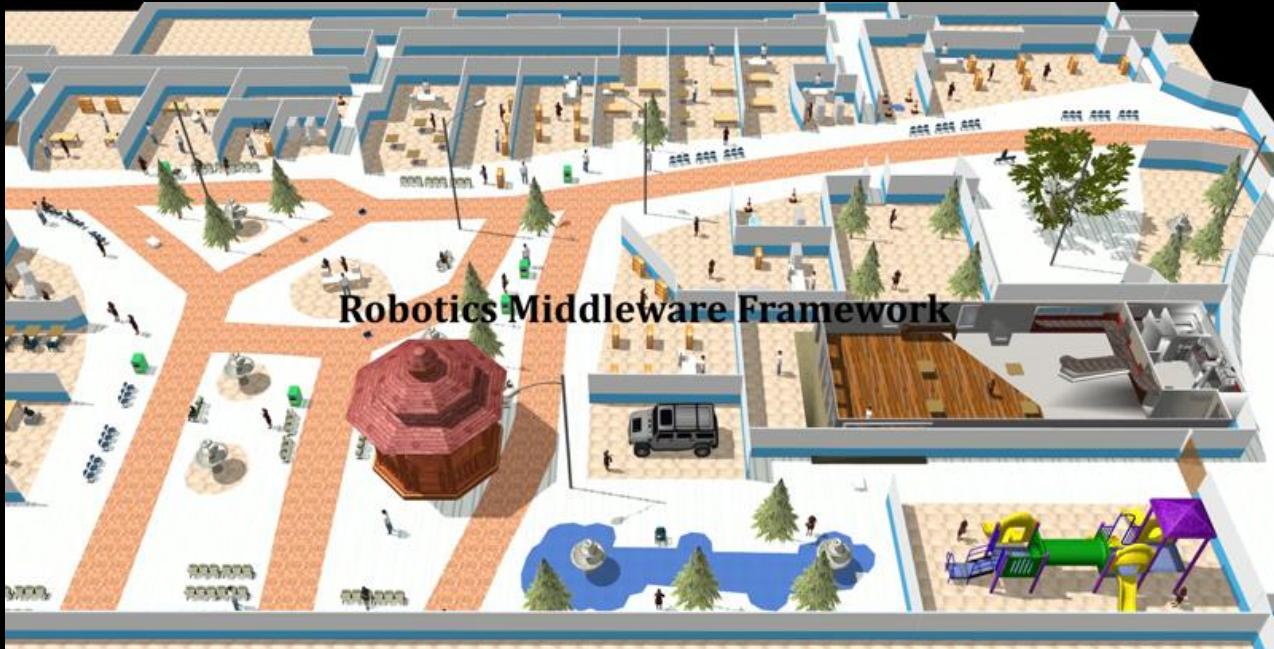




A Common Language for Robot Interoperability



# Lecture 1

정은빈

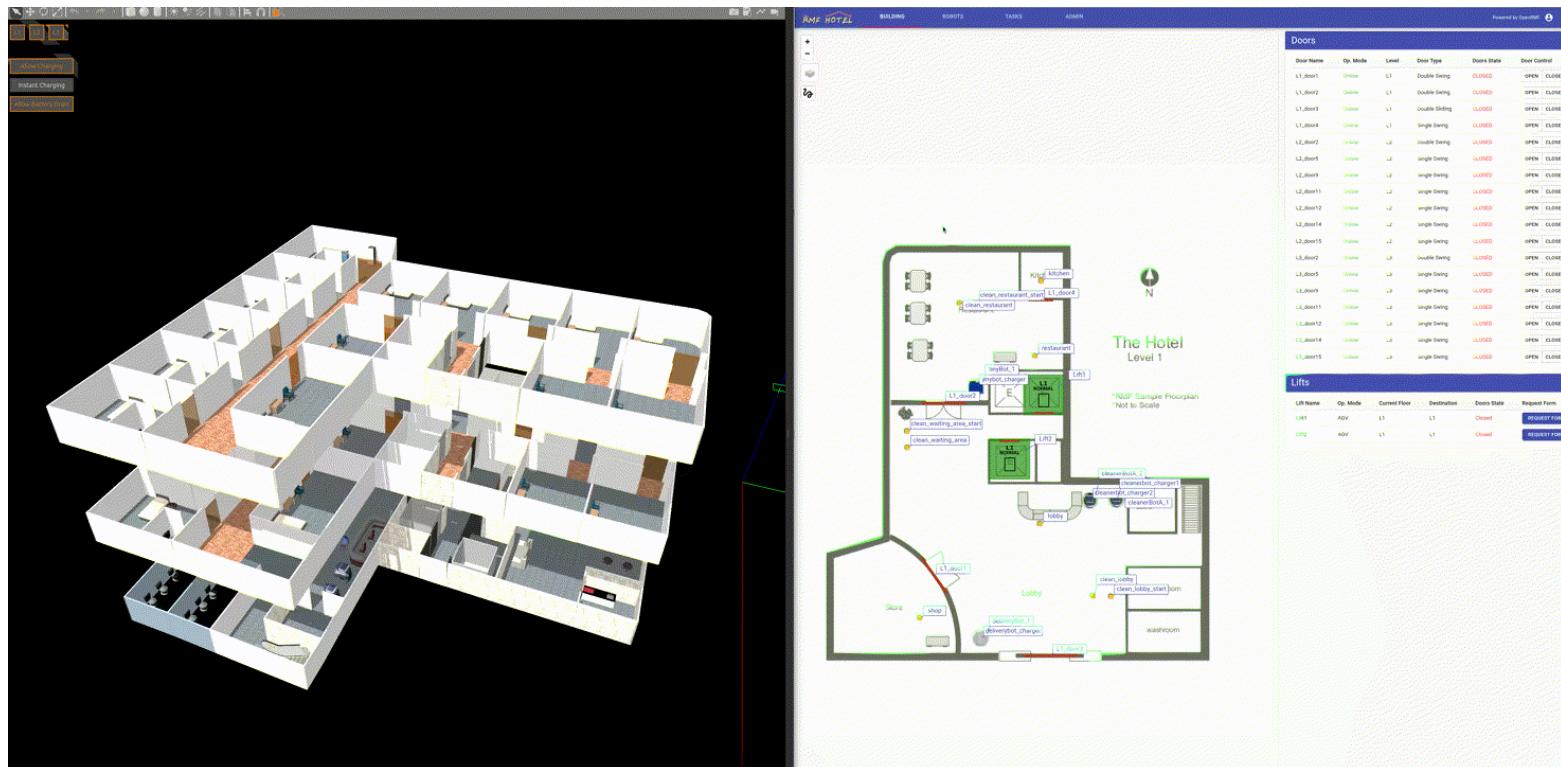
# Contents

01 RMF 소개

02 RMF 설치

