



ethereum
vienna

General Introduction



Project

Decentralisation of the web

Removing the role of central points

Takes away control from service owners

- Data cannot just disappear

- Data can only be modified by certain rules

- Censorship resistant

- Server cannot freeze funds



Web 3.0

Platform for decentralised applications (**DApps**)



Ethereum (Blockchain)

Consensus Layer



Whisper

Messaging and Broadcasting



Swarm / IPFS (Content System)

Data publication and distribution



DApps

Escrow Standard UI Wallet

Crowdfunding Weifund

Subscription Services (see workshop)

Prediction Markets Augur / Gnosis

Registries Namereg

Marketplace Safemarket

Decentralised Autonomous Organisations (DAO)

Stablecoins MakerDAO



Blockchain

Public record of all transactions

Stored and processed by all full nodes

Determines order of transactions

Necessary to determine current state of the system





Blockchain

Account based System

identified by a 160 bit address

has a balance of Ether / Wei

2 types of accounts

External / Account

Internal / Contract



Blockchain

Account (external)

user controlled account

controlled by a private key

can send and receiver ether

0x1350cf34d093953ce0d2803648da8f3b6a84de77	100
0xd5f9d8d94886e70b06e474c3fb14fd43e2f23970	2500
0xd2963cd505c94dbf3bc663bdd2321bd3000204bb	23290
0xd2963cd505c94dbf3bc663bdd2321bd3000204bb	123809
...	...



Blockchain

Contract (internal)

Controlled by code (evm byte-code)

Gets executed whenever something is sent to it

Ether can only be sent out by the code

Persistent 256 bit to 256 bit storage

Can send messages to other contracts

```
DUP2 SWAP1 SSTORE POP DUP5 DUP5 POP PUSH1 0x6 ADD
PUSH1 0x0 SWAP1 SLOAD SWAP1 PUSH2 0x1 0x0 EXP
SWAP1 DIV PUSH1 0xff AND PUSH2 0x6 0x88 JUMPI DUP5
DUP5 POP PUSH1 0x1 ADD PUSH1 0x0 POP SLOAD DUP4 LT
ISZERO PUSH2 0x5 0x8e JUMPI PUSH2 0x6 0x83 JUMP
JUMPDEST DUP5 DUP5 POP PUSH1 0x0 ADD PUSH1 0x0
```




Blockchain

Code written in an ethereum specific language

- Solidity



high level

official language

- LLVM

lisp-like (low level)

- EVM Assembly

```
contract Coin {  
  
    event Transfer(address indexed from, address indexed to);  
  
    mapping (address => uint) public balances;  
  
    function() {  
        balances[msg.sender] = 10;  
    }  
  
    function Send(address to, uint amount) {  
        if(balances[msg.sender] >= amount) {  
            balances[msg.sender] -= amount;  
            balances[to] += amount;  
        }  
    }  
}
```



Blockchain

Message

1 Sender

1 Recipient

Value in Ether / Wei

Can have additional data

Can have return value



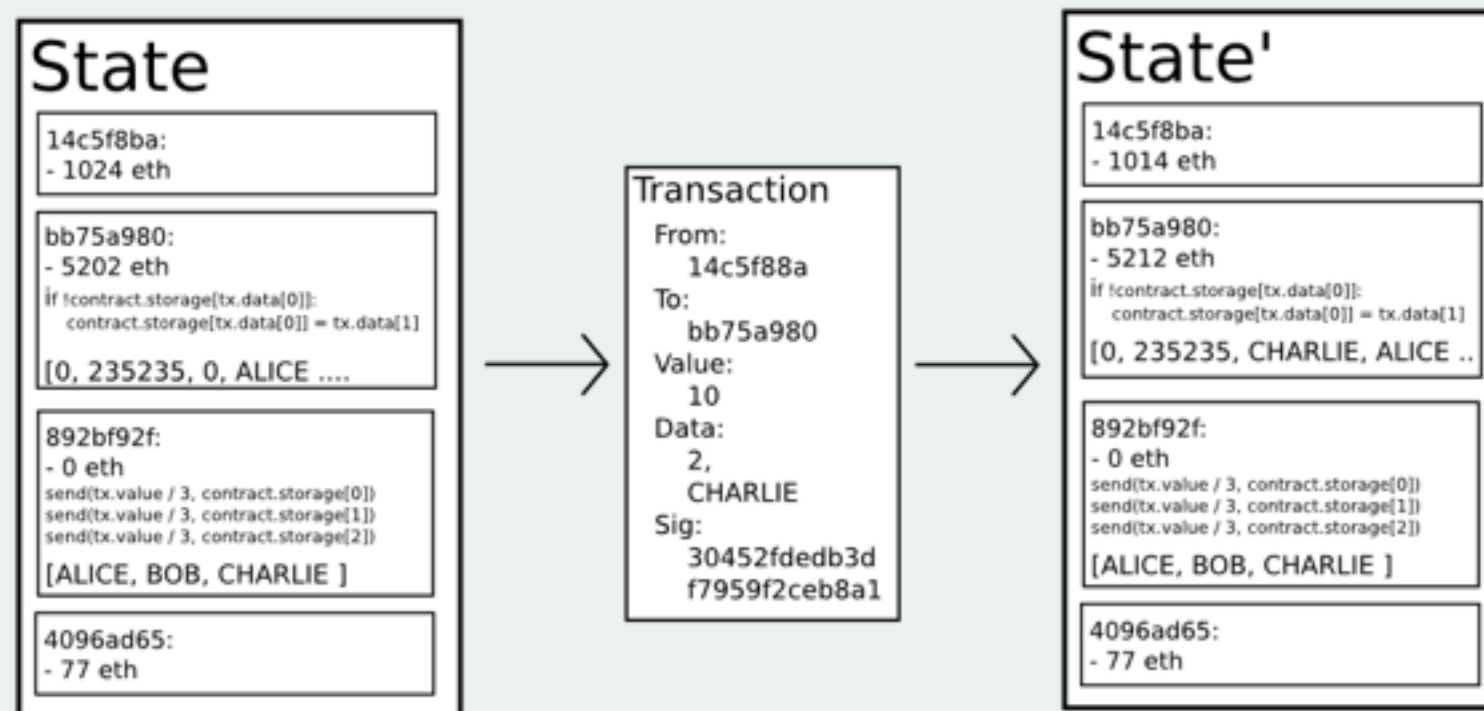
Blockchain

Transaction

Contains a message

Signed by a private key (external account)

Transitions from one state to the next





Blockchain

Gas

Used for transaction fees

Sender “buys” gas at a sender-specified **gasprice**

Every computational step has a fixed gas cost

Remaining gas sent back to sender

If gas runs out

- the state reverts

- but miner keeps ether



Blockchain

Gasprice

Associated gas cost for some action is constant

But the price of ether is not

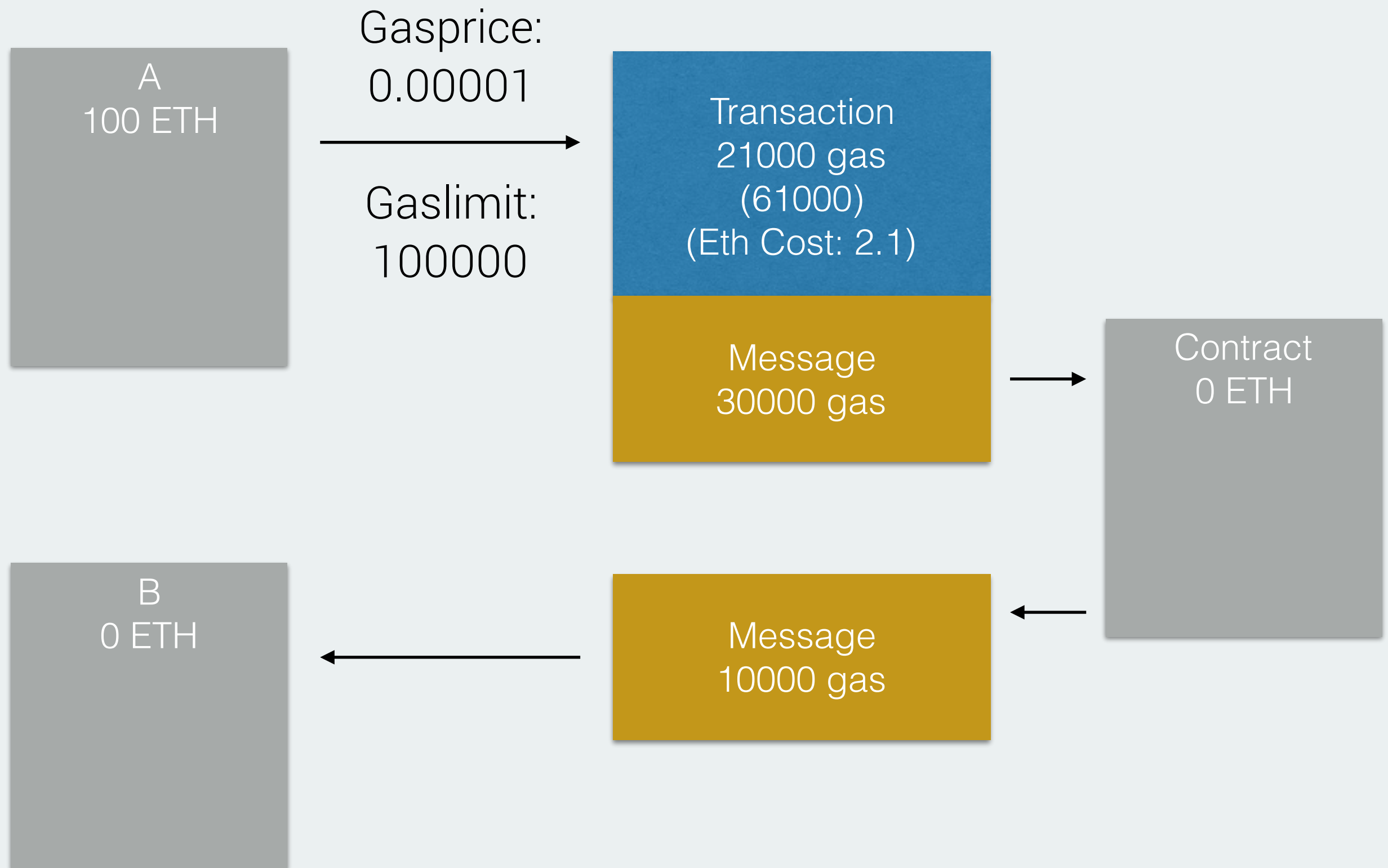
Gasprice is a scale factor against ether price

