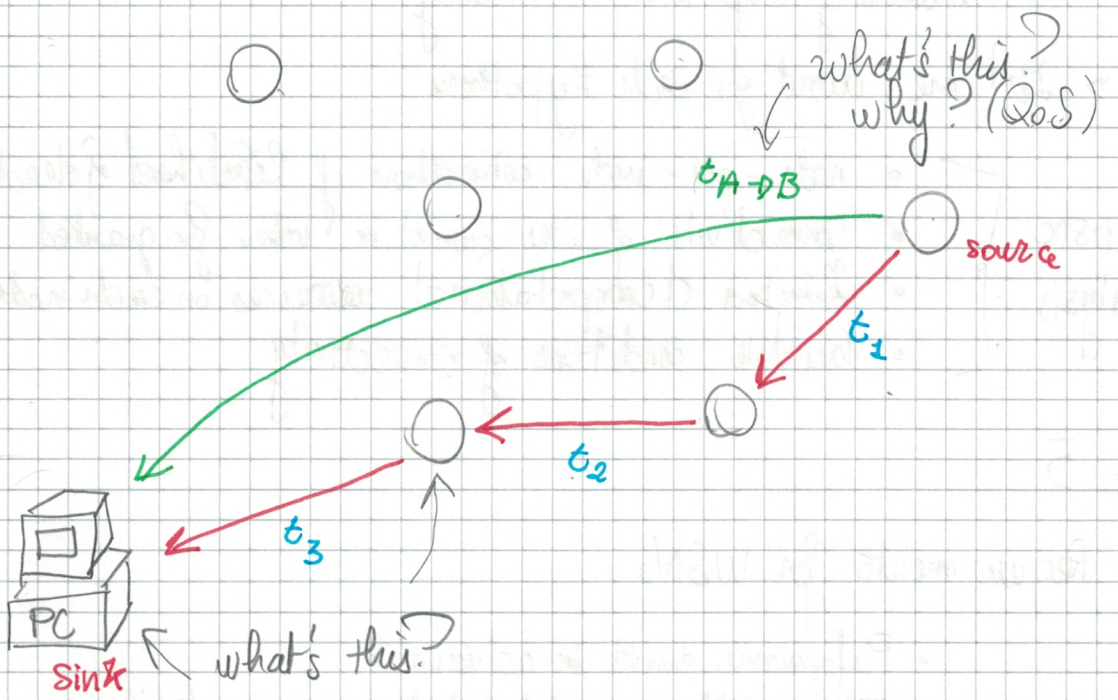
Slide 1



Slide 2

- Text
  - timeliness? → guarantees longer than interval, level of CONFIDENCE
  - why it doesn't fit our purpose
    - energy - area
    - overshoot

Slide 3

- RELATED WORK → few words about real proposal → different notions of timeliness (NOT TOO MANY DETAILS)
- one word about the generalized notion

Slide 4 "The fun part starts"

- goal: End 2 End Latency
  instead of hop-to-hop latency
- list one word for each hypothesis

Statistic analysis:
- node-per-node estimation of likelihood of deadline meeting
- Connectivity of nodes cannot be taken for granted
- Limited computational resources on each node
- Variable conditions of connectivity

