Applying SRT Protocol to Drone

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Partner for New Possibilities

5G & Autonumous System

AI & Big Data on Cloud

5G Autonomous System

5G = Critical Infra for Autonomous Systems

① *Speed*　　② *Latency*　　③ *Security*

SRT (Secure Reliable Transport)

➢ FEC (Forward Error Correction) & ARQ (Automatic Request reQuest)
: Recover the errors that occur during transmission and retransmits lost packets

➢ Block encryption support : data protection without loss of performance

➢ Buffer operation on both sending and receiving sides
: Fast retransmission support for packet loss

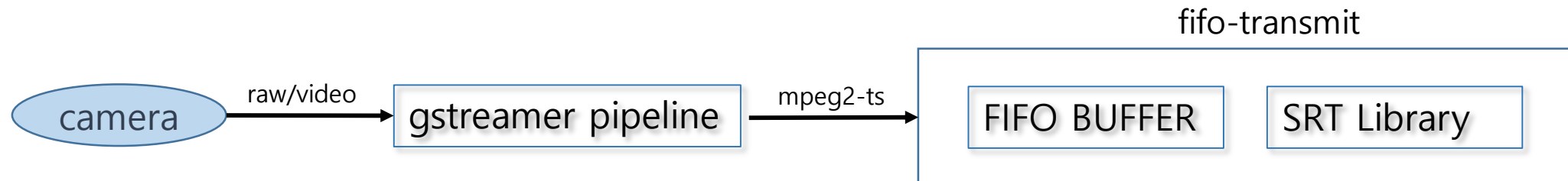# Ultra low latency & reliable streaming during flight
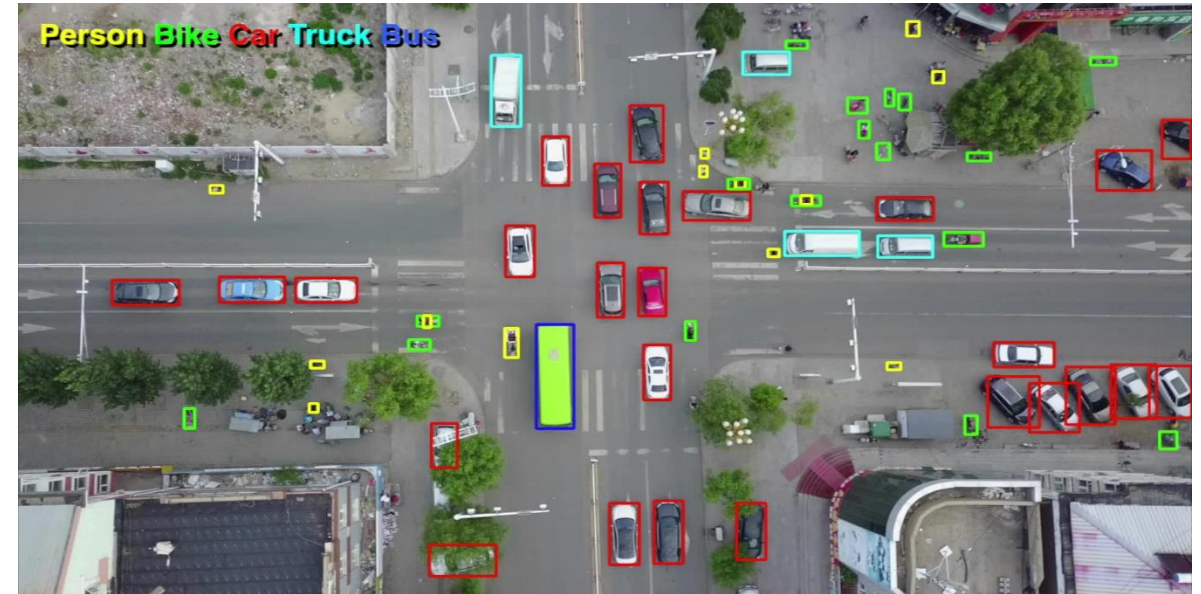
➢ Control of high resolution PTG Camera during drone patrol
➢ Real-time video analysis during flight

Applying SRT on Drone with GStreamer

➢ SRT Plugin supported since gstreamer 1.14
➢ Refactoring in gstreamer 1.16

➢ Drone Environment
  ▪ Device driver can not be customized
    • Device driver of Camera input API provided binary (not source code)
  ▪ Kernel version is fixed because of device driver
  ▪ Only gstreamer 1.8 is available on Drone target board

➢ Choices
  ▪ Backporting SRT plugin for gstreamer 1.8
  ▪ Separate gstreamer pipeline and srt transport module

Camera pipeline for SRT transport

➢ Implement fifo transmit module based on SRT library
➢ Implement pipeline that contains filesink set as fifo transmit path
  ▪ fifo-transmit : gives output of fifo-path
  ▪ gst-launch-1.0 …. ! filesink location=fifo-path

➢ Opensource (Projet: Hwangsaeul)
  ▪ Library for gstremaer pipeline and fifo transmit
    • https://github.com/hwangsaeul/gaeguli
  ▪ Integrating Drone Platform
    • https://github.com/hwangsaeul/gaeul