中南大學
CENTRAL SOUTH UNIVERSITY

Robot Operating System

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01

Introduction of ros

Robot operating system

Ros is middleware

Introduction of ros

Origin
2000，Stanford University

Release
2007，Willow Garage

ROS 1.0
2010

ROS Hydro
2013

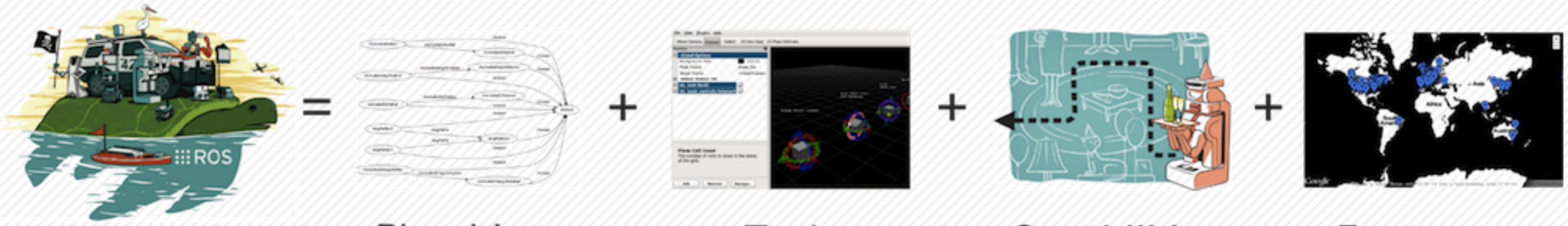
ROS Indigo(LTS)
2014，14.04

ROS Jade
2015

ROS Kinetic(LTS)
2016，16.04

ROS Lunar
2017

Definition

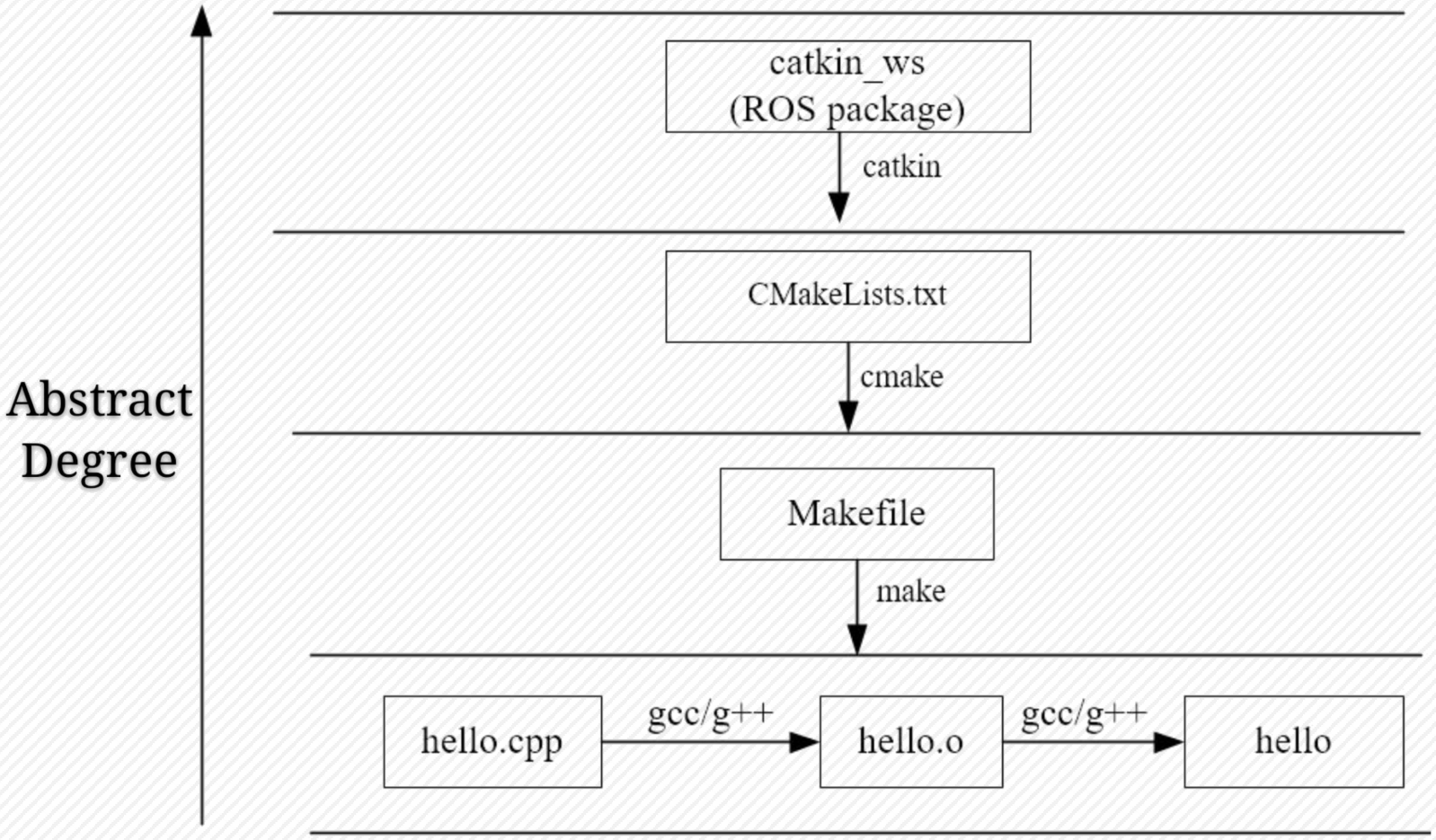


Plumbing + Tools + Capabilities + Ecosystem