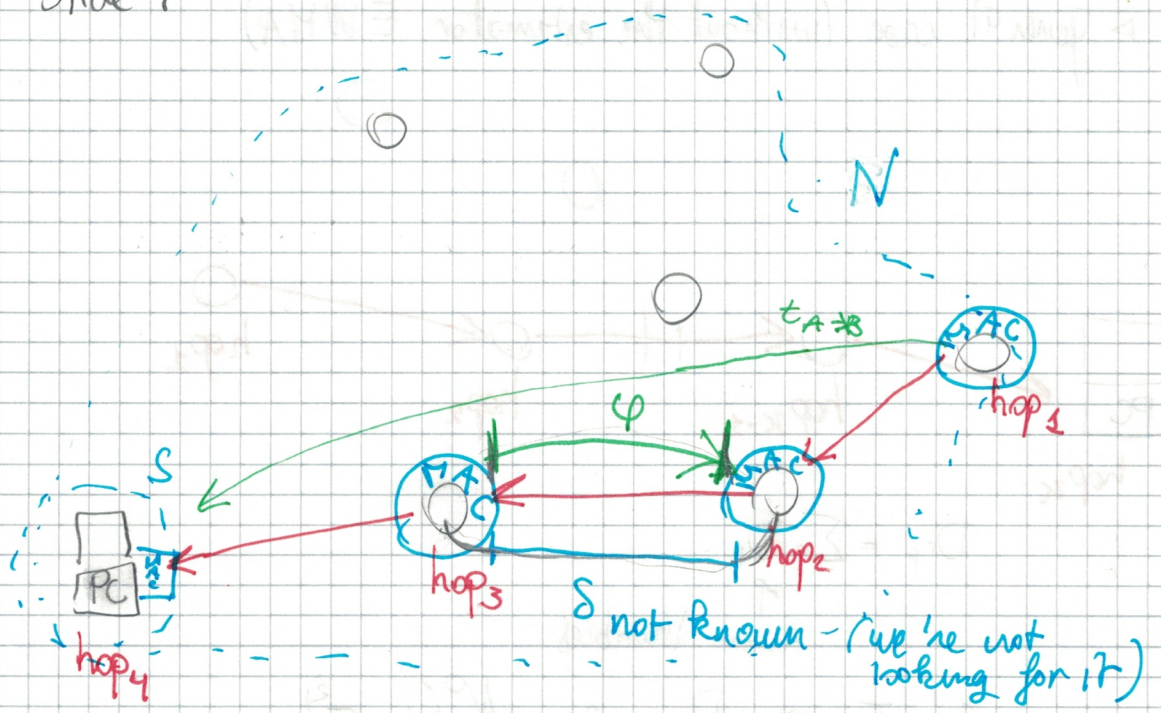
Slide 5

- Requirements for WSNs
  - Performance should be achievable
  - Explain why more detailed than success/failure (continuous function)
  - Deadlines with a confidence interval

Slide 6

- Definitions : What we do
  - applies to a sequence
  - has bounds (t_i, t_j) and $p \in [0,1]$ for confidence
  - E2E delay = $\mathbb{P}$ (the continuous function that makes up the proba above)
  - this generalizes timeliness (prof cf. p 425, § 1)

