Definition (Co-design problem with implementation). A *Co-Design Problem with Implementation* (CDPI) is a tuple $\langle F, R, \langle \mathcal{V}, \mathcal{E} \rangle \rangle$, where F and R are two posets, and $\langle \mathcal{V}, \mathcal{E} \rangle$ is a multigraph of DPIs. Each node $v \in \mathcal{V}$ is a DPI $v = \langle F_v, R_v, I_v, \mathsf{prov}_v, \mathsf{req}_v \rangle$. An edge $e \in \mathcal{E}$ is a tuple $e = \langle \langle v_1, i_1 \rangle, \langle v_2, j_2 \rangle \rangle$, where $v_1, v_2 \in \mathcal{V}$ are two nodes and i_1 and j_2 are the indices of the components of the functionality and resources to be connected, and it holds that $\pi_{i_1} R_{v_1} = \pi_{j_2} F_{v_2}$ (**??**).

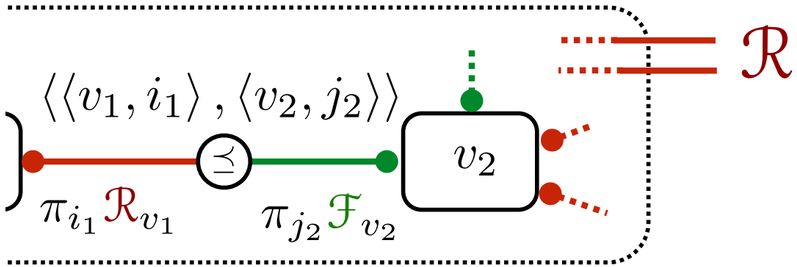

Figure 0.1 fig:mcdps