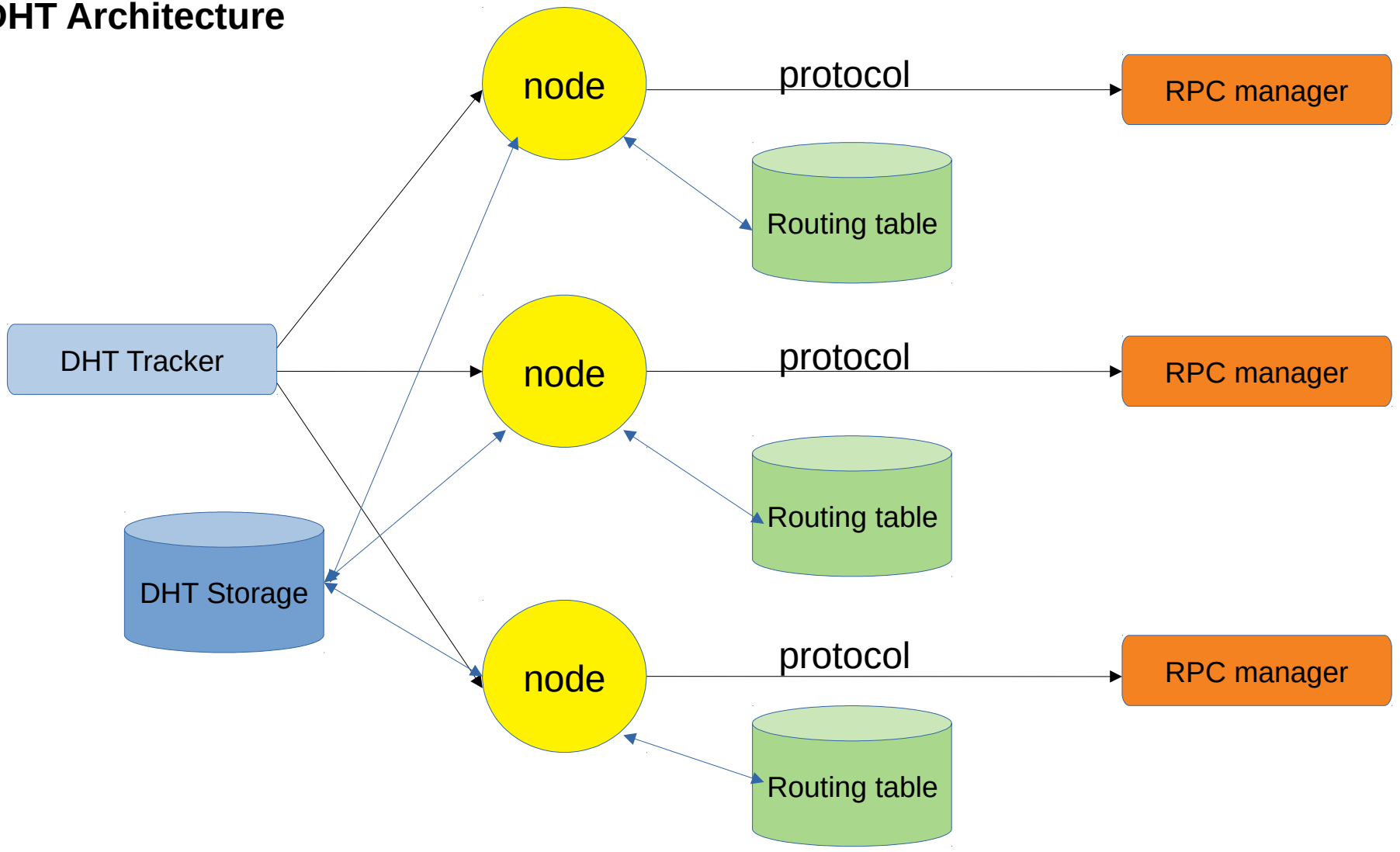
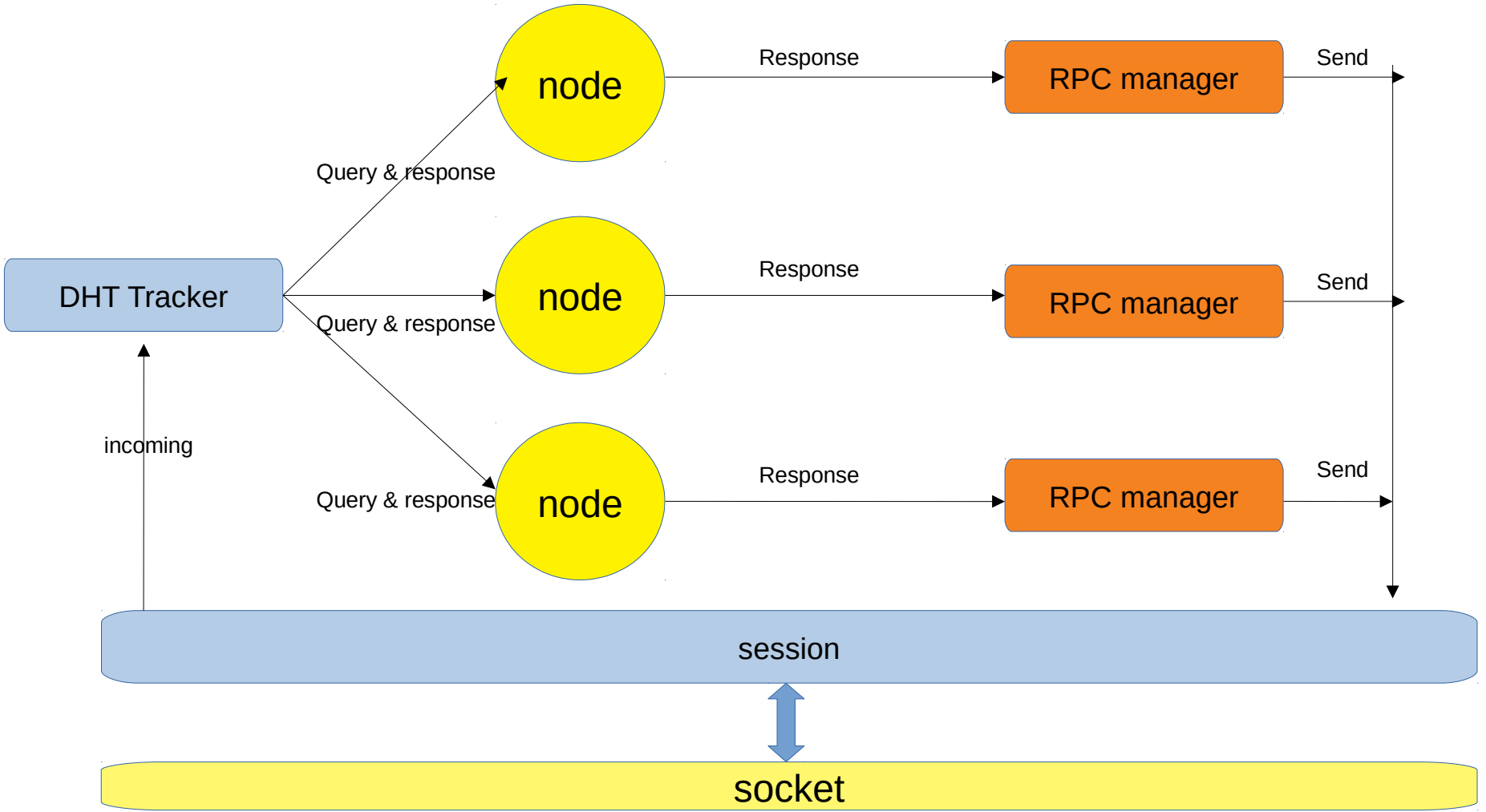