# **RMF 소개**

여러 로봇과 건물 인프라(문, 엘리베이터 등)를 함께 관리하는 오픈소스 미들웨어



- ▶ 다중 로봇 협력
- ▶ 경로 최적화
- ▶ 인프라 통합
- ▶ ROS2 기반

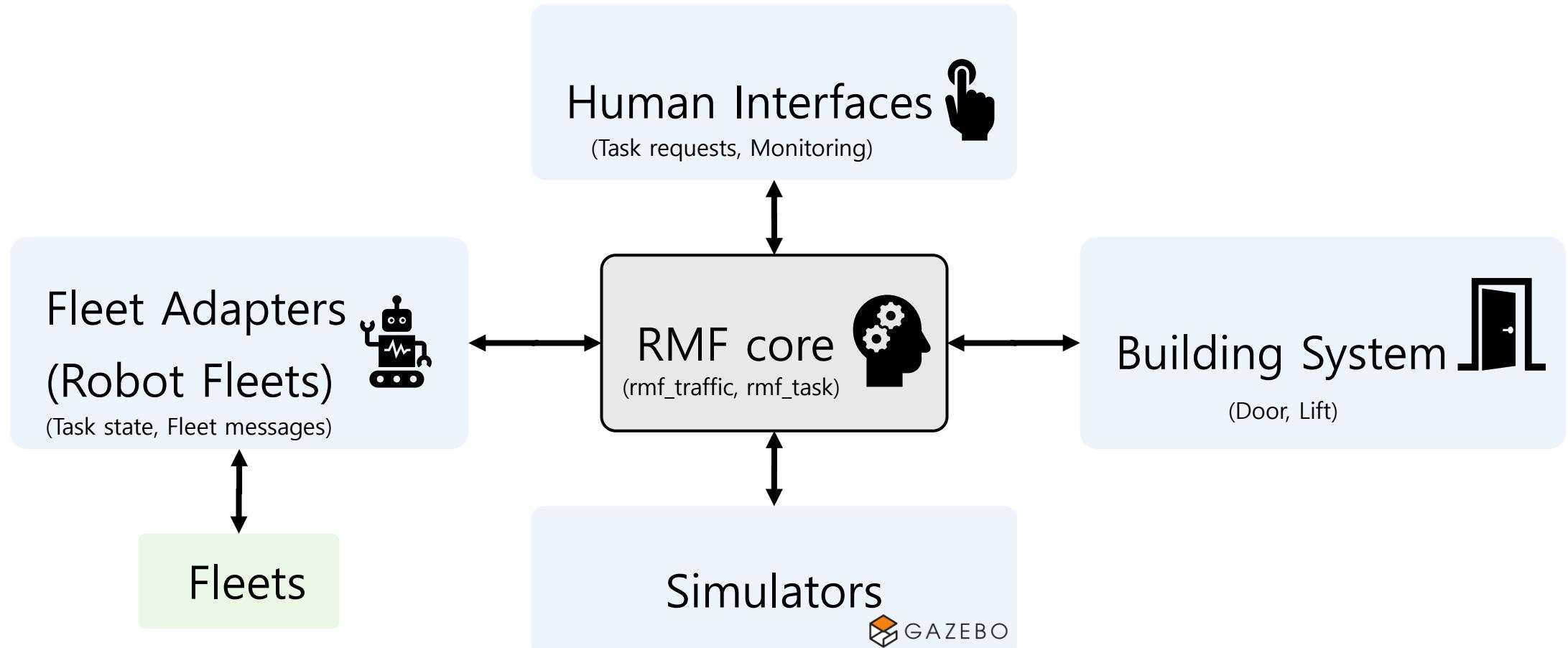
여러 로봇과 건물 인프라(문, 엘리베이터 등)를 함께 관리하는 오픈소스 미들웨어

