



# Humanitarian Assistance Networked Donor System

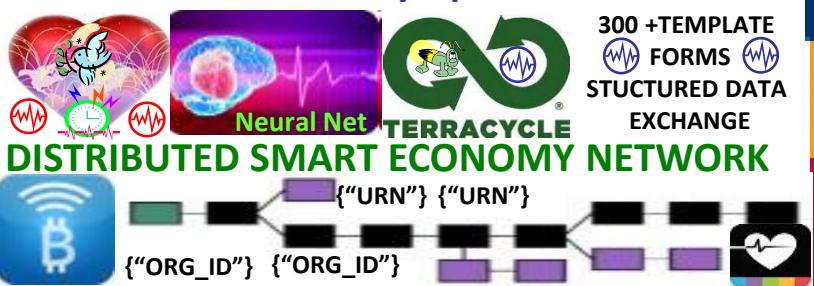
H.A.N.D.S: "Based on the need to speed up the processes of influencing an adversary, new concepts result in the adaptation of military doctrine, organization, training, material, infrastructure, interagency interaction, leadership, personnel and facilities" ... German Bundeswehr : concepts of "Network Centric Warfare" in the United States of America, "Network Enabled Operations" in Great Britain or "Vernetzte Operationsführung" in Germany



<https://neo.org>



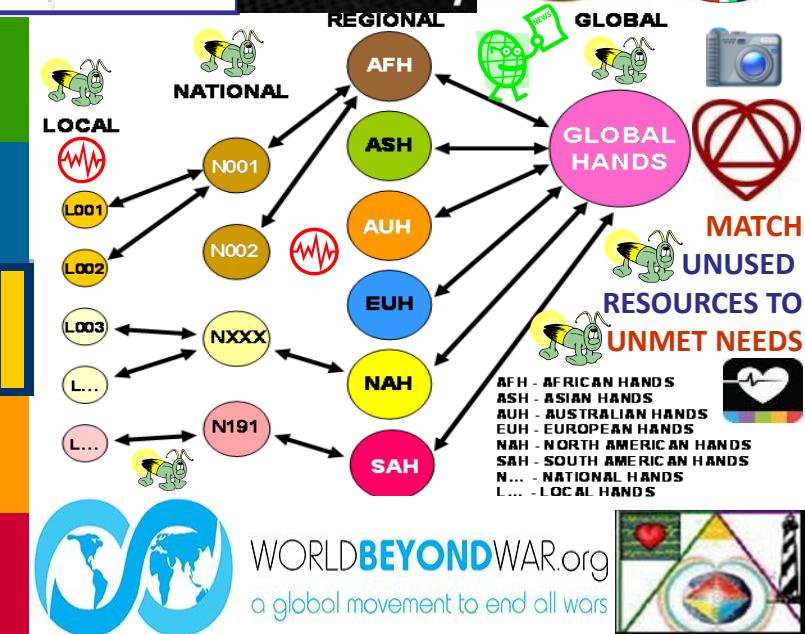
"Shared situational awareness enables collaboration synchronization, and enhances sustainability, speed of command"



Reuse best practice procedural template guides from Battlefield Digitization describing when, where, how, how often systemically among a systems of systems improving synergy and synchronicity



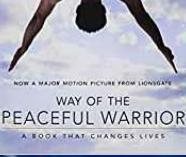
## Federation Gateway



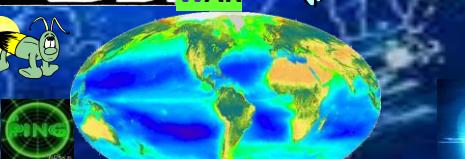
WORLD BEYOND WAR.org  
a global movement to end all wars



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



## Beacon Communities



Vernetzte Operationsführung



Closer < \$\$\$ < FUEL



Proximity Beacons

JAEGERS



FREELY  
HEARTBEAT  
EVENT / ALERT Flash Heartbeat Message Bus  
ALGORITHM



KAIJU



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

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

CHECKLIST: TRADE FEDERATION ECONOMIC FRAMEWORK EX:

- 1) Organize by assigning Organization Identifiers {"Org\_ID"}
- 2) Track Resources by Uniform Resource Name </URN>
- 3) Take State Meta Data heartbeat snapshots @ 15 / N min
- 4) Honor Satoshi's intent for Bitcoin to be paired w markets
- 5) Use NIST Quantum Random Non-Repudiation Beacon
- 6) Earth Day Everyday / Spaceship Earth's Signals & Telemetry Annex



# DAO: Distributed Autonomous Organization

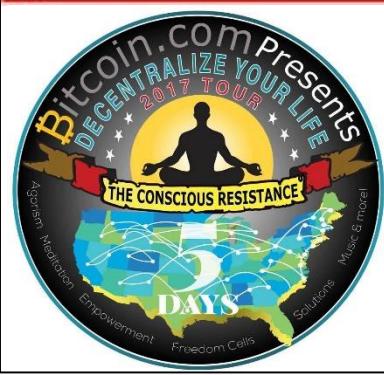
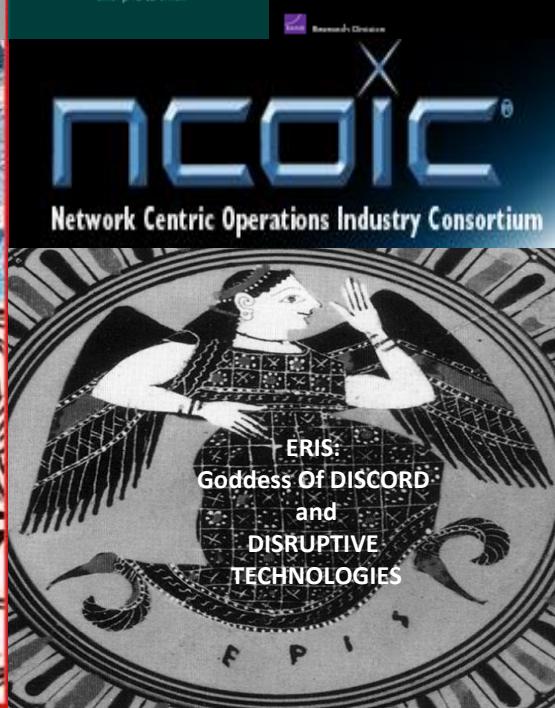
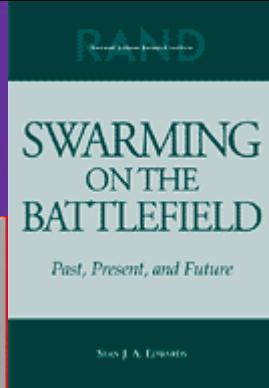
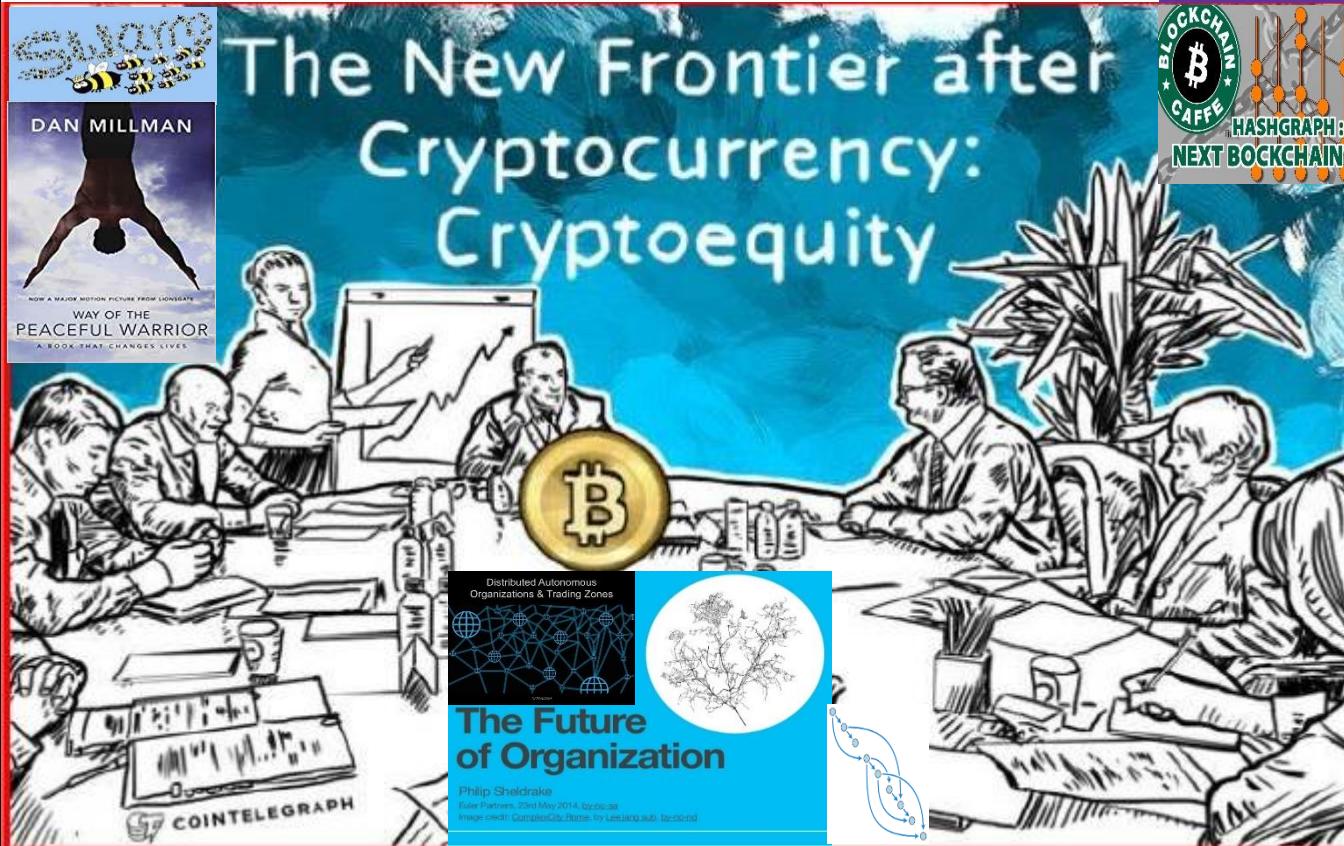
## RAND term circa 2000 / The TAO OF THE DAO

### SWARMING AND THE FUTURE OF CONFLICT



RAND  
Monograph Report

THE  
ADVENT  
Of NETWAR



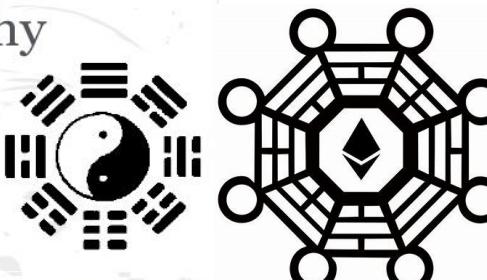
<http://cointelegraph.com/news/112077/the-new-frontier-after-cryptocurrency-cryptoequity>

## Taoism Philosophy

Taoism represents:

- Contraction of the past to the future.
- The transcendence of time and place.
- The balance of the old and the new.
- The balance between opposing forces and desires.

Overall the Taoism Philosophy represents "The Way" in which to live.



(An ancient philosophy tradition. This article involves the yin-yang or principle of harmony and change.)

Eris, The Dawn of Distributed Autonomous Organizations and The Future of Governance

@TheBitcoinArmy



# Net / Net of \$\$\$ formed: Time Epoch Cycles {"Syntax"} Instructions

"In the beginning"

"The Word"

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

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

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

Gideon Greenspan "Beware the impossible smart contract"



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

PRIME	Q1Q2	T1T2	Q3Q4	A1A2	A3A4	W1
PRIMES	F1F2	F3F4	F5F6	F7F8	F9F10	F11F12
Q1Q2	F1F2	F3F4	F5F6	F7F8	F9F10	F11F12
Q3Q4	F1F2	F3F4	F5F6	F7F8	F9F10	F11F12
A1A2	F1F2	F3F4	F5F6	F7F8	F9F10	F11F12
A3A4	F1F2	F3F4	F5F6	F7F8	F9F10	F11F12
W1	F1F2	F3F4	F5F6	F7F8	F9F10	F11F12

XBRIL / CDL / DAML



SYNTAX LEXICON Library



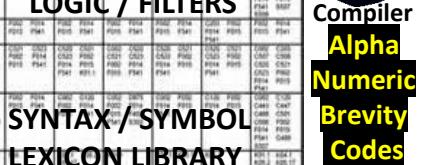
SYMBOLS ARE THE UNIVERSAL LANGUAGE

Coder Guide Rosetta Stone

STRUCTURED DATA EXCHANGE TEMPLATE FORMS

300+ USE CASES

LOGIC / FILTERS



SYNTAX / SYMBOL LEXICON LIBRARY



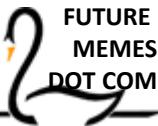
"Bitcoin is a LANGUAGE"  
DIGINOMICS

"Bitcoin's Value is TIME itself"

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



"BITCOIN MAKES MONEY PROGRAMMABLE.  
MONEY IS SIMPLY DATA"



ALICE CORP VS CLS BANK

"claims may not be directed towards an abstract idea"

US SC 573 US 134 2347



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



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



CLOCK FACE 360°  
90 / 90 / 90 / 90  
MACRO CYCLES



HASH TABLE  
Nonce / Syntax  
90 feet

3 X 5  
RULES / ROLES  
INSTRUCTIONS

UMPIRE  
COACH  
3rd Base

STATISTICIAN  
Metrics, Meters  
State Meta

Data Snapshots  
90 feet

MICRO-CYCLES



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

Runner = Messages Signals / Telemetry  
90 feet

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

EVENT BUS  
Org ID #1421

Blockchain Blocks / Coins Awarded

Survey Point  
90 feet

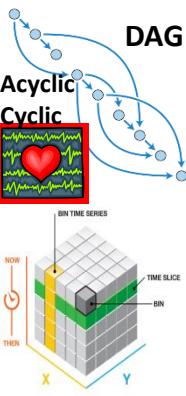


SC 573 US 134 2347  
Physical = Opposite Of abstract

Euclidian Geometry TRIANGULATION..

first base

Firefly Algo  
FIX {"108"} Heartbeat



# Heart Beacon Cycle

## FEDERATE / TRADE FEDERATIONS



ECONOMIC HEARTBEAT  
K %



GOVERNANCE 2.0



BITNATION  
FEDERATE  
SHARE  
WIN

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



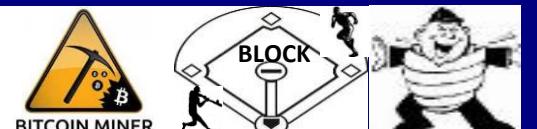
{"GLOBAL"}  
{"SHARED"}  
{"DOMAIN"}  
{"COMMUNITY"}  
{"PRIVATE"}  
{"GROUP ID"}



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



FIREFLY FLASH  
HEARTBEAT MESSAGES

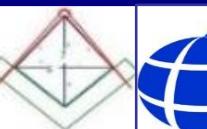
IeT DEVICE / PLATFORM  
IoT SENSOR DEVICE

{"Asset\_Type"}

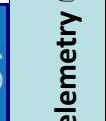
</RESOURCE> {"URN"}  
{"Asset\_Class"} </URN>

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

STOCK EXCHANGE  
MIC MARKET IDENTIFIER  
CODES / BREVITY CODES



Office 365 Groups

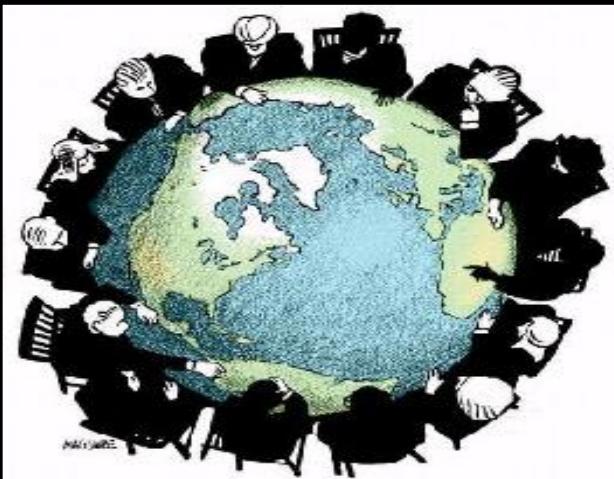


Signalling, Telemetry



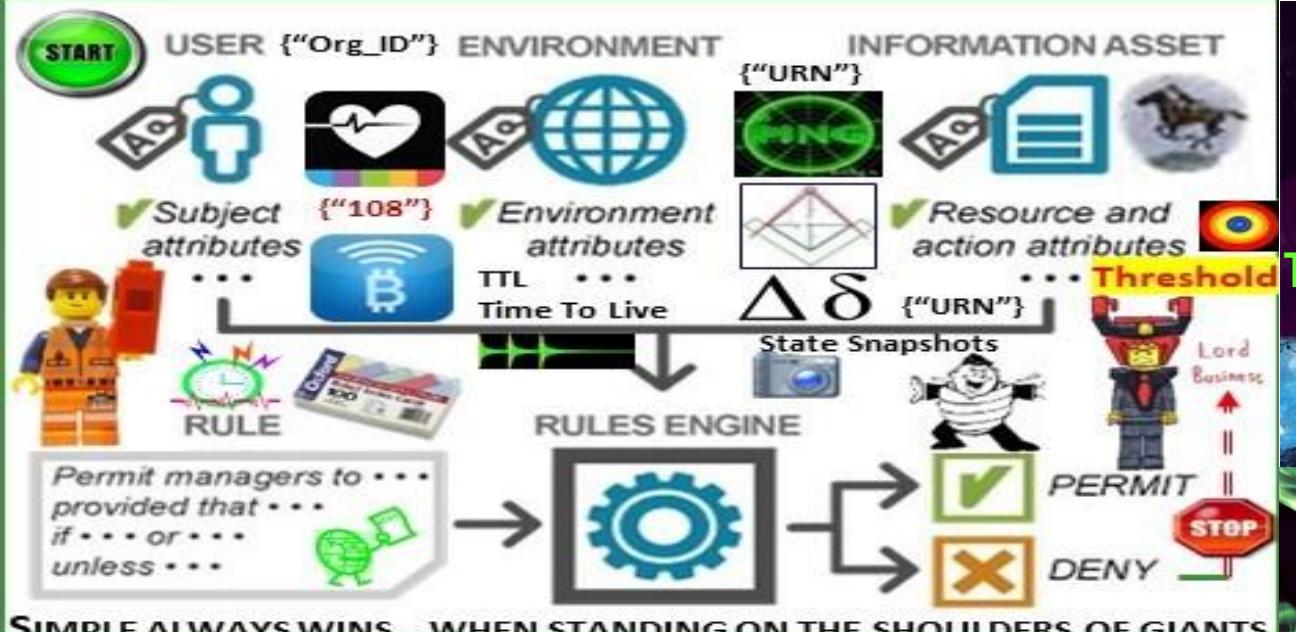
{"DUNS #"} {"Org\_ID"} Heartbeat Snaps  
QR CODE  
{"URN"} {"URN"} {"URN"} MICRO-CYCLES





## **MINIMUM LIST OF COMPONENTS, BUILDING BLOCKS, PROCESSES, PROCEDURES AGREED ON BY TRADE FEDERATIONS TO ACHIEVE DISTRIBUTED AUTONOMOUS ORGANIZATION DAO CONSENSUS,**





SIMPLE ALWAYS WINS... WHEN STANDING ON THE SHOULDERS OF GIANTS

**DAO TRADE FEDERATIONS USE COMMON COMPONENTS,  
PROCESSES, METHODS, METRICS, METERS SIGNALING  
TELEMETRY SCHEDULE IN SMART CONTRACTS,  
SERVICE LEVEL AGREEMENTS / OPERATIONS SLA/O**



**TERRA TRADE  
REFERENCE**

CURRENCY

### **Fees**

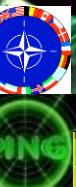
## MICRO-PAYMENTS



# DISTRIBUTED SMART ECONOMY NETWORK



## Net Enabled Operations



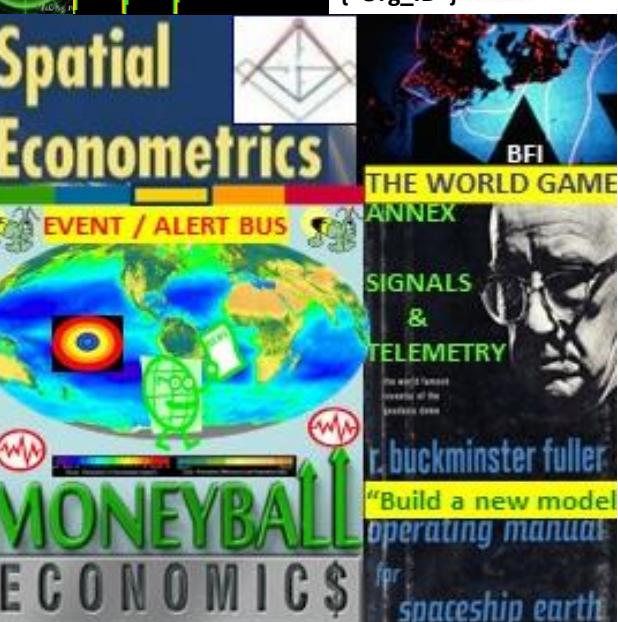
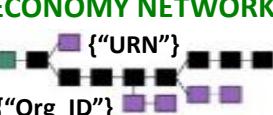
# NEO



# PROXIMITY BEACONS



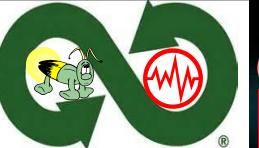
# DISTRIBUTED SMART ECONOMY NETWORK





# Firefly - Heartbeat Algo

University of Bologna Italy / Hungary



## ECO ECONOMIC HEARTBEAT

("108")



K%



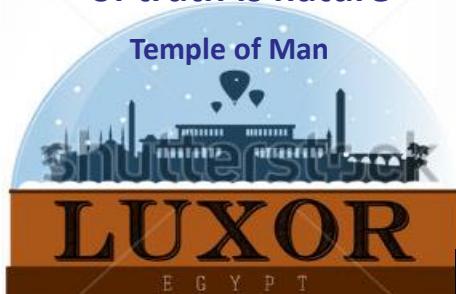
## ECONOMIC MACRO CYCLES

## TIME-SPACE SYNC

K% GDP ECONOMIC PULSE FEDCOIN WORLDCOIN

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

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



FIREFLY inspired Heartbeat Sync Algo

PRECEDENCE UTZ SYNC SYNC  
PROCESSING PULSE DELTAS



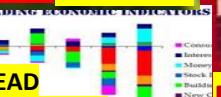
NEURAL NET  
EMULATION



BLOCKCHAIN  
PARSING Erlang  
TIME EQUATIONS



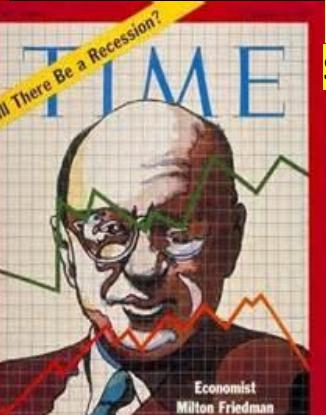
COMMODITY  
PRICE INDEX



Crypto Currency  
TIME STAMP  
SERVER / SERVICE



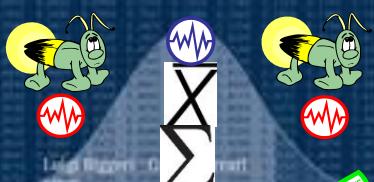
LEAD  
ECONOMIC  
INDICATORS



FRIEDMAN'S K% RULE



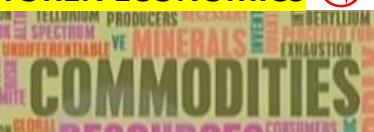
STAT MEAN VALUE INDEX  
SCHELLING POINT TRUTH



Price Indexes in  
Time and Space



ALGORITHMIC REGULATION  
TOKEN ECONOMICS



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



SYNC TO CLOSEST HEARTBEAT  
{"URN"} {"URN"} {"URN"}  
HEARTBEAT EVENT FLASH MESSAGE BUS

UTZ STOCHASTIC HARMONIZATION  
Universal Metrics / Meters

Geo-spatial Temporal Syntax-Semantic Sync & Consensus

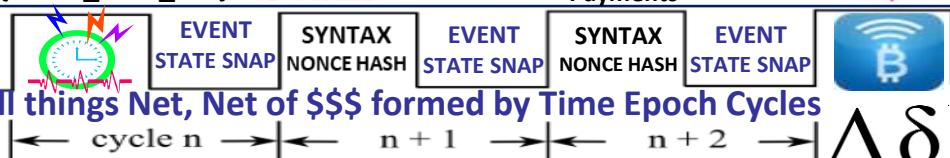
SAMPLING ON / OFF SHORE

SYNC DELTA STATE META DATA SNAPSHOTS

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.



{"DAO\_ORG\_ID"}



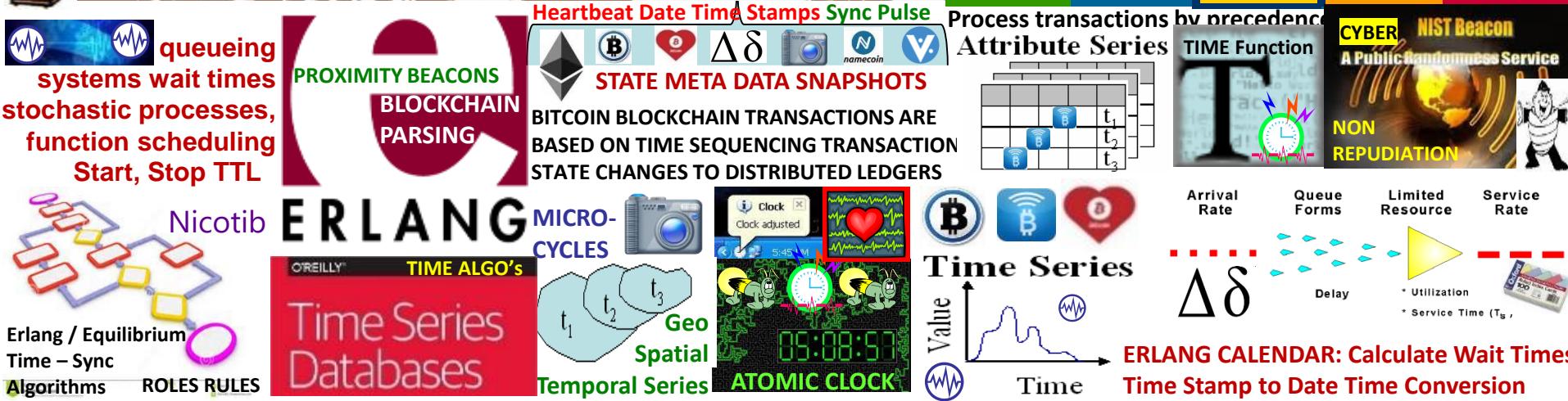
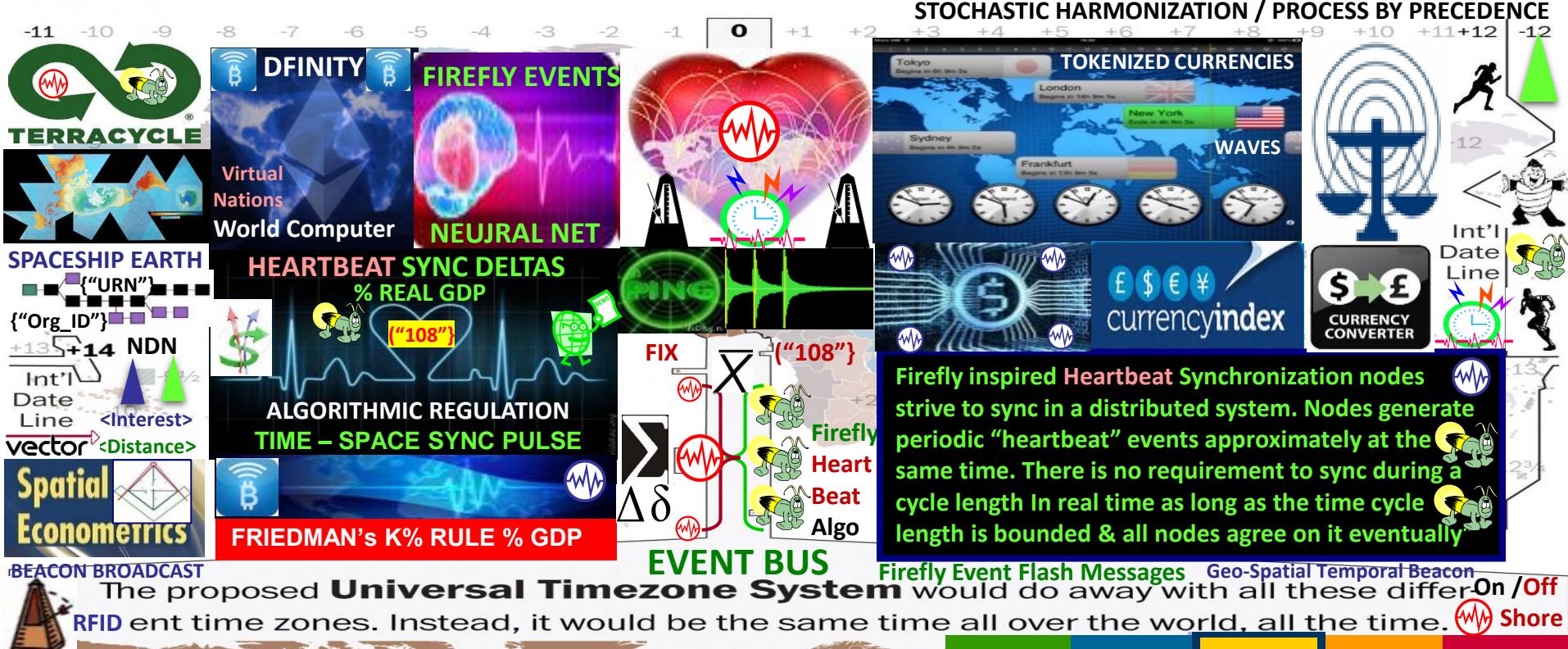
All things Net, Net of \$\$\$ formed by Time Epoch Cycles

cycle n      n + 1      n + 2

"Heartbeat Synchronization 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. No rule governs the length of a cycle with respect to real time as long as the length is bounded & 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.



