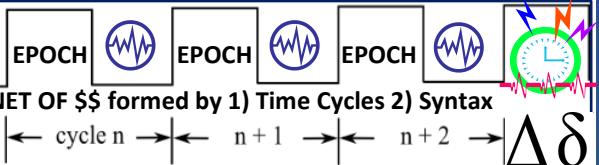


# USPTO 13/573,002 The Heart Beacon Cycle Time – Space Meter / Adaptive Template



## EPOCH TIME INTERVALS - CYCLES // SYNTAX = FOUNDATION TECH



# RBF's World Game

## Signals & Telemetry

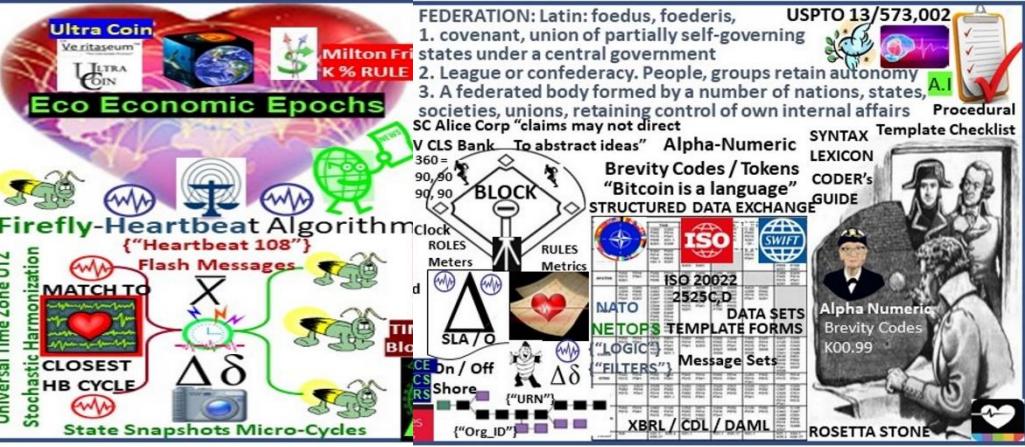
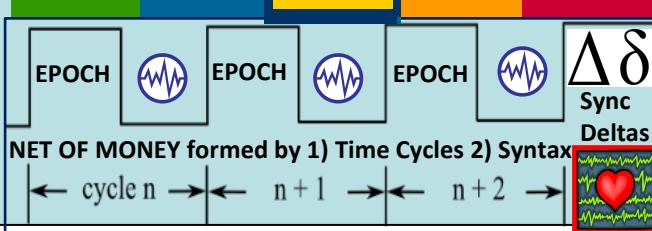
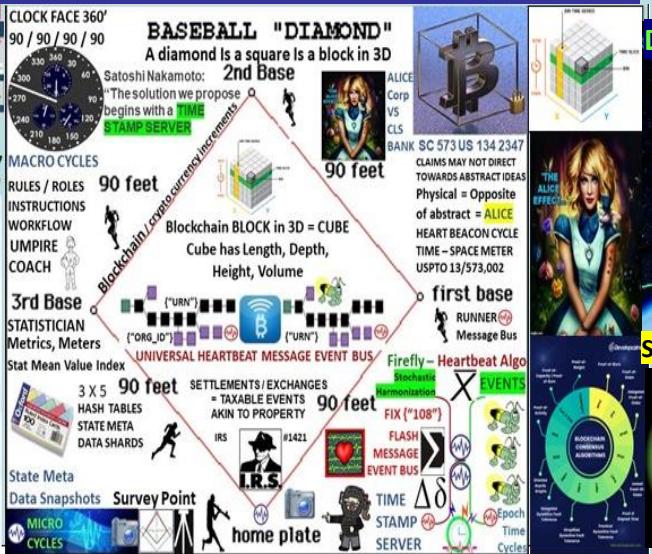
### Annex K



USPTO 13/573,002

573 U.S. 134 SCt 2347

"Alice in Wonderland Ruling"



**THEESIS: net, net of programmable \$\$\$ / value units**  
**AI machine learning = statistical workflow formed by:**

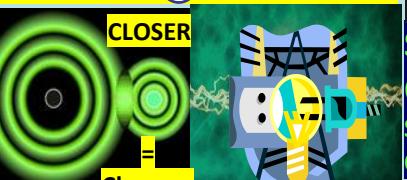
1. Epoch time cycles created by oscillating quartz crystal silicon chips
2. Syntax used / not used as code instructions in epoch time cycles.

A.I. standard syntax lexicon 300+ structured messages provide a comprehensive list, dbase of structured data exchange data elements, Message data sets support a net of value. designed to serve as a reference guide / data dictionary for international standards, technical papers on quantum, A.I., DeFi , Fintech..

**DATA / ENERGY PULSE**



**SOUND WAVES**



**300 + STRUCTURED DATA MESSAGE SETS**

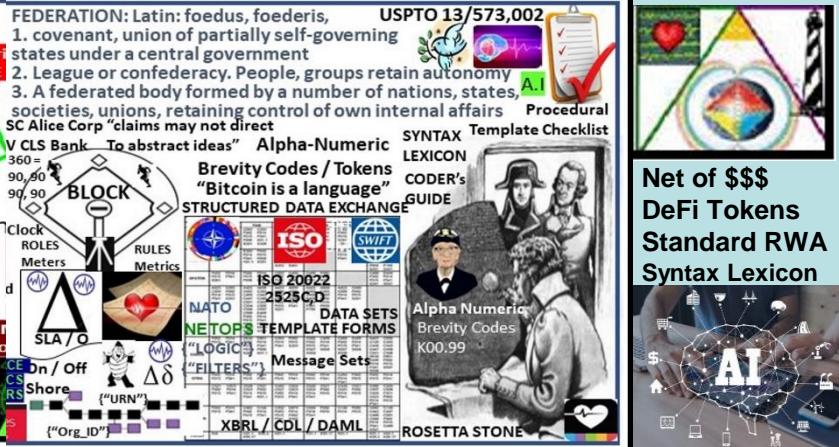
{ "EVENT" }

**SYNC DELTA**

</Org\_ID></URN>

Data Snapshots

**TIME CHAIN**



**Artificial Intelligence A.I. / Machine Learning = STATISTICALLY PREDICTIVE WORKFLOW**

**SILICON CHIP**

Oscillation

**TradeFi TOKENIZATION**

**SOUND WAVES** = Quantum @ Room Temp

**PLAN**

**FUNDING**

**PROCESS**

**PRODUCT**

**INCOME**

# World Game Annex K

## Signals & Telemetry



INTERNET, NET of \$\$\$ =  
1. Epoch Time Cycles  
2. Syntax instructions



INTERNET, NET of \$\$\$ =  
1. Epoch Time Cycles  
2. Syntax instructions



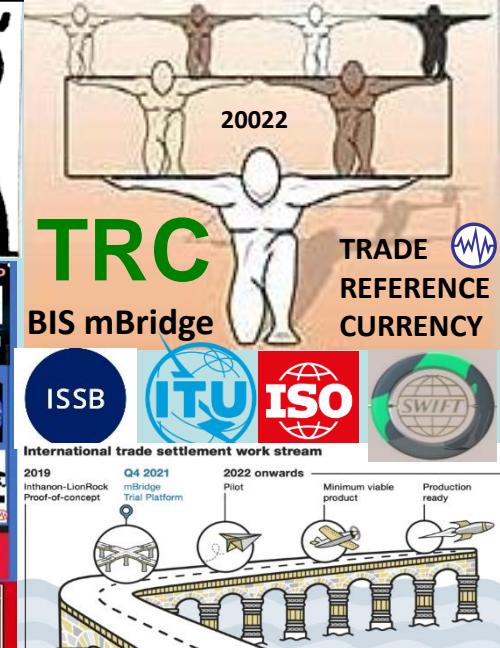
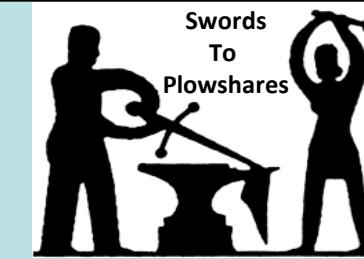
Eco Economic Epoch Heartbeat: reuse of DoD / NATO signal, telemetry syntax - symbol set  
structured data exchange system of systems engineering framework for DAO Trade  
Federations, programmable money / Economy. It is time to stand on the shoulders of giants.  
SLA Service Level Agreement Eco incentives: closer = < time, cheaper, < fuel, < CO2  
"Build a new model that makes the old model obsolete" Buckminster Fuller



System of Systems common framework Standards, Sync, Stochastic Harmonization  
MIL STD 2025 D  
BATTLEFIELD  
DIGITIZATION OOTW Operations Other than war



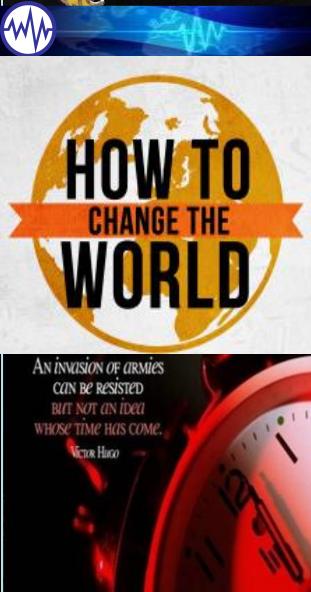
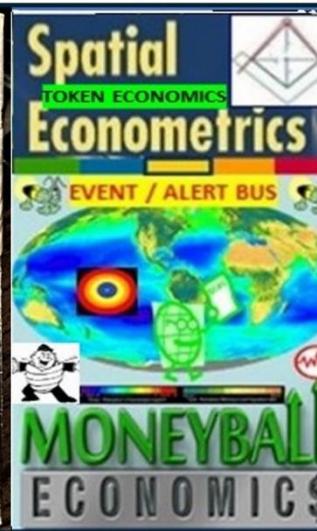
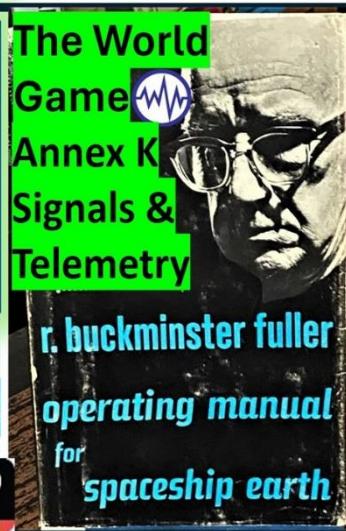
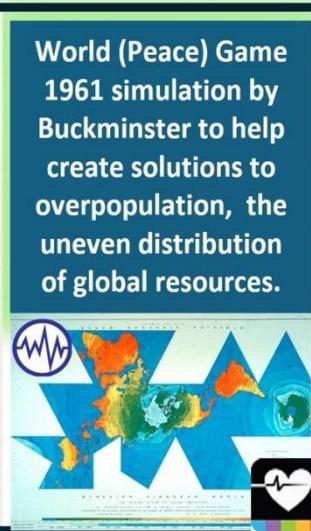
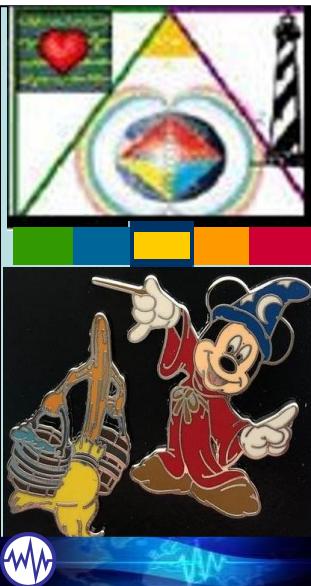
ECO INCENTIVES </Interest>  
DEMURRAGE FEES  
UTZ Sync  
NAMED DATA NETWORKING  
ESEY currencyindex  
TIME TIME TIME TIME  
THE GREAT RESET  
TIME TIME TIME TIME  
Buckminster Fuller



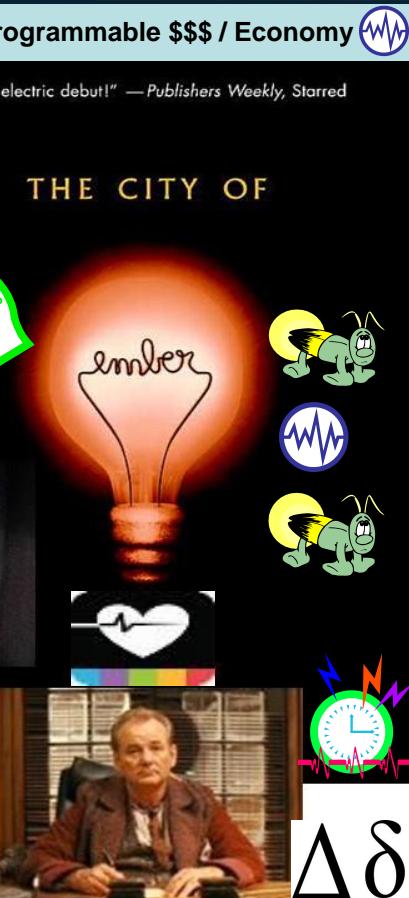
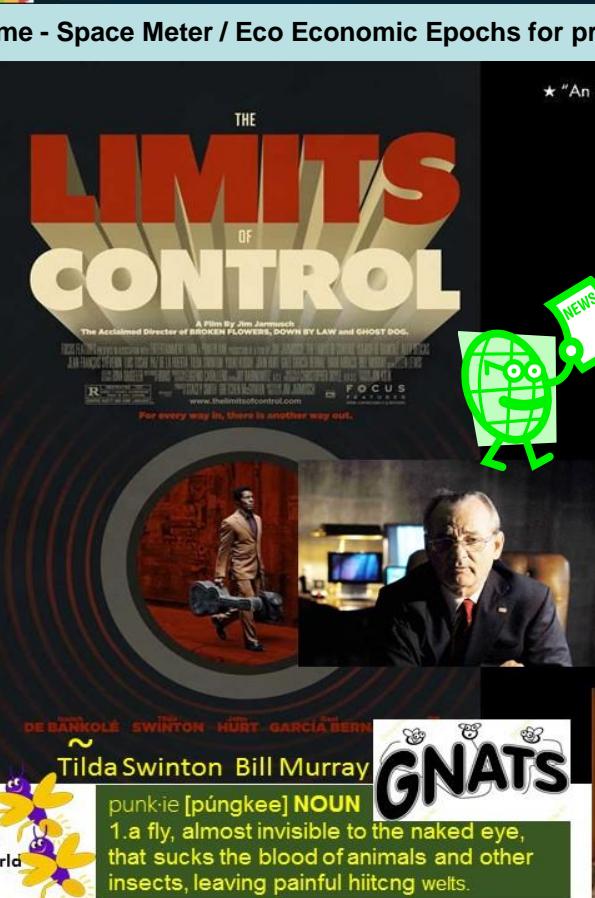
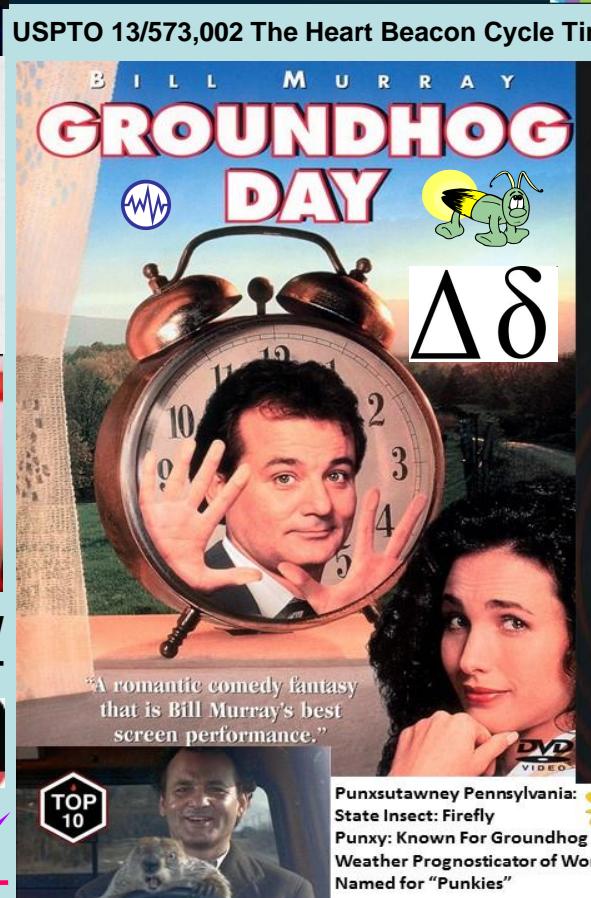
"Build a new model"  
Standing on the shoulders of giants



Eco Economic Epochs  
For Programmable \$\$\$  
Programmable Economy  
Eco Economic Epochs  
Symbol / Message Sets A.I.  
FIREFLY Inspired Heartbeat Algorithm



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



DE BANKOLE SWINTON HURT GARCIA BERN  
~ Tilda Swinton Bill Murray  
Punxsutawney Pennsylvania:  
State Insect: Firefly  
Punxy: Known For Groundhog  
Weather Prognosticator of World  
Named for "Punkies"

punk·ie [púngkee] NOUN  
1. a fly, almost invisible to the naked eye,  
that sucks the blood of animals and other  
insects, leaving painful hictng welts.



$\Delta\delta$

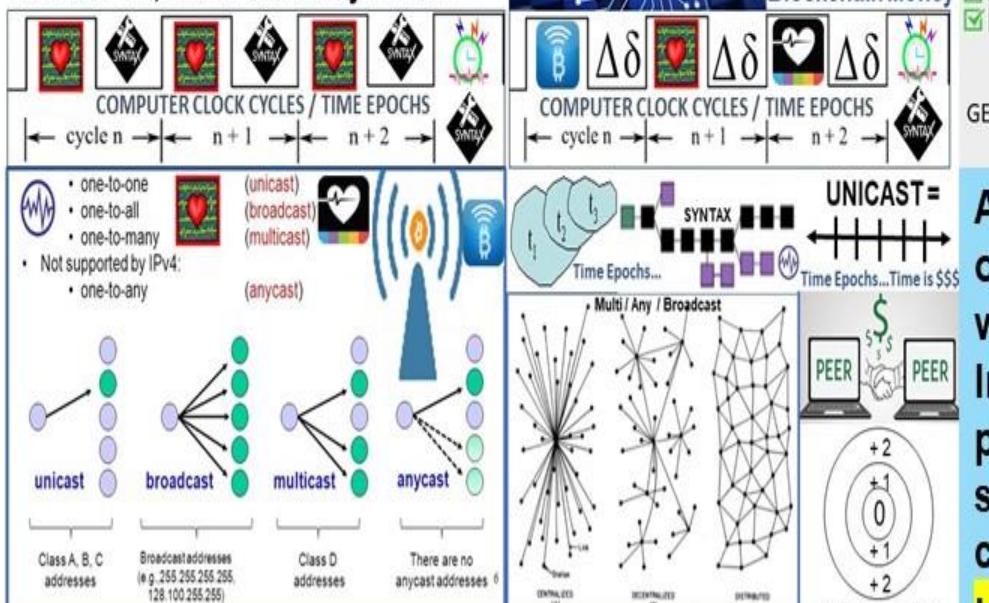
## Foundation Technology Trinity:

- 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

**THESES:** 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...

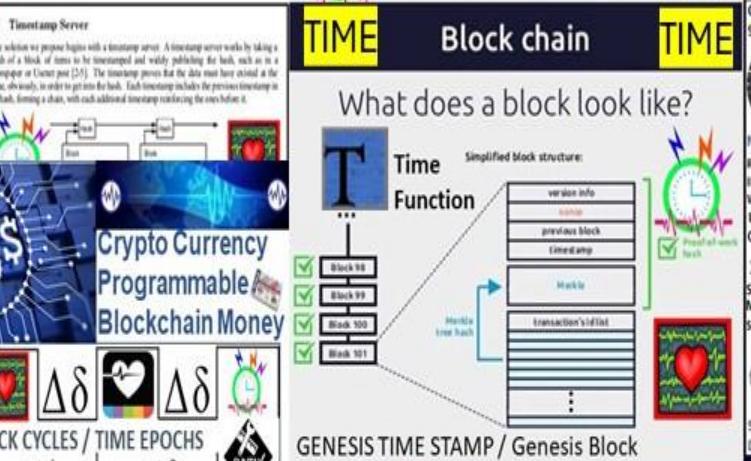
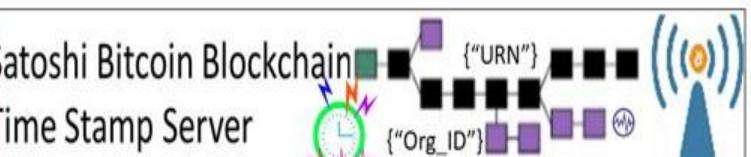


All things internet, programmable net of money are formed using:  
1) Epoch Time Cycles to 2) process (not) syntax as instructions

## Epoch Time Cycles / Syntax



Internet / Internet of Money building blocks

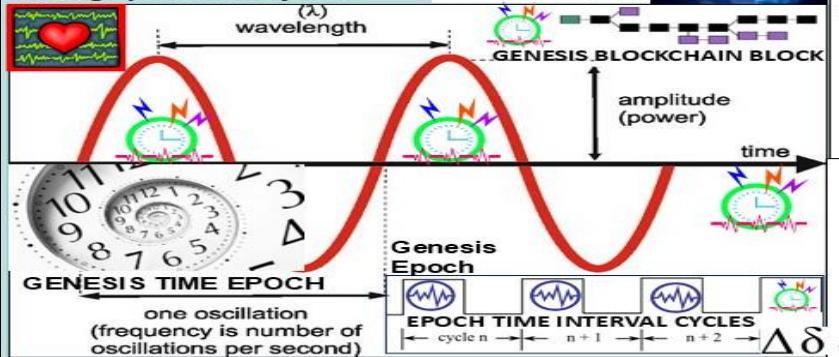


Artificial intelligence (AI) syntax refers to the set of rules, principles governing the arrangement of words and phrases in a programming language. In the context of AI and natural language processing, syntax ensures that language is structured in a systematic way, for effective communication and comprehension.

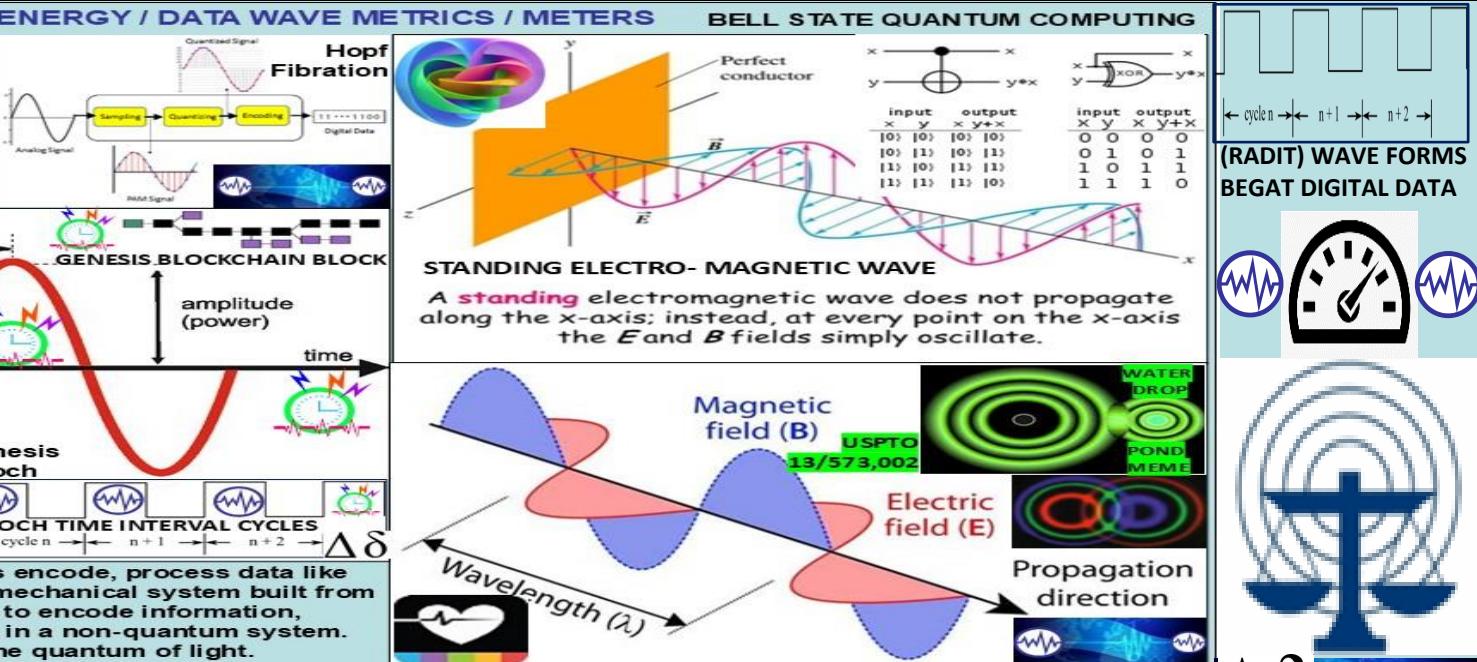
**Understanding syntax is essential for developers to write readable, maintainable, and scalable code**

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

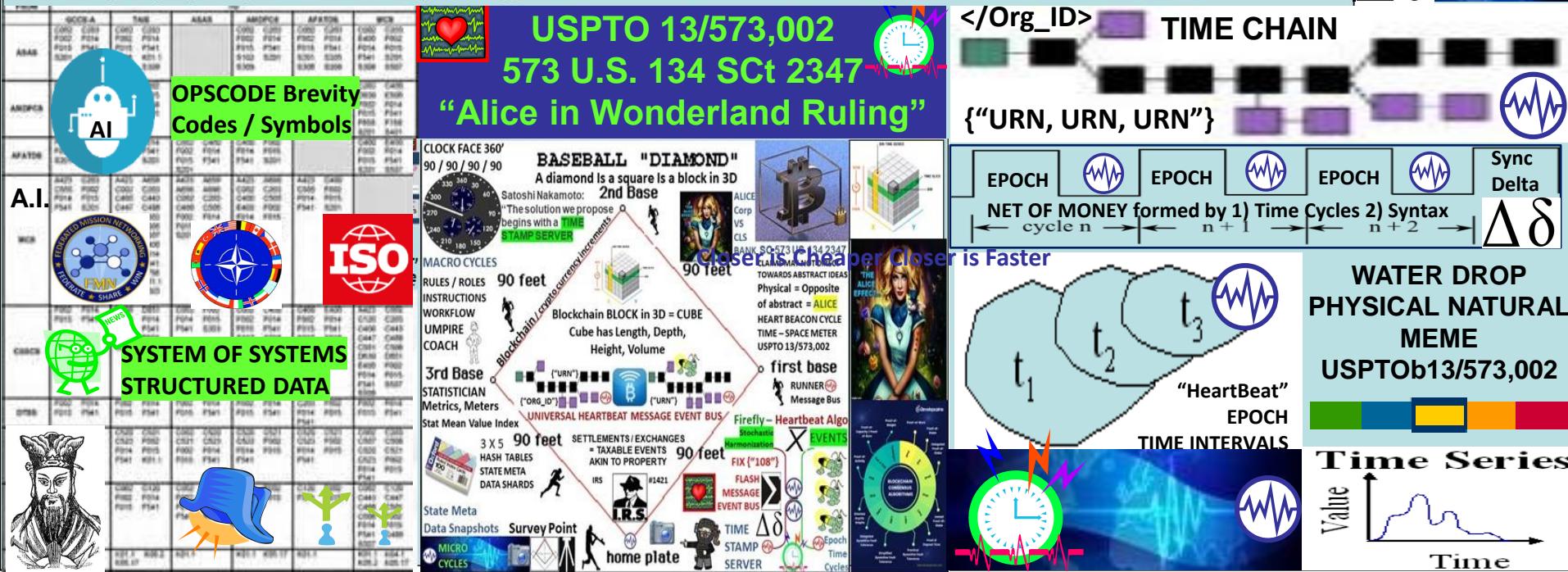
- 1) Time epochs created by quartz crystal silicon chips
  - 2) Syntax used / not used as programming instructions during epoch time cycles



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](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**

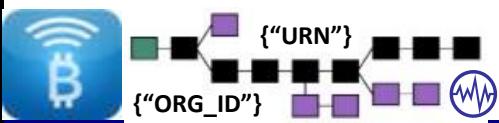


# Humanitarian Assistance Networked Donor System

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"



300 +TEMPLATES  
STRUCTURED DATA  
EXCHANGE  
FFUIRNS FFUDNS OPSCODES  
MAPPED TO SYMBOL SETS

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



OPERATIONS  
OTHER  
THAN  
WAR



# Beacon Communities

Vernetzte Operationsführung



LINK

PING

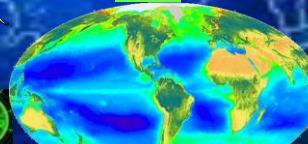


Proximity Beacons

JAEGERS

Closer < \$\$\$ < FUEL

PING



FREELY

HEARTBEAT

ALGORITHM

EVENT / ALERT

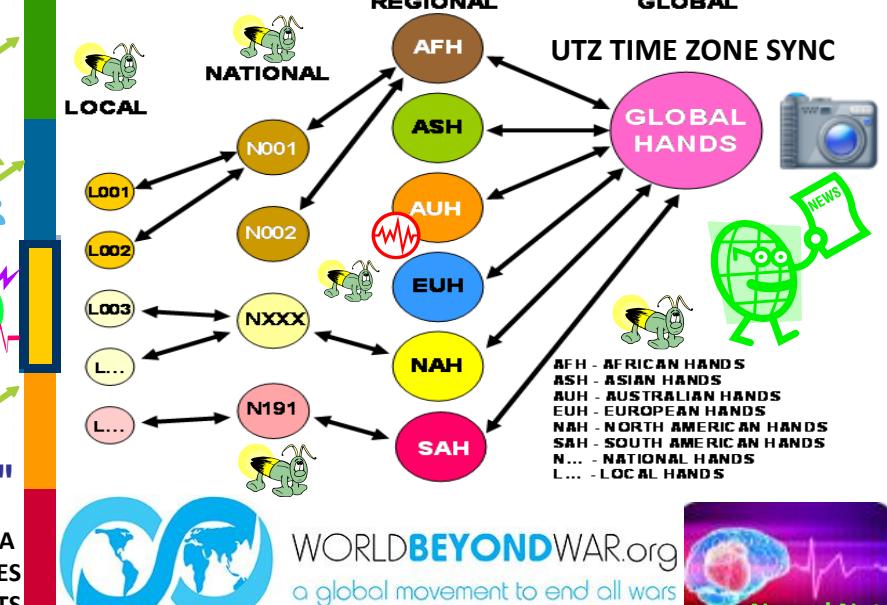
Flash Heartbeat Message Bus



KAIJU



SYSTEM  
Of  
SYSTEMS



AFH - AFRICAN HANDS  
ASH - ASIAN HANDS  
AUH - AUSTRALIAN HANDS  
EUH - EUROPEAN HANDS  
NAH - NORTH AMERICAN HANDS  
SAH - SOUTH AMERICAN HANDS  
L... - NATIONAL HANDS  
L... - LOCAL HANDS



WORLD BEYOND WAR.org  
a global movement to end all wars



Neural Net



OFF SHORE  
OUTER BANKS

# RBF's World Game

## Signals & Telemetry

### Annex K



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

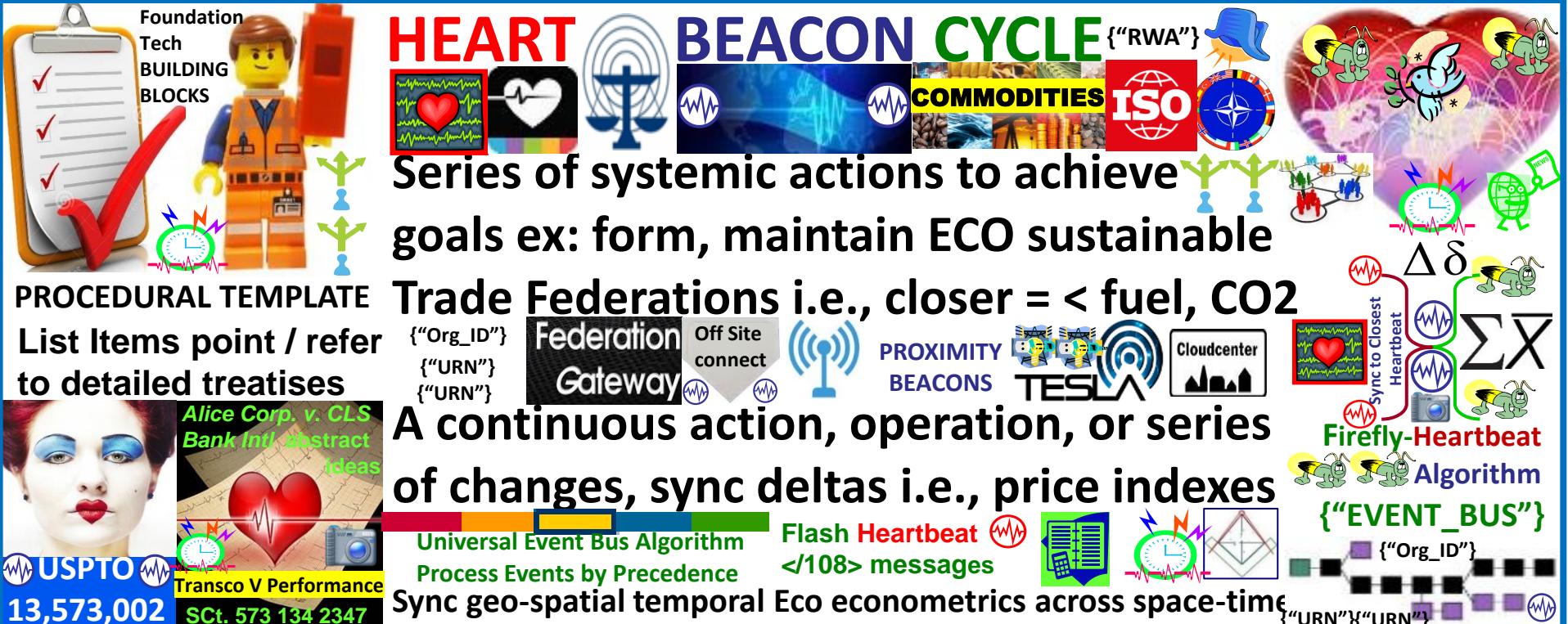


- Reuse, mod of System of systems engineering framework, Syntax Lexicon Library data elements
- **STRUCTURED DATA EXCHANGE**  
Reuse brevity codes mapped to 2525D symbol sets comprised of 300 + message sets for A.I. - machine Block-Time DLT arbitrage among Trade Federations </Org\_ID> {“URN”} </URN>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







# Artificial Intelligence / USPTO 13/573,002 Adaptive Procedural Template

Machine Learning: data input / output =  
action (s): if, then else, or... do



Data, event cyclic time interval  
sampling sync delta snapshots



Natural Language Processing programming  
computers to process human languages to  
facilitate interactions between humans /  
computers

Data brevity OPSCODE sync delta  
time slot samples @ set intervals  
Mapped to symbols 25 A,B,C,D  
MILSTD for Man – machine interface

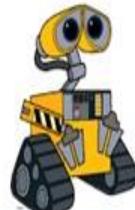


Automation & robotics: machines do repetitive  
tasks

Military = repetition. temporal ,  
UTZ – UTC sync harmonization,  
international standards

Machine Vision: Machines capture,  
analyze visual information, data

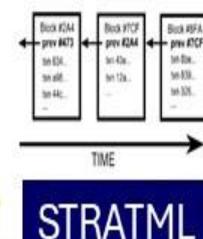
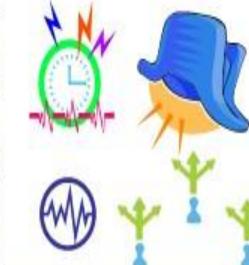
Military = geo-spatial temporal Applique' overlays



Structured  
Data

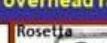


Structured  
Data



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

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

FROM	TO					CODE GUIDE	
	GCCS-A	TAIS	ASAS	AMDPCS	AFATDS	MCS	
ASAS	C002 C203 F002 F014 F015 F541 S201 S309	C002 C203		C002 C203	C002 C203 F014 F541 S305 S309	C002 C203 E400 F002 F541 F015 S201 S309 S507	
TOKENS	<b>USMTF / XML MTF FORMATTED MESSAGE CATALOG = 300 + messages info exchange sets using common, CONSENSUS Message Text Formats MTFs. MTFs specify &lt;/CONTENT&gt; / info agreed by group consensus presenting information in a logical, well specified unambiguous layout resulting in a highly efficient info payload to overhead ratio</b>						
AMDPCS	OPSCODE BREVITY CODES				F002 C203 F015 D630 S201 E500 F002 F014	C203 C400 D630 E500 F002 F014	
AFATDS	F002 F014 F015 F541 S201					A.I.  INFOCON 5 4 3 2 1 INFORMATION CONDITION	
MCS	 	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	 Syntax Lexicon Coder's Guide	A423 C203 C505 F002 F014 F015 F541 S201	 "SYMBOLS RULE THE WORLD" 

MESSAGE CATALOG  
300 + Use Cases

**Data Elements:** entity, attribute, relationship equivalents

ARTBEAT MESSAGE =  
0.99 </108> {"108"} 

300+ Use Cases		Information Categories and Examples						
Object Categories	Examples	Location	Movement	Identify	Status	Activity	Intent	
OOB	<b>SYNTAX LEXICON</b>	STRUCTURED DATA lat/long	EXCHANGE spd/hdg	Message country / alliance, type/class	Sets readiness	targeting, recentering	COA {"Java JS"}	
Infrastructure	Comm, power, transportation, water/sewer	Machine Trust Language network, grid	MTL throughput, flow rates,	name, part-of relationships	BDA, op mode	repair, maintenance	YAML expansion plan	
Sociological	Culture, religion, economic, ethnic, government, history, languages	temples, historic structures	E-R Model Entity	Class Diagram Class	Relational Database Table	Object DBMS Class	XML DTD / Schema Element	TADLs Message
Geophysical	Terrain, weather, climatology, oceanography, astrometry	feature lat/long, alt/dpth	Attribute	Attribute	Field / Column	Attribute	Child Element or Element Attribute	DFT FFRN / FFN / FUN
		Domain Value	PURCHASE CODES	Instance, Value			<b>TOKENS</b>	DUI FUD



## Information Elements Roles

- ```

graph TD
    A[DI Determination Org Interaction] --> B[Search and Discovery]
    B --> C[Standards]
    C --> D[UBL]
    C --> E[DOL DATA DEFINITION LANGUAGE]
    C --> F[XML]
    D --> G[Field Format]
    E --> G
    F --> G
    G --> H[ured military]
  
```



**N: Field Format Unit Designator #**

Field Format Index Reference #

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

### Form Field Position & NUMBER

“108” NDN fly-Heartbeat Flash Messages

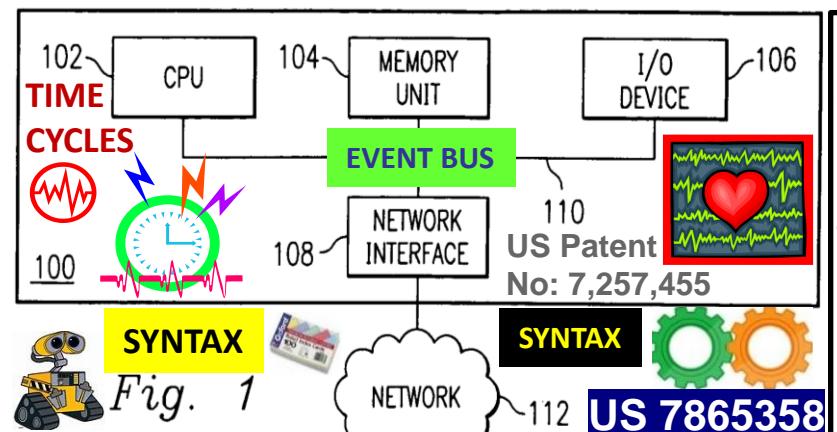
**PROCESS MESSAGE BY PRECEDENCE**  
**UNIVERSAL EVENT / ALERT MESSAGE BUS**

RATIONAL NODES / ACTIVITIES Synt

| SYSTEM FUNCTIONS                  |         | PERFORMANCE                    |         |
|-----------------------------------|---------|--------------------------------|---------|
| Classification                    |         | 11.8 - Kinematics              |         |
| - Category                        |         | 11.8.1 - Pos / Vel / Acc (PVA) |         |
| 11.4.1 - 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          |         | 11.2 - Linear                  |         |
| 11.4.1.2.2 - Evaluated D          |         | 1 - Estimate Type              |         |
| PURCHASE                          |         | 1.2 - Estimated                |         |
| 11.4.1.3 - Value                  |         | 1.2.2 - Observed               |         |
| CODES                             |         | 1.2.3 - Predicted              |         |
| 11.4.1.3.5 - Surface              |         | 1.2.4 - Uncertain              |         |
| - Platform / Point / Feature Type |         | 1 - Velocity                   |         |
| - Specific Type                   |         | 1.4.1 - Horizontal             |         |
| - Type Modifier                   |         | 1.4.2 - Vertical               |         |
| - Unit                            |         | VA - Confidence                |         |
|                                   |         | 1 - Bearing Angle              |         |
|                                   |         | 2 - Bearing Angle Rate         |         |
|                                   |         | 3 - Covariance Matrix          |         |
| BOL                               | Friend  | Neutral                        | Hostile |
| 25C                               | Partner |                                |         |
|                                   |         | Competitor                     |         |
|                                   |         |                                |         |



code language parsed,  
essed during silicon chip  
rated epoch time cycles  
s all things internet, net of  
y. state meta data sync delta  
beat snapshots during  
n temporal micro-cycles



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, i.e.

