Protocol	Implementation Link
Themis	https://github.com/dailinsubjam/Themis-code
Rashnu	https://github.com/HeenaNagda/Order-Fairness
Hotstuff	https://github.com/hot-stuff/libhotstuff
Pompe	https://github.com/Pompe-org/Pompe-HS
Fino	https://github.com/siddhantsharma301/narwhal-fino

Protocols

Protocol	Transaction Ordering	Comm. Complexity	Liveness	Censorship Resistance	Corruption
Themis	γ-batch order-fairness	$O(n^2)$	Standard	Yes	$n > \frac{4f}{2\gamma - 1}$
Rashnu	Data-dependent order-fairness	O(n)	Standard	Yes	$n > \frac{4f}{2\gamma - 1}$
Hotstuff	None	O(n)	Standard	–	–
Pompe	Ordering Linearizability	$O(n^2)$	Standard	No	n ≥ 3f + 1
Fino	Total ordering	$O(n^2)$	Standard	Yes	n ≥ 3f + 1

https://github.com/HeenaNagda/Order-Fairness		
$n > \frac{4f}{2\gamma - 1}$		
(1) varying network size		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[7500, 7286, 7314, 7400, 7300, 7400, 7500, 7400, 7500, 7400, 7400, 7300, 7500, 7500, 7400, 7500, 7500, 1700] lat = 53.951ms lat = 53.812ms	
f = 3; γ = 1 ; n = 13 ; blocksz = 100	[6400, 6000, 6300, 6000, 6200, 6300, 6000, 6300, 6300, 6500, 6500, 6500, 6500, 6416, 6421, 6363, 6400, 1600] lat = 63.501ms lat = 62.633ms	
f = 5 ; γ = 1 ; n = 21 ; blocksz = 100	[4600, 4600, 4600, 4527, 4573, 4700, 4600, 4600, 4600, 4500, 4600, 4600, 4600, 4600, 4500, 4600, 4596, 104] lat = 87.314ms lat = 87.135ms	
f = 10; γ = 1 ; n = 41 ; blocksz = 100	[3126, 3074, 3100, 3100, 3100, 3100, 3200, 3300, 3199, 3101, 3200, 3200, 3176, 3224, 3200, 3000] lat = 127.028ms lat = 126.726ms	
(2) replica failure (shut down f replicas)		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[7600, 7500, 7500, 7400, 7500, 7500, 7500, 7500, 7500, 7500, 7500, 7300, 7500, 7600, 7500, 7600, 7520, 6780] lat = 53.324ms lat = 53.116ms	[7500, 7286, 7314, 7400, 7300, 7400, 7500, 7400, 7500, 7400, 7400, 7300, 7500, 7500, 7400, 7500, 7500, 1700] lat = 53.951ms lat = 53.812ms
f = 3; γ = 1 ; n = 13 ; blocksz = 100	[6500, 6500, 6500, 6413, 6387, 6400, 6400, 6500, 6400, 6400, 6400, 6400, 6400, 6300, 6400, 6300, 6300, 6200, 2800] lat = 62.745ms lat = 62.514ms	[6400, 6000, 6300, 6000, 6200, 6300, 6000, 6300, 6300, 6500, 6500, 6500, 6500, 6416, 6421, 6363, 6400, 1600] lat = 63.501ms lat = 62.633ms
f = 5 ; γ = 1 ; n = 21 ; blocksz = 100	[4500, 4500, 4497, 4403, 4400, 4500, 4500, 4500, 4400, 4500, 4400, 4500, 4500, 4488, 4412, 4500, 4400, 923] lat = 89.658ms lat = 89.502ms	[4600, 4600, 4600, 4527, 4573, 4700, 4600, 4600, 4600, 4500, 4600, 4600, 4600, 4600, 4500, 4600, 4596, 104] lat = 87.314ms lat = 87.135ms
f = 10; γ = 1 ; n = 41 ; blocksz = 100	[3100, 3000, 3100, 3100, 3100, 3100, 3100, 3200, 3101, 3199, 3100, 3200, 3152, 3148, 3200, 3000, 3100] lat = 128.618ms lat = 128.200ms	[3126, 3074, 3100, 3100, 3100, 3100, 3100, 3200, 3300, 3199, 3101, 3200, 3200, 3176, 3224, 3200, 3000] lat = 127.028ms lat = 126.726ms
