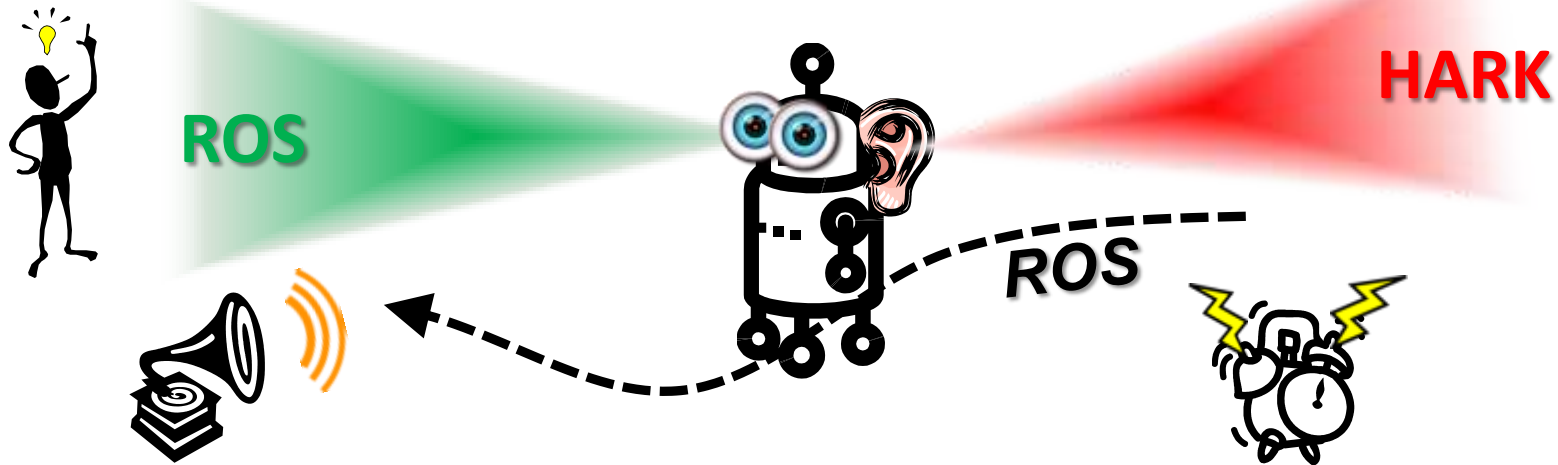

Introduction of HARK-ROS

(Optional HARK package for ROS users)