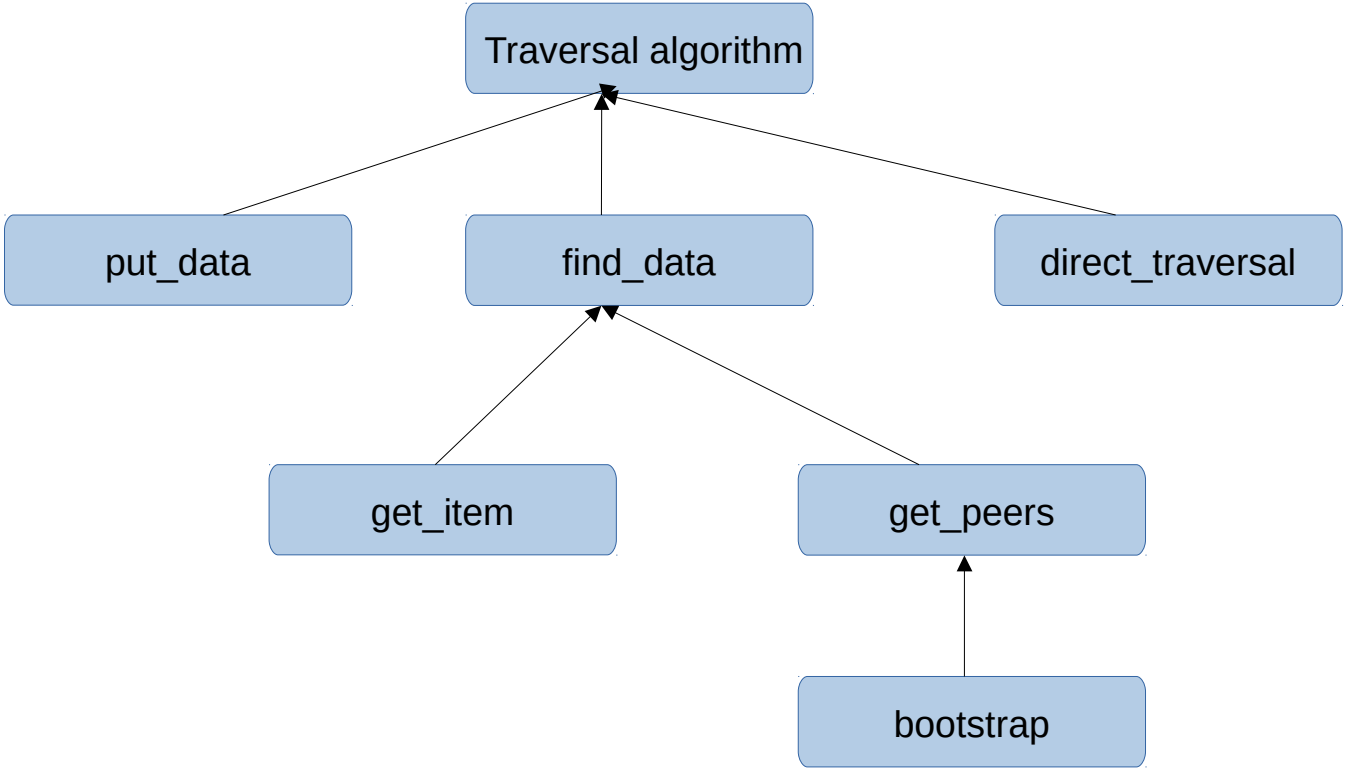
DHT Architecture



