DLMS Multichannel Investigation

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Revision History

Rev.	Date	Description	
		Slide No.	Summary
1.00	Sept 4, 2013	All	Initialized revision

Outline

- Buffer usage (current)
- Physical layer (current)
- Tracking Information
- Design idea for multichannel

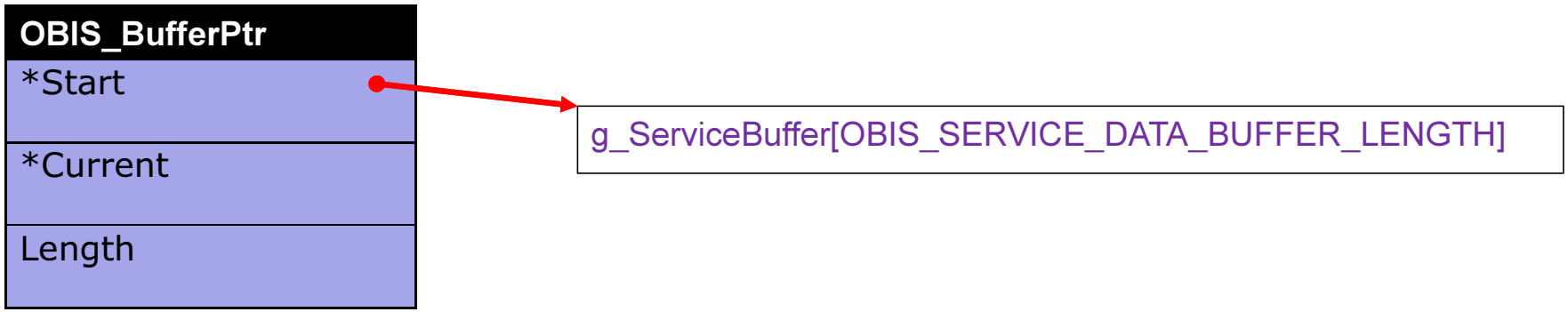
Buffer usage (current)

Buffer usage

- Use for debug (__DEBUG_DLMS), in \rl78g13QS+\application\dlms\physical\serial.c:

g_receive_data[256]

