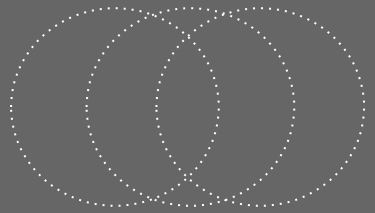
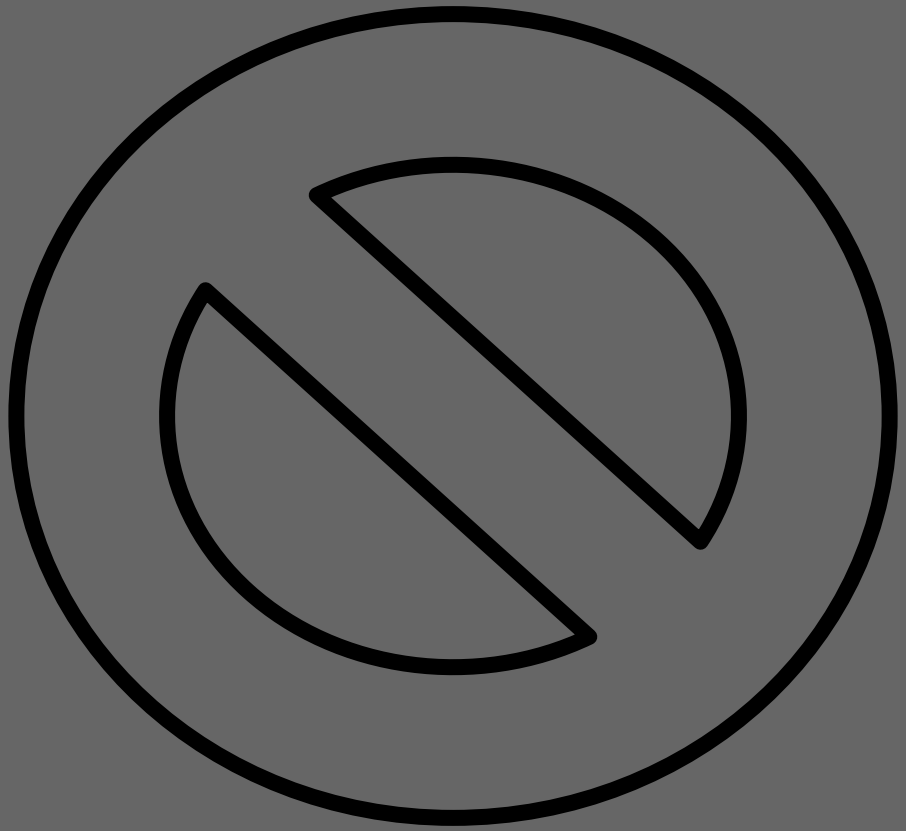
BLOCKSULT

WEB 3.0: a wider perception

Simanovsky Sergey
blocksult.com





1. 23% of the internet is free (Freedom house)
2. 47% of world population have some social media blocked (Internet trends)
3. 42% of world population have internet cuts due to political reasons (Internet trends)
4. Russia, China, USA, Germany, Kazakhstan, New Zealand, Australia, UK, Iran... and many more countries have some kind of internet restriction laws

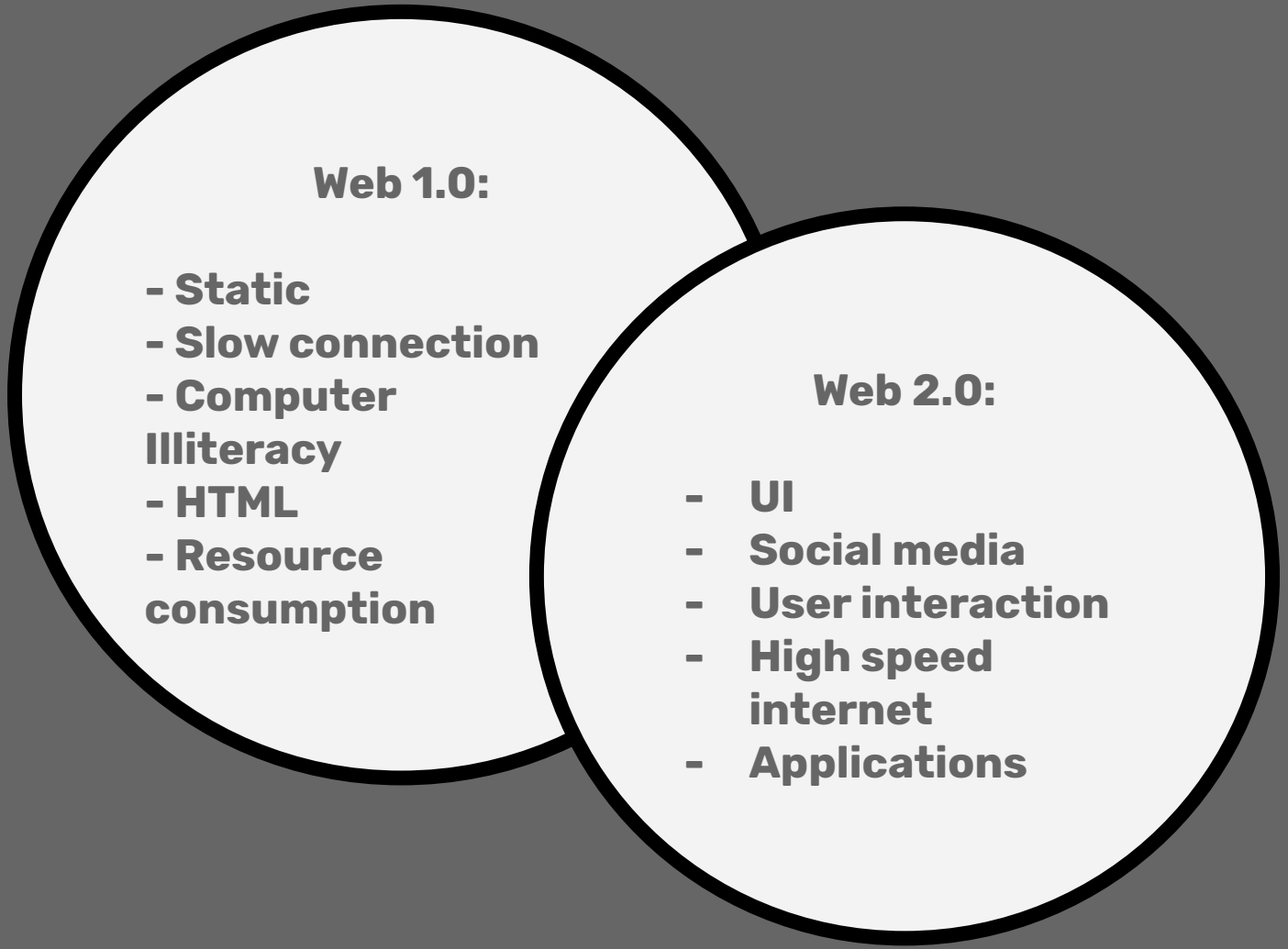
IF THE FREEDOM OF SPEECH IS TAKEN AWAY THEN DUMB AND SILENT WE MAY BE LED, LIKE SHEEP TO THE SLAUGHTER.

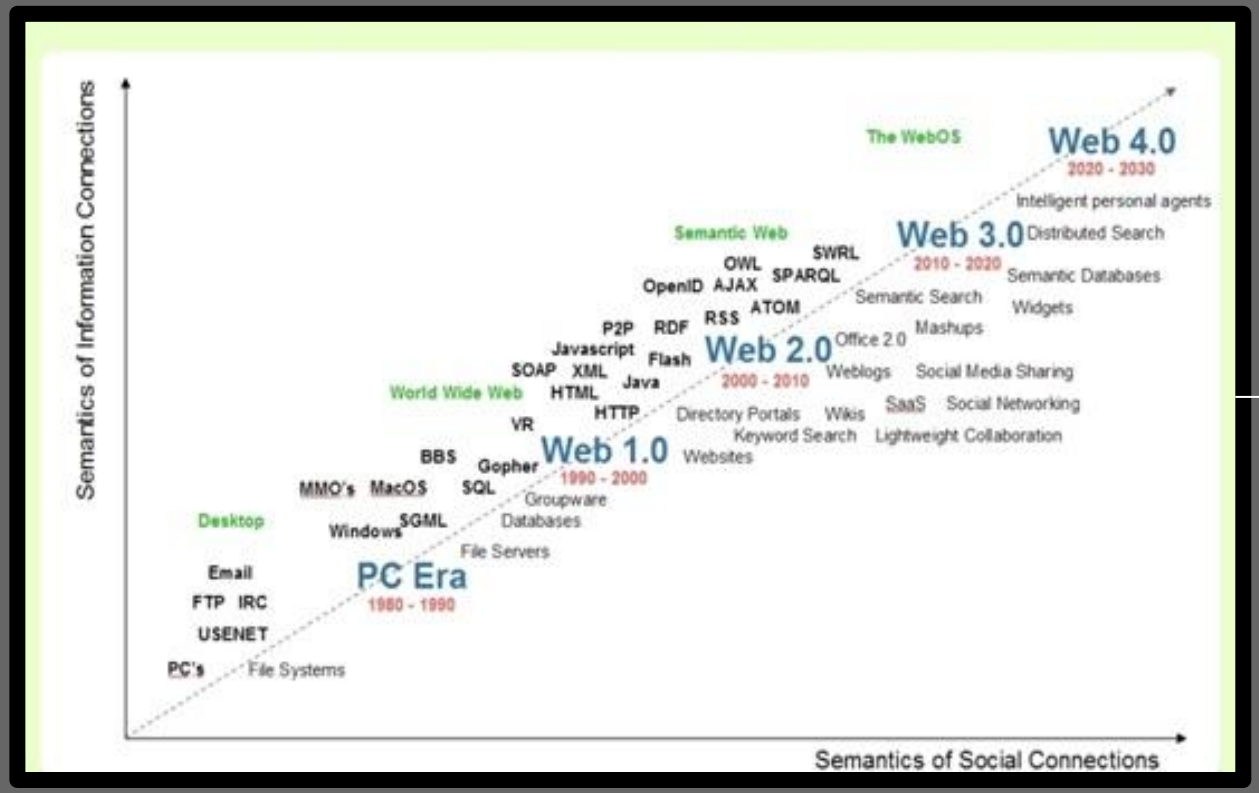
GEORGE WASHINGTON

“Web 3.0 has started to emerge as a movement away from the centralisation of services like search, social media and chat applications that are dependent on a single organisation to function” (Wiki)

“...an independent (deriving from the word “independence” here, as in - not controlled by third parties) communication of one to another, between applications, bots, software (and not JUST software) and the humans behind it...”

