COL867 Semester II 2017-18: HW2

Smart Contract for Licensed Media Distribution

March 2018

Note: Marks will be awarded for the points mentioned within the text. The marks have been indicated in square brackets (e.g. [1]).

In this assignment you will build a **Smart Contract for licensed Media** (Digital Copies of songs or movies) distribution over Ethereum(testnet). This assignment can be done in groups consisting of at most 3 persons. The smart contract must have the following features for licensed media distribution.

1. Every user in the contract can act as a **Creator** or a **Consumer**.Two types of consumers are available: Individual or Company (You can randomly choose a consumer to be an Individual consumer or a Company). Only creator should be able to add an entry for the licensed media. [2]

2. A creator should be able to **add a licensed media to the contract** (You have to come up with an appropriate data structure to represent a media in the contract.). The exact url of media should not be added to the contract. The creator should also set the cost for the media license for individual and Company as consumers.The media or media url is **not accessible** by the consumers until they pay for the license.[4]

What kind of data structure? It just contains creator details, url and name

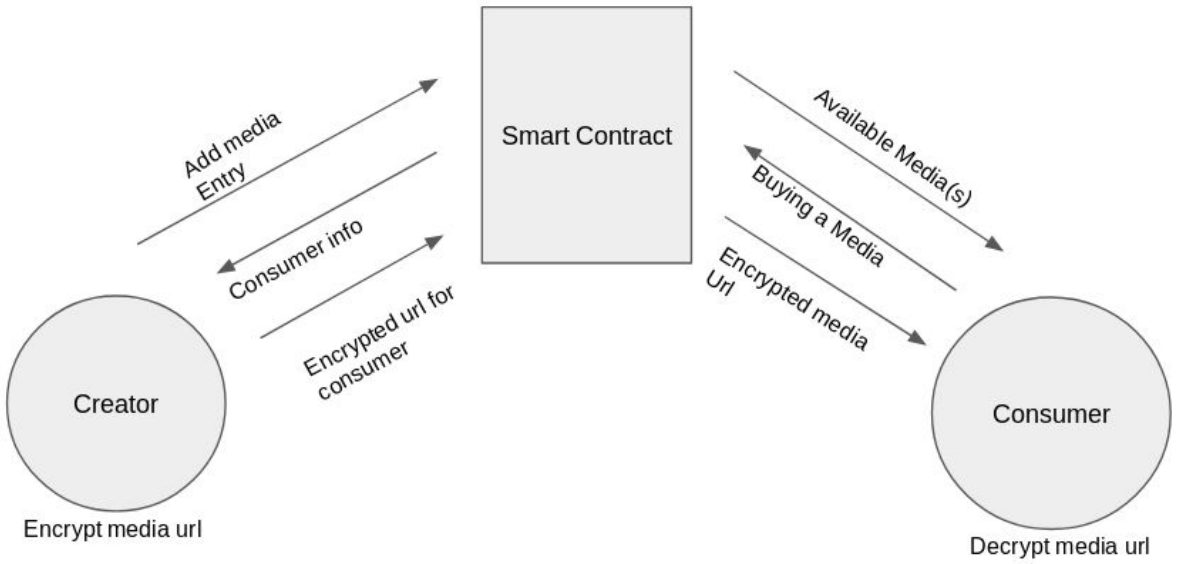

Figure 1: Data Flow Description

3. The consumers should be able to view all the media entries available to buy. Whenever a **consumer wants to buy some media,** consumer should initiate a transaction, and contract should internally invoke a function to transfer the license amount to creator (and stakeholders discussed later). You should ensure that the amount paid for the license depends upon the type of consumer. [3]
   The **payment should be in Ether**. (You would get to know how to add ether as you go through the tutorials) [1]

4. Whenever a consumer buys any media, creator should **create a new encrypted url** (encrypted using consumers public key) of the media. Encryption can't be done on-chain. You have to find a method to do encryption/decryption off-chain. The creator will add the encrypted url in the contract (assume creator to be honest). Now, for a consumer to access the media, he needs to **decrypt the url** and use it. Once paid for a particular media, a buy option should not appear for the consumer anymore, for that media. [7]

5. The revenue obtained from the media license (by the creator) should be divided among other stakeholders(eg. Production company) of the media. (Number of stakeholders can range from 0 to maximum of 5). The creator should be able to specify the stakeholders and corresponding share of each stakeholder while creating the media entry. The **division of revenue** (generated from each media license buying / selling) among the stakeholders should happen on-chain by a contract function**.** [3]

If you think a GUI is required, you can have a GUI. However GUI is not essential.

Hints: Events of the smart contract can be listened by the nodes/peers.
Suggestions: Have a overview of Gas concept in ethereum, and how it is related to Smart Contracts.

Some Reference Material:
https://medium.com/@mvmurthy/full-stack-hello-world-voting-ethereum-dapp-tutorial-part-1-40d2d0d807c2
https://medium.com/@mvmurthy/full-stack-hello-world-voting-ethereum-dapp-tutorial-part-2-30b3d335aa1f
https://medium.com/@mvmurthy/full-stack-hello-world-voting-ethereum-dapp-tutorial-part-3-331c2712c9df