Design of a MAS for emergency Response Simulation in Urban Environments: Task 1.

MAS
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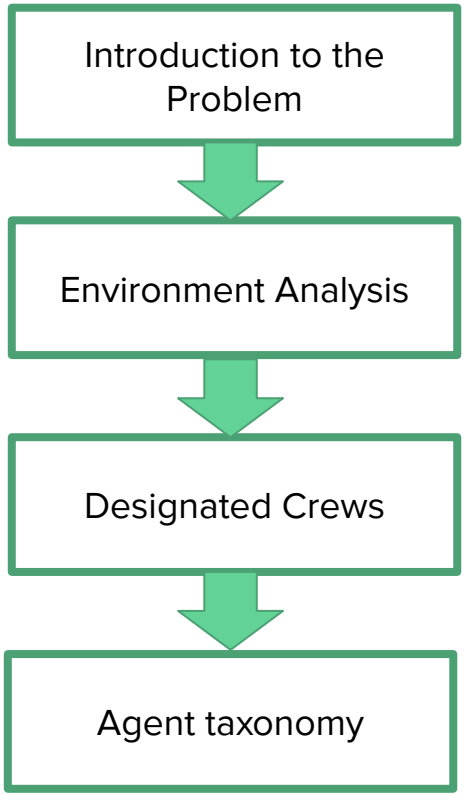
