Understanding ZMQ Blocks

Based on https://wiki.gnuradio.org/index.php/Understanding_ZMQ_Blocks

A. Types of ZMQ Blocks
   1. Data Blocks
   2. Message Blocks

B. Addressing
   1. localhost (127.0.0.1)
   2. full IP address of Sink block

C. Using ZMQ Blocks
   1. Separate GR flowgraphs on Same Computer (PUB / SUB)
   2. Separate GR flowgraphs on Different Computers (PUSH / PULL)
   3. Python Program as a REQ / REP Server
   4. Python Program to Process Flowgraph Data (PUB / SUB)
   5. Python Program as a PUSH / Pull Server
      https://github.com/duggabe/gr-webserver/blob/master/examples/zmq_PUSH_PULL_server.py

D. Terminal functions for flowgraphs
   1. Using /stdin and /stdout is not a very satisfactory solution
   2. Using QT GUI Message Edit Box for input works, but there is no history of past entries
      https://github.com/duggabe/gr-morse-code-gen
   3. https://github.com/dl1ksv/gr-display provides a QT text sink
   4. Browser-based terminal emulator using Javascript
         Python has "import pmt" and "import zmq", but Javascript does not
         line  57: function pmt_to_string
         line  87: function string_to_pmt
         line 232: function init - set up sockets
         line 333: function upload - sends input line
      b. demo with zmq_PUSH_PULL_server.py