What web 4.0 might become:
“...an automatic gearbox, meaning that no one had control over it and no one makes the decisions for themselves!”


Web 1.0:
- Static
- Slow connection
- Computer Illiteracy
- HTML
- Resource consumption
Web 2.0:
- UI
- Social media
- User interaction
- High speed internet
- Applications

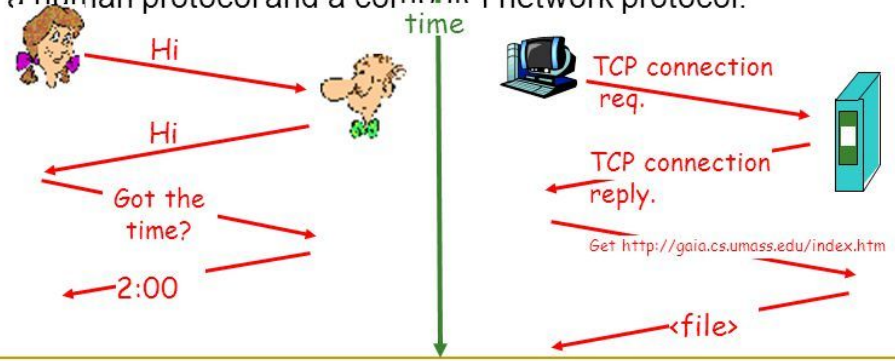

Semantics of Information Connections
Semantics of Social Connections
PC Era
1980 - 1990
Desktop
Email
FTP IRC
USENET
PC's
File Systems
Windows
SGML
File Servers
MMO's
MacOS
SQL
Databases
BBS
Gopher
Groupware
Web 1.0
1990 - 2000
Websites
VR
HTTP
HTML
World Wide Web
SOAP
XML
Java
Javascript
P2P
RDF
Flash
Web 2.0
2000 - 2010
RSS
ATOM
OpenID
AJAX
OWL
SPARQL
SWRL
Semantic Web
Directory Portals
Wikis
Keyword Search
Weblogs
Office 2.0
Mashups
Social Media Sharing
SaaS
Social Networking
Lightweight Collaboration
Semantic Search
Widgets
Web 3.0
2010 - 2020
Distributed Search
Semantic Databases
The WebOS
Web 4.0
2020 - 2030
Intelligent personal agents

Progress?

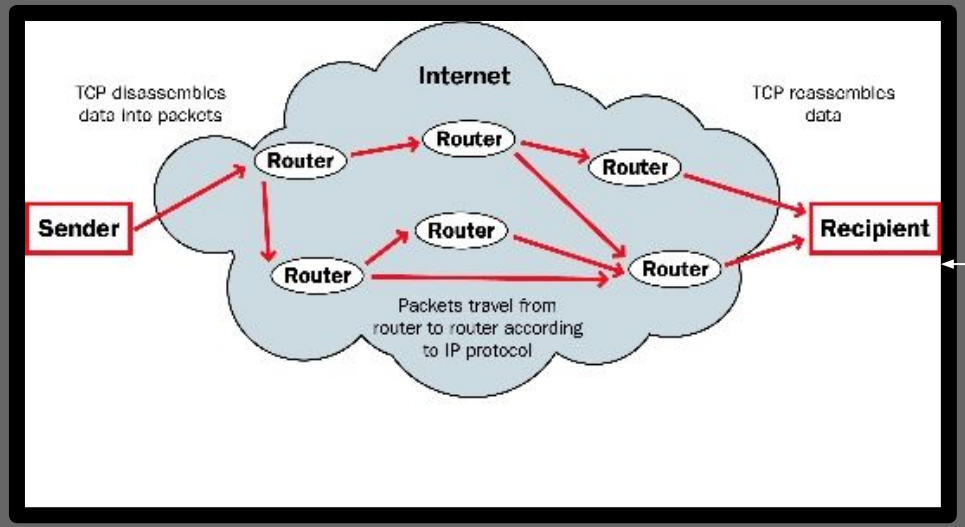
Protocol

- *protocols define format, order of msgs sent and received among network entities, and actions taken on msg transmission, receipt*

a human protocol and a computer network protocol:



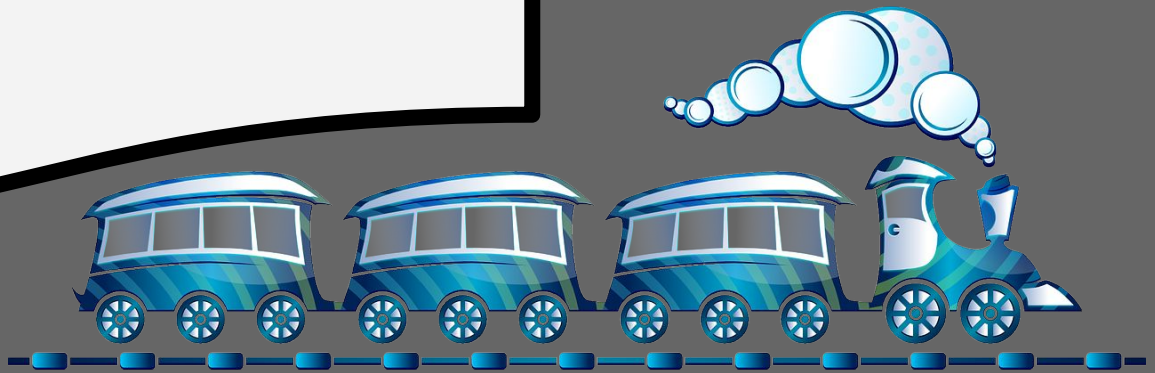
ROUTING



1) FIle in place A get subdivided into packets by a protocol
2) The packets have arrived at their new destination
3) The protocol has reassembled the files in place B

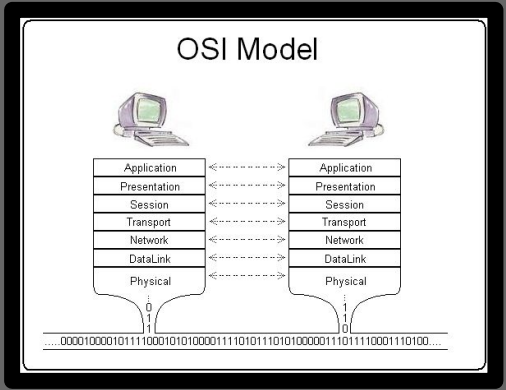
ROUTING

- Data is routed by packets
- Data packets contain different information about the file
- The route is not always obvious
- A router helps the data to “travel”
- The route an be changed

