Presentation

1. Introduction

2. Dutch Government & Blockchain use cases

3. Examples of the use of Smart Contracts
- Prototype / POC stage: “Huishoudboekje” (Household booklet) Municipality Utrecht
- Implemented: het “Kindpakket” (Social Security for families) Municipality Zuidhorn

4. Potential Smart Contracts for Public Service

5. Blockchain & Government, my experience.

B CHAIN WISE

A non-technical presentation about Public service & smart contracts

BLOCK CHAIN TALKS

Introduction Nathalie Venema

BchainWise offers:

- Blockchain brainstorms (from own idea to described use case)
- Interactive Blockchain and Smart Contracts basics training with the use of examples
- Blockchainpilotmanagement mainly for Government & Health Care

Current blockchain projects

- Gemeente Zuidhorn, Kadaster, KNB, NVM

Role: Blockchainpilotmanager Land registry

- **Dutch Blockchain Coalition**

Role: Advisor Human Capital Agenda

Former blockchain projects

- The Association of Dutch Municipalities (VNG)

Role: pilotmanager Smart Cities, Big Data and Blockchain
Advised >25 municipalities about bc use case
Trained more than 50 municipalities in blockchain
Publicized the potential of blockchain for municipalities

Blockchain & Smart Contract trainer and consultant

4 Datamanagement verbeteren – BredaPas Breda

Stel dat de bibliotheek in hun systeem bijhoudt welke leden een gratis lidmaatschap hebben met behulp van de BredaPas en dit deelt met de gemeente omdat zij het gebruik van deze BredaPas voor bibliotheeklidmaatschappen wil monitoren. Dan is het niet moeilijk om bijvoorbeeld te bedenken dat bij het exporteren van data uit de database van de bibliotheek regels kunnen ontbreken. Doordat transacties in de blockchain gekoppeld zijn, en dus elke aangesloten partij dezelfde informatiepositie heeft (single source of truth), zijn deze fouten door bewerkingen verleden tijd.

5 Proactief dienstverlenen – het Kindpakket Zuidhorn

Zuidhorn gebruikt een webwinkel waar je producten en diensten af kan nemen. Je kent het vast wel van bol.com: je krijgt suggesties voor nieuwe aankopen gebaseerd op je eerdere clicks en aankopen. Zo kunnen met blockchain en verschillende predictieve analysemethoden in de toekomst ook in je eigen portal van Zuidhorn suggesties worden aangedragen op basis van de gegevens die jij hebt gedeeld. Stel dat je in het verleden een kinderfiets met behulp van het Kindpakket hebt gekocht dan kan bijvoorbeeld een suggestie zijn dat je via Stichting Leergeld recht hebt op tegemoetkoming in schoolkosten.

Dit zijn nog lang niet alle potentiële voordelen die blockchain gemeenten kan bieden. Als je kijkt naar de eerste ronde met gemeentelijke use cases, andere use cases binnen de overheid en use cases buiten de overheid vind je uiteraard nog meer. Zo kan het middel blockchain ook het volgende faciliteren:

- realtime auditing;
- al het dataverkeer via Internet of Things en sensortechnologie (denk aan Smart City toepassingen of afvaltransport bijvoorbeeld);
- het sneller uitbetalen van leveranciers en uitzendbureaus door middel van Smart Contracts;
- het vastleggen van eigenaarschap (van land bijvoorbeeld);
- het innen van toeristenbelasting;
- etc.

