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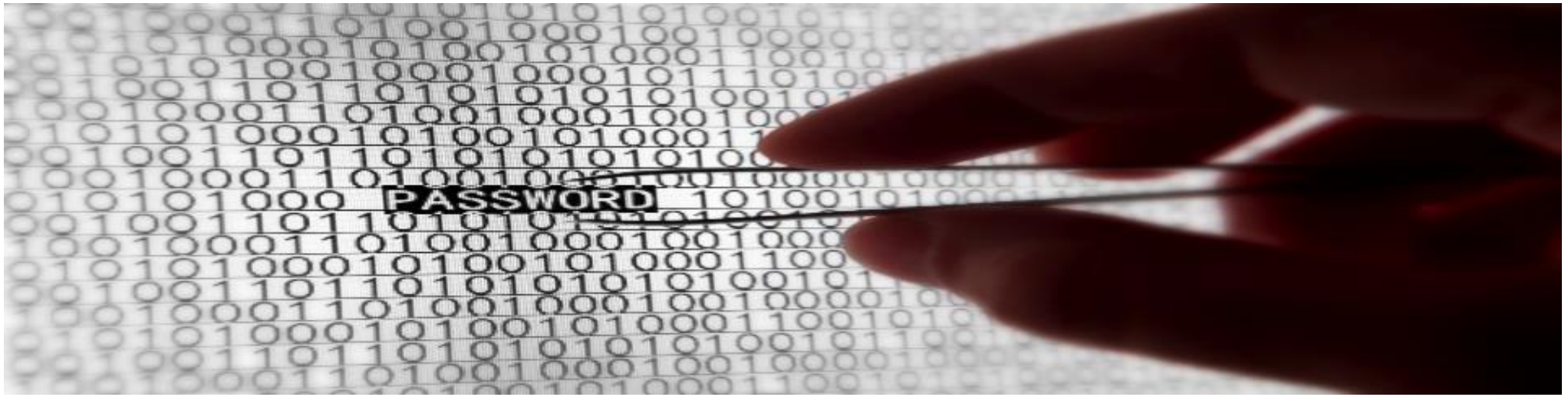

WSIS Workshop: Blockchain and the GDPR

Encryption usually only renders personal data pseudonymous. Are there situations where encrypted data can be considered to be anonymous?

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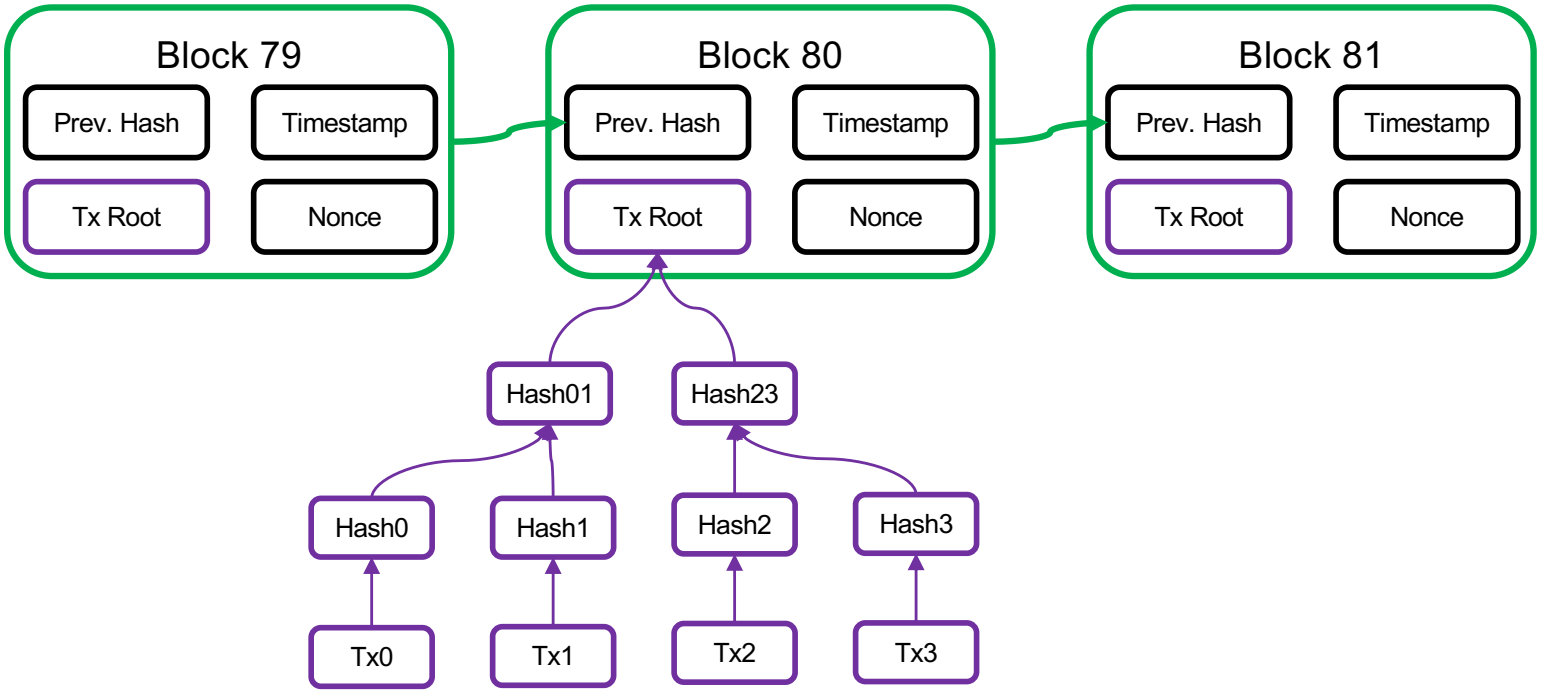
Blockchain basics – Chain of Blocks