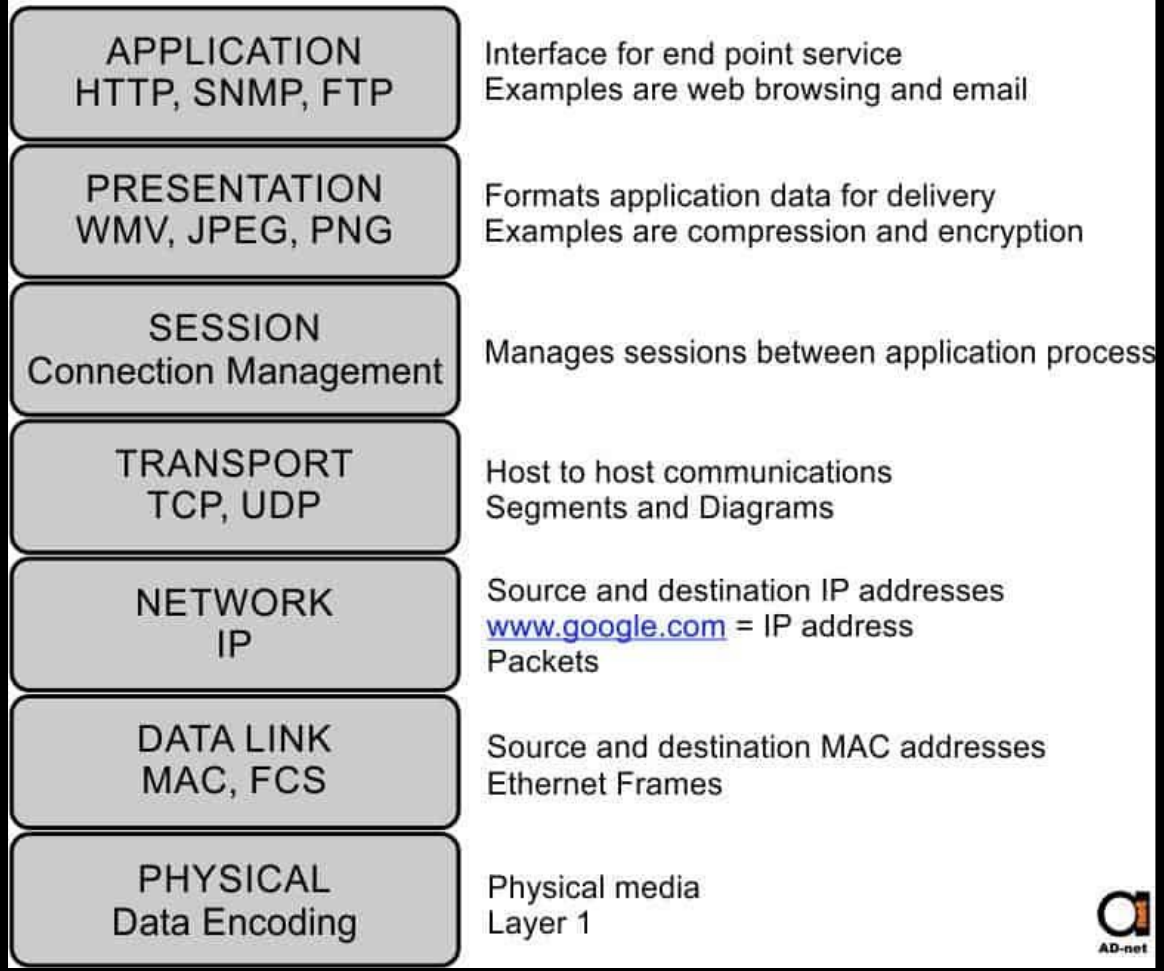


OSI MODEL

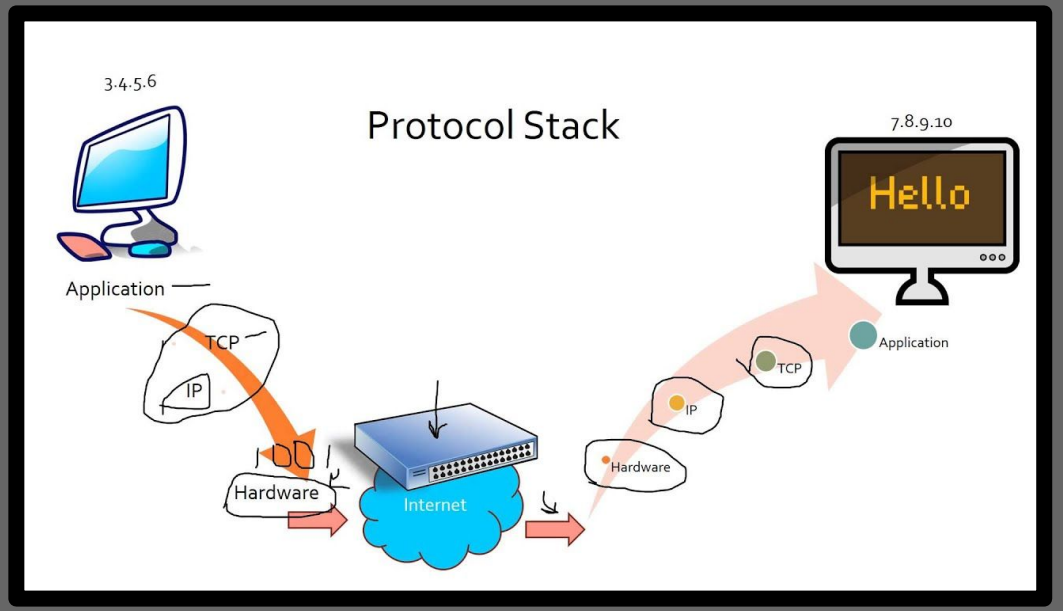
- A reference model used by computer networks
- Communication model for digital products
- References behavior of protocols at different levels



OSI Model

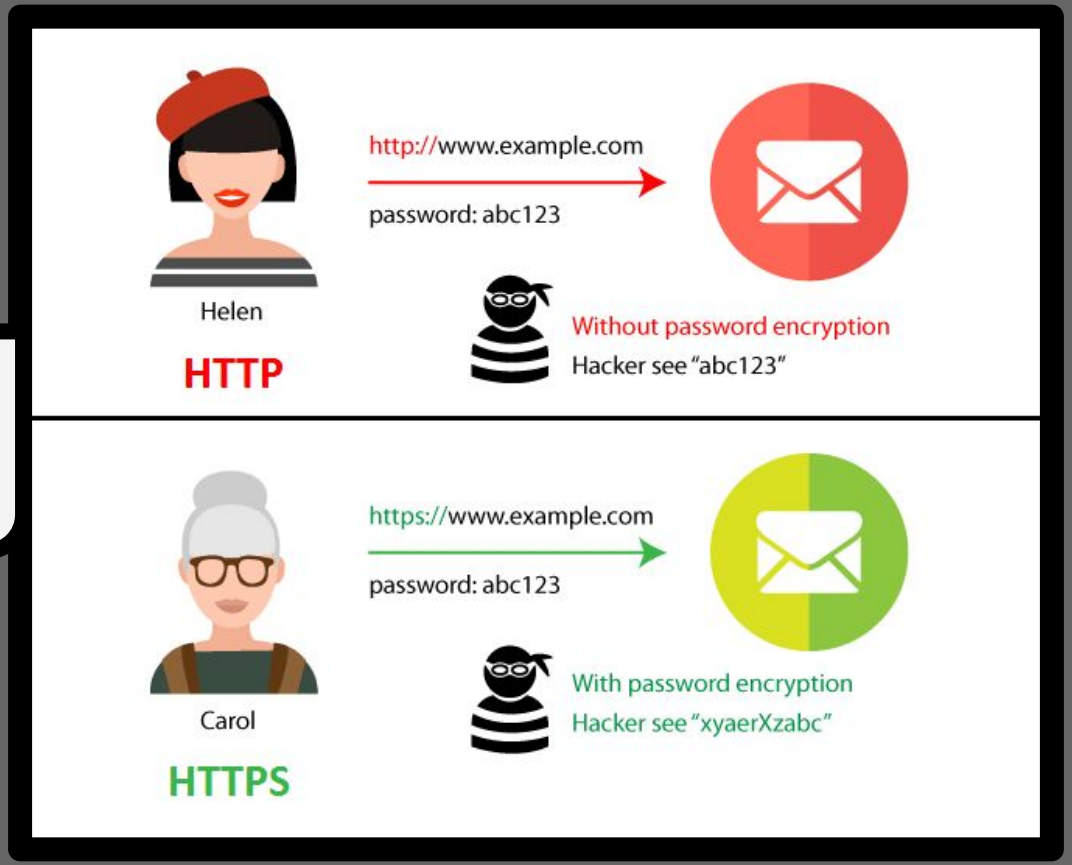


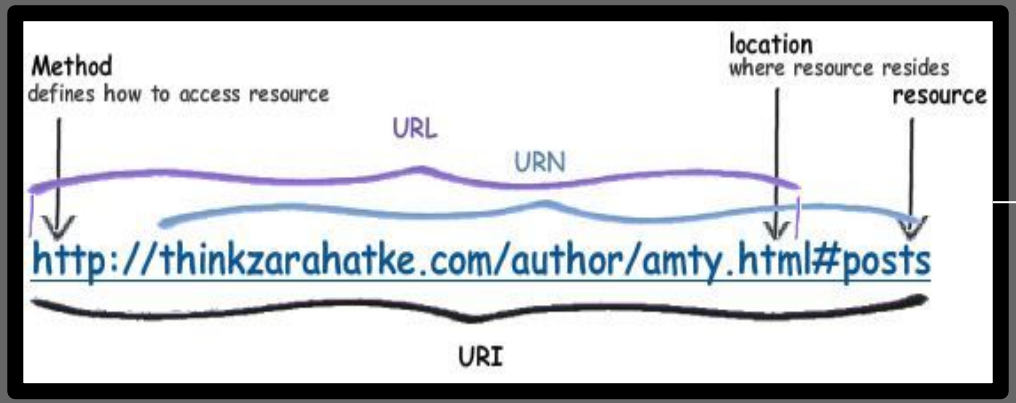
The internet does not have to function as a client-server model



