [ WORKDONE ]
Received reply 5 : [ WORKDONE ]
^CDetectado CONTROL-C
[jsanchez@EVIRL-025-OK ClientLab2]$ node hwclient tcp://192.168.106.116:8000 6 WORK
Connecting to hello world server...
Sending request 0 ...
Sending request 1 ...
Sending request 2 ...
Sending request 3 ...
Sending request 4 ...
Sending request 5 ...
Received reply 0 : [ WORKDONE ]
Received reply 1 : [ WORKDONE ]
Received reply 2 : [ WORKDONE ]
```

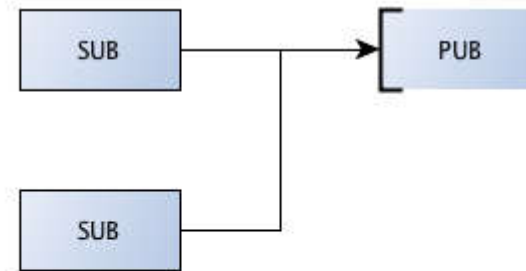


Patrón PUB-SUB

- Habitualmente hay dos escenarios



Scenario: #1



Scenario: #2

Publish/Subscribe is another classic pattern where senders of messages, called publishers, do not program the messages to be sent directly to specific receivers, called subscribers. Messages are published without the knowledge of what or if any subscriber of that knowledge exists.

<http://learning-0mq-with-pyzermq.readthedocs.io/en/latest/pyzermq/patterns/pubsub.html>



Patrón PUB-SUB

- ▶ Utilice los programas 1.2.1 subscriber y 1.2.2 publisher, recuerde que tiene una copia en su máquina virtual. Cambie los puertos
- ▶ En la ejecución debe aparecer algo parecido a:

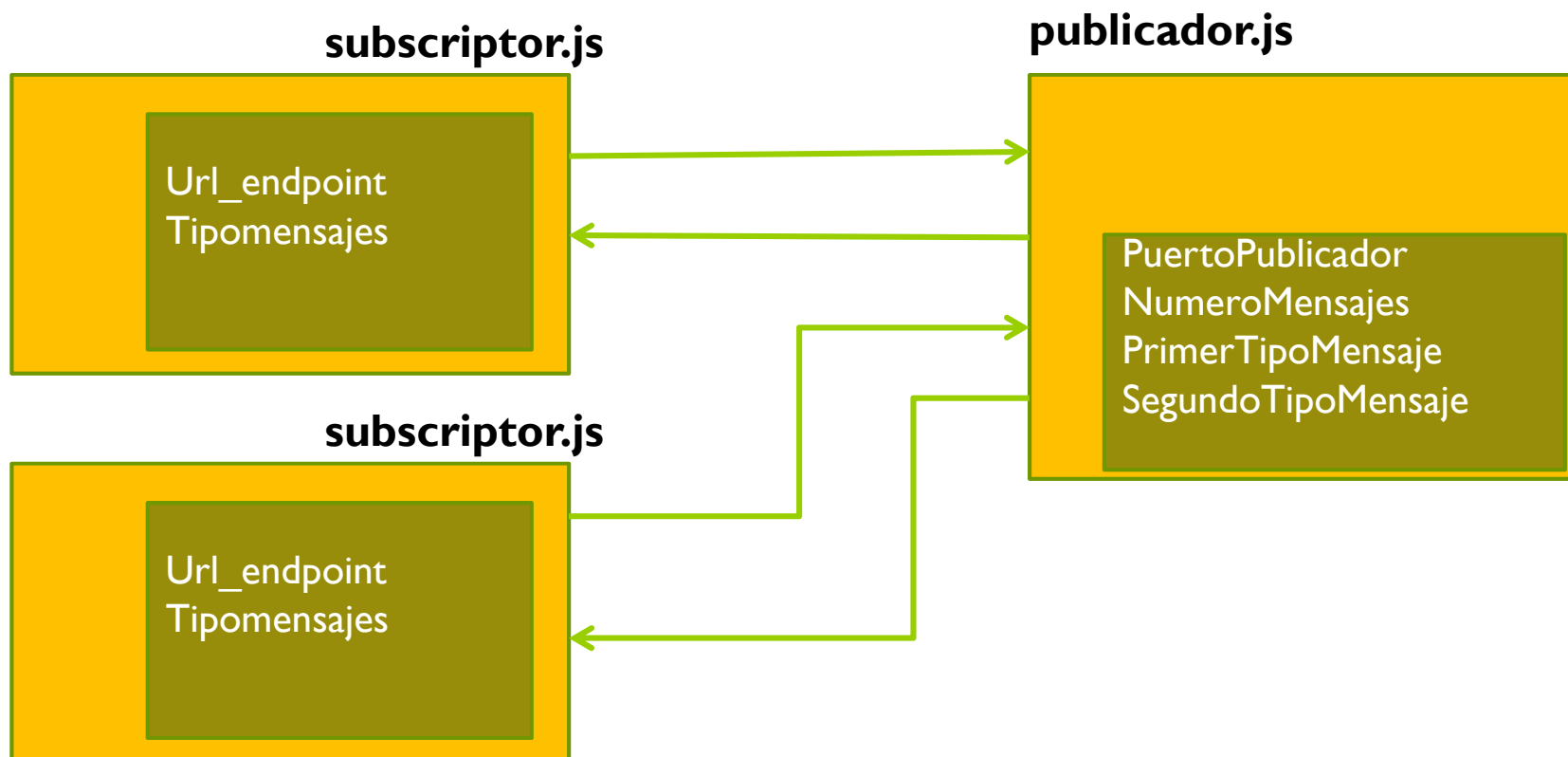
```
[root@ISR-2007-1718 1.3]# node subscriber
Received message: Hello there!
Received message: Hello there!
Received message: Hello there!
Received message: Hello there!
Received message: Hello there!
Received message: Hello there!
Received message: Hello there!
Received message: Hello there!
Received message: Hello there!
```