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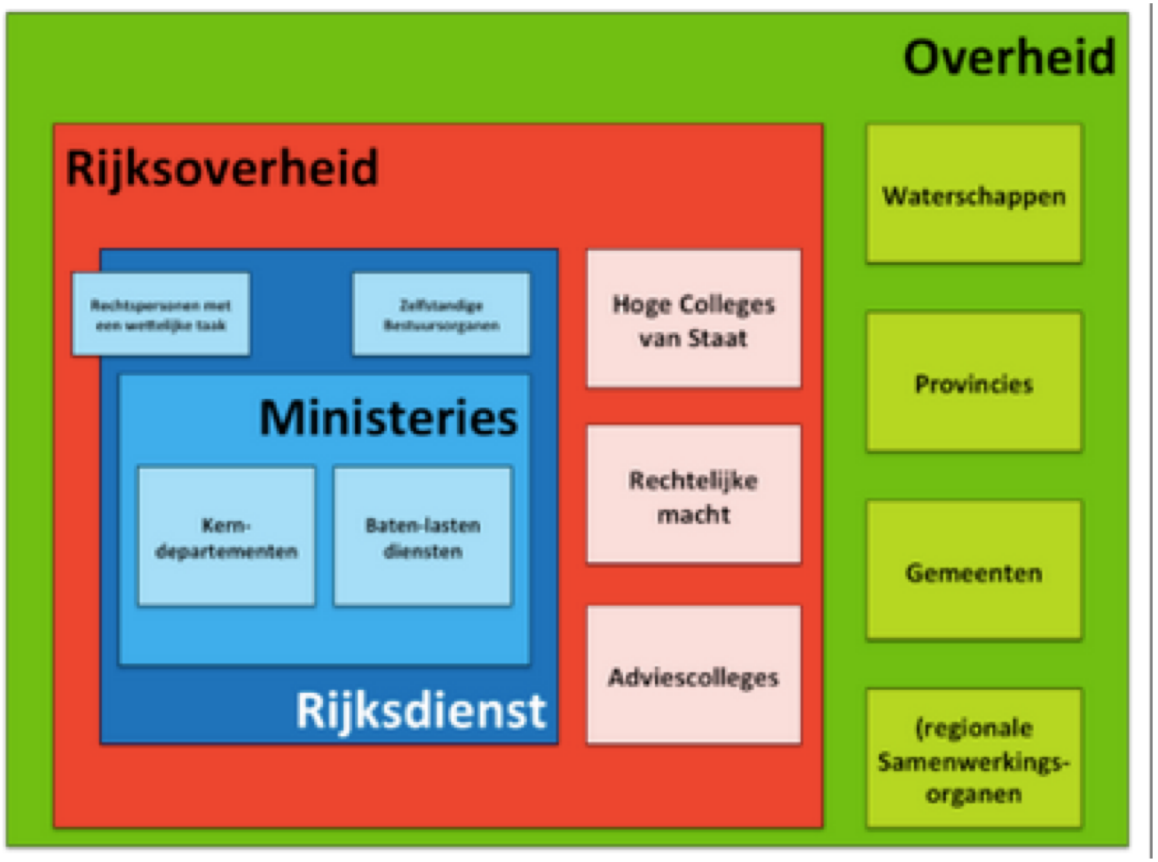
Smart Contracts

Met Smart Contracts bedoelt men de programmeercode die ervoor zorgt dat de gemaakte afspraken door de blockchain worden uitgevoerd. Dit geschreven programma doet automatisch en zelfstandig zijn werk op basis van de opgestelde (geprogrammeerde) regels en afspraken. Deelnemers aan een Smart Contract weten van te voren precies onder welke voorwaarden het contract wordt uitgevoerd. Hiermee weten ze op het moment dat de transactie wordt voltrokken allemaal exact dat én hoe aan de contractvoorwaarden is voldaan. We noemen dit principe compliance vooraf. De meest bekende geprogrammeerde voorwaarde is met behulp van het logische 'if then else' statement.

Een voorbeeld uit de toekomst van zelfrijdende auto's: stel dat je een zelfrijdende auto least en elke maand automatisch de termijnen betaalt. Je verliest je baan en kort daarop mislukt twee keer een automatische incasso. In het Smart Contract staat dat als je twee of meer keer je termijnen niet hebt betaald je auto dan automatisch niet meer zal starten.

De potentie van blockchain voor gemeenten

Introduction Dutch Government



The decentral government: Municipalities (380), Provinces (12) and the regional water authorities (22)

A municipality has a lot of tasks. Some of them:

Tasks	Blockchain?
Keep track of who lives where, a register called BRP	Probably not. A legal duty to do so. No personal data (or fingerprints) on the blockchain!
Hand out passports	Haarlem has a POC where citizens can retrieve a publicy attested claim (with IOTA)
Responsible for Social Security	Potential. Political complicated since a lot of organisations are involved.
Is responsible for youth care and home care	The POC of MijnZorg log?
Hands out subsidies	Use case of The Hague; subsidy for electronic cars

The 2 good examples of blockchain with smart contracts are about Social Security and poverty

Goal | blockchain pilot Utrecht

Financial stability by pressing an emergency button

1. Automatize monthly financial planning
2. Resilient to financial setback
3. To automatically grant, alter and request benefits and allowances