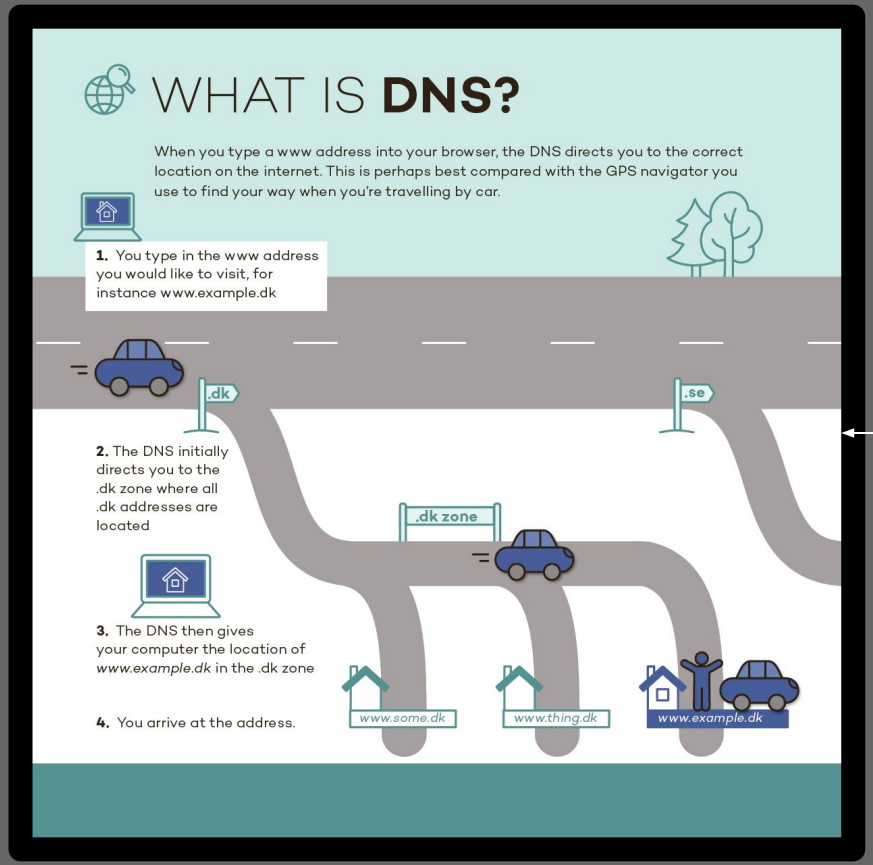
A server-oriented program for web-servers, in the memory of which, the web-pages are contained

HTTP/S

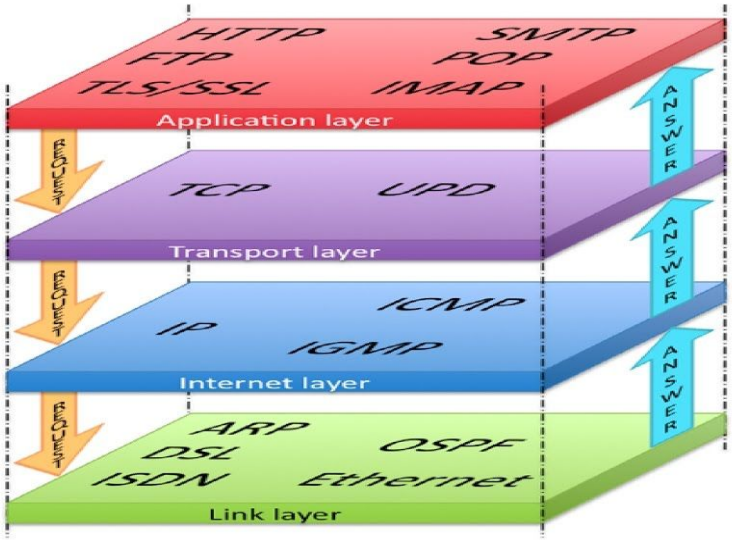




URI/URL:
Identifies a website / file / mailbox...


WHAT IS DNS?
When you type a www address into your browser, the DNS directs you to the correct location on the internet. This is perhaps best compared with the GPS navigator you use to find your way when you're travelling by car.
1. You type in the www address you would like to visit, for instance www.example.dk
.dk
.se
2. The DNS initially directs you to the .dk zone where all .dk addresses are located
.dk zone
3. The DNS then gives your computer the location of www.example.dk in the .dk zone
4. You arrive at the address.
www.some.dk
www.thing.dk
www.example.dk

DNS



TCP/IP Layers

Moving up & Down Protocol Layers

TCP/IP

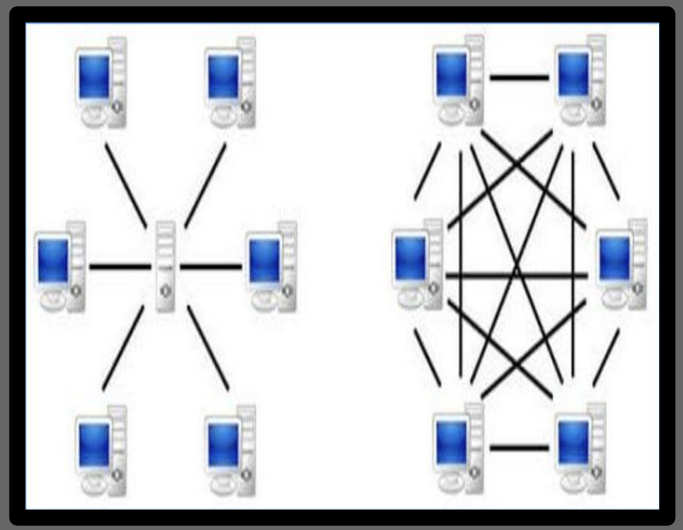
TCP

IP

A set of rules that solve the problems of routing data on which the internet is based

Transport layer.
Disassembles and reassembles packets of data.
Responsible for communication

Network layer.
Delivers packets of data.
“Makes” it all - one big network

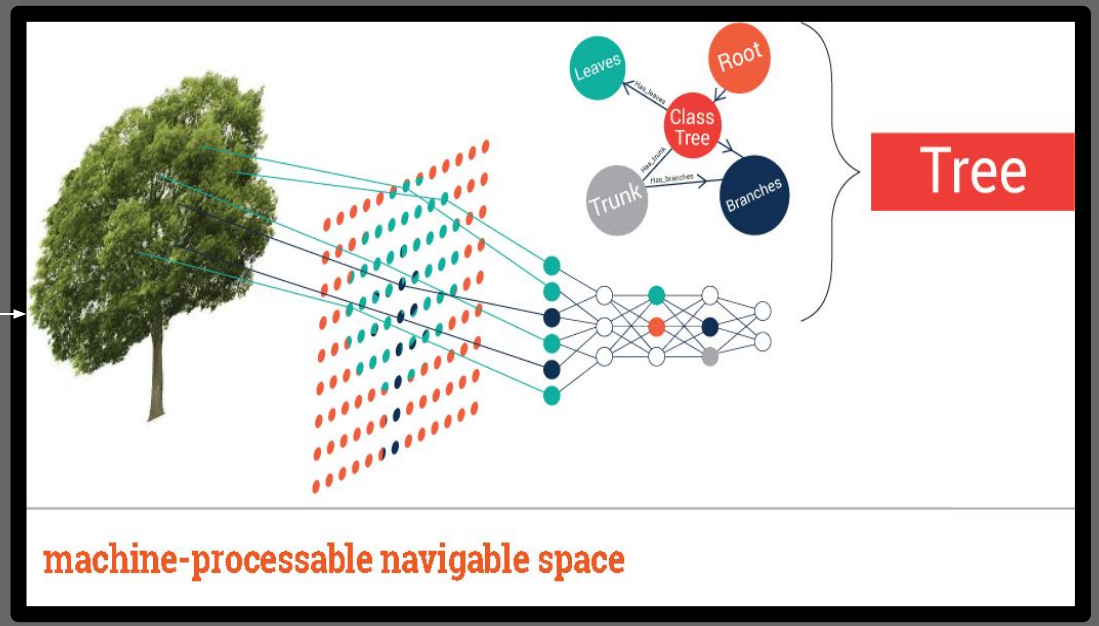


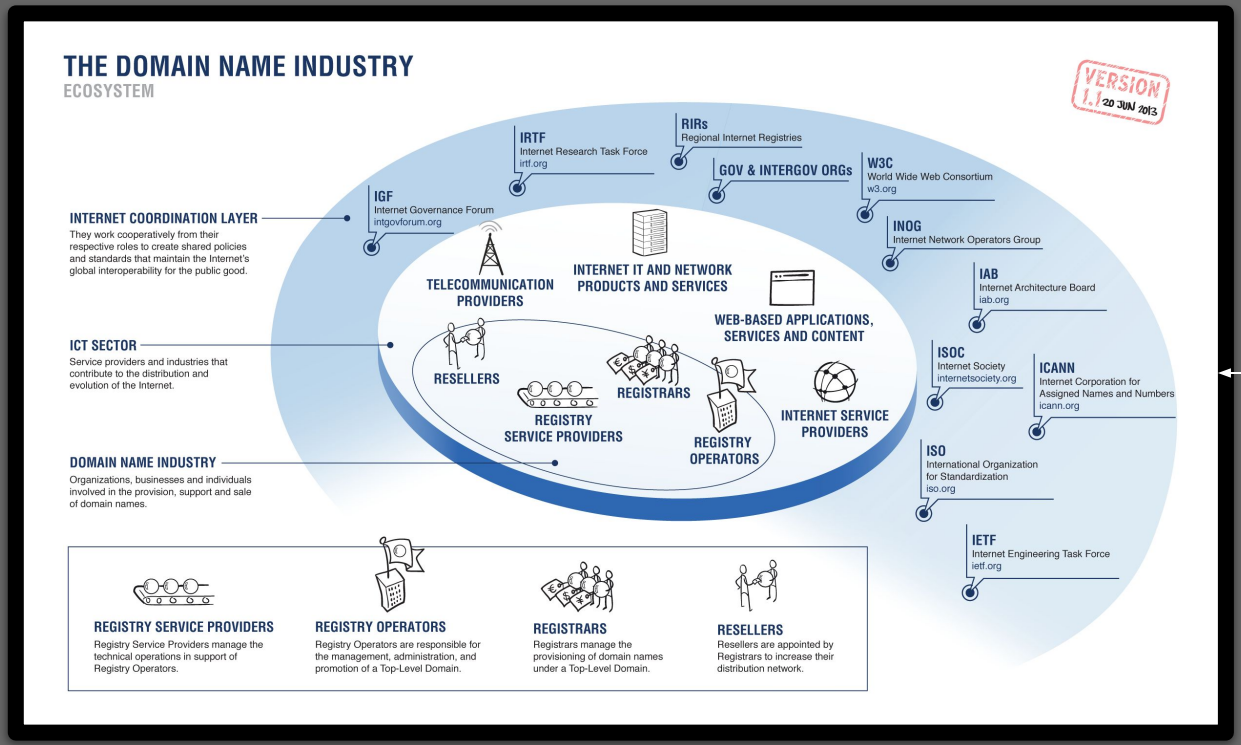
P2P

Equal nodes

The semantic web:

