

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

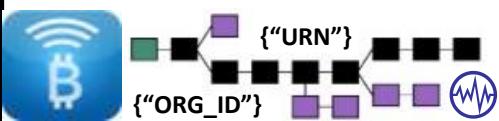


# Humanitarian Assistance Networked Donor System

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

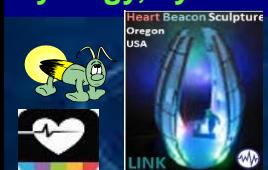


"Shared situational awareness enables collaboration synchronization, and enhances sustainability, speed of command"



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

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



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



# Beacon Communities

Vernetzte Operationsführung

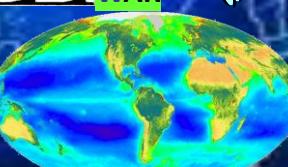


Proximity Beacons



JAEGERS

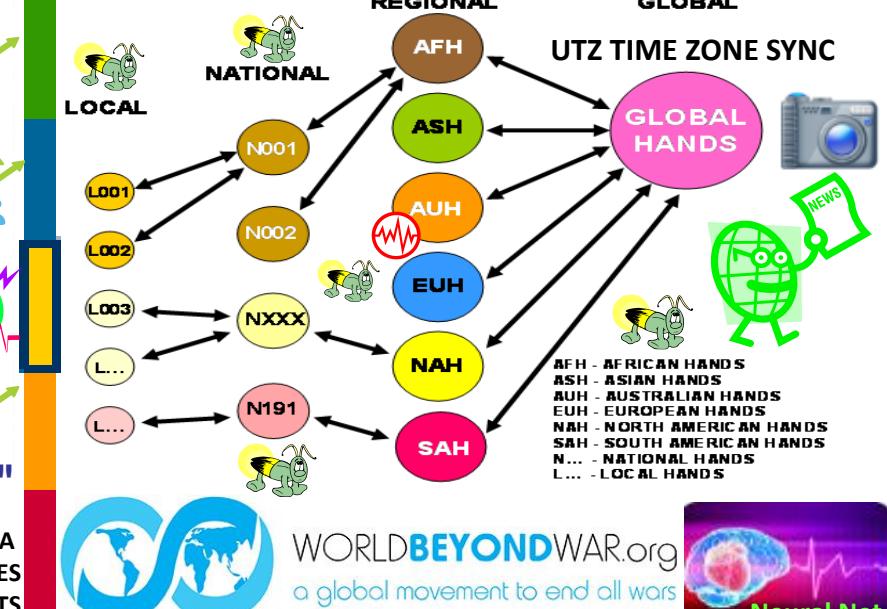
Closer < \$\$\$ < FUEL



KAIJU



SYSTEM  
Of  
SYSTEMS



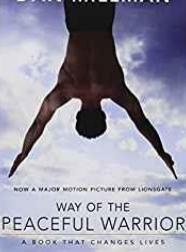
AFH - AFRICAN HANDS  
ASH - ASIAN HANDS  
AUH - AUSTRALIAN HANDS  
EUH - EUROPEAN HANDS  
NAH - NORTH AMERICAN HANDS  
SAH - SOUTH AMERICAN HANDS  
N... - NATIONAL HANDS  
L... - LOCAL HANDS



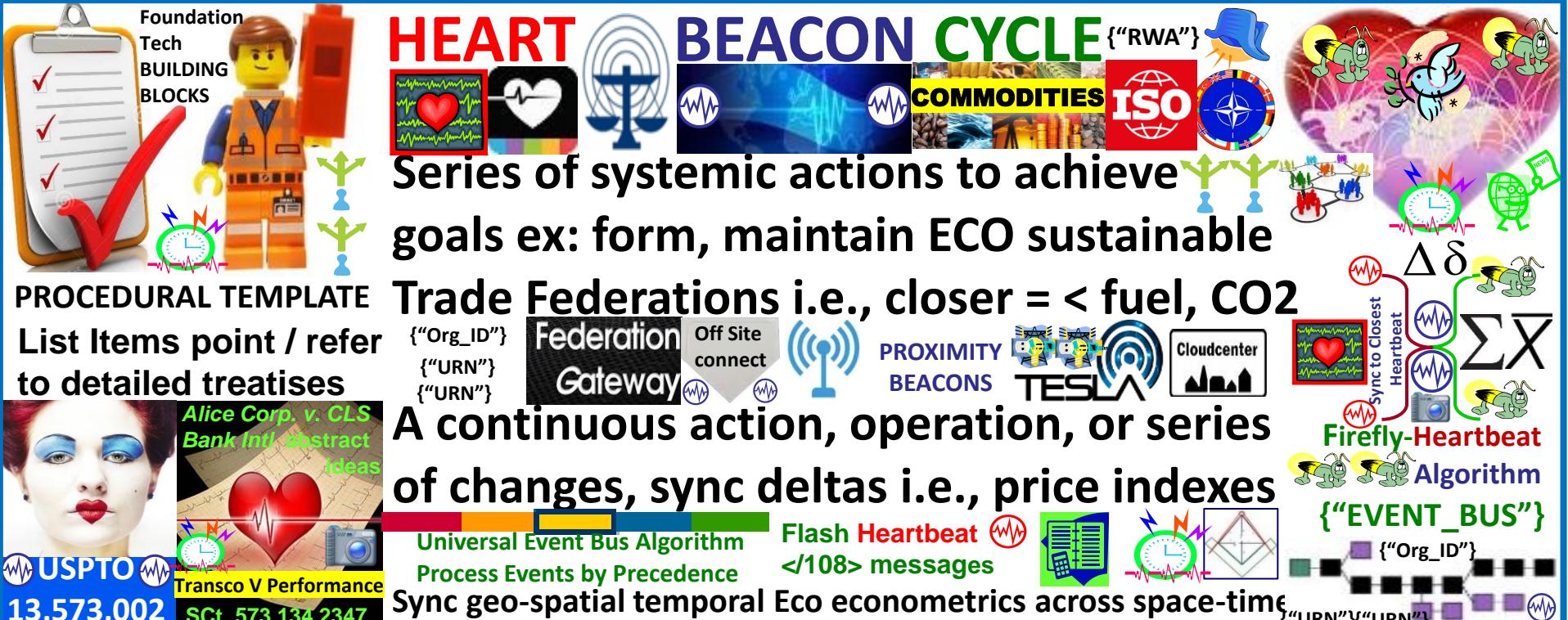
WORLD BEYOND WAR.org  
a global movement to end all wars

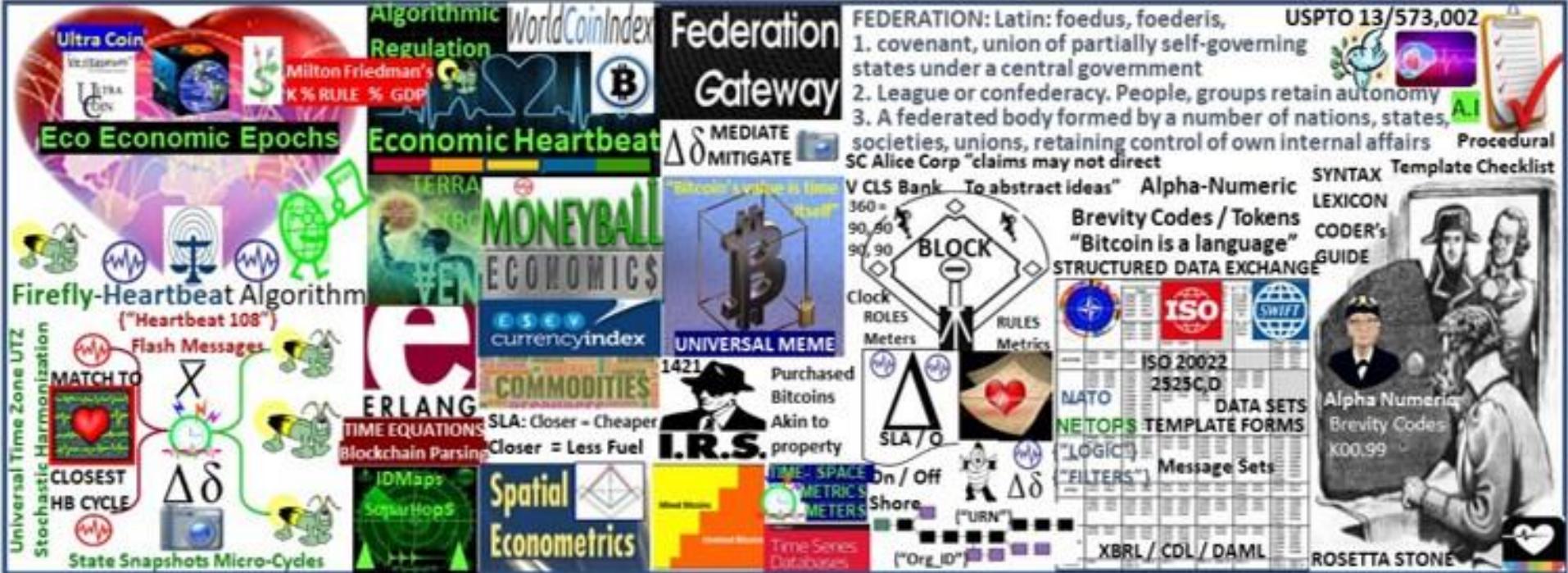


DAN MILLMAN



OFF SHORE  
OUTER BANKS





# THE BITCOIN BLOCKCHAIN FOR DUMMIES



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

Satoshi Nakamoto Bitcoin Paper



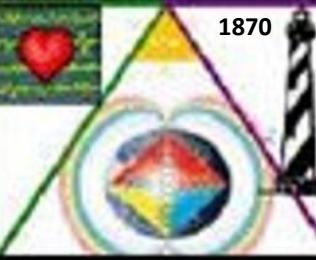
Satoshi Nakamoto



Craig WRIGHT  
a.k.a.  
Satoshi Nakamoto



"Bitcoin is a LANGUAGE"



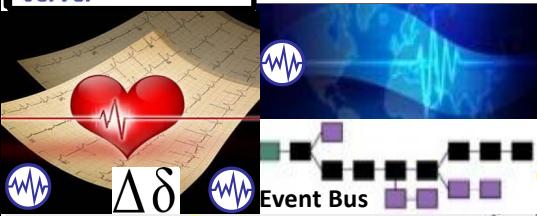
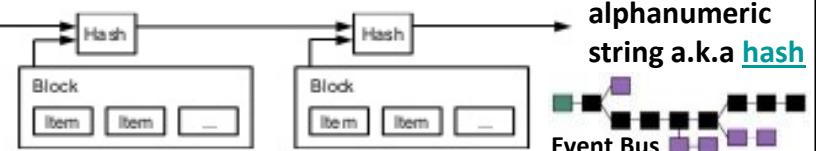
Wright Brother's 1<sup>st</sup> Flight  
Cape Hatteras Outer Banks

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

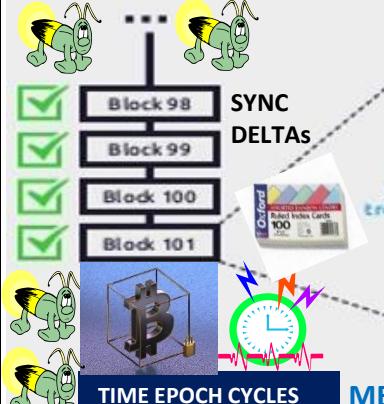
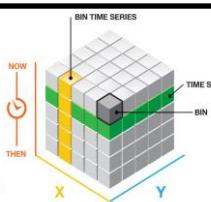
### 3. Timestamp Server

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

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



JapanNet Crypto Time Authentication Service (Timestamp Service)



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

"THE VALUE OF BITCOIN IS TIME ITSELF"



CLOCK FACE 360°  
90 / 90 / 90 / 90  
BIN TIME SERIES  
NOW THEN  
TIME SLICE BIN

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



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



ALICE Corp VS CLS  
BANK SC 573 US 134 2347  
CLAIMS MAY NOT DIRECT TOWARDS ABSTRACT IDEAS  
Physical = Opposite of abstract = ALICE  
HEART BEACON CYCLE  
TIME – SPACE METER  
USPTO 13/573,002



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

MACRO CYCLES

RULES / ROLES  
INSTRUCTIONS  
WORKFLOW  
UMPIRE COACH

3rd Base

STATISTICIAN  
Metrics, Meters  
Stat Mean Value Index

3 X 5  
HASH TABLES  
STATE META  
DATA SHARDS

SETTLEMENTS / EXCHANGES  
= TAXABLE EVENTS AKIN TO PROPERTY

IRS #1421

State Meta

Data Snapshots

Survey Point

MICRO CYCLES

90 feet

Blockchain / cryptocurrency increments

IM TIME SERIES

TIME SLICE BIN

BLOCK

CLOCK FACE

360°

90 / 90 / 90 / 90

BIN TIME SERIES

NOW THEN

TIME SLICE BIN

BLOCK

CLOCK FACE

360°

90 / 90 / 90 / 90

BIN TIME SERIES

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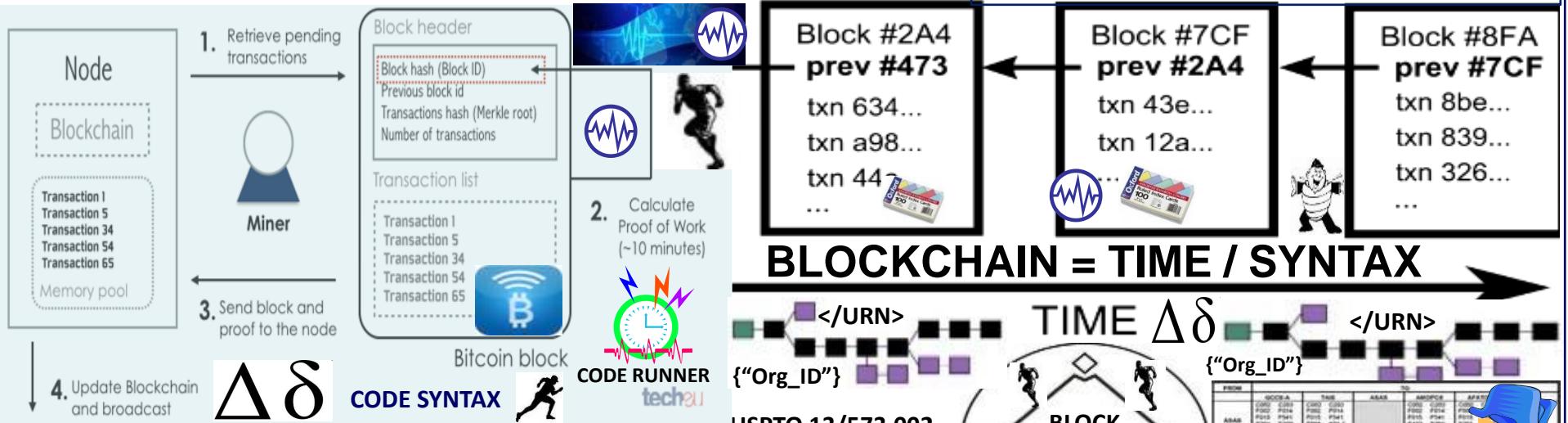
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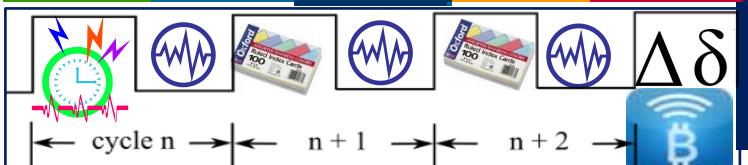
TIME SLICE BIN



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.

