

# MODELLI di PERFORMANCE

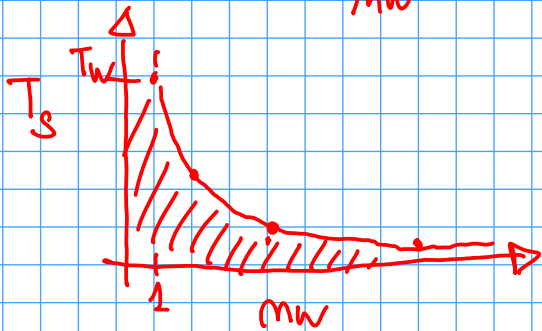
SKELETON/PATTERN

(ASTRATTO)  
N dipende dall'architettura

UPPER BOUND

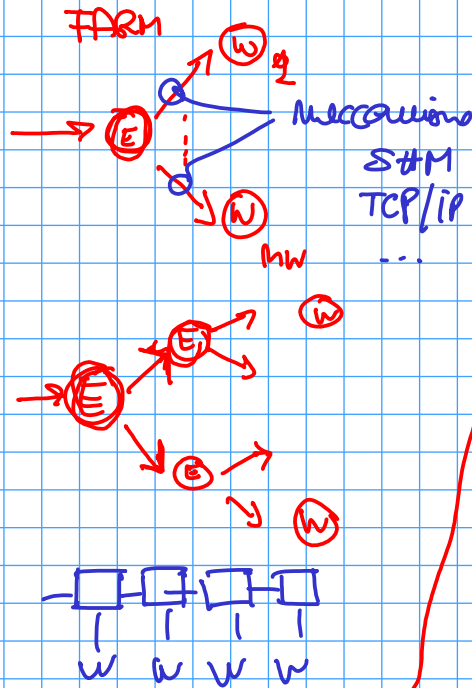
PIPE  $T_s = \max \{ t_{s_i} \}$

FARM  $T_s = \frac{T_w}{m_w}$



TEMPLATE

dipendano dall'architettura



modello delle Comunicazioni

$$T_{comm} = t_0 + dt_1$$

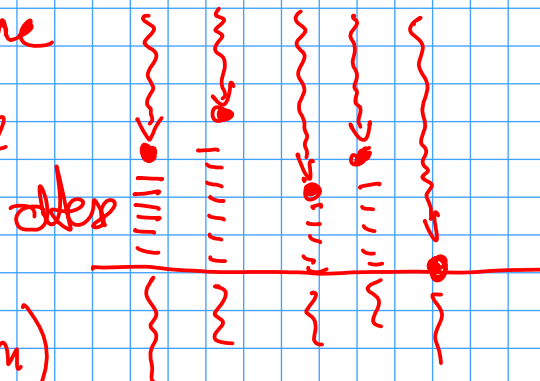
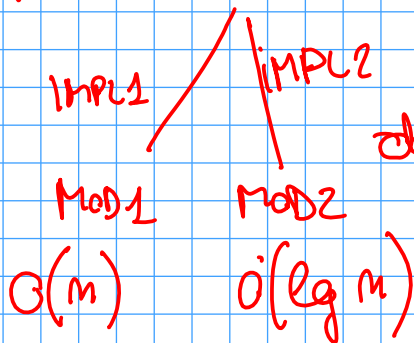
$t_0$  → tempo di setup  
 $dt_1$  → tempo di mediazione di 1 byte  
 $B$  → dimensione del messaggio  
 $= t_0 + \frac{d}{B}$

Myrinet in primiband $t_0 \approx 0$ (usec) $B \approx 51 \text{Gb}$	Ethernet 100Mb Gb $t_0 \approx 0(10)$ usec $B \approx 10010^{10} \text{Gb}$
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Simulazioni

