SaTC: CORE: Small: Secure Cloud Storage Verification Methods

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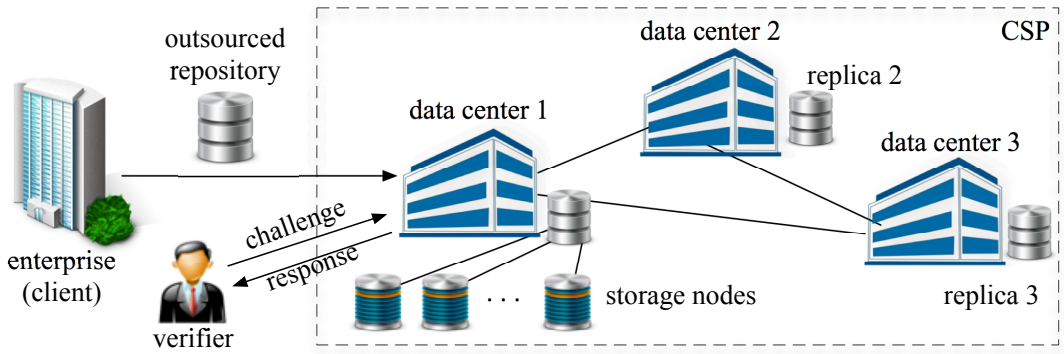
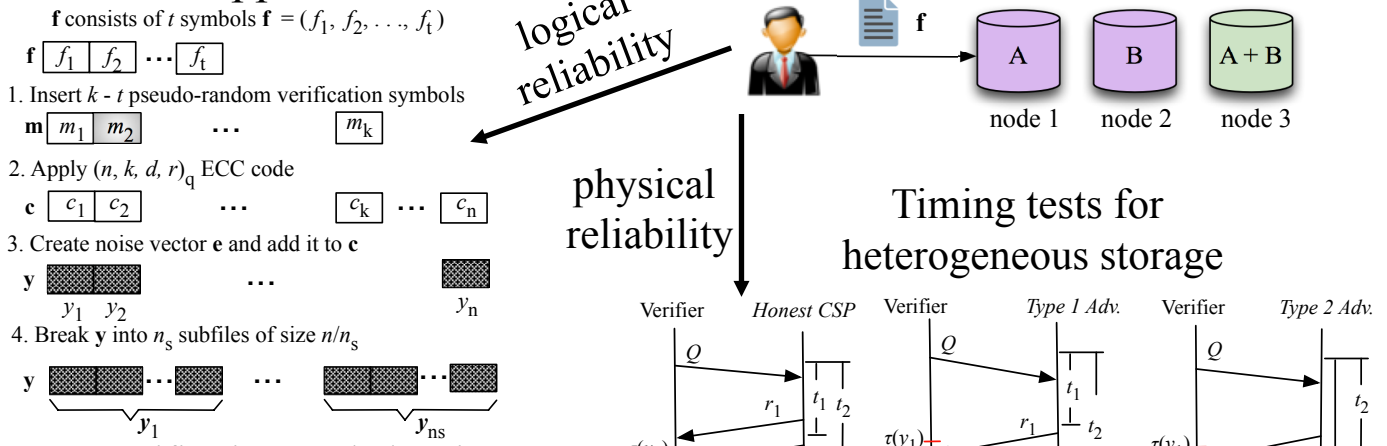
Verify the Integrity and Reliability of Cloud Storage

Logical verification (info symbols plus parities are stored)

Physical verification (symbols plus parities are distributed among storage nodes and geographic locations)



Technical Approach



Query verification symbols using PIR
Both parity and info symbols verified
Minimal overhead data maintenance

Scientific Impact

Simultaneous verification of storage integrity and efficient data maintenance

Provable security and privacy-preserving auditing, which can be outsourced to third parties

Future proof; methods applicable to heterogeneous storage technologies and varying network delay conditions

Integration of all types of reliable storage under the same framework

Broader Impact

The project addresses dire needs for accountability, privacy, security, and regulatory compliance for critical infrastructures such as storage

Currently funds in part two female Ph.D. candidates

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