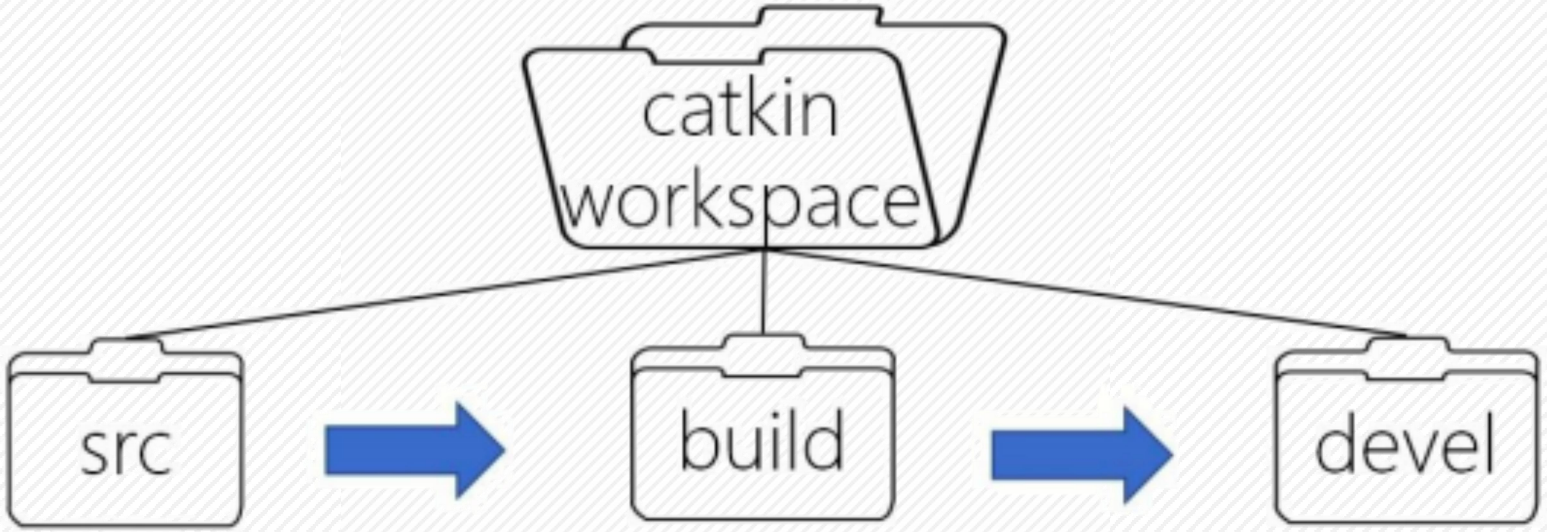
02

Ros engineering structure

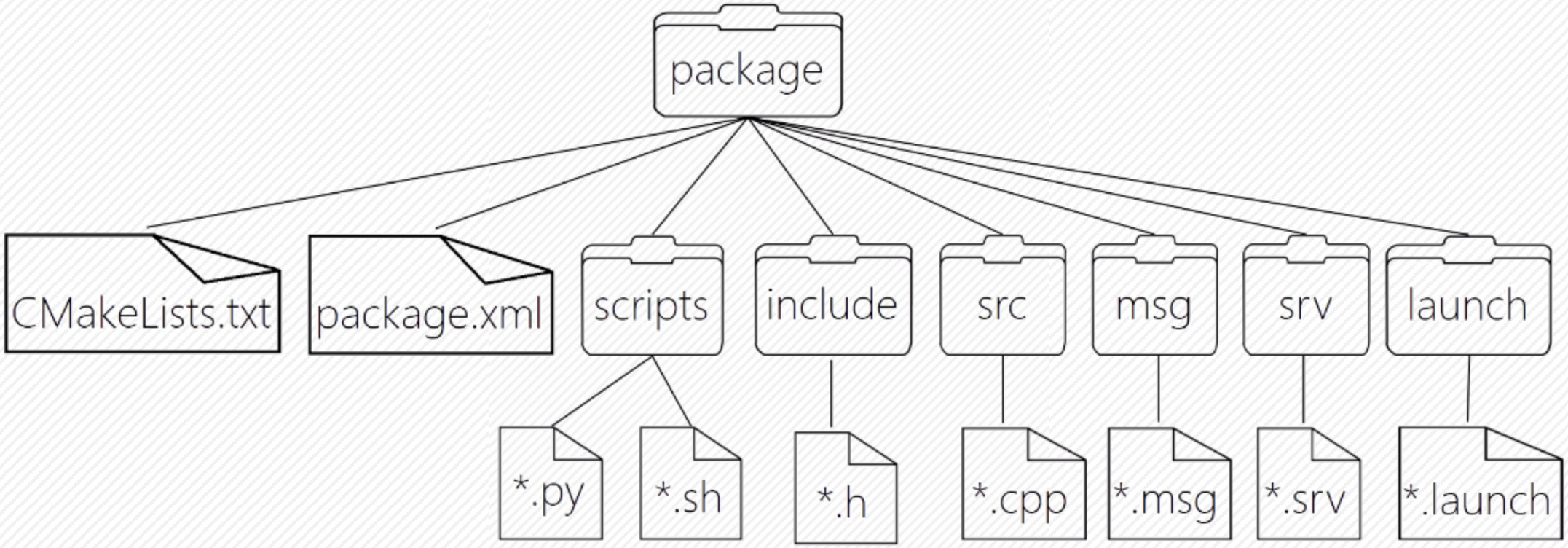
Ros engineering structure



Ros engineering structure



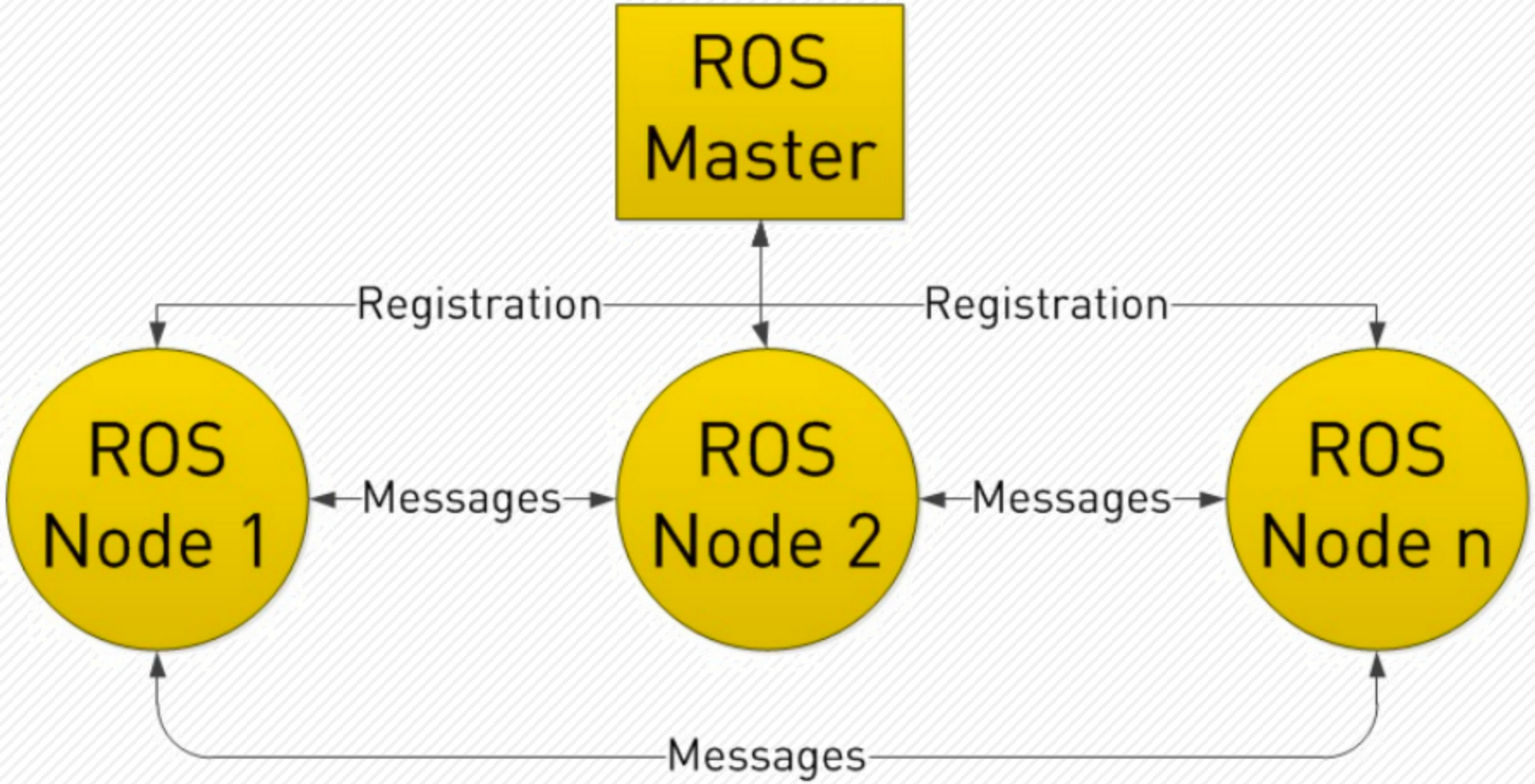
Ros engineering structure



03

Ros communication architecture