"SIGNS AND SYMBOLS RULE THE WORLD, NOT RULES OR LAWS"

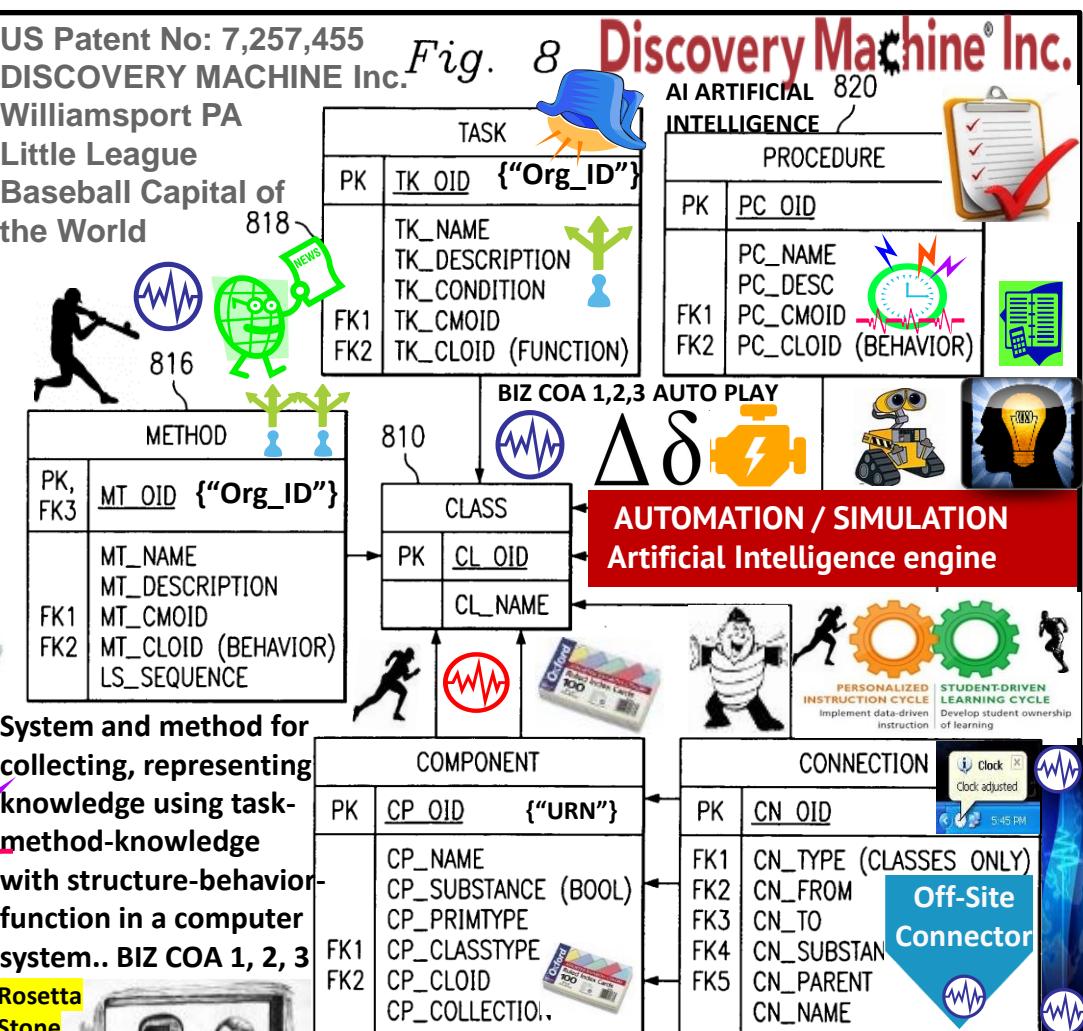
OTAN OTAN RULE THE WORLD, NOT RULES OR LAWS

Confucius

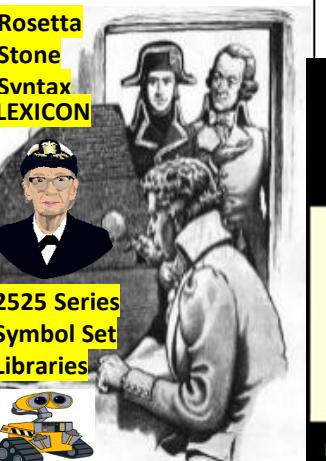
Alpha-numeric OPSCODE

Brevity codes mapped to symbols,

Symbol sets = structured data

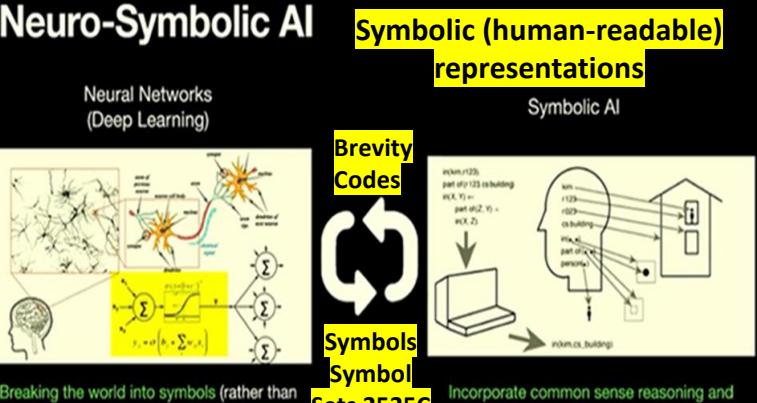


System and method for collecting, representing knowledge using task-method-knowledge with structure-behavior-function in a computer system.. BIZ COA 1, 2, 3



| COMPONENT |                     |         |
|-----------|---------------------|---------|
| PK        | CP_OID              | {"URN"} |
| FK1       | CP_NAME             |         |
| FK2       | CP_SUBSTANCE (BOOL) |         |
|           | CP_PRIMTYPE         |         |
|           | CP_CLASSTYPE        |         |
|           | CP_CLOUD            |         |
|           | 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                |



# THE TERRA (TRC)

Trade Reference Currency

TELLURIUM PRODUCERS NECESSARY  
GLOBAL SPECTRUM UNDIFFERENTIABLE  
MINERALS EXHAUSTION

COMMODITIES

producers consumers

SLA: Closer = Cheaper

Closer = Less Fuel  
= Less Time, CO2

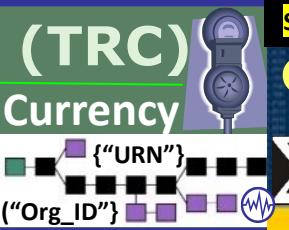
\$0.49 USD

B 0.001076 BTC

DEMURRAGE FEES

bitcoin

MICRO PAYMENTS



SHELLING POINT  
X  $\Delta\delta$   
Price Indexes in Time and Space  
Methods and Practice



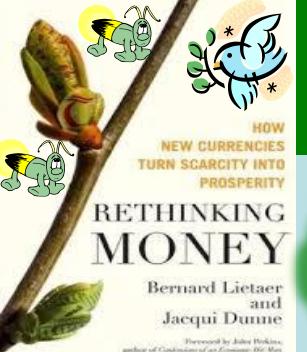
ECONOMIC HEARTBEAT  
FEDCOIN / WORLDCOIN

WAVES TOKENIZES CURRENCIES

LEADING ECONOMIC INDICATORS



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

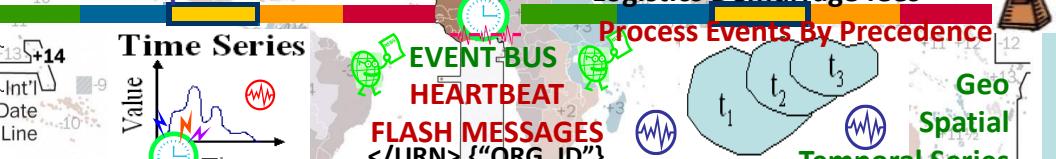
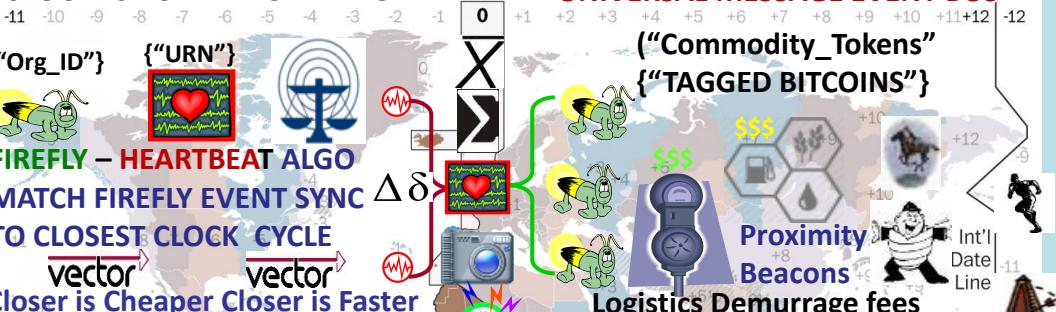


Spatial Econometrics

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

UNIVERSAL TIME ZONE UTZ  
UNIVERSAL MESSAGE EVENT BUS



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.

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"

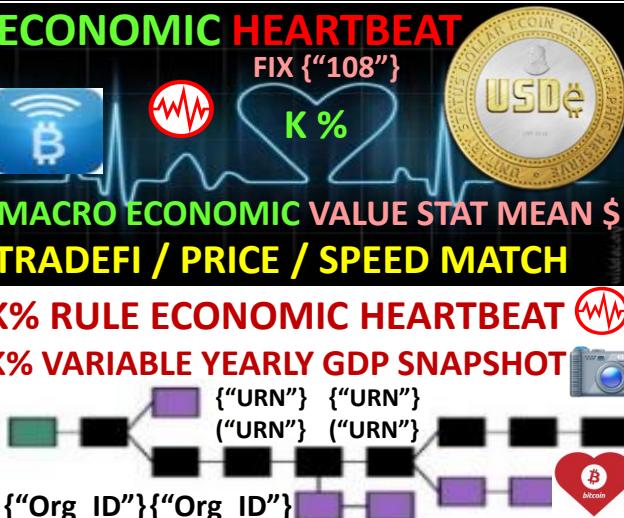
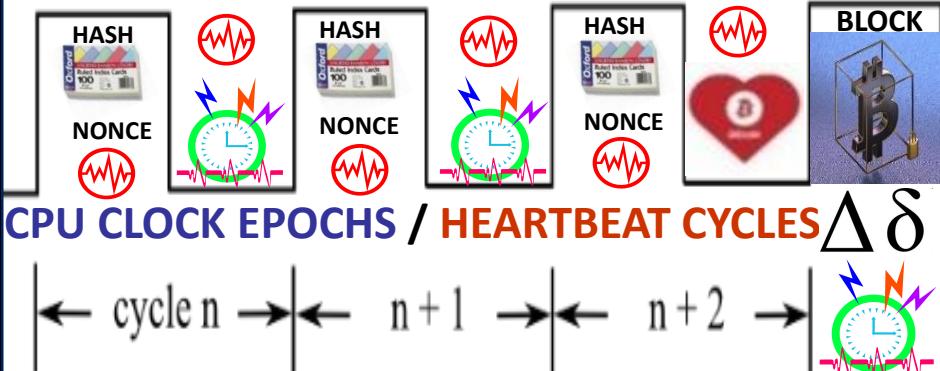




The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind Coordinated Universal Time (UTC). However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours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



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"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"



# Firefly - Heartbeat Algo



University of Bologna Italy / Hungary

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



ECO ECONOMIC HEARTBEAT



("108")



K%



ECONOMIC MACRO CYCLES

TIME-SPACE SYNC

K% GDP ECONOMIC PULSE FEDCOIN WORLDCOIN

Luxor Temple Egypt:  
"The shortest path towards knowledge of truth is nature"

Temple of Man



**LUXOR**  
EGYPT

FIREFLY inspired Heartbeat Sync Algo

PRECEDENCE    UTZ SYNC    SYNC  
PROCESSING    PULSE    DELTAS



NEURAL NET  
EMULATION



BLOCKCHAIN  
PARSING Erlang  
TIME EQUATIONS

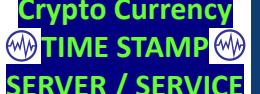


{"Org\_ID"}  
{"URN"}

NIST Beacon  
A Public Randomness Service



Crypto Currency  
TIME STAMP  
SERVER / SERVICE



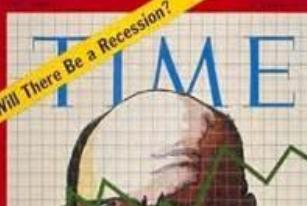
TERRA  
TRC

LEADING ECONOMIC INDICATORS

LEAD  
ECONOMIC  
INDICATORS

ETF

currencyindex



TIME  
Will There Be a Recession?

Economist  
Milton Friedman

FRIEDMAN's K% RULE

ETF

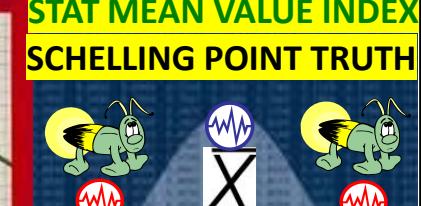
currencyindex

DEMURRAGE  
PARKING

LOGISTIC FEES  
INCENTIVES

DEMURRAGE  
PARKING

LOGISTIC FEES  
INCENTIVES



STAT MEAN VALUE INDEX  
SCHELLING POINT TRUTH



Price Indexes in  
Time and Space  
Methods and Practice

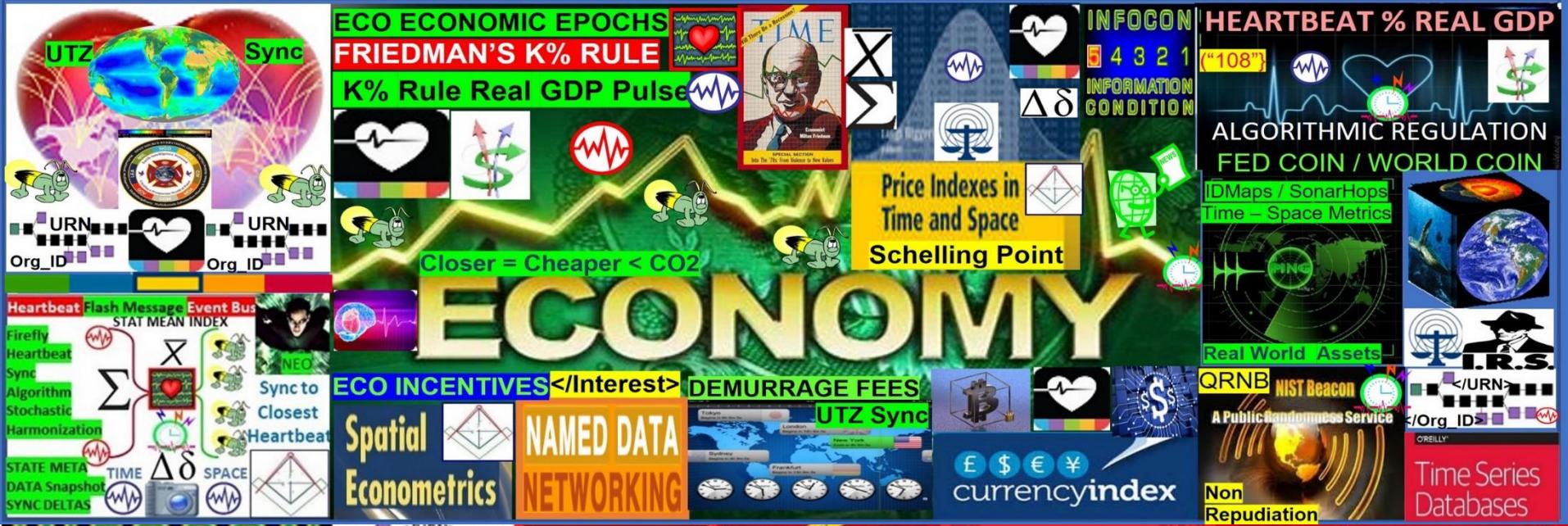
ALGORITHMIC REGULATION  
TOKEN ECONOMICS

COMMODITIES  
GLOBAL PRODUCERS  
CONSUMERS

ALLIUM PRODUCERS  
GLOBAL EXHAUSTION

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



Eco Economic Epoch Heartbeat: reuse of DoD / NATO signal, telemetry syntax - symbol set structured data exchange system of systems engineering framework for DAO Trade Federations, programmable money / Economy. It is time to stand on the shoulders of giants. SLA Service Level Agreement Eco incentives: closer = < time, cheaper, < fuel, < CO2 "Build a new model that makes the old model obsolete" Buckminster Fuller



# Adaptive Procedural Template (checklist): Foundation tech for programmable \$\$\$, Economy / DeFI



- 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

## Eco Economic Epoch GDP Heartbeat signals and telemetry framework



**USE CASE:** Banks - Tech firms are forming teams to assert foundation tech as a legal basis for IP intellectual property claims for programmable \$\$\$ DeFI

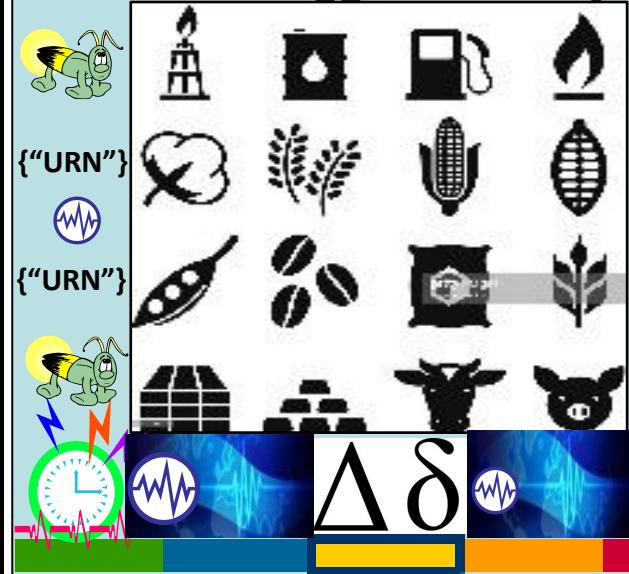
**Use Case:** Tokenize Europe 2025 initiative: reuse DoD / NATO's structured data brevity OPSCODES mapped to 2525A, B, C, D symbols needed for A.I. man-machine interface Reuse, modify 300 + Use Case message set templates data element FFIRNs FFUDNS or, redo a time, people intensive process that took decades to create, test and refine.





# Tokenization of Physical Assets

## RWA Pegged Currency



**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

**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

</Organizational\_ID>  
</Personal\_ID>  
USPTO 13/573,002 The Heart Beacon Cycle Time – Space Meter

Bitcoin Conference  
Nashville Tennessee  
July 27, 2024, at 2 P.M

BTC AS  
STRATEGIC  
RESERVE \$\$\$

"THE Donald"



BTC = />  
"DIGITAL GOLD"  
21 million total

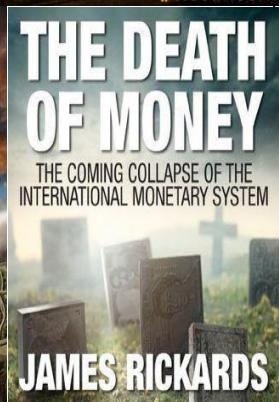
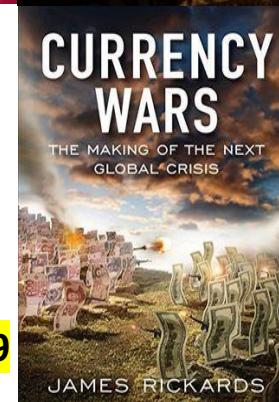


Bitcoin.com

## FORBES DIGITAL ASSETS 'It's Inevitable'— Bitcoin Price Suddenly Soars On Wild Rumors Donald Trump Will Create A U.S. Bitcoin Strategic Reserve

<https://www.forbes.com/sites/digital-assets/2024/07/21/its-inevitable-bitcoin-price-suddenly-soars-on-wild-rumors-donald-trump-will-create-a-us-bitcoin-strategic-reserve/>

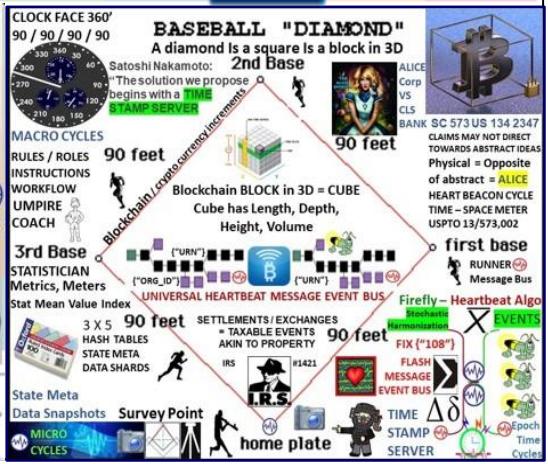
PENTAGON CURRENCY  
WAR GAMES  
CONDUCTED SINCE 2009



Currency Wars: The Making of the Next Global Crisis warns of an impending currency war with devastating consequences for the global economy.

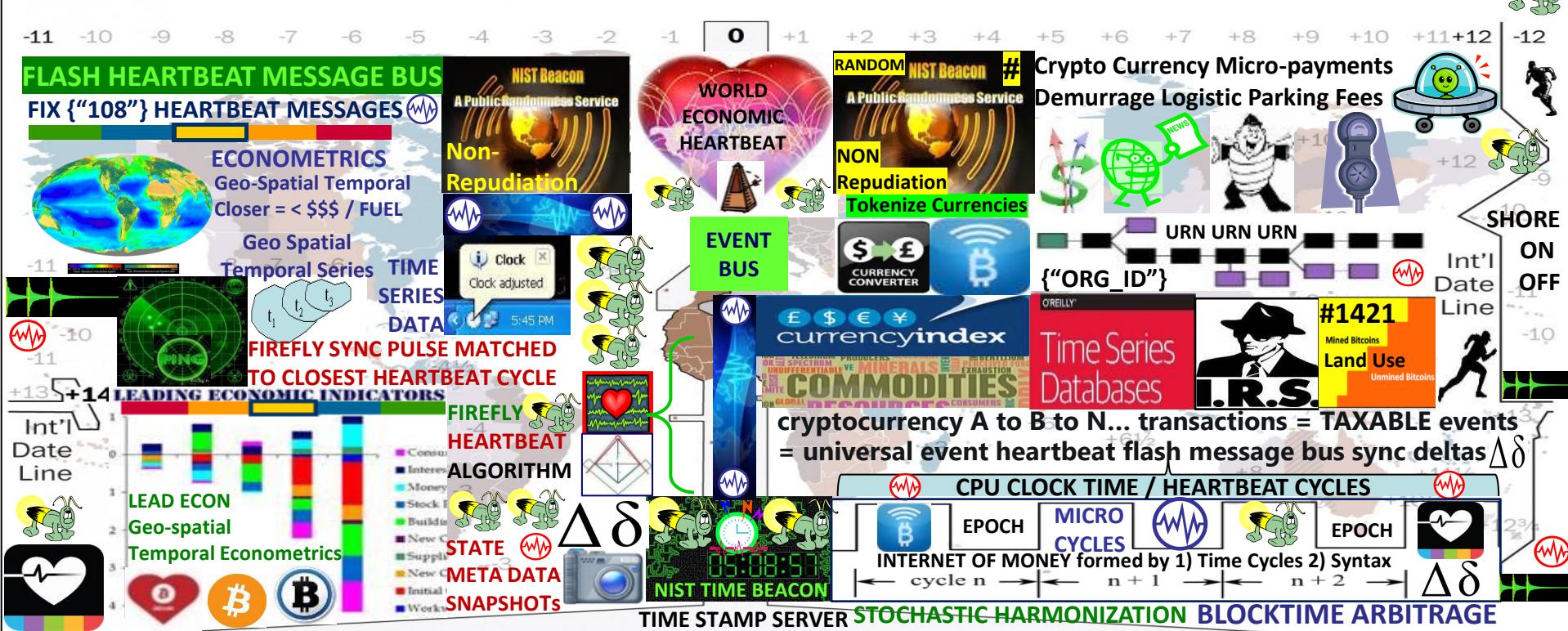
USPTO 13/573,002 Battlefield Digitization, Net Centric Warfare OOTW Operations OtherThan War

## World Game Annex K Signals & Telemetry





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.

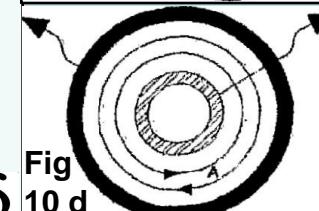
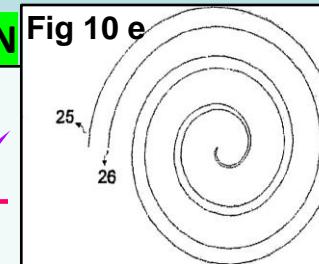




# PROPELLION SYSTEM USING THE ANTIGRAVITY FORCE OF THE VACUUM

## ENERGY PRODUCTION

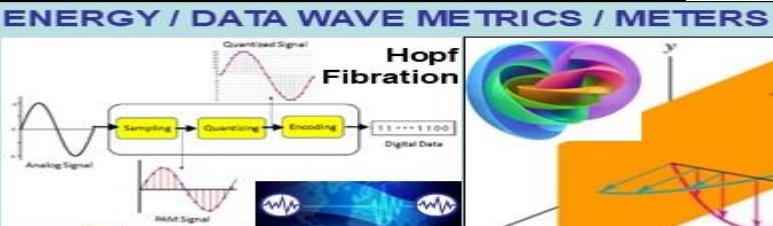
**ABSTRACT:** A propulsion system for aerial, terrestrial, underwater or space propulsion, through manipulation (or engineering) of the vacuum with proper electromagnetic interactions. Vacuum manipulation.. new form of propulsion, and has applications in ENERGY production and on CHANGE of TIME decay 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



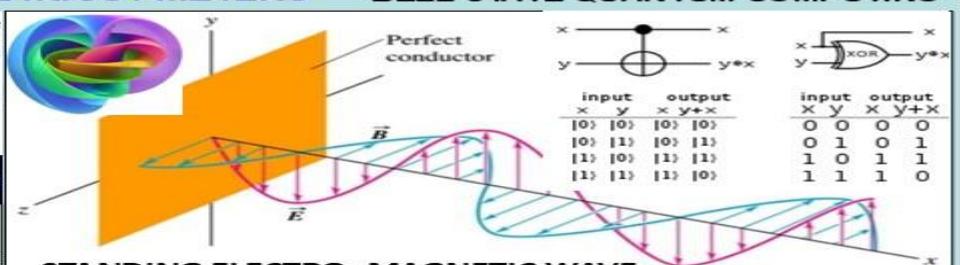
$$\Delta\delta$$

**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

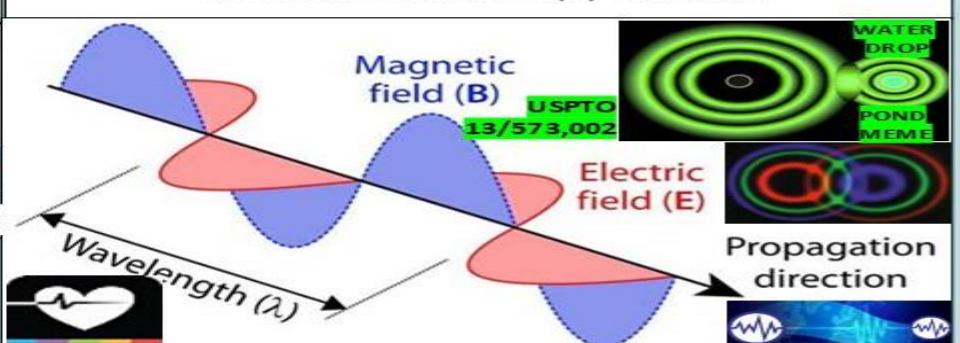
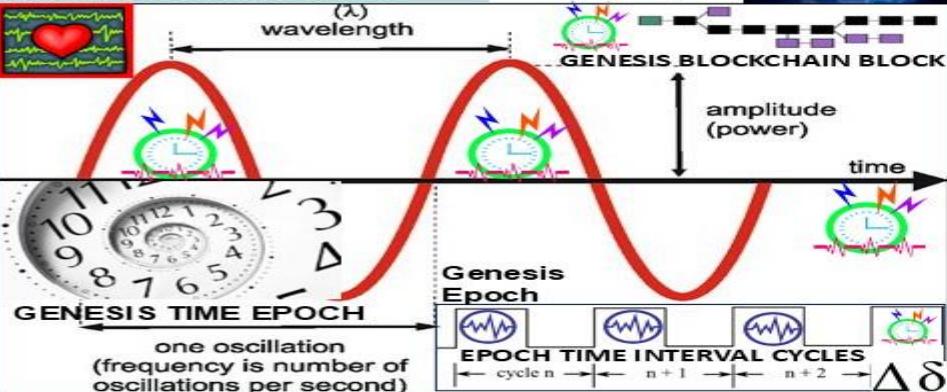


## BELL STATE QUANTUM COMPUTING



### 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

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](https://phys.org/news/2018-06-quantum_1.html)

# Quantum Financial System vs BlockChain

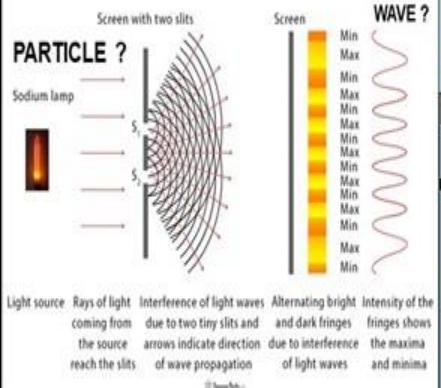
TIME  
CHAIN

**QFS**

TIME  
STAMP  
SERVER

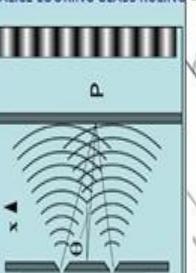
<https://gesara.news>

## Double-Slit Experiment



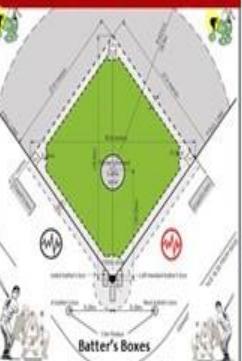
## QUANTUM COMPUTING

- 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



Satoshi Nakamoto Bitcoin Paper

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

Satoshi Nakamoto  
Craig WRIGHT  
a.k.a.

THE VALUE OF  
BITCOIN IS  
TIME ITSELF"

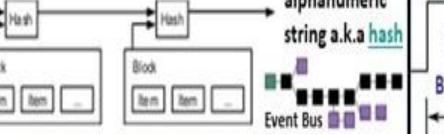
Wright Brother's 1st Flight  
Cape Hatteras Outer Banks



## 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.

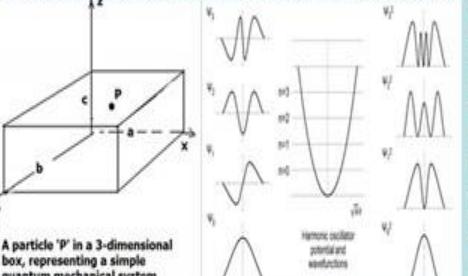
Bitcoin Protocol  
for Dummies  
Part 4 Timestamp  
Server



alphanumeric  
string a.k.a. hash

Event Bus

## QUANTUM COMPUTING / HBC TIME - SPACE METER / METRICS



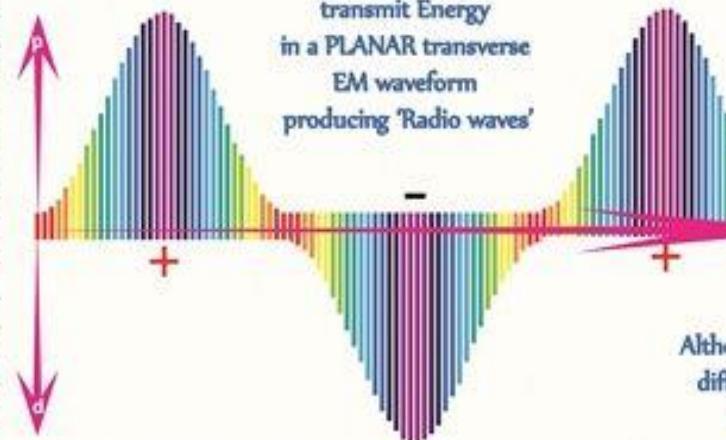
CLOSER = < Infrastructure  
= CHEAPER SLA

# ElectroMagnetic waveforms



ENERGY / DATA  
Over  
Transmission  
Lines / Airwaves

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



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

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'

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

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

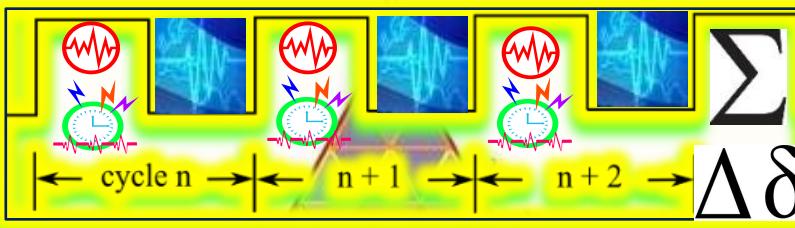
Through longitudinal waves, Tesla transferred energy to receiving devices.  
He sent electrostatic forces through the air, transferred electrical energies  
and noted the lethal forces produced by these waves.

Heinrich Hertz

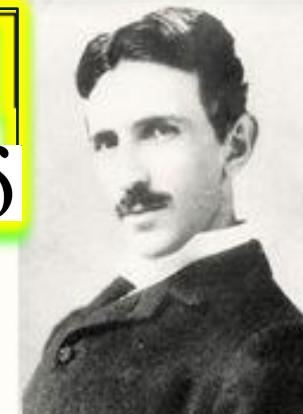


(22 February 1857 - January 1 1894)

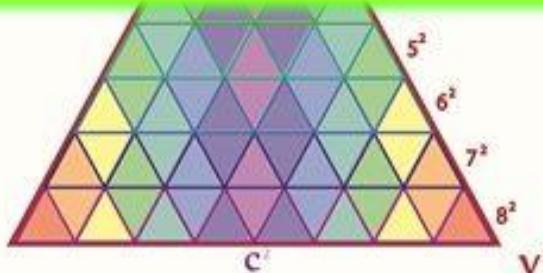
INTERNET = 1. TIME EPOCH CYCLES 2. Syntax (not) Processed in cycle



Nikola Tesla



(10 July 1856 - 7 January 1943)



Cycles per Second

Volts 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

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

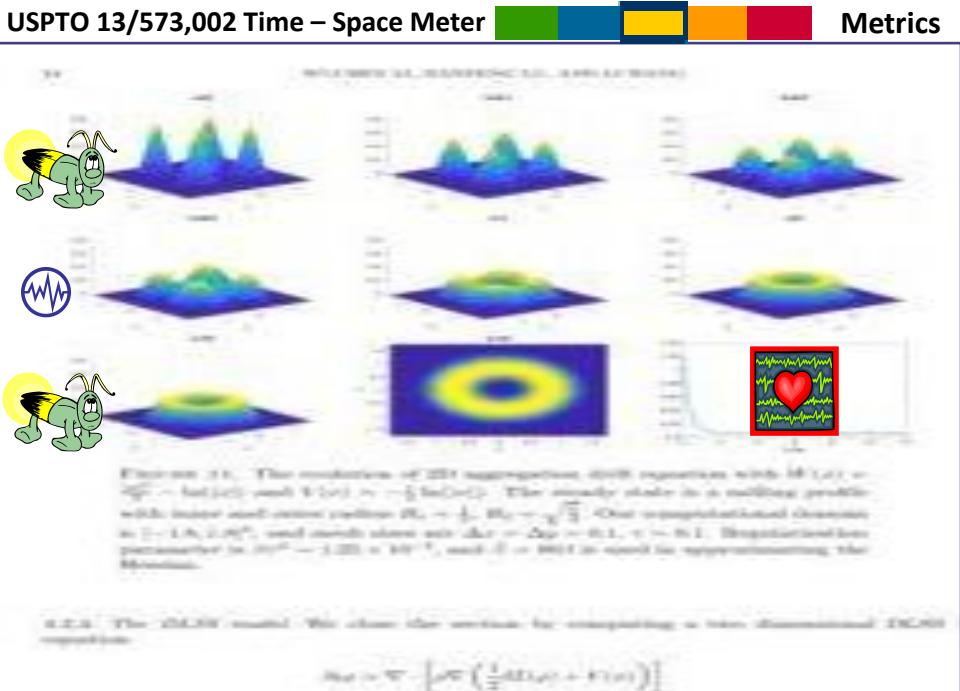


## The Variance of...

the partial derivative w.r.t.  $\vartheta$  of...

the log-likelihood  
function of  $\theta$   
given observed  
value of  $X$

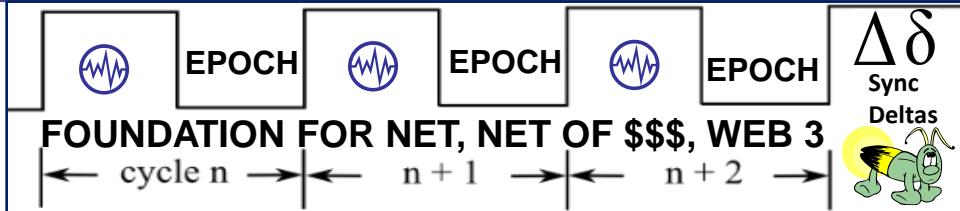
$$\Delta\delta = \mathcal{I}(\boldsymbol{\theta}) = Var\left(\frac{\partial}{\partial\boldsymbol{\theta}}\ell(\boldsymbol{\theta} | \mathbf{X})\right)$$



# 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.



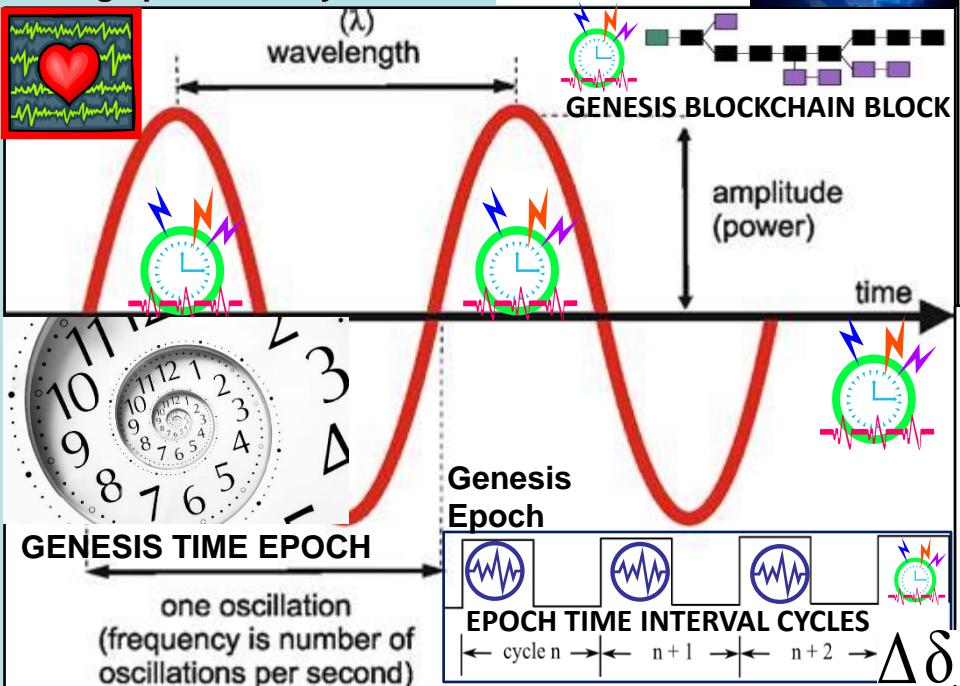
THESES: All things net, net of programmable \$\$\$ are formed using:

## ENERGY / DATA WAVE METRICS / METERS

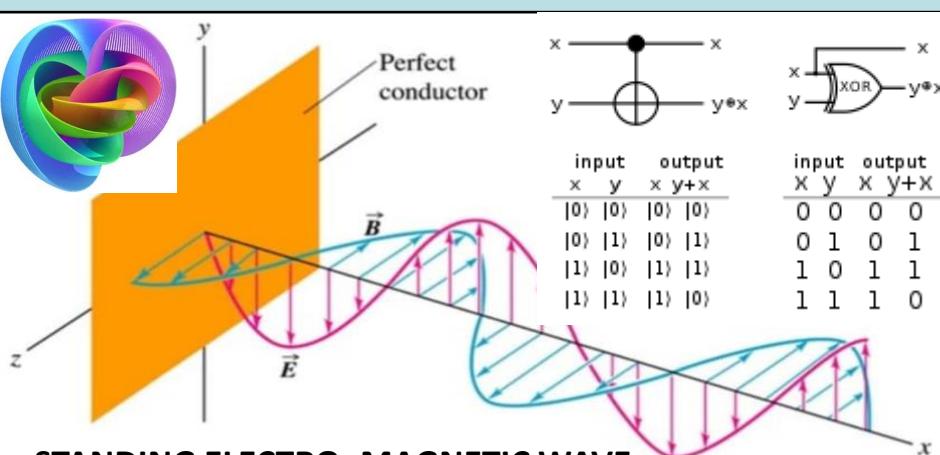
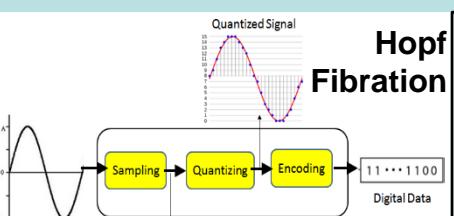
## BELL STATE QUANTUM COMPUTING

1) Time epochs created by quartz crystal silicon chips

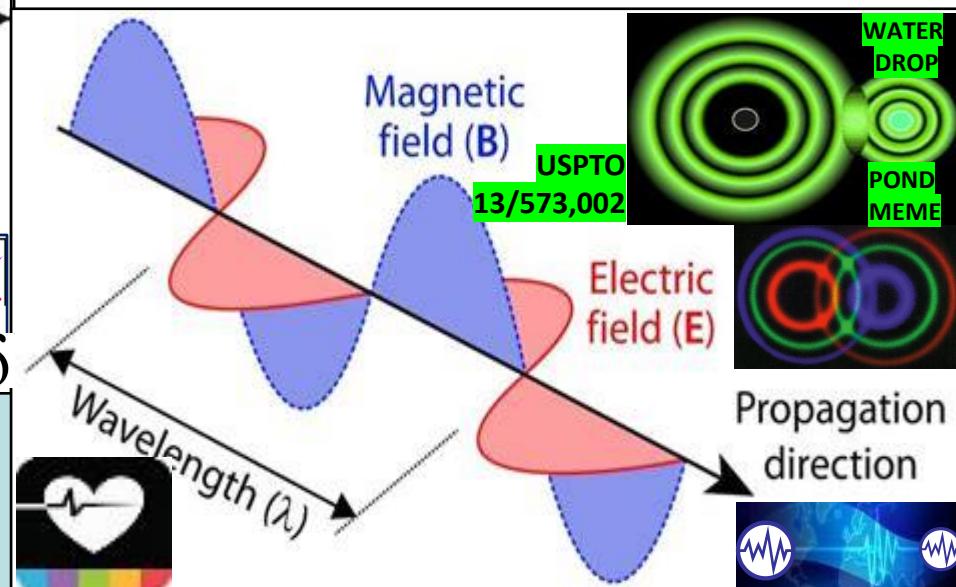
2) Syntax used / not used as programming instructions during epoch time cycles



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](https://phys.org/news/2018-06-quantum_1.html)

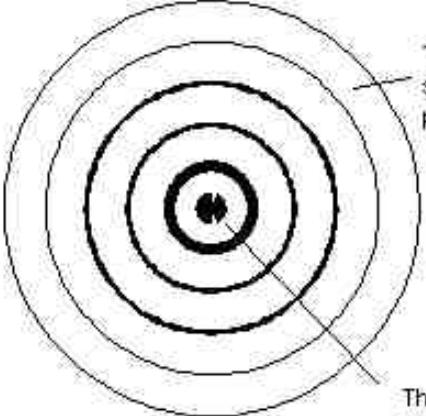


A **standing** electromagnetic wave does not propagate along the x-axis; instead, at every point on the x-axis the  $E$  and  $B$  fields simply oscillate.



