

— Sujet de Thèse —
Oblivious Distributed Storage

Title: Oblivious Distributed Storage
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Summary

Distributed storage is pervasive in our everyday life for, e.g., sharing contents, or simply for having our data available in several places or accessible via different devices. Traditionally, persistency is a fundamental requirement in traditional distributed applications: once the state of the system has changed, these changes are permanent unless overwritten. This also implies data persistency; once some data is stored in the system it should be always available. Current systems are efficient and able to handle (very) large amount of data and sometimes provided high level semantic.

Nevertheless, persistency is in some scenario no longer a desired feature. Indeed, a growing concern has been expressed regarding how well data-privacy is preserved. For instances, the European law recently acknowledges the right to be forgotten online [1]. Successful social networks, such as e.g. snapchat, attract users on the promise that shared content is accessible only for a short duration. Moreover, guaranteeing persistency while assuring strong consistency and data availability is a complex and expensive task and, may even be impossible in failure-prone networks [2].

The goal of this thesis is to explore the foundations of non-persistent storage, i.e., models, algorithmic solutions and lower bounds.

How to apply

The thesis may be funded for 3 years (which is the standard french duration for a thesis) by the ANR project Descartes, whose topic is Distributed Computing at large. Applications and inquiry should be sent to anr-descartes@diff.u-bordeaux.fr and travers@labri.fr. Applications must contain:

- a CV including marks and ranking at the Master diploma
- a motivation letter related to the thesis proposals

Applications may include also a recommendation letter which is not mandatory.

References

- [1] http://ec.europa.eu/justice/data-protection/files/factsheets/factsheet_data_protection_en.pdf.
- [2] Seth Gilbert and Nancy Lynch. Brewer's conjecture and the feasibility of consistent, available, partition-tolerant web services. *SIGACT News*, 33(2):51-59, June 2002.