(3) block size (c8220)		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 5	[490, 600, 615, 595, 620, 620, 625, 605, 610, 620, 625, 620, 620, 625, 615, 625, 585, 210] lat = 647.828ms lat = 646.581ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 25	[2800, 2875, 2900, 2825, 2900, 2900, 2825, 2800, 2900, 2850, 2850, 2850, 2850, 2800, 2725, 2850, 2850, 1400] lat = 140.520ms lat = 139.847ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 50	[5450, 5350, 5350, 5300, 5350, 5350, 5250, 5200, 5250, 5250, 5200, 5250, 5300, 5350, 5200, 5250, 5150, 5300, 850] lat = 75.730ms lat = 75.403ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[7500, 7286, 7314, 7400, 7300, 7400, 7500, 7400, 7500, 7400, 7400, 7300, 7500, 7500, 7400, 7500, 7500, 1700] lat = 53.951ms lat = 53.812ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 200	[5000, 5200, 5000, 5000, 5200, 5000, 5000, 5000, 5000, 5200, 5000, 4867, 4933, 5000, 4921, 4879, 4800, 5000, 5000, 1800] lat = 160.181ms lat = 159.847ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 400	[2800, 2800, 2800, 2800, 3200, 2800, 2400, 2800, 2800, 2800, 2800, 2800, 2800, 2800, 2400, 2800, 2800, 800] lat = 576.208ms lat = 574.337ms	
(4) Geo distrbuted		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100 (ALL IN Clemson)	[7500, 7286, 7314, 7400, 7300, 7400, 7500, 7400, 7500, 7400, 7400, 7300, 7500, 7500, 7400, 7500, 7500, 1700] lat = 53.951ms lat = 53.812ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100 (Utah, Emulab, Clemson, Wisconsin)	[1200, 1201, 1299, 1200, 1200, 1286, 1214, 1200, 1200, 1300, 1200, 1200, 1300, 1200, 1233, 1267, 1200] lat = 329.832ms lat = 324.409ms	
(5) Order fairness parameter		
f = 1 ; γ = .60 ; n = 21 ; blocksz = 100	[4600, 4600, 4600, 4527, 4573, 4700, 4600, 4600, 4600, 4500, 4600, 4600, 4600, 4600, 4500, 4600, 4596, 104] lat = 87.314ms lat = 87.135ms	
f = 1 ; γ = .75 ; n = 9 ; blocksz = 100	[6687, 6700, 6700, 6800, 6700, 6600, 6700, 6700, 6700, 6600, 6600, 6684, 6616, 6700, 6700, 6688, 6712, 1600] lat = 60.073ms lat = 59.818ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[7500, 7286, 7314, 7400, 7300, 7400, 7500, 7400, 7500, 7400, 7400, 7300, 7500, 7500, 7400, 7500, 7500, 1700] lat = 53.951ms lat = 53.812ms	

https://github.com/HeenaNagda/Order-Fairness		
$n > \frac{4f}{2\gamma - 1}$		
(1) varying network size		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[3800, 3700, 3800, 3800, 3800, 3739, 3761, 3800, 3800, 3700, 3800, 3800, 3700, 3700, 3800, 3800, 3700, 200] lat = 106.354ms lat = 106.178ms	
f = 3; γ = 1 ; n = 13 ; blocksz = 100	[3404, 3396, 3400, 3300, 3300, 3300, 3300, 3300, 3400, 3300, 3300, 3400, 3300, 3400, 3300, 3300, 3300, 1300] lat = 120.424ms lat = 119.783ms	
f = 5 ; γ = 1 ; n = 21 ; blocksz = 100	[800, 600, 800, 700, 700, 600, 700, 700, 700, 700, 700, 700, 600, 600, 700, 700, 100] lat = 2294.108ms lat = 2338.828ms	
