

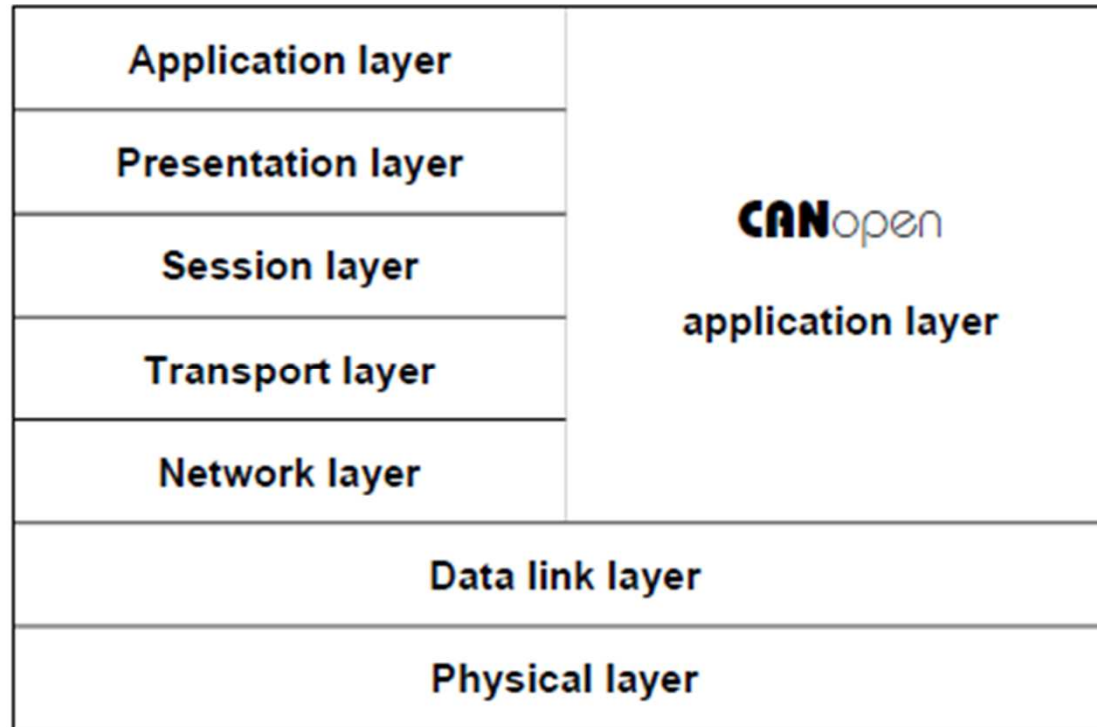


[www.axiomtek.com](http://www.axiomtek.com)