"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/>



### On Truth & Reality The Wave Structure of Matter (WSM) in Space

The pointlike Particle effect at the Wave Center

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)



# TESLA Harmonic Sphere Flux Resonator

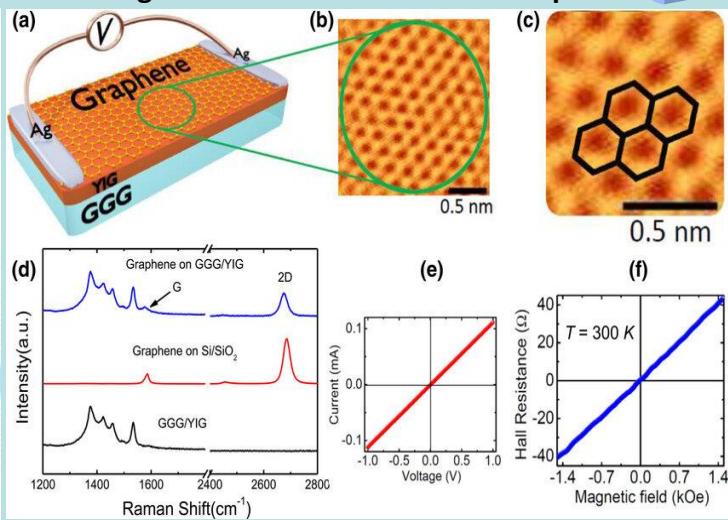
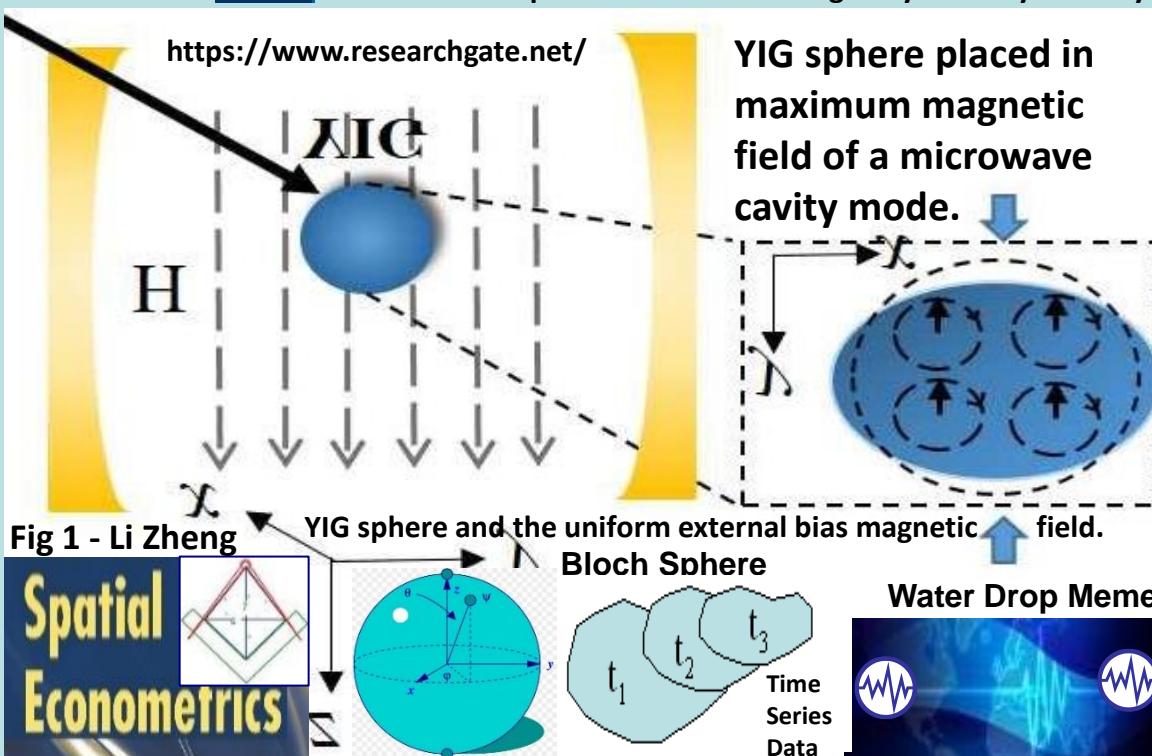
ENERGY / DATA

**"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]



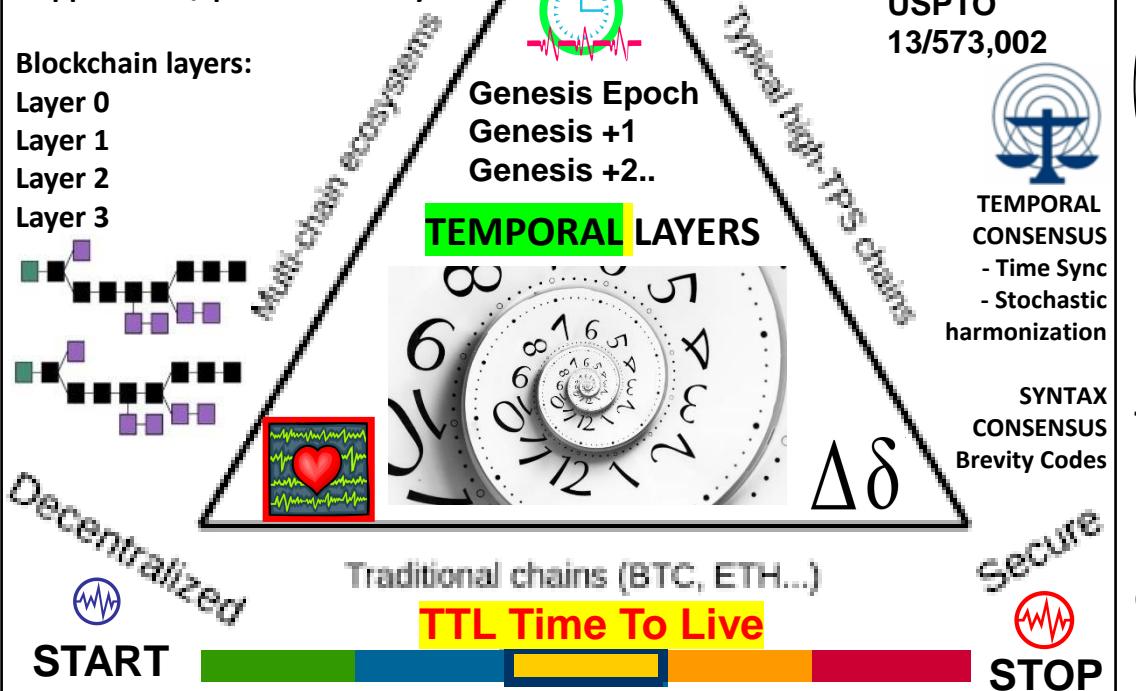
# Blockchain Quad-lemma

"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.

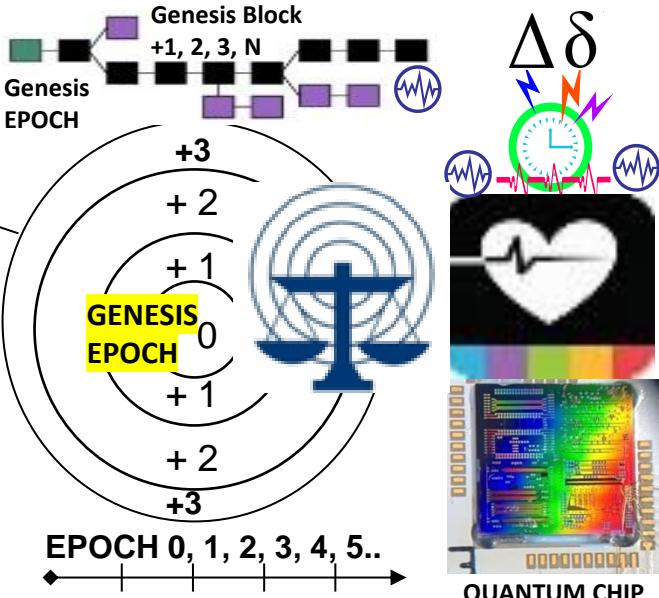
**Database Flat File**

**"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 |

**NET, Net of programmable \$\$\$ Programming Reality Ground Truth**  
No Layers L0, L1, L2... only GENESIS EPOCH, Follow on Epoch time cycles, intervals, cycles



**THESIS:** All things internet, net of programmable money are formed using:

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..

# 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



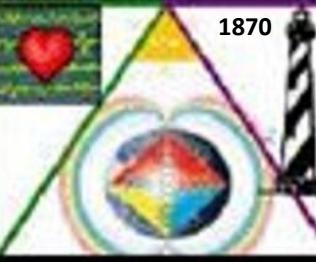
Satoshi Nakamoto



Craig WRIGHT  
a.k.a.  
Satoshi Nakamoto



"Bitcoin is a LANGUAGE"



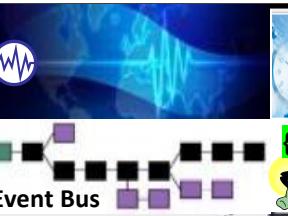
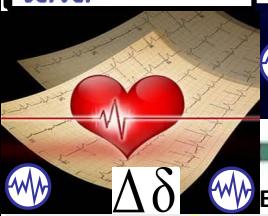
Wright Brother's 1<sup>st</sup> Flight  
Cape Hatteras Outer Banks

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

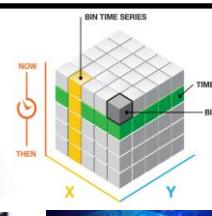
### 3. Timestamp Server

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

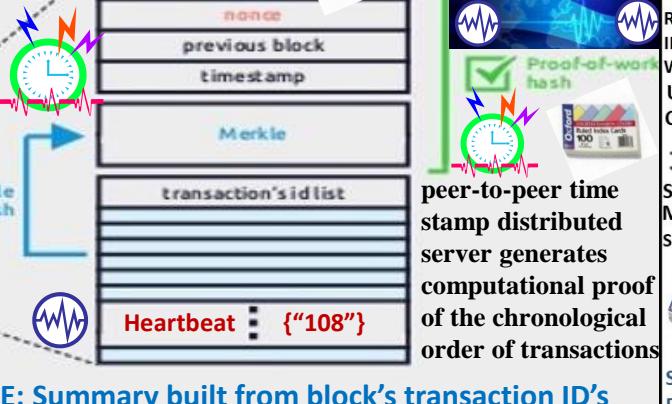
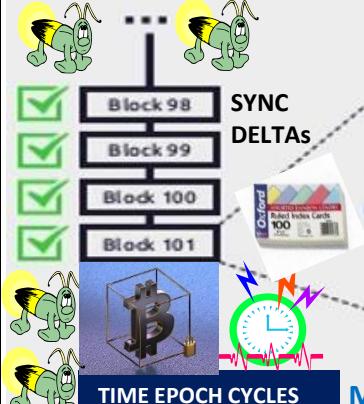


JapanNet Crypto Time Authentication Service (Timestamp Service)



**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"



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.

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

FLASH MESSAGE EVENT BUS

FIX {"108"}

TIME STAMP SERVER

Firefly - Stochastic Harmonization

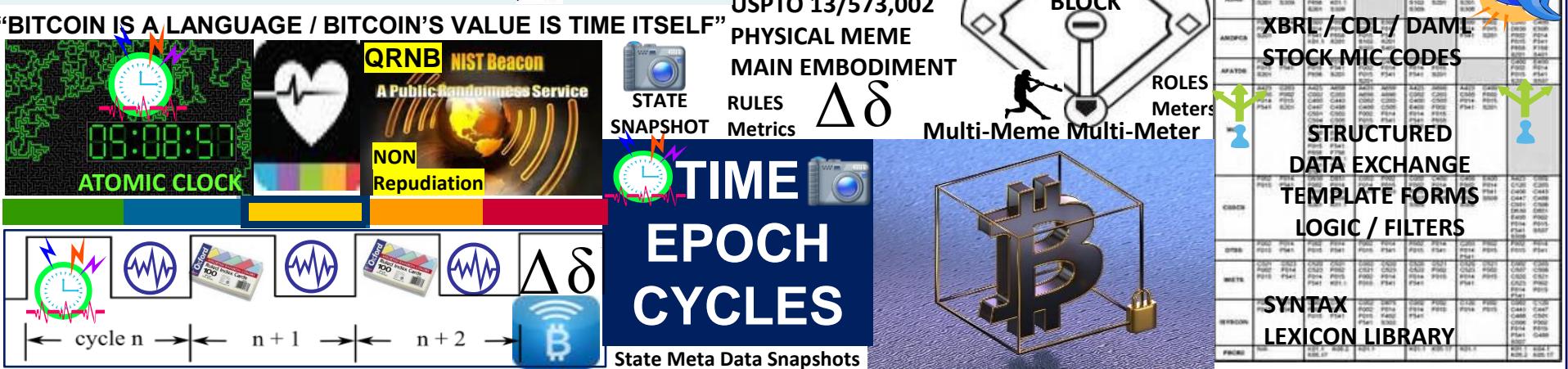
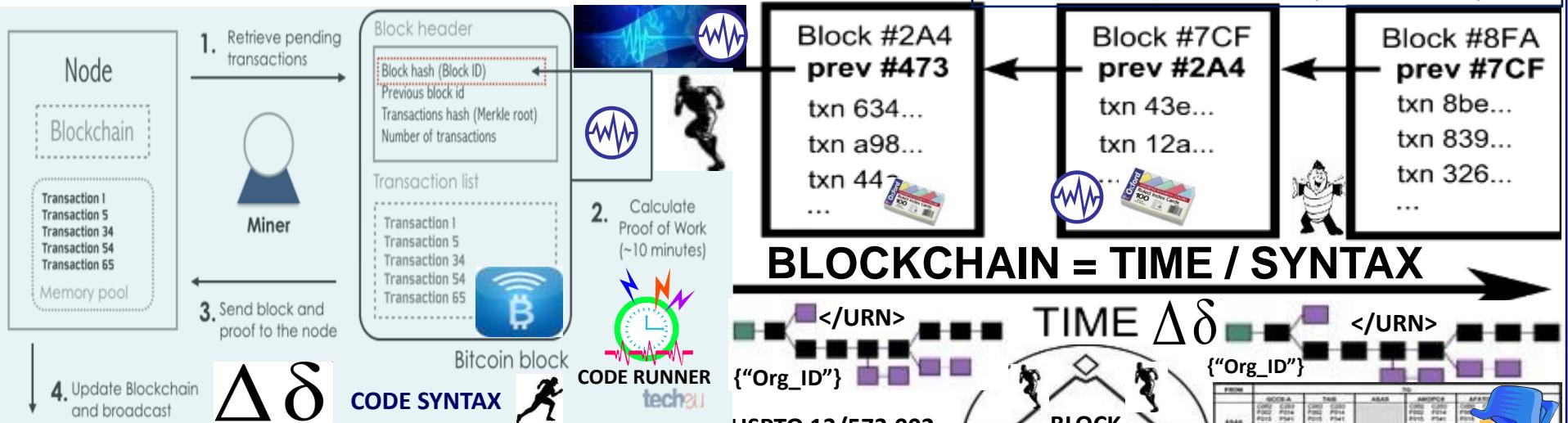
EVENTS

TIME STAMP SERVER

Epoch Time Cycles



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).<sup>[2]</sup> 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.





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

HEART BEACON CYCLE  
USPTO 13/573,002  
SURVEY METHODS

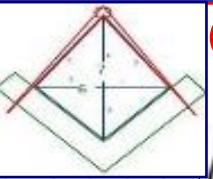
## SC ALICE CORP VS CLS BANK: “claims may not direct towards abstract ideas”

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

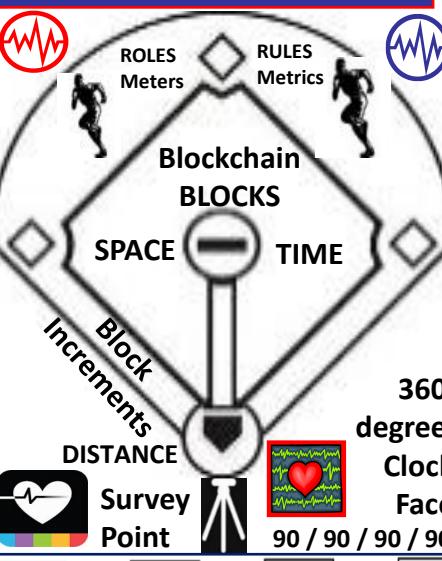


BLOCKS / COINS PENDING ISSUE

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”

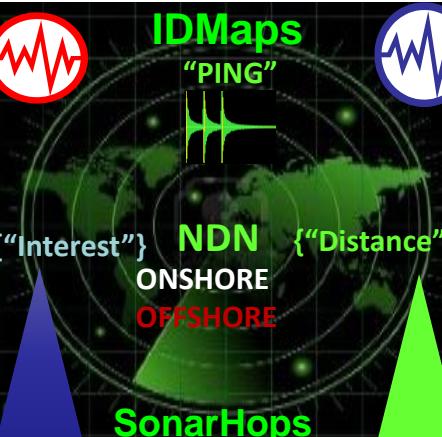
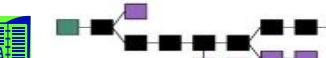
Coins never travel, but simply switch owners”

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



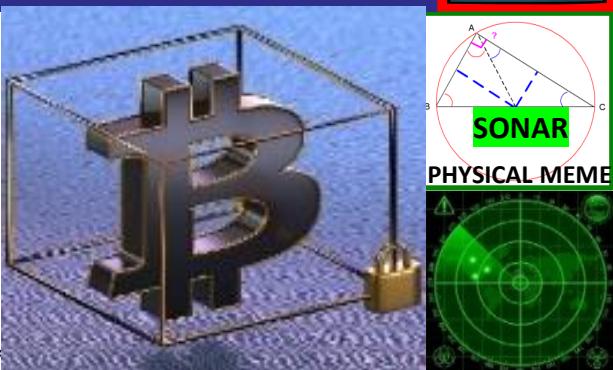
## TRIANGULATION



## 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

vector



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







ISO Technical Committee TC68

## Financial Services

|                 |                   |                |
|-----------------|-------------------|----------------|
| SC2<br>Security | SC4<br>Securities | SC7<br>Banking |
|-----------------|-------------------|----------------|

## RMG members nominated by P-member countries and A- liaison organisations

**TSG & SEG members  
nominated by all member  
countries and liaison  
organisations**

ISO 20022 LV v66

**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 & Mechanics**

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. 

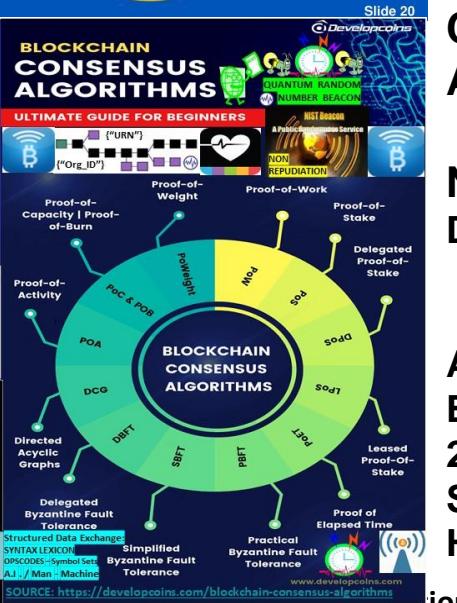
A collage of images related to engineering and technology. It includes a 3D model of a spacemesh, a geometric diagram of a cube-like structure, a clock icon, and a document titled "PROOF OF FORMULATION".

A collage of images illustrating various concepts related to the Space-Time Consensus Algorithm. It includes a clock face, a baseball diamond diagram, a 3D plot of a function, a 3D printer, a graph of nodes, and a gold coin.

The diagram illustrates the concept of BABEL (Business Application Layer Bus) as a central hub connecting various business applications and data sources. Key components include:

- BABEL** (Business Application Layer Bus) at the top center.
- UNIVERSAL HEARTBEAT MESSAGE EVENT BUS** (Universal Heartbeat Message Event Bus) below it.
- STATISTICIAN Metrics**, **COMPUTER SYSTEMS**, **DATA SHARDS**, **STATE METRICS**, and **HARD TABLES** connected to the BUS.
- SETTLEMENTS/EXCHANGES** and **TAXABLE EVENTS** connected to the BUS.
- AI ON TO PROPS** connected to the BUS.
- DATA SNAPSHOT** connected to **STATE METRICS**.
- Survey Point** connected to **DATA SNAPSHOT**.
- Firefly - Heartbeat Align** connected to **STATE METRICS**.
- FLASH MESSAGE** connected to **TIME**.
- MESSAGE EVENTS** connected to **TIME**.
- TIME** connected to **FLASH MESSAGE**.
- TIME** connected to **DATA SNAPSHOT**.
- DATA SNAPSHOT** connected to **TIME**.

## World's Official Standard



# FOUNDATION STANDARDS TECHNOLOGY

- # ISO 20022 MIL STD Structured Data Exchange DoD System of systems engineering

# CONSENSUS ALGORITHMS

# NDN: Named Data Networking

ARIN, ASN-1  
Binary XML  
525 A,B,C,D  
Symbol Sets for  
Human – A.I.

nal Standard prepared by ISO Technical Committee TC68 Financial Services. It  
es in ASN.1 Abstract Syntax Notation: A single standardization approach  
standards initiatives. common platform for the development of messages using:  
nt way financial business areas, business transactions and message flows  
ncommunications  
models into XML or ASN.1 schemas, whenever the use of the ISO 20022 XML or  
[www.iso20022.org/about-iso-20022](http://www.iso20022.org/about-iso-20022)

**ti** Your systems.  
Working as one.

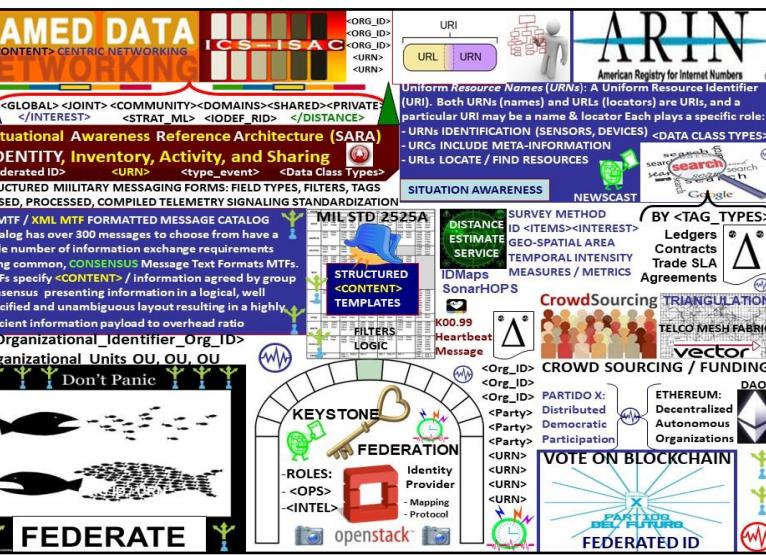
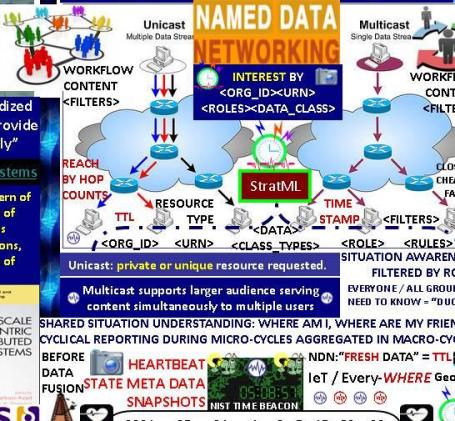
The fundamental value driver is easy

**INTERNET / BLUE FORCE TRACKER**  
**BASICS: Unicast / Multicast & Workflow**  
NET FUNDAMENTALS USED BY MANY OTHER SYSTEMS / FRAMEWORKS  
UNICAST / MULTICAST / WORKFLOW / STREAMING / SECURITY / CLOUD COMPUTING

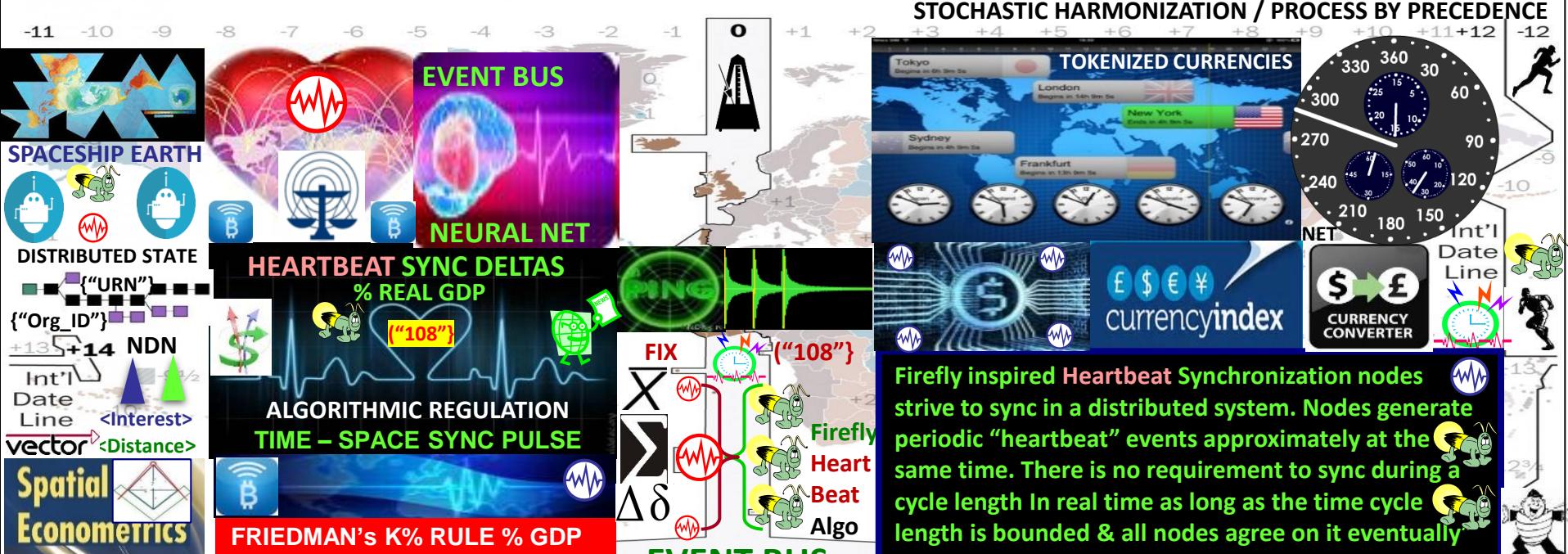
NET FUNDAMENTALS USED BY MANY OTHER SYSTEMS / FRAMEWORKS

bsystems into systems, and of systems into larger SYSTEM OF SYSTEMS”

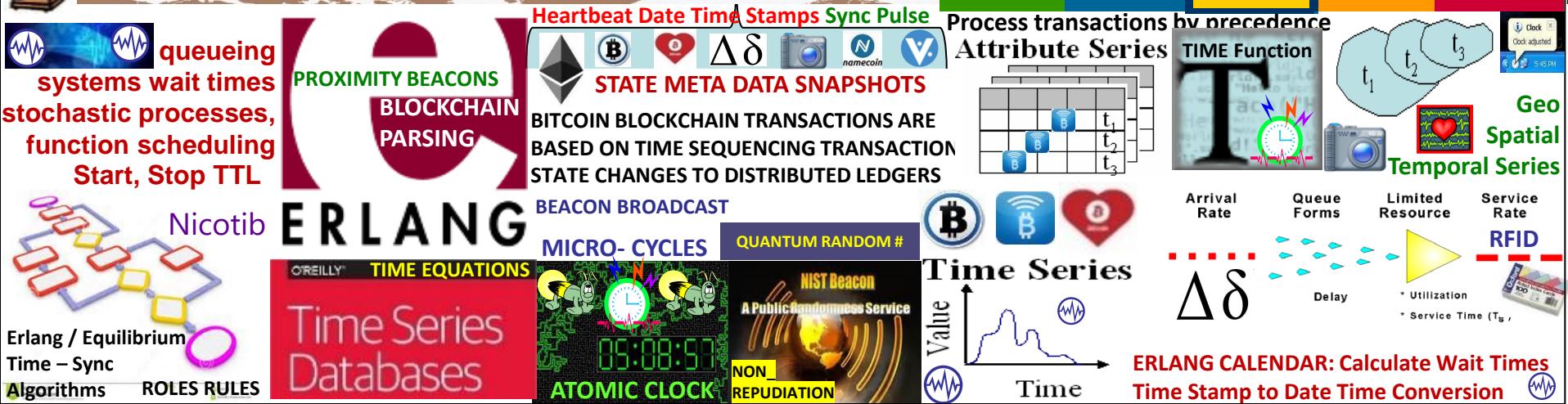
The term *unicast* is contrasted with the term *broadcast* which means transmitting the same data to all possible destinations. Another multi-destination distribution method, *multicasting*, sends data only to *interested* destinations by using special address assignments.



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.



Structured Data Exchange



SYNTAX LEXICON  
ROSETTA STONE

Coder's Guide lexicon.

STRUCTURED  
<CONTENT>  
EXCHANGE  
TEMPLATES

MIL STD 2525ABC

ASSET TOKENS

"SYMBOLS RULE THE WORLD"

11.8 - Kinematic  
11.8.1 - Pos  
11.8.1.1 -  
11.8.1 -

STRATML XAML

XBRL  
THE BUSINESS REPORTING STANDARD  
BINARY XML  
Decision

UBL  
The Universal Business Language

DDL DATA  
DEFINITION  
LANGUAGE

TOSCA  
Confidence  
Bearing Angle  
Bearing Angle Rate  
Covariance Matrix

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" "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



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

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 /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 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 L - MILITARY OPERATIONS

TOKENIZED ECONOMY BREVITY CODE OPSCOSE MAPPET TO SYMBOLS



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" "DAO"}



{"Org\_ID" "INTEREST"}



STOCK NDN NAMED DATA



EXCHANGE NETWORKING



MIC CODES PRECEDENCE



FILTERS PROCESSING



BLOCKTIME



ARBITRAGE



ERLANG

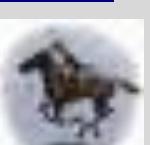


TIME



EQUATIONS



| FROM   | TO                                                                                                                                                                                                                                                         |                                                  |                                                                                                                                                                                                                                                                                                                                             |                                                                                                   |                                                                                                                                    | CODE GUIDE                     |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|        | GCCS-A                                                                                                                                                                                                                                                     | TAIS                                             | ASAS                                                                                                                                                                                                                                                                                                                                        | AMDPCS                                                                                            | AFATDS                                                                                                                             | MCS                            |
| ASAS   | C002 C203<br>F002 F014<br>F015 F541<br>S201 S309                                                                                                                                                                                                           | C002 C203                                        | <b>USMTF / XML MTF FORMATTED MESSAGE CATALOG = 300 + messages info exchange sets using common, CONSENSUS Message Text Formats MTFs. MTFs specify &lt;CONTENT&gt; / info agreed by group consensus presenting information in a logical, well specified unambiguous layout resulting in a highly efficient info payload to overhead ratio</b> |                                                                                                   |                                                                                                                                    |                                |
| AMDPCS | <b>TOKENS</b><br><b>OPSCODE BREVITY CODES</b>                                                                                                                                                                                                              |                                                  | <b>F002 F014<br/>F015 F541<br/>S201</b>                                                                                                                                                                                                                                                                                                     | <b>A.I.</b><br> |                                                                                                                                    |                                |
| AFATDS |                                                                                                                                                                                                                                                            |                                                  |                                                                                                                                                                                                                                                                                                                                             | <b>INFOCON</b><br><b>5 4 3 2 1</b><br><b>INFORMATION CONDITION</b>                                |                                                                                                                                    |                                |
| MCS    | <br><br> | A423 C203<br>C505 F002<br>F014 F015<br>F541 S201 | A423 A659<br>C002 C203<br>C400 C443<br>C447 C488<br>C501 C503<br>C504 C505<br>C506 C507<br>C508 E400<br>F002 F014<br>F015 F541<br>F658 F756<br>G489 K01.1<br>S201 S303<br>S507                                                                                                                                                              | A423 A659<br>A656 A690<br>C002 C203<br>C400 C505<br>F002 F014<br>F015 F541                        | <br><b>Syntax Lexicon</b><br><b>Coder's Guide</b> | A423 C505<br>F014 F015<br>S201 |
|        | <b>ASSET TOKENS Token Economy</b>                                                                                                                                                                                                                          |                                                  |                                                                                                                                                                                                                                                                                                                                             |                                                                                                   |                                                                                                                                    |                                |
|        |                                                                                                                                                                          |                                                  |                                                                                                                                                                                                                                                                                                                                             |                                                                                                   |                                                                                                                                    |                                |
|        | <b>"SYMBOLS RULE THE WORLD"</b><br>                                                                                                                                     |                                                  |                                                                                                                                                                                                                                                                                                                                             |                                                                                                   |                                                                                                                                    |                                |

# MESSAGE CATALOG

## 300 + Use Cases

**Data Elements:** entity, attribute, relationship equivalents

**HEARTBEAT MESSAGE =  
K00.99 </108> {"108"}**

## Information Categories and Examples

# Information Elements Roles

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



# FFUDN: Field Format Unit Designator #

EFIRN Field Format Index Reference #

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



# PROCESS MESSAGE BY PRECEDENCE UNIVERSAL EVENT / ALERT MESSAGE BUS

## **OPERATIONAL NODES / ACTIVITIES**

## DATA SYSTEM FUNCTIONS

## PERFORMANCE

|                             |                                |
|-----------------------------|--------------------------------|
| 11.4 - 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    | 11.1.2 - Linear                |
| 11.4.1.2.2 - Evaluated D    | 2 - Estimate Type              |
| 11.4.1.3 - Value            | 1.2.1 - Estimated              |
|                             | PURCHASE                       |
|                             | CODES                          |
|                             | 1.2.2 - Observed               |
|                             | 1.2.3 - Predicted              |

SYMBOL

Friends

Neutral

1.2.3 - Predicted  
1.2.4 - Smoothed Data

2525C

Partne

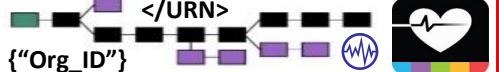
A yellow square containing a red right-angled triangle.

## Competitor

| Part                                     | Competitor             |
|------------------------------------------|------------------------|
| 11.4.1.3.1 - Subsurface                  | 4 - Velocity           |
| 11.4.1.3.5 - Surface                     | 1.4.1 - Horizontal     |
| 11.4.2 - Platform / Point / Feature Type | 1.4.2 - Vertical       |
| 11.4.3 - Specific Type                   | VA Confidence          |
| 11.4.4 - Type Modifier                   | 1 - Bearing Angle      |
| 11.4.5 - Unit                            | 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 |
| 11.8 - Kinematics                       | 11.8.1 - Pos.          |
| 11.8.1 - Pos.                           | 11.8.1.1               |
| 11.8.1.1                                | 11.8.1.1.1             |

STRATML



XAML

Inform

BINARY XM

UBL

DDL DATA

DEFINITION

LANGUAGE

FFUDN: F

A.I.

INFOCON

4 3 2 1

INFORMATION

CONDITION

108

NDN

Firefly-Heartbeat

Flash Messages

PROCESS MESSAGE BY PRECEDENCE

UNIVERSAL EVENT / ALERT MESSAGE BUS

OPERATIONAL NODES / ACTIVITIES

DATA SYSTEM FUNCTIONS PERFORMANCE

11.4 - Classification

11.4.1 - Category

11.4.1.1 - Confidence Level

11.4.1.1.1 - Angular

11.4.1.1.2 - Linear

11.4.1.2 - Estimated

11.4.1.2.1 - Alternative

11.4.1.2.2 - Evaluated

11.4.1.3 - Value

PURCHASE CODES

11.4.1.3.5 - Surface

11.4.2 - Platform / Point / Feature Type

11.4.3 - Specific Type

11.4.4 - Type Modifier

11.4.5 - Unit

11.4.5.1 - Velocity

11.4.1.2.1 - Horizontal

11.4.1.2.2 - Vertical

11.4.1.2.3 - Diagonal

11.4.1.2.4 - Curved

11.4.1.2.5 - Circular

11.4.1.2.6 - Elliptical

11.4.1.2.7 - Polygonal

11.4.1.2.8 - Irregular

11.4.1.2.9 - Complex

11.4.1.2.10 - Chaotic

11.4.1.2.11 - Fractal

11.4.1.2.12 - Random

11.4.1.2.13 - Deterministic

11.4.1.2.14 - Stochastic

11.4.1.2.15 - Deterministic

11.4.1.2.16 - Stochastic

11.4.1.2.17 - Deterministic

11.4.1.2.18 - Stochastic

11.4.1.2.19 - Deterministic

11.4.1.2.20 - Stochastic

11.4.1.2.21 - Deterministic

11.4.1.2.22 - Stochastic

11.4.1.2.23 - Deterministic

11.4.1.2.24 - Stochastic

11.4.1.2.25 - Deterministic

11.4.1.2.26 - Stochastic

11.4.1.2.27 - Deterministic

11.4.1.2.28 - Stochastic

11.4.1.2.29 - Deterministic

11.4.1.2.30 - Stochastic

11.4.1.2.31 - Deterministic

11.4.1.2.32 - Stochastic

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# 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

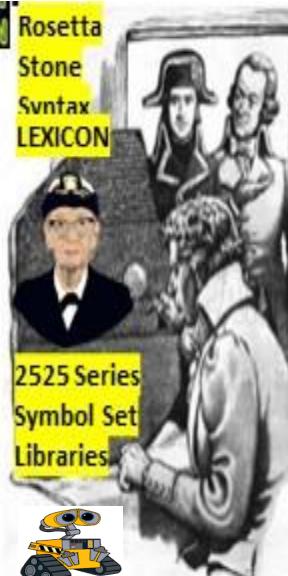
This claim implies both that human thinking is a kind of symbol manipulation (because a symbol system is necessary for intelligence) and that machines can be intelligent (because a symbol system is sufficient for intelligence).[3] The idea has philosophical roots in Hobbes (who claimed reasoning was "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](https://en.wikipedia.org/wiki/Physical_symbol_system)

data from a first form to a second form

CONDITION

Rosetta  
Stone  
Syntax  
LEXICON



2525 Series  
Symbol Set  
Libraries



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



Alpha-numeric OPS CODE  
Brevity codes mapped to symbols,  
Symbol sets = structured data

FRZ T CP CLOUD FRS T LN PAREN

ABCA OPS CODE BREVITY CODES

Neuro-Symbolic AI

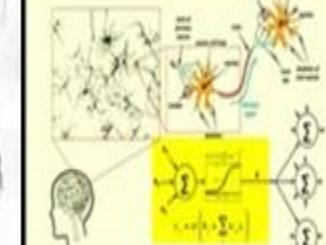
Symbolic (human-readable)  
representations

Symbolic AI

Symbolic AI

Symbolic AI

Brevity  
Codes



Symbolic  
AI

# NAMED DATA NETWORKING

<CONTENT> CENTRIC NETWORKING



<ORG\_ID>  
<ORG\_ID>  
<ORG\_ID>  
<URN>  
<URN>

<GLOBAL> <JOINT> <COMMUNITY> <DOMAINS> <SHARED> <PRIVATE>  
</INTEREST> <STRAT\_ML> <IODEF RID> </DISTANCE>

## Situational Awareness Reference Architecture (SARA) IDENTITY, Inventory, Activity, and Sharing



<Federated ID> <URN> <type\_event> <Data Class Types>

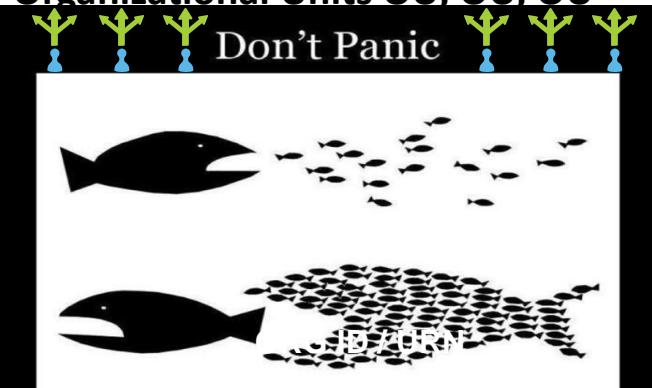
STRUCTURED MILITARY MESSAGING FORMS: FIELD TYPES, FILTERS, TAGS  
PARSED, PROCESSED, COMPILED TELEMETRY SIGNALING STANDARDIZATION

### USMTF / XML MTF FORMATTED MESSAGE CATALOG

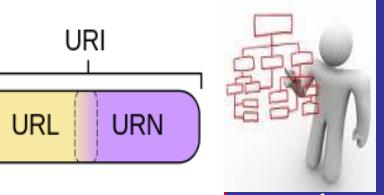
Catalog has over 300 messages to choose from have a wide number of information exchange requirements using common, CONSENSUS Message Text Formats MTFs. MTFs specify <CONTENT> / information agreed by group consensus presenting information in a logical, well specified and unambiguous layout resulting in a highly efficient information payload to overhead ratio

</Organizational\_Identifier\_Org\_ID>

Organizational Units OU, OU, OU



FEDERATE



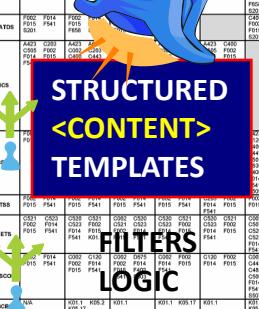
Uniform Resource Names (URNs): A Uniform Resource Identifier (URI). Both URNs (names) and URLs (locators) are URIs, and a particular URI may be a name & locator. Each plays a specific role:

- URNs IDENTIFICATION (SENSORS, DEVICES)
- URCs INCLUDE META-INFO
- URLs LOCATE / FIND RESOURCES

### SITUATION AWARENESS



### MIL-STD 2525A



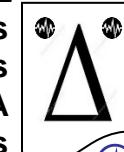
### DISTANCE ESTIMATE SERVICE

IDMaps  
SonarHOPS



SURVEY METHOD  
ID <ITEMS><INTEREST>  
GEO-SPATIAL AREA  
TEMPORAL INTENSITY  
MEASURES / METRICS

BY <TAG\_TYPES>  
Ledgers  
Contracts  
Trade SLA  
Agreements



### CrowdSourcing



TELCO MESH FABRIC

vector



# 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  
Federation  
Gateway <ORG\_ID> Organizations

## <ELEMENTS>

STRATML / IODEF RID CLASSES:  
<GLOBAL><JOINT><SHARED>  
<DOMAIN><FEDERATION>  
<CITY><STATE><PRIVATE>

STRATEGIC  
MARKUP

StratML

LANGUAGE

**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

NDN



<INTEREST>



<INTEREST>



<INTEREST>



<INTEREST>

<GEO\_LOC\_GPS><STATUS>  
<Halt><Moving><Stale><Ready>

GEO-SPATIAL TEMPORAL  
INTENSITY METRICS / METERS



A V A L A N C H E

**SHARING:**

COMMON <TAGS>

<Organizational\_ID>

Resource Names <URN>

<Time\_Stamps>

<State-Meta\_Data>

<DATA\_CLASS\_TYPE>

<Heartbeat\_snapshots>

<TAG>LIBRARY  
TEMPLATES

NDN

<INTEREST>

Cybox

<INTEREST>

TAXII

<INTEREST>

STIX

<INTEREST>

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

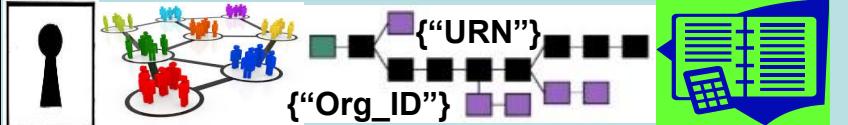
Catalog has over 300 messages to choose from have a wide number of information exchange requirements using common, CONSENSUS Message Text Formats MTFs specify <CONTENT> / information agreed by group consensus presenting information in a logical well specified and unambiguous layout i.e., templates

STRUCTURED  
<CONTENT>  
TEMPLATES

STRUCTURED  
<CONTENT

# 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**

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

Federation  
Gateway

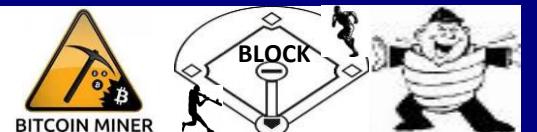


"GROUP ID"



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



IeT DEVICE / PLATFORM  
IoT SENSOR DEVICE



UUID 123e4567-e89b-12d3-a456-426655440000  
UUID 123e4567-e89b-12d3-a456-426655440001  
UUID 123e4567-e89b-12d3-a456-426655440002

