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# Lokální síť (04)

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katedra počítačů

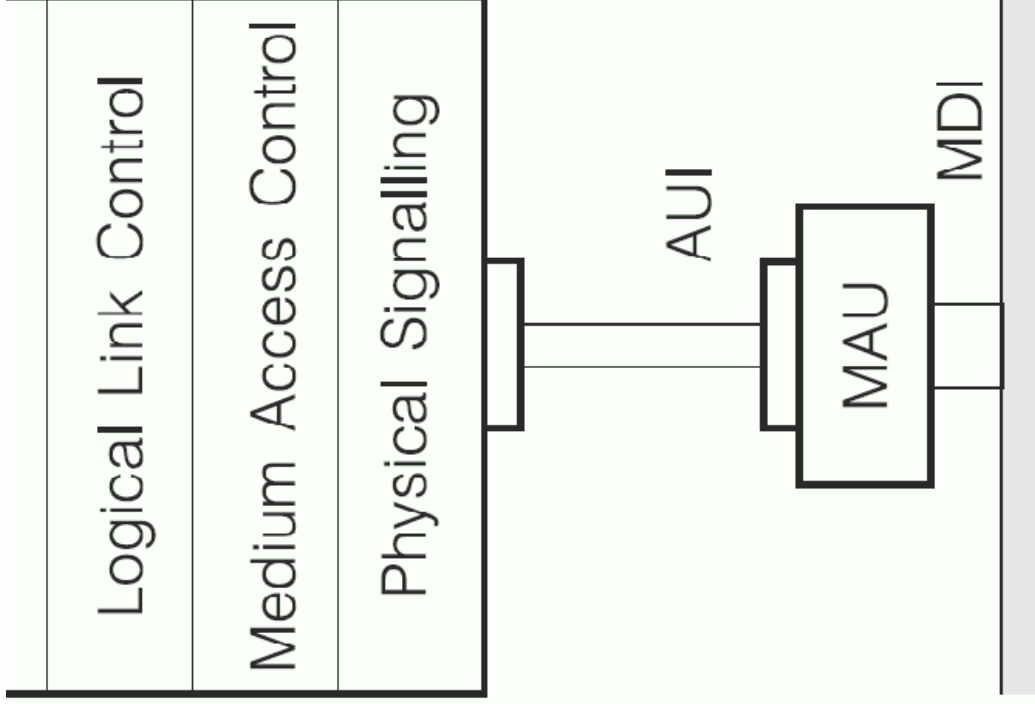
České vysoké učení technické v Praze

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# Ethernet technologies

- Standard (10BASE-x) technologies
  - 10BASE-5, 10BASE-2
  - 10BASE-T, 10BASE-FL, 10BASE-FB, 10BASE-FP
- Fast (100BASE-x) technologies
  - 100BASE-Tx/Fx
  - 100BASE-T4, 100BASE-T2
- Gigabit (1000BASE-x) technologies
  - 1000BASE-SX, 1000BASE-LX
  - 1000BASE-CX, 1000BASE-TX
- 10 Gigabit (10GBASE-x) technologies
  - 10GBASE-SR/ER, 10GBASE-LR/ER
  - 10GBASE-LX4, 10GBASE-ER/ER
  - 10GBASE-CX4

# 100BASE-?



10BASE-? → AUI – Attachement Unit Interface

100BASE-?    AUI → MII

- MII – Media Independent Interface
  - 4x 25MHz
- RMII – Reduced Media Independent Interface
  - 2x 50MHz