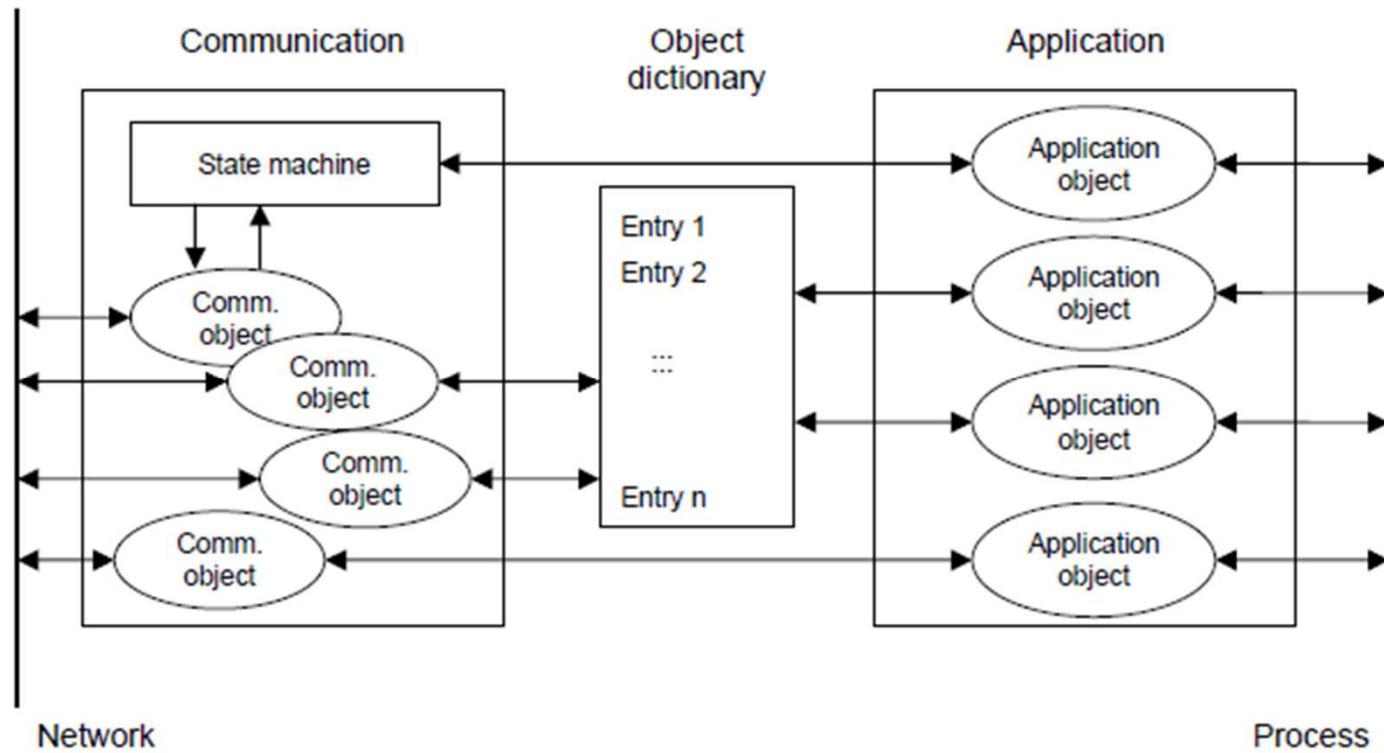
# ***CANopen***

Yi Chen  
SW  
2015/12/17

# CANopen



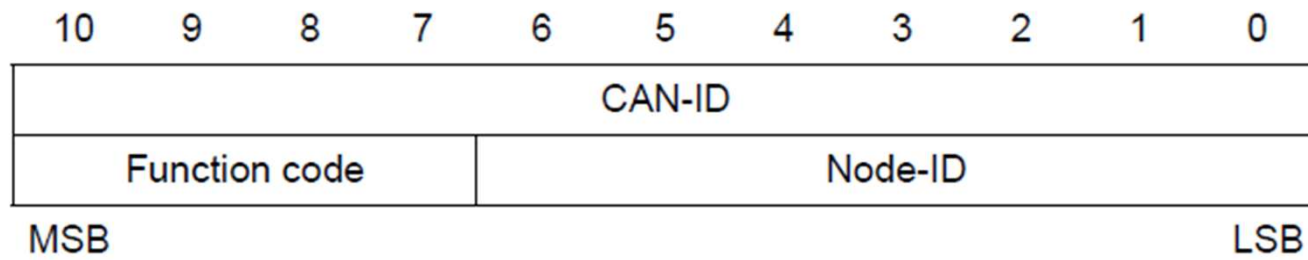
# CANopen



# CANopen

Index	Object
0000 <sub>h</sub>	not used
0001 <sub>h</sub> – 001F <sub>h</sub>	Static data types
0020 <sub>h</sub> – 003F <sub>h</sub>	Complex data types
0040 <sub>h</sub> – 005F <sub>h</sub>	Manufacturer-specific complex data types
0060 <sub>h</sub> – 025F <sub>h</sub>	Device profile specific data types
0260 <sub>h</sub> – 03FF <sub>h</sub>	reserved
0400 <sub>h</sub> – 0FFF <sub>h</sub>	reserved
1000 <sub>h</sub> – 1FFF <sub>h</sub>	Communication profile area
2000 <sub>h</sub> – 5FFF <sub>h</sub>	Manufacturer-specific profile area
6000 <sub>h</sub> – 67FF <sub>h</sub>	Standardized profile area 1 <sup>st</sup> logical device
6800 <sub>h</sub> – 6FFF <sub>h</sub>	Standardized profile area 2 <sup>nd</sup> logical device
7000 <sub>h</sub> – 77FF <sub>h</sub>	Standardized profile area 3 <sup>rd</sup> logical device
7800 <sub>h</sub> – 7FFF <sub>h</sub>	Standardized profile area 4 <sup>th</sup> logical device
8000 <sub>h</sub> – 87FF <sub>h</sub>	Standardized profile area 5 <sup>th</sup> logical device
8800 <sub>h</sub> – 8FFF <sub>h</sub>	Standardized profile area 6 <sup>th</sup> logical device
9000 <sub>h</sub> – 97FF <sub>h</sub>	Standardized profile area 7 <sup>th</sup> logical device
9800 <sub>h</sub> – 9FFF <sub>h</sub>	Standardized profile area 8 <sup>th</sup> logical device
A000 <sub>h</sub> – AFFF <sub>h</sub>	Standardized network variable area
B000 <sub>h</sub> – BFFF <sub>h</sub>	Standardized system variable area
C000 <sub>h</sub> – FFFF <sub>h</sub>	reserved

# CANopen



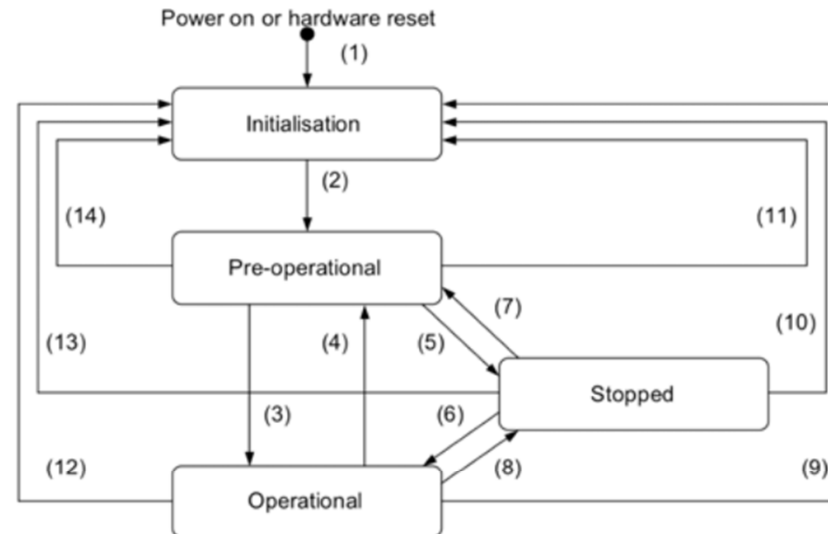
# CANopen

COB	Function code	resulting CAN-ID
NMT	0000 <sub>b</sub>	0 (000 <sub>h</sub> )
SYNC	0001 <sub>b</sub>	128 (080 <sub>h</sub> )
TIME	0010 <sub>b</sub>	256 (100 <sub>h</sub> )

