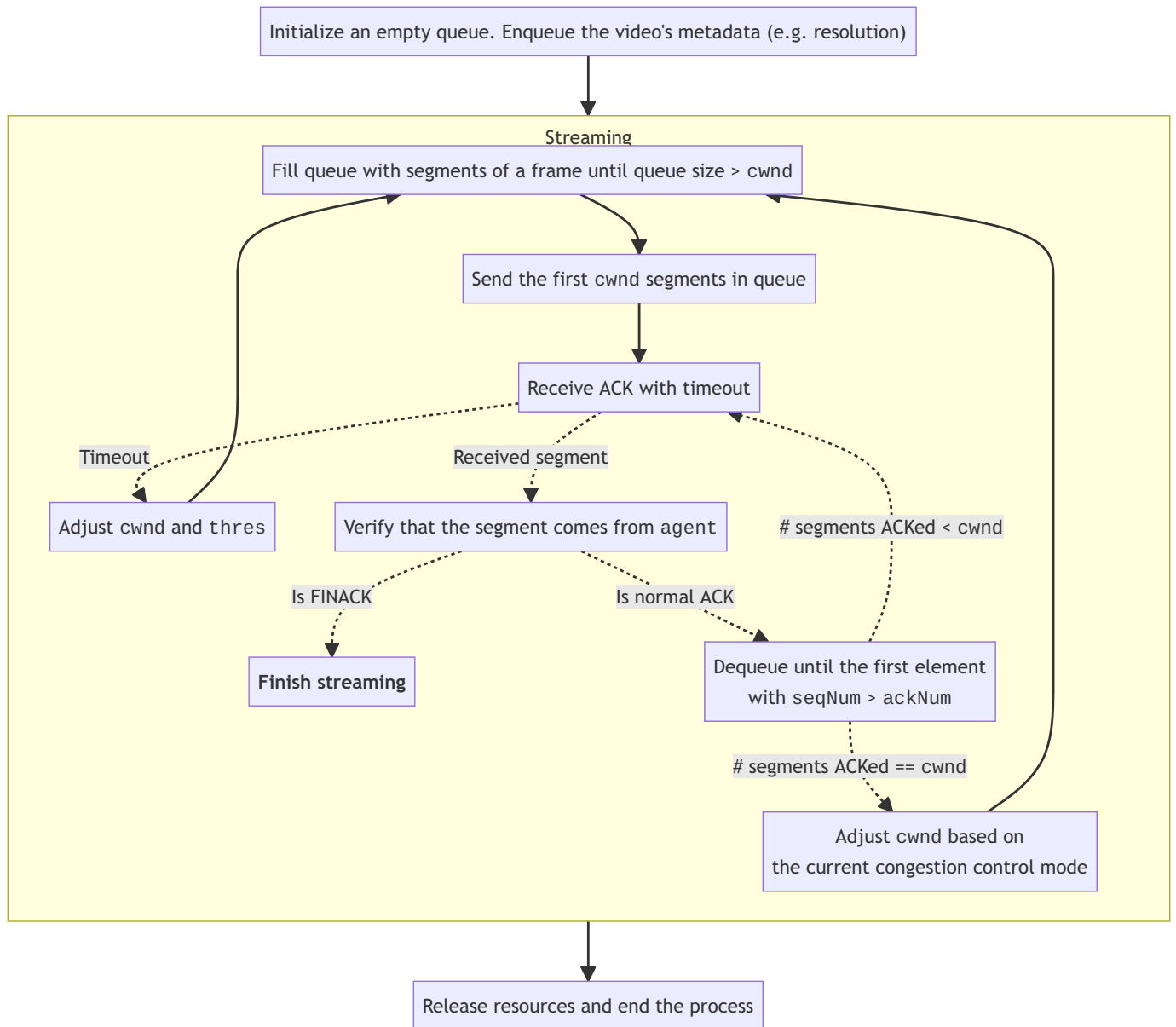# CN HW3 Report

b09902004 資工三 郭懷元
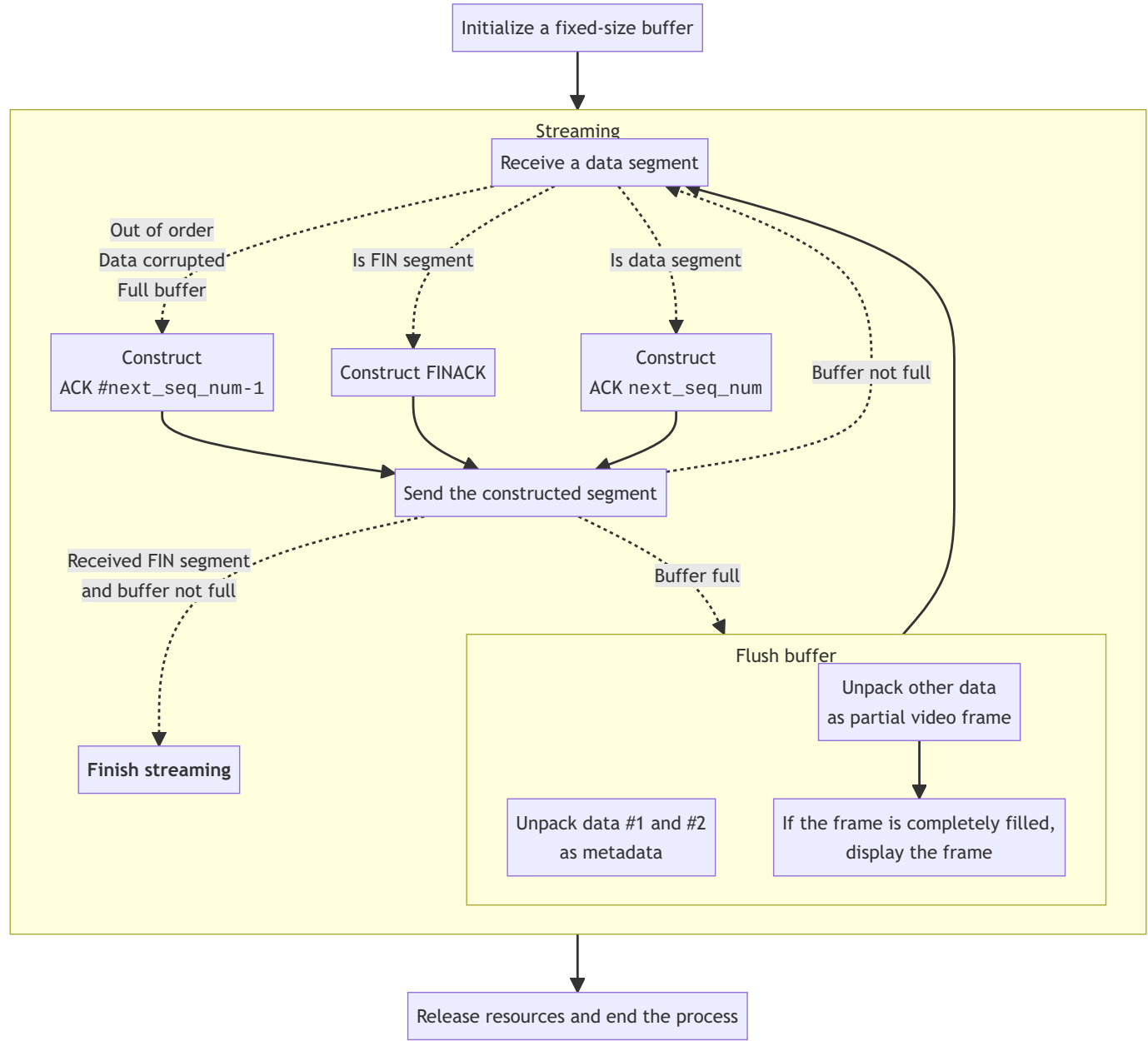
Notation

- cwnd: Current transmit window size
- `thres`: Threshold of switching from "slow start" to "congestion avoidance"
- `next_seq_num`: The next sequence number that `receiver` is expecting

Sender

Receiver

Initialize a fixed-size buffer

Streaming

Receive a data segment

Out of order
Data corrupted
Full buffer

Construct
ACK #next_seq_num-1

Is FIN segment

Construct FINACK

Is data segment

Construct
ACK next_seq_num

Buffer not full

Send the constructed segment

Received FIN segment
and buffer not full

Buffer full

Finish streaming

Flush buffer

Unpack other data
as partial video frame

Unpack data #1 and #2
as metadata

If the frame is completely filled,
display the frame

Release resources and end the process

Agent

```
                          ┌──────────────────┐
                          │ Receive a segment │
                          └──────────────────┘

Comes from receiver    Is ACK        Comes from sender

        ┌──────────────────┐      ┌──────────────────────┐
        │ Forward to sender │      │ Select the next step  │
        └──────────────────┘      │ based on error_rate   │
                                  └──────────────────────┘
          Is FINACK

        ┌──────────────────┐      ┌───────────────┐   ┌─────────────────┐
        │ Release resources │      │ Drop segment  │   │ Corrupt payload │
        │ and end the process │    └───────────────┘   └─────────────────┘
        └──────────────────┘

                                        ┌──────────────────────┐
                                        │ Forward to receiver   │
                                        └──────────────────────┘
```