- ▶ 플릿 간 상호운용성
- ▶ 작업 관리
- ▶ 경로 관리
- ▶ 인프라 통합
- ▶ UI/도구(Traffic Editor, RMF Panel, RMF-Web)



# RMF(Robot Middleware Framework)

## ⦿ Open RMF 구조



# RMF 설치

# RMF 설치

## ⦿ 설치 환경

Ubuntu 22.04

ROS2 humble

Gazebo classic 11

## ⦿ 설치 방법

Open RMF git: <https://github.com/open-rmf/rmf.git>

Binary 설치

# RMF 설치

## ⦿ 설치 과정

### | Setup

```
sudo apt update && sudo apt install ros-dev-tools -y
```

```
sudo rosdep init # run if first time using rosdep.  
rosdep update
```

```
colcon mixin add default https://raw.githubusercontent.com/colcon/colcon-mixin-repository/master/index.yaml  
colcon mixin update default
```

### | RMF Install

```
sudo apt update && sudo apt install ros-humble-rmf-dev
```

# RMF 설치

## ○ 설치 과정

### I Setup

```
sudo apt update && sudo apt install ros-dev-tools -y
```

```
sudo rosdep init # run if first time using rosdep  
rosdep update
```

```
colcon mixin add default https://raw.githubusercontent.com/colcon/colcon-mixin-repository/master/index.yaml  
colcon mixin update default
```

### I RMF Install

```
sudo apt update && sudo apt install ros-humble-rmf-dev
```

# RMF 설치

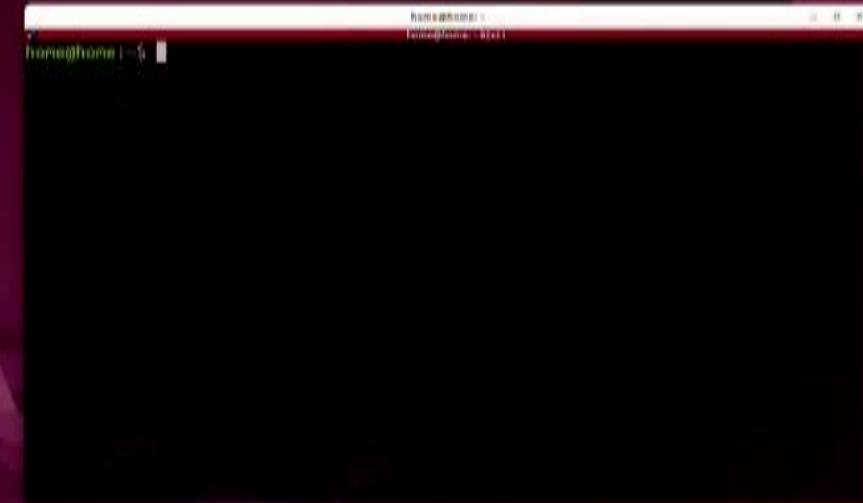
## ○ 설치 과정

### I RMF demos

```
mkdir ~/rmf_ws/src -p  
cd ~/rmf_ws/src  
git clone https://github.com/open-rmf/rmf_demos.git -b 2.0.3  
cd ~/rmf_ws  
colcon build
```