Input > correlation > Output




THE DOMAIN NAME INDUSTRY
ECOSYSTEM
VERSION 1.1 20 JUN 2013
IRTF
Internet Research Task Force
irtf.org
RIRs
Regional Internet Registries
GOV & INTERGOV ORGs
W3C
World Wide Web Consortium
w3.org
IGF
Internet Governance Forum
intgovforum.org
INOG
Internet Network Operators Group
IAB
Internet Architecture Board
iab.org
INTERNET COORDINATION LAYER
They work cooperatively from their respective roles to create shared policies and standards that maintain the Internet's global interoperability for the public good.
TELECOMMUNICATION PROVIDERS
INTERNET IT AND NETWORK PRODUCTS AND SERVICES
WEB-BASED APPLICATIONS, SERVICES AND CONTENT
ICT SECTOR
Service providers and industries that contribute to the distribution and evolution of the Internet.
RESELLERS
REGISTRARS
REGISTRY SERVICE PROVIDERS
REGISTRY OPERATORS
INTERNET SERVICE PROVIDERS
ISOC
Internet Society
internetsociety.org
ICANN
Internet Corporation for Assigned Names and Numbers
icann.org
DOMAIN NAME INDUSTRY
Organizations, businesses and individuals involved in the provision, support and sale of domain names.
ISO
International Organization for Standardization
iso.org
IETF
Internet Engineering Task Force
ietf.org
REGISTRY SERVICE PROVIDERS
Registry Service Providers manage the technical operations in support of Registry Operators.
REGISTRY OPERATORS
Registry Operators are responsible for the management, administration, and promotion of a Top-Level Domain.
REGISTRARS
Registrars manage the provisioning of domain names under a Top-Level Domain.
RESELLERS
Resellers are appointed by Registrars to increase their distribution network.

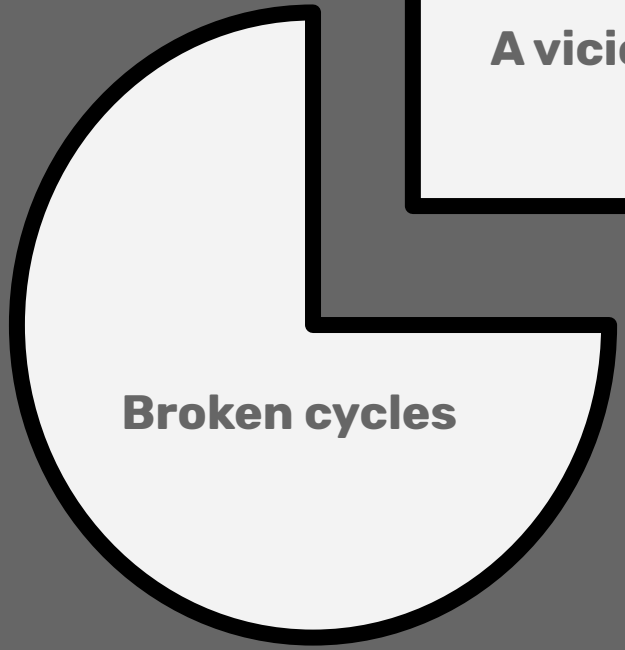
ICANN

Are the current standards “fair and safe”?

- Centralised top level domain registries
- No interest in solving security issues
- Data selling without permission
- Small group of beneficiaries
- Unpredictable loss of data

Who runs the internet?

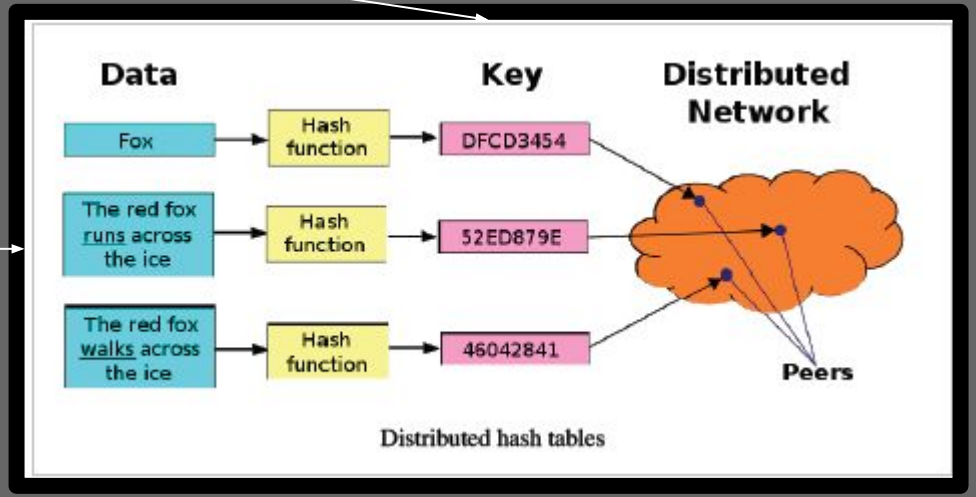
A vicious cycle, which was not seen, even in Dante's worst nightmares.