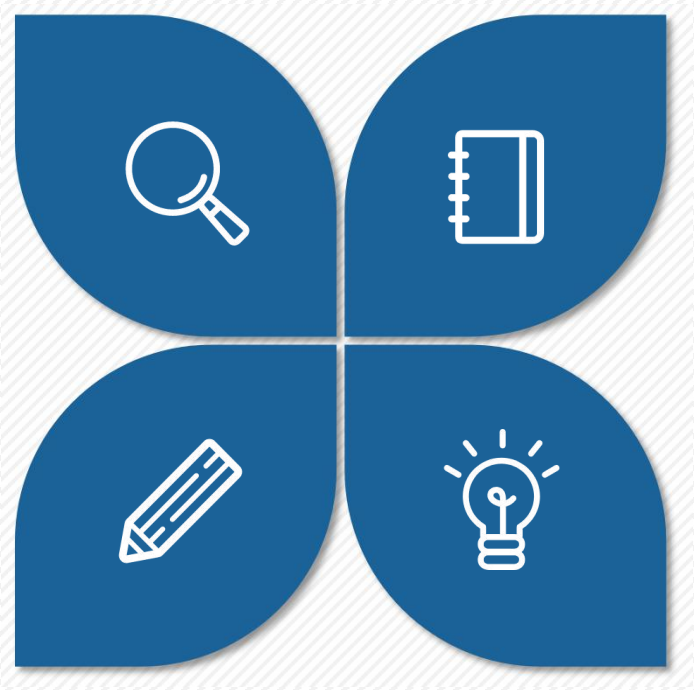
Ros communication architecture



Ros communication architecture

Topic

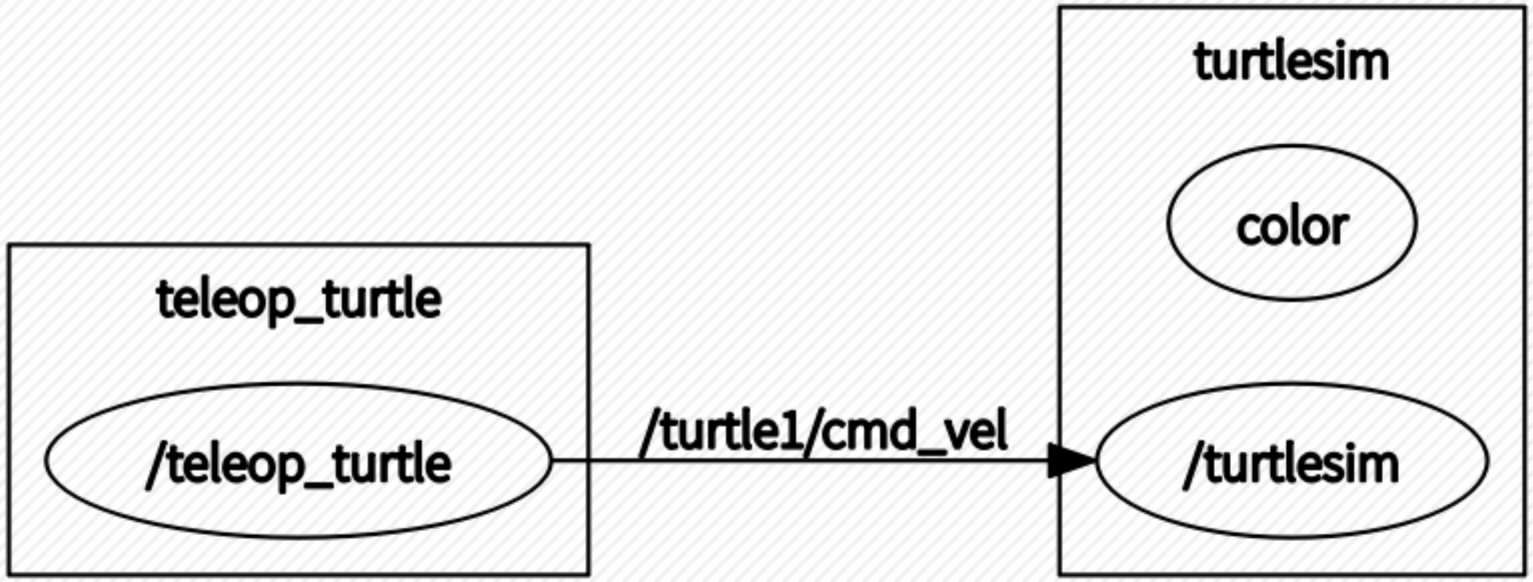
Parameter Service



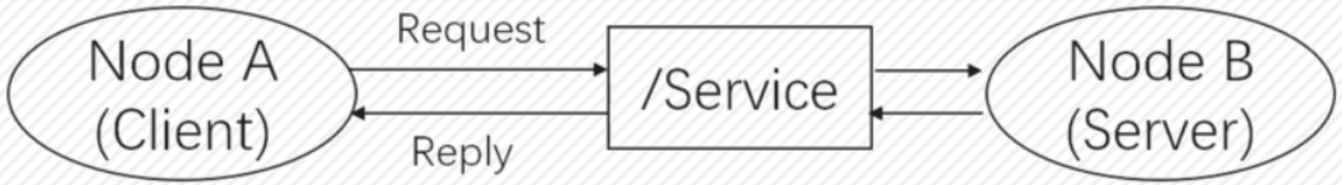
Service

Actionlib

Topic


turtlesim
color
teleop_turtle