# IEEE 802.3 100BASE-FX

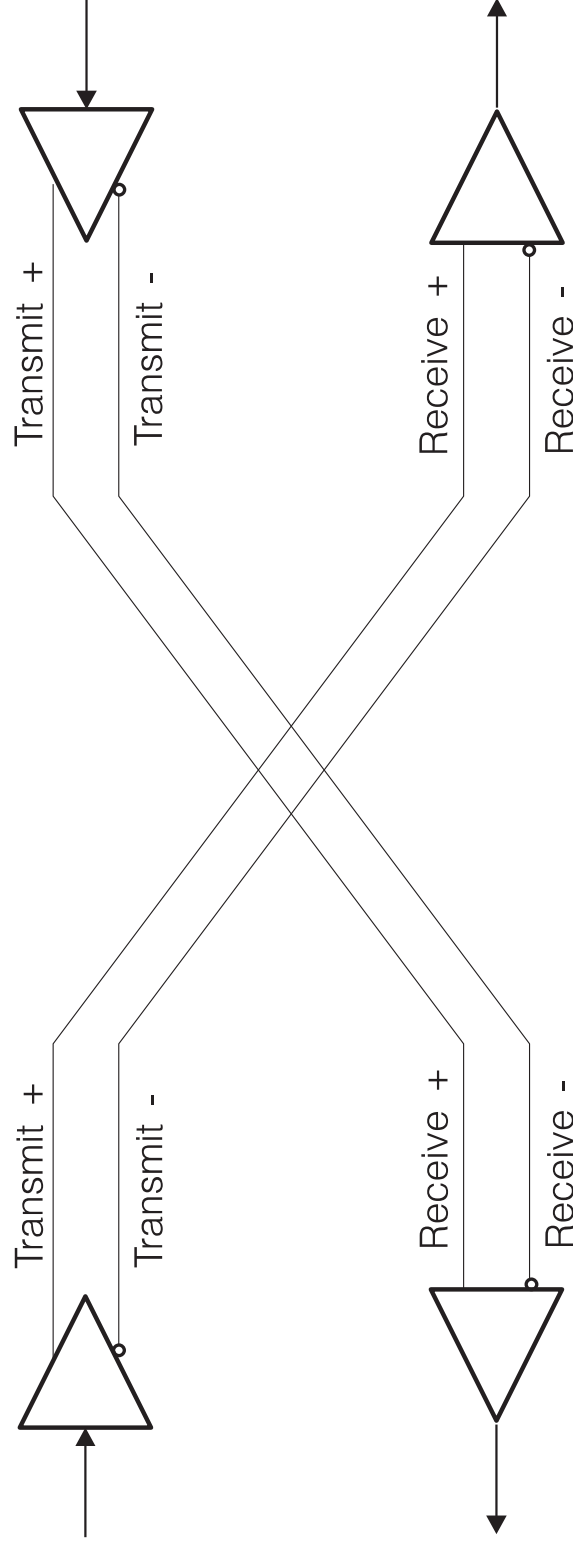
- médium: optika (multi/single mode), 1300nm
- délky:
  - HalfDuplex: 400m
  - FullDuplex: multimode – 2km, singlemode – 10km
- kódování: 4B5B, NRZI

# 100BASE-? – 4B5B

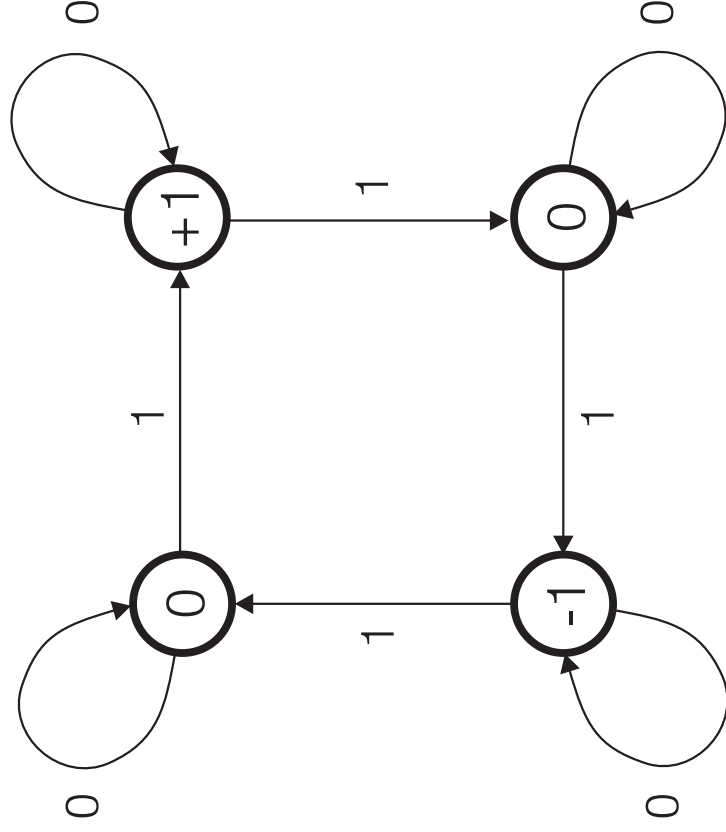
- překódování 4b do 5b
  - lepší účinnost než Manchester
  - synchronizace
    - v 5b alespoň 2x 1 (v NRZI 1=přechod)
    - maximálně 3x 0 za sebou

