

World Game (s) Fulcrum

Schelling point: focal point = solution chosen by default in the absence of communication to avoid coordination failure introduced by the economist Thomas Schelling in his book "The Strategy of Conflict" published in 1960. Schelling points are particularly useful in **multiplayer games** where players respond based on what they think the other person's response will be.

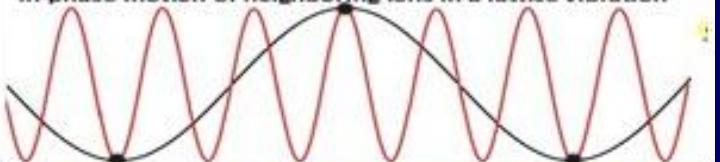
Schelling Point Conference: focuses on the intersection of **cryptocurrency** and **social good**, bringing together innovators, thought leaders, and advocates to explore how **blockchain** tech can create positive change.

Schelling points are not always definite solutions and their conspicuousness can depend on time, place, and individuals

FISHER INFORMATION FLUX FLOWS

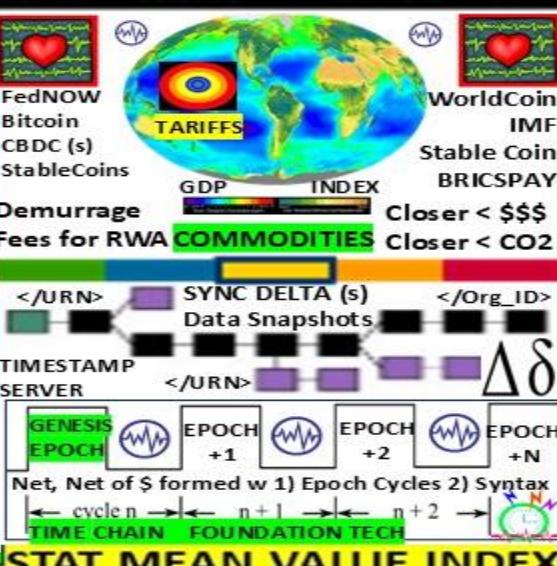
ACOUSTIC PHONON

In-phase motion of neighbouring ions in a lattice vibration



SOUND / LIGHT e.g., Q.R.N.B. QUANTUM COMPUTING
@ ROOM TEMPERATURE SOUND WAVES - INTERFER

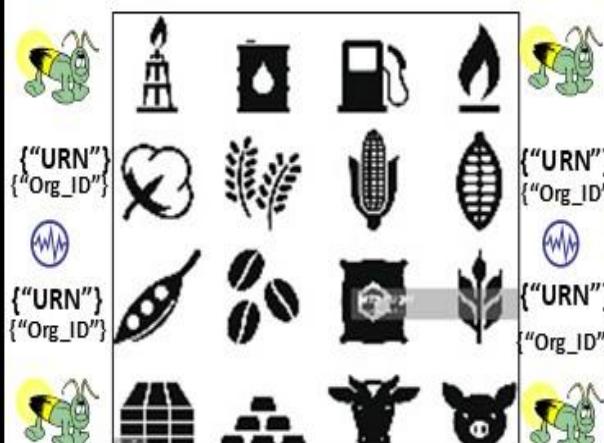
SOUND WAVES = INTEROP



Price Indexes in Time and Space



Commodities Index Basket / FIAT
PRICE Discovery Algo / MEDIATION



A collage of technology-related images. It includes a green digital clock with a red second hand, a green globe with a smiling face, a blue brain with glowing pink and yellow nodes, and a close-up of a blue printed circuit board with various electronic components like resistors and capacitors.

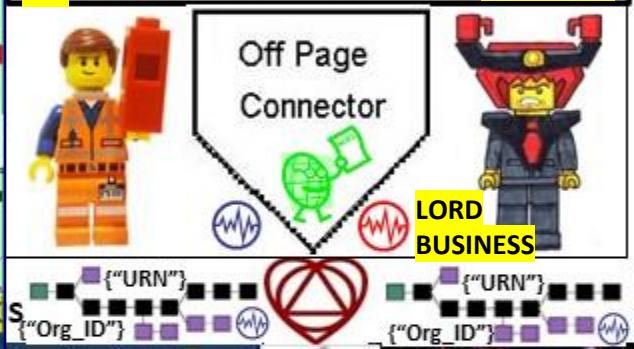
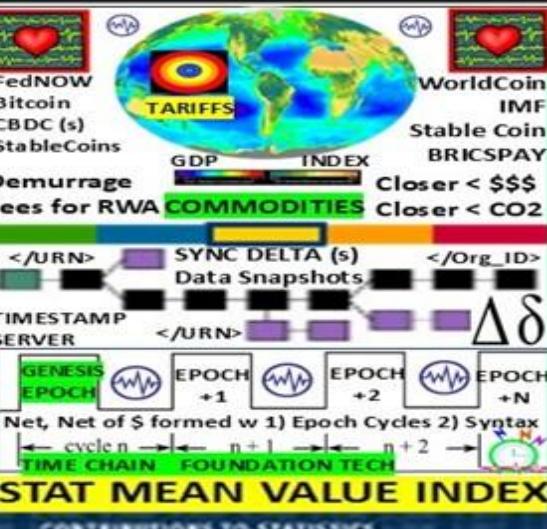
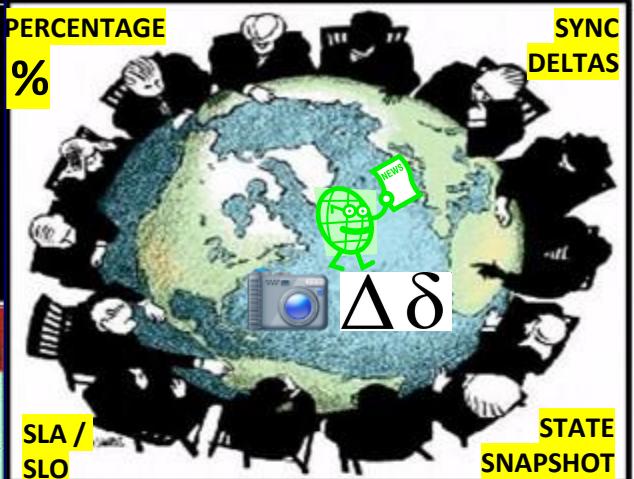
World Game (s) Fulcrum

Schelling point: a.k.a. focal point, is a solution people tend to choose by default in the absence of communication to avoid coordination failure

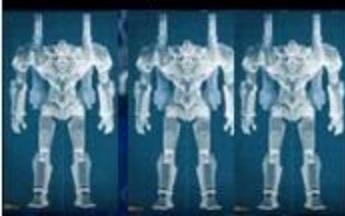
introduced by the economist Thomas Schelling in his book "The Strategy of Conflict" published in 1960.

Schelling points are particularly useful in **multiplayer games** where players respond based on what they think the other person's response will be.

Give me a lever long enough and a fulcrum on which to place it, and I shall move the world.
Archimedes



Vernetzte Operationsführung
OOTW: Operations Other Than War

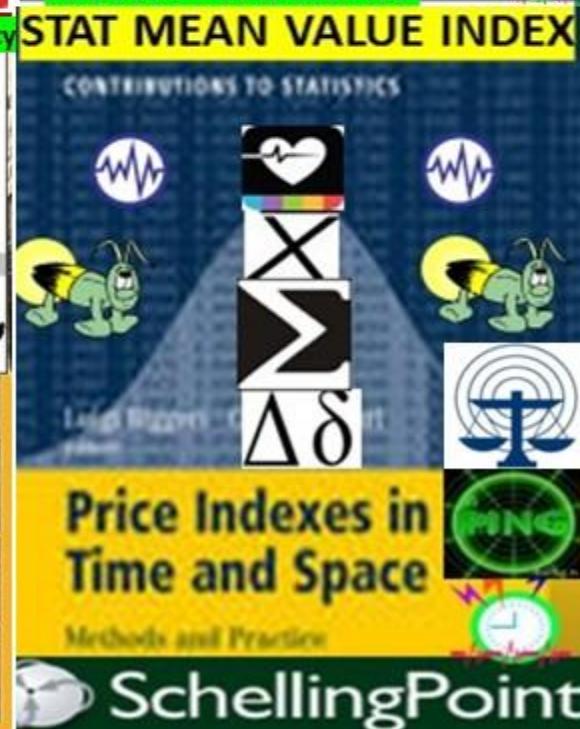
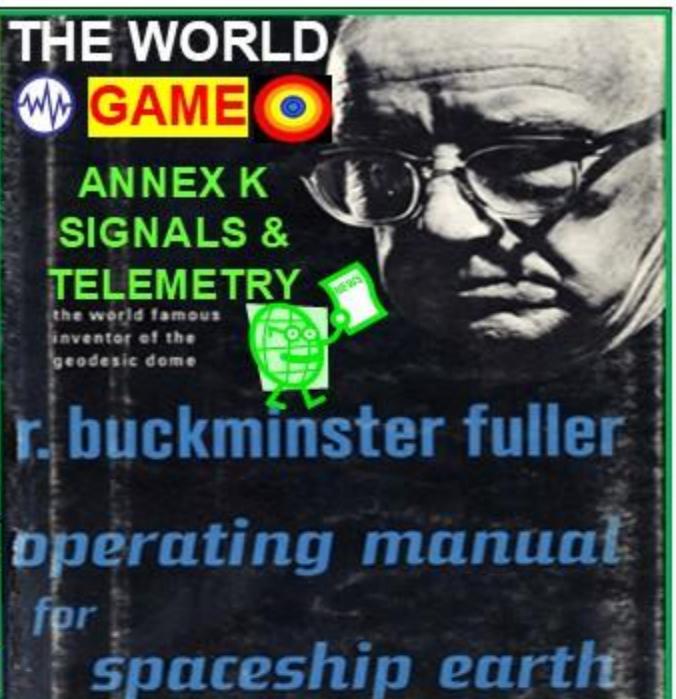
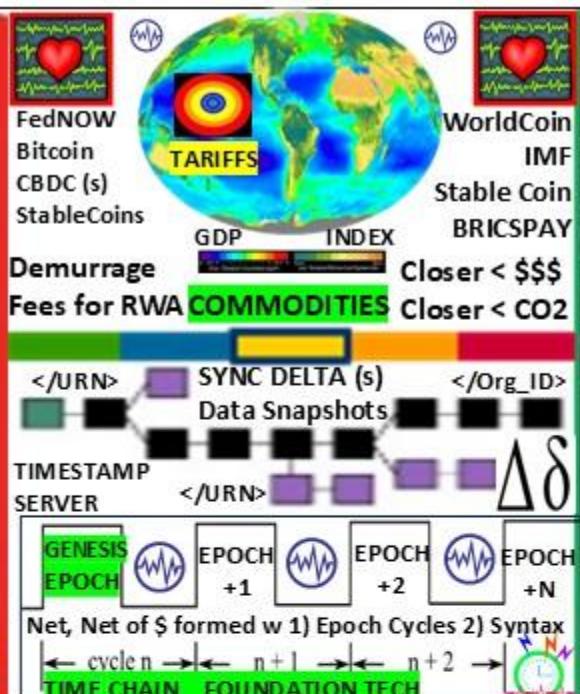


JAEGER

FIREFLY
HEARTBEAT
ALGORITHM

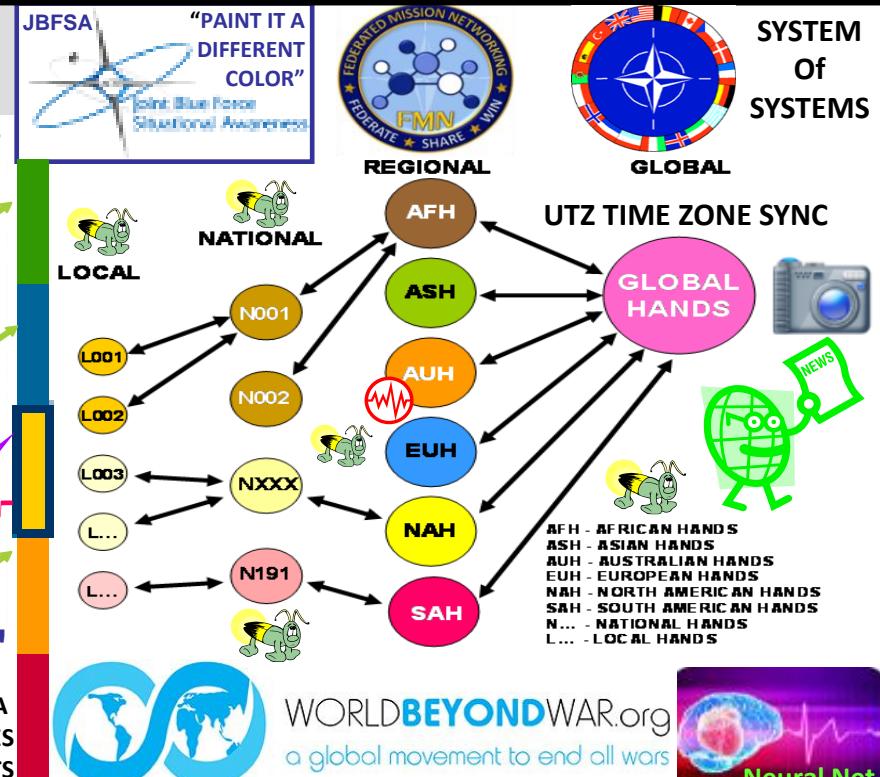
EVENT / ALERT Flash Heartbeat Message Bus

KAIJU



Humanitarian Assistance Networked Donor System

H.A.N.D.S: “Based on the need to speed up the processes of influencing an adversary, new concepts result in the adaptation of military doctrine, organization, training, material, infrastructure, interagency interaction, leadership, personnel and facilities”... German Bundeswehr concept of “OOTW Operations Other Than WAR or "Vernetzte Operationsführung" circa 2003



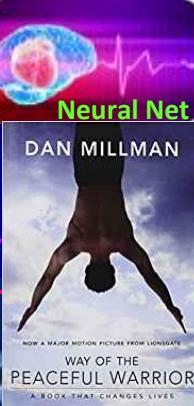
“Shared situational awareness enables collaboration synchronization, and enhances sustainability, speed of command”



Reuse adaptive procedural template guides from Battlefield Digitization among a federated systems of systems improving synergy, synchronicity to achieve shared sustainable goals



DOD SITUATION AWARENESS PROGRAM SWORDS TO PLOWSHARES OOTW IDEA BY GERMAN MILITARY CIRCA 2003



Beacon Communities

Vernetzte Operationsführung

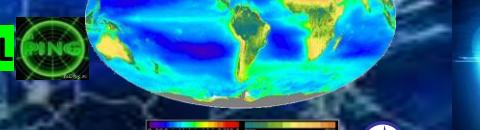


Proximity Beacons

IAF GERS



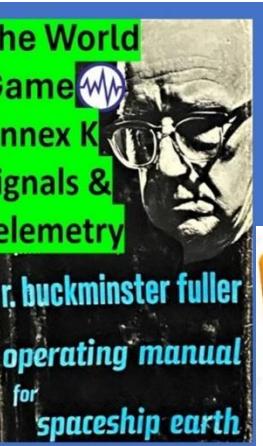
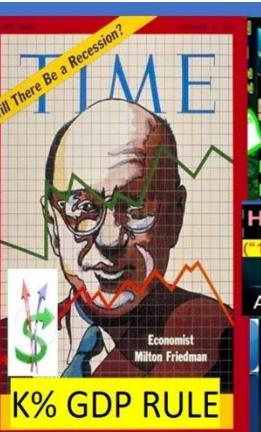
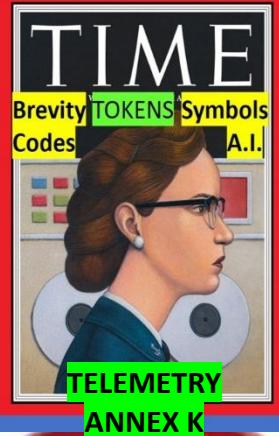
• Closer < \$\$\$ < FUJI



The banner features a blue background with several elements: a green firefly on the left; a yellow sun-like shape with a red heart rate monitor icon; a red circle with a white heart rate line icon; a white clock with red lightning bolts; another yellow sun-like shape with a green firefly; and a blue circle with a white heart rate line icon. Below these icons is a horizontal bar divided into four colored segments: green, yellow, orange, and red. The word "HEARTBEAT" is written in white on the green segment, "EVENT / ALERT" is in white on the yellow segment, "Flash Heartbeat Message Bus" is in white on the orange segment, and "ALGORITHM" is in white on the red segment.



KAIJU



- Reuse, mod of System of systems engineering framework, Syntax Lexicon Library data elements
- STRUCTURED DATA EXCHANGE
 Reuse brevity codes mapped to 2525D symbol sets comprised of 300 + message sets for A.I. - machine Block-Time DLT arbitrage among Trade Federations </Org_ID> {“URN”} </URN> = COMMODITY

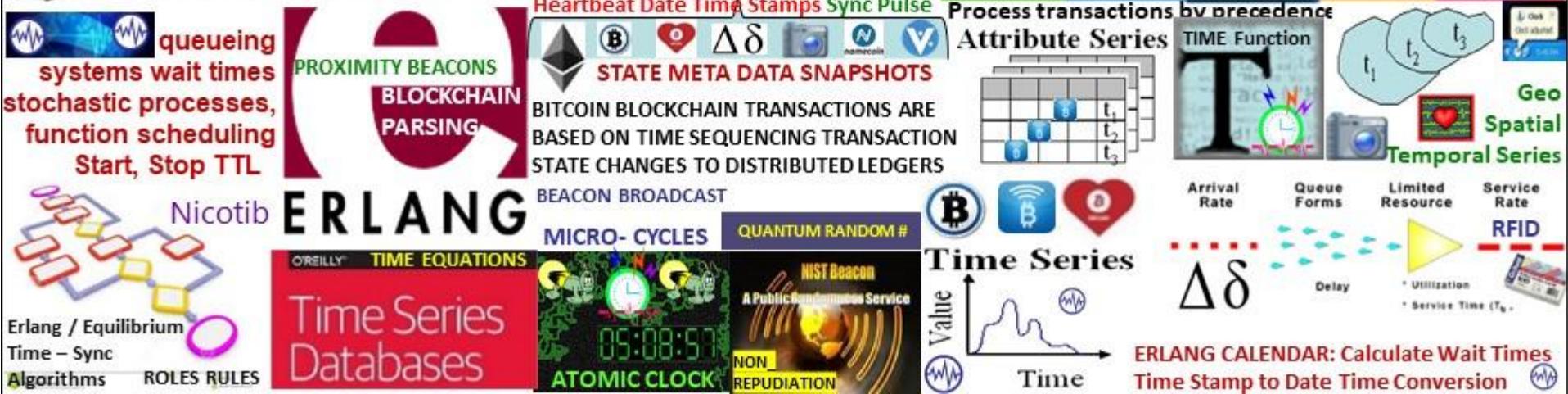


Spatial / temporal UTZ synchronization, stochastic harmonization, Time - Space Distance Estimation Service Common Consensus Algo meme Eco sustainable incentives “We can synchronize ourselves, DAO Trade Federations in time - space for common purposes” Eco sustainable, Equitable Economic econometrics.

The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC.



The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.



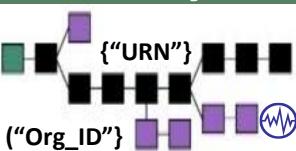
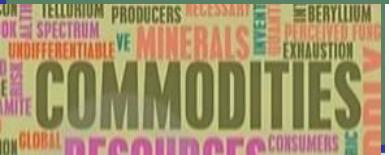
Numismatics: study of currency

Marcus Aurelius



Legend: IMP. M.
ANTONINVS
AVG. TR. P. XXV.

THE TERRA (TRC) Trade Reference Currency



Terra Trade Reference Currency TRC
"world currency" Bernard A. Lietaer
Belgian economist proposed 1991
Basket of 9-12 most important
commodities. Public issued
demurrage fees for storage,
shipping, handling..



Roman Denominations

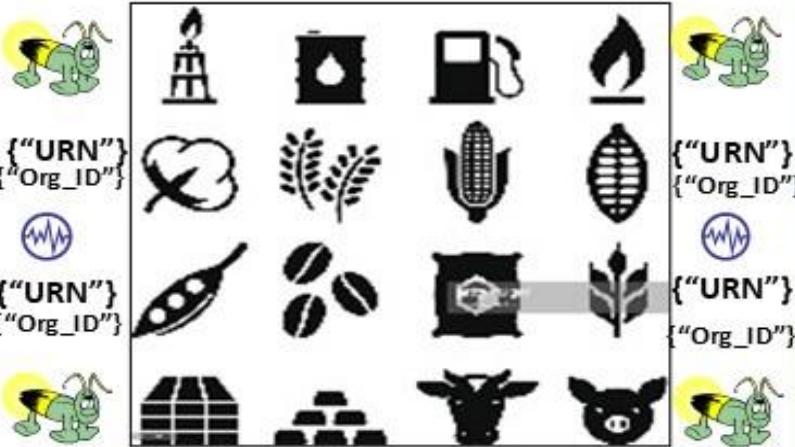


Images Courtesy Of: Roma Numismatics Ltd, Numismatica Ars Classica, Bertolami Fine Arts, Nomos, & The State Museum in Berlin

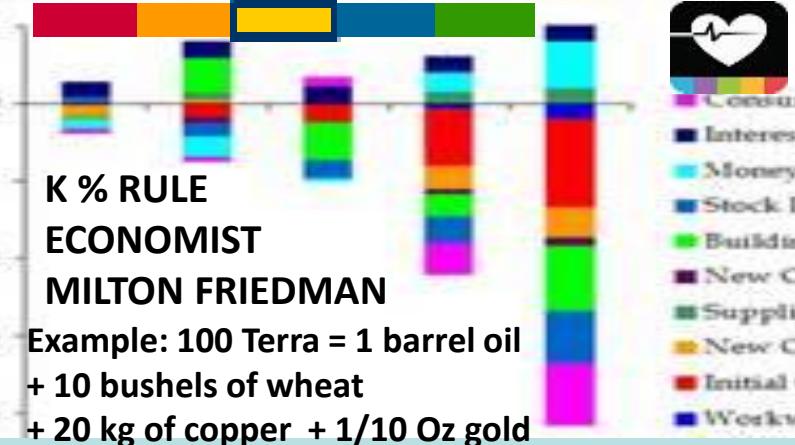
BRONZE / LEAD / AES SIGNATUM AES GRAVE / SILVER / LEAD / IRON..

Unlike most modern coins, Roman coins had (at least in the early centuries) significant intrinsic value. However, while the gold and silver issues contained precious metals, the value of a coin could be slightly higher than its precious metal content, so they were not, strictly speaking, equivalent to bullion. Also, over the course of time the purity and weight of the silver coins were reduced.[15] Estimates of the value of the denarius range from 1.6 to 2.85 times its metal content,[citation needed] thought to equal the purchasing power of 10 modern British pound sterling at the beginning of the Roman Empire to around 18 pound sterling by its end (comparing bread, wine, and meat prices) and, over the same period, around one to three days' pay for a legionary.[16]

Commodities Index Basket / FIAT PRICE Discovery Algo / MEDIATION



LEADING ECONOMIC INDICATORS

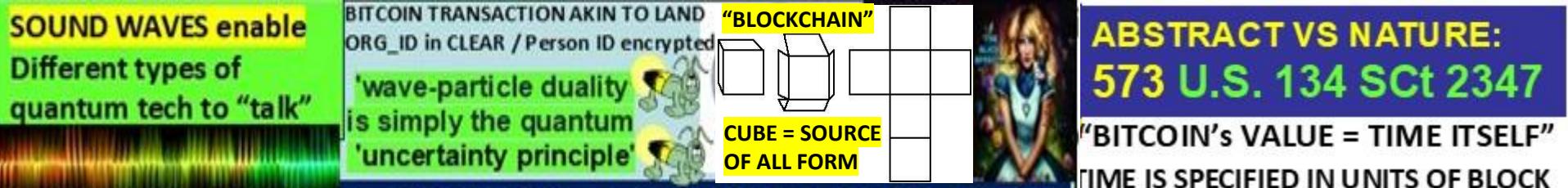




The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC. **UTZ TIME ZONE SYNC STOCHASTIC HARMONIZATION**



The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.



TIME EPOCHS & SYNTAX = FOUNDATION TECH

USPTO 13/573,002 The Heart
Beacon Cycle Time – Space
Meter / Adaptive Template



SCOTUS Alice in Wonderland Ruling 2014 ABSTRACTIONS MAY NOT BE CLAIMED:

Chain Abstraction: Simplifying the Complex World of Blockchain

The Net, Net of Money (Cryptocurrency)

Does not have / has no:

- LAYERS i.e., seven layer internet model
- BLOCKS on the BLOCKCHAIN
- Blockchain data stored in a CUBE
- QUBIT (S) quantum two state system
- Packets i.e., Vinton Cerf's "ode to a packet"
"QUANTUM AI"

Lightchain AI introduces Proof of Intelligence (PoI), consensus mechanism designed to reward nodes for performing AI computations i.e., model training, inference, optimization...

INTERNET, NET OF \$\$\$ TRUTH / WORKFLOW

All computing is essentially workflow logic

If, then, else then do {'task'} multicasted, Unicasted, anycasted / filtered over TCP / IP



Qubit vs bit: Qubits are represented by a superposition of multiple possible states. A qubit uses the quantum mechanical phenomena of superposition to achieve a linear combination of two states. A classical binary bit can only represent a single binary value, such as 0 or 1, meaning that it can only be in one of two possible states. A qubit, however, can represent a 0, a 1, or any proportion of 0 and 1 in superposition of both states, with a certain probability of being a 0 and a certain probability of being a 1.

Q: ARE WE ABSOLUTELY CERTAIN QUBITS EXIST ?

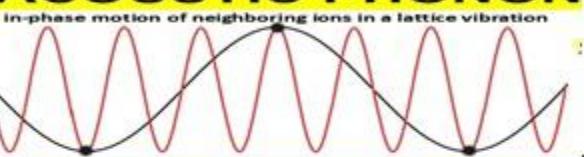
Q: IF CUBITS DO NOT EXIST, THEN ARE THEY SIMPLY A WAY TO ACHIEVE GROUP THINK FASTER ???

Q: 1/3 of an event (transaction) ... really ???

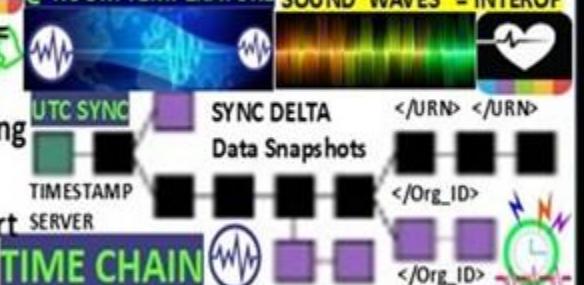
**ABSTRACT VS NATURE:
573 U.S. 134 S.Ct 2347**
"BITCOIN'S VALUE = TIME ITSELF"
TIME IS SPECIFIED IN UNITS OF BLOCK TRANSACTION CONFIRMATION TIMES"

FISHER INFORMATION FLUX FLOWS

ACOUSTIC PHONON



SOUND / LIGHT e.g., Q.R.N.B. QUANTUM COMPUTING @ ROOM TEMPERATURE SOUND WAVES = INTEROP



Net of \$\$\$ formed with:
1 EPOCH TIME CYCLES

2 {"Syntax"} "The Word"

"In the Beginning" Genesis Block

"All things internet, Internet of money are formed using time epoch cycles to process, parse, syntax as instructions"

"A blockchain is a consensus-based system. It only works if all nodes reach an identical state"

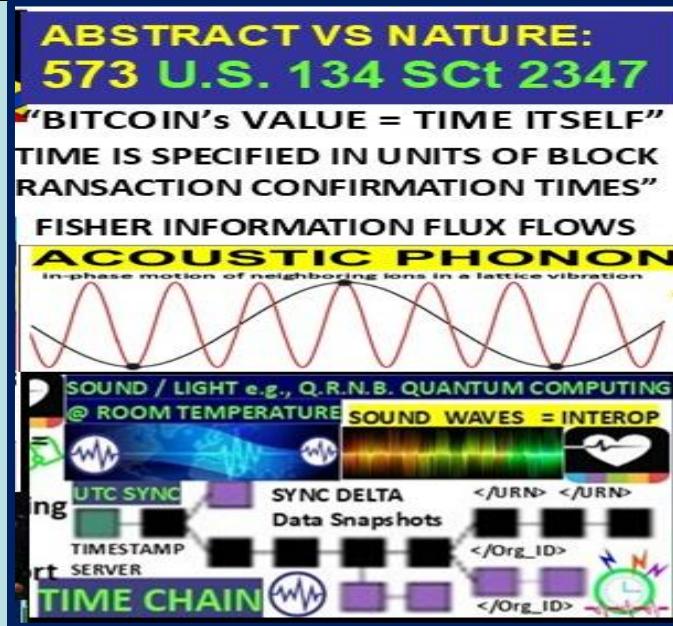
Circle USDC

Investopedia

Stablecoins are cryptocurrencies whose value is pegged, or tied, to that of another currency, commodity, or financial instrument. Stablecoins aims to provide an alternative to the high volatility of the most popular cryptocurrencies, Source JDSUPRA

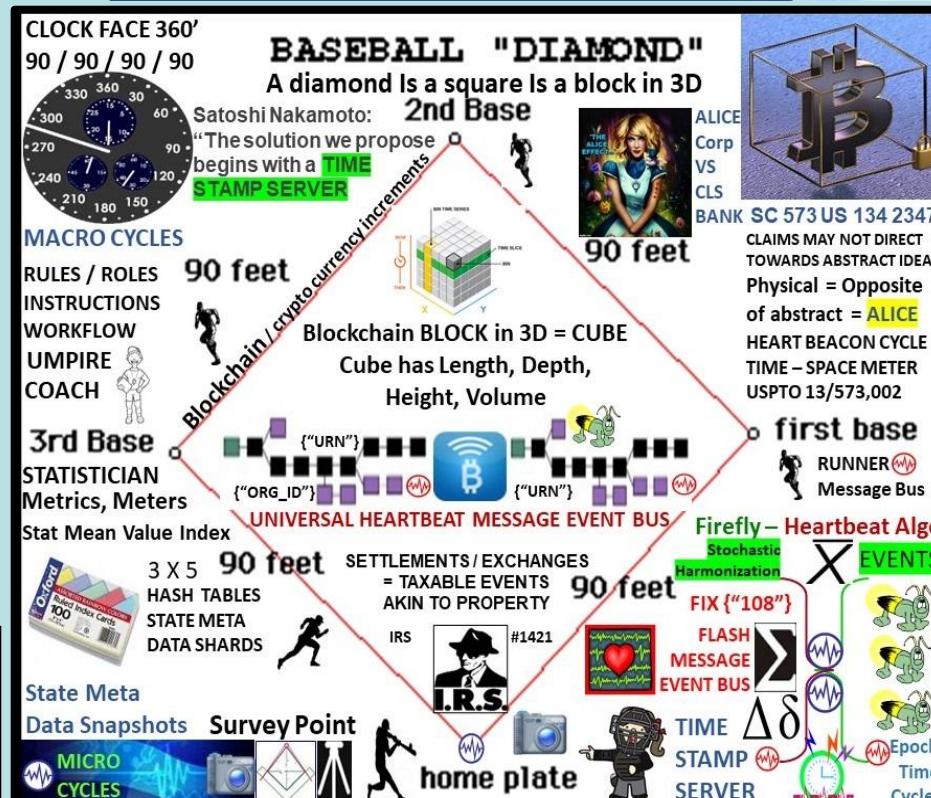


Circle Financial Ltd
lawsuit brought by
Veritasium Capital for
alleged infringement of
its digital-asset trading
patent. U.S. District
Court for the Eastern
District of Texas,
No. 2:22-cv-00498



NOSTRADAMUS of FRANCE
CENTURY 8: QUATRAIN 28:

"The copies of gold and silver inflated,
after the theft were thrown into the lake,
At the discovery that all is exhausted and
dissipated by the debt,
All scripts and bonds will be wiped out."



**"THE FINANCIAL
NOSTRADAMUS"**
REGGIE MIDDLETON

Reggie Middleton
"Father of DeFi"

US11196566
US11895246
JP6813477

Net of \$\$\$ formed with:

1 EPOCH TIME CYCLES

2 {"Syntax"} "The Word"

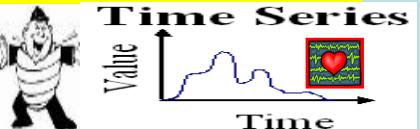
"In the Beginning" Genesis Block

"All things internet, Internet of money are formed using time epoch cycles to process, parse, syntax as instructions"

"A blockchain is a consensus-based system. It only works if all nodes reach an identical state"

"A smart contract is a piece of code stored on a blockchain, triggered by blockchain transaction reads / writes data in the blockchain's Dbase"

NAMED DATA NETWORKING



"Blockchain consortiums are working less on distributed ledgers and more on Contract Description Languages CDL, DAML Digital Asset Modeling Language" Coindesk Article



SYNTAX LEXICON Library

1st Compiler



STRUCTURED DATA EXCHANGE TEMPLATE FORMS
300+ USE CASES
LOGIC / FILTERS



Alpha Numeric Brevity Codes

Coder Guide
Rosetta Stone



SYNTAX / SYMBOL LEXICON LIBRARY



"BITCOIN MAKES MONEY PROGRAMMABLE.
MONEY IS SIMPLY DATA"

"BITCOIN'S VALUE = TIME ITSELF"

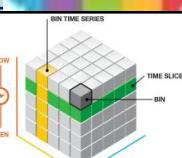
"Time is specified in units of block transaction confirmation times"



ALICE CORP VS CLS BANK

"claims may not be directed towards an abstract idea"

US SC 573 US 134 2347



BITCOIN BLOCKCHAIN BLOCKS, AGENTS, MOTES, BOTS, PACKETS, FRAMES, HEARTBEAT, PINGS, HOPS, BEACONS ARE METAPHORS / MEMES

USPTO 13/573,002 BASEBALL MEME PHYSICAL = OPPOSITE OF ABSTRACT



CLOCK FACE 360°
90 / 90 / 90 / 90



MACRO CYCLES

RULES / ROLES

INSTRUCTIONS

WORKFLOW

UMPIRE

COACH

3rd Base

STATISTICIAN

Metrics, Meters

Stat Mean Value Index

3 X 5 HASH TABLES

STATE META DATA SHARDS

State Meta Data Snapshots

Survey Point

MICRO CYCLES

BASEBALL "DIAMOND"

A diamond Is a square Is a block in 3D
2nd Base



Blockchain BLOCK in 3D = CUBE
Cube has Length, Depth, Height, Volume

SETTLEMENTS / EXCHANGES = TAXABLE EVENTS AKIN TO PROPERTY

IRS #1421

FLASH MESSAGE EVENT BUS

Fix {"108"}

EVENTS

Firefly – Heartbeat Algo

Stochastic Harmonization

PROOF-OF-CAPACITY PROOF-OF-TIME

PROOF-OF-STAKE

DELEGATED PROOF-OF-STAKE

PROOF-OF-WORK

PROOF-OF-DIRECTED-BYTES-GRAFHS

PROOF-OF-ELAPSED-TIME

PROOF-OF-BYTES-RHYTHM

PROOF-OF-BYTES-TOLERANCE

PROOF-OF-DELEGATED-BYTES-TOLERANCE

PROOF-OF-DELEGATED-BYTES-RHYTHM

PROOF-OF-DELEGATED-BYTES-TOLERANCE</

SCOTUS ALICE CORP VS CLS BANK 2014 RULING: ABSTRACT VS TANGIBLE

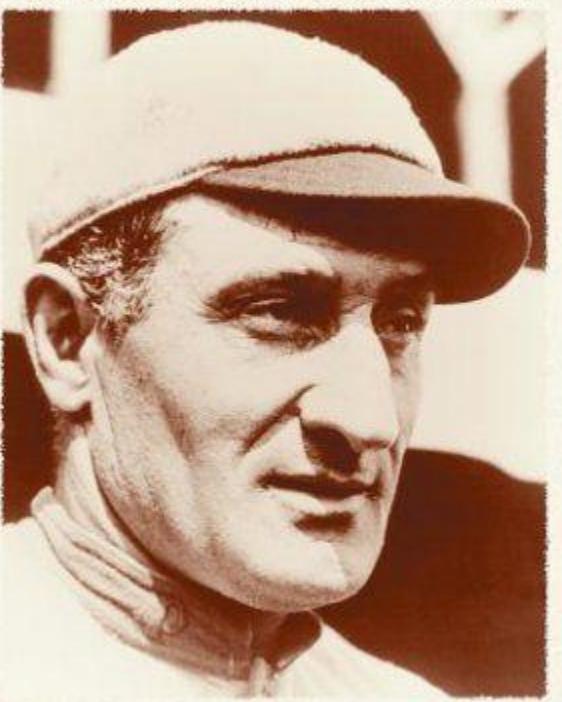
USPTO 13/573,002 PRIOR ART

Physical = Opposite of Abstract

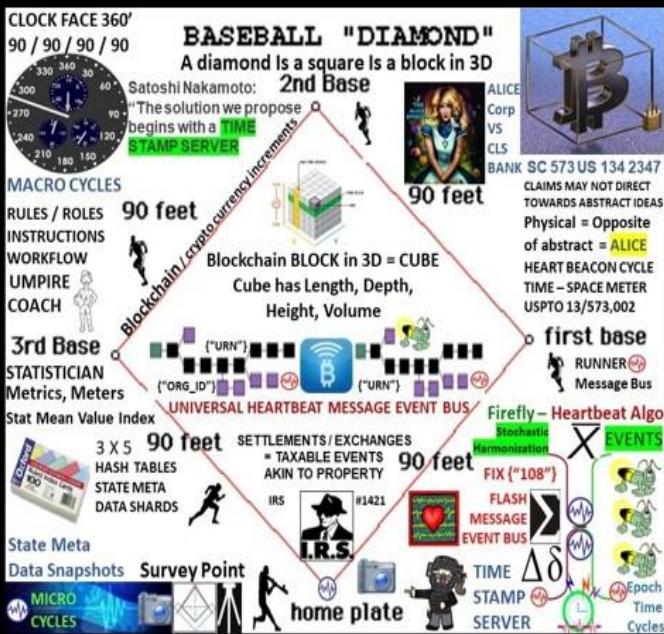
Q: WHO IS "SATOSHI NAKAMOTO" ?

HONUS WAGNER

THE LIFE OF BASEBALL'S "FLYING DUTCHMAN"



Arthur D. Hittner



Baseball fields have standard measurements for various components, including the infield and outfield. The infield consists of a diamond with 90 feet between the bases and a pitching distance of 60 feet 6 inches for adult and senior leagues. Home plate is located 90ft away from first base to The right and third base on the left. Bases are positioned at 90-degree angles from home plate.



A timestamp server works by taking a hash of a block of items to be timestamped and widely publishing the hash, such as in a newspaper or Usenet post [2-5]. The timestamp proves that the data must have existed at the time..

XRP = 10,000 Each ?

RIPPLE LABS / XRP

Honus Wagner NFT Non-Fungible Cryptocurrency Token

Honus Wagner is a legendary baseball player

T206 Honus Wagner card sold \$6.6 million August 2021

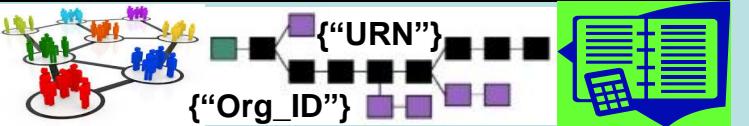
This highlights the cultural and financial significance of Honus Wagner memorabilia, which could potentially be replicated in the digital space with NFTs (AI web search)

Defunct crypto exchange Mt. Gox has said that a repayment date will be set in "due course" February 7th 2014 trading halted

MT.GOX
MIT Technology Review listed Ripple Labs as one of 2014's "50 Smartest Companies"

Heart Beacon Cycle

FEDERATE / TRADE FEDERATIONS



1. **FEDERATION:** Latin: **foedus, foederis, covenant, union** of partially self-governing states or regions under a central (federal) government
2. A league or confederacy. Individuals / groups retain **AUTONOMY**
3. A federated body formed by nations, states, and... **unions**
each retaining control of internal affairs

FEDERATION CONSENSUS ALGORITHM / PROTOCOL LIQUIDITY ON DEMAND



Net joins, drops, splits, merges, moves
Agile, adhoc NETOPS Vs acquisition preserves the **CHANNEL**

Federation
Gateway



"GLOBAL"
"SHARED"
"DOMAIN"
"COMMUNITY"
"PRIVATE"
<ORG_ID>
"GROUP ID"

SYSTEMATIC

Bitcoin Group Signatures Dynamic Membership Multi-party Signature DMMS:
independent interest within group signatures – **FEDERATED ID** {"Org_ID"}



Bitcoin Mining Pools
MEME / METAPHOR MEDIATION



DISTRIBUTED AUTONOMOUS ORGANIZATION = DAO RAND Corp

term coined circa 1991 now in use by Blockchain tech corporations

Uniform_Resource_Name



FIREFLY FLASH HEARTBEAT MESSAGES

HEARTBEAT MESSAGES

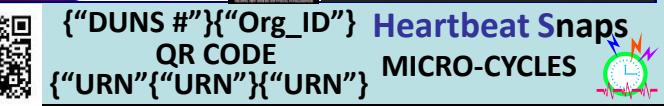
</RESOURCE> {"URN"}

{"Asset_Class"} </URN>

STOCK EXCHANGE

MIC MARKET IDENTIFIER

CODES / BREVITY CODES



123e4567-e89b-12d3-a456-426655440000

123e4567-e89b-12d3-a456-426655440001

123e4567-e89b-12d3-a456-426655440002





FEDERATE: COMMON GOALS SYNCHRONIZED IN SPACE - TIME





World Game Annex K

Signals & Telemetry



EVENT
</108>
EVENT
MESSAGE
MESSAGE
</K.0099>
Start, Stop, TTL
</Org_ID>
{URN}
{URN}
{URN}
</URN>

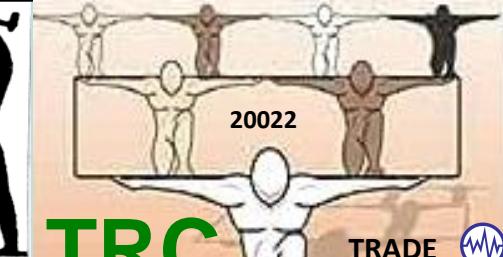
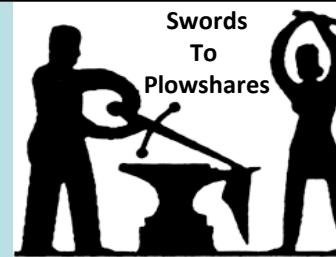
300 + Use Case message sets
OPSCODE BREVITY CODES
- Symbols, symbol sets



“Build a new model”
Standing on the shoulders of giants



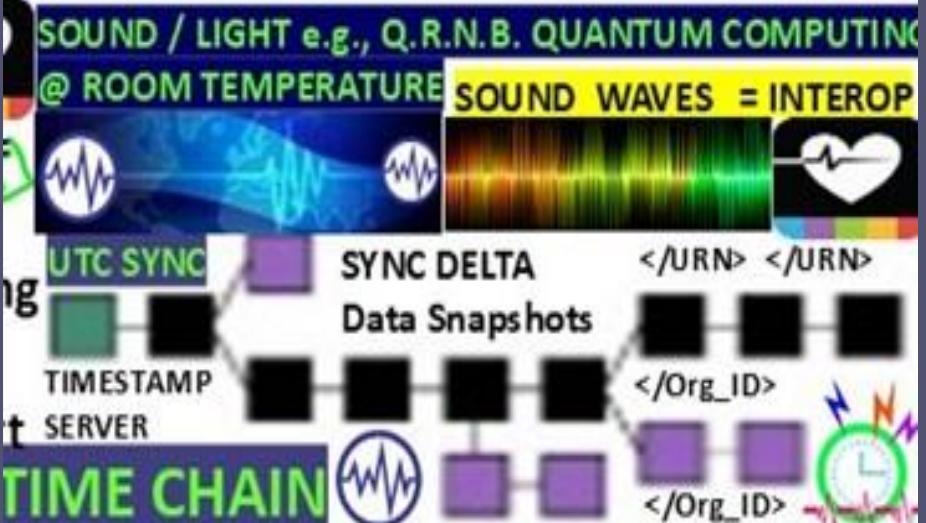
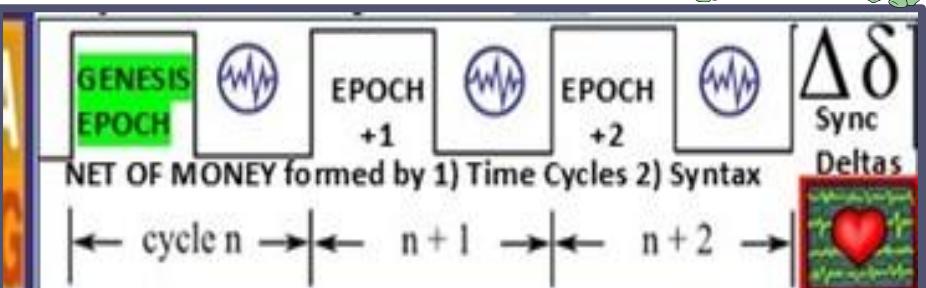
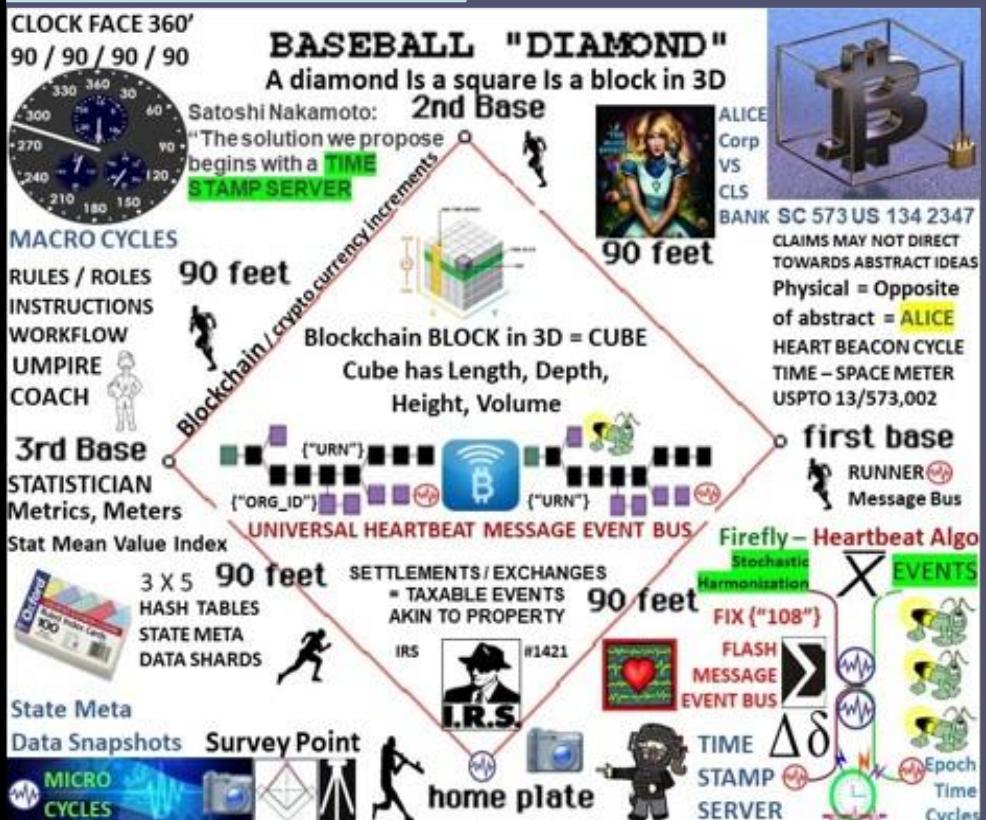
Eco Economic Epochs
For Programmable \$\$\$
Programmable Economy
Re Monetize (Crypto) Currency
Symbol / Message Sets A.I.
FIREFLY Inspired
Heartbeat Algorithm
Message Event Bus





The World Game's (s) Great Redesign TELEMETRY CONTROL GRID SYNC MATRIX ADAPTIVE PROCEDURAL TEMPLATE

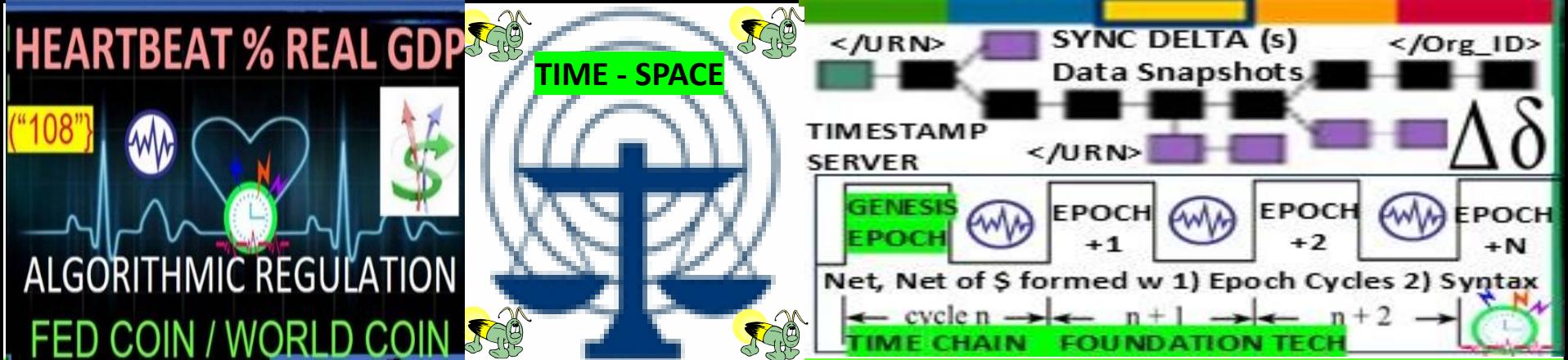
1919 BLACKSOX WORLD SERIES GAME FIXING RULING



Firefly Heartbeat Sync nodes strive to sync in a distributed system. Nodes emit periodic “heartbeat” events at approximately the same time. There is no need to sync during a cycle as long as the cycle length is bounded & nodes eventually agree. HBC’s method stipulates clock cycle values e.g., 5, 10, 15.

USPTO 13/573,002 / SCOTUS 573 U.S. 134 SCt 2347 “Alice in Wonderland Ruling”





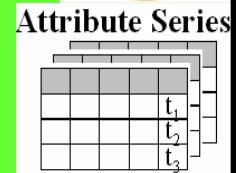
Banks, Tech firms' form teams to assert foundation tech as a legal basis for IP intellectual property claims for programmable \$\$\$ DeFI / TRADEFI

Use Case: Tokenize Europe 2025 initiative: reuse DoD / NATO's structured data brevity

OPSCODES mapped to 2525A, B, C, D symbols needed for A.I. man-machine interface

Reuse, modify 300 + Use Case message set templates data element FFIRNs FFUDNS

Of system of systems engineering architecture structure data exchange (DoD) (NATO)

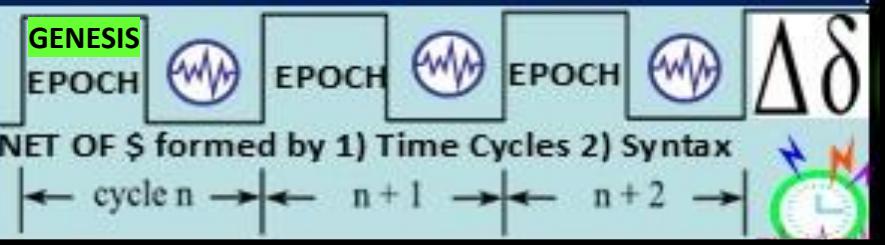


SOUND WAVES enable
Different types of quantum tech to "talk"



TIME EPOCHS & SYNTAX = FOUNDATION TECH

USPTO 13/573,002 The Heart
Beacon Cycle Time – Space
Meter / Adaptive Template



Economics of Microtransactions in Video Games: The Intelligent Economist



Microtransactions: in-game purchases that unlock specific features or give user special abilities, characters or content.

Q: is the main purpose of the (technically non-existent) **#blockchain** derived from the video game industry adapted to **#cryptocurrency** industry is about adding/ overlaying **#micropayments / #microtransactions** converting the world into a massive, virtual open world video game ?

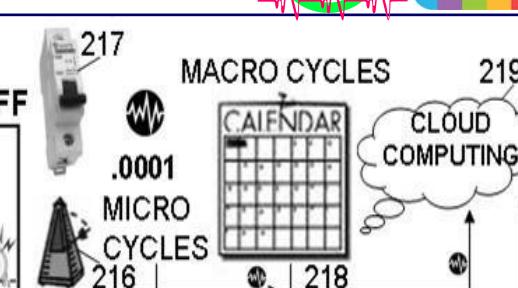
<https://intelligenteconomist.com/microtransactions/>

REPLACEMENT SHEET

BUILDING BLOCKS

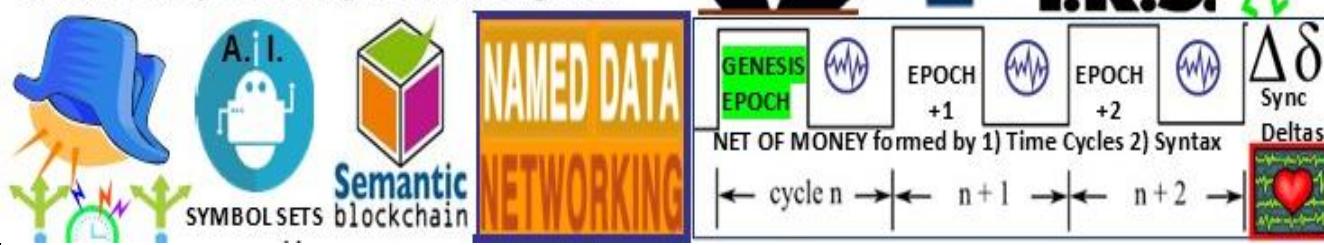
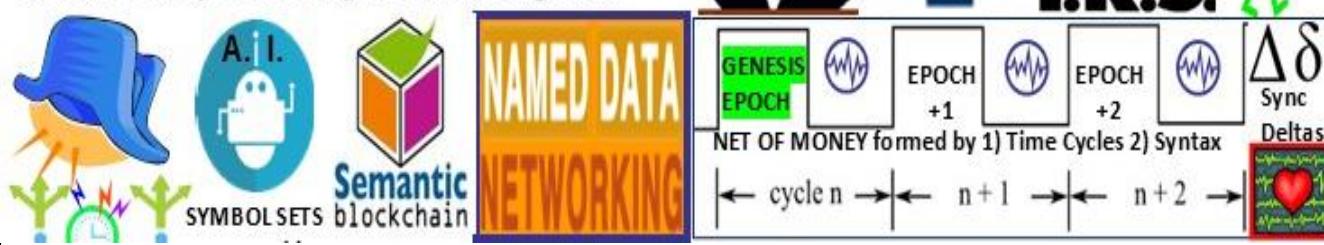
201

B1: BUILDING BLOCK 1: TCP/IP HEARTBEAT TIME STAMP & DATA GET / PUT OF ORG ID / URN IN MICRO / MACRO CYCLES PRIOR TO DATA FUSION CENTER INSERTION



Net, net of money \$\$\$ formed w:

1. Epoch time cycles created by silicon chips
2. Syntax code instructions in epoch time cycles
3. Time Stamp Server w/event message bus





Eco Economic Epochs

Distributed Event Processing

Distributed State Machine

DEFI FINTECH IP WARS / Litigation Foundation Tech



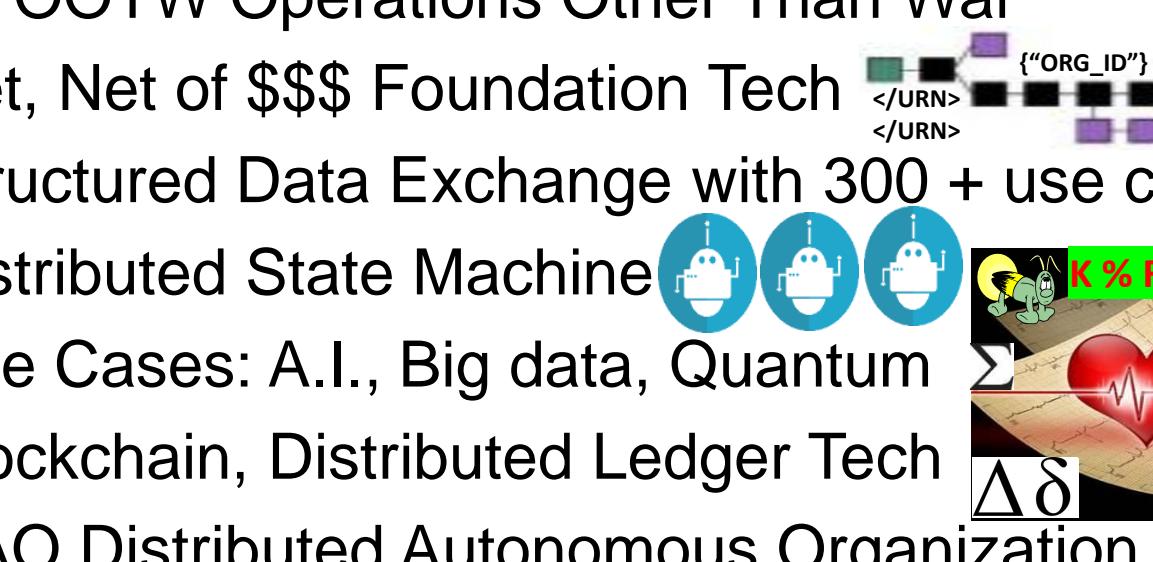
SWORDS to PLOWSHARES

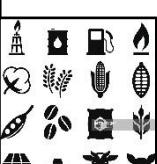
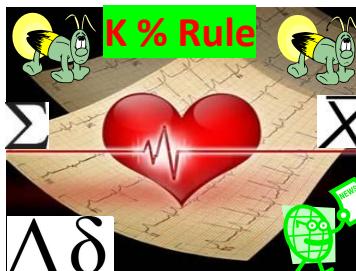


The logo features a blue digital camera icon on the left, followed by a blue circular icon containing a white brain-like waveform. To the right of these icons, the text "USPTO 13/573,002" is displayed in large, bold, black letters. Below it, "573 U.S. 134 SCt 2347" is shown in a slightly smaller, bold, black font. At the bottom, the words "Alice in Wonderland Ruling" are written in a bold, black, sans-serif font.



