



OST

Eastern Switzerland
University of Applied Sciences

Blockchain (BlCh)

NFT Implementation Details

Thomas Bocek

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NFT Question

- “Beim Transferieren eines Tokens sollte gleichzeitig auch die vereinbarte Menge an Ethers fließen”
 - 1) Jemand erstellt eine Offerte an den Besitzer eines NFT Tokens.
 - 2) Er überweist bereits die offerierten Ethers an den Contract.
 - 3) Der Besitzer des Tokens kann die Offerte annehmen oder ablehnen.
 - 1) Wenn er die Offerte annimmt, bekommt er vom Contract die Ethers, welche vom Ersteller der Offerte überwiesen werden.
 - 2) Lehnt er die Offerte ab, bekommt der Ersteller der Offerte die Ethers wieder zurück.

Designing a Market NFT

- Store offers
 - `mapping(address => mapping(uint256 => mapping(address => uint256))) private _offers;`
 - Key: nft contract, nft Id, offerer address, value: ethers that were offered
- “Lehnt er die Offerte ab, bekommt der Ersteller der Offerte die Ethers wieder zurück.” → Does not work well with smart contracts
 - The one who wants something has to pay the gas (NFT holder cannot decline 100 offers)
- Alternative: `withdrawOffer()`
 - `makeOffer(address nftContract, uint256 nftId)`
 - `withdrawOffer(address nftContract, uint256 nftId)`
- Use events
 - Offer, Withdraw, Accepted
- Make data visible
 - `offers(address nftContract, uint256 nftId, address offerer)`

Designing a Market NFT

- How to accept an Offer?
 - **ERC721TokenReceiver** is called when using with `safeTransferFrom`
- Lets look at the flow (in 5 simple steps)
 - 1) NFT Owner gets NFT (via mint or transfer)
 - 2) Offerer makes offer
 - 3) NFT Owner gets notified via an event
 - 4) NFT Owner uses `safeTransferFrom()`
 - 1) **OnERC721Received** on NFT Market
 - 2) Sends NFT to Offerer
 - 5) Offerer now NFT owner, NFT owner gets ETH
- Implementation