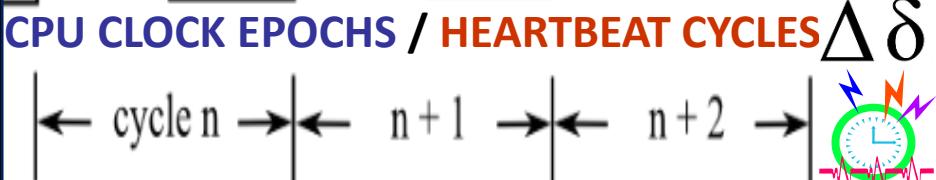


## ALGORITHMIC REGULATION

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.



**K% VARIABLE YEARLY GDP SNAPSHOT**

{“Org\_ID”}{“Org\_ID”}

{“URN”} {“URN”}

(“URN”) (”URN”)

{“URN”} {“URN”}

(“URN”) (”URN”)



currencyindex

£ \$ € ¥

currencyindex

# THE TERRA (TRC)

## Trade Reference Currency



# ECONOMIC HEARTBEAT

## FEDCOIN / WORLDCOIN



**TERRAC.**  
\$0.49 USD

B 0.001076 BTC

## **DEMURRAGE FEES**

# Bitcoin MICRO PAYMENTS

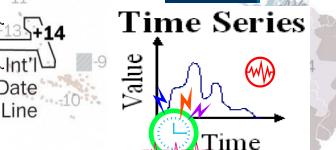
**Terra Trade Reference Currency TRC "world currency"**  
Bernard A. Lietaer Belgian economist proposed 1991  
Basket of 9-12 most important commodities. Public  
issued demurrage fees for storage, shipping, handling



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

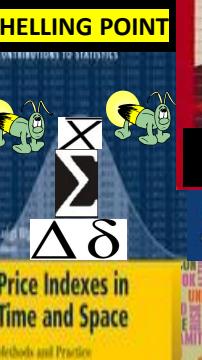


Firefly inspired Heartbeat Synchronization nodes strive to sync in a distributed system. Nodes generate periodic “heartbeat” events approximately at the same time. It differs from classical clock sync in that nodes are not interested in counting cycles to agree on the ID of the current clock cycle. There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



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

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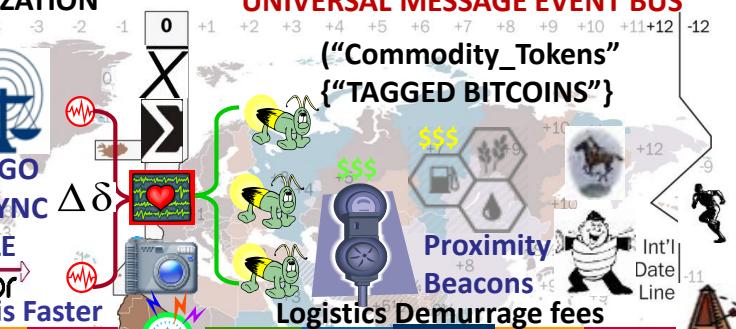
## Friedman's K % Rule

€ \$ € ¥  
currencyindex



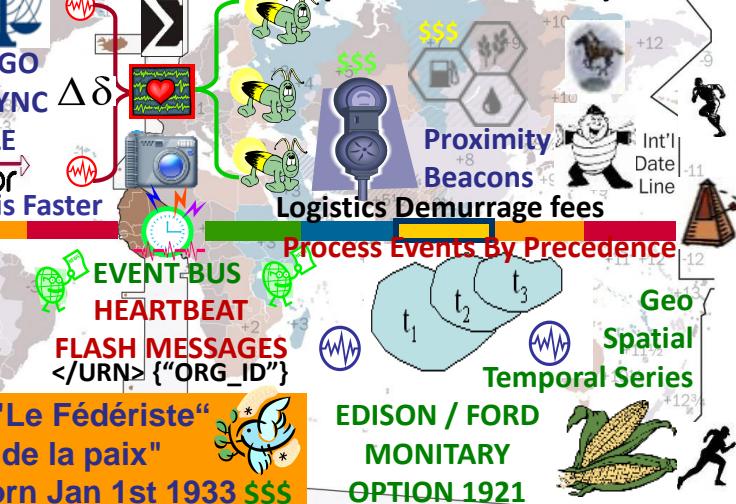
The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen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

# STOCHASTIC HARMONIZATION



# UNIVERSAL TIME ZONE UTZ UNIVERSAL MESSAGE EVENT BUS

## “Commodity\_Tokens” {“TAGGED BITCOINS”}



would do away with all these differences all over the world, all the time.



### Blocknet internet of blockchains

Bitcoin, Ethereum, XCurrency, BitNation, StealthCoin, and BitSwift

**The Blocknet is founded on the Xbridge inter-node communication open source peer-to-peer protocol enabling communication between nodes on different blockchains. It connects an open-ended centralized or decentralized array of services**

Any coin that supports OP\_CHECKLOCKTIMEVERIFY and has a stock JSON RPC interface cloned from Bitcoin Core

### P2P atomic swap exchange using BIP65 capable chains

BlocknetDX Specs:

- 1 Minute Block Time
- 5k for servicenodes
- Diff. adjustment per block
- Supports Fast Transactions w/ SwiftTX
- Supports Decentralized voting/funding

• core components are:

- A blockchain router, xbridgep2p™
- A coin exchange protocol
- An inter-chain data transport

• The core services are:

- Decentralized exchange of coins
- Inter-blockchain service delivery
- Service monetisation



# PHOENIX

Phoenix Project Financial Algorithm

**Phoenix autonomous decentralized organization (DAO) ensuring transparency and safety of all processes happening within its framework using the Ethereum virtual machine global decentralized computer storing information on all system transactions.**

**Phoenix financial algorithm works on a system of rounds. accruals happen after the successful termination of each round.**

**Each round proceeds until it reaches the target sum which is calculated as the doubled target sum of the previous round plus the sum paid under the contract for the entire period. For the first round the target sum is 100 ETH. The round can last up to 365 days or before achievement of the target sum. The rounds which were not closed can become the only risk for investors. In that case, only those participants that have made the investments on the round previous to the open one will be able to receive a return of the funds.**



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**



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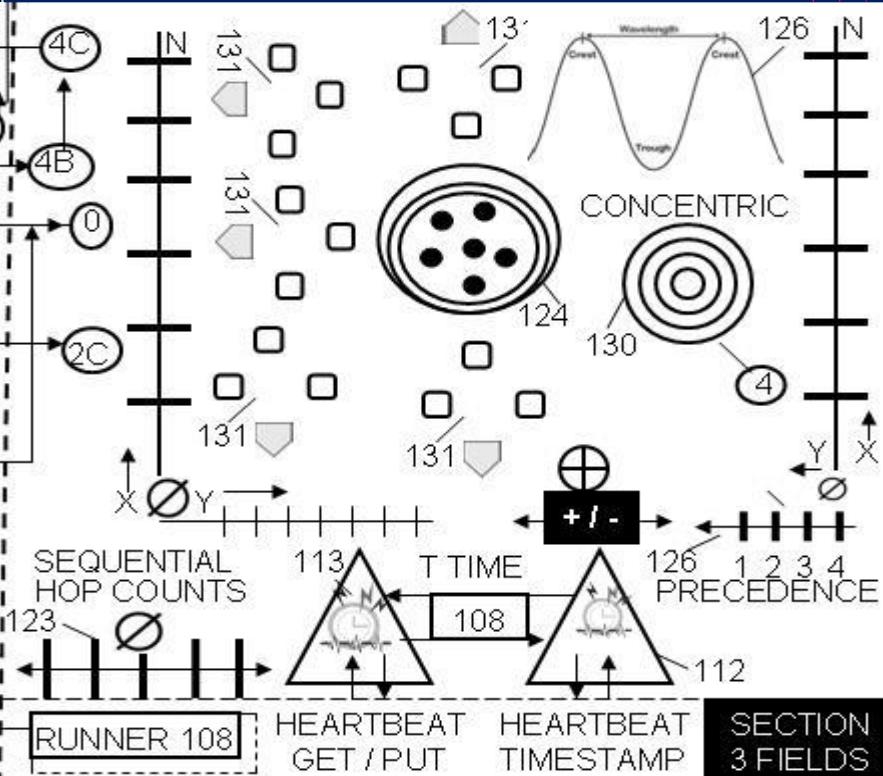
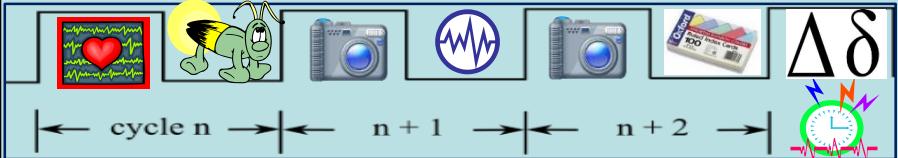
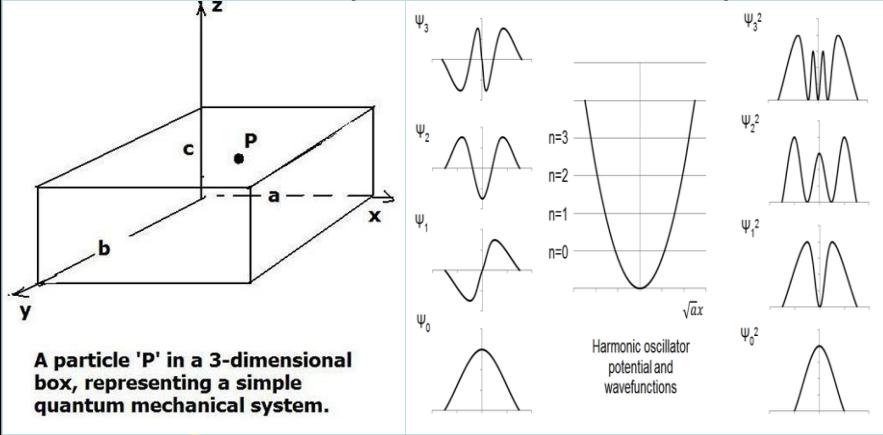


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## QUANTUM COMPUTING / HBC TIME – SPACE METER / METRICS



#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

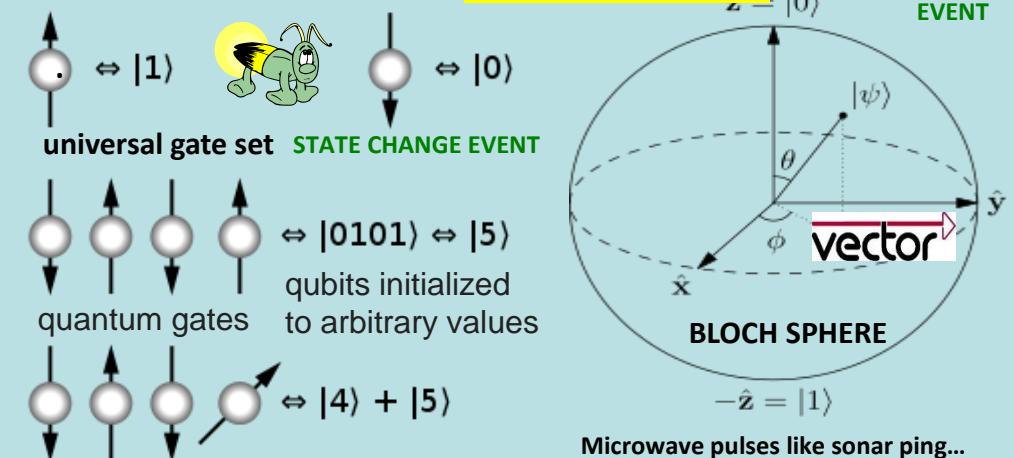
Vertical polarization vectors from a known point 0 null Sonar Hop meme



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?



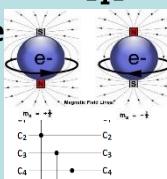
qubits can be in a superposition of all the classically allowed states

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)

$$|00\rangle = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}, |01\rangle = \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}, |11\rangle = \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix}$$





# THE BITCOIN BLOCKCHAIN FOR DUMMIES



Satoshi Nakamoto Craig WRIGHT a.k.a.  
Satoshi Nakamoto

"Bitcoin is a Wright Brother's 1<sup>st</sup> Flight LANGUAGE" Cape Hatteras Outer Banks

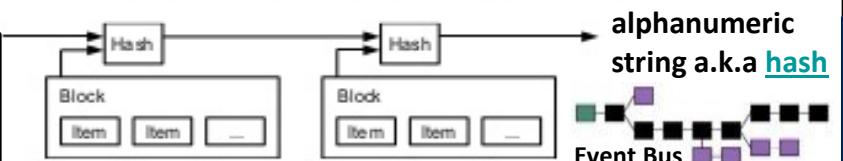
Satoshi Nakamoto Bitcoin Paper

## "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.

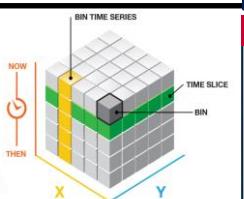
**Bitcoin Protocol  
for Dummies**  
Part 4 Timestamp  
Server



Event Bus

$\Delta\delta$

JapanNet Crypto Time  
Authentication Service  
(Timestamp Service)

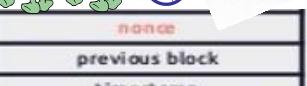


$\Delta\delta$

SYNC DELTAS

Merkle tree hash

TIME EPOCH CYCLES



Proof-of-work hash

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

Heartbeat : {"108"}

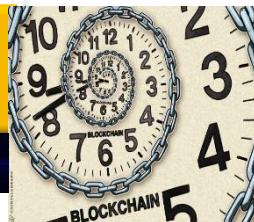
**MERKLE:** Summary built from block's transaction ID's

Header - Contains service information (version info, nonce, previous block id and timestamp). {"Org\_ID"}  
Merkle - A summary built from the block's transaction identifiers.

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

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

"THE VALUE OF BITCOIN IS TIME ITSELF"



CLOCK FACE 360°  
90 / 90 / 90 / 90  
MACRO CYCLES

3 X 5

RULES / ROLES

INSTRUCTIONS

UMPIRE

COACH

3rd Base

STATISTICIAN

Metrics, Meters

State Meta

Data Snapshots

90 feet

Survey Point

MICRO-CYCLES

90 feet

UMPIRE

home plate

Sync Deltas

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

Runner = Messages Signals / Telemetry

90 feet

BLOCK in 3D = CUBE

Cube has Length, Depth, Height, Volume

#1421

Org ID

Blockchain Blocks / Coins Awarded

90 feet



SC 573 US 134 2347  
Physical = Opposite  
Of abstract

Euclidian Geometry  
TRIANGULATION..

first base

fix {"108"}

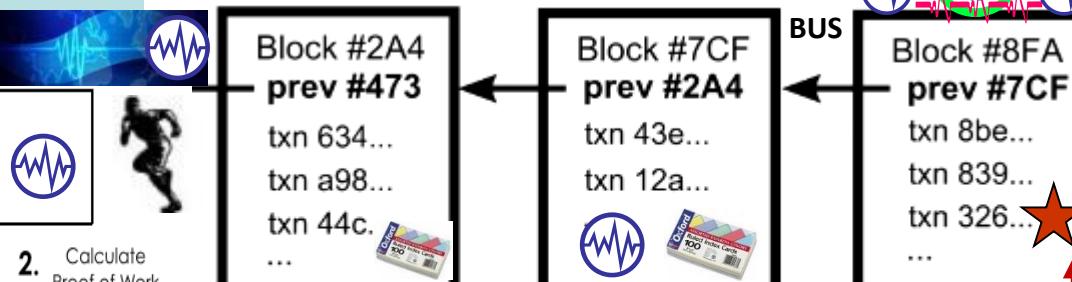
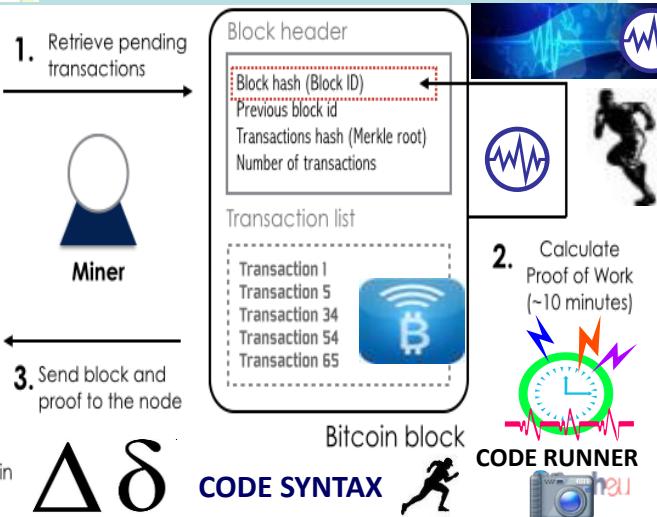
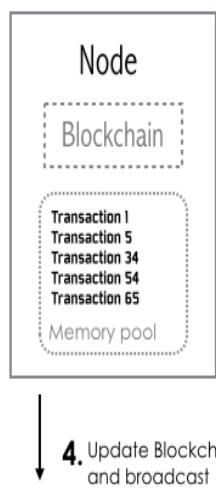
Firefly Algo

X

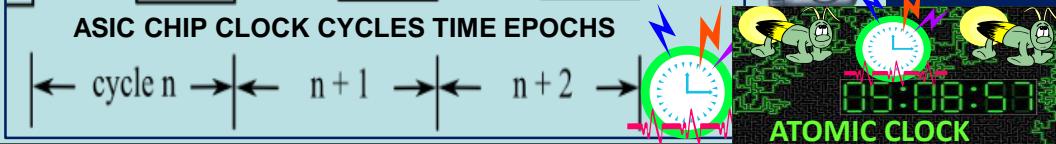
Sync Deltas



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.



**BLOCKCHAIN = TIME / SYNTAX**

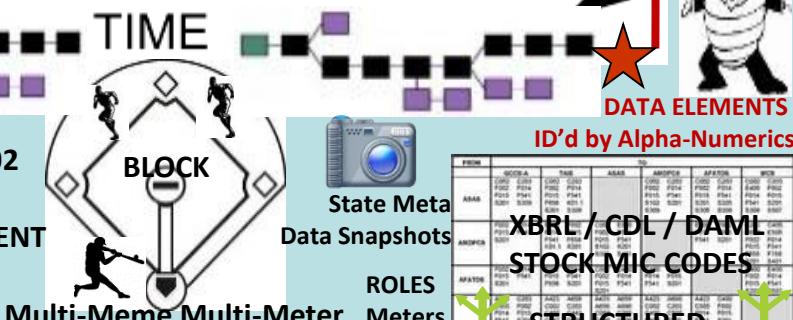


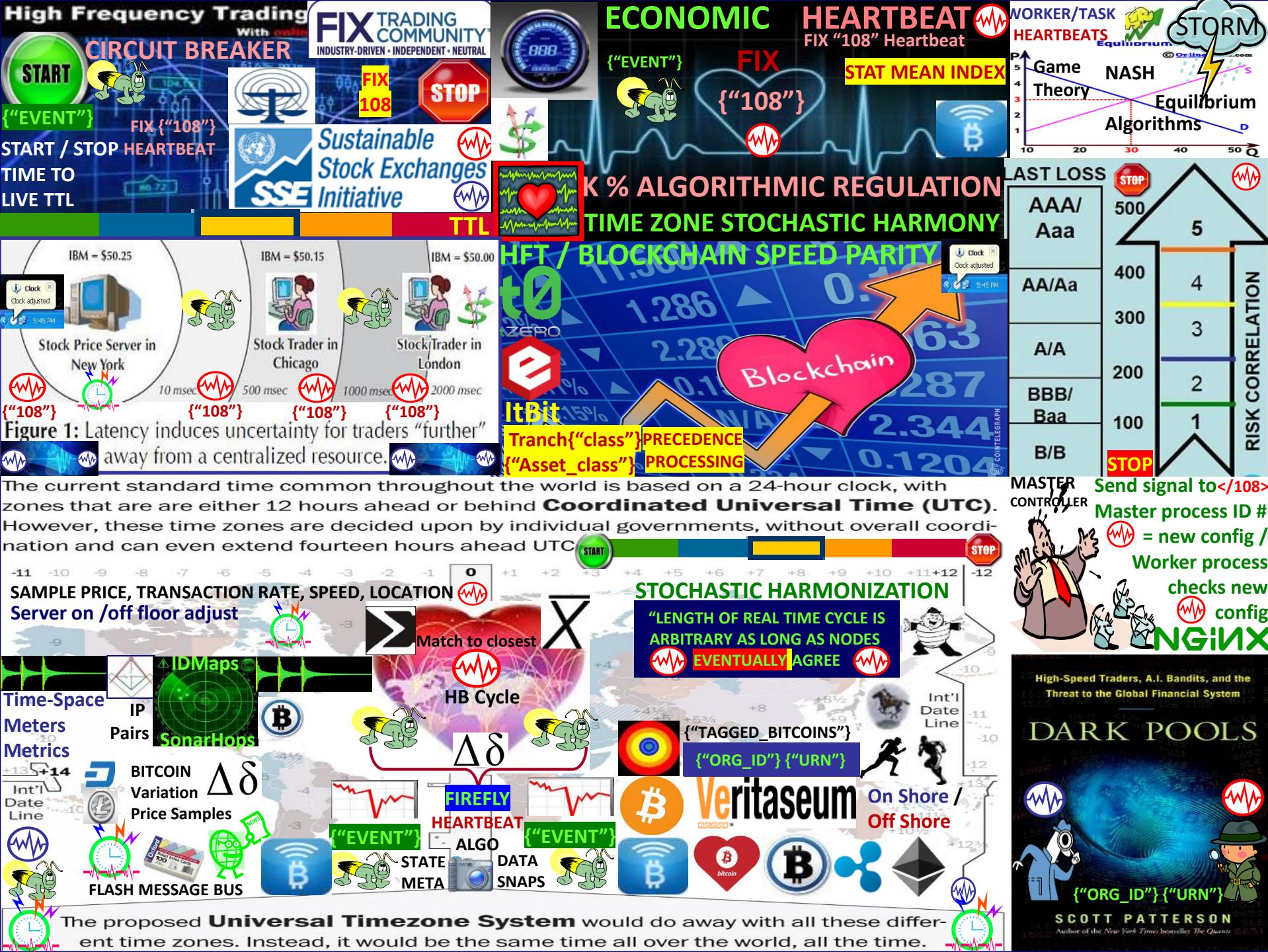
USPTO 13/573,002  
PHYSICAL MEME  
MAIN EMBODIMENT

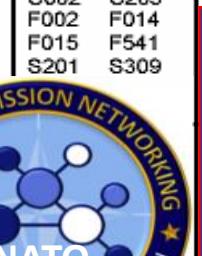
RULES  
Metrics

$\Delta\delta$

TIME  
EPOCH  
CYCLES





FROM	GCCTS-A	ALPHA-Numeric Brevity Codes						CODE GUIDE
		C002	C203	C002	C203	C002	ATDS	MCS
ASAS	C002 F002 F015 S201	C203 F014 F541 S309	C002	C203	C002	C203 F014 F541 S305 S309	C002 E400 F014 F541 S201 S309	C203 C203 E400 F002 F015 F541 S201 S507
		<b>USMTF / XML MTF FORMATTED MESSAGE CATALOG</b> = 300 + messages info exchange sets using common, <b>CONSENSUS</b> Message Text Formats MTFs. MTFs specify </CONTENT> / info agreed by group consensus presenting information in a logical, well specified unambiguous layout resulting in a <b>highly efficient info payload to overhead ratio</b>						 INFOCON 5 4 3 2 1 
	 A423 C505 F014 F541	 C203 F002 F015 S201	 Blockchain Standardization	 Rosetta Stone M2M Coder's Guide		A423 C505 F014 F541	C400 F002 F015 S201	"SYMBOLS RULE THE WORLD" 

# ALPHA-NUMERIC BREVITY CODES

**USMTF / XML MTF FORMATTED MESSAGE CATALOG = 300 + messages**  
info exchange sets using common,  
**CONSENSUS** Message Text Formats  
MTFs. MTFs specify </CONTENT> / info  
agreed by group consensus presenting  
information in a logical, well specified  
unambiguous layout resulting in a **highly**  
**efficient info payload to overhead ratio**



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

Information Categories and Examples							
Location	Movement	Identify	Status	Activity	Intent		
at/long	structured data spd/hdg	exchange country / alliance, type/class	message readiness	sets targeting, reconitering	COA {"Java JS"}		
Machine Trust Language	MTL	CDL	Contract Description Language				
network, grid	throughput, flow rates,	name, part-of relationships	BDA, op levels	repair, broadcasts	YAML expansion plans		
examples, historic structures	E-R Model	Class Diagram	Relational Database	Object DBMS	XML DTD / Schema	TADILs	MTF
	Entity	Class	Table	Class	Element	Message	Message
	Attribute	Attribute	Field / Column	Attribute	Child Element or Element Attribute	DFI	FFIRN / FFN / FUDN
feature at/long, alt/dpth	Domain Value	PURCHASE CODES	Instance, Value	FEDERATE		DUI	FUD

# Information Elements Roles

- COI Determination Org Interaction
  - Search and Discovery
  - Ontologies STANDARDS
  - Taxonomies REFERENCE
  - Metadata Attributes / Filters  
("Org\_ID") {"URN"}

FILTERS



FILTERS

# FFUDN: Field Format Unit Designator #

EFIRN Field Format Index Reference #

# Structured military messaging ID's messages, message sets, data element, symbol fields

# BY Form Field Position & NUMBER



The logo for Firefly-Heartbeat consists of several elements: a cartoon firefly on the left; a red circular icon with a white heart rate monitor line in the center; a green square containing the letters "NDN" in white; and a blue horizontal bar on the right with a network of nodes and connections.