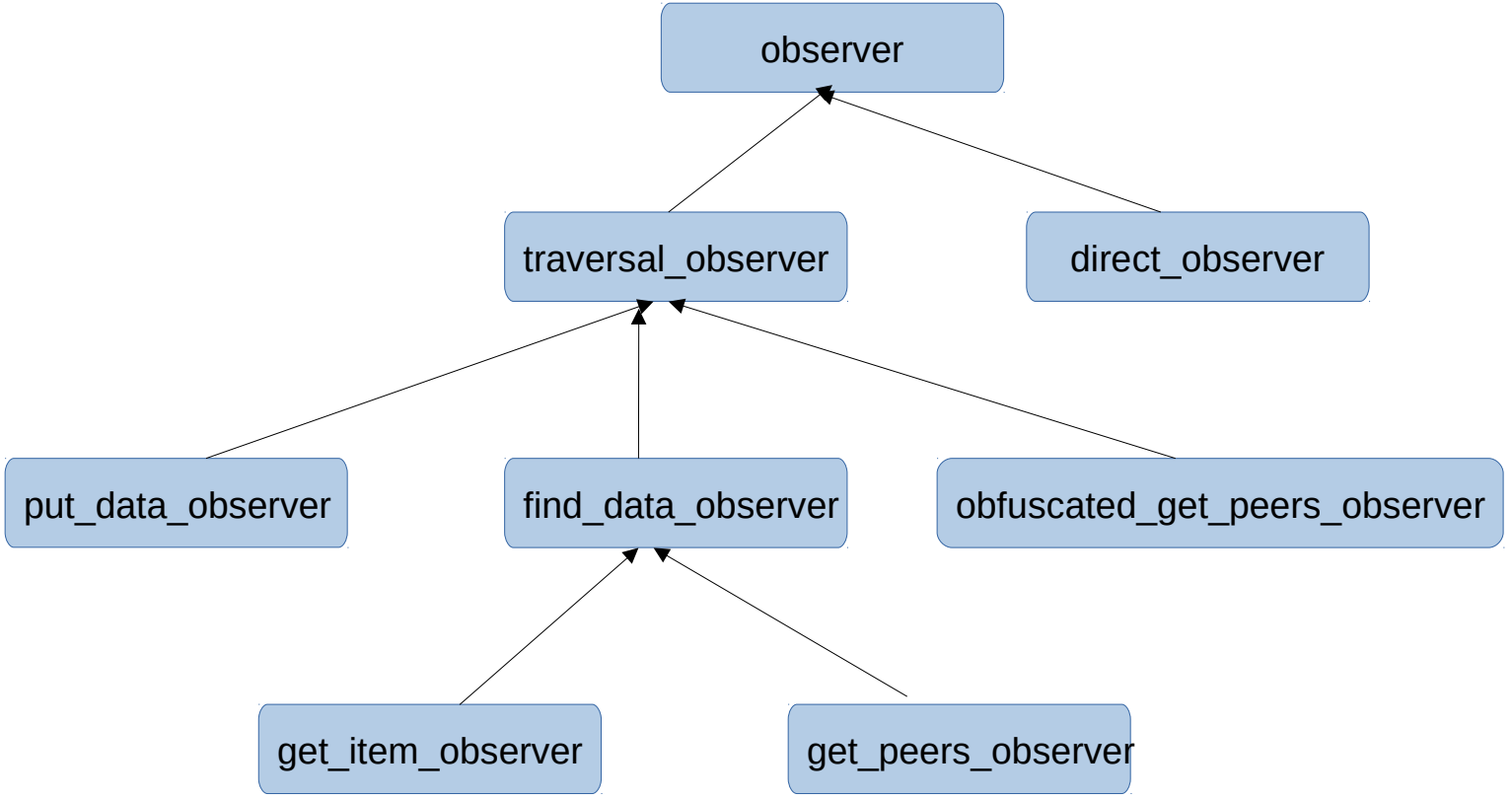
Network data flow



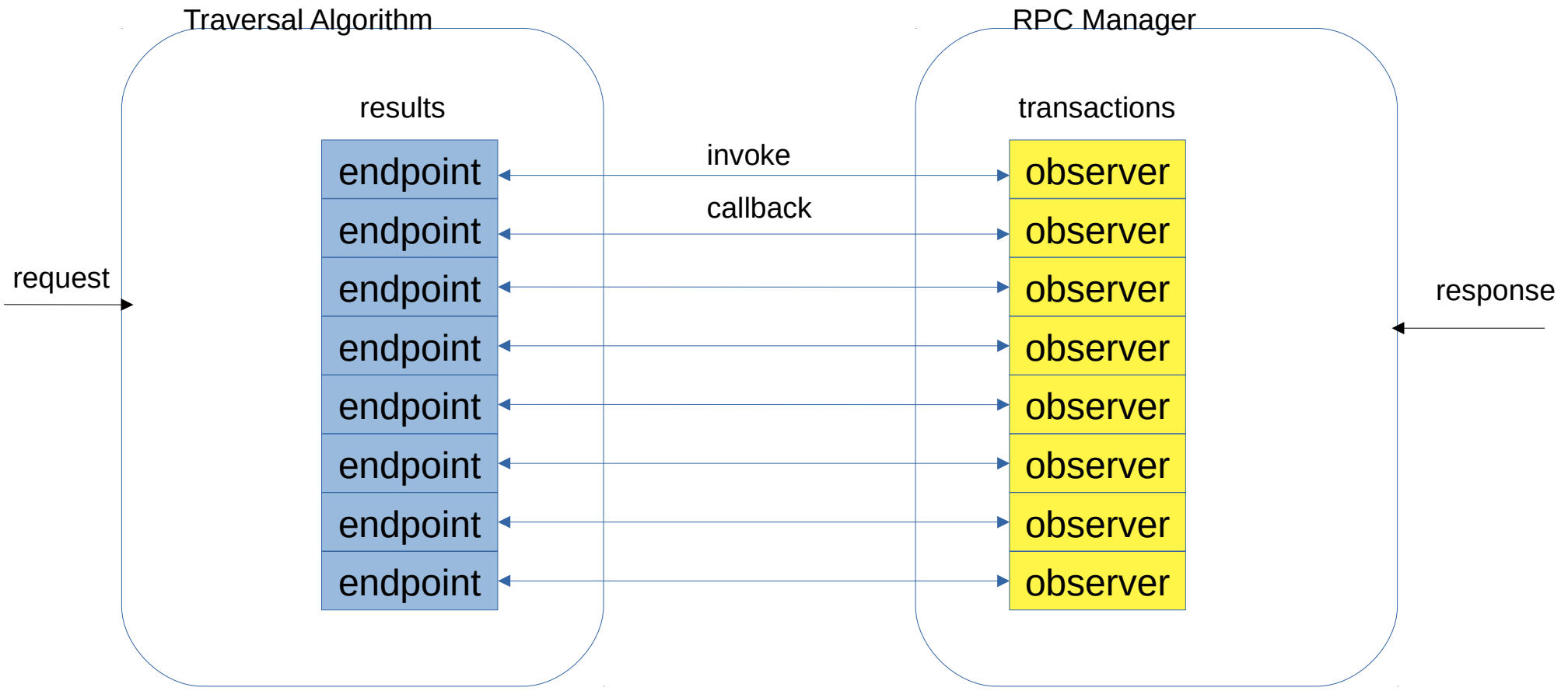
