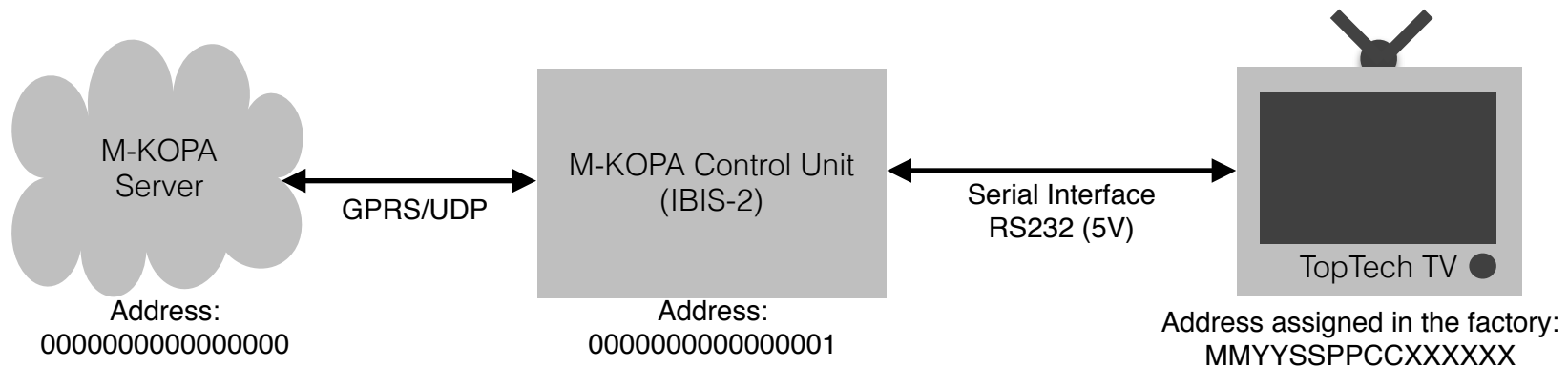




IBIS-2 TV Messaging Protocol Overview

Routing Architecture

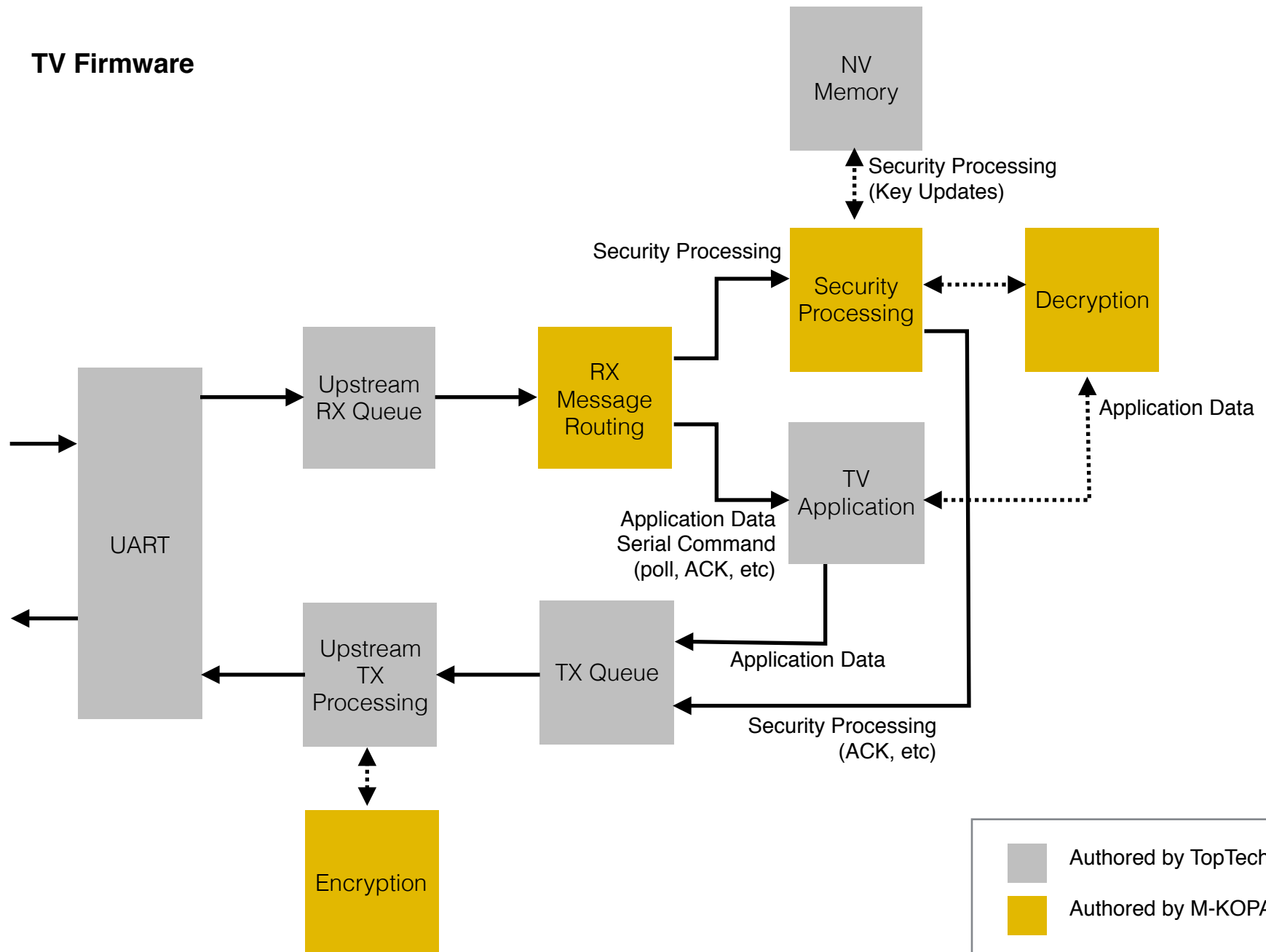


M-KOPA devices are designed to connect to one another (daisy-chain) and to pass information from the M-KOPA Server to the last link in the chain. The TV will always be the last link in the chain.

The M-KOPA Control Unit will buffer transmissions from the M-KOPA Server that are being sent to the TV. These messages include security messages (e.g. key updates) and application data. These messages will be encrypted.

The M-KOPA unit will generate messages serial commands (e.g poll requests, poll responses, acknowledgements) that will initiate communication with the TV to allow it to transfer any messages stored in memory on the TV. These messages will be encrypted.

TV Firmware



Upstream Rx Queue

All messages received from an upstream device will be added to receive queue for processing.

Upstream Rx Message Routing

When a message is received the message routing task will generate an acknowledgment and send it to the upstream device to confirm receipt of the message. After the acknowledgment has been transmitted the message header of the received message will be checked to determine if the message is an Application Data or Security Command this will allow the message to be routed onto the appropriate task for decryption and processing.

TX Queue

All messages to be transmitted will be stored in a TX queue until the TV is connected to an upstream device. The Tx Queue will be stored in flash memory so that the messages are persisted if the device is reset or power cycled.

Upstream Tx Message Processing

The data stored in the TX queue will only contain the message payload. The Tx Message processing is responsible for wrapping the payload in the message format and applying encryption to the frame prior to transmission.

Source Code to be Shared

Encryption/decryption - AES128 encryption and decryption
Security Processing - key updates, security status updates
Typedefs - data structures
Payload ???

Function Prototypes to be Stored

Non-volatile memory - Including functions to manage key updates. The TV will be required to store and update:

- 2 sets of MASTER keys (used for sending security messages).
- 2 sets of DATA keys (used for sending application messages).
- a default set of keys (both MASTER and DATA keys). These keys will be installed at the factory and will never change
- a serial number unique to the TV. The serial number will be installed at the factory and will never change.
- security settings (ENABLED/DISABLED).
- Frame counters
- Active sequence key number (for the MASTER and DATA keys).

Payload ??? - Including functions to pack messages prior to placing them in the TX Queue.