# 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	1.1.2 - Linear
11.4.1.2.2 - Evaluated D	2 - Estimate Type
11.4.1.3 - Value	PURCHASE CODES
	1.2.1 - Estimated
	1.2.2 - Observed
	1.2.3 - Predicted

## **SYMBOL**

Friend

## Neutral

**Hostile**

2525C

Partne

1

11 of 16

www.vedantu

1

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





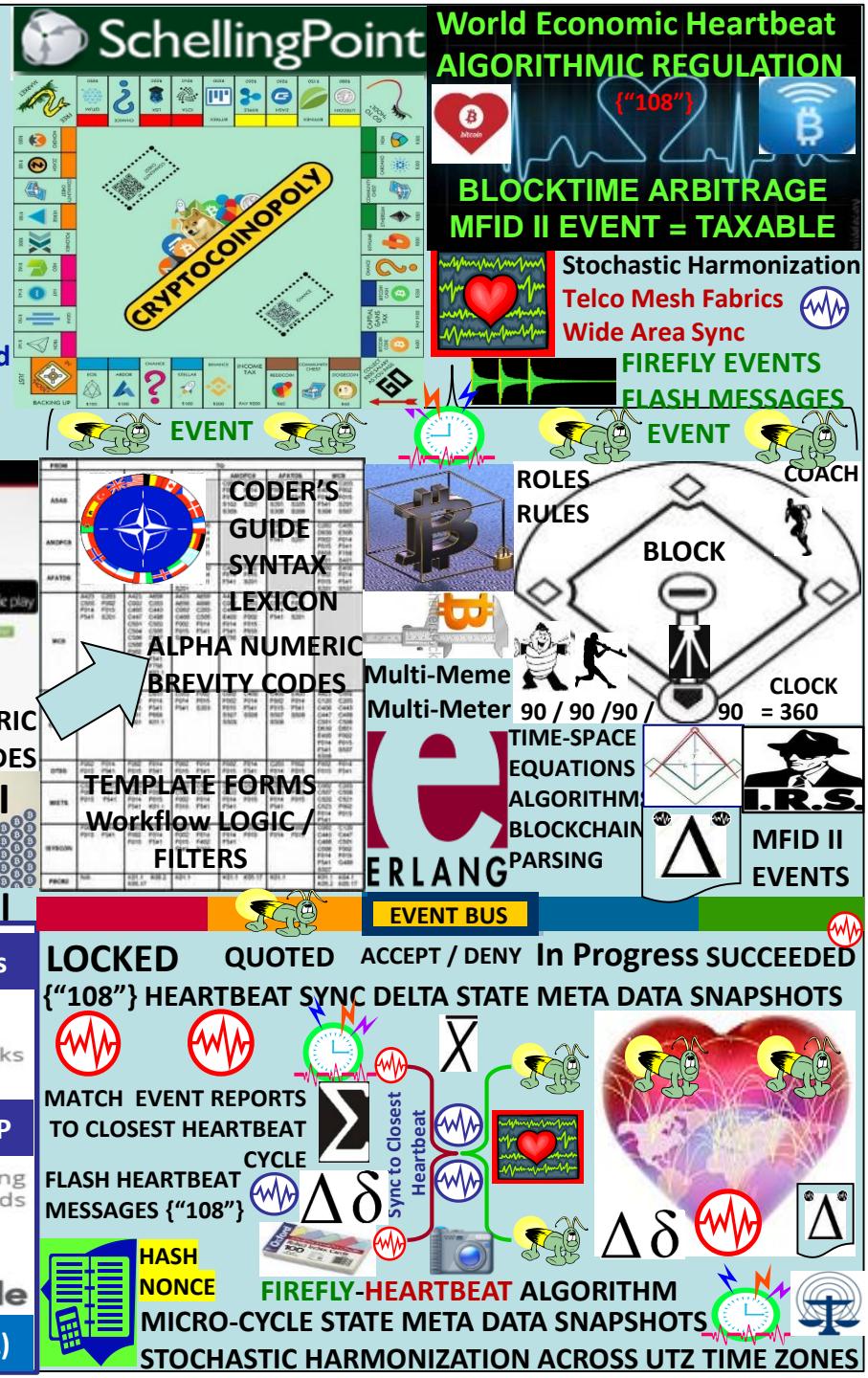
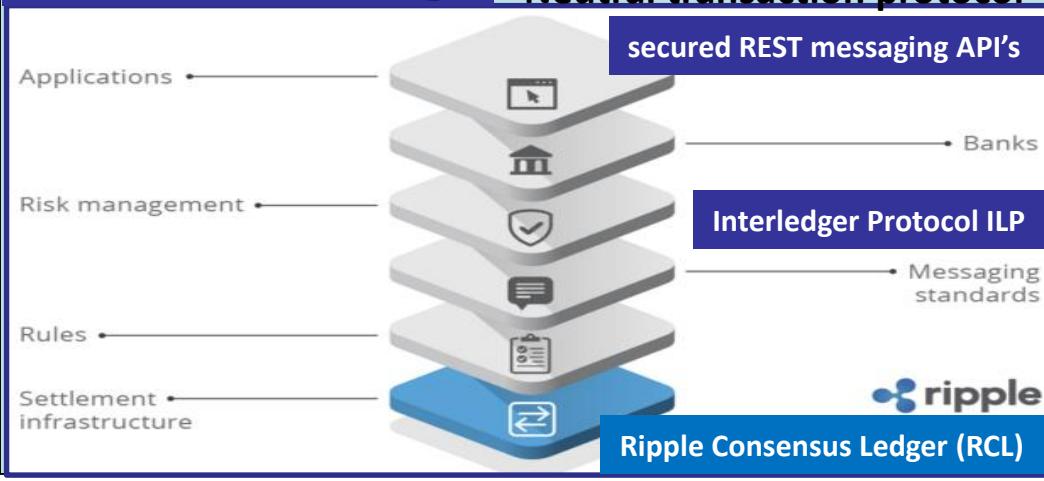
**real-time gross settlement system,  
currency exchange, remittance network**

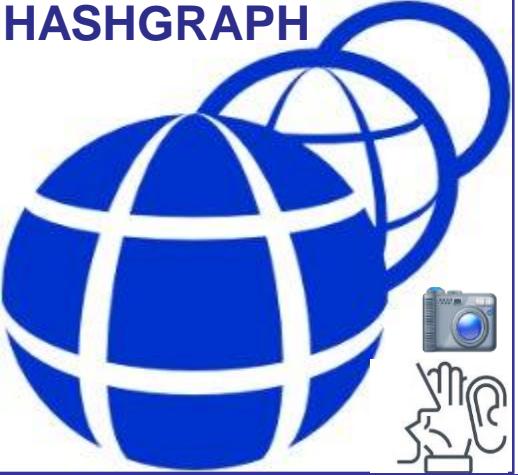
A.K.A Ripple Transaction Protocol or Ripple protocol, built on a distributed open source Internet protocol, consensus ledger and native currency called XRP. Ripple enables "secure, instant and nearly free global financial transactions of any size with no chargebacks." Ripple supports tokens representing 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**





# HASHGRAPH

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

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

**Consensus Order**

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

Round created Witness 0 / 1

Famous witness Election

Vote See

Strongly see Supermajority

Decide

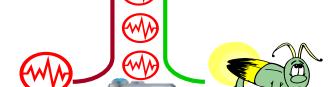
Round created Round received

Consensus timestamp Consensus order  $\Delta\delta$

Synchronous



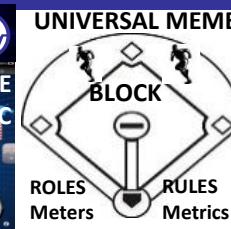
Asynchronous



Micro-Cycle State Meta Data Snapshots

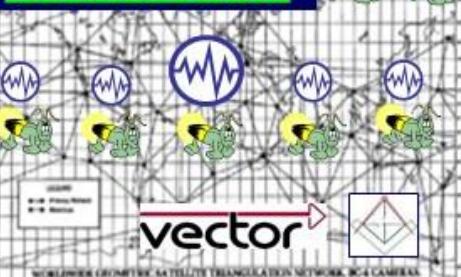
Hash Nonce

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



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

TRIANGULATION



vector  
WORLDWIDE LOCATING SATELLITE TRIANGULATION NETWORK, INC & COMPANY

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"



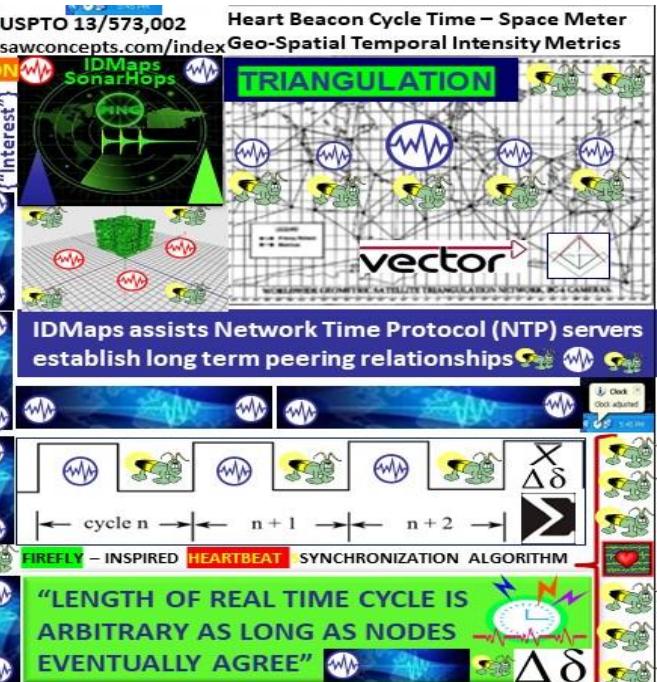
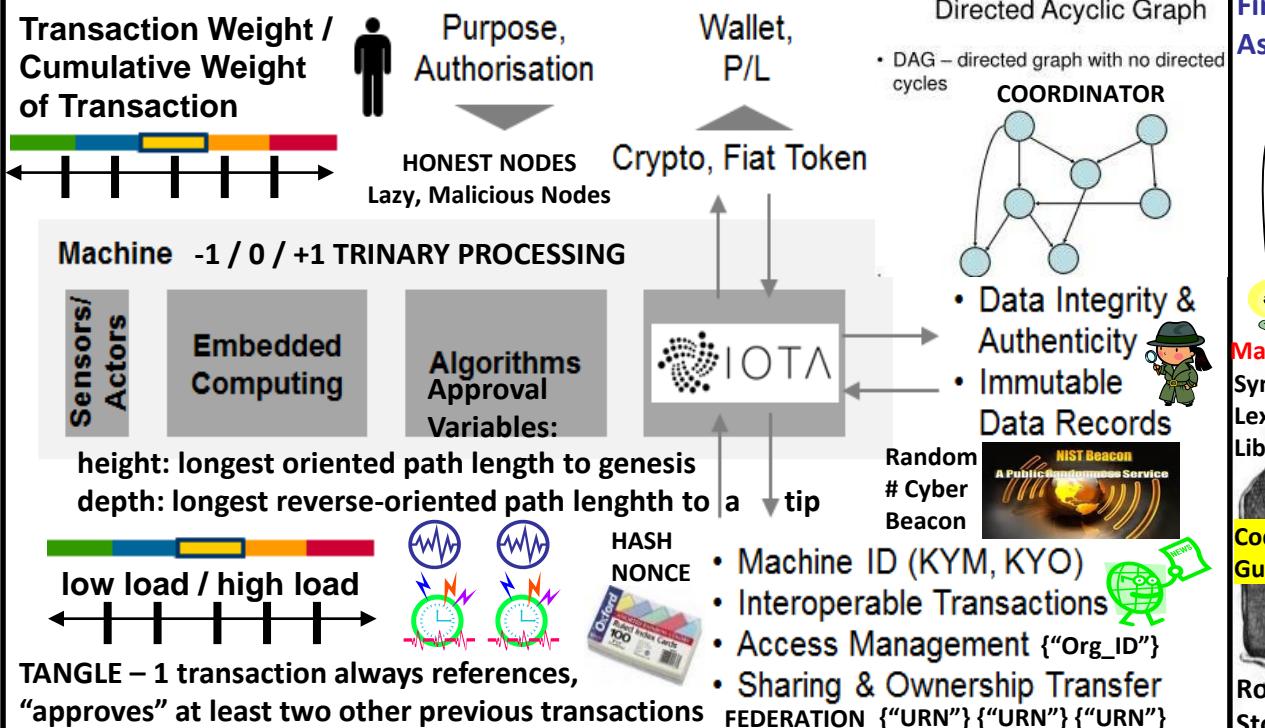


## IOTA: Internet Of Things IOT distributed ledger with microtransactions without fees

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



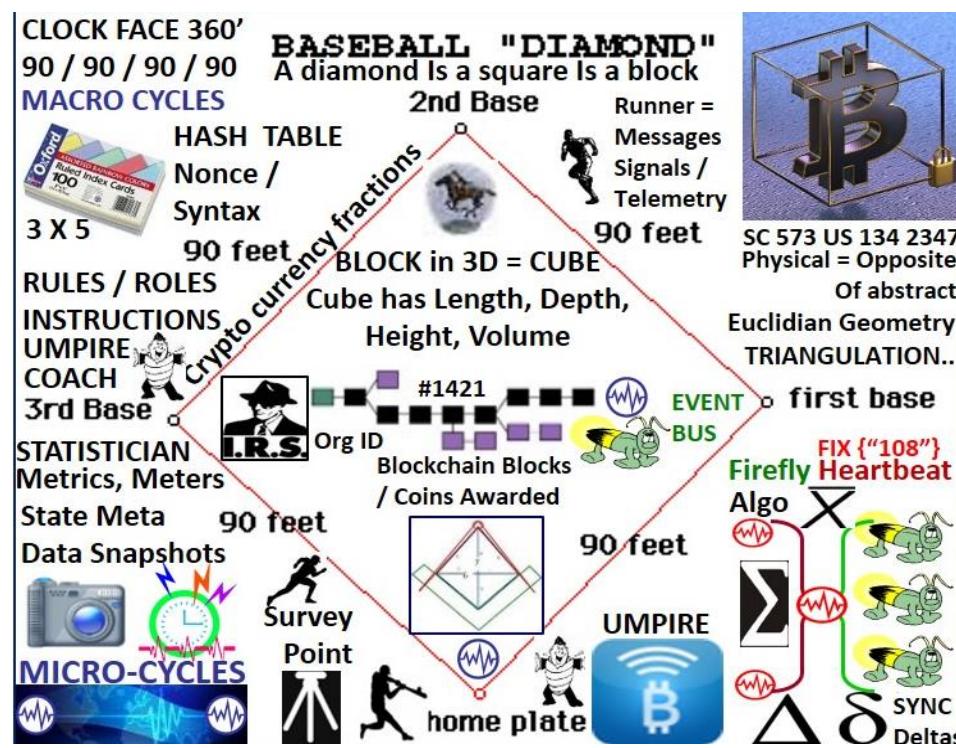
# STELLAR LUMEN



# Connecting Banks, Payment Systems, People with Affordable Financial Services Via Blockchain

## CUSTOMIZABLE PAYMENTS INFRASTRUCTURE

middleware between financial products and institutions



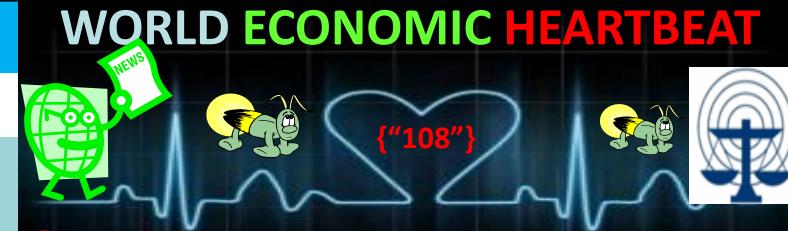




## ZEPPELIN OPEN, GLOBAL ECONOMY

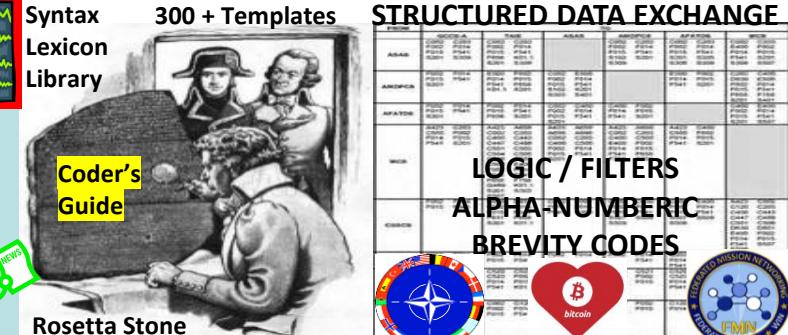
OpenZeppelin open framework of reusable, secure smart contracts in the Solidity language

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."*

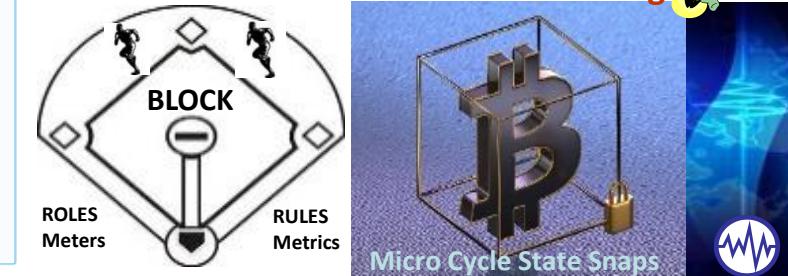


## WORLD ECONOMIC HEARTBEAT

### HEART BEACON CYCLE TIME – SPACE METER ECO-ECONOMETRICS ON THE BITCOIN BLOCKCHAIN



### STOCHASTIC HARMONIZATION for TELCO Mesh Fabrics

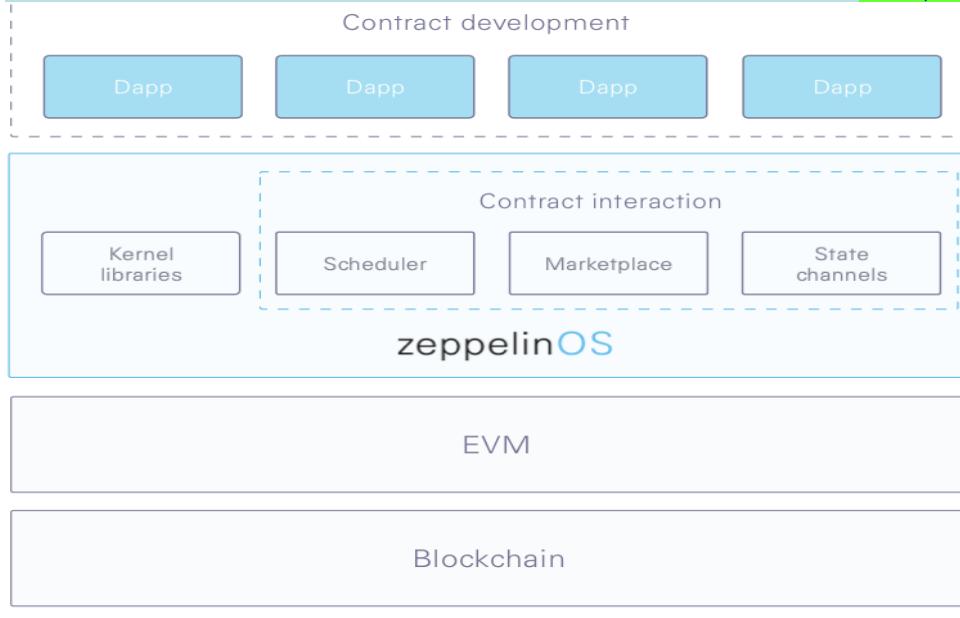


## ZEPPELIN / zeppelinOS Common Functionality:

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, inspired by [OpenZeppelin](#) Libraries

Create and customize your own ERC20 Token.

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



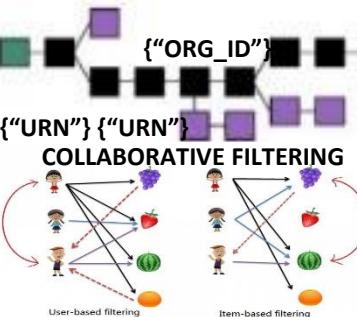


# EGAAS

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**



# TEMPLATE ENGINE LANGUAGE ETF

## NAMED DATA NETWORKING corrections

## Time Series Databases

## BLOCKCHAIN PARSING

## SYNCHRONIZATION

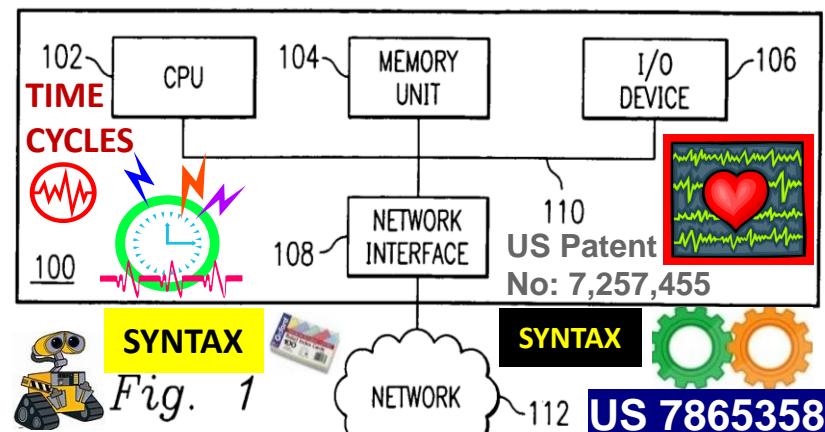


The current standard time common throughout the world is based on a 24-hour clock, with time zones that are either 12 hours ahead or behind Coordinated Universal Time (UTC). However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen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



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



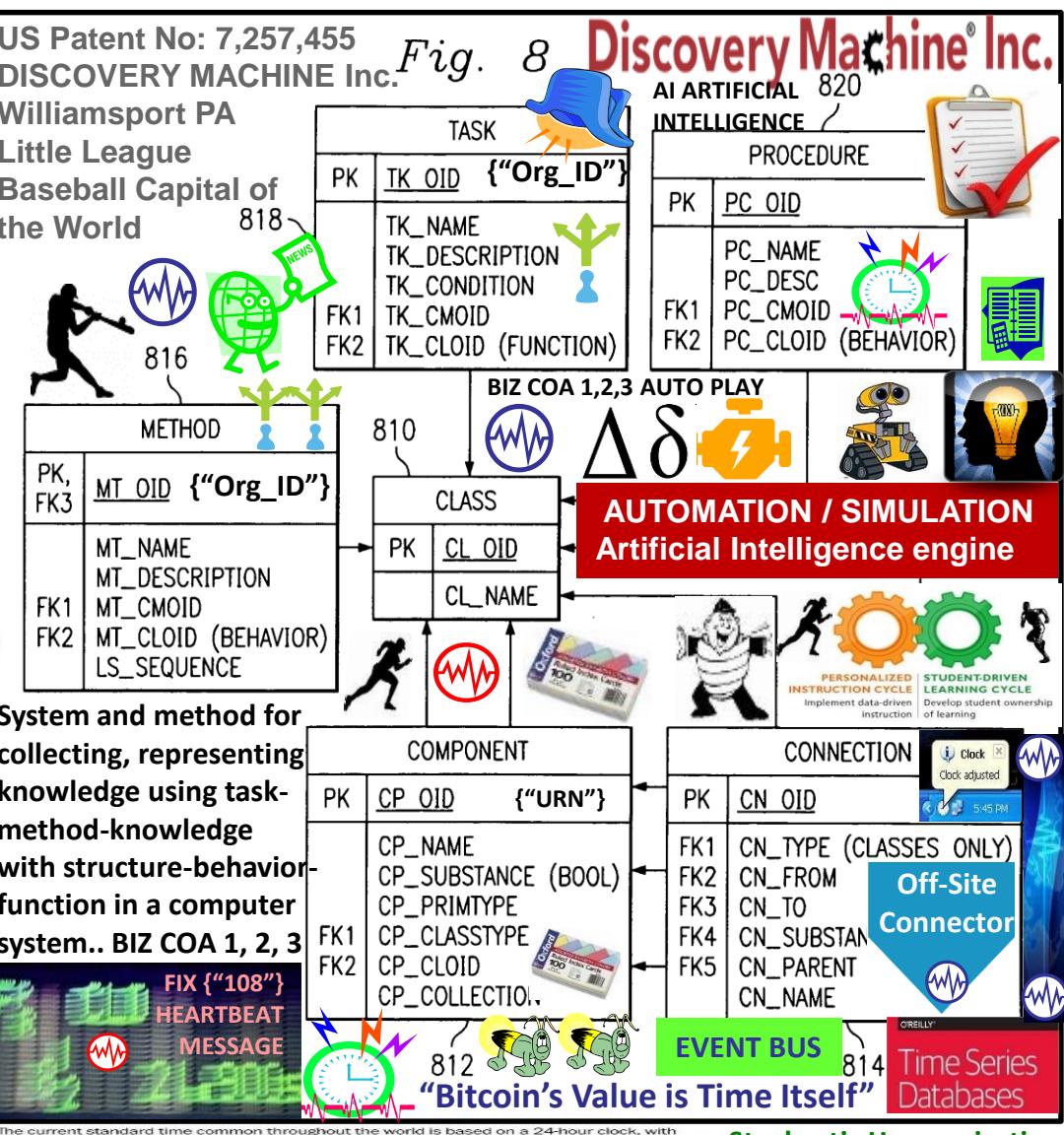
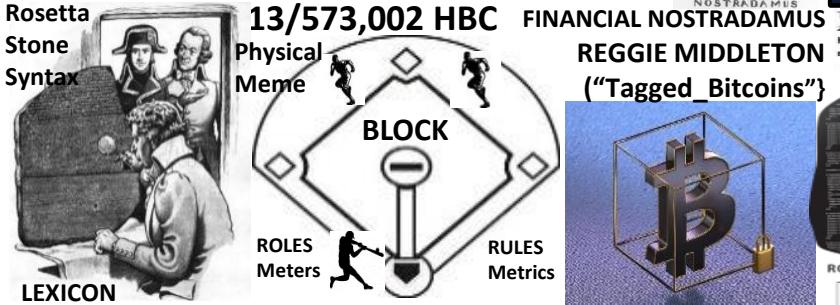


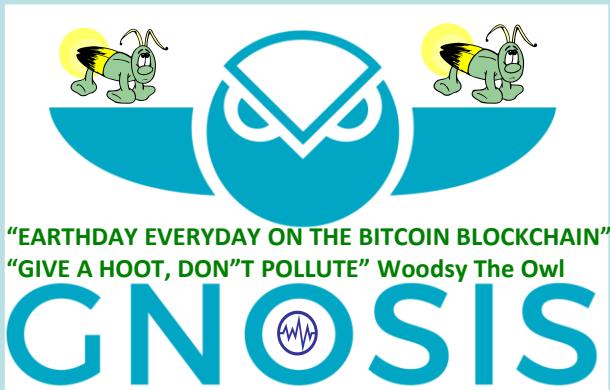
Machine-based system for transforming data from a source form to a target form, a tool is provided for sharing information established in developing a transformation model. The shared information may relate to rules for mapping source collection terms to standardized terms, rules for ordering or **SYNTAX**,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

**ORACLE Veritaseum**





"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.



