# 4.5 Move Group Interface - simple pick and place pipeline

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# MoveGroup Interface

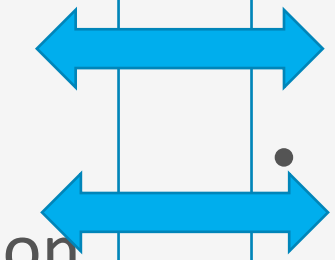
- A collection of APIs to access the various capabilities of **move_group** ROS node.
- Create MoveIt!-based ROS applications.
- Setup a **simple pick and place** pipeline in code with MoveGroup APIs
  - using ROS action clients.

# MoveGroup Interface - conceptual overview

Gazebo Simulation

- JointStateController
  - (pub /joint_states topic)
- JointTrajectoryController
  - FollowJointTrajectoryAction
- JointPositionController
- JointVelocityController
- …

**gazebo_ros_control (hrwros_gazebo)**

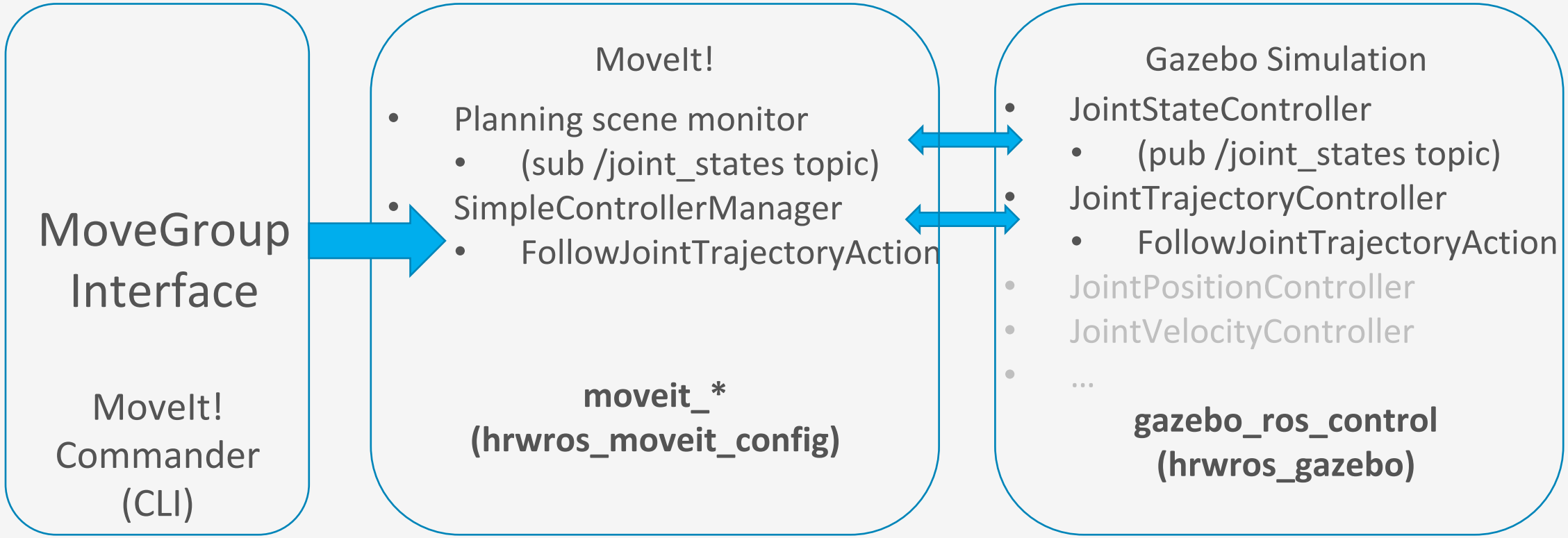


MoveIt!

- Planning scene monitor
  - (sub /joint_states topic)
- SimpleControllerManager
  - FollowJointTrajectoryAction

**moveit_* (hrwros_moveit_config)**

# MoveGroup Interface - conceptual overview



# MoveGroup Interface - Why?

- MoveIt! commander scripts
  - program a sequence of commands to achieve desired motions.

- Why learn MoveGroup interface to do the same thing?
  - Access more capabilities of **move_group** node.
  - Process intermediate results.
  - Flexibility.

- Automated behavior in robotic applications
  - Motion module is just one component.
  - User input ideally should just be the press of one button.

# MoveGroup Interface - simple pick and place