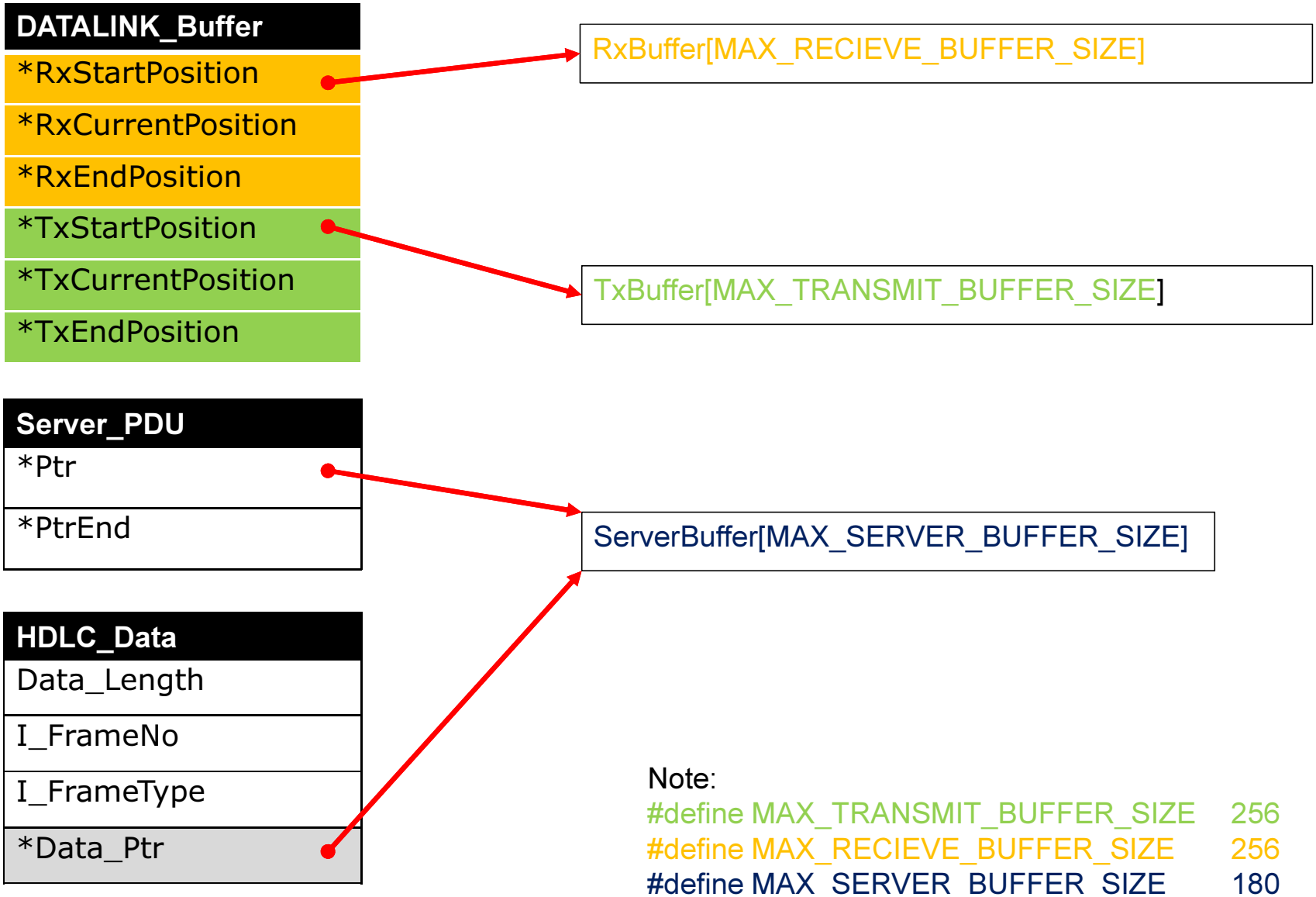
- For COSEM Object Layer, in \rl78g13QS+\application\dlms\objects\r_dlms_obis.c:



Note:
#define OBIS_SERVICE_DATA_BUFFER_LENGTH (180)