Ether goes up -> Gasprice goes down

Ether goes down -> Gasprice goes up

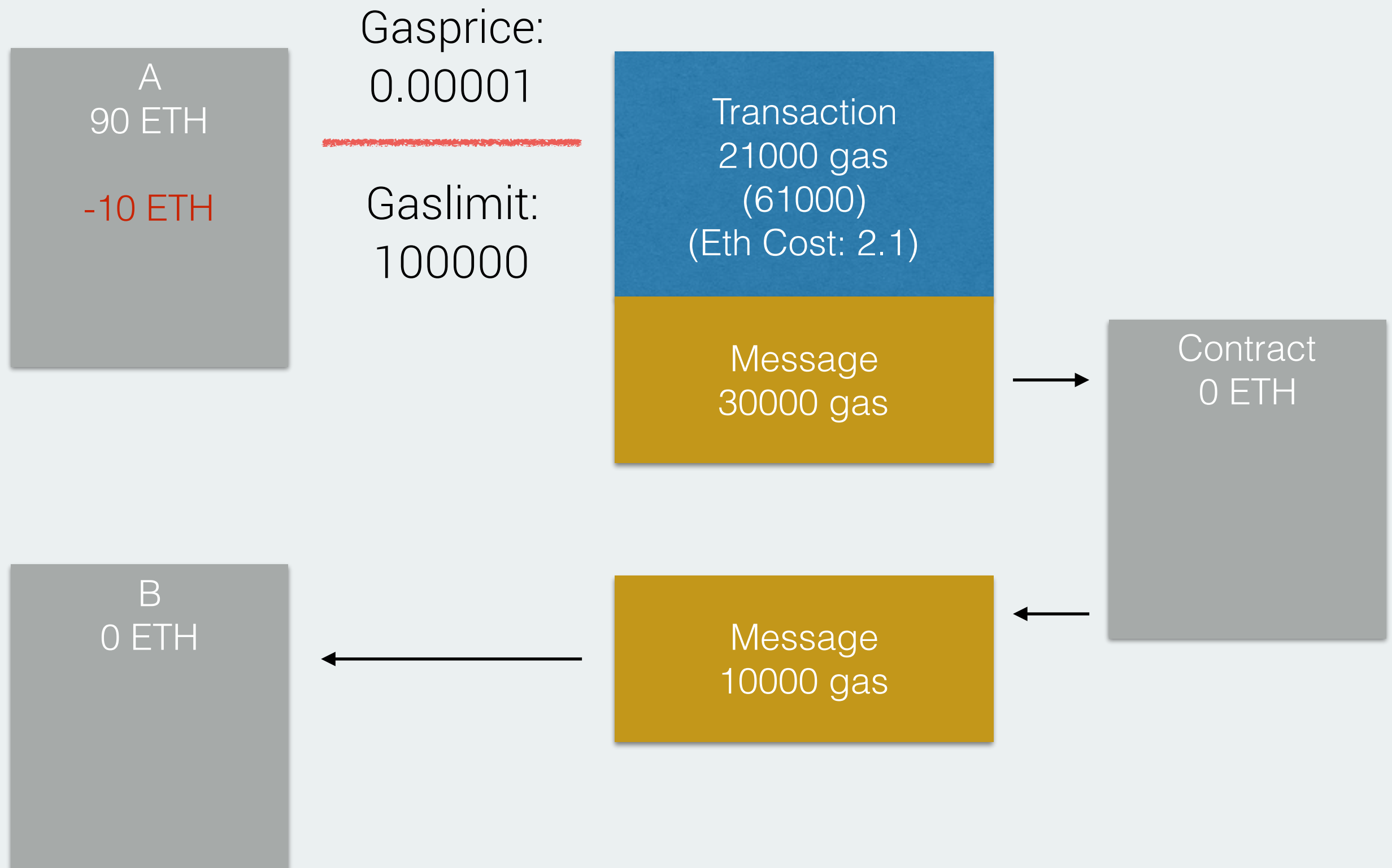


Blockchain



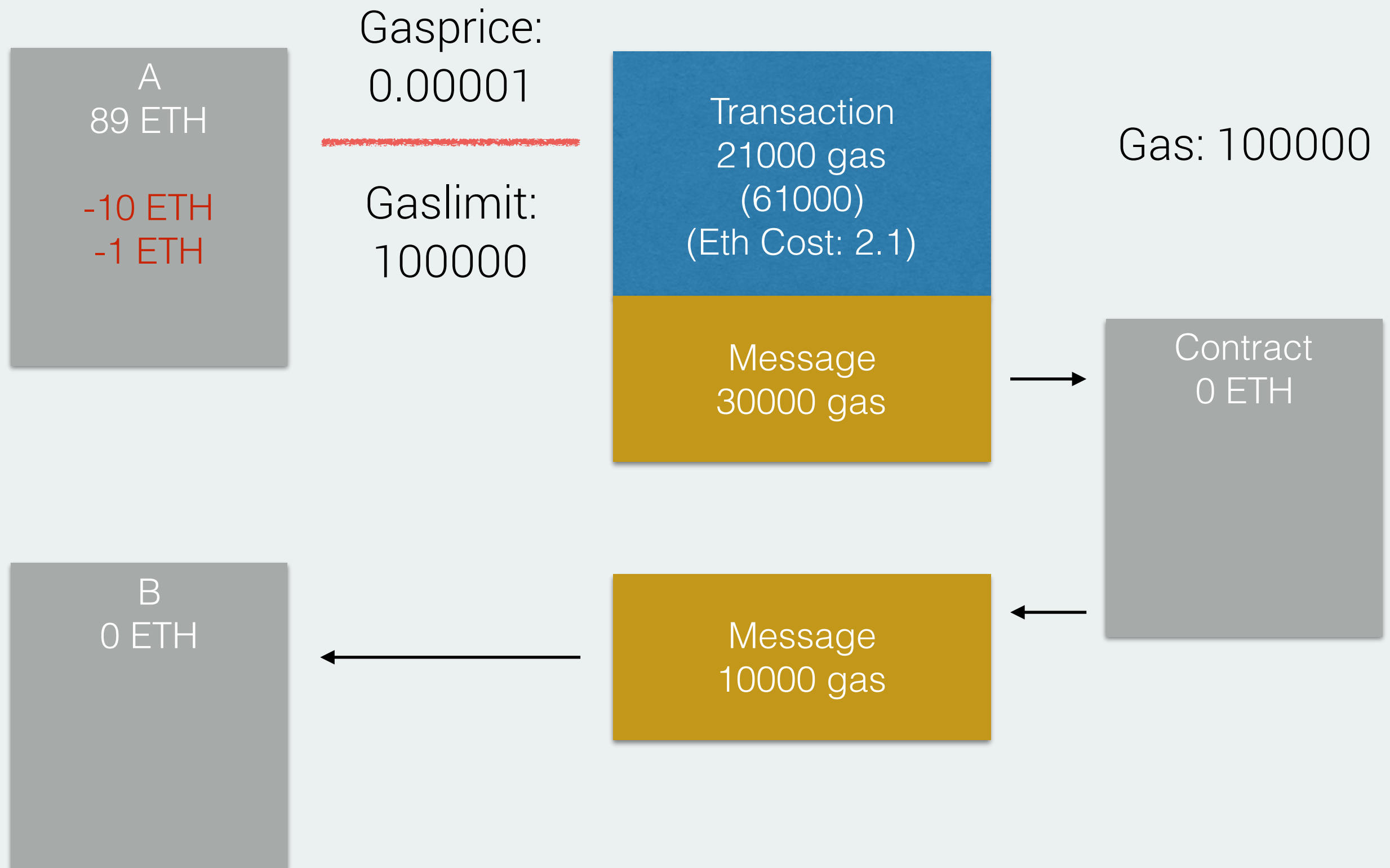


Blockchain



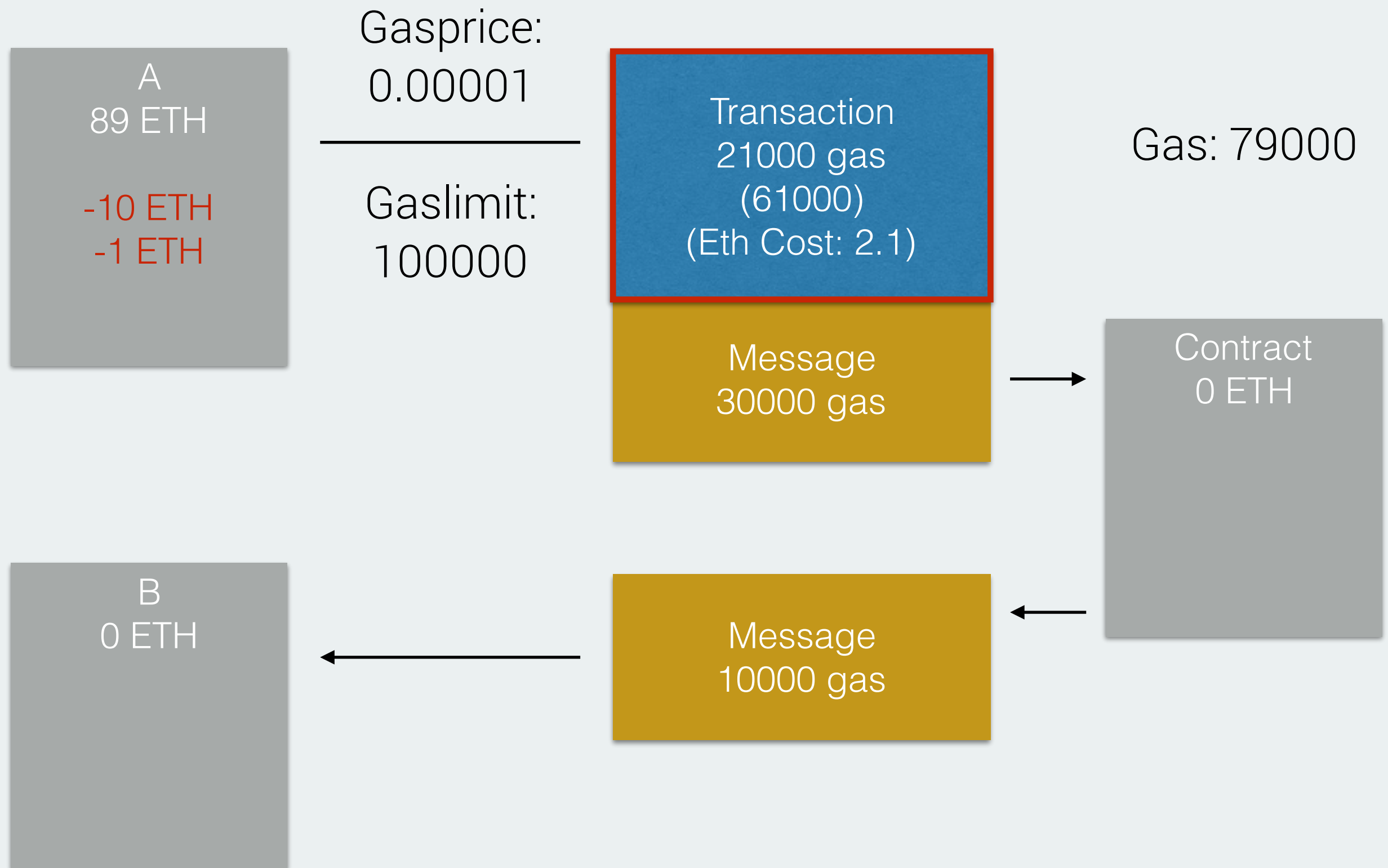


Blockchain



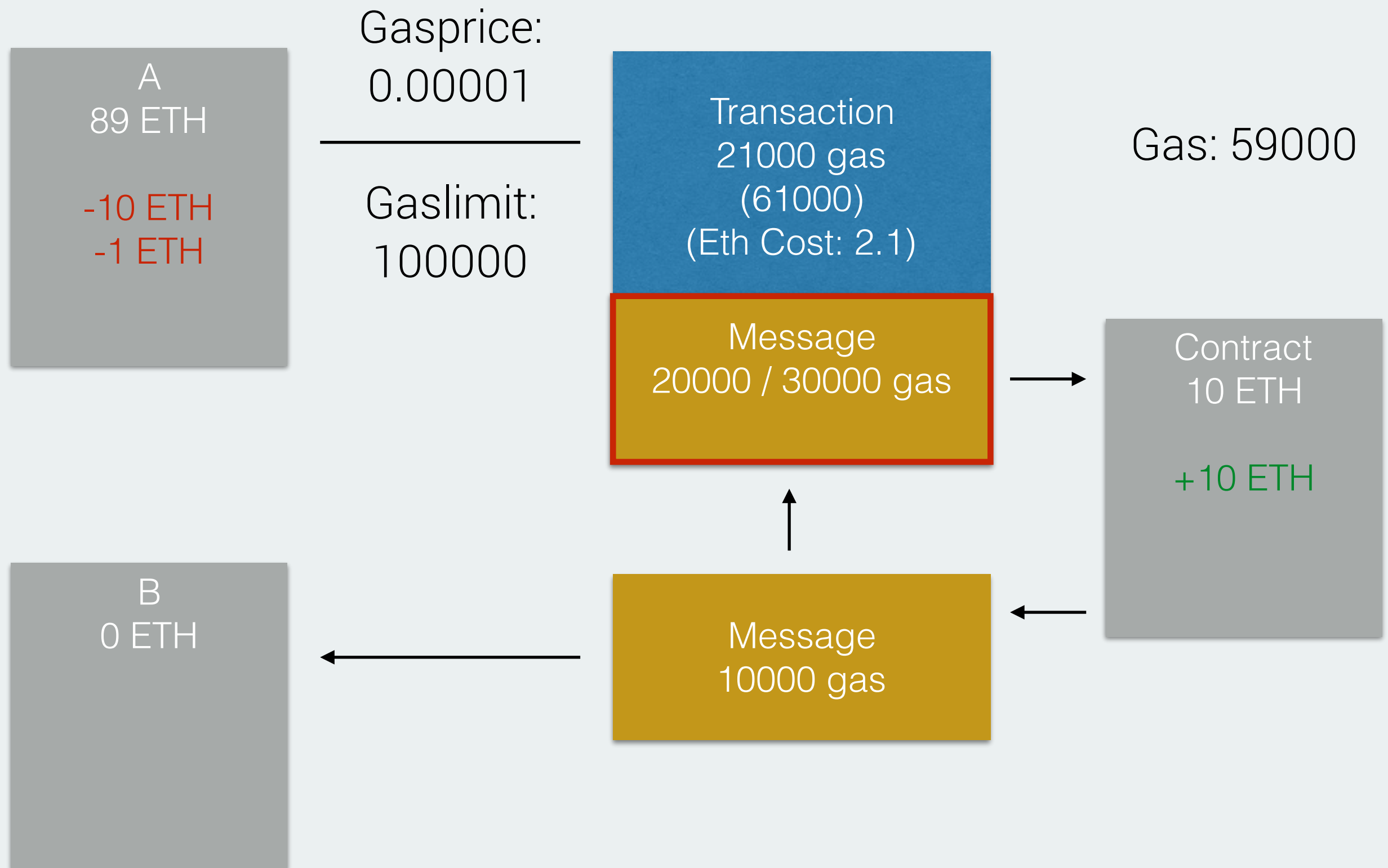


Blockchain



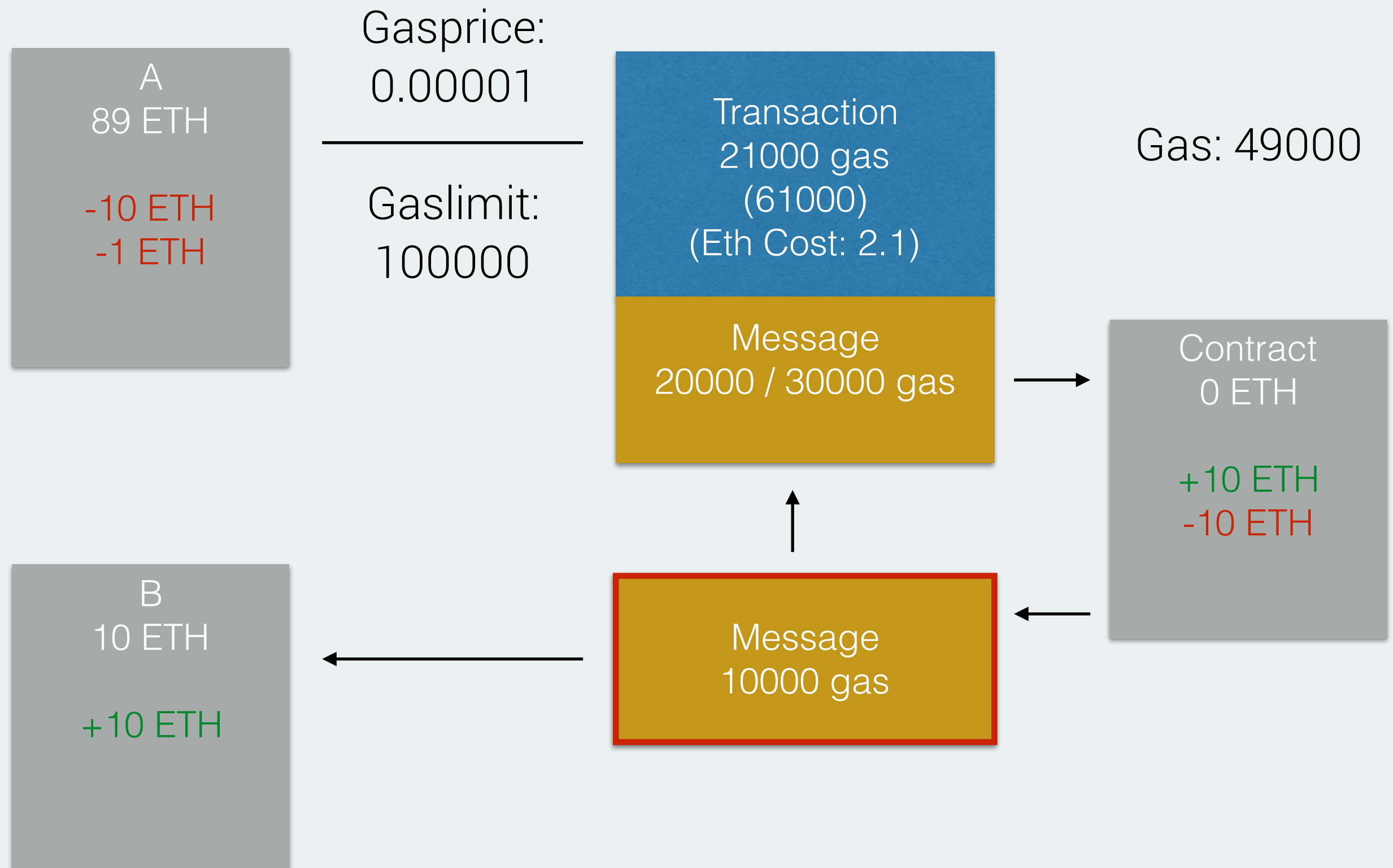


Blockchain



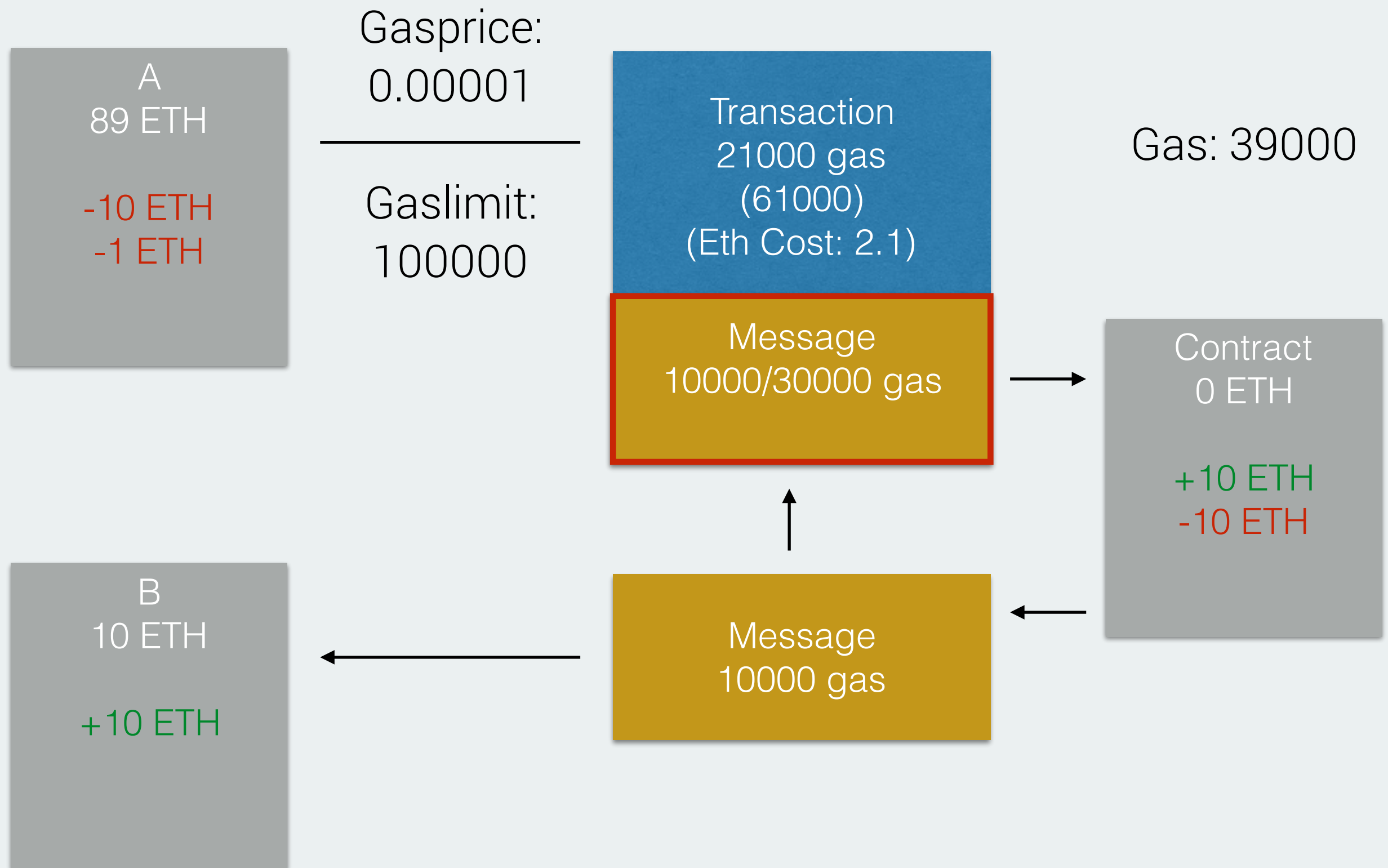


Blockchain



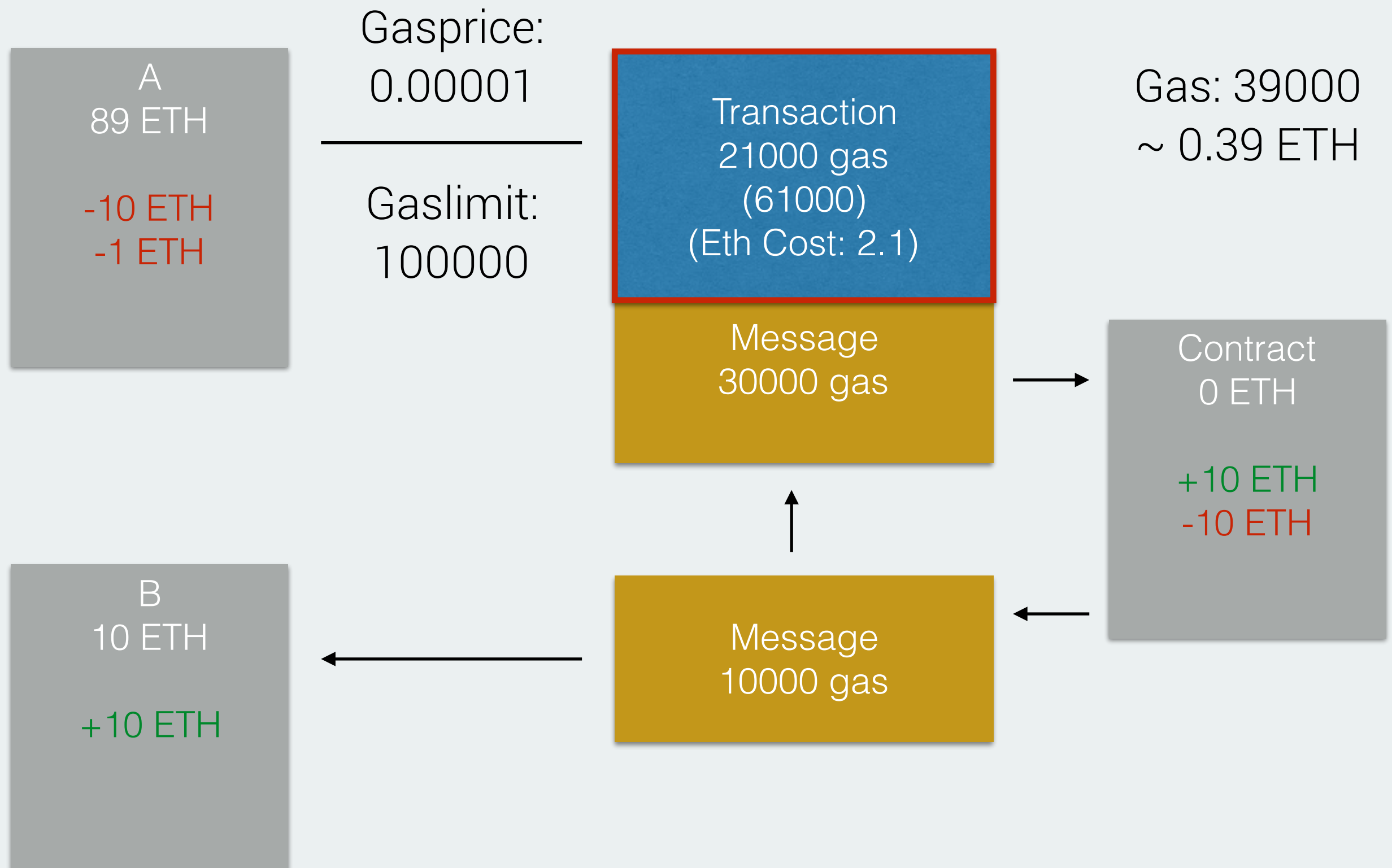


Blockchain



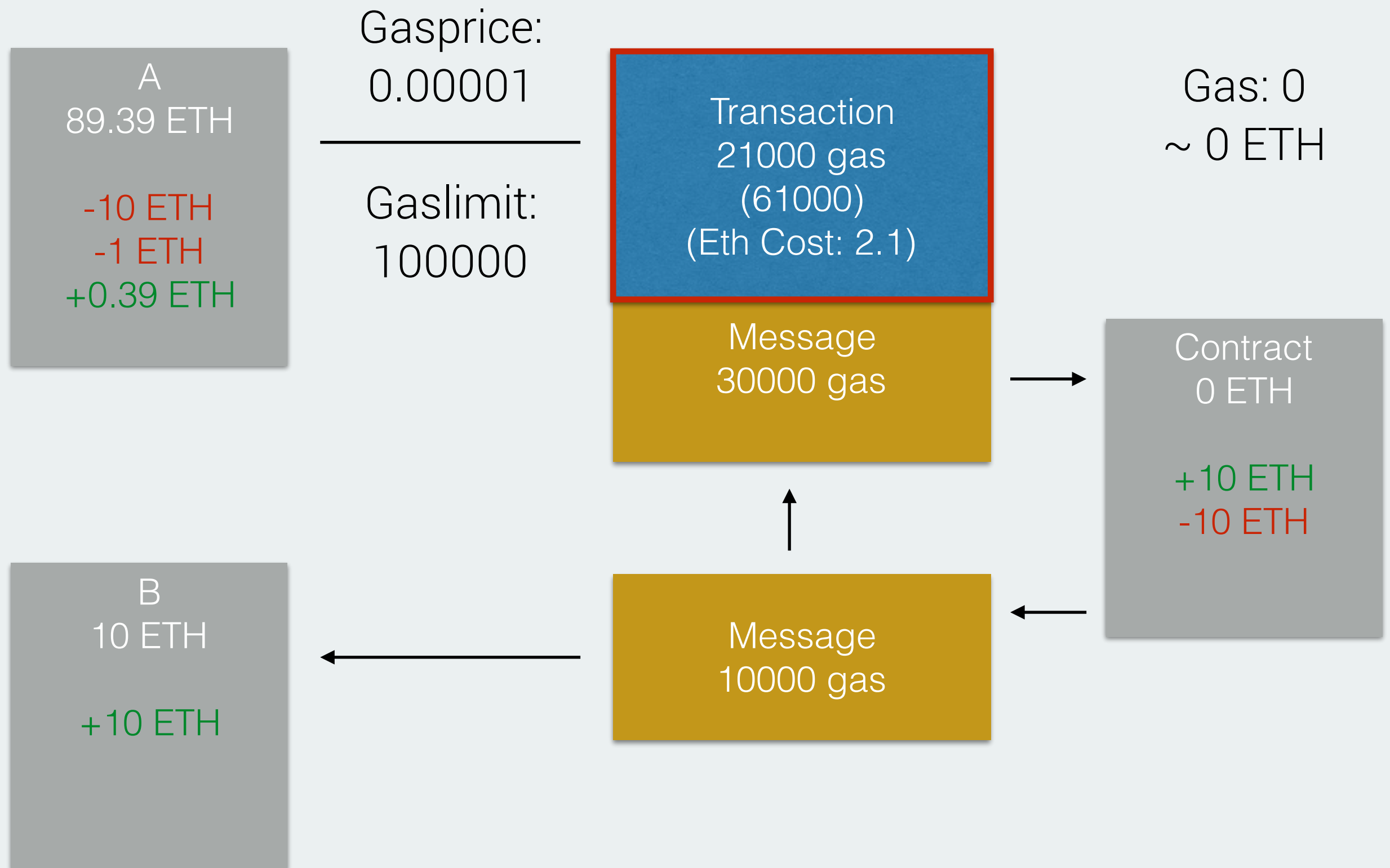


Blockchain





Blockchain

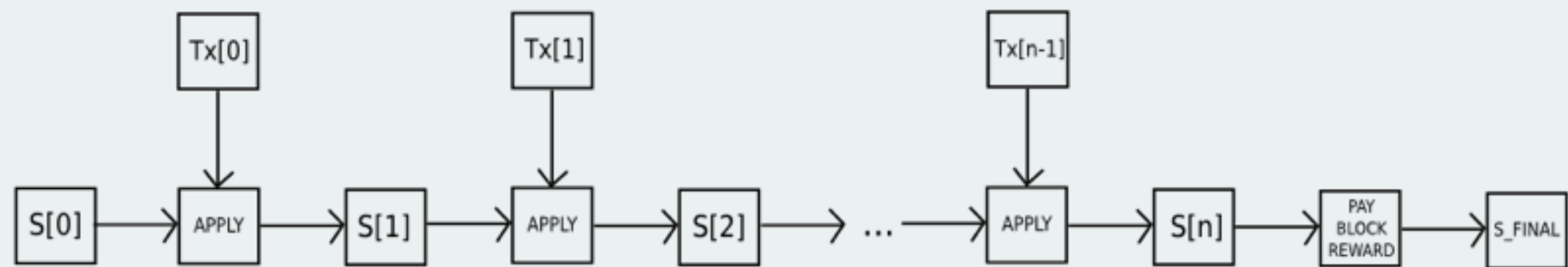




Blockchain

Blockchain gives transactions an order

Transactions are grouped together into blocks



Order is important:

Double spend (no unspent outputs, but balance might become 0)

2 transactions interacting with the same contract

Different order -> Potential different outcome

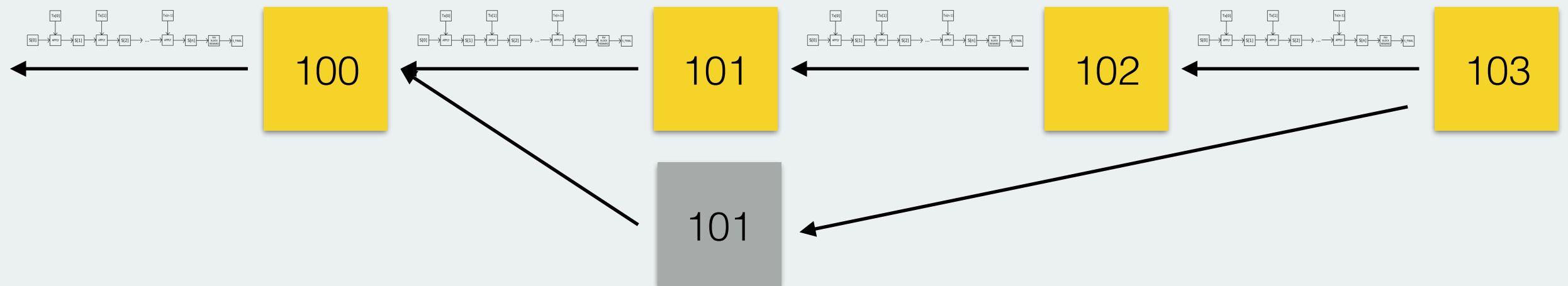


Blockchain

Blocks form a chain

~15 seconds apart

Some can uncle blocks



Longest chain is considered the consensus



Blockchain

Proof of Work (Ethereum 1.0)

EthHash

asic-resistant (high memory, io bandwidth)

