



AI邊緣運算實作

EVA IDE hands on by Neon
Kevin Lin

Agenda

- **EVA IDE Demo**
- **Hands on with Neon**

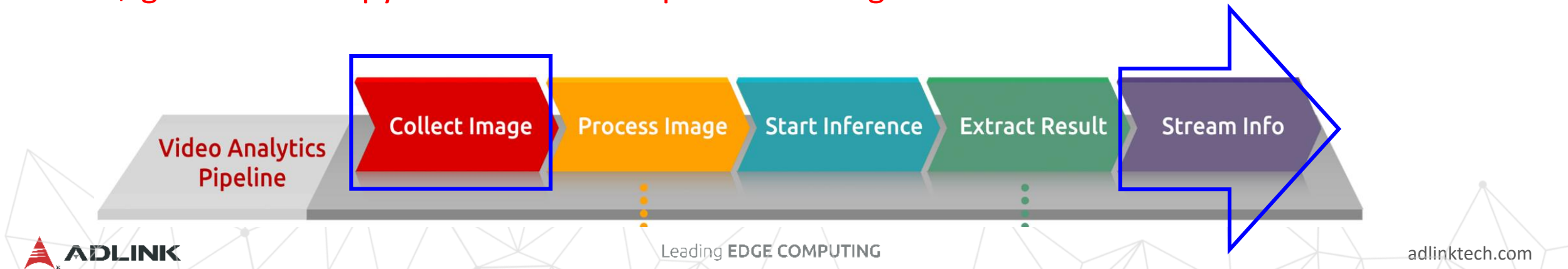
EVA Hands on

- Collect images
 - Image
 - Video
 - Camera
- Pre-processing
 - De-noise
 - Crop image
- AI inference
 - Classify
 - Object detection
 - Pose detection

The screenshot displays the EVA IDE environment. On the left, a 'Metadata viewer' shows details for a videoconvert node, including width (1280), height (720), format (BGR), and execution time (2.566708051241361). Below this, a 'Properties' panel lists various settings like 'name: videoconvert0', 'qos: checked', and 'dither: bayer'. The main workspace shows a GStreamer pipeline graph with nodes such as 'videoconvert', 'videoconvert0', and 'videoconvert1'. An inset window titled 'GStreamer D3D video sink (internal window)' shows a video stream of a street scene with a bus and a car. The bus is highlighted with a red bounding box and labeled 'bus', while the car is labeled 'car'. The interface also includes a menu bar (File, Edit, Tools, Plugins, Help) and a toolbar with icons for settings, play, and stop.

