Decentralized Aggregator Printing Service

`block_chain_final_project`

Agenda

- Project info
- Our system
- Demo!

Project Info

Problem:

- Dependent on a main server
- Many different providers & protocols
- Ink clogging

Description:

“ A peer-to-peer printing protocol for all. ”

- Anyone can access any nearby local printing service.
- Anyone with a printer can join our ecosystem and make easy income by offering printing service for someone in need.

Project Info

Why blockchain?:

- Anyone can be part of our system if they have a functional printer and wanted to.
- With blockchain, other printers can operate normally if one fails.

Which blockchain?:

- Ethereum.
  - Large community
  - Contract can store funds

Our system

Smart contracts

```
enum TxState {
    Submit,
    In_Queue,
    In_Process,
    Print_Finished,
    Done,
    Error
}

struct TransactionData {
    string linkFile;
    uint256 price;
    TxState state;
}

contract Transaction is Ownable {
    TransactionData public transactionData;
    IPrinter internal printer;
```

Transaction

```
enum PrinterState {
    Ready,
    Busy,
    Finished,
    Error,
    Reported
}

struct PrinterData {
    string displayName;
    string printerName;
    address[] queue;
    uint256 price;
    string location;
    address onGoing;
    PrinterState state;
}

contract Printer is Ownable {
    PrinterData public printerData;
```

Printer

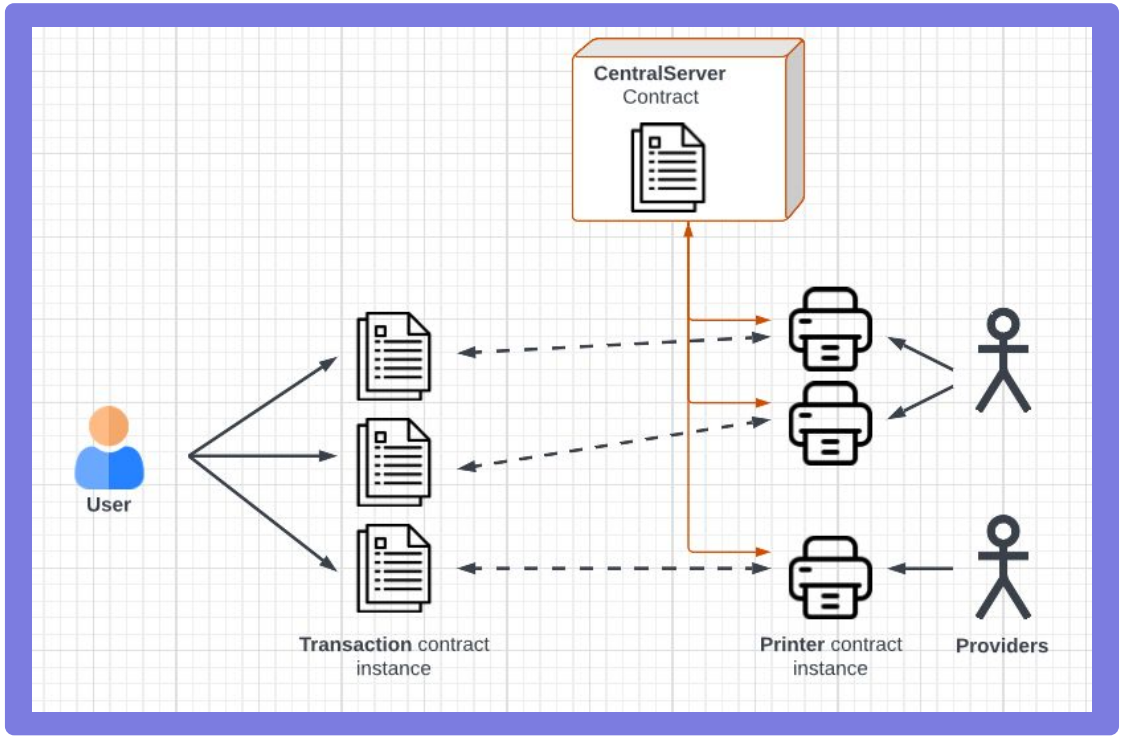
```
contract CentralServer {
    address[] public printerArr;

    constructor() {}
```