f = 10; γ = 1 ; n = 41 ; blocksz = 100	[700, 700, 700, 700, 661, 539, 700, 600, 700, 700, 600, 700, 600, 600, 600, 600] lat = 2424.117ms lat = 2465.256ms	
(2) replica failure (shut down f replicas)		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[3800, 3800, 3800, 3800, 3800, 3744, 3756, 3800, 3700, 3800, 3800, 3700, 3700, 3800, 3700, 3800, 3800, 3700, 900] lat = 106.276ms lat = 105.833ms	[3800, 3700, 3800, 3800, 3800, 3739, 3761, 3800, 3800, 3700, 3800, 3800, 3700, 3700, 3800, 3800, 3700, 200] lat = 106.354ms lat = 106.178ms
f = 3; γ = 1 ; n = 13 ; blocksz = 100	[3400, 3400, 3300, 3300, 3400, 3300, 3300, 3300, 3315, 3285, 3400, 3300, 3300, 3361, 3339, 3300, 3300, 800] lat = 120.657ms lat = 120.088ms	[3404, 3396, 3400, 3300, 3300, 3300, 3300, 3300, 3400, 3300, 3300, 3400, 3300, 3400, 3300, 3300, 3300, 1300] lat = 120.424ms lat = 119.783ms
f = 5 ; γ = 1 ; n = 21 ; blocksz = 100	[800, 600, 800, 700, 700, 600, 700, 800, 700, 700, 700, 700, 600, 600, 700, 700, 600, 200] lat = 2287.674ms lat = 2328.988ms	[800, 600, 800, 700, 700, 600, 700, 700, 700, 700, 700, 700, 600, 600, 700, 700, 100] lat = 2294.108ms lat = 2338.828ms
f = 10; γ = 1 ; n = 41 ; blocksz = 100	[700, 700, 700, 693, 607, 700, 600, 700, 700, 700, 600, 600, 600, 600, 547, 453] lat = 2429.446ms lat = 2471.148ms	[700, 700, 700, 700, 661, 539, 700, 600, 700, 700, 600, 700, 600, 600, 600, 600] lat = 2424.117ms lat = 2465.256ms
(3) block size (c8220)		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 5	[555, 640, 670, 645, 670, 675, 665, 640, 675, 670, 670, 670, 665, 665, 660, 630, 670, 70] lat = 600.637ms lat = 599.090ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 25	[3025, 3075, 3075, 3025, 3075, 3025, 2975, 3050, 3050, 3025, 3000, 3025, 3000, 2928, 3047, 2975, 3025, 1075] lat = 132.219ms lat = 131.802ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 50	[5300, 5300, 5350, 5248, 5302, 5300, 5200, 5150, 5300, 5300, 5150, 5200, 5200, 5250, 5200, 5050, 5050, 1850] lat = 76.592ms lat = 76.044ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[3800, 3700, 3800, 3800, 3800, 3739, 3761, 3800, 3800, 3700, 3800, 3800, 3700, 3700, 3800, 3800, 3700, 200] lat = 106.354ms lat = 106.178ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 200	[2000, 1800, 1800, 2000, 1800, 1800, 1800, 1992, 1808, 1800, 1800, 1800, 1800, 1800, 1800, 2000, 1800, 1800] lat = 436.163ms lat = 435.247ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 400	[1200, 800, 800, 800, 800, 800, 800, 1200, 800, 800, 800, 800, 800, 800, 800, 800, 800, 800] lat = 1890.857ms lat = 1892.005ms	
(4) Geo distrbuted		
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100 (ALL IN Clemson)	[3800, 3700, 3800, 3800, 3800, 3739, 3761, 3800, 3800, 3700, 3800, 3800, 3700, 3700, 3800, 3800, 3700, 200] lat = 106.354ms lat = 106.178ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100 (Utah, Emulab, Clemson, Wisconsin)	[600, 600, 600, 600, 600, 600, 600, 600, 500, 600, 600, 600, 500, 600, 500, 500, 400] lat = 2680.635ms lat = 2771.834ms	
