

FIG. 1A

106

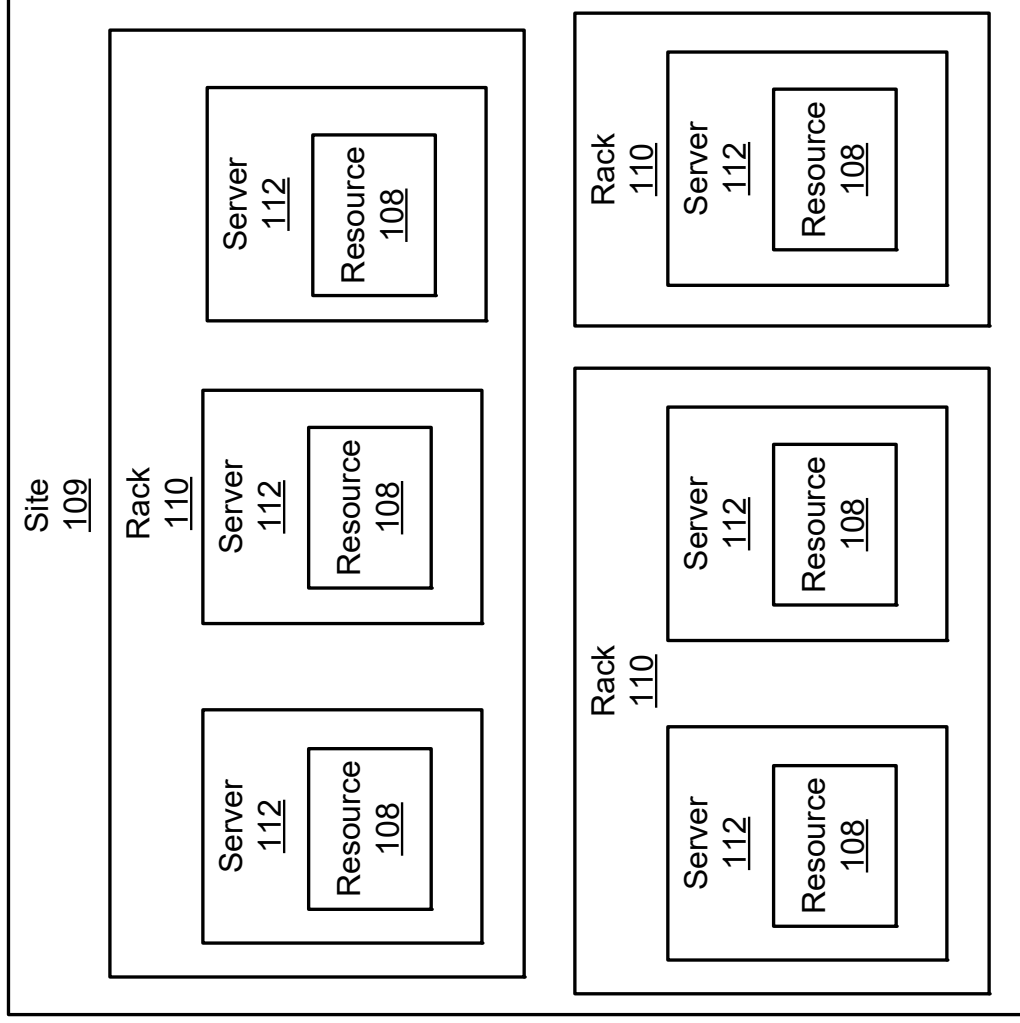
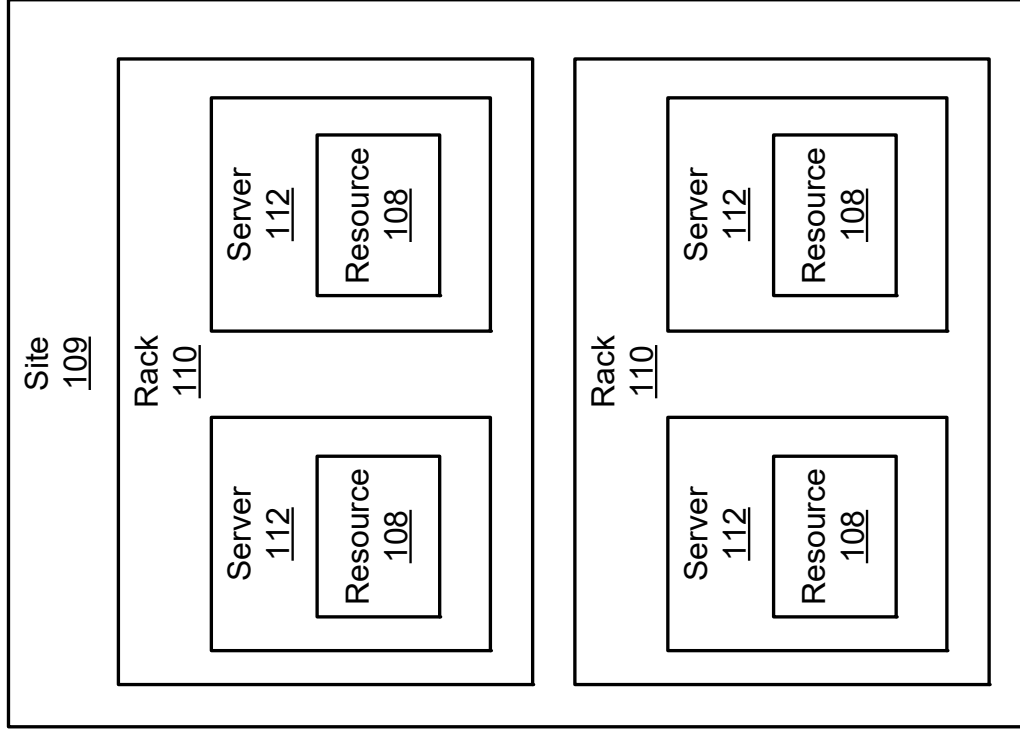