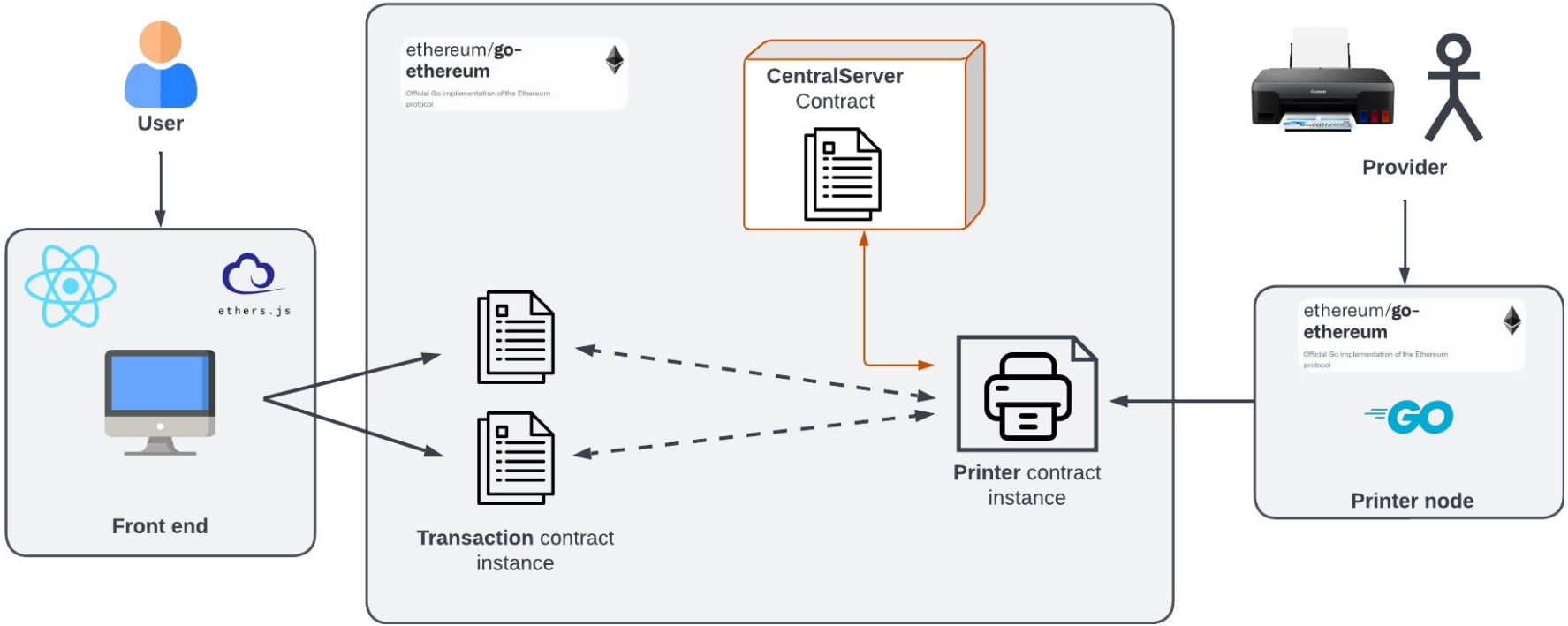
CentralServer

System architecture: Overview

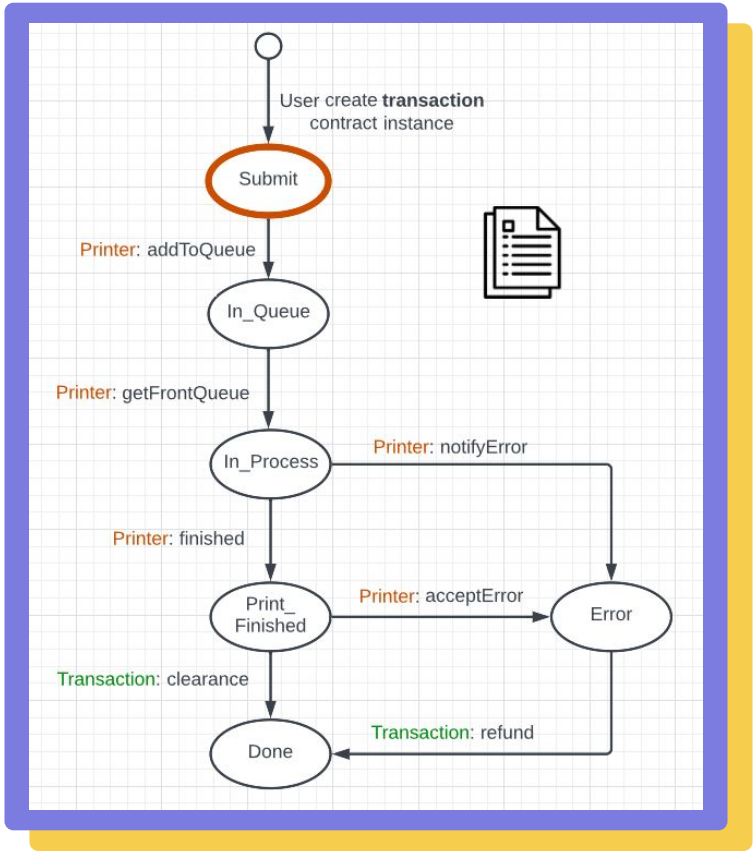
- **User**
  wants to print
- **Provider**
  printer owner
- **Transaction contract**
  a printing order
- **Printer contract**
  a printer
- **CentralServer contract**
  printers' registry