punto a punto

barriera



# MODELLI di PERFORMANCE (ACCURATEZZA)

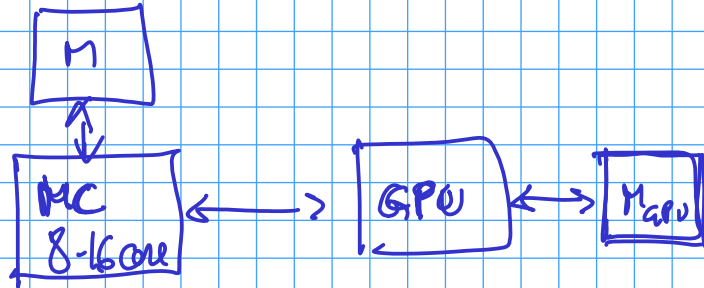
APPROSSIMATI

DETAILED

Meno  
parametri

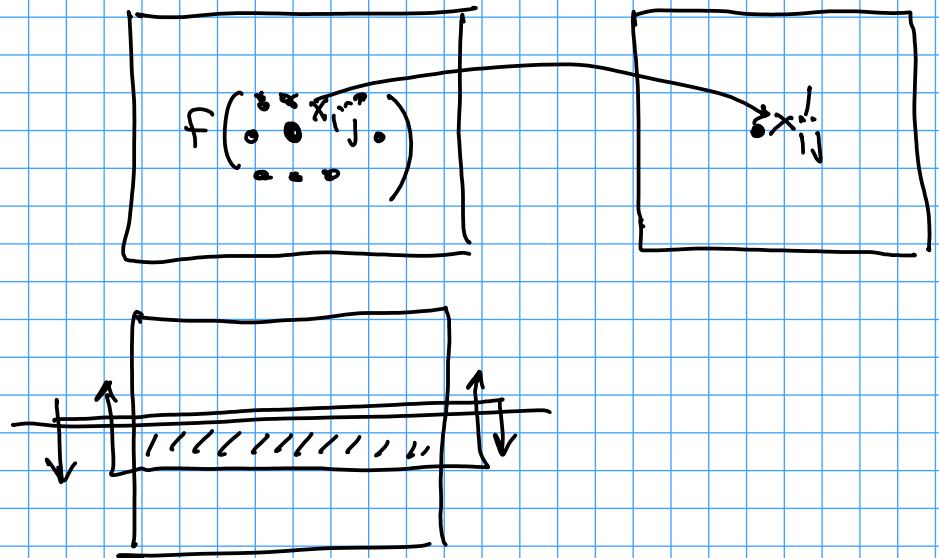
ordini di  
grandezza

altri  
parametri  
misura  
precisione



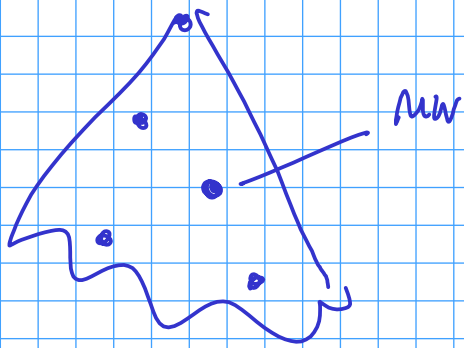
- 1)  $t_{com}(d)$  ←
- 2)  $t_{diversione\ kernel}$  ←
- 3)  $t_{com}(d')$  ←

## STENCIL

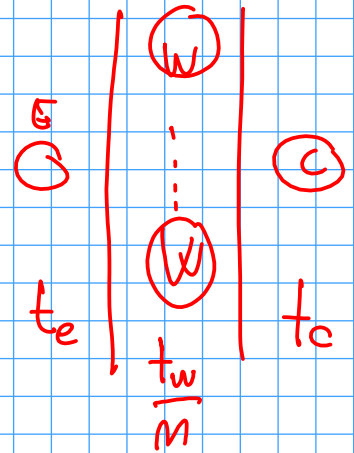


# USI MODELLI di PERFORMANCE

Tempo di compilazione dipende dall'hw



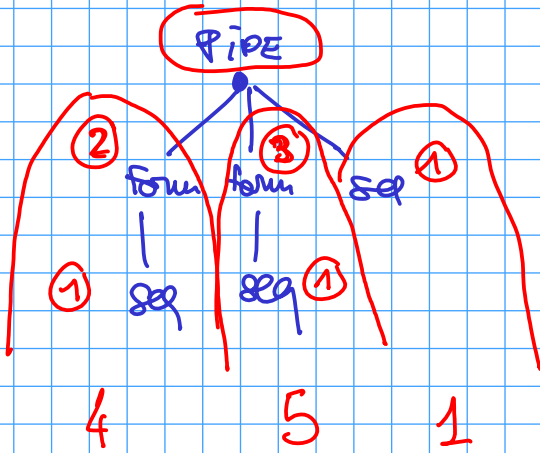
$$mw_{form} \approx \frac{tw}{te}$$



$$\max\{te, \frac{tw}{m}, tc\}$$

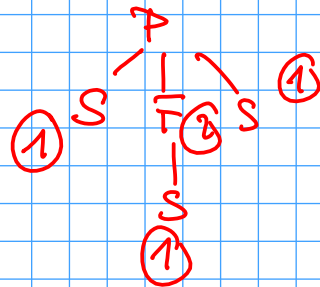
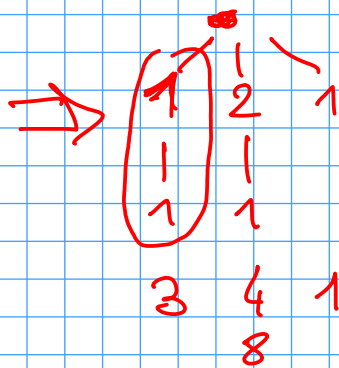
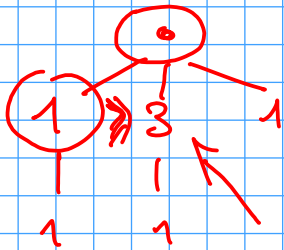
$$te \approx tc$$