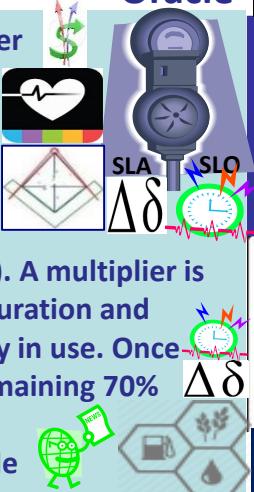
The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.

"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

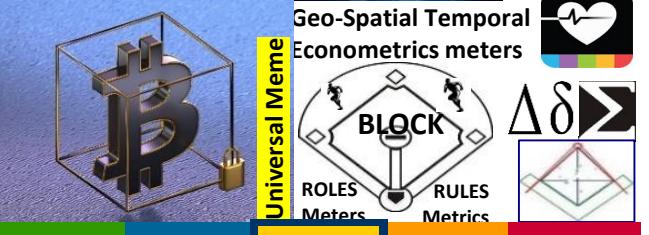


## THE TERRA (TRC)

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"



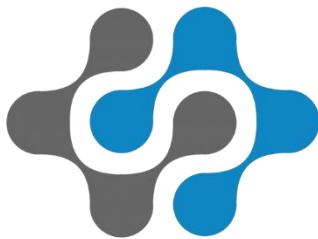
**Ardor is a blockchain-as-a-service platform that will allow people to utilize the blockchain technology of Nxt through the use of child chains.**



# ARAGON

Unstoppable organizations

Create value without borders or intermediaries



# bitsquare

- Infrastructure: Bitsquare uses a P2P network (there are no servers);
- Security: Bitsquare does not hold users funds (neither bitcoin nor fiat);
- Privacy: Bitsquare does not hold users data (no registration, uses Tor);
- Openness: It is open source (AGPL license);
- Independence: It is funded by donations and personal savings;
- Governance: Bitsquare is organized as a DAO (Decentralized Autonomous Organisation), comprising the people who build, support and maintain the project;
- Sustainability: Trading fees go to arbitrators and the DAO.

***But a community which has a common goal – like making Bitcoin a success – should strive for solutions which are efficient and have been proven to deliver great results.***



 BitTorrent

 bitcoin

 bitsquare

 OpenBazaar

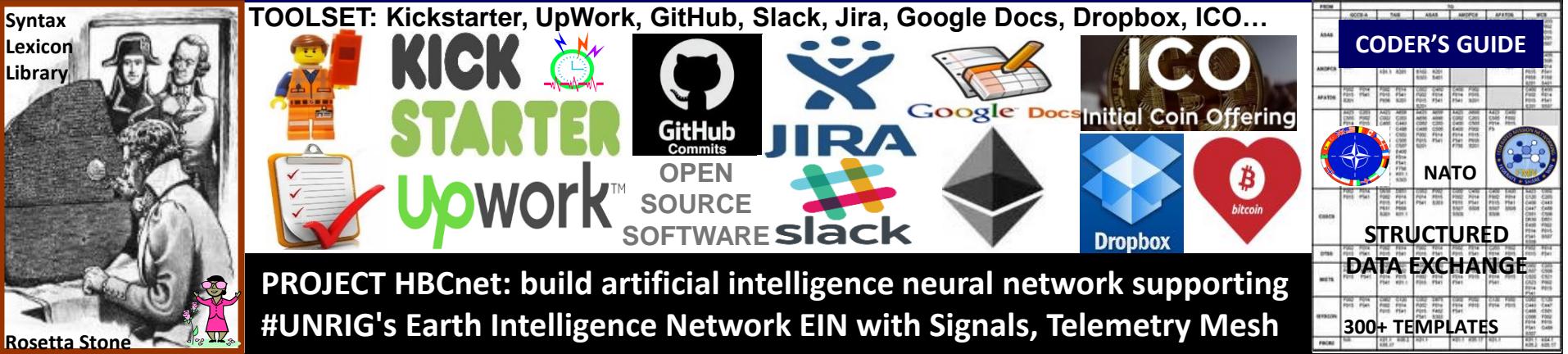
 BitMarkets







Dogezer software development platform allows team members to become product investors by investing their time, labor. The Dogezer Platform combines the functionality of Kickstarter, UpWork, GitHub, Slack, Jira, Google Docs, Dropbox and ICO analogues with a set of defined processes how these solutions relate to each other in a clear, transparent and predictable way. Dogezer gives an opportunity to start a project in minutes; organize a set of teams working on the project; define how project contributions are rewarded, driving a project to completion by using independent contributor skills around the world.

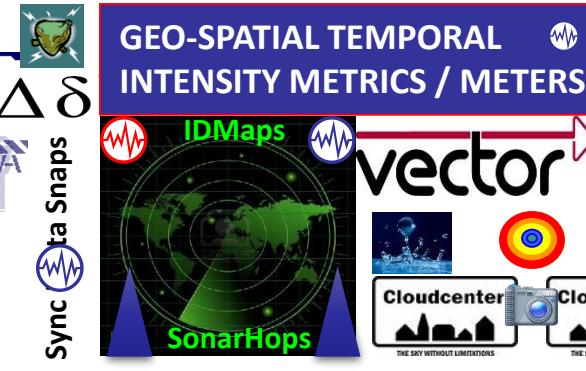
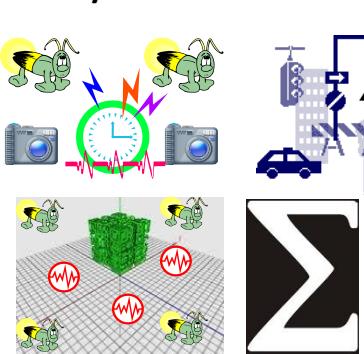




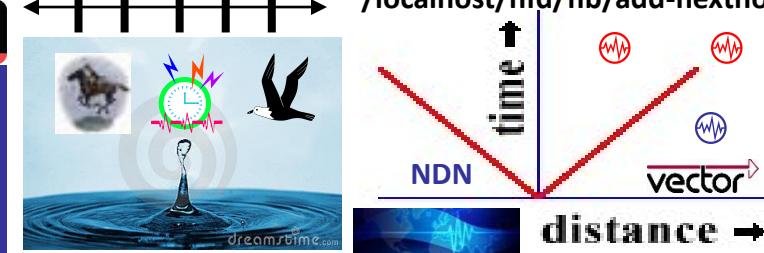
# IDMaps: Global Internet Host Distance Estimation Service



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



IDMaps scalable Internet-wide architecture measures, disseminates distance information



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

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

Name Prefix  
<Org\_ID> Trie (NPT)



**NDN NAMES**

NDN NAMED DATA NETWORK RIB /  
FIB Datasets event notification

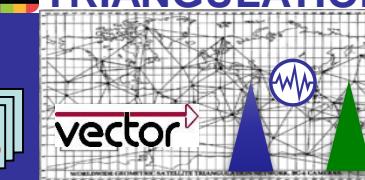
Distance information adjusts to “permanent” topology changes e.g., splits, joins, adds, moves, drops, merges in lieu of formal merger / acquisition

NDN INTEREST LENGTH  
= DISTANCE BY HOPS

NDN  
INTEREST

IS DATA  
FRESH ?

**TRIANGULATION**



Datasets and Event Notification

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

# **13/573,002 HEART BEACON CYCLE**

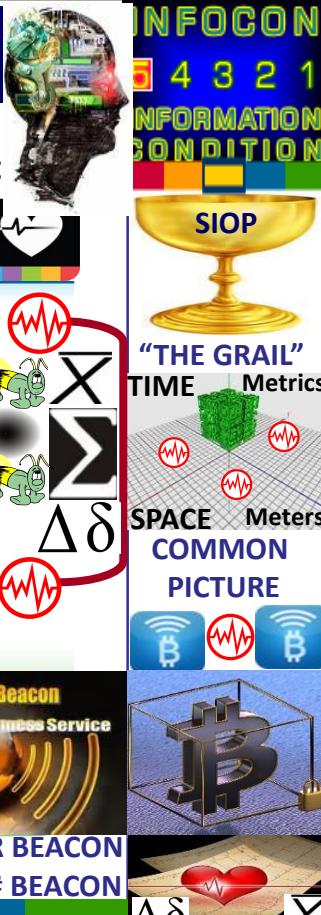
Time -Space meter, metrics / Universal data event, alert bus  
Internet of Everything “ability to hear the world’s heartbeat”

## The four dimensions of Big Data

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

TIME STAMP BY Org\_ID, URN Before FUSION CENTER

## Position of a point in space relative to another point





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

FINANCIAL  
NOSTRADAMUS  
REGGIE MIDDLETON



Zero Trust Transaction: money performs according to terms agreed to by the 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. Global stock, currency, commodities exchanges, letters of credit, insurance underwriting, trading, intellectual property...



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



**VERITAS TOKENS = KEYS TO P2P Capital Market!** Proprietary P2P smart contracts combined with the transformational power of blockchain, allow the entire world to participate in the reimagining of global capital markets.

Purchasing Veritas tokens is analogous to purchasing keys to the internet of money – the most monumental paradigm shift since the advent of the net

Place Order

Principal:	\$100.00
Collateral:	0%
Leverage:	10x
Notional Amount:	\$1000.00
Receive:	QCOM
Pay:	INTC
Denominating Asset:	~BTC:SATOSHIS
Contract Expiry:	16w
Contract Starts at:	-
Contract Ends at:	-
Cancel Contract at:	-
Est. Trans. Fees:	\$0.0437
Transaction Fees:	\$1.0262
Leverage Fees:	\$3.2528
Max. Profit/Loss:	+ \$95.6773 / - \$104.3227
Total Required:	\$104.3227

NEWS EVENT BUS FIREFLY HEARTBEAT ALGO EVENT BUS

DAO Distributed Autonomous Organization SOFTWARE POOLS

All Market Orders Search

UTZ TIME SYNC Collateral Notional Expiry

Heartbeat Flash Messages Precedence Processing

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.

INVESTOR POOL WORLD COMPUTER DFINITY

UTZ Stochastic Harmonization

REGGIE MIDDLETON

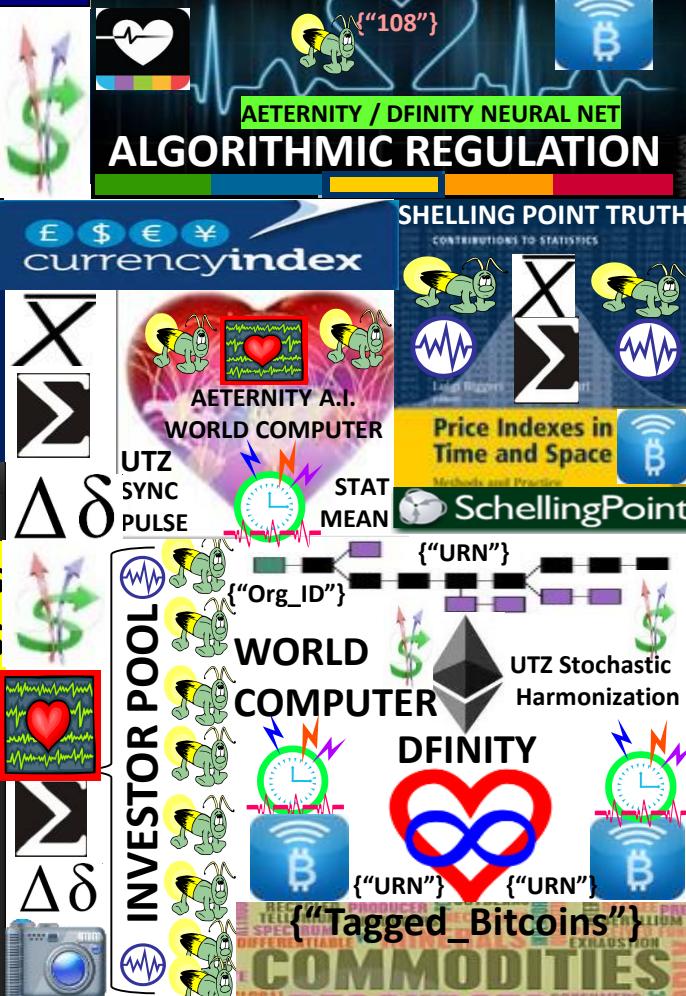
FINANCIAL NOSTRADAMUS

COMMODITIES EXHAUSTION

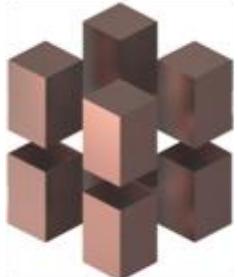
GLOBAL RESOURCES CONSUMERS

RENEWABLE ENERGY SPECTRUM DIFFERENTIABLE PRODUCERS

“Tagged\_Bitcoins”







# FOAM

FOAM, an open source spatial protocol built on the Ethereum blockchain. The protocol ties every latitude-longitude coordinate pair on Earth (down to one square meter) to a specific smart contract address, allowing developers and applications to tie business logic to specific spaces to crowdsourced data the blockchain.

Foamspace explored the speculative relationship between decentralized infrastructure and the production of the built environment. The installation was made entirely of factory-standard EPS geofoam blocks, which additionally served as a visual metaphor for the bitcoin blockchain.

*Imagine a decentralized architecture office that distributes equity and shares in the built environment and comprises a mesh of users: investors, clients, designers and established offices*

The Tropical Mining Station was a space produced by extracting the surplus energy from the process of mining Ethereum to produce a heated space. Custom miners were built that funneled excess heat and required airflow to inflate a pneumatic space, which became a spatialized node on the decentralized network.

**<https://archinect.com/features/article/142920059/towards-a-decentralized-architecture-with-foam-the-blockchain>**



# district0x

decentralized markets communities network. Create, operate, govern. Powered by Ethereum, Aragon, IPFS.

Districts are marketplaces and communities that exist as decentralized autonomous organizations on the district0x Network. All internet citizens will be able to deploy districts to the network free of charge, forever. All districts possess the following core functionalities...

- |  |   |  |
|--|---|--|
| Signaling via <a href="#">CarbonVote</a> | Graphene executables:                     | • Posting and listings   |
| Status = browser,<br>messenger, gateway  | witness_node,<br>cli_wallet, genesis_util | • Search and filtering<br>• Ranking and reputation<br>• Payments and invoicing |

d0xINFRA provides districts with core functionalities required to operate an online market or community. e.g., ability for users to post listings, filter and search listings, rank peers, amass reputation, send invoices, collect payments

**district0x Network Token:** means of facilitating open participation and coordination on the network. Voting rights are utilized to come to a consensus on everything ranging from a district's branding and design decisions, to what functionality is added to the district via auxiliary modules, to the appropriate settings for any adjustable parameters of these modules, to the means in which revenue collected by a district is distributed

**NAME BAZAAR:** peer-to-peer marketplace for the exchange of names registered via the Ethereum Name Service trading of subdomains, enabling the exchange of usernames in decentralized applications such as **STATUS** and **ORGANIZATION NAMES** in the Aragon Network **COMPANY REGISTRY**

**Meme Factory** users mint their own tokenized memes for sale i.e., rare digital assets on the Ethereum blockchain posted to a bulletin board-style marketplace exchange.

**Dharma Credit** is a suite of tools that make it easy to plug a line of credit into any decentralized application. In lieu of forcing your first-time users to purchase crypto at a brokerage or exchange, a Dharma Credit integration will give your users a button that they can click and get a small cryptocurrency loan within your app in under 5 minutes.



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 comms



### Functional Sequential Erlang

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

### SORTING ALGO'S

Ericsson Open Money  
For Society Patent App



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

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



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



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

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

Mnesia database ("Organization\_ID") Global name resolution

FROM	TO/CC-A	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRIDAY	SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
XBRL	/ CDL / DAML																		
ALPHA	NUMERIC																		
BREVITY	CODES																		
AZURE	BLETCHLEY																		
STRUCTURED																			
MILITARY	MESSAGE																		
TEMPLATE	FORMS																		
LOGIC	/ FILTERS																		



# PROOF-OF-WORK



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



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



THROTTLE equivalent to difficulty. State  
•target = maximum value of 8 bytes Snap  
( $2^{64}$ ) divided by the difficulty.

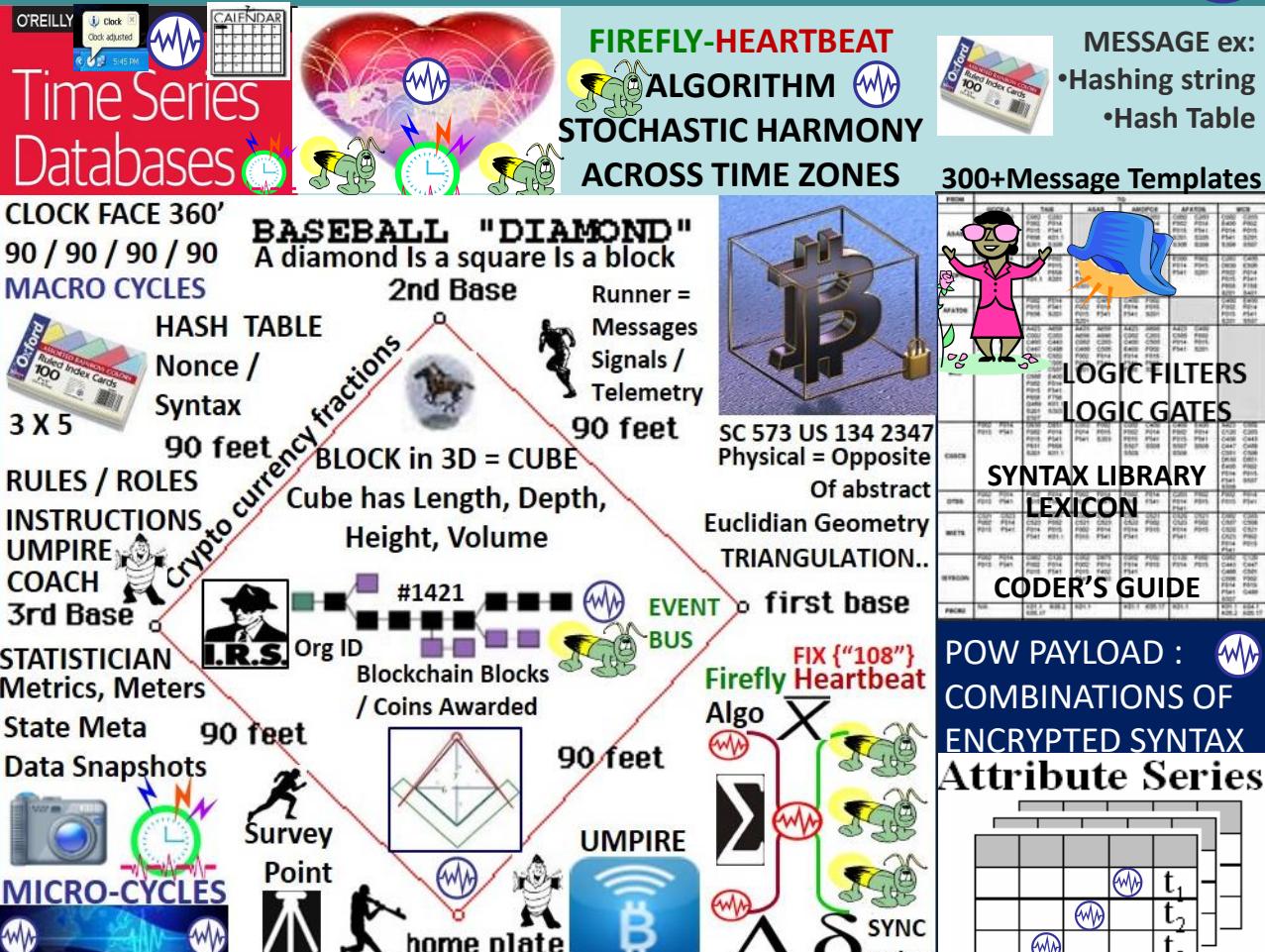
NONCE increments from 0..N until the target is met.



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 without retracing all the procedural steps.

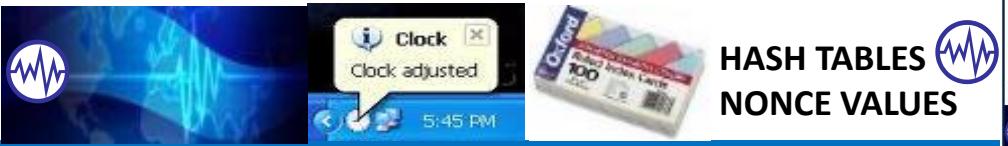




**Bitcoin Classic seeks to mitigate the problem of more transactions, which are causing transaction backlogs and increased transaction costs, by increasing the block size - the number of kilobytes in a block of transactions - from 1MB to 2MB.**



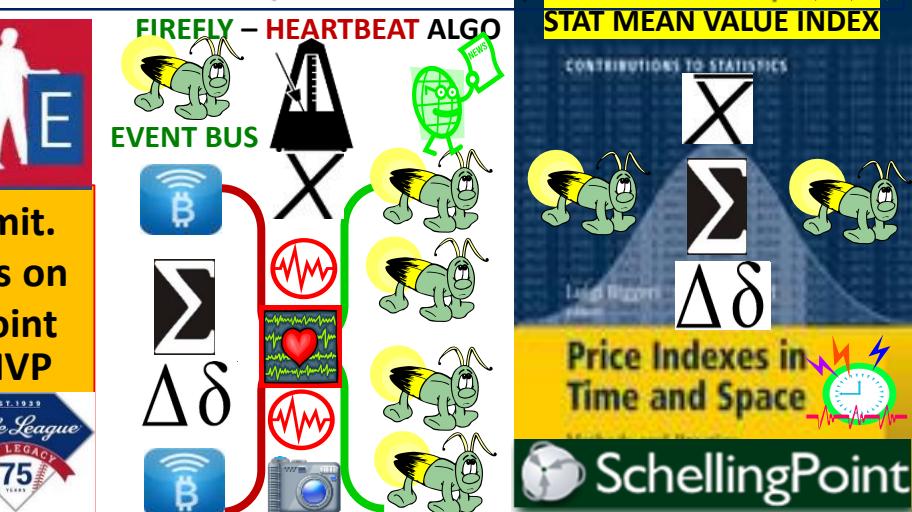
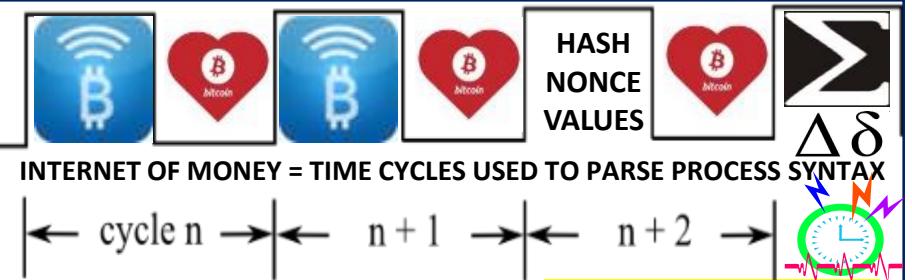
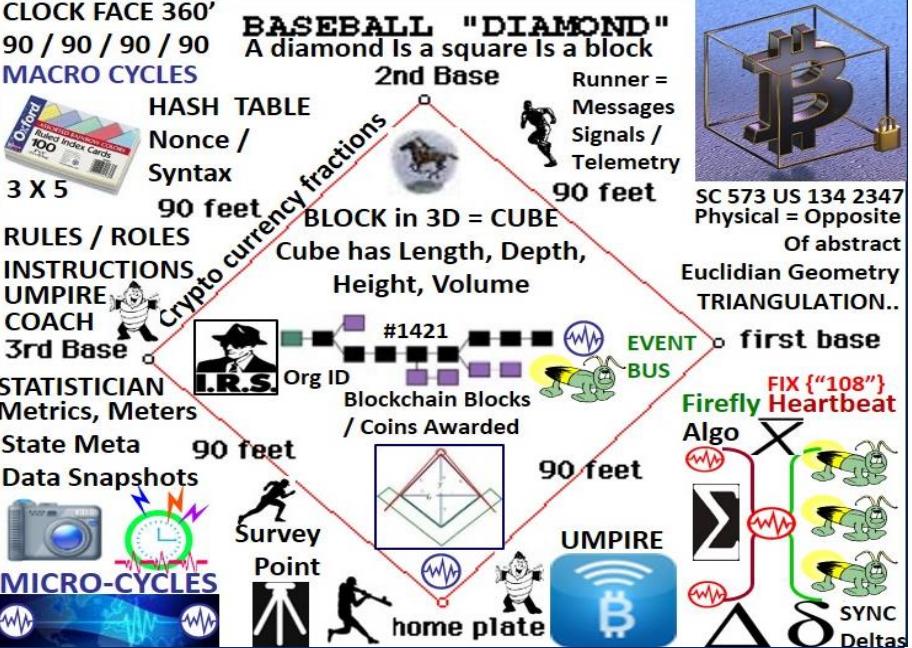
## ALL THINGS INTERNET FORMED W 1) TIME EPOCHS 2) SYNTAX



**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.



**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 MVP development, management of the implementation, . the community votes on changes.