/teleop_turtle
/turtle1/cmd_vel
/turtlesim

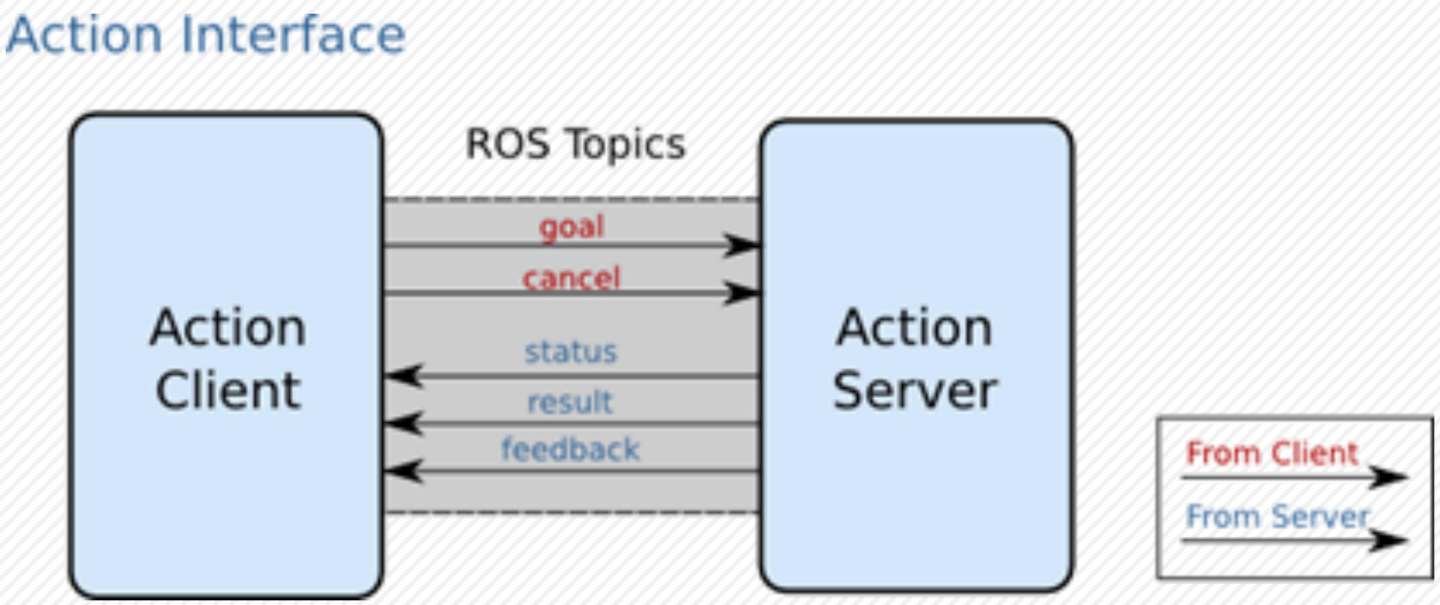
Service



Parameter server

Key	/rosdistro	/rosversion	/use_sim_time	…
Value	‘kinetic’	‘1.12.7’	true	…

Actionlib


Action Interface
ROS Topics
Action Client
Action Server
goal
cancel
