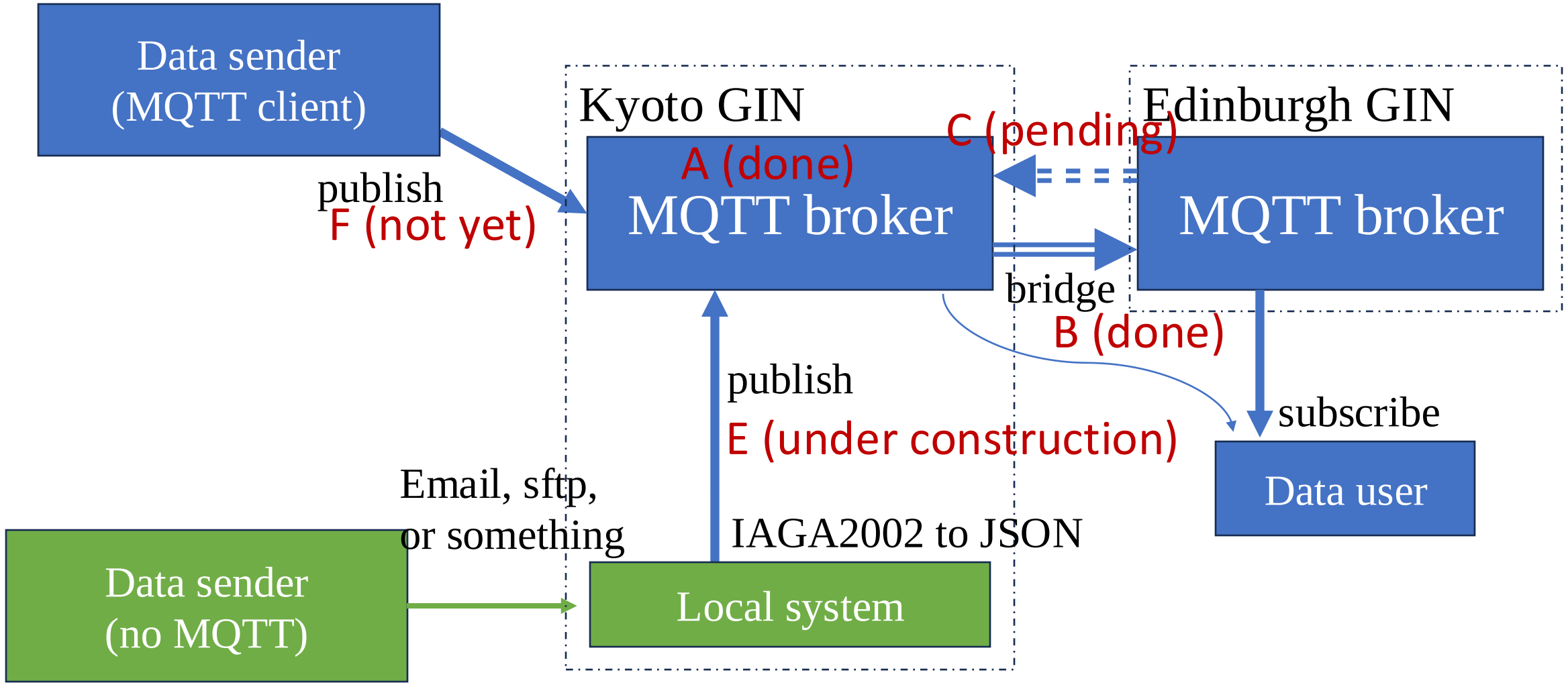
Preparation Status for Sending/Receiving INTERMAGNET Data via MQTT in Kyoto GIN

Current status

- **(A)** Configure the MQTT broker in Kyoto → Done
  - Subscription allows anonymous access
  - Publishing is limited to pre-created users (currently only "geomag")
  - Both ports 1883 and 8883 are listening.
- **(B)** Set up a bridge (outgoing) to transfer data published to the Kyoto broker to the Edi broker → Done
  - Tested with Edi's test broker (not yet tested with the production broker)
  - QoS is set to Level 1
  - Tested using manual commands mosquitto_{pub,sub}
- **(C)** Prepare a system to subscribe to data published on the Edi broker and save it locally in Kyoto → pending
  - Tried configuring an incoming bridge but it did not work successfully
  - Considering methods like running the mosquitto_sub command periodically
- **(E)** Prepare a system to publish data sent by ways other than MQTT (e.g., email) from observatories using MQTT → In progress
  - Conversion from IAGA2002 format to MQTT-compatible JSON format is done using a modified version of magnetic.py (but now considering to use MagPy package)
- **(F)** Create accounts so that each sender can publish to the Kyoto broker → Not yet

MQTT broker in Kyoto GIN



Future Outlook

- The highest priority work is preparation of the system for automatic format conversion and publication of data to Edi Broker via MQTT (task marked with E).
- Our IT assistant's working hours remain limited (only one day per week) until the end of August, so progress on tasks is expected to be slow.
- From September, the IT assistant's working hours will increase, and we aim to establish the system for sending data to Edinburgh via MQTT by the end of the year.
- It is expected to take considerable time to enable each station to use MQTT, but we plan to proceed gradually.
  - We also need to build a system to store the data we receive via MQTT into our server.