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GDPR – Data Subject Rights as main issue

Data Subjects rights of GDPR (art. 12 ssq GDPR):

- the right to be informed about the collection and the use of their personal data
- the right to access personal data and supplementary information
- the right to have inaccurate personal data rectified, or completed if it is incomplete
- **the right to erasure (to be forgotten)**
- the right to restrict processing in certain circumstances
- the right to data portability, which allows the data subject to obtain and reuse their personal data for their own purposes across different services
- the right to object to processing in certain circumstances
- **the right to withdraw consent at any time**

Personal data in a blockchain

- Problem: If the data on a blockchain is not completely anonymized it is subject to GDPR.

- **No encryption**:
  - Personal Data stored on a blockchain in **plain text** remains Personal Data for the purposes of the GDPR.

- **Encryption:**
  - **Encrypted** Personal Data which can be accessed with the correct keys is not irreversibly anonymized. E.g. encrypted data can be linked to the data subject when transactions are affected for off-chain goods or when cryptoassets are converted into fiat currency through an exchange that performs KYC and AML duties. After three transactions = pseudonymized.
  - Encryption is considered a **method of pseudonymization** under the EU data protection regime, given that the data subject can still be **indirectly identified**. As a consequence, it cannot, on its own, be considered an anonymization technique.

Personal data in a blockchain

Hashing process:

- Transactional data that has been subject to a hashing process also likely qualifies as personal data under the GDPR.
- Although a one-way hash function that cannot be reverse-engineered can offer stronger privacy guarantees than encryption, it will usually not allow data to evade the qualification as personal data for GDPR purposes.
- Article 29 Data Protection Working Party: hashing constitutes a technique of pseudonymization, not anonymization
- Statements that hashes should in some circumstances qualify as anonymous data -> no clear guidance as to whether, and if so under which circumstances that would be the case.

Conclusion:

- **Transactional data that is encrypted or has undergone a hashing process is likely personal data for the purposes of the GPDR.**

