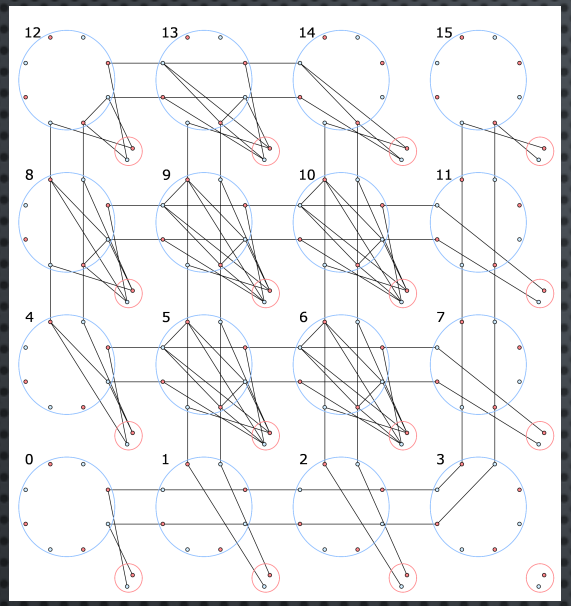
QOS IN NOC

Version / Characteristic	Baseline LBDR	LBDR - Separate Regions	Extended LBDR (20 routing bits)			Routing Table			Routers with Bypass	
Isolation Guarantee	-	+	+			+			+	
			SC1	SC2	SC3	SC1	SC2	SC3	SC1	SC2
Avg. Connectivity (in scenario)	? Adaptive	? Adaptive	10.21 Adaptive	7.5 Adaptive 6.21 XY	9.5 Adaptive 7.8 XY	10.7 Adaptive	10.42 Adaptive	10.78 Adaptive	? Adaptive	
Avg. Latency (clk cycles)	21.77 Adaptive	19.75 Adaptive	20.52 Adaptive	No adaptive 19.3 XY	No adaptive 20.12 XY	26.87 Adaptive	27.79 Adaptive	30.56 Adaptive	25.75	24.98
Avg. Throughput (Mb/s)	3.8 Adaptive	3.82 Adaptive	3.66 Adaptive	No adaptive 3.8 XY	No adaptive 3.9 XY	3.82 Adaptive	3.53 Adaptive	3.73 Adaptive	3.53	3.82
Scalability	+	+	+			-			- (if using Routing Tables)	
Non-Minimal Path Support	-	-	-			+			+	
Requires Logic Modification	Not Applicable	NO	YES			NO			YES (MUXes for Bypass)	

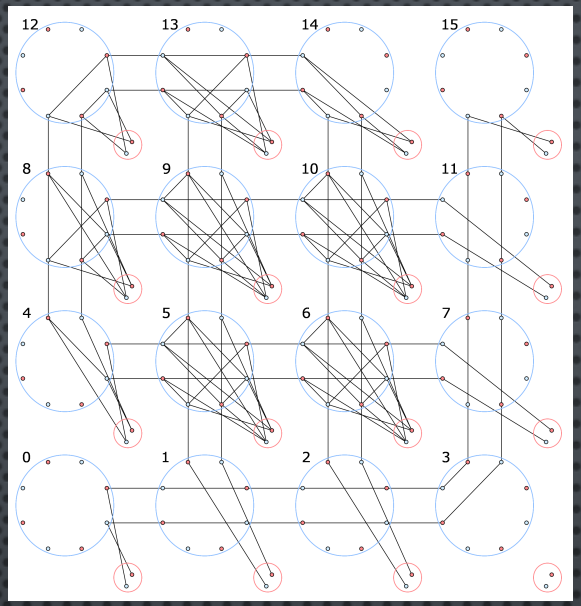
NoC Size	4×4
Critical Nodes	0, 15
	Critical Path
Scenario 1	0, 1, 2, 3, 7, 11, 13
Scenario 2	0, 1, 5, 9, 10 , 14, 15
Scenario 3	0, 1, 5, 9, 13, 14, 15

Packet Injection Rate (PIR)	0.01 Packets/Cycle/Node
Flow Control	Credit Based Wormhole Switching
Buffer Size	4 Flits
Vritual Channel(s)	No
Packet Size	8 Flits