Support vulnerable citizens by giving them overview of their financial situation

Problem | “Huishoudboekje” Utrecht

- Welfare application is too complex
- A lot of vulnerable citizens have difficulties to keep a good overview of their finances
- Most citizens only call for help when the have a debt > 42.000
- It costs 100.000 to solve such a high debt
- 80% of the requested help at neighbourhood teams concerns financial difficulties

Prevent escalation debt and poverty

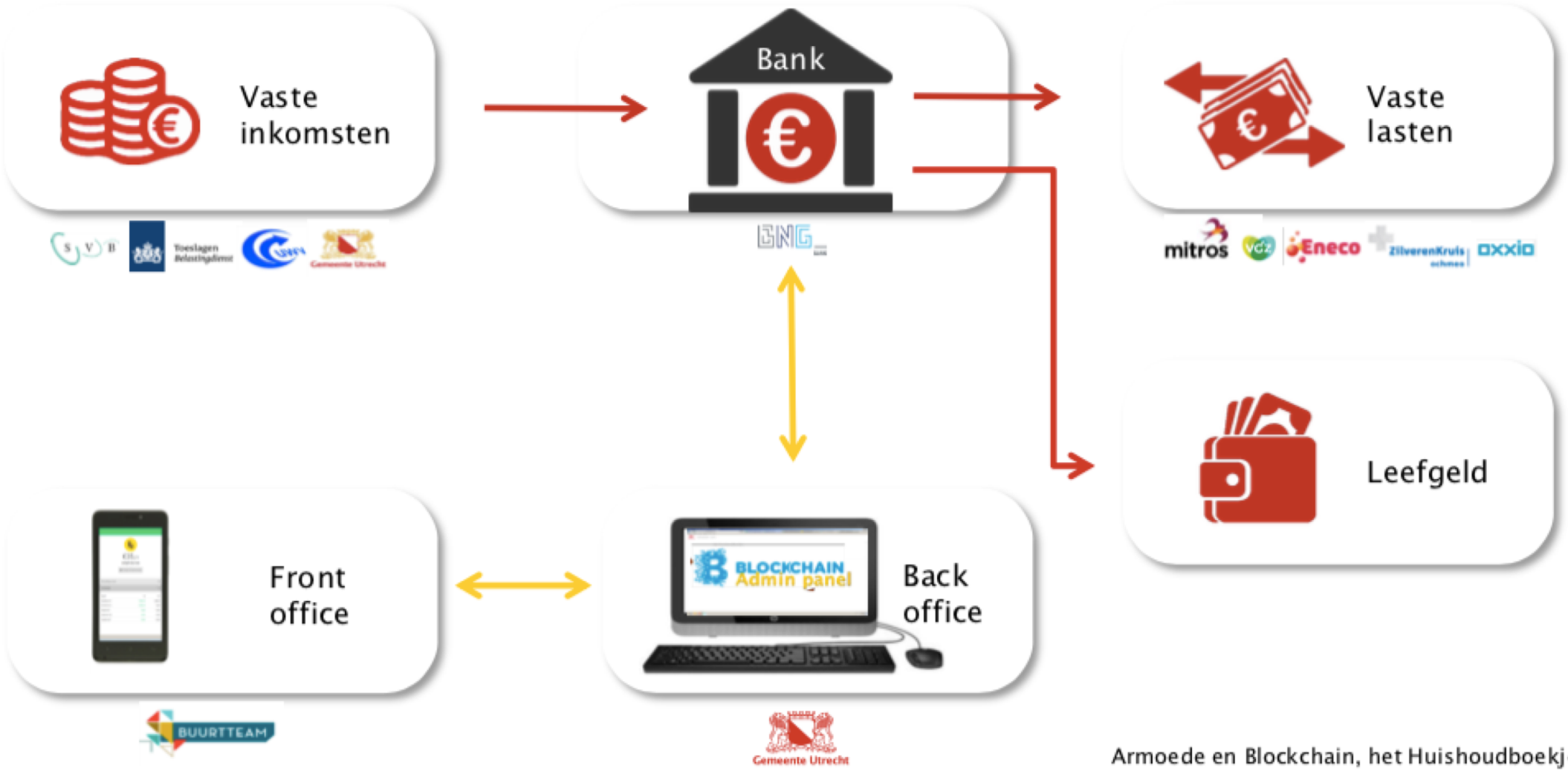
Why blockchain | “Huishoudboekje” Utrecht

- Transactions without a third party
- Programmable Conditions (Smart Contracts).
- Effective destination: specific goal for money
- No controls after the proces is done

Proces | “Huishoudboekje” Utrecht

Fixed income
- Care / rental allowance
- Disability checks
- Child allowance
- Welfare
- Old age pension (AOW)

Etc.