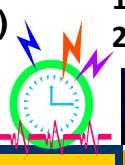
**Symbols
Rule
The World
OPSCODE
BREVITY
CODES
Mapped
To symbols
2525A,C D**

- Battlefield Digitization, Net Centric Warfare for OOTW Operations Other Than War
 - Net, Net of \$\$\$ Foundation Tech
 - Structured Data Exchange with 300 + use cases
 - Use Cases: A.I., Big data, Quantum
 - Blockchain, Distributed Ledger Tech
 - DAO Distributed Autonomous Organization
 - Consensus, Signals, Telemetry, Standards



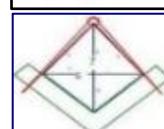
Federation
Gateway

In the beginning (of time).. There was the word (syntax)



Net, Net of \$\$\$ money consists:

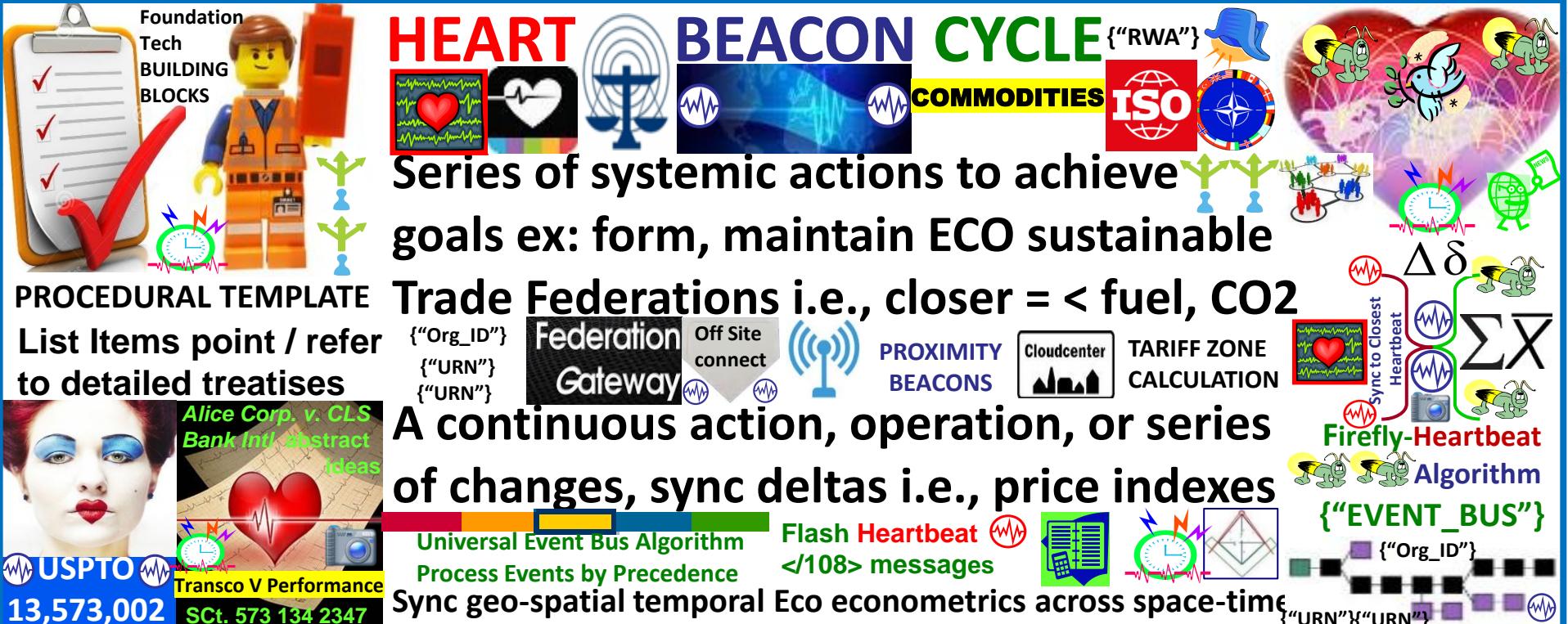
- 1) Epoch Time Cycles
- 2) Syntax used / not in epochs



MEMO #1421



HET START-STOP Time to LIVE



MINIMUM LIST OF COMPONENTS / BUILDING BLOCKS, PROCESSES, PROCEDURES... AGREED ON BY TRADE FEDERATIONS TO ACHIEVE DAO DISTRIBUTED AUTONOMOUS ORGANIZATIONS CONSENSUS

DAO's in FEDERATIONS AGREE TO USE COMMON COMPONENTS, SHARED PROCESSES, METHODS, SIGNALING - TELEMETRY SCHEDULE & METRICS IN SMART CONTRACTS, SERVICE LEVEL AGREEMENTS

CHECKLIST: TRADE FEDERATION ECONOMIC FRAMEWORK EX:

- 1) Organization Identifiers {"Org_ID"} routing / organizing
- 2) Track RWA Real World Assets / Commodities by </URN>
- 3) DISTRIBUTED STATE MACHINE SNAPSHOTS @ 15 / N min
- 4) TARIFF TOOL ZONE CALCULATION w Space – Time Metrics
- 5) Use NIST Quantum Random Number Beacon QRNB

USPTO 13/573,002 = Spaceship Earth's Signals & Telemetry Annex

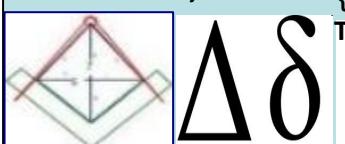


THE TERRA (TRC)

Trade Reference Currency



SLA: Closer = Cheaper {
Closer = Less Fuel {"UP"
= Less Time, CO2 </UP>
"LIP"



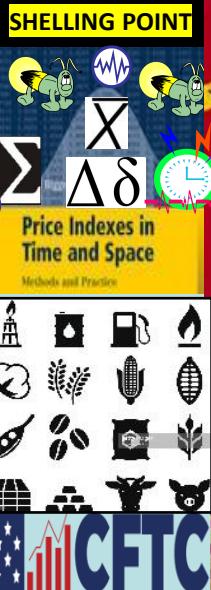
$\Delta\delta$



{"TOKENs TAGS"}
{"URN"}
</URN>
{"URN"}
TRADE



{"URN"}
</URN>
{"URN"}
ZONES



Price Indexes in Time and Space



Friedman's K % Rule



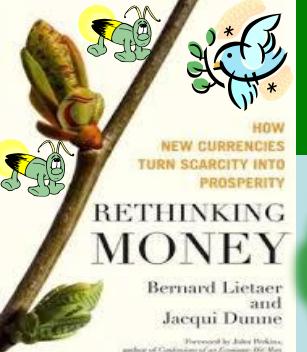
ALGORITHMIC REGULATION



WAVES

WAVES TOKENIZES CURRENCIES

Terra Trade Reference Currency TRC "world currency"
Bernard A. Lietaer Belgian economist proposed 1991
Basket of 9-12 most important commodities. Public
issued demurrage fees for storage, shipping, handling

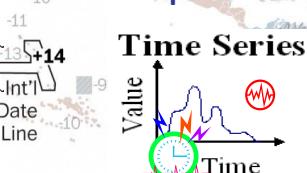


Example: 100 Terra = 1 barrel oil
+ 10 bushels of wheat 
+ 20 kg of copper + 1/10 Oz gold



Spatial Econometrics

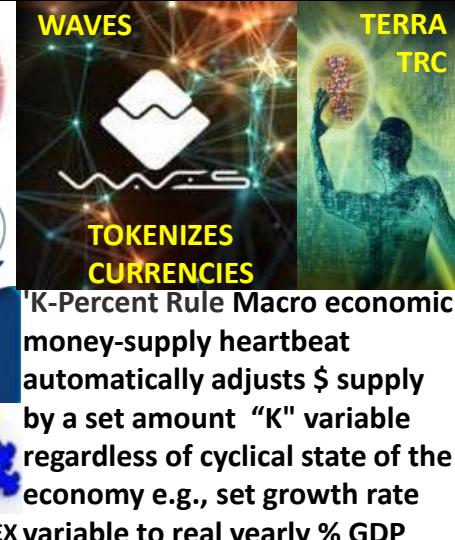
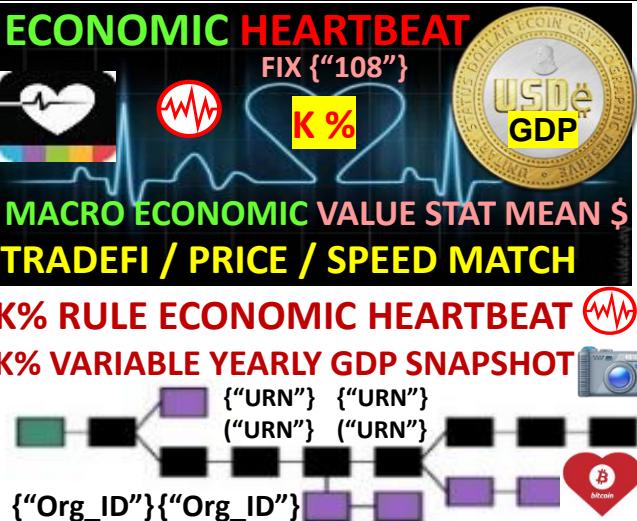
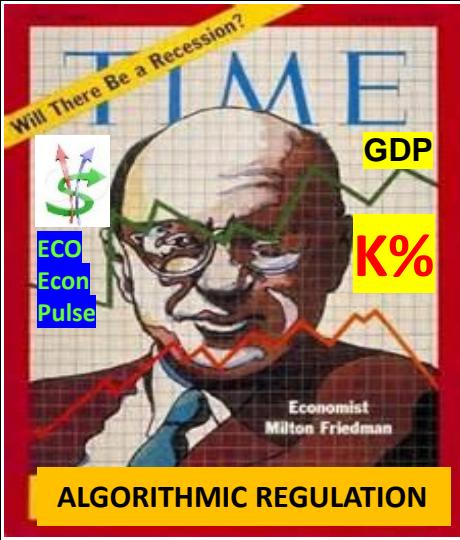
Firefly inspired Heartbeat Synchronization nodes strive to sync in a distributed system. Nodes generate periodic “heartbeat” events approximately at the same time. It differs from classical clock sync in that nodes are not interested in counting cycles to agree on the ID of the current clock cycle. There is no requirement to sync during a cycle length In real time as long as the length is bounded and all nodes agree on it eventually”



French newspaper "Le Fédériste" "L'Europa monnaie de la paix" Money of peace" Born Jan 1st 1933 \$\$\$

The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.

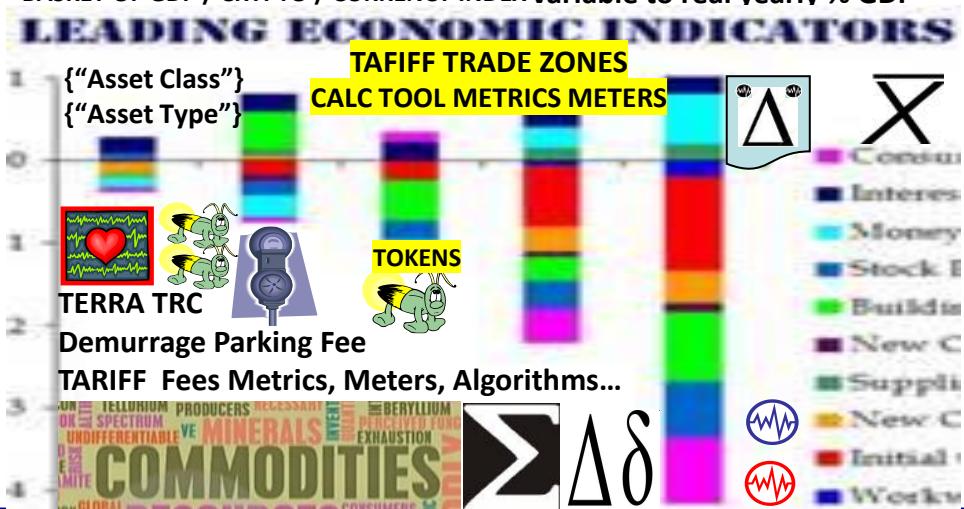
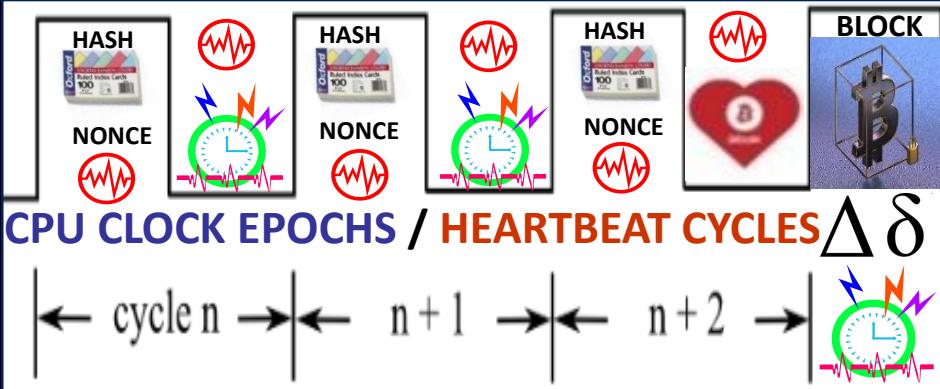




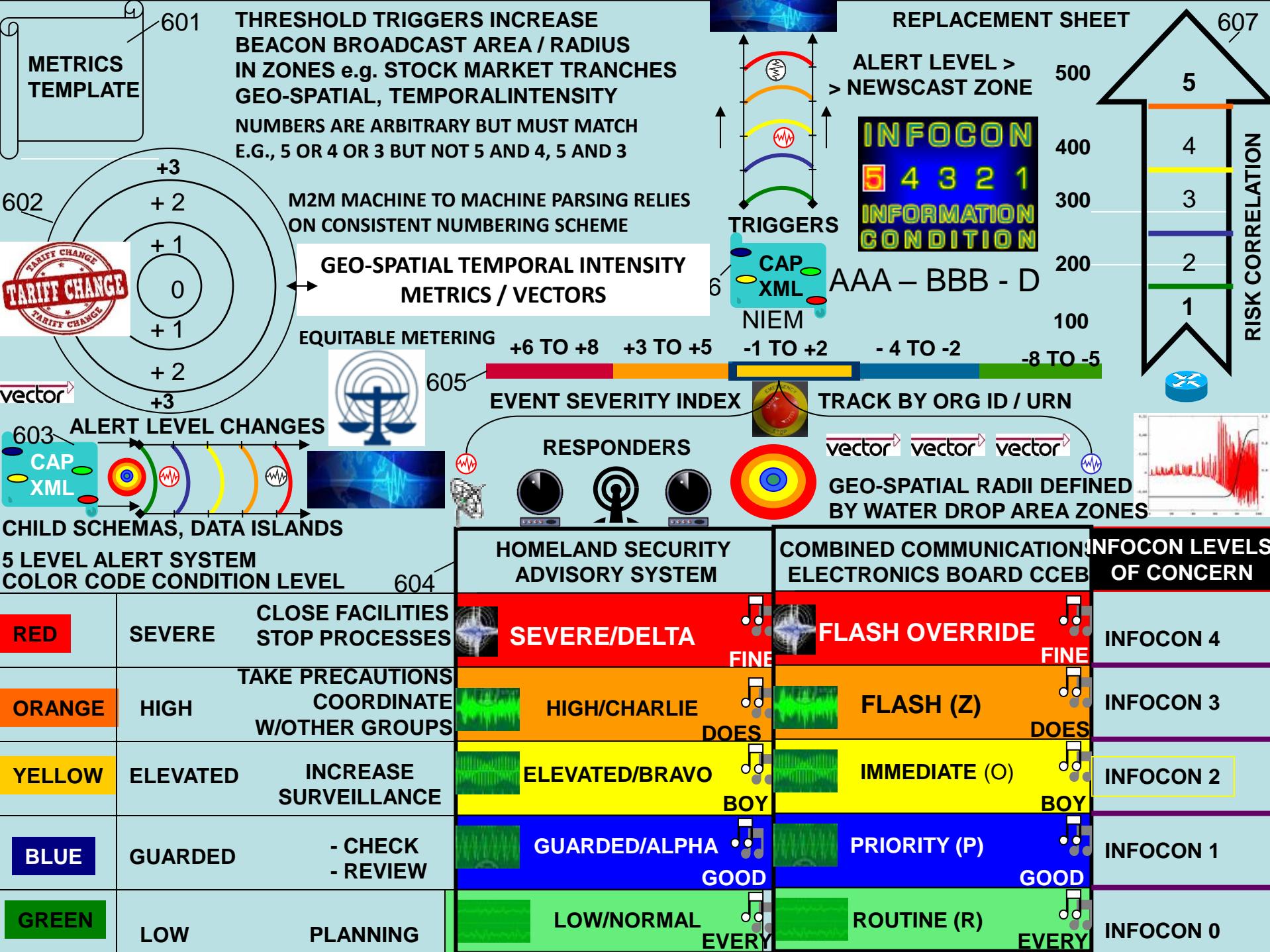
The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind Coordinated Universal Time (UTC). However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC.

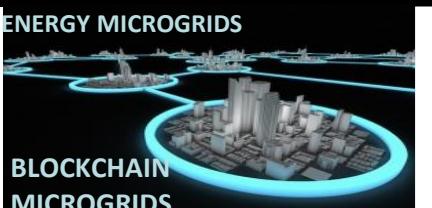


The proposed Universal Timezone System would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.



"Heartbeat Synchronization strives to have nodes in a distributed system generate periodic local "heartbeat" events approximately at the same time. It differs from classical clock sync in that Nodes are not interested in counting cycles and agreeing on the ID of the current clock cycle. There is no requirement regarding the length of a cycle with respect to real time as long as the length is bounded and all nodes agree on it eventually"





TERRA TRC

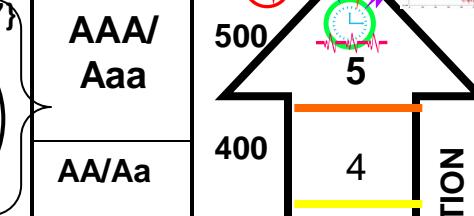
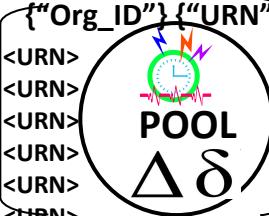
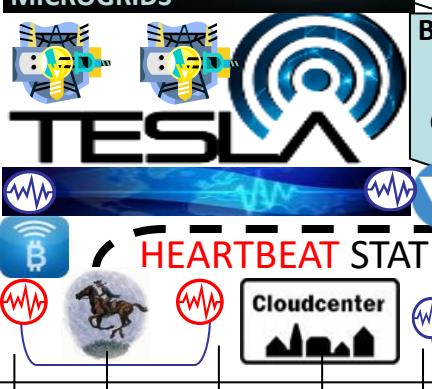
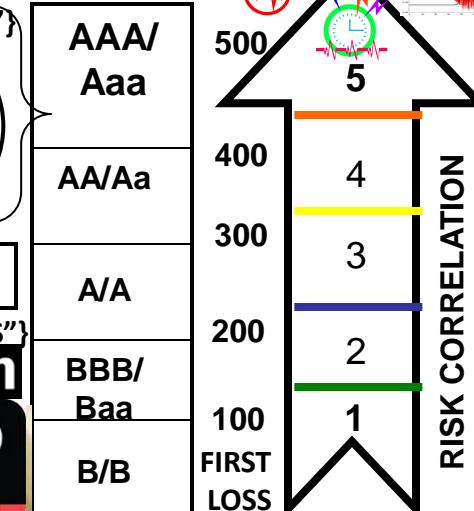


ECONOMIC HEARTBEAT



HB MSG </108>
FIX PROTOCOL
INDUSTRY-DRIVEN MESSAGING STANDARD

LAST LOSS



IEEE 802.15.4 OASIS MQTT
TELEMETRY TRANSPORT

IEEE C37.118 Harmonization & Sync heartbeat update Interval
IEEE 802.11 HOP BY HOP CONTROL



IEEE 802.1AG HOP BY HOP

DETECTION

Price Indexes in Time and Space Methods and Practice

Spatial Econometrics

PROCESS BY </PRECEDENCE>

Bitcoin = Property

Paul Revere Linear, Sequential

Price Indexes in Time and Space Methods and Practice

Spatial Econometrics

SonarMaps ID_Hops

IRS Memo #1421

% Block Mined
% Block owned
Mined Bitcoins

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

ON OFF SHORE

Unmined Bitcoin:
 $\Delta\delta$ Land Use Meme

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

Triangulation

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

Euclidian Geo

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

GPS GEO LOC

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

DATE TIME STAMP

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

NDN </INTEREST>

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

NDN {“DISTANCE”}

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

Demurrage Charges

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

vector

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

Water Drop in Pond Meme

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

Area Radius

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

</FILTERS>

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

By Org ID / URN

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

</INTEREST>

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

</DISTANCE>

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

Closer = Cheaper

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

NDN

Closer = < Fuel

Block

Blockchain Timestamps

BLOCKTIME ARBITRAGE

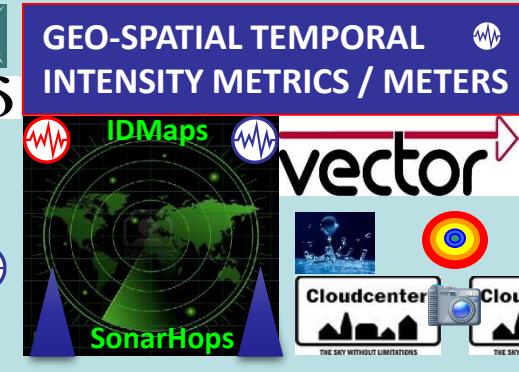
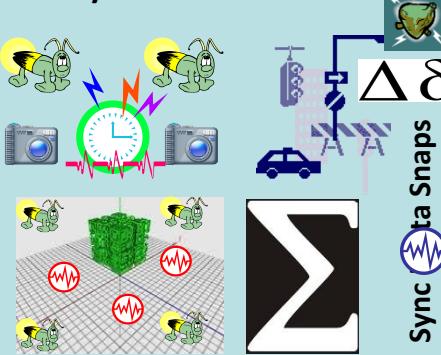
NDN



IDMaps: Global Internet Host Distance Estimation Service



NDN: CONTENT ROUTING / <StratML> NDN INTEREST = Time / Distance



IDMaps scalable Internet-wide architecture measures, disseminates distance information



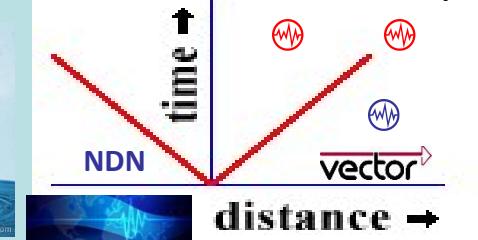
HOP COUNTS



REACHABILITY



/localhost/nfd/fib/add-nexthop



Higher-level services collect distance information to build a virtual distance map of Internet & estimates distance between any IP address pair



IDMaps provides distance information used by SONAR/HOPS query/reply service

Name Prefix
<Org_ID> Trie (NPT)



NDN NAMES

NDN NAMED DATA NETWORK RIB /
FIB Datasets event notification

Distance information adjusts to “permanent” topology changes e.g., splits, joins, adds, moves, drops, merges in lieu of formal merger / acquisition

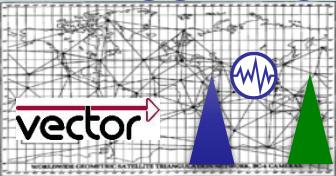


NDN INTEREST LENGTH
= DISTANCE BY HOPS

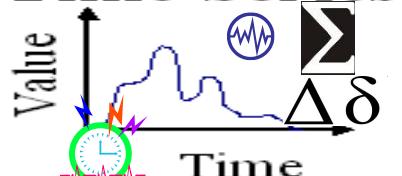
NDN
INTEREST

IS DATA
FRESH ?

TRIANGULATION



Time Series



NDN STRATEGY CHOICE MANAGER – RIB Routing Information Base add-nexthop

Datasets and Event Notification

INTEREST in <URNs>

IDMaps assists Network Time Protocol (NTP) servers establish long term peering relationships



Distance Metrics: latency (e.g., round-trip delay) and, where possible, bandwidth.



MICRO-CYCLES



NDN INTEREST LIFETIME = TTL Time To Live

HEARTBEAT STATE META DATASNAPSHOTS

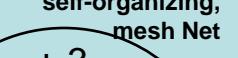
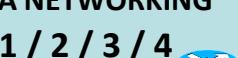
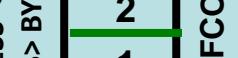
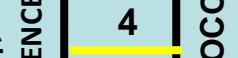
GEO-SPATIAL TEMPORAL INTENSITY METRICS, METERS, VECTORS, TARIFF

INFOCON / DEFCON ALERT EVENTS INFORM STAKEHOLDERS OF STATUS CHANGE i.e., NORMAL TO ELEVATED, HIGH OR SEVERE. ALERT LEVELS ARE ARBITRARY BUT MUST BE CONSISTENT e.g., 3 OR 5 FOR MACHINE TO MACHINE PROCESSING



XML	INFOCON
MTF	5
300 +	4
MSG	3

INFOCON
INFORMATION CONDITION



Geo-Spatial Temporal Intensity NOVEL METRICS / METERS:



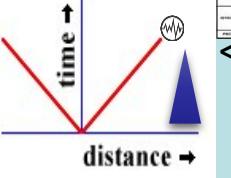
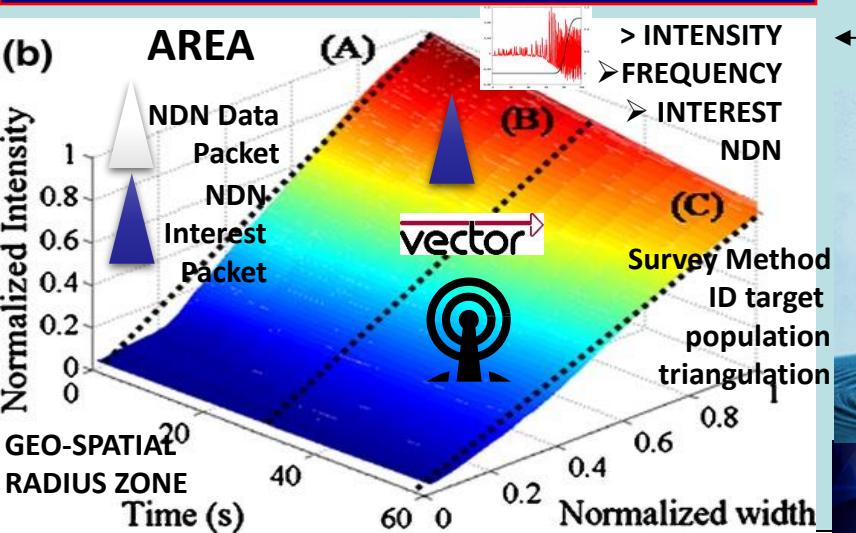
Paul Revere = linear, sequential



TCP/IP hop by hop counts, by hop controls



Water Drop = AREA / INTENSITY Cyclic Frequency

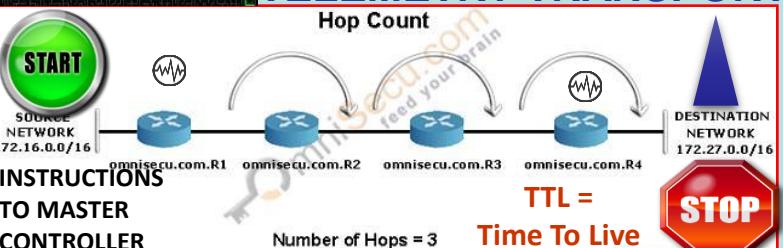


XML	INFOCON
MTF	5
300 +	4
MSG	3

INFOCON
INFORMATION CONDITION

<CONTENT> TEMPLATES
OASIS

IEEE 802.15.4
OASIS MQTT
TELEMETRY TRANSPORT



CLOSER = FASTER, CHEAPER > CYCLE => INTEREST NAMED-DATA NETWORKING

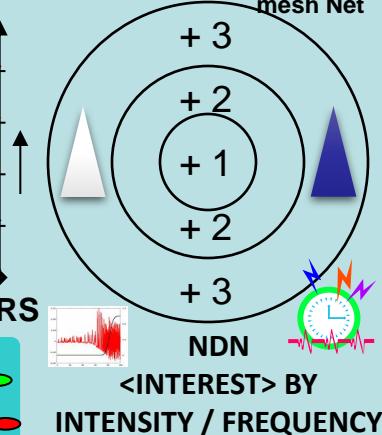
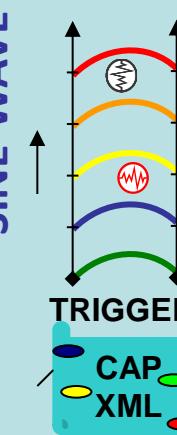
IDMAPS
SONARHOPS
INTERNET
TRIANGULATION



vector WirelessHART

ALERT LEVEL >
> NEWSCAST ZONE

time synchronized,
self-organizing,
mesh Net



13/573,002 HEART BEACON CYCLE

Time -Space meter, metrics / Universal data event, alert bus
Internet of Everything “ability to hear the world’s heartbeat”

The four dimensions of Big Data

vector VECTOR: quantity having direction and magnitude
position of a point in space relative to another point

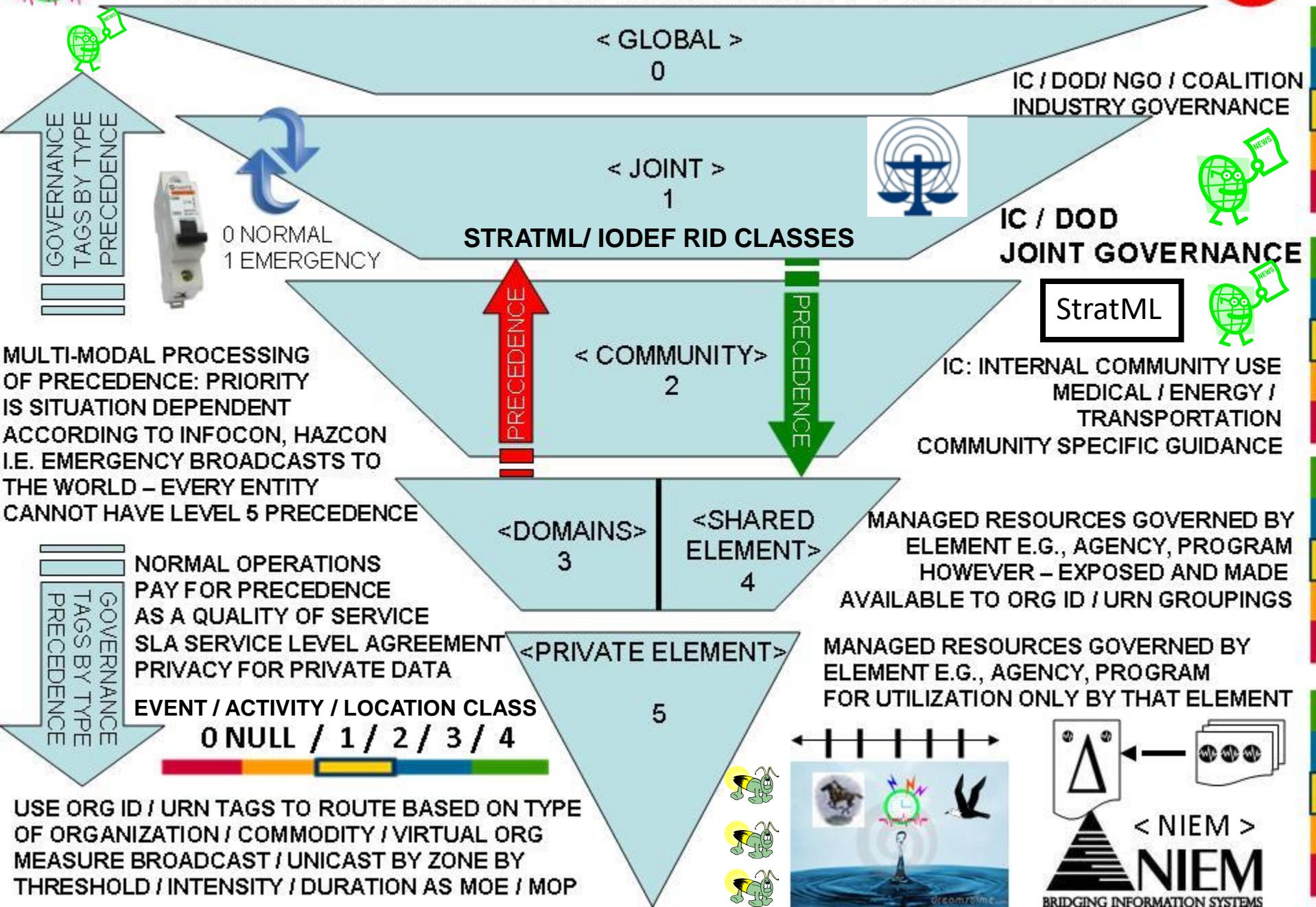
TIME STAMP BY Org ID, URN Before FUSION CENTER

Position of a point in space relative to another point





ENABLE MAPPING OF GOVERNANCE / MANAGEMENT RESOURCES BY PRECEDENCE SHOWN IN GEO-SPATIO INTENSITY DASHBOARD VIEWS



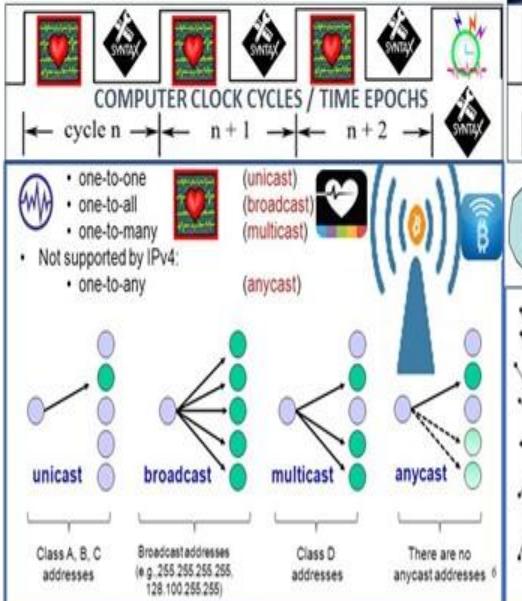
Foundation Technology Trinity:

1. EPOCH (s) = Time intervals, cycles
2. SPACE (land use meme) ex: IRS memo #1421 "Bitcoin transaction akin to land"
3. SYNTAX structured data mapped to symbols for A.I. / man - machine interface

THESIS: All net artifacts, net of \$ are formed with:
 1) Epoch time cycle intervals ex: chip oscillations
 2) Syntax parsed, processed in epoch time intervals

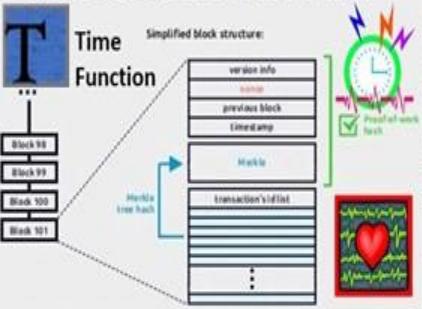
Time Epochs / Syntax:

How the net, net of \$ actually work...



TIME Block chain TIME

What does a block look like?



GENESIS TIME STAMP / Genesis Block

Header (Contains service information (version info, nonce, previous block id and timestamp), Merkle - A summary hash from the block's transaction list, Transaction's list - Set of transaction's identification hashes, that was included into the block's merkle tree)

Semantic blockchain

BASEBALL "DIAMOND"
A diamond is a square is a block in 3D
2nd Base

The solution we propose begins with a
Timestamp Server

MACRO CYCLES
RULES / ROLES
INSTRUCTIONS
WORKFLOW
UMPIRE
COACH

3rd Base
STATISTICIAN
Metrics, Meters
Stat Mean Value Index

Blockchain BLOCK in 3D = CUBE
Cube has Length, Depth, Height, Volume

SETTLEMENTS / EXCHANGES
+ TAXABLE EVENTS
AKO TO PROPERTY
IRS #1421
FLASH MESSAGE
EVENT BUS

State Meta
Data Snapshots Survey Point

FIX ("10B")
MICRO CYCLES

TIME Δδ
STAMP SERVER

90 feet

FIRELY - Heartbeat Algo

90 feet

TIME Δδ

Sync

Filters

Deltas

Workflow

Sync

Filters

Deltas

Structured Data Exchange

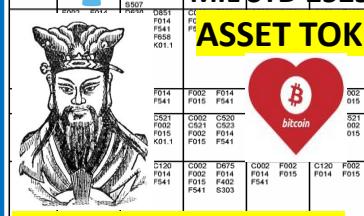


SYNTAX LEXICON
ROSETTA STONE

Coder's Guide lexicon.

STRUCTURED
<CONTENT>
EXCHANGE
TEMPLATES

MIL STD 2525ABC



"SYMBOLS RULE THE WORLD"

11.8 - Kinematic
11.8.1 - Pos
11.8.1.1 -
11.8.1 -

XBRL™
THE BUSINESS REPORTING STANDARD
BINARY XML
Decision

1 - Position
1.3.1 - Bearing Angle
1.3.2 - Location; 2D Hor
1.3.3 - Vertical
1 - Velocity

DDL DATA
DEFINITION
LANGUAGE

Signal operating instructions (SOI): technical control coordination of signaling, telemetry Current situational awareness, data dictionary, network identification, channels, network directory, brevity code-words, signals. Units maintain 2 SOI copies: PEACE TIME version "Go-To-War" version = BIZ COA (s) <Org_ID1><Org_ID2><Org_ID3>



NATO MESSAGE TEMPLATES USE DATA SETS FOR STRUCTURED DATA EXCHANGE // POSITION FIELD IN MESSAGE PROCESSED BY TABLE, FIELD # IN A CONSISTENT, PREDICTABLE ORDER = AI FRIENDLY M2M AI

GOAL: vide a common lexicon / syntax / term library used among FEDERATIONS identified by Federated ID
GOAL: Provide a common, consistent, reliable schedule to share signaling and telemetry within federations.

MTL Machine Trust Language



vector

{"URN" "TRANSACTION ID"}

MESSAGE TEXT FORMAT :

SEG RPT OCC CLASSNAME SETID SEQ FIELD OCCURRENCE SET FORMAT NAME

O 11NUPRES EXER 1 /M /O // (NU) EXERCISE IDENTIFICATION

C 11NUPRES OPER 2 /M /O /O /O // (NU) OPERATION CODEWORD

M MIOPV1 1 MSGID 3 /M /M /O /O /O // (NU) MESSAGE IDENTIFIER DISTANCE

M MIP OUT ORDPLAN 4 /M /O /O /O // (NU) PLAN ORDER REFERENCE NDN

SIOP POUT MSGREF 5 /M /M /M // (NU) REFERENCED MESSAGE

NUPRES DTG 6 /M // (NU) DATE-TIME GROUP

0 ORGID 7 /M /M /M /M /M /M /C // (NU) ORGANIZATION DESIGNATOR

M 11NUPRES GENTEXT 8 /M /M // (NU) 1.A ENEMY FORCES / COMPETITORS

M 11NUPRES GENTEXT 9 /M /M // (NU) 1.B FRIENDLY FORCES / TRADE FEDERATION DAO

M 11NUPRES GENTEXT 10 /M /M // (NU) 1.C ATTACHMENT / DETACHMENT INTEREST

O 11NUPRES GENTEXT 11 /M /M // (NU) 1.D COMMANDERS EVALUATION

O 11NUPRES GENTEXT 12 /M /M // (NU) 1.E ENVIRONMENTAL INFORMATION

M 11NUPRES GENTEXT 13 /M /M // (NU) 2. MISSION </108>K00.99 / FIX / SWIFT / E-911 Heartbeat Message

M 11NUPRES GENTEXT 14 /M /M // (NU) 3.A CONCEPT OF OPERATION

O 11NUPRES GENTEXT 17 /M /M // (NU) (3) RECONNAISSANCE SURVEILLANCE

O 11NUPRES GENTEXT 21 /M /M // (NU) (5) INFORMATION OPERATIONS

O 11NUPRES GENTEXT 28 /M /M // (NU) (5) COMMS INFORMATION SYSTEMS

O 11NUPRES GENTEXT 35 /M /M // (NU) 3.D COORDINATING INSTRUCTIONS

M 11NUPRES GENTEXT 36 /M /M // (NU) 4.A SUPPORT CONCEPT (Logistics)

M 11NUPRES GENTEXT 37 /M /M // (NU) 4.B MATERIEL AND SERVICES

SYMBOLS	Friend	Neutral	Hostile	DICAL EVAC & HOSPITALISATION
	Partner		Competitor	M - MILITARY OPERATIONS

TOKENIZED ECONOMY BREVITY CODE OPSCOSE MAPPET TO SYMBOLS

Δδ INDEX REFERENCE #:
M015 STATUS :

EFFECTIVE: 14-DEC-99

PURCHASE CODES

FEDERATED PEGS

{"URN" "ASSET_CLASS"}

{"URN" "ASSET_TYPES"}

ISO 10383 – MIC

Market Identifier Codes

{“URN”}

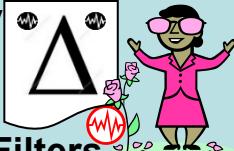
{“Org_ID”}

“Org_ID”

FROM	TO					CODE GUIDE				
	GCCS-A	TAIS	ASAS	AMDPCS	AFATDS	MCS				
ASAS	C002 C203 F002 F014 F015 F541 S201 S309	C002 C203	USMTF / XML MTF FORMATTED MESSAGE CATALOG = 300 + messages info exchange sets using common, CONSENSUS Message Text Formats MTFs. MTFs specify </CONTENT> / info agreed by group consensus presenting information in a logical, well specified unambiguous layout resulting in a highly efficient info payload to overhead ratio			C002 C203 F014 F541 S201 S309 S305 S507				
AMDPCS	TOKENS OPSCODE BREVITY CODES					F002 F015 S201				
AFATDS	F002 F014 F015 F541 S201					C203 C400 D630 E500 F002 F014				
		A423 C203 C505 F002 F014 F015 F541 S201	A423 A659 C002 C203 C400 C443 C447 C488 C501 C503 C504 C505 C506 C507 C508 E400 F002 F014 F015 F541 F658 F756 G489 K01.1 S201 S303 S507	A423 A659 A656 A690 C002 C203 C400 C505 F002 F014 F015 F541 S201	 ASSET TOKENS Syntax Lexicon Token Economy Coder's Guide	A423 C505 F014 F541 S201	A.I. 	INFOCON 5 4 3 2 1 INFORMATION CONDITION		
							M2M	"SYMBOLS RULE THE WORLD" 		
MESSAGE CATALOG 300 + Use Cases				Data Elements: entity, attribute, relationship equivalents			HEARTBEAT MESSAGE = K00.99 </108> {"108"}			
Object Categories		Examples	Location	Movement	Identify	Status	Activity	Intent		
OOB		SYNTAX LEXICON	STRUCTURED DATA lat/long	spd/hdg	EXCHANGE country / alliance, type/class	Message readiness	Sets targeting, reconitering	COA {"Java JS"}		
Infrastructure		Comm, power, transportation, water/sewer	network, grid	throughput, flow rates,	name, part-of relationship	BDA, op levels	repair, broadcasts	YAML expansion plans		
Sociological		Culture, religion, economic, ethnic, government, history, languages	temples, historic structures	E-R Model	Class Diagram	Relational Database	Object DBMS	XML DTD / Schema	TADILs	MTF
Geophysical		Terrain, weather, climatology, oceanography, astrometry	feature lat/long, alt/dpth	Entity	Class	Table	Class	Element	Message	Message
				Attribute	Attribute	Field / Column	Attribute	Child Element or Element Attribute	DFI	FFIRN / FFN / FUDN
				Domain Value	PURCHASE CODES	Instance, Value		TOKENS	DUI	FUD

Information Elements Roles

- COI Determination Org Interaction
 - Search and Discovery
 - Ontologies STANDARDS
 - Taxonomies REFERENCE
 - Metadata Attributes / Filters



FFUDN: Field Format Unit Designator

FIRN Field Format Index Reference

Structured military messaging ID's messages, message sets, data element, symbol fields <108>

BY Form Field Position & NUMBER



PROCESS MESSAGE BY PRECEDENCE UNIVERSAL EVENT / ALERT MESSAGE BUS

OPERATIONAL NODES / ACTIVITIES

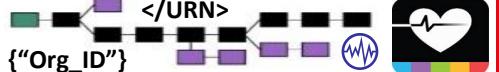
DATA SYSTEM FUNCTIONS PERFORMANCE

1.4 - Classification	11.8 - Kinematics
11.4.1 - Category	11.8.1 - Pos / Vel / Acc (PVA)
11.4.1.1 - Confidence Level	11.8.1.1 - Acceleration
11.4.1.2 - Estimate Type	11.8.1.1.1 - Angular
11.4.1.2.1 - Alternative	1.1.2 - Linear
11.4.1.2.2 - Evaluated D	2 - Estimate Type
11.4.1.3 - Value	1.2.1 - Estimated
	1.2.2 - Observed
	1.2.3 - Predicted
	PURCHASE CODES

SYMBOL	Friend	Neutral	Hostile
2525C	Partner		Competitor
11.4.1.3.5	Surface		4 - Velocity
11.4.2	Platform / Point / Feature	Type	1.4.1 - Horizontal
11.4.3	Specific Type		1.4.2 - Vertical
11.4.4	Type Modifier		VA Confidence
11.4.5	Unit		1 - Bearing Angle
			2 - Bearing Angle Rate
			3 - Covariance Matrix



MIL STD 2525A, B, C, D



20022



SYNTAX LEXICON
ROSETTA STONE

Coder's Guide lexicon

STRUCTURED <CONTENT> EXCHANGE TEMPLATES	
MIL	STD 2525ABC
MIL	ASSET TOKENS
MIL	"SYMBOLS RULE THE WORLD"
MIL	11.8 - Kinematics
MIL	11.8.1 - Pos.
MIL	11.8.1.1 -

STRATML

xBRL XAML

Inform BINARY XML

• COI D
• Search
• Ontology
• Taxonomy
• Metadata

UBL DDL DATA
TOSCA
YAML

FFUDN: Friend
A.I. Partner
SYMBOLS Neutral
RDF Hostile
Friend Competitor

SYMBOLS Friend
RDF Neutral
Friend Hostile
Competitor

TOKENIZED ECONOMY BREVITY CODE OPSCOSE MAPPET TO SYMBOLS

STOCK NDN NAMED DATA
EXCHANGE NETWORKING
MIC CODES PRECEDENCE
FILTERS PROCESSING

BLOCKTIME ARBITRAGE
ERLANG TIME
TIME EQUATIONS

Encyclopedia Britannica:

“Language is a

SYSTEM of SIGNS

having meaning by

convention. In this

sense, language

need not be confined

to the spoken word”.

“SIGNS AND
SYMBOLS RULE

THE WORLD, NOT
WORDS OR LAWS”

CONFUCIOUS



5 4 3 2 1
INFORMATION CONDITION

Signal operating instructions (SOI): technical control coordination of signaling, telemetry Current situational awareness, data dictionary, network identification, channels, network directory, brevity code-words, signals. Units maintain 2 SOI copies: PEACE TIME version “Go-To-War” version = BIZ COA (s) <Org_ID1><Org_ID2><Org_ID3>

NATO MESSAGE TEMPLATES USE DATA SETS FOR STRUCTURED DATA EXCHANGE // POSITION FIELD IN MESSAGE PROCESSED BY TABLE, FILE # IN A CONSISTENT, PREDICTABLE ORDER = AI FRIENDLY M2M AI

GOAL: vide a common lexicon / syntax / term library used among FEDERATIONS identified by Federated ID
GOAL: Provide a common, consistent, reliable schedule to share signaling and telemetry within federations.

MTL Machine Trust Language

MESSAGE TEXT FORMAT:

SEG RPT OCC CLASSNAME SETID SEQ FIELD OCCURRENCE SET FORMAT NAME

O 11NUPRES EXER 1 /M /O // (NU) EXERCISE IDENTIFICATION

C 11NUPRES OPER 2 /M /O /O /O // (NU) OPERATION CODEWORD

M MIOPV1 1 MSGID 3 /M /M /O /O /O // (NU) MESSAGE IDENTIFIER

M MIP OUT ORDPLAN 4 /M /O /O /O // (NU) PLAN ORDER REFERENCE

SIOPI OUT MSGREF 5 /M /M // (NU) REFERENCED MESSAGE

JUPRES DTG 6 /M // (NU) DATE-TIME GROUP

O ORIGID 7 /M /M /M /M /M /M /C // (NU) ORGANIZATION DESIGNATOR

M 11NUPRES GENTEXT 8 /M /M // (NU) 1.A ENEMY FORCES / COMPETITORS

M 11NUPRES GENTEXT 9 /M /M // (NU) 1.B FRIENDLY FORCES / TRADE FEDERATION

M 11NUPRES GENTEXT 10 /M /M // (NU) 1.C ATTACHMENT / DETACHMENT

O 11NUPRES GENTEXT 11 /M /M // (NU) 1.D COMMANDERS EVALUATION

O 11NUPRES GENTEXT 12 /M /M // (NU) 1.E ENVIRONMENTAL INFORMATION

M 11NUPRES GENTEXT 13 /M /M // (NU) 2. MISSION </108>K00.99 / FIX / SWIFT / E-911 Heartbeat Message

M 11NUPRES GENTEXT 14 /M /M // (NU) 3.A CONCEPT OF OPERATION

O 11NUPRES GENTEXT 15 /M /M // (NU) 3) RECONNAISSANCE SURVEILLANCE

O 11NUPRES GENTEXT 21 /M /M // (NU) 5) INFORMATION OPERATIONS

O 11NUPRES GENTEXT 28 /M /M // (NU) 5) COMMS INFORMATION SYSTEMS

O 11NUPRES GENTEXT 35 /M /M // (NU) 3.D COORDINATING INSTRUCTIONS

M 11NUPRES GENTEXT 36 /M /M // (NU) 4.A SUPPORT CONCEPT (Logistics)

M 11NUPRES GENTEXT 37 /M /M // (NU) 4.B MATERIEL AND SERVICES

SYMBOLS Friend DICAL EVAC & HOSPITALISATION

SYMBOLS Partner - MILITARY OPERATIONS

SYMBOLS Neutral

SYMBOLS Hostile

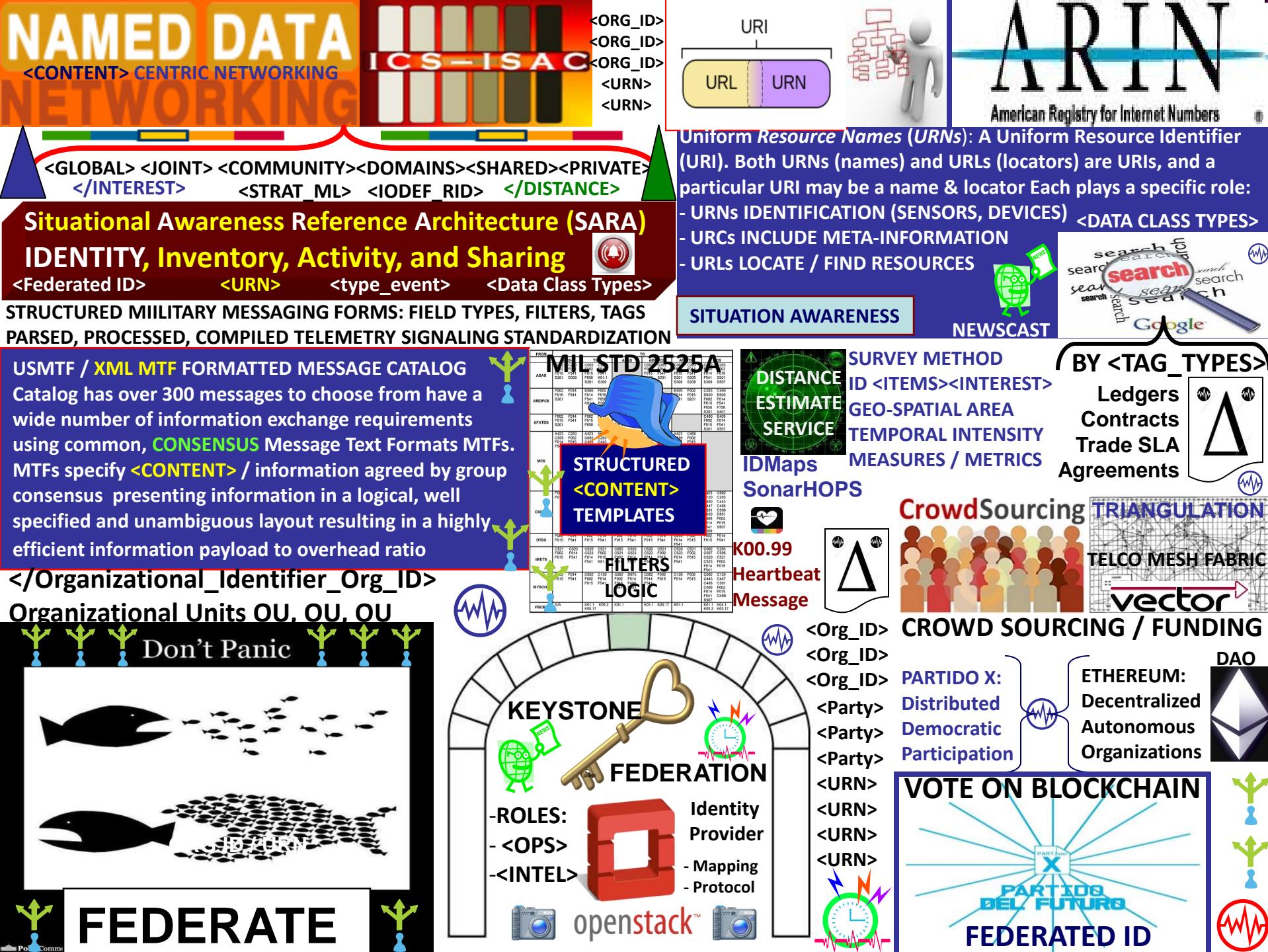
SYMBOLS Competitor

SYMBOLS Friend

SYMBOLS Neutral

SYMBOLS Hostile

SYMBOLS Competitor



Foundation Technology Trinity:

- 1. EPOCH (s) = Time intervals, cycles
 - 2. SPACE (land use meme) ex: IRS memo #1421 "Bitcoin transaction akin to land"
 - 3. SYNTAX structured data mapped to symbols for A.I. / man - machine interface

THESIS: All net artifacts, net of \$ are formed with:

- 1) Epoch time cycle intervals ex: chip oscillations
 - 2) Syntax parsed, processed in epoch time intervals

ADAPTIVE PROCEDURAL TEMPLATE: LIST OF TOOLS, PROCESSES, PROCEDURES I.E., STORED PROCEDURE CALLS COMPRISED OF STRUCTURED DATA EXCHANGES USING 300 + MESSAGES / MESSAGE SETS COMPRISED OF OPSCODE BREVITY COMPUTER CODES MAPPED TO SYMBOLS FACILITATING STANDARD MAN – MACHINE INTERFACE

Signal operating instructions (SOI): technical control coordination of INFOCOM

USE CASE: standards adherence support for IEEE, NIST SP 2000A, B, C, D, </URN> ISO Exchange signaling, telemetry current situational awareness, data dictionary, network identification, channels, network directory, brevity code, 4 3 2

USE CASE: standards adherence support for IEEE, TU, ISO international data, internet, internet of money, IoT, Artificial Intelligence A.I ... standards

**Systemic, signaling, synchronization of state
meta data encoded as brevity OPSCODE
tokens stochastically harmonized over the UTZ**

FROM	GCCS-A	TAIS	ASAS	AMDPSCS	AFATDS	CODE MCS	CODE GUIDE
ASAS	C002 C203 F002 F014 F015 F541 S201 S309	C002 C203		C002 C203	C002	C203 F014 F541 S305 S309	C002 C203 F004 F002 F014 F015 F541 S201 S309 S507
AMDPSCS	TOKENS		OPSCODE BREVITY CODES				
AFATDS	F002 F014 F015 F541 S201					F002 F015 S201	
MCS	A423 C203 C505 F002 F014 F015 F541 S201	SIOPT	A423 A659 C002 C203 C434 C443 C447 C488 C501 C503 C504 C505 C506 C507 C508 E400 F002 F014 F541 S201	ASSET TOKENS Token Economy	Rosetta Stone Syntax Lexicon Coder's Guide	A423 C505 F002 F541 S201	M2M

MESSAGE CATALOG
300 + Use Cases

Artificial intelligence (AI) syntax refers to the set of rules, principles governing the arrangement of words and phrases in a programming language. In the context of AI and natural language processing, syntax ensures that language is structured in a systematic way, for effective communication and comprehension.

