ROS Network - Simulation

Motor Model Plugin → **Gazebo Application**

Sticky Foot Plugin → **Gazebo Application**

MS Commands (MSCommands.msg)

Sticky Flag (StickyCMD.msg)

State Service Calls

Controller Node

Gazebo_Comm. Node

Estimated State (EstState.msg)

Global State - Position (GlobalState.msg)

MS Commands (MSCommands.msg)

Global State - Reward Func (GlobalState.msg)

Global State (GlobalState.msg)

Estimated State (EstState.msg)

Action Commands (CFCommands.msg)

RL_Sim Node

Reward Data (Reward.msg)

Dashboard GUI Node
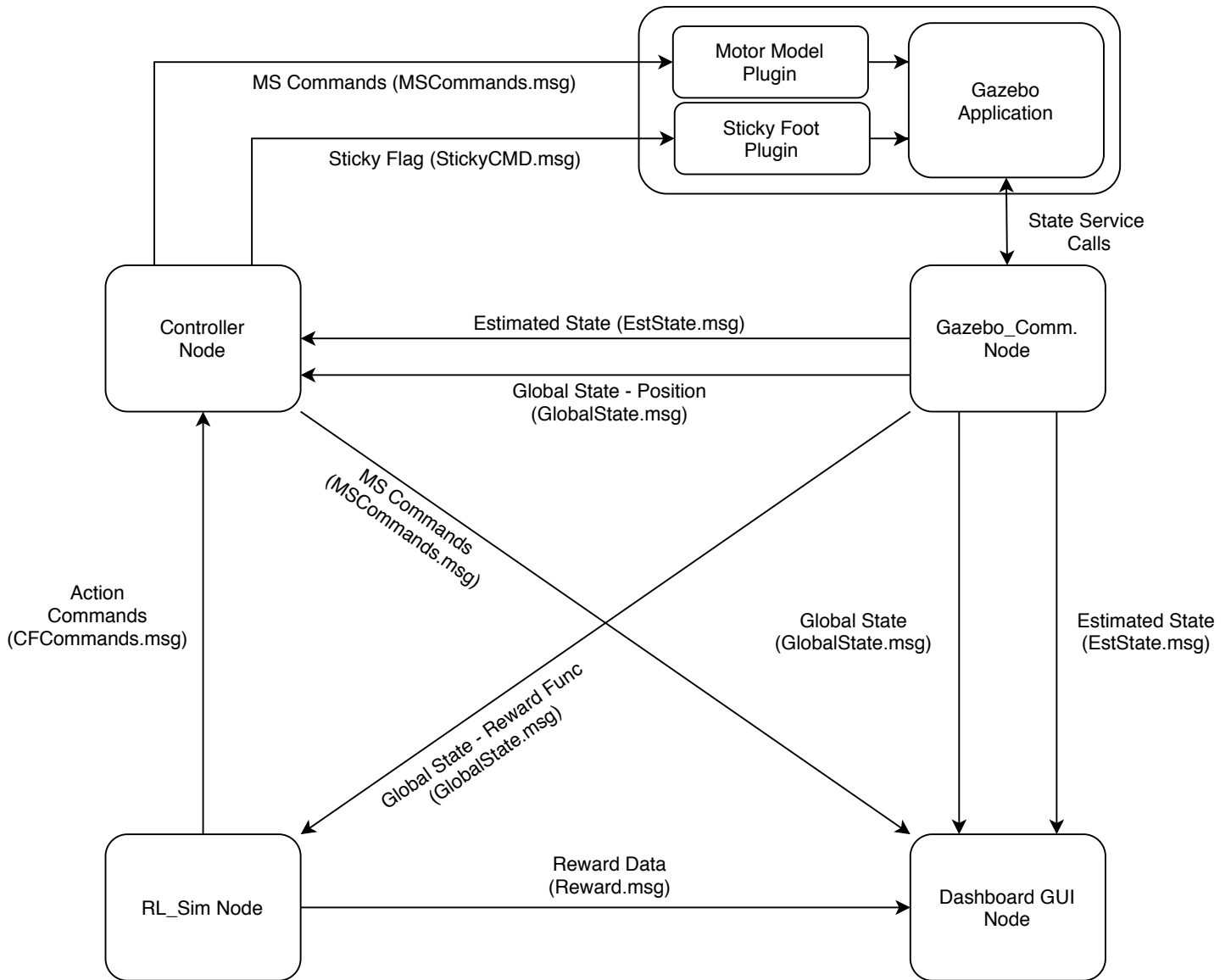
Global State
(GlobalState.msg)

- std_msgs/Header
- geometry_msgs/Pose
    - position
    - orientation
- geometry_msgs/Twist
    - linear
    - angular

Reward Data
(Reward.msg)

- std_msgs/UInt8 k_ep
- std_msgs/UInt8 k_run
- std_msgs/Float32 reward
- std_msgs/Float32 reward_avg

MS Commands
(MSCommands.msg)

- std_msgs/Float32[] motorspeeds

Action
Commands
(CFCommands.msg)