FIG. 1B

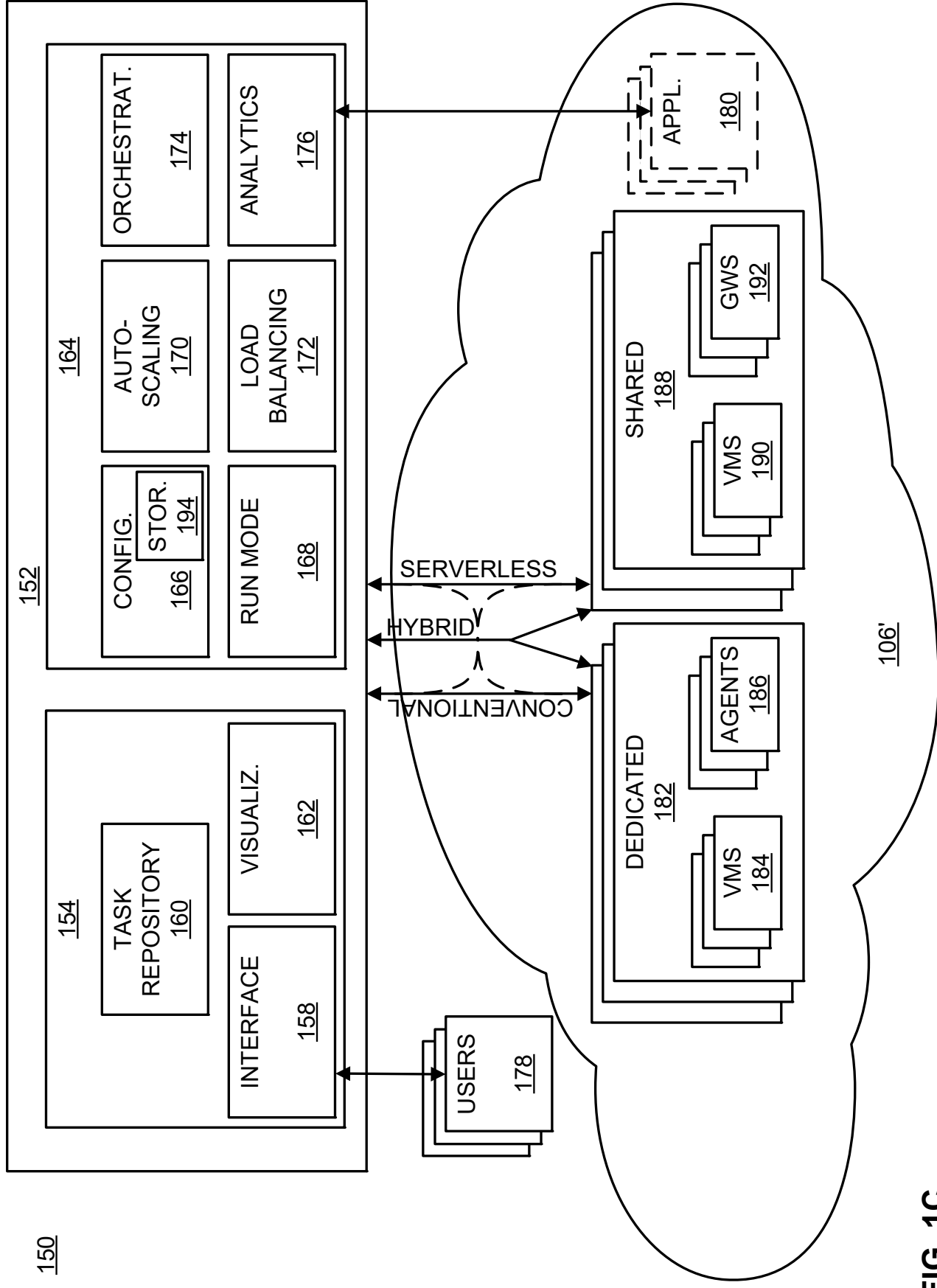


FIG. 1C