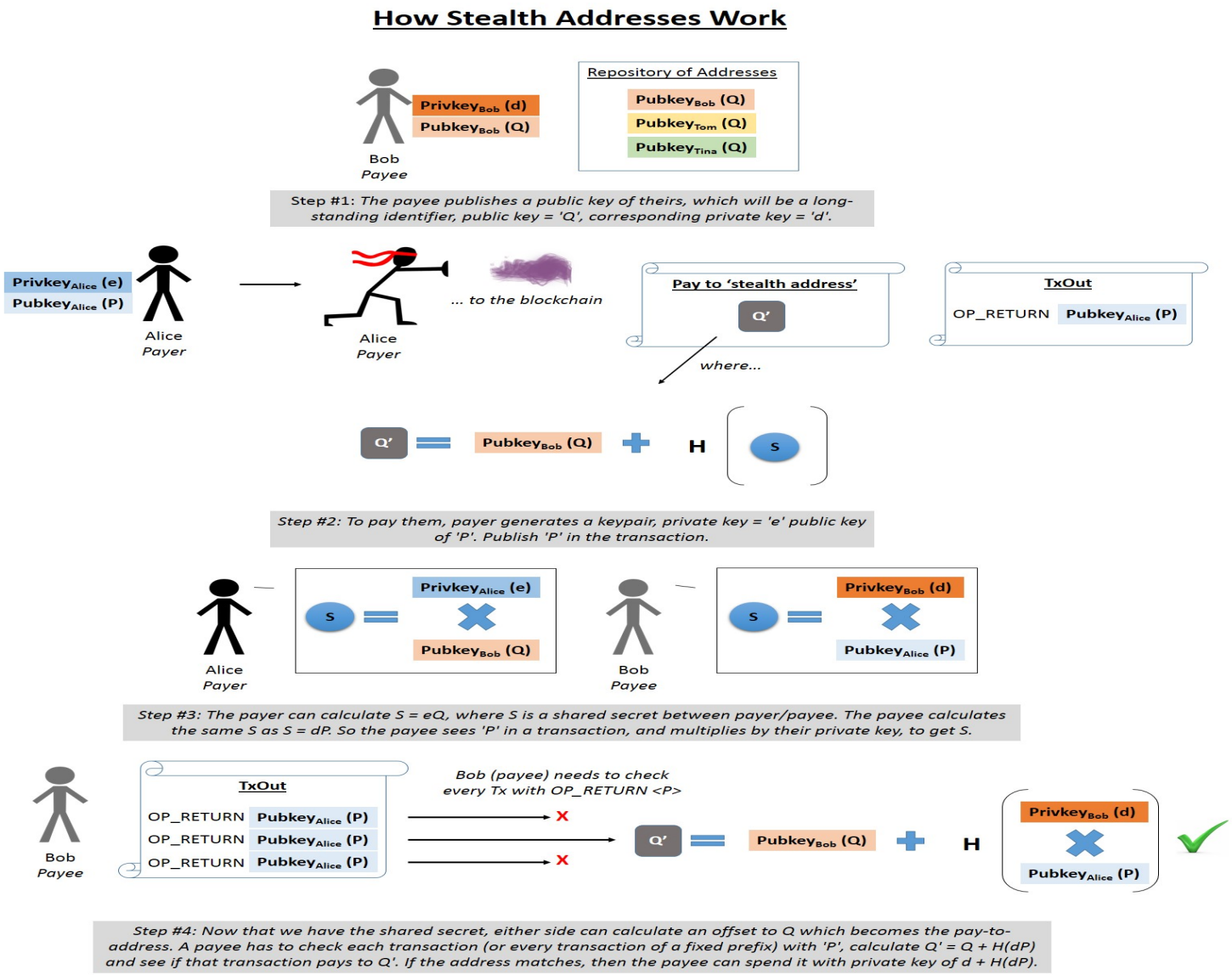
Personal data in a blockchain

- The conclusion that transactional data stored on a blockchain is subject to GDPR requirements may be avoided in some scenarios:
  - Complete anonymization:
    - Development of future cryptographic processes or a combination thereof will be declared capable of anonymizing personal data.
    - Cryptographically secure obfuscation as «holy grail» of privacy on blockchains, not available (yet).
    - Off-chain: Personal Data could be stored off-chain and merely linked to the blockchain through a hash pointer. However, on-chain data and likely also on-chain data hashes off-chain data would still qualify as Personal Data, yet it could be manipulated off-chain in line with GDPR requirements. In such scenario, Personal Data can be recorded in a referenced, encrypted and modifiable database and not on the blockchain.

Usage of Encryption mechanism to be anonymous

- GDPR-compliant solutions:
  - **Use of stealth address** which uses a one-time transaction that relies on hashed one-time public and private keys (for example Monero)
  - **Adding noise to the data:** Several transactions are grouped together so that, from the outside, it is impossible to discern the identity of the respective senders and recipients of a transaction.
    - Art. 29 Working Party considers the addition of noise an acceptable anonymization technique provided that the necessary safeguards are complied with.
    - Difficult to predict whether any of these techniques is capable of anonymizing public keys for GDPR purposes.
  - Zero Knowledge Proofs
- As a consequence, public keys and transactional data stored on blockchains will often qualify as Personal Data.