Slide 7



Sequence: $(hop_1, hop_2, hop_3, hop_4)$ = routing path

l_1 l_2 l_3

Embody info on finding times in the messages

Slide 8

▷ Case 1: simple

(hop_1, hop_2) with δ_{hop1}

$$D_{e2e} = \sum_{hop_i} \delta_{hop_i, hop_{i+1}}$$

↑

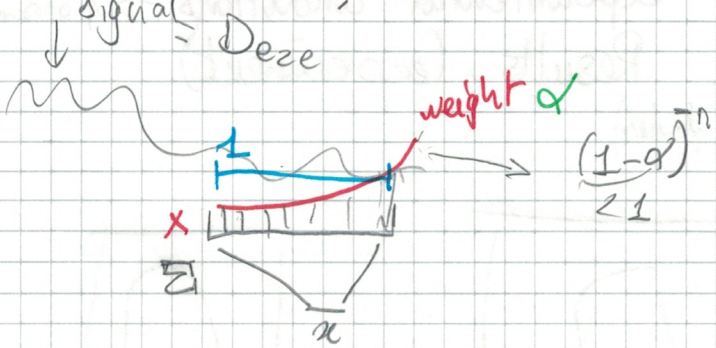
RV has μ, σ

Mean → $\bar{x}$, Variance → $\bar{s}$

estimator: EWMA

EWMA

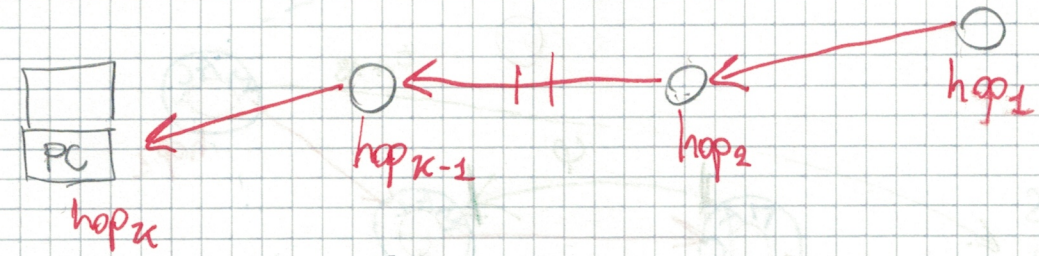
signal = D_{e2e}



$$+ \quad s_t^2 = \frac{t-1}{t} s_{t-1}^2 + \frac{1}{t-1} (s_t - x_t)^2$$

Slide 9

▷ General case (without the estimator EWMA)



$$D_{rp} = \sum D_h$$

↑ Random Variables

$$\underline{CLT} \Rightarrow D_{rp} \underset{K \to \infty}{\sim} \mathcal{N}(\mu, \sigma^2)$$

$\sum \bar{x}_h$ ← $\sum s_h^2$

got from the samples

which is to say:

$$\text{by CLT} \left(\begin{array}{l} \mu = \mu(\text{original distribution}) \\ \sigma^2 = \sigma^2(\text{original distribution}) \end{array} \right.$$

Slide 10 - Hypotheses permettant de vérifier le TCL

▷ $\sim$ Independence

▷ Identically distributed

Slide 10b expérimental conditions ⇒ parameters

Slide 11 Results (experiment)

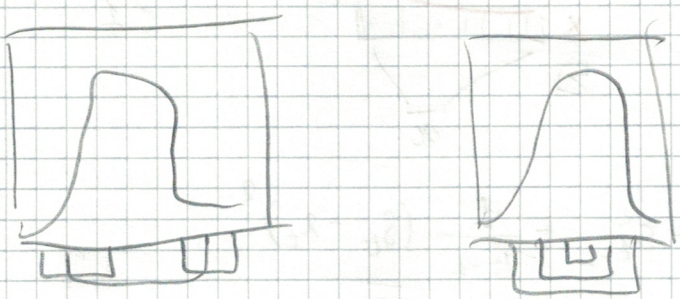
(maybe 2 slides)

1- intervals

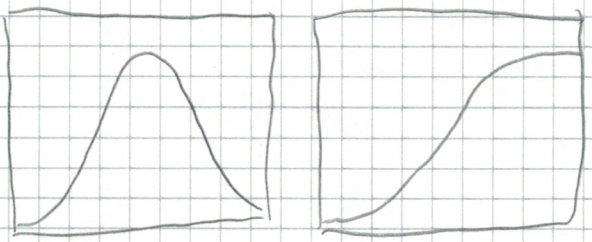
2- normalize data

3- normal distribution with heavy tail

4- the rest

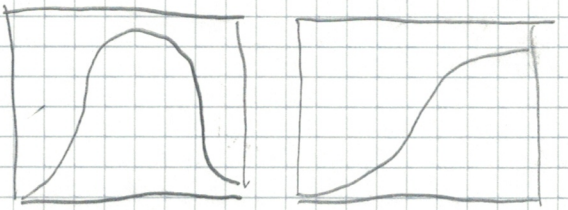


Slide 12



$|rp| = 5$

Slide 13 oral ↕ comparison



$|rp| = 10$

Slide ... Conclusions on Experiment

- Valid, but...
  - ↳ $|rp| = 10$ incurs higher collision proba
    - ⇒ higher delays (in averg)
    - ⇒ pink peak
  - ↳