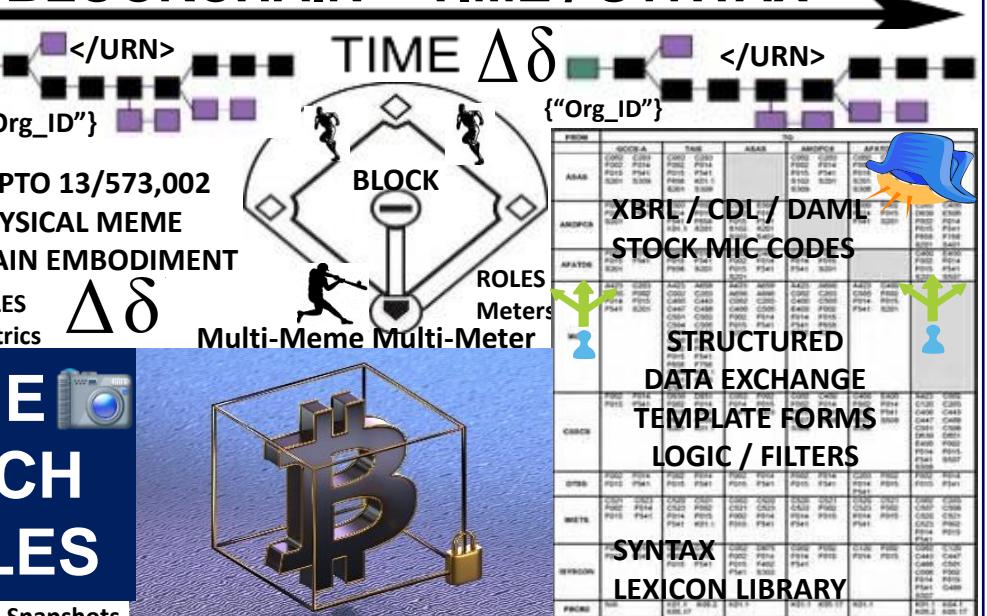
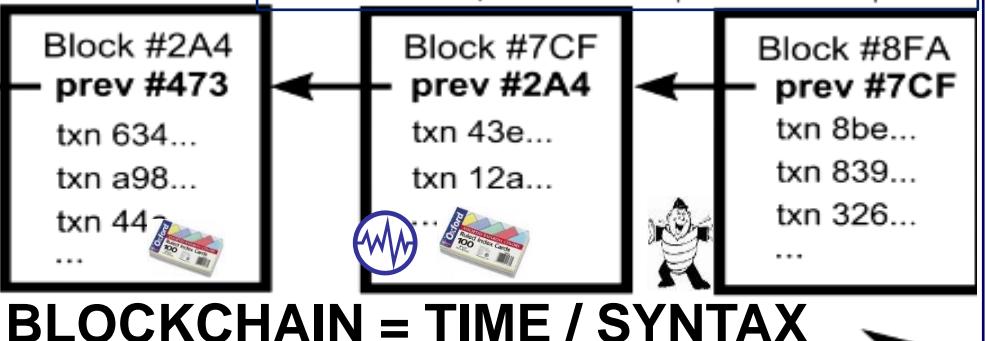
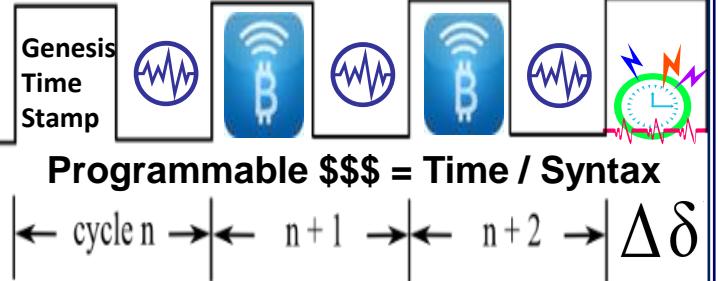


**"BITCOIN IS A LANGUAGE / BITCOIN'S VALUE IS TIME ITSELF"**



**TIME EPOCH CYCLES**

State Meta Data Snapshots



Net of \$\$\$ formed with:

1 EPOCH TIME CYCLES

2 {"Syntax"} "The Word"

"In the Beginning" Genesis Block

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

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

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

## NAMED DATA NETWORKING



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



STOCK MIC CODES

STRUCTURED DATA EXCHANGE  
TEMPLATE FORMS

300+ USE CASES  
LOGIC / FILTERS

SYNTAX / SYMBOL LEXICON LIBRARY



/ORG\_ID>  
</URN>

R

W

A

Real World Assets

A.I.

Alpha Numeric Brevity Codes

Coder Guide Rosetta Stone



"BITCOIN MAKES MONEY PROGRAMMABLE.  
MONEY IS SIMPLY DATA"

"Bitcoin's Value is TIME itself"  
"Time is specified in units of block transaction confirmation times"



ALICE CORP VS CLS BANK

"claims may not be directed towards an abstract idea"

US SC 573 US 134 2347



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

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



CLOCK FACE 360°  
90 / 90 / 90 / 90



MACRO CYCLES

RULES / ROLES

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SETTLEMENTS / EXCHANGES

= TAXABLE EVENTS

AKIN TO PROPERTY

IRS #1421

State Meta Data Snapshots Survey Point

MICRO CYCLES

FLASH MESSAGE EVENT BUS

TIME STAMP SERVER

Epoch Time Cycles

Δδ

BASEBALL "DIAMOND"

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

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

ALICE Corp VS CLS BANK SC 573 US 134 2347

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Physical = Opposite of abstract = ALICE

HEART BEACON CYCLE

TIME – SPACE METER

USPTO 13/573,002

first base

RUNNER Message Bus

Firefly – Heartbeat Algo

X EVENTS

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Flash Message Event Bus

TIME STAMP SERVER

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home plate

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ALICE Corp VS CLS BANK SC 5

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

HEART BEACON CYCLE  
USPTO 13/573,002  
SURVEY METHODS

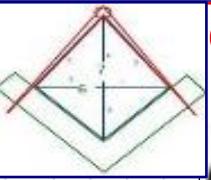
## SC ALICE CORP VS CLS BANK: “claims may not direct towards abstract ideas”

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

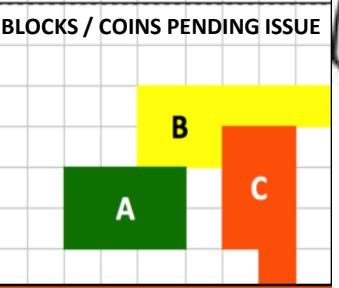


Memo #1421: Purchased Bitcoins are treated akin to property

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



## Mined Bitcoins



$$\Delta\delta$$

## Unmined Bitcoins



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

IDMaps-SONARHOPS distance estimation query-reply service



- End-state Bitcoin quantity will be fixed like land

“Bitcoin as protocol of ownership, not transfer”

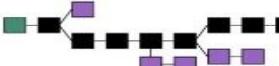
Coins never travel, but simply switch owners”

Step 1: prove coin ownership <Org\_ID> Coin Issuer

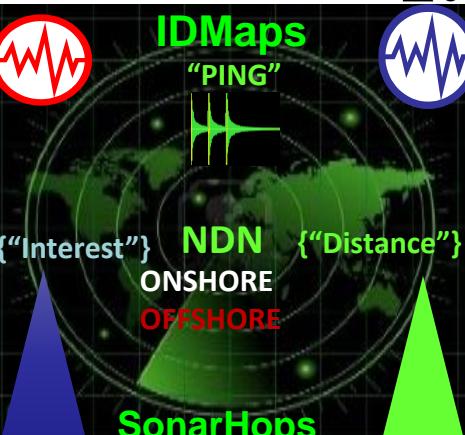
Step 2: coins sent where, when Lat-Long, time stamp

Step 3: specify ownership <Org\_ID> issuing agent

Step 4: Issuing Org of Record adjudicates w buyer

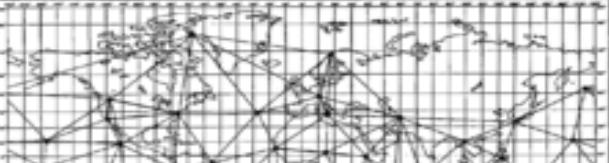


$$\Delta\delta$$



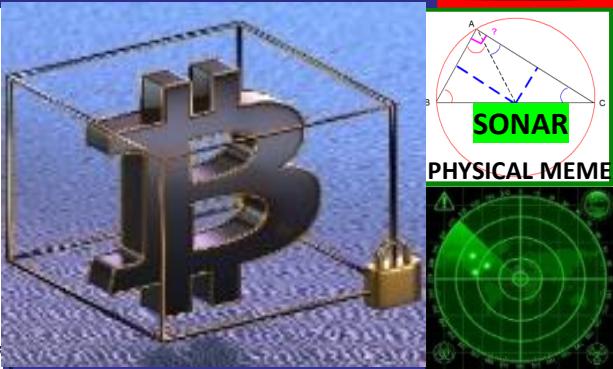
SonarHops

## TRIANGULATION



## DISTANCE ESTIMATION

## EUCLIDIAN GEOMETRY



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



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



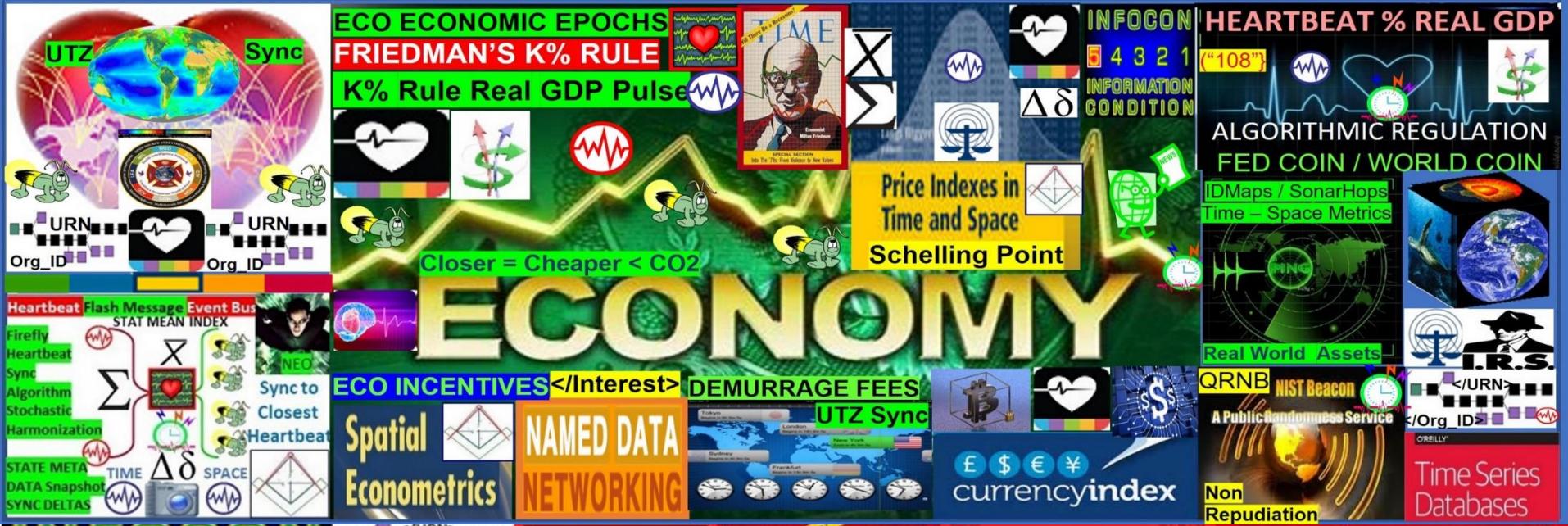
IDMaps Distance Metrics:  
latency (round-trip delay)  
available bandwidth estimation





## FEDERATE: COMMON GOALS SYNCHRONIZED IN SPACE - TIME





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



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



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

## Eco Economic Epoch GDP Heartbeat signals and telemetry framework



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

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



**SCOTUS 2014 ruling  
SC 573 134 2347**



claims may not direct towards abstract Ideas”

Trade  
Reference  
Currency  
**TERRA**  
TERC

**Physical = opposite of abstract**

The collage includes:

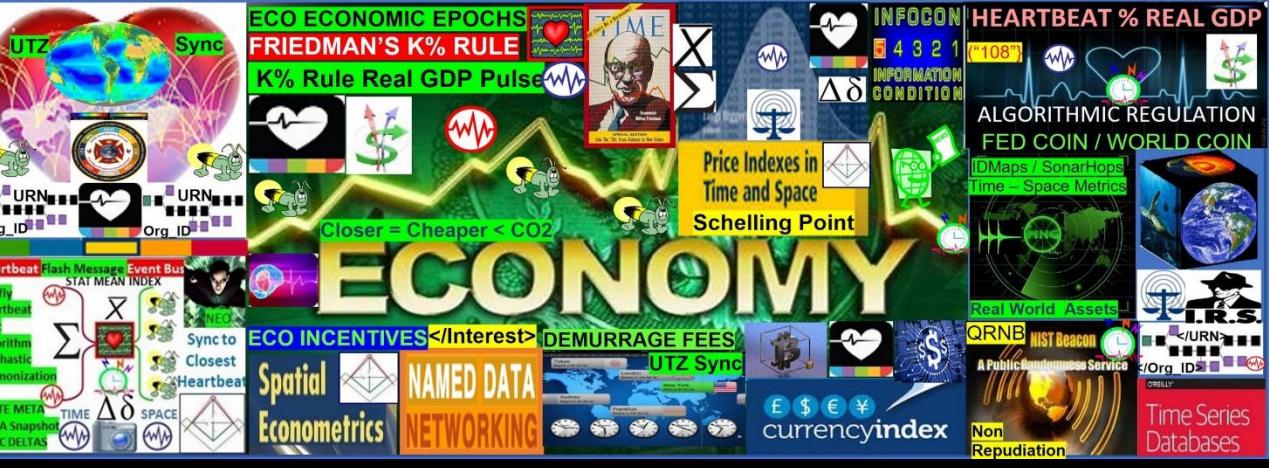
- A circular dial labeled "CLOCK FACE 360°" with markings from 90 to 360.
- A diagram of a baseball diamond with "90 feet" between bases.
- A diagram of a diamond-shaped block labeled "BASEBALL 'DIAMOND'".
- A diagram showing a diamond as a block in 3D.
- A diagram of a diamond with "Satoshi Nakamoto" and "2nd Base".
- A diagram of a diamond with "The solution we propose begins with a base".
- A diagram of a diamond with "Blockchain 3D".
- A diagram of a diamond with "Blockchain BLOCK in 3D = CUBE".
- A diagram of a diamond with "Cube has Length, Depth, Height, Volume".
- A diagram of a diamond with "Blockchain 3D" and "Event Bus".
- A diagram of a diamond with "UNIVERSAL HEARTBEAT MESSAGE EVENT BUS".
- A diagram of a diamond with "SETLEMENTS & TAXES" and "AKIN TO PROPERTY".
- A diagram of a diamond with "90 feet".
- A diagram of a diamond with "FIX (108\*)".
- A diagram of a diamond with "FLASH MESSAGE EVENT BUS".
- A diagram of a diamond with "TIME STAMP".
- A diagram of a diamond with "PERIODIC".
- A diagram of a diamond with "TIME Δ".
- A diagram of a diamond with "Δδ".
- A diagram of a diamond with "ΣX".
- A diagram of a diamond with "ΣΔ".
- A diagram of a diamond with "cyclen n" and "n + 1" and "n + 2".
- A diagram of a diamond with "home plate".
- A diagram of a diamond with "Survey Point".
- A diagram of a diamond with "3 x 5 HASH TABLES STATEMENTS DATA SHARDS".
- A diagram of a diamond with "State Meta Data Snapshots MICRO".
- A diagram of a diamond with "90 feet".
- A diagram of a diamond with "STATEMENT".
- A diagram of a diamond with "RECOMMENDATION".
- A diagram of a diamond with "MESSAGE".
- A diagram of a diamond with "EVENTS".
- A diagram of a diamond with "Firefly - Heartbeat Algo".
- A diagram of a diamond with "Rosetta".
- A diagram of a diamond with "X".
- A diagram of a diamond with "AICE Corp VS ALICE".
- A diagram of a diamond with "BANK SC 573 US 134 2347".
- A diagram of a diamond with "CLAIMS MAY NOT DIRECTLY RELATE TO IDEA".
- A diagram of a diamond with "Physical = Opposite of abstract = ALICE".
- A diagram of a diamond with "HEART BEACON CYCLE TIME = SPACE METER USPTO 13/573,002".
- A diagram of a diamond with "first base".
- A diagram of a diamond with "RUNNER".
- A diagram of a diamond with "Message Bus".
- A diagram of a diamond with "E \$ € ¥ currency index".
- A diagram of a diamond with "COMMODITIES".
- A diagram of a diamond with "Ericsson Open \$\$\$ for Society".

**“The solution we propose begins with a time-stamp server” Satoshi**

**"The internet, internet of \$\$\$ is comprised:  
1. Epoch time cycles 2. Syntax used / not  
used during epoch time cycles instructions**

**“Bitcoin is a language” “Bitcoin’s value = time itse**  
**Blocktime = computing clock-time that creates**  
**sync delta differentials in the chain of time [W]**  
**described by MTT Machine Trust Language**  
**smart contracts adjusted by time arbitrators**

# USPTO 20130166398 Ericsson System Method Implementing Context Based Payment System







ISO Technical Committee TC68

## Financial Services

SC2 Security	SC4 Securities	SC7 Banking
-----------------	-------------------	----------------

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

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

ISO 20022 LV v66

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

symbol (for A.I. man – machine interface) consensus?   
Blockchain Consensus Algorithms & Mechanisms  In the world of blockchain consensus algorithms, consensus is the **HEART OF THE BLOCKCHAIN NETWORK**. Its main purpose is to achieve agreement on transactions among a distributed system (s).  
Proof of Formulation: *Block* generation / propagation of blocks using a previously agreed sequence between participants of the

generation of blocks, formed by two groups: a generator group and/or Formulator and a group of synchronization.

 spacemesh  PROOF OF FORMULATION

A collage of images related to the Space-Time Consensus Algorithm. It includes a clock, a person, a baseball diamond, a 3D model of a block, and a coin.

A collage of screenshots from the game Mario Kart 8, featuring various tracks like Bowser's Castle and Toadstool Kingdom, and characters like Luigi and Bowser.

The logo for Blockchain Babel features a central globe icon surrounded by various digital and communication-related icons such as a smartphone, a laptop, a bar chart, a gear, a lightbulb, and a network of lines. The word "BLOCKCHAIN" is written in large, bold, black capital letters at the top, and "BABEL" is written in a smaller, bold, black font below it.

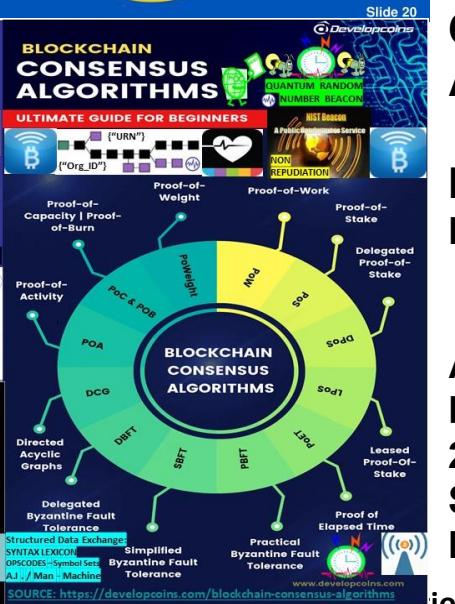
The diagram illustrates the UNIVERSITY HEARTBEAT MESSAGE EVENT BUS architecture. It features a central **EVENT BUS** at the bottom, with various components connected to it:

- STATE META** feeds into the **EVENT BUS**.
- DATA SHARDS** feeds into the **EVENT BUS**.
- STATE META** also feeds into **SETTLEMENTS-EXCHANGES**, which in turn feeds into the **EVENT BUS**.
- SETTLEMENTS-EXCHANGES** also receives input from **TAKEAWAY EVENTS** and **AKI TO PROPERTY**.
- TAKEAWAY EVENTS** and **AKI TO PROPERTY** both feed into **SETTLEMENTS-EXCHANGES**.
- SETTLEMENTS-EXCHANGES** feeds into the **EVENT BUS**.
- TAKEAWAY EVENTS** also feeds into **FLASH MESSAGE EVENT BUS**.
- FLASH MESSAGE EVENT BUS** feeds into the **EVENT BUS**.
- FLASH MESSAGE EVENT BUS** also receives input from **AKI'S MATE**.
- AKI'S MATE** feeds into **FLASH MESSAGE EVENT BUS**.
- FLASH MESSAGE EVENT BUS** feeds into the **EVENT BUS**.
- EVENT BUS** feeds into **Firefly - Heartbeat Align**.
- Firefly - Heartbeat Align** feeds into **VISUAL**.

**describes a common platform  
(methodology, process, represen-**

- a modelling methodology

- a central dictionary of business objects
- a set of XML and ASN.1 data types



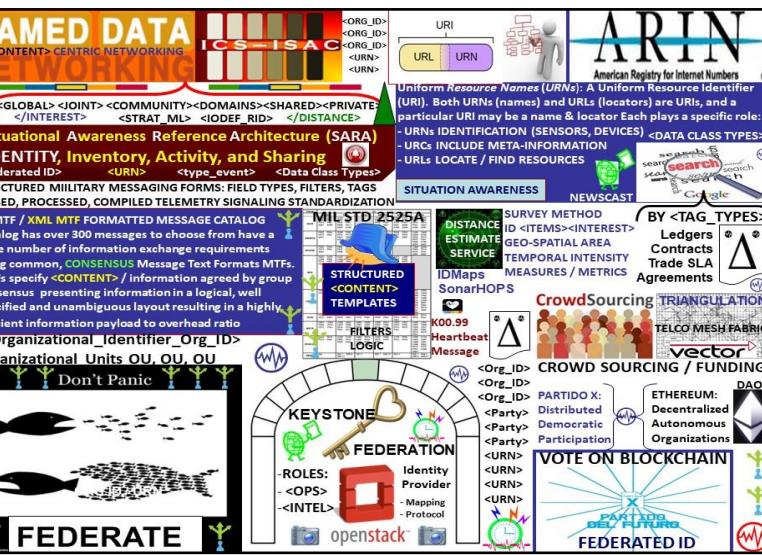
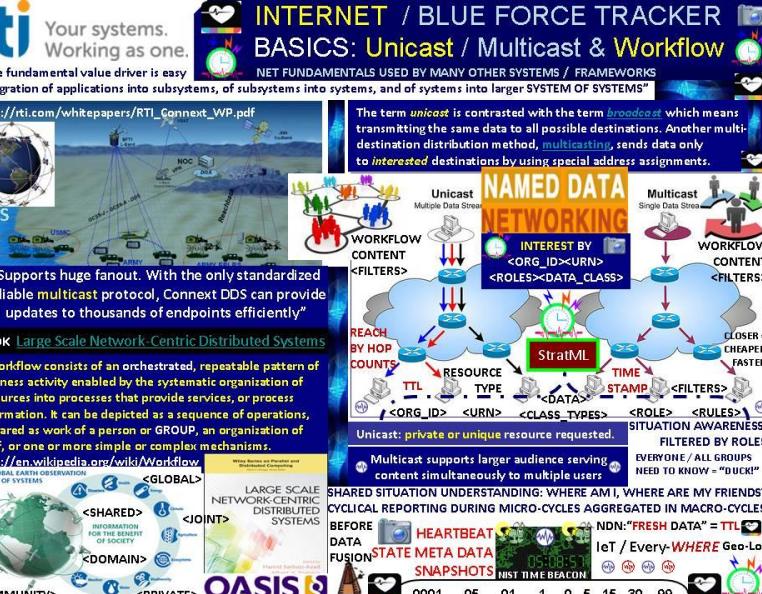
# FOUNDATION STANDARDS TECHNOLOGY

- # ISO 20022 MIL STD Structured Data Exchange DoD System of Systems Engineering

# CONSENSUS ALGORITHMS

# NDN: Named Data Networking

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



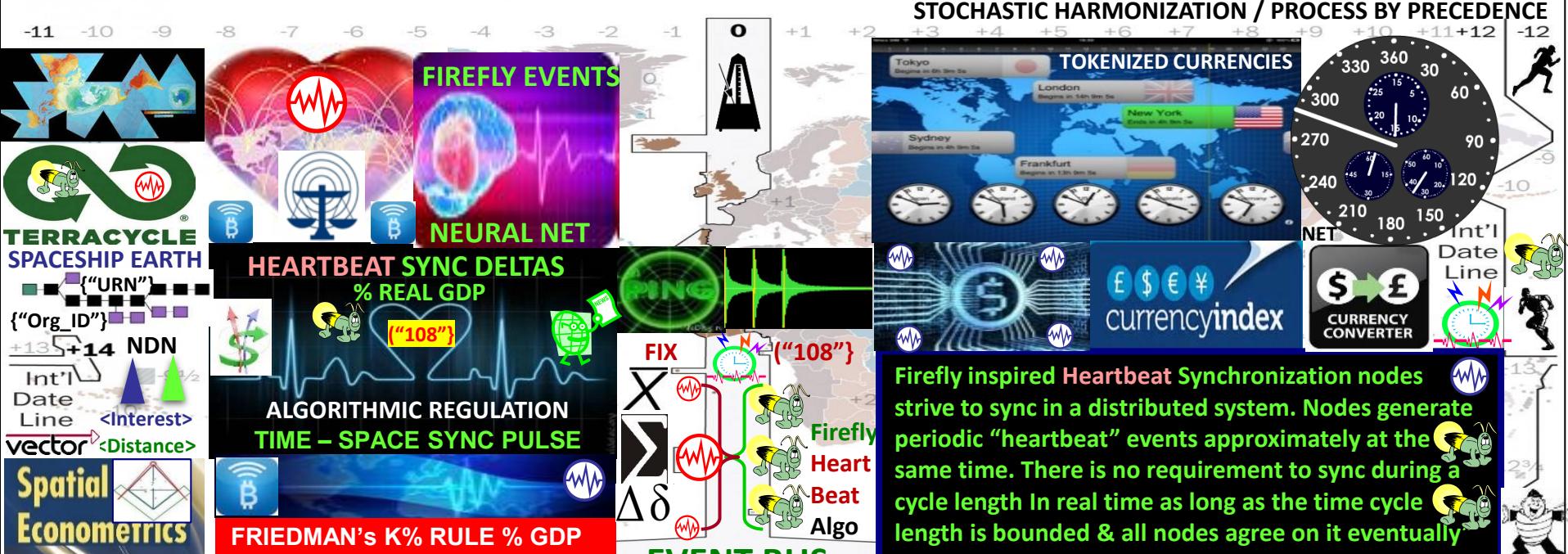
WORLD Financial Standard ISO 2022 is a multi-part International Standard prepared by ISO Technical Committee TC68 Financial Services. It

**describes a common platform for the development of messages in ASN.1 Abstract Syntax Notation: A single standardization approach**