Buffer usage

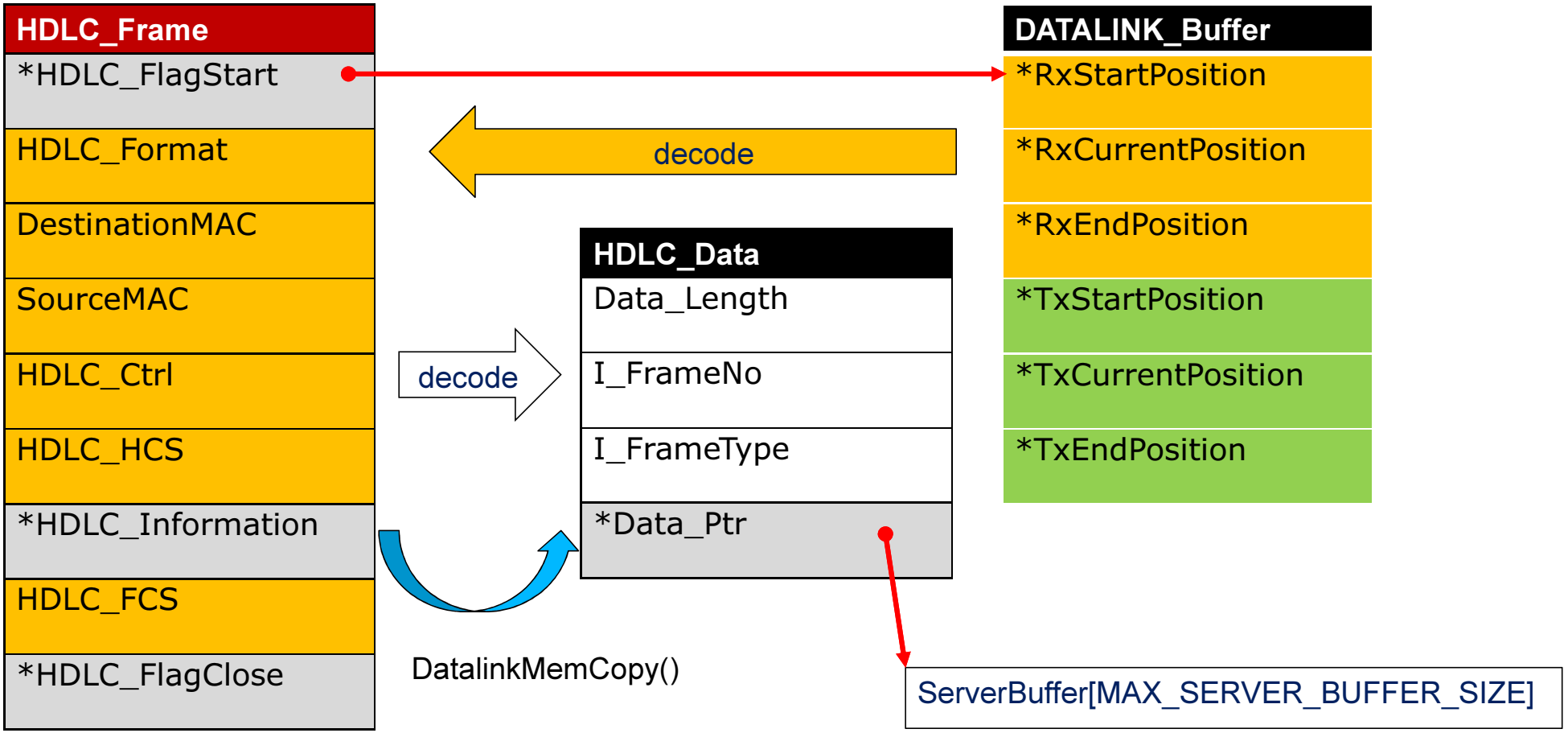
- Data from/to UART



Note:

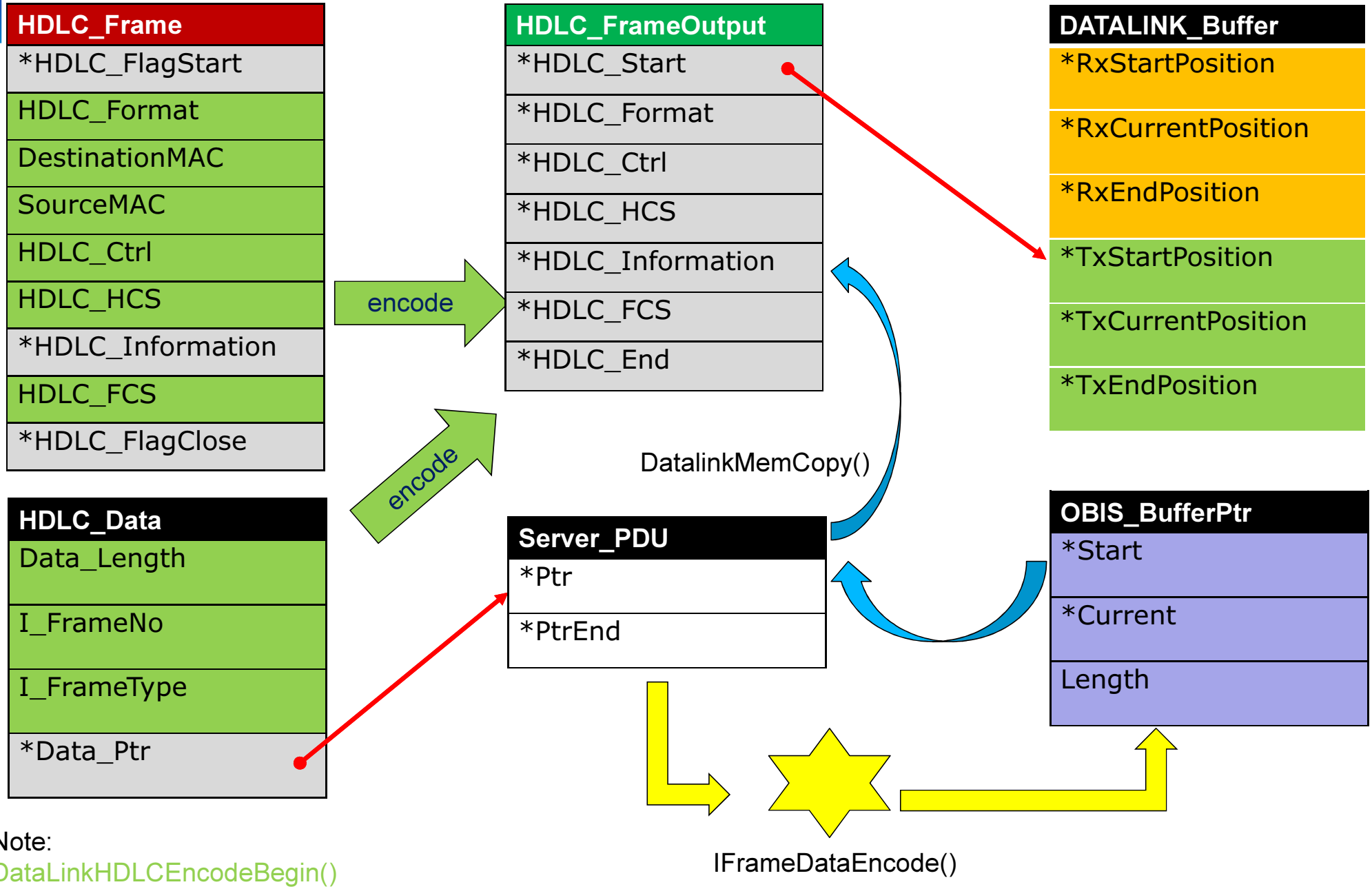
```
#define MAX_TRANSMIT_BUFFER_SIZE    256
#define MAX_RECIEVE_BUFFER_SIZE     256
#define MAX_SERVER_BUFFER_SIZE      180
```