Understanding syntax is essential for developers to write readable, maintainable, and scalable code



oD Systems of Systems Engineering Structured Data Exchange MIL Standards / ISO Standards

REVITY OPSCODES MAPPED TO SYMBOLS,
SYMBOL SETS FOR A.I. ARTIFICIAL
INTELLIGENCE MAN-MACHINE INTERFACE

STANDARD CONSISTENT SYMBOLS



The diagram illustrates the interconnected nature of various information management concepts. At the top, 'Information Elements' and 'Roles' are shown. Below them, 'COI Determination' and 'Org Interaction' are connected. Further down, 'Search and Discovery' is linked to 'Ontologies' and 'Taxonomies'. On the left, 'Metadata' is connected to 'Attributes / Filters'. In the center, a box labeled 'STANDARDS' has arrows pointing to 'REFERENCE' and 'FILTERS'. To the right of this central area is a box containing a triangle icon and a cartoon character.

UDN: Field Format Unit Designator #
IRN Field Format Index Reference #

structured military messaging ID's
messages, message sets, data
element, symbol fields </108>

Y Form Field Position & NUMBER

PROCESS MESSAGE BY PRECEDENCE

OPERATIONAL NODES / ACTIVITIES

ATA SYSTEM FUNCTIONS		PERFORMANCE	
4 - Classification		11.6 - Chemotherapy	
11.4.1 - Category		11.6.1 - Pox / Vel / Acc (PVA)	
11.4.1.1 - Confidence Level		11.6.1.1 - Angular	
11.4.1.2 - Estimate Type		11.2 - Linear	
11.4.1.2.1 - Alternative		11.2.1 - Estimated	
11.4.1.2.2 - Evaluated D		11.2.2 - Observed	
11.4.1.3 - Value		11.3 - Predicted	
		CODES	
SYMBOL	Friend	Neutral	Hostile
2525C	Partner		
11.4.1.3.5 - Surface		Competitor	
11.4.2 - Platform / Point / Feature		- Velocity	
11.4.3 - Specific Type		11.4.1 - Horizontal	
11.4.4 - Type Modifier		11.4.2 - Vertical	
		11.4.3 - Diagonal	
		11.4.4 - Circular	
		1 - Bearing Angle	
		- Bearing Angle Rate	



Syntax code language parsed, processed during silicon chip generated epoch time cycles forms all things internet, net of money. state meta data sync delta heartbeat snapshots during epoch temporal micro-cycles

Situational Awareness Reference Architecture (SARA)

Identity, Inventory, Activity, and Sharing

<http://ics-isac.org/sara/>



Industrial Control System
Information Sharing and
Analysis Center

IDENTITY: <UUID> = Devices, sensors

<ORG_ID> Organizations

Federation
Gateway

INVENTORY: Uniform Resource Name <URN>

<URN><URN>
<URN><URN>
<URN><URN>



vector

<COMMODITY><WATER><ENERGY><AVAILABLE UNITS>

GEO-SPATIAL TEMPORAL INTENSITY METRICS

UNIFIED EVENT / ALERT TRIGGER / THRESHOLDS

ACTIVITY: <EVENT><ALERT> <TIME_STAMP><ORG_ID><URN>

CONTENT LEXICON
ROSETTA STONE



SHARING:

COMMON <TAGS>

<Organizational_ID>

Resource Names <URN>

<Time_Stamps>

<State-Meta_Data>

<DATA_CLASS_TYPE>

<Heartbeat_snapshots>

<TAG> LIBRARY
TEMPLATES



NAMED DATA
NETWORKING

<Content> Centric

<ELEMENTS>

STRATML/ IODEF RID CLASSES:

<GLOBAL><JOINT><SHARED>

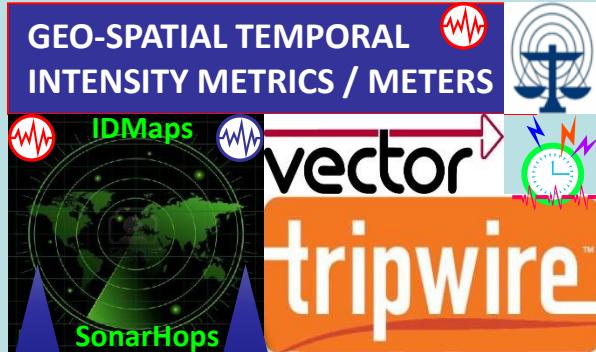
<DOMAIN><FEDERATION>

<CITY><STATE><PRIVATE>

STRATEGIC
MARKUP

StratML

LANGUAGE



AVALANCHE

WELCOME TO THE FS-ISAC SECURITY AUTOMATION GROUP. OUR VISION IS
A FEDERATED NETWORK OF STIX-BASED REPOSITORIES SHARING INTELLIGENCE IN
REAL-TIME. AVALANCHE: STRENGTH IN NUMBERS, SECURELY SHARE INTELLIGENCE

NIST CYBER SECURITY FRAMEWORK

MIL-STD-2525A

STRUCTURED <CONTENT> TEMPLATES

USMTF / XML MTF FORMATTED MESSAGE CATALOG

Catalog has over 300 messages to choose from have a

wide number of information exchange requirements

using common, CONSENSUS Message Text Formats MTF

MTFs specify <CONTENT> / information agreed

by group consensus presenting information in a logical

well specified and unambiguous layout i.e., templates

STRUCTURED <CONTENT> TEMPLATES

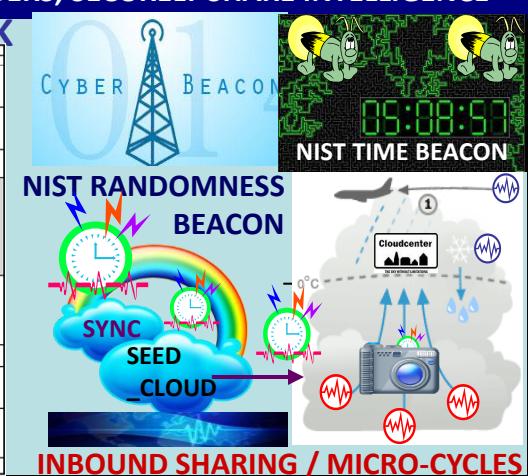
INBOUND SHARING / MICRO-CYCLES

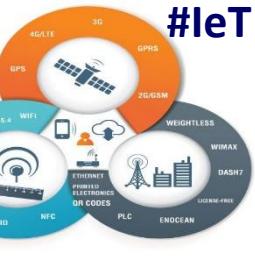
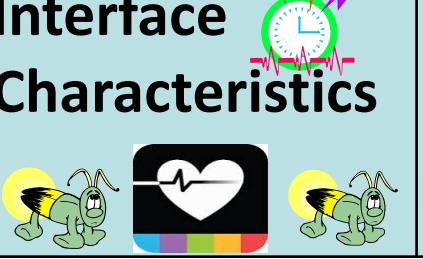
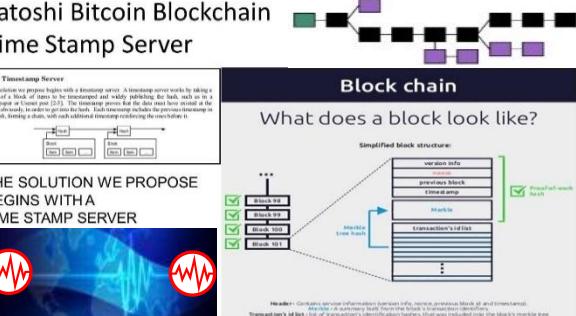
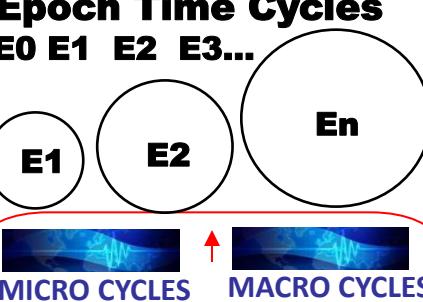
<TAG> LIBRARY

STRUCTURED <CONTENT> TEMPLATES

INBOUND SHARING / MICRO-CYCLES

<TAG> LIBRARY



Interface Name	HEARTBEAT Administration Interface [SCOP]					
Documentation URL	http://scop.sourceforge.net/ http://linuxvirtualserver.org/software/index.html					
API Information	 #leT					
Programmable Money World Computer / Blockchain	#Big_Data	Functionality Areas		Cloud Interface Management configuration, start, stop cloud services, edit configuration (heartbeat messages)	Cloudcenter	Cloudcenter
NIST TIME BEACON		API Operation Count		Web service access type Network Effects / A.I.	Web application, front end to [network, device, system, blockchain] heartbeat	Cloudcenter
Interface Characteristics		LANGUAGE / PLATFORM BINDINGS	PHP Java Erlang...	Cloudcenter		Cloudcenter
"The external environment could update <u>resources</u> at random... One solution is a heartbeat : defining a default lease duration delaying updates until the next cycle "		SCOP is a web application, PHP based front-end to heartbeat, IP Virtual Server ipvs and Idirectord [e.g., check interval @ 5 seconds] SCOP can start/stop services, view/ edit configuration files e.g., heartbeat message state management snapshots, backups, take a service online/offline, add/ remove virtual/real servers, services etc.	Satoshi Bitcoin Blockchain Time Stamp Server		Epoch Time Cycles E0 E1 E2 E3...	
QubitCoin Interval: Every 30 Seconds		<p>The solution we propose begins with a timestamp server. A timestamp server works by taking the current time and publishing the hash, such as in a timestamp or a time stamp [2]. The timestamp process that the data must have existed at the time it was timestamped. This is done by publishing the timestamp on a public ledger, forming a chain, with each additional timestamp recording the previous one.</p> <p>THE SOLUTION WE PROPOSE BEGINS WITH A TIME STAMP SERVER</p> <p>Block chain</p> <p>What does a block look like?</p> <p>Simplified block structure:</p> <ul style="list-style-type: none"> Block info Previous Hash Timestamp Merkle Transactions id list <p>Headers: Contains version information (version info), previous block's hash (previous block), and timestamp (timestamp). Transactions: A list of transactions (tx) that are being added to the block. Merkle: A tree structure that summarizes all the transactions in the block.</p>				

What happens if we think about Bitcoin through the lens of *land*?

HEART BEACON CYCLE
USPTO 13/573,002
SURVEY METHODS

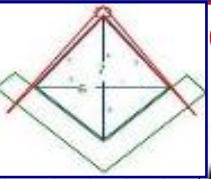
SC ALICE CORP VS CLS BANK: “claims may not direct towards abstract ideas”

UTXO: unspent transaction output’. bitcoins that have been sent somewhere but not yet themselves been spent. The set of all unspent transaction outputs (UTXOs) can be thought of as the latest STATE of every bitcoin that has ever been mined.



Memo #1421: Purchased Bitcoins are treated akin to property

Plots A, B, C represent 3 unspent transaction outputs controlling N Bitcoins



Mined Bitcoins



BLOCKS / COINS PENDING ISSUE

B
A
C

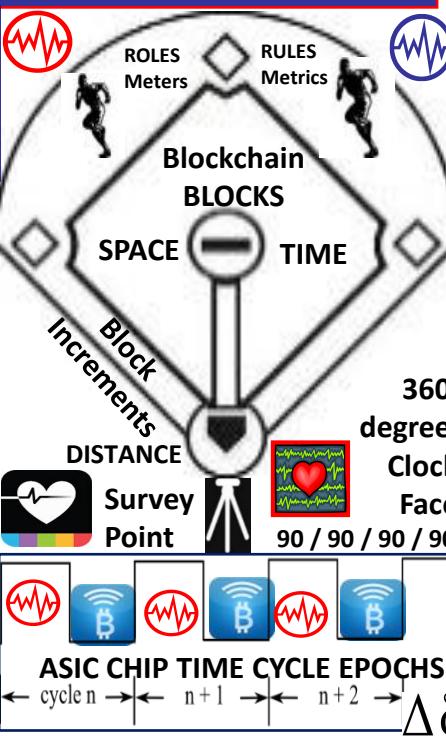
$\Delta\delta$

Unmined Bitcoins



Un-mined coins -- think of them as parcels of land on “Bitcoin Island” not yet released:

IDMaps-SONARHOPS distance estimation query-reply service



- End-state Bitcoin quantity will be fixed like land

“Bitcoin as protocol of ownership, not transfer”

Coin never travel, but simply switch owners”

Step 1: prove coin ownership <Org_ID> Coin Issuer

Step 2: coins sent where, when Lat-Long, time stamp

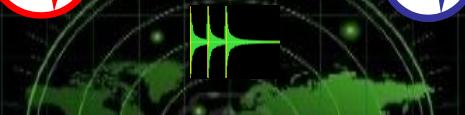
Step 3: specify ownership <Org_ID> issuing agent

Step 4: Issuing Org of Record adjudicates w buyer



IDMaps

“PING”



“Interest” “Distance”
ONSHORE OFFSHORE

SonarHops

TRIANGULATION



DISTANCE ESTIMATION

EUCLIDIAN GEOMETRY



IDMaps assists Network Time Protocol (NTP) servers establish long term peering relationships



IDMaps / SonarHops collects distance data & builds virtual Internet distance maps & estimates distance between IP address pairs



IDMaps Distance Metrics:
latency (round-trip delay)
available bandwidth estimation





Commodities Index Basket / FIAT PRICE Discovery Algo / MEDIATION



ALGORITHMIC STABLE COIN EQUILIBRIUM ALGORITHMS
COMMODITY INDEX BASKET PRICE DISCOVERY ALGOS

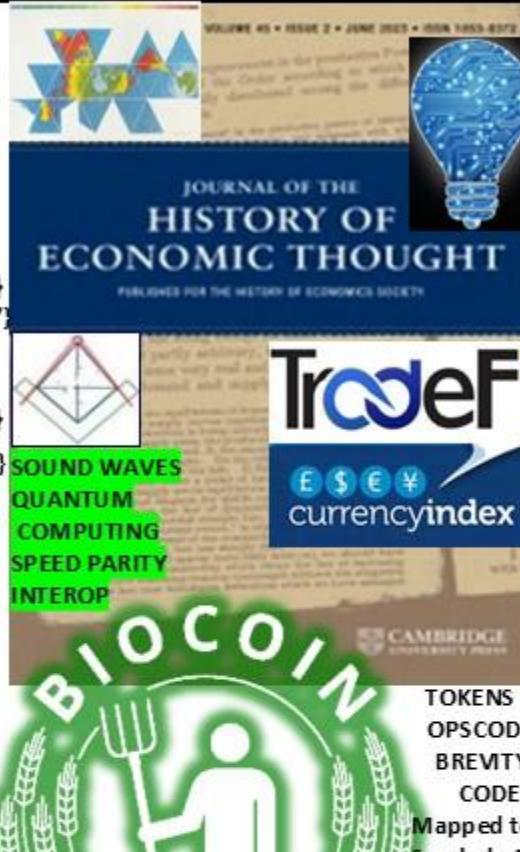


COMMODITY FUTURES TRADING COMMISSION



SLA Service Level Agreement
CLOSER = CHEAPER = CLOSER

FIREFLY – HEARTBEAT ALGORITHM CHINA: nature-inspired metaheuristic optimization algorithm developed by Xin-She Yang flashing behavior of fireflies (Yang, 2008), adapted to solve continuous optimization problems (Lukasik and Źak) 2010, 2013



Edison's Monetary Option
Cambridge University Press 2009

"Crops hold their value best over time"

"Thomas Edison publicly introduced his latest invention: a new type of money, a crop index commodity-backed currency that he believed was the long-term solution to America's monetary woes. "I want to cast the variable out of money. This gold money is not good enough. It's a fiction" "New York Times 1922



</Organizational_ID> </Personal_ID>
</Org_ID> </Org_ID>

USPTO 13/573,002 The Heart Beacon Cycle Time – Space Meter

Tokenization of Physical Assets Enables Economy Of Everything

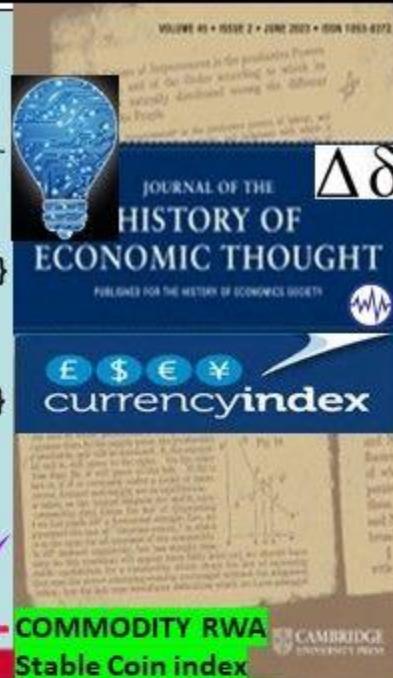


ALGORITHMIC STABLE COIN COMMODITY INDEX CURRENCY PROGRAMMABLE \$\$\$

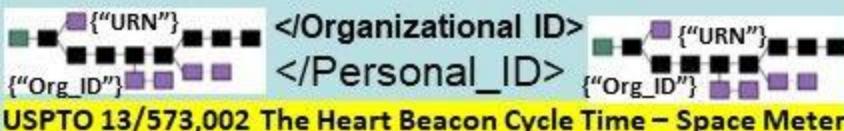
BELT and ROAD
Trade Initiative



FIREFLY – HEARTBEAT ALGORITHM CHINA: nature-inspired metaheuristic optimization algorithm developed by Xin-She Yang flashing behavior of fireflies (Yang, 2008), adapted to solve continuous optimization problems (Lukasik and Žak) 2010, 2013

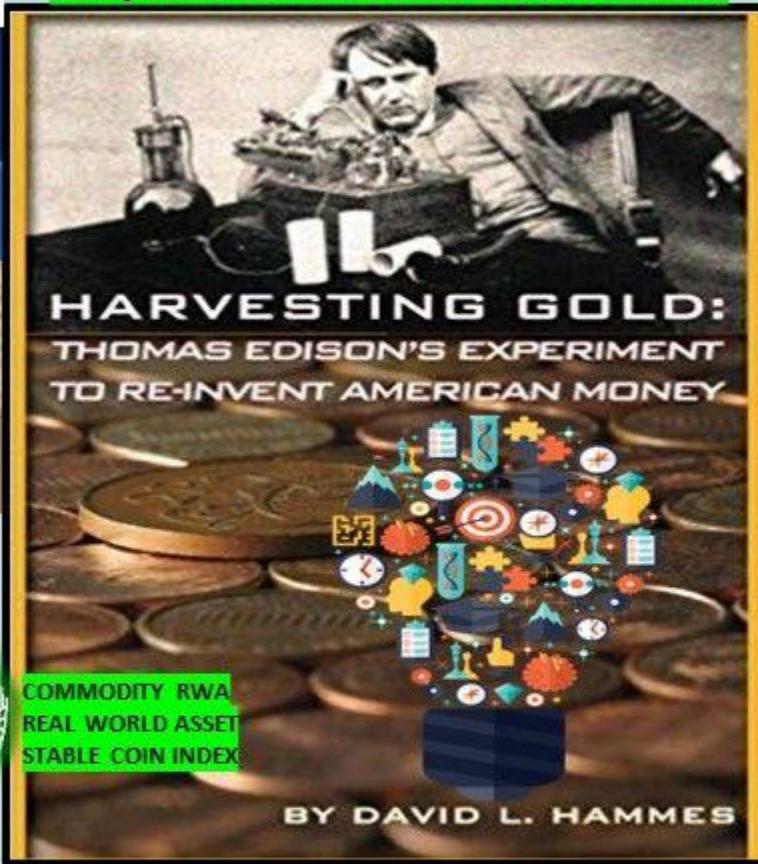


NETWORK
CENTRIC
OPERATIONS
INFOCON
4 3 2 1
INFORMATION
CONDITION

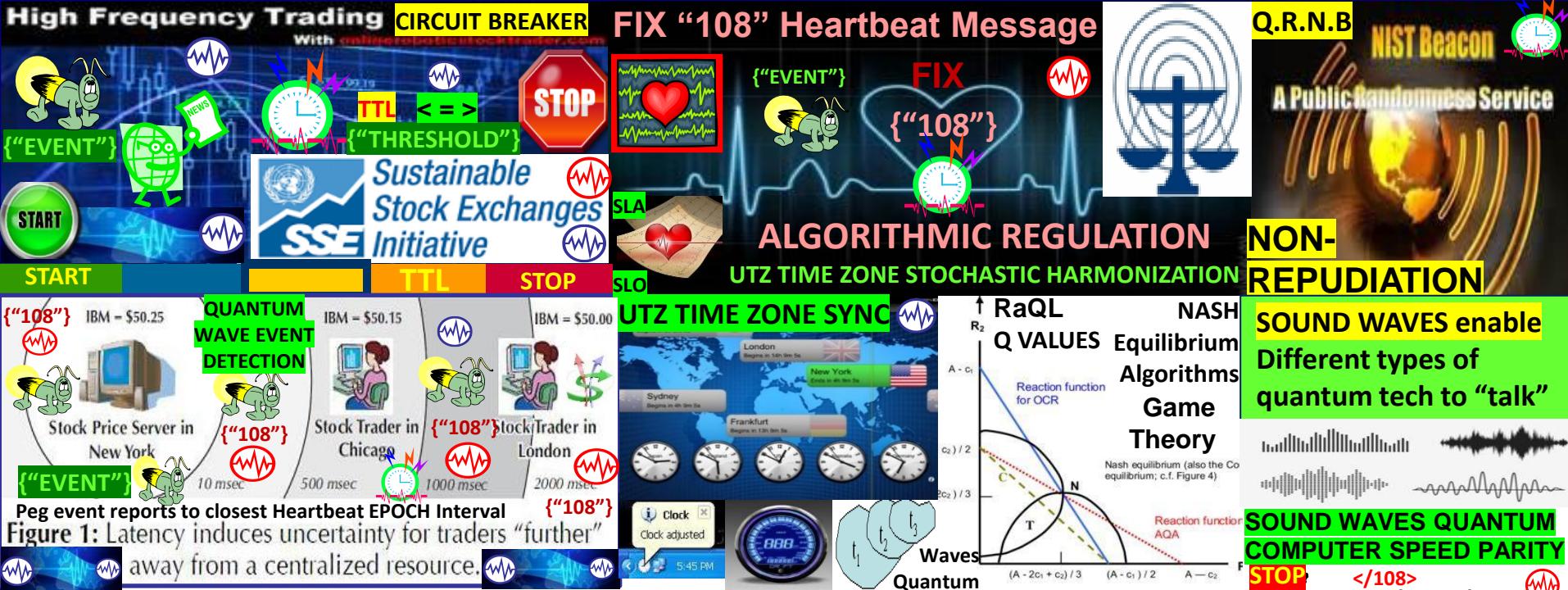


Thomas Edison's Monetary Option Cambridge University Press 2009

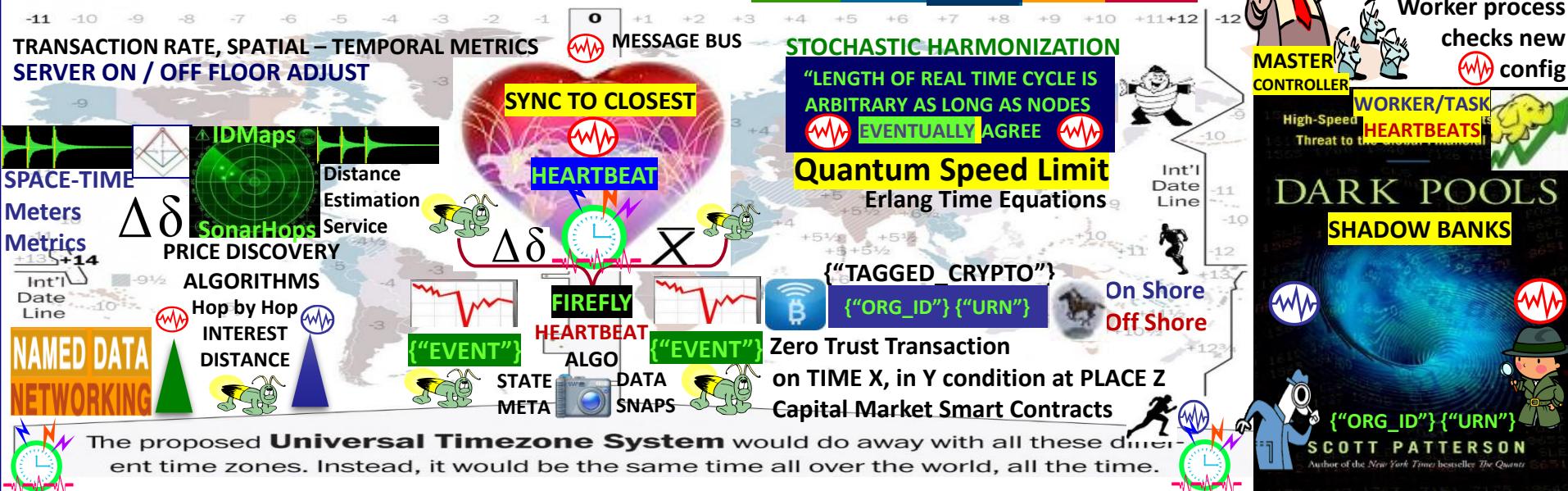
"Crops hold their value best over time"

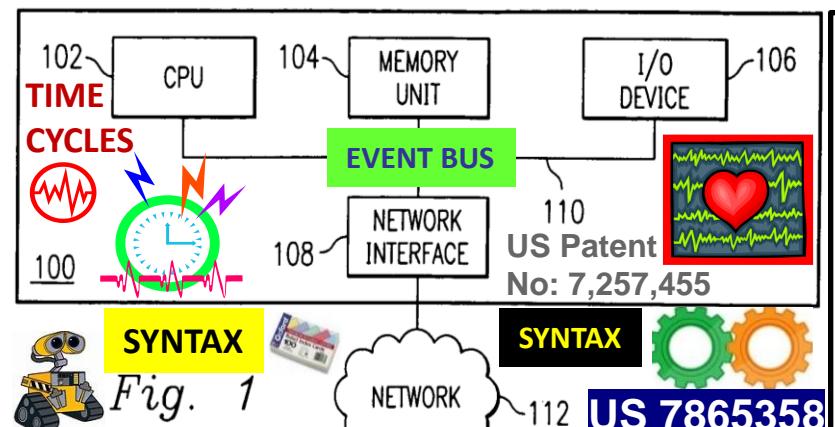


"Thomas Edison publicly introduced his latest invention: a new type of money, a crop index commodity-backed currency that he believed was the long-term solution to America's monetary woes. "I want to cast the variable out of money. This gold money is not good enough. It's a fiction" "New York Times 1922



The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC.



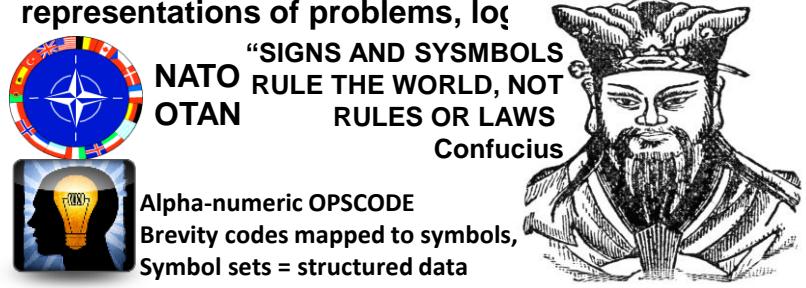


Machine-based system for transforming data from a source form to a target form, a tool is provided for sharing information established in developing a transformation model. The shared information may relate to rules for mapping source collection terms to standardized terms, rules for ordering or **SYNTAX**, rules for classifying terms or other transformation rules.

US 7865358 CLAIM 1. method converting textual data from source form to target forms, where target form differs from source form's linguistics, syntax

**Multi-user functionality for converting
data from a first form to a second form**

Symbolic artificial intelligence: collection of all methods in artificial intelligence research that are based on high-level symbolic (human-readable) representations of problems, logic, and knowledge.



US Patent No: 7,257,455 DISCOVERY MACHINE Inc. Fig. 8 Discovery Machine® Inc. AL ARTIFICIAL 820

Williamsport PA
Little League
Baseball Capital of
the World

818

TASK	
PK	<u>TK_OID</u> {"Org_ID"}
FK1	TK_NAME
FK2	TK_DESCRIPTION
	TK_CONDITION
	TK_CMOID
	TK_CLOUD (FUNCTION)

816

METHOD	
PK, FK3	<u>MT_OID</u> {"Org_ID"}
FK1	MT_NAME
FK2	MT_DESCRIPTION
	MT_CMOID
	MT_CLOUD (BEHAVIOR)
	LS_SEQUENCE

810

CLASS	
PK	<u>CL_OID</u>
	CL_NAME

BIZ COA 1,2,3

AU Ar

System and method for collecting, representing knowledge using task-method-knowledge with structure-behavior function in a computer system.. BIZ COA 1, 2, 3



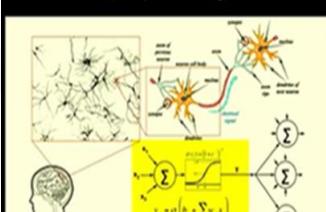
COMPONENT		
PK	<u>CP_OID</u>	{"URN"}
	CP_NAME	
	CP_SUBSTANCE	(BOOL)
	CP_PRIMTYPE	
FK1	CP_CLASSTYPE	
FK2	CP_CLOID	
	CP_COLLECTION	,

CONNECTION	
PK	CN_OID
FK1	CN_TYPE (CLASSES ONLY)
FK2	CN_FROM
FK3	CN_TO
FK4	CN_SUBSTAN
FK5	CN_PARENT
	CN_NAME

Neuro-Symbolic AI

Symbolic (human-readable) representations

Symbolic AI



Breaking the world into symbols (rather than

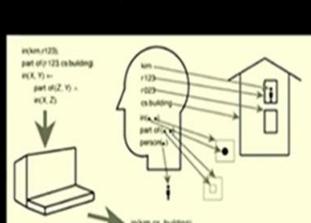
Brevity



Symbols

Symbols

Symbol



Incorporate common sense reasoning and

Symbolic artificial intelligence: collection of all methods in artificial intelligence

research that are based on high-level symbolic (human-readable) representations of problems, logic and search.[1] Symbolic AI used tools such as logic programming, production rules, semantic nets and frames, and it developed applications such as knowledge-based systems (in particular, expert systems), symbolic mathematics, automated theorem provers, ontologies, the semantic web, and automated planning and scheduling systems. The Symbolic AI paradigm led to seminal ideas in search, symbolic programming languages, agents, multi-agent systems, the semantic web, the strengths, imitations of formal knowledge and reasoning systems.

Physical symbol system (also called a formal system) takes physical patterns (symbols), combining them into structures (expressions) and manipulating them (using processes) to produce new expressions. The physical symbol system hypothesis (PSSH) is a position in the philosophy of artificial intelligence formulated by Allen Newell and Herbert A. Simon. They wrote: "A physical symbol system has the necessary and sufficient means for general intelligent action." [2] —Allen Newell and Herbert A. Simon

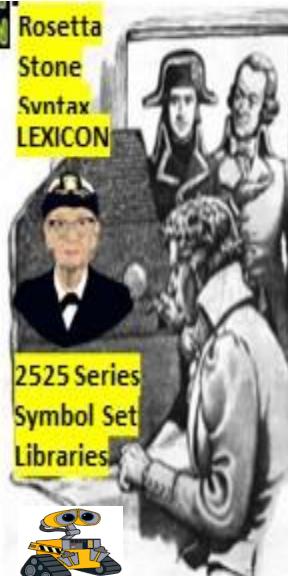
This claim implies both that human thinking is a kind of symbol manipulation (because a symbol system is necessary for intelligence) and that machines can be intelligent (because a symbol system is sufficient for intelligence).[3] The idea has philosophical roots in Hobbes (who claimed reasoning was "nothing more than reckoning"), Leibniz (who attempted to create a logical calculus of all human ideas), Hume (who thought perception could be reduced to "atomic impressions") and even Kant (who analyzed all experience as controlled by formal rules).[1] The latest version is called the computational theory of mind, associated with philosophers Hilary Putnam and Jerry Fodor.[4]

Source: Wikipedia: https://en.wikipedia.org/wiki/Physical_symbol_system

data from a first form to a second form

CONDITION

Rosetta
Stone
Syntax
LEXICON



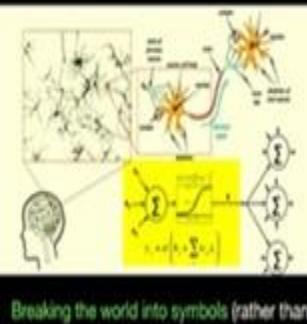
FRT CP CLOUD

ABC A OPS CODE BREVITY CODES

Neuro-Symbolic AI

Symbolic (human-readable)
representations

Neural Networks
(Deep Learning)



Brevity
Codes

Symbolic AI

Symbolic (human-readable)
representations



"SIGNS AND SYMSBOLS
NATO RULE THE WORLD, NOT
OTAN RULES OR LAWS



Confucius

Alpha-numeric OPS CODE

Brevity codes mapped to symbols,

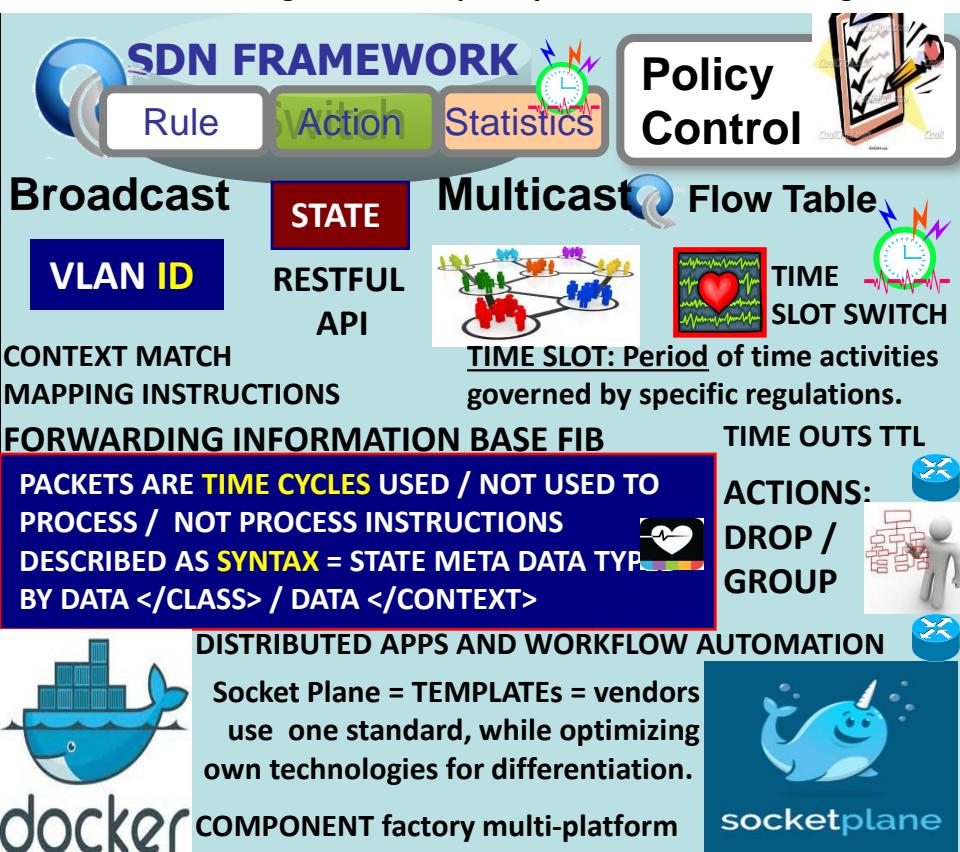
Symbol sets = structured data





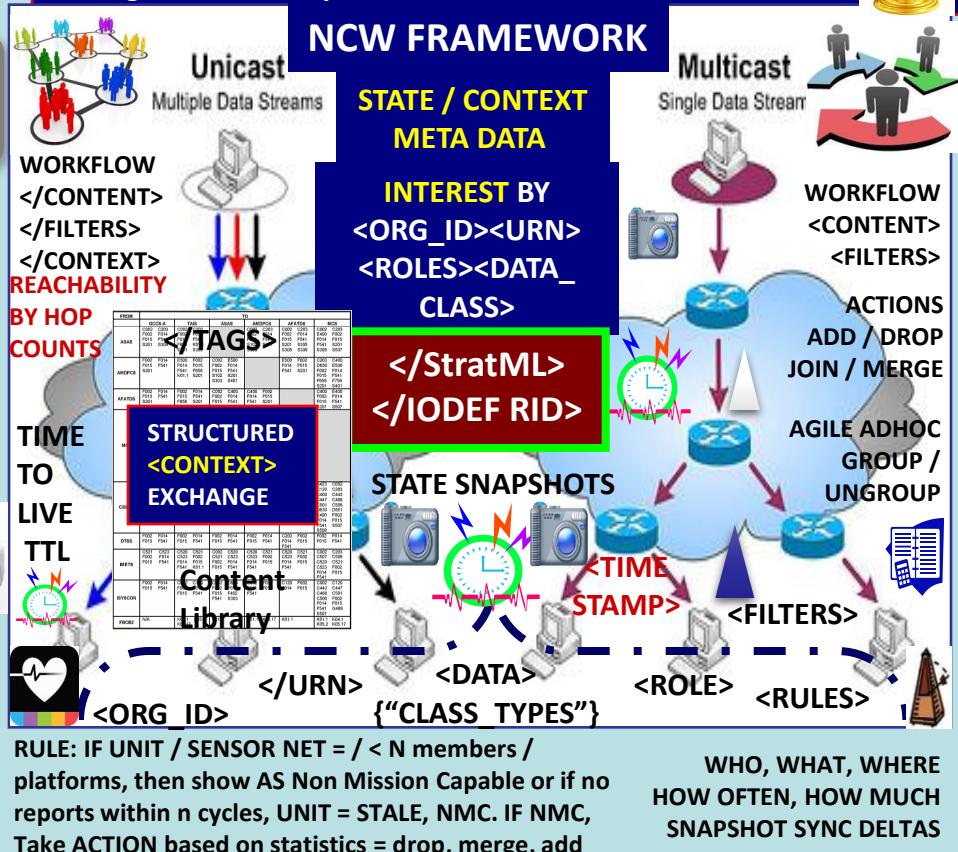
- SDN is a *framework* to allow network administrators to *automatically* and dynamically manage and control a *large number* of network devices, *services*, topology, traffic paths, and packet handling (quality of

DevOps model and tools to enable scale, programmable agility, and policy-driven automation, and provides network virtualization to mask network configuration complexity with set of networking APIs



Netcentric / "network-centric" participating in a continuously evolving, complex community of people, devices, information and services interconnected by a network to optimize resource management and provide information on events and conditions.

Net-centric Enterprise Architecture : "massively distributed architecture with components, services available across and throughout an enterprise's entire lines-of-business."



USPTO APPLICATION 13,573,002 The Heart Beacon Cycle Time – Space Meter, Applique' Overlay

GIZMAG: New NASA network poised to bring internet to entire solar system

SCt 573 ALICE CORP VS CLS BANK PHYSICAL MEMES

INTERNET TCP/IP "PING", "HOPS",
"PACKETS", FRAMES = METAPHOR



TIME / DISTANCE SERVICE LEVEL
AGREEMENT SLA / O Operations

IEEE 802.15.4 OASIS MQTT

TELEMETRY TRANSPORT

IEEE 802.1AG HOP BY HOP
DETECTION

IEEE 802.11
HOP BY HOP CONTROL



Unused Resources / Unmet Needs

/localhost/nfd/fib/add-nexthop
Geo-Spatial Temporal
Metrics, Meters

DISTANCE
INFO SERVICE

Time Series

RISK

Value

Time

WATER DROP IN POND MEME IS

SONAR NAVY METAPHOR / MEME

NDN </INTEREST>

NDN {"DISTANCE"}

NAMED DATA

NETWORKING

IEEE C37.118

Harmonization

& Sync heartbeat

update Interval

603

602

PAUL REVERE
LINEAR, SEQUENTIAL

RADIUS
WATER DROP IN POND MEME

Attribute Series

Geo
Spatial

INTEREST
DISTANCE

Temporal Series

TCP/IP HOP BY HOP COUNT

Energy Attenuates over Distances

CLOSER SOURCE

CHEAPER RATE

1

2

NULL

+1

+2

Micro Grids Closer - Cheaper

BLOCKCHAIN
MICROGRIDS

TESLA

INTERNET TCP/IP "PING", "HOPS",
"PACKETS", FRAMES = METAPHOR

IEEE 802.15.4 OASIS MQTT

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TELEMETRY TRANSPORT

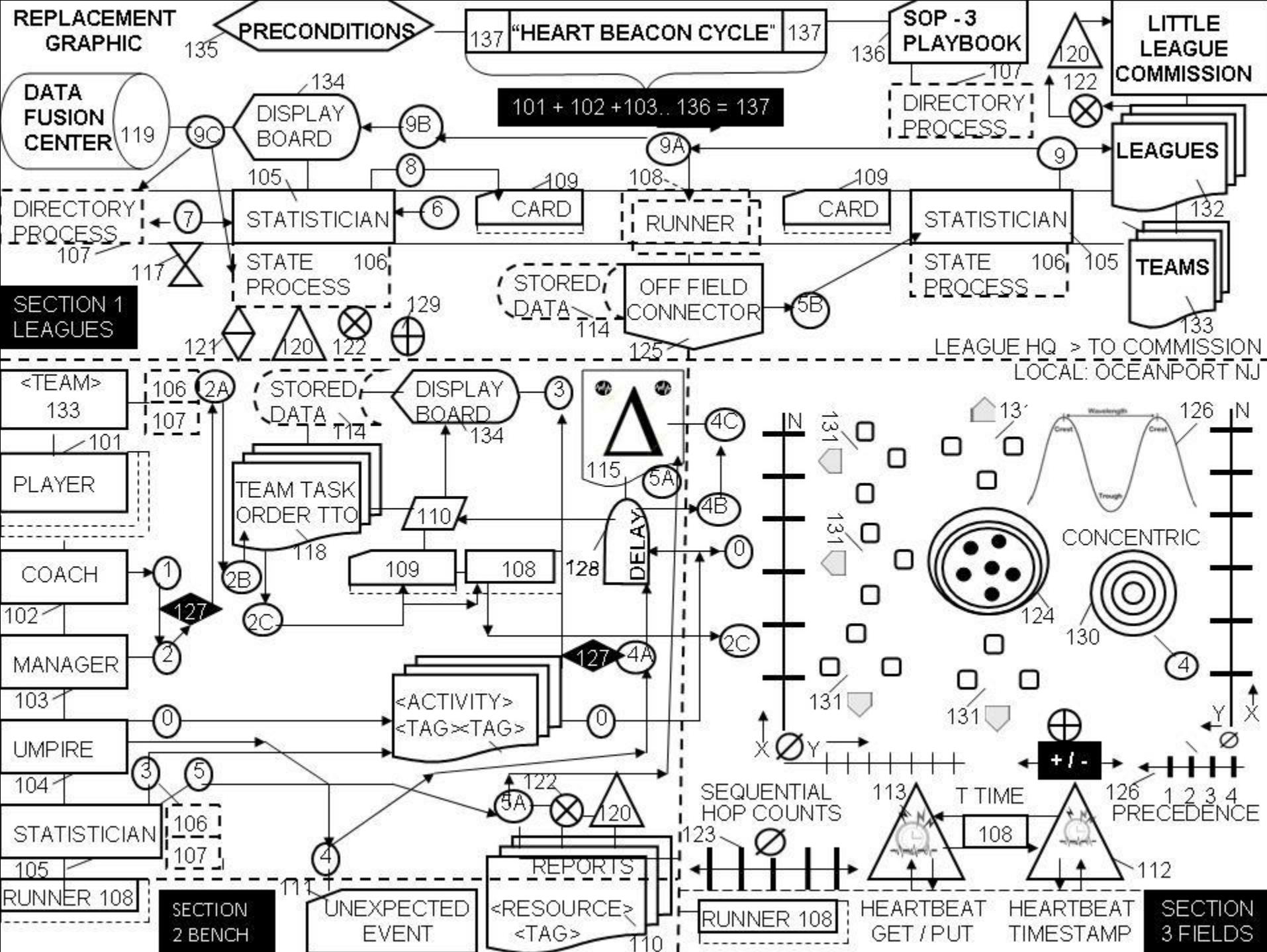
IEEE 802.1AG HOP BY HOP
DETECTION

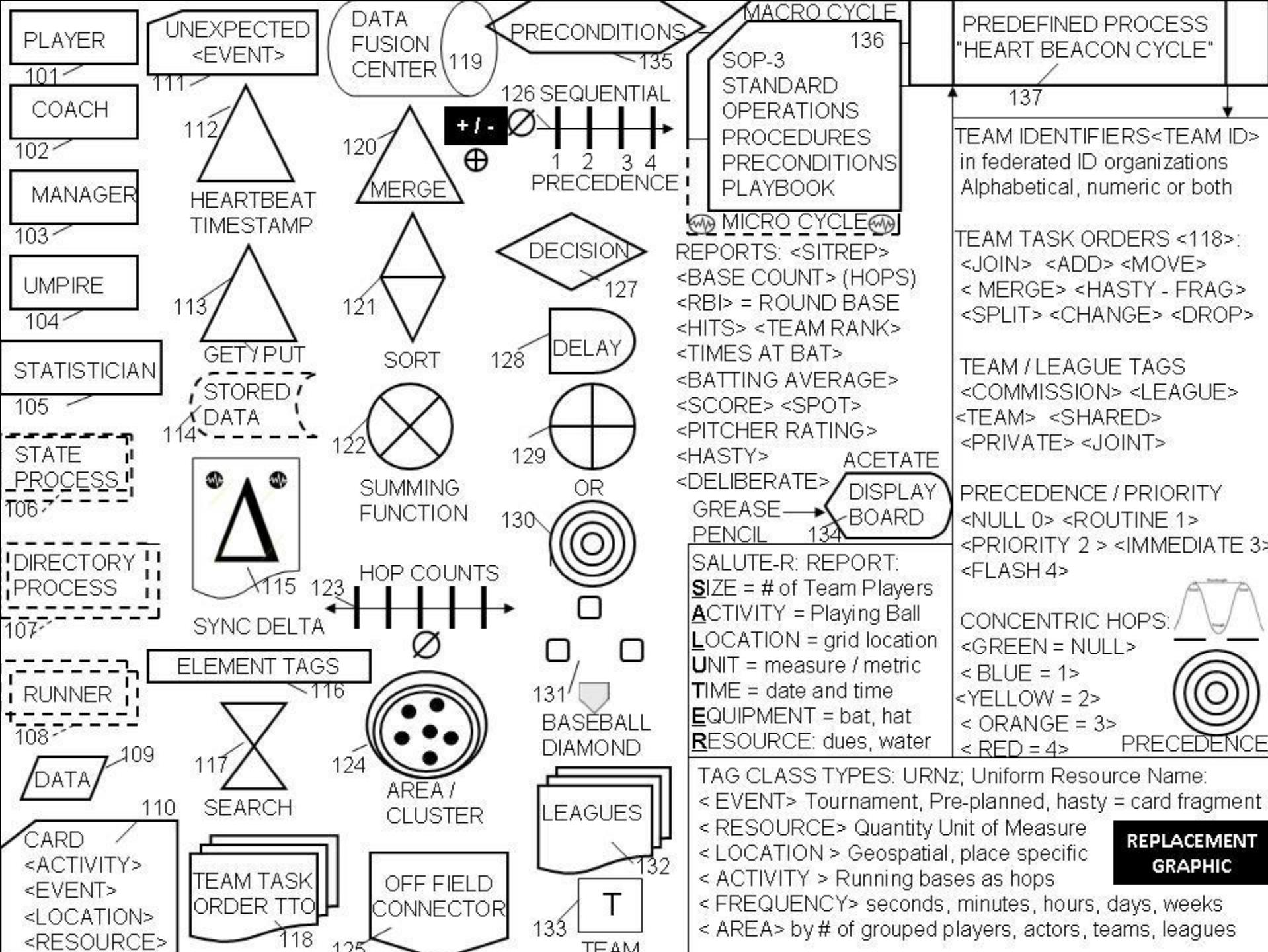
INFO SERVICE

RISK

Value

<p





BUILDING BLOCKS



TASK ON / OFF

201

B1: BUILDING BLOCK 1: TCP/IP HEARTBEAT TIME STAMP & DATA GET / PUT OF ORG ID / URN IN MICRO / MACRO CYCLES PRIOR TO DATA FUSION CENTER INSERTION



MACRO CYCLES



.0001

MICRO CYCLES

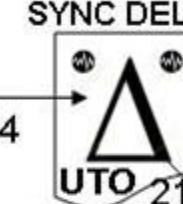
216



CLOUD COMPUTING

202 FEDERATED GROUP JOINS, MERGE, ADDS, DROPS

B2: BUILDING BLOCK 2: ADAPTIVE, CYCLIC, ITERATIVE PROCEDURAL TEMPLATES: XML ARTIFACTS i.e. UNIT TASK ORDER & K00.99 HEARTBEAT SYNC DELTA MESSAGES / STATE META DATA SNAPSHOTS IN NETWORK EXECUTION MANAGEMENT MARKUP OF SERVICE INTERFACE ARTIFACTS



TF BIZ
ADHOC / AGILE
FEDERATED <ID>
GROUPS SYNC'D
IN TIME / SPACE



LEADER'S INTENT DECISIONS



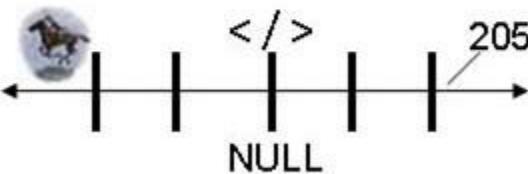
210

203

B3: BEACON TECH TYPE I: PAUL REVERE LINEAR, SEQUENTIAL HOP COUNTS



SYNC DELTA METRICS IN SLA CLAUSES AS MOE, MOP METER IN TAX CODES, TRANCHE CLASSES / RATINGS ARBITRAGE TRIGGERS



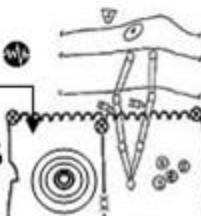
LENGTH, THRESHOLD, INTENSITY, DURATION



SEARCH FOLLOWED BY ARBITRAGE INVITES VIA BEACON NEWSCASTS. INVITE ACROSS SPACE / TIME



APPLIQUE' OVERLAYS



204

B4 BEACON TECH TYPE II: WATER DROP IN POND RADIUS, CIRCUMFERENCE GEO SPATIO-TEMPORAL



MAP VIEWS GEO-LOCATION SPECIFIC SHOW SYNC DELTAS BY GROUP / RESOURCE TYPE, EVENT CLASS / NEWSCAST BY TRANCHE <CLASSES>

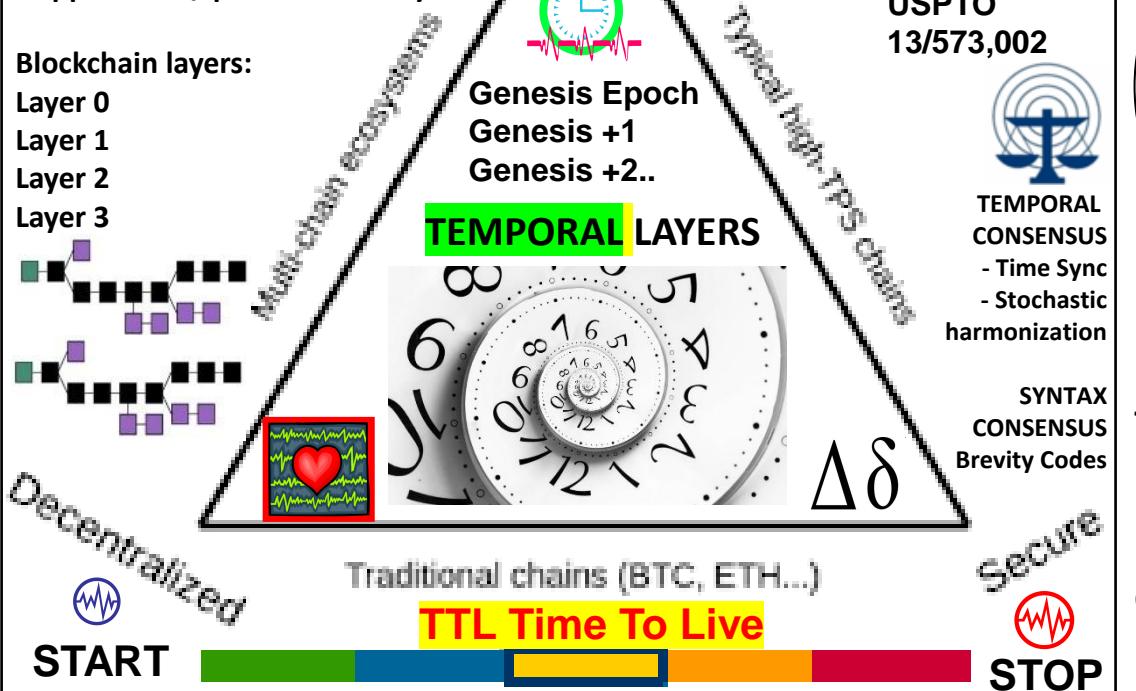
Blockchain Quad-lemma

"five layers of blockchain tech:

- Infrastructure hardware layer
- Data layer
- Network layer
- Consensus layer
- Application / presentation layers

Blockchain layers:

- Layer 0
- Layer 1
- Layer 2
- Layer 3



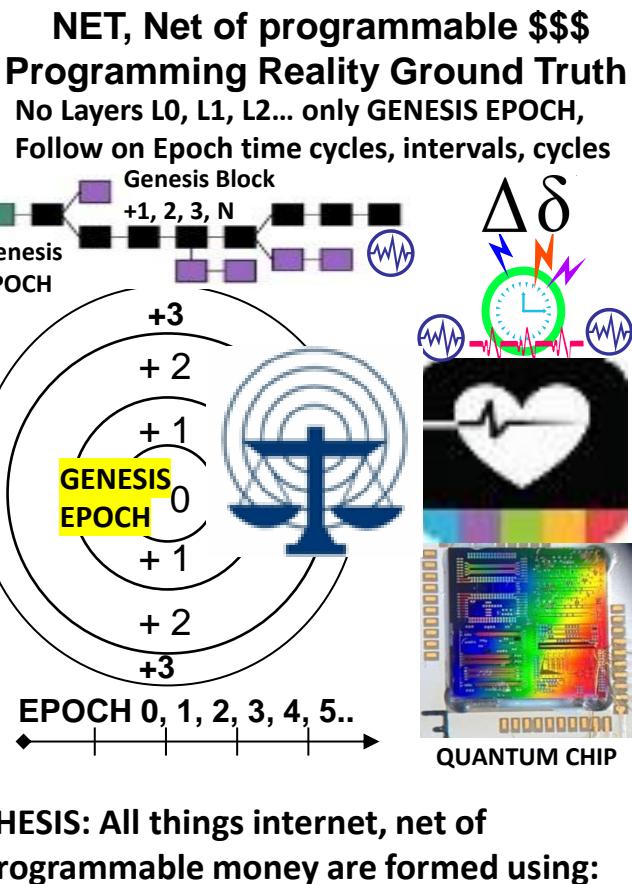
Blockchain = series of hashed blocks carrying transactional records. The first block of the blockchain is the **Genesis block**. After that, every new block added to the blockchain is linked to the Genesis block through a (temporal) iterative process.

