The microwave pulse compression procedure consists of excitation of a working mode in a resonant cavity and transforming the mode into an auxiliary one that is coupled to an output line. Both transforming and coupling involve switching. Transients were calculated by recursion relations giving higher accuracy at short time constants. Demonstration experiments were run in the X-band. The compressor prototype showed power amplification of 15 dB at an output pulse width of 2.7 ns and a peak power of 1.5 MW. Mode transformation efficiency approached 0.7. A sequence of nanosecond and sub-nanosecond microwave pulses within the length of an input feeding pulse can be, in principle, obtained.