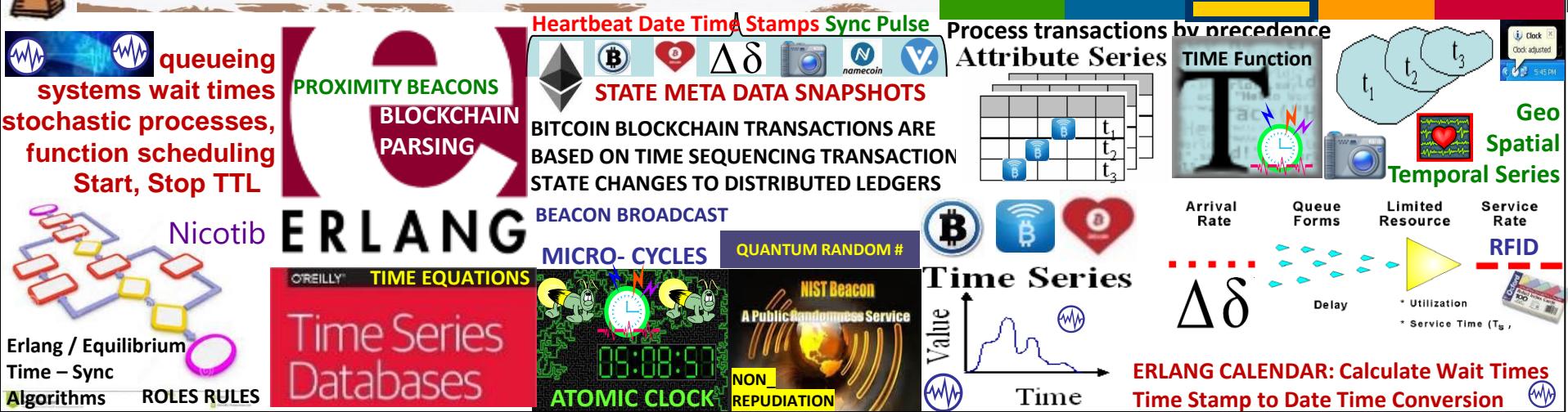
- (methodology, process, repository) to be used by all financial standards initiatives. common platform for the development of messages using:

  - a modelling methodology to capture in a syntax-independent way financial business areas, business transactions and message flows
  - a central dictionary of business items used in financial communications
  - a set of XML and ASN.1 design rules to convert the message models into XML or ASN.1 schemas, whenever the use of the ISO 20022 XML or ASN.1-based syntax is preferred ISO 20022: <https://www.iso20022.org/about-iso-20022>

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.





FROM	TO				CODE GUIDE	
	GCCS-A	TAIS	ASAS	AMDPCS	AFATDS	MCS
ASAS	C002 C203 F002 F014 F015 F541 S201 S309	C002 C203	<b>USMTF / XML MTF FORMATTED MESSAGE CATALOG = 300 + messages info exchange sets using common, CONSENSUS Message Text Formats MTFs. MTFs specify &lt;CONTENT&gt; / info agreed by group consensus presenting information in a logical, well specified unambiguous layout resulting in a highly efficient info payload to overhead ratio</b>			
AMDPCS	<b>TOKENS</b> <b>OPSCODE</b> <b>BREVITY</b> <b>CODES</b>					
AFATDS	F002 F014 F015 F541 S201					<b>A.I.</b>  <b>INFOCON</b> <b>5 4 3 2 1</b> <b>INFORMATION CONDITION</b>
MCS	 <b>SIOP</b>  <b>FEDERATED MISSION NETWORK</b> 	A423 C203 C505 F002 F014 F015 F541 S201	A423 A659 C002 C203 C400 C443 C447 C488 C501 C503 C504 C505 C506 C507 C508 E400 F002 F014 F015 F541 F658 F756 G489 K01.1 S201 S303 S507	A423 A659 A656 A690 C002 C203 C400 C505 F002 F014 F015 F541	 <b>Rosetta Stone</b>  <b>Syntax Lexicon</b>  <b>Coder's Guide</b>	<b>A423</b> <b>M2M</b> <b>C505</b> <b>F014</b> <b>F541</b> <b>S201</b>

# MESSAGE CATALOG

## 300 + Use Cases

**Data Elements:** entity, attribute, relationship equivalents      **HEARTBEAT MESSAGE =**  
**K00.99 </108> {"108"}**

# Information Elements Roles

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



## FFUDN: Field Format Unit Designator

FFIRN Field Format Index Reference #

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



# PROCESS MESSAGE BY PRECEDENCE UNIVERSAL EVENT / ALERT MESSAGE BUS

## **OPERATIONAL NODES / ACTIVITIES**

DATA		SYSTEM FUNCTIONS		PERFORMANCE	
11.4 - Classification		11.8 - Kinematics			
11.4.1 - Category		11.8.1 - Pos / Vel / Acc (PVA)			
11.4.1.1 - Confidence Level		11.8.1.1 - Acceleration			
11.4.1.2 - Estimate Type		11.8.1.1.1 - Angular			
11.4.1.2.1 - Alternative		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	
SYMBOL	Friend	Neutral	Hostile	1.2.2 - Observed	1.2.3 - Predicted
2525C	Partner			1.2.4 - Smooth	1.2.5 - Probabilistic
11.4.1.3.4 - Substance					
11.4.1.3.5 - Surface					
11.4.2 - Platform / Point / Feature Type					
11.4.3 - Specific Type					
11.4.4 - Type Modifier					
11.4.5 - Unit					

# NAMED DATA NETWORKING

<CONTENT> CENTRIC NETWORKING



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

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

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

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

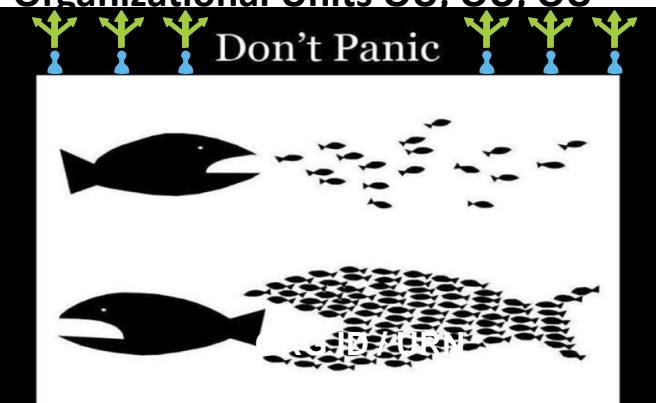
STRUCTURED MILITARY MESSAGING FORMS: FIELD TYPES, FILTERS, TAGS  
PARSED, PROCESSED, COMPILED TELEMETRY SIGNALING STANDARDIZATION

### USMTF / XML MTF FORMATTED MESSAGE CATALOG

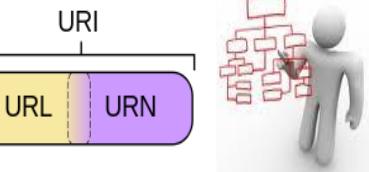
Catalog has over 300 messages to choose from have a wide number of information exchange requirements using common, CONSENSUS Message Text Formats MTFs. MTFs specify <CONTENT> / information agreed by group consensus presenting information in a logical, well specified and unambiguous layout resulting in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

</Organizational\_Identifier\_Org\_ID>

Organizational Units OU, OU, OU



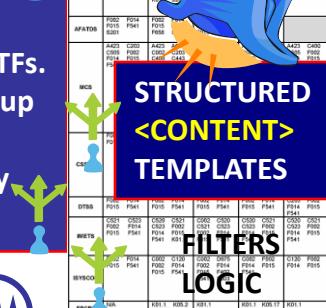
**FEDERATE**



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

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

### SITUATION AWARENESS



IDMaps  
SonarHOPS



<Org\_ID>  
<Org\_ID>  
<Org\_ID>

PARTIDO X:

Distributed

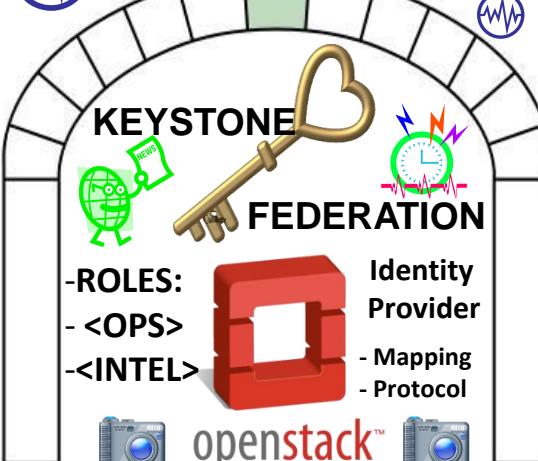
Democratic

Participation

BY <TAG\_TYPES>  
Ledgers  
Contracts  
Trade SLA  
Agreements



Decentralized  
Autonomous  
Organizations



### VOTE ON BLOCKCHAIN



PARTIDO X:

Distributed

Democratic

Participation

Identity

Provider

Mapping

Protocol

openstack™

Identity

Provider

Mapping

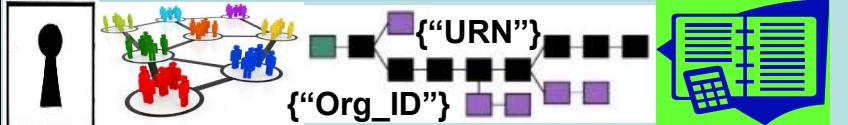
Protocol

openstack™



# Heart Beacon Cycle

## FEDERATE / TRADE FEDERATIONS



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

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

Federation  
Gateway

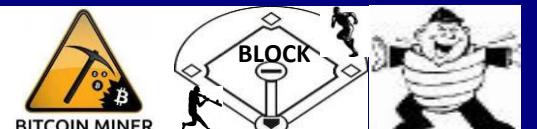


{"GLOBAL"}  
{"SHARED"}  
{"DOMAIN"}  
{"COMMUNITY"}  
{"PRIVATE"}  
{"GROUP ID"}



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



IeT DEVICE / PLATFORM  
IoT SENSOR DEVICE

{"Asset\_Type"}

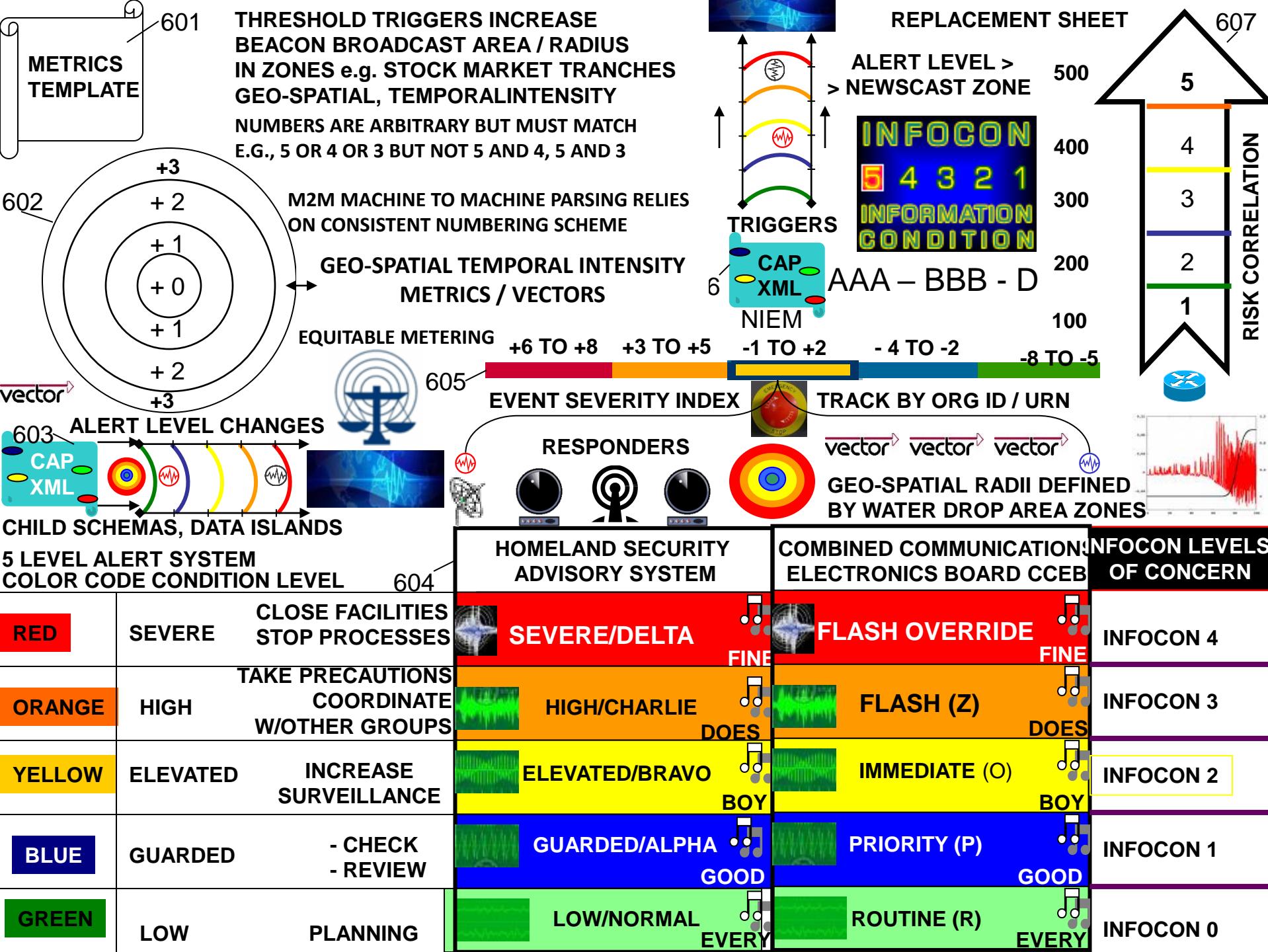
</RESOURCE> {"URN"}  
{"Asset\_Class"} </URN>