Microsoft Bletchley modular framework: choose combination of technologies best fits Biz domain

AZURE: Core/Kernel/Universal Protocol

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

Unspent Transaction Output protocols UTXO

Crypto Tokenized Assets Digital Bearer Bonds  
unique identity for owned artifacts

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

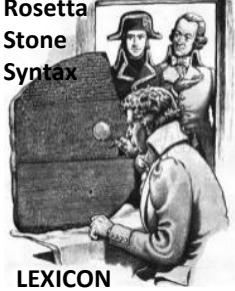
Blockchain middleware: identity and operations management, data, intelligence services like analytics and machine learning. New middleware works with existing Azure services, like Active Directory and Key Vault

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

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

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

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



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

LEXICON

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

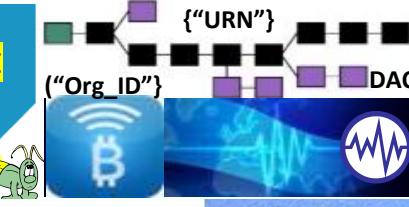
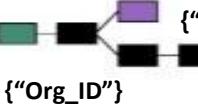
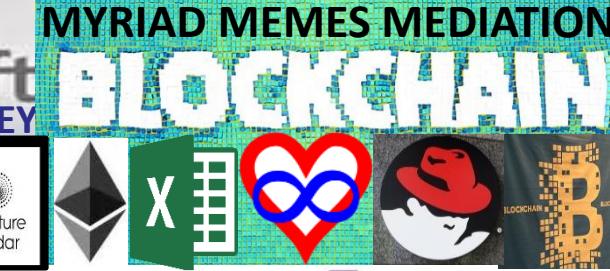


MULTI-MEME MULTI-METER



Blockchain Startups

Top Blockchain startups disrupting non-financial markets



CLOCK FACE 360°  
90 / 90 / 90 / 90  
MACRO CYCLES

HASH TABLE  
Nonce /  
Syntax  
90 feet

RULES / ROLES

INSTRUCTIONS

UMPIRE

COACH

3rd Base

STATISTICIAN

Metrics, Meters

State Meta

Data Snapshots

90 feet

MICRO-CYCLES

Survey Point

EVENT BUS

HEART BEACON

CYCLE

STATE META DATA SNAPSHOTS

TIME-SPACE EQUATIONS ALGORITHMS

BLOCKCHAIN PARSING

ERLANG

IoT

Microsoft Orleans

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

Runner =  
Messages  
Signals /  
Telemetry  
90 feet

BLOCK in 3D = CUBE

Cube has Length, Depth,  
Height, Volume

#1421 Org ID

Blockchain Blocks / Coins Awarded

EVENT BUS

90 feet

UMPIRE

90 feet

Sync Deltas

IoT

Microsoft Orleans

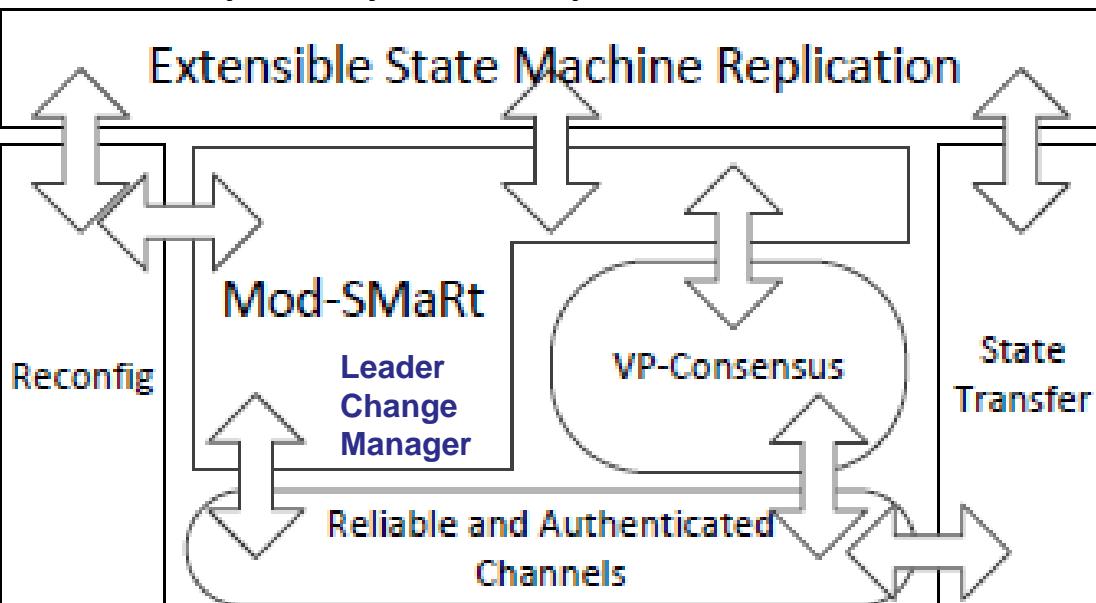
TIME-SPACE EQUATIONS ALGORITHMS

BLOCKCHAIN PARSING

ERLANG

# Byzantine Fault-Tolerant State Machine Replication

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



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

## BFT-SMaRt needs an eventually synchronous system

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

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

USCt ALICE CORP V CLS BANK

PHYSICAL = OPPOSITE OF ABSTRACT



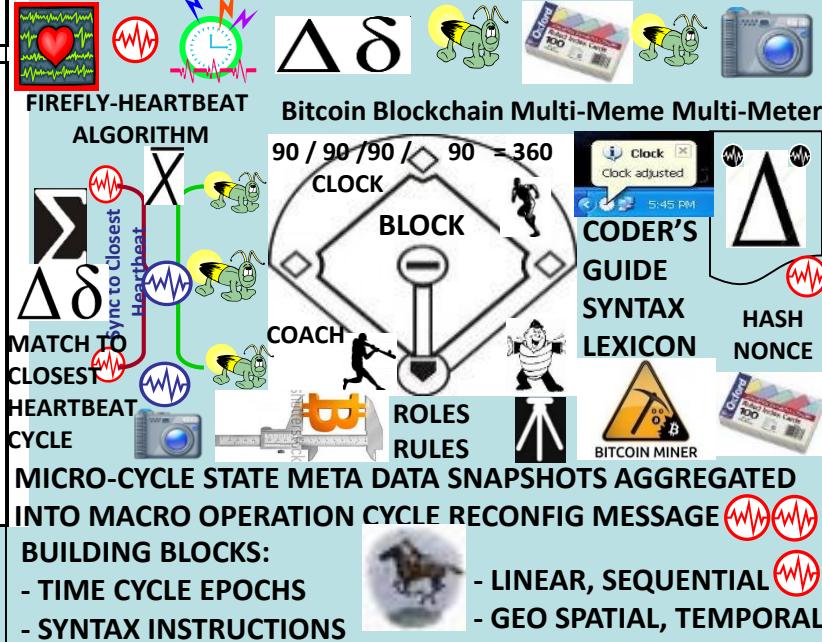
DERIVED FROM BATTLEFIELD DIGITIZATION DISTRIBUTED AUTONOMOUS ORGANIZATION DAO SYSTEM OF SYSTEMS

FEDERATED ID / ORGANIZATIONAL IDENTIFIER {"ORG\_ID"}

ADDS, JOINS, DROPS, MOVES TO / FROM DAO

CHANGES IN STATE VIEWED IN "APPLIQUE' OVERLAY VIEWS

K0.99 HEARTBEAT SYNC DELTA STATE META DATA SNAPSHOTS



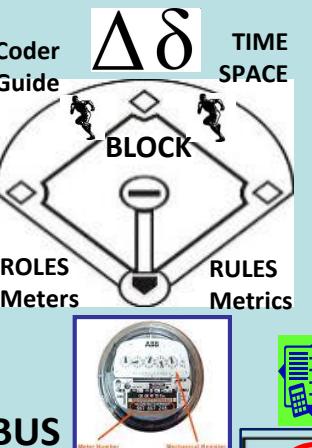
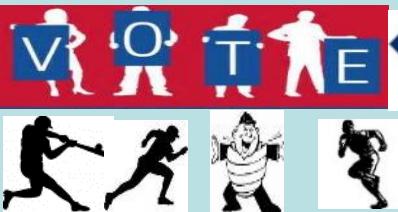
Firefly inspired Heartbeat Synchronization nodes strive to sync in a distributed system. Nodes generate periodic "heartbeat" events approximately at the same time.

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

# 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

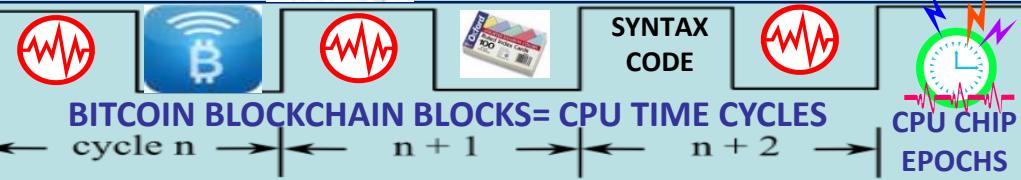
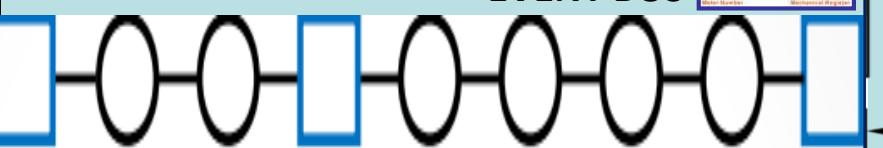
XBRIL / CDL / DAML  
STOCK MIC CODES

STRUCTURED  
MILITARY MESSAGE  
TEMPLATE FORMS  
LOGIC / FILTERS



SYNTAX  
LEXICON LIBRARY

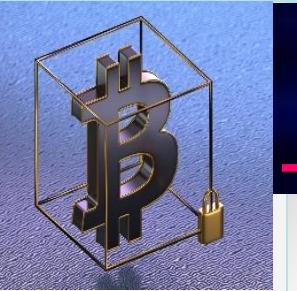
CPU CHIP  
EPOCHS



long exponential  
intervals (10 min)

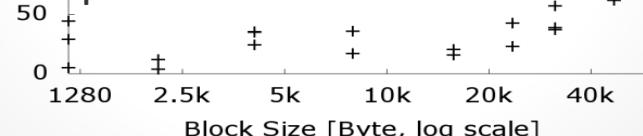


COMMAND SYNTAX  
RESTFUL State Transfer



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.

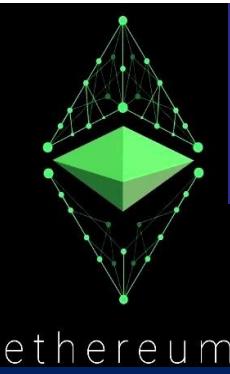


short deterministic  
intervals (10 sec)



ATOMIC CLOCK

MICRO-CYCLES



## ETHER: Compensate Resource Contribution

Gas: price to  
Run contract  
transactions

ethereum

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 (see the CAP theorem).



Ether hedged against other  
crypto / FIAT currencies  
price changes

**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**

CLOCK FACE 360'  
90 / 90 / 90 / 90  
MACRO CYCLES

HASH TABLE  
Nonce /  
Syntax  
90 feet

RULES / ROLES  
INSTRUCTIONS  
UMPIRE

COACH  
3rd Base  
STATISTICIAN  
Metrics, Meters  
State Meta  
Data Snapshots

MICRO-CYCLES  
Survey Point  
home plate

**BASEBALL "DIAMOND"**  
A diamond is a square is a block

2nd Base  
Runner =  
Messages  
Signals /  
Telemetry  
90 feet  
BLOCK in 3D = CUBE  
Cube has Length, Depth,  
Height, Volume

Org ID  
Blockchain Blocks /  
Coins Awarded

#1421  
90 feet

EVENT BUS  
home plate

UMPIRE



SC 573 US 134 2347  
Physical = Opposite  
Of abstract  
Euclidian Geometry  
TRIANGULATION..

first base  
Fix {"108"}  
Firefly Heartbeat  
Algo

$\Sigma$   
 $\Delta\delta$

SYNC  
Deltas

$\Delta$

Txs	State transition:		Txs	State transition:		Txs	State transition:
0cb4	123: 400		5581	905: 560		7ce6	123: 440
9f12	8723: 0		2fc3	1141: 8021		1141	7981
42	15776		42	15775			

SWARM  
(storage)

WHISPER  
(messaging)

EVM  
(consensus)



UNIVERSAL EVENT BUS  
STATISTICAL MEAN SAMPLING  
STOCHASTIC HARMONIZATION



HEARTBEAT FLASH MESSAGES  
BLOCKCHAIN HASH TABLES



STAT MEAN VALUE INDEX  
SUM, ADD, AGGREGATE

MACRO ECONOMIC CYCLES



MICRO CYCLE SAMPLING



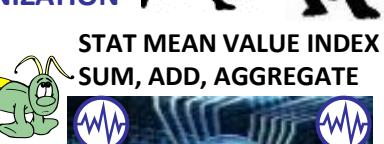
STATE META-DATA  
HEARTBEAT SNAPSHOTS



$\Delta\delta$



SPACE-TIME METRICS



BTC MULTI MEME  
MULTI-METER

BIGCHAIN DB



**D F I N I T Y**

**RANDOM # BEACON**

**NIST Beacon**  
A Public Randomness Service

**QUANTUM RANDOM #**

**Each process has mining identity**

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

**3 x 5**

**HBC "ORG\_ID" {"URN"} CLASS ASSET TYPE {"UUID"} DEVICE TYPE INDEX CARD="SHARD"**

## BLOCKCHAIN NERVOUS SYSTEM

HEARTBEAT {"108"} State Meta Data Snapshot Msgs

### STATEFUL DECENTRALIZED NET PROTOCOL:

Decentralized process workflows instead of Centralized Server farms

**FIREFLY-HEARTBEAT FLASH Msg EVENT BUS**

### GROUP Signature is random number

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

### HYPER GEOMETRIC PROBABILITY CALCULATOR

**CONSENSUS / RANDOM BEACON**

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

**NIST Beacon**  
A Public Randomness Service

**QUANTUM RANDOM #**

### Threshold Relay Chain techniques

Probabilistic Slot Protocol (PSP) When Gh is selected, members start stopwatches  
Choosing Leaders Randomness selects priority list block forgers at height h  
Short Term Convergence Correct processes build on highest scoring chain  
Threshold Timestamping group signs blocks at h until next group appends another.

**Scalable Global Validation Layer:** Each additional level of the tower validates new state transitions applied to storage shard, is built by processes selected by the RANDOM BEACON

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

USCt 573 134 2347 Alice Corp V CLS Bank = ABSTRACT IDEAS = NO NO = PHYSICAL MEMES

**NIST TIME BEACON**

**CLOCK FACE 360'**  
90 / 90 / 90 / 90

**MACRO CYCLES**

**3 X 5**

**HASH TABLE**  
Nonce / Syntax

**BASEBALL "DIAMOND"**  
A diamond Is a square Is a block

**2nd Base** Runner = Messages Signals / Telemetry

**90 feet**

**RULES / ROLES**

**INSTRUCTIONS**

**UMPIRE**

**COACH**

**3rd Base**

**STATISTICIAN**  
Metrics, Meters

**State Meta Data Snapshots**

**90 feet**

**Crypto currency fractions**

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

**EVENT BUS**

**#1421**

**Org ID**

**Blockchain Blocks / Coins Awarded**

**Survey Point**

**home plate**

**90 feet**

**90 feet**

**UMPIRE**

**Algo**

**Fix {"108"} Heartbeat**

**Sync Deltas**

**UTZ TIME ZONE SYNC**

**SC 573 US 134 2347**  
Physical = Opposite Of abstract Euclidean Geometry TRIANGULATION..



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.



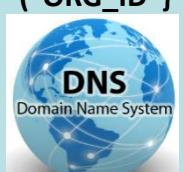
Aeons: energy for applications implemented on the platform.

**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

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.



(“ORG\_ID”)  
(“ORG\_ID”)



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

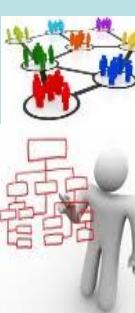
**AETERNITY CROSS-CHAIN ATOMIC SWAPS CORRESPOND TO HEART BEACON CYCLE'S USE OF BATTLEFIELD DIGITIZATION DERIVED HEARTBEAT SYNC DELTAS**



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

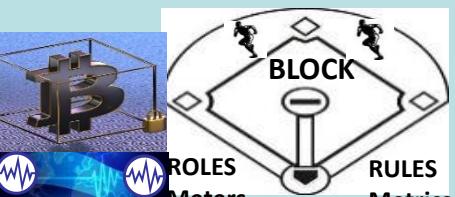
**TOKENS REPRESENT REAL WORLD VALUE URN RESOURCES**

ETHEREUM BASED USES GAS GAUGE MEME INDICATING THRESHOLD MET / NOT MET TO PROCESS



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**  
("ORG\_ID")



ROLES  
Metrics

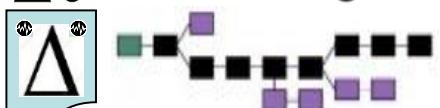
RULES  
Metrics

**ARIN**  
American Registry for Internet Numbers

# HYPER LEDGER OPEN SOURCE BLOCKCHAIN

Core APIs, & SDKs

$\Delta\delta$  Shared Ledger



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

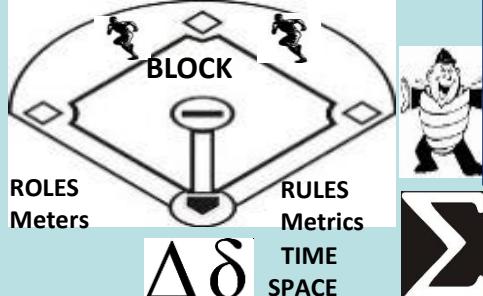
FEDERATION  
**Federation Gateway**

METRICS ("Organization ID")  
METERS

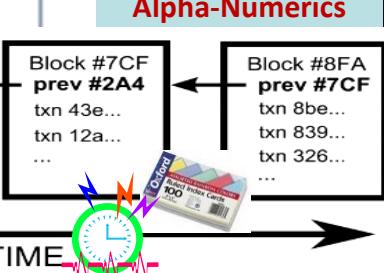
RESTFUL SYNC DELTA  
CHANGE MANAGEMENT  
MICRO-MACRO CYCLE



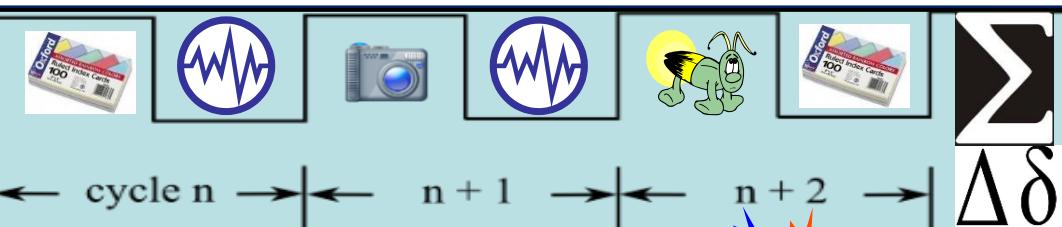
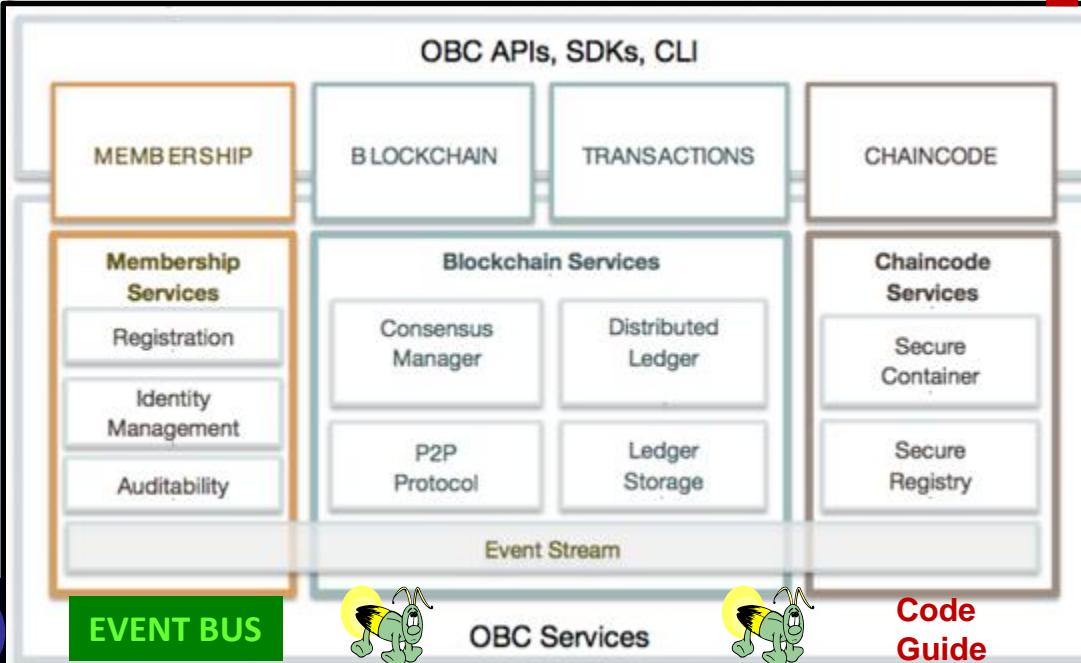
BLOCKTIME ARBITRAGE



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



Alpha-Numerics



MICRO-MACRO CYCLE SCHEDULE

ROSETTA STONE



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

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

FFIRNS  
FFUDNS

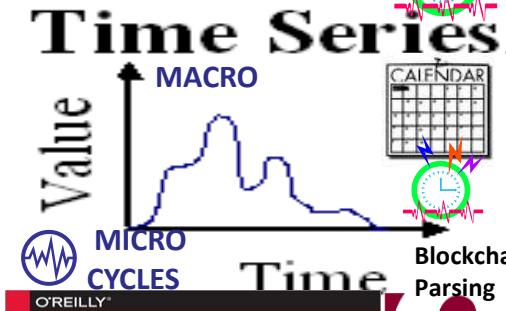
# SAWTOOTH LAKE POETIC CONSENSUS PROOF OF ELAPSED TIME: POET

"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."



"BITCOIN IS A LANGUAGE"

PROOF OF ELAPSED TIME



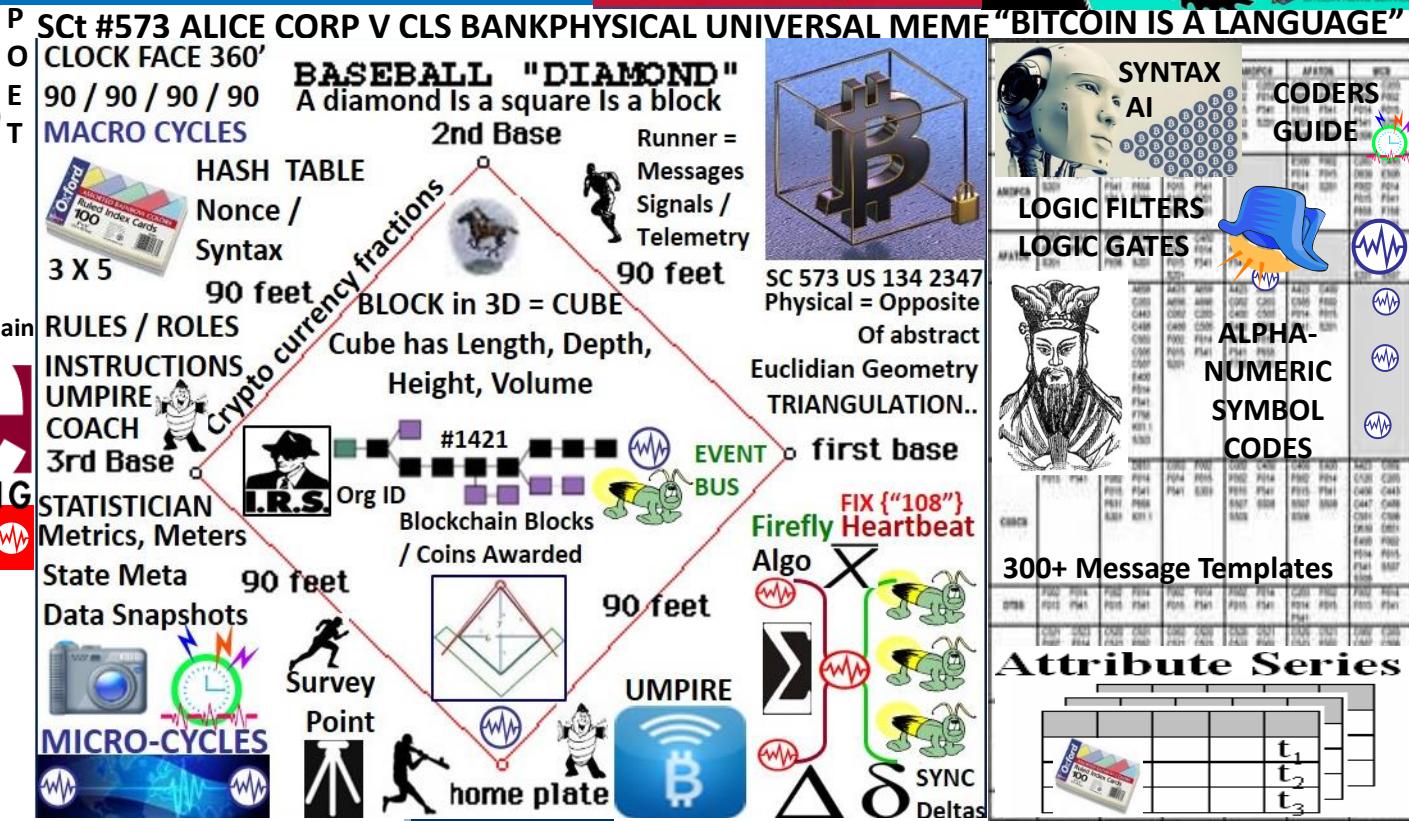
Voting Based Selection: stake size & block generators selected by votes

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



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

TOURNAMENT LEAGUE BOARD



FIREFLY-HEARTBEAT FLASH MESSAGES UNIVERSAL EVENT BUS



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



# 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.

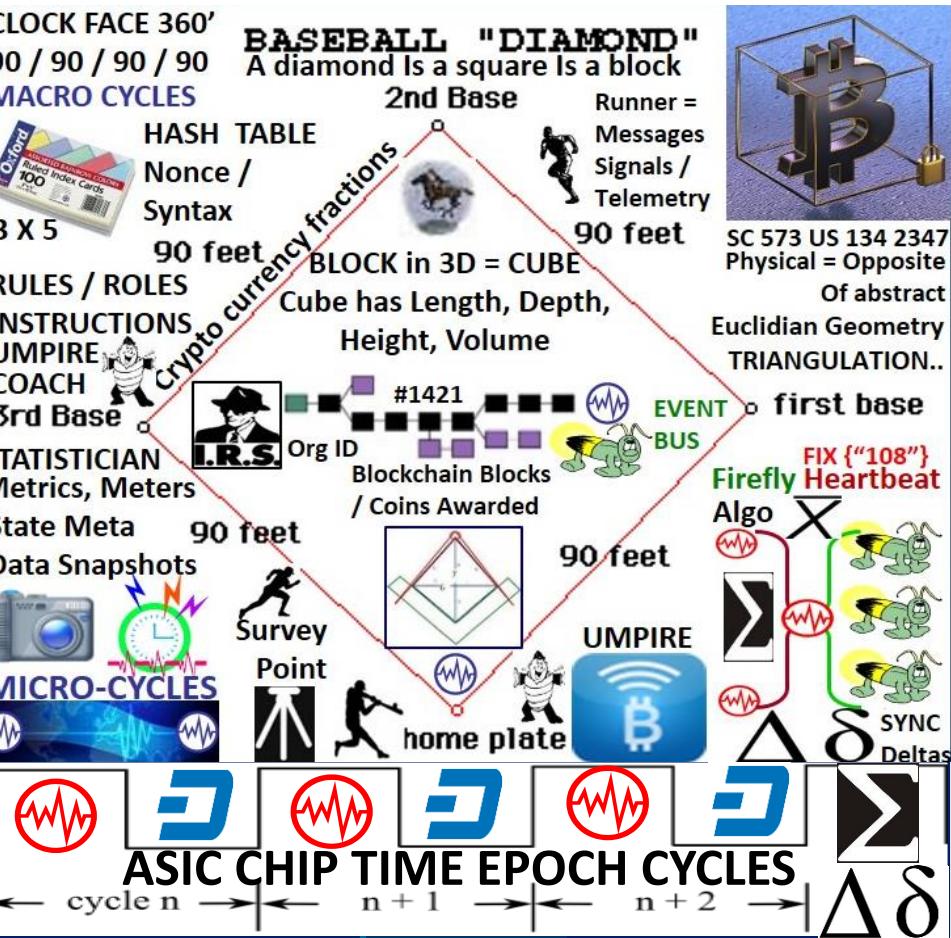
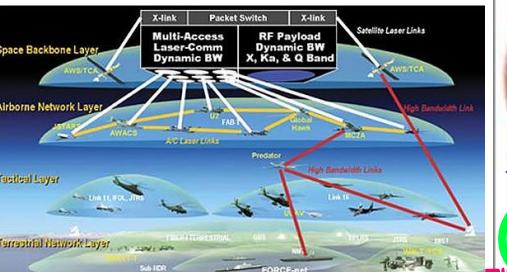
"Its makeup is thus: the block reward is divvied up in three parts. The first 45 percent goes to [Dash's miners](#). Another 45 percent goes to its Masternodes. And 10 percent is set aside to fund whatever other jobs or expenditures the Dash network deems necessary"

**InstantX:** To solve the problem of lag time in transactions, Masternodes are able to instantly lock transactions.

Masternodes receive payments for their service to the network.

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

NETWORK CENTRIC WARFARE  
Developing and Leveraging Information Superiority



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.



