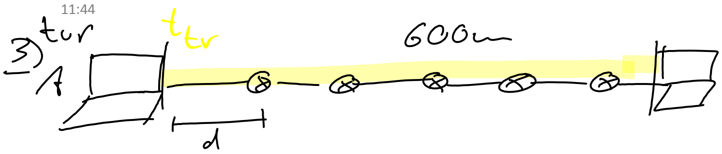
GGÜ 2

Montag, 15. November 2010
11:44

3) t_{vr} t_{tr}

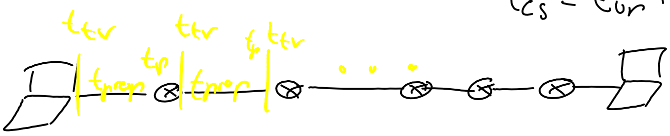


13 Circuit Switched

$t_{tr} = \frac{L}{R}$ $\quad t_{pr} = \frac{\text{distance}}{c}$

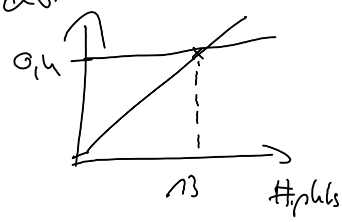
$t_{cs} = t_{vr} + t_{tr} + \frac{6d}{c}$

$t_{cs} = t_{vr} + \frac{L}{R} + \frac{6d}{c}$



$t_{ps} = 6\,t_{tr} + 6\,t_{prop} + 5\,t_p = 6\left(\frac{d}{c} + \frac{L}{R}\right) + 5\,t_p$

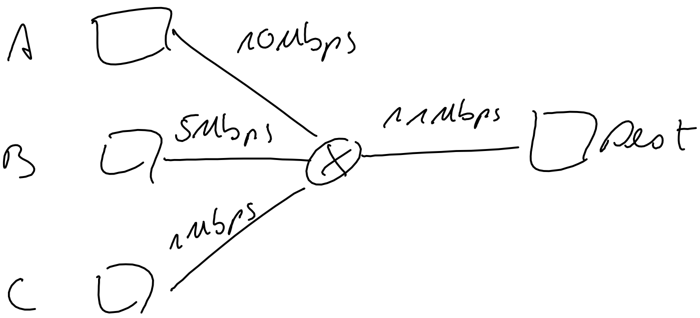
durchla



x packets

$y = \left(\frac{L}{R} + \frac{6d}{c}\right)x + t_{vp}$ Circuit switched

$y = \left(\frac{6d}{c} + \frac{6L}{R} + 5t_p\right)x$ packet switched



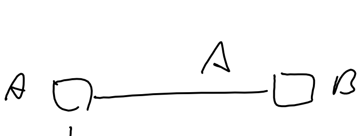
$\frac{10}{16}$ 11 Mbps

$\frac{5}{16}$ 11 Mbps

$\frac{1}{16}$ 11 Mbps

$\left.\begin{array}{l} A \to 10 \text{ Mbps} \\ C \to 1 \text{ " } \end{array}\right\}$ 11 Mbps

6



k packets

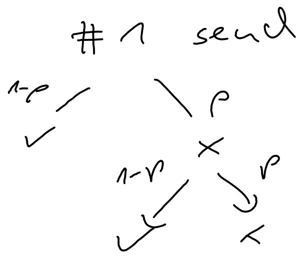
$p \to$ failure

$(1-p) \to$ success

$P_n = \binom{n}{k}(1-p)^n (p)^{k-n}$

#1 send

x	success after x sendings
1	$1-p$



x	# sendings
1	$1-p$
2	$p(1-p)$
3	$p^2(1-p)$
4	$p^3(1-p)$
⋮	⋮
n	$p^{n-1}(1-p)$

N discrete r.v.

$$\underbrace{P(\underline{N}=n)}_{pdf}=p^{n-1}(1-p)$$

r.v. x, pdf $P_x(x_i)$

$$E[x]=\sum_i x_i\,P(x_i)$$

$$E[N]=\sum_{n=1}^{\infty} n p^{n-1}(1-p)=\sum_{n=0}^{\infty} n p^{n-1}(1-p) \quad (1)$$

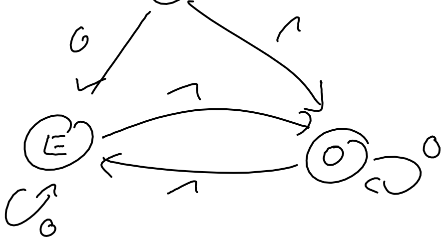
$$\left(\sum_{k=0}^{\infty} a r^k\right)'=\left(\frac{a}{1-r}\right)' \overset{(2)}{\Rightarrow} \sum_{k=0}^{\infty} a k r^{k-1}=\frac{a}{(1-r)^2}$$

$$\left.\begin{matrix}(1)\\(2)\end{matrix}\right\} \Rightarrow \quad \begin{matrix}(1-p)\to a\\ n\to k\\ p\to r\end{matrix}$$

$$(1) \Rightarrow \frac{1-p}{(1-p)^2}=\frac{1}{1-p}=E(n)$$

FSM

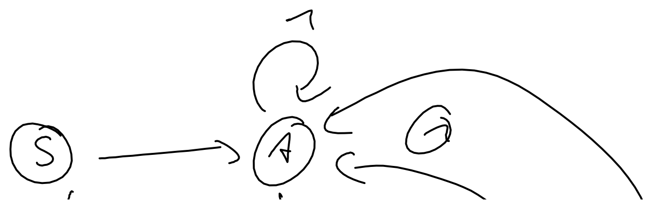
$I=\{0,1\}$



A → 0,5

B → 0,25

C → 0,25



0,5 0,25 0,25

0	10	11
1	00	01