targets gpu mining (2GB+ GRAM)

To be succeeded by Casper (PoS)

Exponential difficulty increase -> Freeze in December

Constant Block Reward during PoW Phase



Blockchain

Yellow Paper (github: ethereum/latexpaper)

ETHEREUM: A SECURE DECENTRALISED GENERALISED TRANSACTION LEDGER HOMESTEAD DRAFT

0xf1 CALL

7 1

Message-call into an account.

$$\mathbf{i} \equiv \mu_{\mathbf{m}}[\mu_{\mathbf{s}}[3] \dots (\mu_{\mathbf{s}}[3] + \mu_{\mathbf{s}}[4] - 1)]$$

$$(\sigma', g', A^+, \mathbf{o}) \equiv \begin{cases} \Theta(\sigma, I_a, I_o, t, t, & \text{if } \mu_{\mathbf{s}}[2] \leq \sigma[I_a]_b \wedge \\ C_{\text{CALLGAS}}(\mu), I_p, \mu_{\mathbf{s}}[2], \mu_{\mathbf{s}}[2], \mathbf{i}, I_e + 1) & I_e < 1024 \\ (\sigma, g, \emptyset, \mathbf{o}) & \text{otherwise} \end{cases}$$

$$n \equiv \min(\{\mu_{\mathbf{s}}[6], |\mathbf{o}|\})$$

$$\mu'_{\mathbf{m}}[\mu_{\mathbf{s}}[5] \dots (\mu_{\mathbf{s}}[5] + n - 1)] = \mathbf{o}[0 \dots (n - 1)]$$

$$\mu'_g \equiv \mu_g + g'$$

$$\mu'_{\mathbf{s}}[0] \equiv x$$

$$A' \equiv A \uplus A^+$$

$$t \equiv \mu_{\mathbf{s}}[1] \bmod 2^{160}$$