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

STOCK EXCHANGE  
MIC MARKET IDENTIFIER  
CODES / BREVITY CODES

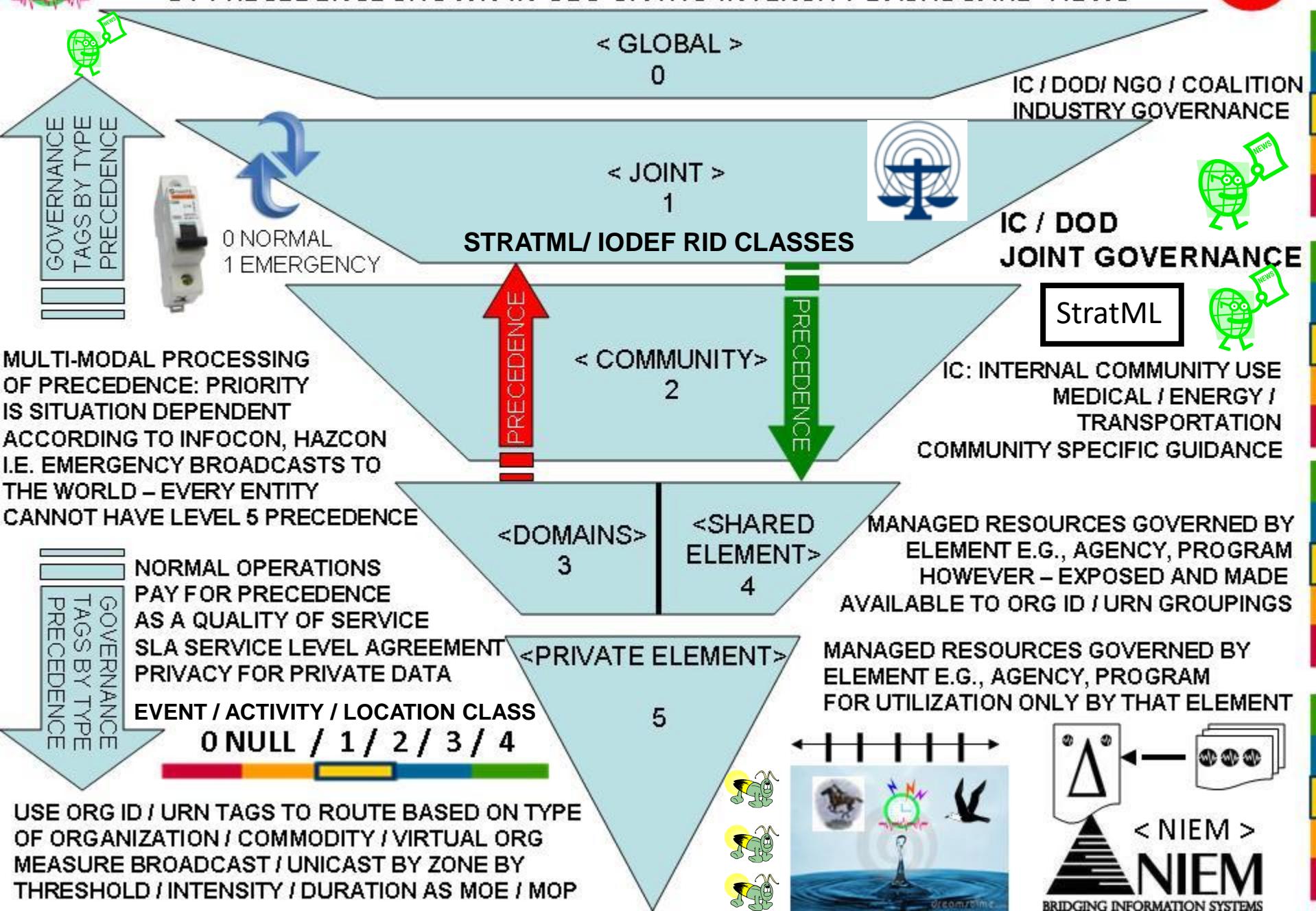


EVENT BUS  
Signalling, Telemetry





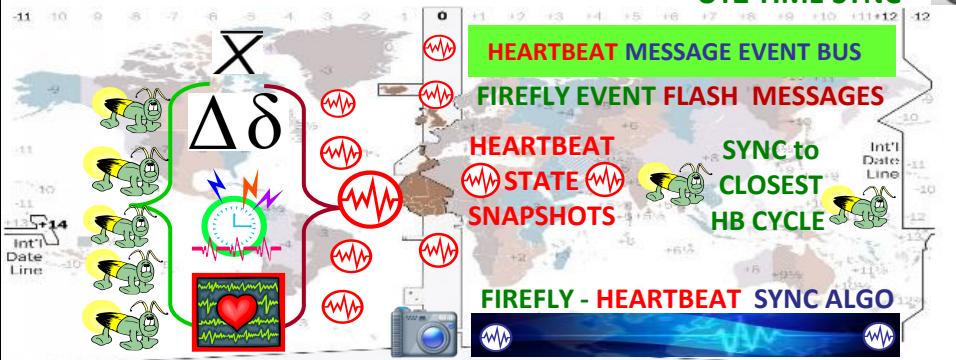
# ENABLE MAPPING OF GOVERNANCE / MANAGEMENT RESOURCES BY PRECEDENCE SHOWN IN GEO-SPATIO INTENSITY DASHBOARD VIEWS



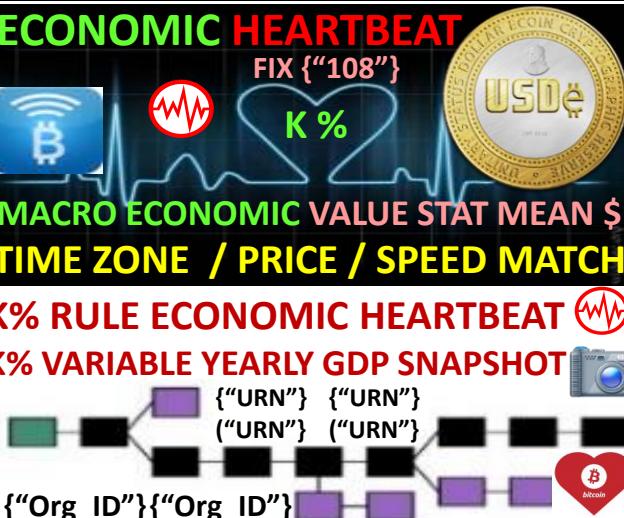
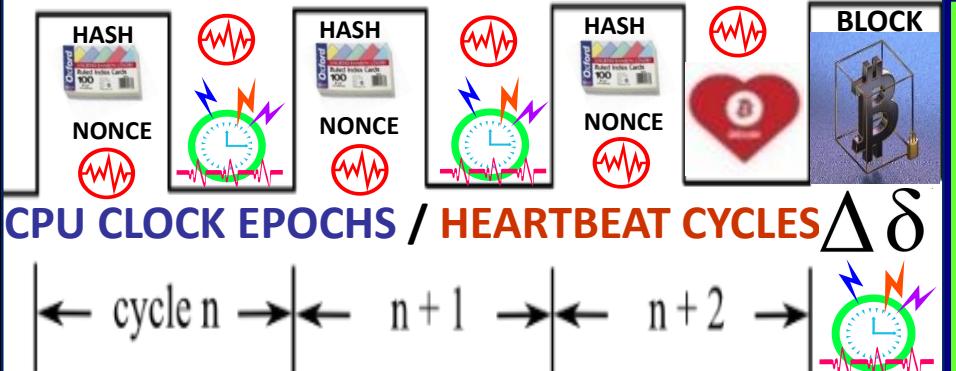




The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen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



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

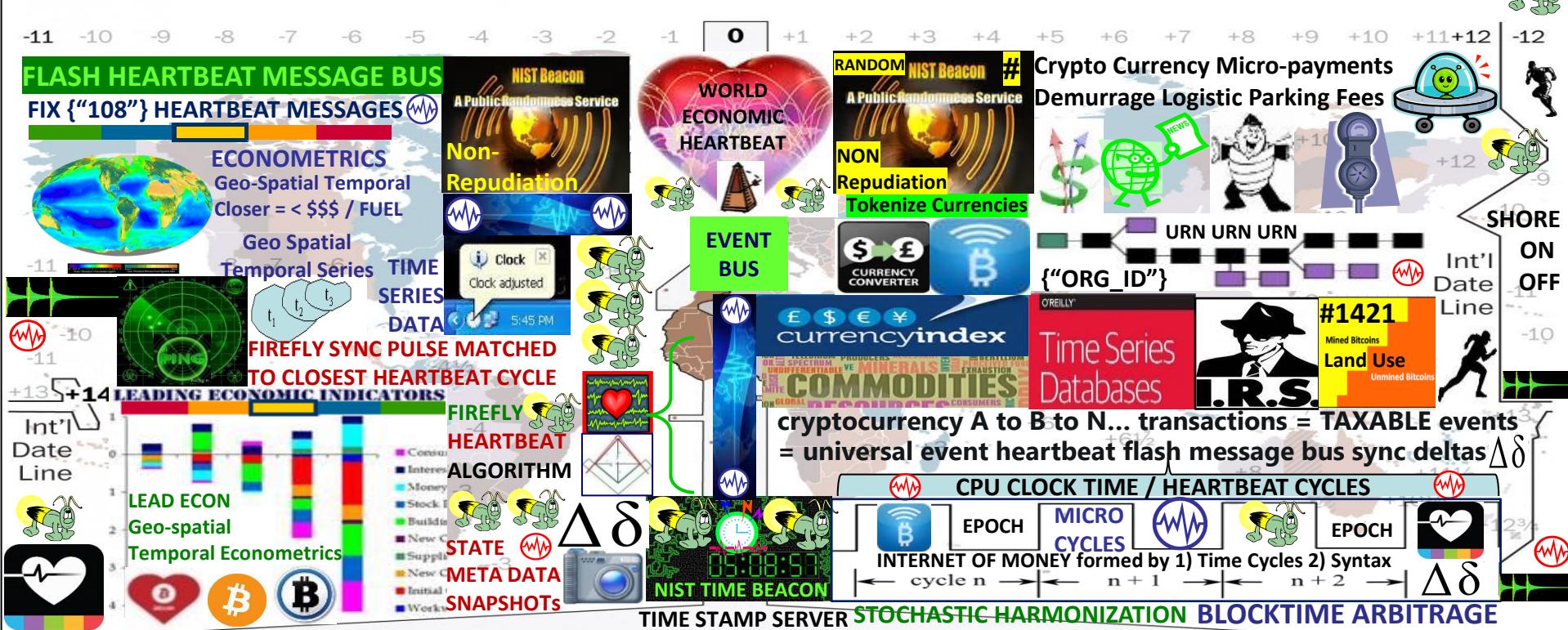


"Heartbeat Synchronization strives to have nodes in a distributed system generate periodic local "heartbeat" events approximately at the same time. It differs from classical clock sync in that Nodes are not interested in counting cycles and agreeing on the ID of the current clock cycle. There is no requirement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





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



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

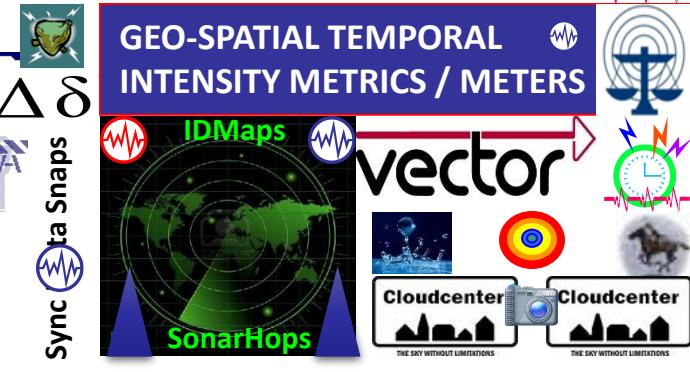
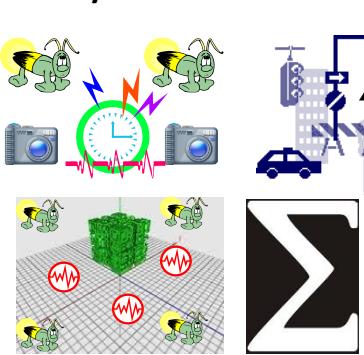
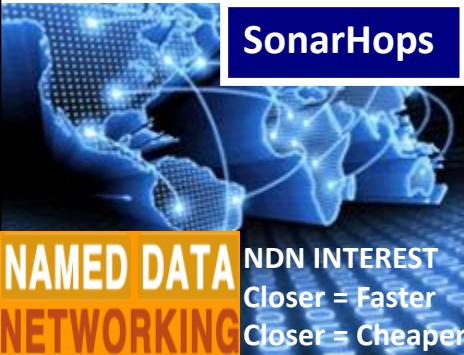




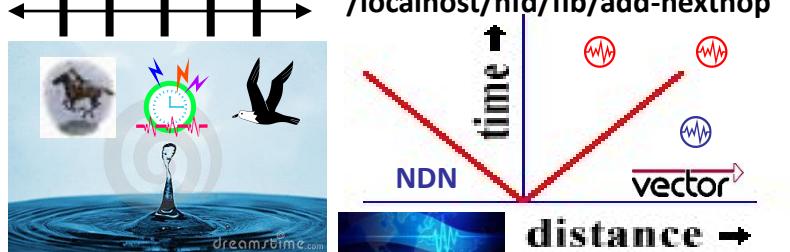
# IDMaps: Global Internet Host Distance Estimation Service



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

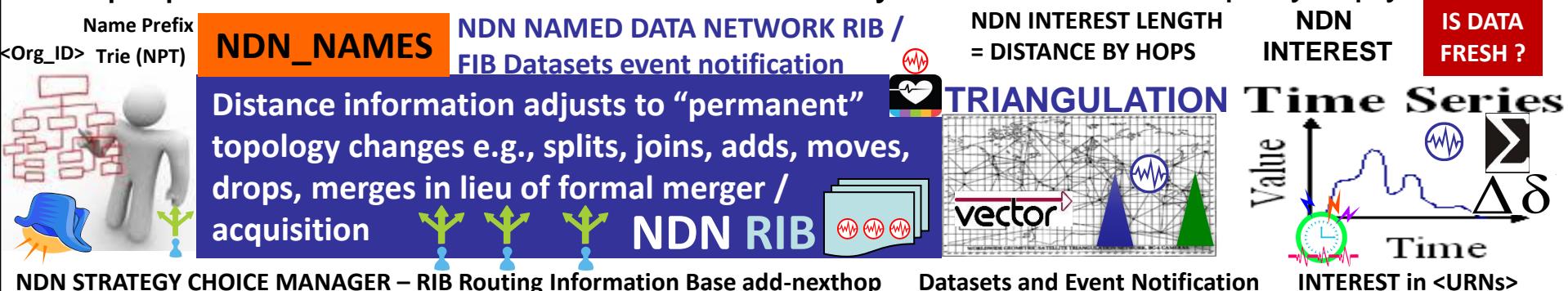


IDMaps scalable Internet-wide architecture measures, disseminates distance information  
/localhost/nfd/fib/add-nexthop