How | pilot “Huishoudboekje” Utrecht

Pilot

- No button but consent form
- Starting agreement is by sharing consent form with relevant parties
- Transactions on the blockchain.
- Ending is a conversation with neighbourhood team

Next sprints / steps

- Switch “on”
- Relevant organizations get signal from blockchain and switch account number citizen to municipality.
- Every transaction on the blockchain. Without personal data (right to be forgotten / GDPR). Admin panel offchain translates transactions to citizen.
- Switch “off”

Pilot: permissioned blockchain KPN

Smart contracts | “Huishoudboekje” Utrecht

- The conditions, amounts and involved parties
- Ethereum
- Organization > Organization

[redacted]

Lesson Learned: “check-in”proces too slow

Paspoortcontrole

Overeenkomst

Registratie

Transport

Verwerking

Digital identity is key

Next | “Huishoudboekje” Utrecht

From experiment to implementing “Huishoudboekje” and maybe later on:

- Other use cases like: child care or calculating consequences life changes (if citizens gave their consent ofcourse).

No data being send around and real-time adjustments because of the blockchain & smart contracts

What | “Kindpakket” Zuidhorn

The "Kindpakket" is a social benefit policy for children from low-income families.

These families are given a budget to support their children so they will be able to participate with their peers.

The Ethereum blockchain application is implemented and running since november 2017.

Gemeente Zuidhorn

FORUS

BLOCK CHAIN TALKS

Problem | “Kindpakket” Zuidhorn

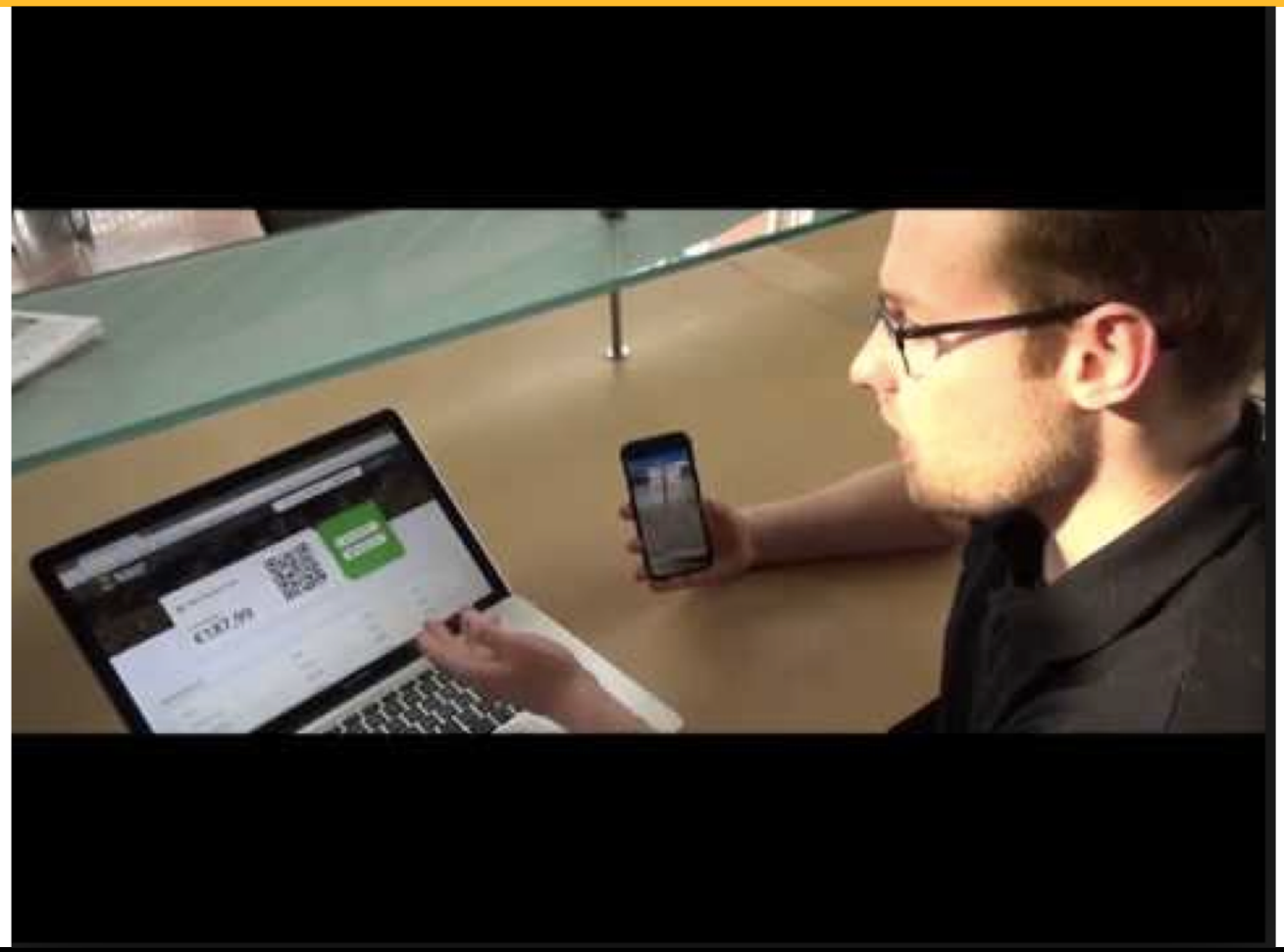
- On a yearly basis, vouchers are bought by the municipality at a select number of local shopkeepers.
- Eligible families receive a notice requesting them to come pick up the vouchers at the municipality.
- These vouchers can be spend at the participating shops.
- Data management is centralized and not automated.
- Before the eligibility of the citizen can be verified, the municipality needs to go through a multitude of manual checks.
- The issuance of the vouchers requires the physical presence of the citizen.
- The municipality can not check if the vouchers have actually been spend.