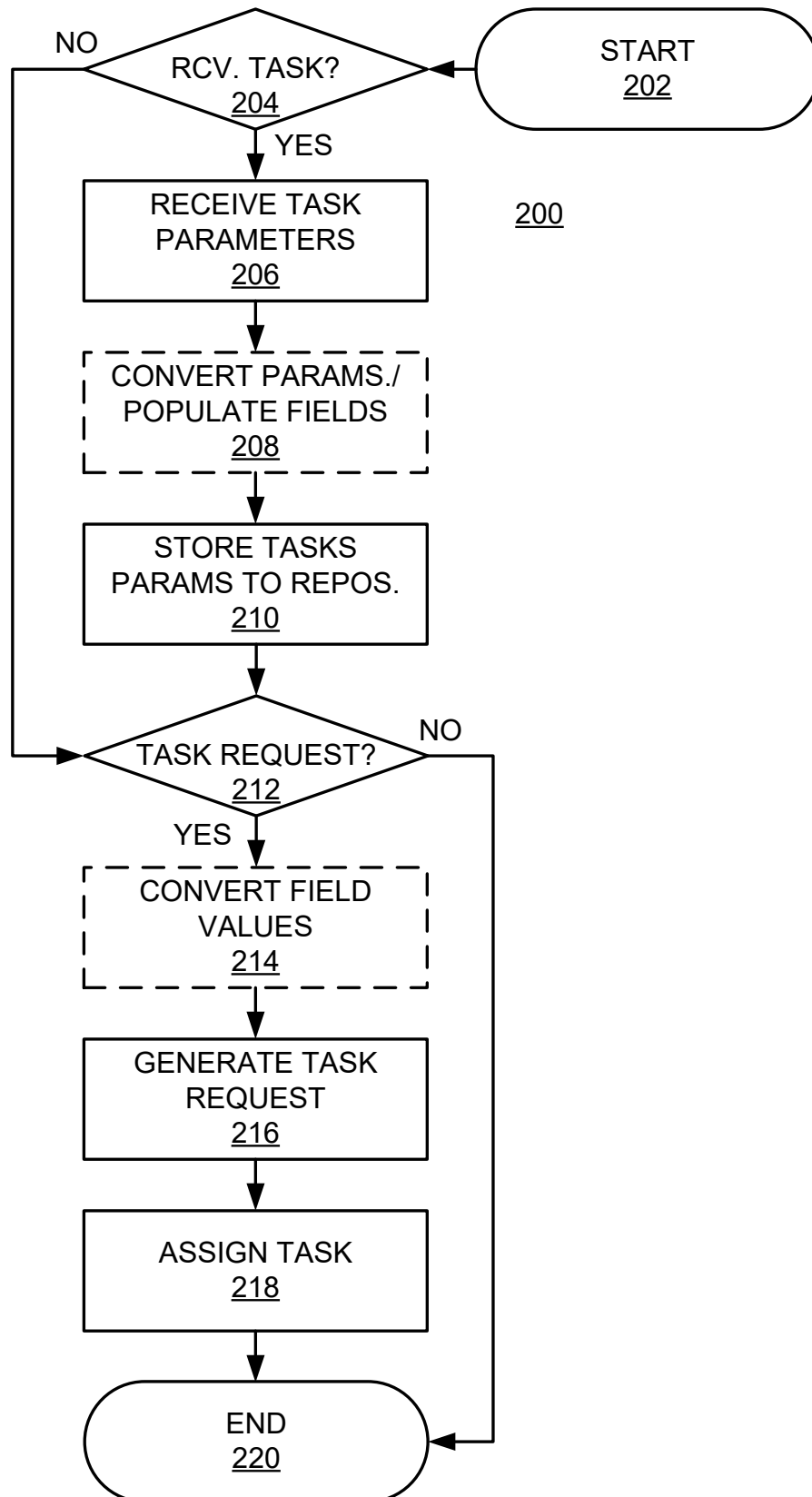


FIG. 2A

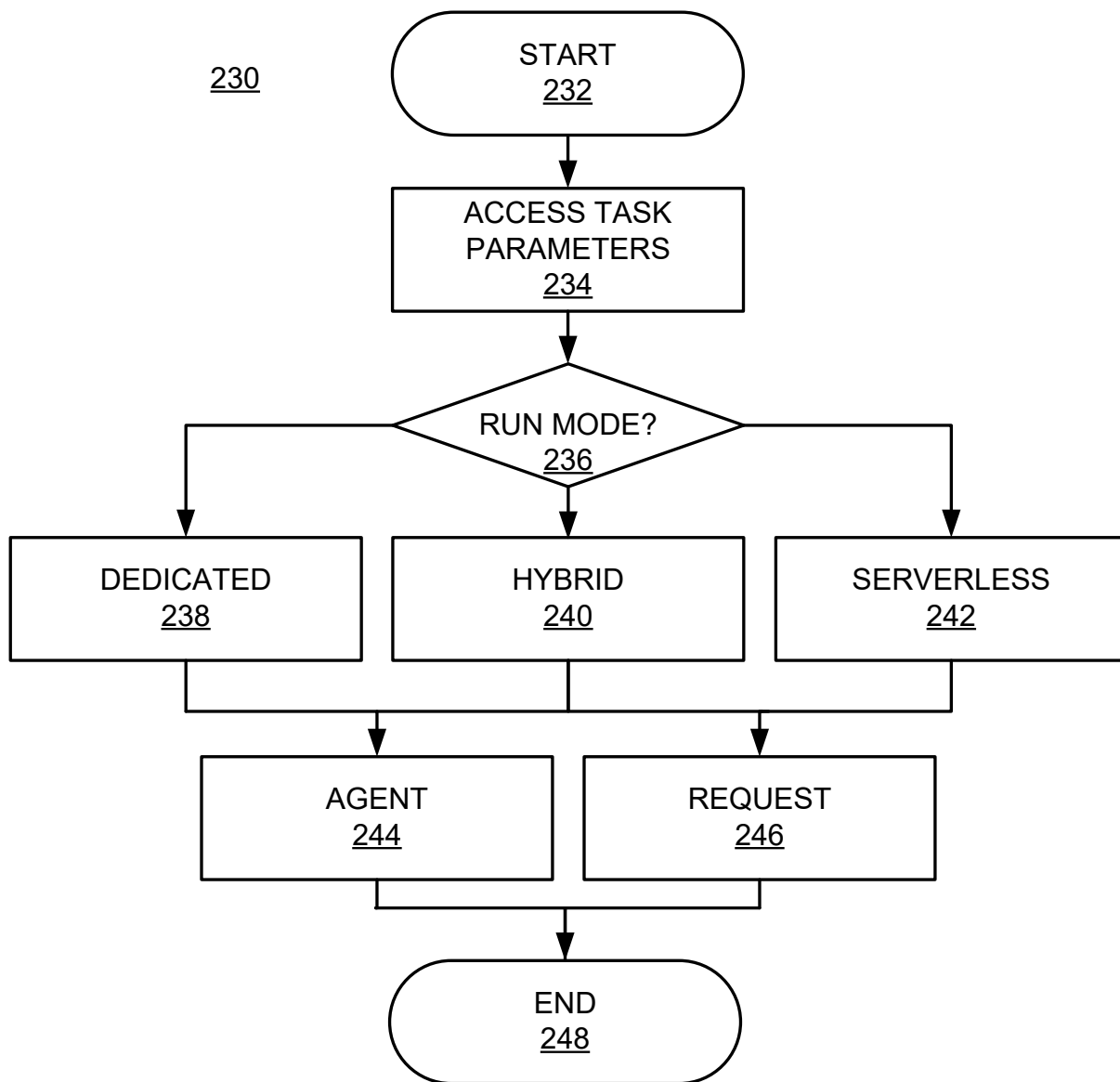