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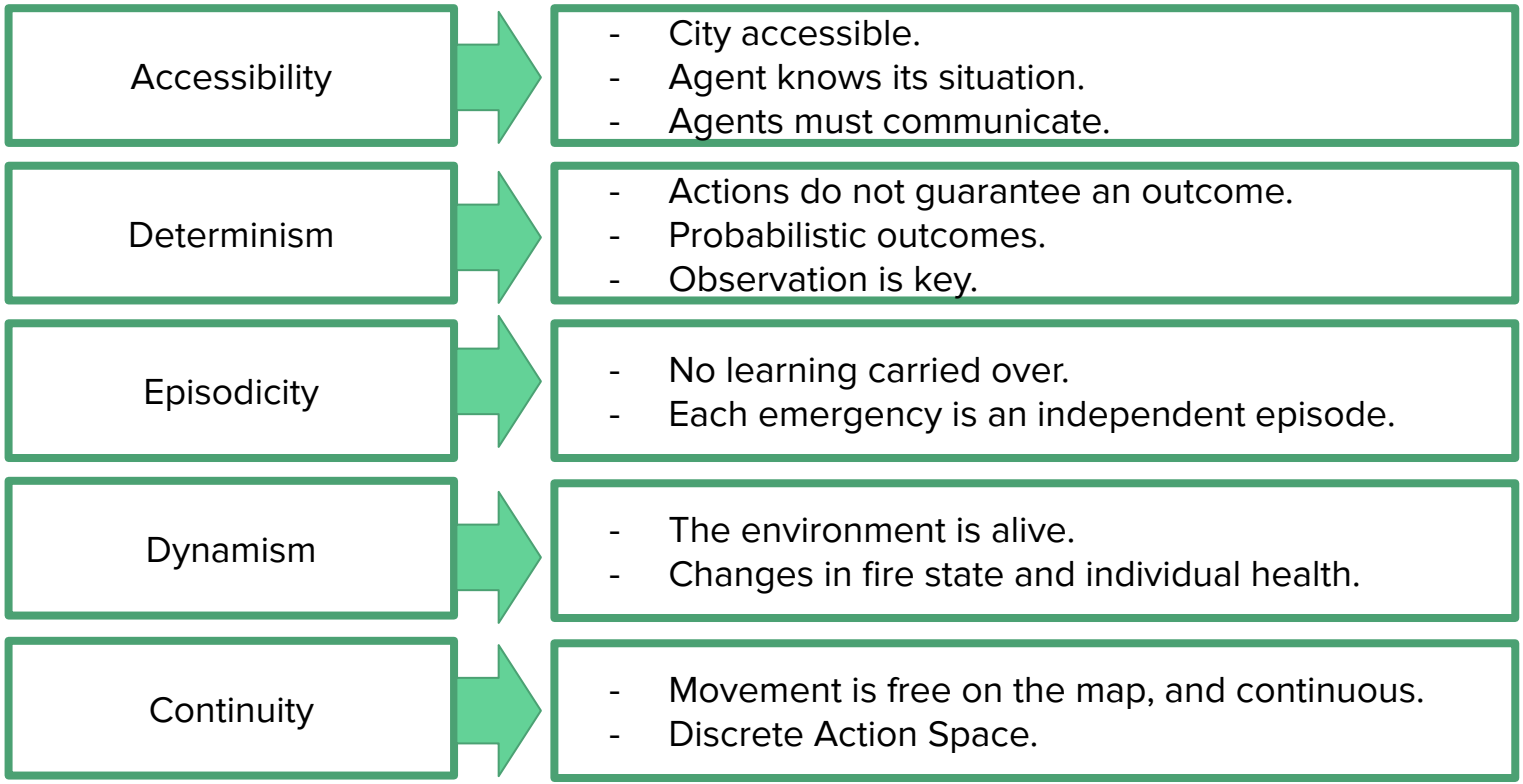
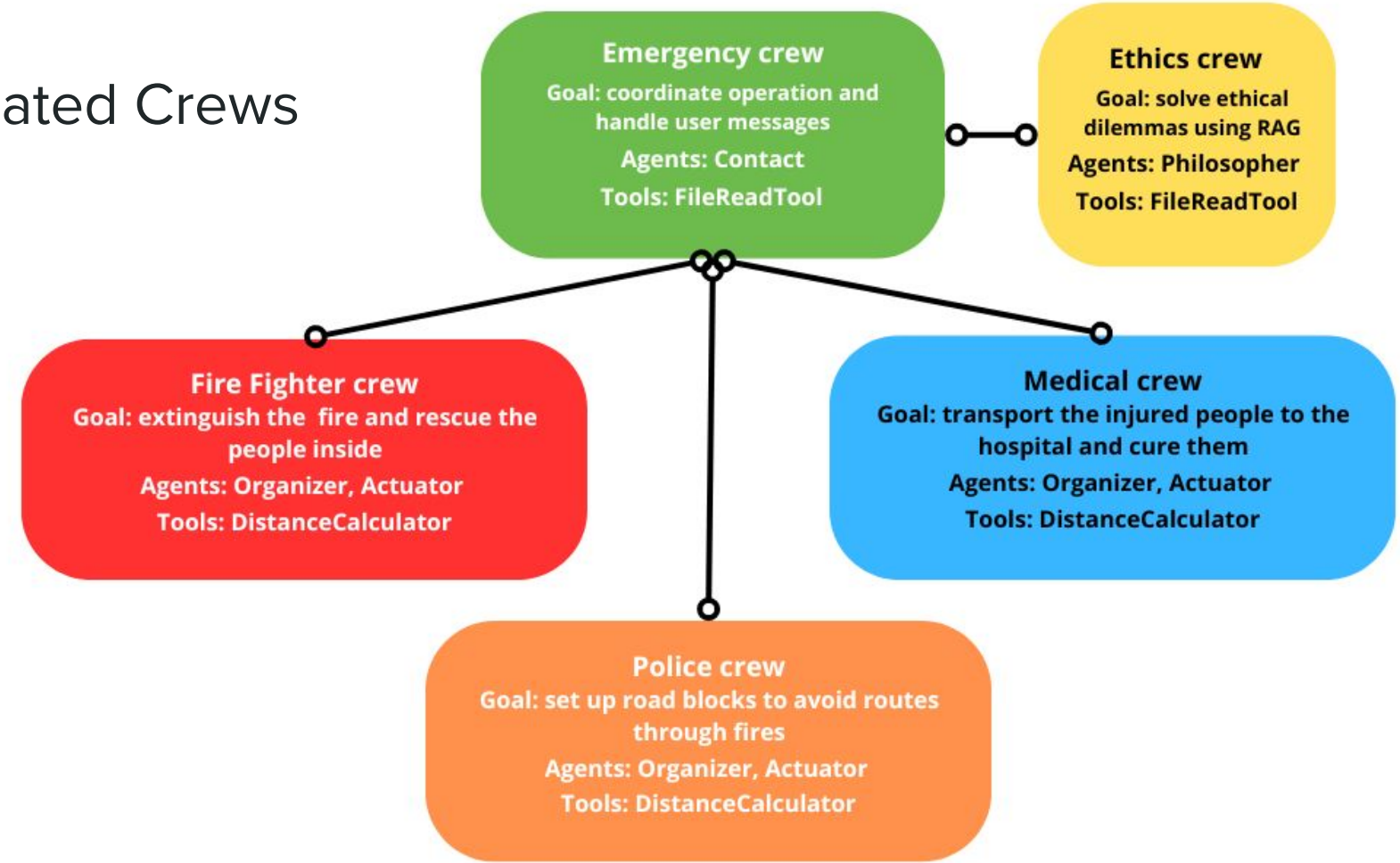
Environment Analysis
Designated Crews
Agent taxonomy