STOCK EXCHANGE  
MIC MARKET IDENTIFIER  
CODES / BREVITY CODES

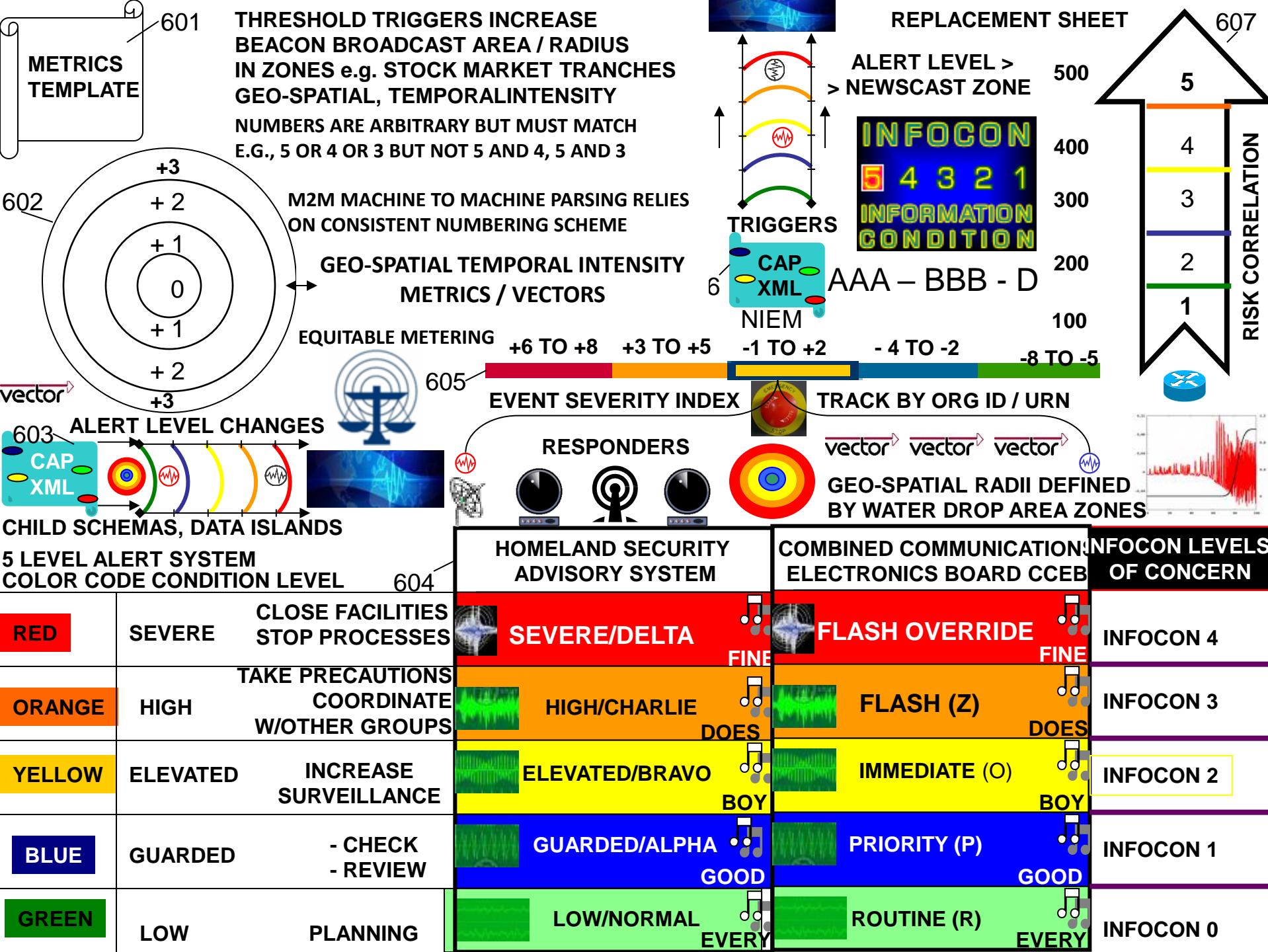


{"DUNS #"} {"Org\_ID"} Heartbeat Snaps  
QR CODE MICRO-CYCLES



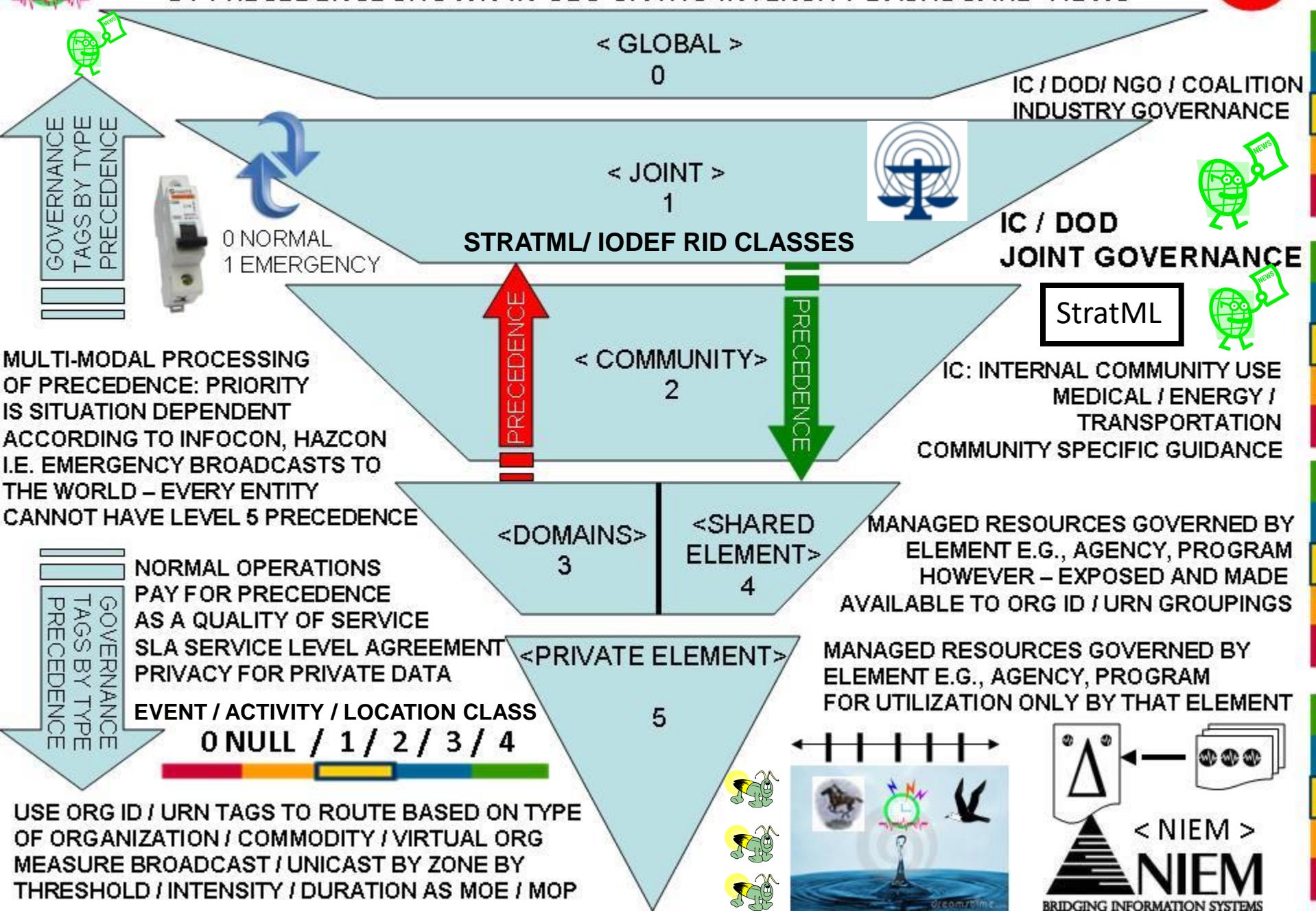
## FEDERATE: COMMON GOALS SYNCHRONIZED IN SPACE - TIME





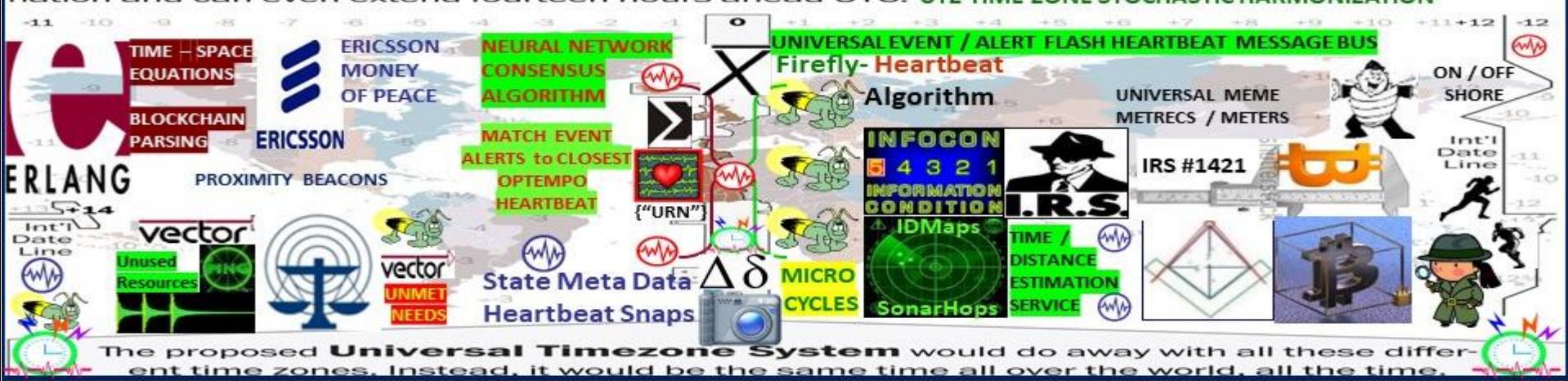


# ENABLE MAPPING OF GOVERNANCE / MANAGEMENT RESOURCES BY PRECEDENCE SHOWN IN GEO-SPATIO INTENSITY DASHBOARD VIEWS





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 STOCHASTIC HARMONIZATION**

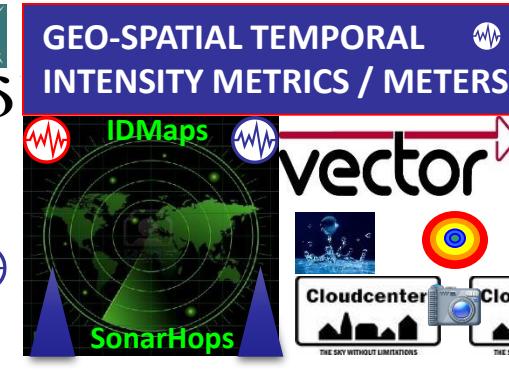
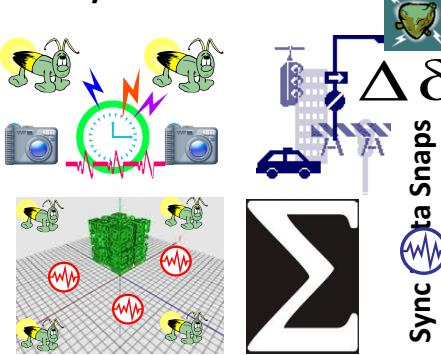
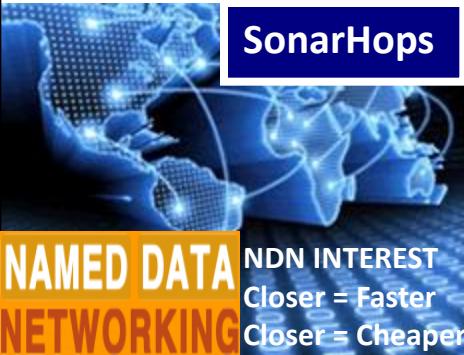




# IDMaps: Global Internet Host Distance Estimation Service



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



**NAMED DATA NETWORKING**  
NDN INTEREST  
Closer = Faster  
Closer = Cheaper

IDMaps scalable Internet-wide architecture measures, disseminates distance information



HOP COUNTS

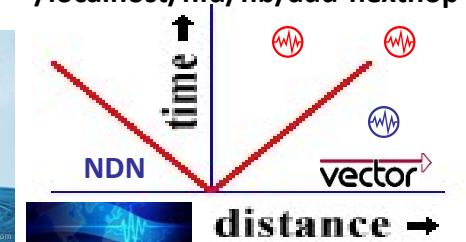


REACHABILITY



/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



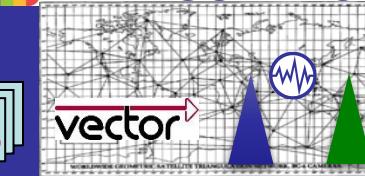
**NDN RIB**

NDN INTEREST LENGTH  
= DISTANCE BY HOPS

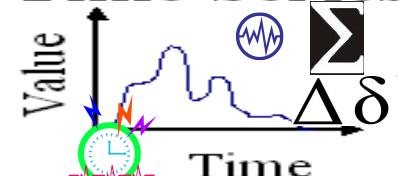
NDN  
INTEREST

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



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



## Geo-Spatial Temporal Intensity NOVEL METRICS / METERS:



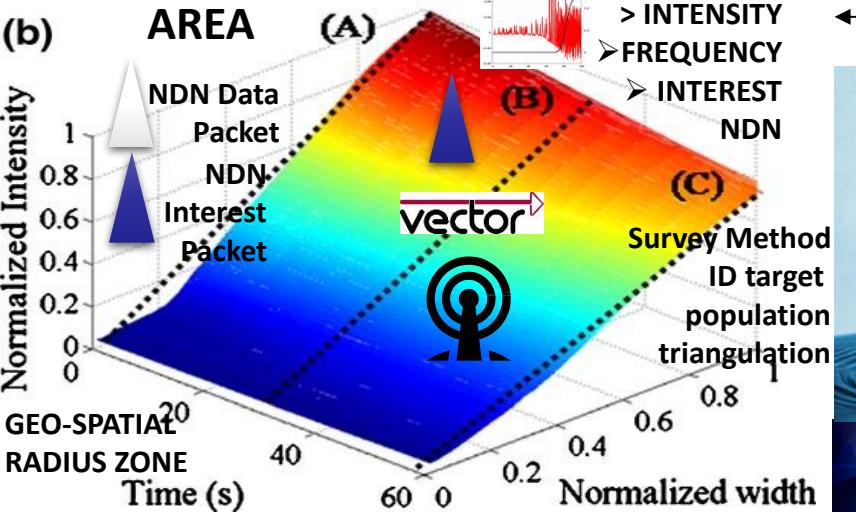
Paul Revere = linear, sequential



TCP/IP hop by hop counts, by hop controls



Water Drop = AREA / INTENSITY Cyclic Frequency



# NAMED DATA NETWORKING

<INTEREST>  
MQTT



NIST TIME BEACON



05:08:50



TELEMETRY TRANSPORT



Hop Count



START



STOP



DESTINATION NETWORK 172.27.0.0/16



TTL = Time To Live



Number of Hops = 3



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



IDMAPS SONARHOPS INTERNET TRIANGULATION



4 / 3 / 2 / 1 / NULL / 1 / 2 / 3 / 4



0.0001 .05 .01 .1 0 5 15 30 99



vector



WirelessHART



time synchronized, self-organizing, mesh Net



ALERT LEVEL > NEWSCAST ZONE



SINE-WAVE



TRIGGERS



CAP XML



<INTEREST> BY INTENSITY / FREQUENCY



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



INFOCON



# **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”

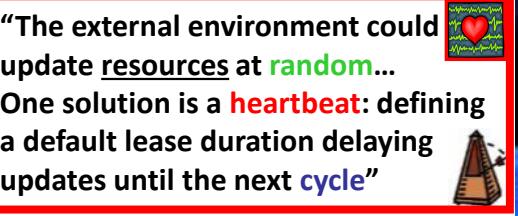
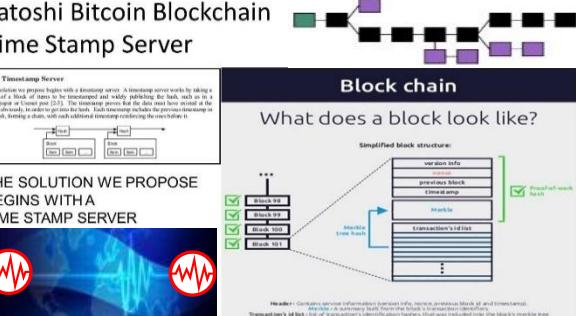
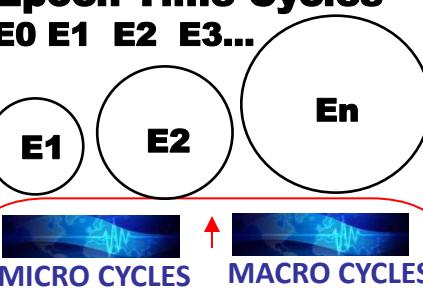
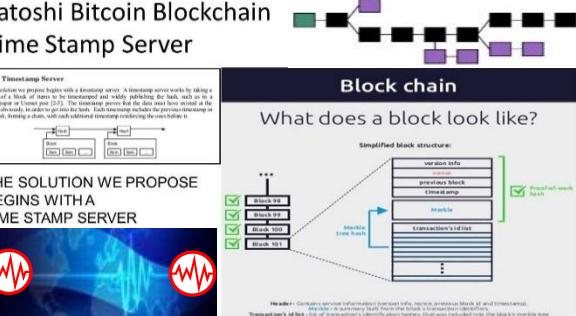
## The four dimensions of Big Data

**VECTOR:** 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**

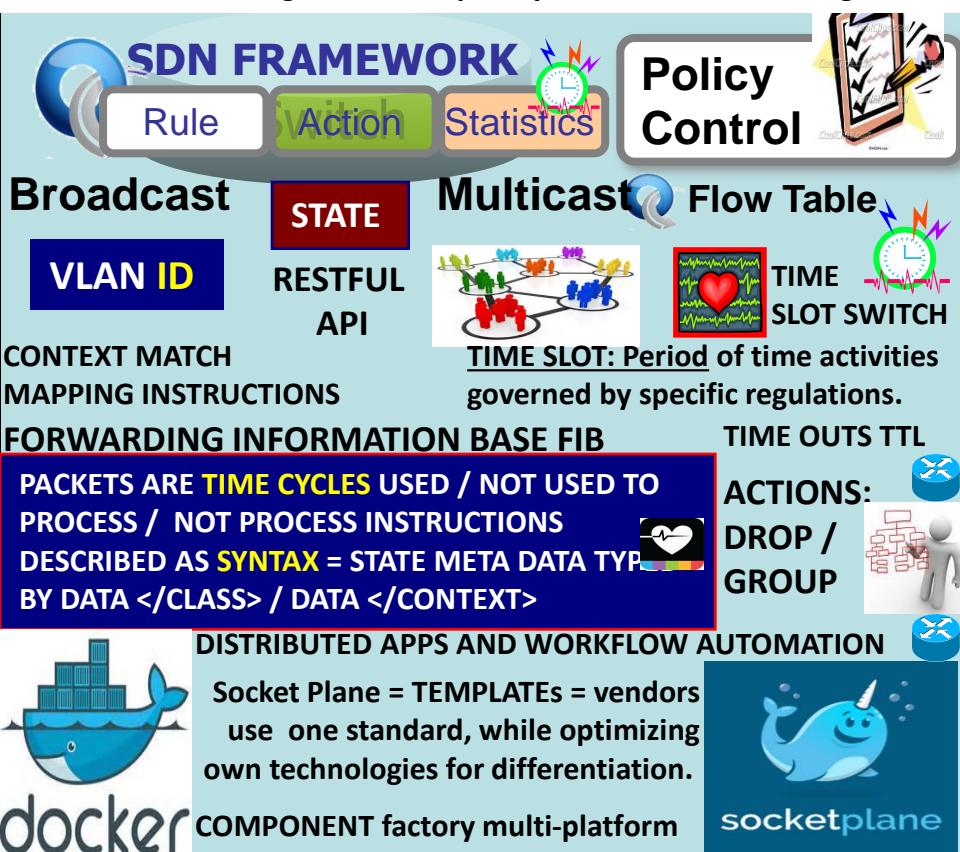


|                                                                                                                                                                                                                                                          |                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interface Name                                                                                                                                                                                                                                           | HEARTBEAT Administration Interface [SCOP]                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                             |
| Documentation URL                                                                                                                                                                                                                                        | <a href="http://scop.sourceforge.net/">http://scop.sourceforge.net/</a><br><a href="http://linuxvirtualserver.org/software/index.html">http://linuxvirtualserver.org/software/index.html</a> |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                             |
| API Information                                                                                                                                                                                                                                          | #Big_Data                                                                                                                                                                                    | <br>                                                                                                                                                                                 | <b>Functionality Areas</b><br><br> <p>Cloud Interface Management configuration, start, stop cloud services, edit configuration (heartbeat messages)</p> |
| Programmable Money<br>World Computer / Blockchain                                                                                                                                                                                                        | #leT                                                                                                                                                                                         | <br>                                                                                                                                                                                     | <b>API Operation Count</b><br>                                                                                                                                                                                                           |
| Interface Characteristics                                                                                                                                                                                                                                | NIST TIME BEACON                                                                                                                                                                             |                                                                                                                                                                                                                                                                           | <b>Web service access type</b><br><b>Network Effects / A.I.</b><br><p>Web application, front end to [network, device, system, blockchain] heartbeat]</p>                                                                                                                                                                    |
| "The external environment could update <u>resources</u> at random... One solution is a <b>heartbeat</b> : defining a default lease duration delaying updates until the next <b>cycle</b> "                                                               | <br>                  | <b>LANGUAGE / PLATFORM BINDINGS</b><br><br>                                                                                                                                          | <b>PHP Java Erlang...</b><br>                                                                                                                                                                                                            |
|    |                                                                                                                                                                                              | <p>SCOP is a web application, PHP based front-end to heartbeat, IP Virtual Server ipvs and Idirectord [e.g., check interval @ 5 seconds]<br/> 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.</p> |                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                                                                        |                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        | <b>Epoch Time Cycles</b><br><b>E0 E1 E2 E3...</b><br>                                                                                                                                                                                  |
| <b>QubitCoin Interval: Every 30 Seconds</b>                                                                                                                                                                                                              |                                                                                                                                                                                              |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                             |



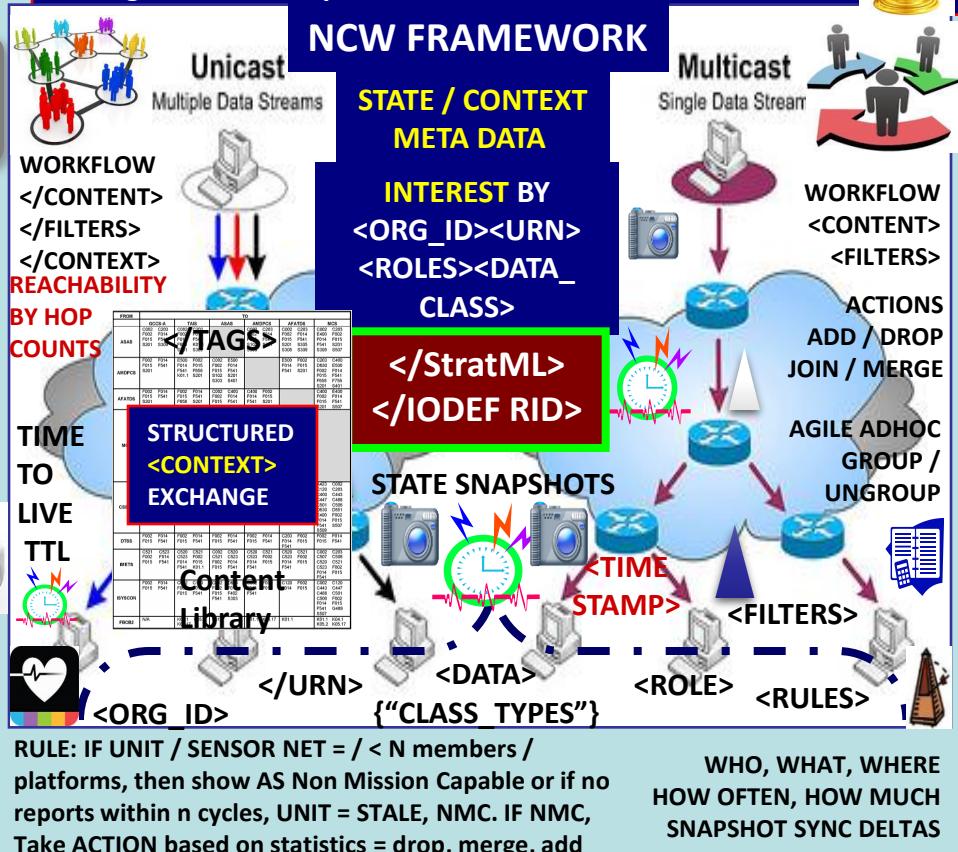
- SDN is a *framework* to allow network administrators to *automatically* and dynamically manage and control a *large number* of network devices, *services*, topology, traffic paths, and packet handling (quality of

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

Time Series

DISTANCE  
INFO SERVICE

IDMaps

SonarHops

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

CLOSER SOURCE

CHEAPER RATE



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



TIME / DISTANCE SERVICE LEVEL  
AGREEMENT SLA / O Operations

HOP BY HOP CONTROL

Unused Resources / Unmet Needs



vector



Spatial  
Econometrics



TIME-SPACE BEACON

INFOCON

5 4 3 2 1

INFORMATION  
CONDITION

Spaceship  
Earth  
Signals &  
Telemetry  
Annex



METRICS / METERS  
TRADE WITH EARTH

????



SIRIUS DISCLOSURE

ASTEROID BELTS =  
RARE MINERALS



MOON =  
HELIUM 3

"Numbers are the  
Universal Language  
offered by deity to humans as  
confirmation of the truth"

MAIN  
ASTEROID  
BELT



MARS  
VENUS  
EARTH



FARHER = More Cost  
➤ Fuel, Resources

STOCHASTIC  
HARMONIZATION

Service Level Agreements



ERLANG  
TIME- SPACE METRICS



FIREFLY-HEARTBEAT  
ALGORITHM  
UNIVERSAL  
EVENT MESSAGE BUS



TROJAN  
ASTEROIDS  
JUPITER



ERLANG  
TIME- SPACE METRICS



ERLANG  
TIME- SPACE METRICS



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TIME- SPACE METRICS



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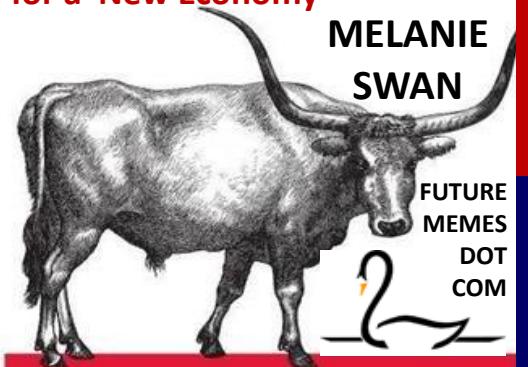
update Interval

CLOSER SOURCE

CHEAPER RATE



&lt;p



# Blockchain

BLUEPRINT FOR A NEW ECONOMY



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 rejigging 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 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.



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)

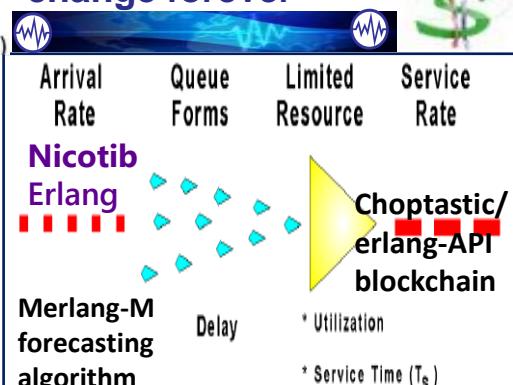
### SORTING ALGO'S

[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  $\Delta\delta$  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             | SOCA | THAI | ABAD | AMPOKE | AFASOK | WIC |
|------------------|------|------|------|--------|--------|-----|
| ANODR            | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| AFASOK           | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| WIC              | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| CHINA            | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| AZURE            | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| BLETCHLEY        | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| STRUCTURED       | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| MILITARY MESSAGE | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| TEMPLATE FORMS   | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |
| LOGIC / FILTERS  | PEA  | PEA  | PEA  | PEA    | PEA    | PEA |



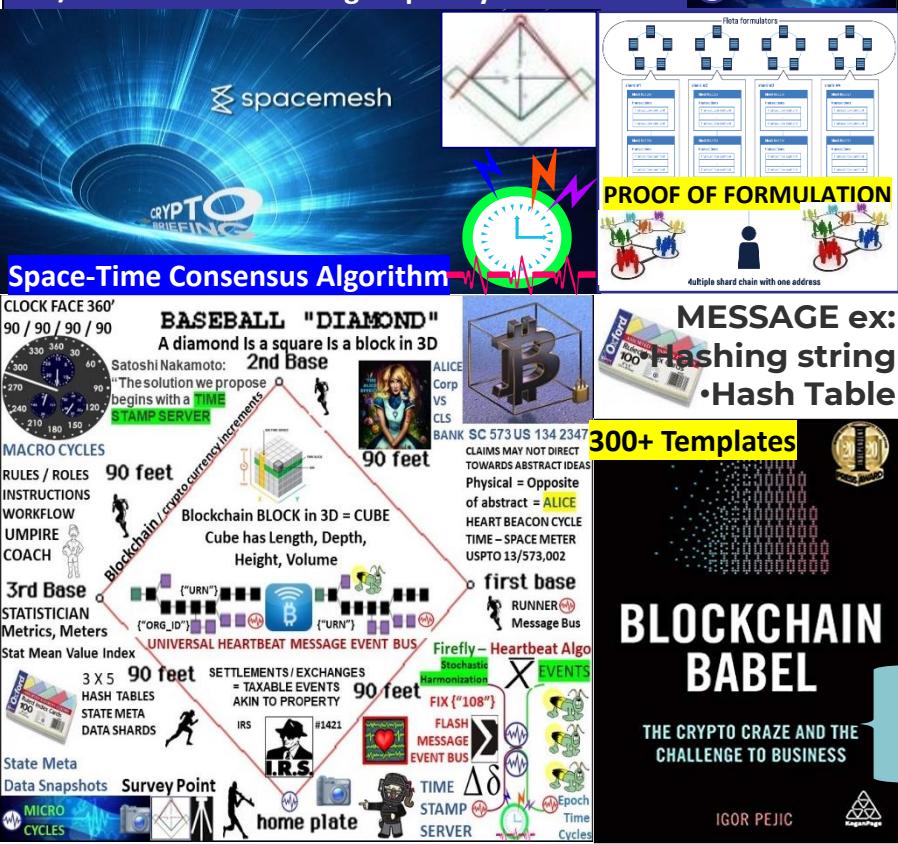
**Q: Which meme describes the myriad blockchain consensus algorithms the most comprehensively that uses an algorithm (based on nature = “shortest path to the knowledge of truth Luxor Temple) enabling distributed system of systems geo-spatial, UTZ Universal Time Zone temporal, semantic - syntactic sync,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

# Blockchain Consensus Algorithms & Mechanisms



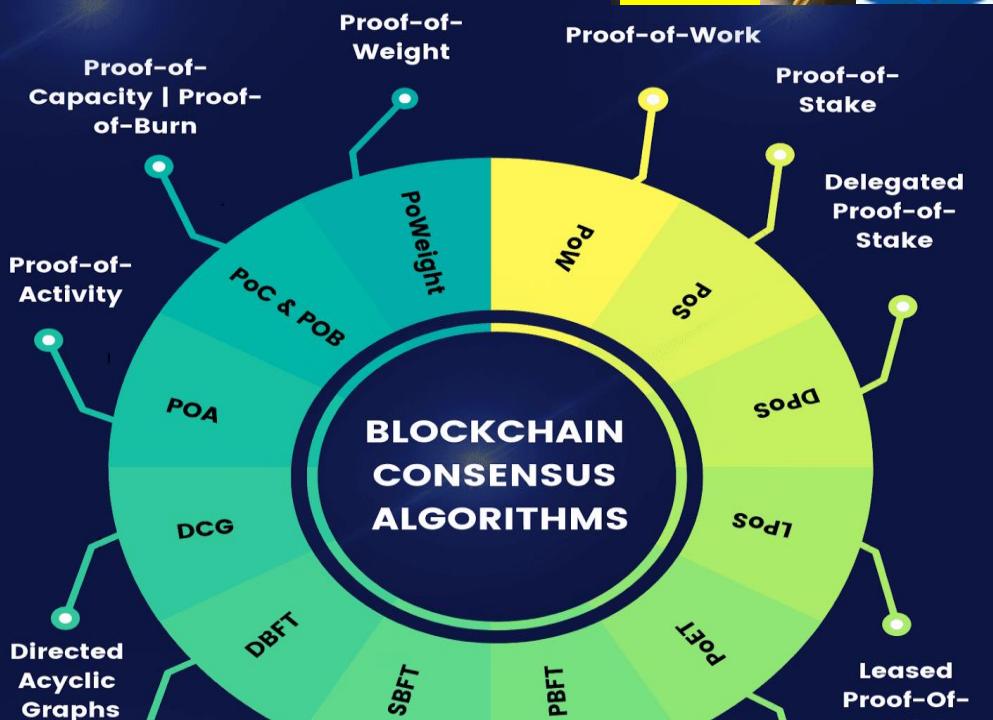
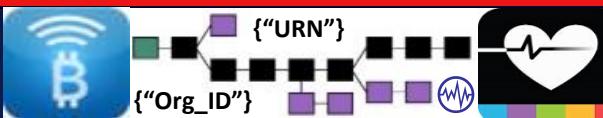
In the world of blockchain consensus algorithms, consensus is the **HEART OF THE BLOCKCHAIN NETWORK**. Its main purpose is to achieve agreement on transactions among a distributed system (s)

**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



## Tolerance structured Data Exchange

## STRUCTURED DATA EXCHANGE VOCABULARY LEXICON

# SYNTAX LEXICON

## ESCODES - Symbol Sets

## PSCODES – symbol Sets

## I. / Man - Machine

SOURCE: <https://d>

www.ijerph.com

## **Simplified**

simplified  
Byzantine Fault

## **Byzantine Fault Tolerance**

## Tolerance

[velopcoins.com](http://velopcoins.com)

www.petersons.com

10

Practical

## Byzantine Fault

## Tolerance

[www.ijerpi.org](http://www.ijerpi.org)

# Blockchain-consens

© 2010 Pearson Education, Inc., publishing as Pearson Addison Wesley.

[www.developcoins.com](http://www.developcoins.com)

## consensus-algorithms

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



# 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*

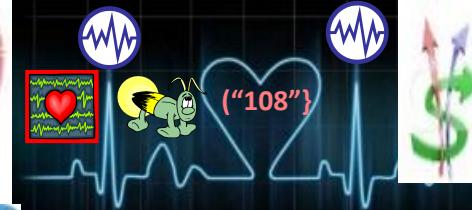
Mission: *shift trade to a decentralized platform*



Demurrage TERRATRC TRADE Fees REFERENCE CURRENCY "Money of Peace"



COMMODITIES  
ECONOMIC HEARTBEAT



STAT MEAN VALUE PULSE  
REAL WORLD ASSETS RWA

STAT MEAN VALUE INDEX



Free, open markets: Commodity / Currency Index

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



HASH Values  
Nonce Values </Org\_ID>



Federation

ORG ID  
Gateway

CONTRIBUTIONS TO STATISTICS

• Privacy </Org\_ID>

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



FIREFLY – HEARTBEAT ALGO



Bitcoin: OpenBazaar transactional currency



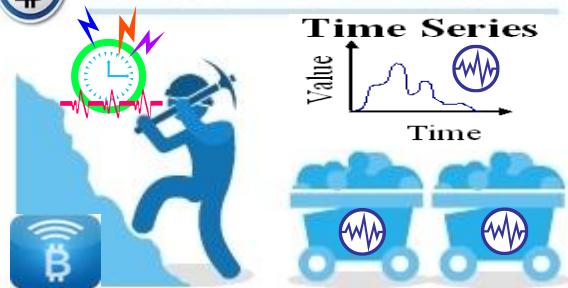
Cryptographic Security

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

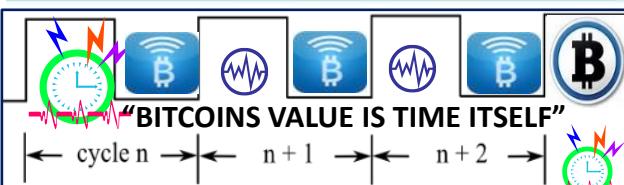
Price Indexes in Time and Space  
Methods and Practice

SchellingPoint

# 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

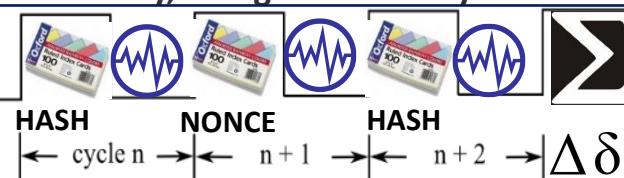


THROTTLE equivalent to difficulty. State  
•target = maximum value of 8 bytes Snap  
Shots

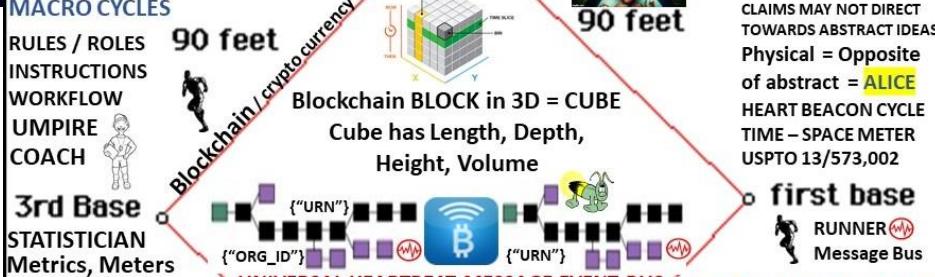
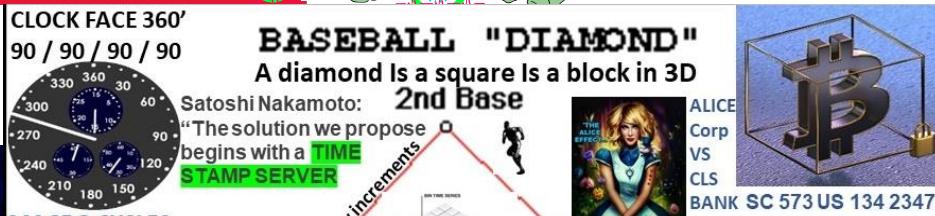
NONCE increments from 0..N until the target is met.



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

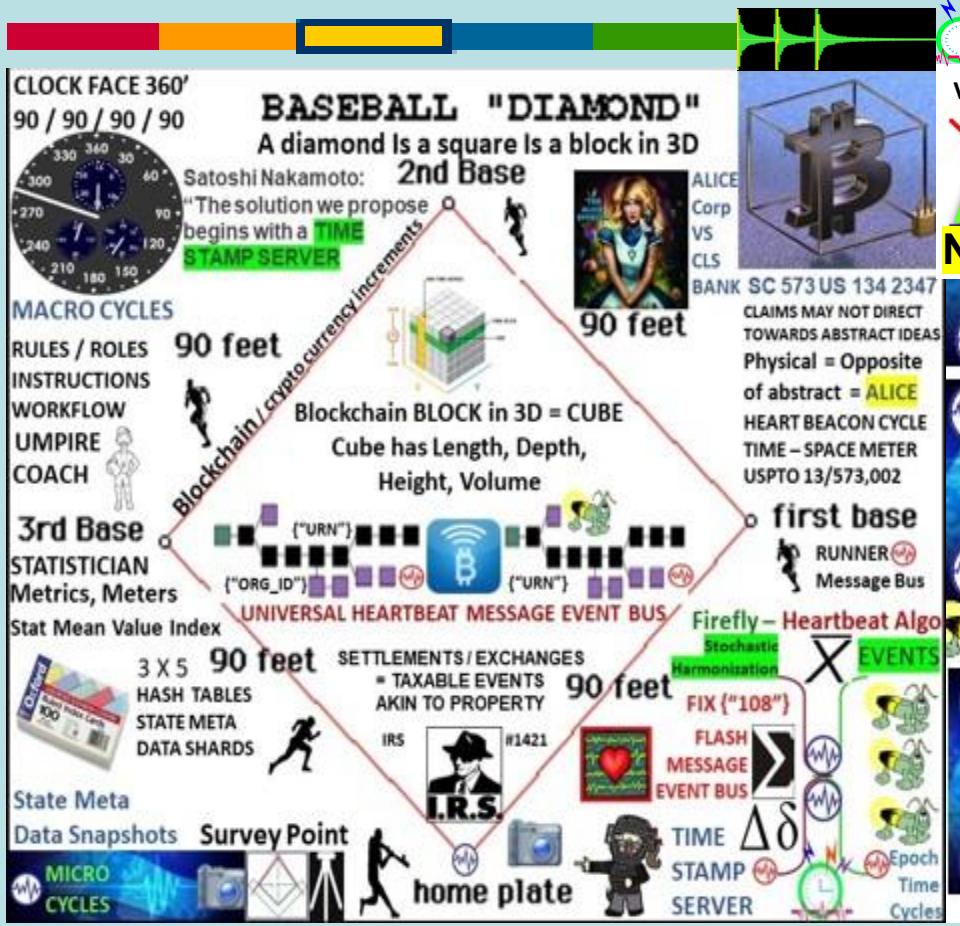




In a proof-of-stake network, it is the number of coins held in a wallet that determines the "weight" of the user the likelihood for the user to receive the block reward. In a Proof-of-Weight consensus mechanism, any value, not just the amount of coins held, is used to determine the "weight" of a user.



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

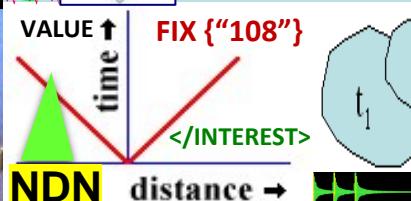


The Volumetric Weight is often referred to as dimensional weight

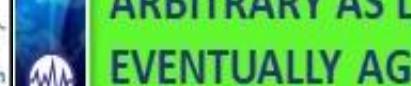
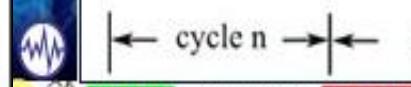
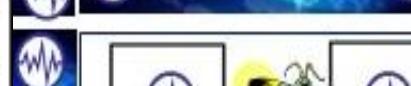
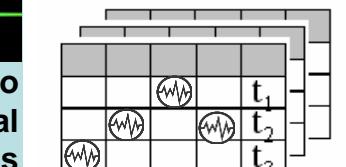
$$\text{Volumetric Weight} = [\text{Width} \times \text{Length} \times \text{Height}]$$



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



## Attribute Series



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



## 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.



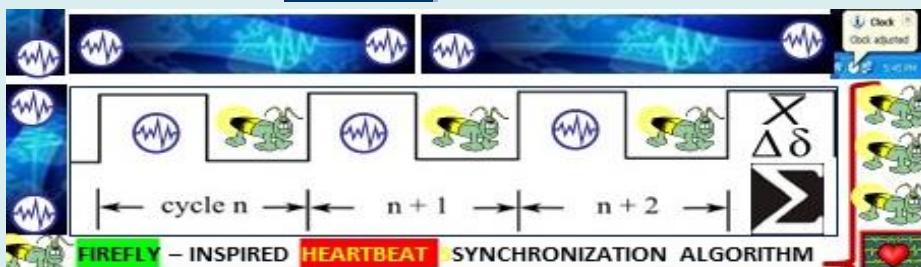
## DISTRIBUTED AUTONOMOUS ORGANIZATIONS DAO

# Heart Beacon Cycle

## FEDERATE / TRADE FEDERATIONS

### Linear Sequential Meme

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





## 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

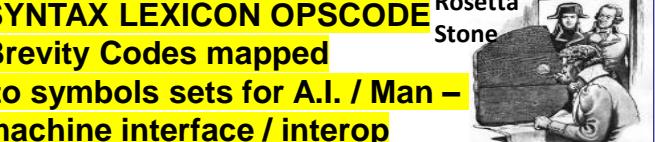


INFOCON  
5 4 3 2 1  
INFORMATION CONDITION



STATISTICAL MEAN VALUE INDEX PULSE

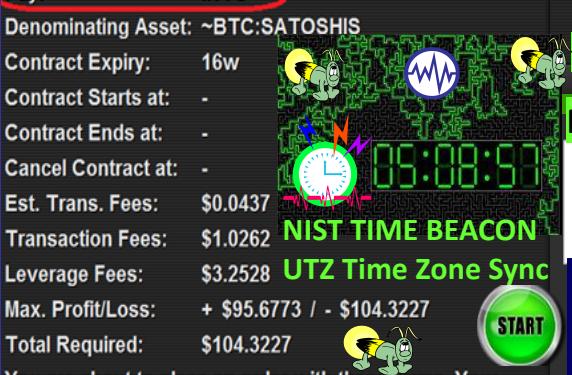
GDP INDEX ECONOMY K% RULE



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...

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



Heartbeat Flash Messages Precedence Processing

Collateral Notional Expiry

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.

("Org\_ID")  
("Tagged")  
Crypto  
("URN")  
STOP  
t<sub>1</sub>  
t<sub>2</sub>  
t<sub>3</sub>  
TTL

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

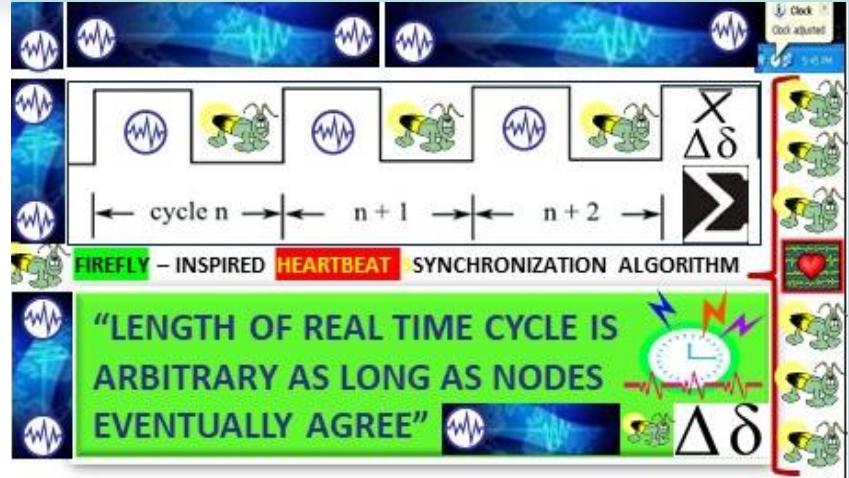
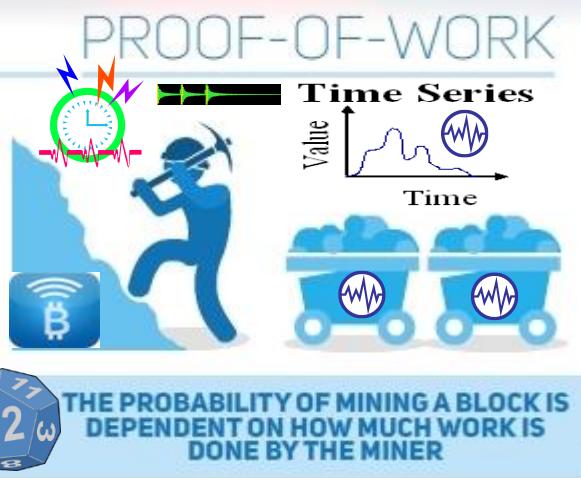
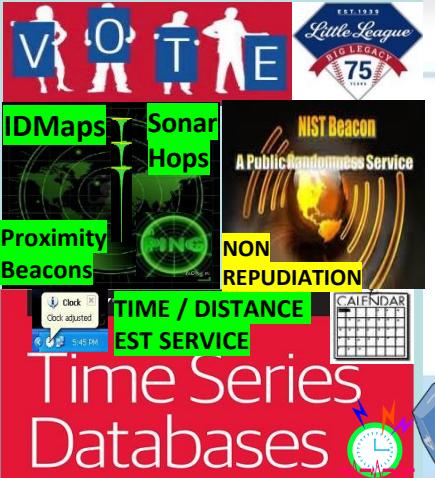
Machine Interface / Interop



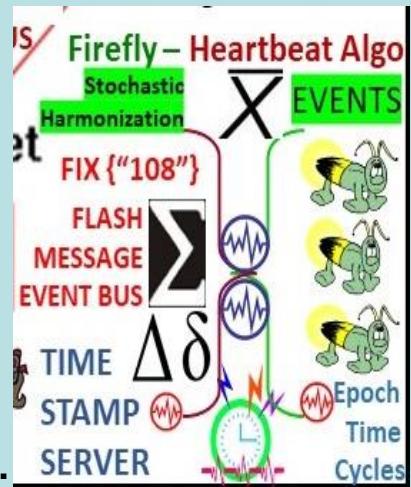
## Proof-of-activity PoA is a combination of Proof of Work / Stake blockchain consensus algorithms:

### 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.<sup>2</sup> 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.