4B	5B	4B	5B	4B	5B	4B	5B
0000	11110	0110	01110	1100	11010	Strt#1	11000
0001	01001	0111	01111	1101	11011	Strt#2	10001
0010	10100	1000	10010	1110	11100	End	01101
0011	10101	1001	10011	1111	11101	Reset	00111
0100	01010	1010	10110	Quiet	00000	Set	11001
0101	01011	1011	10111	Idle	11111	Halt	00100

# 100BASE-Tx Cabling

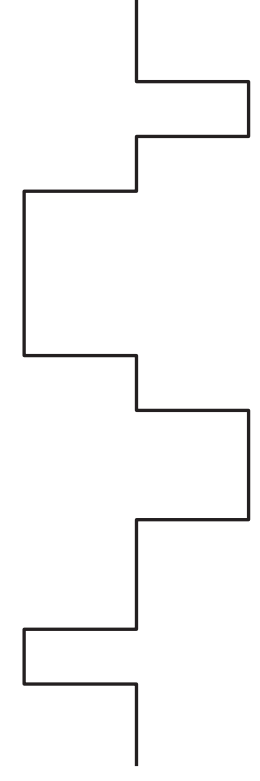


# 100BASE-Tx Encoding

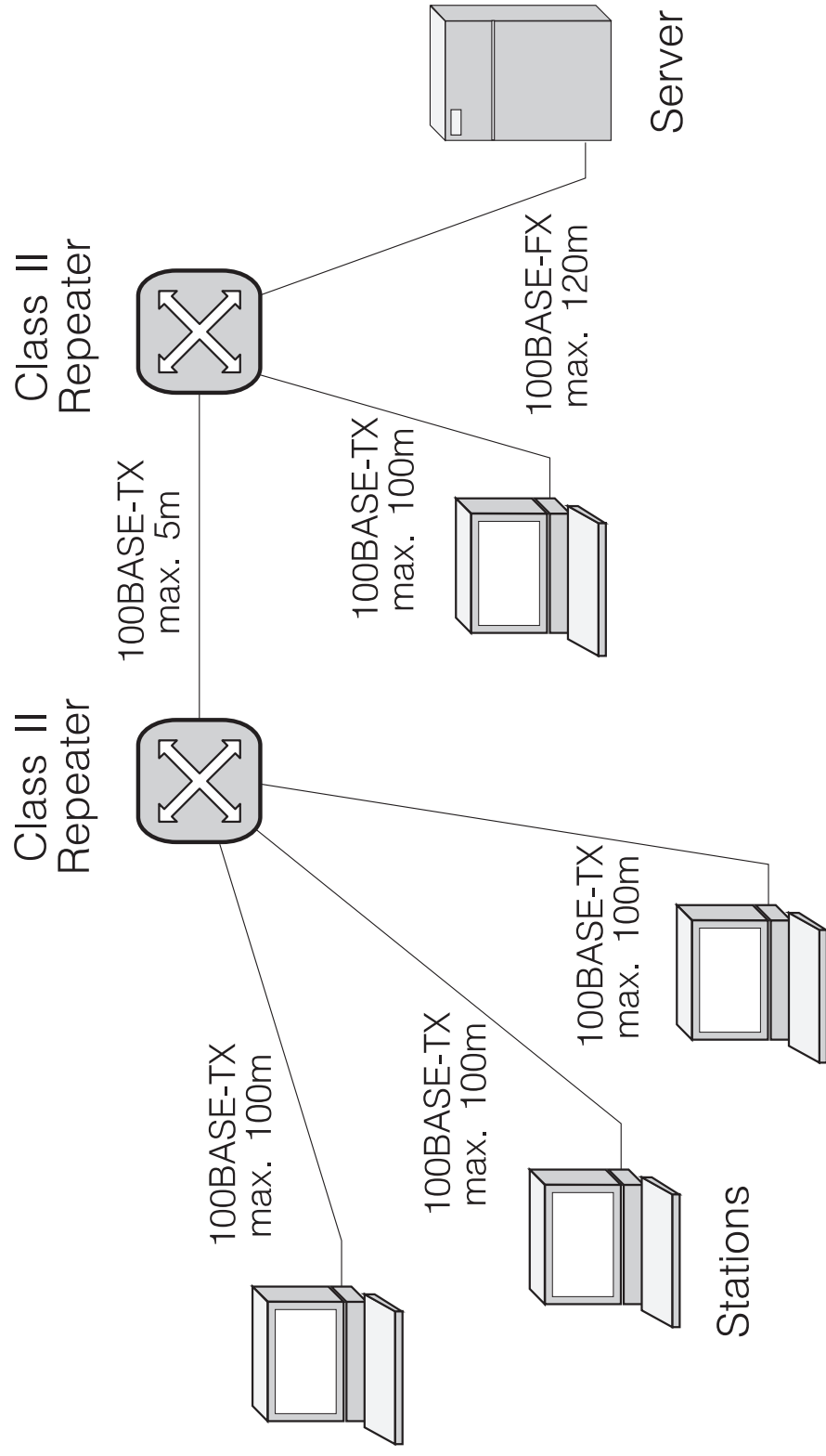


0 1 1 0 1 0 1 1 1 0 0 1 1 1 0

+1  
0  
-1



# 100BASE-Tx Repeater





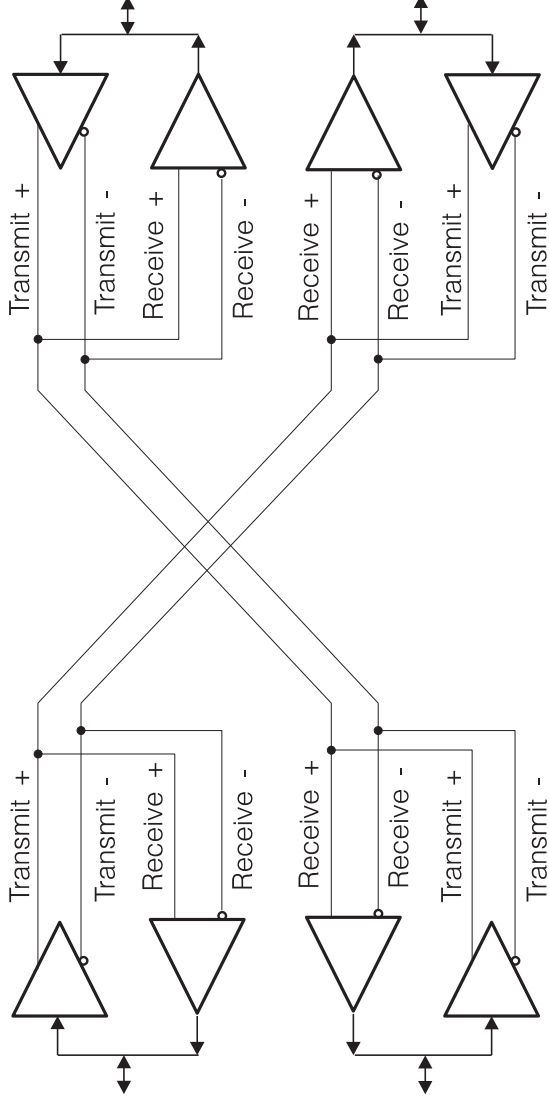
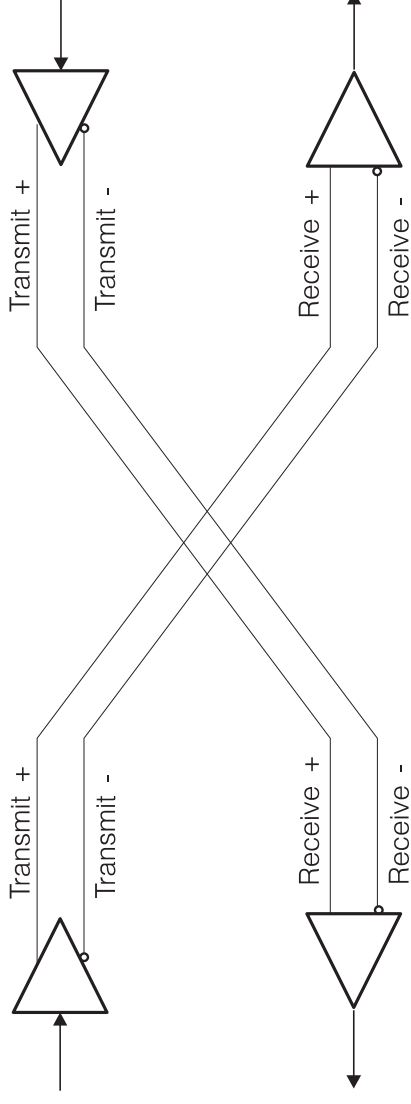
# IEEE 802.3 100BASE-T4

- médium: UTP (min cat. 3), použity 4 páry ze 4
- délky:
  - 100m
- kódování: 8B6T, PAM-3