(5) Order fairness parameter		
f = 1 ; γ = .60 ; n = 21 ; blocksz = 100	[800, 600, 800, 700, 700, 600, 700, 700, 700, 700, 700, 700, 600, 600, 700, 700, 100] lat = 2294.108ms lat = 2338.828ms	
f = 1 ; γ = .75 ; n = 9 ; blocksz = 100	[3500, 3600, 3500, 3495, 3405, 3500, 3500, 3500, 3500, 3400, 3500, 3600, 3400, 3400, 3500, 3400, 3500, 3432, 468] lat = 115.441ms lat = 114.760ms	
f = 1 ; γ = 1 ; n = 5 ; blocksz = 100	[3800, 3700, 3800, 3800, 3800, 3739, 3761, 3800, 3800, 3700, 3800, 3800, 3700, 3700, 3800, 3800, 3700, 200] lat = 106.354ms lat = 106.178ms	

https://github.com/HeenaNagda/Order-Fairness				
n >= 3f + 1				
(1) varying network size				
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100	[26700, 26500, 27100, 26900, 26800, 27200, 26900, 11600] lat = 14.881ms lat = 14.843ms			
f = 3; γ = 1 ; n = 10 ; blocksz = 100	[18600, 18700, 18700, 18628, 18672, 18800, 19100, 18959, 19241, 19000, 11300] lat = 21.232ms lat = 21.212ms			
f = 5 ; γ = 1 ; n = 16 ; blocksz = 100	[14800, 14500, 14600, 14500, 14659, 14641, 14553, 14747, 14500, 14600, 14600, 14600, 14578, 9822] lat = 27.387ms lat = 27.360ms			
f = 10; γ = 1 ; n = 31 ; blocksz = 100	[8977, 9049, 8974, 8900, 8900, 8950, 8850, 8900, 8900, 8800, 8800, 8985, 8815, 8800, 8862, 8881, 8915, 8997, 645] lat = 44.936ms lat = 44.875ms			
(2) replica failure (shut down f replicas)				
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100	[27800, 27728, 27941, 27801, 27030, 27400, 27201, 6799] lat = 14.503ms lat = 14.457ms	[26700, 26500, 27100, 26900, 26800, 27200, 26900, 11600] lat = 14.881ms lat = 14.843ms		
f = 3; γ = 1 ; n = 10 ; blocksz = 100	[17156, 17244, 17424, 17817, 17259, 16000, 16000, 16700, 16500, 16700, 17000, 13900] lat = 23.680ms lat = 23.470ms	[18600, 18700, 18700, 18628, 18672, 18800, 19100, 18959, 19241, 19000, 11300] lat = 21.232ms lat = 21.212ms		
f = 5 ; γ = 1 ; n = 16 ; blocksz = 100	[14500, 14400, 14400, 14200, 14400, 14600, 14600, 14630, 14704, 14720, 14644, 14502, 14600, 10800] lat = 27.524ms lat = 27.491ms	[14800, 14500, 14600, 14500, 14659, 14641, 14553, 14747, 14500, 14600, 14600, 14600, 14578, 9822] lat = 27.387ms lat = 27.360ms		
f = 10; γ = 1 ; n = 31 ; blocksz = 100	[8800, 8900, 8800, 8771, 8795, 8734, 8800, 8800, 8737, 8763, 8900, 8861, 8839, 8800, 8763, 8748, 8789, 8788, 812 lat = 45.482ms lat = 45.418ms	[8977, 9049, 8974, 8900, 8900, 8950, 8850, 8900, 8900, 8800, 8800, 8985, 8815, 8800, 8862, 8881, 8915, 8997, 645] lat = 44.936ms lat = 44.875ms		
(3) block size (c8220)				
f = 1 ; γ = 1 ; n = 4 ; blocksz = 5	[3755, 3755, 3750, 3745, 3750, 3740, 3690, 3735, 3745, 3750, 3757, 3768, 3805, 3825, 3846, 3750, 3739, 2035] lat = 106.130ms lat = 106.625ms			