FIG. 2B

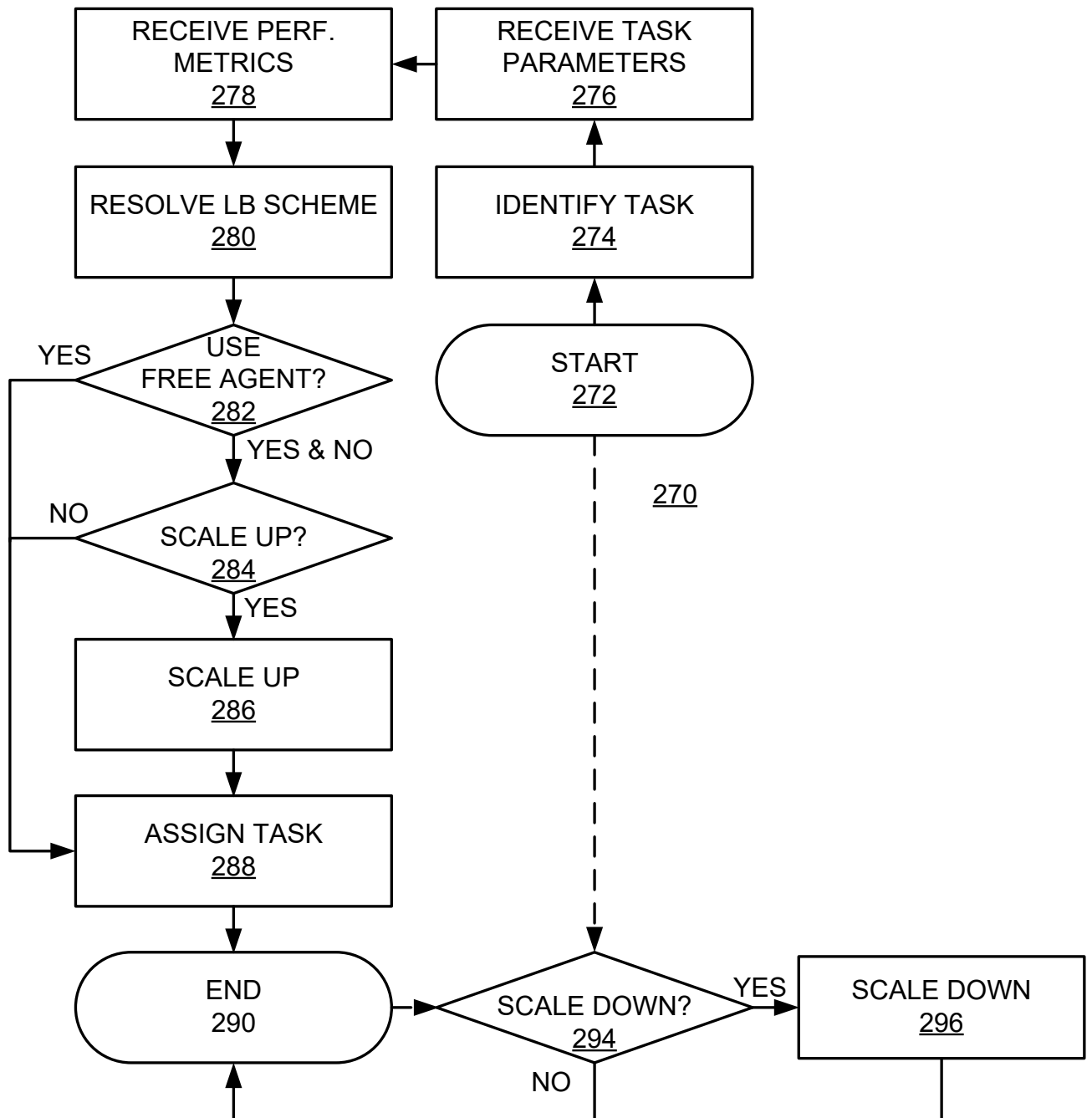