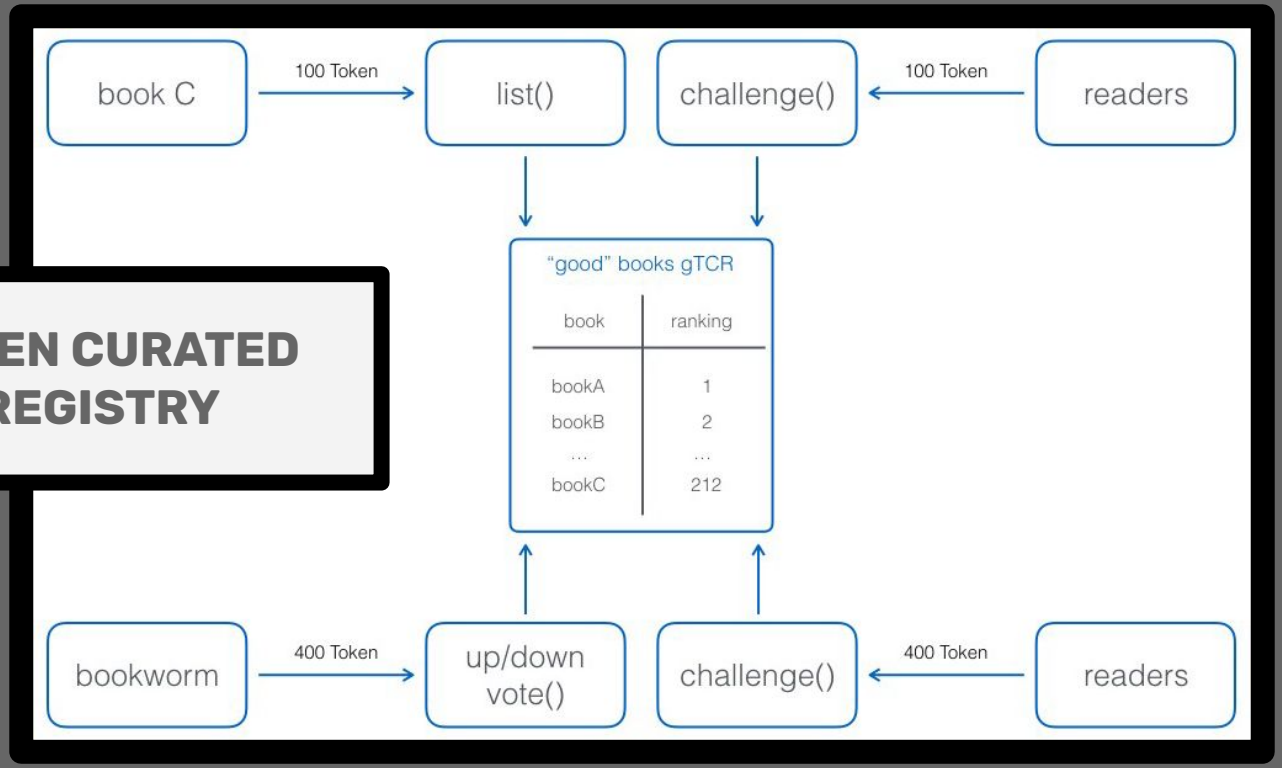
HTTP - URL - DNS

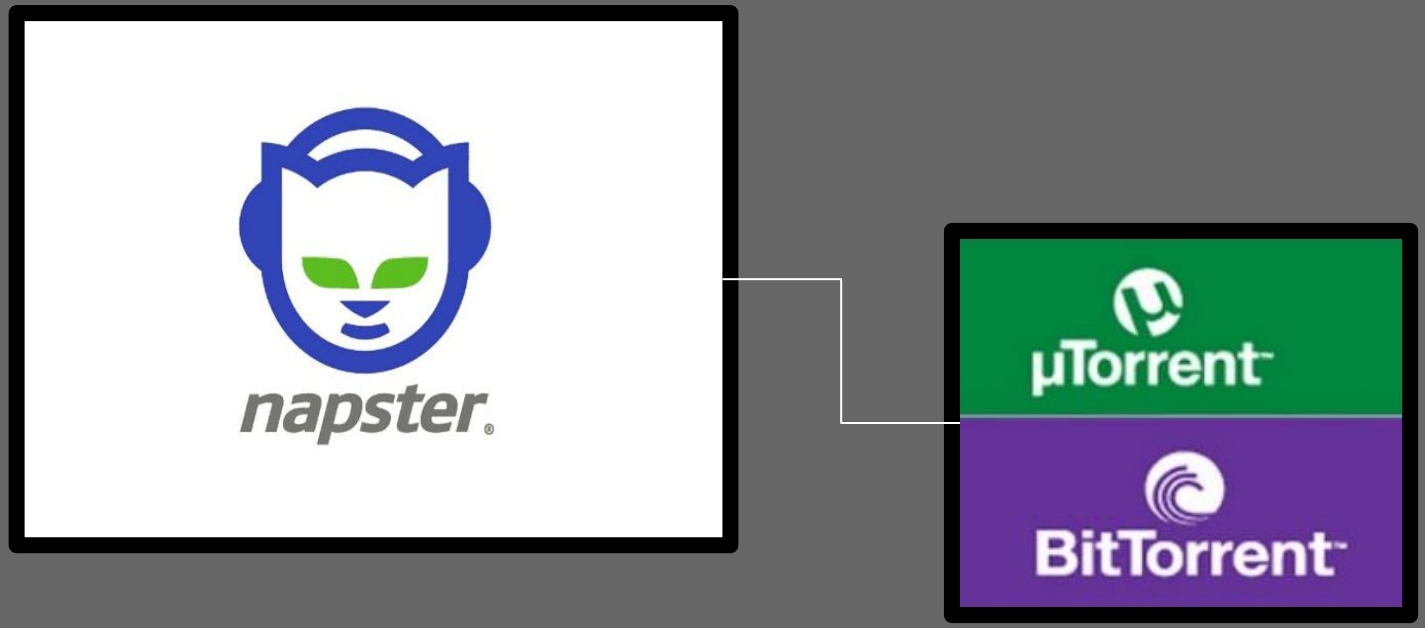
DHT can be used as infrastructure for P2P networks

DISTRIBUTED HASH TABLE



TOKEN CURATED REGISTRY




napster
µTorrent
BitTorrent

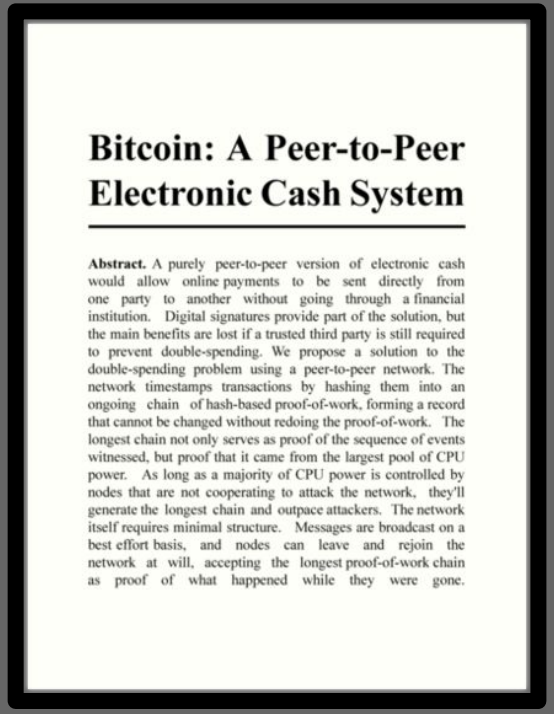
Learn more about protocols:

- **Database management systems**
- **Cryptography**
- **Computer networks**
- **Data transmission**
- **Local operating systems**
- **Routing**
- **Network fundamentals**

Please note that there are plenty of free online resources... like blockgeeks.com =)

Have we seen this before?

WELCOME TO THE BLOCKCHAIN



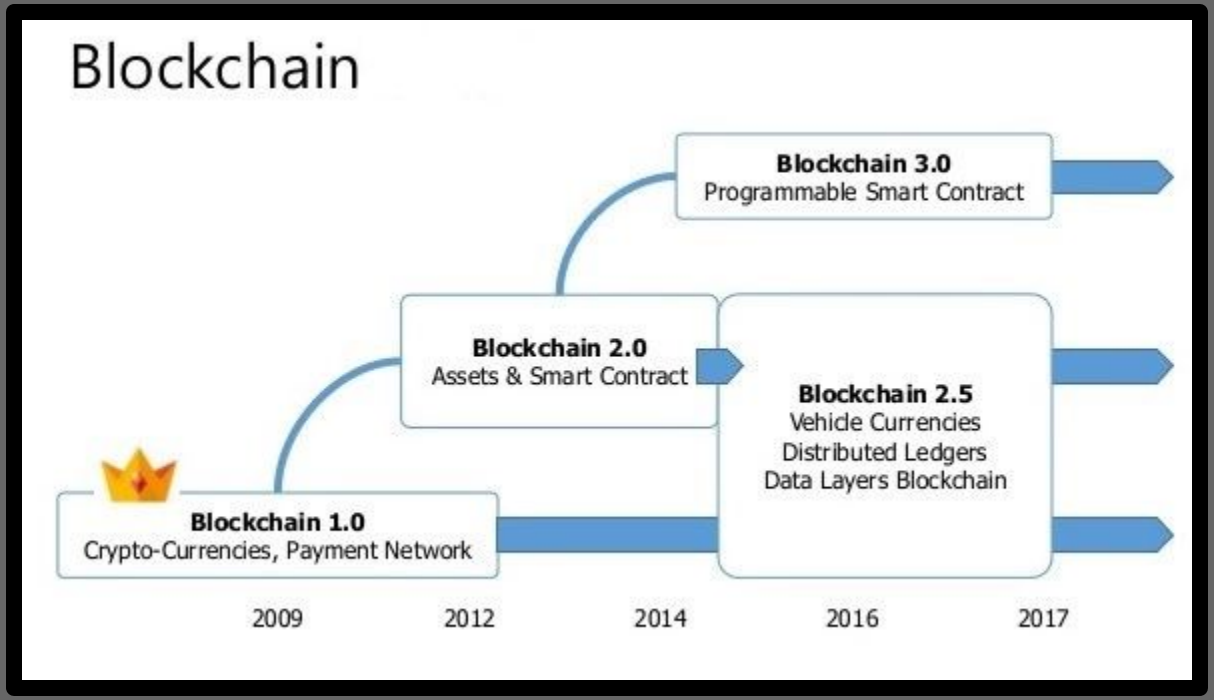
Bitcoin: A Peer-to-Peer Electronic Cash System

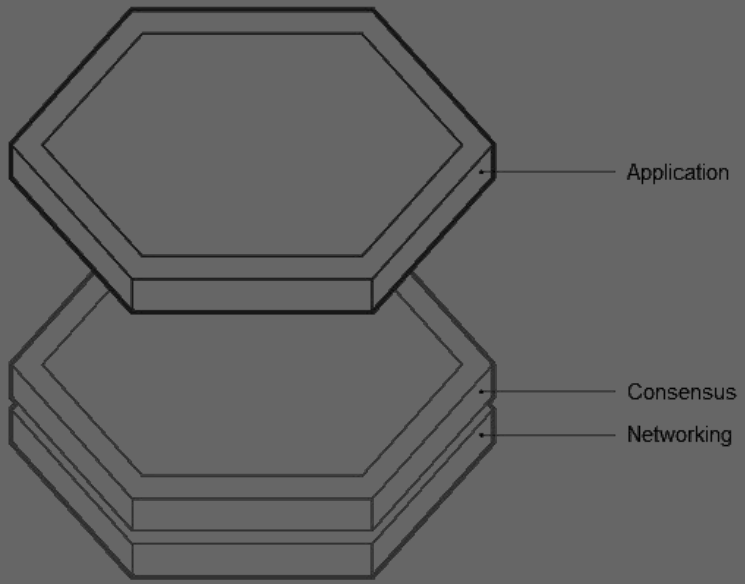
Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

Money protocol

Governance issues

Consensus mechanism


Blockchain
Blockchain 3.0
Programmable Smart Contract
Blockchain 2.0
Assets & Smart Contract
Blockchain 2.5
Vehicle Currencies
Distributed Ledgers
Data Layers Blockchain
Blockchain 1.0
Crypto-Currencies, Payment Network
2009
2012
2014
2016
2017



Blockchain 1.0: layers are “glued” together

Blockchain 2.0: a virtual layer for applications

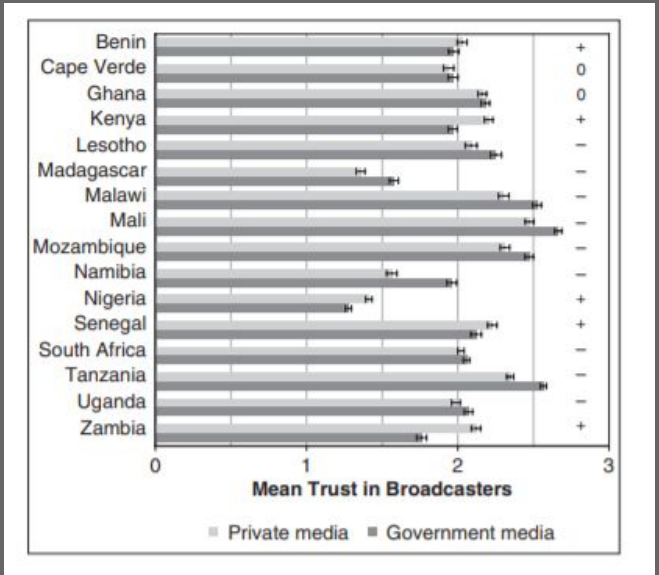
Blockchain 3.0: inter-communication

The development of what once upon a time was just a mere search via a centralized server that connected a network of peers, to highly efficient, decentralized networks and on-line storage facilities, with motivated nodes, that are cooperating with each other in a coordinated manner with the help of code.