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

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



# GEO-SPATIAL TEMPORAL INTENSITY METRICS, METERS, VECTORS



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



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



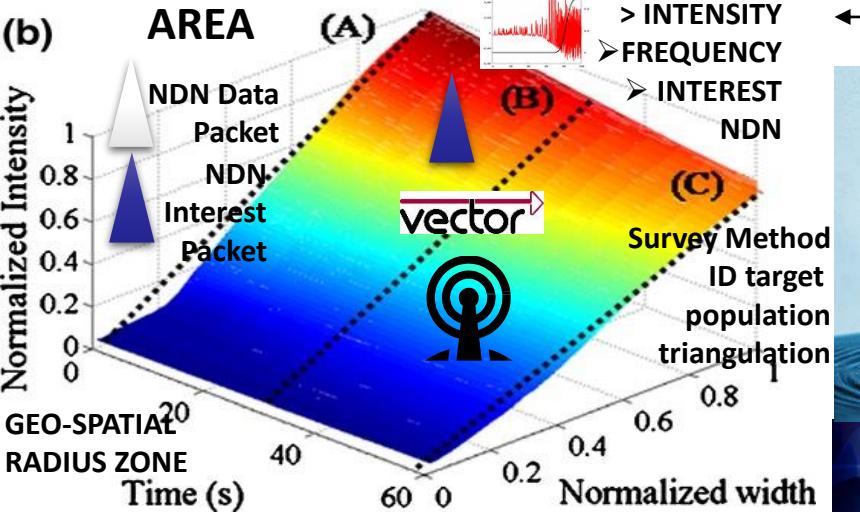
Paul Revere = linear, sequential



TCP/IP hop by hop counts, by hop controls



Water Drop = AREA / INTENSITY Cyclic Frequency

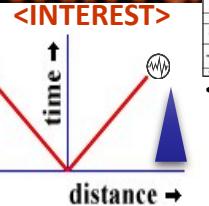


# NAMED DATA NETWORKING

<INTEREST>  
MQTT

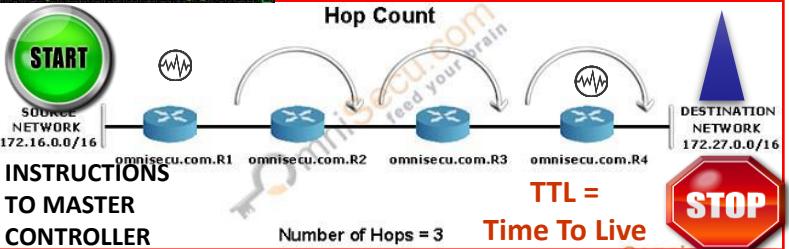


NIST TIME BEACON



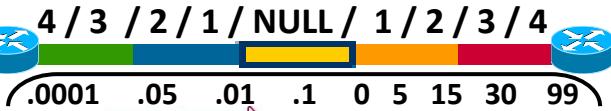
ARRESTED-D

IEEE 802.15.4 OASIS MQTT TELEMETRY TRANSPORT



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

IDMAPS  
SONARHOPS  
INTERNET  
TRIANGULATION



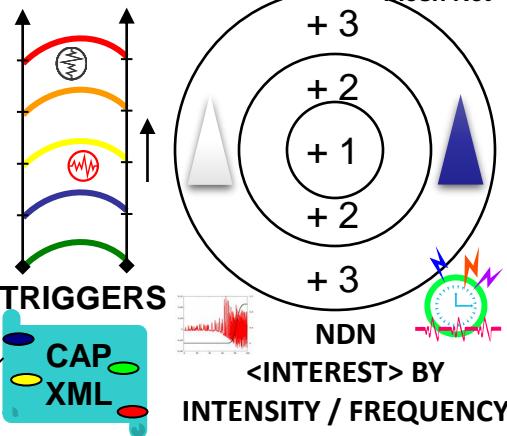
vector WirelessHART

time synchronized,  
self-organizing,  
mesh Net

ALERT LEVEL >  
> NEWSCAST ZONE



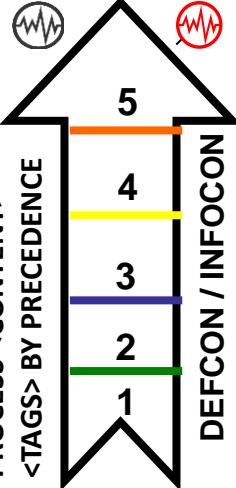
SINE-WAVE



INFOCON  
XML  
MTF  
300 +  
MSG

5 4 3 2 1

INFORMATION CONDITION



# 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"

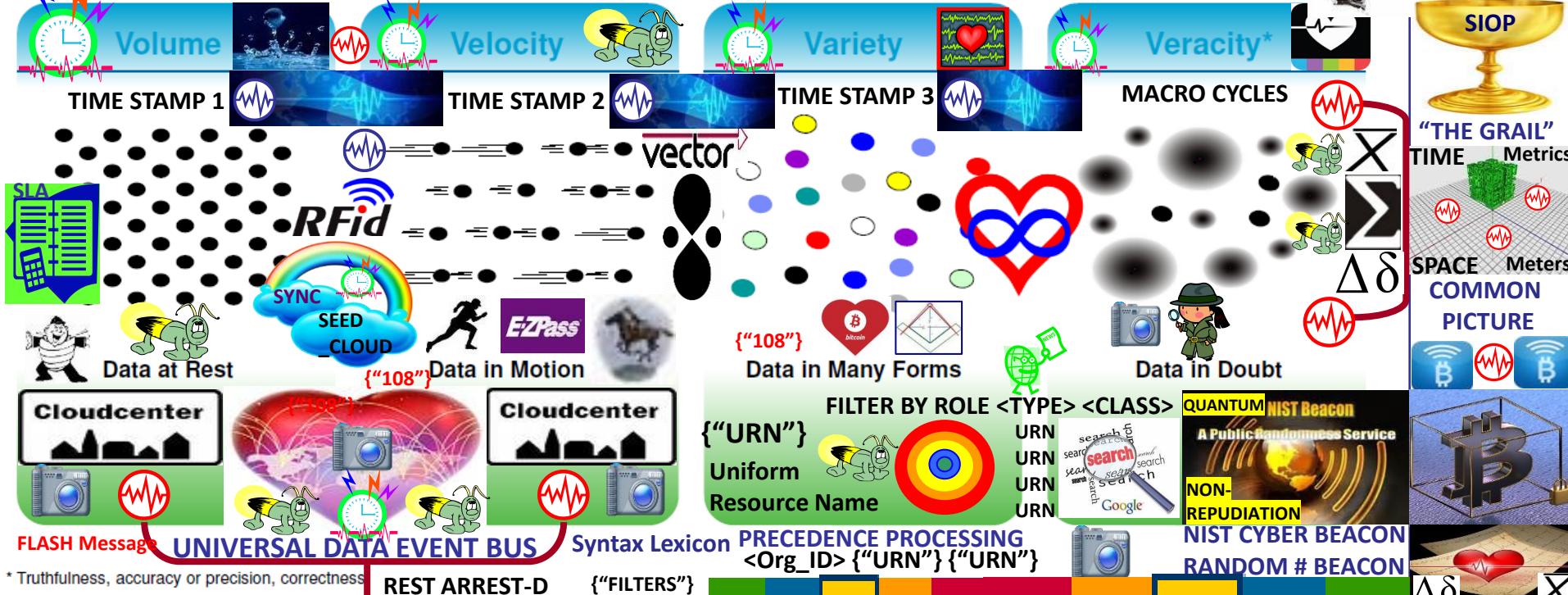
## The four dimensions of Big Data

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



\* Truthfulness, accuracy or precision, correctness

**FIREFLY – HEARTBEAT {"108"}**  
Stochastic Harmonization UTZ SYNC

Heartbeat synchronization strives to have nodes in a distributed system generate periodic, local "heartbeat" events approximately at the same time with a goal of all nodes starting and ending cycles at the same time eventually = map to closest OPTEMPO HEARTBEAT

State Meta Data  
Heartbeat Snaps

MICRO

CYCLES

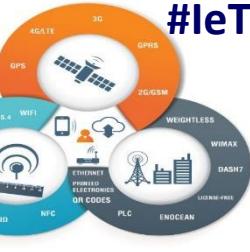
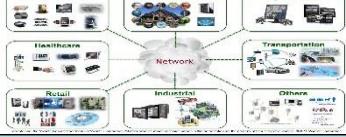
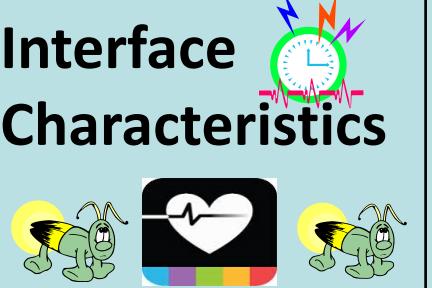
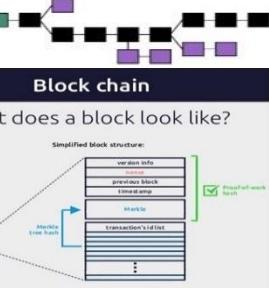
ERLANG

SPACE - TIME Equations  
BLOCKCHAIN PARSING

{"Org\_ID"}

HEARTBEAT SYNCRONIZATION  
FIREFLY SYNC CONSENSUS

FOAM

Interface Name	HEARTBEAT Administration Interface [SCOP]		
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>		
API Information	 <span>#leT</span>	#Big_Data	<b>Functionality Areas</b>   <p>Cloud Interface Management configuration, start, stop cloud services, edit configuration (heartbeat messages)</p>
Programmable Money World Computer / Blockchain	 	API Operation Count	 <p>LOCATE &lt;CONTENT&gt; IDMAPS / SonarHOPS 4 / 3 / 2 / 1 / NULL / 1 / 2 / 3 / 4 0001 .05 .01 .1 0 5 15 30 90</p>
NIST TIME BEACON	 	Web service access type Network Effects / A.I.	Web application, front end to [network, device, system, blockchain] heartbeat
Interface Characteristics		LANGUAGE / PLATFORM BINDINGS	 <p>PHP Java Erlang...</p> 
<p>"The external environment could update <u>resources</u> at random... One solution is a <b>heartbeat</b>: defining a default lease duration delaying updates until the next <b>cycle</b>"</p>		<p>SCOP is a web application, PHP based front-end to heartbeat, IP Virtual Server ipvs and Idirectord [e.g., check interval @ 5 seconds] SCOP can start/stop services, view/ edit configuration files e.g., heartbeat message state management snapshots, backups, take a service online/offline, add/ remove virtual/real servers, services etc.</p>	
  <p>QubitCoin Interval: Every 30 Seconds</p>		 <p>Satoshi Bitcoin Blockchain Time Stamp Server</p> <p>A. Timestamp Server: The solution we propose begins with a timestamp server. A timestamp server works by taking the current time, generating a unique identifier, and publishing the hash, such as in a newspaper or a timestamp [25]. The timestamp process that the data must have existed at the time of the timestamp is called a timestamp. This timestamp is then published on the network, forming a chain, with each additional timestamp recording the previous one.</p> <p>THE SOLUTION WE PROPOSE BEGINS WITH A TIME STAMP SERVER</p>	 <p>Block chain</p> <p>What does a block look like?</p> <p>Simplified block structure:</p> <ul style="list-style-type: none"> <li>Header</li> <li>Timestamp</li> <li>Previous Block Hash</li> <li>Block Data</li> <li>Block Hash</li> </ul> <p>EPOCH CYCLES E0 E1 E2 E3...</p> <p>MICRO CYCLES</p> <p>MACRO CYCLES</p>

# SOFTWARE DEFINED NETWORKING

NETOPS

Command Syntax

REST State Transfer

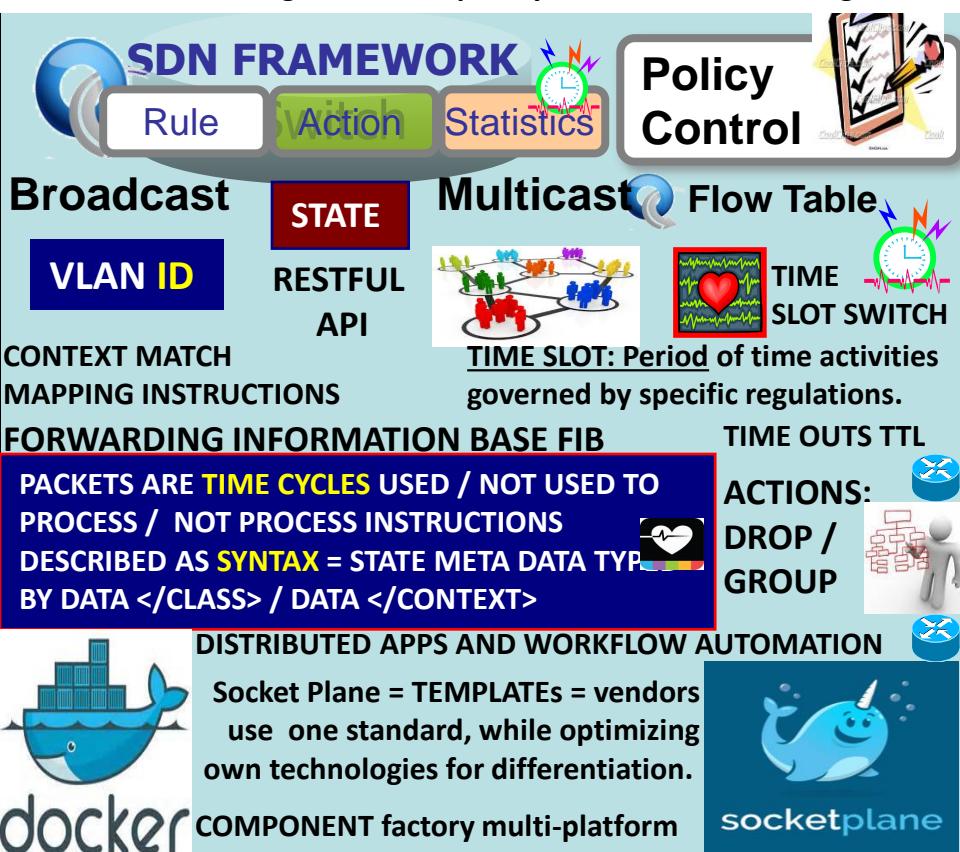
COMMAND SYNTAX  
STATE TRANSFER  
Unicast / Multicast  
Flow Tables / Workflow  
Dynamic Network  
Configuration Management