Database Flat File

"BLOCKCHAIN" = LEDGER / Database

Database flat file sama dengan file data pada spreadsheet (misal MS Excel™), berupa satu file berisi baris-baris dengan jumlah kolom tetap yang disimpan berurutan dalam file.

NIP	Nama	Nama Depan	Telp
123-45-6789	Santoso	Heru	021-316-1234
987-65-4321	Purnama	Widya	022-543-9876
987-65-4321	Jackson	Michael	021-234-5678
567-89-0123	Iskandar	Dodi	021-987-6431



1. Time epochs created by oscillating quartz crystal silicon chips
2. Syntax used / not used as programming instructions during epoch time cycles

All things internet, internet of money, blockchains are formed by unicast, multicast, anycast protocols. Programmable money's improvements are in cryptography. The internet consists of unicast, multicast broadcast, anycast and workflow filters, publish – subscribe paradigms..

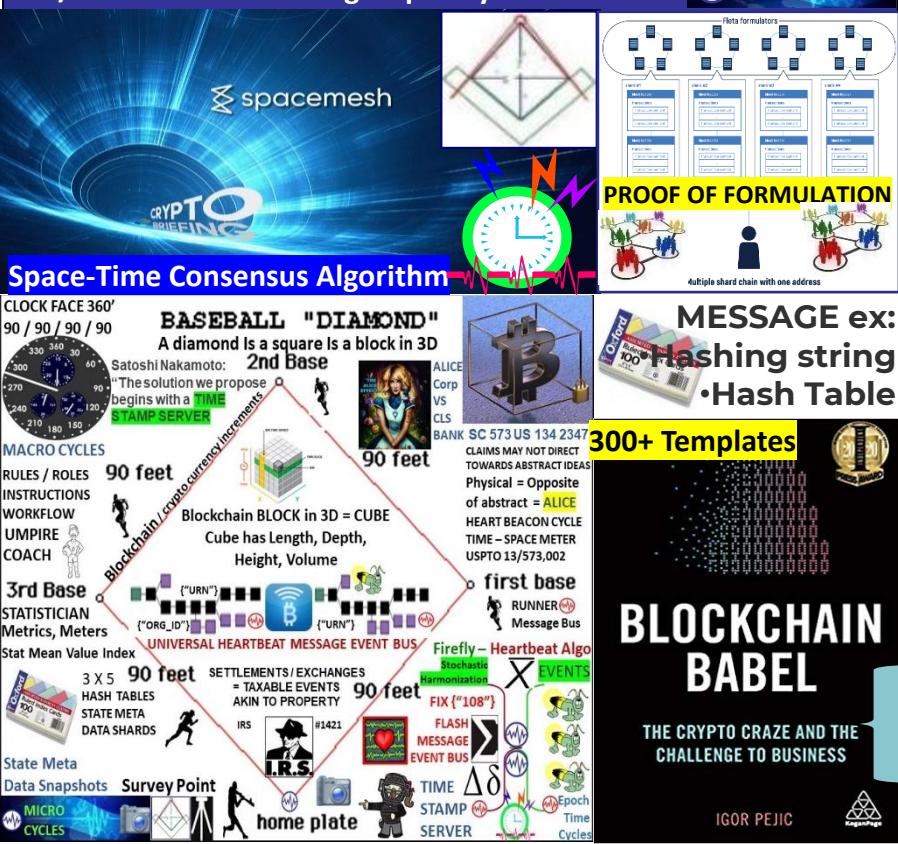
Q: Which meme describes the myriad blockchain consensus algorithms the most comprehensively that uses an algorithm (based on nature = “shortest path to the knowledge of truth Luxor Temple) enabling distributed system of systems geo-spatial, UTZ Universal Time Zone temporal, semantic - syntactic sync, OPSCODE brevity code, data element & symbol (for A.I. man – machine interface) consensus?

Blockchain Consensus Algorithms & Mechanisms



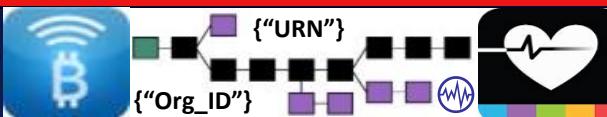
In the world of blockchain consensus algorithms, consensus is the **HEART OF THE BLOCKCHAIN NETWORK**. Its main purpose is to achieve agreement on transactions among a distributed system (s)

Proof of Formulation: PoF: generation / propagation of blocks using a previously agreed sequence between participants of the generation of blocks, formed by two groups: a generator group and/or Formulator and a group of synchronization.



BLOCKCHAIN CONSENSUS ALGORITHMS

ULTIMATE GUIDE FOR BEGINNERS

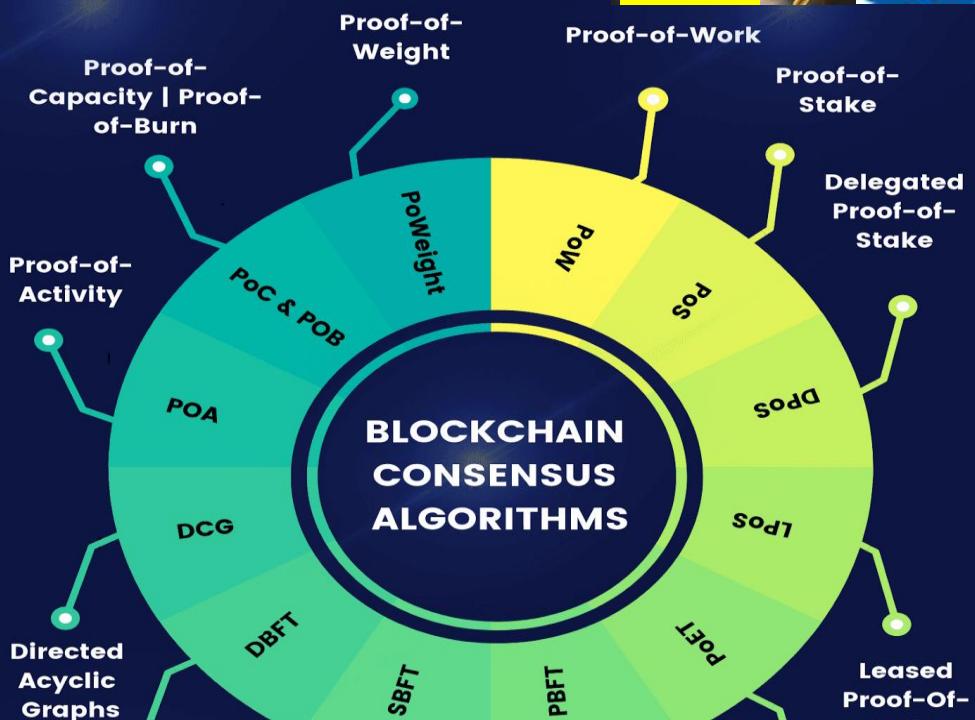


QUANTUM RANDOM NUMBER BEACON

NIST Beaco

A Public Randomness Service

NON REPUDIATION



BLOCKCHAIN CONSENSUS ALGORITHMS

Directed Acyclic Graphs

Delegated Byzantine Fault Tolerance

Simplified Byzantine Fault Tolerance

Practical
Byzantine Fault
Tolerance

Proof of Elapsed Time

Structured Data Exchange SYNTAX LEXICON

PSCODES – Symbol Sets

www.developcoins.com

SOURCE: <https://developcoins.com/blockchain-consensus-algorithms>

STABLE PROTOCOL THREE MAIN TYPES:

DeFi-Native: Cap Labs, Elixir, Level

Collateralized Debt Positions: Ducat, Felix

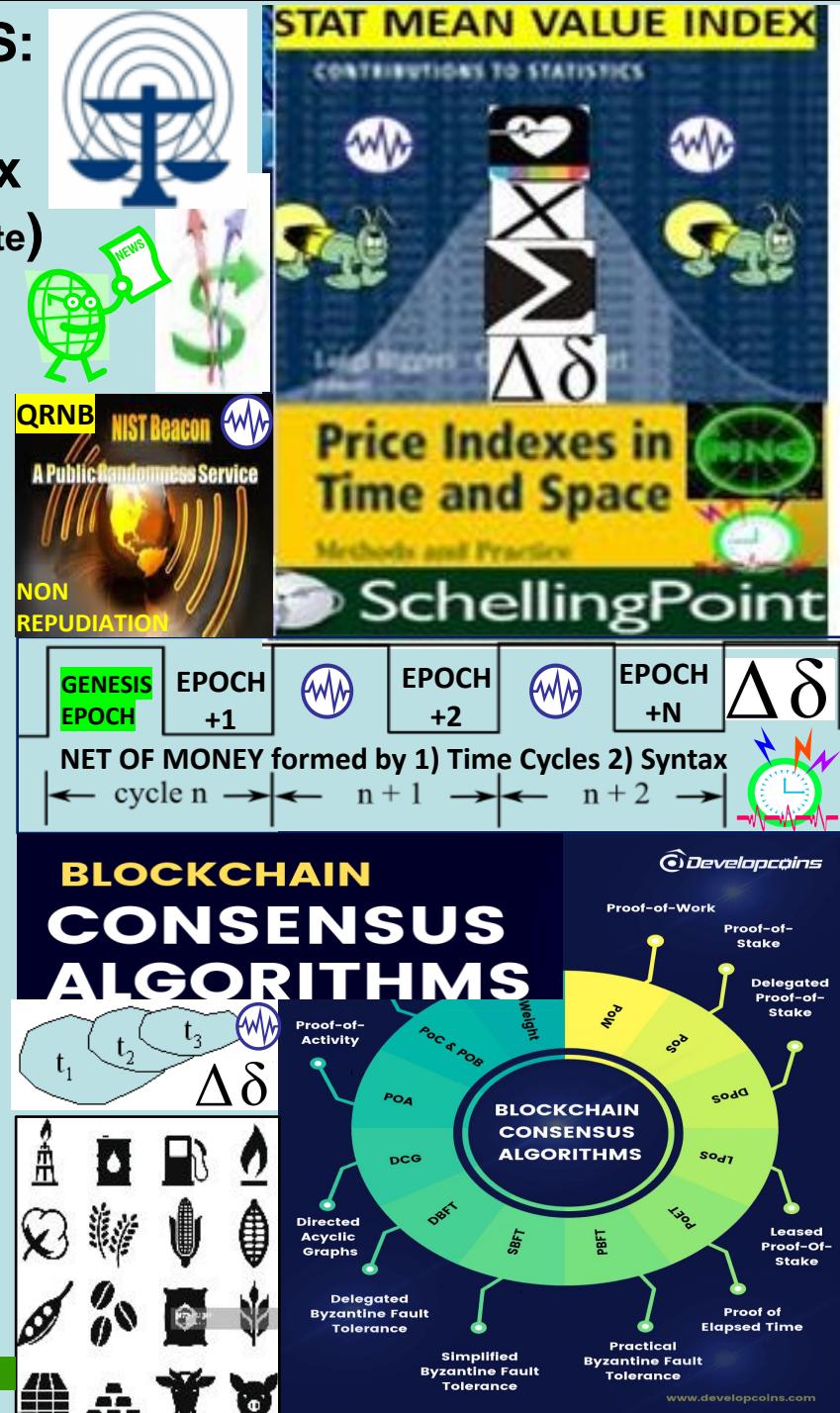
RWA-Backed:, EAnzen, Superstatethena (UStb update)

1) DeFi-Native collateral backing: stablecoin engine produces redeemable tokens of various denominations (USD, BTC, ETH, etc) system of external agents, such as market makers, MEV actors and RWA protocols, to access collateral and generate independent yield on behalf of holders. These actors keep profits over a predetermined threshold, incentivized to earn as much as possible. behavior is kept in check by security delegations from restaking protocols, support good actors, penalize bad ones

2) Collateralized Debt Positions (CDPs)

CDP protocols allow users to borrow assets by locking up collateral. When a user creates a CDP, they deposit a certain amount of ETH, BTC, USDC, or other assets into the protocol to borrow a proportionate amount of another asset, in this case a stablecoin. If the value of the deposited collateral falls below a specified threshold (loan-to-value level or collateral ratio), the CDP becomes under-collateralized and is recalled, or liquidated, with the protocol automatically selling off the underlying assets to repay the debt and maintain the stability of the system. After the underlying collateral is liquidated, the user usually gets to keep the asset they've borrowed, minus some kind of liquidation penalty.

3) RWA-Backed by off-chain real-world assets



THE BITCOIN BLOCKCHAIN FOR DUMMIES



What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party e.g., a bank.

Satoshi Nakamoto Bitcoin Paper



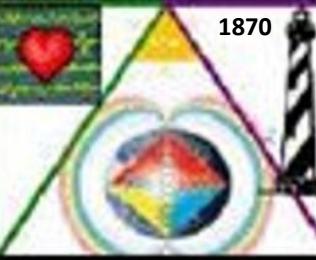
Satoshi Nakamoto



Craig WRIGHT
a.k.a.
Satoshi Nakamoto



"Bitcoin is a LANGUAGE"



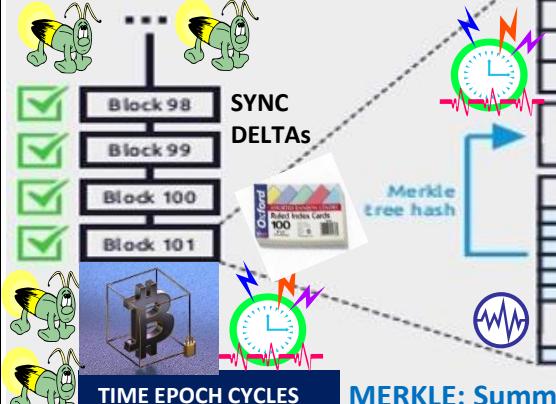
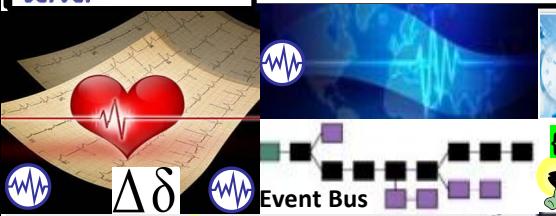
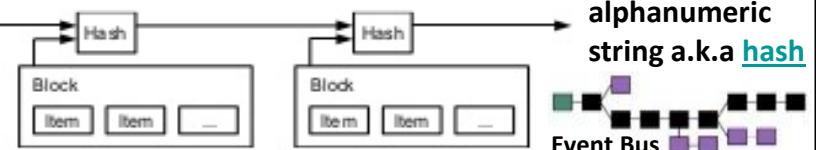
Wright Brother's 1st Flight
Cape Hatteras Outer Banks

"THE SOLUTION WE PROPOSE BEGINS WITH A TIME STAMP SERVER"

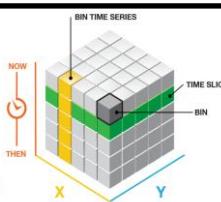
3. Timestamp Server

The solution we propose begins with a timestamp server. A timestamp server works by taking a hash of a block of items to be timestamped and widely publishing the hash, such as in a newspaper or Usenet post [2-5]. The timestamp proves that the data must have existed at the time, obviously, in order to get into the hash. Each timestamp includes the previous timestamp in its hash, forming a chain, with each additional timestamp reinforcing the ones before it.

**Bitcoin Protocol
for Dummies**
Part 4 Timestamp
Server



JapanNet Crypto Time
Authentication Service
(Timestamp Service)



BIN TIME SERIES
TIME SLICE

NOW
THEN

X
Y
Z

CLOCK FACE 360°
90 / 90 / 90 / 90

MACRO CYCLES

RULES / ROLES
INSTRUCTIONS
WORKFLOW
UMPIRE
COACH

3rd Base
STATISTICIAN
Metrics, Meters
Stat Mean Value Index

Peer-to-peer time stamp distributed server generates computational proof of the chronological order of transactions

Heartbeat : {"108"}

MERKLE: Summary built from block's transaction ID's

Header - Contains service information (version info, nonce, previous block id and timestamp). {"Org_ID"}

Transaction's id list - list of transaction's identification hashes that was included into the block's merkle tree.

"All things net, net of money are formed with 1) epoch time cycles
2) Syntax parsed as instructions

"THE VALUE OF BITCOIN IS TIME ITSELF"

BITCOIN BLOCKCHAIN EPOCH CLOCK TIME CYCLES

cycle n n + 1 n + 2 Δδ



CLOCK FACE 360°
90 / 90 / 90 / 90

MACRO CYCLES

90 feet

Blockchain BLOCK in 3D = CUBE
Cube has Length, Depth, Height, Volume

3rd Base
STATISTICIAN
Metrics, Meters
Stat Mean Value Index

90 feet

SETTLEMENTS / EXCHANGES
= TAXABLE EVENTS
AKIN TO PROPERTY

IRS
#1421

State Meta
Data Snapshots
Survey Point

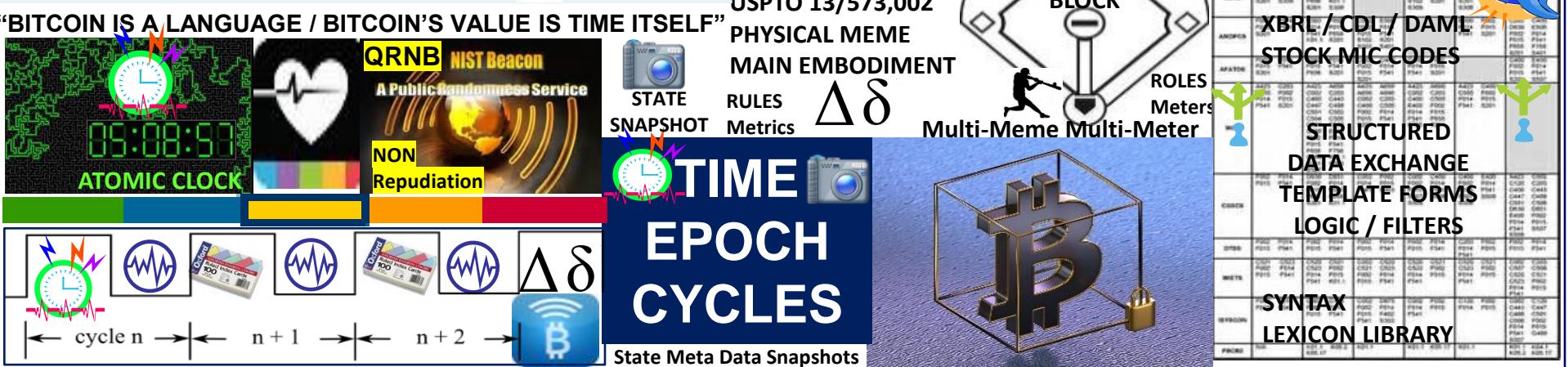
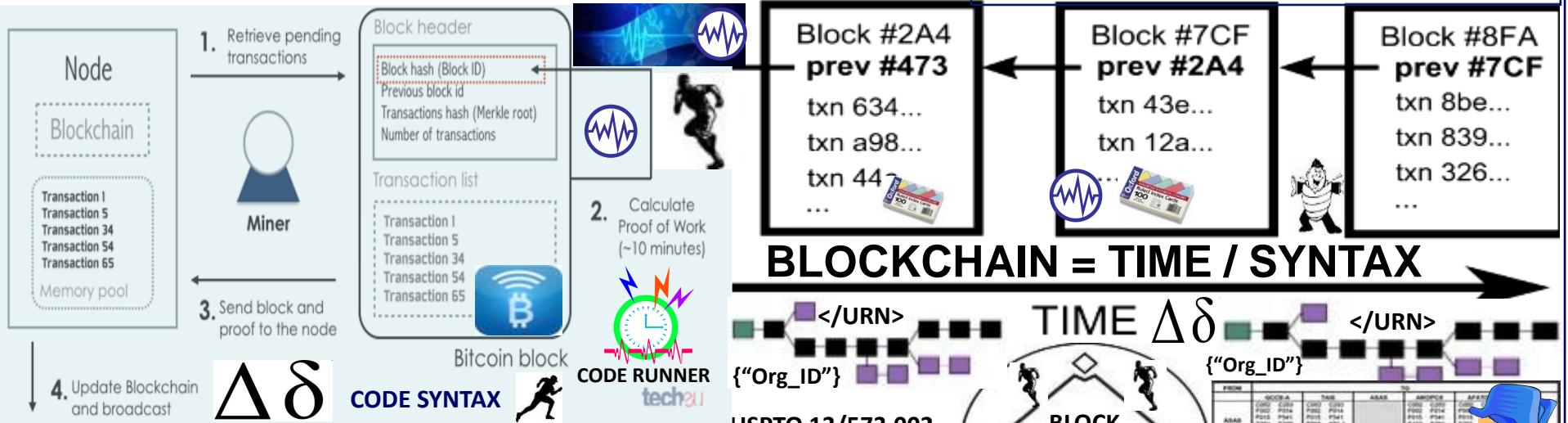
90 feet

Fix {"108"}
FLASH MESSAGE
EVENT BUS

TIME STAMP SERVER



Alice Corp. v. CLS Bank International, 573 U.S. 134 SCt 2347 (2014) is a 2014 decision of the United States Supreme Court about patentable subject matter (patent eligibility).^[2] The issue in the case was whether certain claims about a computer-implemented, electronic escrow service for facilitating financial transactions covered abstract ideas ineligible for patent protection. The patents were held to be invalid because the claims were drawn to an abstract idea, and implementing those claims on a computer was not enough to transform that idea into patentable subject matter.

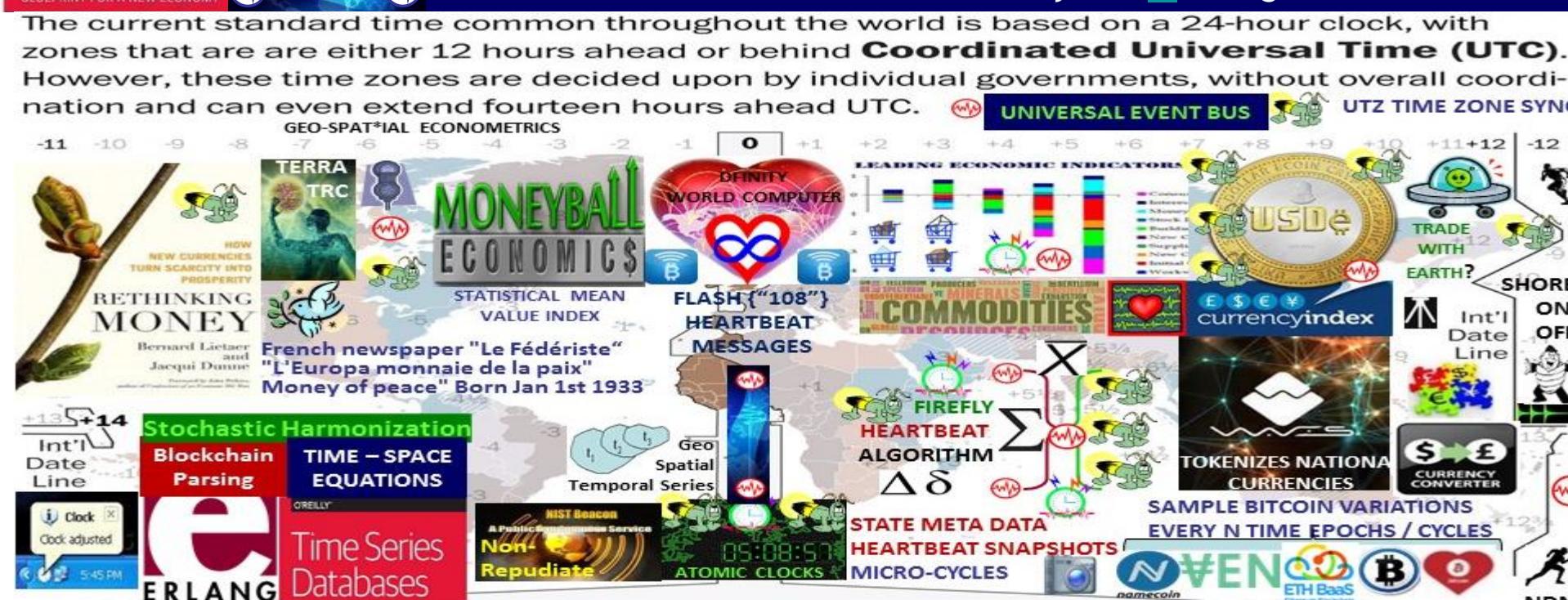




The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC.

Blocktime Arbitrage MTL (machine trust language) time primitives might be assigned to a micropayment channel DAPP as a time arbiter. In blocktime, the time interval at which things are done is by block. This is the time that it takes blocks to confirm, so blockchain system processes like those involving smart contracts are ordered around the conception of blocktime quanta or units. Since blocktime is an inherent blockchain feature, one of the easiest ways to programmatically specify future time intervals for event conditions and state changes in blockchain-based events is via BLOCKTIME. Universal blocktime source example: a procedure call to NIST or other time oracle.

BLOCKTIME: A General Temporality of Blockchains Blocktime as blockchains' temporality allows the possibility of rejiggering time and making it a malleable property of blockchains. The in-built time clock in blockchains is blocktime, the chain of time by which a certain number of blocks will have been confirmed. Time is specified in units of transaction block confirmation times, not minutes or hours like in a human time system. Block confirmation times are convertible to minutes. Conversion metrics might change over time. Network Economies: Economic System as Configurable Parameters



The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.



Erlang programming language / mini OS
massively scalable high availability, real-time Erlang's runtime system built-in concurrency distribution, fault tolerance



- coordinate 1000's of virtual machines
- ...distributed Dbases RIAK, CouchDB
- ...real time data dashboards
- ...service oriented software architectures
- .. server, API endpoints .. RabbitMQ
- ..distributed, multi-node architecture.
- protocol-aware load-balancer, stateful binary comi



Functional Sequential Erlang

- Data types:
 - Integers (incl. BigNums), floats, atoms
 - tuples/records, lists/plists, binaries, funs
 - Maps (added in R17)
- single assignment
- pattern matching & guards
- closures (anonymous function data type)
- list comprehensions
- bit-syntax & binary comprehensions
- tail recursion & tail call optimization (TCO)

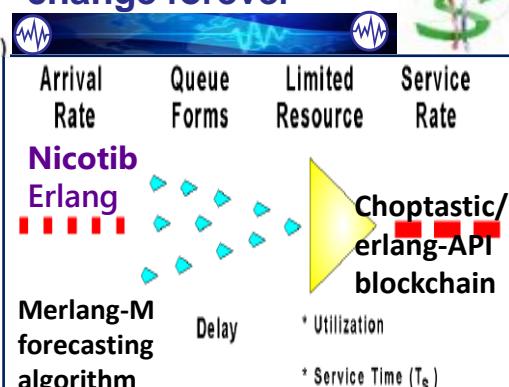
SORTING ALGO'S

[Ericsson Open Money For Society Patent App](#)



[20130166398 "System And Method For Implementing A Context Based Payment System."](#)

"It is our vision that one day everyone with access to a mobile phone will be able to spend, send and receive money as easily as sending a text via SMS"
"When money is open, the way we send, spend and receive money will change forever"



Rho ratio *Arrival Rate* $\Delta\delta$ queueing systems wait times
Service Rate per unit time stochastic processes, function scheduling Start, Stop TTL



distributed "noSQL" database, embedded right into Erlang, supports indexing, replication, transactions, and fail-over

Fast ETS in-memory, and DETS persistent on-disk database

Mnesia database ("Organization_ID") Global name resolution

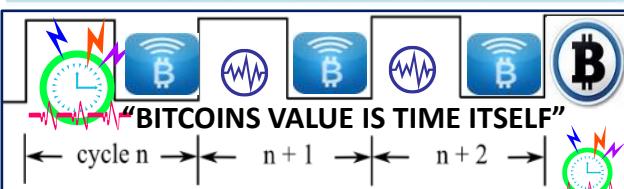
FROM	TO/CC-A	THREE	AMAZON	AMAZON	WIKI
XBRL	/ CDL / DAML				
ALPHA	NUMERIC				
BREVITY	CODES				
AZURE	BLETCHLEY				
STRUCTURED					
MILITARY	MESSAGE				
TEMPLATE	FORMS				
LOGIC /	FILTERS				



PROOF-OF-WORK



THE PROBABILITY OF MINING A BLOCK IS DEPENDENT ON HOW MUCH WORK IS DONE BY THE MINER



TIMESTAMP marks the point that work started. Additionally, it contributes to the uniqueness of the work by an individual miner

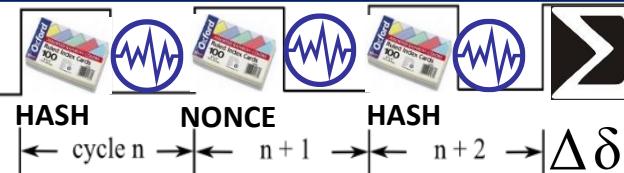


THROTTLE equivalent to difficulty. State
•target = maximum value of 8 bytes Snap
Shots

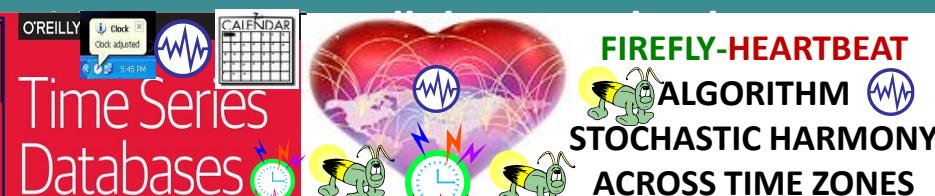
NONCE increments from 0..N until the target is met.



GUESS stores the guess
Effectively, it begins at infinity.



Proof-of-Work: users perform some form of work to participate. Work must be difficult for the client but easy for the server/network to verify. POW determines the approximate time between blocks = rate that new bitcoins are created. Work is submitted as a message/timestamp payload with a nonce value. Payloads are made unique through use of public key encryption or address.Nonce allows checking the work



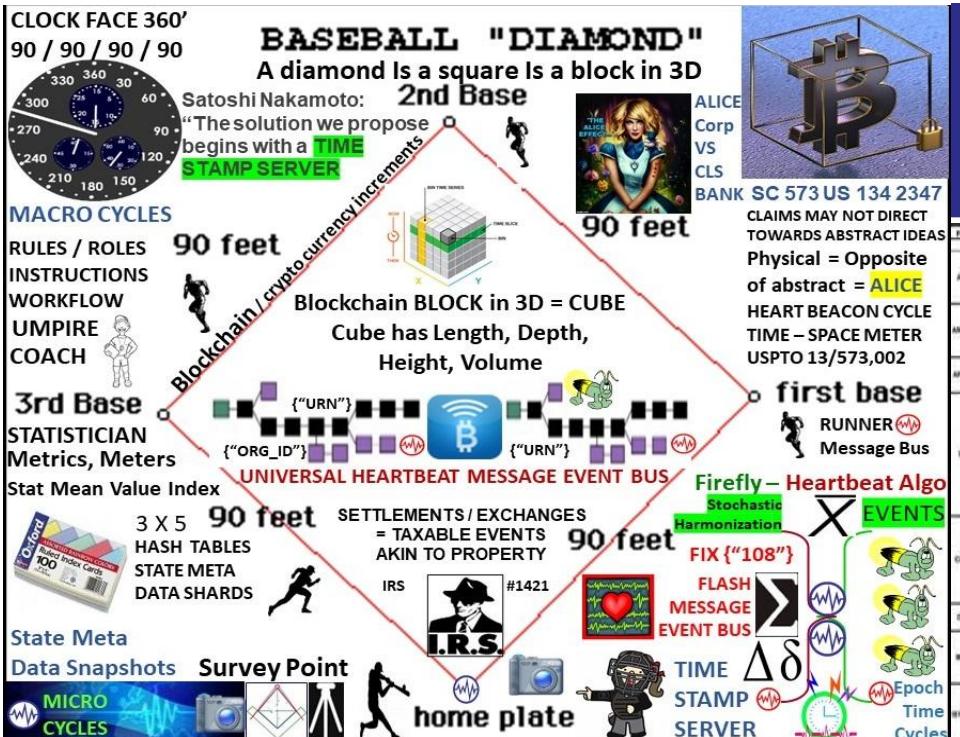
300+Message Templates

FORM	FORMAT								
OCTOB	OCB01	OCB11	OCB21	OCB31	OCB41	OCB51	OCB61	OCB71	OCB81
ABAB	PBC01	PBC11	PBC21	PBC31	PBC41	PBC51	PBC61	PBC71	PBC81
ANAN	CBC01	CBC11	CBC21	CBC31	CBC41	CBC51	CBC61	CBC71	CBC81
COSC	SCB01	SCB11	SCB21	SCB31	SCB41	SCB51	SCB61	SCB71	SCB81
DPB	PCB01	PCB11	PCB21	PCB31	PCB41	PCB51	PCB61	PCB71	PCB81
METH	TCB01	TCB11	TCB21	TCB31	TCB41	TCB51	TCB61	TCB71	TCB81
REBON	FCB01	FCB11	FCB21	FCB31	FCB41	FCB51	FCB61	FCB71	FCB81
PRIO	RCB01	RCB11	RCB21	RCB31	RCB41	RCB51	RCB61	RCB71	RCB81

LOGIC FILTERS
LOGIC GATES

SYNTAX LIBRARY LEXICON

CODER'S GUIDE

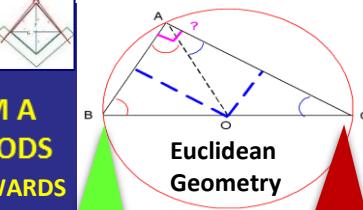


TRANSACTIONS PER CYCLE METRICS



UTXO: unspent transaction output'. bitcoins **sent somewhere** but not yet spent. Unspent transaction output set= latest  STATE of every Bitcoins ever mined" % Block Mined / % Block owned

A BASEBALL DIAMOND IS A SQUARE. HBC USES A BASEBALL METAPHOR TO DESCRIBE METRICS, METERS. ROUNDING BASES FORM A BLOCK. METRICS, METERS & SURVEY METHODS MEASURE COIN MINING COMPLETION % AWARDS



STRUCTURED {"CONTENT"} TEMPLATES

STRUCTURE
{"CONTENTS"}
TEMPLATES
SYNTAX, SYM-
EXICON LIBRARIES
LOGIC – FILE
CODE SEQUENCES
ROLES / RIGHTS

Attribute Series



Digital Asset

Contract Description

Language CDL

 IDMaps
SonarHops

Sonar Bops

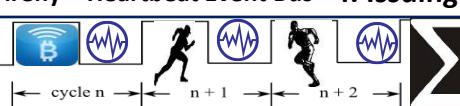
n ownership
ent where, w

dom # Beacon Non-Repudiation
{Org. ID} adjudicates w/ buyers

FIREFLY-HEARTBEAT

ALGORITHM EVENT BUS

Java - Heartbeat Event Bus



Stake-Time algorithm favors both # of coins held

how often frequently coins are staked

/velocity-based selection. PoSV encourages velocity.

i.e. coin movement between people Vs hoarding.

Coin Age proof-of-stake system combines randomization with the concept of "coin age," a number derived from the product of the number of coins times the number of days the coins have been held.

Randomized block selection randomization predicts following generator by using a formula that looks for the lowest hash value stake size

Voting based selection Instead of only using the stake size, the block generators can be selected by votes ex: League MVP

Voting Based Selection: stake size & block generators selected by votes





real-time gross settlement system, currency exchange remittance distributed net

FEDERATION CONSENSUS ALGORITHM / PROTOCOL LIQUIDITY ON DEMAND

A.K.A Ripple Transaction Protocol or Ripple protocol, built on a distributed open source Internet protocol, consensus ledger and native currency called XRP. Ripple enables "secure, instant and nearly free global financial transactions of any size with no chargebacks." Ripple supports tokens representing fiat currency, cryptocurrency, commodity or any other unit of value such as frequent flier miles or mobile minutes. Ripple is based around a shared, public database or ledger, which uses a **FEDERATION** based consensus process that on demand liquidity backed by cooperative backing



Connects to receiving bank's Ripple Connect to exchange KYC, risk info, fees, payment details, **expected time** of funds delivery Provides information about total costs of the transaction



Workflows are serially executed Except first two work flow are workflows are based on **event** **pull model**



Neutral transaction protocol

secured REST messaging API's

Interledger Protocol ILP

ripple

Ripple Consensus Ledger (RCL)

- FEDERATION:** Latin: foedus, foederis, covenant, **union** of partially self-governing states or regions under a central (federal) government
- A league or confederacy. Individuals / groups retain **AUTONOMY**
- A federated body formed by nations, states, and... **unions**

each retaining control of internal affairs

Federation

Gateway

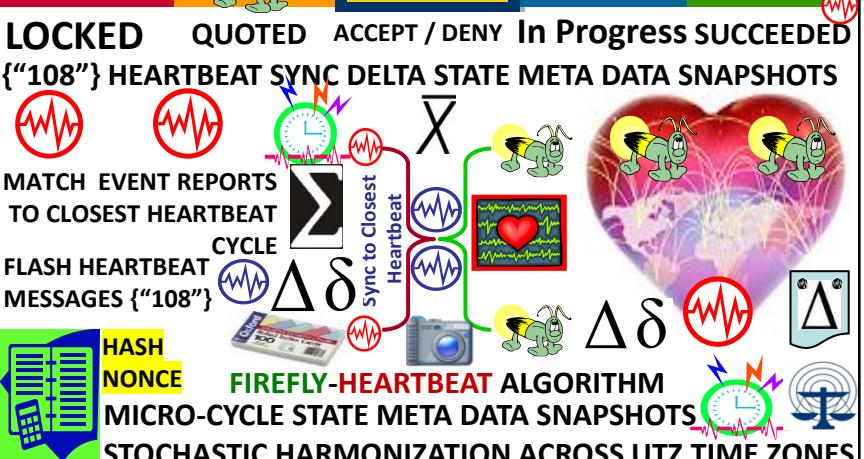
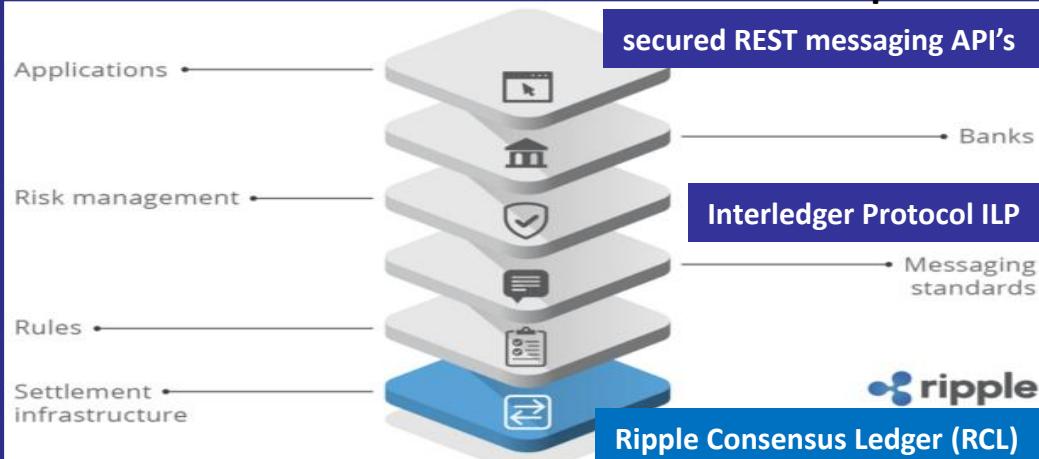
Net joins, drops, splits, merges, moves

Agile, adhoc NETOPS Vs acquisition preserves the

LIQUIDITY, ORGANIZATIONAL INTEGRITY OF TRADE FEDERATIONS

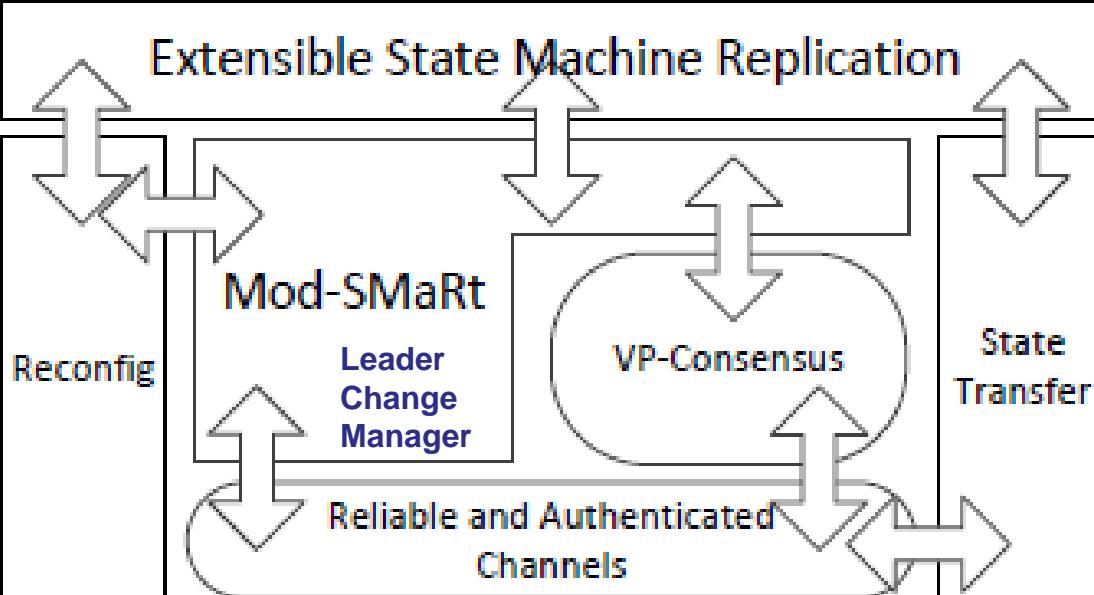
FEDERATION CONSENSUS PROTOCOL

{"GLOBAL"}
{"SHARED"}
{"DOMAIN"}
{"COMMUNITY"}
{"PRIVATE"}
{"GROUP ID"}



Byzantine Fault-Tolerant State Machine Replication

BFT-SMaRT dynamic distributed system processes are divided in two nonintersecting subsets: replicas and clients. Each system process has a unique identifier. During dynamic system execution, a sequence of views is installed to denote the reconfigurations due to replicas joins and leaves. A view is composed by a set of replicas identifiers.



Modularity is achieved using a set of building blocks(or modules)containing the core functionality of BFTSMaRt. Blocks are divided in three groups: communication system, state machine replication and state management.

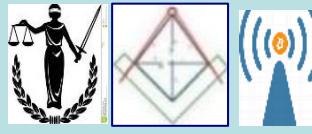
BFT-SMaRT needs an eventually synchronous system

Total order multicast is achieved using the Mod-SMaRt protocol and with the Byzantine consensus algorithm Clients send requests to all replicas in cv, and wait for replies. replicas store each batch of ordered requests to a (stable) log and, periodically, take snapshots of the application state and store it in stable memory.

USPTO 13/573,002 HEART BEACON CYCLE TIME-SPACE METER

USCt ALICE CORP V CLS BANK

PHYSICAL = OPPOSITE OF ABSTRACT



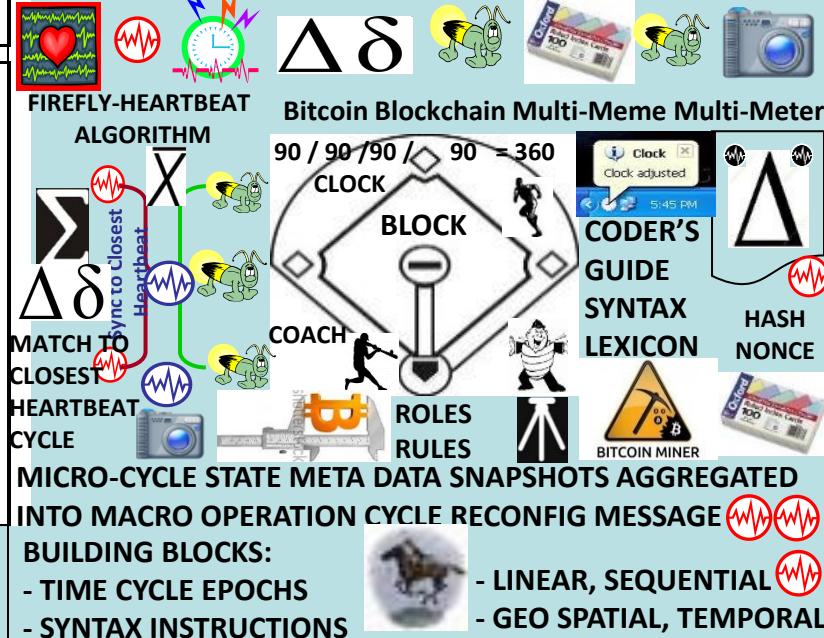
DERIVED FROM BATTLEFIELD DIGITIZATION DISTRIBUTED AUTONOMOUS ORGANIZATION DAO SYSTEM OF SYSTEMS

FEDERATED ID / ORGANIZATIONAL IDENTIFIER {"ORG_ID"}

ADDS, JOINS, DROPS, MOVES TO / FROM DAO

CHANGES IN STATE VIEWED IN "APPLIQUE' OVERLAY VIEWS

00.99 HEARTBEAT SYNC DELTA STATE META DATA SNAPSHOTS



Firefly inspired Heartbeat Synchronization nodes strive to sync in a distributed system. Nodes generate periodic "heartbeat" events approximately at the same time.

It differs from classical clock sync in that nodes are not interested in counting cycles to agree on the ID of the current clock cycle. There is no requirement to sync during a cycle length In real time as long as the length is bounded and all nodes AGREE ON IT EVENTUALLY"

In a proof-of-stake network, it is the number of coins held in a wallet that determines the "weight" of the user the likelihood for the user to receive the block reward. In a Proof-of-Weight consensus mechanism, any value, not just the amount of coins held, is used to determine the "weight" of a user.

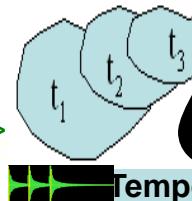
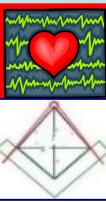


TIME – SPACE MEASUREMENTS OF TOKENIZED COMMODITIES, SECURITIES... STOCHASTICALLY HARMONIZED ACROSS UTZ Universal Time Zone



The Volumetric Weight is often referred to as dimensional weight

$$\text{Volumetric Weight} = [\text{Width} \times \text{Length} \times \text{Height}]$$



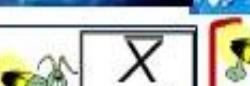
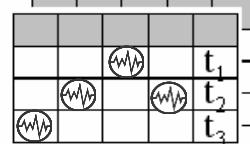
TIME BLOCK

DATA

BLOCK



Attribute Series



FIREFLY – INSPIRED HEARTBEAT SYNCHRONIZATION ALGORITHM

"LENGTH OF REAL TIME CYCLE IS ARBITRARY AS LONG AS NODES EVENTUALLY AGREE"



On the Filecoin blockchain, for example, the amount of IPFS data that a user is storing is used as the weighted value.



OpenBazaar open source decentralized peer to peer network online commerce —using Bitcoin —no fees and no restrictions



- Creates an online store for users to sell goods for Bitcoin
- Connects these stores directly to each other on a global network
- Users browse individual stores, search for products across whole network
- A buyer directly connects, purchases good from the merchant using Bitcoin
- Bitcoin payments via escrow protect merchants & buyers during trade

OPENBAZAAR.ORG
BLOCKCHAIN ARBITRAGE



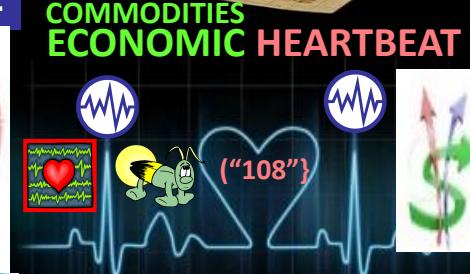
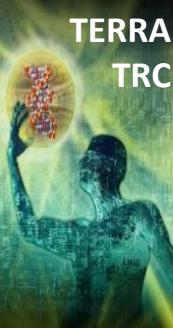
OpenBazaar is a different approach to online commerce. OpenBazaar connects buyers and sellers directly. Because there is no one in the middle of your transactions there are no fees, no restrictions, no accounts to create, and you only reveal personal information you choose.

PROJECT PHILOSOPHY: *MAKE TRADE FREE*

Mission: *shift trade to a decentralized platform*



Demurrage TERRATRC TRADE Fees REFERENCE CURRENCY
“Money of Peace”



Free, open markets: Commodity / Currency Index

Creating open, competitive markets for services that cannot be perfectly solved with technology



•VALUES: Privacy </Org_ID>



HASH Values
Nonce Values </Org_ID>



- Users should fully control their data. Users have freedom to reveal as much personal identifiable information as they want, when they want



Bitcoin: OpenBazaar transactional currency



Cryptographic Security

- tamper-proof agreements
- 1) minimize potential disputes
- 2) fast-track dispute resolution



DON: DECENTRALIZED ORACLE NETWORKS



Explicit Staking

Chainlink nodes lock up LINK tokens as collateral that can be slashed for malicious and undesirable behavior.

Chainlink's explicit staking model's goal is to achieve a super-linear staking impact—a mechanism where malicious actors are required to have a budget significantly larger than the combined deposits of all nodes within a DON, creating increasingly greater security guarantees for high-value smart contract applications in a cost-efficient manner.

Explicit staking in Chainlink 2.0 oracle reports reflect the state of specific real-world events outside a blockchain (off-chain).

Chainlink's explicit staking mechanism protects against a broad range of attacks, including advanced strategies like prospective bribery, in which nodes are targeted according to their role in the network, such as those selected for report adjudication.



Behind each DON is a service agreement that will define the number of LINK tokens each oracle node is required to stake and key performance requirements, such as how far an individual node's response can deviate from the aggregated value and how far the aggregated value in an oracle report can deviate from the correct value it should represent. The service agreement can also define other parameters such as the data sources used, how often updates should occur, how much each node is paid, and more.

ALERT LEVEL > > NEWSCAST ZONE

Outputs produced by a DON are structured into reporting rounds, where each round involves the creation of a new oracle report containing each node's individual response for a particular piece of data (e.g. the price of ETH/USD), with all the individual responses aggregated into a single value (e.g. taking the median). A DON network's service agreement defines how each report should be generated & conditions in which a node's stake can be slashed.



