Inter-Process communication

- http://beej.us/guide/bgnet/
- http://tldp.org/LDP/lpg/node7.html
- http://beej.us/guide/bgipc/output/html/multipage/index.html
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System

- Composition of
  - Functions / Modules
  - Classes
  - Processes
- Processes can be running in
  - Different/same space
- Processes can be running at
  - Different/same time

Operating system infrastructure

- Operating systems offer
  - Execution mechanism
  - Protection Mechanisms
  - Communication mechanisms
- Protection
  - Processes are independent entities
    - One process execution does not affect other processes
    - Memory is private

Operating system infrastructure

- Nonetheless
  - Process in the same system need to exchange information or data:
    - To divide tasks
    - Increase processing power (by distributing tasks into multiple computers/processors)
    - To guarantee synchronization and consistency among them

Characteristics

- Implementation
- Scope
- Duplex
- Time-coupling
- Space-coupling
- Explicit / implicit
- Synchronization
- Process relation
- Identification
- API

Characteristics

- Implementation
  - Shared memory
  - Kernel based
    - Require data copy
      - P1 → kernel → P2
- Scope
  - Local
    - Shared memory
    - signals
  - Distributed
    - Sockets

Characteristics

- Duplex / Simplex
  -
- Time-coupling
  - Send and receiver must exist at the same time
  - Or not
- Space-coupling
  - Sender know who the receiver is
  - Or not

Characteristics

- Explicit / implicit
  - Is information transfer implicit?
- Synchronization
  - Operations are blocking?
- Process relation
  - Just father/son
  - Unrelated processes

Characteristics

- Identification
  - How are comm objects identified
    - System wide
    - Local / global
    - Int / string / files
- API
  - How are “chanels” identified in C
  - What function to read/write
  - Error handling

Mecanismos de comunicaçao

- Sinais
- Wait?
  - Exit - Retiorno dos processos
- Join retorno das threads
- Fork
  - Com – nao
  -
- Syscalls
  - kernel
- pipes