HARK team

What's HARK-ROS? : Overview

- ❑ HARK \leftrightarrow ROS : Seamless communication



Audio Functionality on ROS

Audio Stream

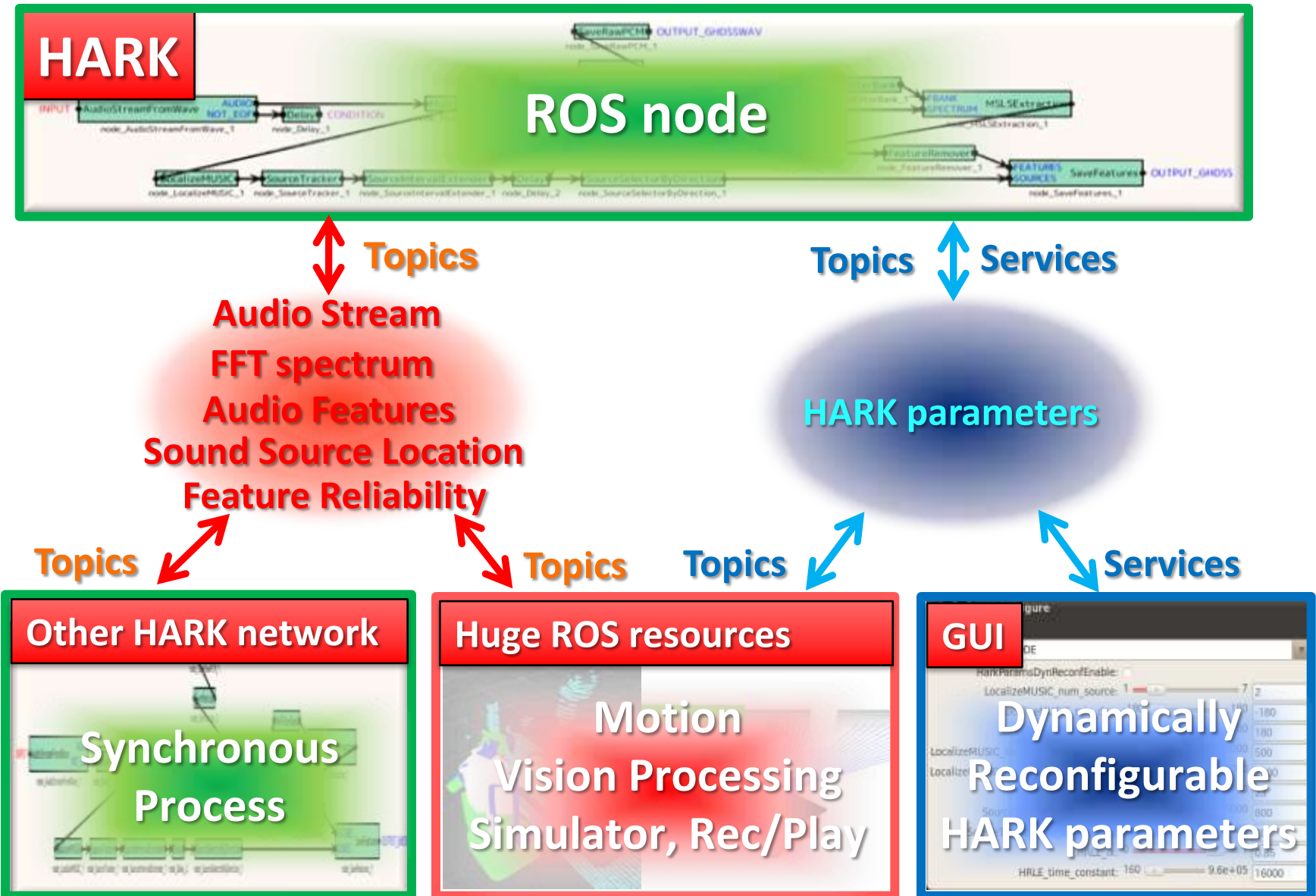
FFT spectrum

Audio Features

Sound Source Location

Feature Reliability

What's HARK-ROS? : Functionality



What's HARK-ROS? : Modules

- ❑ **Example with HarkInt (integer) type msg**
 - **ROS node generation** : *RosNodeGenerator*
 - **ROS msg Publish/Subscription** : *RosHarkIntPublisher, RosHarkIntSubscriber*
 - **ROS src Server/Client** : *RosAddHarkIntServer, RosAddHarkIntClient*
 - **GUI-based Dynamic Reconfigurable HARK** : *RosHarkIntDynReconf*

- ❑ **Audio Processing Purpose (HarkMsgs)**
 - **ROS node generation** : *RosNodeGenerator*
 - **ROS msg Publish/Subscription** : *RosHarkMsgsPublisher, RosHarkMsgsSubscriber*
 - **GUI-based Dynamic Reconfigurable HARK** : *RosHarkParamsDynReconf*
 - **Topic-based Reconfigurable HARK** : *RosHarkParamsSubscriber*
 - **Audio Stream Subscription without packet loss** : *AudioStreamFromROS*
 - **HarkMsgs Stream Subscription w/o packet loss** : *HarkMsgsStreamFromROS*

What's HARK-ROS? : Data types

❑ Audio specific ROS msg supported (*hark_msgs* package)

Audio Stream : HarkWave.msg , HarkSrcWave.msg

FFT spectrum : HarkFFT.msg , HarkSrcFFT.msg

Sound Source Location : HarkSource.msg

Audio Features : HarkFeature.msg , HarkSrcFeature.msg

Feature Reliability : HarkSrcFeatureMFM.msg

❑ HARK tuning parameters supported (*hark_params* package)

Following are dynamically reconfigurable from ROS

■ LocalizeMUSIC ⇒ Sound Source Localization

■ SourceTracker ⇒ Sound Activity Detection

■ HRLE ⇒ Speech Enhancement for ASR