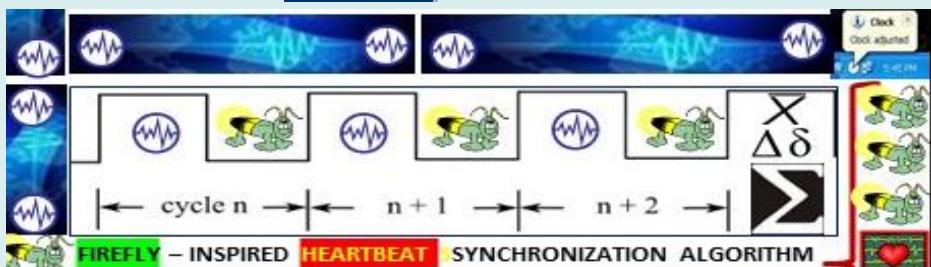
DISTRIBUTED AUTONOMOUS ORGANIZATIONS DAO

Heart Beacon Cycle

FEDERATE / TRADE FEDERATIONS

Linear Sequential Meme

$$\dots -1 / 0 / +1 \dots \Delta \delta > \Sigma$$

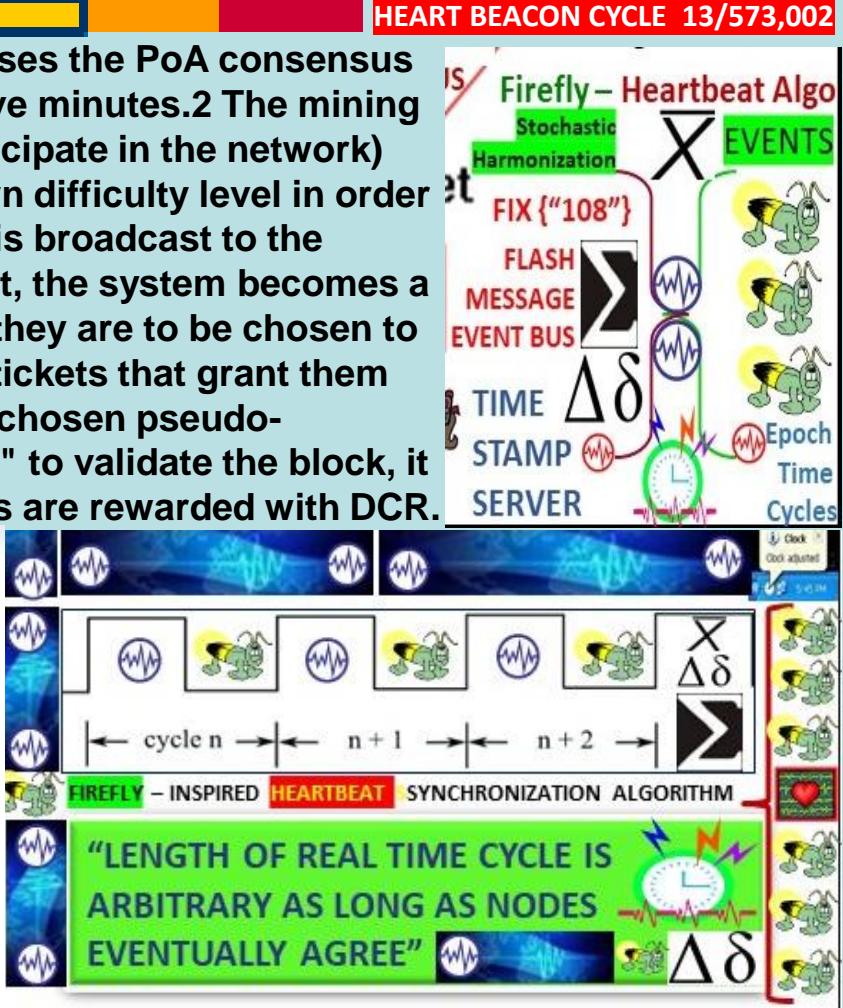
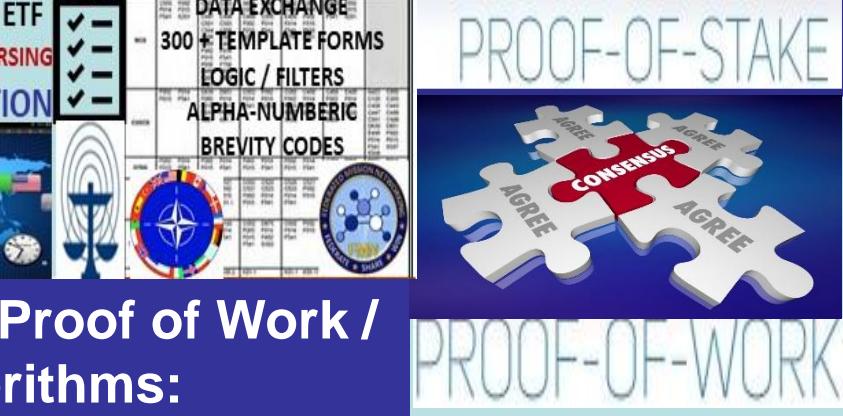
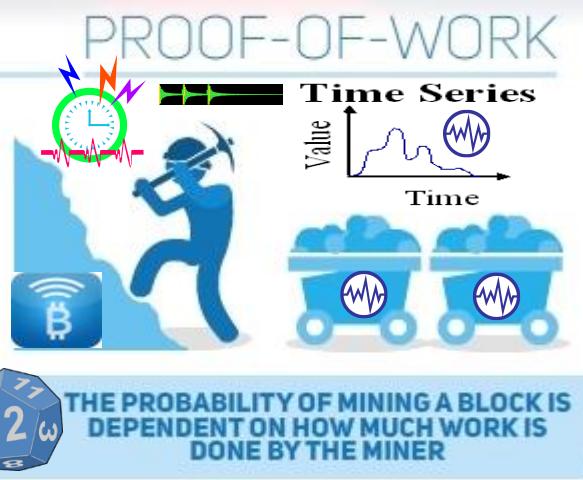
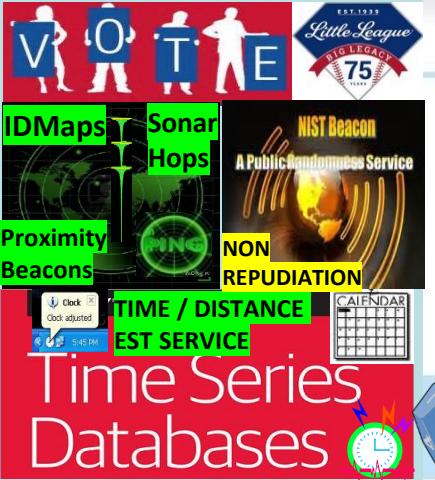




Proof-of-activity PoA is a combination of Proof of Work / Stake blockchain consensus algorithms:

Example of Proof-of-Activity (PoA)

Decred (DCR) is the most well-known cryptocurrency that uses the PoA consensus mechanism. With Decred, blocks are created about every five minutes.² The mining process for Decred begins with nodes (computers that participate in the network) looking for a solution to a cryptographic puzzle with a known difficulty level in order to create a new block. Once the solution has been found, it is broadcast to the network. The network then verifies the solution. At this point, the system becomes a PoS. The more DCR that a node has mined, the more likely they are to be chosen to vote on the block. (In DCR's blockchain, stakeholders earn tickets that grant them voting power in exchange for mining DCR.) Five tickets are chosen pseudo-randomly from the ticket pool; if at least 3 of the 5 vote "yes" to validate the block, it is permanently added to the blockchain. Both miners, voters are rewarded with DCR.





VERITAS TOKENS

P2P Capital Market smart contracts Eco Economic HEARTBEAT

Decentralized Trading Platform DAO ORACLE
access conventional, legacy financial data to
price, value, trade & settle OTC, P2P financials



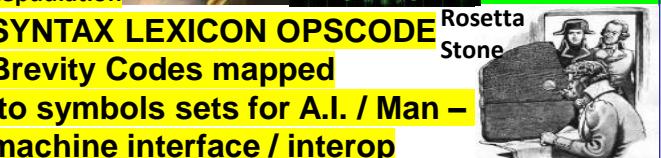
INFOCON
5 4 3 2 1
INFORMATION CONDITION



Zero Trust Transaction: money performs I.A.W. to terms agreed to by parties. Ex: purchase of widget from retail store where widget must be delivered to person B on TIME X, in Y condition at PLACE Z or person A does not get paid. Stock, currency, commodities, letters of credit, insurance underwriting, trading, intellectual property...

STATISTICAL MEAN VALUE INDEX PULSE

GDP INDEX ECONOMY K% RULE



Cost = stated rates that fluctuate with VeUSD exchange rate.
Veritas holders get priority. The ability to redeem Ve against USD gives clients instant value.

DAO Distributed Autonomous Organization Investor Pools

Place Order X ritaseum™

Principal:	\$100.00
Collateral:	0%
Leverage:	10x
Notional Amount:	\$1000.00
Receive:	QCOM
Pay:	INTC

DeFi Ve TOKENS VeriDAO **UTZ SYNC**

Heartbeat Flash Messages Precedence Processing

FIREFLY HEARTBEAT ALGO EVENT MSG BUS

As long as INTC decline outpaces QCOM, you get paid. QCOM can be replaced with GOOG, or even AAPL although I feel AAPL will have its issues in the upcoming quarters as well.

Denominating Asset: ~BTC:SATOSHIS

Contract Expiry: 16w

Contract Starts at: -

Contract Ends at: -

Cancel Contract at: -

Est. Trans. Fees: \$0.0437

Transaction Fees: \$1.0262

Leverage Fees: \$3.2528

Max. Profit/Loss: + \$95.6773 / - \$104.3227

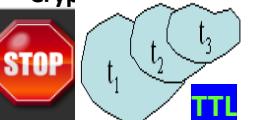
Total Required: \$104.3227

NIST TIME BEACON

UTZ Time Zone Sync

START

LENGTH OF REAL TIME CYCLE IS ARBITRARY AS LONG AS NODES EVENTUALLY AGREE



SYNTAX LEXICON OPS CODE
Brevity Codes mapped to symbols sets for A.I. / Man – machine interface / interop

Proof of Authority



{"GROUP ID"}
{"Org_ID"}

Not pay to play, Node identity is kept as stake

A PoA network are secured by validators, that are selected democratically by existing validators. The nodes on the PoA network are rewarded for validating the transactions on the network. The identity of the validator is kept anonymous by encryption and secured cryptographically. It is revealed only as a negative reinforcement when the validator processes a fraudulent or a malicious transaction.



A notary license verifies the identity of the person formally, a notary license is released by the Federation / Government after extensive verification. The identity of the validator is kept for cross-referencing with the notary data and blockchain data

Parity supports a Proof-of-Authority consensus engine. Proof-of-Authority is a replacement for Proof-of-Work, and can be used for private or centralized chains. PoA as tested by a Kovan test network improves outdated economic models.

1. **FEDERATION:** Latin: foedus, foederis, covenant, **union** of partially self-governing states or regions under a central (federal) government
2. A league or confederacy. Individuals / groups retain **AUTONOMY**
3. A federated body formed by nations, states, and... **unions**
each retaining control of internal affairs

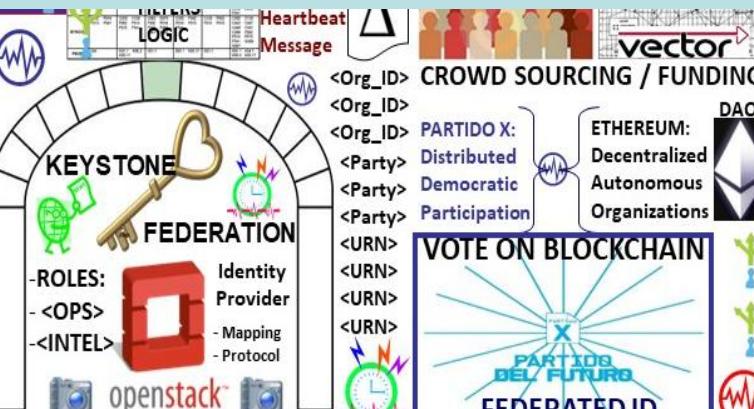
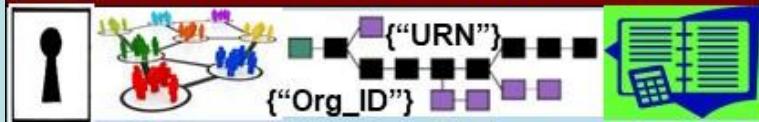
Federation
Gateway
Net joins, drops, splits, merges, moves
Agile, adhoc NETOPS Vs acquisition preserves the **CHANNEL**



DISTRIBUTED AUTONOMOUS ORGANIZATIONS DAO

Heart Beacon Cycle

FEDERATE / TRADE FEDERATIONS

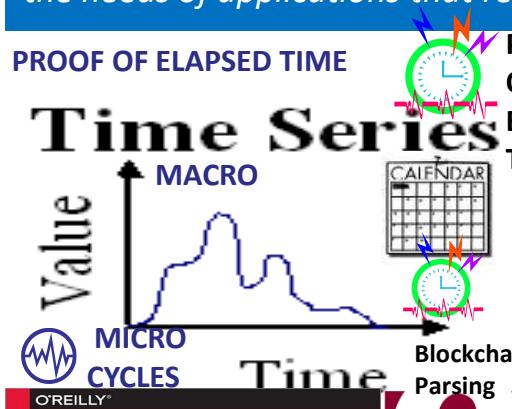


SAWTOOTH LAKE POETIC CONSENSUS PROOF OF ELAPSED TIME: POET

"PoET for 'Proof of Elapsed Time', is a **lottery protocol** that builds on trusted execution environments (TEEs) provided by Intel's [Secure Guard Extensions] to address the needs of large populations of participants. The second, **Quorum Voting**, is an adaptation of the Ripple and Stellar consensus protocols and serves to address the needs of applications that require immediate transaction finality."



PROOF OF ELAPSED TIME



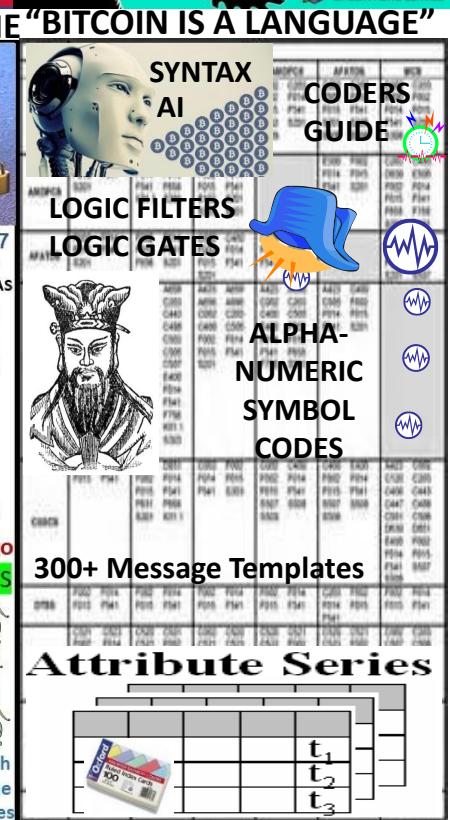
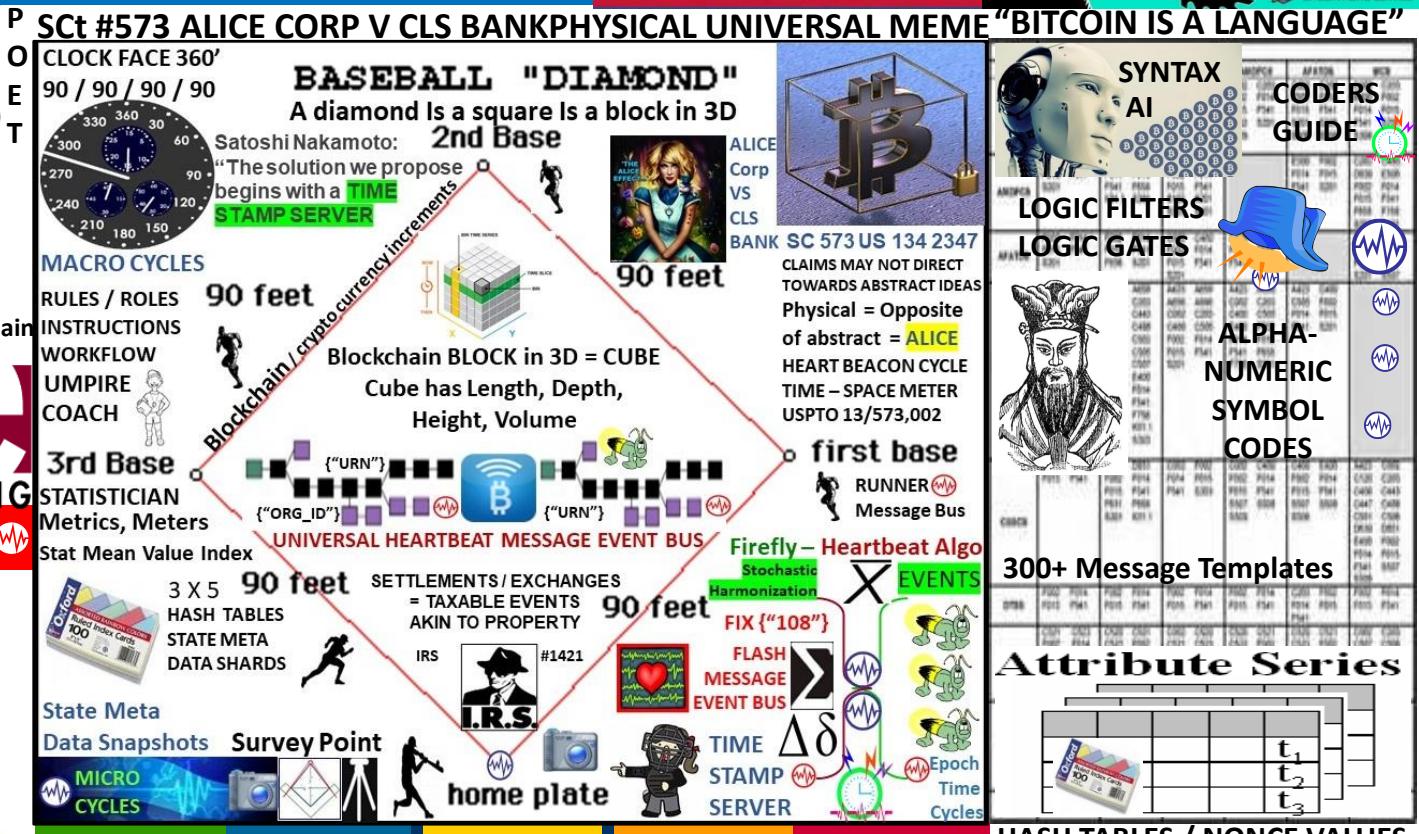
Voting Based Selection: stake size & block generators selected by votes

Voting based selection Instead of only using the stake size, the block generators can be selected by votes
ex: League MVP



Robert's Rules quorum = minimum # of voting members who must be present at meetings to conduct business of the group

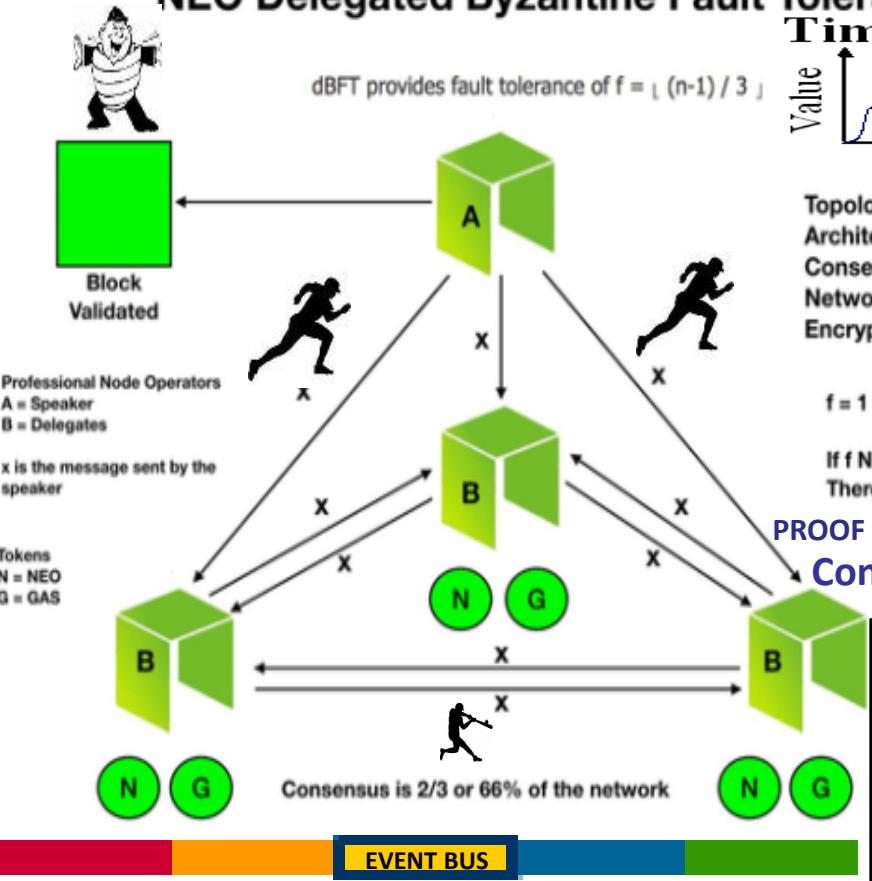
TOURNAMENT LEAGUE BOARD



Capture ledger's state $\Delta\delta$
Transaction language changes ledger state
Consensus, transaction acceptance protocol

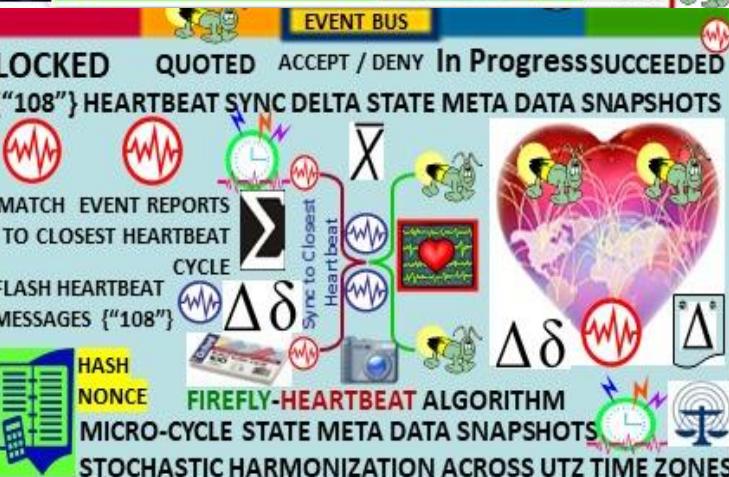
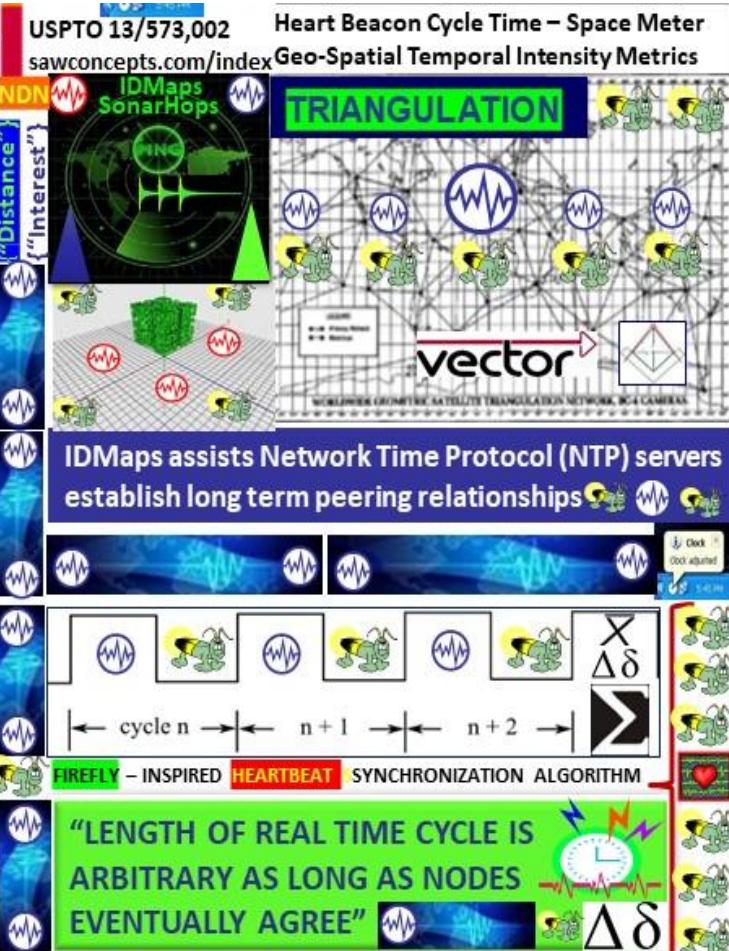


NEO Delegated Byzantine Fault Tolerance (dBFT)



No collusion between individuals or entities is possible. Participants in the network validate transactions adding to the ledger have no affiliation or relationship (political, adversarial, etc.) with the transaction or its participants. Only a permissionless platform can meet this set of criteria.

Specifically, a random selection algorithm called RS is developed to cooperate with the voting mechanism, which can effectively reduce the number of nodes participating in the consensus process. Our proposed scheme is characterized by the unpredictability, randomness, and Impartiality, which accelerate the system to reach consensus on the premise of ensuring system activity. ✓





Hashgraph consensus algorithm for replicated state machines

- Consensus Event Time Stamps
- State Meta data consensus order
- **Virtual voting:** each member has a Hashgraph copy
- Famous witnesses

data structure that records who gossiped to whom in what order $\Delta\delta$

Gossip In Bitcoin: transactions and mined blocks are gossiped.
Consensus is enhanced via "gossip about gossip"



DAG "Directed Acyclic Graph" large number of blocks arrive at the same time. DAG system reaches consensus leveraging "Gossip"... information spread by a computer calling up other computers at random, sharing everything it knows

Community members reach consensus agreement on events / transactions order inside events, and agree on a timestamp for each event /transaction

DAG finite directed graph
= no directed cycles



Witness
0 / 1

Famous witness
Election

Vote
See

Strongly see
Supermajority

Decide
0 / 1

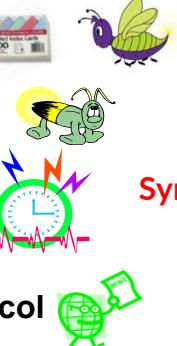
Round created

Round received

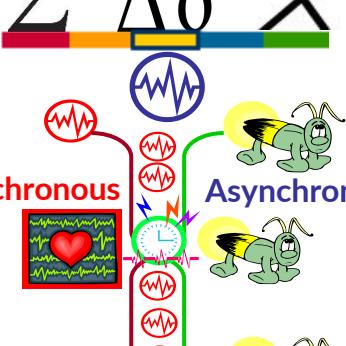
Consensus timestamp

Consensus order $\Delta\delta$

Hashgraph Member Event Transaction Consensus Order Timestamp Gossip protocol Self-parent Other-parent Graph Hash Hashgraph



Hash
Nonce

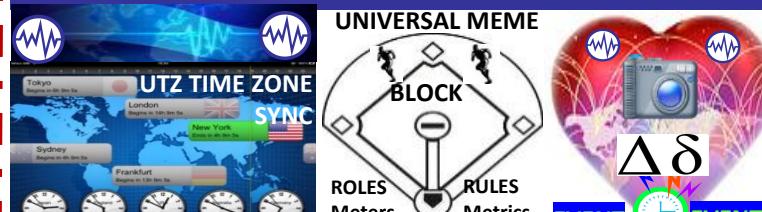


Micro-Cycle
State Meta
Data Snapshots

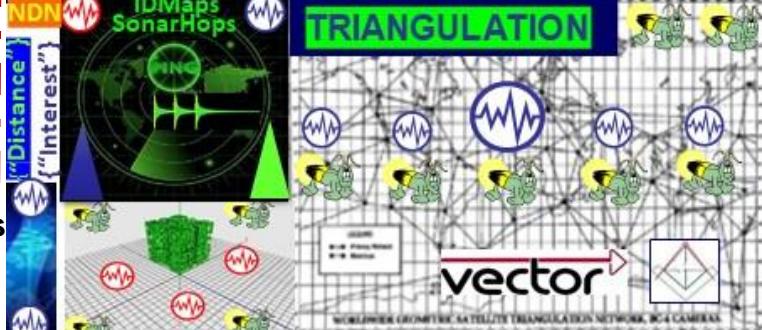


Consensus timestamp
Consensus order $\Delta\delta$

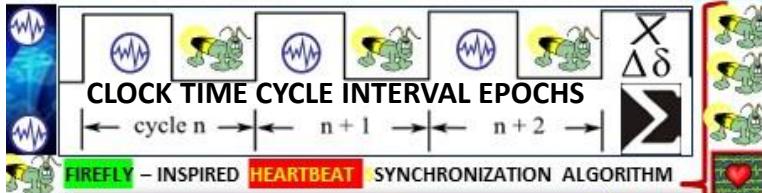
The Heart Beacon Cycle Time – Space Meter
Adaptive Procedural Template Checklist
Heartbeat Sync Delta state meta data
structured data exchange snapshots
300 + Use Case message template sets
Rosetta Stone Syntax lexicon Coder's guide



UTZ TIME ZONE SYNC
ROLES Meters RULES Metrics
Heart Beacon Cycle Time – Space Meter
Geo-Spatial Temporal Intensity Metrics



IDMaps assists Network Time Protocol (NTP) servers establish long term peering relationships



FIREFLY – INSPIRED HEARTBEAT SYNCHRONIZATION ALGORITHM
“LENGTH OF REAL TIME CYCLE IS ARBITRARY AS LONG AS NODES EVENTUALLY AGREE”

Proof of Burn



Proof of burn (POB) operates on the principle of allowing miners to “burn” virtual currency tokens. They are then granted the right to write blocks in proportion to the coins burnt.

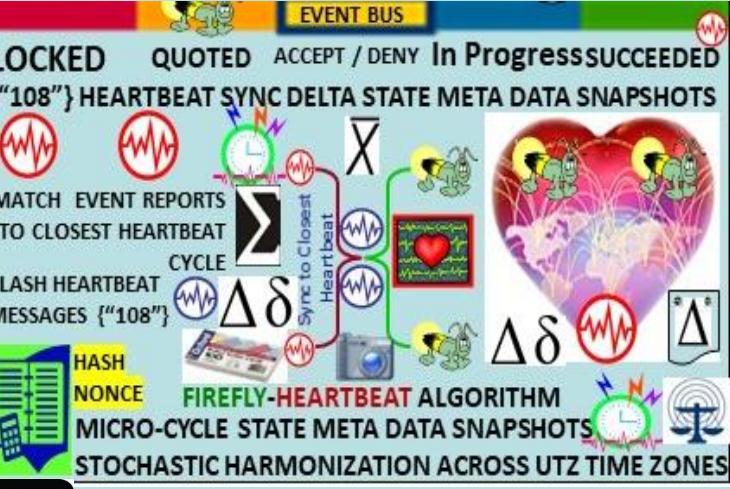
Iain Stewart, the inventor of the POB algorithm, uses an analogy to describe the algorithm: burnt coins are like mining rigs. In this analogy, a miner burns their coins to buy a virtual mining rig that gives them the power to mine blocks. The more coins burned by the miner, the bigger their virtual mining "rig" will be.²

To burn the coins, miners send them to a verifiably un-spendable address. This process does not consume many resources (other than the burned coins) and ensures that the network remains active and agile. Depending upon the implementation, miners are allowed to burn the native currency or the currency of an alternate chain, such as Bitcoin. In exchange, they receive a reward in the native currency token of the blockchain.



You can send out transactions to the network that will burn your own cryptocurrency coins. Other participants can mine/burn on top of your block, and you can also take the transactions of other participants to add them to your block. Essentially, all of this burning activity keeps the network agile, and participants are rewarded for their activities (both burning their own coins and burning other people's coins).

To prevent the possibility of unfair advantages for early adopters, the POB system has implemented a mechanism that promotes the periodic burning of cryptocurrency coins to maintain mining power. The power of burnt coins “decays” or reduces partially each time a new block is mined. This promotes regular activity by the miners, instead of a one-time, early investment. To maintain a competitive edge, miners may also need to periodically invest in better equipment as technology advances.



Heartbeat Event {"burn"} SLA = increase mining rig volume

IEEE C37.118 Time Synchronization
Harmonization Heartbeat update Interval
PMU data time-stamp measure C37.118

Phase 2: Shared file stores data for 5 tags:

(1) Active ID

(2) Heartbeat 1.

(3) Heartbeat 2.

(4) Device Status 1.

(5) Device Status 2.



TAG	SLA	O	Token Award
Active ID			

{“Org_ID”} ActiveID	[UFO2_ACTIVEID]	</EVENT>
IF1_Heartbeat (IF-Node1)		

IF2_Heartbeat (IF-Node2)	[UFO2_HEARTBEAT:#]	</EVENT>
IF1_DeviceStatus (IF-Node1)		

IF2_DeviceStatus (IF-Node2)	[UFO2_DEVICESTAT:#]	</EVENT>
IF1_State (IF-Node1)		

IF2_State (IF-Node2)	[UFO2_DEVICESTAT:#]	</EVENT>
IF1_Heartbeat (IF-Node1)		

IF2_Heartbeat (IF-Node2)	[UFO2_HEARTBEAT:#]	</EVENT>
IF1_DeviceStatus (IF-Node1)		

IF2_DeviceStatus (IF-Node2)	[UFO2_DEVICESTAT:#]	</EVENT>
IF1_State (IF-Node1)		

IF2_State (IF-Node2)	[UFO2_STATE:#]	$\Delta\delta$	IF_State
IF1_Heartbeat (IF-Node1)			

IF2_Heartbeat (IF-Node2)	[UFO2_STATE:#]	$\Delta\delta$	IF_State
IF1_DeviceStatus (IF-Node1)			

Proof of Capacity PoC



consensus mechanism algorithm for mining devices to use hard drive space to decide mining rights, validate transactions

Proof of capacity for mining devices, also known as blockchain nodes, to use empty space on their hard drive to mine the available [cryptocurrencies](#).



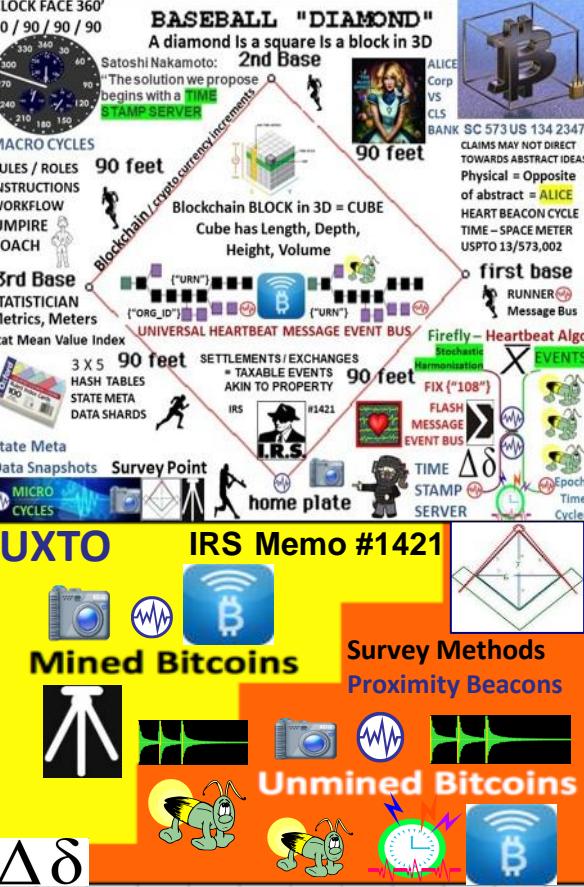
Instead of repeatedly altering the numbers in the block header & repeated hashing for the solution value as in a PoW system, PoC works by storing a list of possible solutions on the mining device's hard drive before mining activity starts



The larger the hard drive, the > possible solution values one can store on the hard drive, the more chances a miner has to match required hash value from his list, resulting in more chances to win the mining reward.



Analogy: if lottery rewards are based on matching the most numbers on the winning ticket, then a player with a longer list of possible solutions will have better chances of winning. Additionally, the player is allowed to keep using the lottery ticket block numbers again and again repeatedly.

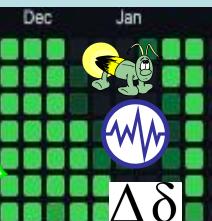


PoST Proof-of-Spacetime (PoST)

PoST shows that physically storing data (spent "spacetime" resource/allocated storage capacity to the network) over a certain period of time.

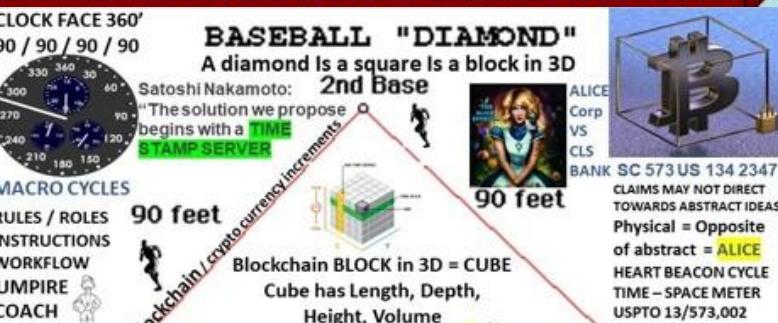


PoST users / nodes must prove that they are spending a certain amount of space for storage.

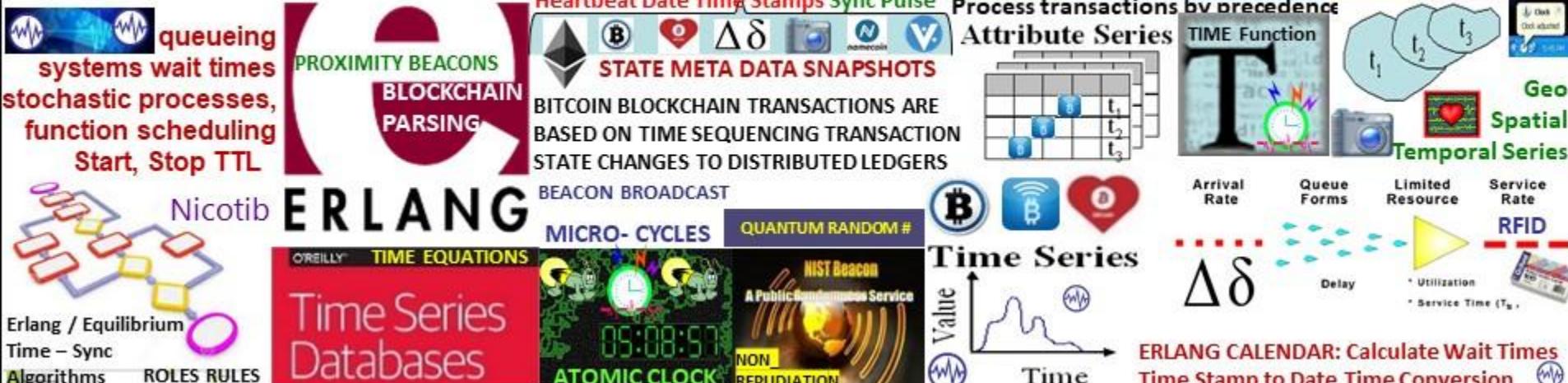


DISTRIBUTED AUTONOMOUS ORGANIZATIONS DAO

Heart Beacon Cycle FEDERATE / TRADE FEDERATIONS



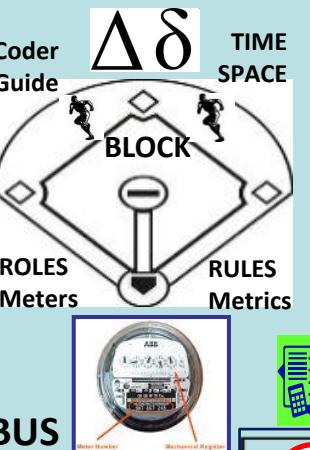
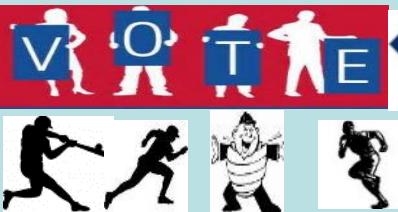
The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.



BTC NG NEX GEN / Heart Beacon Cycle 13/573,002

KEY BLOCKS:

- NO CONTENT = NULL
- LEADER ELECTION



MVP

EVENT BUS

MICRO BLOCKS:

- ONLY CONTENT
- NO CONTENTION



NDN

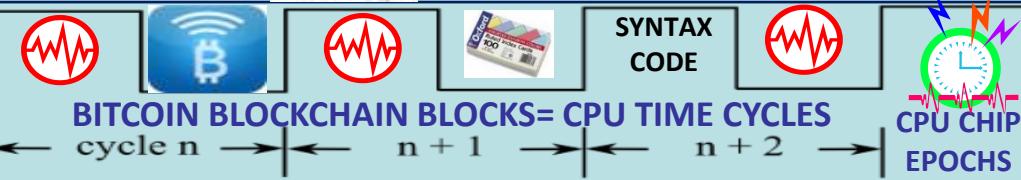
XBRIL / CDL / DAML
STOCK MIC CODES

STRUCTURED
MILITARY MESSAGE
TEMPLATE FORMS
LOGIC / FILTERS

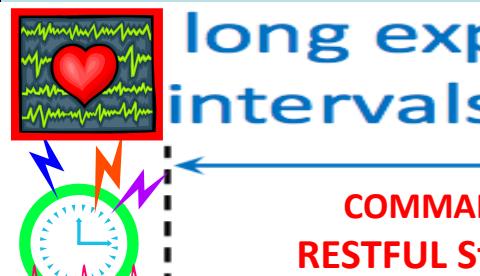


SYNTAX
LEXICON LIBRARY

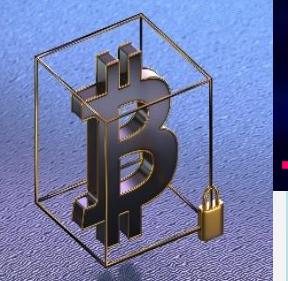
CPU CHIP
EPOCHS



long exponential
intervals (10 min)

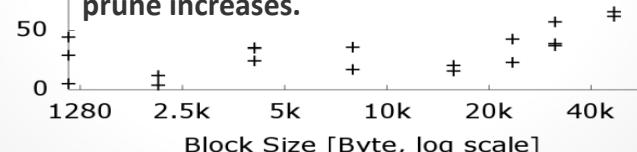


COMMAND SYNTAX
RESTFUL State Transfer



Subjective Time to Prune

Additional metrics used by researchers included "time to prune", or the time it takes for miners whether they are on the correct "branch" or version of the blockchain they are processing transactions. As block sizes increase, suggested time to prune increases.



short deterministic
intervals (10 sec)

MACRO – CYCLES



ATOMIC CLOCK

MICRO-CYCLES

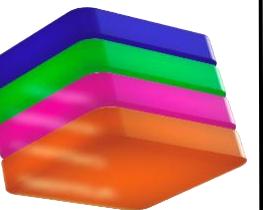


PROTON A CHAIN Virtual Machine

CONTRACT C CHAIN Smart contract

PLATFORM P CHAIN Meta Data

EXCHANGE X CHAIN Cross blockchain



Universal @names Identity / Governance / Resources / Staking

Snowball Consensus

Algorithm

preference := pizza

consecutiveSuccesses := 0

while not decided:

ask k random people preference

if >= α give the same response:

 preference := response with >=

α

 if preference == old preference:

 consecutiveSuccesses++

 else:

 consecutiveSuccesses = 1

 else:

 consecutiveSuccesses = 0

if consecutiveSuccesses > β:
 decide(preference)

EOSIO computer function emulation
NET, CPU bandwidth, RAM data
Publishing, Voting based not mining

Delegated Proof
of Stake {"Org_ID"}



coordinates validators, keeps track
of active subnets, SNOWMAN
consensus Token representation of
real-world resources (e.g., equity,
bonds) smart contract rules </URN>



DAG Acyclic Graph Parameters:

n: number of participants

k (sample size): between 1 and n

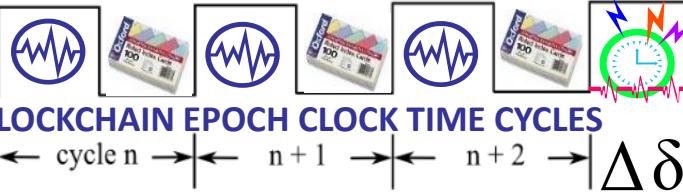
α (quorum size): between 1 and k

β (decision threshold): >= 1

ALL THINGS NET, NET OF \$\$\$

1) EPOCH TIME INTERVALS

2) SYNTAX (not) used in epochs

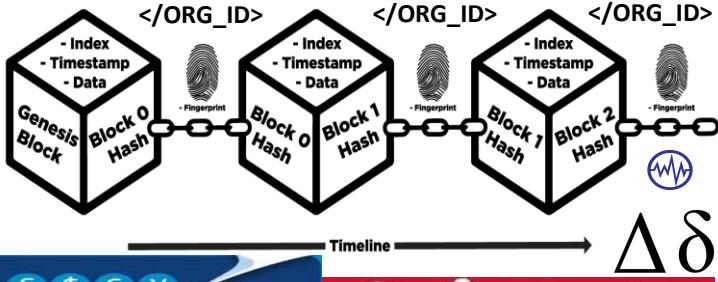


GENESIS BLOCK: "Layers" = follow on epoch time intervals

Block 0

Block 1

Block 2



SECURITY TOKEN: A DIGITAL
ASSET THAT'S BACKED UP
BY TANGIBLE ASSETS IN THE
REAL WORLD </URN>
</URN>
</URN>



</ORG_ID>
MVP

"all digital currency networks, the base layer of people
generating the blockchain — "miners," "stakers,"
"witnesses," "validators," or "forgers" get paid"



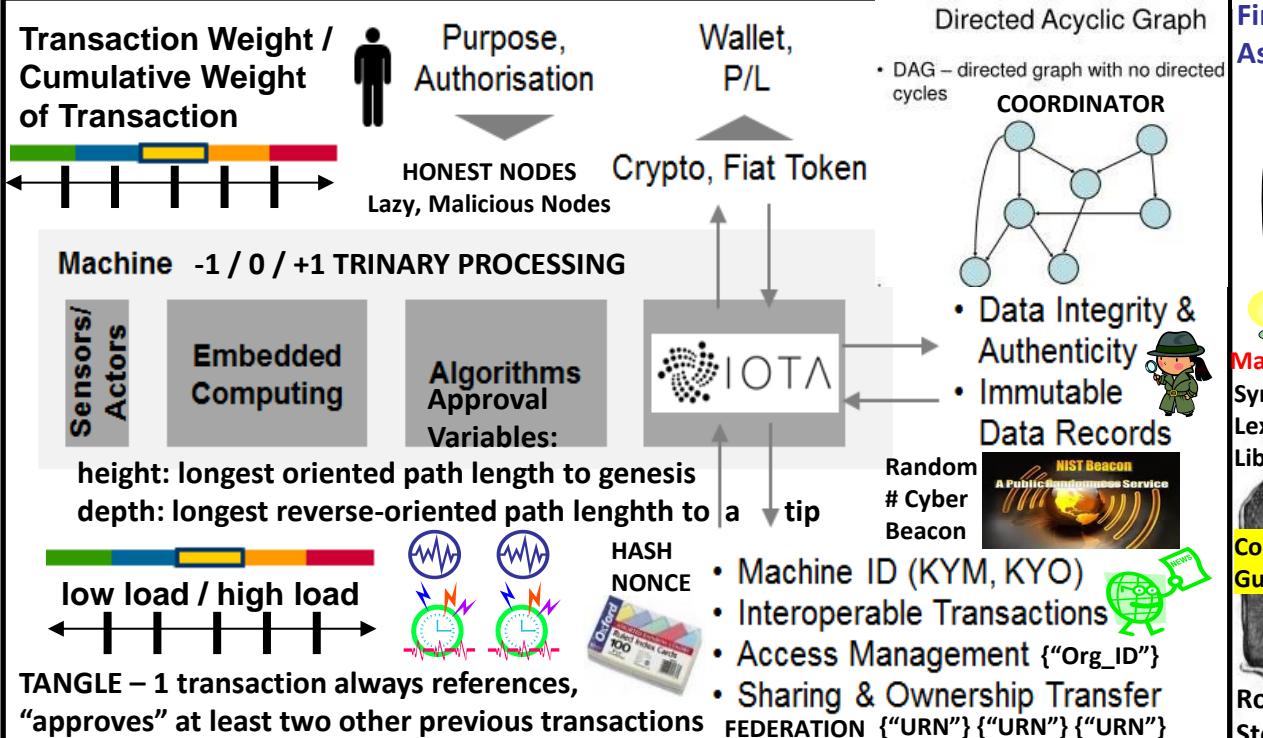


OTA: Internet Of Things IOT distributed ledger
with microtransactions without fees

Tangle, a directed, ASYNCHRONOUS acyclic graph (DAG) for storing transactions

Contrary to Blockchains, consensus is no longer decoupled, It is an intrinsic part of the system for decentralized, self-regulating peer-to-peer network. Transfer value without fees

The iota network is ASYNCHRONOUS. In general, nodes do not necessarily see the same set of transactions. The tangle may contain conflicting transactions. The nodes do not have to achieve consensus on which valid transactions have the right to be in the ledger, meaning all of them can be in the tangle. However, in the case where there are conflicting transactions, the nodes need to decide which transactions will become orphaned. Nodes use the tip (unapproved transaction) selection algorithm to decide between two conflicting transactions. GHOST protocol main ledger = tree



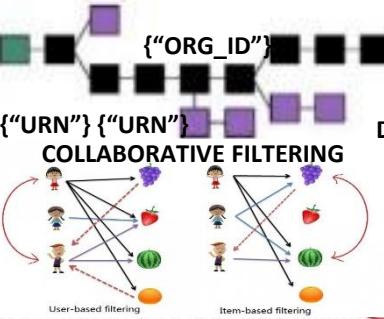


EGAAS

ELECTRONIC GOVERNMENT AS A SERVICE

Distributed digital asset registries were the first projects that used blockchain systems such as databases designed for secure storage of records on real estate property, stocks, copyright and so on. It is assumed hosting any document on the blockchain is equivalent to notarization of its content at a fixed time point.

The Heart Beacon Cycle HBC: an adaptive procedural checklist of form templates, procedures, SOP building blocks useful to form Eco-responsible trade federations Procedural template checklist items links to detailed technical, process... treatises

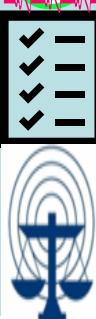


TEMPLATE ENGINE LANGUAGE ETF

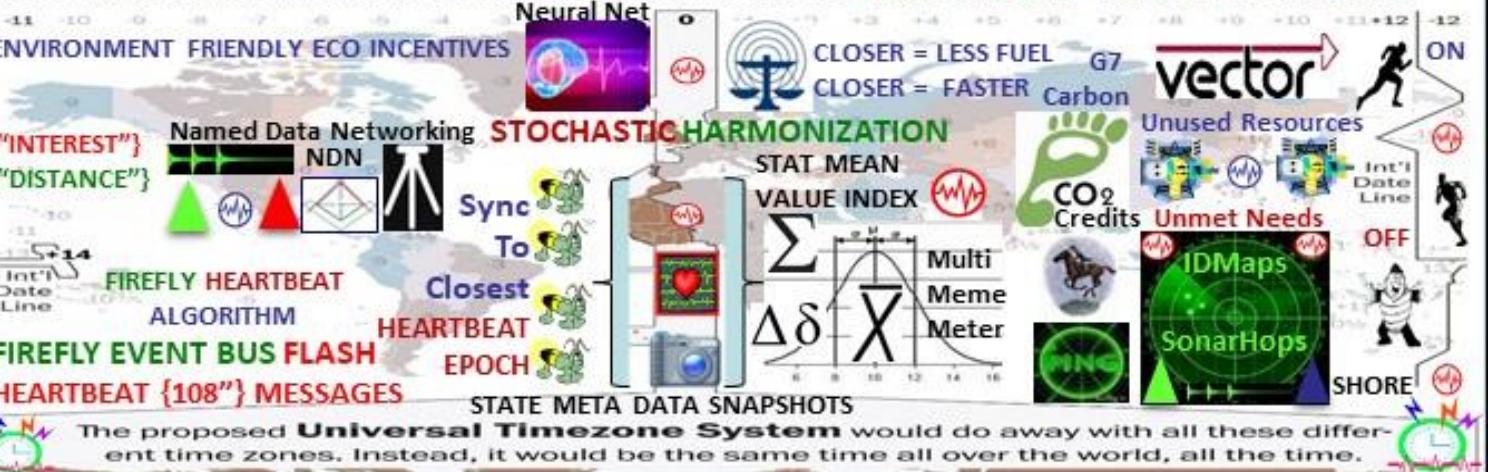
ORIGINALLY
NAMED DATA NETWORKING, corrections

Time Series Databases

BLOCKCHAIN PARSING SYNCHRONIZATION



The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC. **INCENTIVIZE ECO-FRIENDLY TRANSACTIONS**



Microsoft Blockchain modular framework:
choose combination of tech best fits Biz domain

AZURE: Core/Kernel/Universal Protocol

Fabric Tier consortium node CryptoDelegate in VM or UTXO Adapter, (Azure, AzureStack, AWS..)

Unspent Transaction Output protocols UTXO

Crypto Tokenized Assets Digital Bearer Bonds
unique identity for owned artifacts

Utility Cryptlets encryption, time & date events, external data access, authentication “CryptoDelegate” / adapter

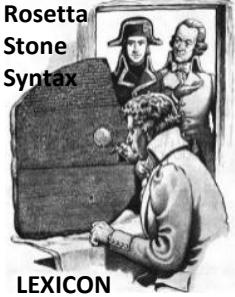
Blockchain middleware: identity and operations management, data, intelligence services like analytics and machine learning. New middleware works with existing Azure services, like Active Directory and Key Vault

Blockchain Fabric: Blockchain Gateway Services [Interledger](#)-like services to allow for SmartContracts and tokenized objects to be passed between different ledger systems.

Data Services - key data services like distributed file systems (IPFS, Storj, etc) of off-chain data referenced by public keys.

Auditing, Advanced Analytics, Machine Learning, Dashboarding services for SmartContracts, Blockchains, Consortia, Regulators

Utility and Contract. Developers can discover and enlist Cryptlets into their SmartContracts to create more robust and trusted transactions. Contract Cryptlets are full delegation engines that act as SmartContract surrogates off the chain. Cryptlets provide execution logic and securely store data in the Smart Contract

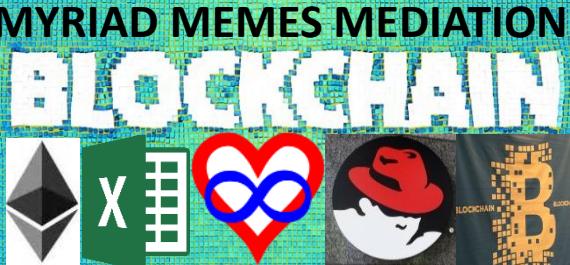
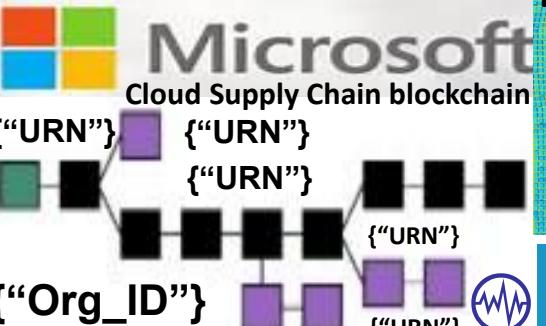


ALPHA NUMERIC	
BREVITY CODES	
SYMBOL CODES	
STRUCTURED MILITARY MESSAGE	
TEMPLATE FORMS	LOGIC / FILTERS

The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind Coordinated Universal Time (UTC). However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC.



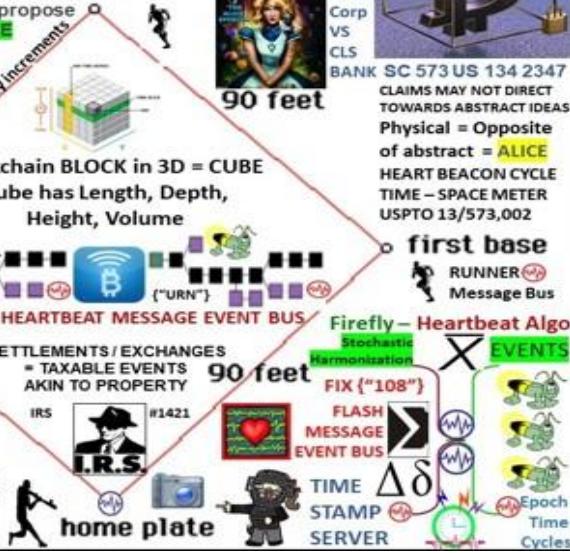
MULTI-MEME MULTI-METER



OFF-SITE
OFF-PAGE
CONNECTOR



BASEBALL "DIAMOND"



DFINITY

RANDOM # BEACON

NIST Beacon
A Public Randomness Service

QUANTUM RANDOM #

BLOCKCHAIN NERVOUS SYSTEM
HEARTBEAT {"108"} State Meta Data Snapshot Msgs

STATEFUL DECENTRALIZED NET PROTOCOL:
Decentralized process workflows instead of
Centralized Server farms

GROUP Signature is random number

- Number selects next group {"Org_ID"} {"Org_ID"}
- Next group use previous no. as message
- Verifiable Random Function
- Numbers verifiable using group public key
- New values produced in threshold agreement
- Random members {"Org_ID"} {"Org_ID"}**
- Each process is a member of multiple groups
- Groups intersect, have +/- 400 members
- BLS signature scheme**
- Math magic... If 51% of group members broadcast "signature shares" on a message, these are combined to create the group's threshold signature.