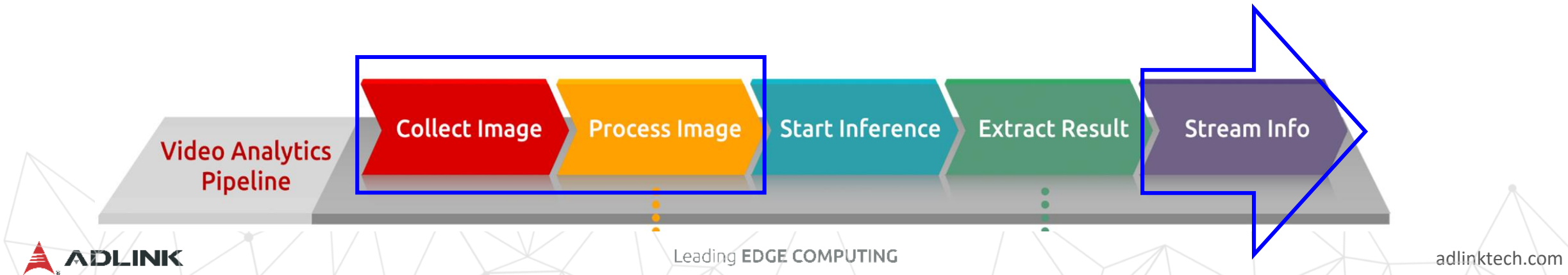
EVA Hands on 1 by Neon

- Collect Image
 - Open and preview **image**
 - `$ gst-launch-1.0 -v filesrc location=/home/adlink/Desktop/EVA_IDE/fruit_with_noise.jpg ! jpegdec ! videoconvert ! imagefreeze ! xvimagesink`
 - Open and preview **video**
 - `$ gst-launch-1.0 filesrc location=/home/adlink/Desktop/EVA_IDE/mask.mkv ! decodebin ! nvvidconv ! videoconvert ! xvimagesink`
 - Open and preview **industry camera**
 - `$ gst-launch-1.0 pylonsrc camera=0 fps=20 ! xvimagesink`



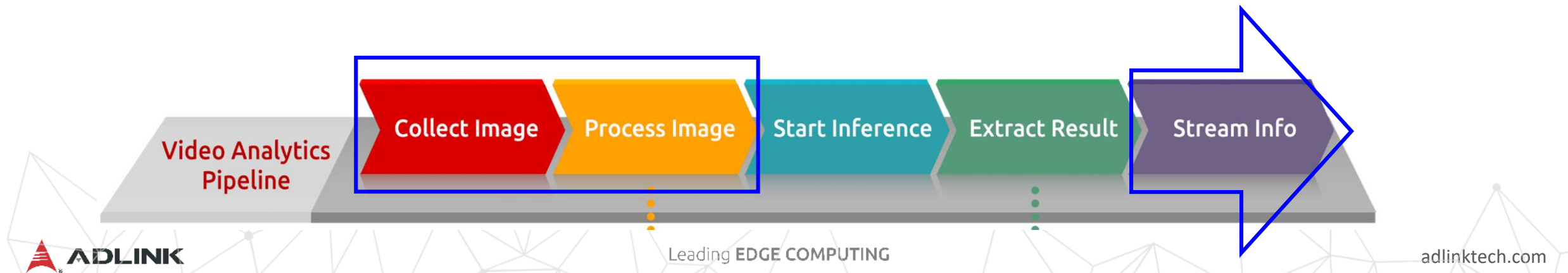
EVA Hands on 2 by Neon

- Process Image
 - De-noise the salt and pepper noise image by median filter
 - `$ gst-launch-1.0 -v filesrc location=/home/adlink/Desktop/EVA_IDE/fruit_with_noise.jpg ! jpegdec ! videomedian filtersize=5 ! videoconvert ! imagefreeze ! ximagesink`
 - Do more de-noise by change filtersize of videomedian
 - Tips: 9 - Median of 9 neighbour pixels
 - `$ gst-launch-1.0 -v filesrc location=/home/adlink/Desktop/EVA_IDE/fruit_with_noise.jpg ! jpegdec ! videomedian filtersize=9 ! videoconvert ! imagefreeze ! ximagesink`



EVA Hands on 2 by Neon

- Process Image
 - Crop the lower right image and de-noise
 - `$ gst-launch-1.0 filesrc location="/home/adlink/Desktop/EVA_IDE/fruit_with_noise.jpg" ! jpegdec ! videocrop left=0 right=800 top=0 bottom=800 ! videomedian filtersize=5 ! videoconvert ! imagefreeze ! xvimagesink`



