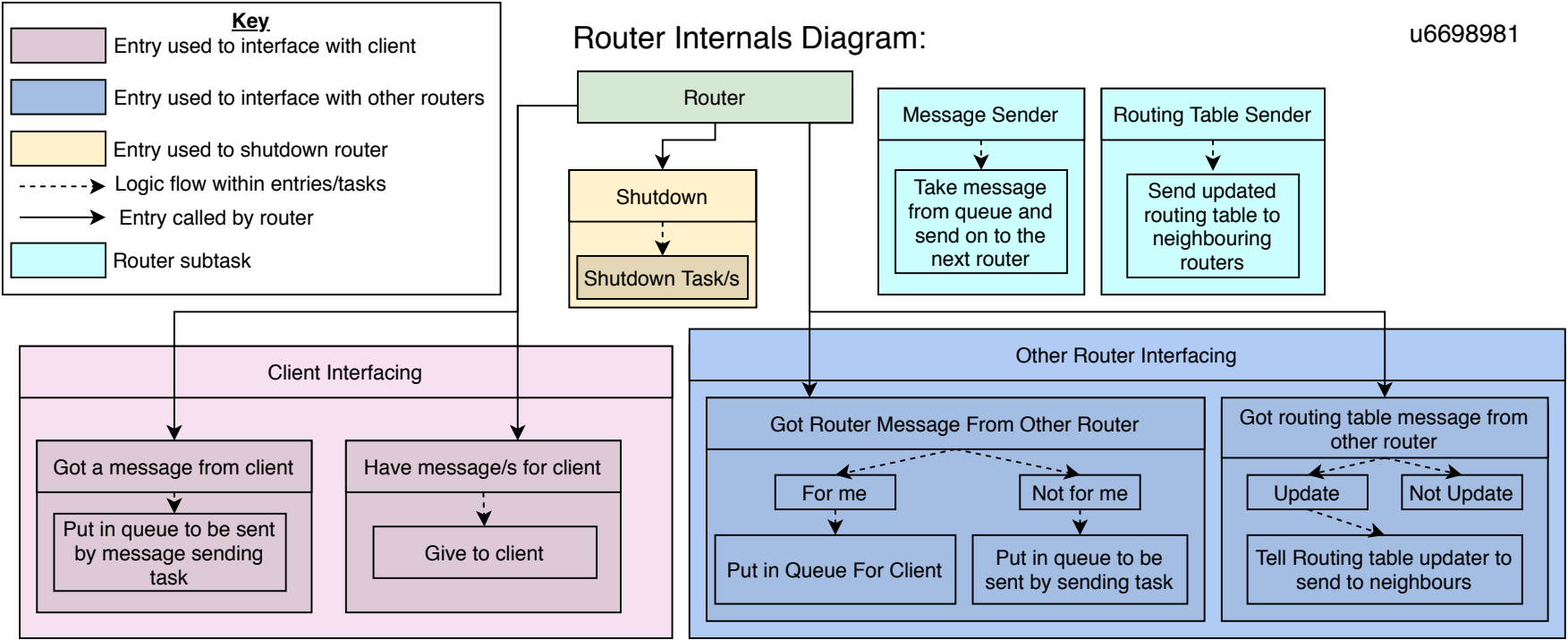

Key
Entry used to interface with client
Entry used to interface with other routers
Entry used to shutdown router
Logic flow within entries/tasks
Entry called by router
Router subtask
Router Internals Diagram:
u6698981
Router
Shutdown
Shutdown Task/s
Message Sender
Take message from queue and send on to the next router
Routing Table Sender
Send updated routing table to neighbouring routers
Client Interfacing
Got a message from client
Put in queue to be sent by message sending task
Have message/s for client
Give to client
Other Router Interfacing
Got Router Message From Other Router
For me
Not for me
Put in Queue For Client
Put in queue to be sent by sending task
Got routing table message from other router
Update
Not Update
Tell Routing table updater to send to neighbours