HYPER GEOMETRIC PROBABILITY CALCULATOR

CONSENSUS / RANDOM BEACON

Threshold relay chain generates randomness, records network metadata & validation tree "state root". State and updates to state stored on shards... State transitions passed to Validation Tree

Each process has mining identity

- Public key with meta data attached
- IDs mediate participation**
- Private network: trusted dealer defines list
- Public network: CC security deposit, USCIDs

UTZ TIME ZONE SYNC

USPTO 13/573,002 HEART BEACON CYCLE TIME – SPACE METER

CLOCK FACE 360'
90 / 90 / 90 / 90
330 360 30 60 90
300 270 240 210 180 150

BASEBALL "DIAMOND"
A diamond Is a square Is a block in 3D
2nd Base

Satoshi Nakamoto:
"The solution we propose begins with a TIME STAMP SERVER"

MACRO CYCLES

90 feet

Blockchain BLOCK in 3D = CUBE
Cube has Length, Depth, Height, Volume

3rd Base

STATISTICIAN Metrics, Meters

Universal Heartbeat Message Event Bus

3 X 5 HASH TABLES STATE META DATA SHARDS

SETTLEMENTS / EXCHANGES = TAXABLE EVENTS AKIN TO PROPERTY

IRS #1421

State Meta Data Snapshots Survey Point

MICRO CYCLES

home plate

Fix {"108"}

FLASH MESSAGE EVENT BUS

TIME STAMP SERVER

Time Cycles

EVENTS

Fix {"108"}

FLASH MESSAGE EVENT BUS

TIME STAMP SERVER

Time Cycles

HBC "ORG_ID" {"URN"} CLASS ASSET TYPE {"UUID"} DEVICE TYPE INDEX CARD="SHARD"



core blockchain code written in Erlang, for distributed, fault-tolerant, soft real-time and highly available non-stop applications.

ERLANG API FOR BLOCKCHAIN



ORACLES: crucial feature for most contracts, whether encoded as text or as code, is the ability to refer to values from the environment. æternity Oracle Machine provides real-world data to the blockchain. Each user can ask questions about the environment. Anyone can answer. Consensus mechanism invoked in case of disagreement.

MIT-licensed modules for easy implementation in blockchain consortiums. Free and open access for developers build on the æternity platform.

CROSS – CHAIN ATOMIC SWAPS

AE Tokens AE are access tokens to the æternity network and act as a unit of account for the resources spent on æternity.



Aeons: energy for applications implemented on the platform.

ACCOUNTS & IDENTITY: æternity's accounts are permission-less, but allow customization via schema.org's semantic web scheme. Create & own (**federated group**) / individual identities on the æternity network



("ORG_ID")

("ORG_ID")

NAMES (DNS) In the vein of Aaron Swartz' work and Namecoin, æternity features an easy to use name system, that is both decentralized and secure, while still supporting human-friendly, memorable names. The blockchain's state includes a mapping from unique human-friendly strings to fixed-size byte arrays, that are individually customizable.



Firefly Heartbeat Sync nodes strive to sync in a distributed system. Nodes emit periodic "heartbeat" events at approximately the same time. No need to sync during a cycle as long as the cycle length is bounded & nodes eventually agree

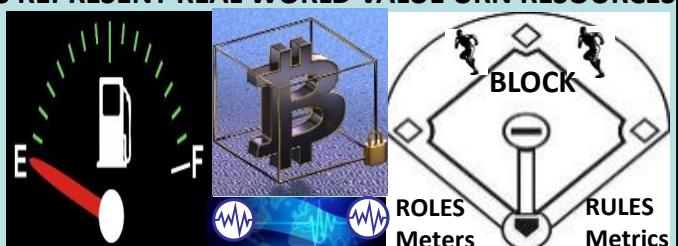
AETERNITY CROSS-CHAIN ATOMIC SWAPS CORRESPOND TO HEART BEACON CYCLE'S USE OF BATTLEFIELD DIGITIZATION DERIVED HEARTBEAT SYNC DELTAS



Terra Trade Reference Currency TRC "world currency" Bernard A. Lietaer Belgian economist proposed 1991 Basket of 9-12 most important commodities. Public issued demurrage fees for storage, shipping, handling

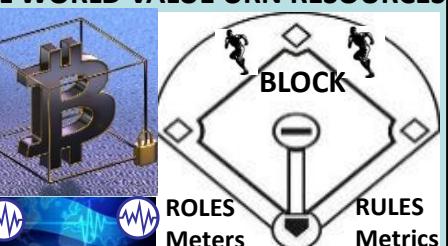
TOKENS REPRESENT REAL WORLD VALUE URN RESOURCES

ETHEREUM USES GAS GUAGE MEME INDICATING THRESHOLD MET / NOT MET



HBC's PRIMARY USE CASE IS TO ORGANIZE INDIVIDUALS IN TRADE FEDERATION GROUPS RE-USING BATTLEFIELD DIGITIZATION / ARIN Organizational Identifier Org_ID for Ecosphere friendly trade

Federation Gateway
("ORG_ID")

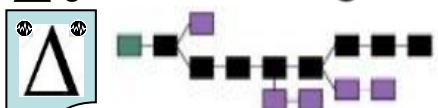


ARIN
American Registry for Internet Numbers

HYPER LEDGER OPEN SOURCE BLOCKCHAIN

Core APIs, & SDKs

$\Delta\delta$ Shared Ledger



HEART BEACON CYCLE
TIME – SPACE METER
USPTO 13/573,002

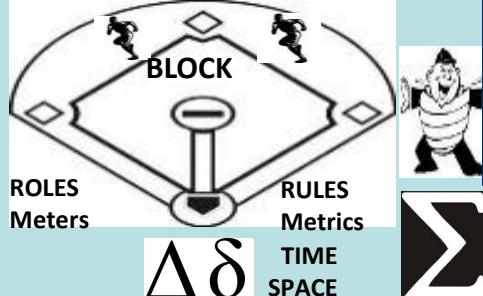
FEDERATION
Federation Gateway

METRICS ("Organization ID")
METERS

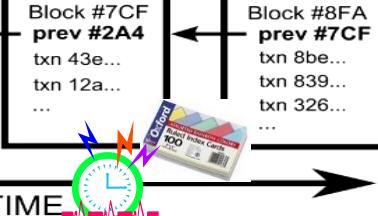
RESTFUL SYNC DELTA
CHANGE MANAGEMENT
MICRO-MACRO CYCLE



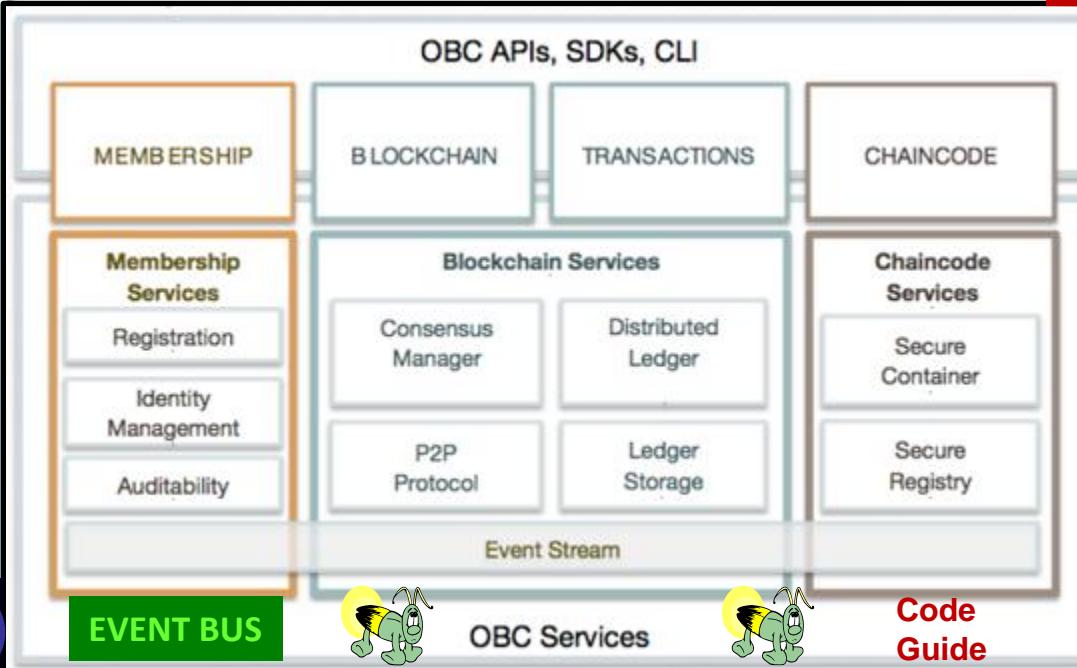
BLOCKTIME ARBITRAGE



Code execution environment, ledger data structures, modular consensus fwk & algos, and modular membership services, modular storage and event fwks, network peers



Alpha-Numerics



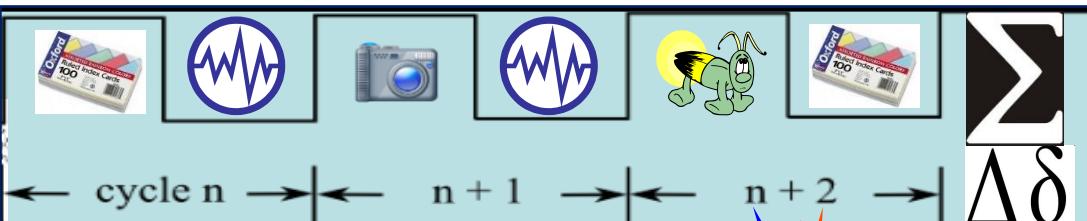
ROSETTA STONE

XBRL / CDL / DAML
STOCK MIC CODES

STRUCTURED
MILITARY MESSAGE
TEMPLATE FORMS
LOGIC / FILTERS

SYNTAX
SYMBOL LIBRARY

300 + MESSAGE
TEMPLATES
USE CASES / GROUPED
DATA TRANSACTIONS
Alpha-Numeric Data
Element ID -- #'s are the
UNIVERSAL LANGUAGE



MICRO-MACRO CYCLE SCHEDULE



FFIRNS
FFUDNS

HYPER LEDGER USES
JSON ("tag") / YAML
Text indentation –
UNIVERSAL LANGUAGE
= ALPHA-NUMERICS



"All decentralized, blockchain-based networks are DAOs, or decentralized autonomous organizations" Bitcoinist

“A DAO can be summed up as an organization of people who communicate with each other via a “network protocol,” which is to say that they communicate with one another via a ruleset”

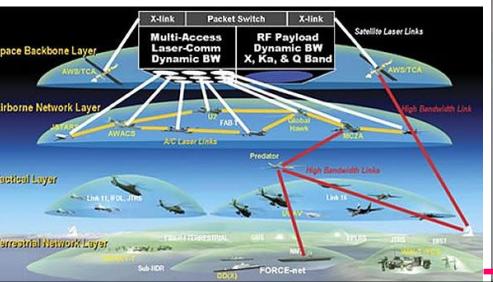
[LINK](http://bitcoinist.net/how-dash-dao-work/) <http://bitcoinist.net/how-dash-dao-work/>

"all digital currency networks, the base layer of people generating the blockchain — "miners," "stakers," "witnesses," "validators," or "forgers" — all get paid to do so" "consensus," or an agreement upon what the rules should be; and second, the execution of said rules.

“Its makeup is thus: the block reward is divvied up in three parts. The first 45 percent goes to [Dash’s miners](#). Another 45 percent goes to its Masternodes. And 10 percent is set aside to fund whatever other jobs or expenditures the Dash network deems necessary”

InstantX: To solve the problem of lag time in transactions, Masternodes are able to instantly lock transactions receive payments for their service to the network.

DAO: RAND THINK TANK TERM COINED + / - 2001



Firefly - Heartbeat synchronization: nodes in a distributed system generate periodic, local “heartbeat” events approximately at the same time with a goal of all nodes starting / ending cycles at the same time eventually = HB CYCLE

STATE: stored data at a given instant in time

STATE CHANNELS: blockchain interactions

which *could* occur on the blockchain, but instead get conducted off of the blockchain, without significantly increasing the risk of any participant.



1. Part of the blockchain state is locked via multisignature or smart contract convention, so that a specific set of participants must completely agree with each other to update it.



2. Participants update the state amongst themselves by constructing and signing transactions that could be submitted to the blockchain, but instead are made available for a new update "trumps" previous update.



3. Finally, participants submit the state back to the blockchain, which closes the state channel.

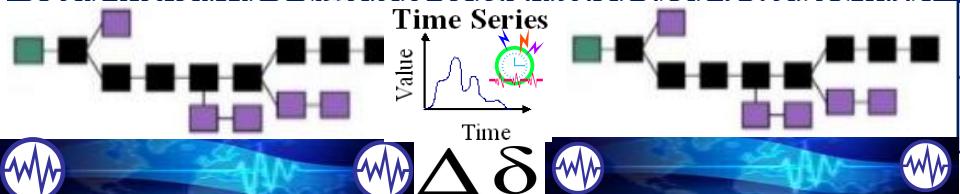
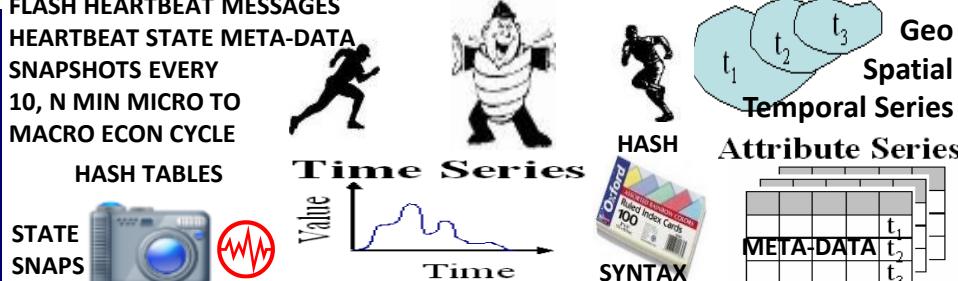
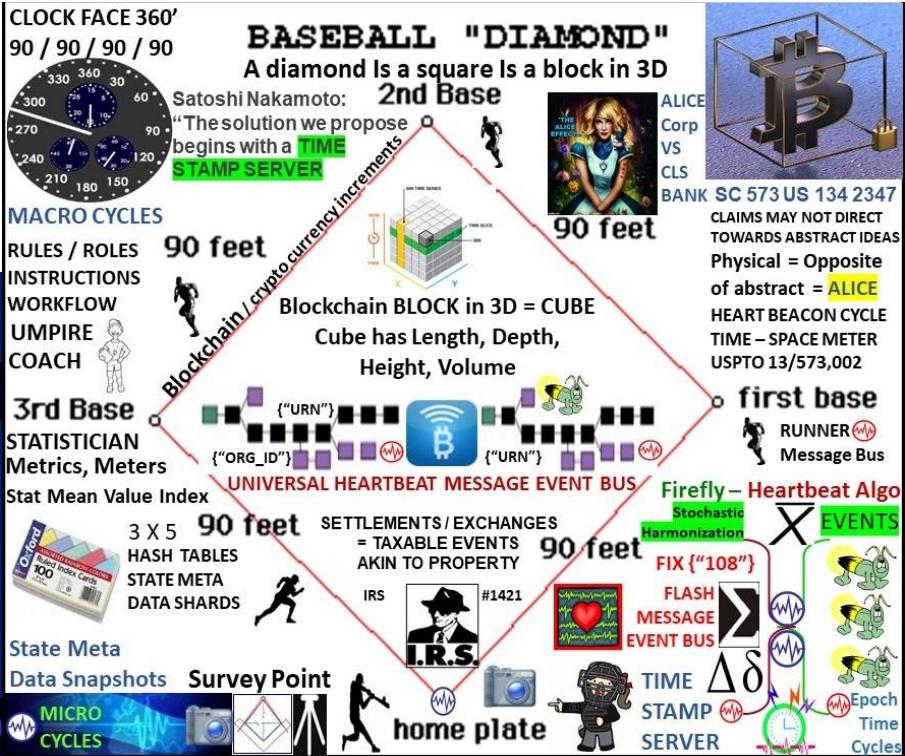


Diagram illustrating the state channel process. It shows two nodes connected by a chain of blocks. A central node is connected to both. A graph labeled 'Time Series' shows a signal over time. Below the graph, a sequence of blocks is shown with a purple node added to the end, representing a new update being proposed.

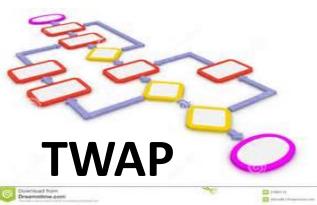
NEW UPDATES OVERWRITE THE PREVIOUS: simplest way is to have any unlocking attempt start a timer, during which any *newer* update can replace the old update (restarting the timer). When the timer completes, the channel is closed and the state adjusted to reflect the last update received. The length of the timer would be chosen for each state channel, balancing the inconvenience of a long channel closing time with the increased safety it would provide against internet connection or blockchain problems. Alternatively, one could structure channel with a financial penalty so anyone publishing an inaccurate update to the blockchain will lose more than gain by pretending later.



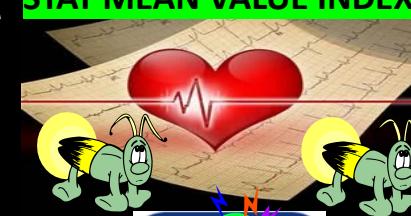
Firefly - Heartbeat synchronization: nodes in a distributed system generate periodic, local "heartbeat" events approximately at the same time with a goal of all nodes starting / ending cycles at the same time eventually = HB CYCLE

TWAP Algorithm Manages Bitcoin Price Volatility Algorithm

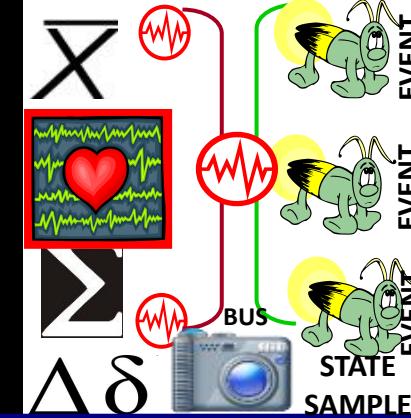
TWAP GOAL: provide a Time Weighted Average Price Benchmark



FIREFLY HEARTBEAT ALGO
STAT MEAN VALUE INDEX



STATE META
DATA SNAPSHOTS



TWAP Works To gauge trading performance, many traders in different asset classes (equity, fixed income, currency) often use average price as a benchmark. The two common ways to calculate an average are a time-weighted average price (TWAP) and a volume-weighted average price (VWAP). TWAP is the average price of a bitcoin over the course of a specified period of time i.e., Heart Beacon Cycle



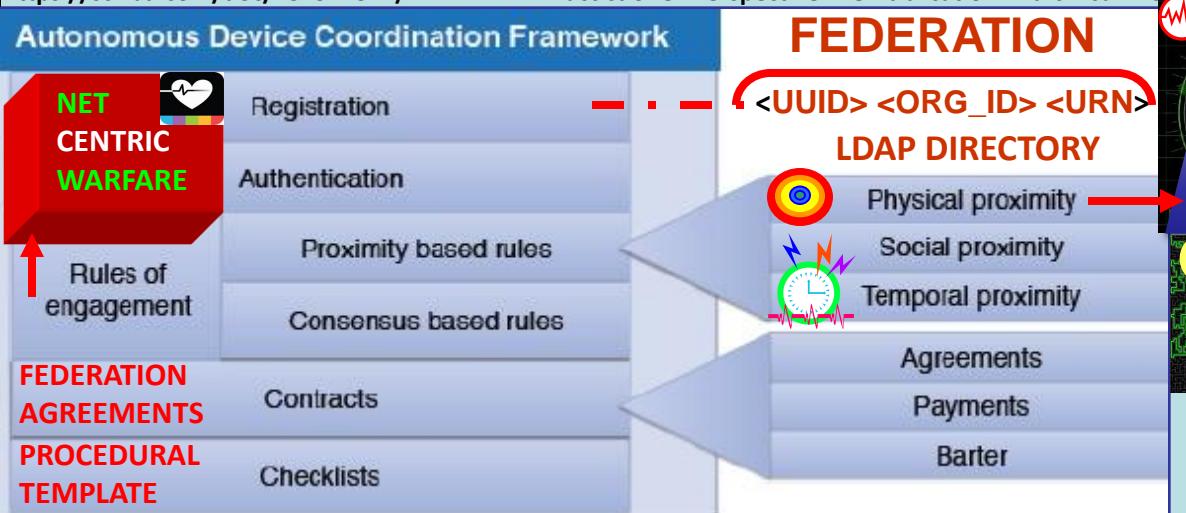
The algorithm trades over a desired time, either 1, 6, 12 or 24 hours and will give you a TWAP over that time period. For example, set the TWAP algorithm to sell 12 bitcoins over 12 hours, the algorithm will sell throughout the period, aiming to get a 12-hour TWAP



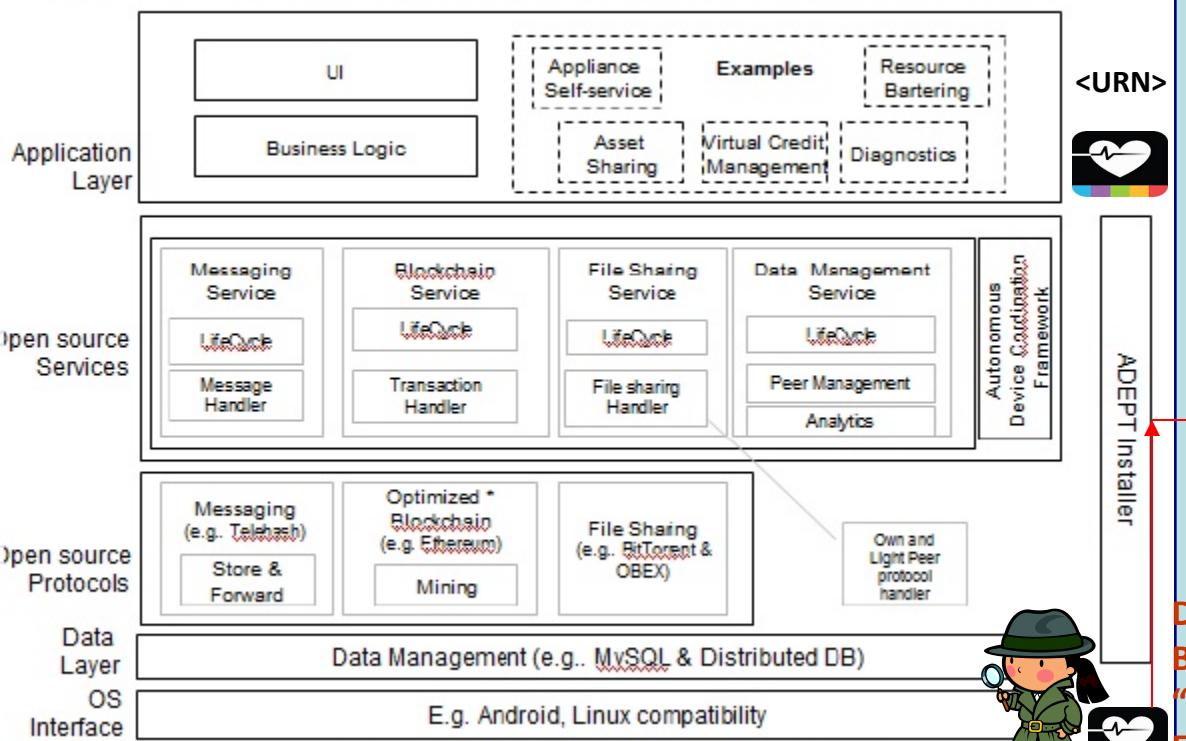
VWAP is price multiplied by number of bitcoins traded, then divided by the total number of bitcoins traded during a time period. The time-weighted average price algorithm is matched to closest HB

Firefly Heartbeat Sync nodes strive to sync in a distributed system. Nodes emit periodic “heartbeat” events at approximately the same time. There is no need to sync during a cycle as long as the cycle length is bounded & nodes eventually agree. HBC’s improvement is stipulating a clock cycle value e.g., 5, 10, 15..

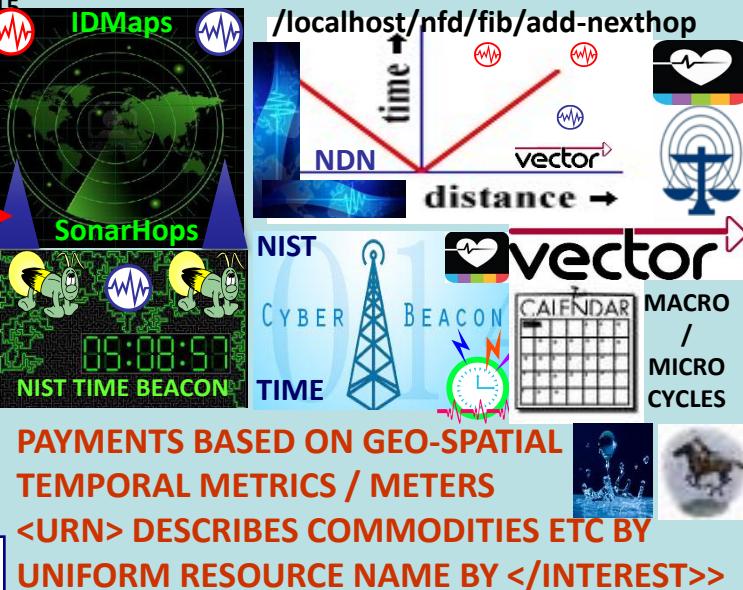




ADEPT Standard Peer Architecture – Logical View



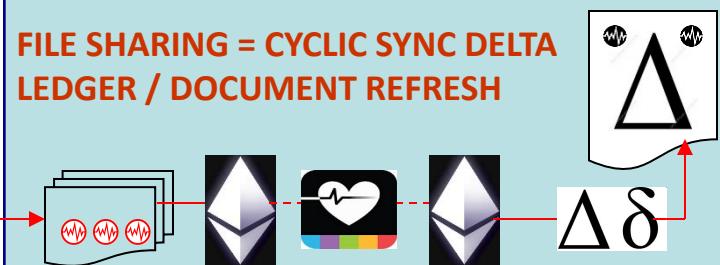
* Could be optimized to hold the complete blockchain. Function of ADEPT Installer



ASSET SHARING WITHIN FEDERATION

BUSINESS LOGIC = WORKFLOW <XML Wf>

FILE SHARING = CYCLIC SYNC DELTA LEDGER / DOCUMENT REFRESH



OPEN SOURCE = HBC = PROTOCOL AGNOSTIC

**DATA LAYER: STATE META DATA TIME STAMPED
BY <UUID><ORG_ID><URN> & DATA PREPPED &
'DATA WRANGLED PRIOR TO FUSION CENTER
ENHANCED ANALYTICS / PROTECTS BANDWIDTH**

Block-Weighted-Average-Price (B-WAP) API creates a USD price for any block in the Bitcoin blockchain, based on BNC's Bitcoin Liquid Index (BLX). Automatically appropriates blockchain transactions with a USD price or technical indicator for traders.

Key Features:

Look up any bitcoin blockchain transaction and receive back a USD value for any transaction.



Built using historic bitcoin price index - the [BNC BLX](#).

API updated every 10 min with a 2 hour delay on latest blocks (due to the nature of Block propagation to ensure avoidance of publishing rates on orphaned blocks).

All rates time-stamped in UTC.

Ability to look up by time-stamp.

Ability to look up by block-height.

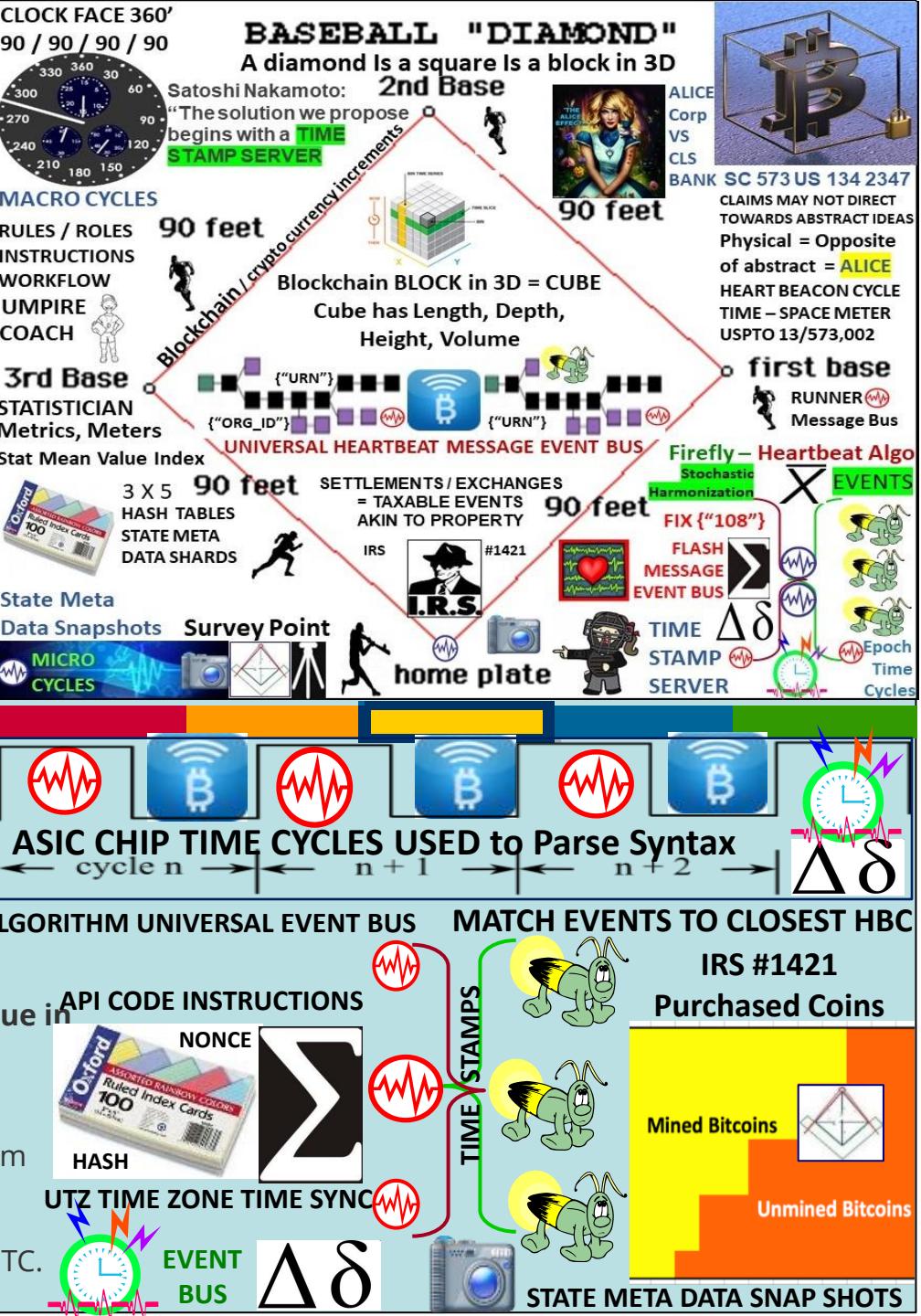
Asset Classes: Digital Currencies

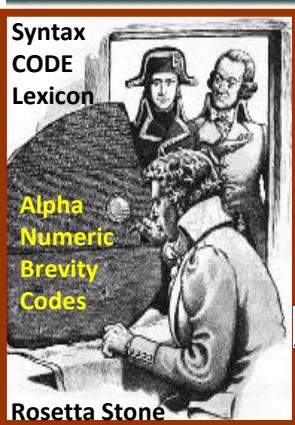
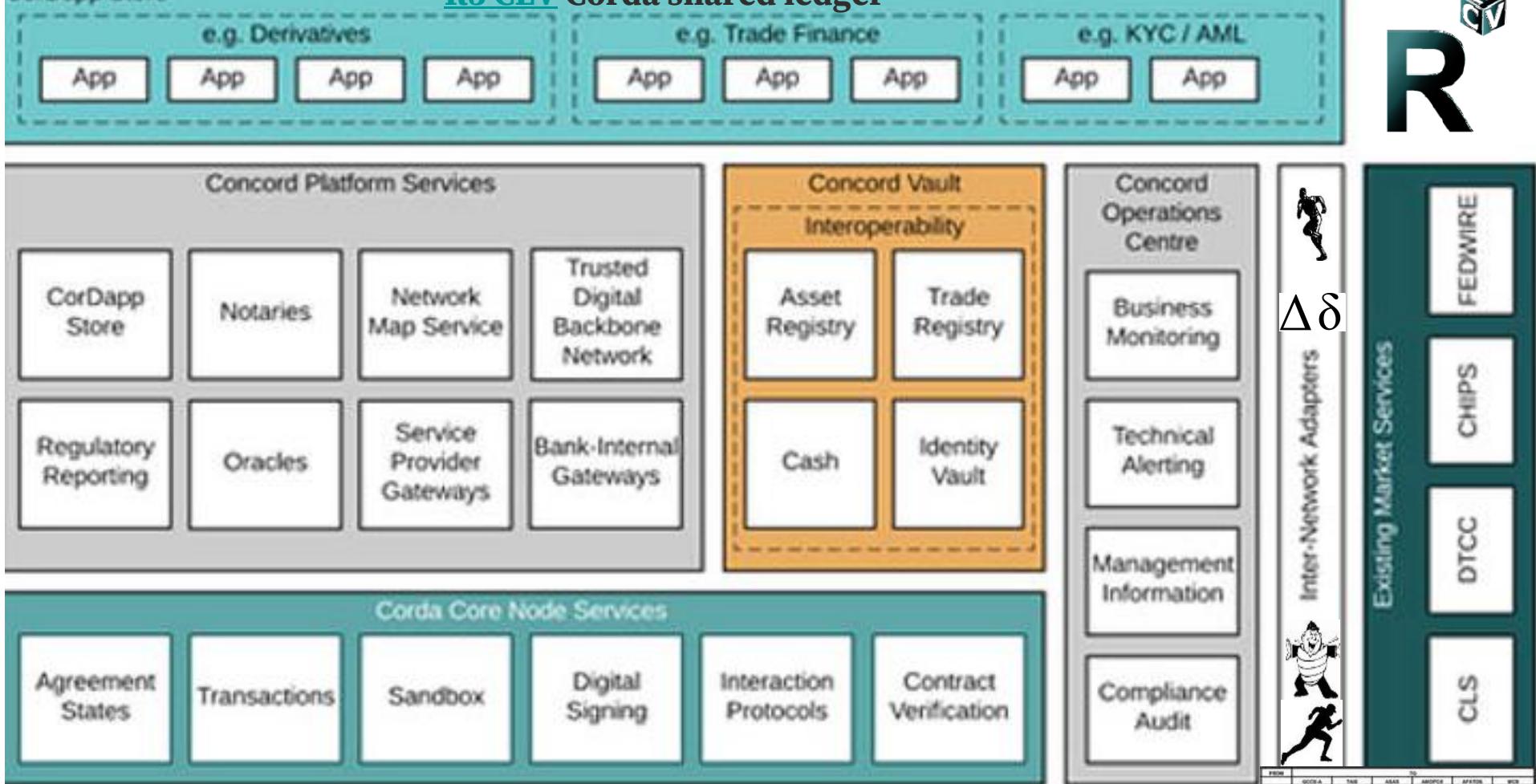
Get by: Block-height, Time-stamp or Transaction

Transaction ID, Block ID, time-stamp, BWAP per block, Value in USD. BTC per transaction, bitcoin transaction fees per transaction.

- Exchanges Covered: Price discovery for the B-WAP comes from utilizing the BNC [Bitcoin Liquid Index](#) (BLX) bitcoin price calculation.

•Historical Rates: This API goes back to 2010-07-17 23:14:35 UTC.

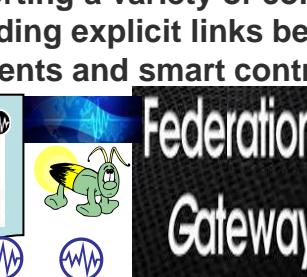
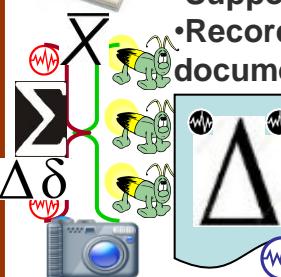




UNIVERSAL EVENT BUS



- Choreographing workflow between f
 - Supports inclusion of regulatory & s
 - Validating transactions solely betwe
 - Supporting a variety of consensus m
 - Recording explicit links between hu



Federation
Gateway

11.8 - Kinematics
11.8.1 - Pos / Vel / Acc (PVA)
11.8.1.1 - Acceleration
11.8.1.2 - Position
11.8.1.3 - Linear
11.8.1.4 - Estimate Type
11.8.1.5 - Estimated
11.8.1.6 - Observed
11.8.1.7 - Smoothed
11.8.1.8 - Filtered
11.8.1.9 - Smoothed Data
decision
11.8.2 - Position
11.8.2.1 - Bearing Angle
11.8.2.2 - Distance, 2D Horizontal
11.8.2.3 - Vertical
11.8.2.4 - Velocity
11.8.2.5 - Horizontal
11.8.2.6 - Vertical
ture Type
11.8.3 - A Correlation
11.8.3.1 - Bearing Angle
11.8.3.2 - Bearing Angle Range
11.8.3.3 - Covariance Matrix

- PROOF OF WORK
 - PROOF OF STAKE
 - STATE CHANNELS
 - BITCOIN NEXGEN
 - LIGHTNING / DASH..



**XBRL / CDL / DAML
STOCK MIC CODES**

STRUCTURED MILITARY MESSAGE TEMPLATE FORMS LOGIC / FILTERS

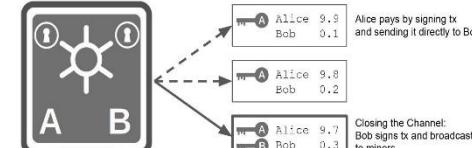
300+ Use Case Templates



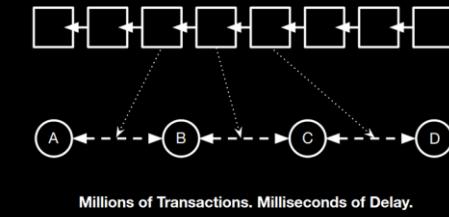
**transactions sent over / off chain
micropayment channels**

Micropayment Channels

Setup: Alice creates transaction with 10 bitcoin to a 2-of-2 multisig with Bob

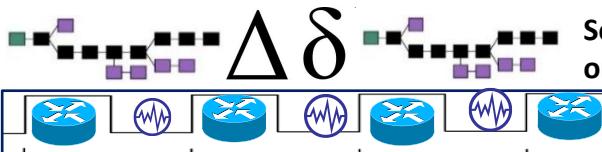


LIGHTNING



Hashed TIME LOCK contracts component for global consensus

OP_CHECKLOCKTIMEVERIFY During Macro Cycle w/Random # BEACON



Payment channels multi-hop hub spoke model like internet routing

FIREFLY – HEARTBEAT ALGORITHM



FIREFLY – HEARTBEAT

CLOCK FACE 360'
90 / 90 / 90 / 90



RULES / ROLES

INSTRUCTIONS

WORKFLOW

UMPIRE

COACH

3rd Base

STATISTICIAN
Metrics, Meters

Stat Mean Value Index



State Meta

Data Snapshots

Survey Point

MICRO CYCLES



**EVENT REPORTING
ACROSS TIME-SPACE**



MESSAGE EVENT BUS

BASEBALL "DIAMOND"

A diamond Is a square Is a block in 3D
2nd Base

Satoshi Nakamoto:
“The solution we propose
begins with a **TIME STAMP SERVER**”

TIME STAMP SERVER

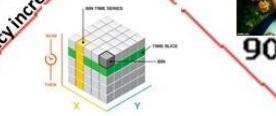
90 feet

Blockchain / cryptocurrency increments

Blockchain BLOCK in 3D = CUBE

Cube has Length, Depth,

Height, Volume



Blockchain BLOCK in 3D = CUBE

Cube has Length, Depth,

Height, Volume



ALICE
Corp
VS
CLS
BANK

SC 573 US 134 2347

CLAIMS MAY NOT DIRECT

TOWARDS ABSTRACT IDEAS

Physical = Opposite of abstract = **ALICE**

HEART BEACON CYCLE

TIME – SPACE METER

USPTO 13/573,002

first base

RUNNER Message Bus

Firefly – Heartbeat Algo

X EVENTS

SETTLEMENTS / EXCHANGES

= TAXABLE EVENTS

AKIN TO PROPERTY

IRS #1421

Stochastic Harmonization

FIX {"108"}

FLASH MESSAGE

EVENT BUS

TIME STAMP SERVER

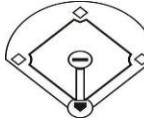
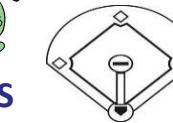
Epoch Time Cycles



SEG WIT

SEGREGATED WITNESS

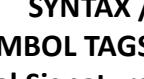
SegWit



ADJACENT FIELDS
SEPARATE STATE CHANNELS



HASH TABLES



NONCE



**SYNTAX /
SYMBOL TAGS**

MESSAGES



Digital Signature

OUT OF BAND / CHANNEL



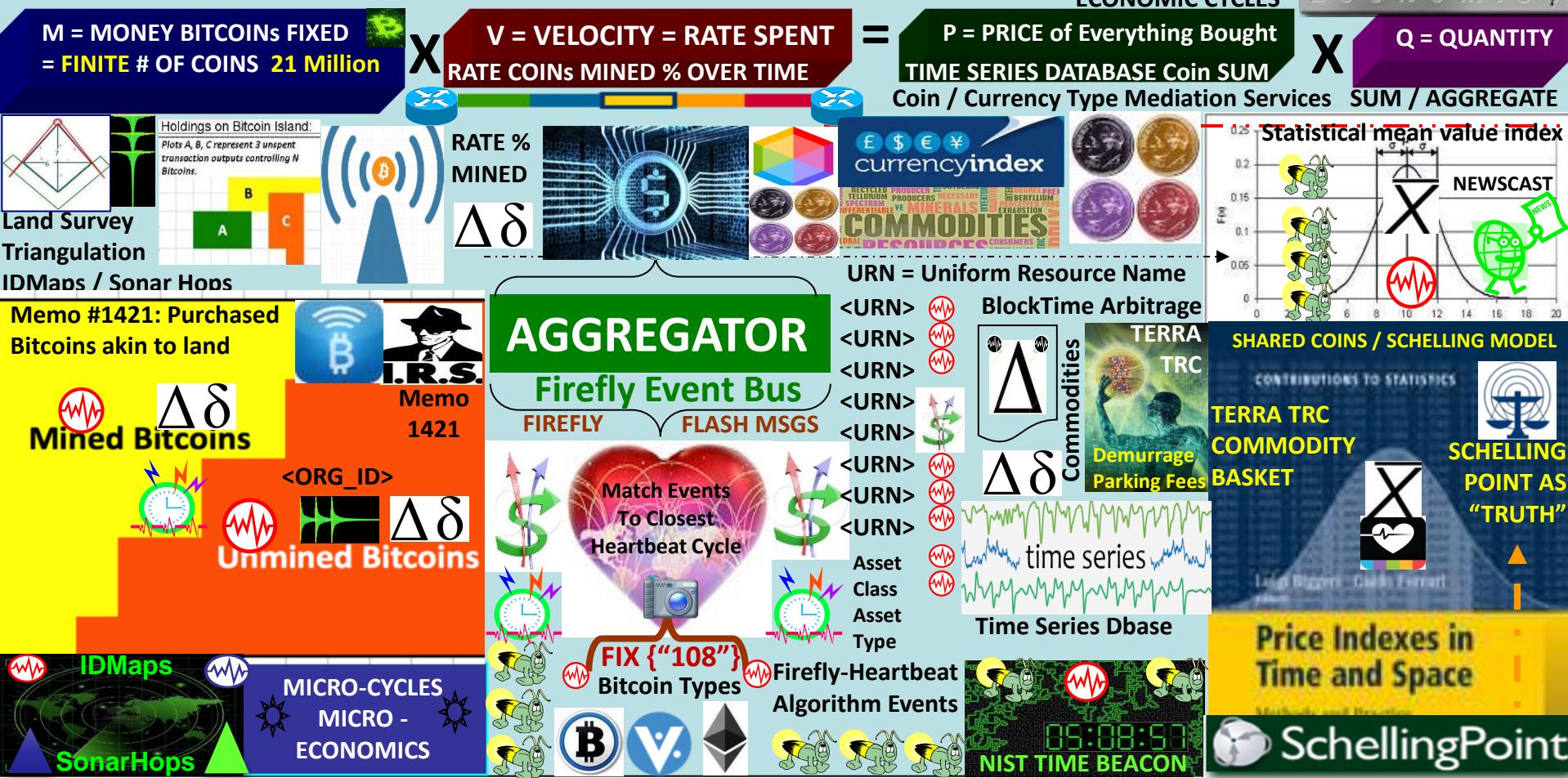
Segregated witness = Separated signatures

- signatures are cryptographic proofs also known as witnesses
 - moving signatures out of transactions
 - keeping a separate repository of the signatures
 - making them optional in propagation and storage
 - signature are the biggest part of transactions
 - can be implemented as a **soft-fork** vs a **hard-fork**

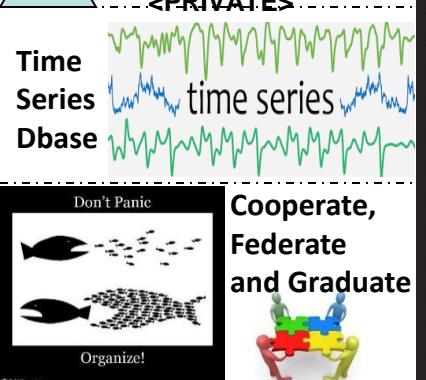
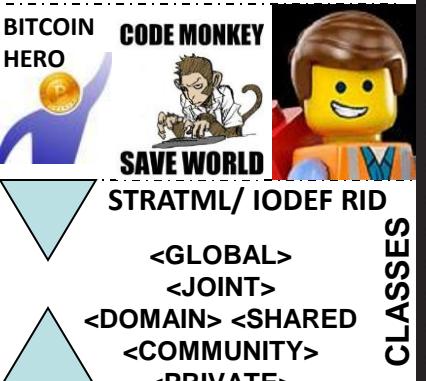
How 'Bitbanks' Could Solve Bitcoin's Volatility Problem

$$MV=PQ \text{ Money} \times \text{Velocity} = \text{Price} \times \text{Quantity}$$

The most important equation in monetary economics, the equation of exchange: $MV=PQ$. The quantity of money (M) times the rate spent (V for velocity) equals the price of everything bought (P) times the amount bought (Q for quantity). In Bitcoin, M Money is on a predetermined path, converging to 21m bitcoins. In relation to the other variables, Bitcoin is fixed. V, P, & Q fluctuate



Gamification is the use of game thinking and game mechanics in non-game contexts to engage users in solving problems. Gamification techniques strive to leverage people's natural desires for competition, achievement, status, self-expression, altruism, closure.



HOW GAMIFICATION WORKS:

5 COMMON MECHANICS

POINTS

Measure a user's achievements in relation to others
Can double as currency to exchange for rewards

BADGES

Reward achievements visually

LEVELS

Encourage users to progress and unlock new rewards

LEADERBOARDS

Organise players by rank

CHALLENGES

Encourage engagement by offering specific tasks to complete

4 MAIN WAYS TO DRIVE ENGAGEMENT

ACCELERATED FEEDBACK CYCLES

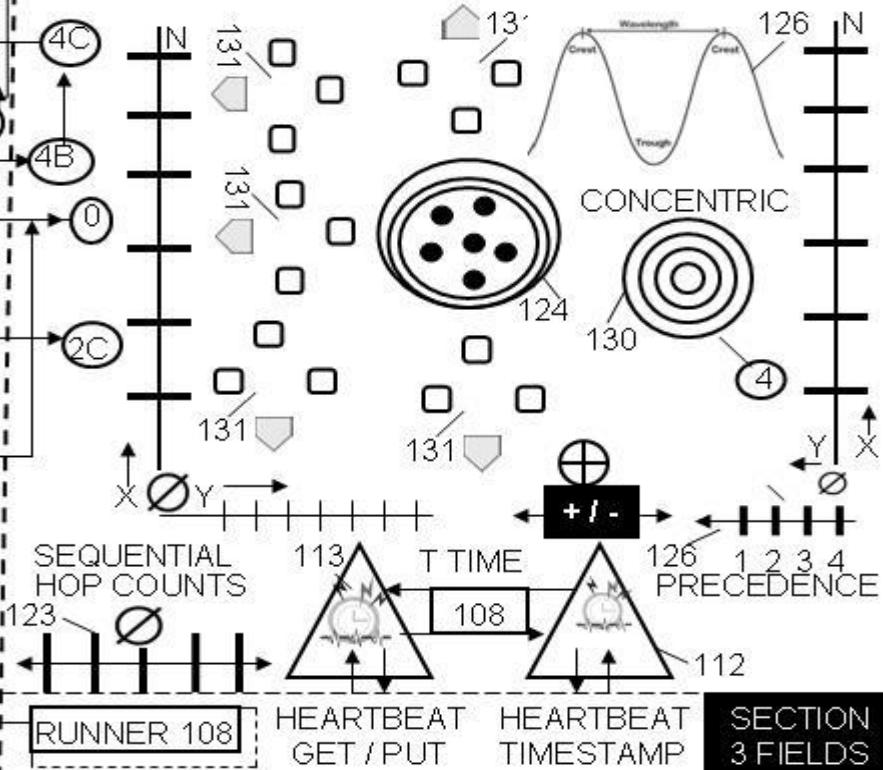
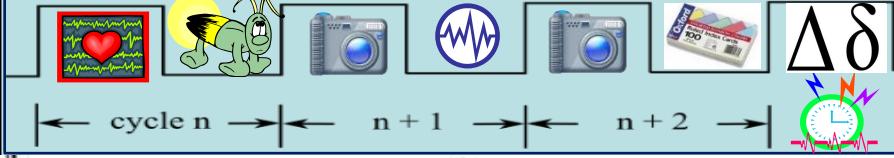
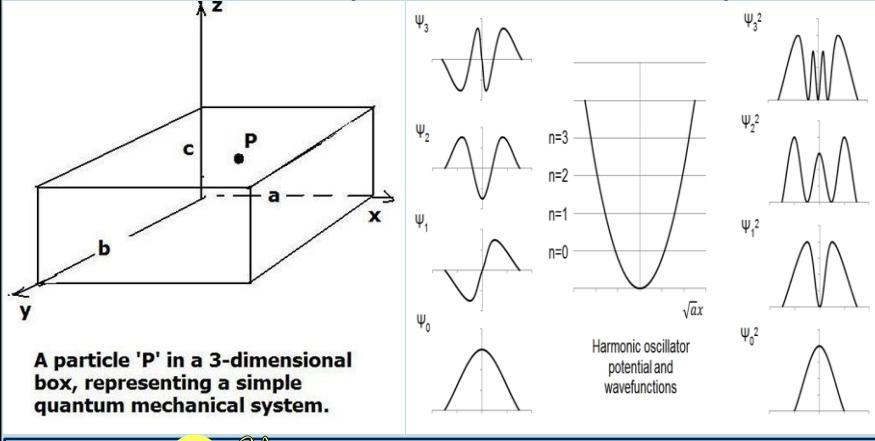
CLEAR GOALS AND RULES OF PLAY

A COMPELLING NARRATIVE

CHALLENGING BUT ACHIEVABLE TASKS



QUANTUM COMPUTING / HBC TIME – SPACE METER / METRICS

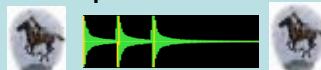


#QuantumComputing USct Alice Corp Vs CLS Bank compliant memes:
In quantum computing, a qubit (or quantum bit (sometimes qbit)) is a unit of quantum information—the quantum analogue of the classical binary bit. A qubit is a two-state quantum-mechanical system, such as the polarization of a single photon: the two states are vertical polarization and horizontal polarization. In a classical system, a bit has to be in one state or the other. Quantum mechanics allows a qubit to be in a superposition of both states at the same time, a fundamental quantum computing property

US Sct Alice Corp Vs CLS Bank Physical memes

Linear sequential "Paul Revere" meme = horizontal polarization

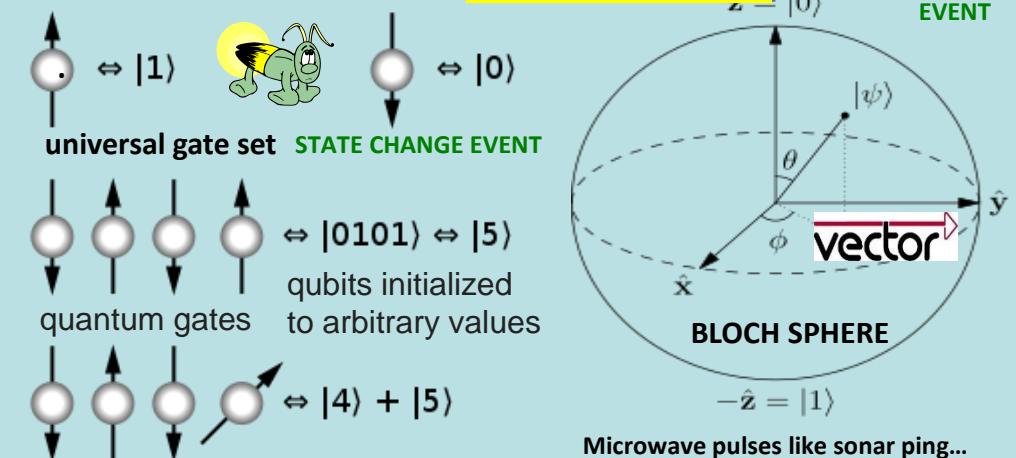
Vertical polarization vectors from a known point 0 null Sonar Hop meme



particle representation / samples

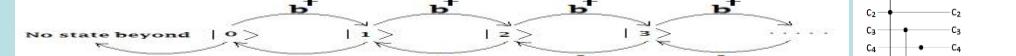


Instead of each bit having two potential states — on or off — a quantum bit or qubit has three. It can be on, off, or both, and you only know which one it is once you look at it. How can you tell if a bit of data is correct if looking at it might change its state?

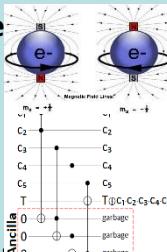


qubits can be in a superposition of all the classically allowed states

silicon device movement is controlled through use of microwave pulses. As an electron spins up, a binary value of 1 is generated, when the electron spins down, a binary value of 0 is generated.



Fock state number state quantum state that is an element of a Fock space with a well-defined number of particles (or quanta)



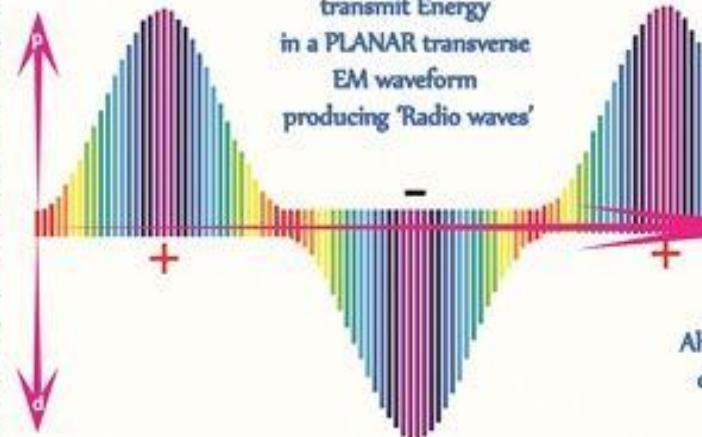
CLOSER = < Infrastructure
= CHEAPER SLA

ElectroMagnetic waveforms

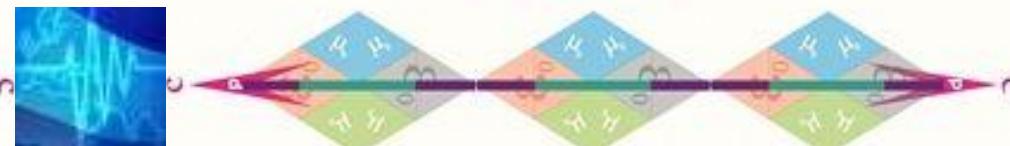


ENERGY / DATA
Over
Transmission
Lines / Airwaves

Hertzian waves
transmit Energy
in a PLANAR transverse
EM waveform
producing 'Radio waves'



All Photons and EM waves
can have various directions
of polarisation with respect to
their direction of propagation



Teslian waves
transmit Energy
in a LONGITUDINAL waveform
producing
'Action at a Distance'

Although they utilise the same EM energies,
different EM waveforms can be produced
where the Electric fields are in 90°
opposition to each other thus
leading to conflicting theories
of EM wave propagation

The E fields are co-linear with the direction of propagation

Through longitudinal waves, Tesla transferred energy to receiving devices.
He sent electrostatic forces through the air, transferred electrical energies
and noted the lethal forces produced by these waves.