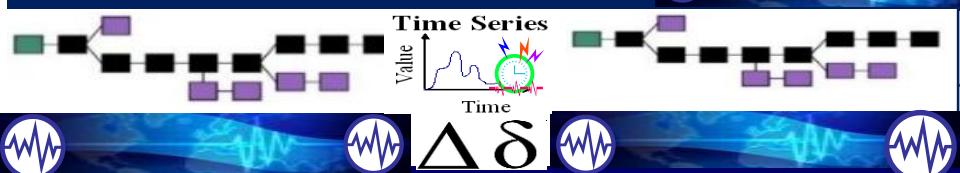
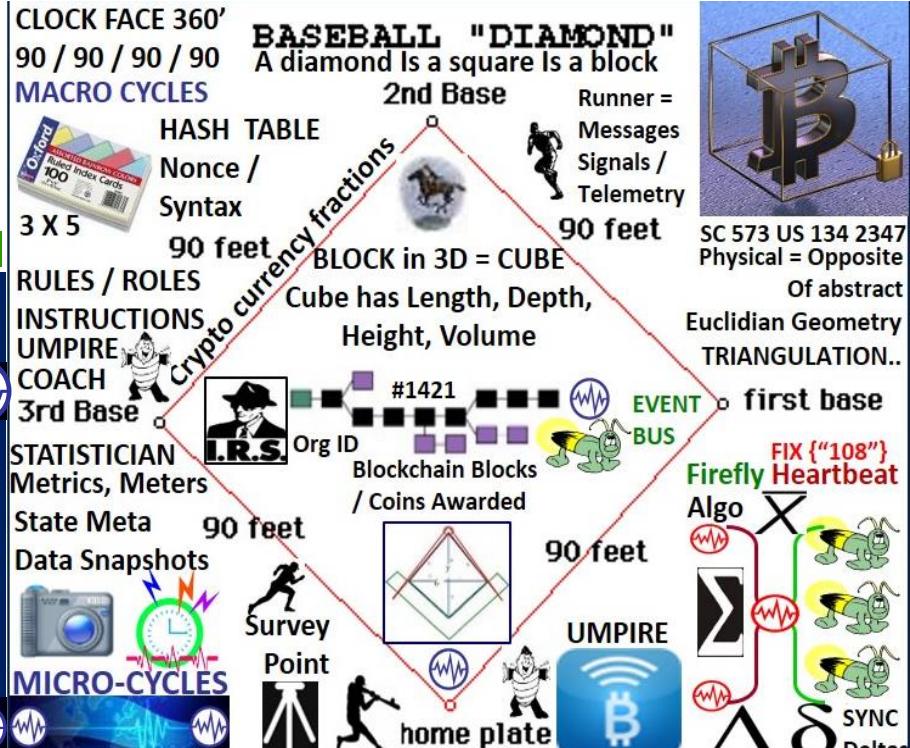
1. Part of the blockchain state is locked via multisignature or some sort of smart contract, so that a specific set of participants must completely agree with each other to update it.



2. Participants update the state amongst themselves by constructing and signing transactions that *could* be submitted to the blockchain, but instead are merely held onto for now. Each new update "trumps" previous updates.

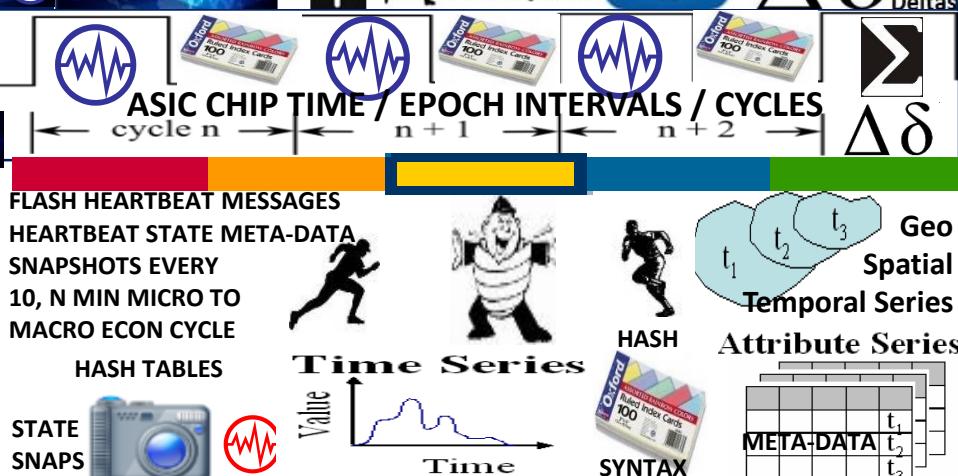


3. Finally, participants submit the state back to the blockchain, which closes the state channel and unlocks the state again (usually in a different configuration than it started with)



**EACH NEW UPDATE TRUMPS 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 transactions didn't happen.

LINK: <http://jeffcoleman.ca/state-channels/>

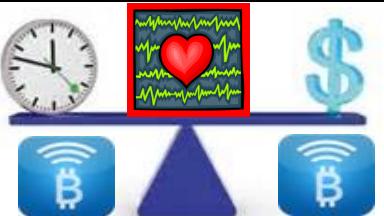


Firefly - Heartbeat synchronization: nodes in a distributed system generate periodic, local "heartbeat" events approximately at the same time with a goal of all nodes starting / ending cycles at the same time eventually = HB CYCLE

# TWAP Algorithm Manages Bitcoin Price Volatility Algorithm



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



FIREFLY HEARTBEAT ALGO  
STAT MEAN VALUE INDEX

**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**



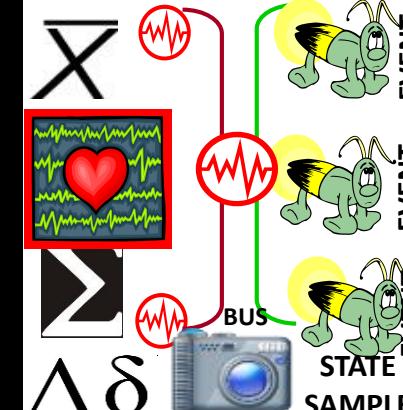
The algorithm trades over a desired time, either 1, 6, 12 or 24 hours and will give you a TWAP over that time period. For example, set the TWAP algorithm to sell 12 bitcoins over 12 hours, the algorithm will sell throughout the period, aiming to get a 12-hour TWAP



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



STATE META  
DATA SNAPSHOTS



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.

**BRAVE NEW COIN.**  
Digital Currency Insights

“Blocks are a measure of time”: The Bitcoin Blockchain ‘B-WAP’



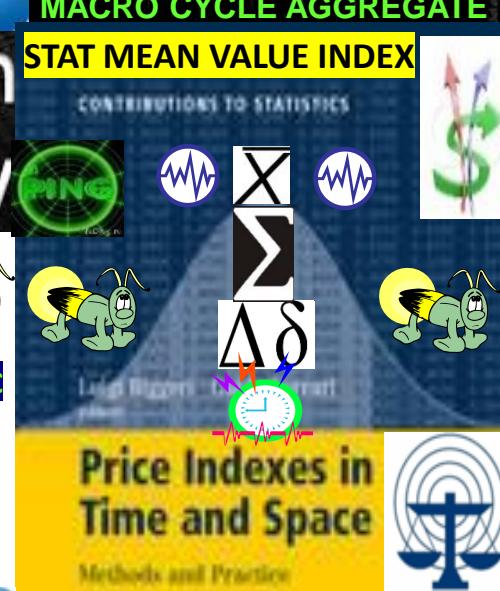


# OpenBazaar open source decentralized peer to peer network online commerce —using Bitcoin —no fees and no restrictions

- 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



SchellingPoint

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"  
Commodity / Currency Index



**Free and open markets:**

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

## •VALUES:



HASH Values  
Nonce Values

SCT Alice V Cls Bank

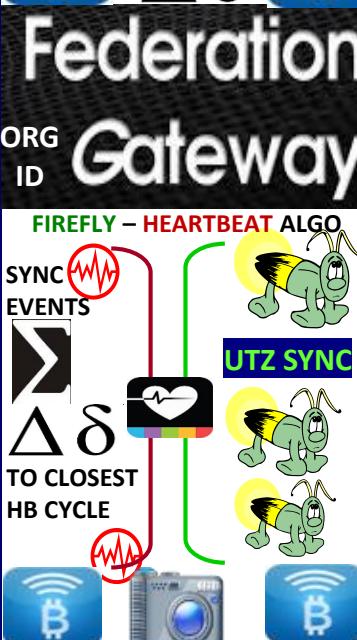


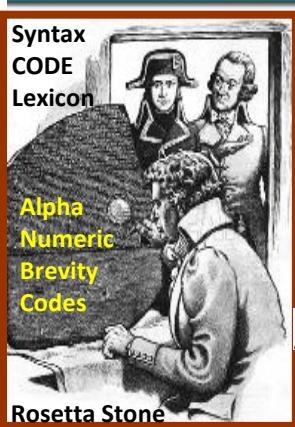
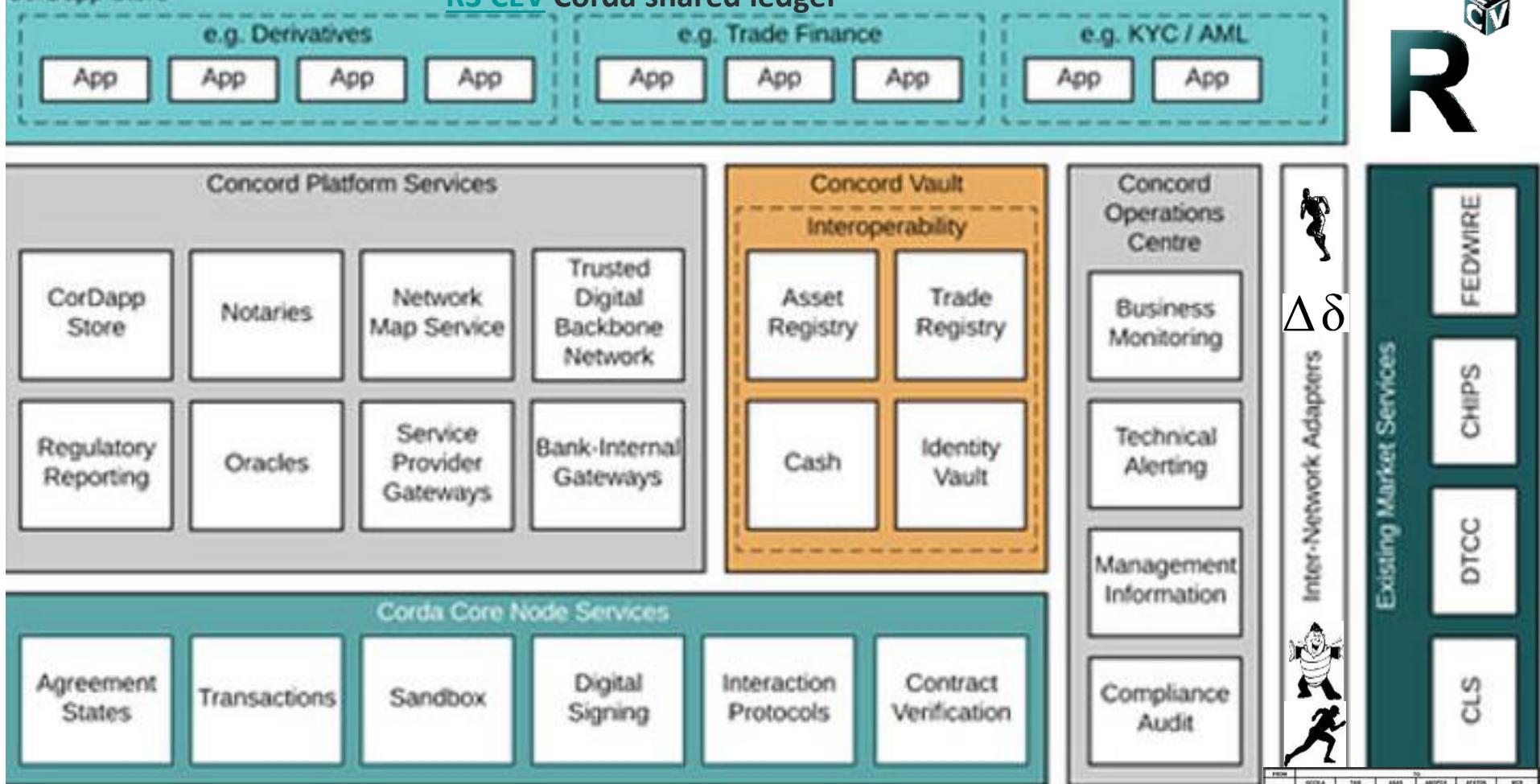
**Bitcoin: OpenBazaar transactional currency**



## Cryptographic Security

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





### UNIVERSAL EVENT BUS



- Choreographing workflow between firms without a central controller
- Supports inclusion of regulatory & supervisory observer nodes
- Validating transactions solely between parties to the transaction
- Supporting a variety of consensus mechanisms
- Recording explicit links between human-language legal prose documents and smart contract code



### STRUCTURED MILITARY MESSAGE TEMPLATE FORMS

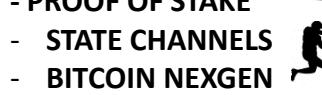
XBRL / CDE / DAML STOCK MIC CODES



LOGIC / FILTERS



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



300+ Use Case Templates

### Federation Gateway

NAME	QCC0A	TAB1	ASAB	AMPCB	AFATB	WCB
ABAB	F002	F003	F004	F005	F006	F007
AMPCB	F008	F009	F010	F011	F012	F013
AFATB	F014	F015	F016	F017	F018	F019
WCB	F020	F021	F022	F023	F024	F025



NAME	QCC0A	TAB1	ASAB	AMPCB	AFATB	WCB
ABAB	F002	F003	F004	F005	F006	F007
AMPCB	F008	F009	F010	F011	F012	F013
AFATB	F014	F015	F016	F017	F018	F019
WCB	F020	F021	F022	F023	F024	F025

300+ Use Case Templates

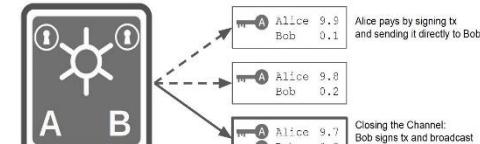
# PROJECT LIGHTING



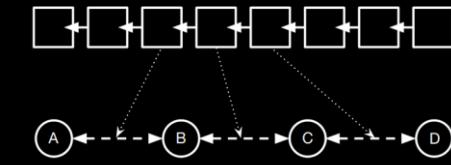
transactions sent over / off chain  
micropayment channels

Micropayment Channels

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



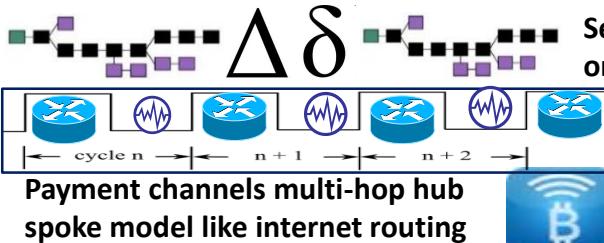
## LIGHTNING



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



EVENT REPORTING ACROSS TIME-SPACE



### MESSAGE EVENT BUS

CLOCK FACE 360'  
90 / 90 / 90 / 90  
MACRO CYCLES



HASH TABLE

Nonce /  
Syntax  
3 X 5

RULES / ROLES

INSTRUCTIONS

UMPIRE

COACH

3rd Base

STATISTICIAN

Metrics, Meters

State Meta

Data Snapshots

MICRO-CYCLES

90 feet

Survey Point

home plate

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

Runner =  
Messages  
Signals /  
Telemetry  
90 feet

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

Org ID  
Blockchain Blocks  
/ Coins Awarded

EVENT BUS

90 feet

90 feet

UMPIRE

home plate



SC 573 US 134 2347  
Physical = Opposite  
Of abstract  
Euclidian Geometry  
TRIANGULATION..

first base

FIX {"108"}

Firefly Heartbeat

Algo

X

MESSAGES

SYNTAX /  
SYMBOL TAGS

Digital Signature

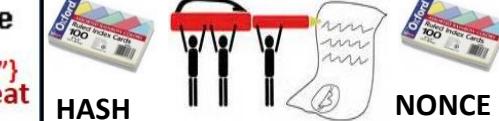
OUT OF BAND / CHANNEL



SEG WIT

SEGREGATED WITNESS

SegWit



HASH TABLES

MESSAGES

NONCE

SYNTAX /  
SYMBOL TAGS

Digital Signature

Segregated witness = Separated signatures

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



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

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

SCt 573 ALICE CORP VS CLS BANK PHYSICAL MEMES

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



TIME / DISTANCE SERVICE LEVEL  
AGREEMENT SLA / O Operations

IEEE 802.15.4 OASIS MQTT

TELEMETRY TRANSPORT

IEEE 802.1AG HOP BY HOP  
DETECTION

IEEE 802.11  
HOP BY HOP CONTROL



Unused Resources / Unmet Needs

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

DISTANCE  
INFO SERVICE

Time Series

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



vector

602

+3

+2

+1

Null

0

+1

+2

+3

UNUSED RESOURCES  
UNMET NEEDS

Spatial  
Econometrics

Spaceship  
Earth  
Signals &  
Telemetry  
Annex

TIME-SPACE BEACON

INFOCON

METRICS / METERS  
TRADE WITH EARTH

INFORMATION  
CONDITION

???



SIRIUS DISCLOSURE

MOON =  
HELIUM 3  
"Numbers are the  
Universal Language  
offered by deity to humans as  
confirmation of the truth"

ASTEROID BELTS =  
RARE MINERALS

MAIN  
ASTEROID  
BELT

MARS

MERCURY

VENUS

EARTH

STOCHASTIC  
HARMONIZATION

Farther = More Cost  
➤ Fuel, Resources

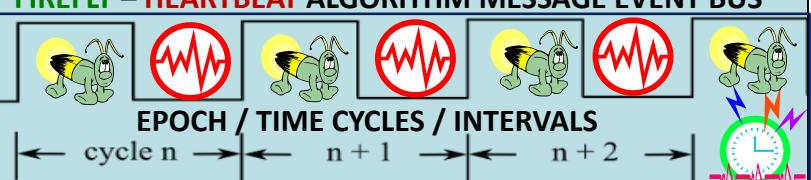
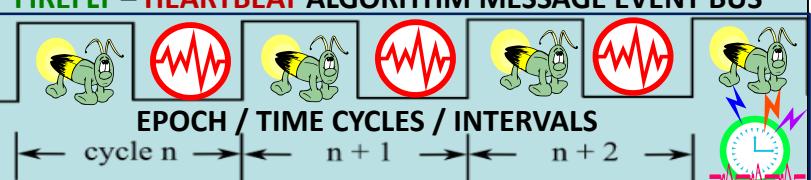
Service Level Agreements

FIREFLY-HEARTBEAT  
ALGORITHM  
UNIVERSAL  
EVENT MESSAGE BUS

ERLANG  
TIME- SPACE METRICS

43 22 13 0 1.5 2.7 5.2  
Light minutes Astronomical units

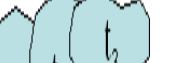
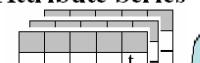
FIREFLY - HEARTBEAT ALGORITHM MESSAGE EVENT BUS



← cycle n → ← n + 1 → ← n + 2 →

RADIUS  
WATER DROP IN POND MEME

Attribute Series



INTEREST  
DISTANCE



Geo  
Spatial



Micro Grids Closer - Cheaper



BLOCKCHAIN  
MICROGRIDS



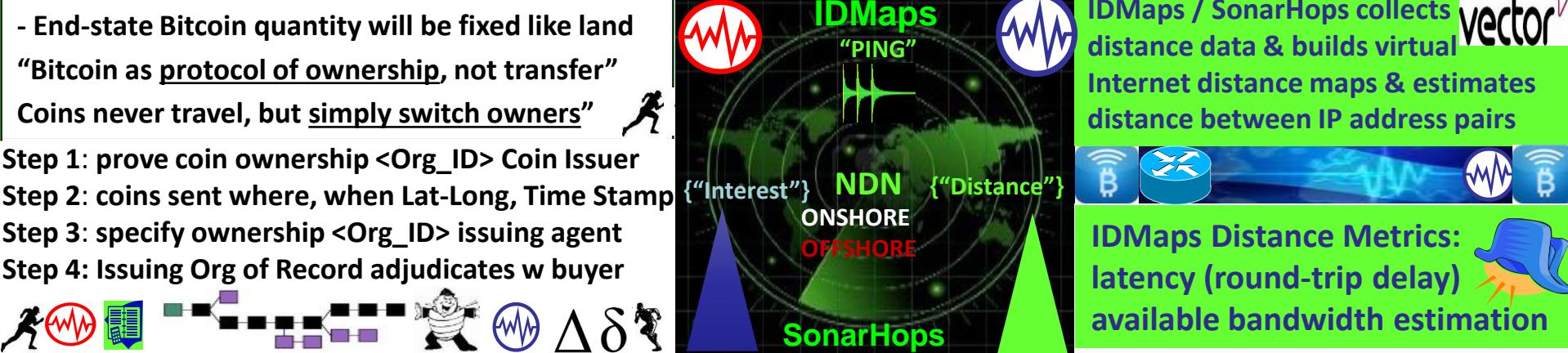
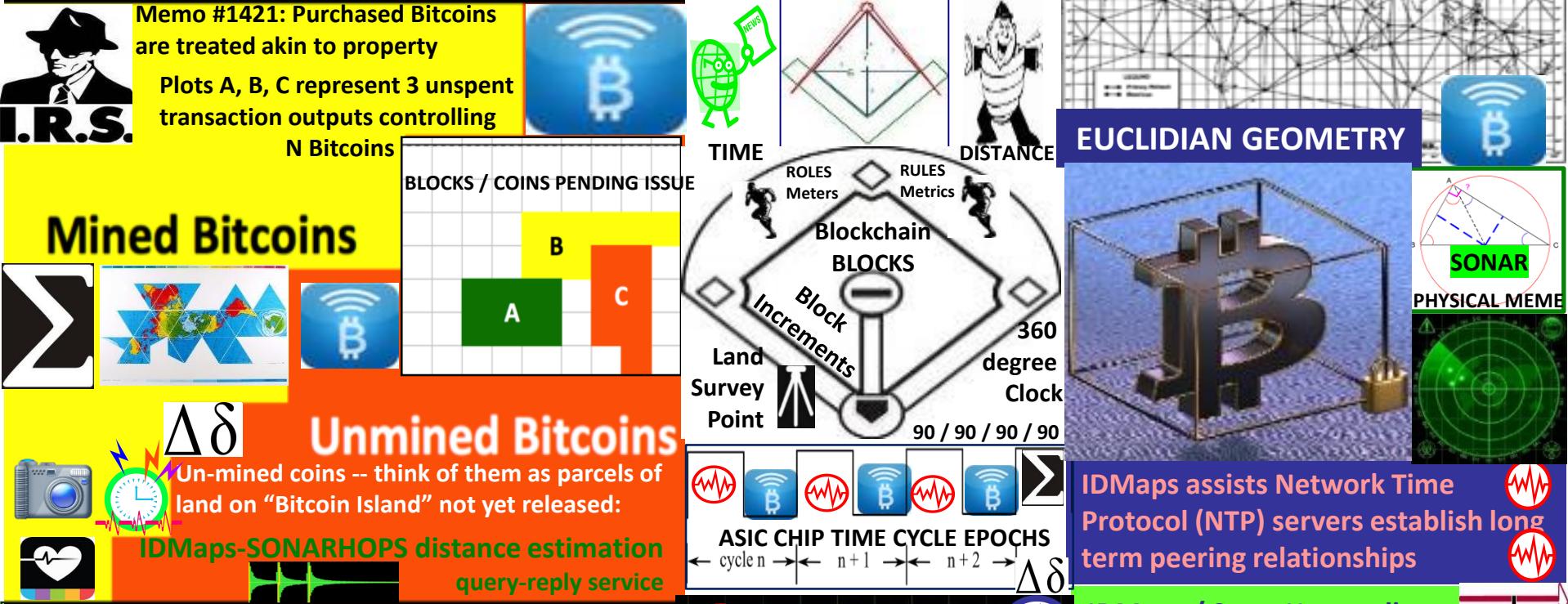


# What happens if we think about Bitcoin through the lens of *land*?

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.