Table 39: Peer-to-peer objects of the generic pre-defined connection set

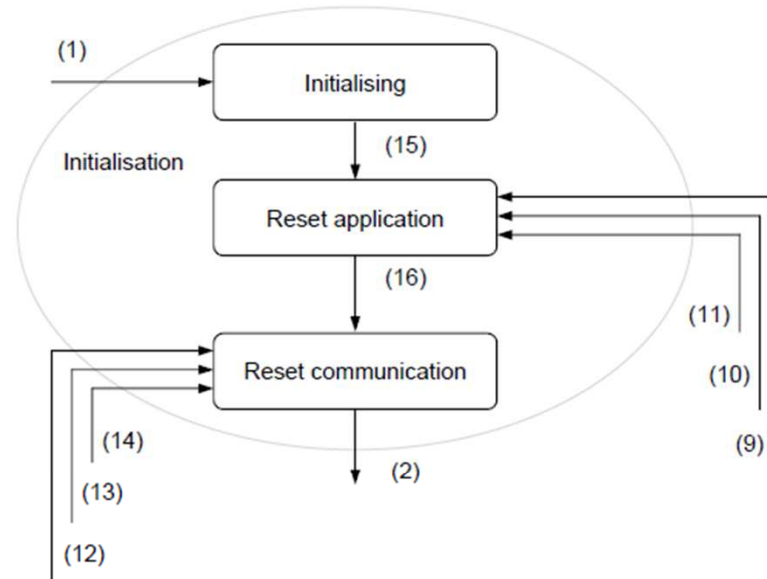
COB	Function code	Resulting CAN-IDs
EMCY	0001 <sub>b</sub>	129 (081 <sub>h</sub> ) – 255 (0FF <sub>h</sub> )
PDO1 (tx)	0011 <sub>b</sub>	385 (181 <sub>h</sub> ) – 511 (1FF <sub>h</sub> )
PDO1 (rx)	0100 <sub>b</sub>	513 (201 <sub>h</sub> ) – 639 (27F <sub>h</sub> )
PDO2 (tx)	0101 <sub>b</sub>	641 (281 <sub>h</sub> ) – 767 (2FF <sub>h</sub> )
PDO2 (rx)	0110 <sub>b</sub>	769 (301 <sub>h</sub> ) – 895 (37F <sub>h</sub> )
PDO3 (tx)	0111 <sub>b</sub>	897 (381 <sub>h</sub> ) – 1023 (3FF <sub>h</sub> )
PDO3 (rx)	1000 <sub>b</sub>	1025 (401 <sub>h</sub> ) – 1151 (47F <sub>h</sub> )
PDO4 (tx)	1001 <sub>b</sub>	1153 (481 <sub>h</sub> ) – 1279 (4FF <sub>h</sub> )
PDO4 (rx)	1010 <sub>b</sub>	1281 (501 <sub>h</sub> ) – 1407 (57F <sub>h</sub> )
SDO (tx)	1011 <sub>b</sub>	1409 (581 <sub>h</sub> ) – 1535 (5FF <sub>h</sub> )
SDO (rx)	1100 <sub>b</sub>	1537 (601 <sub>h</sub> ) – 1663 (67F <sub>h</sub> )
NMT error control	1110 <sub>b</sub>	1793 (701 <sub>h</sub> ) – 1919 (77F <sub>h</sub> )

# NMT



(1)	At Power on the NMT state initialisation is entered autonomously
(2)	NMT state Initialisation finished - enter NMT state Pre-operational automatically
(3)	NMT service start remote node indication or by local control
(4),(7)	NMT service enter pre-operational indication
(5),(8)	NMT service stop remote node indication
(6)	NMT service start remote node indication
(9),(10),(11)	NMT service reset node indication
(12),(13),(14)	NMT service reset communication indication

# NMT



(1)	At power on the NMT state initialisation is entered autonomously
(2)	NMT state Initialisation finished - enter NMT state Pre-operational automatically
(12), (13), (14)	NMT service reset communication indication
(9), (10), (11)	NMT service reset node indication
(15)	NMT sub-state Initialization finished – NMT sub-state reset application is entered autonomously
(16)	NMT sub-state reset application is finished – NMT sub-state reset communication is entered autonomously

