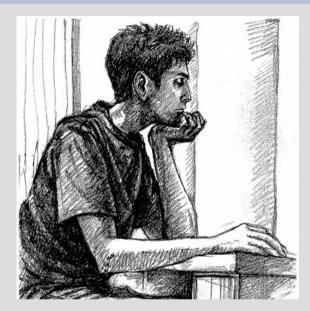
Sikorka

Ethereum Meets The Outdoors!

Lefteris Karapetsas

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Who Am I



- Ethereum core developer since 2014, C++ core, Solidity
- Contributor to The DAO.
- Interest in compiler design, Al and smart contracts

What is Sikorka?



What is Sikorka?

A System that:

- Facilitates deploying smart contracts in real world locations
- Enables smart contracts to interface with the environment
- Provide "Proof Of Presence", that a user is indeed present in a location.

Potential Applications

- Loyalty programs offering discounts to people visiting specific locations
- Proving attendance in a location for official purposes. e.g.: Administrative, Corporate
- Augmented Reality Games

Proof Of Presence

Using mobile phones and software:

- Use mobile geolocation data
- Use a challenge question/answer
- Analyse video data at deployment and compare to image feed at interaction

Proof Of Presence

Using specialized hardware:

- Use scannable QR codes
- RFID tags/readers
- Special hardware deployed on location offering e.g.: bluetooth communication

How Sikorka Works

- Deployed contracts have to follow a specific interface
- System allows users to search for sikorka contracts around them
- Interaction with the contract happens thanks to the ABI and only after providing Proof Of Presence

Contract Interface

```
/**
* @param _name
                         A name to give to the contract
* @param _latitude
                         The latitude part of the geolocation coordinates
* @param _longitude
                         The longitude part of the geolocation coordinates
* @param _question
                        The Proof Of Presence challenge question
* @param _answer_hash
                         A sha3 hash of the answer to the challenge question
function SikorkaBasicInterface(
    string _name,
   uint latitude,
   uint _longtitude,
    string _question,
   bytes32 answer hash
   name = _name;
    latitude = _latitude;
    longtitude = _longtitude;
   question = _question;
   answer_hash = _answer_hash;
} 🗌
```

Contract Interface

Proof Of Presence modifier needed for all user contract interaction

```
/**
* Require Proof Of Presence for the function to be executed
* @param _longitude User's current longitude
*/
modifier need_pop(uint _latitude, uint, _longitude, string _answer) {
  if (sha3(_answer) != answer_hash) {
     throw:
  if (distance(_latitude, _longitude, latitude, longitude) > 1) {
     throw:
```

Contract Interface

Owner should change the challenge question periodically

Example Contract

```
/**
* Constructor
                               The number of tokens to reward to each
* @param _tokens_to_reward
                               user who succesfully interacts with
                               the contract
* @param _round_duration
                               The number of seconds this token round
                               will last
function DiscountTokens(
    string _name,
   uint _latitude,
   uint _longitude,
    string _question,
    bytes32 _answer_hash,
   uint _tokens_to_reward,
   uint round duration
) SikorkaBasicInterface(
   _name,
    latitude,
    _longitude,
   question,
   _answer_hash) {
   tokens_to_reward = _tokens_to_reward;
   token round end = now + round duration;
```

Example Contract

```
/**
* Claim discount tokens for the shop!
*/
function claimToken(uint _latitude, uint _longitude, string _answer)
  need_pop(_latitude, _longitude_, _answer) {
  // User already got their discount tokens for this round
  if (balances[msg.sender] != 0) {
     return;
  balances[msg.sender] += tokens_to_reward;
```

Demo Video

Advertising contracts offering discounts to users visiting locations around Berlin

Further Work

- Integrate the light client with the mobile app
- Finish and publish the mobile app in Android
- Improve Proof of Presence
- Integrate with an existing wallet for account management
- Integrate with an existing identity system

Thank you

Thank you for your attention. Any Questions?

For updates:

- Follow @lefterisjp on Twitter/Github
- Website http://sikorka.io coming soon!