FIG. 2C

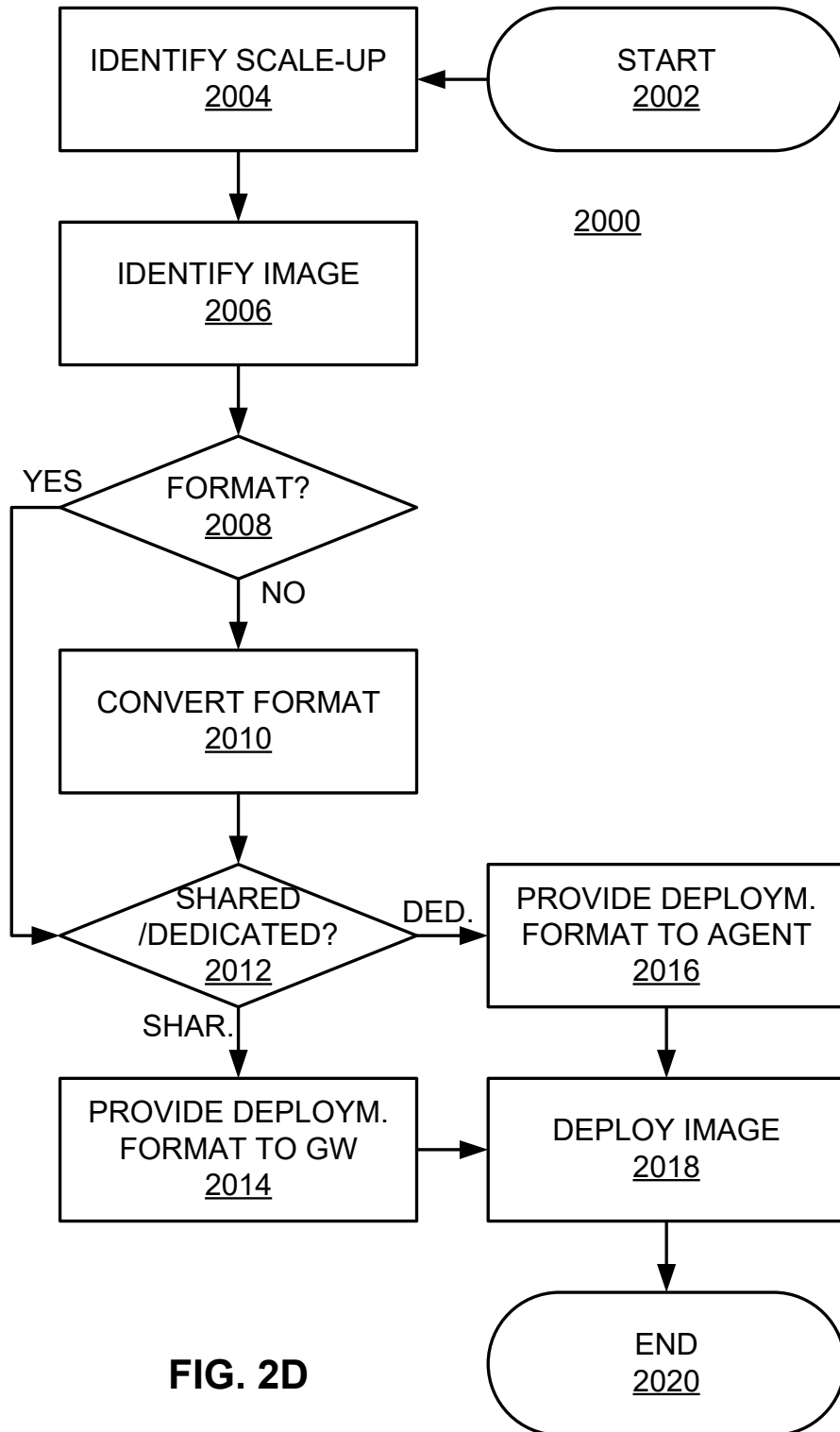


FIG. 2D

300