```
[root@ISR-2007-1718 1.3]#
Listening on 8001...
sent
sent
sent
sent
sent
sent
sent
sent
sent
sent
```




Patrón PUB-SUB

► Varios subscriptores a un publicador





Patrón PUB-SUB

- ▶ Tenga en cuenta que el subscriptor debe indicar el tipo de mensaje en el que está interesado.

```
subscriber.subscribe("NOTICIAS")
```

- ▶ El publicador envía una concatenación del tópico del mensaje + un número aleatorio.



Patrón PUB-SUB

- Sobre la misma máquina (localhost) con dos subscriptores se obtiene:

```
Mate Terminal
Archivo Editar Ver Buscar Terminal Ayuda
[root@TSR-2007-1718 PubSub]# node subscriber tcp://localhost:8000 OFERTAS
Received message: OFERTAS 17
Received message: OFERTAS 20
Received message: OFERTAS 5
Received message: OFERTAS 14
Received message: OFERTAS 21
Received message: OFERTAS 20
Received message: OFERTAS 11
Received message: OFERTAS 10
Received message: OFERTAS 6
Received message: OFERTAS 10
```

```
[root@TSR-2007-1718 PubSub]# node publisher 8000 10 NOTICIAS OFERTAS
Listening on 8000...
```

```
Mate Terminal
Archivo Editar Ver Buscar Terminal Ayuda
[root@TSR-2007-1718 PubSub]# node subscriber tcp://localhost:8000 NOTICIAS
Received message: NOTICIAS 15
Received message: NOTICIAS 36
Received message: NOTICIAS 13
Received message: NOTICIAS 39
Received message: NOTICIAS 27
Received message: NOTICIAS 50
Received message: NOTICIAS 40
Received message: NOTICIAS 36
Received message: NOTICIAS 22
Received message: NOTICIAS 51
```

- Compruebe que funcionan sobre distintas máquinas, quite el localhost de la línea de comandos y ponga la ip