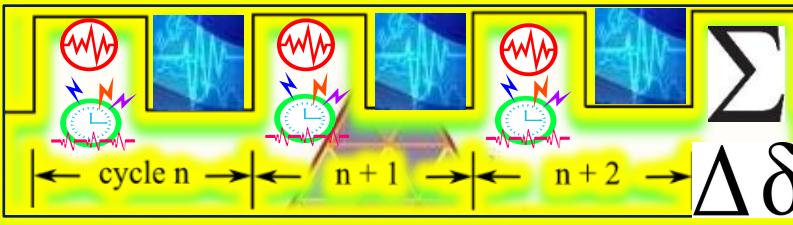
In 1887, Heinrich Hertz demonstrated the reality of
Maxwell's electromagnetic waves by experimentally
generating radio waves in his laboratory.

Heinrich Hertz

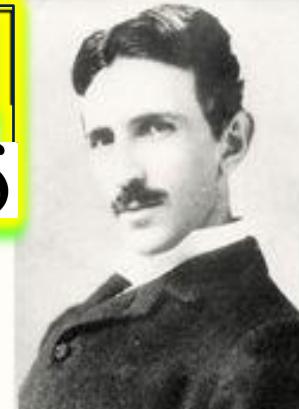


(22 February 1857 - January 1 1894)

INTERNET = 1. TIME EPOCH CYCLES 2. Syntax (not) Processed in cycle



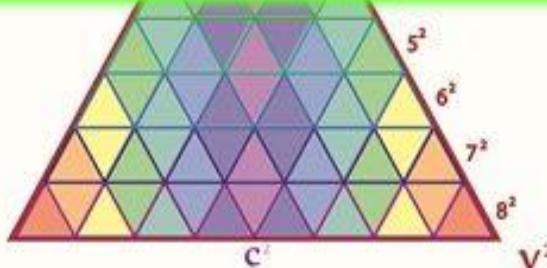
Nikola Tesla



(10 July 1856 – 7 January 1943)

Cycles per Second

Soon after Hertz's claim of discovering Maxwell's transverse EM waves Tesla visited him and personally demonstrated the experimental error to him.
Hertz agreed with Tesla and had planned to withdraw his claim, but varying agendas intervened and set the stage for a major rift in the 'accepted' theories
that soon became transformed into the fundamental "laws" of the electric sciences that have held sway in industry and the halls of academia to the present day

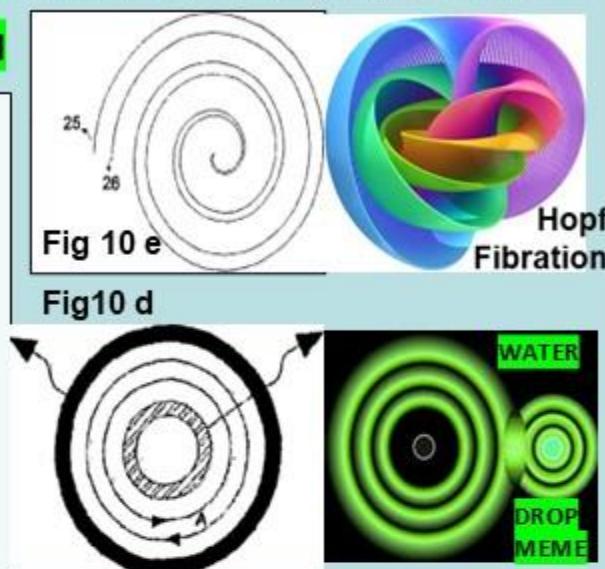


Volts per Second

V

ENERGY PRODUCTION

ABSTRACT: A propulsion system for aerial, terrestrial, underwater or space propulsion, through manipulation (or engineering) of the vacuum with proper electromagnetic interactions. Vacuum manipulation.. new form of propulsion, and has applications in energy production and on change of time decay of radioactive elements. Opposing magnetic or electric fields create a mass repelling force, while attracting magnetic or electric fields create a mass attracting force. This vacuum manipulation process.. used to propel a mass that contains field sources that perturb the vacuum.. the creation of a repulsion point in space through the interference of two or more longitudinal electro dynamic (micro) waves



IEEE C37.118 Time Synchronization
Harmonization Heartbeat update Interval
PMU data time-stamp measure C37.118

Phase 2: Shared file stores data for 5 tags:

(1) Active ID

(2) Heartbeat 1.



(3) Heartbeat 2.

(4) Device Status 1.

(5) Device Status 2.



Paul Revere = Linear, Sequential meme

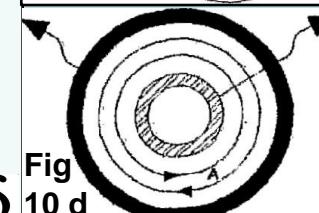
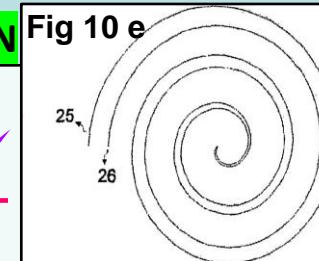




PROPELLION SYSTEM USING THE ANTIGRAVITY FORCE OF THE VACUUM

ENERGY PRODUCTION

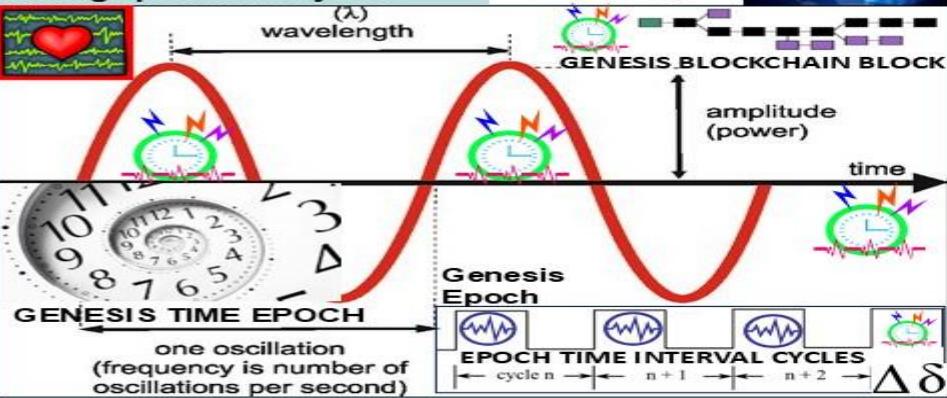
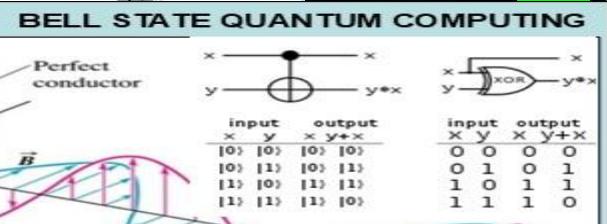
ABSTRACT: A propulsion system for aerial, terrestrial, underwater or space propulsion, through manipulation (or engineering) of the vacuum with proper electromagnetic interactions. Vacuum manipulation.. new form of propulsion, and has applications in ENERGY production and on CHANGE of TIME decay of radioactive elements. Opposing magnetic or electric fields create a mass repelling force, while attracting magnetic or electric fields create a mass attracting force. This vacuum manipulation process.. used to propel a mass that contains field sources that perturb the vacuum. .. the creation of a repulsion point in space through the interference of two or more longitudinal ELECTRO dynamic (micro) waves



$$\Delta\delta$$

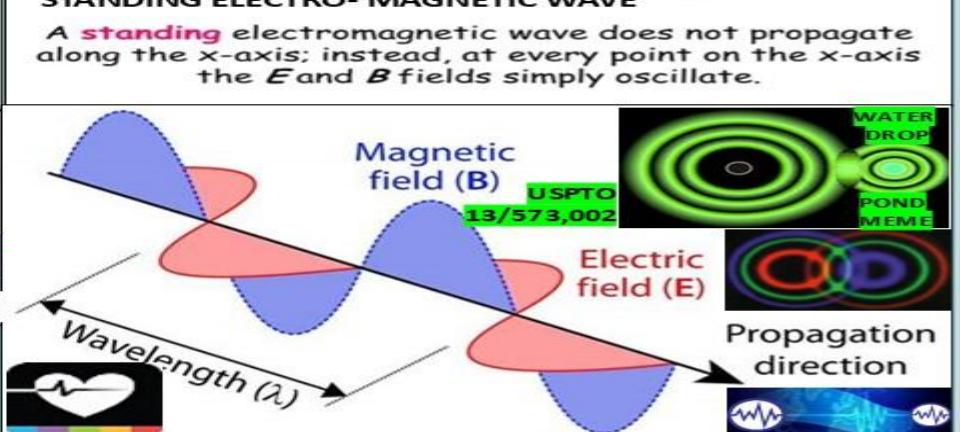
THESIS: All things net, net of programmable \$\$\$ are formed using:

- 1) Time epochs created by quartz crystal silicon chips
- 2) Syntax used / not used as programming instructions during epoch time cycles



A **standing** electromagnetic wave does not propagate along the x-axis; instead, at every point on the x-axis the **E** and **B** fields simply oscillate.

Quantum Computing Vibrations encode, process data like quantum computers. A simple mechanical system built from aluminum rods uses vibrations to encode information, mimicking quantum computing in a non-quantum system. "Light is made from photons, the quantum of light. mechanical vibrations or sound waves can be described in a quantum-mechanical manner i.e., composed of phonons: the smallest possible units of mechanical vibration"



"Nature may reach the same result in many ways. Like a wave in the physical world, in the infinite ocean of the medium which pervades all.. Nikola Tesla





TESLA Harmonic Sphere Flux Resonator

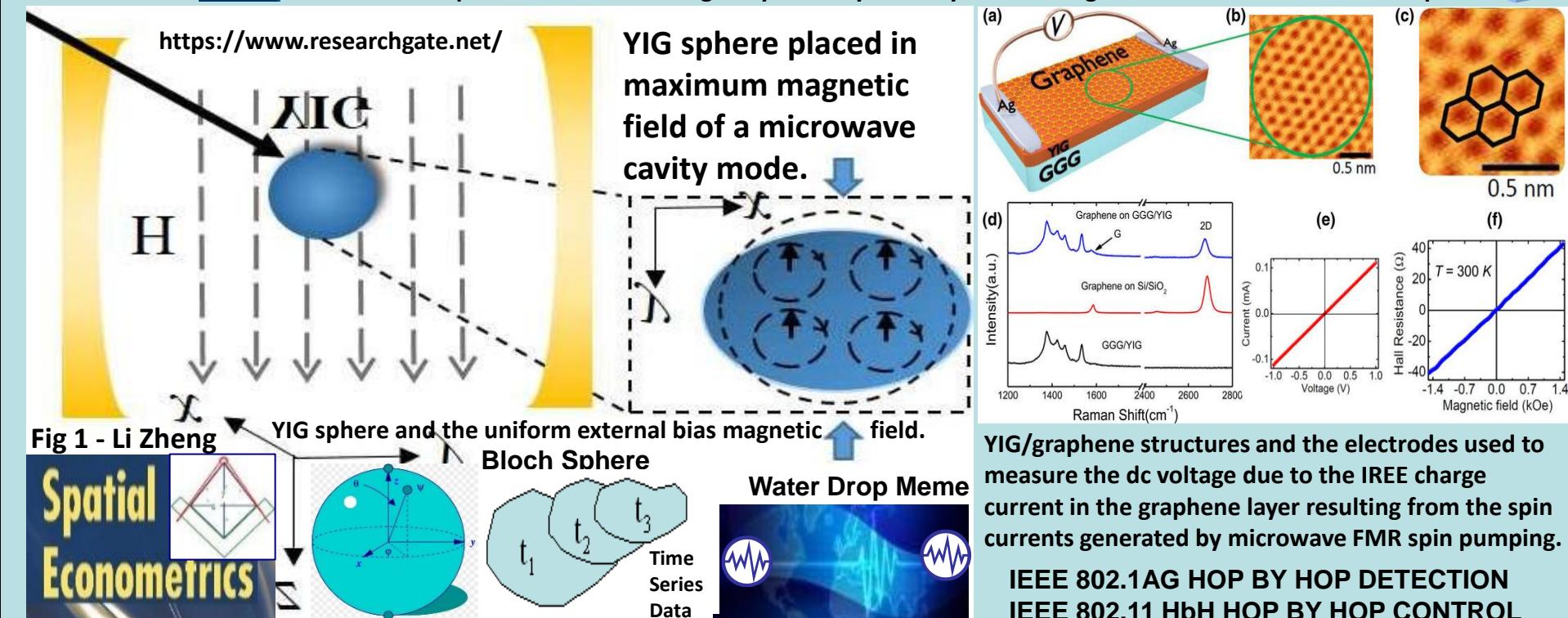
ENERGY / DATA

"When space-time spins, it creates mass. It produces energy in space that radiates. This radiation is what we call mass". Nassim Haramein

Nassim Haramein's work is geometrically based, at the fundamental level spacetime = honeycomb of overlapping spheres of energy each having a singularity at its center.

Yttrium iron garnet spheres serve as magnetically tunable filters and resonators for microwave frequencies. YIG filters are used for their high Q factors, typically between 100 and 200.

Sphere made from a single crystal of synthetic yttrium iron garnet acts as a resonator. Wikipedia



YIG/graphene structures and the electrodes used to measure the dc voltage due to the IREE charge current in the graphene layer resulting from the spin currents generated by microwave FMR spin pumping.

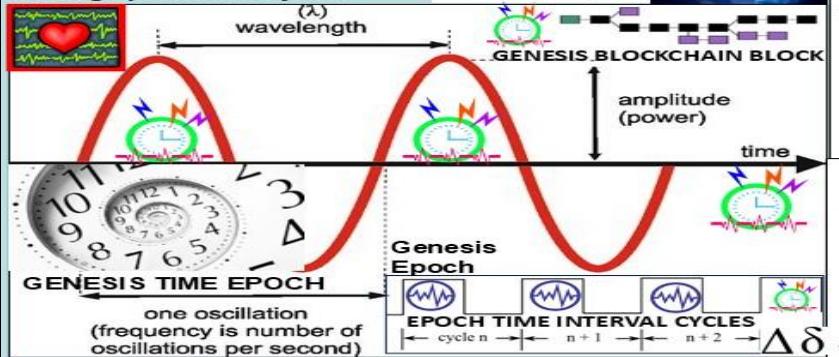
IEEE 802.1AG HOP BY HOP DETECTION
IEEE 802.11 HbH HOP BY HOP CONTROL

The creation of spinlogic devices, which allow the control and transport of the spin current over long distances, is one of the major research challenges in spintronics. In this regard, graphene-a single atomic layer of carbon atoms in a honeycomb lattice [see Fig. 1(c)]-has attracted great attention as a promising material for spin-based devices due to its exceptional electronic transport properties, excellent charge carrier mobility, quantum transport, long spin diffusion lengths, and spin relaxation times [42]

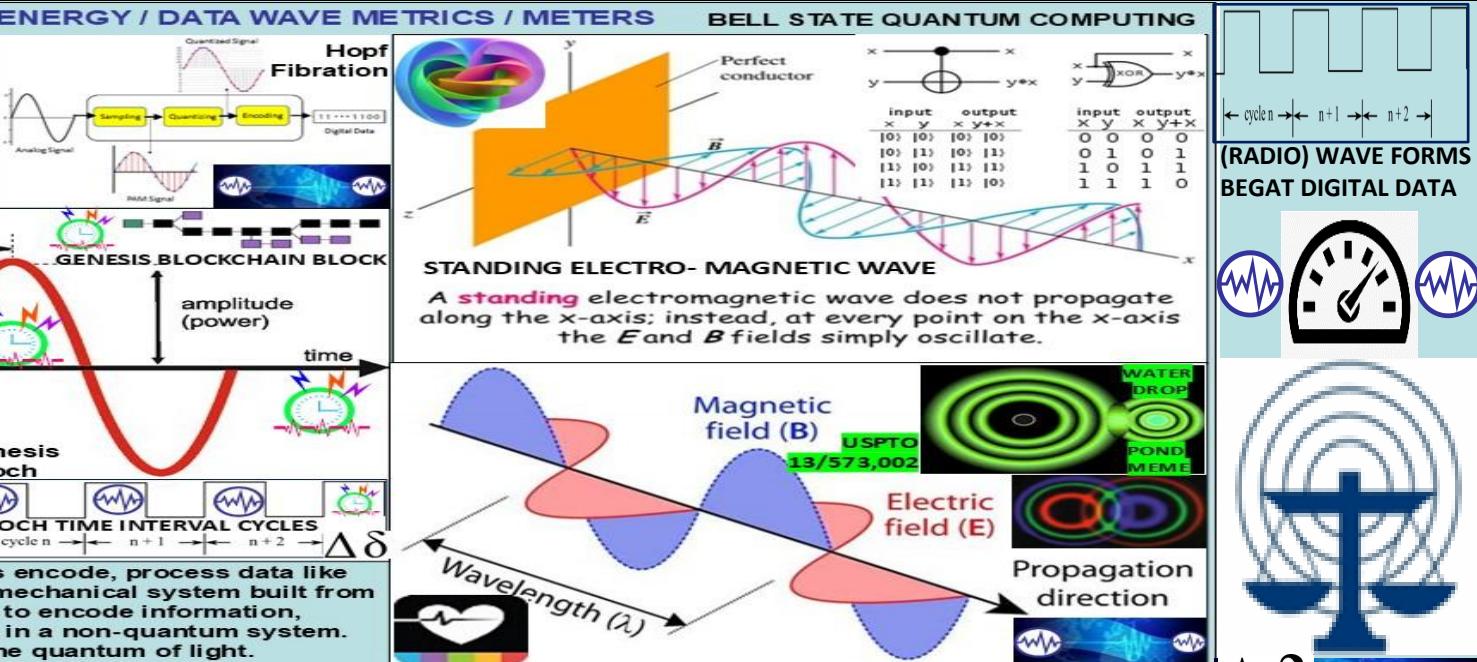


THESSIS: All things net, net of programmable \$\$\$ are formed using:

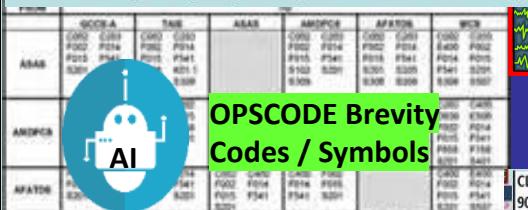
- 1) Time epochs created by quartz crystal silicon chips
 - 2) Syntax used / not used as programming instructions during epoch time cycles



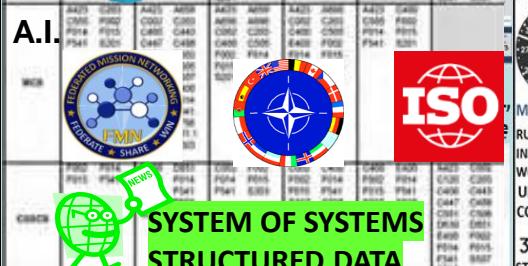
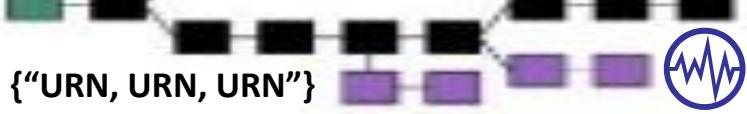
Quantum Computing Vibrations encode, process data like quantum computers. A simple mechanical system built from aluminum rods uses vibrations to encode information, mimicking quantum computing in a non-quantum system. "Light is made from photons, the quantum of light. mechanical vibrations or sound waves can be described in a quantum-mechanical manner i.e., composed of phonons: the smallest possible units of mechanical vibration" Link: https://phys.org/news/2018-06-quantum_1.html



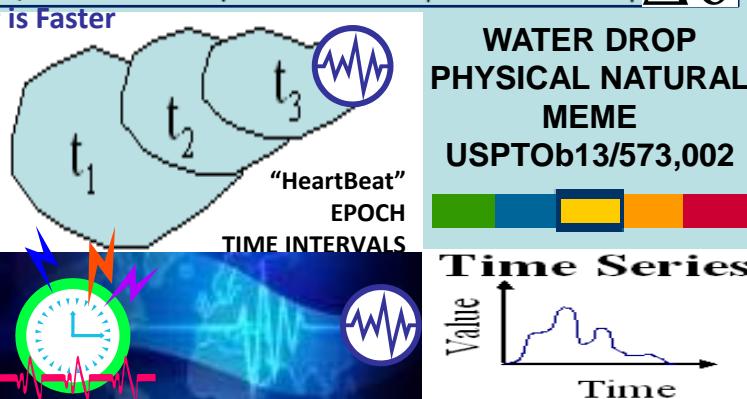
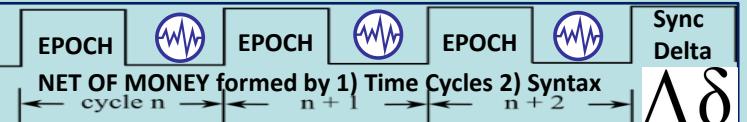
"Nature may reach the same result in many ways. Like a wave in the physical world, in the infinite ocean of the medium which pervades all.. Nikola Tesla



OPSCODE Brevity Codes / Symbols



SYSTEM OF SYSTEMS STRUCTURED DATA



Fisher information flux flows are generated and stored in wave packets as they propagate. This temporal aspect is crucial for understanding how information builds up in a system over time

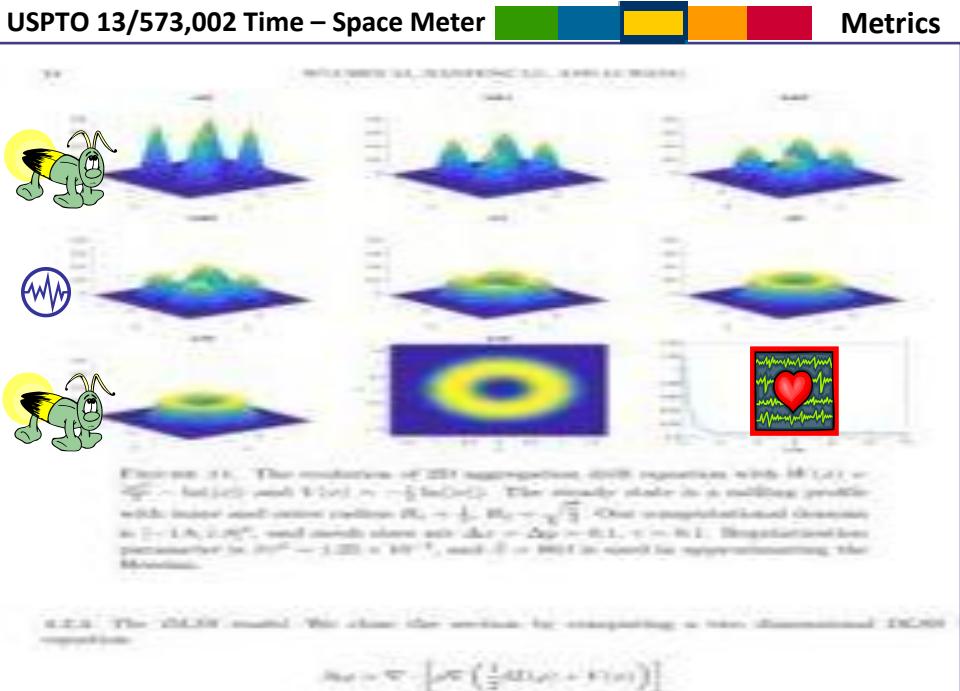


The Variance of...

the partial derivative w.r.t. ϑ of...

the log-likelihood
function of θ
given observed
value of X

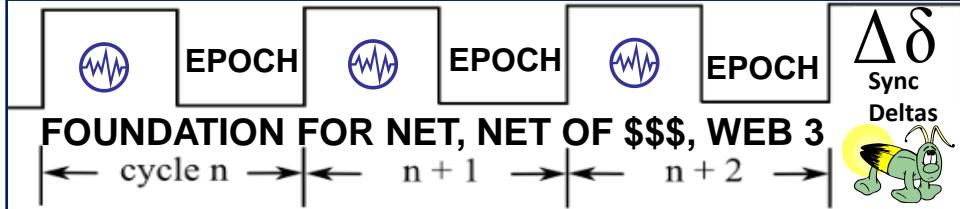
$$\Delta\delta_{\mathcal{I}(\boldsymbol{\theta})} = Var\left(\frac{\partial}{\partial \boldsymbol{\theta}} \ell(\boldsymbol{\theta} | \mathbf{X})\right)$$



Continuity equation for flow of Fisher information in wave scattering: Nature / ISF International Space Federation



An electromagnetic wave scattered at an object carries locally defined and conserved information about all of the object's constitutive parameters. Specifically, we introduce the density and flux of Fisher information for general types of wave fields and identify the corresponding sources and sinks of information through a fundamental continuity equation. Our theoretical predictions involve a movable object embedded in a disordered environment by measuring the corresponding **Fisher information flux** at microwave frequencies. Our results improve the understanding of the generation, propagation of information supports tracking and designing the flow of information in complex system of systems environments.



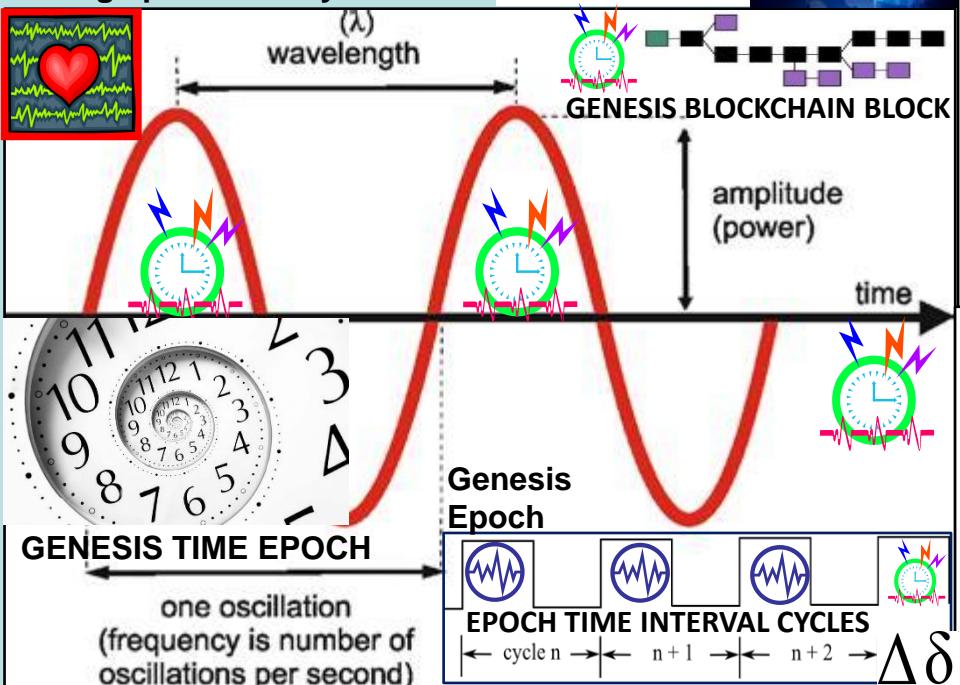
THESIS: All things net, net of programmable \$\$\$ are formed using:

ENERGY / DATA WAVE METRICS / METERS

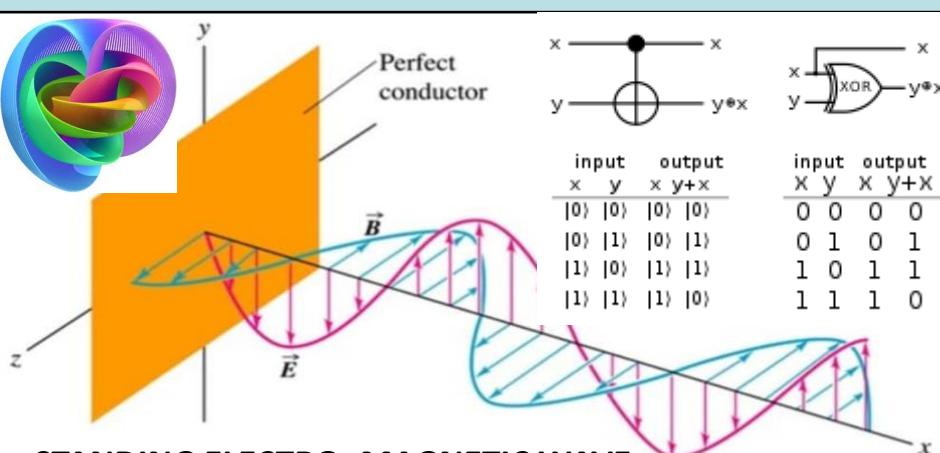
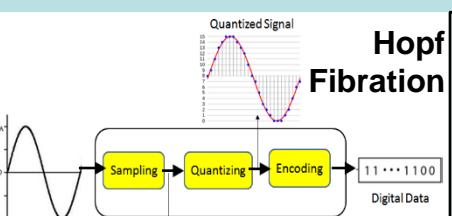
BELL STATE QUANTUM COMPUTING

1) Time epochs created by quartz crystal silicon chips

2) Syntax used / not used as programming instructions during epoch time cycles

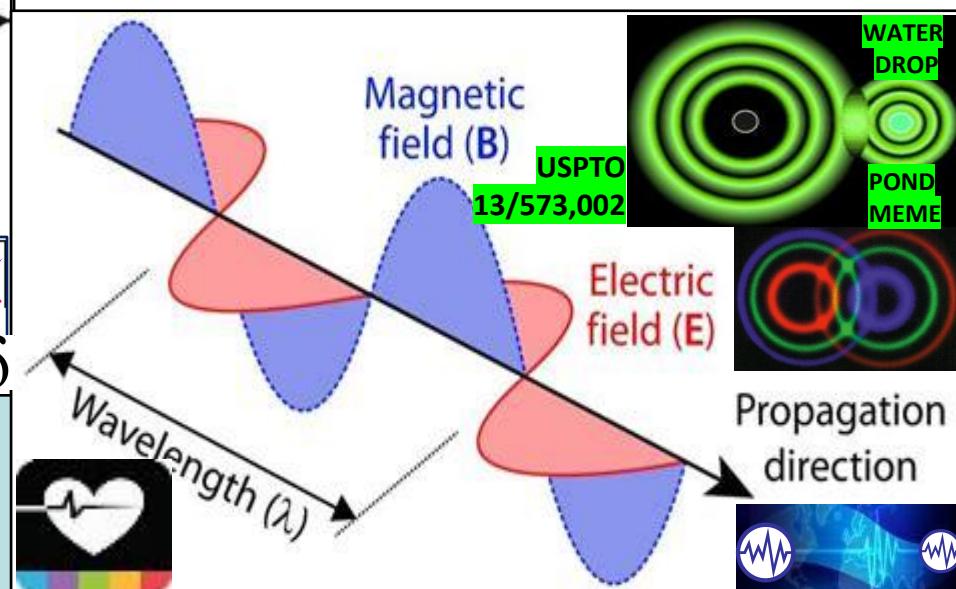


Quantum Computing Vibrations encode, process data like quantum computers. A simple mechanical system built from aluminum rods uses vibrations to encode information, mimicking quantum computing in a non-quantum system. "Light is made from photons, the quantum of light." mechanical vibrations or sound waves can be described in a quantum-mechanical manner i.e., composed of phonons: the smallest possible units of mechanical vibration" Link: https://phys.org/news/2018-06-quantum_1.html



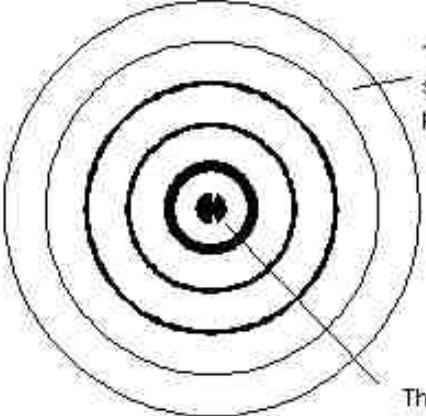
STANDING ELECTRO- MAGNETIC WAVE

A **standing** electromagnetic wave does not propagate along the x-axis; instead, at every point on the x-axis the **E** and **B** fields simply oscillate.



"Nature may reach the same result in many ways. Like a wave in the physical world, in the infinite ocean of the medium which pervades all.. Nikola Tesla

Water drop in pond meme <https://www.spaceandmotion.com/>



Paul Revere Linear, sequential meme

And as I shall explain in Einstein's relativity, when we apply this one law, where the wave velocity changes the wavelength also has a corresponding change such that we can never observe this change. This relates to the Lorentz transformations, the negative solution of the Michelson Morley experiment, and why we always measure a constant velocity of light even when it changes, thus why we cannot measure our motion through absolute space.

With respect to time, physics was always telling us that time is caused by frequency (and fundamentally by motion as the wave motion of space), since time equals the inverse of frequency $t=1/f$.

From our wave equation we see that while the velocity and wavelength change, the frequency remains constant, giving rise to an absolute time in the universe. This was one central problem of Einstein's relativity, he changed time and maintained a constant velocity of light, when the opposite is true. (Yes, this one property of waves from this simple wave equation has caused us so much confusion!).

"What we observe as material bodies and forces are nothing But Shapes and variations in the structure of space" Schrodinger

Physical Reality: 1. One Substance. Space exists with properties of an elastic solid wave medium, propagating longitudinal waves in all directions, thus forming standing waves in all directions. When these standing waves are in-phase (coherent) around a central point then a spherical standing wave naturally forms - space vibrates in and out around the central point, which we call the particle. There are two opposite phase spherical standing waves, which create the electron and positron (matter and antimatter),

2. One Law. The velocity of the waves is proportional to the wave amplitude (bigger waves travel faster). Where these waves are coherent, forming spherical standing wave 'particles', the wave amplitude is higher, and the waves travel faster. This, as i shall explain, is the foundation of all matter interactions, the source of causal connection and absolute truth.

Why matter and energy are equivalent, since a wave is a flow of energy between two states of the wave medium Space - kinetic energy (vibratory motion of space) and potential energy (elastic deformation of a nearly rigid space). Why matter and antimatter annihilate, due to destructive wave interference. How matter and antimatter can be created from apparently 'empty' space. How science can exist, since the spherical in and out waves provide continuous two way communication between matter in space (empirical knowledge), and the waves behave in a necessary manner due to this one law (logical knowledge).

Wave velocity is the velocity of light, $\sim 3 * 10^8$ m/s, the wavelength is the Compton wavelength $\sim 10^{-12}$ m, and the frequency $\sim 10^{20}$ Hz. So in a pin head there are roughly a billion billion billion standing waves, each vibrating a billion trillion times a second. i.e. These standing waves are very small, and vibrate very fast, thus explaining how such complex standing wave structures (like us) can evolve in space. The fundamental equation of the universe is the simple wave equation; Velocity (C) = Frequency (f) * Wavelength (y)

Combined with the equation of the sphere (which is also Pythagoras' Theorem and the metric equation of Special Relativity), and explains the geometric foundations of reality, why space is three dimensional. $x^2 + y^2 + z^2 = r^2$

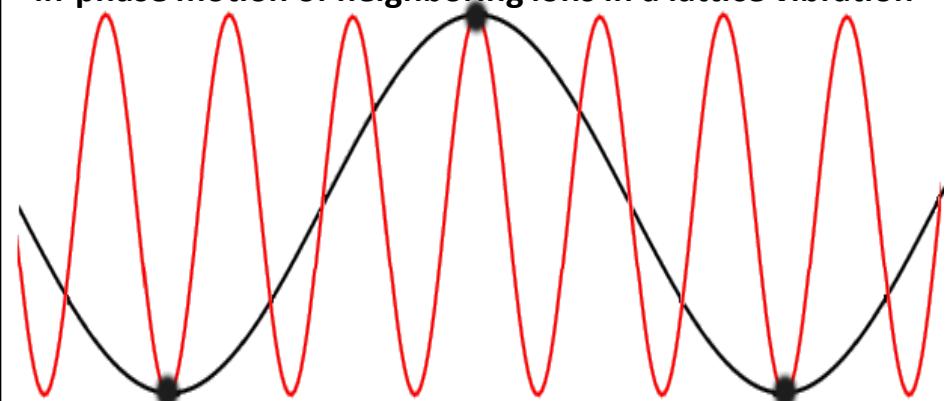


"Simplicity is the ultimate sophistication".
(Leonardo da Vinci)

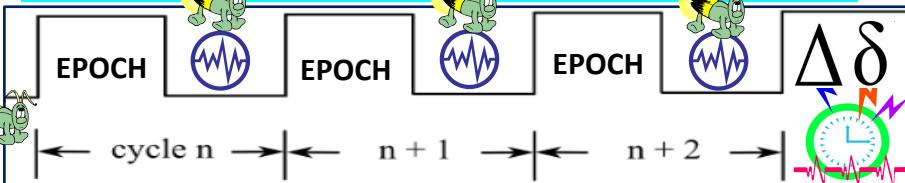
ACOUSTIC PHONON

USPTO 13/573,002

in-phase motion of neighboring ions in a lattice vibration

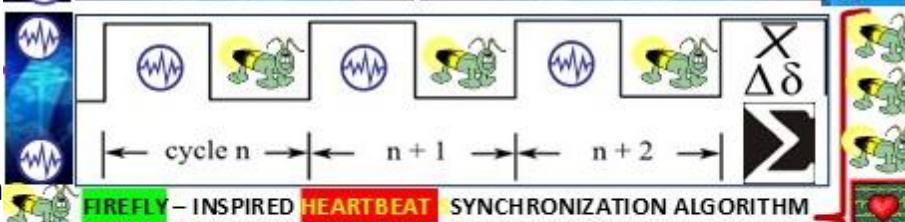
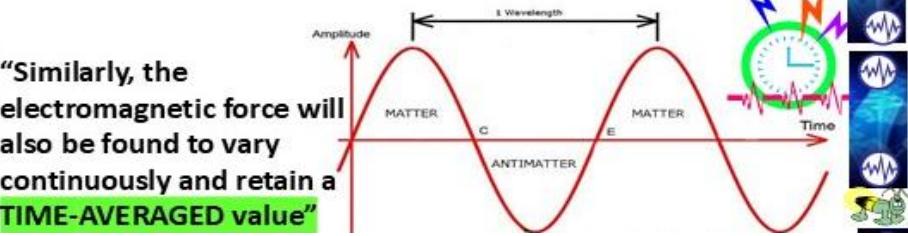


Phonons: A phonon is a quantum of the lattice vibration, the collective motion of atoms constituting a crystal. There are two types of phonons: optical and acoustic. The optical phonon has high-frequency oscillation in the THz range and the unit cell center of mass does not move. It undergoes a dipole interaction with light. The acoustic phonon propagates at sound velocity, which is the first derivative of the phonon dispersion curve at the Γ -point (wave vector $k \approx 0$) in the first Brillouin zone. A simple example is a one-dimensional diatomic chain, in which the unit cell contains two atoms. In a crystal of N unit cells, there are $2N$ atoms and $2N$ degrees of freedom of motion. The displacement of an atom from its equilibrium position is expressed using plane waves with reduced wave vectors, defined within the first Brillouin zone. The oscillations are approximated by $2N$ harmonic oscillators of different wave vectors. The vibrational frequency is related to the wave vector through the phonon dispersion relation. Phonons are created and annihilated in the harmonic oscillators. SOURCE: SCIENCE DIRECT: <https://sciedirect.com/topics/engineering/acoustic-phonon>



"nodes eventually agree" stochastic harmonization temporal sync

"Similarly, the electromagnetic force will also be found to vary continuously and retain a TIME-AVERAGED value"



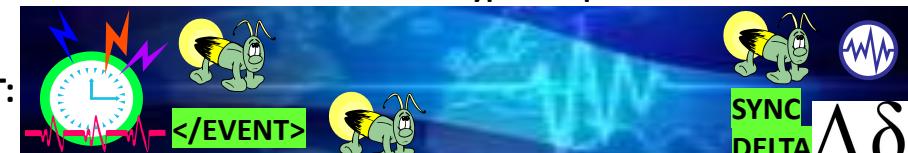
FIREFLY - INSPIRED HEARTBEAT SYNCHRONIZATION ALGORITHM



THESIS: All things net, net of programmable \$\$\$ are formed using: 1. Time epochs created by quartz crystal silicon chips 2) Syntax used / not used as programming instructions during epoch - temporal time cycles



SOUND WAVES enable Different types of quantum tech to "talk"



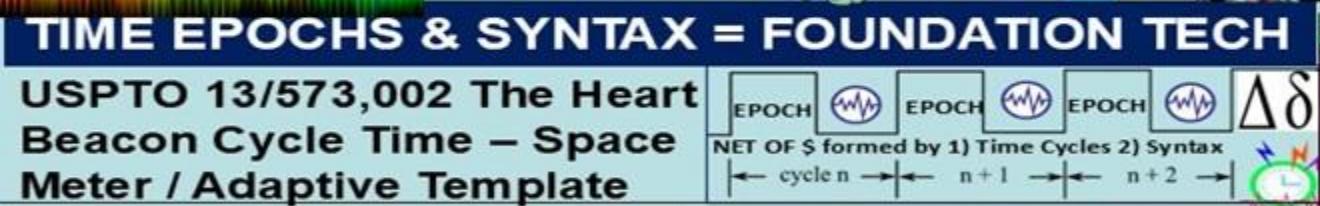


Eric Trump: "Bitcoin to 1 MILLION"
VS QUANTUM SUPREMACY

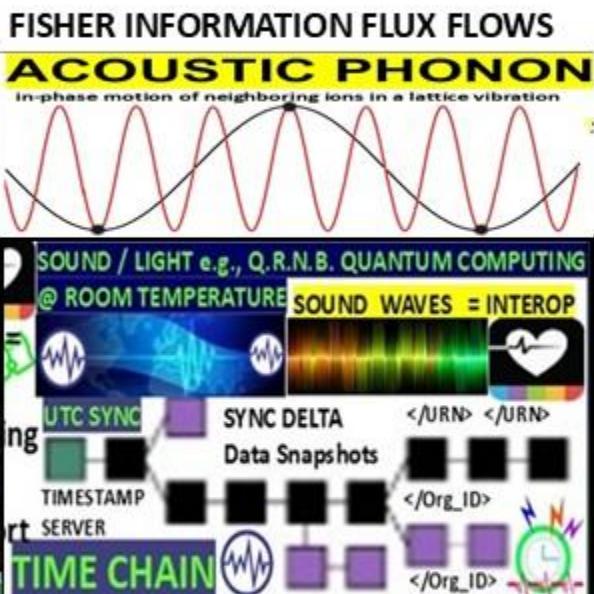


SOUND WAVES enable
Different types of
quantum tech to "talk"

BITCOIN TRANSACTION AKIN TO LAND
ORG_ID in CLEAR / Person ID encrypted
'wave-particle duality'
is simply the quantum
'uncertainty principle'



ABSTRACT VS NATURE:
573 U.S. 134 S.Ct 2347
"BITCOIN's VALUE = TIME ITSELF"
"TIME IS SPECIFIED IN UNITS OF BLOCK
TRANSACTION CONFIRMATION TIMES"



Net of \$\$\$ formed with:
1 EPOCH TIME CYCLES

2 {"Syntax"} "The Word"
"In the Beginning" Genesis Block

"All things internet, Internet of money
are formed using time epoch cycles to
process, parse, syntax as instructions"

"A blockchain is a consensus-based system. It
only works if all nodes reach an identical state"



Three ideas combined

HOW TRUTHCOIN WORKS:

1) Tradable Reputation

- Abstract Corp exists to prove consistency within / across TIME
- Collects \$ to power the mechanism.

2) SVD Cross-Validation

- Statistical technique: seeks importance.
- Gleans truth, measures conformity.



3) Strategic Use of TIME

- Funds can be ‘locked’ across time.
- Yet info-search-costs constantly fall.
- Net effect: time penalizes attackers only.

2. A kind of ‘Future Wikipedia’

	Wikipedia	Truthcoin
--	-----------	-----------

	Protocol (Decentralized)	Centralized Non-Protocol
Focus	Spoken English	Shakespeare's Globe Theatre, The Library of Alexandria, MLA Citation Format, Walt Whitman, J.K. Rowling.
	Rules to American Football	The NFL, ESPN, The Buffalo Bills.
	Bluetooth	A Set of Stereo Speakers, The iPhone 6, A Car Radio Equipped with Bluetooth
	Bitcoin	VISA, PayPal, SWIFT, Western Union, Airline Miles, Amazon Coins, e-Gold, Liberty Reserve.

3. A software protocol

A protocol is a set of rules that determine how something is performed or accomplished



NIST RANDOMNESS BEACON: broadcast full-entropy bit-strings in blocks of 512 bits every 60 seconds. Each value is time-stamped, signed, & includes hash of previous value to chain sequence of values together. This prevents all, even the source, from retroactively changing an output packet without being detected. The beacon keeps all output packets and makes them available online. 1st, Beacon-generated numbers cannot be predicted before they are published. 2nd, public, Beacon's time-bound, authenticated nature of the Beacon proves true random numbers not known before a certain point in time. 3rd, this proof can be presented offline at any point in the future



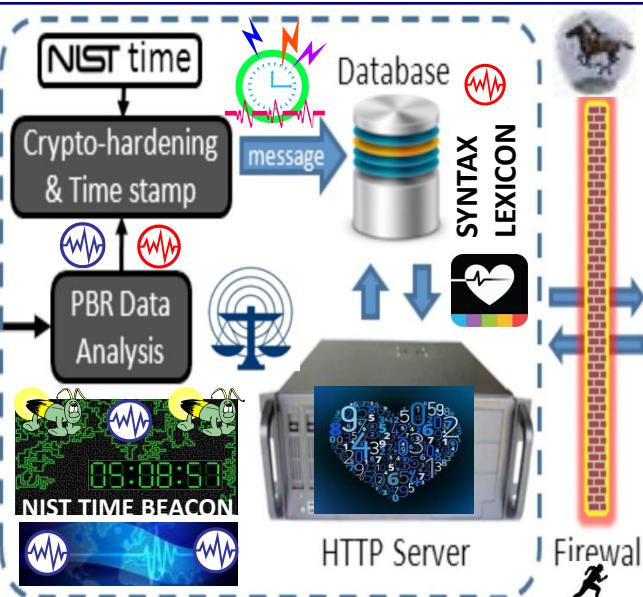
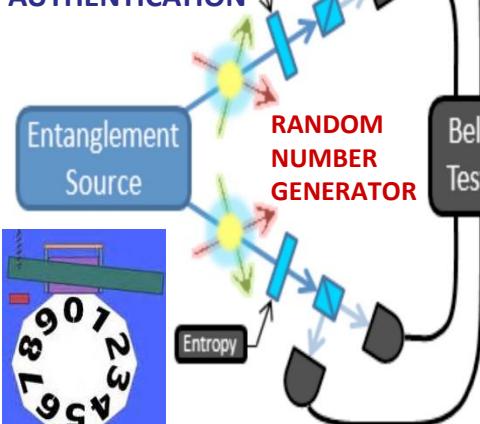
NIST QUANTUM ENCRYPTION RANDOMIZATION BEACON

UNPREDICTABLE SAMPLING

SECURE AUTHENTICATION

SECURE MULTI

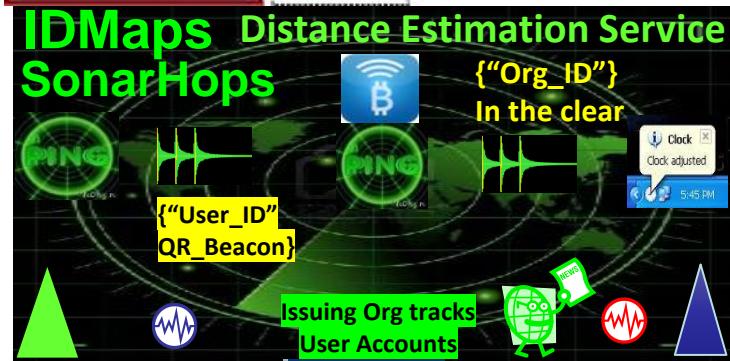
PARTY /
AUTHENTICATION



NIST

**NON
REPUDIATION**

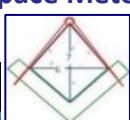
Legend:
 - App: software application
 - DB: database
 - Fw: firewall
 - HSM: hardware security module
 - RNG: random-number generator



USPTO 13,573,002 Heart Beacon Cycle Geo-spatial, temporal Intensity

Metrics and Time - Space Meter uses PHYSICAL Memes / Metaphors

**NAMED DATA
NETWORKING**



NDN
 </Interest>
 </Distance>
 SURVEY METHODS
 + TRIANGULATION
 Euclidian Geometry
Geodesic System Routing Info Base RIB

ACCOUNT BELONGS TO </Org_ID>

RESOURCE TYPE: <URN><URN><URN>

DEVICE / SENSORS <UUID><UUID>

Higher-level services collect distance data to build virtual distance map State
 of Internet & estimates distance Snap
 between any IP address pair Shots

Time / Distance Metrics

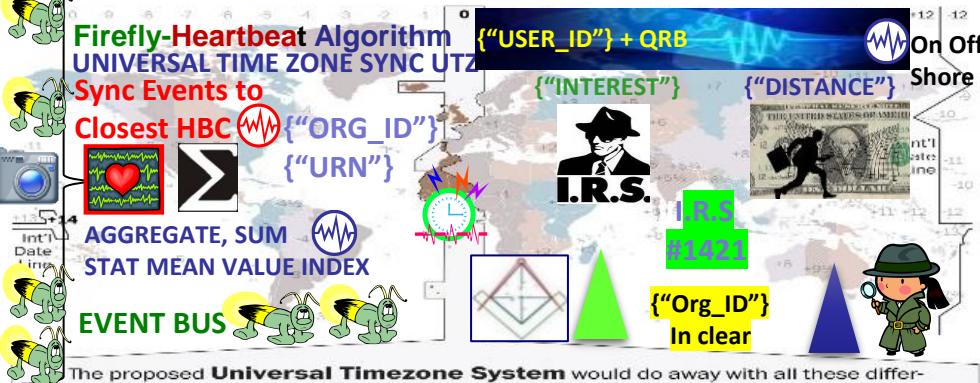


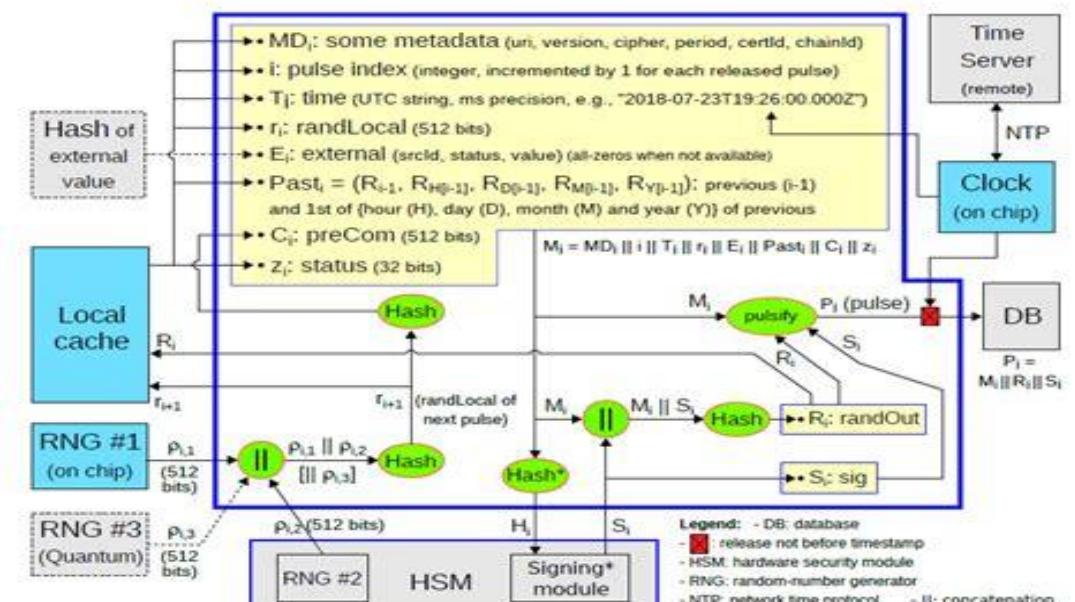
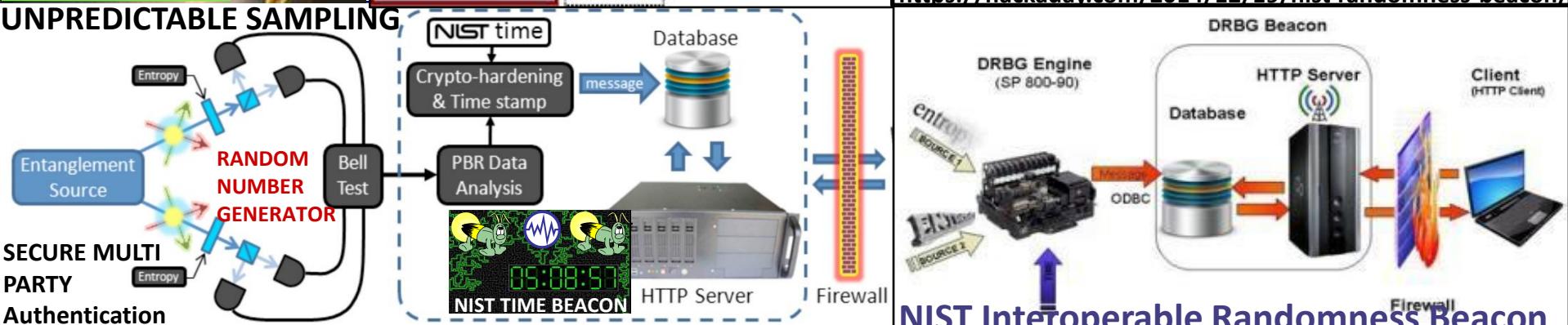
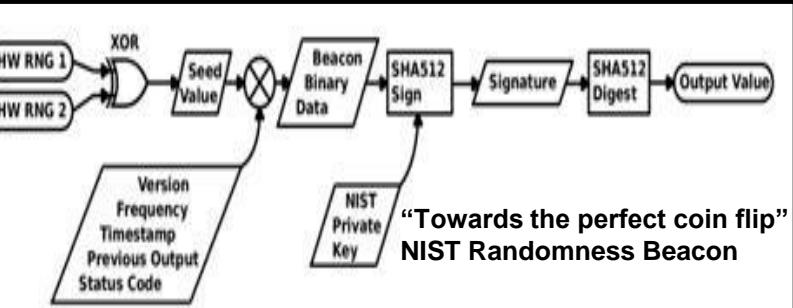
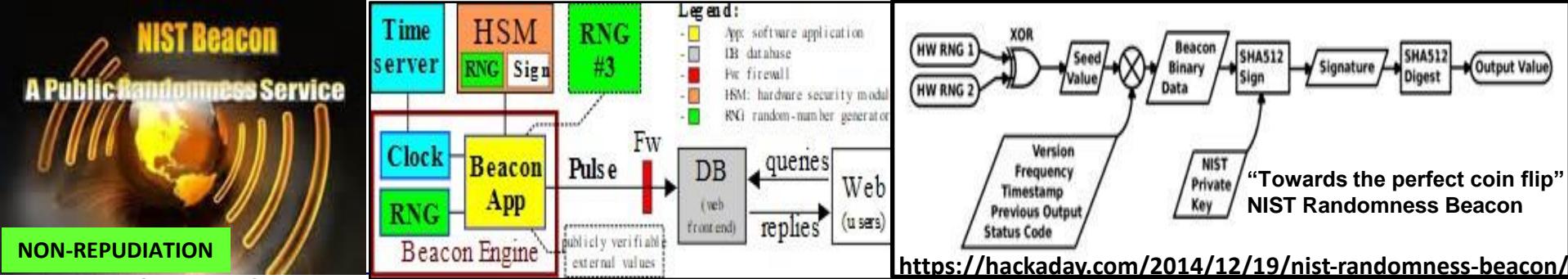
PROXIMITY

OFFSHORE BEACONS ONSHORE

NDN
 </interest></distance>

The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind Coordinated Universal Time (UTC). However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC. **Stochastic Harmonization**





NIST Interoperable Randomness Beacon

The NIST Randomness Beacon Broadcasts a randomness pulse every 60 seconds. Each pulse commits to a fresh 512-bit random string. Each pulse is time-stamped and signed. Beacon periodically outputs a pulse containing 512 fresh random bits, time-stamped, signed and hash-chained. For example, each pulse also pre-commits to the randomness to be released in the next pulse. The latter enables users to securely combine randomness from different beacons. The Beacon protocol also specifies the interface for users to interact with the Beacon, in order to obtain information about past pulses.