where $x = 0$ if the code execution for this operation failed due to an exceptional halting

$Z(\sigma, \mu, I) = \top$ or if

$\mu_{\mathbf{s}}[2] > \sigma[I_a]_b$ (not enough funds) or $I_e = 1024$ (call depth limit reached); $x = 1$ otherwise.

$$\mu'_i \equiv M(M(\mu_i, \mu_{\mathbf{s}}[3], \mu_{\mathbf{s}}[4]), \mu_{\mathbf{s}}[5], \mu_{\mathbf{s}}[6])$$

Thus the operand order is: gas, to, value, in offset, in size, out offset, out size.



Whisper

Decentralised Messaging

Messages can be filtered by topics

Very flexible

- Messages can be encrypted

- Messages can be signed

- Broadcast

PoW for spam protection and priority

Not designed for real time communication





Swarm

Swarm (Not yet available) or IPFS

Reverse Hash-table

Originator of source unknown

Low-latency

Incentivation model for storage



“bzz” branch in go-ethereum repository



ethereum

Mist

TEST-NET | 11 peers | 567,297 | 20s since last block

BROWSE

ETHEREUM WALLET
4.99 ETH

Wallets


Send

Etherbase 5 ETH


Main Wallet 0 ETH

ethereum-dapp-wallet.meteor.com › account › 0x41219bb718473ad918462631f320b7abded54fbf

