The demand for higher accuracy regulation and fast response in switching converters has led to the exploration of digital control techniques as a way to implement more advanced control architectures. In this thesis, a novel digitally controlled step-down (buck) switching converter architecture that makes use of switched capacitors to improve the transient response is presented. Using the proposed architecture, the transient response is improved by a factor of two or more in comparison to the theoretical limits that can be achieved with a basic step down converter control architecture. The architecture presented in this thesis is not limited to digitally controlled topologies but rather can also be used in analog topologies as well. Design and simulation results of a 1.8V, 15W, 1MHz digitally controlled step down converter with a 12mV Analog to Digital Converter (ADC) resolution and a 2ns DPWM (Digital Pulse Width Modulator) resolution are presented.