TIC-TAC-SDN data management plan

Plan de gestion de données créé à l'aide de DMP OPIDoR

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Affiliation du créateur principal : Université de Lorraine

Modèle du PGD : Science Europe - DMP template (english)

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Résumé du projet :
Software Defined Networking (SDN) and Blockchain are two emerging paradigms in the Internet of Things (IoT). The former greatly simplifies network programmability, the latter provides powerful tamper-proof logging and auditing capabilities that help to solve problems facing distributed SDN (dSDN) such as trust and state consistency issues among SDN controllers. Today's literature has shown that blockchain technologies can introduce significant latency (>100sec), which is clearly inappropriate for time-critical applications. This may become all the more critical in IoT ecosystems in which hundreds to thousands of SDN controllers/apps need to cooperate/interact with one another. TIC-TAC-SDN is committed to study, design and validate a new blockchain consensus protocol that has the ability to self-adapt to find the best trade-off between reducing the system time convergence, without compromising its scalability and security, and without violating the application Service Level Agreements.

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Droits d'auteur

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1. Data description and collection or re-use of existing data

The methodology to collect data is twofold:

1. New data will be collected based on an experimental platform that is going to be set up during the project
2. Datasets from the literature might be used for benchmarking purposes

Herebelow are given some details about the data collected and processed during the project:

- **Data description:** Networking-related data will be mainly collected and processed (i.e., data related to network communications such as latencies, number of packets lost, throughput, etc.), meaning that no sensitive data (implying privacy issues) are going to be collected;
- **Data Format:** Such data will be collected and formatted in open and widely adopted data formats such as CSV or JSON;
- **Data Volume:** The volume of data that is going to be collected is in the order of Megabytes

2. Documentation and data quality

The data generated during the project will be published and documented using several online tools, including:

- **HAL:** by filling out all the requested Metadata (keywords, DOI, publication URL...)
- **ResearchGate:** by filling out all the requested Metadata (keywords, DOI, publication URL...)
- **ORCID:** by filling out all the requested Metadata (keywords, DOI, publication URL...)
- **my personal website** on which will be hosted my ANR project.

Furthermore, software development will be published in open access on **GitHub**.

Data quality will be measured and controlled based on a two-fold approach:

- a statistical (design of experiment) approach will be applied during the data collection/filtering process in order to make sure that the collected data is of quality to work with;
- peer review of data will naturally be carried out when publishing scientific articles.

3. Storage and backup during the research process

Data will be stored and backup on a Cloud of University of Lorraine in addition of the local laptops of the project members.

The collected data is not sensitive and does not require any additional protection mechanisms than the one provided by the Cloud of University of Lorraine (requiring the use of Universities' accounts: id/password)

4. Legal and ethical requirements, codes of conduct

No personal data are processed.

The owner of the data is going to be CRAN and University of Lorraine.
Data will be openly accessible via HAL, ResearchGate, GitHub and my personal website.
An Open Licence, namely **Licence publique générale limitée GNU,** will be specified in the source code.

The collected data will be kept on the Cloud of University of Lorraine (requiring the use of Universities' accounts: id/password) and my personal website

5. Data sharing and long-term preservation

Data will be shared on a regular basis based on scientific channels such as HAL, ResearchGate, etc.
Datasets published will mainly target developer and researcher communities.

Data will be stored on HAL and GitHub-like platforms, which should guarantee long-term storage of the project data.

All the software tools and libraries needed to access and re-use project-related datasets will be detailed and explained on my GitHub account.

All scientific articles will benefit from a uniquer and persistent identifier (DOI) which will be referenced in my communication material.

6. Data management responsibilities and resources

The principal investigator Sylvain Kubler is responsible for data management.

A dedicated budget has been planned in the project proposal in order to pay for publishing scientific articles in open access and create a kind of animation video to promote the project goal and expected outcomes