HEART BEACON CYCLE 13/573,002

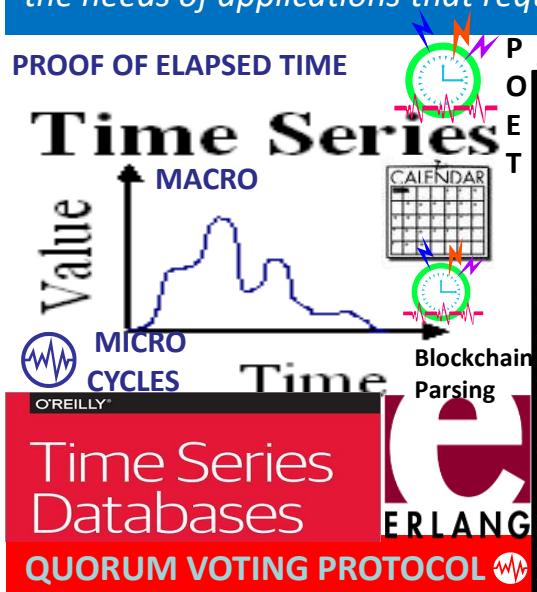


## **SAWTOOTH LAKE POETIC CONSENSUS PROOF OF ELAPSED TIME: POET**

*“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

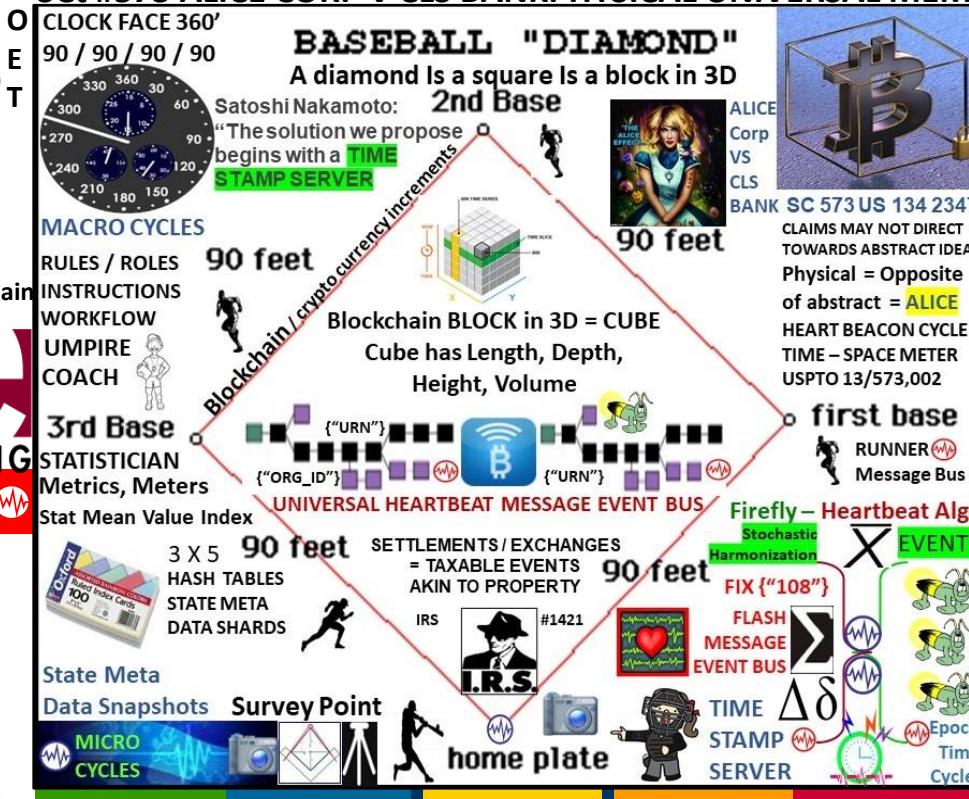
**Voting based selection** Instead of only using the stake size, the block generators can be selected by votes  
ex: League MVP **MVP**



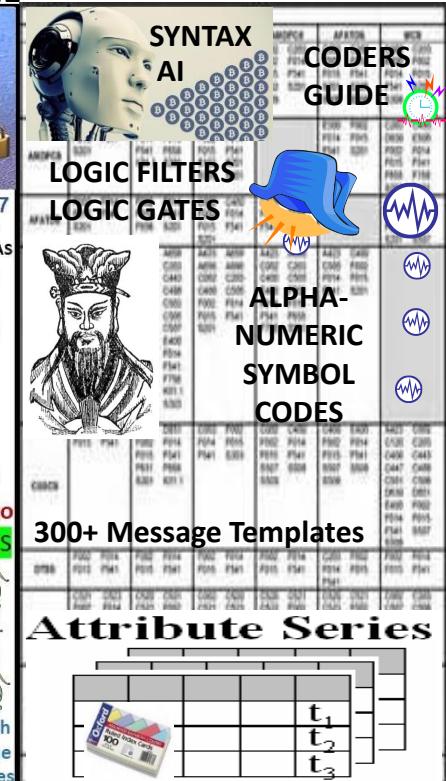
**Robert's Rules quorum = minimum # of voting members who must be present at meetings to conduct business of the group**

## TOURNAMENT LEAGUE BOARD

P SCT #573 ALICE CORP V CLS BANKPHYSICAL UNIVERSAL MEM

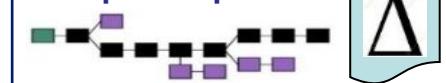


FIREFLY-HEARTBEAT FLASH MESSAGES UNIVERSAL EVENT BU

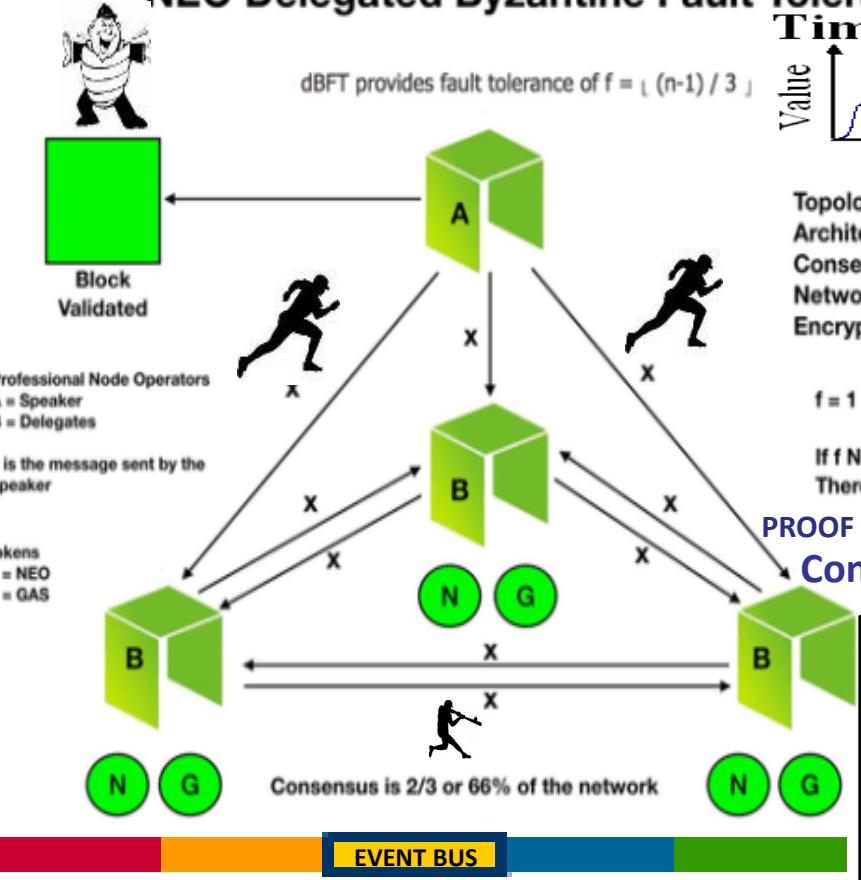


## HASH TABLES / NONCE VALUES

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



# NEO Delegated Byzantine Fault Tolerance (dBFT)



Time Series

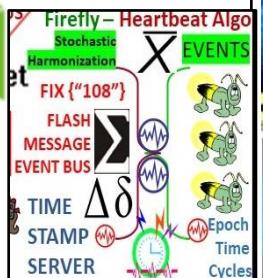


Topology: Hierarchical Star  
Architecture: Distributed  
Consensus: dBFT  
Network: TCP/IP  
Encryption: ECDH

$$f = 1 \text{ OR } 0.66$$

If  $f \text{ NOT } 1 \text{ OR } < 0.66$   
There is no consensus

**PROOF OF ELAPSED TIME Consensus Order**



USPTO 13/573,002  
[sawconcepts.com/index](http://sawconcepts.com/index)

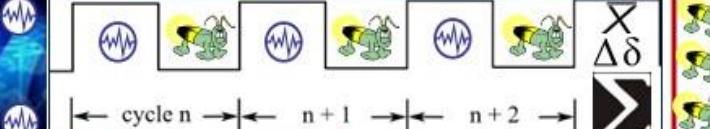
Heart Beacon Cycle Time – Space Meter

Geo-Spatial Temporal Intensity Metrics

**TRIANGULATION**



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



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

**EVENT BUS**

LOCKED QUOTED ACCEPT / DENY In Progress SUCCEEDED  
{ "108" } HEARTBEAT SYNC DELTA STATE META DATA SNAPSHOTS



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. ✓





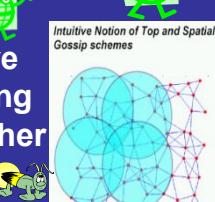
**HASHGRAPH**  
Directed Acyclic  
Graph DAG

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

Consensus Order

$$\sum \Delta\delta \times$$


0 / 1

Round created

Witness

Famous witness

Election

Vote

See

Strongly see

Supermajority

Decide

Round created

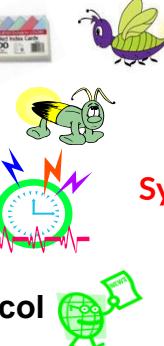
Round received

Consensus timestamp

Consensus order

$\Delta\delta$

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



Hash  
Nonce

Synchronous

Asynchronous

Micro-Cycle

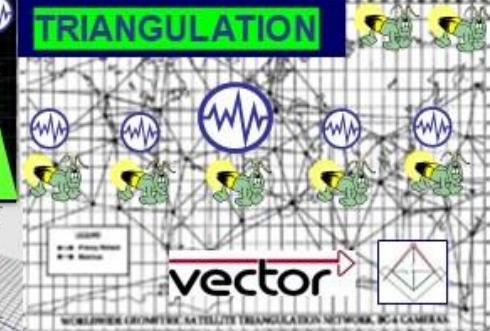
State Meta

Data Snapshots

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



UNIVERSAL MEME  
BLOCK  
ROLES Meters  
RULES Metrics  
EVENT EVENT  
Heart Beacon Cycle Time – Space Meter  
Geo-Spatial Temporal Intensity Metrics



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

FIREFLY HEARTBEAT Synchronization Algorithm

CLOCK TIME CYCLE INTERVAL EPOCHS

cycle n      n + 1      n + 2

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.

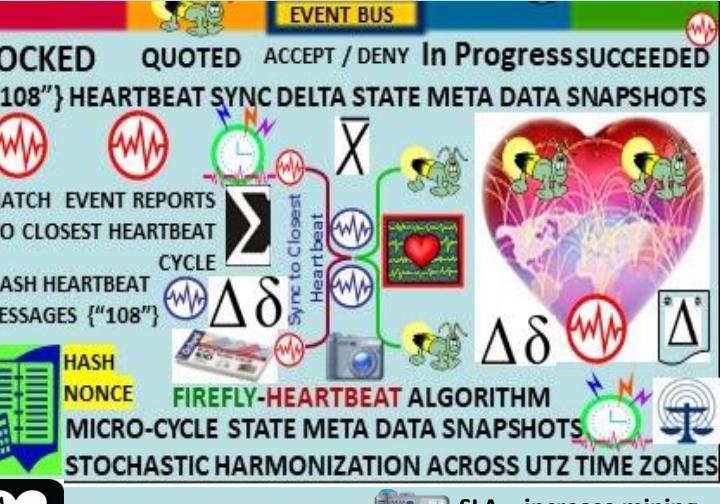
Iain Stewart, the inventor of the POB algorithm, uses an analogy to describe the algorithm: burnt coins are like mining rigs. In this analogy, a miner burns their coins to buy a virtual mining rig that gives them the power to mine blocks. The more coins burned by the miner, the bigger their virtual mining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

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. SLA/O  
(3) Heartbeat 2.   
(4) Device Status 1.   
(5) Device Status 2.

| TAG                                        | Volume / Size + / - Of rig | Token Award |
|--------------------------------------------|----------------------------|-------------|
| {"Org_ID"}<br>ActiveID                     | [UFO2_ACTIVEID]            | </EVENT>    |
| IF1_Heartbeat<br>(IF-Node1)                | [UFO2_HEARTBEAT:#]         | </EVENT>    |
| IF2_Heartbeat<br>(IF-Node2)                | [UFO2_HEARTBEAT:#]         | </EVENT>    |
| {"UUID"}<br>IF1_DeviceStatus<br>(IF-Node1) | [UFO2_DEVICESTAT:#]        | </EVENT>    |
| {"UUID"}<br>IF2_DeviceStatus<br>(IF-Node2) | [UFO2_DEVICESTAT:#]        | </EVENT>    |
| IF1_State<br>(IF-Node1)                    | Δδ  [UFO2_STATE:#]         | Δδ IF_State |
| IF2_State<br>(IF-Node2)                    | Δδ  [UFO2_STATE:#]         | Δδ IF_State |

# 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](#).



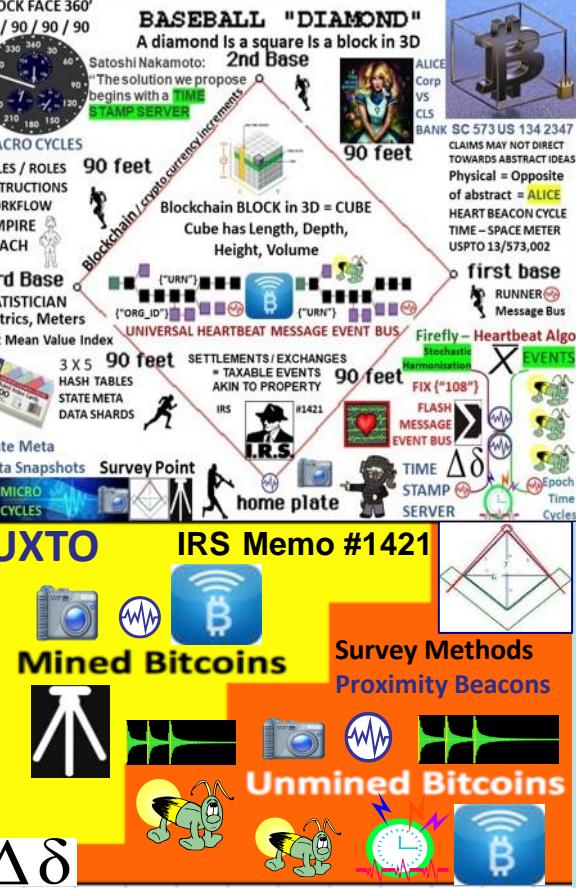
Instead of repeatedly altering the numbers in the block header & repeated hashing for the solution value as in a PoW system, PoC works by storing a list of possible solutions on the mining device's hard drive before mining activity starts



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)

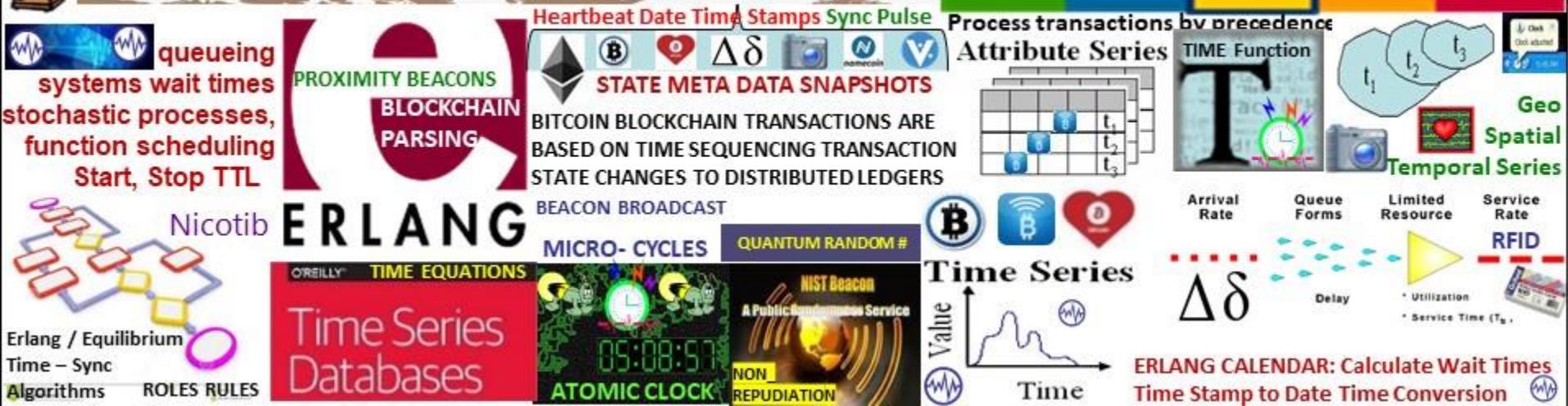
**PoST shows that physically storing data (spent "spacetime" resource/allocated storage capacity to the network) over a certain period of time.**



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



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.



# Proof of Authority



{"GROUP ID"}  
{"Org\_ID"}

Not pay to play, Node identiy 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



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

Net joins, drops, splits, merges, moves

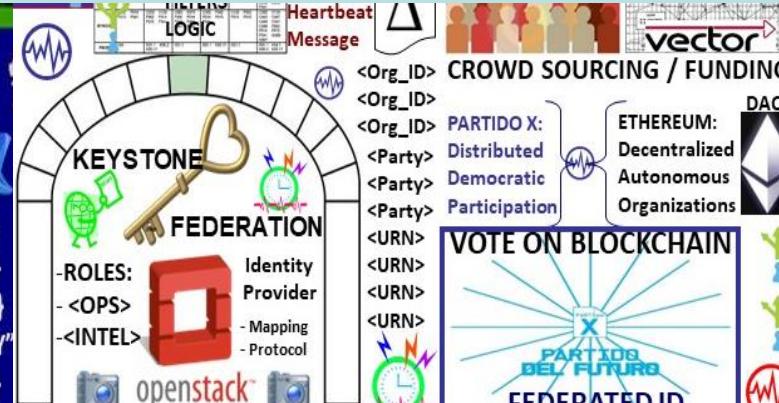
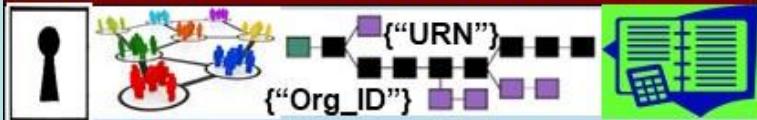
Agile, adhoc NETOPS Vs acquisition preserves the

CHANNEL

DISTRIBUTED AUTONOMOUS ORGANIZATIONS DAO

## Heart Beacon Cycle

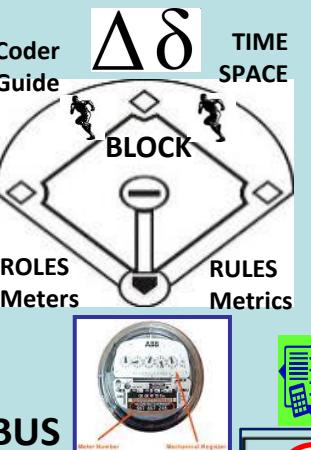
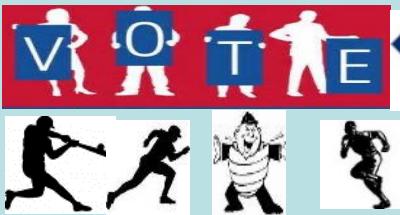
### FEDERATE / TRADE FEDERATIONS



# 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

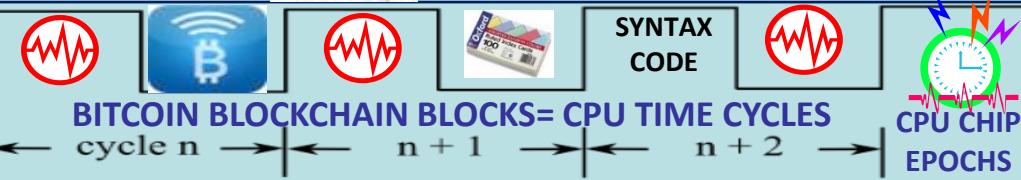
XBRIL / CDL / DAML  
STOCK MIC CODES

STRUCTURED  
MILITARY MESSAGE  
TEMPLATE FORMS  
LOGIC / FILTERS



SYNTAX  
LEXICON LIBRARY

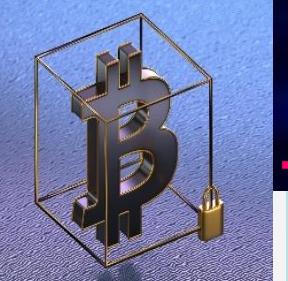
CPU CHIP  
EPOCHS



long exponential  
intervals (10 min)

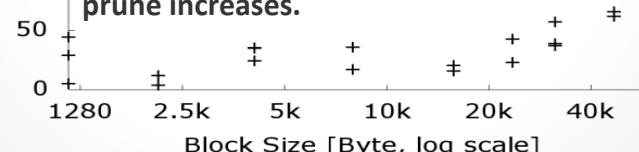


COMMAND SYNTAX  
RESTFUL State Transfer



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



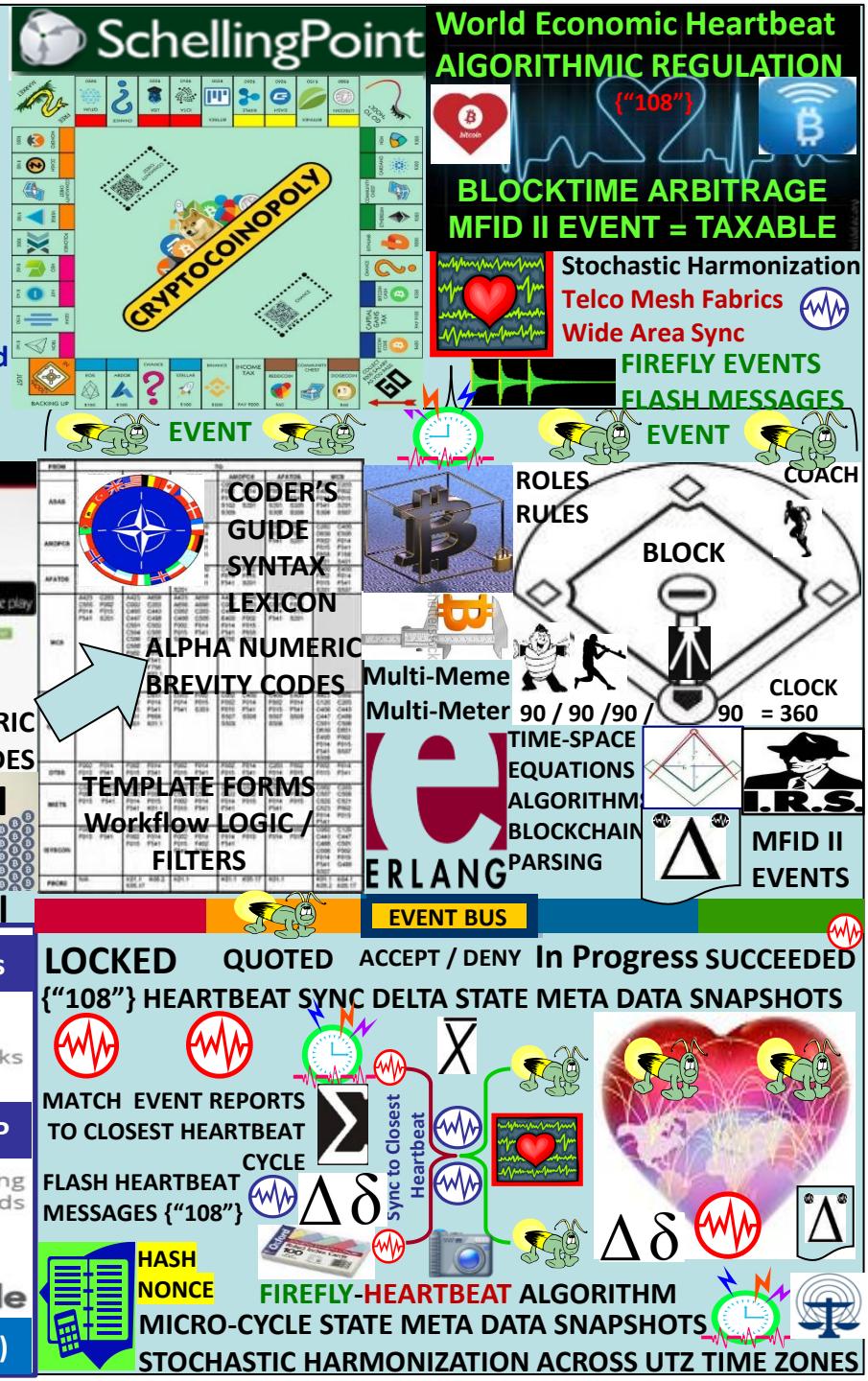
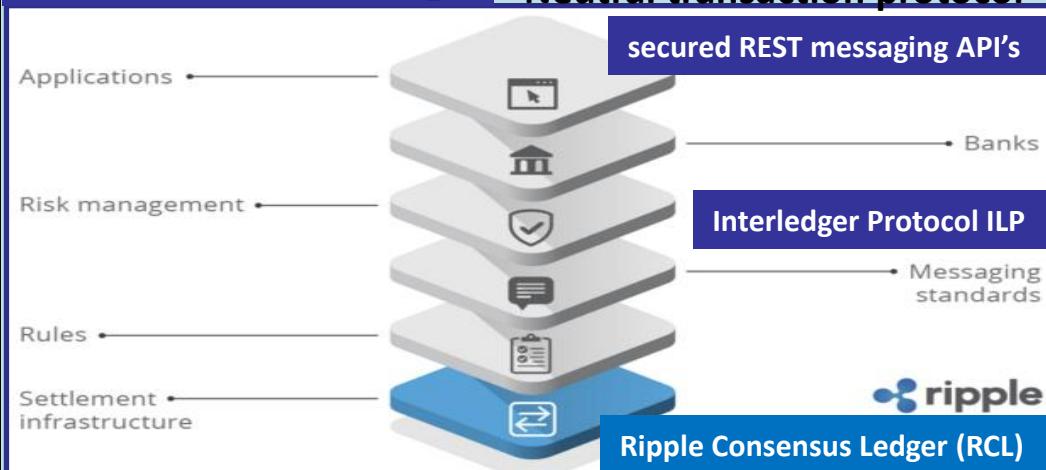
**real-time gross settlement system,  
currency exchange, remittance network**

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 consensus process that allows for payments, exchanges and remittance in a distributed process.

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**



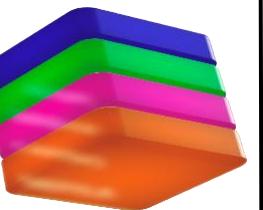


## PROTON A CHAIN Virtual Machine

## 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

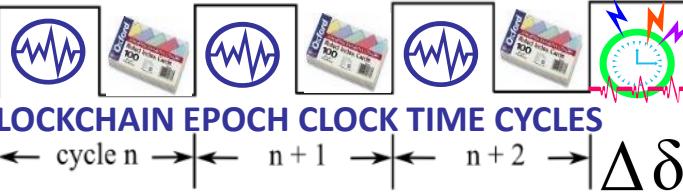
α (quorum size): between 1 and k

β (decision threshold): >= 1

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

1) EPOCH TIME INTERVALS

2) SYNTAX (not) used in epochs

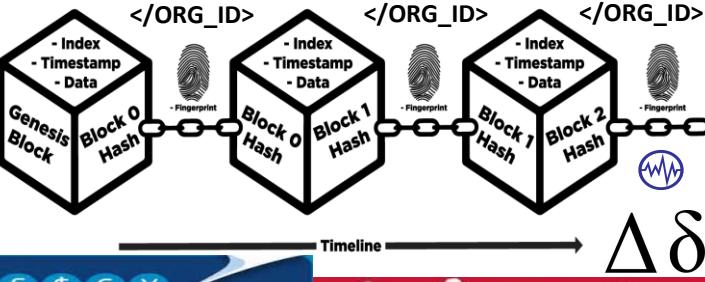


GENESIS BLOCK: "Layers" = follow on epoch time intervals

Block 0

Block 1

Block 2



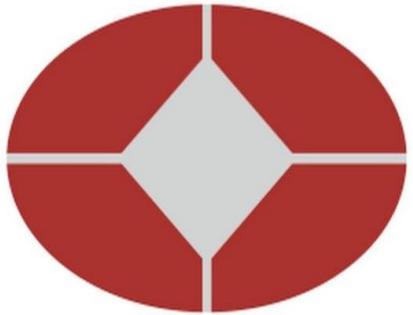
SECURITY TOKEN: A DIGITAL  
ASSET THAT'S BACKED UP  
BY TANGIBLE ASSETS IN THE  
REAL WORLD </URN>  
</URN>  
</URN>



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



# BIS



## International trade settlement work stream

2019

Inthanon-LionRock  
Proof-of-concept

Q4 2021

mBridge  
Trial Platform

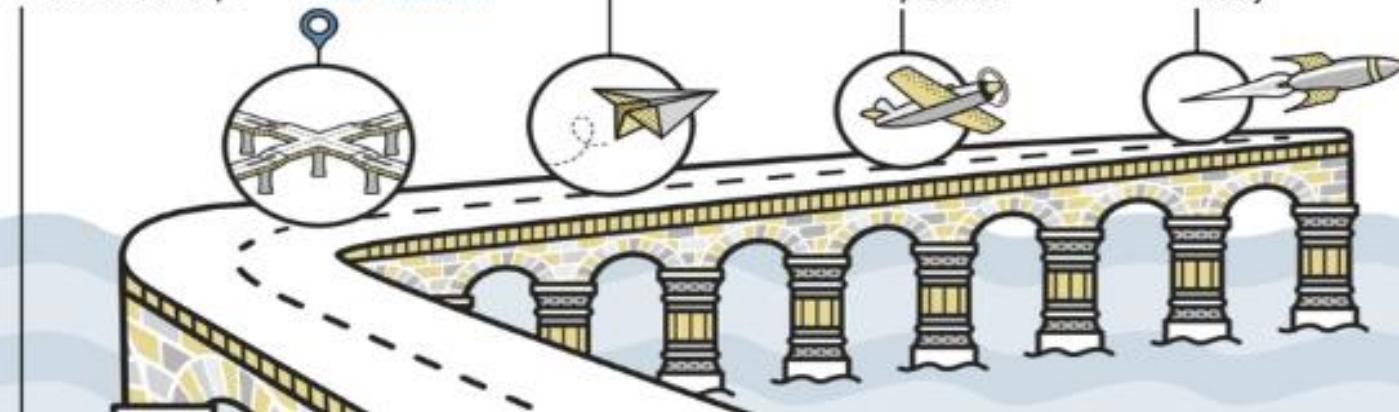
2022 onwards

Pilot

ISO 20022 messaging standard

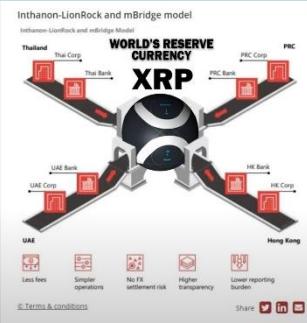
Minimum viable  
product

Production  
ready



**mBridge mBL** is an Ethereum EVM-compatible solution, referring to the ability of a blockchain to process transactions based on smart-contract codes that can run on many blockchain platforms. CBDC issuance, redemption, payments are implemented through smart contracts in the Solidity programming language. mBridge code is open sourced.

mBL uses the **Dashing consensus algorithm**, a Byzantine Fault Tolerance (BFT) consensus protocol that uses proofs of partial confirmation of a block validation to reduce time needed to achieve consensus and to improve the overall protocol performance. Pseudonymous addresses and encrypted payment meta-data payloads are used to support privacy and confidentiality in transactions. mBL APIs are based on the global ISO 20022 messaging standard for financial information Legal Entity identifiers (LEIs) facilitate identification of entities facilitating AML/ CFT checks.





# UNICOIN

Digital Capital Exchange

## **CBDC legal tender settlement coin**

**Universal Monetary Unit (UMU), a.k.a Unicoin: store of value**  
**cryptography, artificial intelligence (A.I.) Goals: continuous purchasing**  
**demand, minimal price volatility, and annual asset pricing targets.**  
**The primary value of any commodity is its utility value.**  
**Utility = pay for goods, services, and debts, preserve value**  
**over a long period of time. Employs machine learning**  
**trading bots. UMPC will establish yield payout rates for**  
**wallet holders to stake Unicoin in the Staked Proof of Trust**  
**(SPOT) consensus protocol. PoT consensus selects**  
**validators I.A.W contribution to the DeFI network**

The DCMA – Digital Public Monetary System

| KYC Entity | Ledgers | FX Rates          | SPOT Protocol        |
|------------|---------|-------------------|----------------------|
| Create     | Create  | Balances          | Stake                |
| Modify     | Modify  | Activity          | Cashout              |
| Suspend    | Suspend | Deposit           | Reject               |
| KYC People | Balance | Withdraw          |                      |
|            | CBDC    |                   | Authorizations       |
|            | Create  | Money Services    | Grant Authorization  |
|            | Modify  | Transfer          | Revoke Authorization |
| Issuers    | Suspend |                   |                      |
|            | Pause   | Escrow            | Rates                |
|            | Unpause | Create Escrow     | Create Rate          |
|            | Mint    | Accept Escrow     | Modify Rate          |
| Post Rates | Burn    | Cancel Escrow     | Suspend Rate         |
|            | Redeem  | Release Escrow    |                      |
|            | Swap    |                   | Limits               |
|            |         |                   | Create Limit         |
| Branches   | Supply  | Milestones        | Modify Limit         |
|            | Price   | Create Milestone  | Suspend Limit        |
|            |         | Modify Milestone  |                      |
|            |         | Cancel Milestone  |                      |
| Agents     |         | Release Milestone | Sanctions            |
|            | Wallets |                   | Create Sanction      |
|            | Create  |                   | Modify Sanction      |
|            | Modify  |                   | Suspend Sanction     |
| Suspend    | Suspend |                   |                      |
|            | Pause   |                   |                      |
|            | Unpause |                   |                      |
|            | Attach  |                   |                      |

**Figure 9: Unicorn Global Localization of a CBDC Public Monetary System**



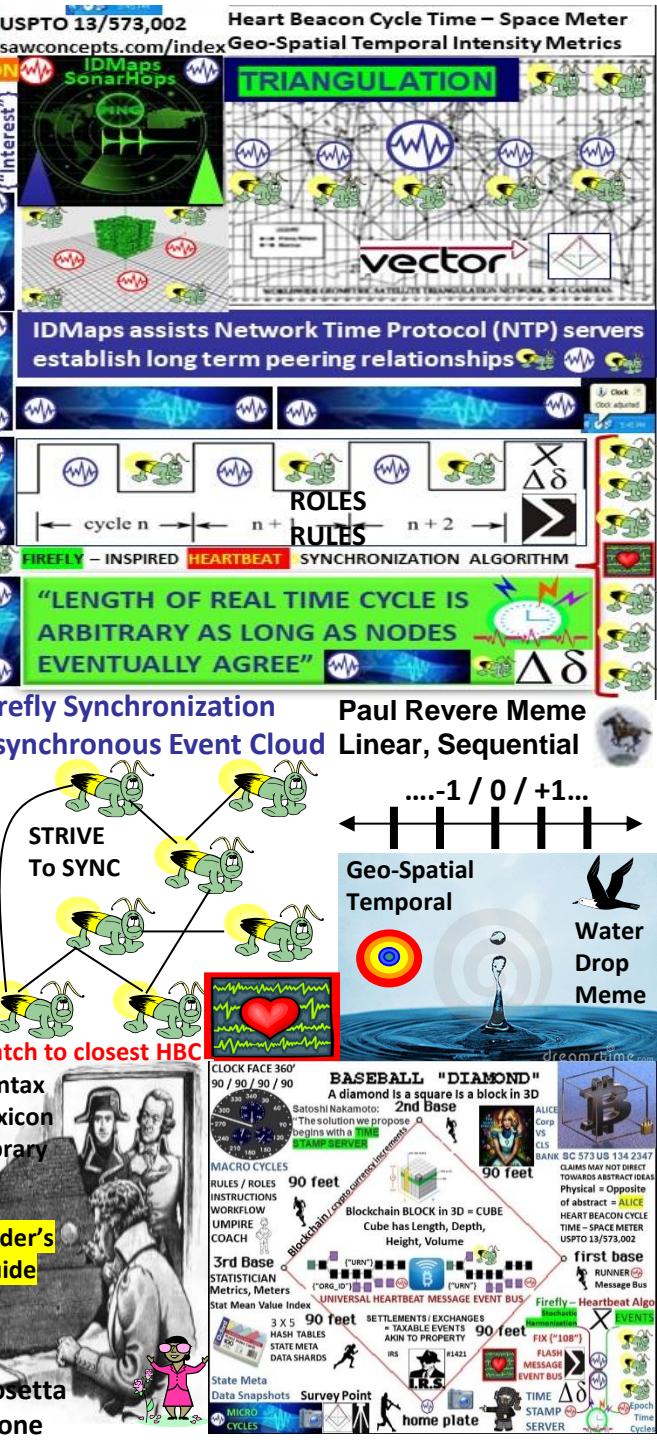
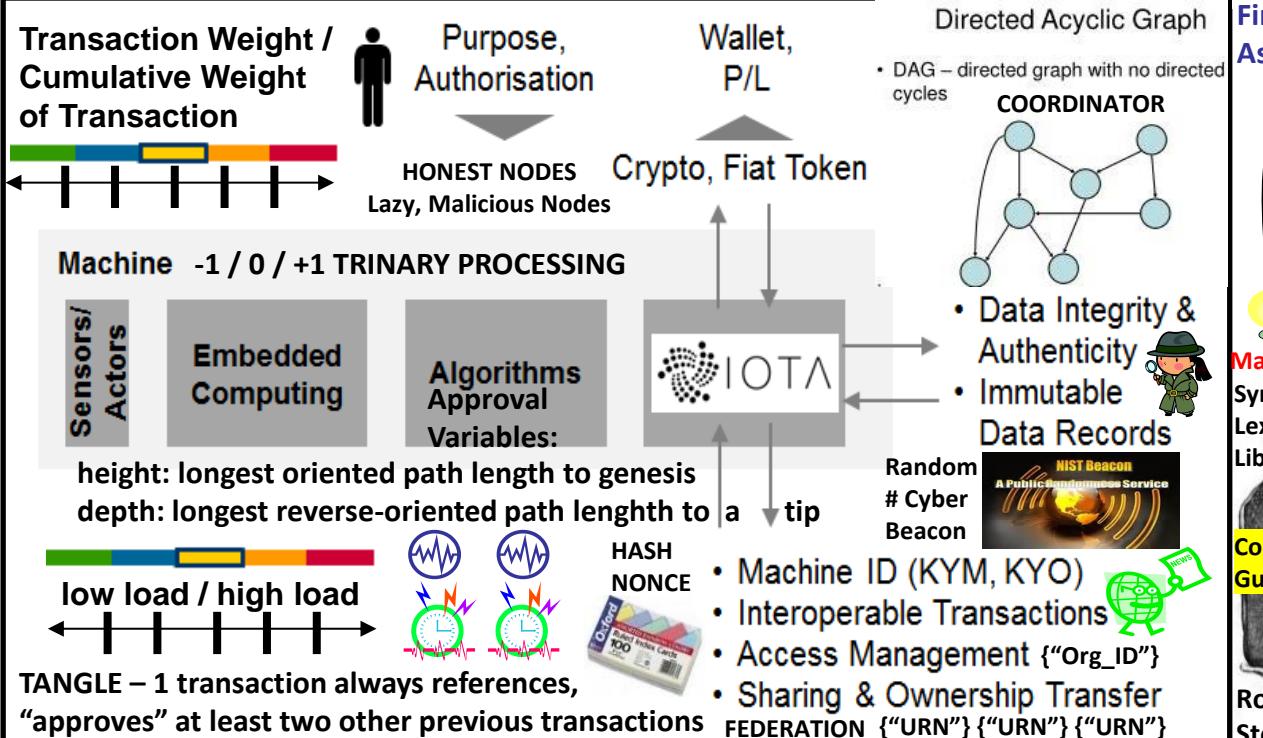


OTA: Internet Of Things IOT distributed ledger  
with microtransactions without fees

# 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





# ZEPPELIN

ZEPPELIN OPEN, GLOBAL ECONOMY

# OpenZeppelin open framework of reusable, secure smart contracts in the Solidity language

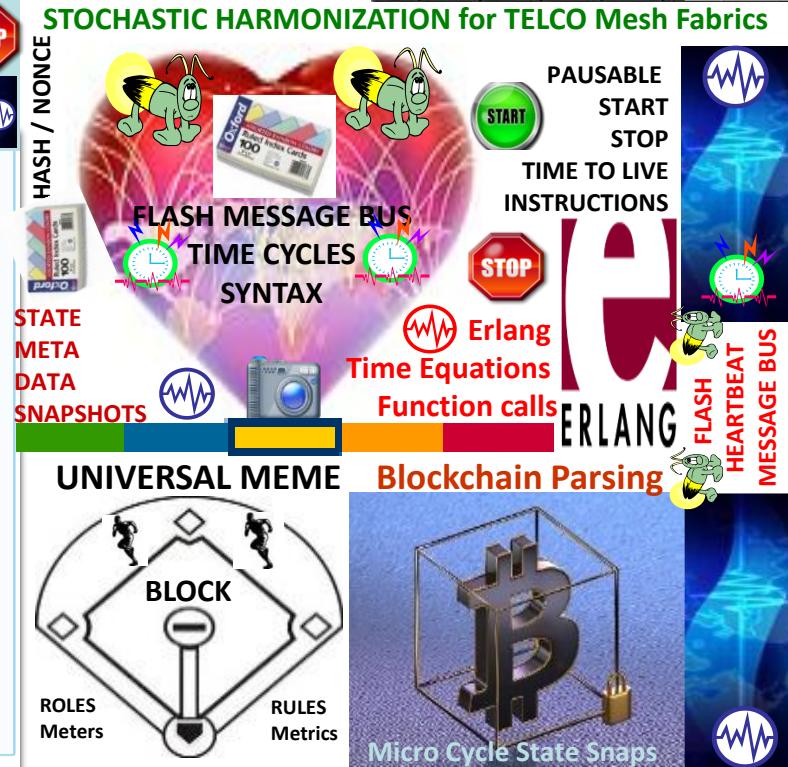
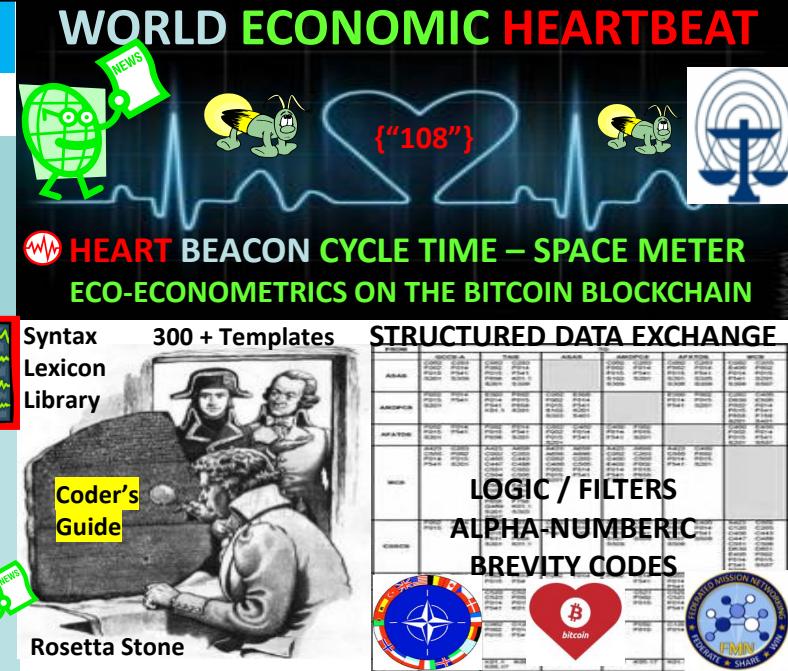
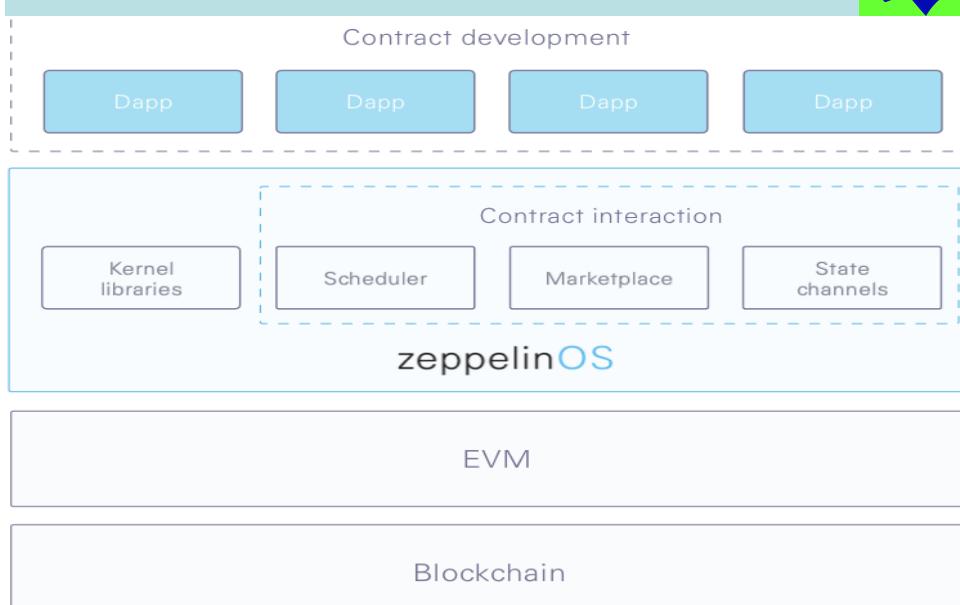
**zeppelinOS**, operating system for smart contracts  
*“the rate of innovation in building decentralized applications is limited by the manual and duplicative efforts developers must make to ensure basic usability and security.”*

## ZEPPELIN / zeppelinOS Common Functionality:

**zeppelinOS Kernel** common set of functions for smart contracts requesting services from the OS rather than re-implementing them from scratch. Functions will be available as an on-chain standard library of reusable contracts and functions, nspired by [OpenZeppelin](#) Libraries Create and customize your own ERC20 Token.

