

Sistemi Operativi<sup>1</sup>

Mattia Monga

Dip. di Informatica e Comunicazione  
 Università degli Studi di Milano, Italia  
[mattia.monga@unimi.it](mailto:mattia.monga@unimi.it)

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## Lezione XXIV: MINIX Server



## Un server "semafori"

```

1 void semaphore_server() {
2     message m;
3     int result;
4     /* Initialize the semaphore server. */
5     initialize();
6     /* Main loop of server. Get work and process it. */
7     while(TRUE) {
8         /* Block and wait until a request message arrives. */
9         get_work(&m);
10        /* Caller is now blocked. Dispatch based on message type. */
11        switch(m.m.type) {
12            case UP: result = do_up(&m); break;
13            case DOWN: result = do_down(&m); break;
14            default: result = EINVAL;
15        }
16        /* Send the reply, unless the caller must be blocked. */
17        if (result != EDONTREPLY) {
18            m.m.type = result;
19            send(m.m.source, &m);
20        }
21    }
22 }

```



## Un server "semafori"

```

1 int do_down(message *m_ptr) {
2     /* Resource available. Decrement semaphore and reply. */
3     if (s > 0) {
4         s = s - 1; /* take a resource */
5         return(OK); /* let the caller continue */
6     }
7     /* Resource taken. Enqueue and block the caller. */
8     enqueue(m_ptr->m.source); /* add process to queue */
9     return(EDONTREPLY); /* do not reply in order to block
10    the caller */
11 }
12 int do_up(message *m_ptr) {
13     message m; /* place to construct reply message */
14     /* Add resource, and return OK to let caller continue. */
15     s = s + 1; /* add a resource */
16     /* Check if there are processes blocked on the semaphore. */
17     if (queue.size() > 0) { /* are any processes blocked? */
18         m.m.type = OK;
19         m.m.source = dequeue(); /* remove process from queue */
20         s = s - 1; /* process takes a resource */
21         send(m.m.source, m); /* reply to unblock the process */
22     }
23     return(OK); /* let the caller continue */
24 }

```



Aggiungere un server SS che gestisca un semaforo (s) secondo lo schema indicato.

- Partire da un server esistente (p.es. DS o IS)
- Aggiornare con i messaggi possibili  
`include/minix/com.h`
- Aggiungere il server alla boot image (è piú semplice che caricarlo poi)
- Aggiornare i makefile