- std_msgs/UInt8 cmd_type
- std_msgs/Vector3 ctrl_vals
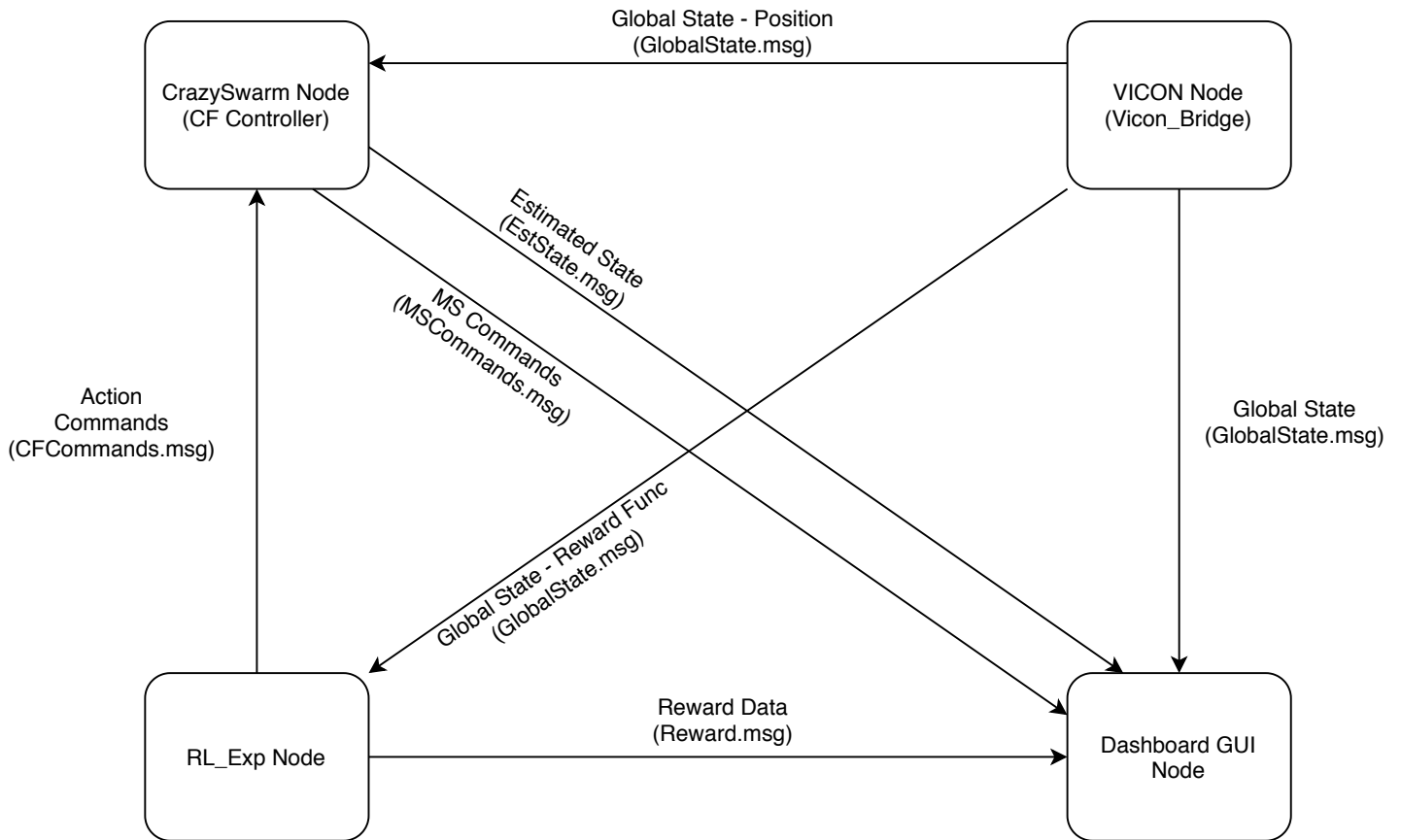- std_msgs/UInt8 ctrl_flag

Estimated State
(EstState.msg)

- std_msgs/Header?
- geometry_msgs/Quaternion orientation
- geometry_msgs/Vector3 angular_velocity
- geometry_msgs/Vector3 linear_acceleration
-
- Future OF Stuff

ROS Network - Experiment

CrazySwarm Node
(CF Controller)

VICON Node
(Vicon_Bridge)

Global State - Position
(GlobalState.msg)

Estimated State
(EstState.msg)

MS Commands
(MSCommands.msg)

Action
Commands
(CFCommands.msg)

Global State
(GlobalState.msg)

Global State - Reward Func
(GlobalState.msg)

RL_Exp Node

Reward Data
(Reward.msg)

Dashboard GUI
Node

Global State
(GlobalState.msg)

- std_msgs/Header
- geometry_msgs/Pose
    - position
    - orientation
- geometry_msgs/Twist
    - linear
    - angular

Reward Data
(Reward.msg)

- std_msgs/UInt8 k_ep
- std_msgs/UInt8 k_run
- std_msgs/Float32 reward
- std_msgs/Float32 reward_avg

MS Commands
(MSCommands.msg)

- std_msgs/Float32[] motorspeeds

Estimated State
(EstState.msg)

- std_msgs/Header?
- geometry_msgs/Quaternion orientation
- geometry_msgs/Vector3 angular_velocity
- geometry_msgs/Vector3 linear_acceleration
-
- Future OF Stuff

Action
Commands
(CFCommands.msg)

- std_msgs/UInt8 cmd_type
- std_msgs/Vector3 ctrl_vals
- std_msgs/UInt8 ctrl_flag