# Create and customize your own ERC20 Token.

- Create capped, refundable and/or whitelisted crowdsales.
  - Create a trustless bug bounty.
  - Create pausable, ownable, balance-limited contracts.
  - Set up a token vesting or token locking contract.

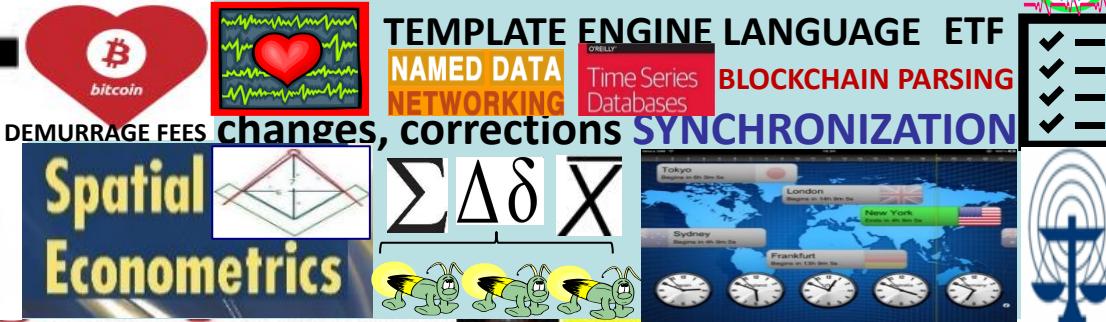
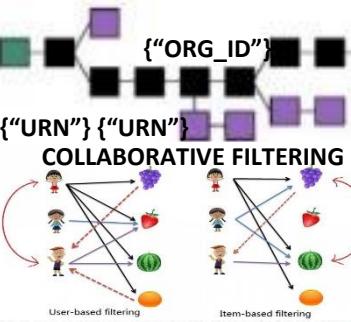




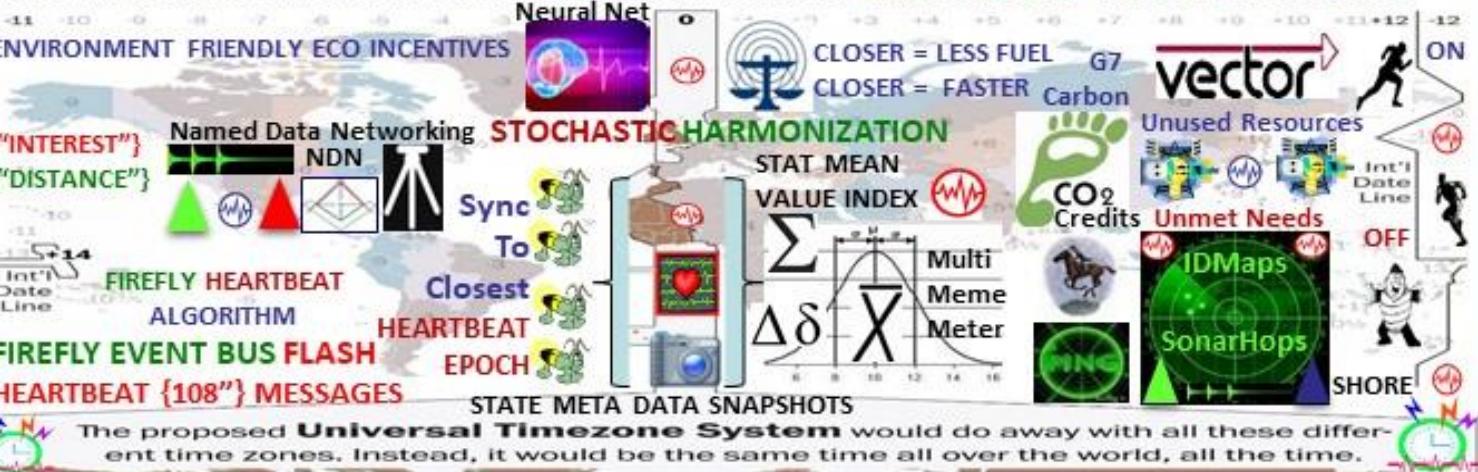
**EGAAS**  
ELECTRONIC GOVERNMENT AS A SERVICE

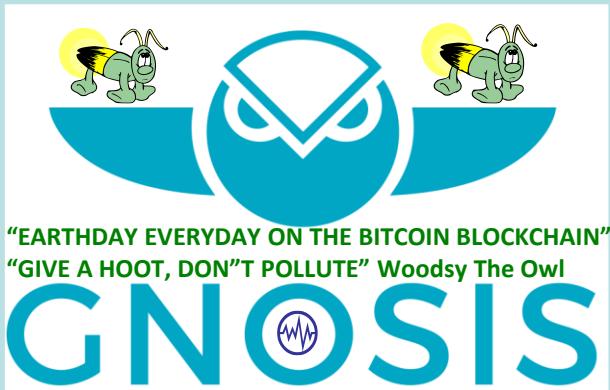
Distributed digital asset registries were the first projects that used blockchain systems such as databases designed for secure storage of records on real estate property, stocks, copyright and so on. It is assumed hosting any document on the blockchain is equivalent to notarization of its content at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



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**





"EARTHDAY EVERYDAY ON THE BITCOIN BLOCKCHAIN"  
"GIVE A HOOT, DON'T POLLUTE" Woodsy The Owl

# GNOSIS

Gnosis Wisdom (WIZ) pay platform fees in Services layer, Wiz subsidize other participants fees, provide initial subsidies for markets, or market trading.

WIZ pegged to \$1 USD worth of fees. WIZ acts as coupon for \$1 of Gnosis

Gnosis tokens (GNO) generate Wisdom token s(WIZ) via smart contract

GNO token holders agree to "lock" tokens in a smart contract (30-365 days). A multiplier is added for longer lock durations. Smart contract determines selected lock duration and applies that duration to a formula regulating supply of WIZ tokens currently in use. Once users execute the contract, 30% of their WIZ are distributed for use, the remaining 70% is distributed proportionally over the locked duration. When lock duration expires, the locked GNO ceases to generate WIZ & GNO is freely transferable

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.

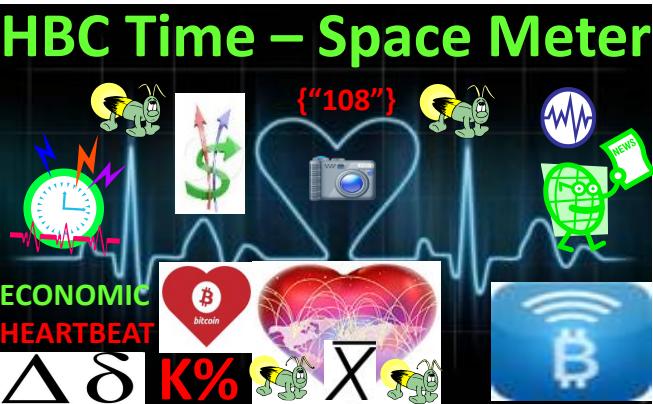
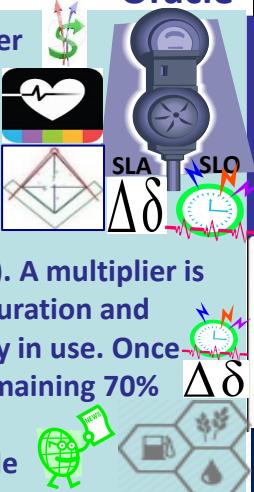


"Our mission is to build an accessible prediction market platform enabling free flow of useful information / the "Google" of Customized Information Searching"

**Futarchy** PREDICTION MARKETS  
**GnosisAMA**

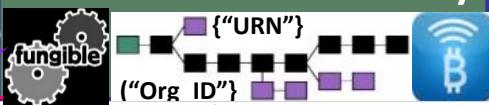
Gnosis trading interface alpha  
WIZ token fee payment  
INFORMATION ARBITRAGE ECONOMICS

**TERRACYCLE** Price Oracle

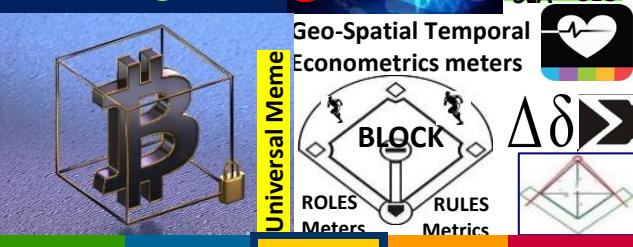


## THE TERRA (TRC)

Trade Reference Currency



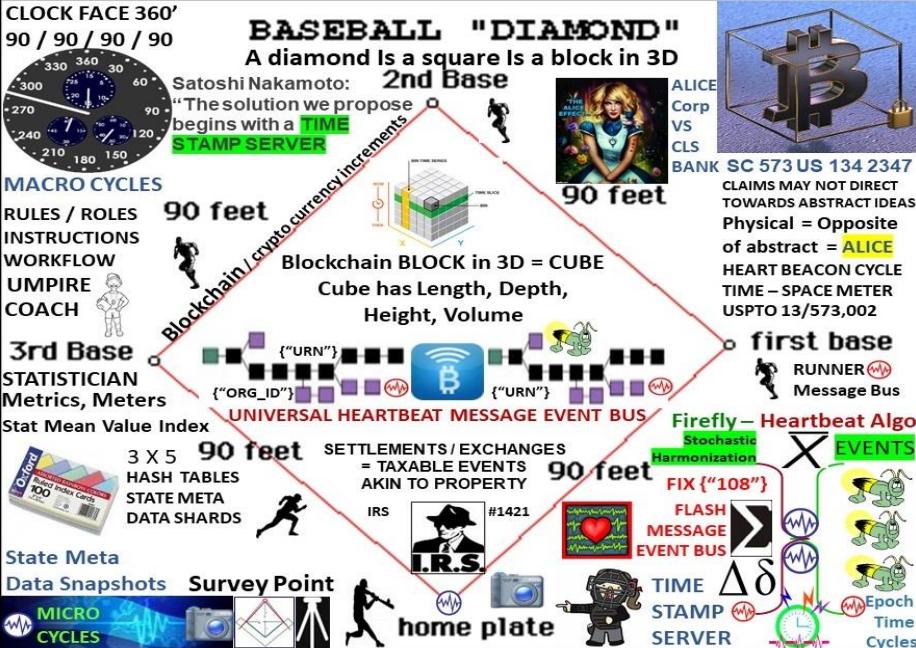
## Demurrage Fees



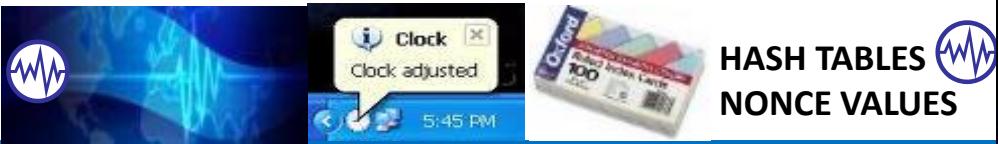
Firefly inspired Heartbeat Synchronization nodes strive to sync in a distributed system. Nodes generate periodic "heartbeat" events approximately at the same time. It differs from classical clock sync in that nodes are not interested in counting cycles to agree on the ID of the current clock cycle. There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



Bitcoin Classic seeks to mitigate the problem of more transactions, which are causing transaction backlogs and increased transaction costs, by increasing the block size - the number of kilobytes in a block of transactions - from 1MB to 2MB.



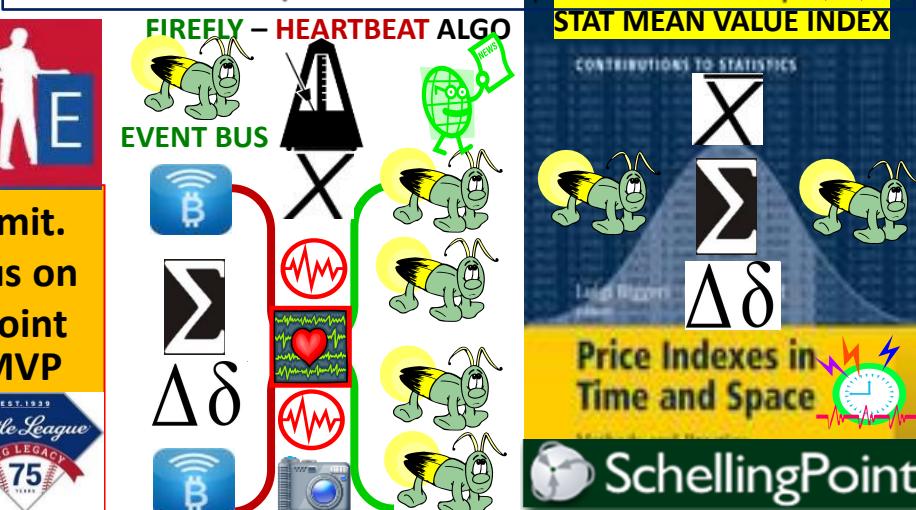
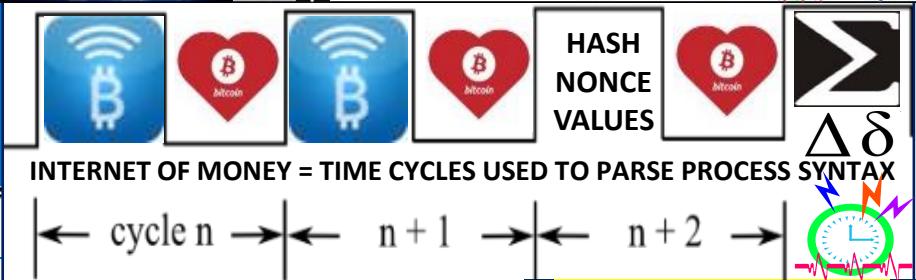
### ALL THINGS INTERNET FORMED W 1) TIME EPOCHS 2) SYNTAX



BitPay Core: limits: 1) block size 'hard limit' adjusted on a regular basis coinciding with difficulty adjustments, 2) miner set 'soft limit' like focal points in Unlimited.  $\Delta\delta$



Bitcoin Unlimited: absence of a hard-coded block-size limit. Users manually set limits on their own nodes; Consensus on a limit expected to emerge naturally at Schelling focal point. Unlimited introduces a level of democracy into development, management of the implementation, . the community votes on changes.



## **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 HTXO 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

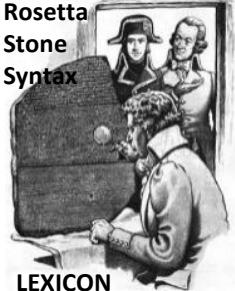
**Blockchain Fabric:** Blockchain Gateway Services [Interledger](#)-like services to allow for SmartContracts and tokenized objects to be passed between different ledger systems.

**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.**



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.

EVENT BUS

[View Details](#) | [Edit](#) | [Delete](#)

**FIREFLY EVENTS** | **WEDDINGS** | **ENTERTAINMENT** | **PRIVATE PARTIES**

**FIREFLY EVENTS** | [HOME](#) | [ABOUT](#) | [SERVICES](#) | [CONTACT](#)

100% Indian Land  
100% Native American  
100% Natural

FLASH MESSAGES

FLASH MESSAGES  FIREFLY

**SYNC TO CLOSEST** |  | **STRETCH** |  | **STOP** | 

**SYNC TO CLOSEST HEARTBEAT**

**HEARTBEAT**  **HEARTBEAT**

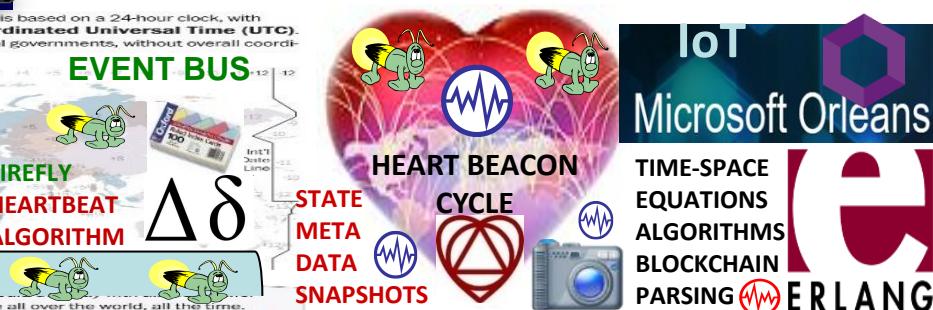
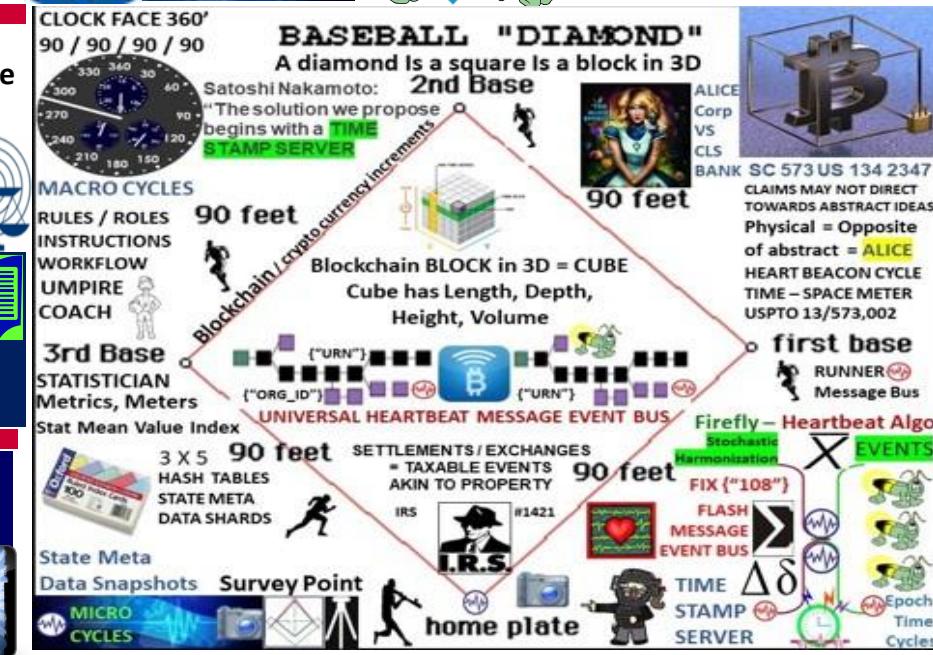
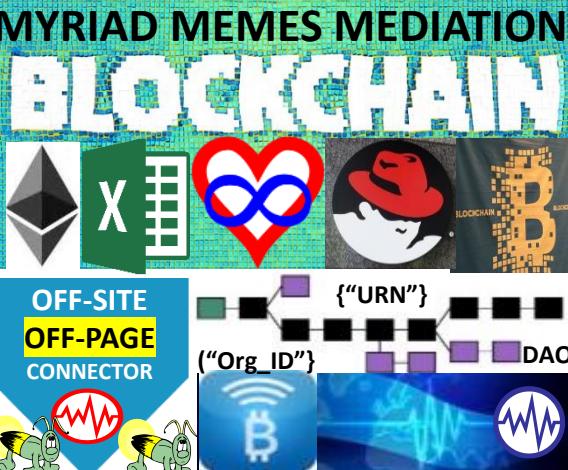
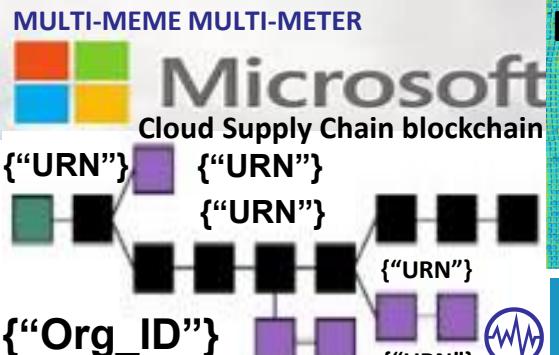
HEARTBEAT EPOCH ALGORITHM

WEBSITE IN GÖTTSCHE ALGORITHM

A horizontal row of five small, stylized flowers or buds. From left to right: a yellow flower with a green center and a long green stem; a yellow flower with a green center and a shorter green stem; a red flower with a green center and a short green stem; a yellow flower with a green center and a very short green stem; and a yellow flower with a green center and a short green stem.

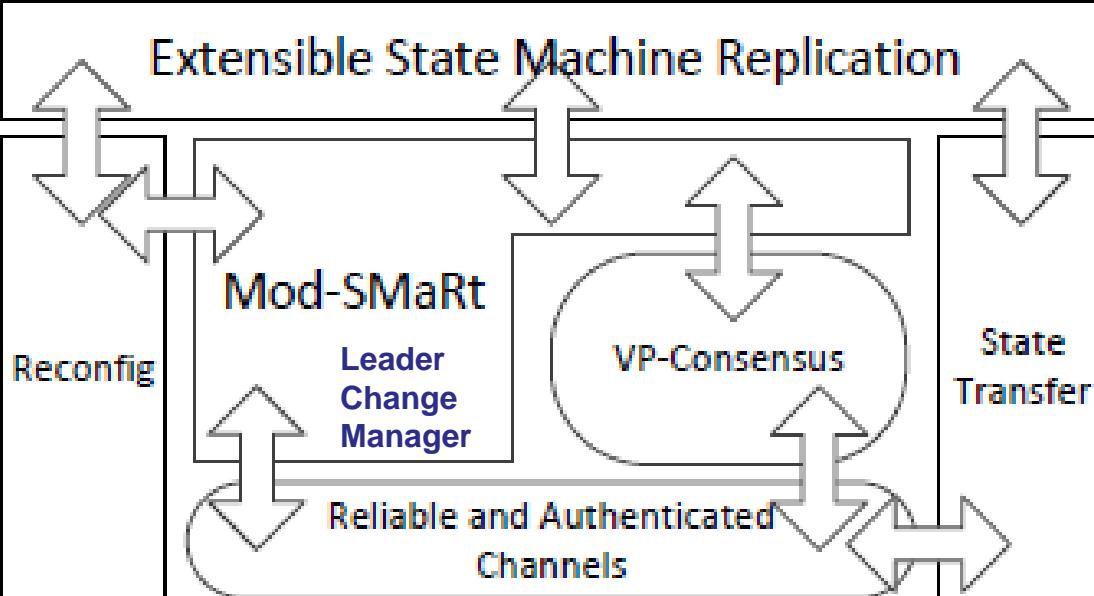
A horizontal row of six identical cartoon characters from the game Super Meat Boy. Each character has a large, round head with a single eye, a wide, toothy grin, and a small body ending in a red spike. They are all wearing a red, pointed hat. The characters are arranged side-by-side against a light blue background.

www.english-test.net



## 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

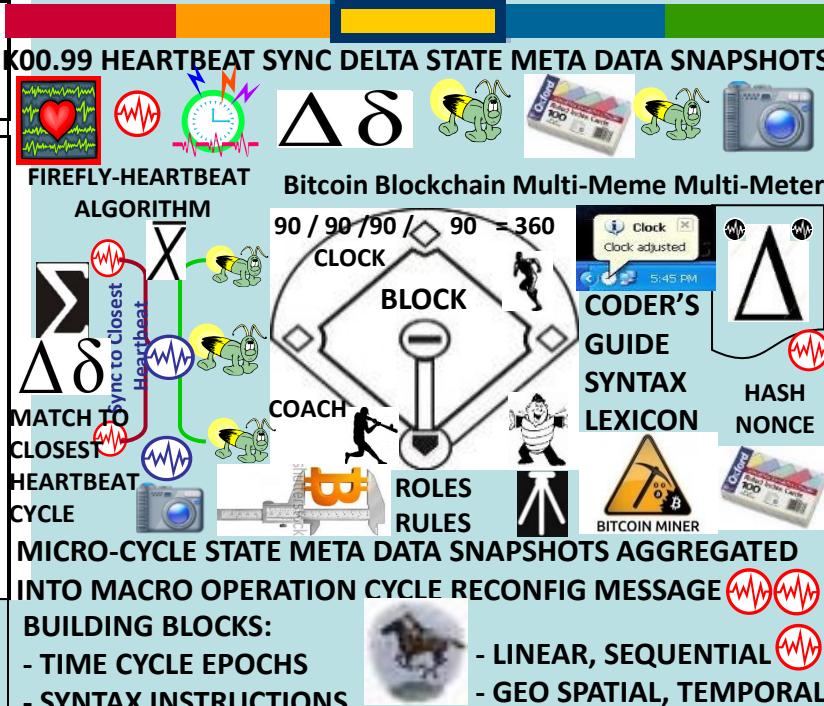


US Ct ALICE CORP V CLS BANK

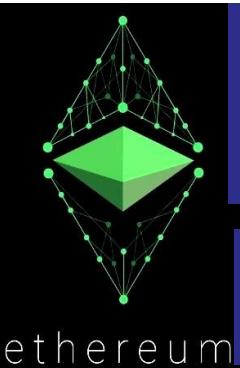
## **PHYSICAL = OPPOSITE OF ABSTRACT**

# 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**



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”

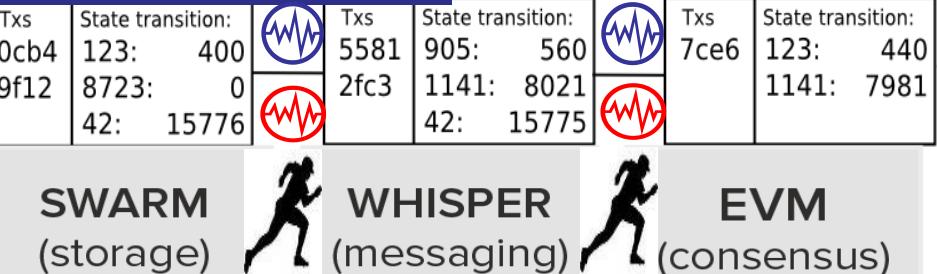


## ETHER: Compensate Resource Contribution

Gas: price to  
Run contract  
transactions

**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**

Casper is a security-deposit based economic consensus protocol. Nodes = “bonded validators” place security deposit (an action called “bonding”) If a validator generates an invalid action, account deposits are forfeited along with consensus privilege. Use of security deposits address “nothing at stake” problem; that behaving badly is not expensive. Casper is an **EVENTUALLY CONSISTANT** blockchain-based consensus protocol. CASPER favors availability over consistency







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.

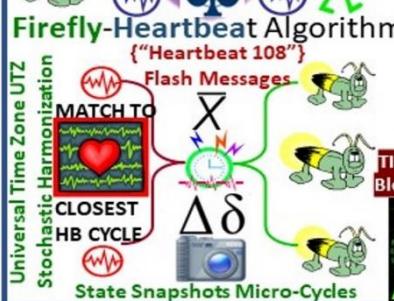
**ACCOUNTS & IDENTITY:** æternity's accounts are permission-less, but allow customization via schema.org's semantic web scheme. Create & own (**federated group**) / individual identities on the æternity network



("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.



HEARTBEAT FLASH MESSAGES EMULATE NEURAL NETWORKS

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

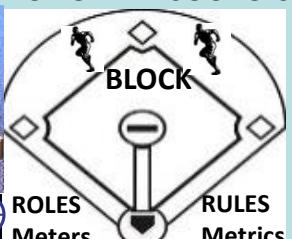
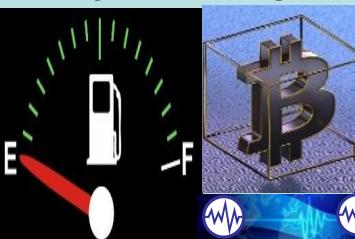
**AETERNITY CROSS-CHAIN ATOMIC SWAPS CORRESPOND TO HEART BEACON CYCLE'S USE OF BATTLEFIELD DIGITIZATION DERIVED HEARTBEAT SYNC DELTAS**



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



**BLOCK**  
ROLES Metrics  
RULES Metrics

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



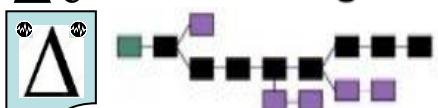
**Federation Gateway**  
("ORG\_ID")



# HYPER LEDGER OPEN SOURCE BLOCKCHAIN

Core APIs, & SDKs

$\Delta\delta$  Shared Ledger



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

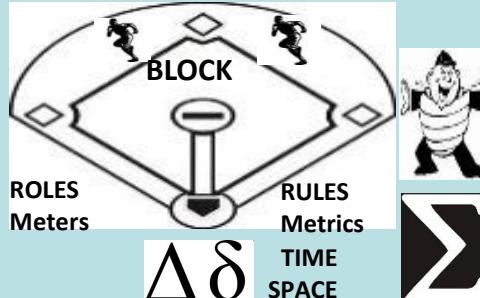
FEDERATION  
**Federation Gateway**

METRICS ("Organization ID")  
METERS

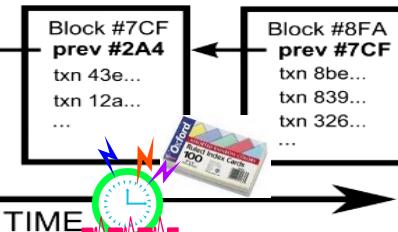
RESTFUL SYNC DELTA  
CHANGE MANAGEMENT  
MICRO-MACRO CYCLE



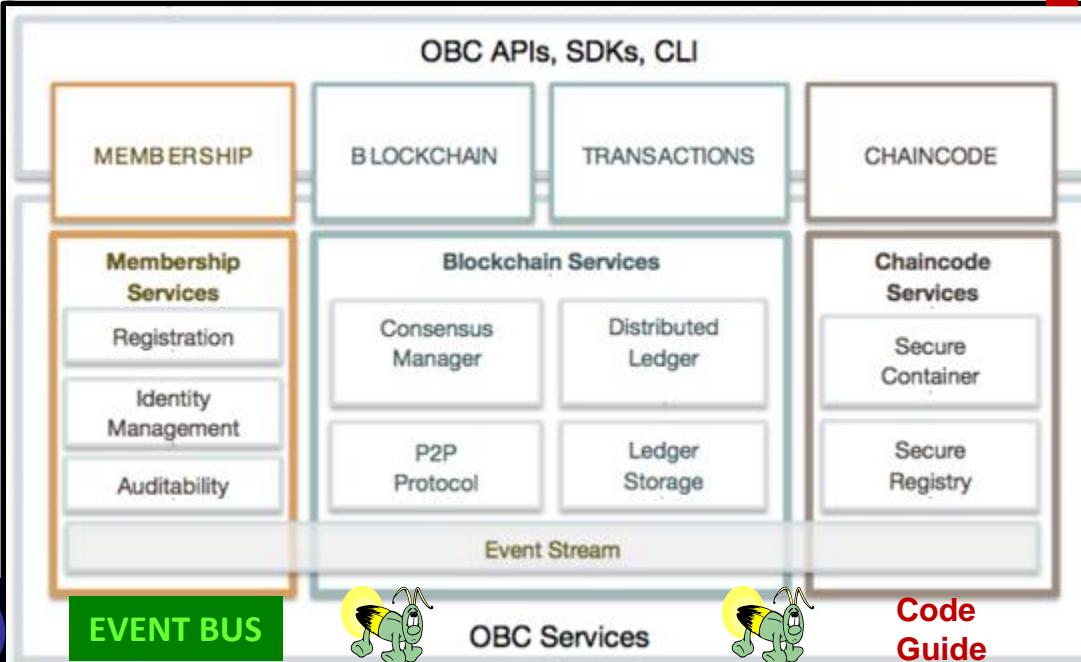
BLOCKTIME ARBITRAGE



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



Alpha-Numerics



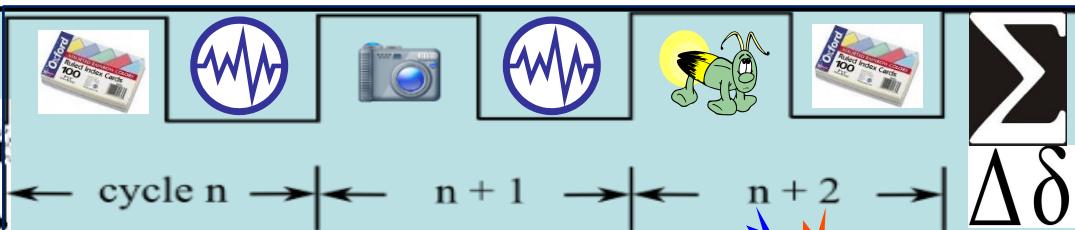
ROSETTA STONE

XBR / 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

# DASH



"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.

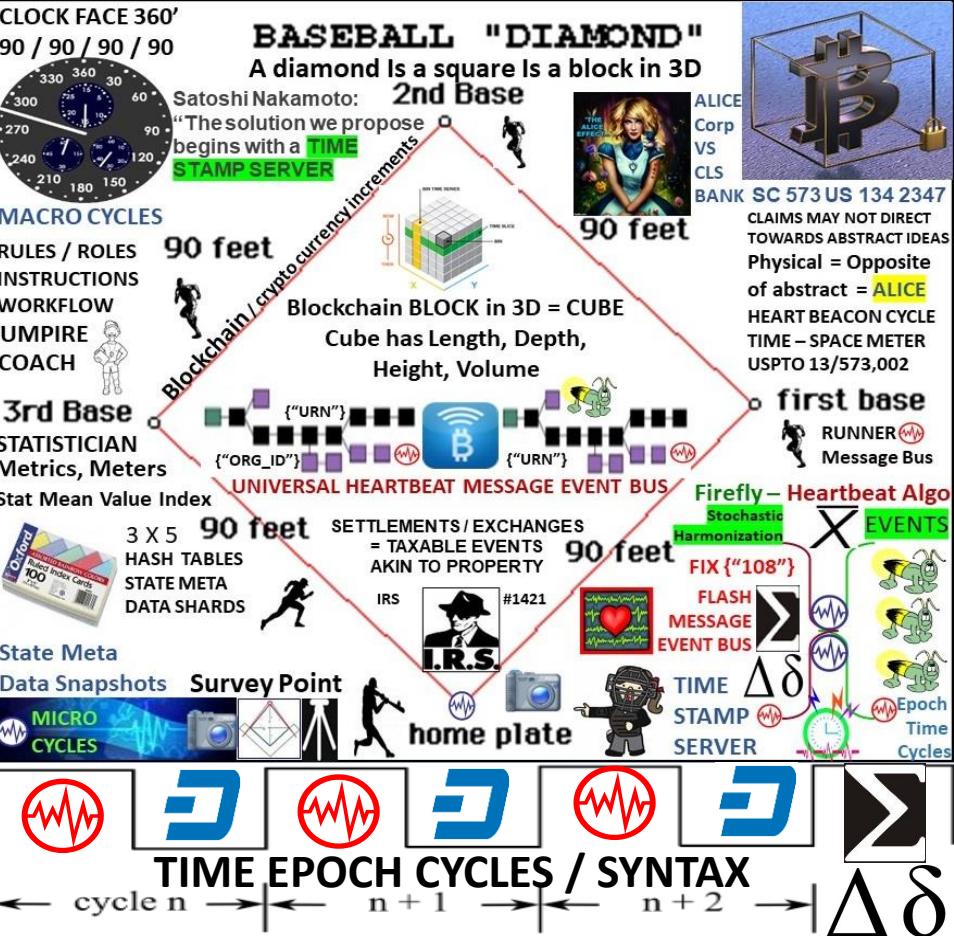
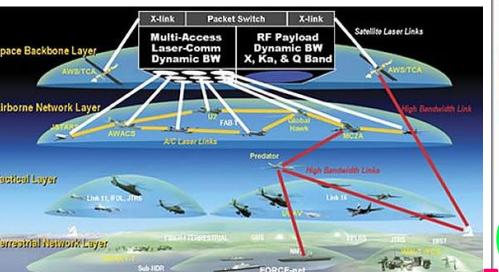
"Its makeup is thus: the block reward is divvied up in three parts. The first 45 percent goes to [Dash's miners](#). Another 45 percent goes to its Masternodes. And 10 percent is set aside to fund whatever other jobs or expenditures the Dash network deems necessary"

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

**DAO: RAND THINK TANK TERM COINED + / - 2001**

NETWORK CENTRIC WARFARE  
Developing and Leveraging Information Superiority

ALICE CORP Vs CLS BANK



STOCHASTIC HARMONIZATION FIREFLY-HEARTBEAT EVENT BUS

HEART BEACON CYCLE = IMPROVEMENT TO NETWORK CENTRIC WARFARE



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.



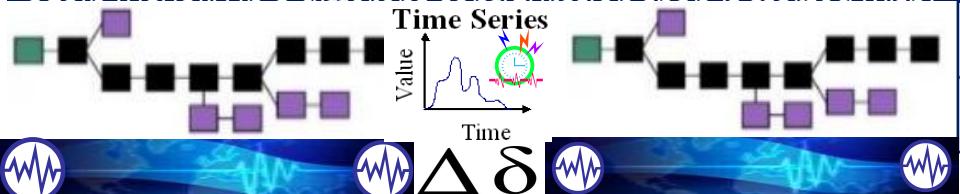
1. Part of the blockchain state is locked via multisignature or smart contract convention, so that a specific set of participants must completely agree with each other to update it.



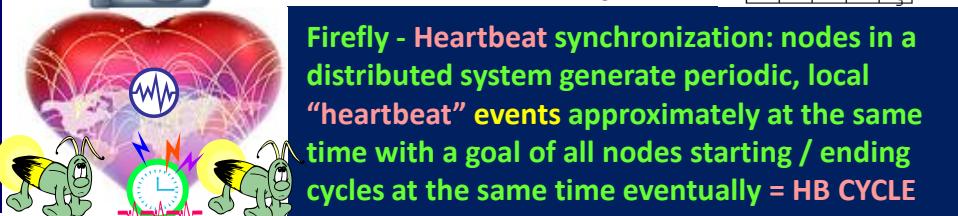
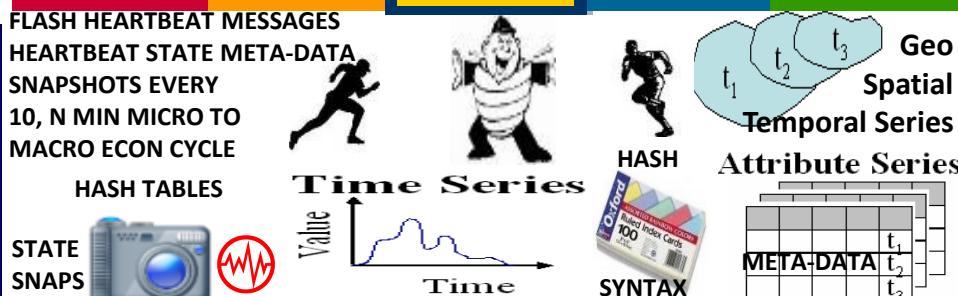
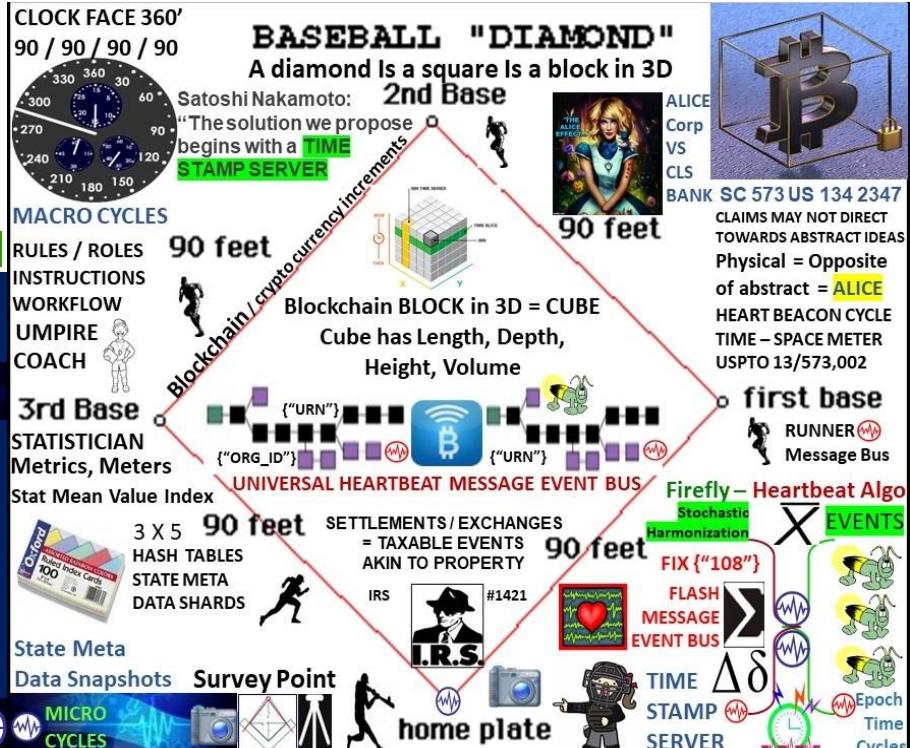
2. Participants update the state amongst themselves by constructing and signing transactions that *could* be submitted to the blockchain, but instead are made available for a new update "trumps" previous update.