f = 1 ; γ = 1 ; n = 4 ; blocksz = 25	[18518, 18232, 17875, 18136, 18190, 18049, 17996, 18054, 18466, 17784, 17950, 675] lat = 22.071ms lat = 22.041ms			
f = 1 ; γ = 1 ; n = 4 ; blocksz = 50	[33508, 33092, 33186, 33914, 33800, 32350] lat = 11.901ms lat = 11.859ms			
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100	[26700, 26500, 27100, 26900, 26800, 27200, 26900, 11600] lat = 14.881ms lat = 14.843ms			
f = 1 ; γ = 1 ; n = 4 ; blocksz = 200	[34400, 33800, 34272, 34110, 33618, 29200] lat = 23.521ms lat = 23.410ms			
f = 1 ; γ = 1 ; n = 4 ; blocksz = 400	[38544, 38334, 38625, 37297, 38400, 7600] lat = 42.003ms lat = 41.681ms			
(4) Geo distrbuted				
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100 (ALL IN Clemson)	[26700, 26500, 27100, 26900, 26800, 27200, 26900, 11600] lat = 14.881ms lat = 14.843ms			
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100 (Utah, Emulab, Clemson, Wisconsin)	[1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 1700, 500] lat = 237.415ms lat = 235.177ms			

https://github.com/Pompe-org/Pompe-HS
n >= 3f + 1
(1) varying network size
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100
f = 3; γ = 1 ; n = 10 ; blocksz = 100
f = 5 ; γ = 1 ; n = 16 ; blocksz = 100
f = 10; γ = 1 ; n = 31 ; blocksz = 100
(2) replica failure (shut down f replicas)
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100
f = 3; γ = 1 ; n = 10 ; blocksz = 100
f = 5 ; γ = 1 ; n = 16 ; blocksz = 100
f = 10; γ = 1 ; n = 31 ; blocksz = 100
(3) block size (c8220)
f = 1 ; γ = 1 ; n = 4 ; blocksz = 5
f = 1 ; γ = 1 ; n = 4 ; blocksz = 25
f = 1 ; γ = 1 ; n = 4 ; blocksz = 50
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100
f = 1 ; γ = 1 ; n = 4 ; blocksz = 200
f = 1 ; γ = 1 ; n = 4 ; blocksz = 400
(4) Geo distrbuted
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100 (ALL IN Clemson)
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100 (Utah, Emulab, Clemson, Wisconsin)

https://github.com/siddhantsharma301/narwhal-fino
n >= 3f + 1
(1) varying network size
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100
f = 3; γ = 1 ; n = 10 ; blocksz = 100
f = 5 ; γ = 1 ; n = 16 ; blocksz = 100
f = 10; γ = 1 ; n = 31 ; blocksz = 100
(2) replica failure (shut down f replicas)
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100
f = 3; γ = 1 ; n = 10 ; blocksz = 100
f = 5 ; γ = 1 ; n = 16 ; blocksz = 100
f = 10; γ = 1 ; n = 31 ; blocksz = 100
(3) block size (c8220)
f = 1 ; γ = 1 ; n = 4 ; blocksz = 5
f = 1 ; γ = 1 ; n = 4 ; blocksz = 25
f = 1 ; γ = 1 ; n = 4 ; blocksz = 50
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100
f = 1 ; γ = 1 ; n = 4 ; blocksz = 200
f = 1 ; γ = 1 ; n = 4 ; blocksz = 400
(4) Geo distrbuted
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100 (ALL IN Clemson)
f = 1 ; γ = 1 ; n = 4 ; blocksz = 100 (Utah, Emulab, Clemson, Wisconsin)