duplicate key problem:

Hot keys are 98% of traffic. 17 cold keys are 2% traffic. Hot key op distribution: 95% set 5% del cold key op distribution: 20% set 10% get 70% del aggressive deletions on cold keys prevent needing to resize. lets say you have k_A & k_B that hash to slot 10. lets say slot 10 is deleted. lets say k_A wins the cas request → slot 10: pk_A pV_A F. thread trying to insert ptr_k_B ptr_v_B spins. a third thread comes along and deletes k_A. → slot 10: ϕ ϕ D. the thread trying to insert pk_B see's pk_A was deleted during spin. it breaks the while loop. Then it probes and is placed in slot 11. → slot 11: pk_B pV_B F. Then a fourth thread comes along trying to insert k_B which hashes to slot 10. Then the fourth thread claims the deleted slot 10 and inserts the key → slot 10: pk_B pV_B F ‖ slot 11: pk_B pV_B F