WALLETS SEND CONTRACTS 4.99 ETHER



Etherbase


 0x41219bb718473ad918462631f320b7abded54fbf

4.99 ETHER

Deposit

Copy address

Show QR-Code



 **Goxcoin** 0.21000000 GOX


LATEST TRANSACTIONS

Filter transactions

Mar 15


Created contract

 Etherbase →  Created contract at

 0x176577fec9dea0b2984611f168b25bdabe5dfc1d

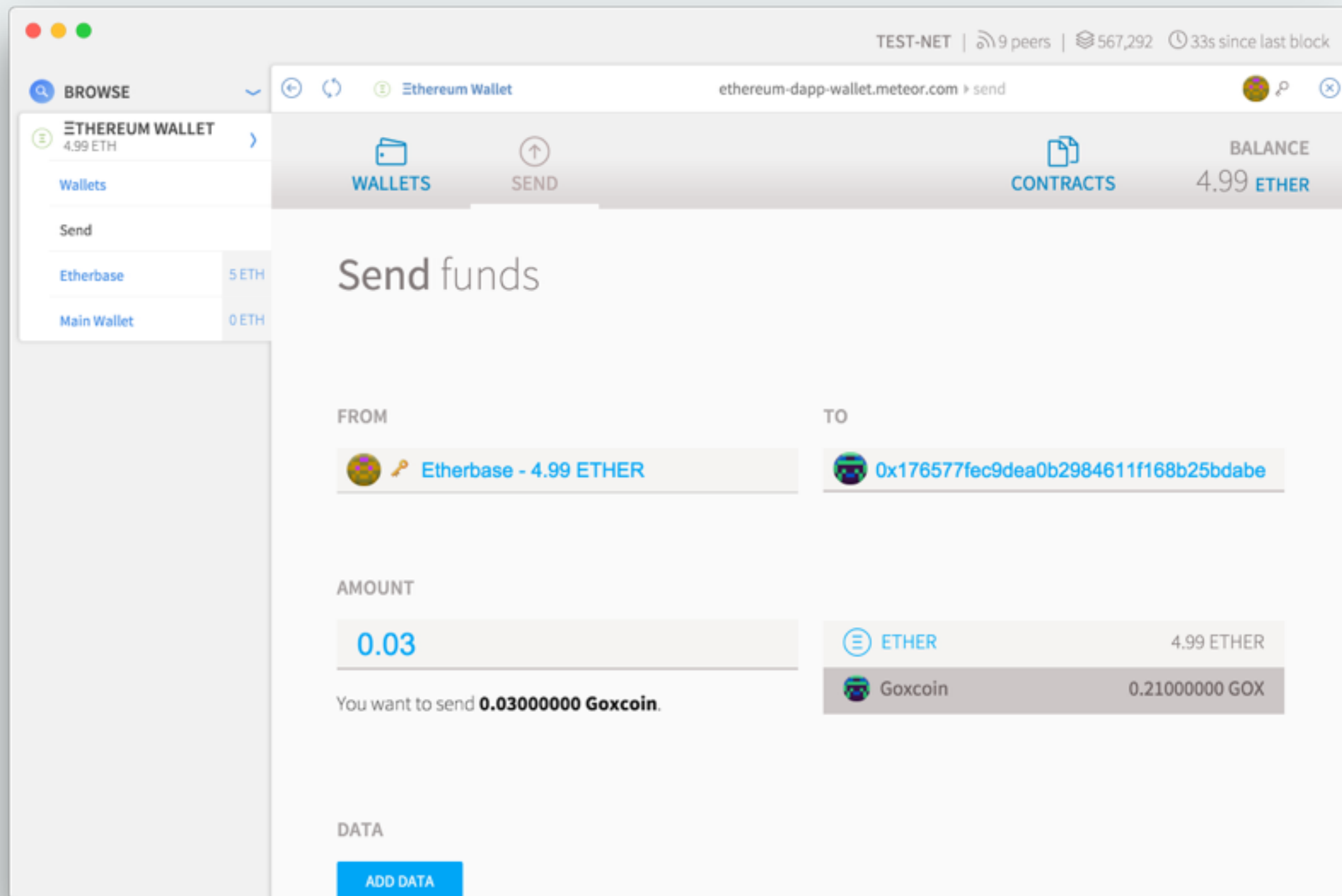
5 minutes ago

-0.00 ETHER





Mist





Mist

TEST-NET | 8 peers | 567,244 | 16s since last block

BROWSE

augur

augur.net

ETHereum WALLET

5.00 ETH

Markets

Portfolio

Reporting

My Markets

Cash: 9,998.20

Rep: 47.00

Ether: 4.99

Sign Out

Markets

New Market

Search

Volume

Open Markets

Showing 1 - 15 of 70

<

1

2

3

4

5

>

Which US Presidential candidate will win the US Presidency?

View Market

Multiple-Choice Market (6 outcomes)

