Bacteria are able to maintain a narrow distribution of cell sizes by regulating the timing of cell divisions. In rich nutrient conditions, cells divide faster than their chromosomes replicate, implying that cells maintain multiple rounds of chromosome replication. How these processes are coupled and controlled is an important unresolved question in cellular biology. I will show that both cell size and chromosome replication may be simultaneously regulated by following a simple and effective control mechanism, in which "initiators" are accumulated as the cell grows, and trigger initiation of new rounds of DNA replication. This model elucidates the experimentally observed correlations between various events in the cell cycle, and explains the exponential dependence of cell size on the growth rate. Furthermore, the model predicts a bimodal distribution of cell size at initiation of DNA replication, which is yet to be tested.