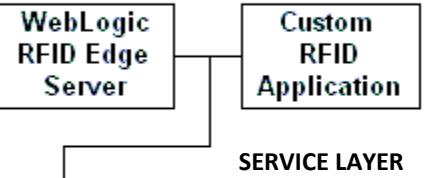
# Electronic Product Code Information Services (EPCIS)

## GS1 Standard for creating, sharing visibility event data



**epcis**

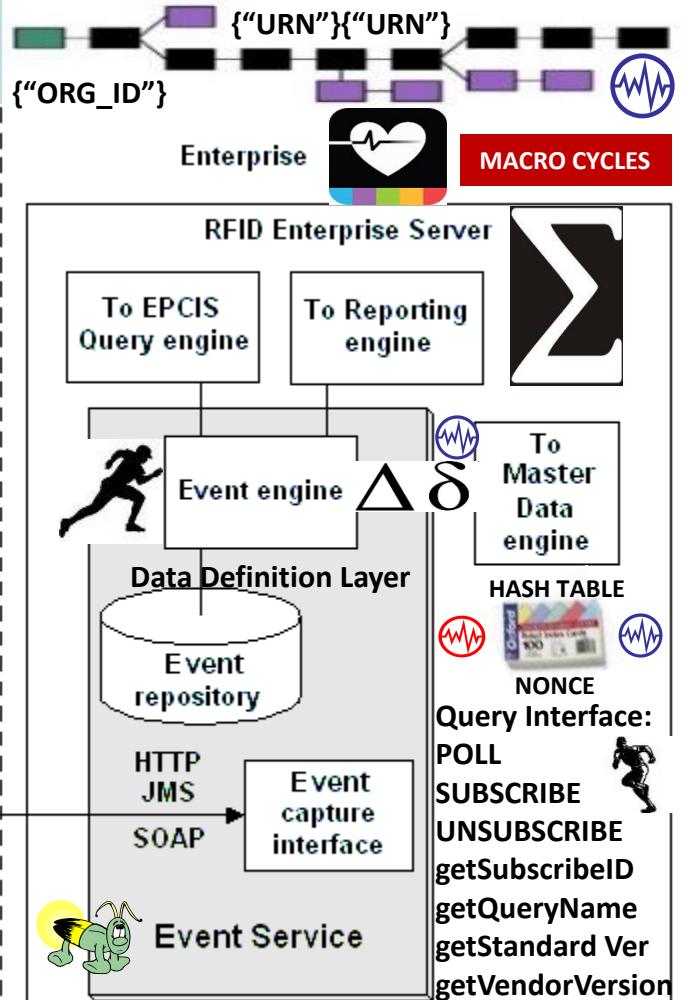
## EPCIS DATA MODEL



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



CLOSER IS CHEAPER  
CLOSER IS FASTER

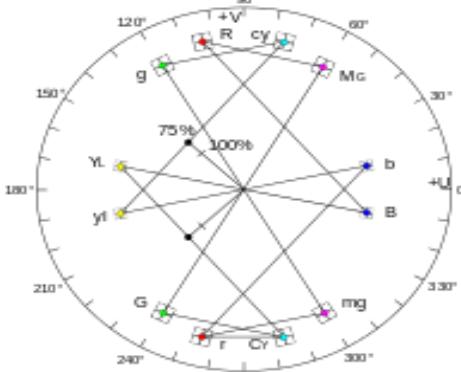
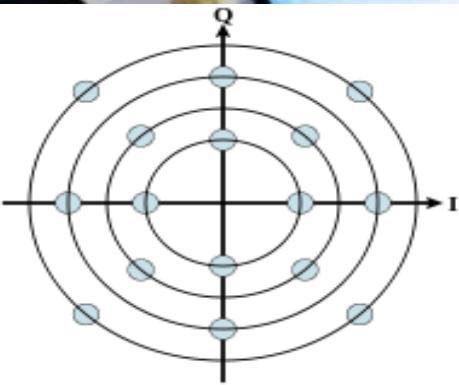


MICRO CYCLES

**Richard Lighthouse** Tonight on LNM Radio  
Time Travel & The Blinking Universe



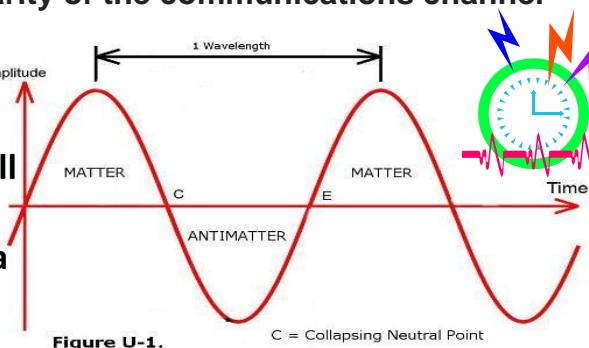
[www.RLighthouse.com](http://www.RLighthouse.com)



### 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”

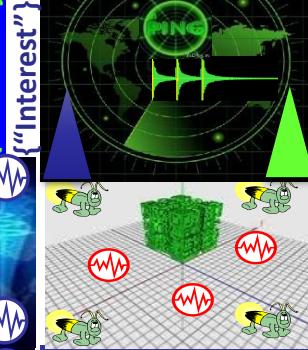


Sine wave of our blinking universe. The 4 fundamental forces will all be found to vary continuously when sampled at 2x the blinking frequency, per Nyquist-Shannon theory

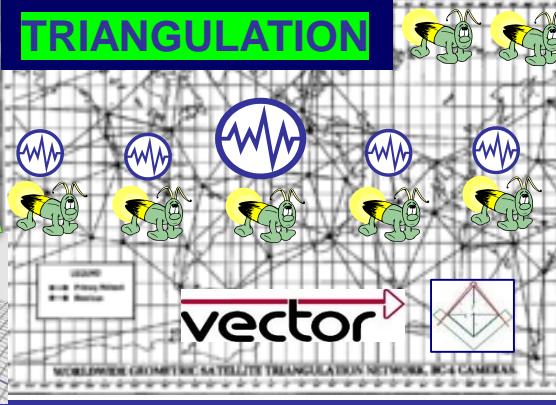


USPTO 13/573,002  
[sawconcepts.com/index](http://sawconcepts.com/index)

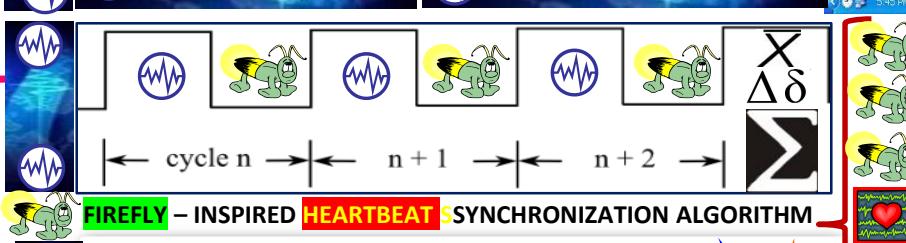
NDN {“Distance”} {“Interest”}  
IDMaps SonarHops



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



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



FIREFLY – INSPIRED HEARTBEAT SYNCHRONIZATION ALGORITHM

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





# SOFTWARE DEFINED NETWORKING

NETOPS

Command Syntax

REST State Transfer

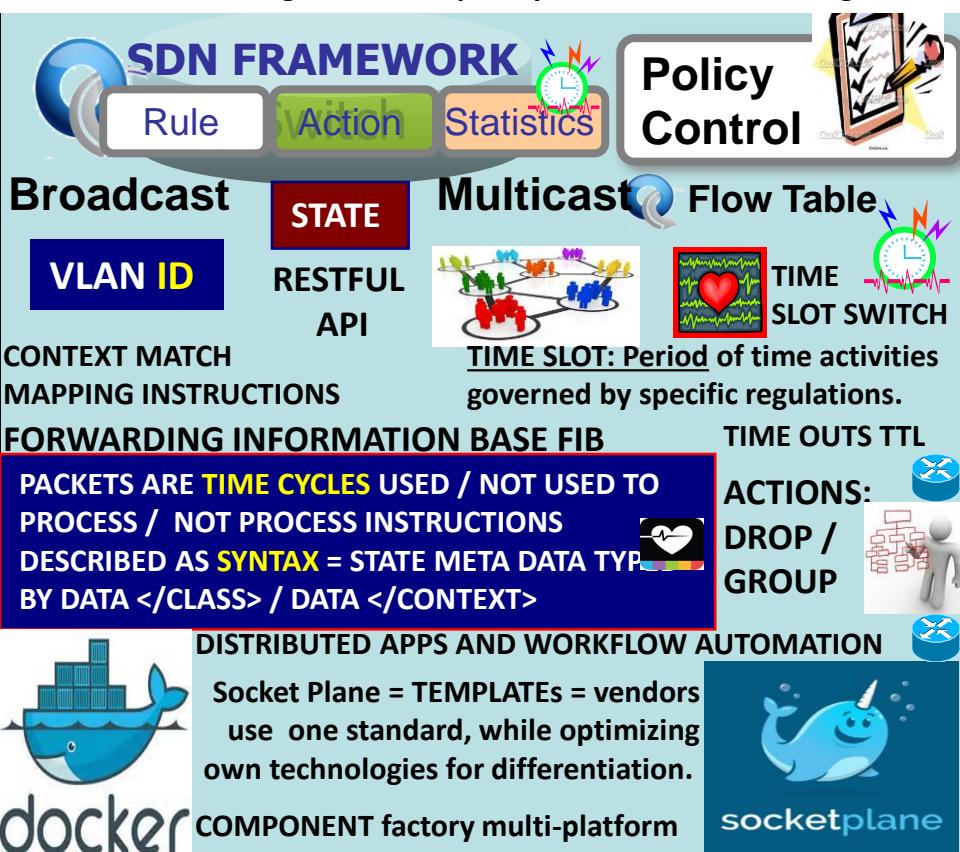
COMMAND SYNTAX  
STATE TRANSFER  
Unicast / Multicast  
Flow Tables / Workflow  
Dynamic Network  
Configuration Management

NET CENTRIC WARFARE  
SYSTEM OF SYSTEMS TELEMETRY

COMMON COMPONENTS, BUILDING BLOCKS USED WITHIN FEDERATION PROMOTING COMMON GOALS, PROCESSES

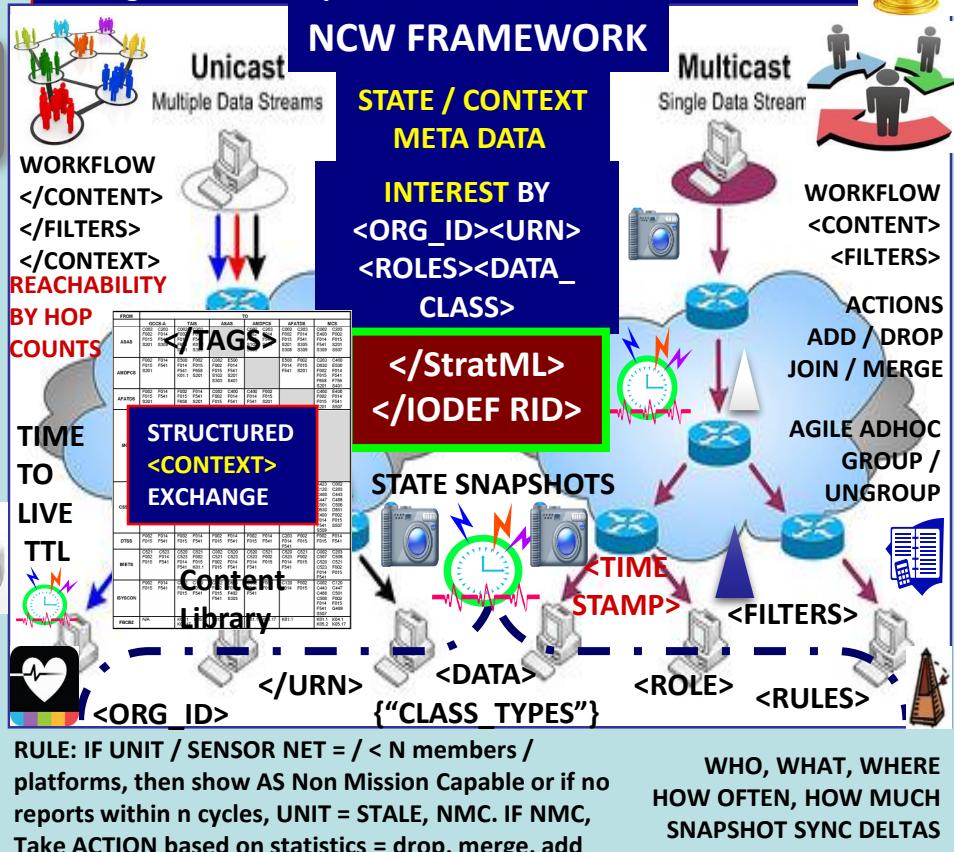
- SDN is a *framework* to allow network administrators to *automatically* and dynamically manage and control a *large number* of network devices, *services*, topology, traffic paths, and packet handling (quality of

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."



WHO, WHAT, WHERE  
HOW OFTEN, HOW MUCH  
SNAPSHOT SYNC DELTAS

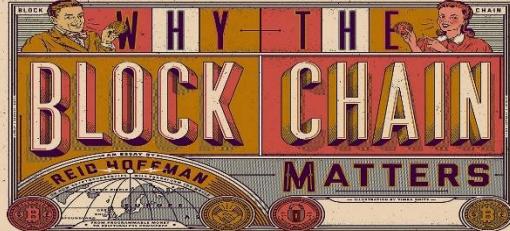
HEART BEACON CYCLE: ALL THINGS INTERNET ARE PROGRAMMED USING TIME CYCLES USED / NOT USED TO PROCESS / NOT PROCESS SYNTAX



# TradeNet



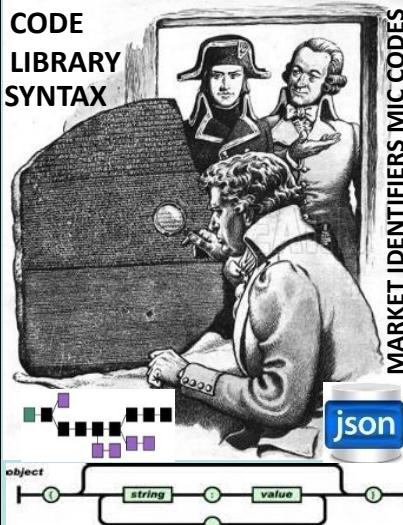
## Programmable Money \$\$\$



RIED HOFFMAN 15 May 2015 [LINK](#)

**"The CODE that secures Bitcoin could also power an alternate Internet** [LINK](#)

CODE  
LIBRARY  
SYNTAX



MARKET IDENTIFIERS MIC CODES

300 + MESSAGE  
TEMPLATES  
SYNTAX LIBRARY  
PROGRAMMING  
**STRUCTURED <CONTENT>  
EXCHANGE**

BREVITY CODES  
MARKET ID CODES  
USE CASE TEMPLATES  
SIGNALLING, TELEMETRY



## Programmable Money \$\$\$

Bitcoin and the blockchain function as a medium of exchange, a store of value, a unit of account. Bitcoin adds digital, cryptographic, distributed server functions to currencies. Because it functions simultaneously as a currency, an asset and a platform, Bitcoin is better described as a global cryptoCAP (currency, asset, platform) -- a synergistic form of "cryptocapital" to unleash the full economic power of the networked age. **Bitcoin makes money PROGRAMMABLE. MONEY IS SIMPLY DATA** - a simple way to measure and keep track of exchanges in value wealth accumulation. Bitcoin aggregates data in a distributed global ledger accessible to anyone, and software. First open platform for financial services. Color coins represent stocks, bonds, currencies, properties as E-assets.

WIRE

[http://en.wikipedia.org/wiki/Organizational\\_unit\\_\(computing\)](http://en.wikipedia.org/wiki/Organizational_unit_(computing))  
In computing, an organizational unit (OU) is a way of classifying directories objects, or names in a DIGITAL CERTIFICATE HIERARCHY

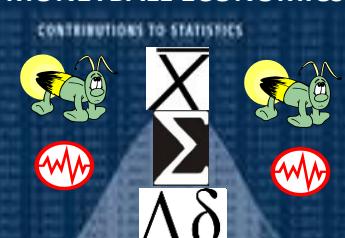


NATO



OTAN

MONEYBALL ECONOMICS



Price Indexes in Time and Space  
Methods and Practice

SLA  
SLA-O



STATE  
META DATA



GEOLOC  
LAT / LONG

STATE  
META DATA

SNAPSHOTS

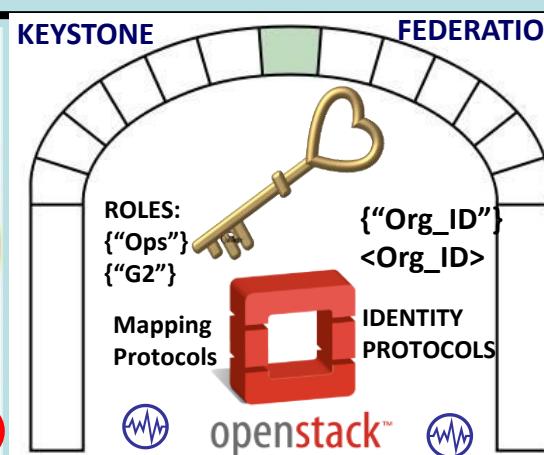
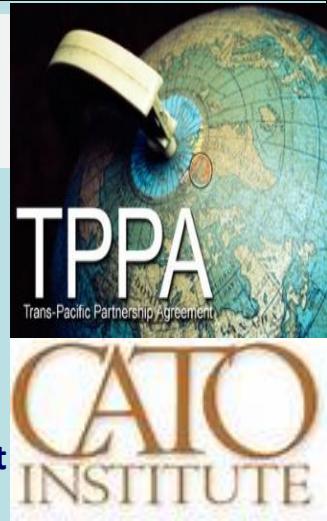
GEOLOC  
LAT / LONG

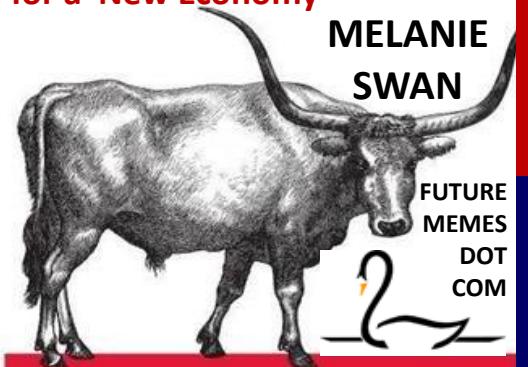
STATE<br



## Trans-Pacific Partnership is great for elites. Is it good for anyone else? by [Timothy B. Lee](#) on April 17, 2015

How the TPP empowers elites. The nature of trade agreements has shifted. They're no longer just about removing barriers to trade. They've become a mechanism for setting global economic rules more generally. This system for setting global rules has some serious defects. We expect the laws that govern our economic lives will be made in a transparent, representative, and accountable fashion. The TPP negotiation process is none of these — it's secretive, it's dominated by powerful insiders, and it provides little opportunity for public input. Attributed to CATO Institute





# 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.



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



- Registration
- Authentication
- Proximity based rules
- Consensus based rules
- Contracts
- Checklists

FEDERATION AGREEMENTS

PROCEDURAL TEMPLATE

## FEDERATION

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

## LDAP DIRECTORY

Physical proximity

Social proximity

Temporal proximity

Agreements

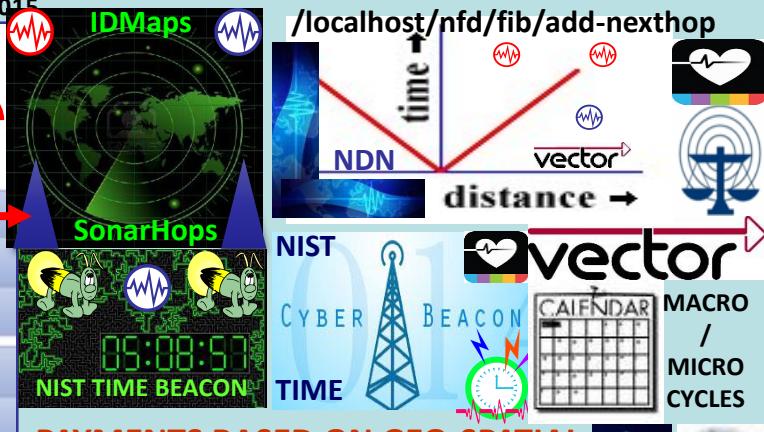
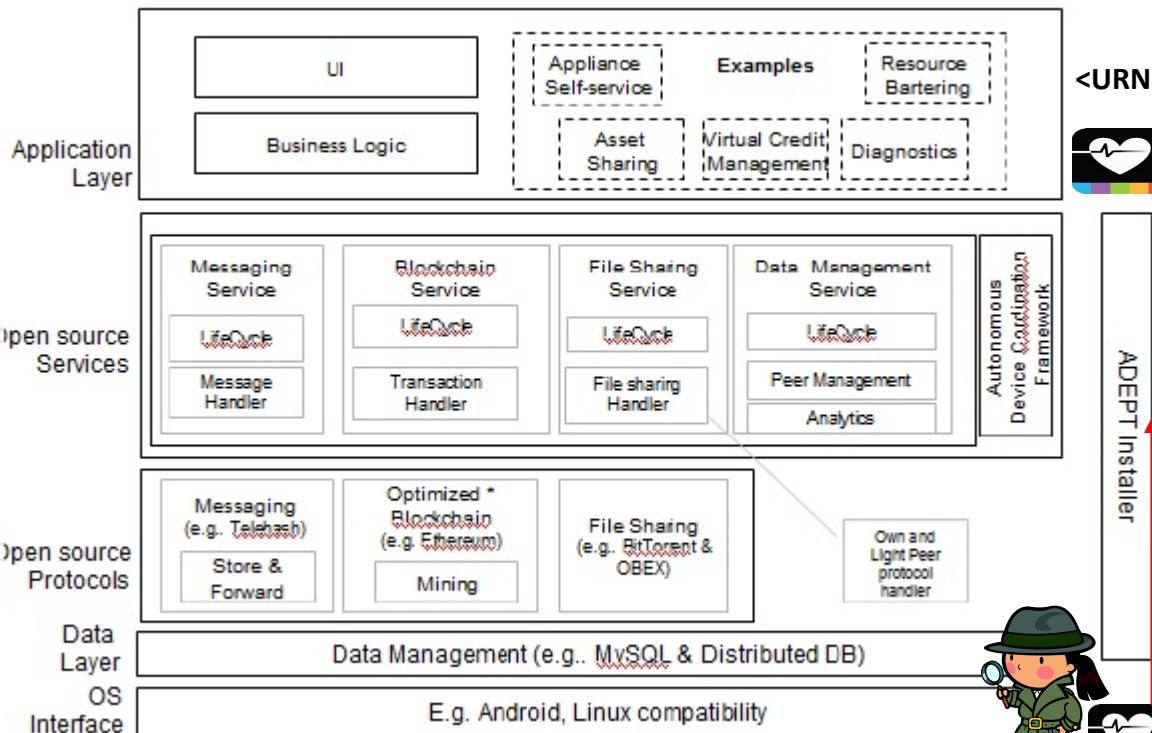
Payments

Barter

FEDERATION AGREEMENTS

PROCEDURAL TEMPLATE

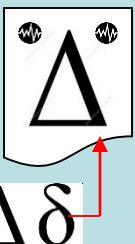
## ADEPT Standard Peer Architecture – Logical View



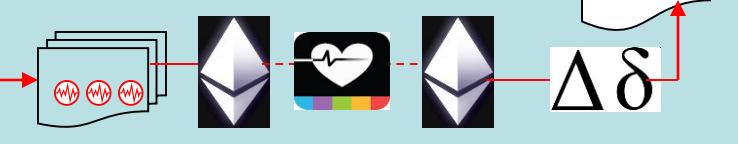
PAYMENTS BASED ON GEO-SPATIAL TEMPORAL METRICS / METERS  
**<URN>** DESCRIBES COMMODITIES ETC BY UNIFORM RESOURCE NAME BY **</INTEREST>**



ASSET SHARING WITHIN FEDERATION

BUSINESS LOGIC = WORKFLOW **<XML\_Wf>**

FILE SHARING = CYCLIC SYNC DELTA LEDGER / DOCUMENT REFRESH



OPEN SOURCE = HBC = PROTOCOL AGNOSTIC

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

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

**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

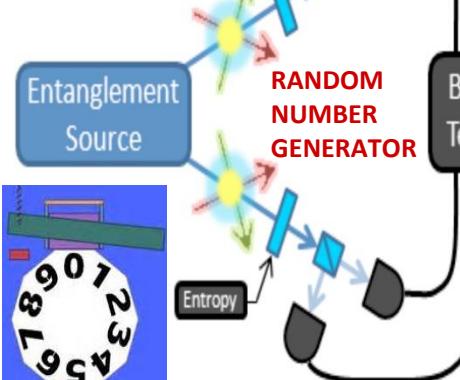
SECURE AUTHENTICATION

SECURE MULTI

PARTY /

AUTHENTICATION

Entropy



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

Metrics and Time - Space Meter uses PHYSICAL Memes / Metaphors

**NAMED DATA NETWORKING**



NDN  
</Interest>  
</Distance>

SURVEY METHODS + TRIANGULATION  
Euclidian Geometry  
Geodesic System Routing Info Base RIB

Time / Distance Metrics



PROXIMITY

OFFSHORE BEACONS ONSHORE

ACCOUNT BELONGS TO </Org\_ID>

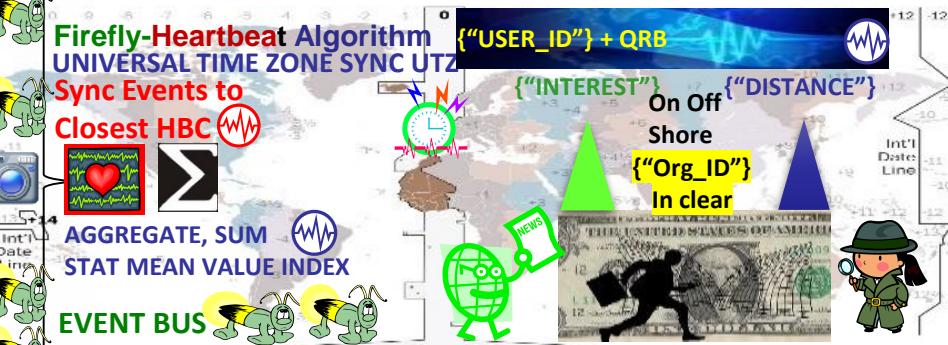
RESOURCE TYPE: <URN><URN><URN>

DEVICE / SENSORS <UUID><UUID>

Higher-level services collect distance data to build virtual distance map State Snap Shots

NDN  
</interest></distance>

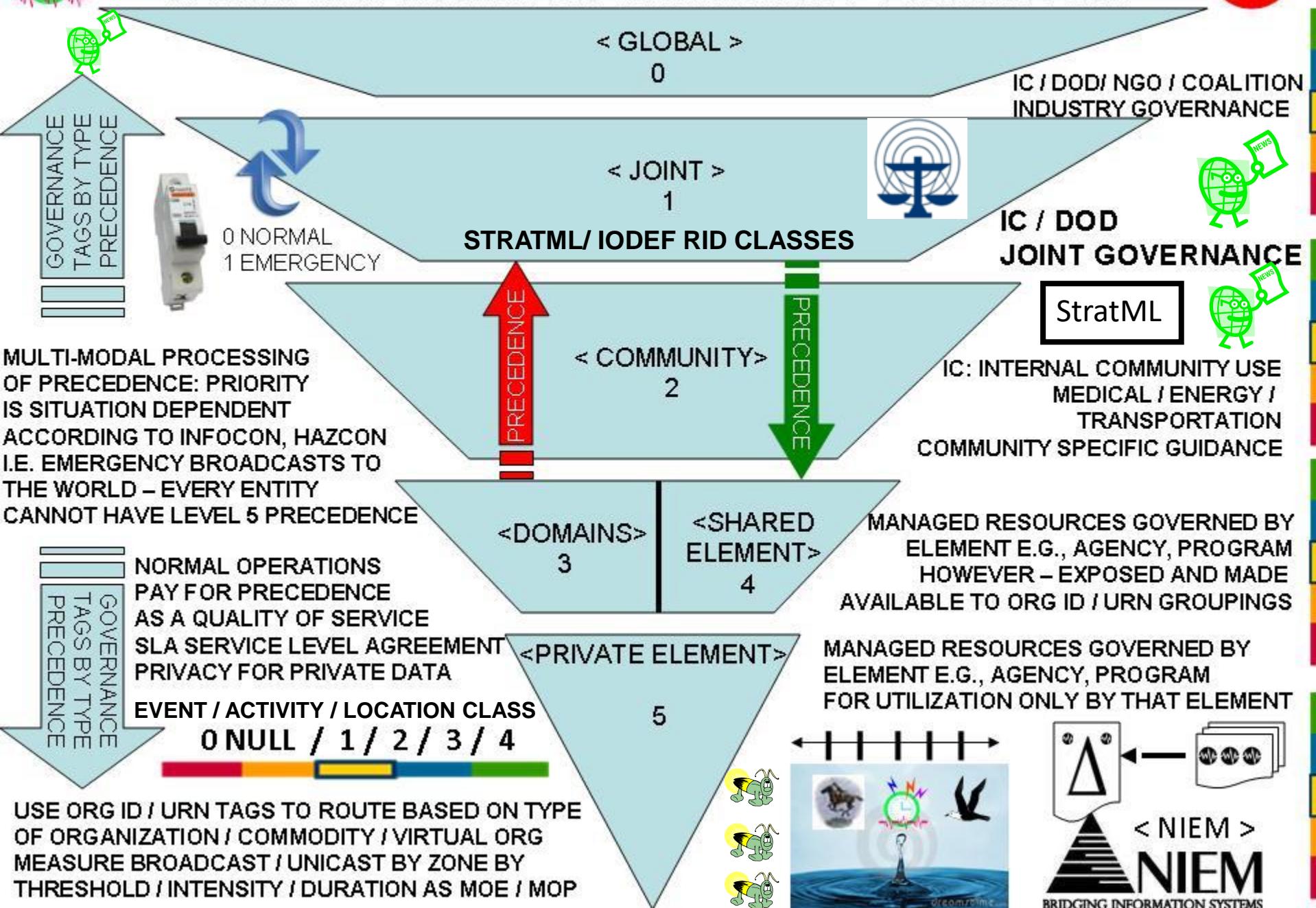
The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind Coordinated Universal Time (UTC). However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen hours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



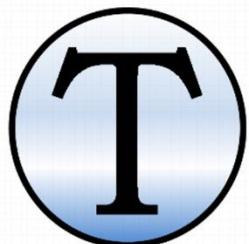
The proposed Universal Timezone System would do away with all these different time zones.



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







## 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. Consensus on known facts.	Outcomes of <i>future</i> events. <i>Future</i> consensus on <i>knowable</i> facts.

Finance Thing	Interpretation	EVENT DERIVATIVE 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)...

## 3. A software protocol

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



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.