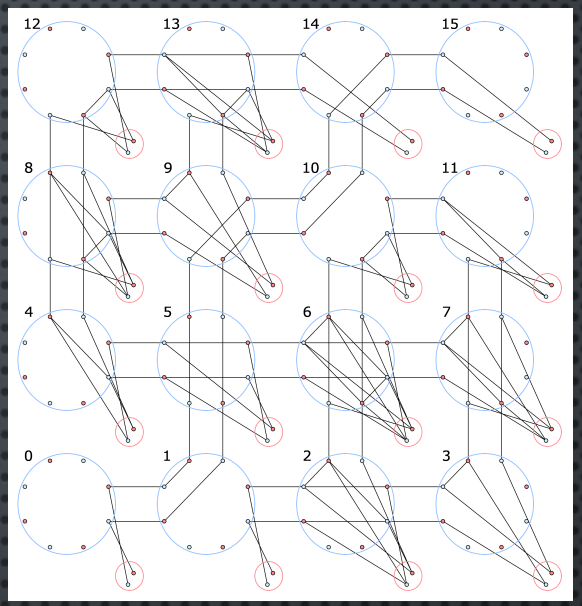
- Adaptive routing uses an algorithm which selects routing algorithm with highest connectivity.
- In Baseline and Separate Regions scenarios, North-Last Adaptive turn model routing is used.