Traversal Algorithm



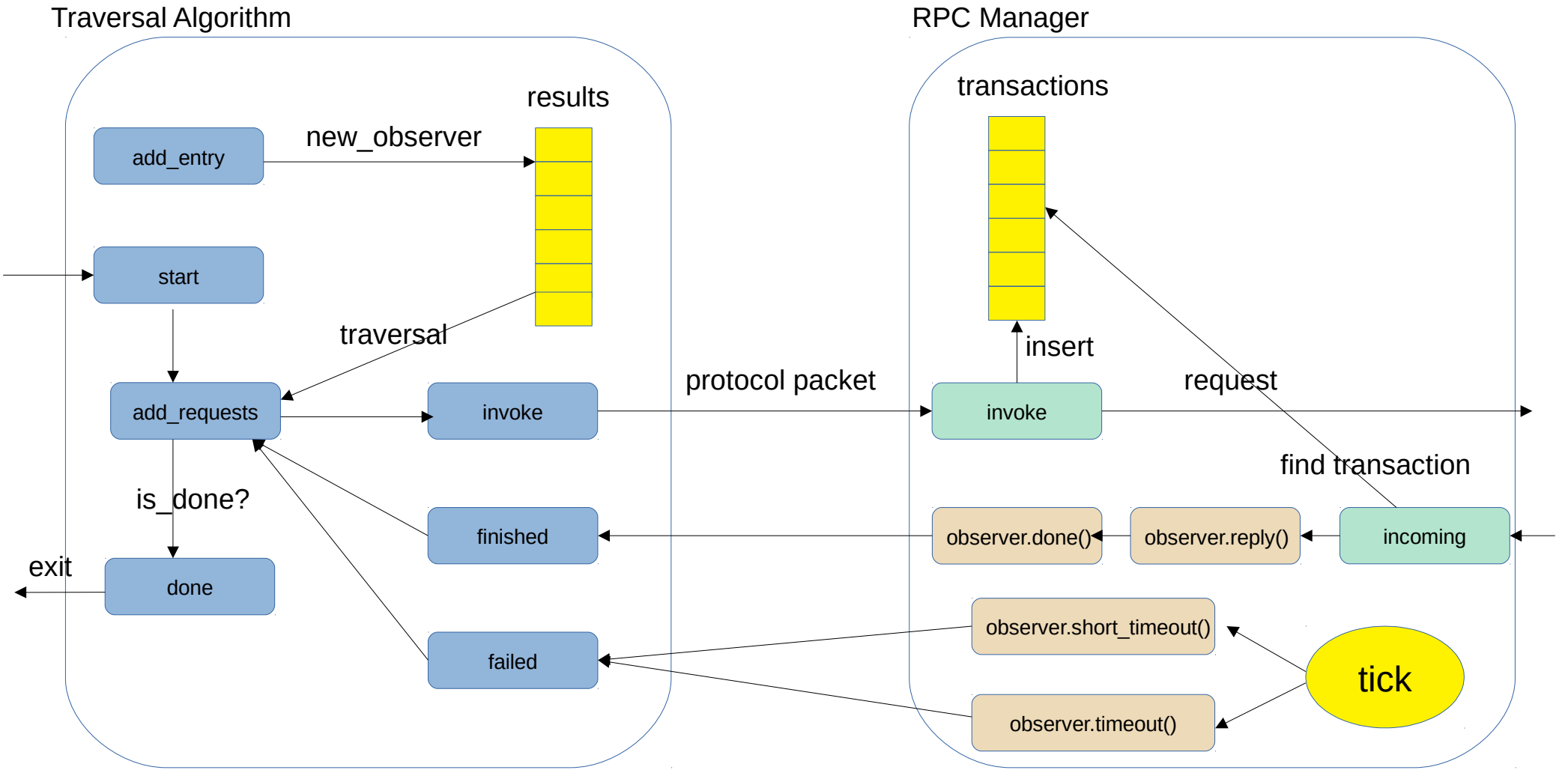
Observer


observer
traversal_observer
direct_observer
put_data_observer
find_data_observer
obfuscated_get_peers_observer
get_item_observer
get_peers_observer