GDPR – anonymization – stealth addresses



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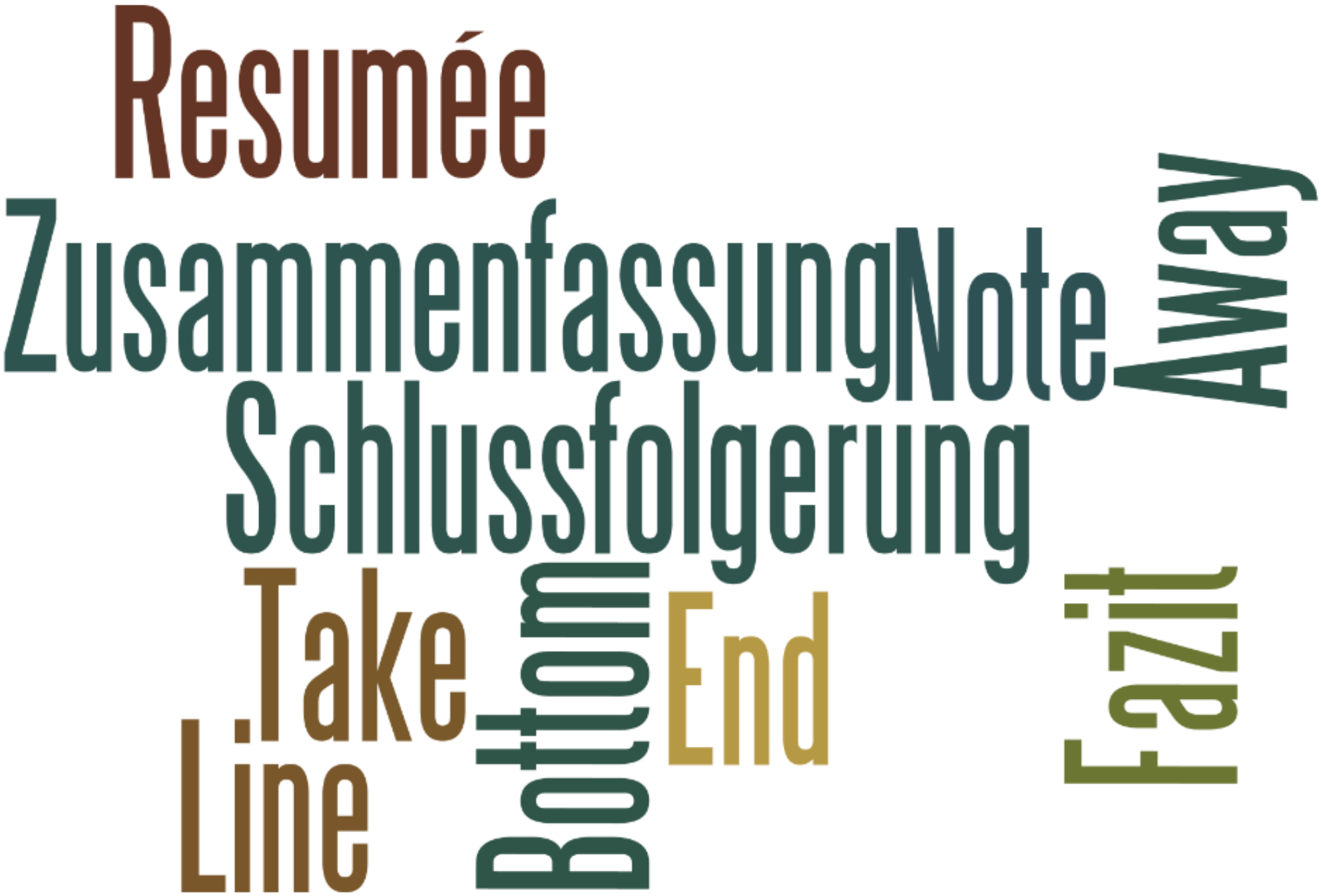
Resumée
Zusammenfassung
Note
Away
Schlussfolgerung
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Line

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