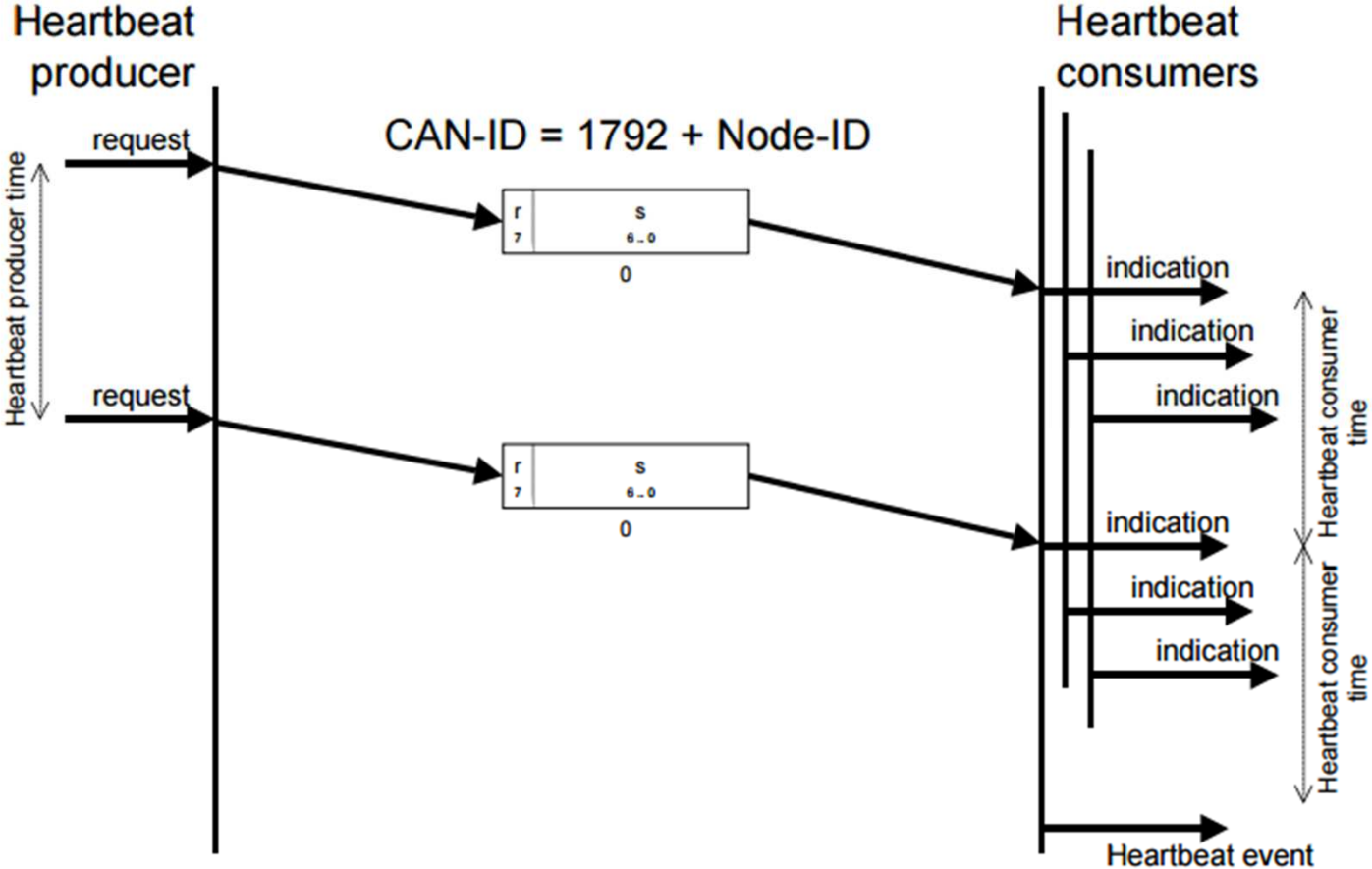


# NMT

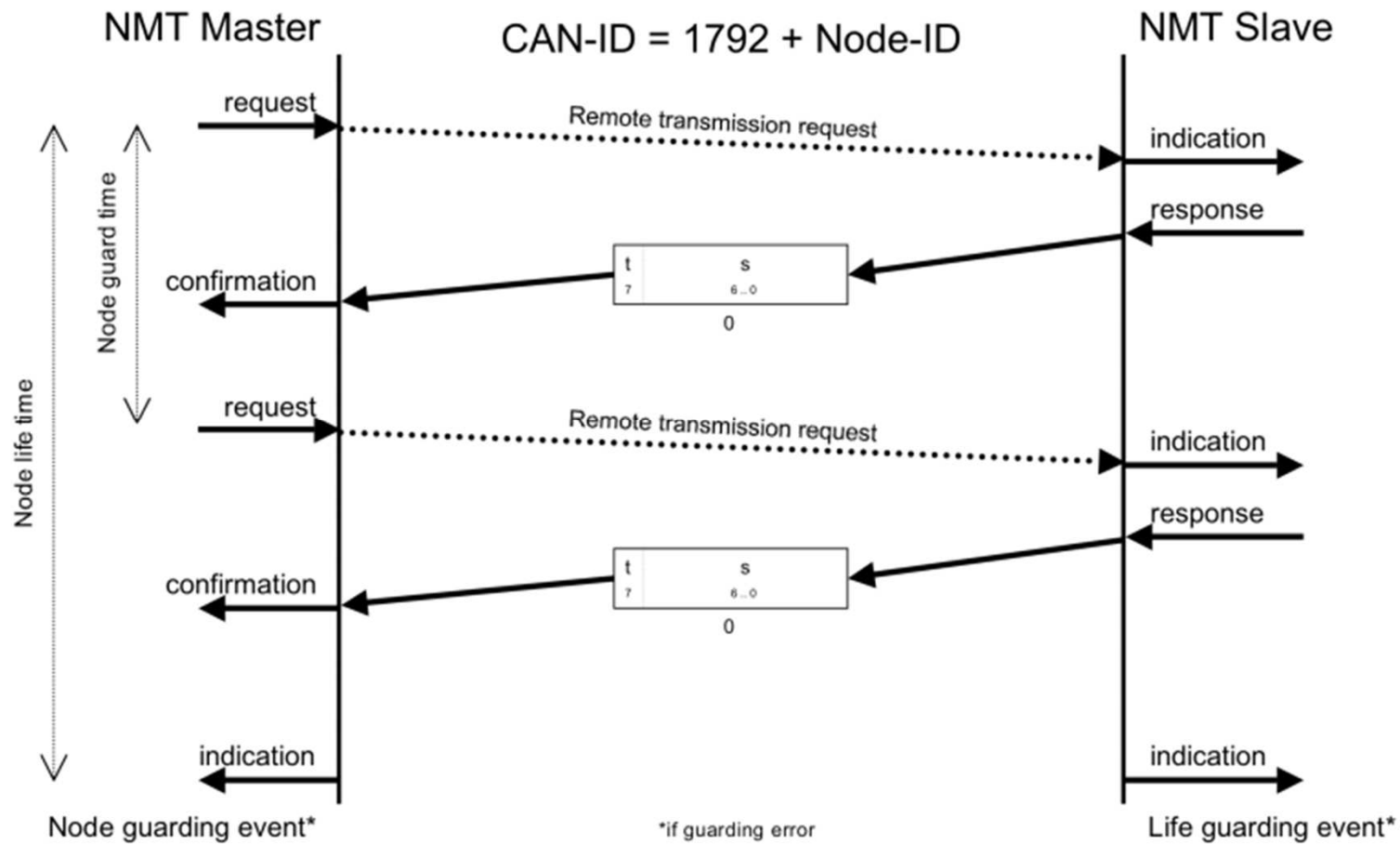
	Pre-operational	Operational	Stopped
PDO		X	
SDO	X	X	
SYNC	X	X	
TIME	X	X	
EMCY	X	X	
Node control and error control	X	X	X



