$\pi_1(X, x_0) \cong \operatorname{colim}(\pi_1(U_1, x_0) \stackrel{i_{1*}}{\longleftarrow} \pi_1(U_1 \cap U_2, x_0) \stackrel{i_{2*}}{\longrightarrow} \pi_1(U_2, x_0))$