Interprocess Communication

• *asynchronous vs. synchronous*
Interprocess Communication

• *asynchronous* vs. *synchronous*

An important message.
Interprocess Communication

• asynchronous vs. \textit{synchronous}

An important message.
Interprocess Communication

- asynchronous vs. synchronous
- *unidirectional* vs. bidirectional

An important message.
Interprocess Communication

- asynchronous vs. synchronous
- unidirectional vs. bidirectional
Interprocess Communication

- asynchronous vs. synchronous
- unidirectional vs. bidirectional
- related processes vs. unrelated processes

$ ps -o pid,ppid,pgid,sid,comm /cat1 /cat2$
Interprocess Communication

• asynchronous vs. synchronous
• unidirectional vs. bidirectional
• related processes vs. unrelated processes
• network communication

Host A
PID 1234

An important message.

Host B
PID 4567
Means of Interprocess Communications

- two processes reading from/writing to a file on a shared file system

| synchronous | ✗ |
| asynchronous | ✓ |
| bidirectional | ✓ |
| related processes | ✓ |
| unrelated processes | ✓ |
| network communication | ✗ |
| variable data | ✓ |
Means of Interprocess Communications

• two processes reading from/writing to a file on a shared file system

• Signals

| synchronous | ✓ |
| asynchronous | ✓ |
| bidirectional | ❌ |
| related processes | ✓ |
| unrelated processes | ✓ |
| network communication | ❌ |
| variable data | ❌ |
Means of Interprocess Communications

• two processes reading from/writing to a file on a shared file system

• Signals

• Semaphores

| synchronous | ✔️ |
| asynchronous | ✗ |
| bidirectional | ✗ |
| related processes | ✔️ |
| unrelated processes | ✔️ |
| network communication | ✗ |
| variable data | ✗ |
Means of Interprocess Communications

- two processes reading from/writing to a file on a shared file system
- Signals
- Semaphores
- Shared Memory
- Message Queues

- synchronous
- asynchronous
- bidirectional
- related processes
- unrelated processes
- network communication
- variable data

CS631 - Advanced Programming in the UNIX Environment
Means of Interprocess Communications

- two processes reading from/writing to a file on a shared file system
- Signals
- Semaphores
- Shared Memory
- Message Queues
- Pipes

| synchronous | ✔️ |
| asynchroneous | ✗ |
| bidirectional | ✗ |
| related processes | ✔️ |
| unrelated processes | ✗ |
| network communication | ✗ |
| variable data | ✔️ |
Means of Interprocess Communications

- two processes reading from/writing to a file on a shared file system
- Signals
- Semaphores
- Shared Memory
- Message Queues
- Pipes
- Fifos

- synchronous ✓
- asynchronous ❌
- bidirectional ❌
- related processes ✓
- unrelated processes ✓
- network communication ❌
- variable data ✓
Means of Interprocess Communications

- two processes reading from/writing to a file on a shared file system
- Signals
- Semaphores
- Shared Memory
- Message Queues
- Pipes
- Fifos
- Socketpairs

| synchronous | ✔ |
| asynchronous | ❌ |
| bidirectional | ✔ |
| related processes | ✔ |
| unrelated processes | ❌ |
| network communication | ❌ |
| variable data | ✔ |
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• two processes reading from/writing to a file on a shared file system
• Signals
• **Semaphores**
• **Shared Memory**
• **Message Queues**
• Pipes
• Fifos
• Socketpairs
• Sockets
Interprocess Communications Links

- https://tldp.org/LDP/lpg/node7.html
- https://en.wikipedia.org/wiki/Inter-process_communication