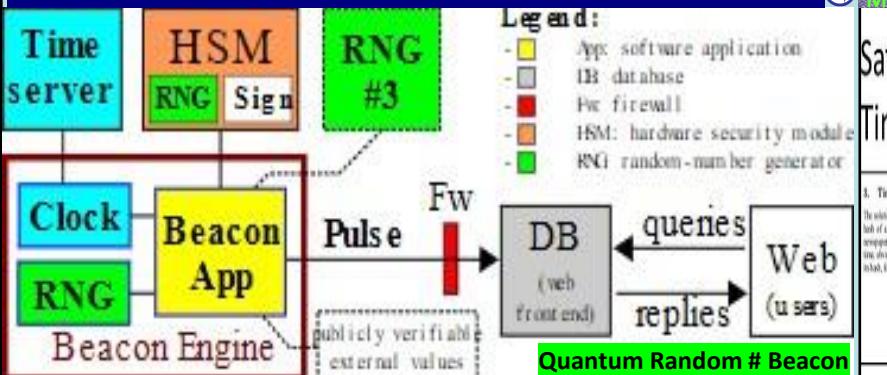
A randomness beacon produces timed outputs of fresh public randomness. Each output, called a pulse, includes metadata / cryptographic elements

The main goal of the NIST Random # Beacon is to serve as a baseline for deployment of many interoperable beacons

Figure 2. Illustration of the generation of the i^{th} pulse by a Beacon App (2.0)

ALL THINGS NET FORMED WITH: Building Blocks:
 1) EPOCH TIME CYCLES
 2) SYNTAX / Opcode Brevity codes Programmable Economy / \$\$\$

NIST Quantum Random Number Beacon



"The external environment could update resources at random... One solution is a **heartbeat**: defining a default lease duration delaying updates until the next cycle"

Building Blocks:
 Programmable Economy / \$\$\$



Satoshi Bitcoin Blockchain
Time Stamp Server

3. Timestamp Server

The solution we propose begins with a timestamp server. A timestamp server works by taking a batch of items to be timestamped and widely publishing the hash, such as in a newspaper or online post [3]. The timestamp proves for the data must have existed at the time, obviously, in order to get into the hash. Each timestamp includes the previous timestamp in its hash, forming a chain, with each additional timestamp confirming the previous one.



WORLD ECONOMIC Heartbeat
ALGORITHMIC REGULATION
HEARTBEAT SYNC DELTAS



PROOF of SPACE-TIME
Firefly - Heartbeat Sync Algorithm
Heartbeat Event Message Bus
UTZ stochastic harmonization

Epoch Time Cycles

E0 E1 E2 E3...



Structured Data Exchange

ROSETTA ("Org_ID"){"URN"}
STONE

BREVITY

CODES

Attribute Series

Time Series

Value

Time

300 + Message Sets

Geo Spatial

Work flow Filters

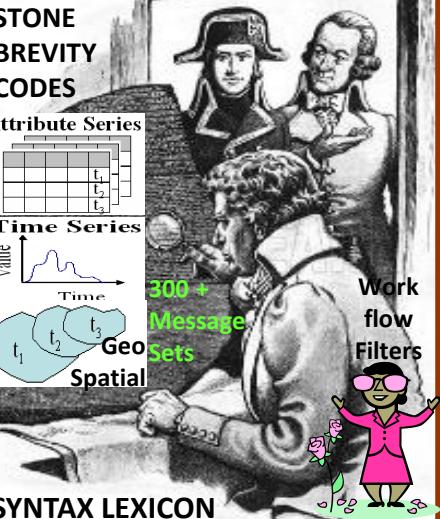
SYNTAX LEXICON

QubitCoin Interval: Every 30 Seconds

The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind Coordinated Universal Time (UTC). However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours ahead UTC. INCENTIVIZE ECO-FRIENDLY TRANSACTIONS



The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.

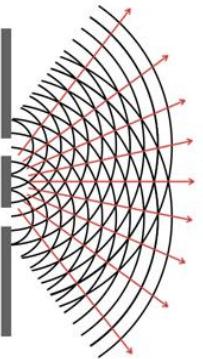


Double-Slit Experiment

Screen with two slits

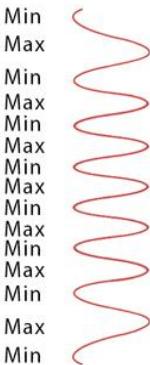
PARTICLE ?

Sodium lamp



Screen

WAVE ?



Light source Rays of light coming from the source reach the slits

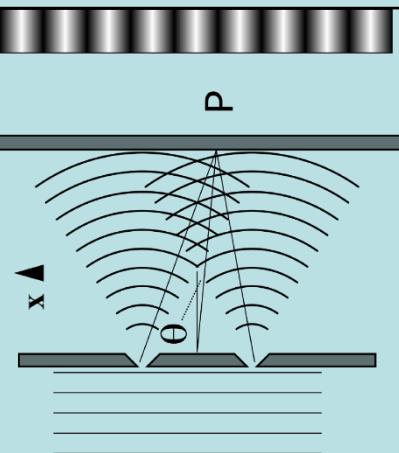
Interference of light waves due to two tiny slits and arrows indicate direction of wave propagation

Alternating bright and dark fringes due to interference of light waves

Intensity of the fringes shows the maxima and minima

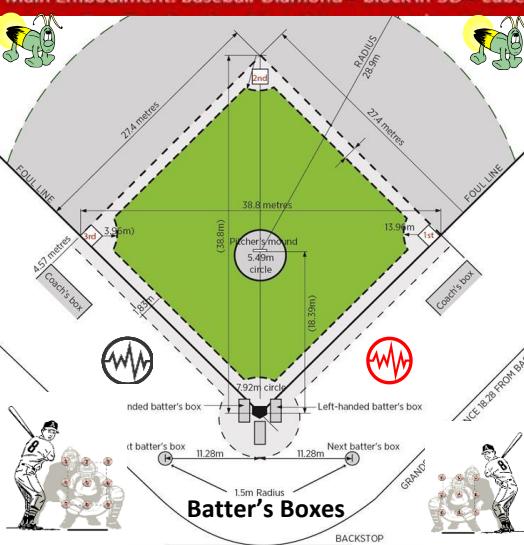
Science Facts

QUANTUM COMPUTING
- RESISTANT ? - BASED ?
THROUGH LENS OF SCOTUS
ALICE LOOKING GLASS RULING



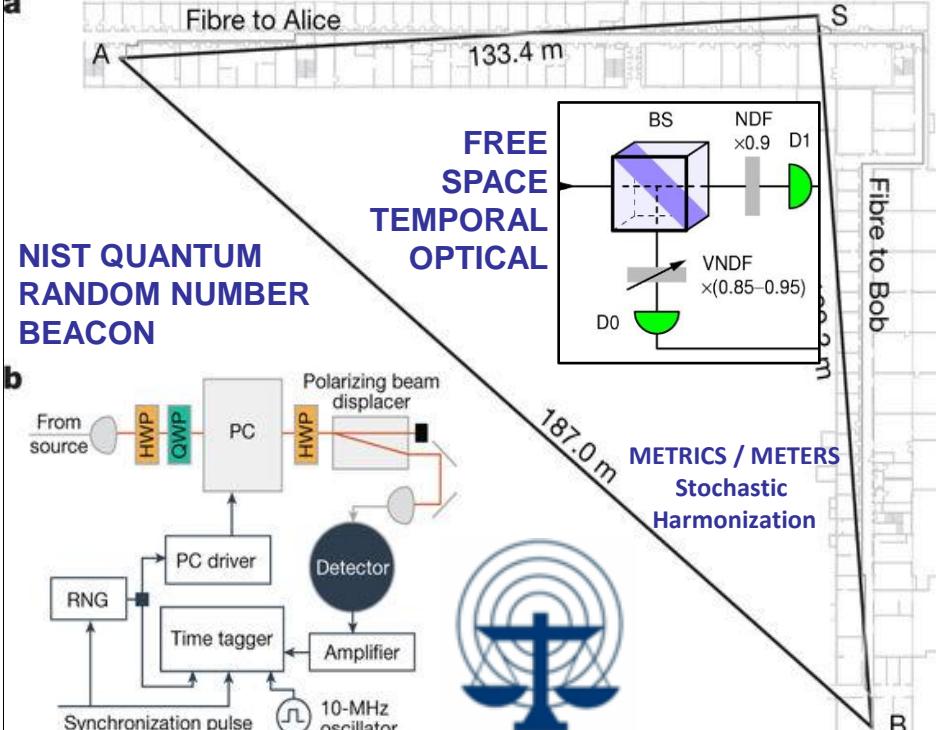
USPTO APPLICATION 13/573 002

The Heart Beacon Cycle Time-Space Meter
Main Embodiment: Baseball Diamond = block in 3D = cube



SCOTUS ALICE RULING: "Claims may not direct towards abstract ideas" / Physical = opposite of abstract

a



CLOCK FACE 360°
90 / 90 / 90 / 90



MACRO CYCLES

RULES / ROLES
INSTRUCTIONS
WORKFLOW
UMPIRE
COACH

3rd Base

STATISTICIAN
Metrics, Meters
Stat Mean Value Index

3 X 5
HASH TABLES
STATE META
DATA SHARDS

State Meta

Data Snapshots

Survey Point

MICRO CYCLES

BASEBALL "DIAMOND"
A diamond Is a square Is a block in 3D
2nd Base

Satoshi Nakamoto:
"The solution we propose begins with a TIME STAMP SERVER"

90 feet

Blockchain BLOCK in 3D = CUBE

Cube has Length, Depth, Height, Volume

90 feet

SETTLEMENTS / EXCHANGES = TAXABLE EVENTS AKIN TO PROPERTY

IRS #1421

FLASH MESSAGE EVENT BUS

FIX {"108"}

TIME STAMP SERVER

EVENTS

Epoch Time Cycles



Physical = Opposite of abstract = ALICE
HEART BEACON CYCLE
TIME – SPACE METER
USPTO 13/573,002

first base
RUNNER
Message Bus

Firefly – Heartbeat Algo

Stochastic Harmonization

EVENTS

FLASH MESSAGE EVENT BUS

TIME STAMP SERVER

Epoch Time Cycles

The Hopf Fibration

Edmund Harriss

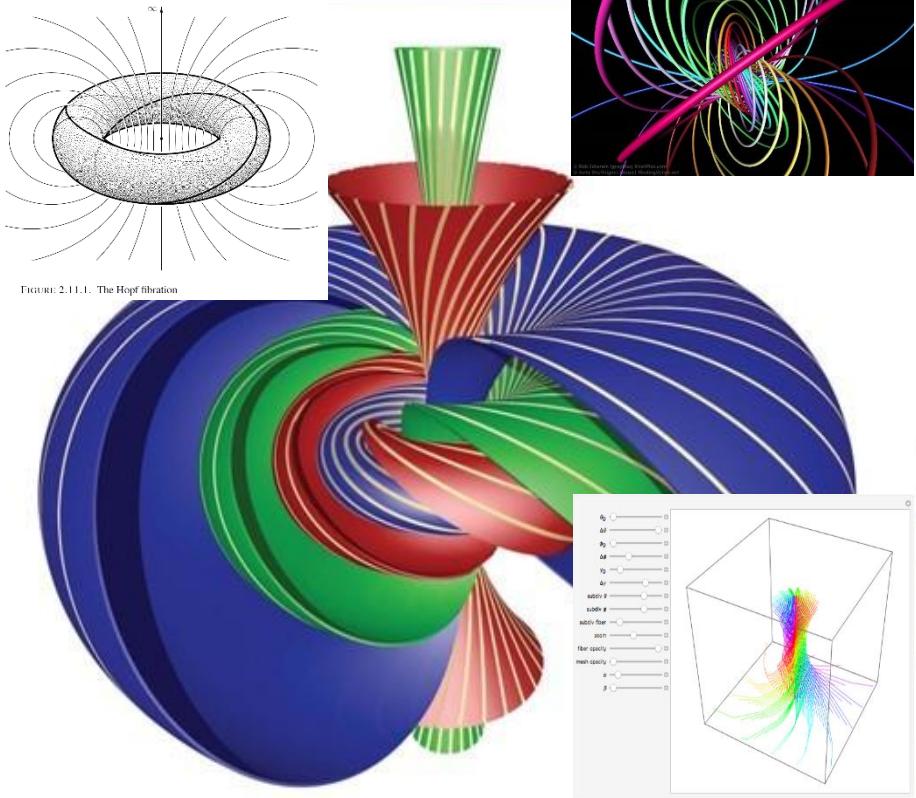
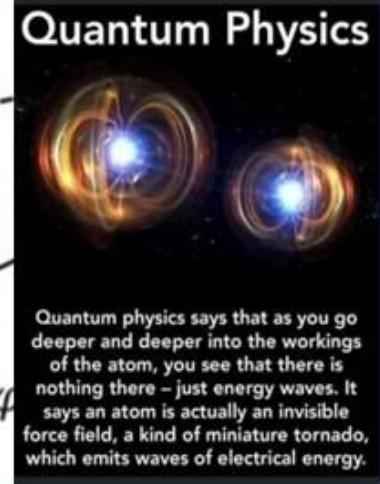
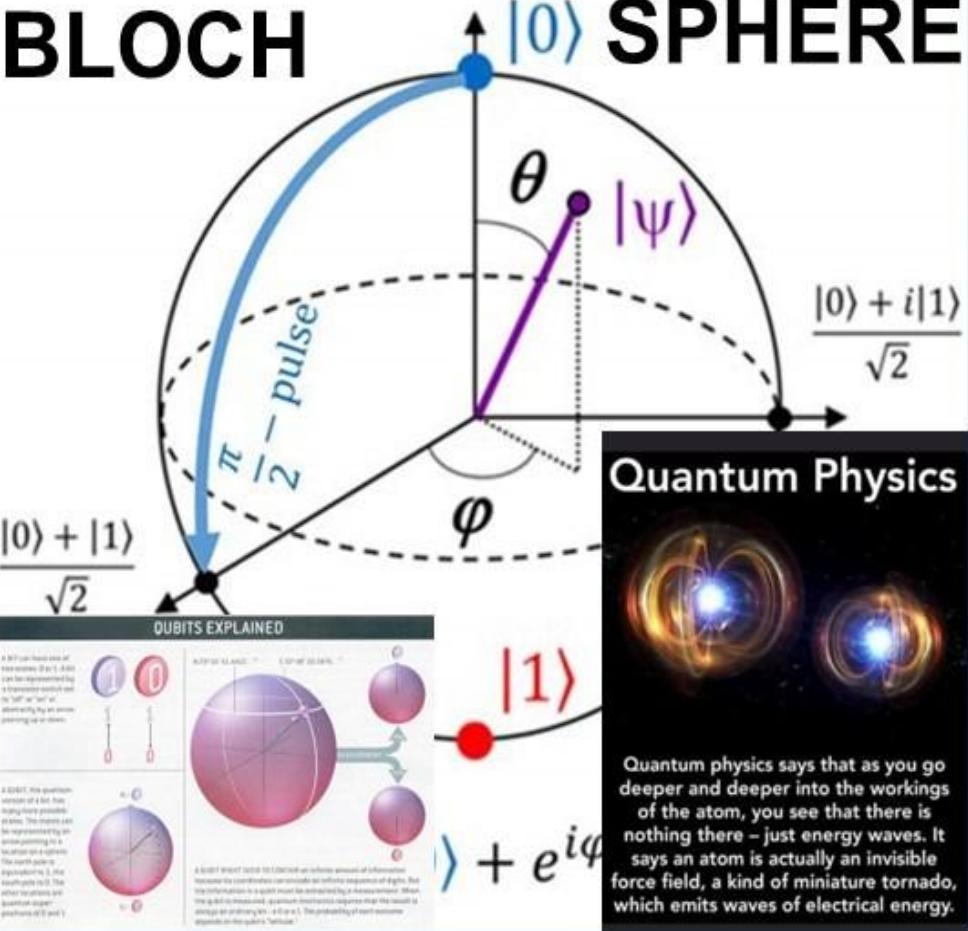


FIGURE 2.11.1. The Hopf fibration

BLOCH SPHERE



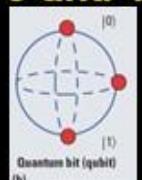
Hopf Fibration / #Bloch sphere

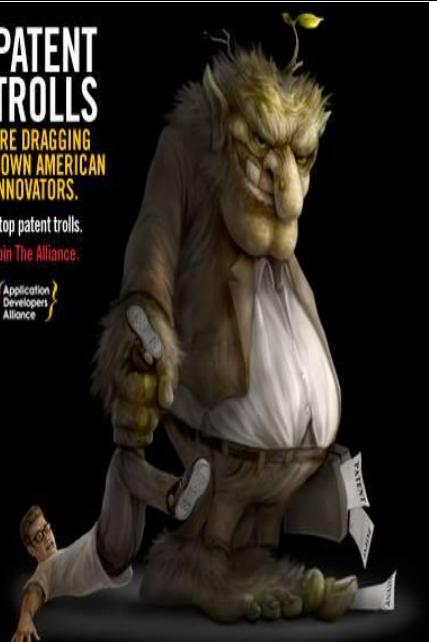
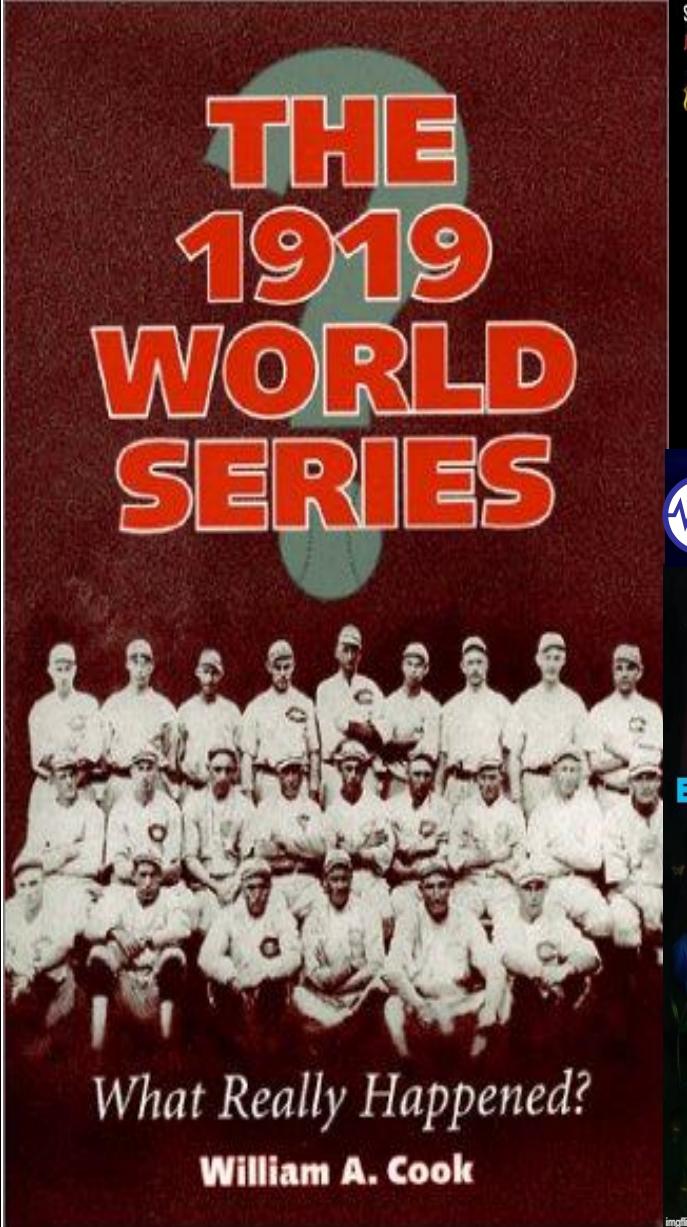
"the most important object in the universe"

"Hopf fiber bundles pop up in 8 quantum physics situations"... USPTO 13/573,002 water drop in pond meme / scalar wave in 2D - 3D

Paul Revere linear - sequential hop count meme

The Bloch sphere provides a useful means of visualizing the state of a single qubit & operations on it. Any point on this sphere represents a linear combination of the 0 and 1 states with complex coefficients. A $\pi/2$ -pulse 'rotates' a qubit from the 0-state to a superposition state.







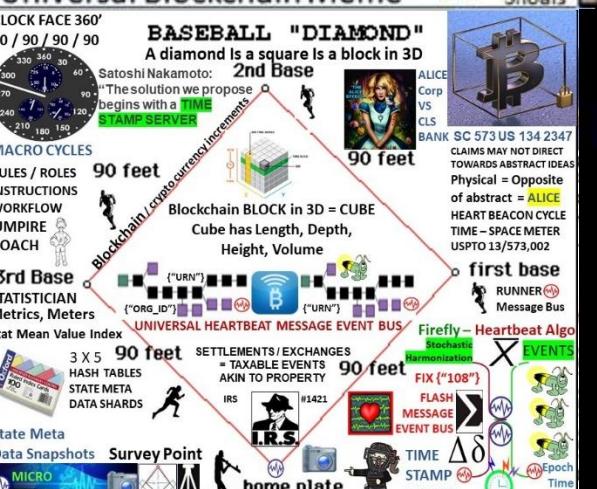
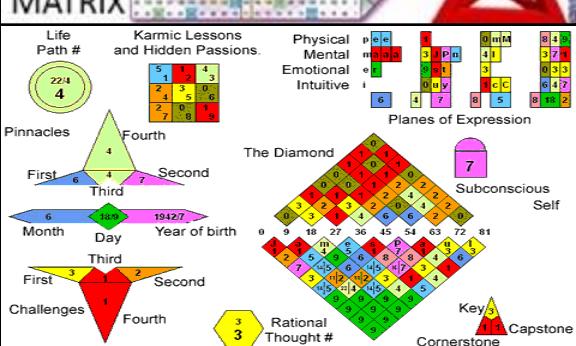
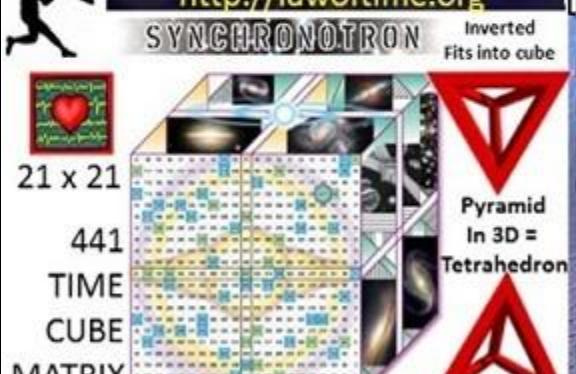
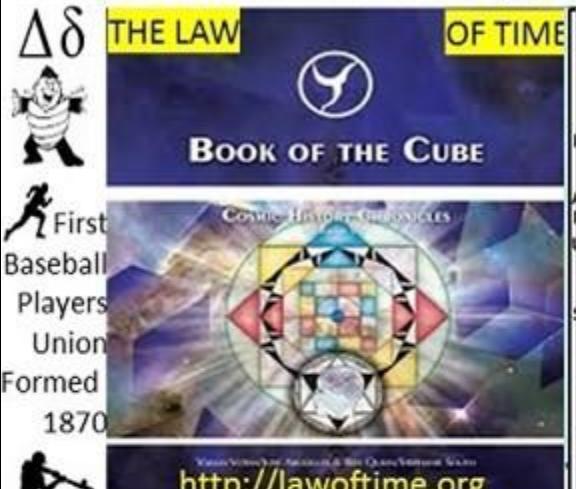
USPTO APPLICATION 13/573 002

The Heart Beacon Cycle Time-Space Meter

Main Embodiment: Baseball Diamond = block in 3D = cube

$$1 + 3 + 5 + 7 + 3 + 2 = 21 \quad 21 \text{ squared} = 441$$

"We can synchronize ourselves in time for a common purpose" Universal Blockchain Meme



Satoshi Bitcoin Blockchain
Time Stamp Server

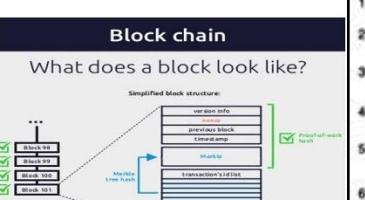
Timestamp Server

The solution we propose begins with a timestamp server. A timestamp server works by taking a block of data to be timestamped and widely publishing the hash, such as in the Internet or Usenet news [25]. The timestamp proves that the data did not exist outside at the time of publication. This timestamp can be used to verify the timestamping of a block of data, forming a chain, with each additional timestamp reinforcing the ones before it.



```

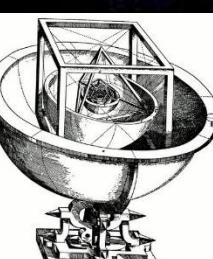
graph LR
    TS[Timestamp Server] --> B1[Block 1]
    TS --> B2[Block 2]
    B1 --> H1[Hash 1]
    B2 --> H2[Hash 2]
    H1 --> TS
    H2 --> TS
  
```



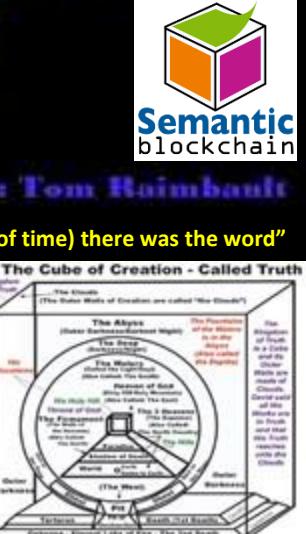
Metatron's Cube and the Platonic Solids



“In the beginning (of time) there was the word”



GENESIS OF ALL FORM





"There is only one revolution tolerable to all men, all societies, all political systems: revolution by design and invention."

-Buckminster Fuller



THE GREAT CONJUNCTION IN AQUARIUS

HERALDING THE NEW AGE
On December 2020, Jupiter and Saturn unite in the sign of Aquarius, forming a configuration called a Great Conjunction which only happens once every twenty years. Great Conjunctions are often longterm beginnings or foundations formed out of unstable circumstances. In the sign of AQUARIUS, this is likely to mark a major technological boom that will culminate on 2030 and last until 2040, the next Great Conjunction.

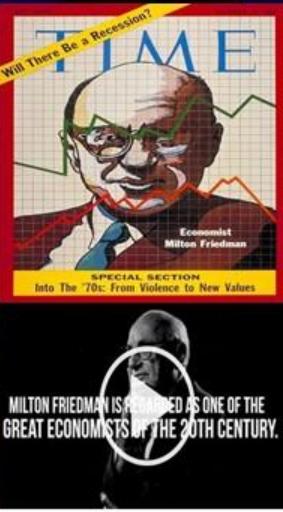
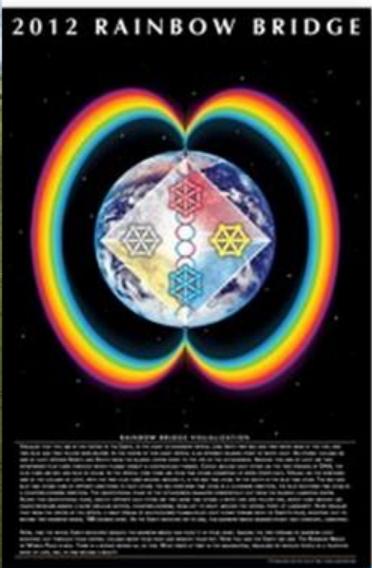
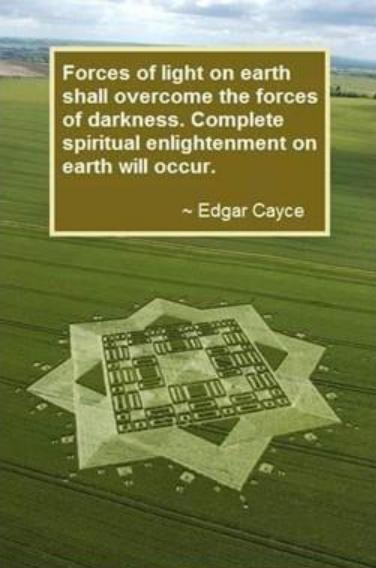
Over the next ten years, we are going to see our world innovate unlike never before, particularly in the fields of AI, technology, science, space travel, UFOs, networks, and the Internet. Major Universal truths will also be revealed as we welcome the New Age of Aquarius. The old world will soon come to an end, paving way to the new order of things.

photo by werner du plessis



Forces of light on earth shall overcome the forces of darkness. Complete spiritual enlightenment on earth will occur.

~ Edgar Cayce



"ONLY A CRISIS—ACTUAL OR PERCEIVED—PRODUCES REAL CHANGE. WHEN THAT CRISIS OCCURS, THE ACTIONS THAT ARE TAKEN DEPEND ON THE IDEAS THAT ARE LYING AROUND."

That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes politically inevitable.

Milton Friedman — Preface to Capitalism & Freedom 1962

The K-Percent Rule was a proposal by economist Milton Friedman that the central bank should increase the money supply by a constant percentage every year.

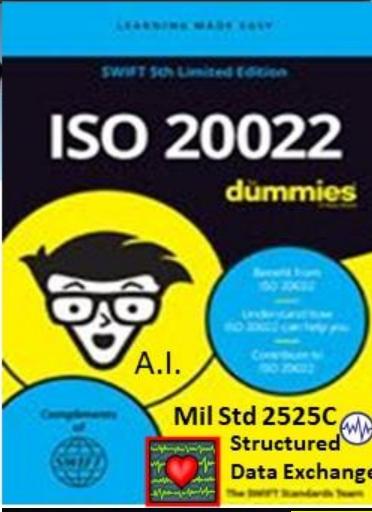
The K-Percent Rule: sets the money supply growth at a rate equal to the growth of gross domestic product (GDP) yearly.

Milton Friedman

- 1912-2006
- Economist, monetarist
- 1946-1977: University of Chicago
- 1977-2006: Hoover Institution
- Essays on Positive Economics, A Theory of Consumption Function, Capitalism and Freedom, A Monetary History of the United States (1867-1960) - with Anna Schwartz, Price Theory, etc.
- Nobel Prize in Economics, 1976
- Considered as conservative, in reality liberal economist
- Advisor to President Nixon



CAPITALISM AND FREEDOM
MILTON FRIEDMAN
WITH THE ASSISTANCE OF ROBERT FRIEDMAN



The Age of Aquarius: Aquarius, Aquarius Rising @ 6:44 A.M. Feb 10th 1960

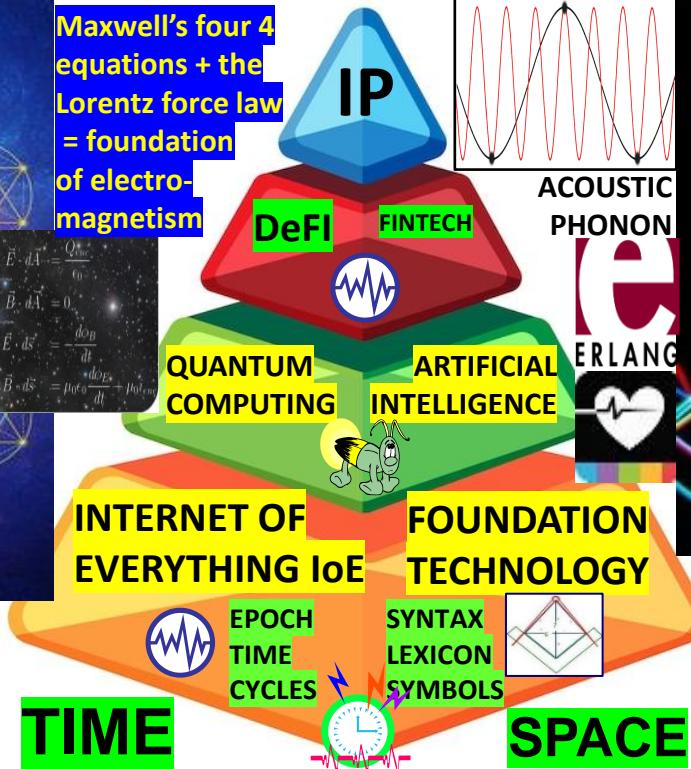
Buckminster Fuller "build a new model that makes the old model obsolete"

Socrates: focus all your energy on building the new, not fighting the old"

#algorithmic #stablecoin #buckminster #fuller #cryptocurrency #Milton #Friedman



METATRON'S CUBE
GENESIS OF ALL FORM



THE OZ KEY

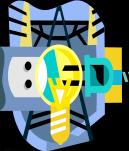


THE LAW OF TIME

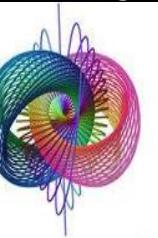


"Time is a created thing" Lao Tzu

"If you want to find the secrets of the universe, think in terms of energy, frequency and vibration." - Nikola Tesla



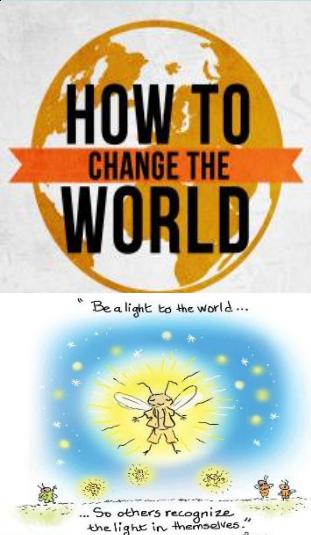
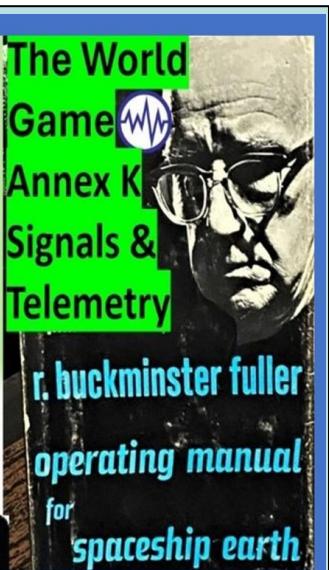
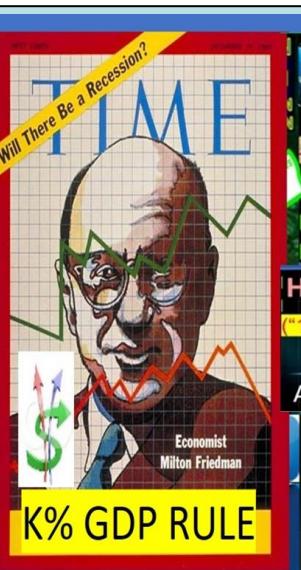
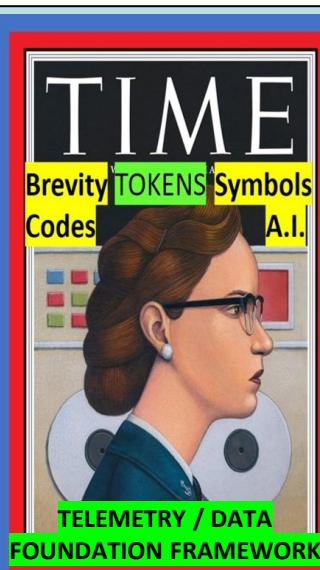
HOPF FIBRATION



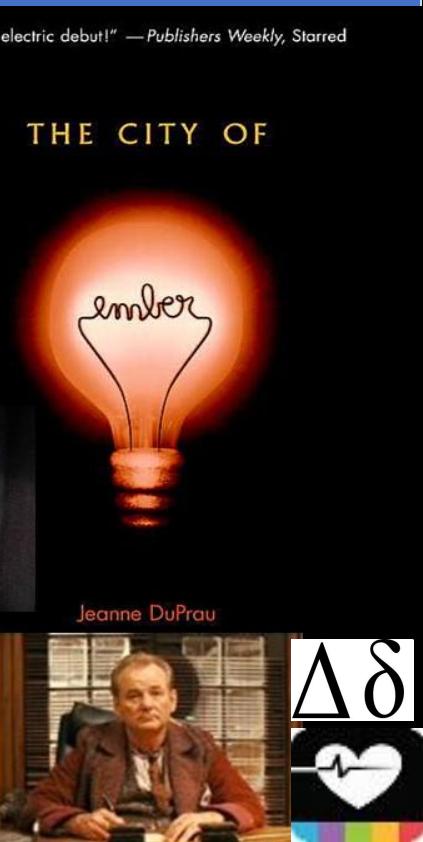
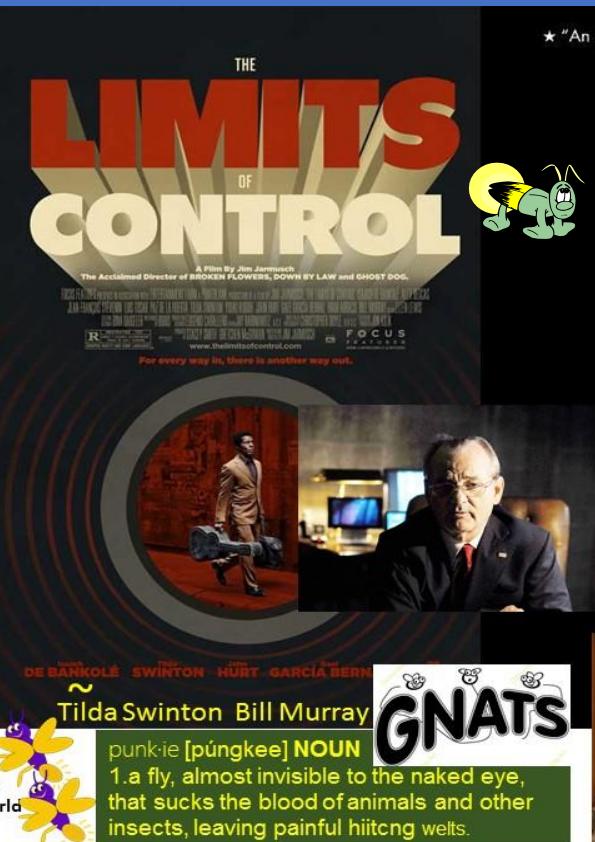
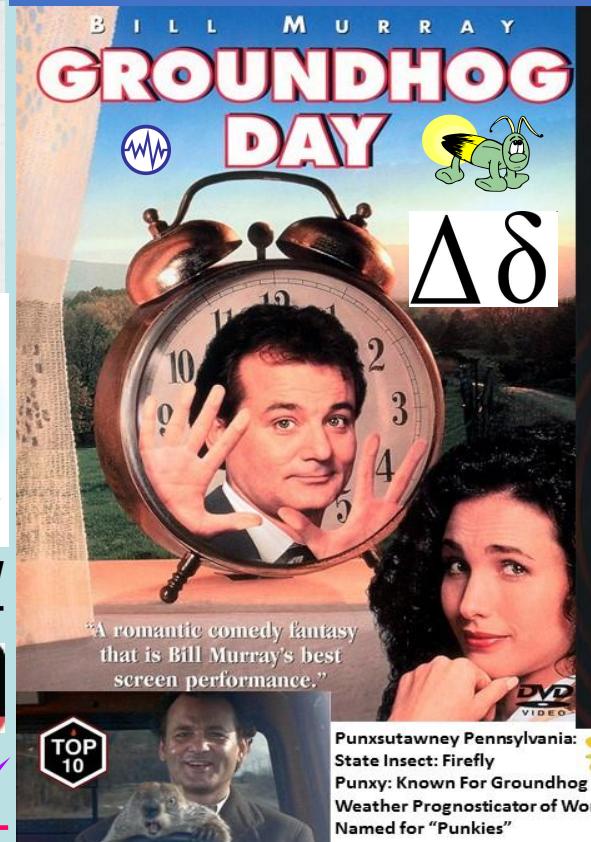
USPTO 13/573,002 The Heart Beacon Cycle Time – Space Meter / Adaptive Template

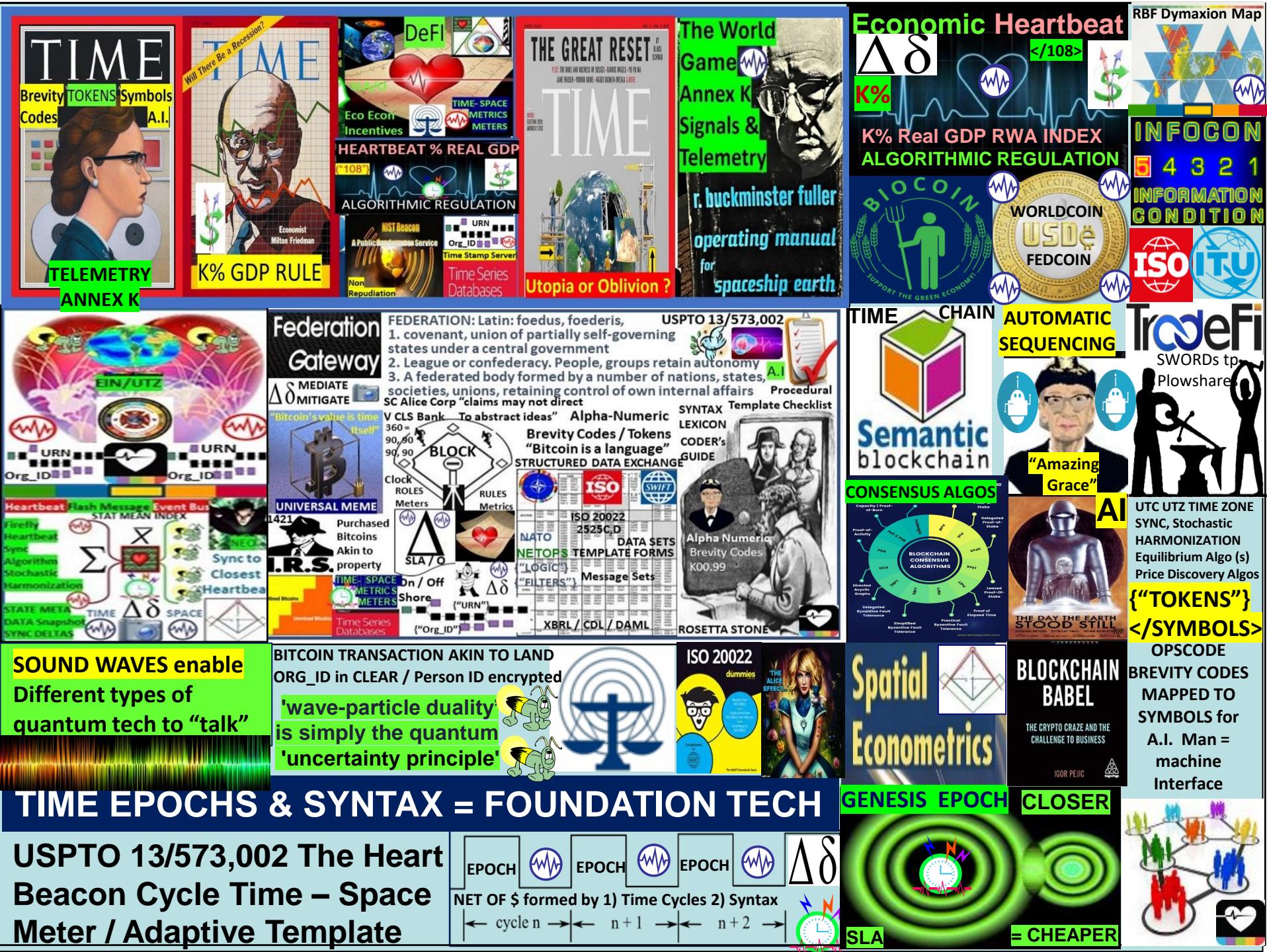


DISNEY'S FANTASIA



UNIVERSAL LAW
CAUSE / EFFECT
ACTION /
INACTION
IF / Then /
or.. ELSE





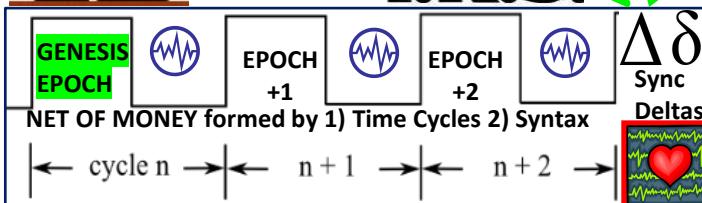
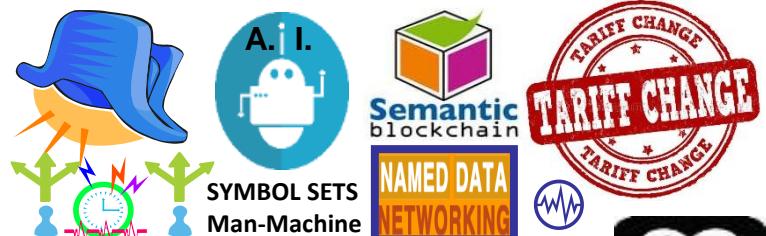


World Game Great Reset Signals Telemetry Annex K



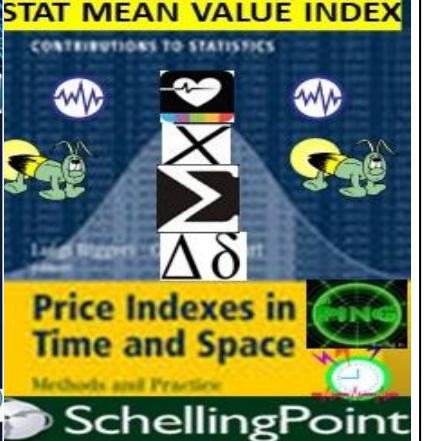
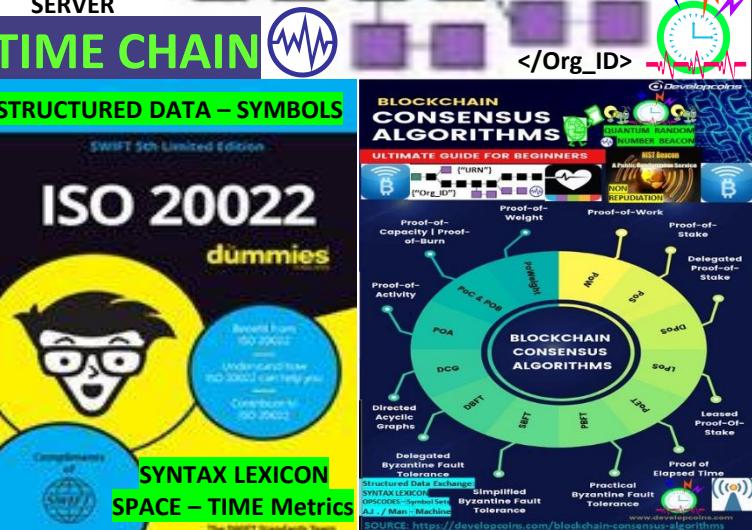
Net, net of money \$\$\$ formed w:

1. Epoch time cycles created by silicon chips
2. Syntax code instructions in epoch time cycles
3. Time Stamp Server w/event message bus

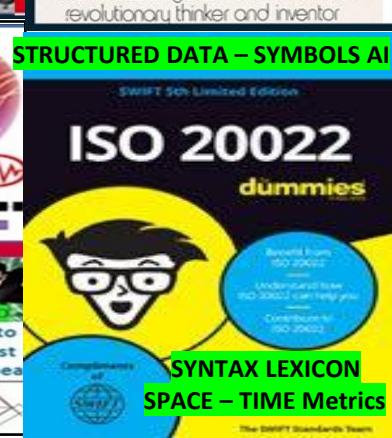
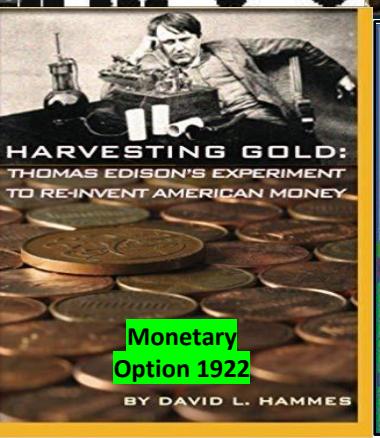
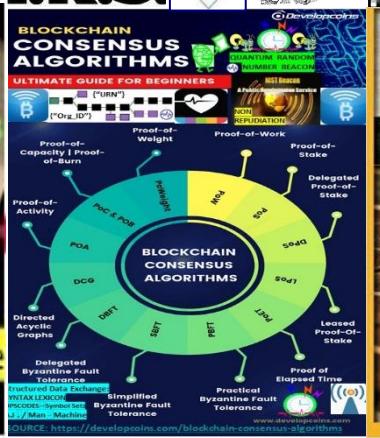
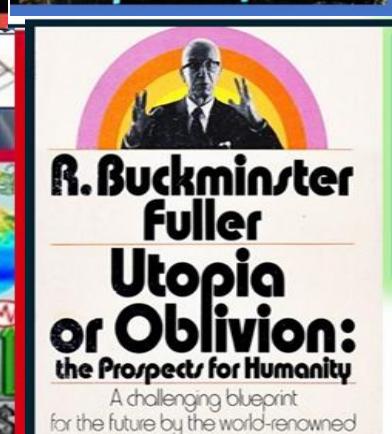
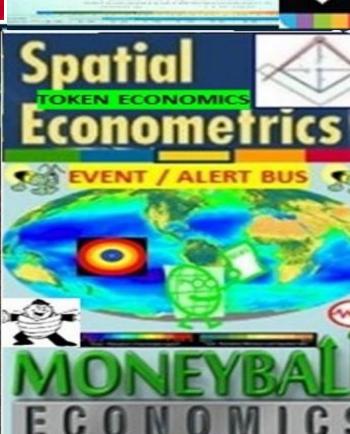
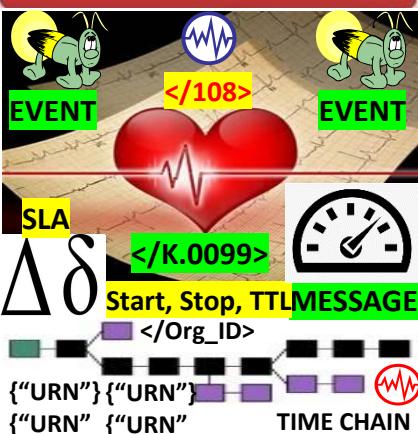
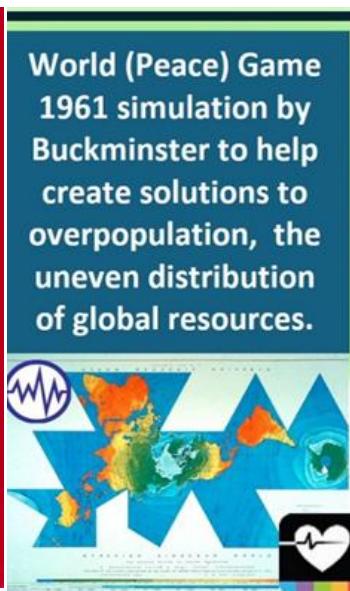
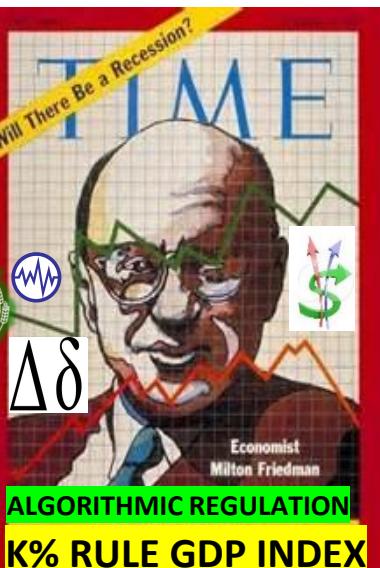
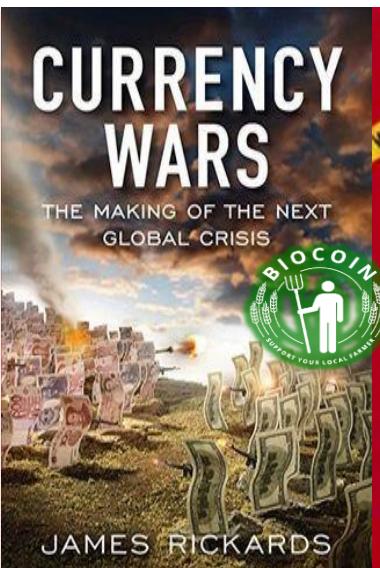


Syntax lexicon comprised of 300 + Structured data messages, message sets = Comprehensive list of use cases, data elements supporting Internet of Everything IoE net of value. Reference guide, data dictionary standards support

Data elements mapped to SYMBOL SETS



SchellingPoint



The Timekeeper is the primary antagonist in Borderlands 4, a ruthless dictator who rules over the planet Kairos from on high.

A world-altering catastrophe threatens his perfect Order, unleashing mayhem across Kairos, the most dangerous planet discovered so far in the Borderlands universe

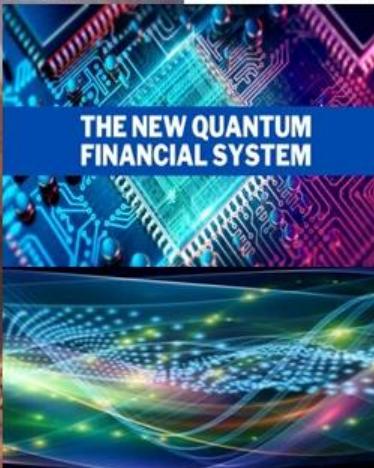
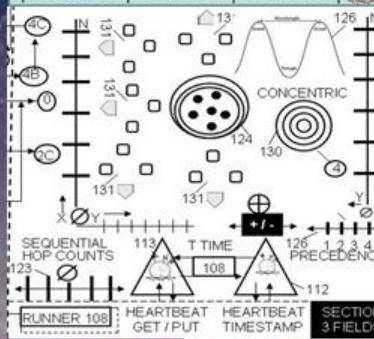
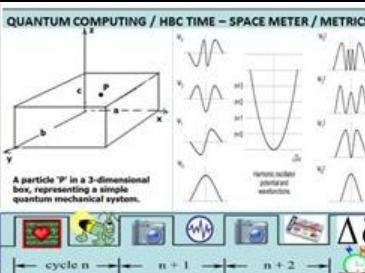
BORDERLANDS 4



THE TIME KEEPER



USPTO 13/573,002



FUTURE MAN

Born: February 10th 1960 & 06:44 AM

Aquarius

Aquarius Rising

Mystic Yod



QUOTE: "As in nature, all is ebb and tide, all is wave motion, so that in all branches of industry, alternating currents, electric wave motion will have sway." Nikola Tesla

Because abstract ideas, laws of nature, and natural phenomenon "are the basic tools of scientific and technological work", the Supreme Court has expressed concern that monopolizing these tools by granting patent rights may impede innovation rather than promote it. See Alice Corp., 573 U.S. at 216, 110 USPQ2d at 1980; Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 71, 101 USPQ2d 1961,