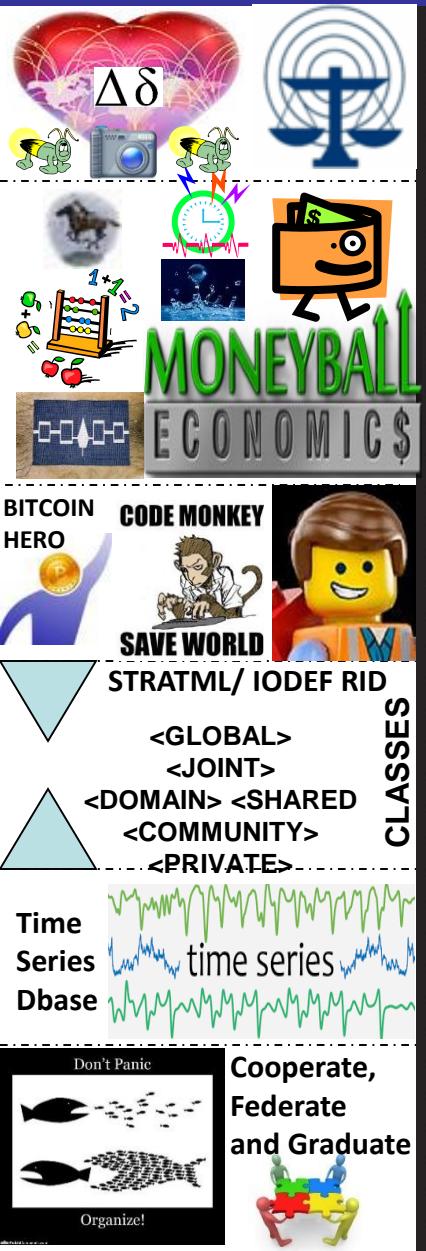
# How 'Bitbanks' Could Solve Bitcoin's Volatility Problem

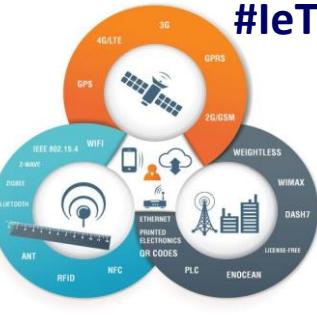
$$MV=PQ \text{ Money} \times \text{Velocity} = \text{Price} \times \text{Quantity}$$

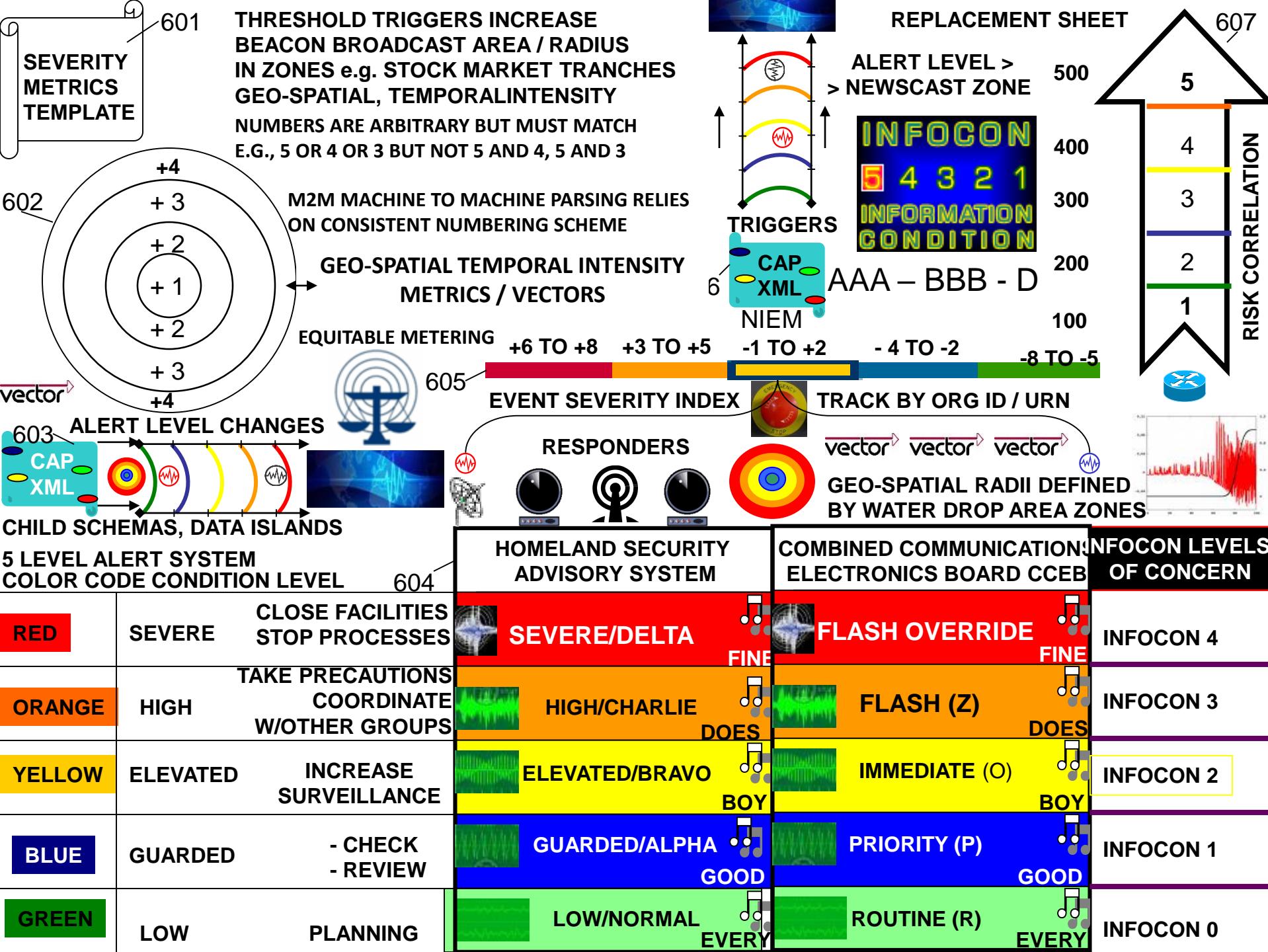
The most important equation in monetary economics, the equation of exchange:  $MV=PQ$ . The quantity of money (M) times the rate spent (V for velocity) equals the price of everything bought (P) times the amount bought (Q for quantity). In Bitcoin, M Money is on a predetermined path, converging to 21m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



Interface Name	<b>HEARTBEAT Administration Interface [SCOP]</b>					
Documentation URL	<a href="http://scop.sourceforge.net/">http://scop.sourceforge.net/</a> <a href="http://linuxvirtualserver.org/software/index.html">http://linuxvirtualserver.org/software/index.html</a>					
<b>API Information</b>  	<b>Functionality Areas</b>  	<b>Cloud Interface Management</b> , configuration, start, stop cloud services, edit configuration (heartbeat messages)				
	<b>API Operation Count</b>	 				
	<b>Web service access type</b>	<b>Web application, front end to [network, device, system] heartbeat]</b>				
	<b>LANGUAGE / PLATFORM BINDINGS</b>	<b>PHP</b>	  			
<b>Interface Characteristics</b>	SCOP is a web application, PHP based, that is a front-end to heartbeat, IP Virtual Server ipvs and Idirectord [check interval e.g., every 5 seconds] software. With SCOP you can start/stop services, view/ edit configuration files e.g., heartbeat message state management snapshots, make backups, take a server online/offline, add/ remove virtual/real servers, etc.					
	<p>The external environment could update <u>resources</u> at random... One solution is a <b>heartbeat</b>: defining a default lease duration and delaying updates until the next <b>cycle</b>"</p>					
  						
<b>QubitCoin Interval: Every 30 Seconds</b>						



# 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:



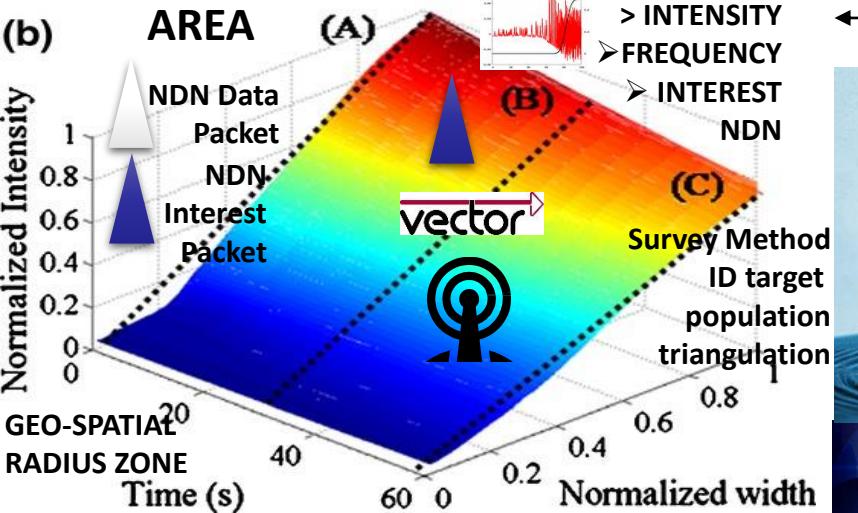
Paul Revere = linear, sequential



TCP/IP hop by hop counts, by hop controls



Water Drop = AREA / INTENSITY Cyclic Frequency



# NAMED DATA NETWORKING

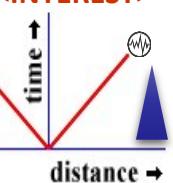
</IoT>  
MQTT



NIST TIME BEACON

05:08:50

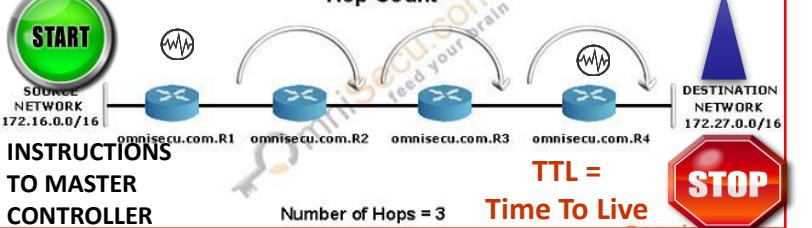
<INTEREST>



ARRESTED-D

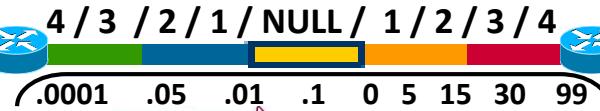
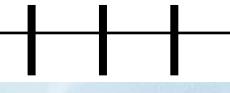
IEEE 802.15.4  
OASIS MQTT

TELEMETRY TRANSPORT



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

IDMAPS  
SONARHOPS  
INTERNET  
TRIANGULATION



vector WirelessHART

time synchronized,  
self-organizing,  
mesh Net

ALERT LEVEL >  
> NEWSCAST ZONE

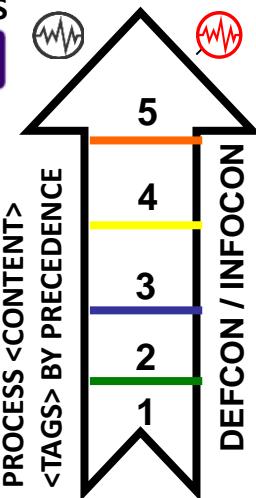


SINE-WAVE

TRIGGERS  
CAP XML

NDN

<INTEREST> BY  
INTENSITY / FREQUENCY



INFOCON  
MTF  
300 +  
MSG  
INFORMATION CONDITION

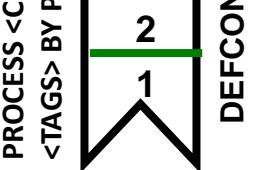


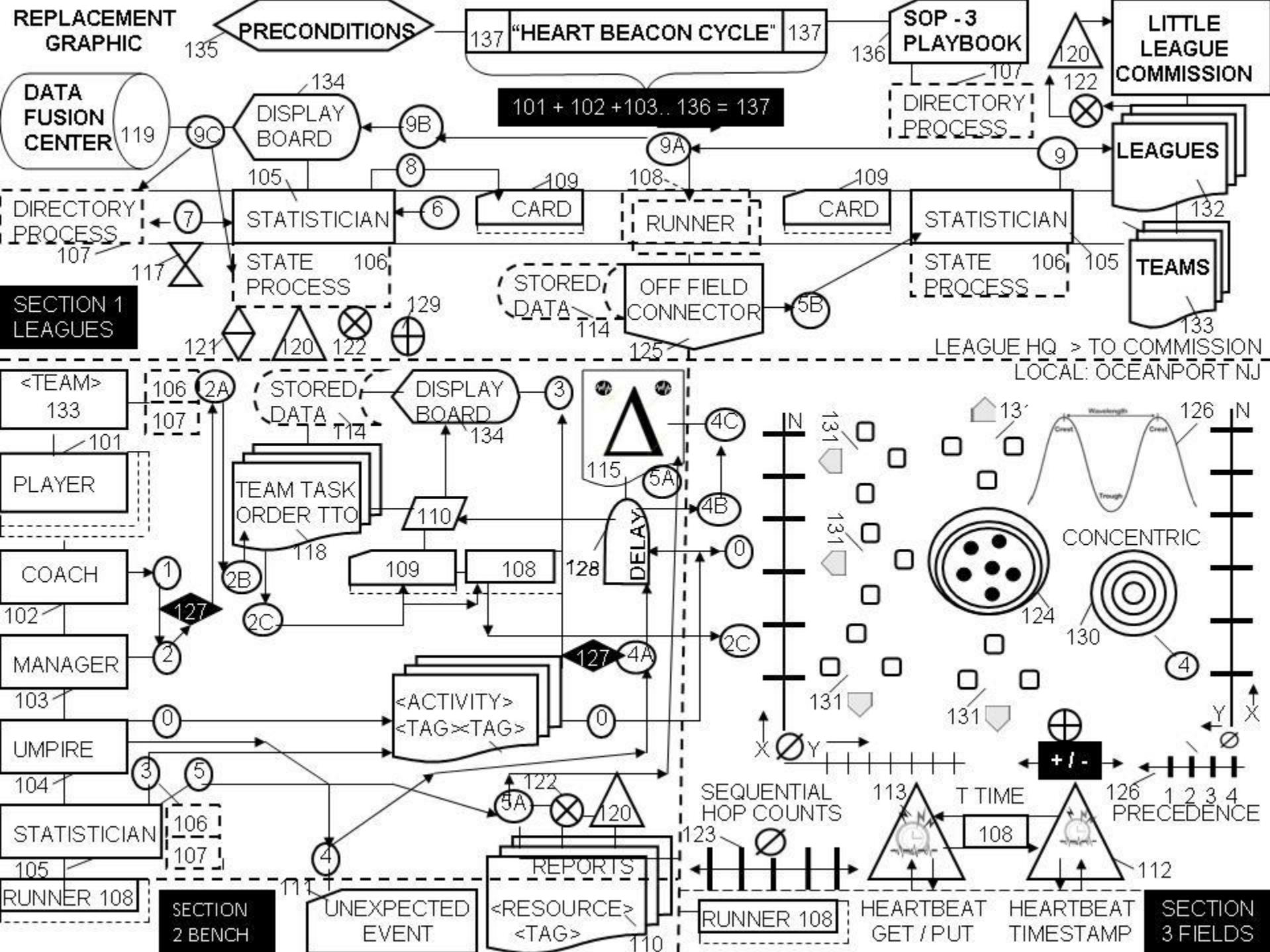
5  
4  
3  
2  
1

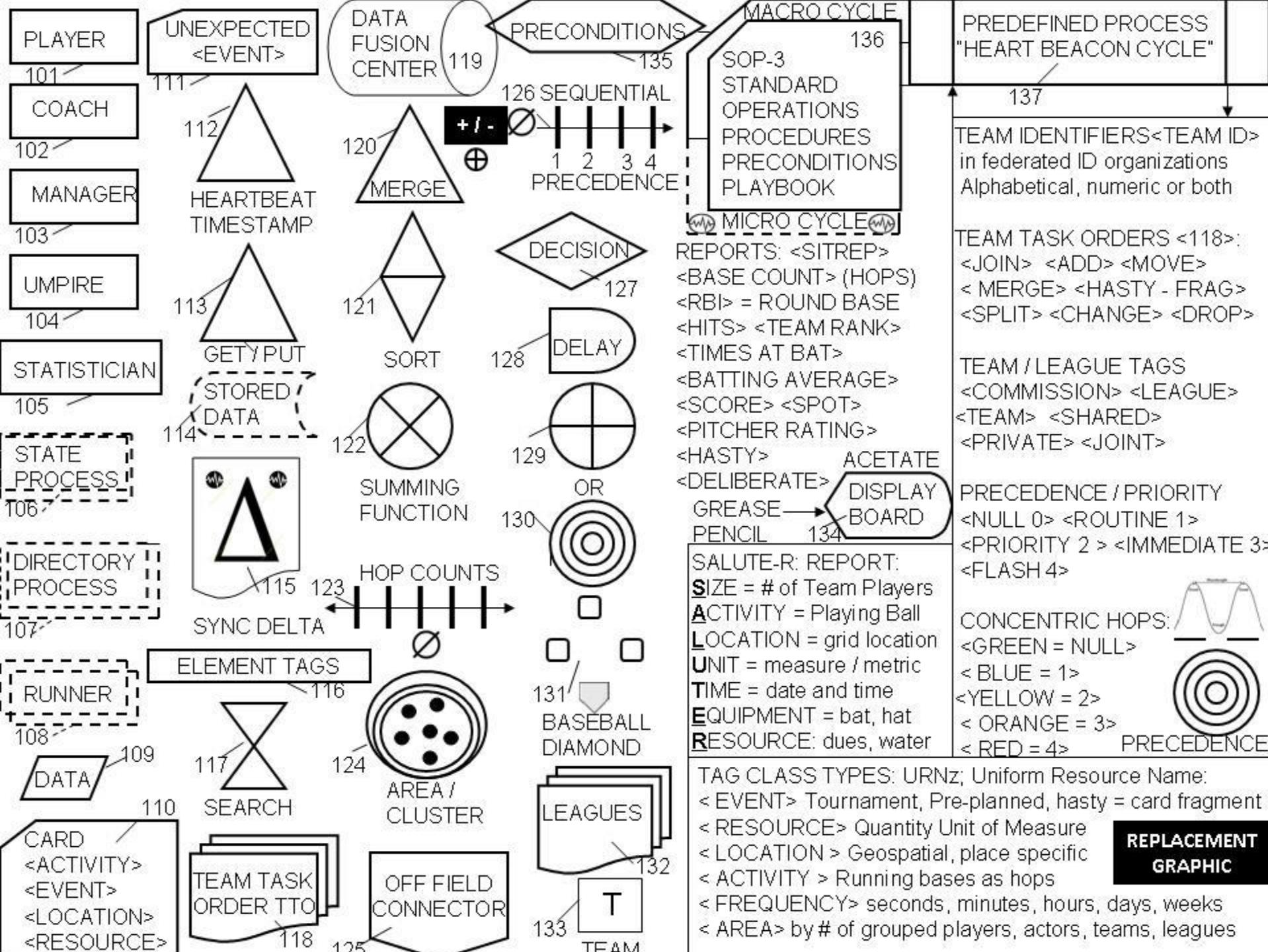
IEEE 802.15.4  
OASIS MQTT

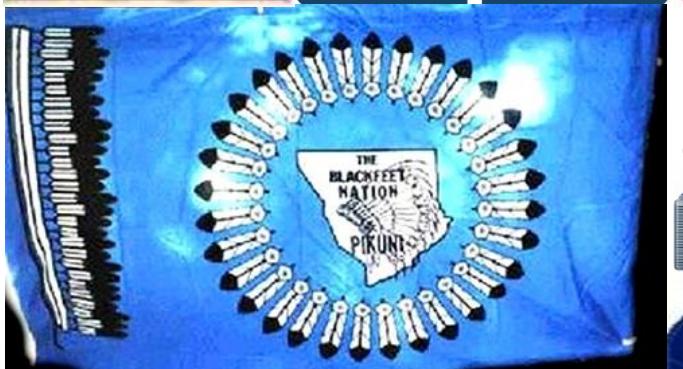
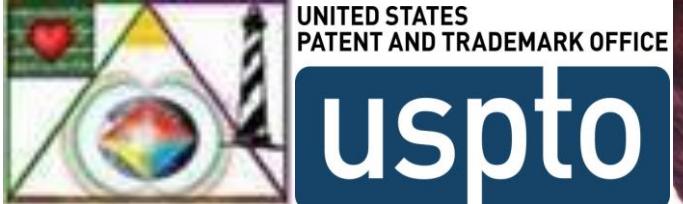
TELEMETRY TRANSPORT

DEFCON / INFOCON

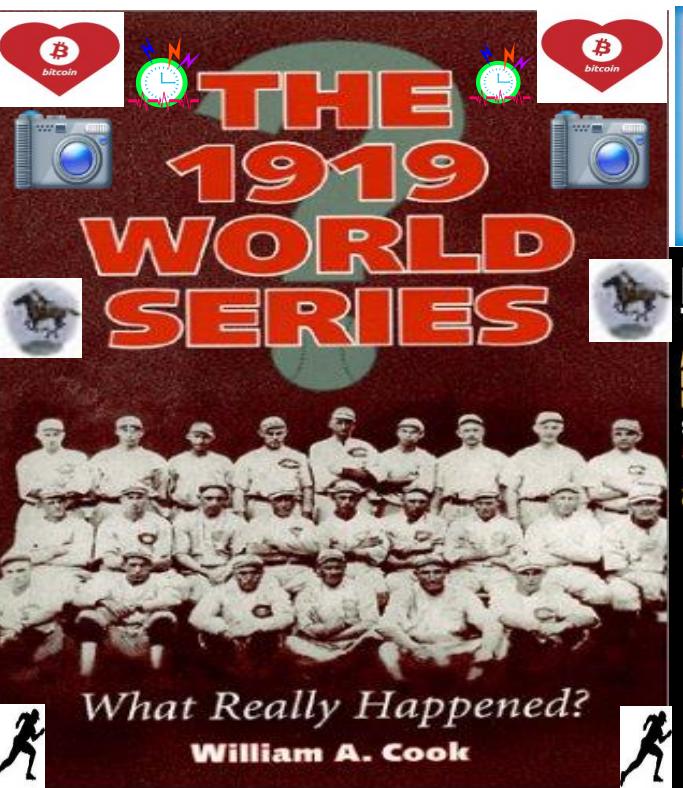








SAW Concepts LLC Owner's Father is from Blackfoot First Nation Native American Indian



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

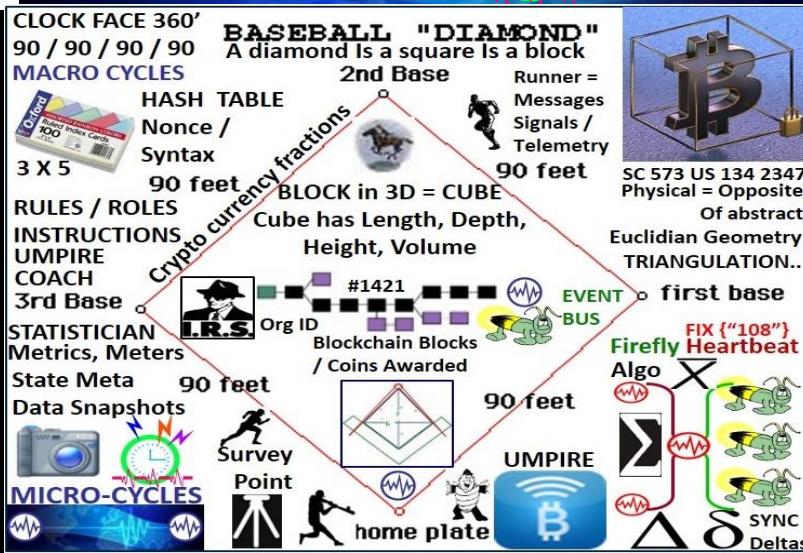


13/573,002



## USPTO SCREEN CAPTURES SUSPENDED PAIR RULES

- Moved Examination outside PAIR
- No need for forms, fees, amendments
- No Time Stamps = Temporal Ambiguity
- Screen captures before / after filing







Telemetry  
ANNEX

the world famous  
inventor of the  
geodesic dome

# r. buckminster fuller operating manual for spaceship earth

Buckminster Fuller 1968 *Operating Manual for Spaceship Earth*  
"we can make all of humanity successful through science's  
world-engulfing industrial evolution. We have the tools"



"The Dymaxion Map reveals a One-World Island in a One-World Ocean"  
which helps us to view the world as one interdependent system [of systems]  
of relationships. This is what is most fundamentally at HEART when we  
speak of Spaceship Earth "The planet is a [system of ] system (s)"



**SPACESHIP EARTH:** comprehensive planetary planning  
describing new strategies intended to enable all of humanity  
to live with freedom, comfort and dignity, without negatively  
impacting the earth's ecosystem's regenerative ability



**INFOCON**

5 4 3 2 1

**INFORMATION CONDITION**  
The World Game



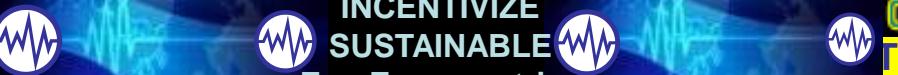
**ECONOMIC HEARTBEAT**



**Algorithmic Regulation**  
Stat Mean Value Index



**TERRACYCLE**  
Crypto Currency  
Micro Payments  
Demurrage Fees



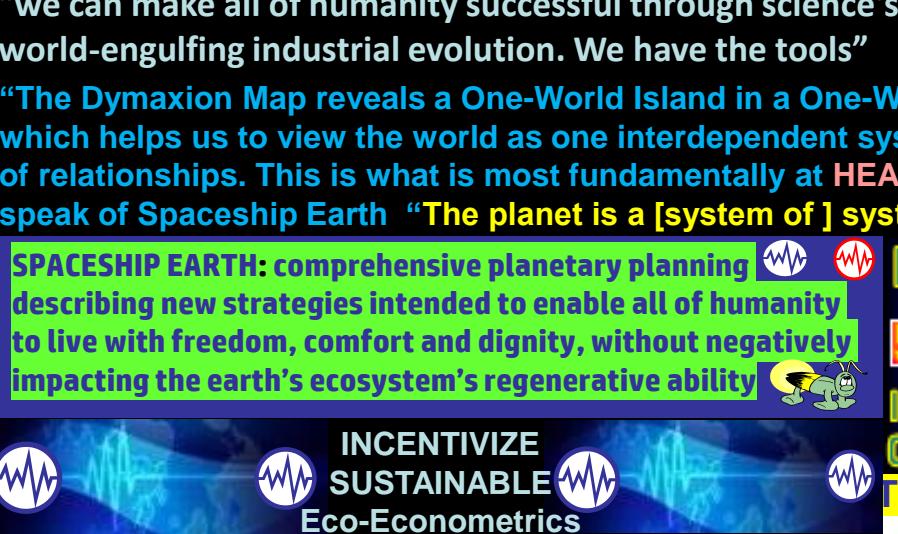
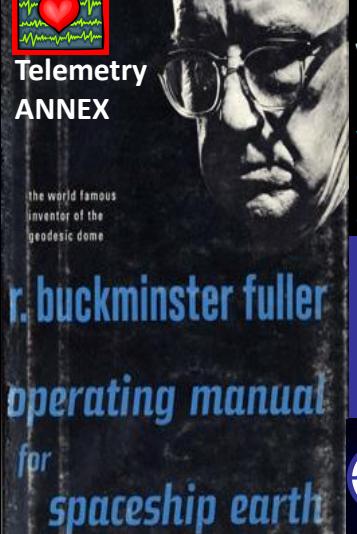
**INCENTIVIZE SUSTAINABLE Eco-Econometrics**



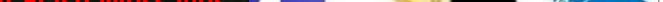
The Book Spaceship Earth relates Earth to a spaceship flying through space.  
Our spaceship has a finite amount of resources and cannot be resupplied.



TERRA  
TRC



**HEART BEACON CYCLE: SIGNALING, TELEMETRY FRAMEWORK ANNEX**  
**BUCKMINSTER FULLER'S OPERATING MANUAL for SPACESHIP EARTH**







SIMPLE ALWAYS WINS... WHEN STANDING ON THE SHOULDERS OF GIANTS