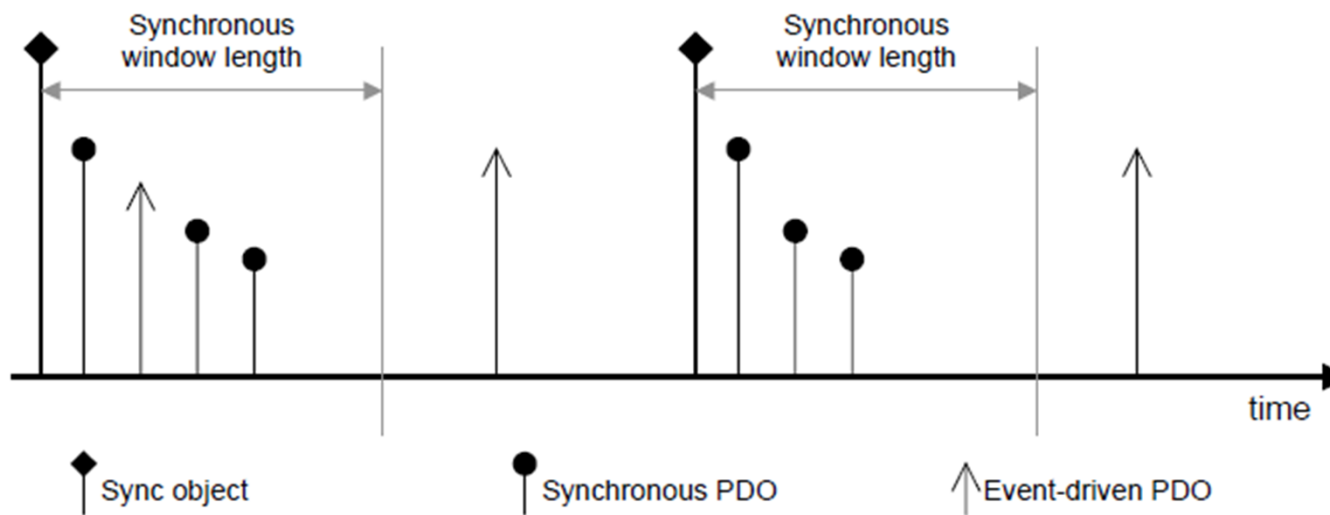
# Heartbeat



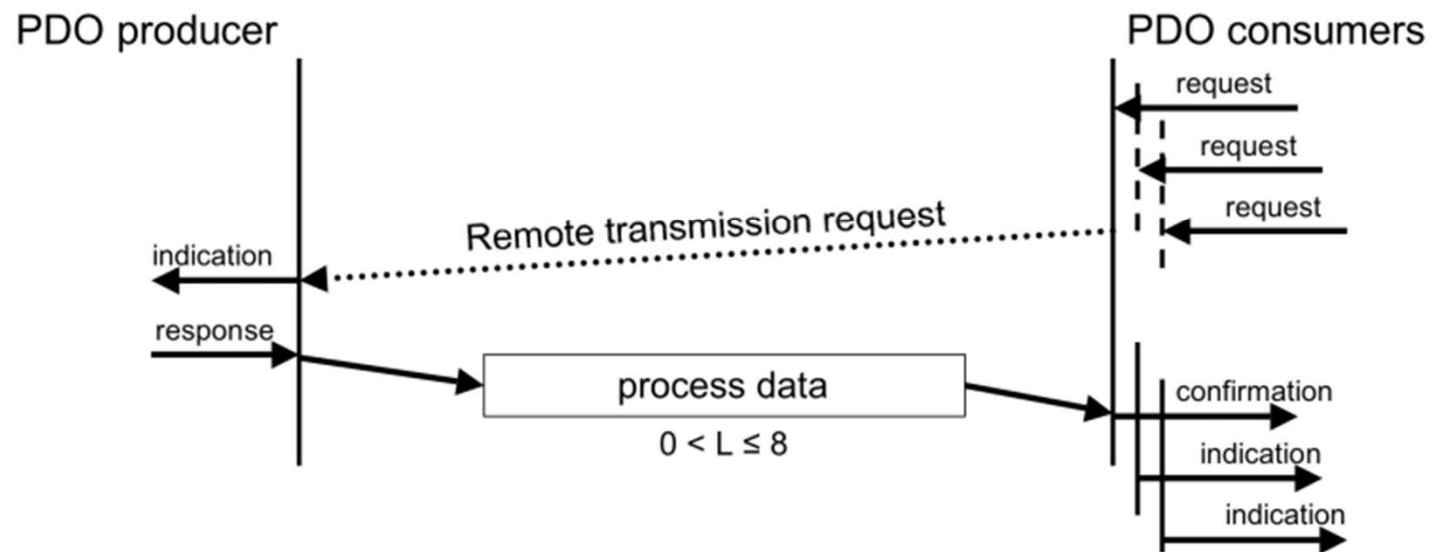
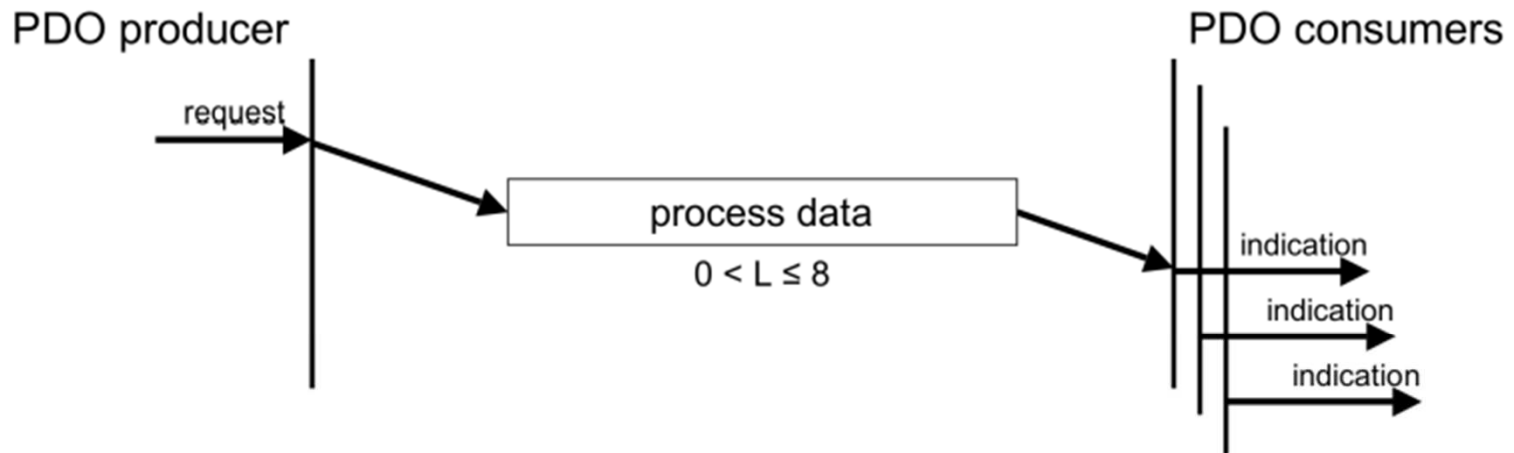
# Guarding