status
result
feedback
From Client
From Server

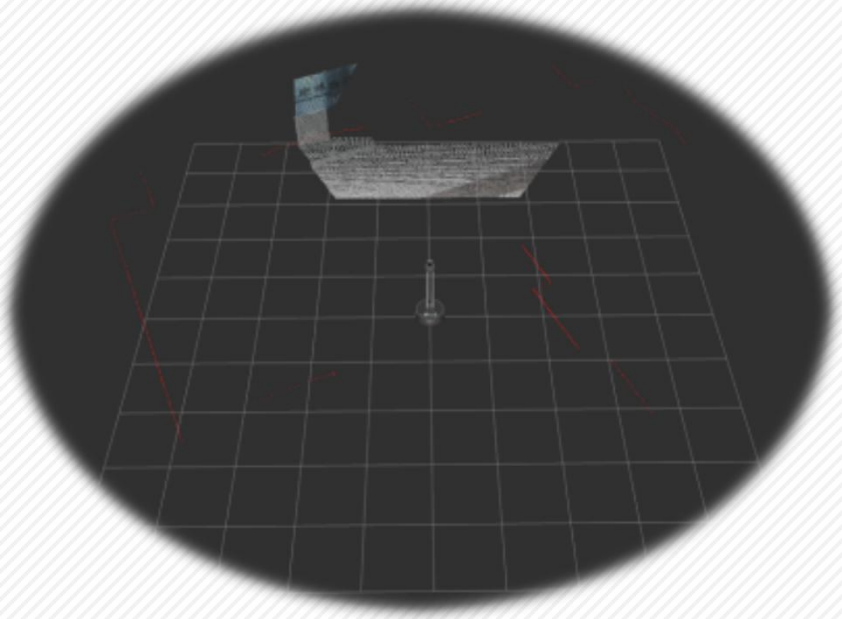
04

Ros tools

Ros tools

Gazebo

Simulation tool



RViz

Visualization tool

Ros tools

Rqt

Visualization tool

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Thanks for all