

Web of Browsers Context

- Web Browsers are most available execution platform in the world
- They execute complex applications connecting humans and web services
- **Browser-to-browser connections allow writing serverless applications !**



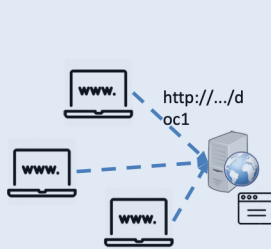
Web of Browsers Objectives

- Propose a serverless web, massively decentralized and ephemeral
- A URI no more reference an HTML page
- **A URI references a network of browsers hosting one or several HTML pages...**

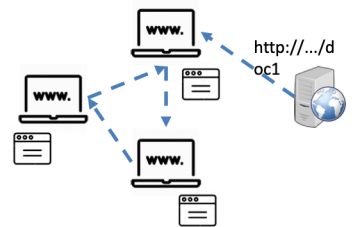


Web Of Browsers: Concepts

Web

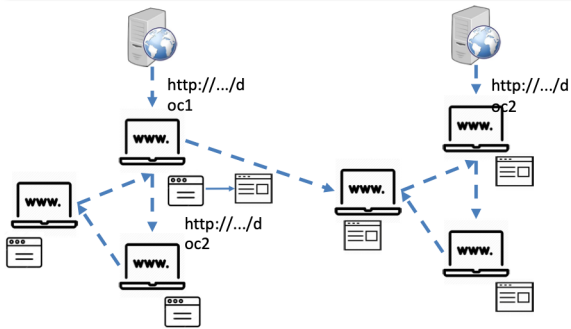


Web of Browsers



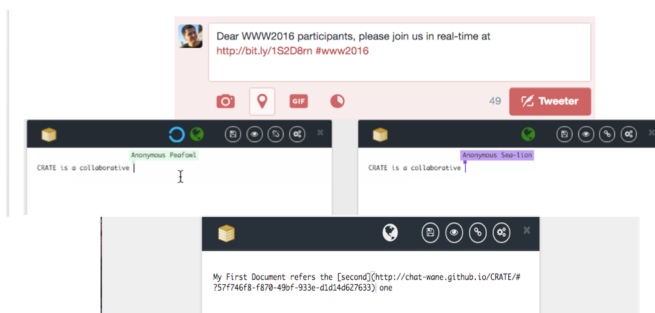
What we do, stays between us !

WOB: Concepts



A graph of pages = A graph of networks

WOB: URIs refers networks !



Properties and Use-cases

Properties

- It forgets by default
- Privacy friendly
- Support real time and high latencies
- Scale

Use-case

- Moco: Massive online course
 - Example Coursera 2013
- TV Shows
- Big Event...

Properties and Use-cases

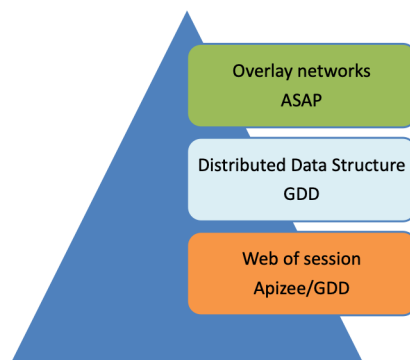
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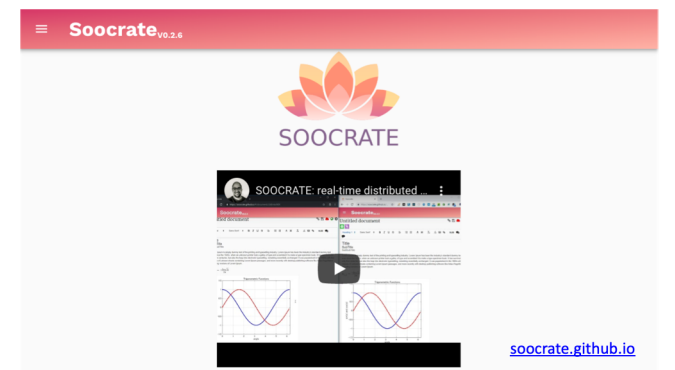
Use-case

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WOB Organization



WOB Results : soocrate.github.io



WOB Results : Scaling with causality

TABLE I: Space and time complexity of causal broadcast protocols. N is the number of processes. W is the number of received messages awaiting for delivery. P is the number of messages that are still unsafe to be purged. B is the size of a set of temporary buffers.

	dynamic	message overhead	local space consumption	delivery execution time
vector-based [7]	✓	$O(N)$	$O(N + W \cdot N)$	$O(W \cdot N)$
FIFO+forward [14]	✗	$O(1)$	$O(P + W)$	$O(1)$
this paper	✓	$O(1)$	$O(N + B + W)$	$O(1)$

WOB Result: Forget the past...

	message overhead	delivery execution time	local space consumption	# control messages per added link
vector-based R-broadcast	$O(1)$	$O(1)$	$O(N)$	0
vector-based C-broadcast	$O(N)$	$O(W \cdot N)$	$O(N + W \cdot N)$	0
PC-broadcast	$O(1)$	$O(1)$	$O(N)$	3 to $2 \cdot P ^2$
PRC-broadcast	$O(1)$	$O(Q_i)$	$O(Q_i \cdot M)$	6 to $4 \cdot P ^2$

Conclusions

- Web of browsers
 - A groundbreaking idea
 - Demonstrated feasibility and ease of use with soocrate.github.io
 - Pushed the limits with new fundamental results on causality
- Industrial sustainability still an issue.