Buffer usage



Note:
DataLinkHDLCDecode()
DataLinkIFrameDecode()

Buffer usage



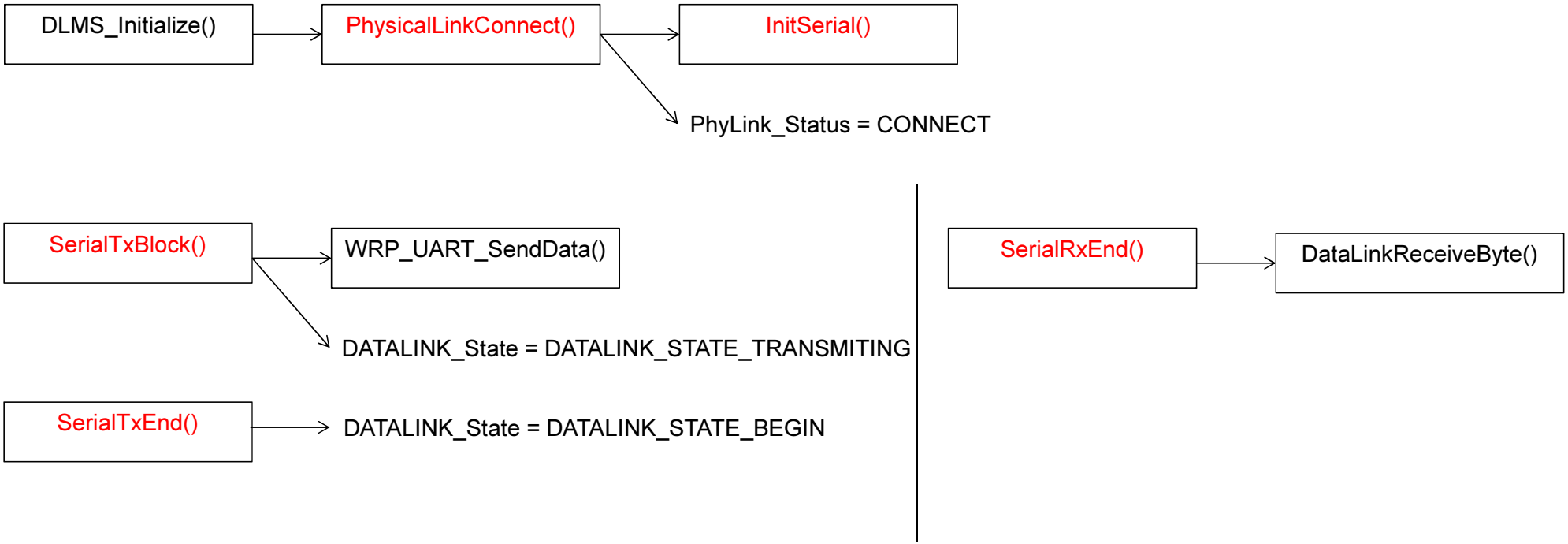
Note:
DataLinkHDLCEncodeBegin()
DataLinkIFrameEncode()