End Date: Nov 9, 2016

Trading Fee: 2.0%

Volume: 352317.80 shares

TOP PREDICTIONS

Hillary Clinton

42%

Donald Trump

41%

Bernie Sanders

12%

John Kasich

3%

Marco Rubio

1%

YOUR TRADING

Positions

1

Trades

0

Profit / Loss

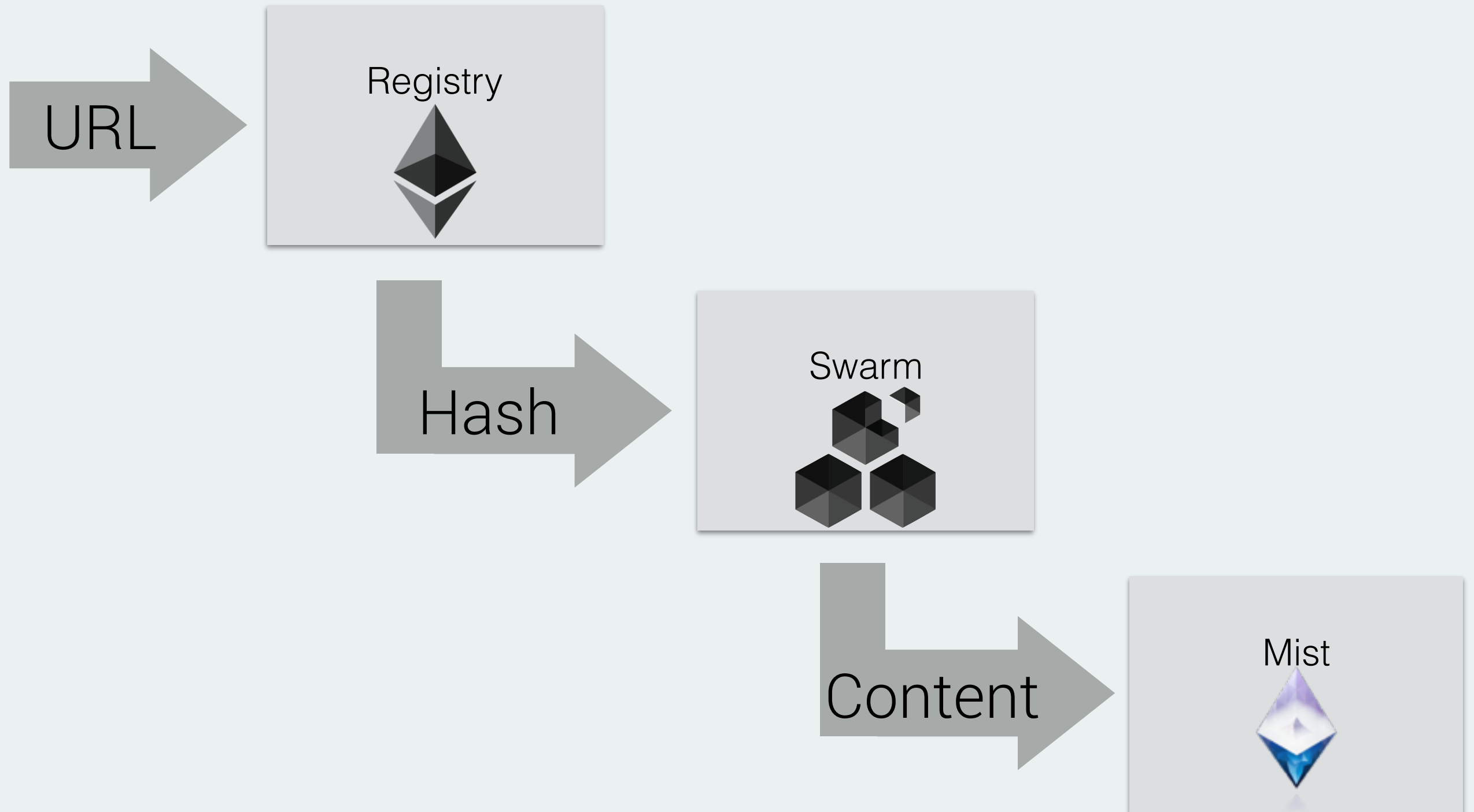
0.00

Unrealized P/L

0.00

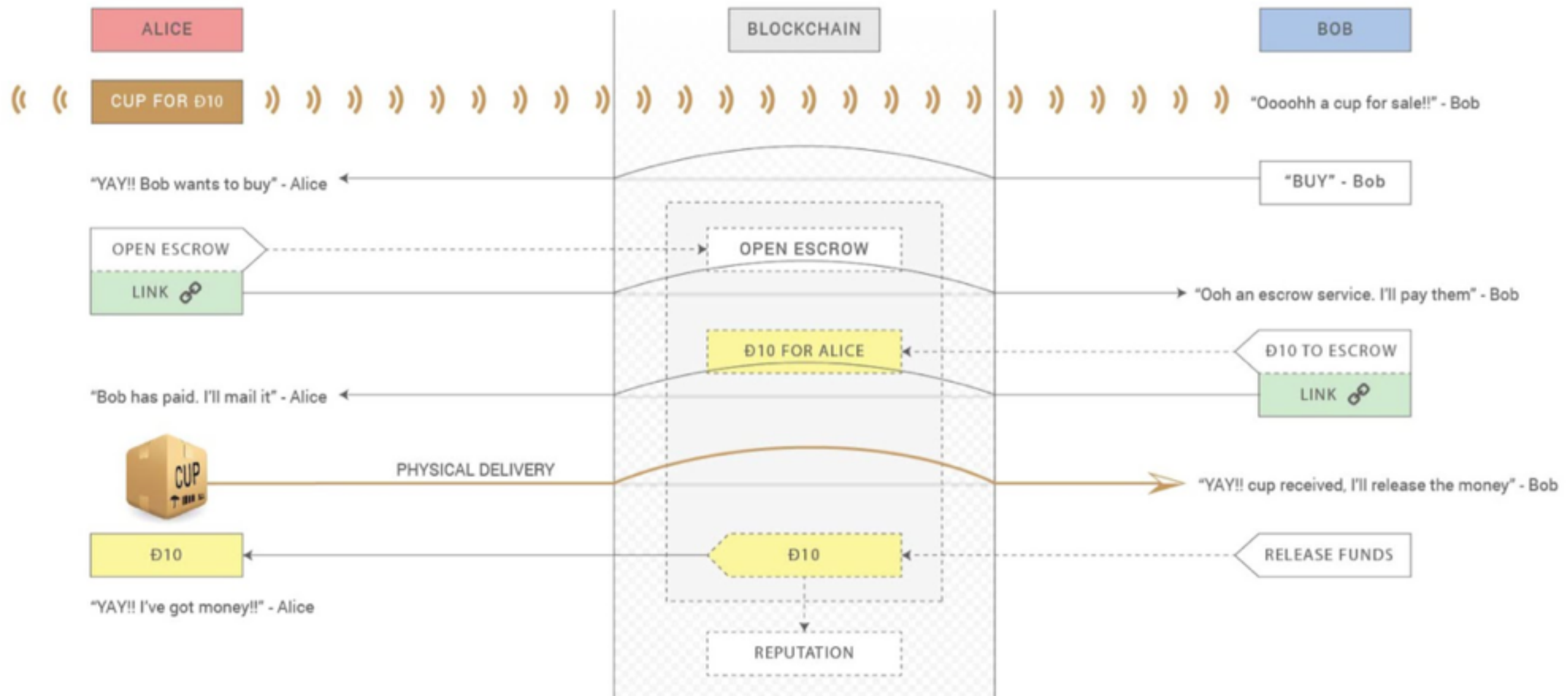


DApp





DApp





ethereum

dapps.ethercasts.com

<p>Etherdesign Ed AI Design Dapp</p> <p>Demo 2016-03-14</p>	<p>Arcade City Christopher David Ridesharing for the people</p> <p>Work in Pr... 2016-03-12</p>	<p>Grid Singularity Ewald Hesse Decentralized energy data exchange platform</p> <p>Concept 2016-03-12</p>	<p>Pangea BITNATION A Blockchain Jurisdiction</p> <p>Demo 2016-03-11</p>	<p>GovernMental gövernmental Educational Ponzi Schema</p> <p>Live 2016-03-11</p>	<p>NervemeterDAO Ian Allison & Kieron Livingstone 100% transparent charitable org</p> <p>Concept 2016-03-11</p>	<p>Transactive Grid Martin Lundfall / ConsenSys Peer to peer home produced energy trading</p> <p>Demo 2016-03-10</p>	<p>GroupGnosis ConsenSys / Martin Köppelmann & Stefan George Prediction market</p> <p>Live 2016-03-10</p>	<p>Dynamic Payout Pyram... Daedalus A pyramid with payouts and fees that alter for prompt payout</p> <p>Live 2016-03-09</p>	<p>Ujo Music ConsenSys Rebuilding the music industry on the blockchain</p> <p>Work in Pr... 2016-03-08</p>	<p>Quorum Alex Beregszaszi Protect your Ethers with Bitcoin hardware wallets</p> <p>Work in Pr... 2016-03-07</p>	<p>dns2 Sinking Point Potential improvement on the DNS in the form of a smart contract</p> <p>Work in Pr... 2016-03-04</p>
<p>the.looney.farm Xavier Yvez A small (& growing) collection of ETH invETH out games</p> <p>Work in Pr... 2016-03-02</p>	<p>Etheroll James Britt Ether dice game casino / gamble ether</p> <p>Live 2016-03-02</p>	<p>Syng Jarrad Hope open source mobile ethereum client</p> <p>Work in Pr... 2016-02-26</p>	<p>LETH Inzhoop LETH is the first hybrid mobile app to manage an Ethereum wallet</p> <p>Work in Pr... 2016-02-25</p>	<p>EthereumWall LPMitchell Decentralized unmoderated public message board</p> <p>Live 2016-02-25</p>	<p>PROFETH Roberto Valenti A smart contracts ecosystem for a resource-based digital economy</p> <p>Stealth Mo... 2016-02-22</p>	<p>EtherWall Aleš Katona GUI desktop wallet for Ethereum</p> <p>Live 2016-02-18</p>	<p>EtherDoubler Satoshi :) The first doubler with verified contract</p> <p>Live 2016-02-17</p>	<p>Solether Francesco 'makevoid' + KristinaB Autonomous Electrical Energy Entities - Prototype +EntityConcept Unlicense</p> <p>Work in Pr... 2016-02-17</p>	<p>EtherAPIs Péter Szilágyi & Jeffrey Wilcke Micropayment platform for generic API calls</p> <p>Work in Pr... 2016-02-16</p>	<p>Balanc3 Chris Lundkvist Triple-entry accounting</p> <p>Concept 2016-02-15</p>	<p>btcrelay Joseph Chow A bridge between the Bitcoin blockchain & Ethereum smart contracts</p> <p>Work in Pr... 2016-02-15</p>
<p>Ethereum Computatio... Piper Merriam Verifiable off-chain computation for ethereum contracts.</p> <p>Work in Pr... 2016-02-15</p>	<p>Icebox Christian Lundkvist A cold storage solution for Ether</p> <p>Live 2016-02-11</p>	<p>KingOfTheEtherThrone Kieran Elby Will make you a King or Queen, might grant you riches, and will immortalize your name.</p> <p>Work in Pr... 2016-02-06</p>	<p>Dactuary Vignesh Sundaresan Decentralized actuary built on Ethereum</p> <p>Concept 2016-02-04</p>	<p>insurETH Thomas Bertani, Kristina Butkute, Francesco Canessa P2P flight insurance</p> <p>Work in Pr... 2016-01-21</p>	<p>Venture Equity Exchan... Ryan Tate, Sean Pollock Decentralized Autonomous Ventures (DAVs)</p> <p>Stealth Mo... 2016-01-13</p>	<p>EthHypeDns slothbag Resolve Hyperborea/CJDNS ipv6 addresses via etherid.org contact</p> <p>Live 2016-01-05</p>	<p>Dapple Nexus Dev smart contract package manager and build tool</p> <p>Live 2016-01-02</p>	<p>dappsys Nexus Dev Solidity Contract System Framework</p> <p>Work in Pr... 2016-01-02</p>	<p>Maker / Dai Maker Stable Cryptocurrency</p> <p>Work in Pr... 2016-01-02</p>	<p>KYC-chain Edmund John Proof of KYC Requirements</p> <p>Concept 2015-12-27</p>	<p>Cetas Algorithmix Decentralized KYC and Credit rating function on blockchain</p> <p>Work in Pr... 2015-12-26</p>