Process was time consuming, costly and lacks transparency.

Goal | “Kindpakket” Zuidhorn

Make sure that financial support for poor children is spend on children.

How | “Kindpakket” Zuidhorn



Transactions are transparent for the shop owner, the citizens and the municipality (website/app)

Now | “Kindpakket” Zuidhorn

S

SPONSOR

(MUNICIPALITY, CHARITY ORGANISATION)

Creates a fund, sets up the criteria, assigns validators and pledges budget or products.

V

VALIDATOR

(SMART-CONTRACT OR ANY TRUSTED PARTY)

Checks the validity of the information entered into the platform.

R

REQUESTER

(CITIZEN, COMPANY)

Applies for the funds or product they would like to obtain.

P

PROVIDER

(SHOP, SERVICE)

Supplies the ordered product and / or service.

BLOCKCHAIN WISE

Platform Forus is a decentralized opensource framework which provides developers with the tools to build scalable decentralized applications.

Next | “Kindpakket” Zuidhorn

“Kindpakket” without a central authority (government)* but until then:

- Exploring caching transaction on a traditional backend.
  (when a citizen spends his or her voucher it checks the database of forus if there is still value left on the voucher. Speed of finalizing transaction is this way quicker then Ethereum blockchain)

- Exploring transactions with shopkeepers on the blockchain
  (less privacy issues: only amount of budget is spend, not who spends it)

- Charities (where are the funds going?)

BLOCKCHAIN WISE

***But that’s not around the corner since a lot of technical, organizational and regulatory limitations still exists.**

Potential Smart contracts for Public Service

Other potential use smart contracts

- Pay Suppliers/ independent immediatly contractors when work is validated
- IOT / Smart Cities – (street light) maintenance f.e.
- Tourist or VAT Tax
- Sustainability loans

Why?

- Effective destination (less fraud)
- Less manual checks of contracts
- Better client because of shorter payment terms

Smart Contracts can make public service more efficiënt

Blockchain & Government | My experience

1. Strategy - Government needs an integral BC vision (Common infrastructure)
2. A big wall between BC Start-ups and Government (FUD, for vendor-lockin f.e.).
3. Collaboration (Consortia) between different governmental organizations in one pilot is a huge challenge. Different systems, different expectations and knowledge.

4. Working with blockchain needs a different mindset: it's not an improvement but disruption.. Looking further then 3 years is difficult.
5. Government has a multi-channel strategy: there are 2.2 mill vulnerable Dutch people and people who don't have digital skills. They don't (know how to) ask for help.

BC Solutions need to be : KISS (Keep it stupid simple)

Need help with training or experiments?

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B CHAIN WISE

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