NET CENTRIC WARFARE  
SYSTEM OF SYSTEMS TELEMETRY

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

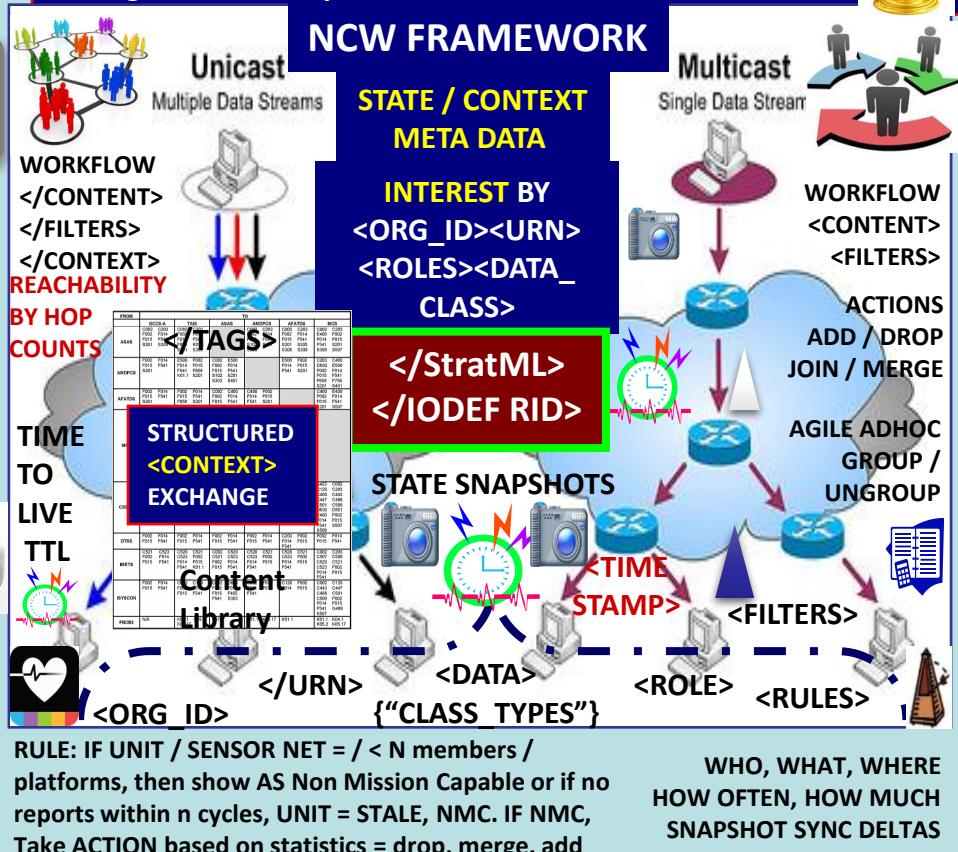
- SDN is a *framework* to allow network administrators to *automatically* and dynamically manage and control a *large number* of network devices, *services*, topology, traffic paths, and packet handling (quality of

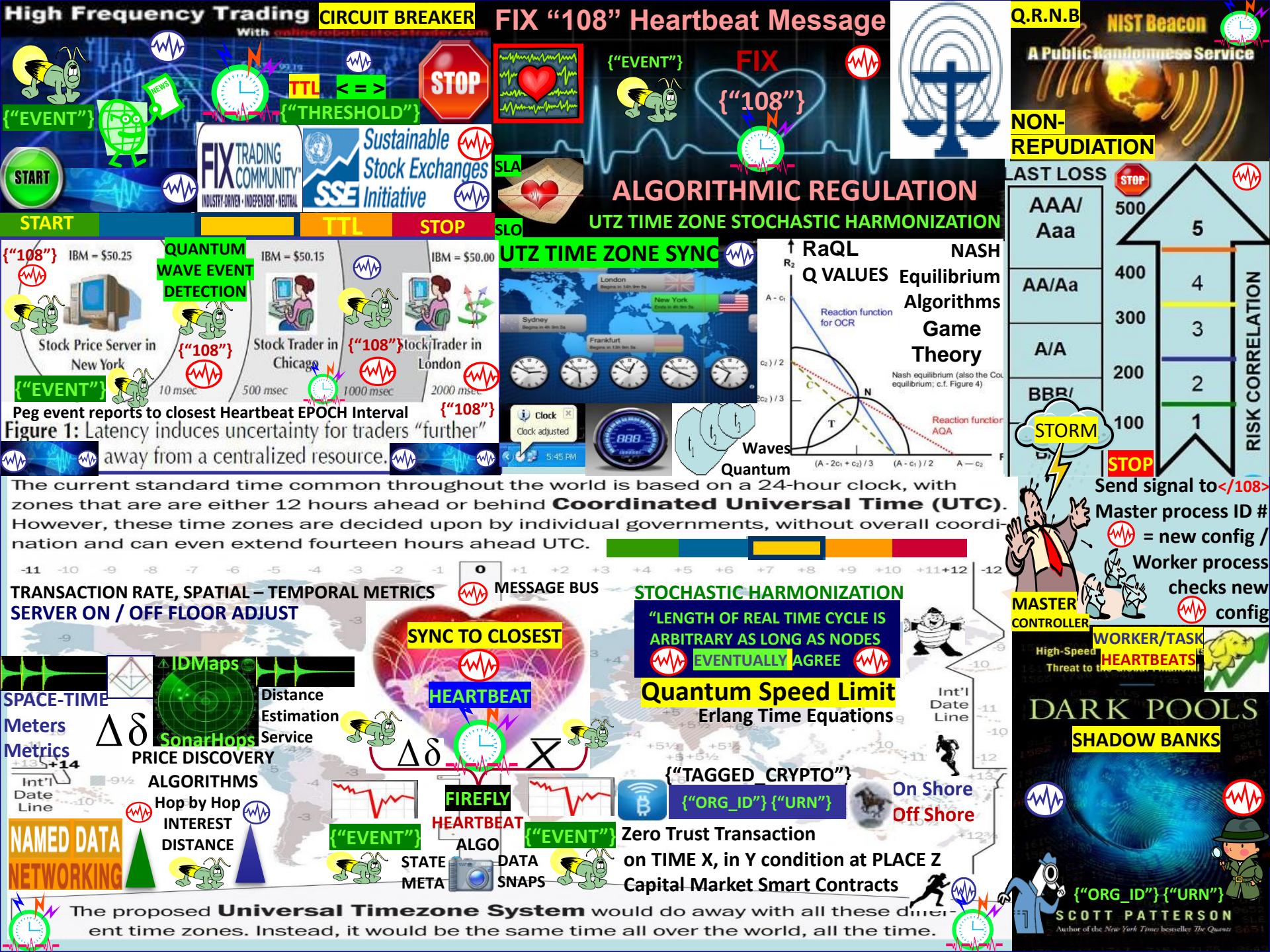
DevOps model and tools to enable scale, programmable agility, and policy-driven automation, and provides network virtualization to mask network configuration complexity with set of networking APIs



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."





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

GIZMAG: New NASA network poised to bring internet to entire solar system SCt 573 ALICE CORP VS CLS BANK PHYSICAL MEMES

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



TIME / DISTANCE SERVICE LEVEL AGREEMENT SLA / O Operations

IEEE 802.15.4 OASIS MQTT

TELEMETRY TRANSPORT

IEEE 802.1AG HOP BY HOP DETECTION

IEEE 802.11  
HOP BY HOP CONTROL



Unused Resources / Unmet Needs

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

Time Series

DISTANCE INFO SERVICE

IDMaps  
SonarHops

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

TCP/IP HOP BY HOP COUNT

Energy Attenuates over Distances

TESLA

vector

602

+3

+2

+1

Null

0

+1

+2

+3

603

+1

+2

NULL

+1

+2

PAUL REVERE LINEAR, SEQUENTIAL

RADIUS

WATER DROP IN POND MEME

Attribute Series

t<sub>1</sub>

t<sub>2</sub>

t<sub>3</sub>

INTEREST DISTANCE

Temporal Series

Geo Spatial

Micro Grids Closer - Cheaper

BLOCKCHAIN

MICROGRIDS

Spatial Econometrics

Spaceship Earth Signals & Telemetry Annex

ASTEROID BELTS = RARE MINERALS

MAIN ASTEROID BELT

MERCURY VENUS EARTH

FARHER = More Cost ➤ Fuel, Resources

STOCHASTIC HARMONIZATION Service Level Agreements

ERLANG TIME- SPACE METRICS

FIREFLY-HEARTBEAT ALGORITHM UNIVERSAL EVENT MESSAGE BUS

TROJAN ASTEROIDS

JUPITER ANDERSON INSTITUTE

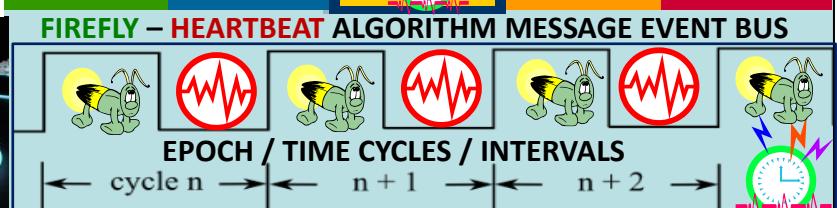
SYNTAX LEXICON

K00.99

43 22 13 0 1.5 2.7 5.2

Light minutes

Astronomical units





# Blockchain

BLUEPRINT FOR A NEW ECONOMY



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



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

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



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



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

The image features a horizontal banner with the Ericsson logo at both ends. The central text reads "ERLANG API FOR BLOCKCHAIN" in blue, "BITCOIN MAKES MONEY PROGRAMMABLE. MONEY IS SIMPLY DATA" in white, "WIRED MAG" in yellow, and "DIGINOMICS" in white. Below the banner, there are four colored squares (blue, red, green, yellow) with small circular icons containing waveforms.

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



## 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**

# SORTING ALGO'S

**Rho** ratio *Arrival Rate*  $\Delta \delta$   
*Service Rate per unit time*

# queueing systems wait times stochastic processes, function scheduling Start, Stop TTL



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

East FTS in-memory, and DETS persistent on-disk database

Mnesia database “organization\_ID” Global name resolution

## Mnesia database (“Organization ID”) Global name resolution

Throughout the world is based on a 24-hour clock, with



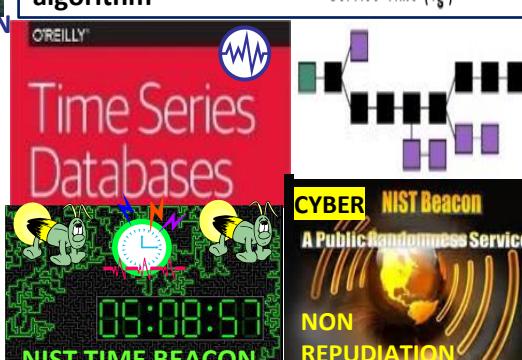
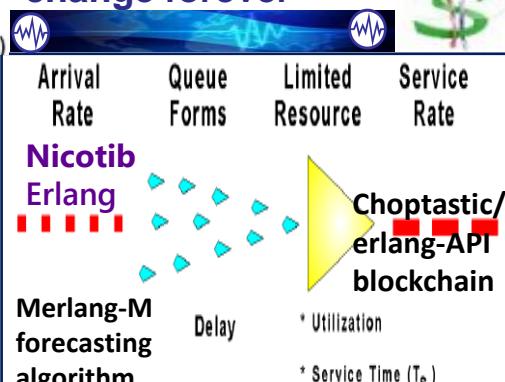
# Ericsson Open Money For Society Patent App



## 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"**

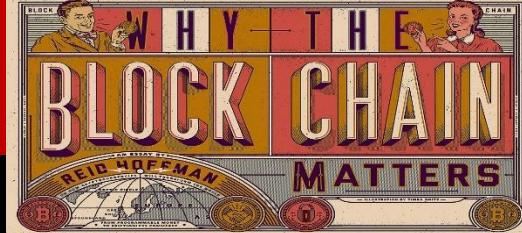


HEART BEACON CYCLE: ALL THINGS INTERNET ARE PROGRAMMED USING TIME CYCLES USED / NOT USED TO PROCESS / NOT PROCESS SYNTAX

# TradeNet

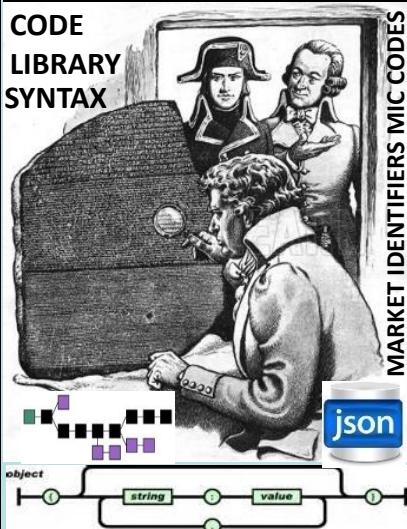


## Programmable Money \$\$\$



RIED HOFFMAN 15 May 2015 [LINK](#)

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



### ORGANIZATIONS

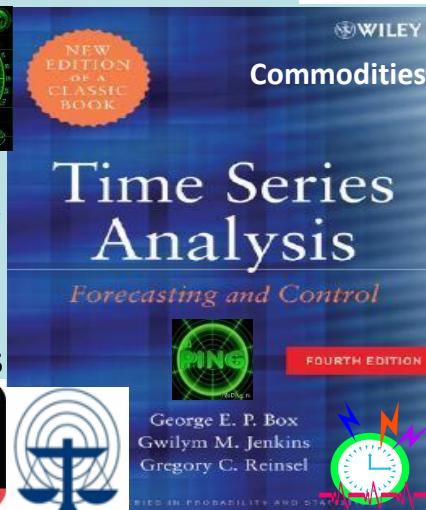
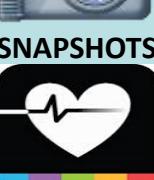
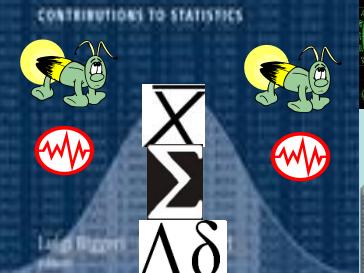


</Org\_ID>  
{"URN"}  
Organizational Units OU, OU

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,..