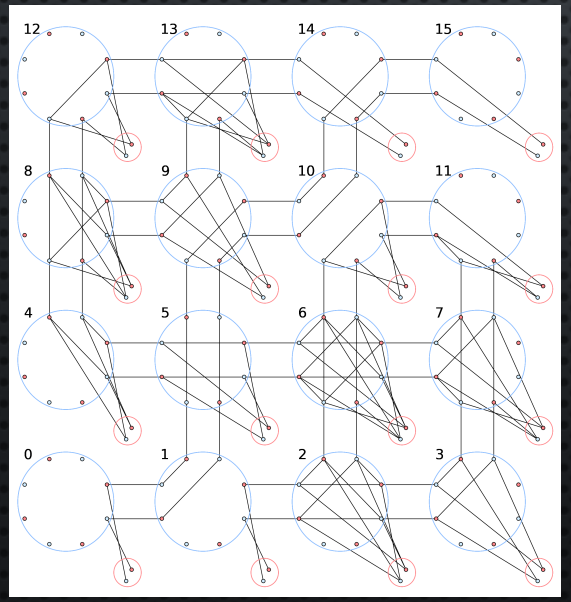
Scenario 1 Minimal



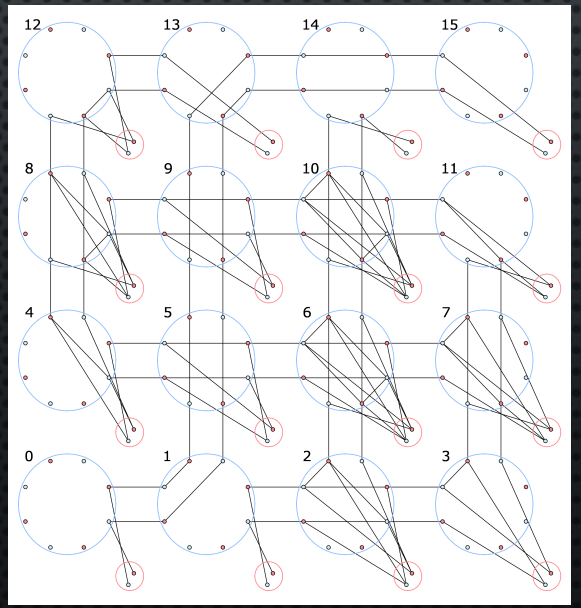
Scenario 1 Non-Minimal



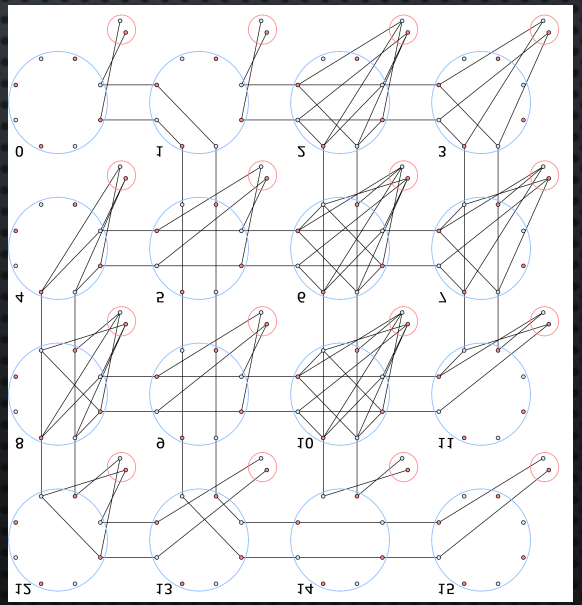
Scenario 2 Minimal XY



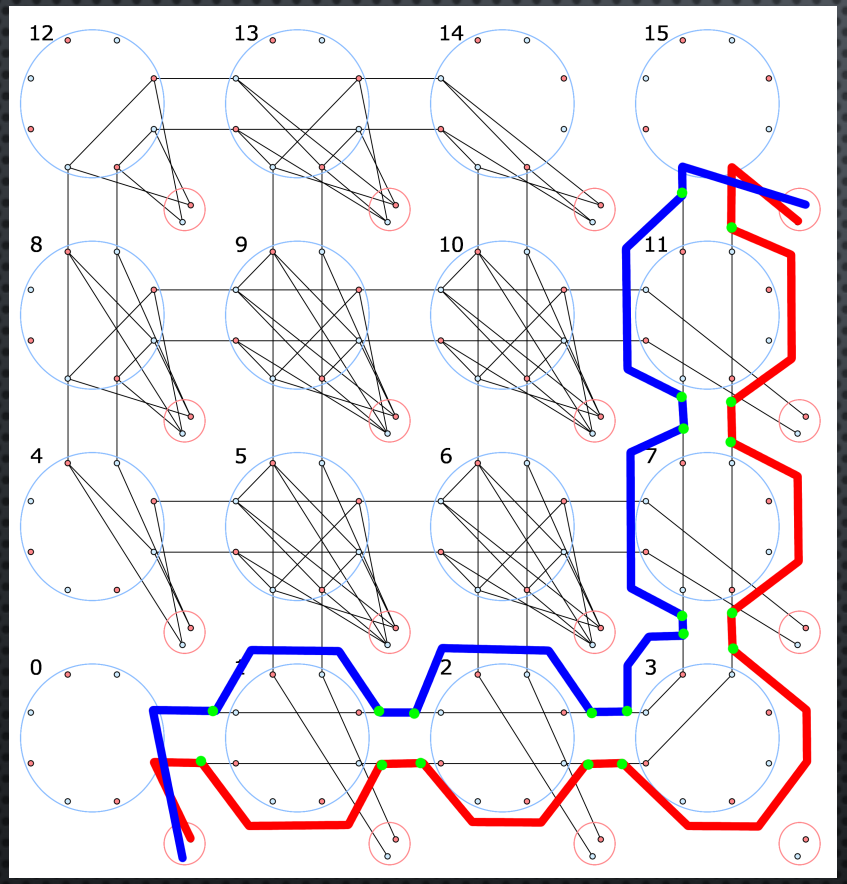
Scenario 2 Non-Minimal



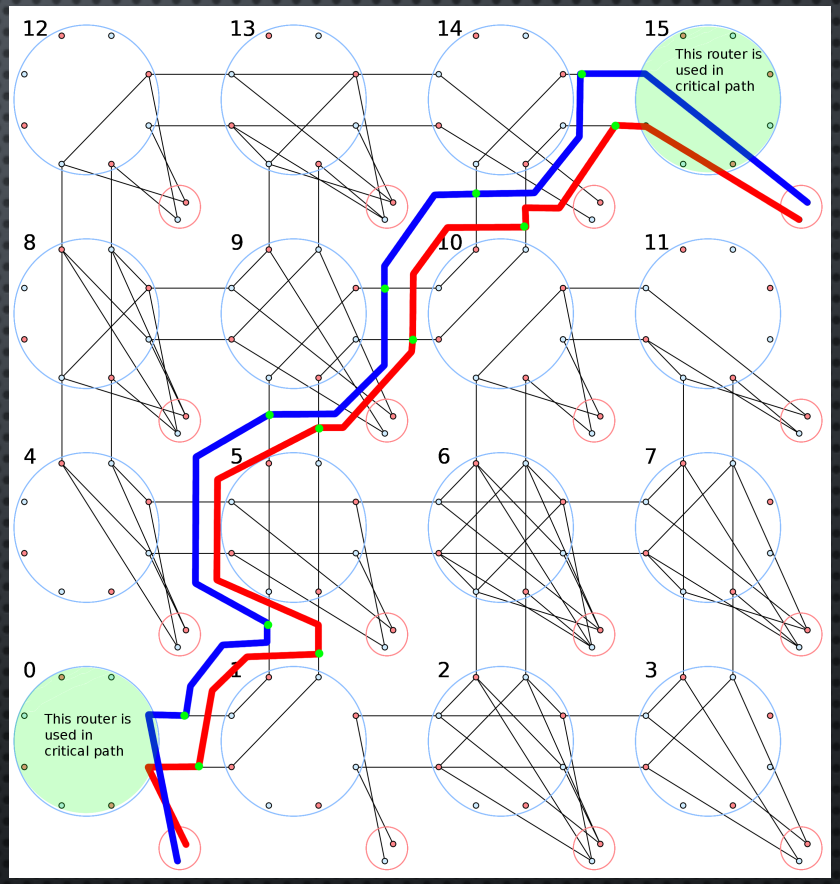