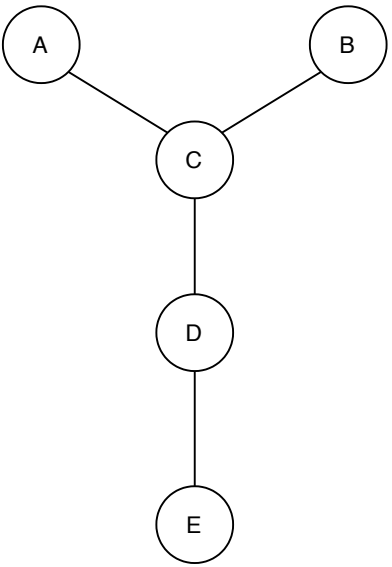
Routing Table Updating Diagram:

Key

Router

Port Connection between Routers

Router Topography:



First Round: Initialise Routing Tables:

A's Routing Table

ID	Distance	Next Hop
A	Invalid	Invalid
B	Invalid	Invalid
C	1	C
D	Invalid	Invalid
E	Invalid	Invalid

B's Routing Table

ID	Distance	Next Hop
A	Invalid	Invalid
B	Invalid	Invalid
C	1	C
D	Invalid	Invalid
E	Invalid	Invalid

C's Routing Table

ID	Distance	Next Hop
A	1	A
B	1	B
C	Invalid	Invalid
D	1	D
E	Invalid	Invalid

D's Routing Table

ID	Distance	Next Hop
A	Invalid	Invalid
B	Invalid	Invalid
C	1	C
D	Invalid	Invalid
E	1	E

E's Routing Table

ID	Distance	Next Hop
A	Invalid	Invalid
B	Invalid	Invalid
C	Invalid	Invalid
D	1	D
E	Invalid	Invalid

Second Round: Send and Receive To/From Neighbours

A's Routing Table

ID	Distance	Next Hop
A	Invalid	Invalid
B	2	C
C	1	C
D	2	C
E	Invalid	Invalid

B's Routing Table

ID	Distance	Next Hop
A	2	C
B	Invalid	Invalid
C	1	C
D	2	C
E	Invalid	Invalid

C's Routing Table

ID	Distance	Next Hop
A	1	A
B	1	B
C	Invalid	Invalid
D	1	D
E	2	D

D's Routing Table

ID	Distance	Next Hop
A	2	C
B	2	C
C	1	C
D	Invalid	Invaid
E	1	E

E's Routing Table

ID	Distance	Next Hop
A	Invalid	Invalid
B	Invalid	Invalid
C	2	D
D	1	D
E	Invalid	Invalid

Third Round: Final Send and Receive To/From Neighbours

A's Routing Table

ID	Distance	Next Hop
A	Invalid	Invalid
B	2	C
C	1	C
D	2	C
E	3	C

B's Routing Table

ID	Distance	Next Hop
A	2	C
B	Invalid	Invalid
C	1	C
D	2	C
E	3	C

C's Routing Table

ID	Distance	Next Hop
A	1	A
B	1	B
C	Invalid	Invalid
D	1	D
E	2	D

D's Routing Table

ID	Distance	Next Hop
A	2	C
B	2	C
C	1	C
D	Invalid	Invaid
E	1	E

E's Routing Table

ID	Distance	Next Hop
A	3	D
B	3	D
C	2	D
D	1	D
E	Invalid	Invalid

References:

[1] Used to inspire the routing table design (what information needs to be included in a routing table) and how to send routing tables between routers:
https://www.youtube.com/watch?v=GtgIV8kwqpA&ab_channel=KnowledgeThrusters

[2] Used for the Bellman-Ford equation used in updating tables:
https://www.geeksforgeeks.org/distance-vector-routing-dvr-protocol/

Used Uwe's protected generic queues from lab 1/2.

Discussion with Jerry Qian (u6526026) about initial solution - how to pass a message between routers without sending multiple copies of the same message.