# Exercise 3



The creation of this pattern is fully automated by linewithcircle.sh. The script uses the logic in circle6short.sh, from exercise 2, to create the Line (TEST1 to TEST5) and the Circle (TEST6 to TEST11).

The script attempts to configure the shortest route between each QMGR.

## QMGRs

Each QMGR TESTn is created with:

* listening on port 1520+n
* local queue Tn
* channel (SND) Tn.Tx for each connection (where x is the number of the target QMGR)
* local XMIT queue Tn.Tx for each connection
* channel (RCVR) Tx.Tn for each connection
* Remote Queues for all the other QMGRs.

## Remote Queues

For the purpose of the code there can be considered to be 3 types of remote queue:

* Line to Line – A Queue on a Line QMGR (TEST1-5) targeting a Line QMGR (i.e. Remote queue T1-5)
* Circle to Circle - A Queue on a Circle QMGR (TEST6-11) targeting a Circle QMGR (i.e. Remote queue T6-11)
* Line to Circle – A queue starting on a Line QMGR and targeting a Circle QMGR or visa-versa

Line to Line queues

If the queue has a higher number than the QMGR it is to be on it targets the next QMGR. if the queue has a lower number it targets the previous QMGR.

Example:

on TEST4 T1,T2,T3 will have RQMNAME set to TEST3 and T5 will have RQMNAME set to TEST5.

Circle to Circle queues

These remote queues are generated using the code from circle6short.sh to create the shortest route between the QMGRs

Line to Circle Queues

Each connection between the line and circle is considered a Junction (TEST1/TEST10, TEST3/TEST6, TEST5/TEST8).

The shortest route is calculated using these rules (described when going from Line to Circle but Circle to line follows the same route in reverse):

* The shortest route is via the circle so for example the shortest route from TEST4 to anywhere on the circle is Via the TEST3 or TEST5 and not Via TEST1.
* If you are starting from a Junction always go straight to the circle.
* The number of steps from the 2 possible junction QMGRs on the circle to the target are used to decide the shortest route.
* if the number of steps is the same for each the higher numbered Line QMGR is used.

Example:

From TEST4 to TEST9:

1. Junctions TEST3/TEST6 or TEST5/TEST8 can be used
2. Steps from TEST6 to TEST9 = 3
3. Steps from TEST8 to TEST9 = 1
4. messages should go via TEST5/TEST8.

On each QMGR these rules are evaluated for each Line to Circle queue. if on a junction the remote queue targets the other QMGR that is part of the junction.

If not on a junction the Junction to be used is calculated using the rules above. when the queue for the junction QMGR is created the line to circle queue is created with the same settings.

Examples:

Using the above example (TEST4 to TEST9) on QMGR TEST4 the route is via TEST5/TEST8 so when T5 is created T9 in created with the same RQMNAME setting.

For the reverse route (TEST9 to TEST4) on TEST9 the route is via TEST5/TEST8 so when T8 is created T4 is created using the same RQMNAME setting.