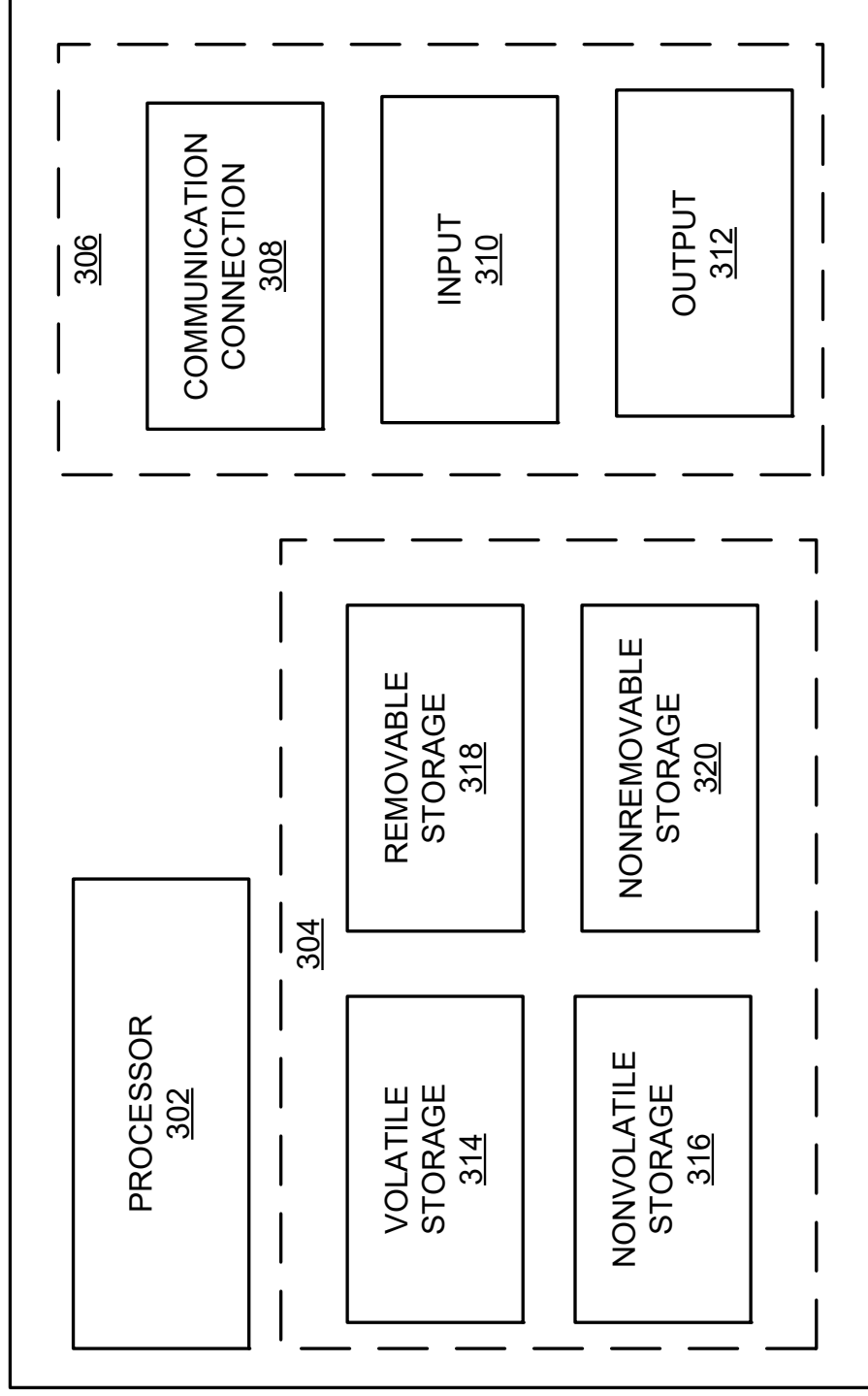


FIG. 3