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



**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.

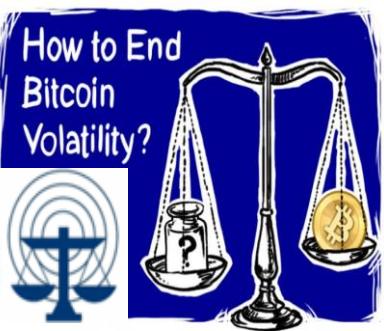
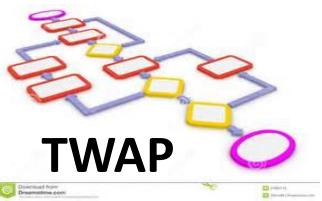


**Firefly - Heartbeat synchronization:** nodes in a distributed system generate periodic, local "heartbeat" events approximately at the same time with a goal of all nodes starting / ending cycles at the same time eventually = HB CYCLE

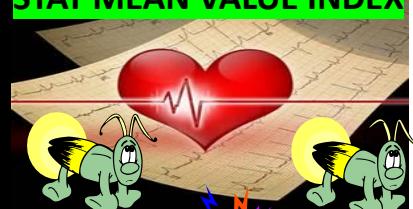
# TWAP Algorithm Manages Bitcoin Price Volatility Algorithm



## TWAP GOAL: provide a Time Weighted Average Price Benchmark



FIREFLY HEARTBEAT ALGO  
STAT MEAN VALUE INDEX



STATE META  
DATA SNAPSHOTS



STATE SAMPLE

**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..



**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.**

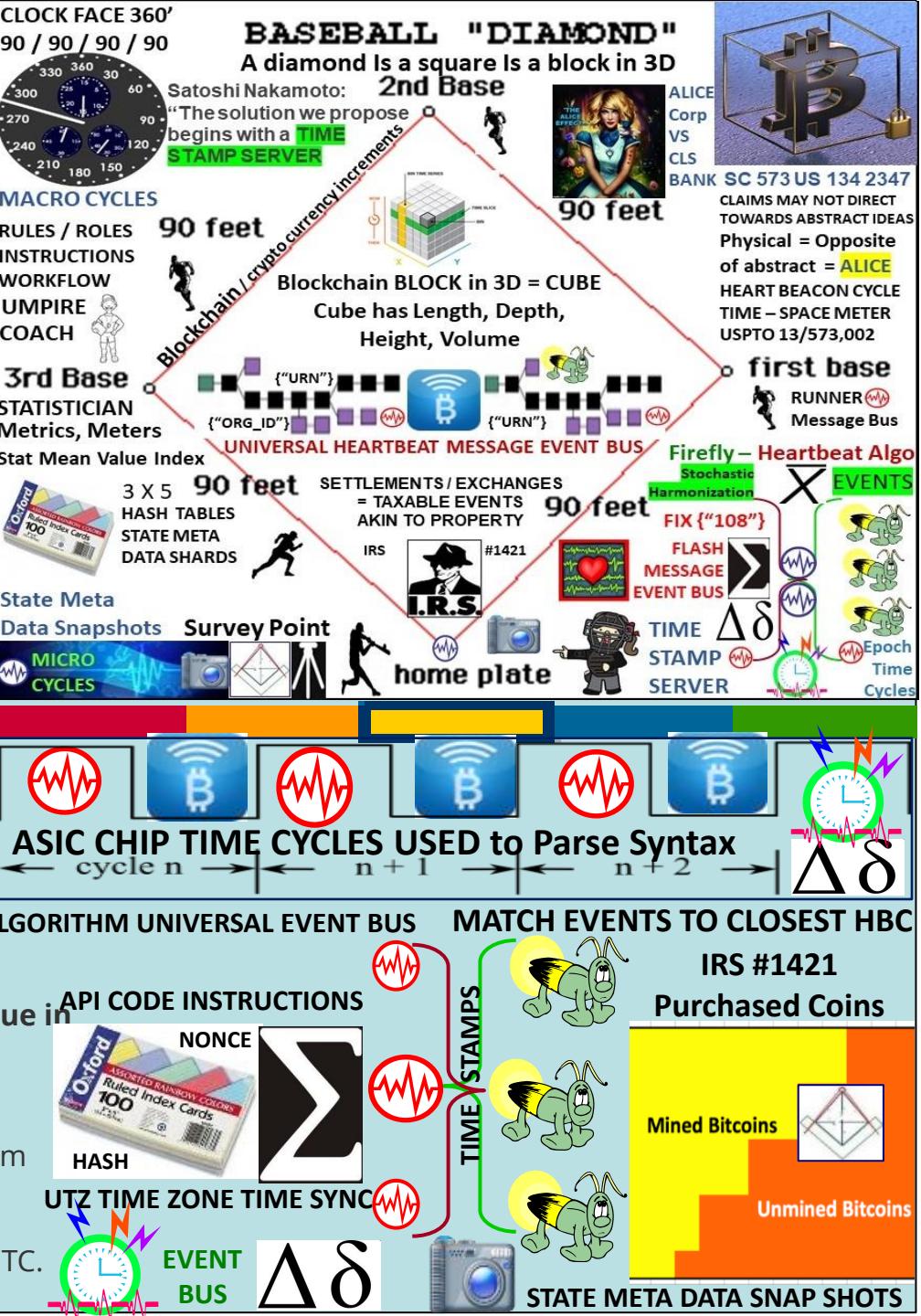
# Asset Classes: Digital Currencies

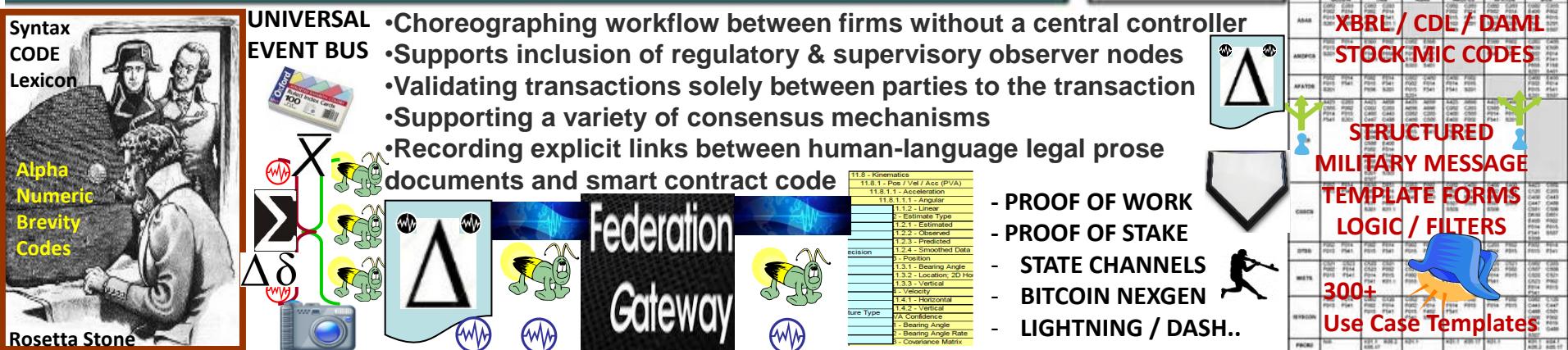
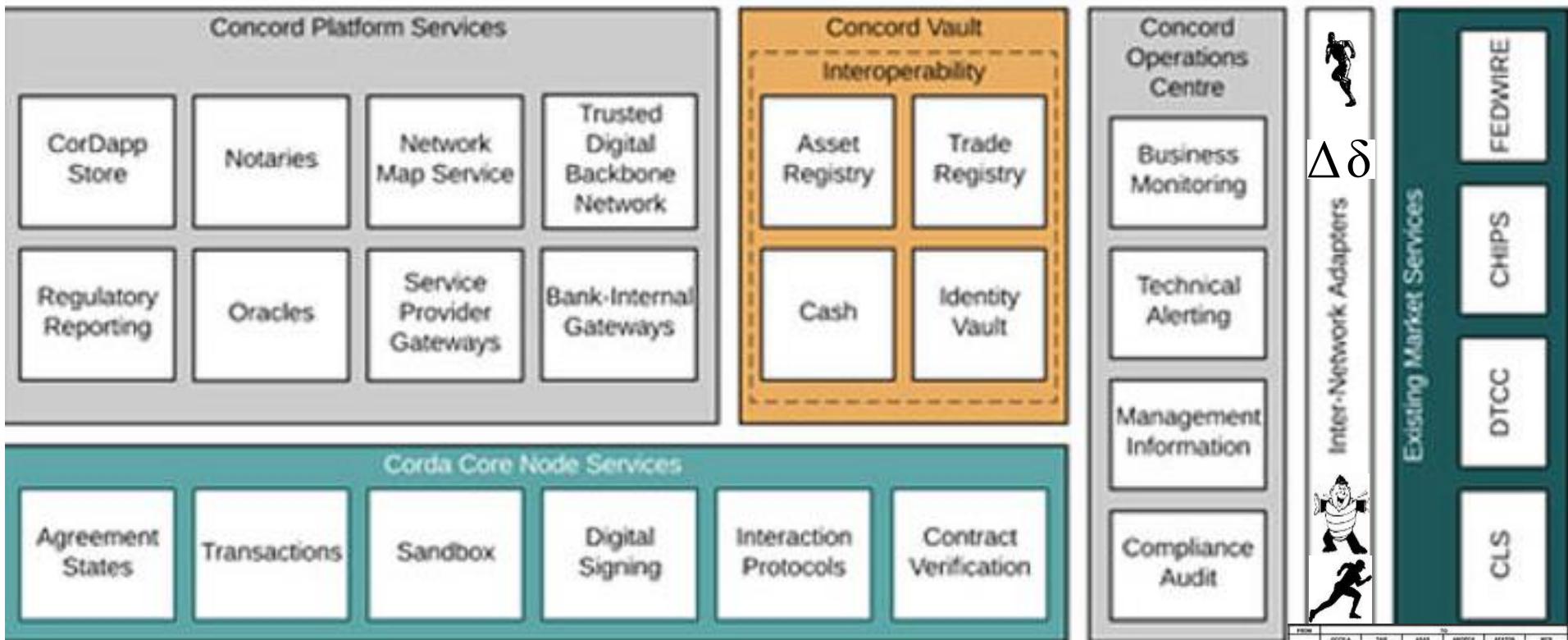
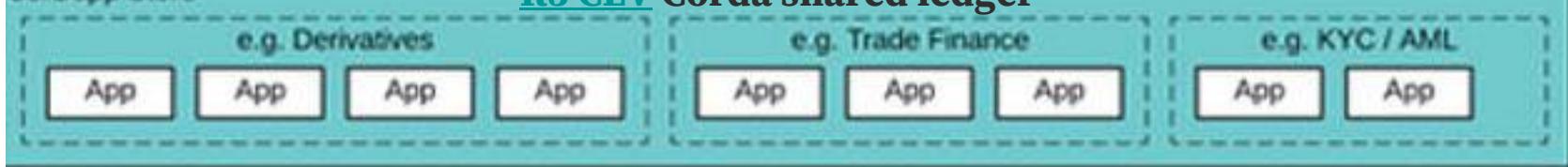
**Get by: Block-height, Time-stamp or Transaction**

**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.



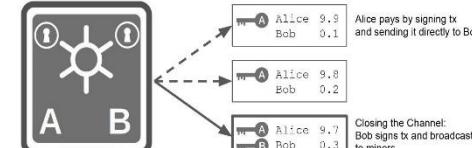




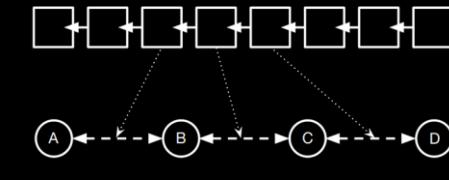
**transactions sent over / off chain  
micropayment channels**

Micropayment Channels

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



## LIGHTNING



Millions of Transactions. Milliseconds of Delay.

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



3 X 5  
HASH TABLES  
STATE META  
DATA SHARDS

State Meta

Data Snapshots

Survey Point

MICRO  
CYCLES

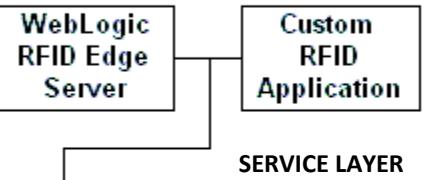


# Electronic Product Code Information Services (EPCIS)

## GS1 Standard for creating, sharing visibility event data



## EPCIS DATA MODEL



SERVICE LAYER

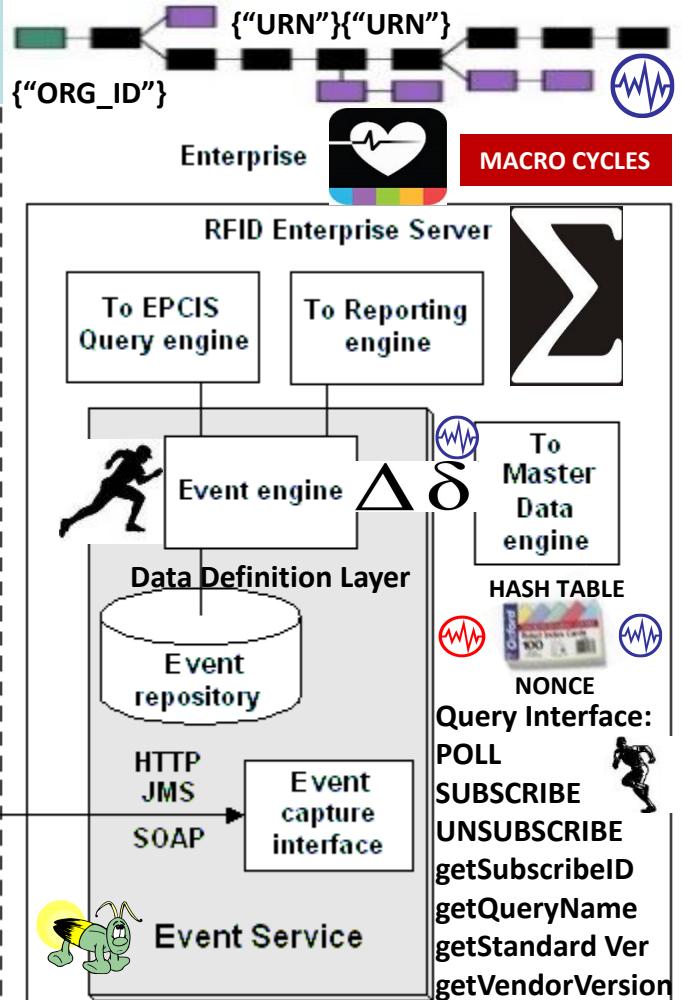
XML

ObjectEvent

AggregationEvent

QuantityEvent

TransactionEvent



## Core Business Vocabulary (CBV)

What identifiers of object(s) or entities / subject of the event

When date time when event took place, local time zone in effect

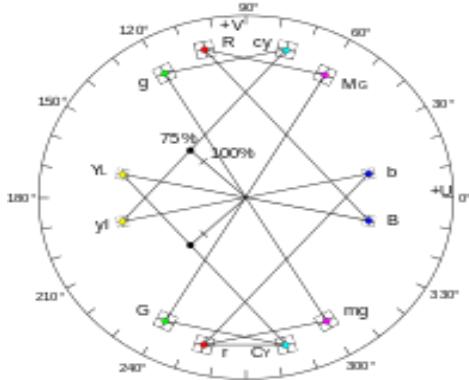
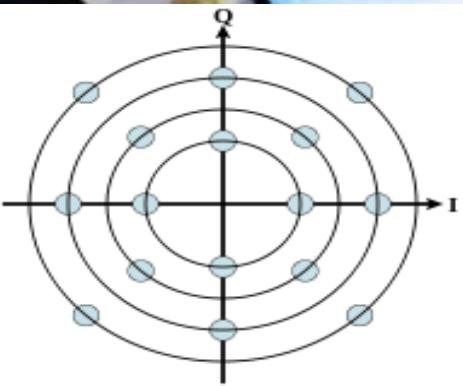
Where location identifier where event occurred, identifier of location where object(s) are expected to be following the event

Why Information about the business context, including:

a Identifier that indicates the business step taking place



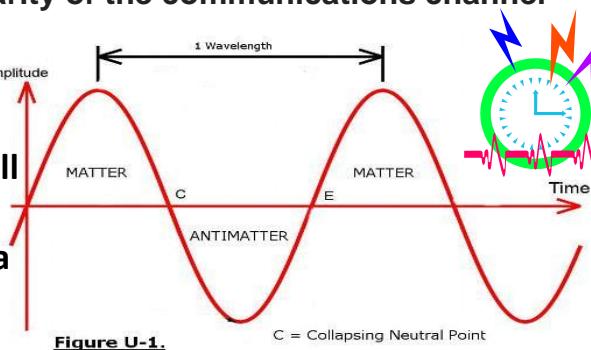
[www.RLighthouse.com](http://www.RLighthouse.com)



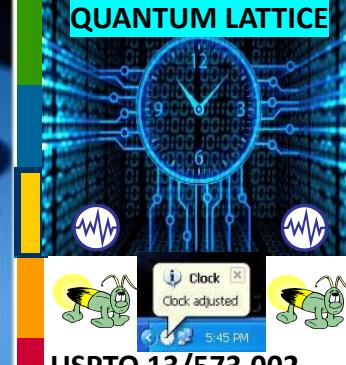
### Quadrature amplitude modulation

QAM by setting a suitable constellation size, limited only by the noise level and linearity of the communications channel

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



Sine wave of our blinking universe. The 4 fundamental forces will all be found to vary continuously when sampled at 2x the blinking frequency, per Nyquist-Shannon theory

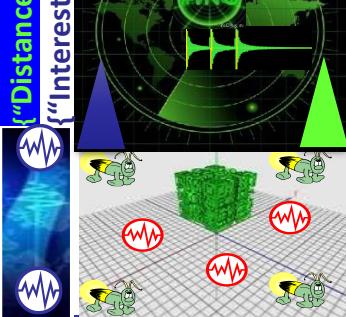


USPTO 13/573,002  
[sawconcepts.com/index](http://sawconcepts.com/index)

NDN

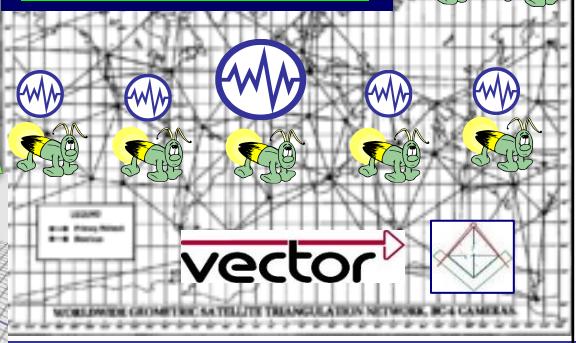
IDMaps  
SonarHops

{"Distance"}  
{"Interest"}



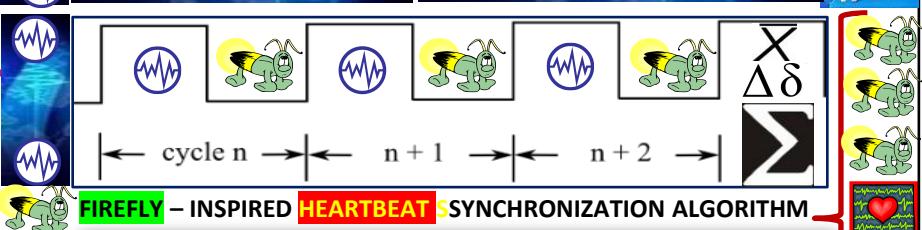
Heart Beacon Cycle Time – Space Meter  
Geo-Spatial Temporal Intensity Metrics

TRIANGULATION



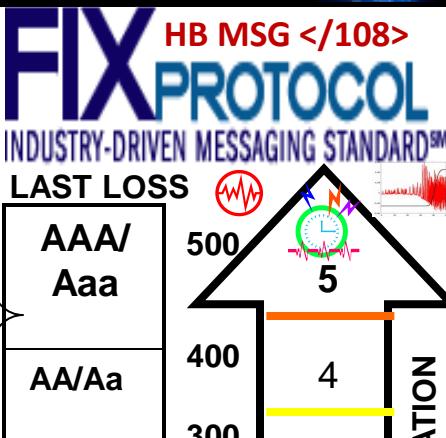
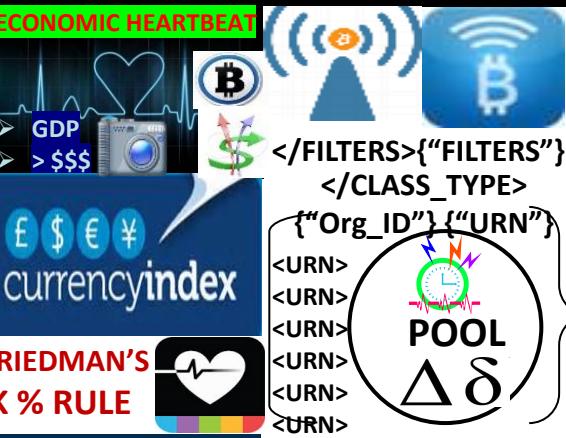
vector

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”



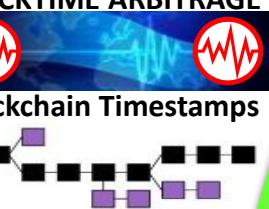
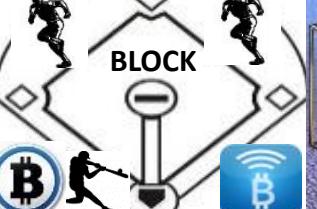
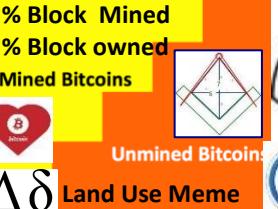
IEEE 802.15.4 OASIS MQTT

TELEMETRY TRANSPORT

IEEE 802.1AG HOP BY HOP

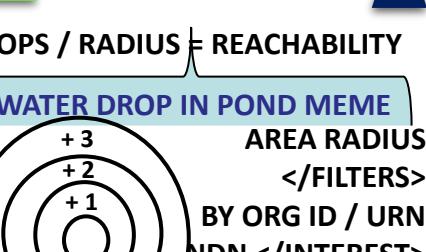
DETECTION

Bitcoin = Property



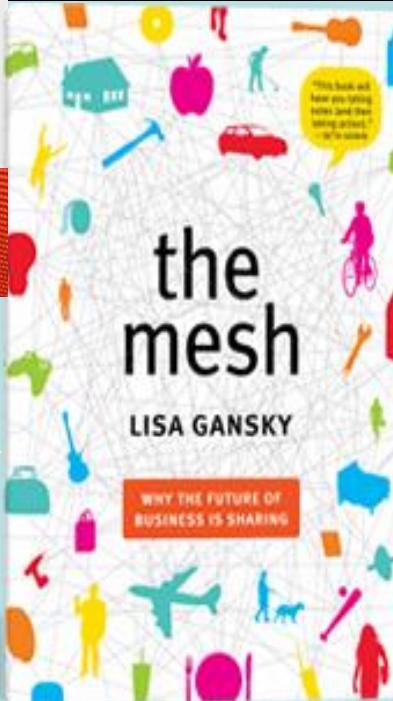
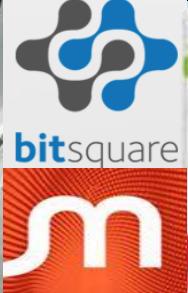
Demurrage Charges  
Triangulation  
Euclidian Geo  
GPS GEO LOC  
DATE TIME STAMP  
NDN </INTEREST>  
NDN {"DISTANCE"}

vector  
 $\Delta\delta$   
Event Bus  
Match to Closest  
Heartbeat Cycle  
Firefly-Heartbeat  
Algorithm  
ALGORITHM  
Heartbeat Snapshots





## Decentralized Exchange Meets Decentralized Crowdfunding



A decentralized exchange called BitSquare has [launched a campaign](#) on the decentralized crowd funding app [Lighthouse](#). Its campaign is simultaneously an example of how powerful decentralized crowd funding is, and how difficult running a successful campaign is... segue to the MESH ECONOMY

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.



## Autonomous Device Coordination Framework



Rules of engagement  
**FEDERATION AGREEMENTS**  
**PROCEDURAL TEMPLATE**

Registration

Authentication

Proximity based rules

Consensus based rules

Contracts

Checklists

## FEDERATION

&lt;UUID&gt; &lt;ORG\_ID&gt; &lt;URN&gt;

## LDAP DIRECTORY

Physical proximity

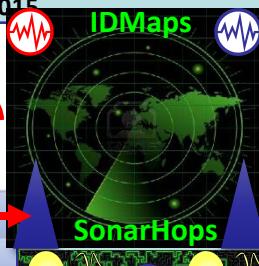
Social proximity

Temporal proximity

Agreements

Payments

Barter



SonarHops

NIST

CYBER

TIME

BEACON

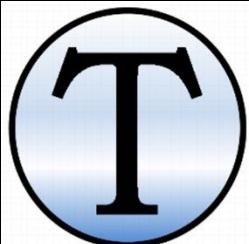
vector

CAIFNDAR

MACRO /

MICRO

CYCLES



## 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                                                                              |
|-------|--------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Focus | Outcomes of <i>past</i> events.<br>Consensus on known facts. | Outcomes of <i>future</i> events.<br><i>Future</i> consensus on <i>knowable</i> facts. |

## 3. A software protocol

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

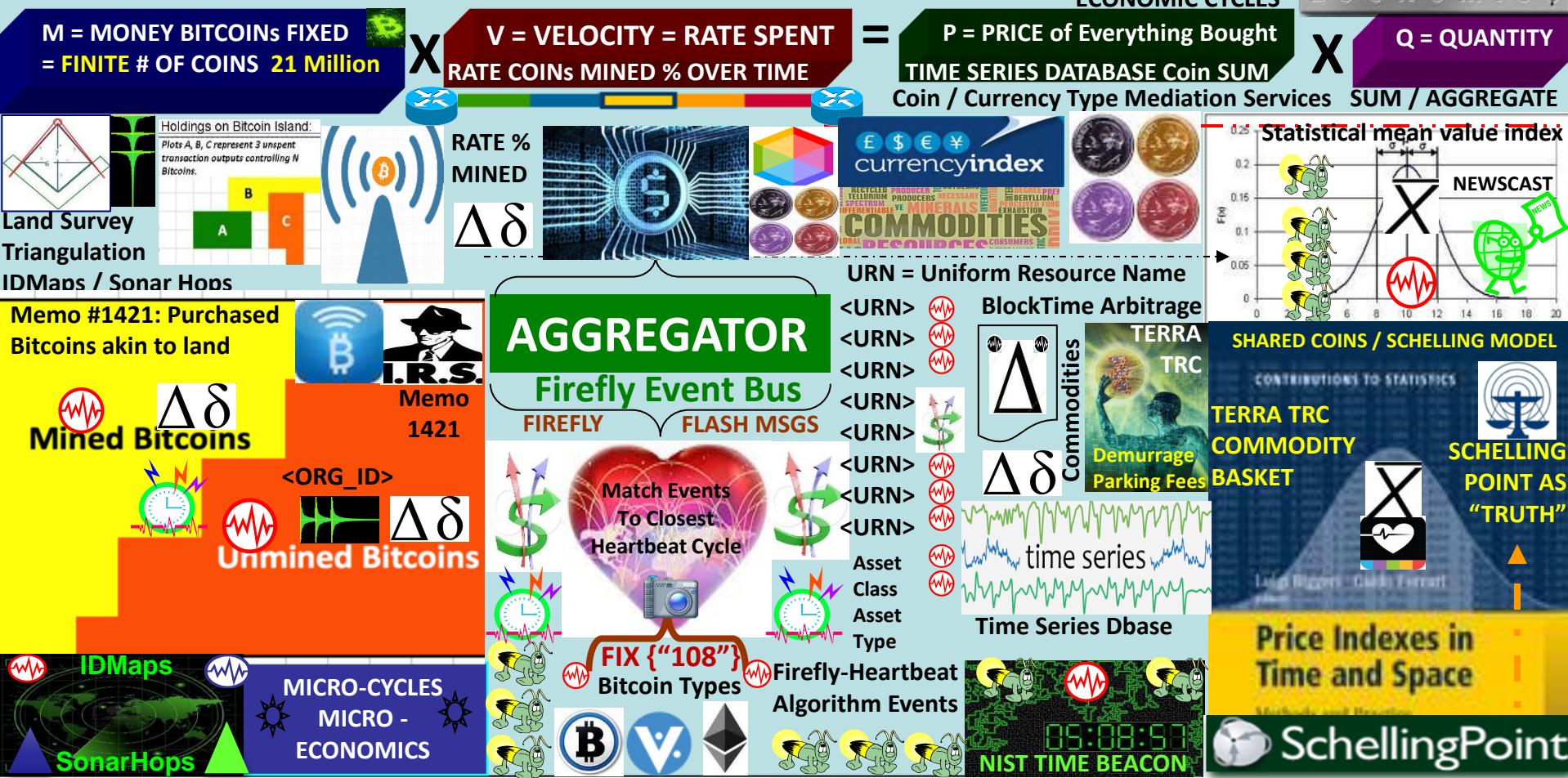
| Finance Thing      | Interpretation                                                                                                                                                       | EVENT DERIVATIVE<br>CORP = <Org_ID_1,2,3> |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Bond (Debt)        | “I, Paul Sztorc, owe \$20 to whoever is holding this bond certificate on 03/02/2015.”                                                                                |                                           |
| Stock (Equity)     | “I, the CEO of SztorcCorp, owe 1/100 <sup>th</sup> of SztorcCorp’s profits to whoever is holding this stock certificate on 03/02/2015.”                              |                                           |
| Binary Call Option | “I, Paul Sztorc, owe \$20 to whoever is holding this Option on 03/02/2015, <u>only if</u> the stock price of SztorcCorp is above 40 \$/share on that date.”          |                                           |
| ...(others)...     | ...(others)...                                                                                                                                                       | ...(others)...                            |
| Event Derivative   | “I, Paul Sztorc, owe \$20 to whoever is holding this derivative on 12/01/2016, <u>only if</u> Hillary Clinton is elected US President in 2016. Otherwise I owe \$0.” | ...(others)...                            |
| ...(others)...     | ...(others)...                                                                                                                                                       | ...(others)...                            |

| Protocol (Decentralized)   | Centralized Non-Protocol                                                                                 |
|----------------------------|----------------------------------------------------------------------------------------------------------|
| 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.                |

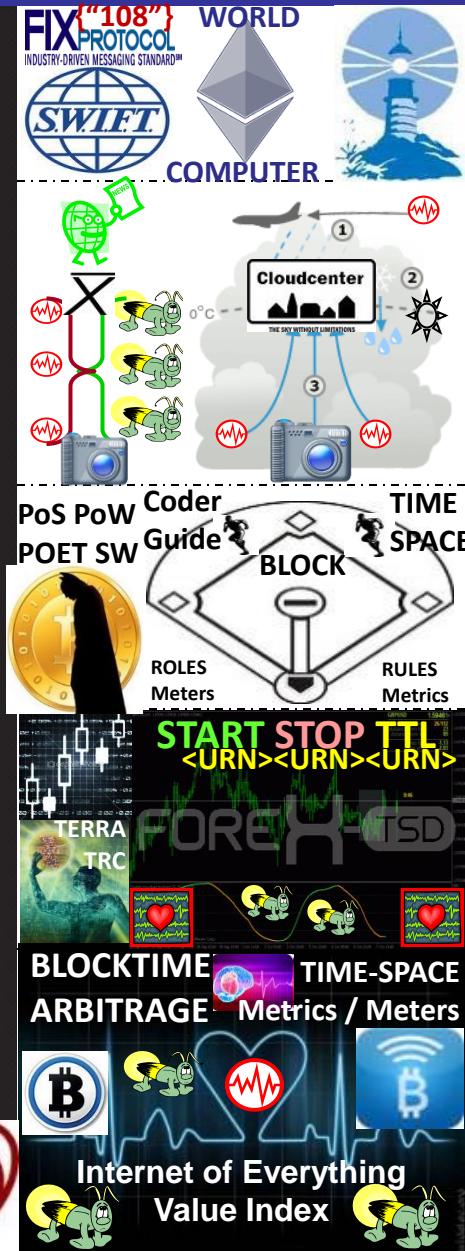
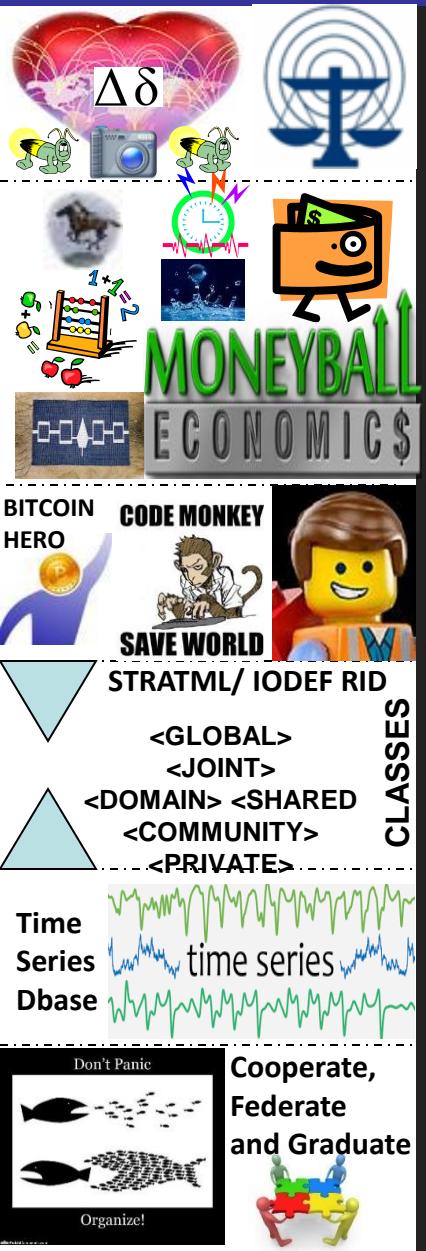
# How 'Bitbanks' Could Solve Bitcoin's Volatility Problem

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

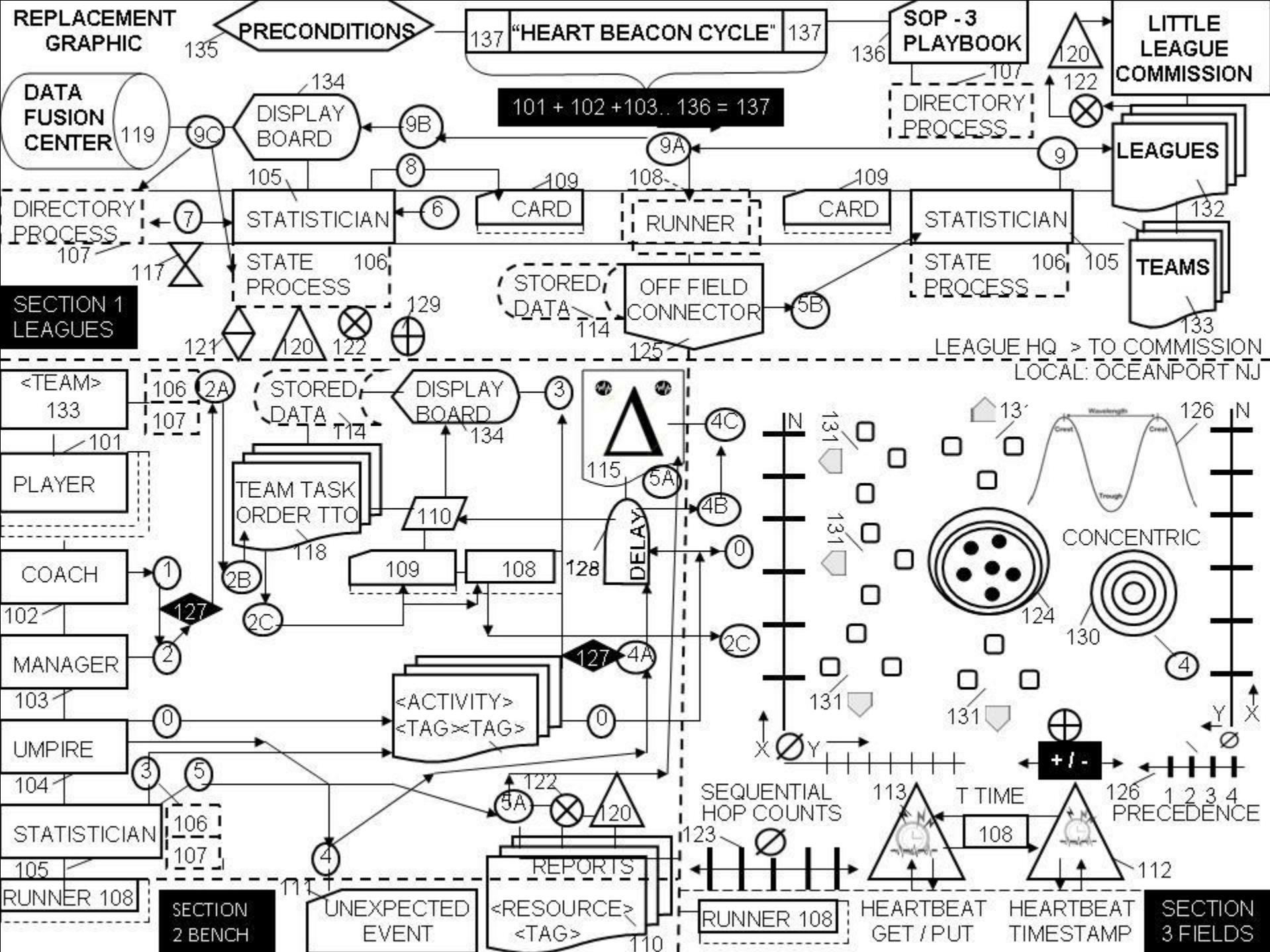
The most important equation in monetary economics, the equation of exchange:  $MV=PQ$ . The quantity of money (M) times the rate spent (V for velocity) equals the price of everything bought (P) times the amount bought (Q for quantity). In Bitcoin, M Money is on a predetermined path, converging to 21m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

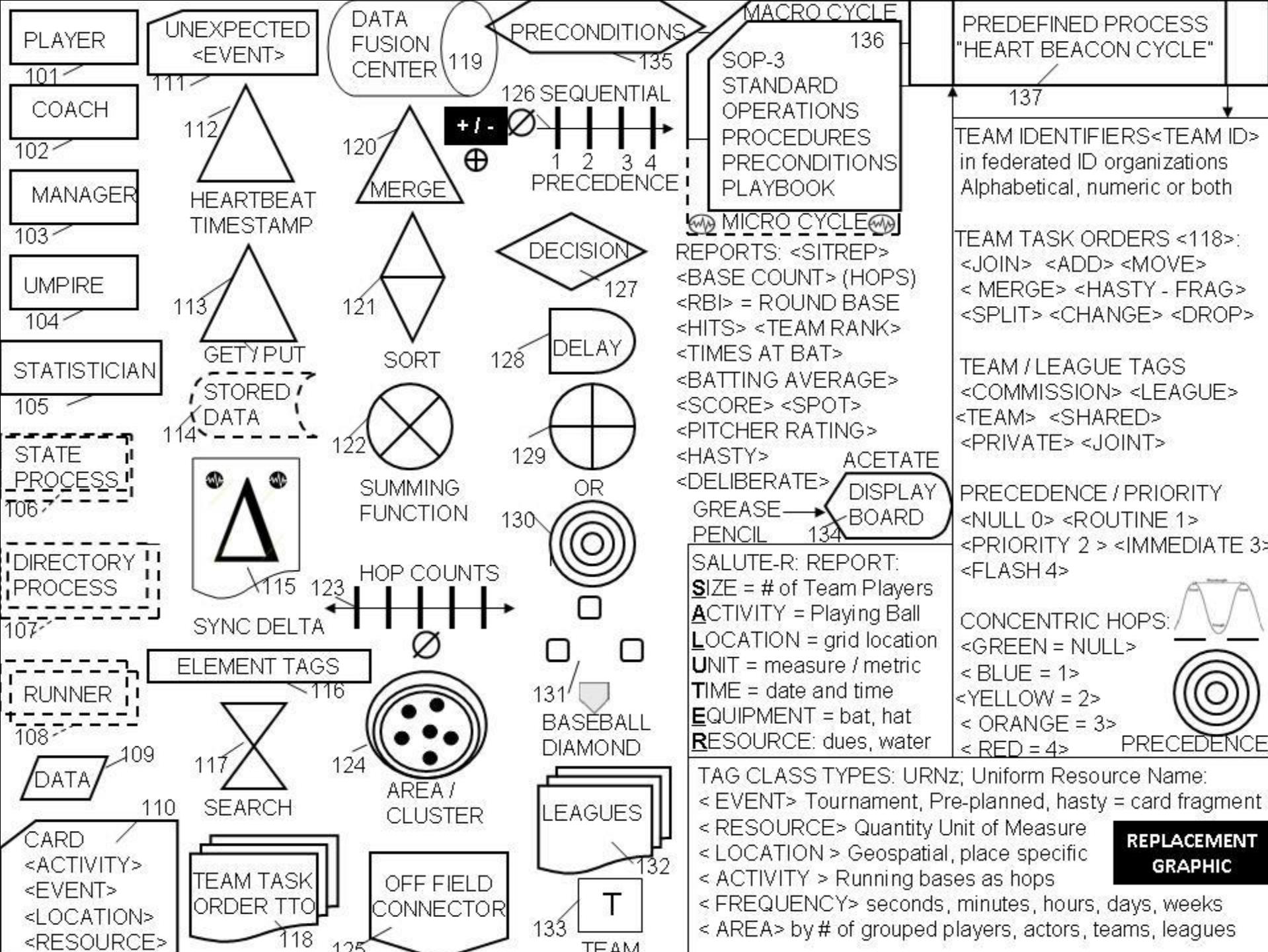


**Gamification** is the use of game thinking and game mechanics in non-game contexts to engage users in solving problems. Gamification techniques strive to leverage people's natural desires for competition, achievement, status, self-expression, altruism, closure.









