Chapter 1. Managing and tuning Katzenpost

- **Management**

  I'd like to see description of new "Management" feature making it easy to install/restart service plugins without restarting whole mix net ... management socket for restarted services without restarting the service node

- **Production vs. whatever**

  could use a section describing difference from a "production" network. Like how the epoch is (or can be, or not) warped a 2 min vs 20min.

- **Management** struct – a management interface, off by default – need s to be documented. For restarting plugins without restarting the whole thing. More for devs than Admins, thoguh.

  The `socat` commandline utility can be use to connect to the management socket and issue commands. Connect with a commandline like so:

  ```
  socat unix:/<path-to-data-dir>/management_sock STDOUT
  ```

  The following commands are possible:

  - QUIT - Exit this management socket session.
  - SHUTDOWN - Cause the server to gracefully shutdown.
  - ADD_USER - Add a user and associate it with the given link key in either hex or base64. The syntax of the command is as follows:

    ```
    ADD_USER alice X25519_public_key_in_hex_or_base64
    ```

  - UPDATE_USER - Update the link key of a given user. The syntax of the command is as follows:

    ```
    UPDATE_USER alice X25519_public_key_in_hex_or_base64
    ```

  - REMOVE_USER - Remove a given user. The syntax of the command is as follows:

    ```
    REMOVE_USER alice
    ```

  - SET_USER_IDENTITY - Set a given user's identity key. The syntax of the command is as follows:

    ```
    SET_USER_IDENTITY alice X25519_public_key_in_hex_or_base64
    ```

  - REMOVE_USER_IDENTITY - Remove a given user's identity key. MUST be called before removing the user with the `REMOVE_USER` command. The synx of this command is as follows:

    ```
    REMOVE_USER_IDENTITY alice
    ```

  - USER_IDENTITY - Retrieve the identity key of the given user. The syntax of the command is as follows:

    ```
    USER_IDENTITY alice
    ```

- SEND_RATE - Sets the rate limiter to the given packets per minute rate.

  ```
  SEND_RATE 30
  ```

- SEND_BURST - Sets the rate limiter burst to the given maximum.

  ```
  SEND_BURST 4
  ```

- **configuration**

  yes, perhaps the paper will be helpful. however in my mind these two source code files are also immediately relevant to our server side operator

  handbook:https://github.com/katzenpost/katzenpost/blob/main/server/config/config.gohttps://github.com/katzenpost/katzenpost/blob/main/authority/voting/server/config/config.go

  there probably should be a section that describes each and every configuration parameter/optionbut also we probably want to give some general purpose configuration examples that might be useful for getting started

  also... Xen and I while working for 0kn, we "tuned" the mix server debug settings based on packet loss visible with debug logging turned on... or with collecting Prometheus metrics

  so... for the mix server, we probably need a chapter on tuning in order to reduce packet loss

  i can write most of that... but we should probably collaborate on it

Parameters (all) in server/config.

Go autogeneted docs: go to godocs.org and search for katezenpost/katzenpost. -- Baseic dev docs

Prometheus logging and graphing is to be recommended (has its own documents)

- **tuning**

  Yes we should perhaps have weekly meetings to see if any of us can assist you in the documentation? My work on Katzenpost is currently being funded by a commercial crypto company called 0kn and we've had some interesting experiences "tuning" mixnets for performance by tweaking many of the server debug configuration parameters. We used performance graphs and debug log lines to help us track down the various causes for packetloss... and then one by one we fixed the various causes... tuned the mixnet for higher performance etc.

  I think 0kn can be useful to us for providing an example scenario with example graphs and log messages

  It's useful Info for future ops users

  here's an example of one of our "lab reports" where we investigated packetloss within the mixnet https://dox.0kn.tech/s/snqcrQ_3C#

- we had several rounds of this for weeks actually... one of our prior graphs show packetloss every 20 minutes... the exact time of the katzenpost epoch…

Python tuning script exists.