<p>Verbatm Claran Murray A marketplace for employment credentials</p> <p>Concept 2015-12-25</p>	<p>Decentralized Twitter Jahn Bertsch Microblogging on the Ethereum blockchain</p> <p>Work in Pr... 2015-12-22</p>	<p>etherforum Matias Insaurralde An experimental / proof of concept / distributed forum built on top of Ethereum</p> <p>Work in Pr... 2015-12-21</p>	<p>ethID Argyris Xafis Decentralised Password Vault</p> <p>Concept 2015-12-20</p>	<p>4G Capital Smart Contr... Erick Murimi Donors can use the application to fund small businesses in Kenya using digital currency. The money lent is converted and disbursed</p> <p>Concept 2015-12-20</p>	<p>Dapp Store Tim Coulter Marketplace for Dapps</p> <p>Live 2015-12-11</p>	<p>ludex Alex Beregszaszi, Thomas Bertani smart contract based reputation system</p> <p>Work in Pr... 2015-12-10</p>	<p>JobMarket Ultra Koder Decentralized job market of the future for humans and IoT</p> <p>Work in Pr... 2015-12-09</p>	<p>MetaMask Aaron Davis MetaMask brings Ethereum to your web browser</p> <p>Work in Pr... 2015-12-09</p>	<p>SafeMarket Aakil Fernandes P2P Marketplace</p> <p>Work in Pr... 2015-12-09</p>	<p>EtherID Alexandre Naverniouk Ethereum Name Registrar</p> <p>Live 2015-11-30</p>	<p>TinyOracle Alex Beregszaszi Simple data provider toolkit for Ethereum</p> <p>Work in Pr... 2015-11-25</p>
<p>Community-Currency Rogelio Segovia Community currency with zero reserve mutual credit and adjustable parameters</p> <p>Work in Pr... 2015-11-24</p>	<p>RANDAO Youcai A DAO working as RNG of Ethereum</p> <p>Work in Pr... 2015-11-23</p>	<p>Blockchain Backpack Dr. Blue Valve Item Economy on Ethereum</p> <p>Concept 2015-11-23</p>	<p>Taxeme Jeffrey B. Petersen A component of the Resilience taxation system</p> <p>Work in Pr... 2015-11-20</p>	<p>Browser-Solidity chriseth & d11e9 Browser based solidity contract compiler & runtime</p> <p>Live 2015-11-20</p>	<p>proof-of-individuality d11e9 anti-sybil token</p> <p>Work in Pr... 2015-11-20</p>	<p>FreeMyVunk R. Tyler Smith Monitize your video game junk</p> <p>Concept 2015-11-19</p>	<p>TokenEscrow Alex Beregszaszi Contract for running an escrow service for Ethereum token-contracts</p> <p>Work in Pr... 2015-11-16</p>	<p>Etherdice vnovak Provably fair and escrowed gambling</p> <p>Live 2015-11-15</p>	<p>Etherboard unknown Combining a Ponzi-scheme with the MillionDollarHomepage</p> <p>Work in Pr... 2015-11-15</p>	<p>String Dominic Williams Autonomous & open financial cloud for financial assets</p> <p>Concept 2015-11-14</p>	<p>Ampliative Art Adrian Onco A decentralized, cooperative and empowering art community</p> <p>Concept 2015-11-13</p>
<p>Ethereum Pyramid ethererik Ethereum Pyramid Contract</p> <p>Live 2015-11-13</p>	<p>PublicVotes Dominik Schliener A publicly verifiable Voting System, powered by Smart Contracts</p> <p>Work in Pr... 2015-11-12</p>	<p>Shapeshift Bot Alex Beregszaszi Simple Ethereum contract to transfer Ether to Bitcoin</p> <p>Work in Pr... 2015-11-12</p>	<p>Oracize Thomas Bertani Provable honest oracle service</p> <p>Live 2015-11-10</p>	<p>Etheria fivedogit The first-ever decentralized virtual world</p> <p>Live 2015-11-07</p>	<p>Project Mati Harsh Patel Decentralized KYC and Credit rating function on blockchain</p> <p>Work in Pr... 2015-11-06</p>	<p>Spore Denis Erfurt Simple package manager for dApp development based on ethereum and IPFS</p> <p>Work in Pr... 2015-10-29</p>	<p>Populus Piper Merriam Ethereum Contract Development Framework</p> <p>Work in Pr... 2015-10-07</p>	<p>ethereum-datetime Piper Merriam Ethereum Date and Time tools</p> <p>Work in Pr... 2015-10-07</p>	<p>LightWallet ConsenSys / Chris Lundkvist Lightweight JS Wallet for Node and the browser</p> <p>Work in Pr... 2015-10-07</p>	<p>Grove Piper Merriam Fast, efficient, queryable storage for ethereum contracts</p> <p>Live 2015-10-07</p>	<p>slock.it Christoph Jentzsch If you can lock it, we will let you rent, sell or share it.</p> <p>Work in Pr... 2015-10-02</p>
<p>meteor-embark Chris Hitchcott Streamlined Ethereum Integration for Meteor</p> <p>Live 2015-10-02</p>	<p>Colony AttaAtta Companies for the 21st Century</p> <p>Live 2015-10-02</p>	<p>Dereo Dereo Decentralized over-the-air television streaming network</p> <p>Live 2015-10-02</p>	<p>Ethereum Alarm Clock Piper Merriam Schedule contract calls</p> <p>Live 2015-10-02</p>	<p>CryptoRPS CryptoRPS Rock-Paper-Scissor game with a twist</p> <p>Live 2015-10-02</p>	<p>Dynamis Joshua Davis Insurance Dapp</p> <p>Live 2015-10-02</p>	<p>Project Basil Harsh Patel Decentralised Vulnerability feed management</p> <p>Live 2015-10-02</p>	<p>AuditDog Roman Pláčil SW audit repository</p> <p>Live 2015-10-02</p>	<p>Universal DApp d11e9 A Universal Interface for contracts on the Ethereum blockchain</p> <p>Live 2015-10-02</p>	<p>Avatar d11e9 distributed profile registry</p> <p>Live 2015-10-02</p>	<p>EtherPot Aakil Fernandes Provably Fair Lottery</p> <p>Live 2015-10-02</p>	<p>Raikoth moridinamael Governance experiment</p> <p>Live 2015-10-02</p>