# 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

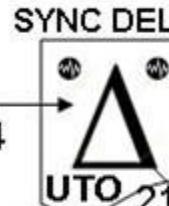
MICRO CYCLES

216

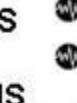
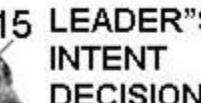


**202 FEDERATED GROUP JOINS, MERGE, ADDS, DROPS**

**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**



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



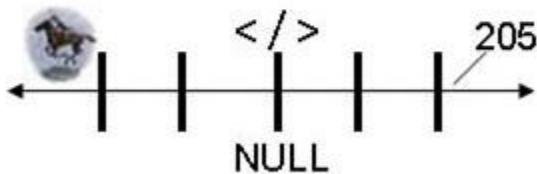
210

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



206



208



APPLIQUE' OVERLAYS



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

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

204

**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

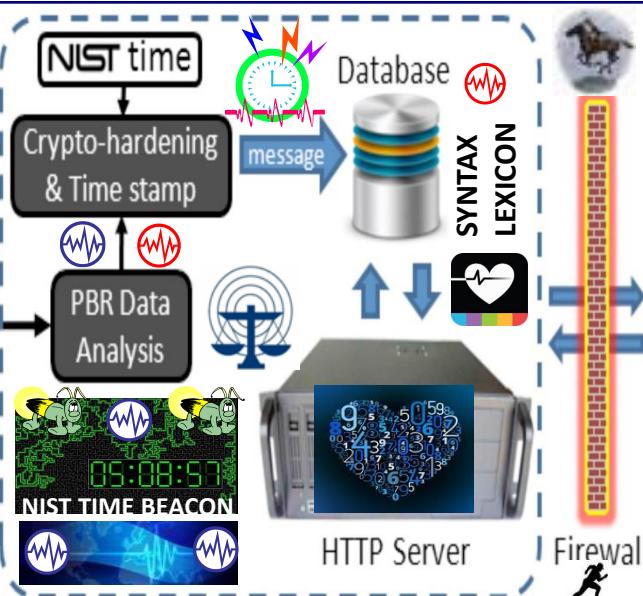
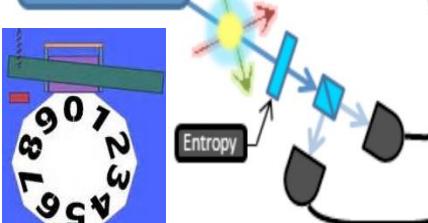
SECURE AUTHENTICATION

SECURE MULTI

PARTY /  
AUTHENTICATION

Entanglement  
Source

RANDOM  
NUMBER  
GENERATOR

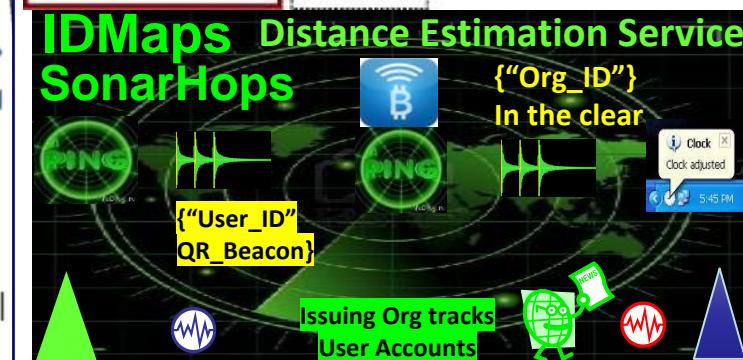
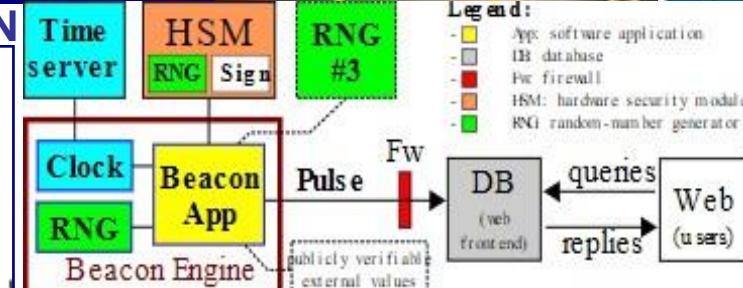


**NIST**

**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**

Time / Distance Metrics

PROXIMITY

OFFSHORE BEACONS ONSHORE

NDN

</interest></distance>

NDN

</Interest>  
</Distance>

**SURVEY METHODS**  
+ TRIANGULATION

Euclidian Geometry

Geodesic System Routing Info Base RIB

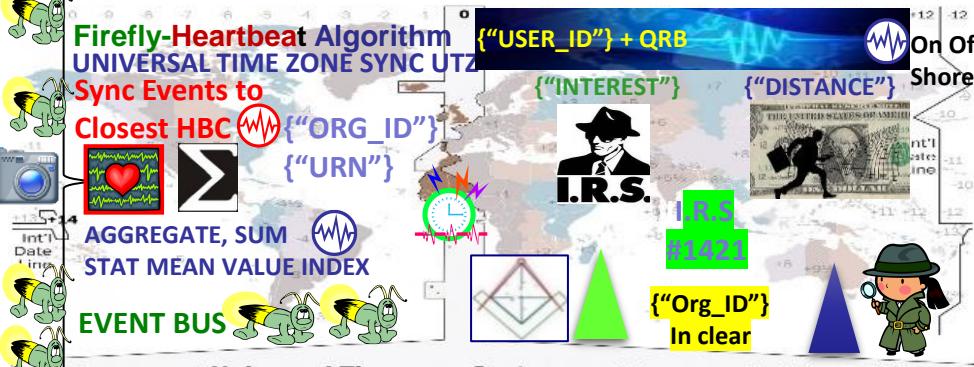
ACCOUNT BELONGS TO </Org\_ID>

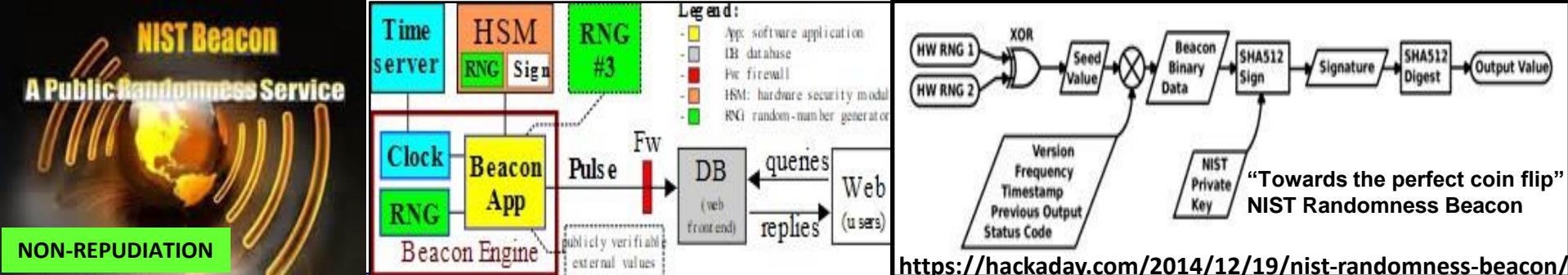
RESOURCE TYPE: <URN><URN><URN>

DEVICE / SENSORS <UUID><UUID>

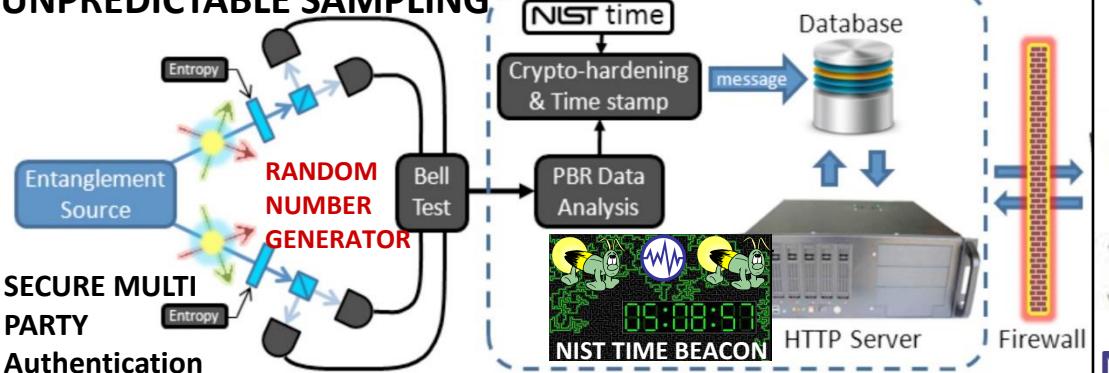
Higher-level services collect distance data to build virtual distance map State of Internet & estimates distance between any IP address pair

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**





# UNPREDICTABLE SAMPLING



# SECURE MULTI PARTY Authentication



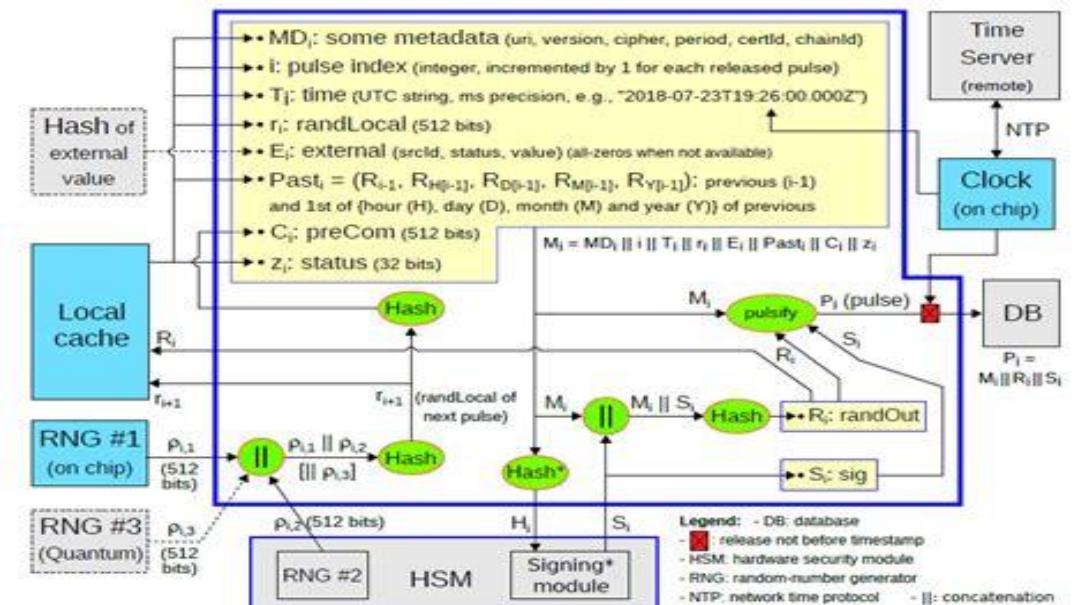
## **“Towards the perfect coin flip” NIST Randomness Beacon**



NIST Interoperable Randomness Beacon Firewall

The NIST Randomness Beacon Broadcasts 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

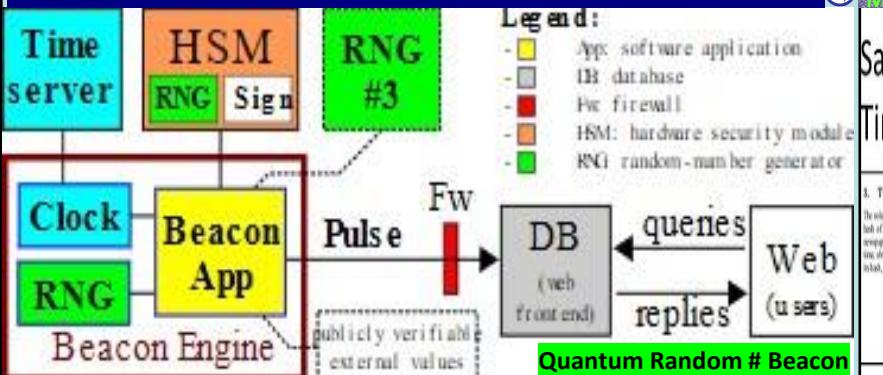


**Figure 2.** Illustration of the generation of the  $i^{\text{th}}$  pulse by a Beacon App (2.0)

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

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..."



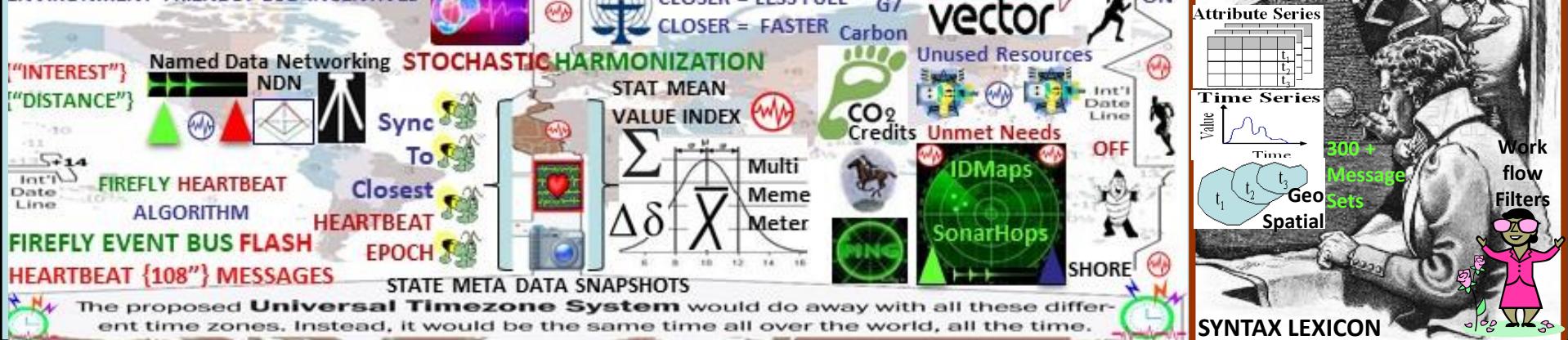
One solution is a **heartbeat**: defining a default lease duration delaying updates until the next cycle"



## 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

ENVIRONMENT FRIENDLY ECO INCENTIVES



## 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 hash of a block of data to be timestamped and widely publishing the hash, such as in a newspaper or online post [3]. The timestamp proves that the data must have existed in its form, 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

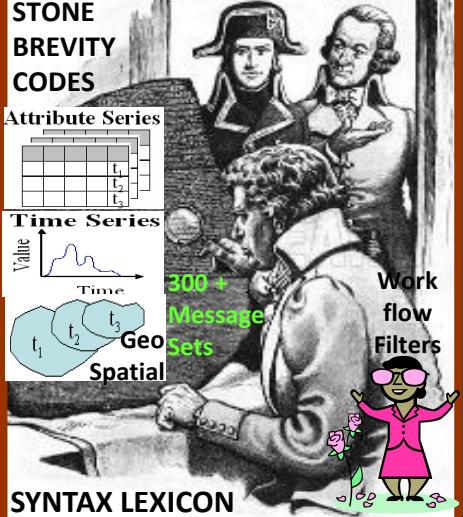
## Epoch Time Cycles

E0 E1 E2 E3...

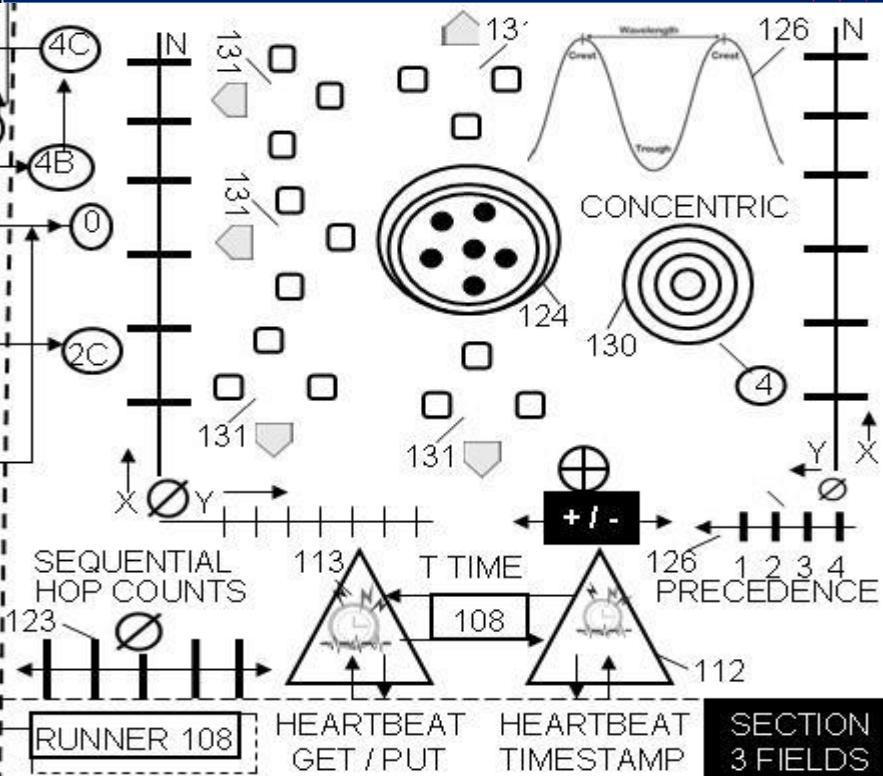
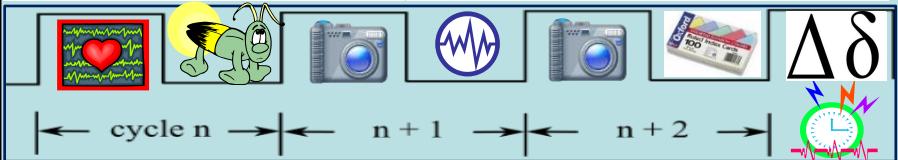
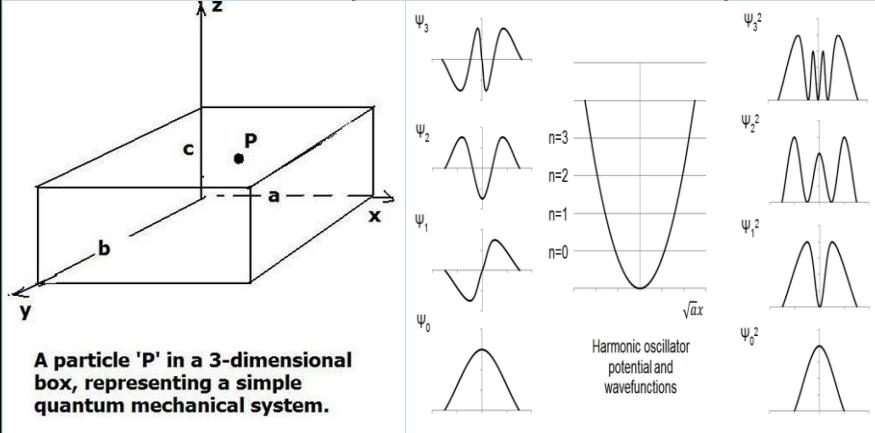


STRUCTURED DATA EXCHANGE

ROSETTA STONE BREVITY CODES



## 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

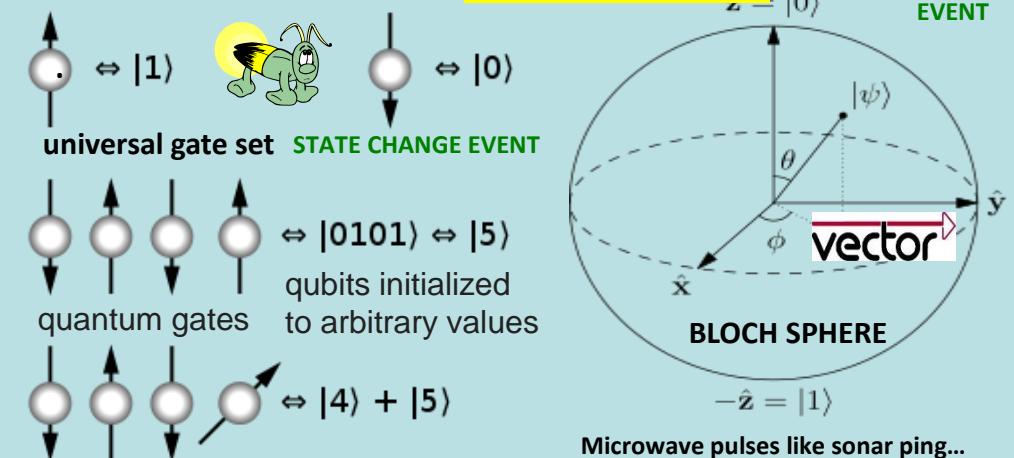
Vertical polarization vectors from a known point 0 null Sonar Hop meme



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?

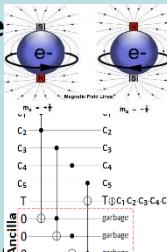


qubits can be in a superposition of all the classically allowed states

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)

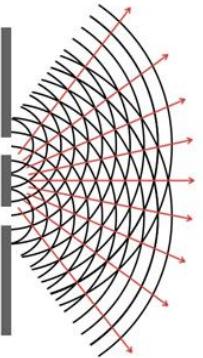


# Double-Slit Experiment

Screen with two slits

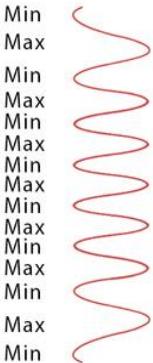
PARTICLE ?

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

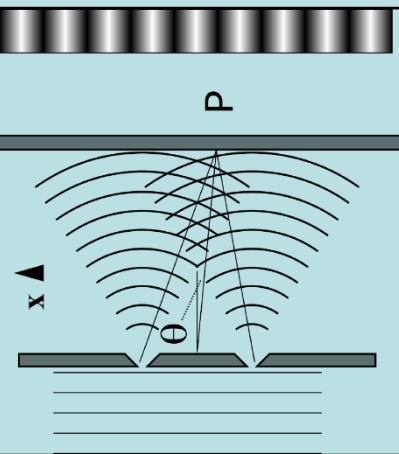
Alternating bright and dark fringes due to interference of light waves

Intensity of the fringes shows

the maxima and minima

Science Facts

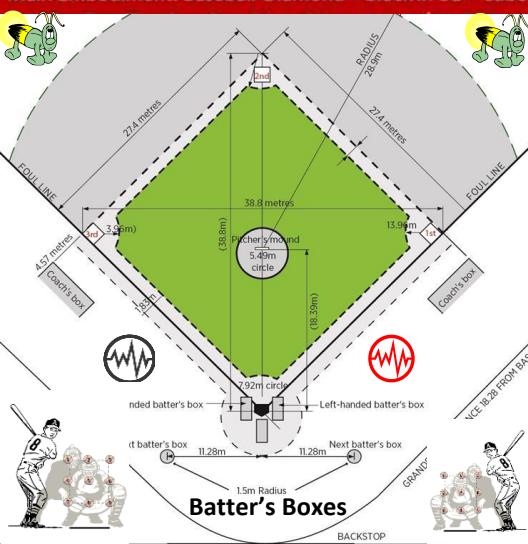
QUANTUM COMPUTING  
- RESISTANT ? - BASED ?  
THROUGH LENS OF SCOTUS  
ALICE LOOKING GLASS RULING



USPTO APPLICATION 13/573 002

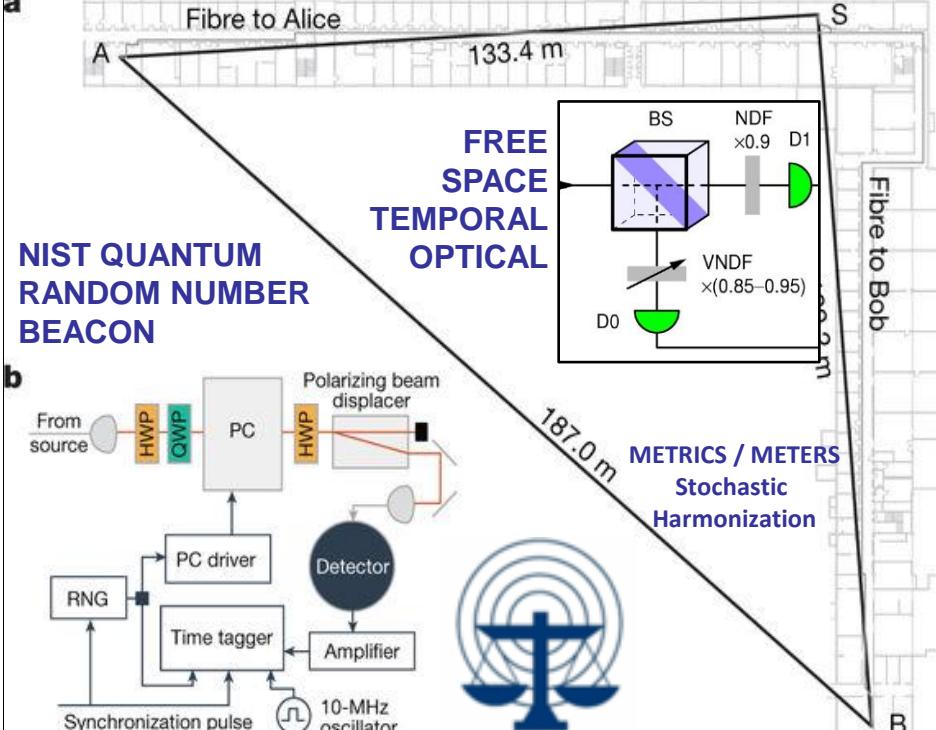
The Heart Beacon Cycle Time-Space Meter

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

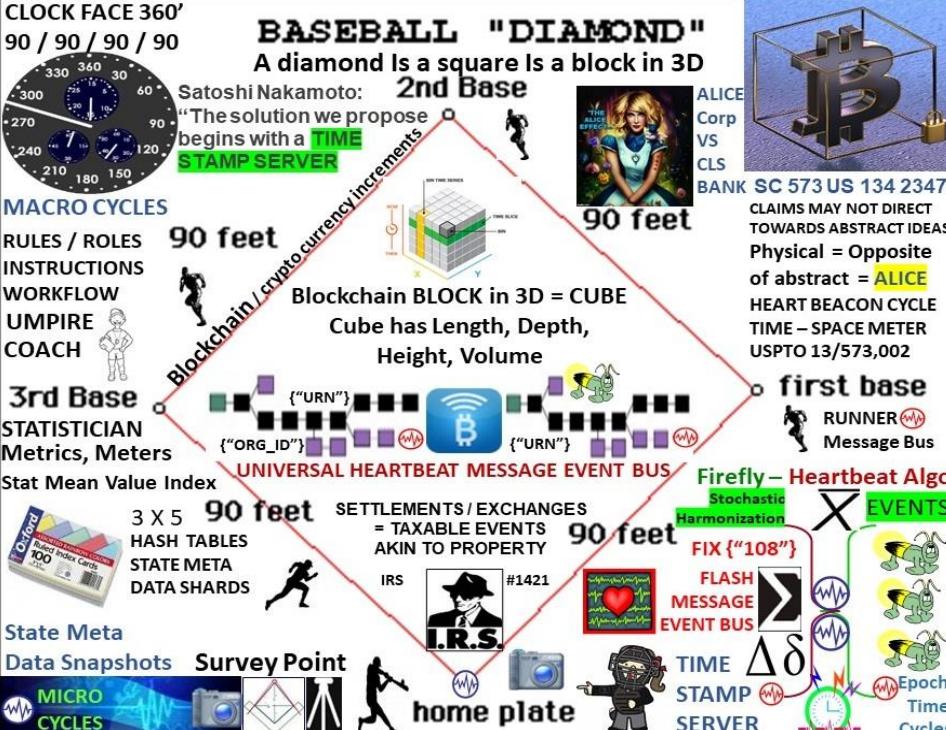


SCOTUS ALICE RULING: "Claims may not direct towards abstract ideas" / Physical = opposite of abstract

a



b



# The Hopf Fibration

Edmund Harriss

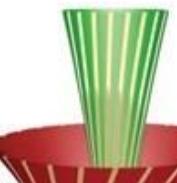
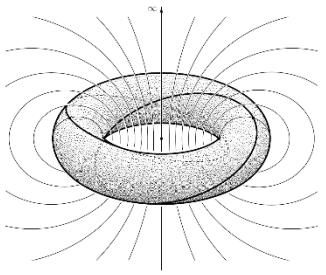
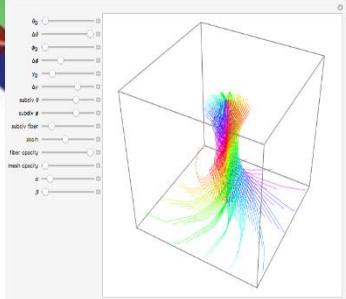
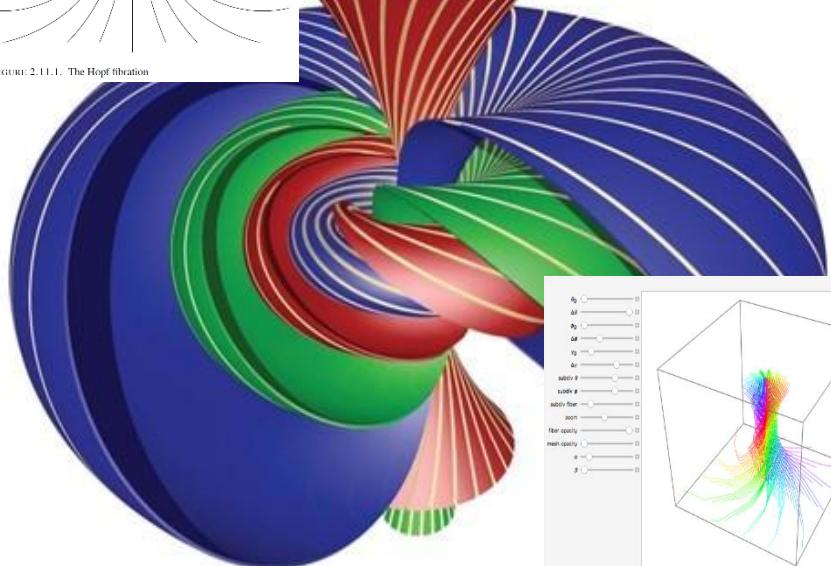


FIGURE 2.11.1. The Hopf fibration



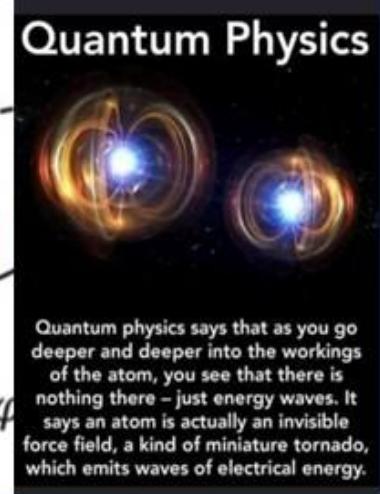
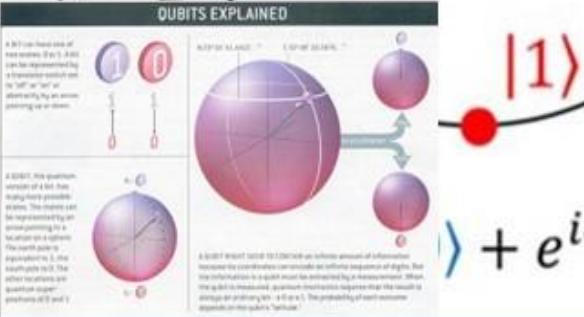
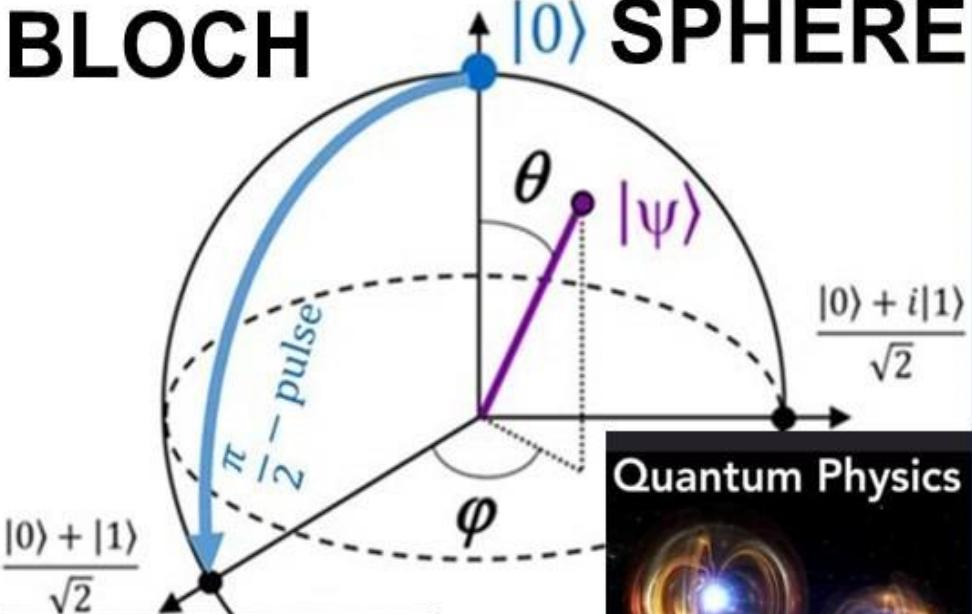
## Hopf Fibration / #Bloch sphere

"the most important object in the universe"

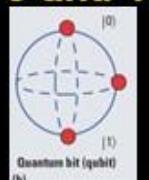
"Hopf fiber bundles pop up in 8 quantum physics situations"... USPTO 13/573,002 water drop in pond meme / scalar wave in 2D - 3D

Paul Revere linear - sequential hop count meme

# BLOCH SPHERE



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.





# THE 1919 WORLD SERIES

## *What Really Happened?*

**William A. Cook**

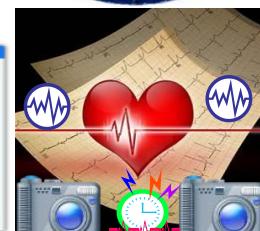


Stop patent trolls.  
Join The Alliance.

Application Developers Alliance

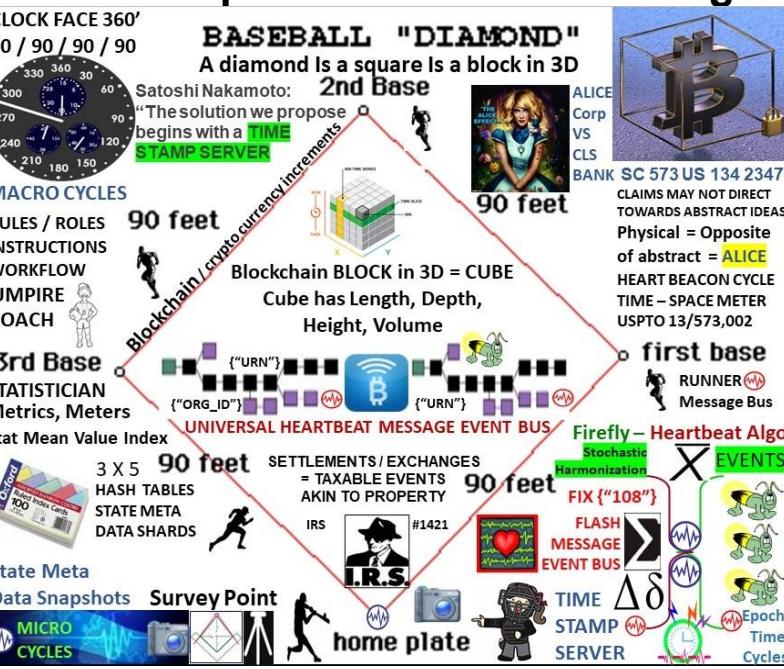


**Alice Corp. v. CLS Bank International, 573 U.S. 134 S. Ct. 2347 (2014)**  
**RULING:** “claims may not direct towards abstract ideas”



# USPTO SCREEN CAPTURES SUSPENDED PAIR RULES

- Moved Examination outside PAIR 
  - Admin forms, fees, amendments.. MUTED
  - NO Time Stamps = TEMPORAL AMBIGUITY
  - Screen captures before / after filing 







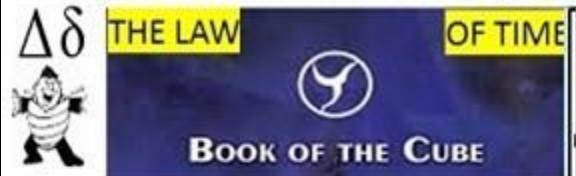
USPTO APPLICATION 13/573 002

## The Heart Beacon Cycle Time-Space Meter

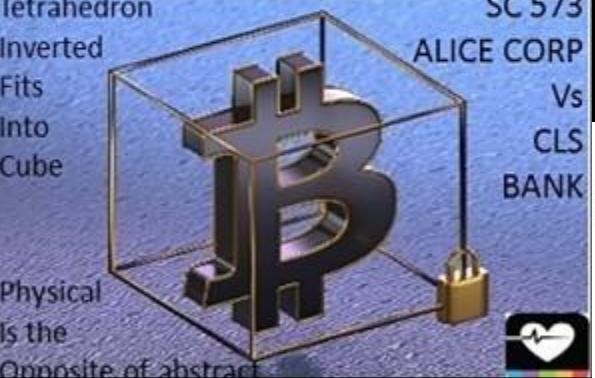
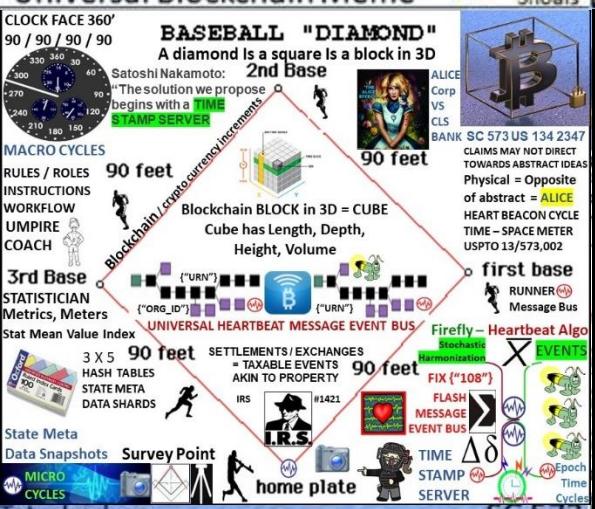
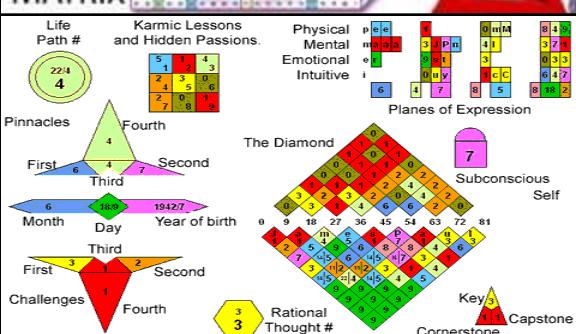
Main Embodiment: Baseball Diamond = block in 3D = cube

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

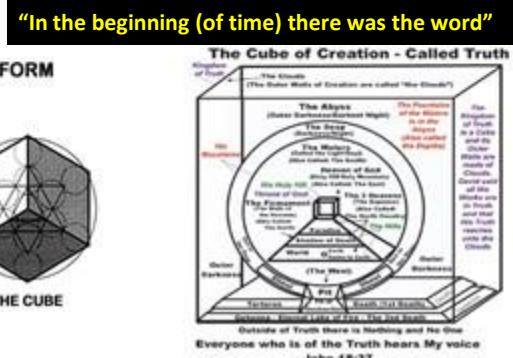
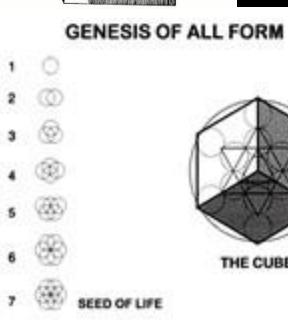
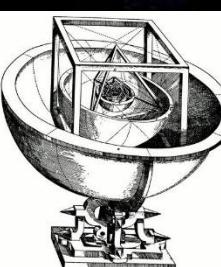
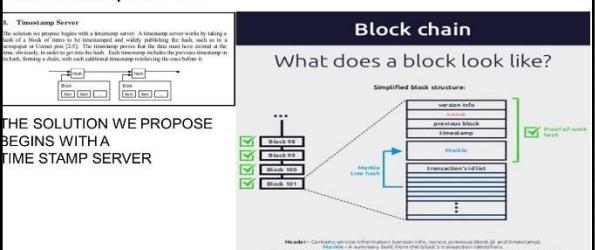
"We can synchronize ourselves in time for a common purpose" Universal Blockchain Meme



First  
Baseball  
Players  
Union  
Formed  
1870



Satoshi Bitcoin Blockchain Time Stamp Server





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

-Buckminster Fuller

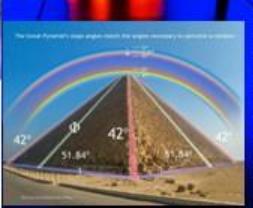


## THE GREAT CONJUNCTION IN AQUARIUS

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.

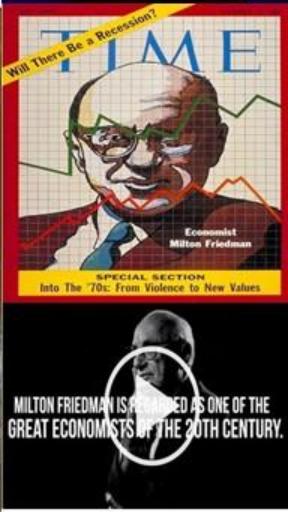
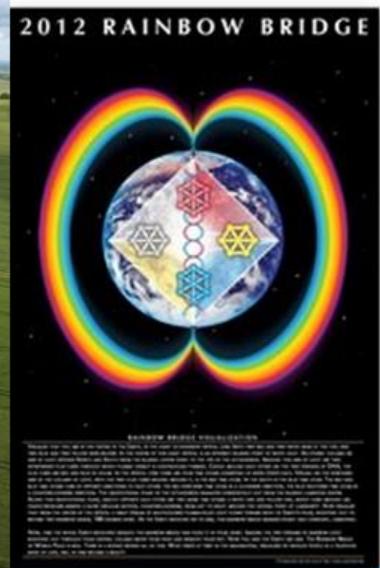
Over the next ten years, we are going to see our world innovate unlike never before, particularly in the fields of AI, technology, science, space travel, UFOs, networks, and the Internet. Major Universal truths will also be revealed as we welcome the New Age of Aquarius. The old world will soon come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

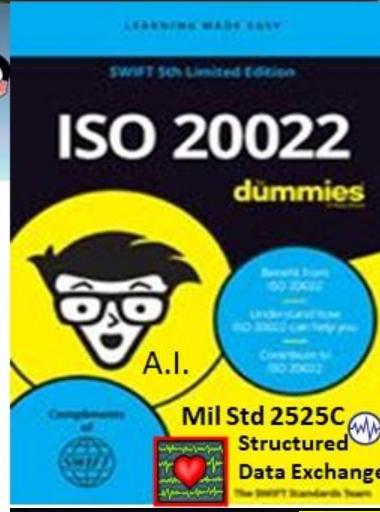
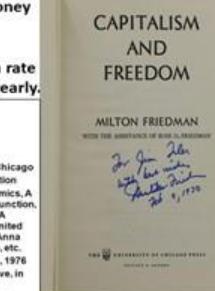
Milton Friedman — Preface to Capitalism & Freedom 1962

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, etc.
- Nobel Prize in Economics, 1976
- Considered as conservative, in reality liberal economist
- Advisor to President Nixon



**The Age of Aquarius: Aquarius, Aquarius Rising @ 6:44 A.M. Feb 10<sup>th</sup> 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

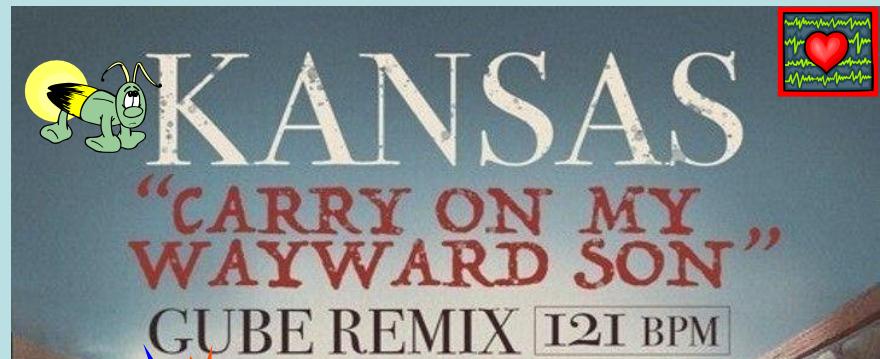
# Patent Applicant 13/573,002 Curriculum Vitae

What does your name mean?



Steven + Mcgee  
Intellectual Revolutionary

You have a sharp spirit paired with a strong will. You have the power to change the world with your intelligence!



What does your name mean?



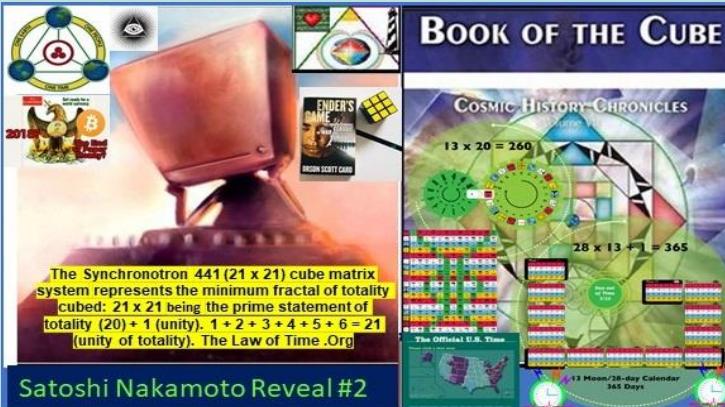
Steven + Mcgee

Endless Luck

You are an inspiration for your friends. Your loving ways, your huge heart and your beauty spread endless joy to the world!

Roll With The Changes

$\Delta\delta$



The Synchrontron 441 (21 x 21) cube matrix system represents the minimum fractal of totality cubed: 21 x 21 being the prime statement of totality (20) + 1 (unity). 1 + 2 + 3 + 4 + 5 + 6 = 21 (unity of totality). The Law of Time .Org

Satoshi Nakamoto Reveal #2

"As an avid lover of numerology and astrology, I use both in my day-to-day life. I believe God is the ultimate mathematician, as everything around us can be viewed as numbers" Satoshi Nakamoto White Paper 2008 "The solution we propose begins with a time – stamp server"