EVA Hands on 3 by Neon

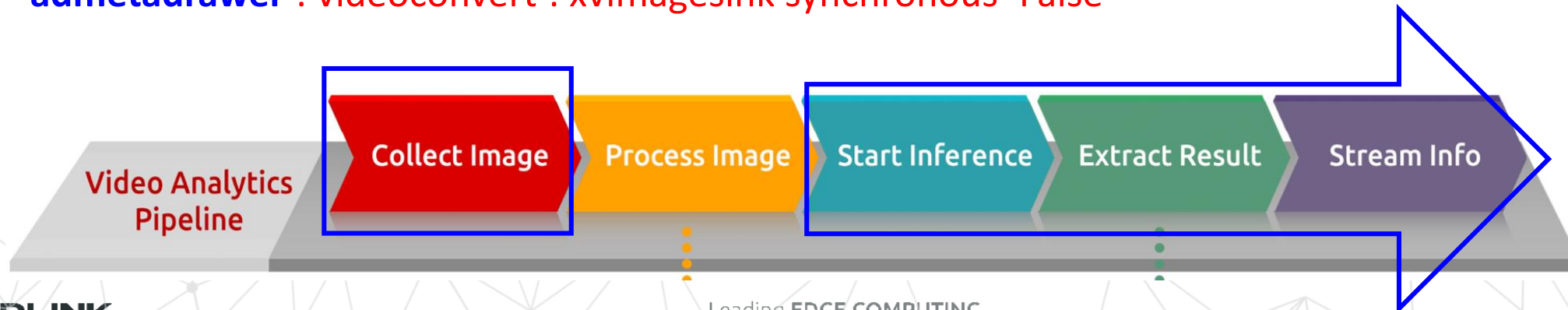
- AI Inference

- Run **classification** with Neon camera

- `$ gst-launch-1.0 pylonsrc ! videoconvert ! adrt
model="/home/adlink/Desktop/EVA_IDE/model/googlenet_FP32.engine" ! adtrans_classifier
label="/home/adlink/Desktop/EVA_IDE/model/googlenet-v2_RT_labels.txt" ! admetadrawer !
videoconvert ! xvimagesink synchronous=False`

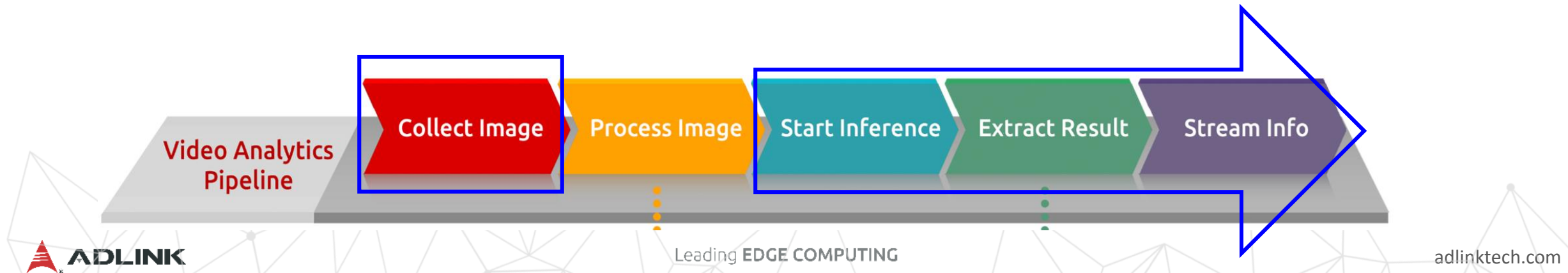
- Run **object detection** with Neon camera

- `$ gst-launch-1.0 pylonsrc binningh=1 fps=10.0 ! videoconvert ! adrt
model="/home/adlink/Desktop/EVA_IDE/model/ssdv2_FP32.engine" scale=0.008 mean="0 0 0" !
adtrans_ssd label="/home/adlink/Desktop/EVA_IDE/model/ssd_mobilenetv2_RT_labels.txt" !
admetadrawer ! videoconvert ! xvimagesink synchronous=False`



EVA Hands on 3 by Neon

- AI Inference
 - Run **pose detection** with Neon camera
 - `$ gst-launch-1.0 pylonsrc binningh=2 binningv=2 fps=10.0 ! videoconvert ! adrt model="/home/adlink/Desktop/EVA_IDE/model/human-pose_FP16.engine" scale=0.004 mean="128 128 128" ! adtrans_openpose_py input-height=256 input-width=456 ! admetadrawer ! videoconvert ! xvimagesink synchronous=False`



Q & A

有任何問題歡迎寫信到以下信箱：

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