Introduction to the Problem

Environment Analysis



Designated Crews



Emergency & Ethics Agents

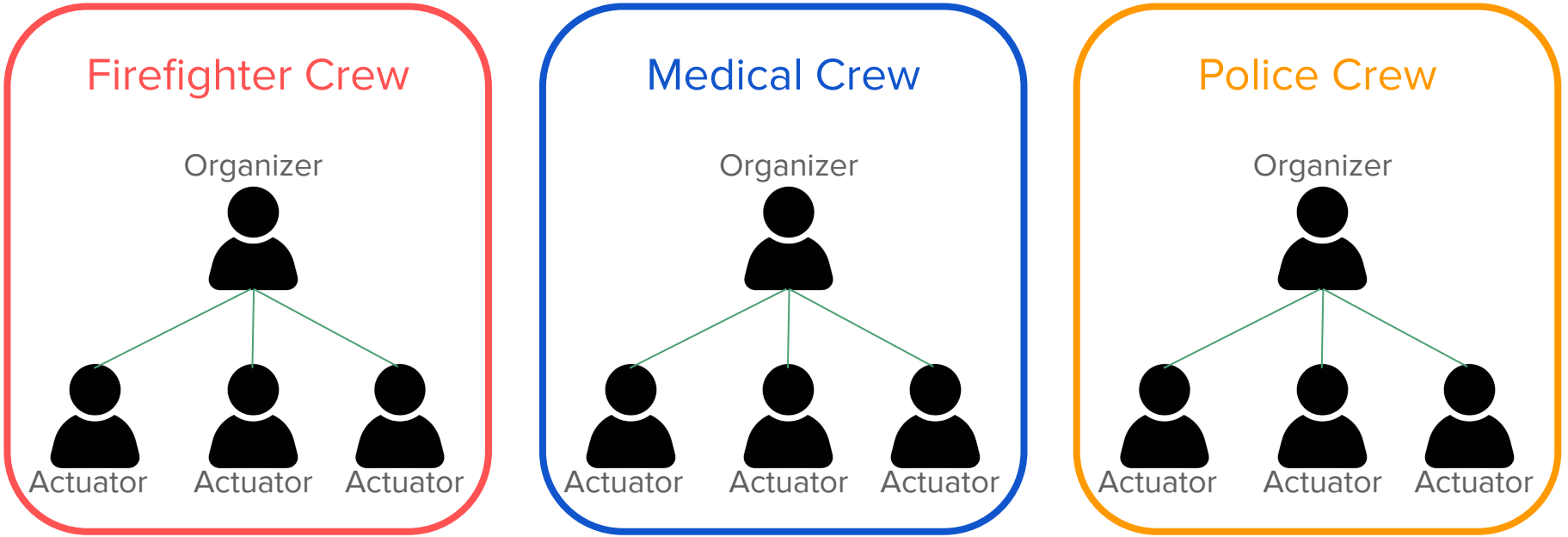
Emergency Crew

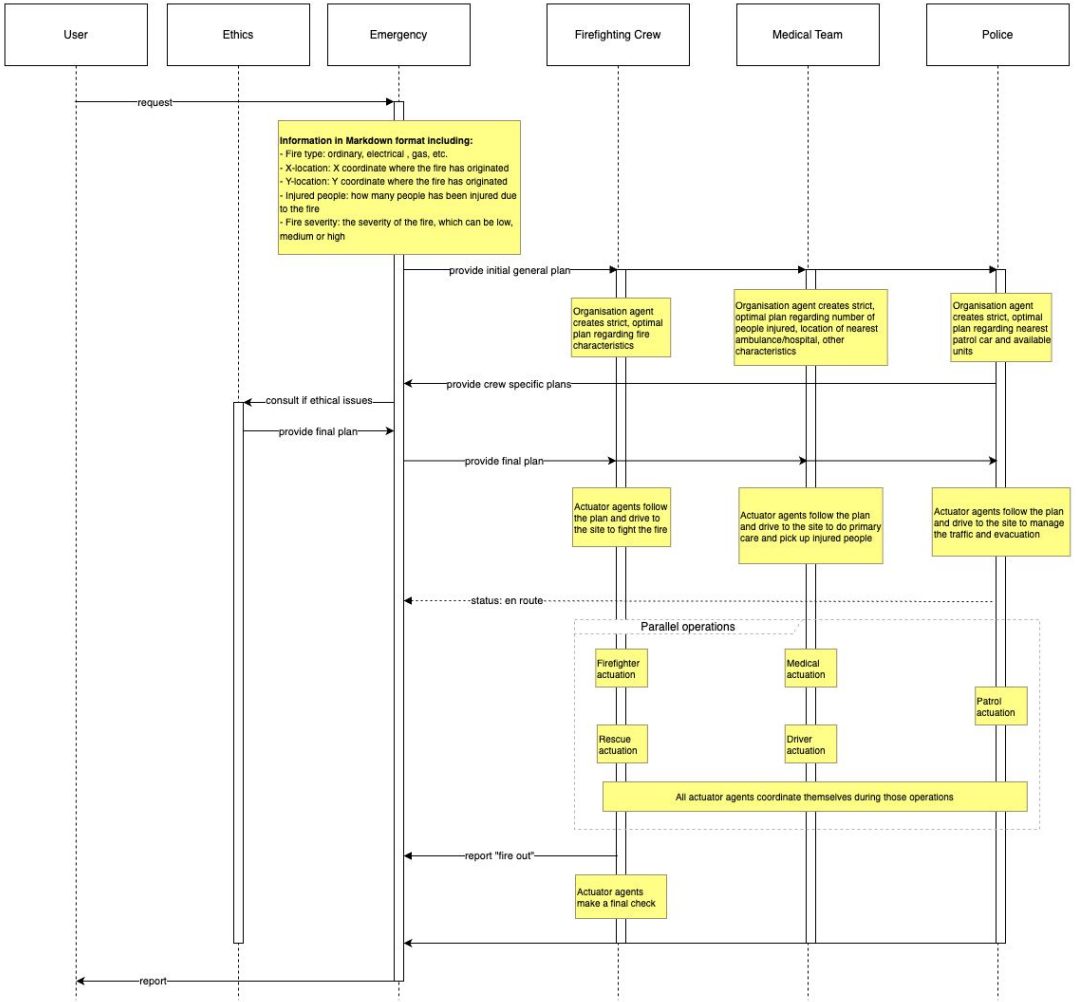
Receiver

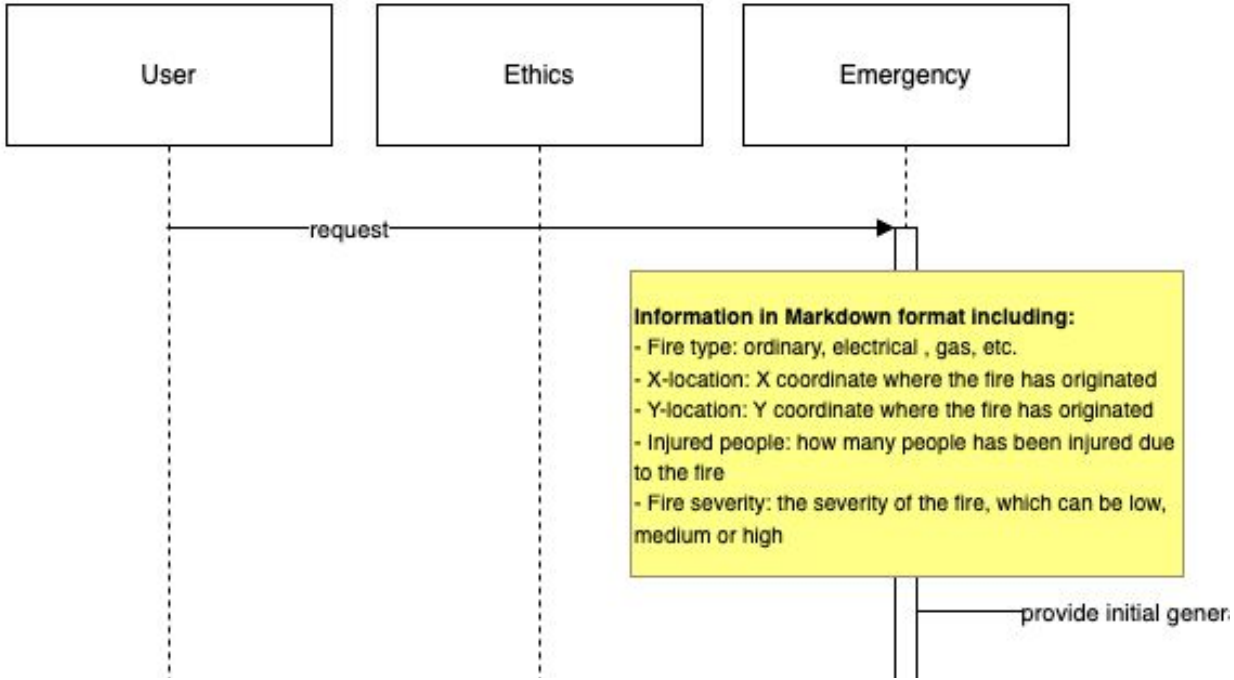
Ethics Crew

Philosopher

Firefighter, Medical & Police Agents




User
Ethics
Emergency
Firefighting Crew
Medical Team
Police
request
Information in Markdown format including:
- Fire type: ordinary, electrical , gas, etc.
- X-location: X coordinate where the fire has originated