Physical channel (current)

Physical layer

- In \rl78g13QS+\application\dlms\physical\serial.h:
  - void InitSerial(void);
  - void SerialTxEnd(void);
  - void SerialRxEnd(Unsigned8 byte);
  - void SerialTxBlock(Unsigned8* BlockPtr, Integer16 Length);

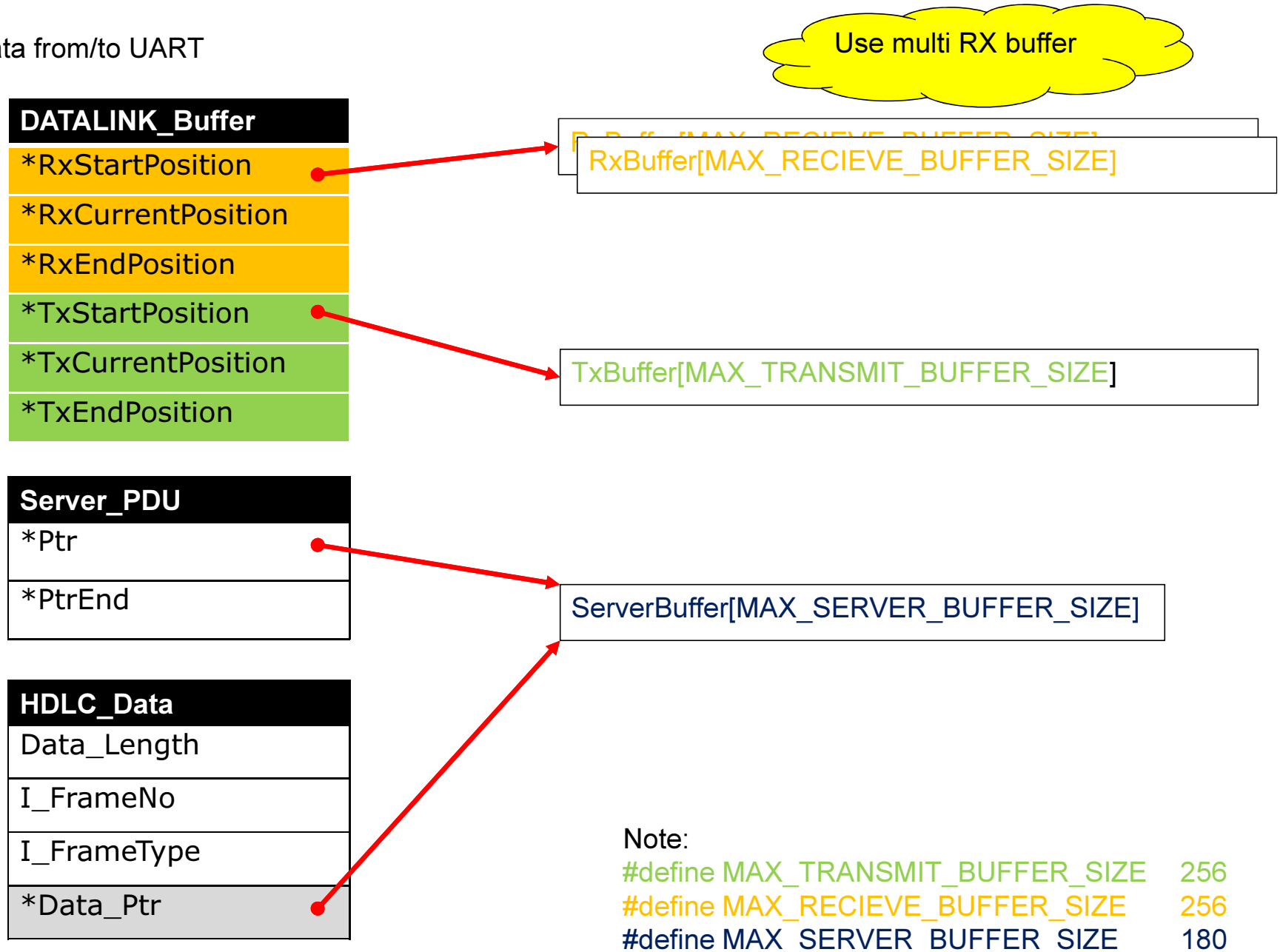
- In \rl78g13QS+\application\dlms\physical\Physical_Layer.h:
  - extern Unsigned8 PhyLink_Status;
  - void PhysicalLinkConnect(void);
  - void PhysicalLinkDisconnect(void)