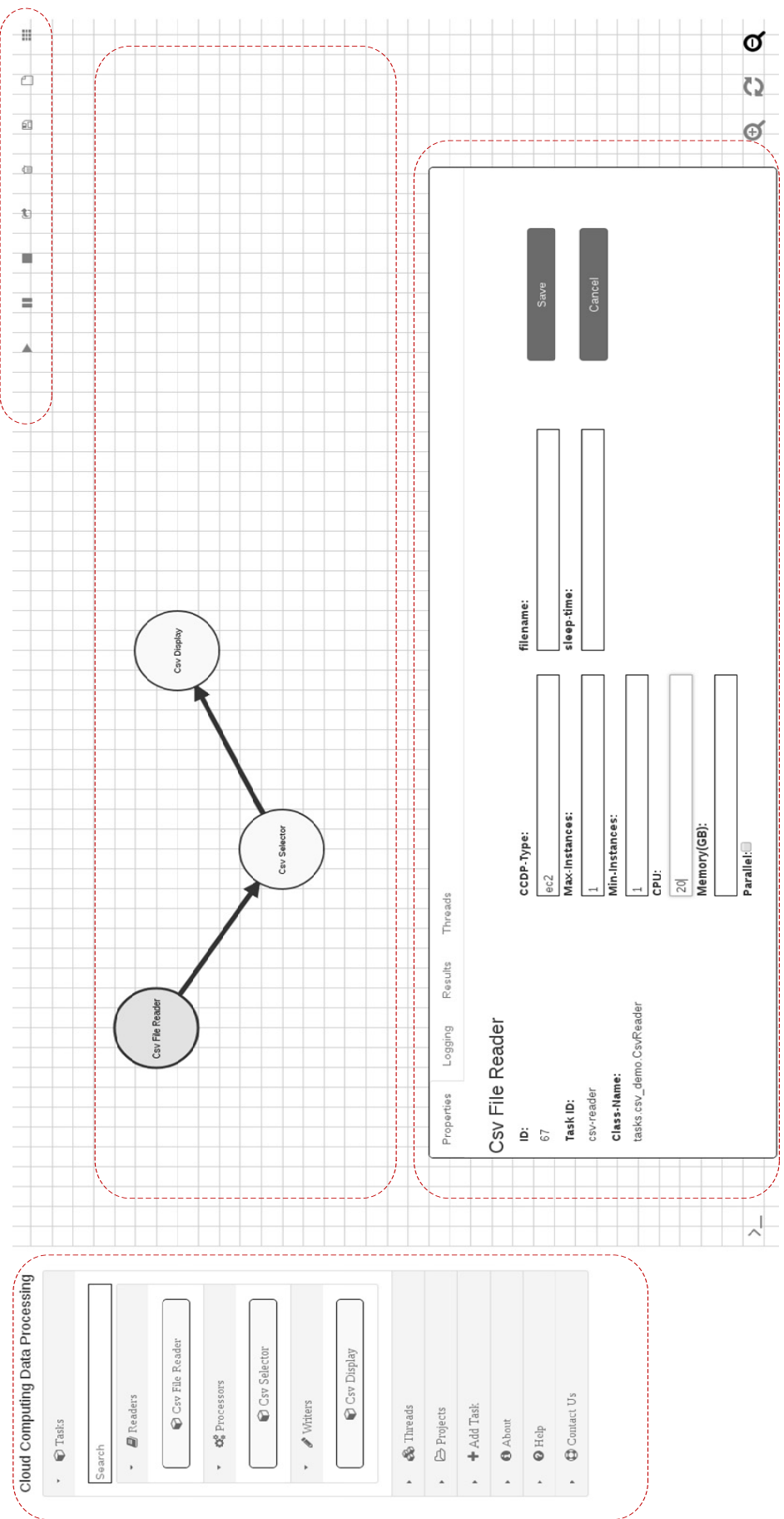
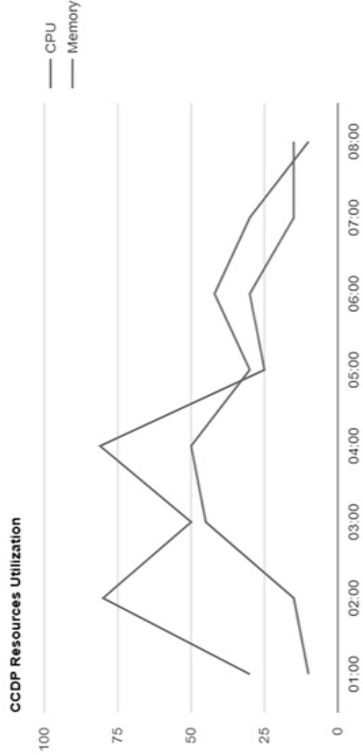