- Y-location: Y coordinate where the fire has originated
- Injured people: how many people has been injured due to the fire
- Fire severity: the severity of the fire, which can be low, medium or high
provide initial general plan
Organisation agent creates strict, optimal plan regarding fire characteristics
Organisation agent creates strict, optimal plan regarding number of people injured, location of nearest ambulance/hospital, other characteristics
Organisation agent creates strict, optimal plan regarding nearest patrol car and available units
provide crew specific plans
consult if ethical issues
provide final plan
provide final plan
Actuator agents follow the plan and drive to the site to fight the fire
Actuator agents follow the plan and drive to the site to do primary care and pick up injured people
Actuator agents follow the plan and drive to the site to manage the traffic and evacuation
status: en route
Parallel operations
Firefighter actuation
Medical actuation
Patrol actuation
Rescue actuation
Driver actuation
All actuator agents coordinate themselves during those operations
report "fire out"
Actuator agents make a final check
report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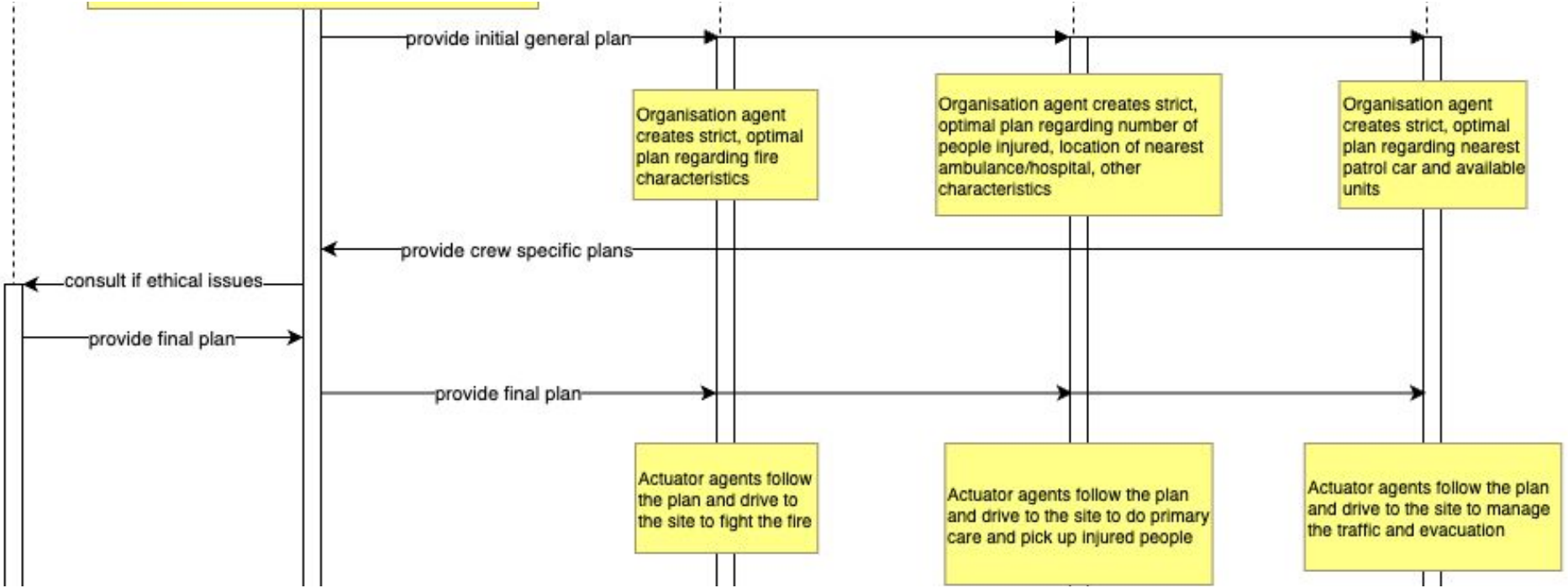
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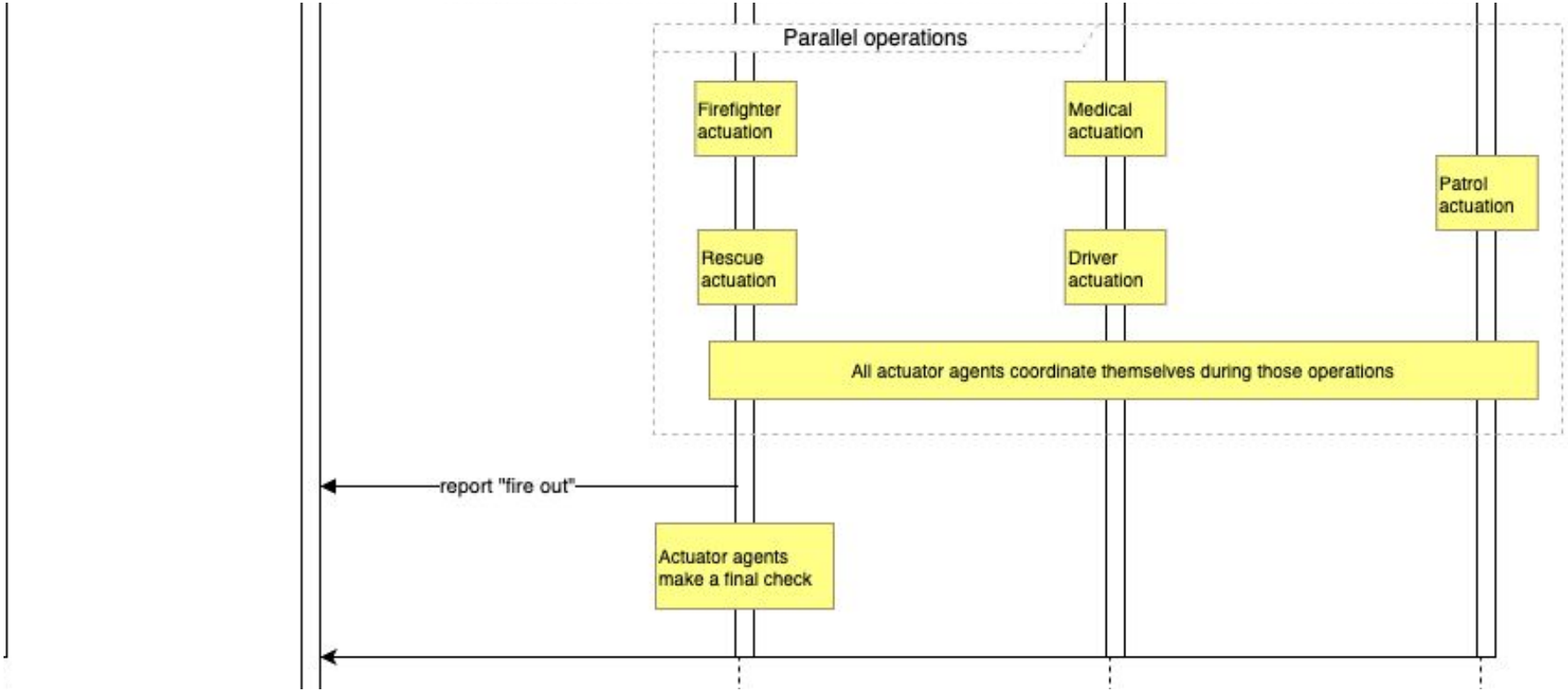
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Agent Taxonomy

	Emergency	Firefighting Crew		Medical Team		Police Crew		Ethics Crew
	Contact Agent	Organization Agent	Actuator Agent	Organization Agent	Actuator Agent	Organization Agent	Actuator Agent	Philosopher Agent
Flexibility	YES	YES	YES	YES	YES	YES	YES	YES
Reactivity	YES	YES	YES	YES	YES	YES	YES	YES
Proactiveness	NO	YES	YES	YES	YES	YES	YES	NO
Social Ability	YES	YES	YES	YES	YES	YES	YES	YES
Rationality	YES	YES	YES	YES	YES	YES	YES	YES
Reasoning	YES	YES	LESS	YES	LESS	YES	LESS	YES
Learning	NO	NO	NO	NO	NO	NO	NO	NO
Autonomy	HIGH	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Temporal continuity	YES	YES	YES	YES	YES	YES	YES	YES
Mobility	NO	NO	YES	NO	YES	NO	YES	NO

Any questions?