# PDO



# PDO

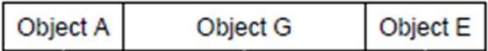


# TPDO

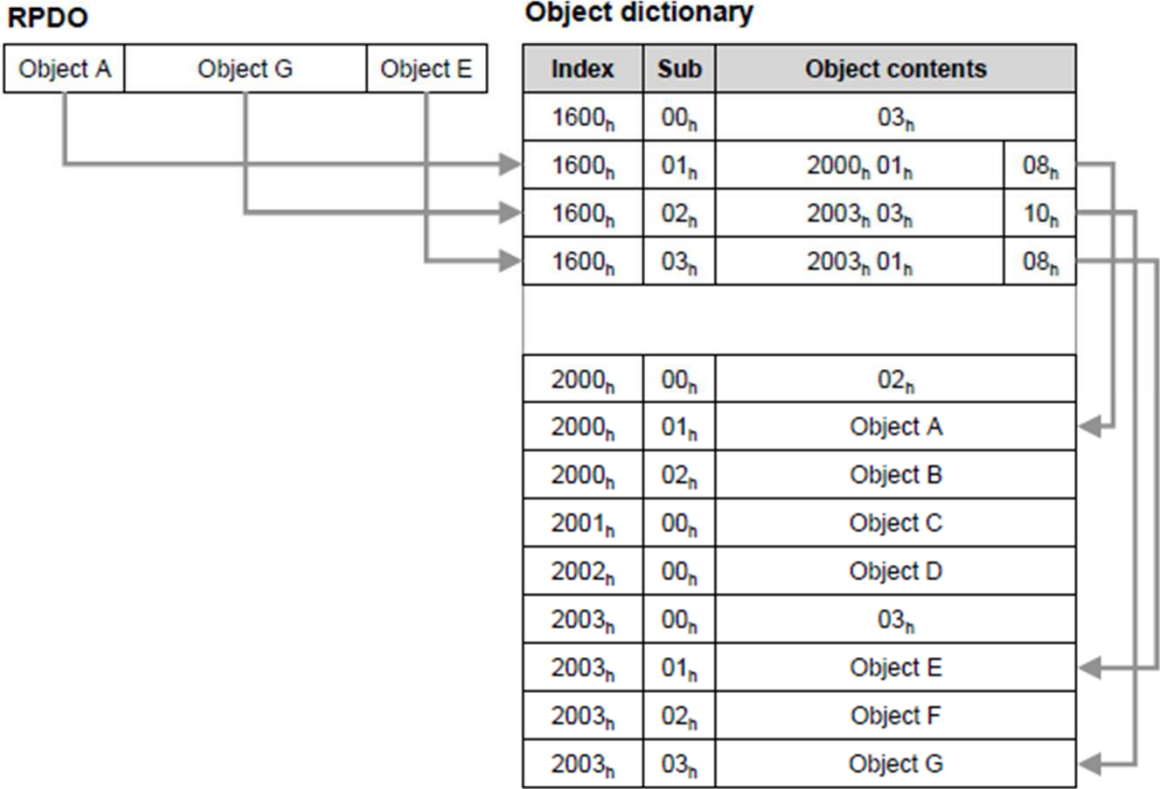
Object dictionary

Index	Sub	Object contents
1A00 <sub>n</sub>	00 <sub>n</sub>	03 <sub>n</sub>
1A00 <sub>n</sub>	01 <sub>n</sub>	2000 <sub>n</sub> 01 <sub>n</sub>   08 <sub>n</sub>
1A00 <sub>n</sub>	02 <sub>n</sub>	2003 <sub>n</sub> 03 <sub>n</sub>   10 <sub>n</sub>
1A00 <sub>n</sub>	03 <sub>n</sub>	2003 <sub>n</sub> 01 <sub>n</sub>   08 <sub>n</sub>
2000 <sub>n</sub>	00 <sub>n</sub>	02 <sub>n</sub>
2000 <sub>n</sub>	01 <sub>n</sub>	Object A
2000 <sub>n</sub>	02 <sub>n</sub>	Object B
2001 <sub>n</sub>	00 <sub>n</sub>	Object C
2002 <sub>n</sub>	00 <sub>n</sub>	Object D
2003 <sub>n</sub>	00 <sub>n</sub>	03 <sub>n</sub>
2003 <sub>n</sub>	01 <sub>n</sub>	Object E
2003 <sub>n</sub>	02 <sub>n</sub>	Object F
2003 <sub>n</sub>	03 <sub>n</sub>	Object G

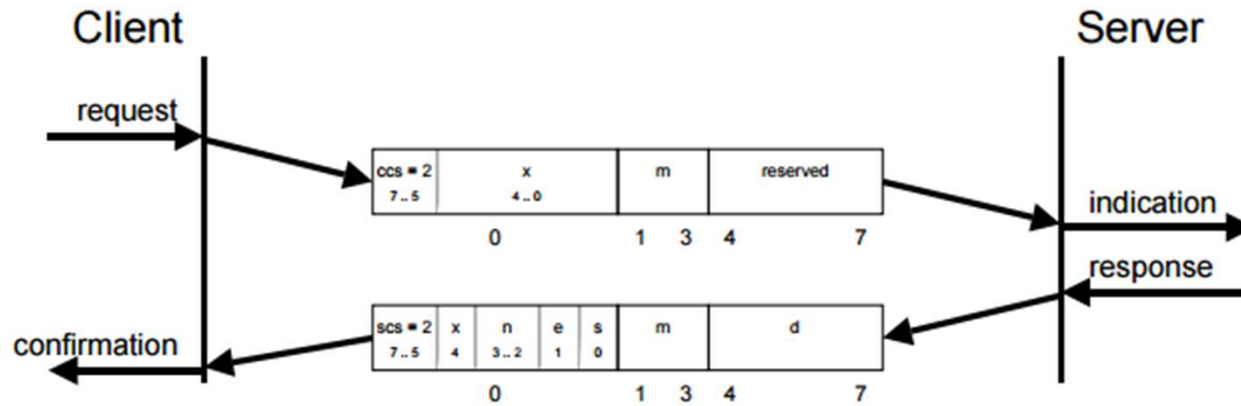
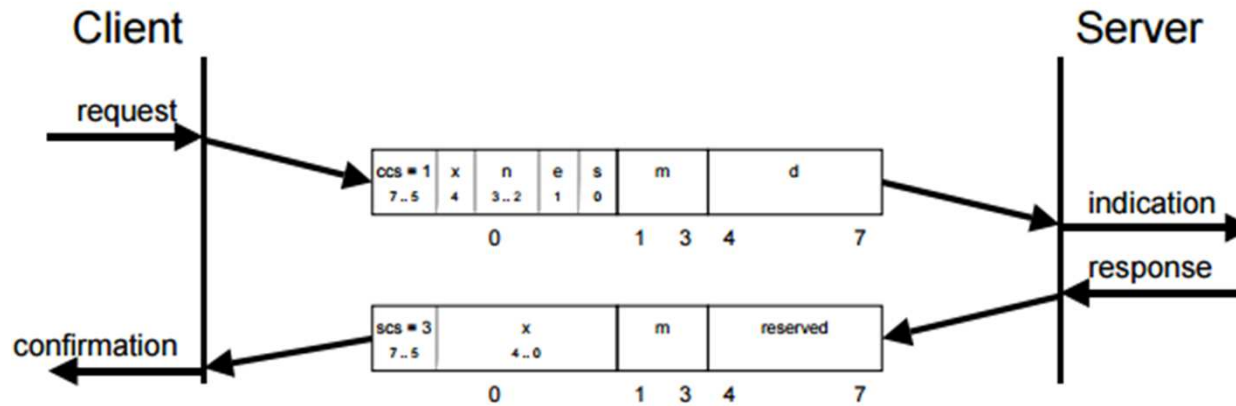
TPDO



