

Neo

Tomorrow's Healthcare Today.

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Introduction

- It is impossible to do Requirements Elicitation(REI) after victims have been “cyber-attacked”
- Requirements Engineering(REng.) need to be introduced as the first step of development of a product
- PIPEDA Def.: The Personal Information Protection and Electronic Documents Act
- In simple terms , PIPEDA “requires” everyone to keep records of breaches

Requirements for DNS Protection

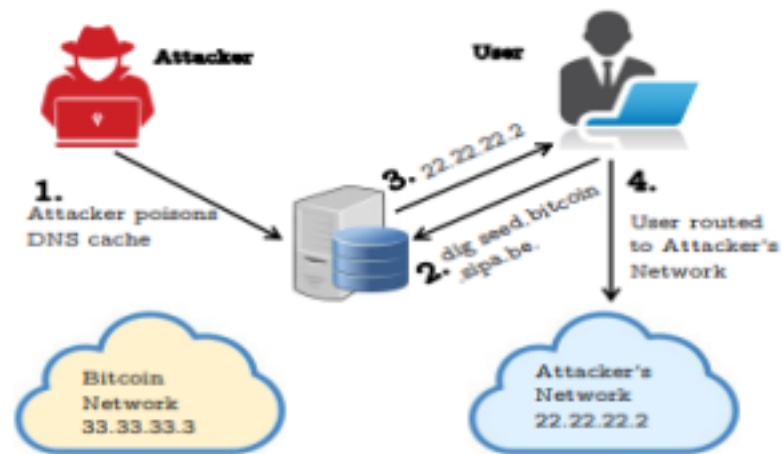


Fig. 11. DNS resolution attack on Bitcoin. The attacker poisons DNS cache and modifies the data. When a user queries the server to obtain IP addresses of peers who are accepting connections, he is routed to attacker's network. The attacker can game the user by feeding him fake blocks and transactions.

Problem Statement

- a. Centralized storage < Decentralized Storage
- b. 2 databases is better than 1
- c. Failure to comply with PIPEDA and other Compliance Requirements in general
- d. Threats: Malware, ransomware, botnet attacks

Problem Statement

Ranking of Top 5 Requirements Elicitation Processes:

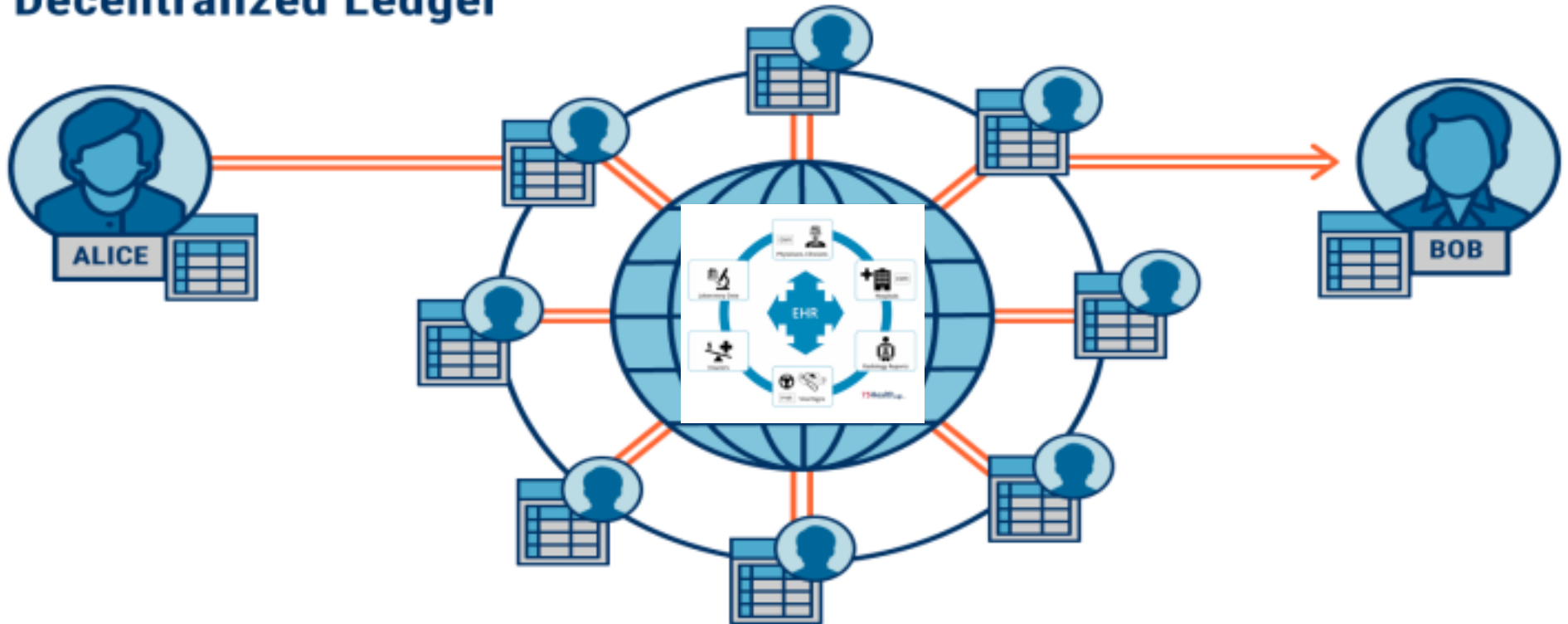
- a. Observation : Rank 1
- b. Brainstorming: Rank 2 (lack of communication with client)
- c. Interviews: Rank 3 (Expensive and sample size constraints)
- d. Req Workshops (Expensive and lack of “direct” understanding and communication with client requirements)
- e. Prototyping: (Same as Rank 4)

Research Questions

1. What are the common requirements of the User of a Distributed Ledger based Electronic Medical Record system ?
2. What are the critical functional requirements of a blockchain based serverless storage solution ?
3. How to effectively migrate a centralized legacy EHR storage system to a decentralized storage solution?

Solution: Neo Defense Model

Decentralized Ledger



Requirements of a Secure EHR Storage System



1. Digital formatting enables information to be used and shared over secure networks
2. Track care (e.g. prescriptions) and outcomes (e.g. blood pressure)
3. Trigger warnings and reminders
4. Send and receive orders, reports, and results
5. Decrease billing processing time and create more accurate billing system

Results: Neo Product Features

1. Immutable Ledger
2. Cryptographically Verifiable
3. Scalable
4. Serverless
5. Easy to Use
6. Case study of popular DApp features
7. Product Usage Guide

Neo: Defense Model User Guide

1. Step 1: Encryption
2. Step 2: Electronic Health Record Ledger Storage (IPFS)
3. Step 3: Smart Contract Automation
4. Step 4: DApp Development
5. Step 5: DApp Release on Platform Neo

Discussion and Future Work

1. Post Requirements Gathering: Establishing Goals, Objectives and KPIs
2. Smart-Contract based Access Control
3. Leveraging PIPEDA Toolkit
4. Integration with common platforms such as SQL Server, mongoDB, docker, wordpress etc.

Thank you

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