FIG. 4A



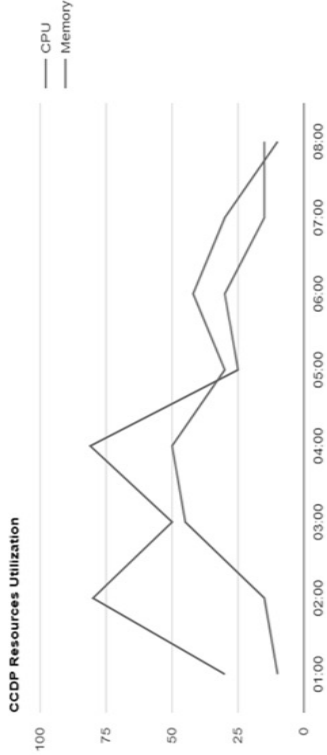
Cloud Computing Data Processing – System View

Session ID	VMs	Tasks	Avg. CPU (%)	Avg. Mem (MB)
free-agent	1	0	5.0	1024
abc-123	3	128	48.5	2008
abc-456	30	1280	52.5	8052
abc-111	5	3	0.5	1008
abc-222	3	1578	67.3	8052
abc-333	30	7890	97.6	16000
abc-555	1	2	47.5	2008



Cloud Computing Data Processing – Session: abc-222

Inst. ID	Running	Completed	Failed	Avg. CPU (%)	Avg. Mem (MB)
iid-222	20	200	2	48.5	2008
iid-333	30	300	3	52.5	8052
iid-444	2	400	4	0.5	1008
iid-555	55	500	5	67.3	8052
iid-666	6	0	666	97.6	1024
iid-777	70	700	7	47.5	2008



Cloud Computing Data Processing – Instance: iid-666

Task ID	State	Started	Completed	CPU (%)	Mem (MB)
tid-222	RUNNING	03/09/18::12:31:00	03/09/18::12:35:00	48.5	2008
tid-333	RUNNING	03/09/18::12:31:00	03/09/18::12:35:00	52.5	8052
tid-444	RUNNING	03/09/18::12:31:00	03/09/18::12:35:00	0.5	1008
tid-555	CANCELED	03/09/18::12:31:00	03/09/18::12:35:00	67.3	8052
tid-666	FAILED	03/09/18::12:31:00	03/09/18::12:35:00	97.6	16000
tid-777	RUNNING	03/09/18::12:31:00	03/09/18::12:35:00	47.5	2008

FIG. 4B