We first discuss a zero-$T$ phase transition within a single-ion model. The transition takes place because at a pressure $p = p_0$ the effective potential acting over the ion changes from a one-well (high pressure) to a two-well (low pressure) potential. Quantum fluctuations make that the transition pressure $p_c$ differs somewhat from $p_0$ ($p_c < p_0$). This difference is, in any case, such that the effective two-well potential must be considered as still shallow at the transition point. Thus, although the model can behave like an order-disorder system far enough from the zero-$T$ transition, this feature is lost close to the zero-$T$ transition in favor of a displacive behavior. In consequence the system has a phonon-like excitation spectrum close to this transition point. We study the form of the phase diagram at low temperatures for KDP-type systems. We find that the relationship between the transition temperature $T_c$ and the pressure is $T_c = C(p - p_c)^{1/4}$, where the coefficient $C$ depends only on the macroscopic elastic moduli.