FYP_Server_Zephyr

Server to update Zephyr files and restart QEMU Process

Current Program Flow

1. Program kills any QEMU Instance currently running
2. Starts a new Zephyr Instance and let it run in the background
    i. Stores its PID
3. Start web server that listens for incoming updated tflite models
    i. On receipt, stores it in memory
    ii. Overwrites model.cpp in zephyr instance
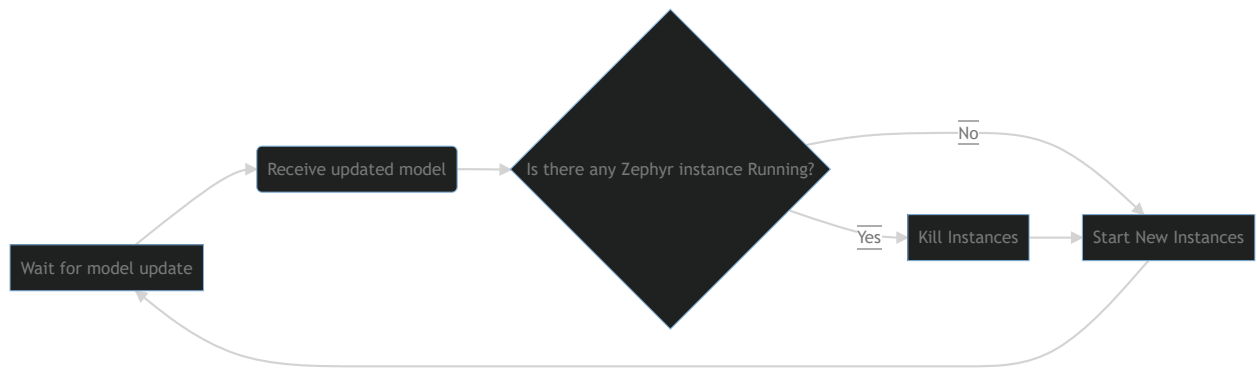4. Call method to restart zephyr instance with new model

TODO:

1. Move away from absolute paths
2. Make necessary modifications for Linux file structure

Running this ENTIRE Project

Required Repositories

1. FYP_Server_Zephyr (this current repository)
2. FYP_Tensor_Server (TODO: Add URL to this repo)
3. Zephyr tensor_server (TODO: Add URL to this repo)

Program Flow

Wait for model update → Receive updated model → Is there any Zephyr instance Running?

Yes → Kill Instances → Start New Instances

No → Start New Instances

Instructions

Terminal 1

```
cd ~/Downloads/net-tools
./net-setup.sh -c zephyr1.conf -i zeth.1
```

Terminal 2

```
cd ~/Downloads/net-tools
./net-setup.sh -c zephyr2.conf -i zeth.2
```

Terminal 3

```
cd ~/Downloads/net-tools
sudo brctl addbr zeth-br
sudo brctl addif zeth-br zeth.1
sudo brctl addif zeth-br zeth.2
sudo ifconfig zeth-br up
```

Terminal 4

```
cd ~/Documents/CodingProjects/Python/FYP_Server_Zephyr
source venv/bin/activate
python main.py
```

Terminal 5

```
cd ~/Documents/CodingProjects/Python/FYP_Tensor_Server
source .venv/bin/activate
python src/app.py
```

Terminal 6

```
cd ~/zephyrproject
source .venv/bin/activate
cd zephyr/
west build -p always -d build/real_client -b qemu_x86 -t run \
      samples/net/sockets/tensor_echo_client_2 -- \
      -DOVERLAY_CONFIG=overlay-e1000.conf \
      -DCONFIG_NET_CONFIG_MY_IPV4_ADDR=\"203.0.113.1\" \
      -DCONFIG_NET_CONFIG_PEER_IPV4_ADDR=\"198.51.100.1\" \
      -DCONFIG_NET_CONFIG_MY_IPV6_ADDR=\"2001:db8:200::1\" \
      -DCONFIG_NET_CONFIG_PEER_IPV6_ADDR=\"2001:db8:100::1\" \
      -DCONFIG_NET_CONFIG_MY_IPV4_GW=\"198.51.100.1\" \
      -DCONFIG_ETH_QEMU_IFACE_NAME=\"zeth.2\" \
      -DCONFIG_ETH_QEMU_EXTRA_ARGS=\"mac=00:00:5e:00:53:02\"
```

Terminal 7

```
cd ~/Downloads/net-tools
./loop-socat.sh
```

Terminal 8

```
cd ~/Downloads/net-tools
sudo ./loop-slip-tap.sh
```

Terminal 9

```
cd ~/zephyrproject
source .venv/bin/activate
cd zephyr/
west build -p always -d build/training_client -b qemu_x86 -t run \
      samples/net/sockets/tensor_post
```