# RPDO

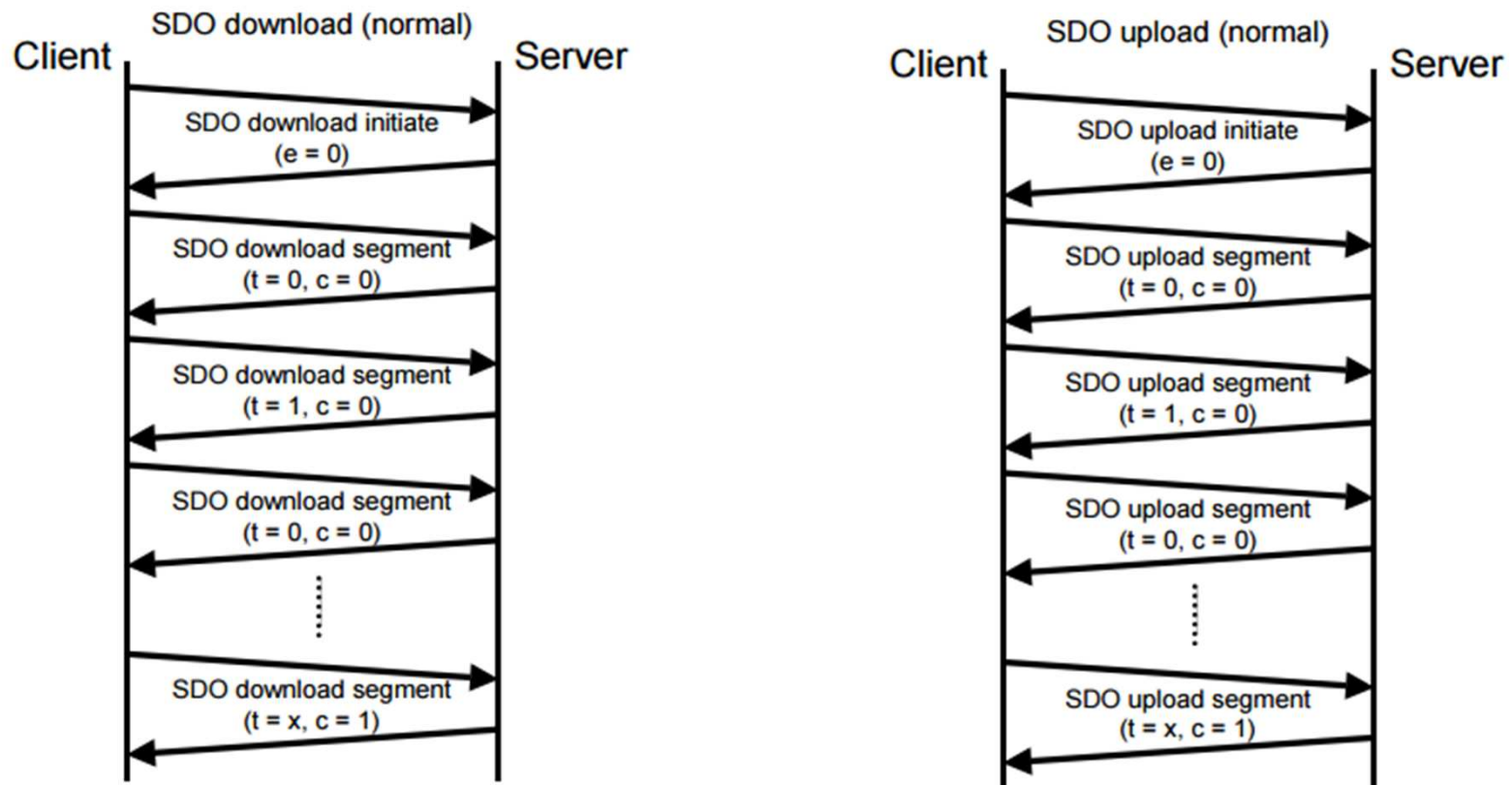


# SDO initiate

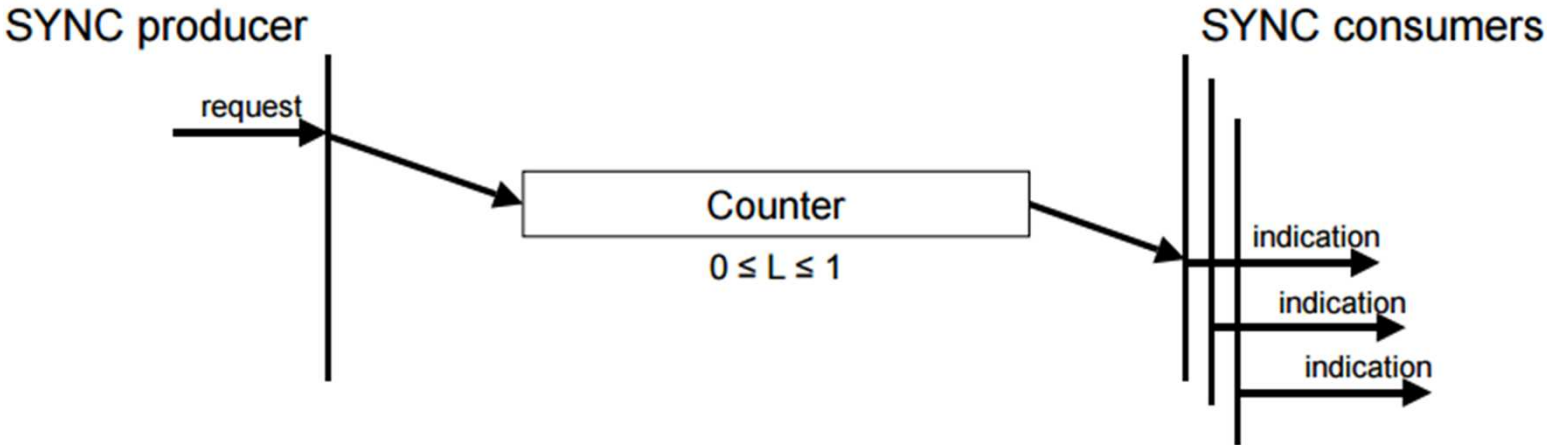