Design idea for multichannel

Buffer usage

- Data from/to UART



Note:

```
#define MAX_TRANSMIT_BUFFER_SIZE    256
#define MAX_RECIEVE_BUFFER_SIZE     256
#define MAX_SERVER_BUFFER_SIZE      180
```

Physical layer

- In \rl78g13QS+\application\dlms\physical\serial.h:
  - void InitSerial(Unsigned8 channel);
  - void SerialTxEnd(Unsigned8 channel);
  - void SerialRxEnd(Unsigned8 channel, Unsigned8 byte);
  - void SerialTxBlock(Unsigned8* BlockPtr, Integer16 Length); -> Send for current channel

- In \rl78g13QS+\application\dlms\physical\Physical_Layer.h:
  - ~~extern Unsigned8 PhyLink_Status~~; -> Move to channel_info_t define
  - void PhysicalLinkConnect(void);
  - void PhysicalLinkDisconnect(void);

Tracking Information

```
typedef struct {
      Unsigned8          channel_id;
} st_token_info;
```

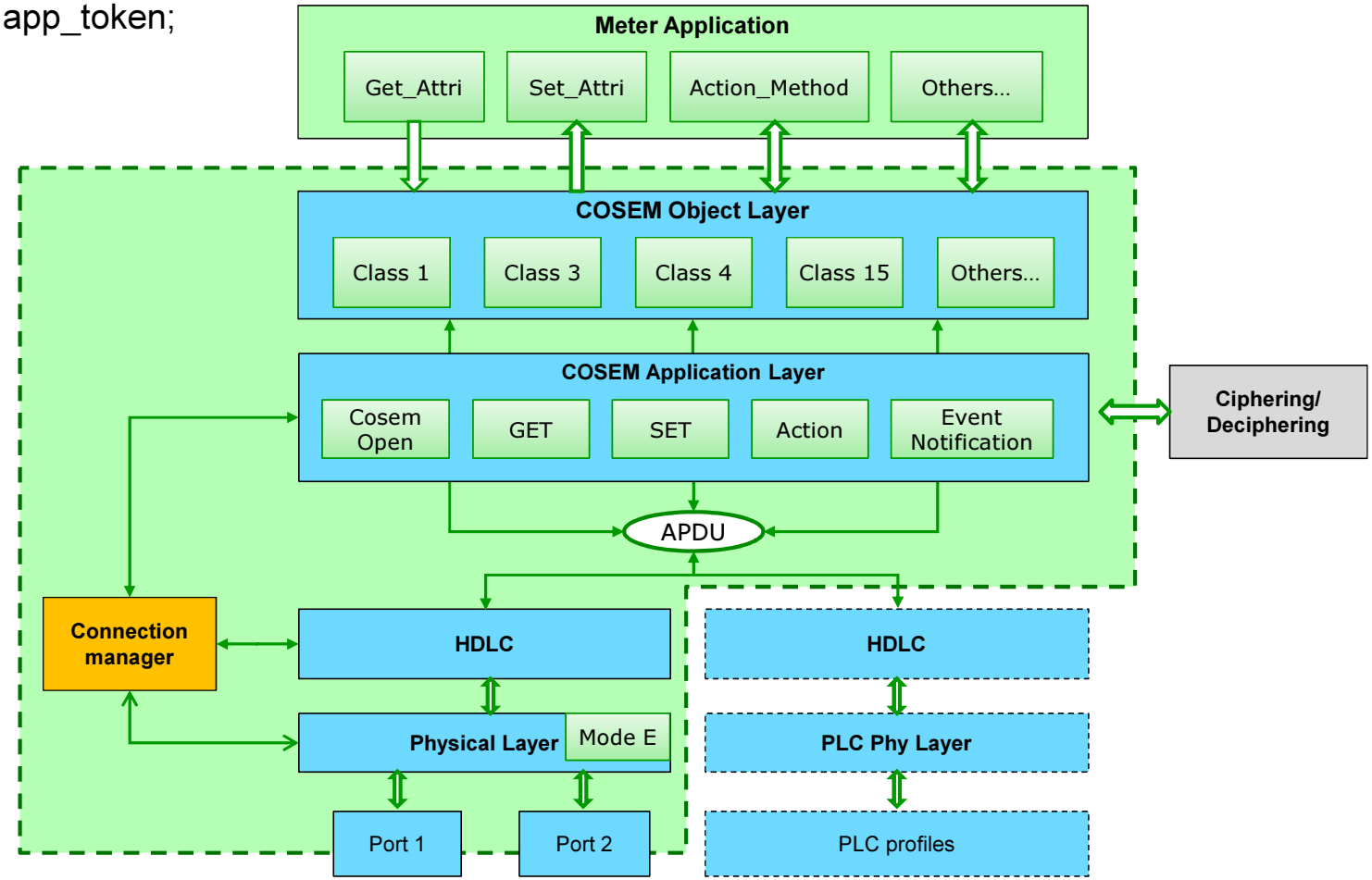
```
#define  MAX_CONNMGR_CHANNEL_NUMBER (2)
/* ID of physical channel(s) */
#define  CHANNEL_NOT_SPECIFIED              (0xFF)
```

Common information for each channel:

```
typedef struct {
      Unsigned8          PhyLink_Status;
      /* Tx Buffer */
      Unsigned8          *SerialTx_Buffer_Str;
      Unsigned8          *SerialTx_Buffer_End;
      Unsigned8          *TxStartPosition;
      Unsigned8          *TxCurrentPosition;
      Unsigned8          *TxEndPosition;
      /* Rx Buffer */
      Unsigned8          *SerialRx_Buffer_Str;
      Unsigned8          *SerialRx_Buffer_End;
      Unsigned8          *RxStartPosition;
      Unsigned8          *RxCurrentPosition;
      Unsigned8          *RxEndPosition;
      /* Timeout info */
      st_TimeoutCount      Timeout_Level;
      st_TimeoutCount      Timeout_ms;
      st_TimeoutEnable     Timeout_Enable;
      /* Datalink info */
      Unsigned8          DATALINK_State;
      st_DATALINK_PAR      DATALINK_parameter;
      Unsigned16          ByteCount;
      Unsigned8          Server_State;
      Unsigned8          Prev_nR;
      Unsigned8          Prev_nS;
      Unsigned8          nR;
      Unsigned8          nS;
      Unsigned8          Client_Status;
} st_channel_info;
```

Connection manager

```
typedef struct {
Unsigned8                current_channel_id;
Unsigned8                channel_count;
channel_info_t           channel_info[MAX_CONNMGR_CHANNEL_NUMBER];
token_info_t             app_token;
} st_connect_mgr_info
```



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