ethereum

dapps.ethercasts.com

Ethos d11e9 An Ethereum Browser MIT Work in Pr... 2015-08-26	content d11e9 p2p community content platform MIT Work in Pr... 2015-08-26	Occams Run d11e9 All things being equal (50/50) only The Brave will win MIT Work in Pr... 2015-08-26	PirateChest d11e9 p2p magnet discovery MIT Work in Pr... 2015-08-26	HitFin Patrick Salami Bilateral settlement of OTC derivatives in 15 seconds Concept 2015-08-26	ChainGraph Konstantin Kudryavtsev Blockchain visualizer MIT Work in Pr... 2015-08-25	Dapper Jarrad Hope High Level EVM Assembly meta-programming using Python GPLv3 Work in Pr... 2015-08-24	EtherListen Kobi Gurkan Realtime Ethereum transaction visualizer MIT Live 2015-08-24	eDollar nexus@makerdao.com Stable Cryptocurrency proprietary Concept 2015-08-20	Frozeth Kobi Gurkan Ethereum tools for the offline machine MIT Work in Pr... 2015-08-17	EtherCrawler Peter Borah A dungeon crawler and challenge market based on Ethereum MIT Demo 2015-08-17	studbook Andres Junge Tinder for horses MIT Demo 2015-08-17
Cosmo Nick Dodson Meteor dapp for building and vetting solidity contracts MIT Work in Pr... 2015-08-15	smart-exchange Marek Kotewicz Exchange service MIT Work in Pr... 2015-08-15	Augur Jack Peterson, Joey Krug, etc Decentralized Prediction Market GPL Work in Pr... 2015-08-15	EtherEx caktux Decentralized Exchange MIT Work in Pr... 2015-08-15	Etherparty Lisa Cheng, Whit Jack Smart Contracts deploying the Cloud Concept 2015-08-15	Embark Iuri Matias Framework for Ethereum DApps MIT Live 2015-08-15	Weifund Nick Dodson Crowdfunding Platform MIT Work in Pr... 2015-08-15	EtherScan Matt Tan Blockchain explorer Live 2015-08-14	EtherCamp Roman Mandeleil Blockchain explorer Live 2015-08-13	NotarEth Maran Hidskes Ethereum based notary service MIT Live 2015-08-13	HonestDice etherapps.info Completely fair dice game Live 2015-08-12	Vevue Thomas Olson Bringing Google Street View to life Concept 2015-08-10
PowerBall Peter Borah "Powerball"-style lottery MIT Work in Pr... 2015-07-20	cyber-Fund Dima Starodubcev Make digital investments comprehensible, accessible, easy and safe Concept 2015-07-20	Spritzle Patrick Salami Fractional investment platform for Ethereum Demo 2015-07-09	WeiLend Massi Terzi P2P Lending Apache Work in Pr... 2015-07-08	Truffle Tim Coulter Development framework for Ethereum MIT Work in Pr... 2015-07-07	Otonomos Han Vertraete Blockchain-Chartered Companies Concept 2015-07-02	Jaakme.in Vaughn McKenzie Decentralised music streaming service Work in Pr... 2015-07-02	Croesus Anthony Eufemio Decentralized advertising platform build on ethereum Stealth Mo... 2015-07-02	TrustlessPrivacy sam@trustlessprivacy Interoperable electronic health records Work in Pr... 2015-06-23	chess_contracts blgmug Chess MIT Abandoned 2015-06-23	Ascend Louis-Pierre Morin A decentralized encrypted payload delivery system Work in Pr... 2015-06-18	Blockapps Kieren James-Lubin Middleware - API Work in Pr... 2015-06-15
Etherplan Donald McIntyre Smart Investment Plans on Ethereum! Concept 2015-06-12	ClimateCoin Dennis Peterson Coins for those who offset carbon Concept 2015-06-11	Bit Vote Aaron Bale Voting with time on the blockchain Unknown 2015-06-10	EyePi Bryan Hill Crowdsourced medicine Concept 2015-06-10	Blocknet Dan Metcalf & Ariyn Culwick Inter-blockchain application platform Concept 2015-06-03	EtherFund J.R. Bédard Ethereum Resources Work in Pr... 2015-06-01	BoardRoom Nick Dodson Board election and voting Stealth Mo... 2015-05-27	DappTorrent ? Decentralized BitTorrent Catalog Stealth Mo... 2015-04-29	DigiGlobal Anthony Eufemio & co Gold storage Concept 2015-04-29	Lazooz Shay Luf Ridesharing Concept 2015-04-29	Guarante eMarket Bruno Ricardo Ferreira Peer-to-peer marketplace for guarantees Concept 2015-04-29	SmartK Harm Bavinck Make your NDA Smart Concept 2015-04-29
EtherMarket Iuri Matias / Ryan Casey Decentralized Marketplace ? Work in Pr... 2015-04-28	Serpent.py Jarrad Hope A Python Implementation of the Serpent Programming Language for Ethereum GPL Work in Pr... 2015-04-28	Chronos Maxime Quandalle Trusted timestamp on top of ethereum MIT Abandoned 2015-04-28	Swarm Daniel Nagy Distributed File Storage LGPL Work in Pr... 2015-04-28	OrgFactory Paul Mumby DAO Automation platform Stealth Mo... 2015-04-28	Foodway Yonatan S Enables real-time multi-dimensional traceability along the food chain Unknown 2015-04-23	Golem Piotr Zieliński Distributed computation Unknown 2015-04-23	Epok Bill Schafer / Kobi Gurk Remittance service with plans for a decentralised exchange, microloans, crowdfunding Unknown 2015-04-23	Crypto Swartz Ethan Buchman / Vlad Zamfir Incentivized content curation On Hold (b... 2015-04-23	PointNurse Cyrus Maaghul Decentralized Healthcare Concept 2015-04-23	Adept John Cohn IBM/Samsung IoT Project Demo 2015-04-23	MintChalk James Alexander Levy In-browser smart contract building / publishing Work in Pr... 2015-04-23
Crowdesto Sam Collins Crowdfunded political movements Unknown 2015-04-23	Monegraph Chris Tse a digital artwork registry and marketplace Unknown 2015-04-23	EtherScripter mode80 Visual Smart Contract Editor Abandoned 2015-04-23	movETH Joris Bontje Decentralized Uber On Hold (b... 2015-04-22	Pokereum Oladapo Ajayi / Patrick Mazzota / Juan Pastas Decentralized Poker Concept 2015-04-22	Airlock John Gerrits Electronic Security Concept 2015-04-22	CubeSpawn James Jones Modular Manufacturing Concept 2015-04-22	Kindom Consensys Community management & formation Stealth Mo... 2015-04-22	Forums Consensys Micropayment Threaded Discussions Stealth Mo... 2015-04-22	Provenance Jessi Baker & Jutta Steiner Product Origin Tracking Concept 2015-04-22	EtherSlots Consensys / AF Dudley Casino Game Stealth Mo... 2015-04-22	atomic-swap Zack Hess Atomic cross-chain trading Work in Pr... 2015-04-22
Ethereum Prediction M... Atomrugs Prediction market Unknown 2015-04-22	cryptocoinwatch Joris Bontje Crypto currency datafeed Unknown 2015-04-22	Wallet Dapp Fabian Vogelsteller, Alex van de Sande Ethereum Wallet Unknown 2015-04-22	Dapp Catalog Fabian Vogelsteller, Alex van de Sande Dapp Catalog Unknown 2015-04-22	Whisper Chat Client Fabian Vogelsteller Group chat Unknown 2015-04-22	Project Groundhog Conrad Barski Social Network Unknown 2015-04-22	TrustDavis Joris Bontje & Jarrad Hope Reputation system Unknown 2015-04-22	Allied Peers Bitsilk / Elias Haase P2P Insurance Unknown 2015-04-22	dapp pricefeed Nick Dodson (Gold) price feed Unknown 2015-04-22	DAOwars Consensys / Peter Borah AI game for devs Unknown 2015-04-22	Ethergit Consensys / Roman Mandeleil Blockchain explorer Unknown 2015-04-22	sleth Joris Bontje Slot Machine Unknown 2015-04-22



Funding

Funded by crowdfunding

31.529 BTC raised (~18.5m USD at the time)

Over 9000 Transactions

half of that value lost due to bitcoin price decline

but rise in ether price secured funding for 4 years



2.0

Abstraction

- Contract pays fee

- Other signing mechanisms

Casper

- Proof of Stake with weak subjectivity

- Prediction market for blocks

Scalability

- Sharding



ethereum

Release Process