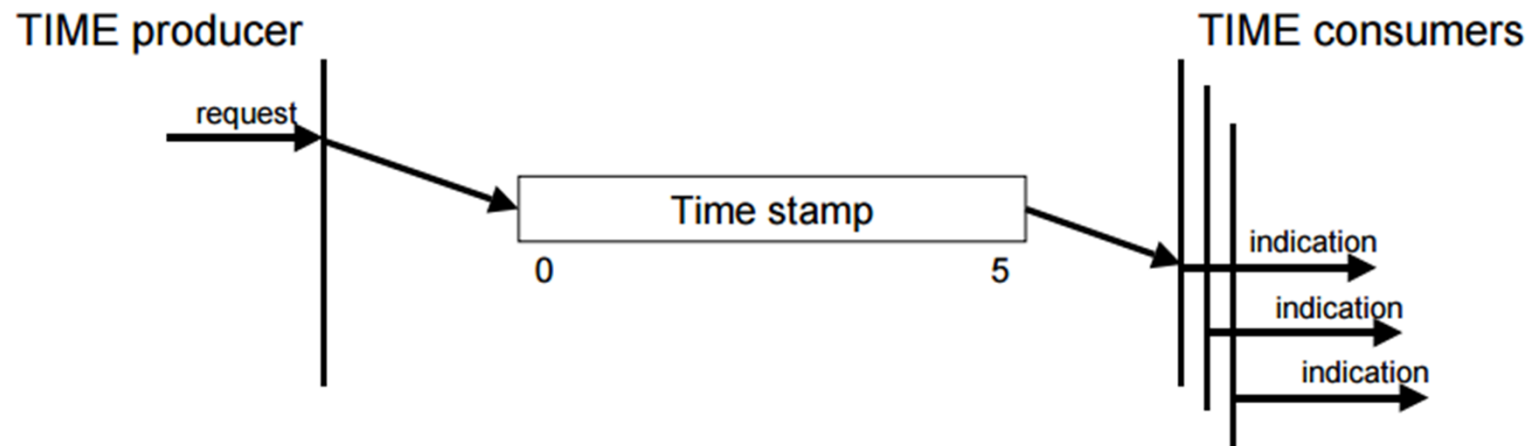
# SDO normal



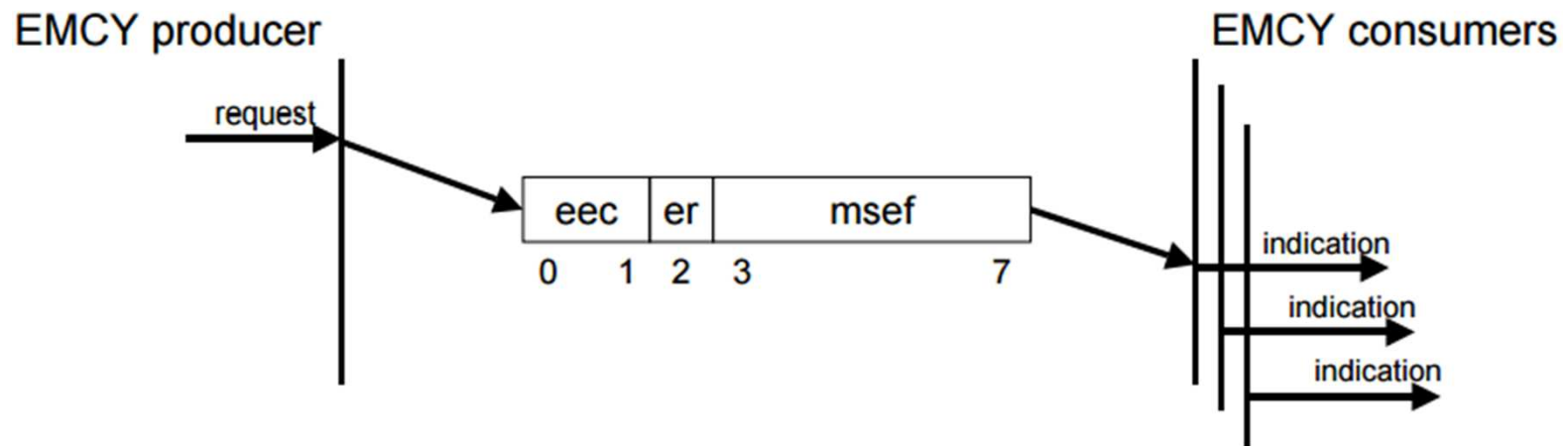
# SYNC



# TIME



# EMCY



# THANK YOU

