Tubes

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1 Overview

[Why do we need this - performance difference]
[XenSocket]
[Dynamic vs static]
All domains can establish a tube
[Add watch function to xenstore]
Each domain creates, allows universal access, and watches /local/domain/5/data/tube.
Assume the domain 7 (nock) want to establish a new tube to the domain 5 (tip).
The functioning tube:

```
/local/domain/7/data/nock/5/0
    state

/local/domain/5/data/tip/7/0
    tx-ring-ref
    rx-ring-ref
    event-channel
    state
```

On domain 7:

1. Create /local/domain/7/data/nock/5/0
2. Write …/tip = /local/domain/5/data/tip/7/0 [?]
3. Write …/state = 2 (InitWait)
4. Create /local/domain/5/data/tip/7/0
5. Write …/nock = /local/domain/7/data/nock/5/0
6. Setup watch on /local/domain/5/data/tip/7/0/state

On domain 5:

1. Receive watch on /local/domain/5/data/tip/7/0/nock
2. Read …/nock

3. Set up watch on /local/domain/7/data/nock/5/0
4. Write …/state = 1 (Initialising)

Domain are now watch each other states.
On domain 5:

1. Open tube port, retrieve refs and event channel
2. Start transaction
3. Write /local/domain/5/data/tip/7/0/tx-ring-ref = (ref1)
4. Write …/rx-ring-ref = (ref2)
5. Write …/event-channel = (evtchn)
6. Write …/state = 3 (Initialised)
7. Commit transaction

On domain 7:

1. Receive watch on /local/domain/5/data/tip/7/0/state
2. Check that state is Initialised (3)
3. Read …/tx-ring-ref
4. Read …/rx-ring-ref
5. Read …/event-channel
6. Open port and pass refs and event channel to it
7. Write /local/domain/7/data/nock/5/0/state = 4 (Connected)

On domain 5:

1. Receive watch on /local/domain/7/data/nock/5/0/state
2. Write /local/domain/5/data/tip/7/0/state = 4 (Connected)
3. Issue port_control command to the port to start listening for events

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Open

1. Domain A wants to establish a new tube to domain B
2. Domain B starts outlet on its side and confirms
3. Domain A recieve the confirmation and starts the outlet, or
4. Domain A timeouts and returns an error

Close

1. Domain want to close the tube to domain B
2. Domain B stops outlet and confirms
3. Domain A receives confirmation and stops the outlet, or
4. Domain A timeouts and stops the outlet anyway

Domain shuts down

1. Domain A detect that domain B has been shut down
2. Domain A stops all outlets that connect to domain B

External tools must be able to inspect tubes.