## ○ 설치 삭제

```
sudo apt purge ros-humble-rmf* && sudo apt autoremove
```



# RMF 설치

## ⦿ 설치 과정

### | RMF demos

```
mkdir ~/rmf_ws/src -p  
cd ~/rmf_ws/src  
git clone https://github.com/open-rmf/rmf_demos.git -b 2.0.3  
cd ~/rmf_ws  
colcon build
```

## ⦿ 설치 삭제

```
sudo apt purge ros-humble-rmf* && sudo apt autoremove
```

10 | 전체 9 1장.pdf 73.0% □ Q E X

## I RMF Install

```
sudo apt update && sudo apt install ros-humble-rmf-dev
```

# RMF 설치

## ◎ 설치 과정

### I RMF demos

```
mkdir ~/rmf_ws/src -p  
cd ~/rmf_ws/src  
git clone https://github.com/open-rmf/rmf_demos.git -b 2.0.3  
cd ~/rmf_ws  
colcon build
```

## ◎ 설치 삭제

```
sudo apt purge ros-humble-rmf* && sudo apt autoremove
```

# RMF 설치

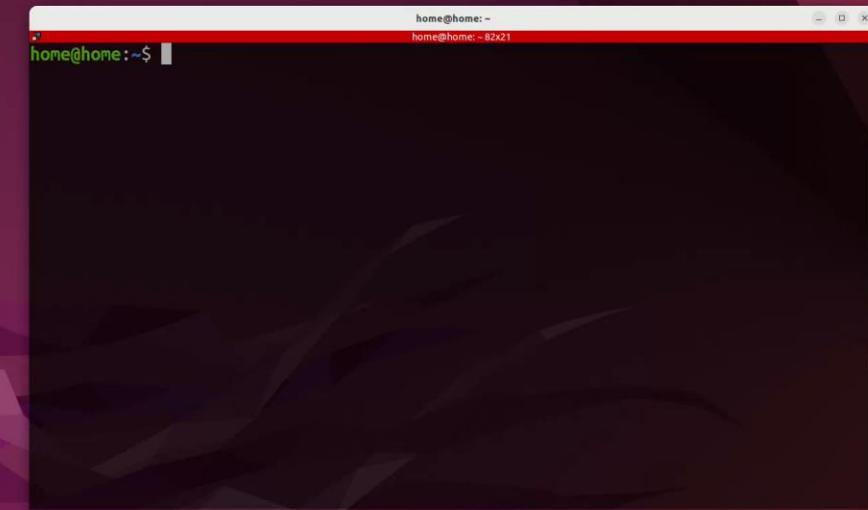
## ◎ 설치 확인

```
source ~/rmf_ws/install/setup.bash  
ros2 launch rmf_demos_gz_classic office.launch.xml
```

### I Topic 확인

```
ros2 topic list  
ros2 topic echo /fleet_states
```

### I 로봇 움직임 확인



# RMF 설치

## ⦿ 설치 확인

```
source ~/rmf_ws/install/setup.bash  
ros2 launch rmf_demos_gz_classic office.launch.xml
```

### | Topic 확인

```
ros2 topic list  
ros2 topic echo /fleet_states
```

### | 로봇 움직임 확인

```
cd rmf_ws  
source ./install/setup.bash  
ros2 run rmf_demos_tasks dispatch_patrol -p coe_lounge -n 3 --use_sim_time
```

## ○ 설치 삭제

```
sudo apt purge ros-humble-rrdf* && sudo apt autoremove
```

# RMF 설치

## ○ 설치 확인

```
source ~/rmf_ws/install/setup.bash  
ros2 launch rmf_demos_gz_classic office.launch.xml
```

### | Topic 확인

```
ros2 topic list  
ros2 topic echo /foot_states
```

### | 로봇 움직임 확인

```
cd rmf_ws  
source ./install/setup.bash  
ros2 run rmf_demos_tasks dispatch_patrol -p coe_lounge -n 3 --use_sim_time
```



**감사합니다**