Their direct (no third party involved) coordination and cooperation between each other, a direct and obvious motivation of the user and the node, the coordination of actions with the help of smart contracts and the safe routing of packets and data, etc.

- Centralization
- Technological slowdown
- Propaganda
- Politics
- Blunt-end servers
- Geopolitics
- Lack of privacy
- Loss of data
- Selling data to third parties

Web 2.0 Issues



“...conventional wisdom says the Internet is making information more widely available, but that it also may be reducing the quality of that information...”

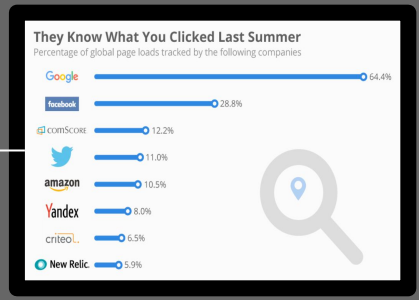
“...perhaps something close to the opposite will be true: more high-quality information will exist, and it will be produced by more well-trained...”

Source: Columbia Journalism Review

BLOCKSULT

It’s not that simple

Name, sex, date of birth, profession, education, interests, preferences, what makes you angry, what makes you happy, when you watch movies, what you like, your heart beat rate, your location, your phone book, your texts and messages, your work and home address, your day schedule, where you rest, what you search for, what websites you visit, what you did in the past days \ months \ years, what you have in your apartment, where and what food you buy, what you buy in general, what you hate, who you talk to and when, who are your relatives and what do they do, your psychological profile, your voice, your friends, what you see before you, what makes you tick, your “secret” searches, the fact you are watching this webinar right now...



Cambridge Analytica - 5000 data points per US citizen...

- Success VS Market Cap
- Internet VS LINUX
- Success VS reach

Some UNIX systems around the world:
Supercomputers, NASA, robotics, gaming consoles, the Android collider, smart TV's, Smart watches, Instagram, Airbnb, Uber, Netflix, car electronics, avia-systems, cars without drivers, washing machines, refrigerators, high speed trains, NY stock exchange, US defence sector systems, nuclear submarines, you PC...

- ECB
- Banking crisis
- Independent CB
- CB schemes
- US FRS
- BTC protocol has been working 10 years non-stop
- Princess of the Yen

Globas Web 2.0 issues

Web 3.0 gives us leverage. It offers us an irreplaceable, a borderless and a fair technology. A technology based on math and on unstoppable and smart code. A technology that can fit into the pocket of any human beings, for as little as 20 Euros and create a personal CB (i am referring to the cost of the cheapest smartphone with an access to the net of course).
Blockchain (which is part of the web 3 stack) is the internet of money. It is not just a database. Yes, it is a mix of technologies, which are long known to humanity. But with it, it is a paradigm that can help us to male everything around us a little better. Allow us to create distributed value, passive income and have leverage on local governance.
(I am intentionally saying local, as i believe that we should look from local - to - global and not the other way around).

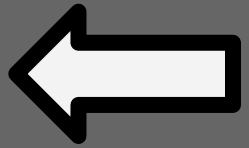
in·im·i·cal (i-nim'i-kəl)

adj.

1. Injurious or harmful in effect; adverse: *habits inimical to good health.*
2. Unfriendly; hostile: *a cold, inimical voice.*

"The few who understand the system will either be so interested in its profits or be so dependent upon its favours that there will be no opposition from that class, while on the other hand, the great body of people, mentally incapable of comprehending the tremendous advantage that capital derives from the system, will bear its burdens without complaint, and perhaps without even suspecting that the system is inimical to their interests." The Rothschild brothers of London writing to associates in New York, 1863.

- Offline browsing
- Local caching of data
- Local service points
- Connection speed
- Reputation
- Token Curated Registries
- Anonymous, yet provable ID
- Mining and service providers
- IPFS
- Indexing of data
- Algorithms
- Decentralization
- Consensus



Rebuilding the world wide web

MINING, and here I mean it in the broad sense of the word (from POW to DPOS):

Is the type of global support for distributed networks. I am more than sure of it that soon enough (in fact it's already happening), we will see how miners become providers.
This will allow them (the miners) for a whole bunch of operations that can provide them a source of income (an incentive to act).
Those could be: sharding, data security, reading of data, oracles, on-and-off chain transactions, bandwidth, computation and so on.

And - yes, mining is the new type of providers in web 3.0, that allows each user of the stack, to become one, develop, invest his time or money and to receive rewards.

Content Addressing

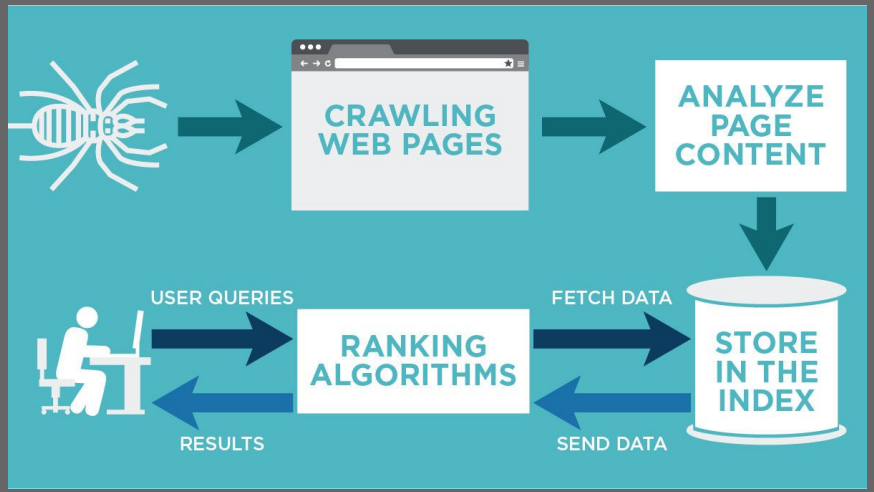
Server <> Client

Server provides the right service
Server uses data responsibly
Server is secure
Server is always online
Server is single point of reference

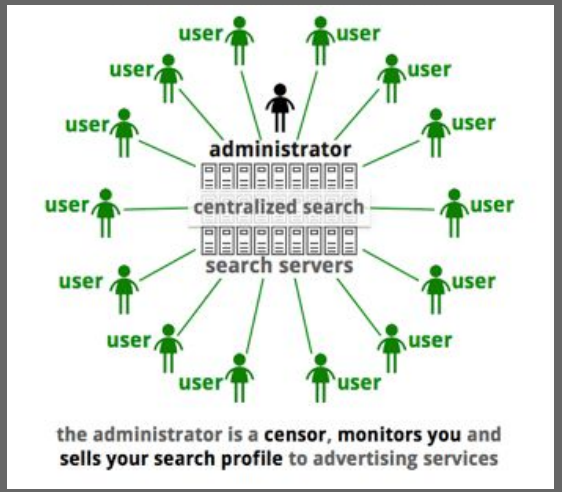
Content-addressable Web where:

- data links work across application
- links are cryptographic hashes
- anyone can distribute data

Ranking and Indexing



Or...



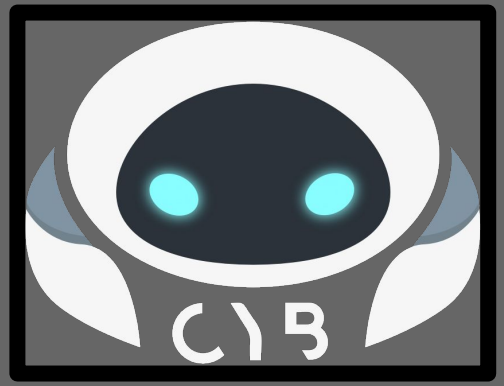
P2P-networks

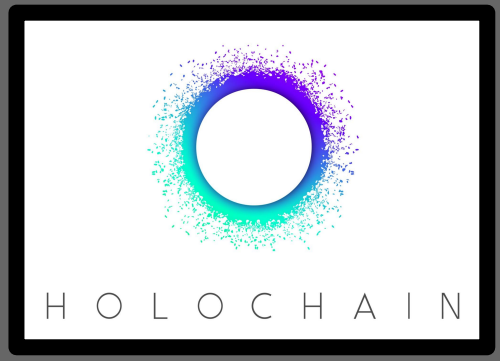
- Pseudo-web 3.0
- Pseudo-P2P
- Pseudo-cryptocurrencies

- Technologies built on the base of web 2.0, will suffer from the same issues as web 2.0
- In the third version of the web, the browsers the code, the applications and the software - will all talk to each other directly; and at first - might not look like, what we expect them to look like

