

Caller thread invokes RPC

$\langle \Sigma A \text{ PingPongServer} \rangle . \text{ping}(\langle \Sigma B \text{ PingPongServer} \rangle, 2)$



Thread 1 sends request, waits

```
SRequest{self=URI{<ΣA>}, action=BINDER_TRANSACTION,
target=URI{<ΣB IPingPongServer>},
transaction_request=STransactionRequest{
  code=1, /* ".ping() method" */
  data=SParcel{
    bytes=BA..AkAAAAIB4dyAgAAAA==, /* initial count */
    objects=[URI{<ΣA IPingPongServer>, offset=116}]},
  flags=16}}
```

Thread 2 sends request, waits

```
SRequest{self=URI{<ΣA>}, action=BINDER_TRANSACTION,
target=URI{<ΣB IPingPongServer>},
transaction_request=STransactionRequest{
  code=1, /* ".ping() method" */
  data=SParcel{
    bytes=BA..AkAAAAIB4dyAAAAAA==, /* count down */
    objects=[URI{<ΣA IPingPongServer>, offset=116}]},
  flags=16}}
```

Thread 2 sends back response

```
SResponse{self=URI{<ΣB>},
type=BINDER_TRANSACTION_RESPONSE,
transaction_response=STransactionResponse{
  _return=true, /* return up the stack */
  reply=SParcel{bytes=AAAAAA==, objects=[]}}
```

Thread 1 receives response

Control back to caller

Thread 1 sends request, waits

```
SRequest{self=URI{<ΣB>}, action=BINDER_TRANSACTION,
target=URI{<ΣA IPingPongServer>},
transaction_request=STransactionRequest{
  code=2, /* ".pong() method" */
  data=SParcel{
    bytes=BA..AgAAAAIB4dyAQAAAA== /* count down */
    objects=[URI{<ΣB IPingPongServer>, offset=116}]},
  flags=16}}
```

Thread 2 sends base response

```
SResponse{self=URI{<ΣB>},
type=BINDER_TRANSACTION_RESPONSE,
transaction_response=STransactionResponse{
  _return=true, /* reached base case, return */
  reply=SParcel{bytes=AAAAAA==, objects=[]}}
```

Thread 1 sends back response

```
SResponse{self=URI{<ΣB>},
type=BINDER_TRANSACTION_RESPONSE,
transaction_response=STransactionResponse{
  _return=true, /* return up the stack */
  reply=SParcel{bytes=AAAAAA==, objects=[]}}
```

Sigma Engine  $\Sigma A$  (Separate Process)

Sigma Engine  $\Sigma B$  (Separate Process)