Scenario 3 Minimal XY



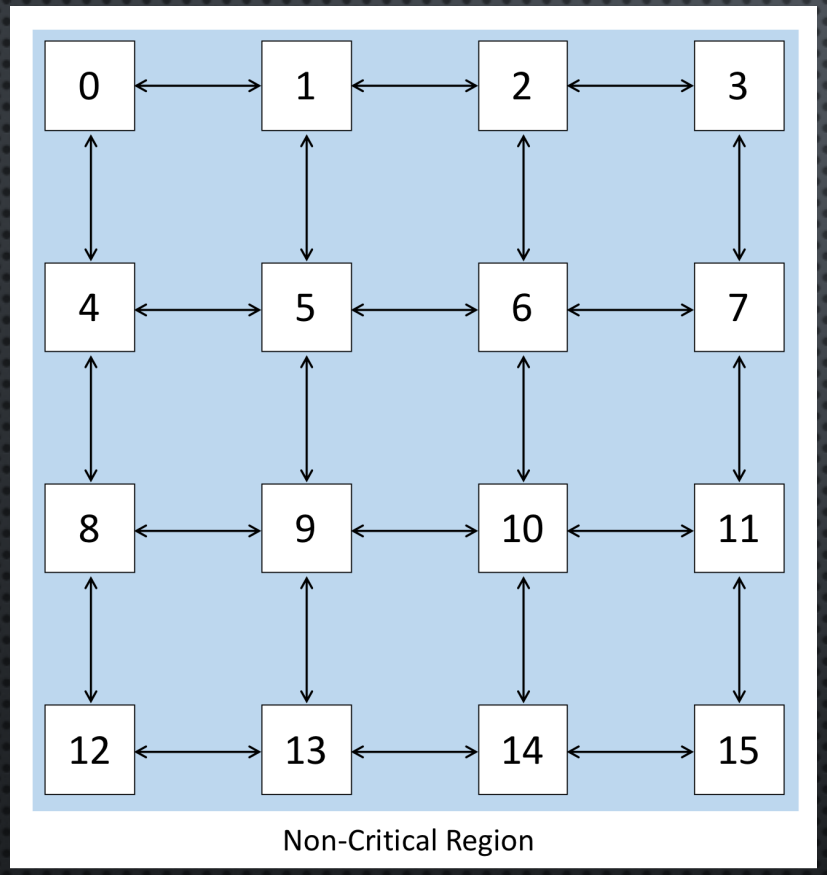
Scenario 3 Non-Minimal



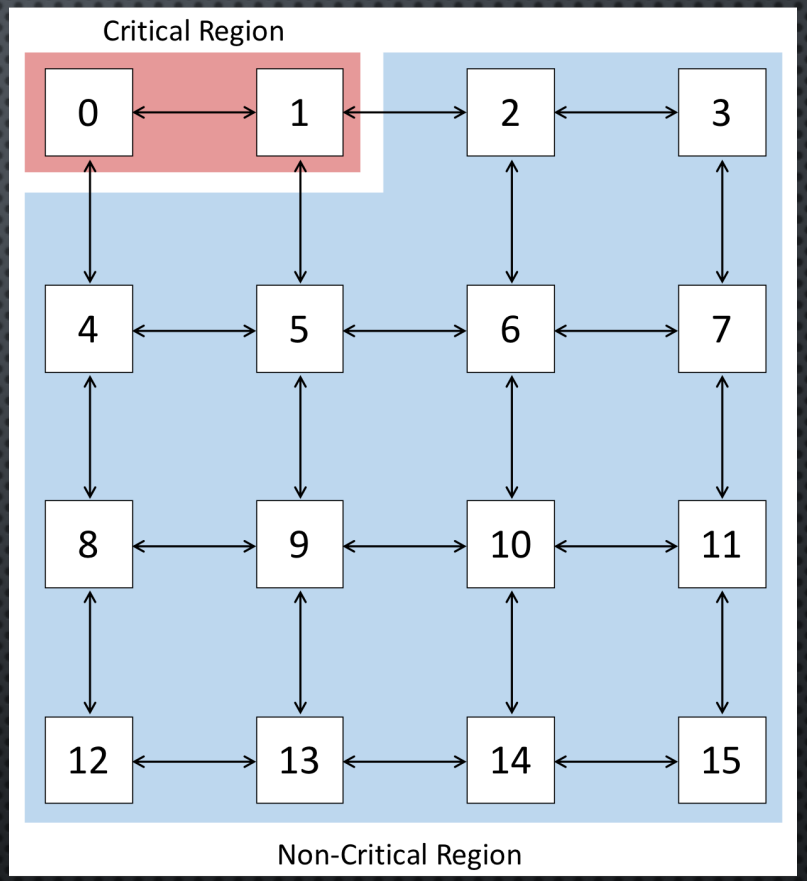
Scenario 1 with Bypass Routers (Non-Minimal)



Scenario 2 with Bypass Routers (Non-Minimal)



Baseline Scenario



Scenario with Separate Regions