æternity
blockchain

Polkadot
Connecting Trust

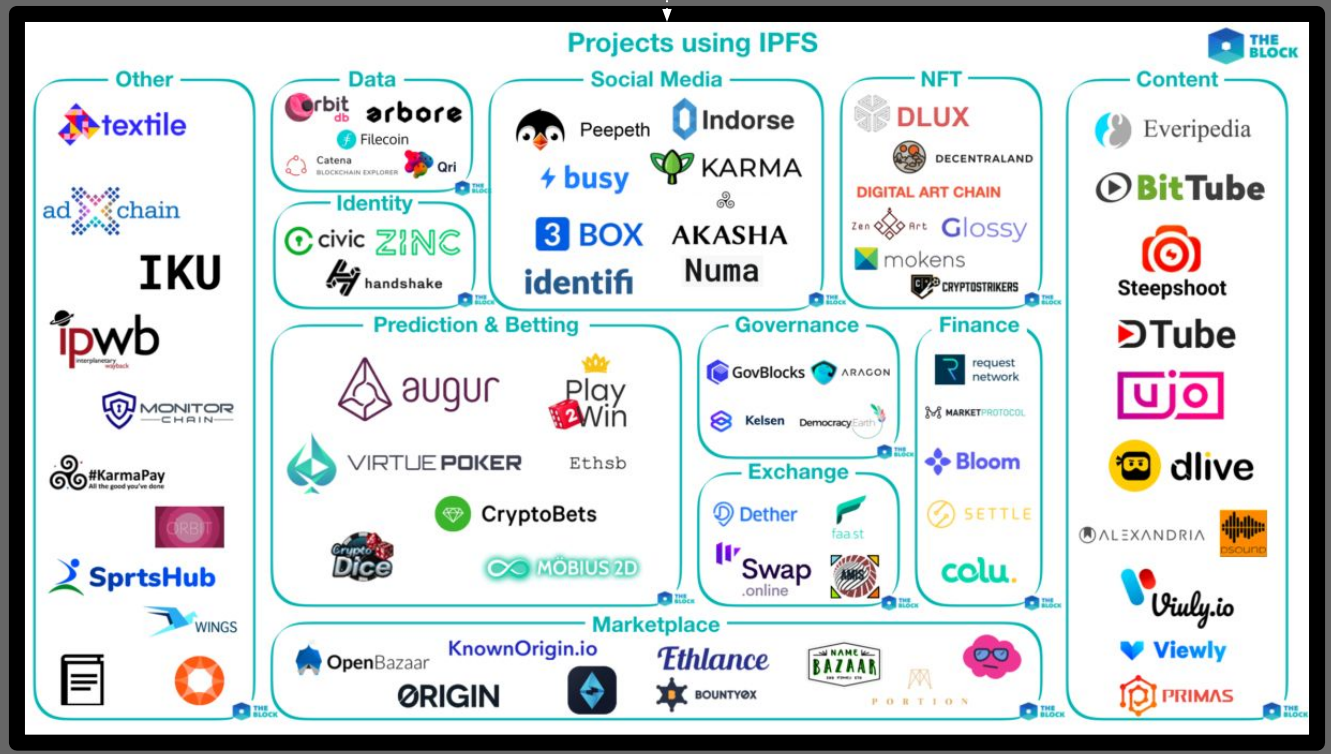


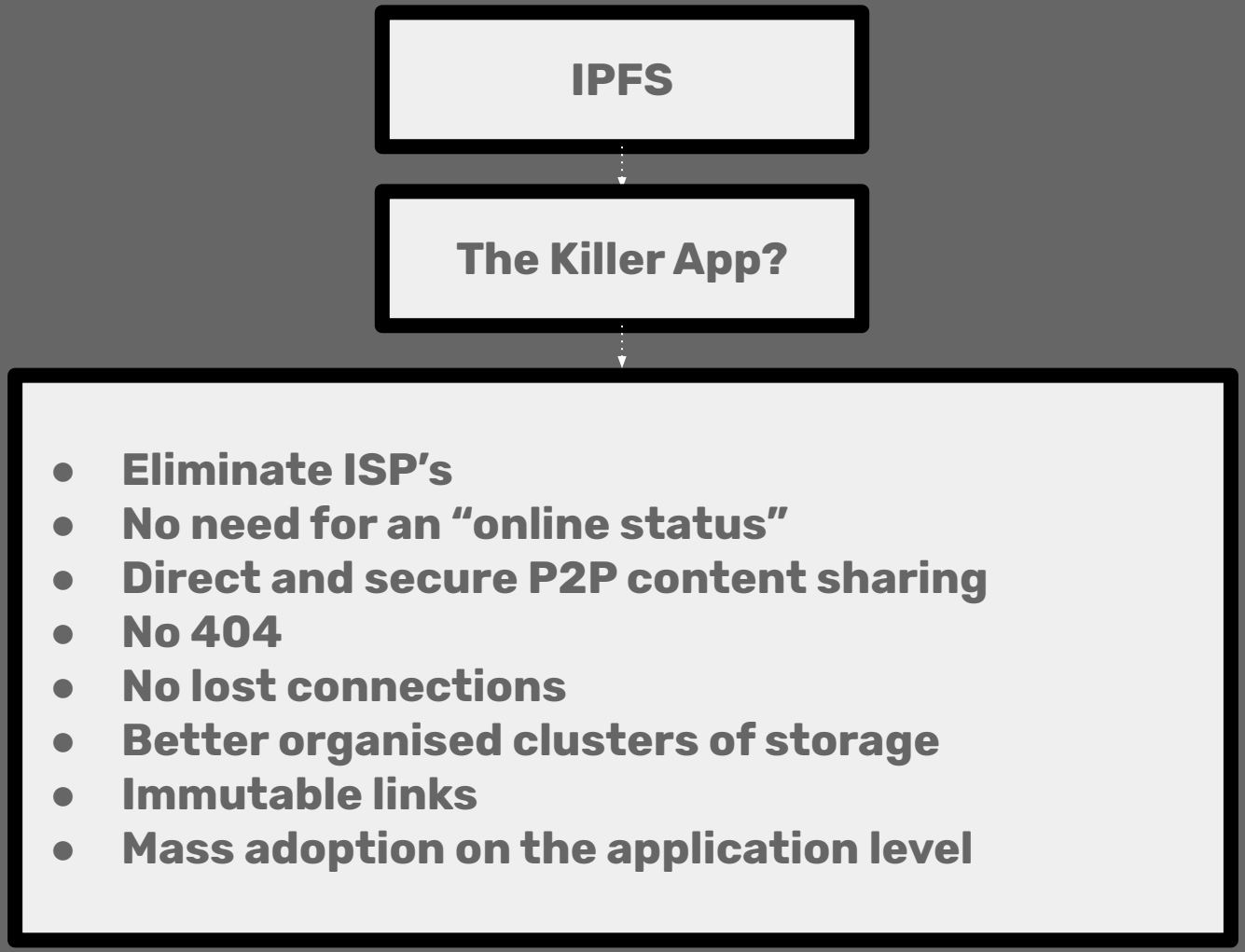


1. Aeternity
2. Cyb
3. PolkaDot
4. Holochain
5. Skycoin

Skycoin

IPFS


Projects using IPFS
THE BLOCK
Other
textile
adchain
IKU
ipwb
MONITOR CHAIN
#KarmaPay
SprtsHub
WINGS
Data
orbit db
arbore
Filecoin
Catena
Qri
Identity
civic
ZINC
handshake
Social Media
Peepeth
Indorse
busy
KARMA
3 BOX
AKASHA
identifi
Numa
NFT
DLUX
DECENTRALAND
DIGITAL ART CHAIN
Zen Art
Glossy
mokens
CRYPTOSTRIKERS
Content
Everipedia
BitTube
Steepshoot
DTube
ujo
dlive
ALEXANDRIA
Vrüly.io
Viewly
PRIMAS
Prediction & Betting
augur
Play 2 Win
VIRTUE POKER
Ethsb
CryptoBets
Crypto Dice
MÖBIUS 2D
Governance
GovBlocks
ARAGON
Kelsen
DemocracyEarth
Finance
request network
MARKETPROTOCOL
Bloom
SETTLE
colu.
Exchange
Dether
faa.st
Swap .online
Marketplace
OpenBazaar
KnownOrigin.io
ØRIGIN
Ethlance
BOUNTYØX
NAME BAZAAR
PORTION


IPFS
The Killer App?
Eliminate ISP’s
No need for an “online status”
Direct and secure P2P content sharing
No 404
No lost connections
Better organised clusters of storage
Immutable links
Mass adoption on the application level

1. Governance and consensus mechanisms
2. Smart contracts, IoT and robots
3. New types of organisations
4. Imagination is your only border

Aiming higher

Governance and consensus mechanisms:

- Solution to the Byzantine Generals problem
- Participants make the decisions (as opposed to “the ruling elite”)
- Reaching agreement via a consensus
- Use of fair and transparent voting and reputation
- Creating new governance formalisms

Aiming higher

Smart contracts, IoT and robots:

- Programmable contracts for anything without human intervention
- Robots own money, just like humans do
- IoT creates endless possibilities for local markets with the use of immutable ledgers

Aiming higher

New types of organisations:

- Aragon / Gitcolony
- No bureaucracy, no middlemen, no borders
- Fairer courts; fairer decision making; fairer accountancy
- Maths and code at the heart (rather than private and closed to public paperwork)

Aiming higher

1. Technology
2. Free thinking
3. Innovation
4. New paradigm
5. Ease of access
6. Privacy
7. Rewards
8. Transactional relations
9. Collateral
10. Scaling
11. Borderless
12. Growth

Centralized VS Decentralized