$$\max\{te, \frac{tw}{mw}\}$$



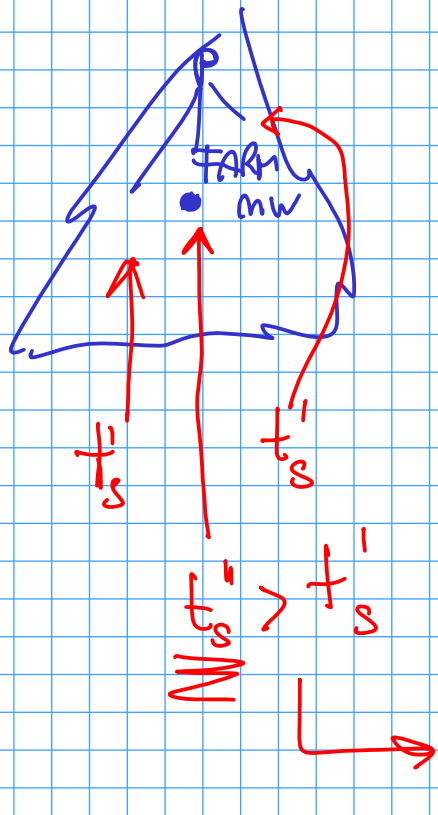
$$\Sigma = 10 \text{ risorse}$$

$$mw \cdot te = \frac{tw}{mw \cdot te}$$



6 risorse

# USO RUN TIME (dei modelli)



1) valutazione del modello

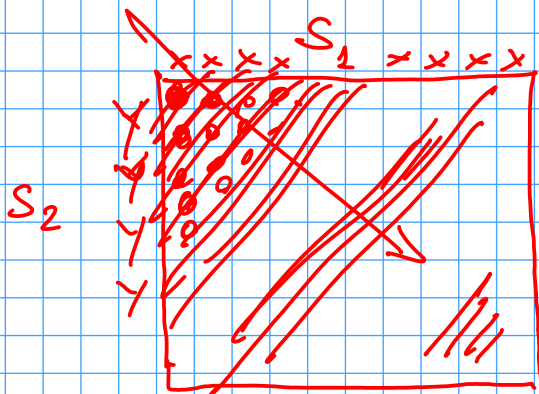
$$P' = \dots$$

2) misura della performance

$$P'' =$$

$$P' \neq P''$$

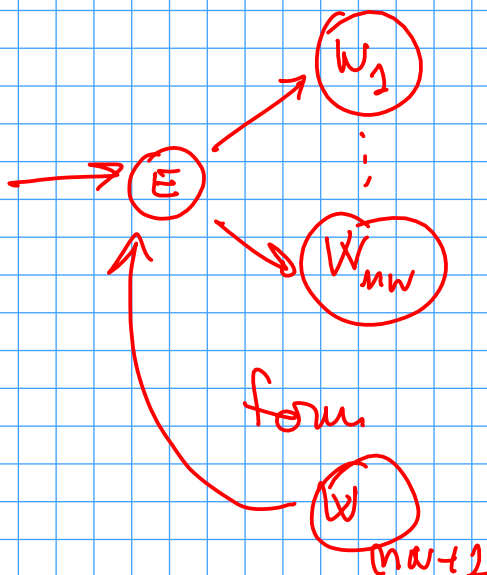
**ADATTIVO**



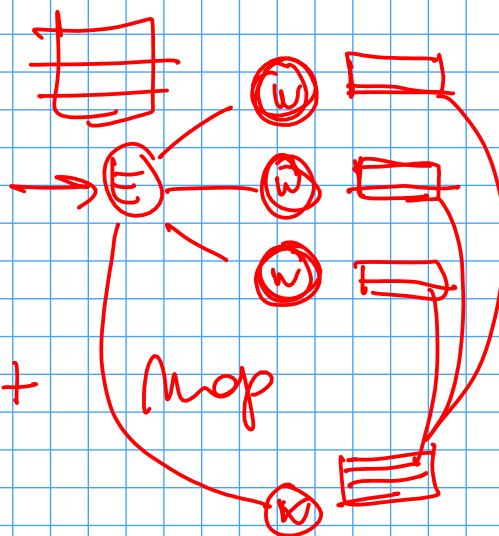
1) modelli efficienti

2) monitoraggio efficiente

3) Meccanismi x lo sviluppo del graf delle attività cercate e runtime



MW++



# uso POST MORTEM (dei modelli)

- 1) modelli affidabili
- 2) monitoraggio affidabile

dopo la terminazione dell'applicazione

Potenza vs. Precisione

e ne sono diversi

→ uso il modello + aggiungere  
contribuzione all'utente