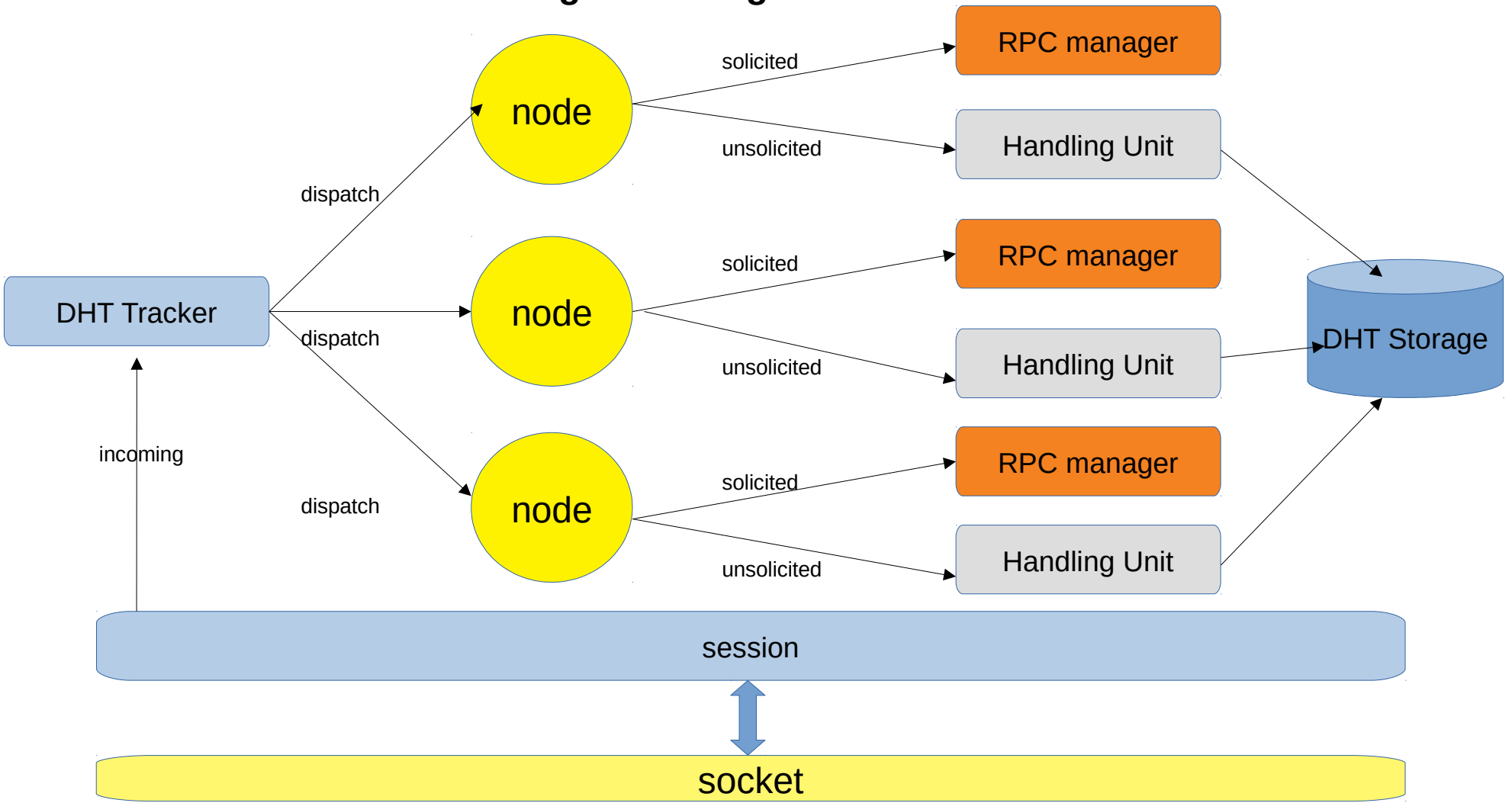
Traversal Algorithm & RPC Manager



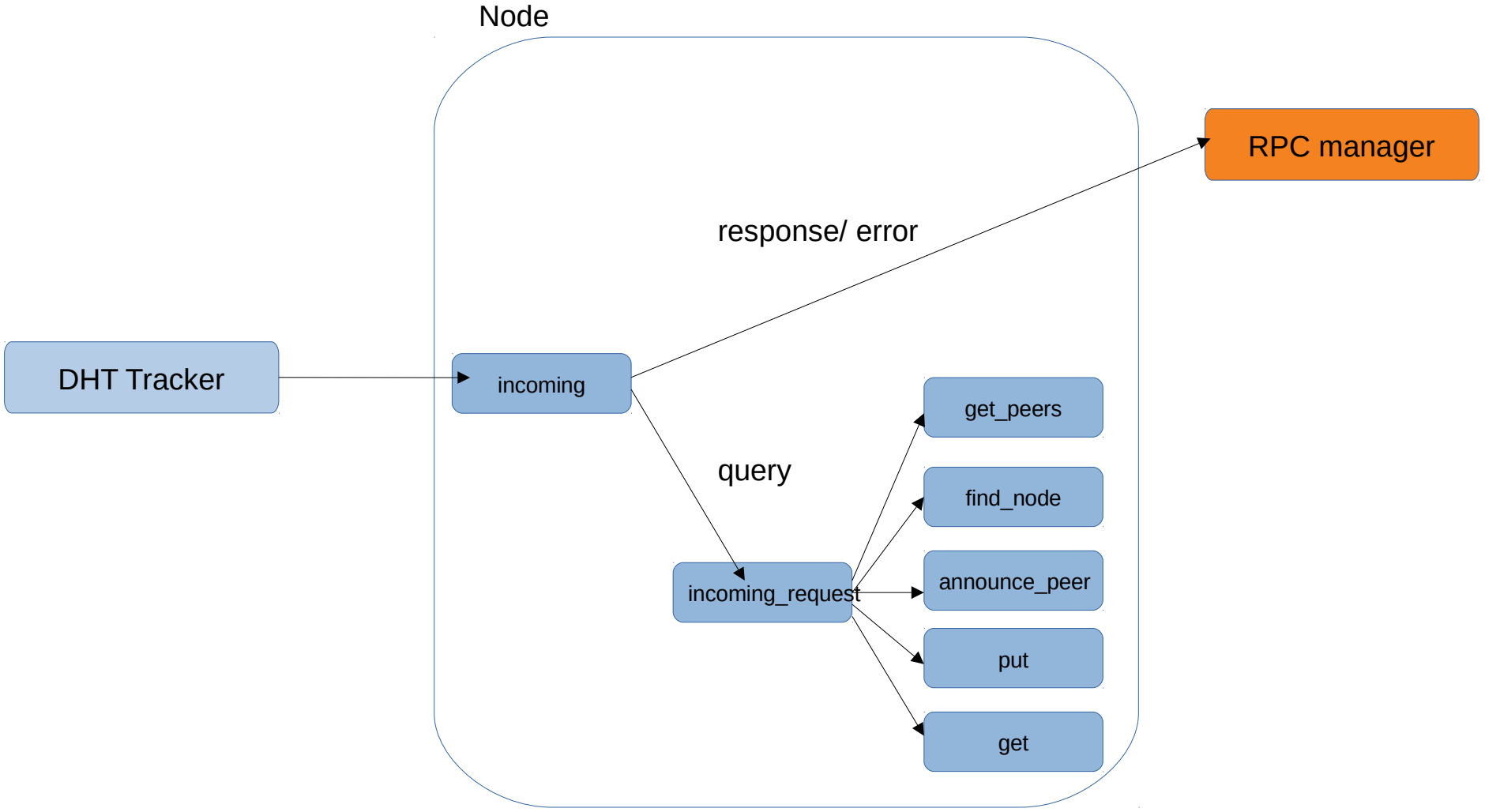
Traversal Algorithm & RPC Manager



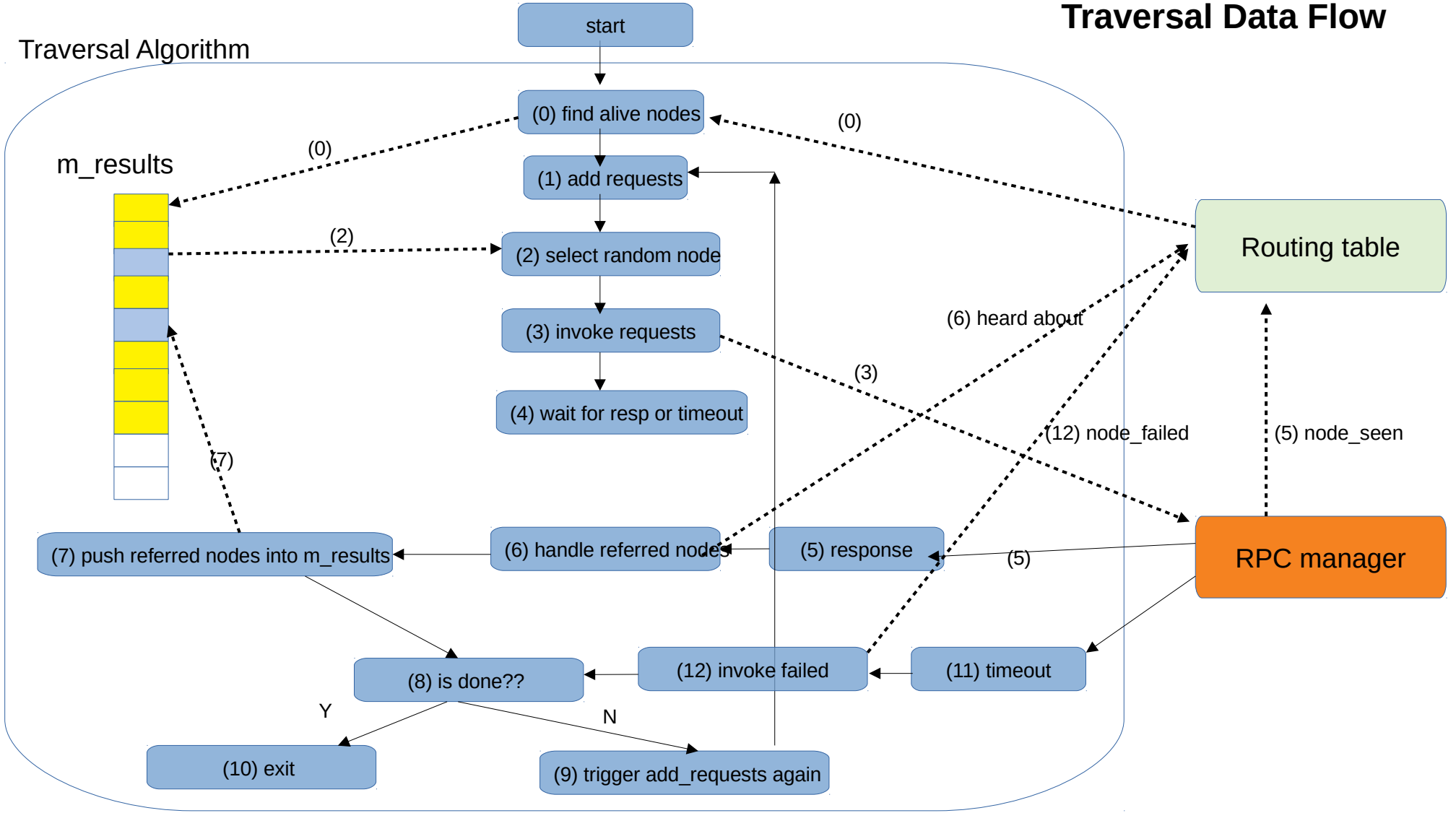
Solicited and Unsolicited Message Handling



Unsolicited Handling Unit



Traversal Data Flow



(0) find 8 alive nodes from routing table.

(1) ‘add_requests’ is triggered by ‘start’, ‘finished’ or ‘timeout’.

(2) select alpha(1) random nodes and the selected index is (0, min(beta, m_results.size()) - 1).

(3) invoke requests.

(4) wait for response or timeout.

(5) response is coming and trigger ‘finished’ method.

(6) trigger routing table ‘heard about’ and add nodes into replacements bucket.

(7) if referred nodes is allowed invoke, push them into m_results.

(8) is done? Invoked beta requests and all the invoked requests are handled?(response or timeout).

(9) not done, enter ‘add_requests’ method again.

(10) done and release traversal algorithm and all observers.

(11) rpc manager checks some requests are timeout(short or long timeout).

(12) invoke failed and call rpc manager ‘node_failed’ method.