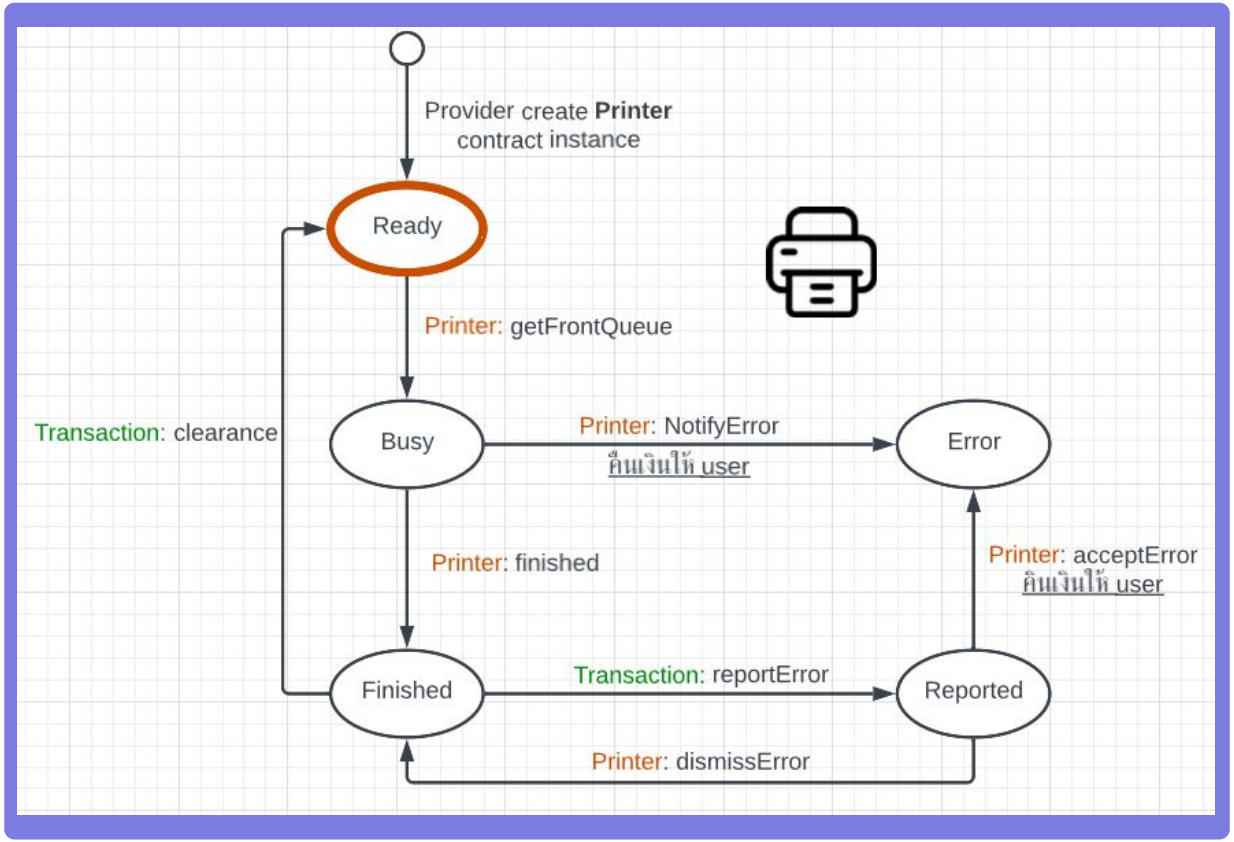
System architecture



State diagram: Transaction contract

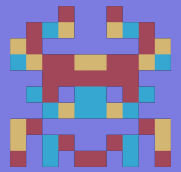


State diagram: Printer contract



DEMO TIME !

Members



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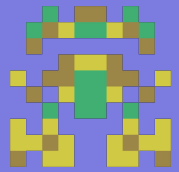

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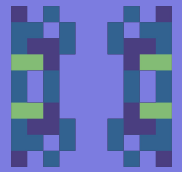

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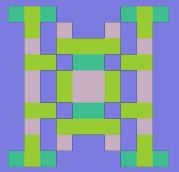

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