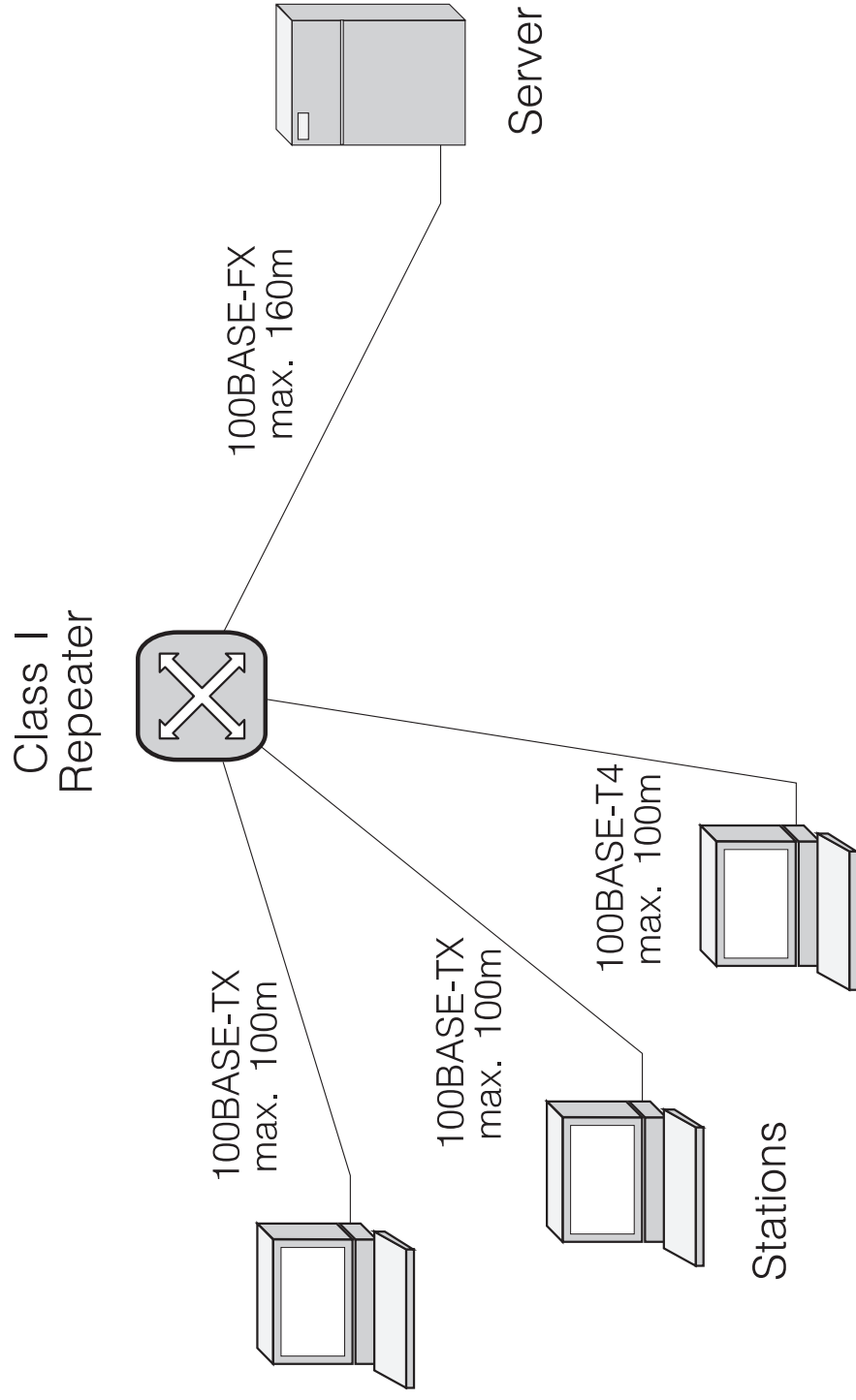
4B	3T	4B	3T	4B	3T	4B	3T
0000	+ 0 +	0101	0 + +	1010	+ + -	1110	0 + -
0000	0 - 0	0110	- + +	0101	- 0 0	1111	+ + 0
0001	0 - +	0110	- - +	1011	+ 0 -	1111	0 0 -
0010	+ - 0	0111	- 0 +	1100	+ + +	1010	+ - -
0011	0 0 +	1000	+ 0 0	1100	- + -		
0011	- - 0	1000	0 - -	1101	0 + 0		
0100	- + 0	1001	+ - +	1101	- 0 -		



# 100BASE-T4 Cabling



# 100BASE-Tx/T4 Repeater





# IEEE 802.3 100BASE-T2

- médium: UTP (min cat. 3), použity 2 páry ze 4
- délky:
  - 100m
- kódování: 4B2P, PAM-5

# 100BASE-T2 Encoding