### MONEYBALL ECONOMICS







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



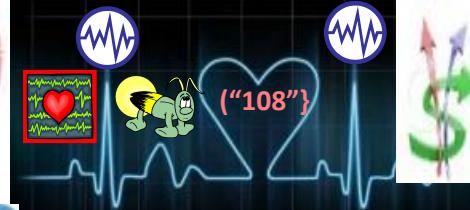
- Creates an online store for users to sell goods for Bitcoin
- Connects these stores directly to each other on a global network
- Users browse individual stores, search for products across whole network
- A buyer directly connects, purchases good from the merchant using Bitcoin
- Bitcoin payments via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

OPENBAZAAR.ORG  
BLOCKCHAIN ARBITRAGE



CLOSER = < \$  
CLOSER = < CO2

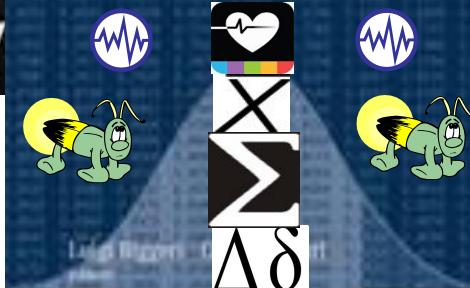
SLA  
COMMODITIES  
ECONOMIC HEARTBEAT



STAT MEAN VALUE PULSE  
REAL WORLD ASSETS RWA

STAT MEAN VALUE INDEX

CONTRIBUTIONS TO STATISTICS



Price Indexes in  
Time and Space  
Methods and Practice

SchellingPoint

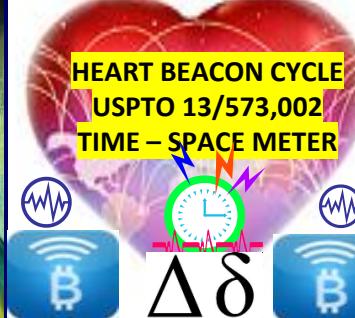
OpenBazaar is a different approach to online commerce. OpenBazaar connects buyers and sellers directly. Because there is no one in the middle of your transactions there are no fees, no restrictions, no accounts to create, and you only reveal personal information you choose.

## PROJECT PHILOSOPHY: *MAKE TRADE FREE*

Mission: *shift trade to a decentralized platform*



Demurrage TERRATRC TRADE  
Fees REFERENCE CURRENCY  
“Money of Peace”



Free, open markets: Commodity / Currency Index

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

• Privacy </Org\_ID>



HASH Values  
Nonce Values </Org\_ID>

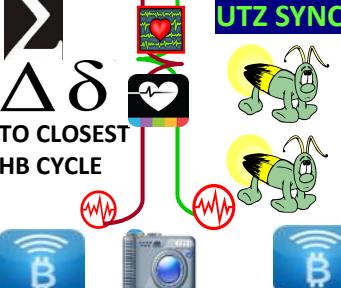


commodities

Federation

ORG ID  
Gateway

FIREFLY – HEARTBEAT ALGO  
SYNC EVENTS  
UTZ SYNC



Bitcoin: OpenBazaar transactional currency



Cryptographic Security

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

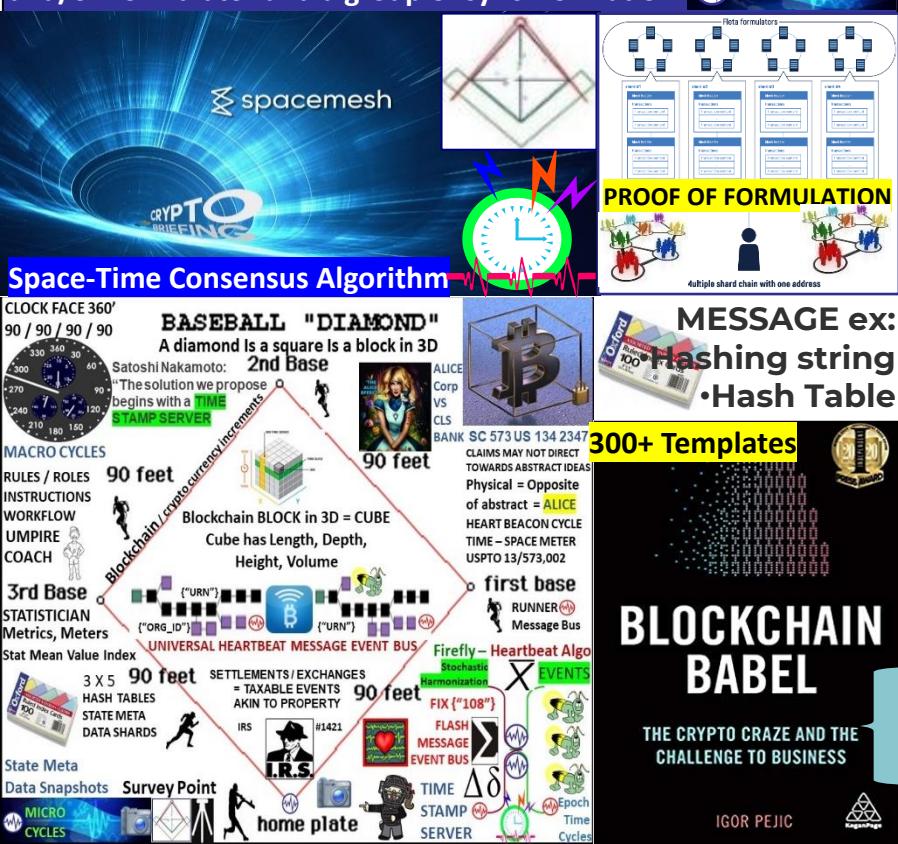
**Q: Which meme describes the myriad blockchain consensus algorithms the most comprehensively that uses an algorithm (based on nature = “shortest path to the knowledge of truth Luxor Temple) enabling distributed system of systems geo-spatial, UTZ Universal Time Zone temporal, semantic - syntactic sync,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

Blockchain Consensus Algorithms & Mechanisms



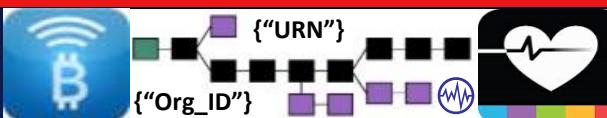
In the world of blockchain consensus algorithms, consensus is the **HEART OF THE BLOCKCHAIN NETWORK**. Its main purpose is to achieve agreement on transactions among a distributed system (s)

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



# **BLOCKCHAIN CONSENSUS ALGORITHMS**

**ULTIMATE GUIDE FOR BEGINNERS**



# NON REPUDIATION

Proof-of-Work

**Proof-of-Weight**

## Proof-of-Stake

## **Delegated Proof-of- Stake**

Pos

BPS

soa

LPOS

4

**Leased  
Proof-Of-**

Stake

Proof of  
Elapsed Time

## Practical Antine Fault

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

# structured Data Exchange SYNTAX LEXICON

## PPSCODES – Symbol Sets

## Simplified Zantine Fault Tolerance

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

# 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

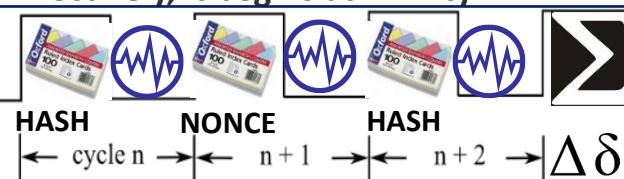


THROTTLE equivalent to difficulty. State  
•target = maximum value of 8 bytes Snap  
( $2^{64}$ ) divided by the difficulty.

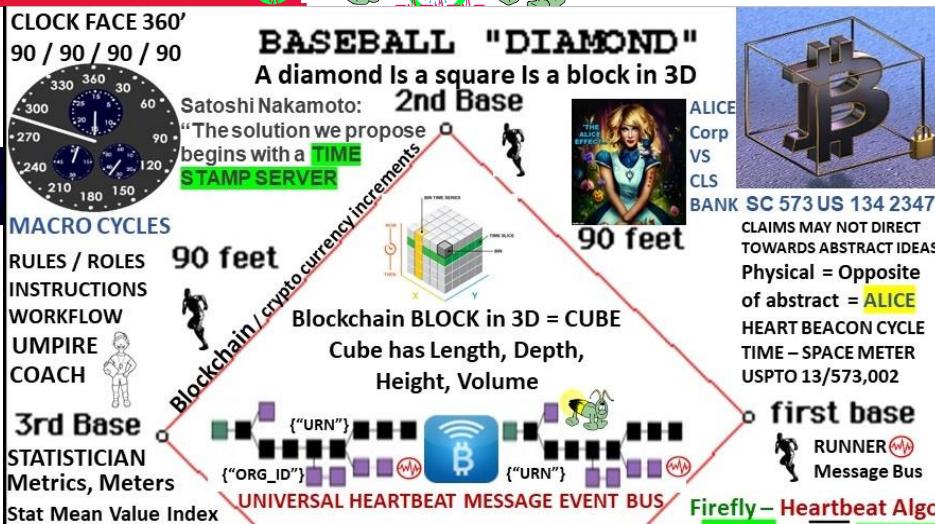
NONCE increments from 0..N until the target is met.



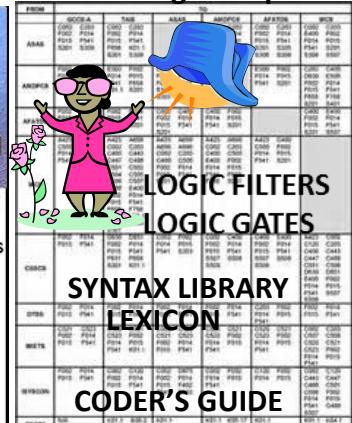
GUESS stores the guess  
Effectively, it begins at infinity.



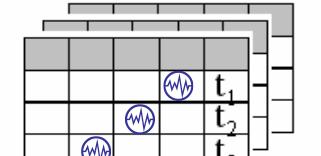
**Proof-of-Work:** users perform some form of work to participate. Work must be difficult for the client but easy for the server/network to verify. POW determines the approximate time between blocks = rate that new bitcoins are created. Work is submitted as a message/timestamp payload with a nonce value.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



300+Message Templates



POW PAYLOAD : COMBINATIONS OF ENCRYPTED SYNTAX Attribute Series

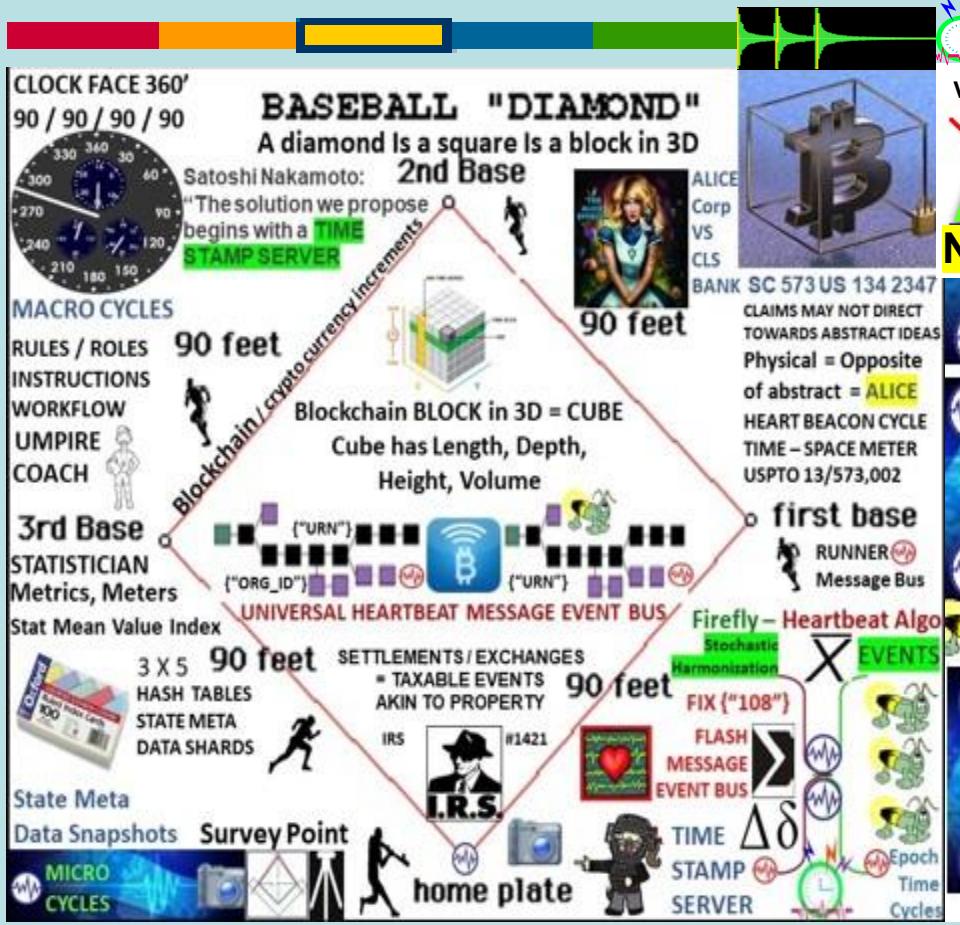




In a proof-of-stake network, it is the number of coins held in a wallet that determines the "weight" of the user the likelihood for the user to receive the block reward. In a Proof-of-Weight consensus mechanism, any value, not just the amount of coins held, is used to determine the "weight" of a user.

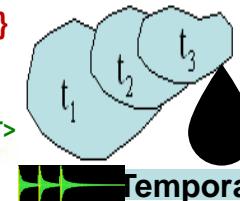
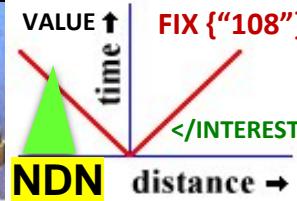


## TIME – SPACE MEASUREMENTS OF TOKENIZED COMMODITIES, SECURITIES... STOCHASTICALLY HARMONIZED ACROSS UTZ Universal Time Zone



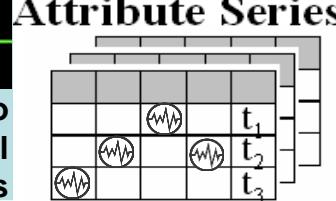
The Volumetric Weight is often referred to as dimensional weight

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

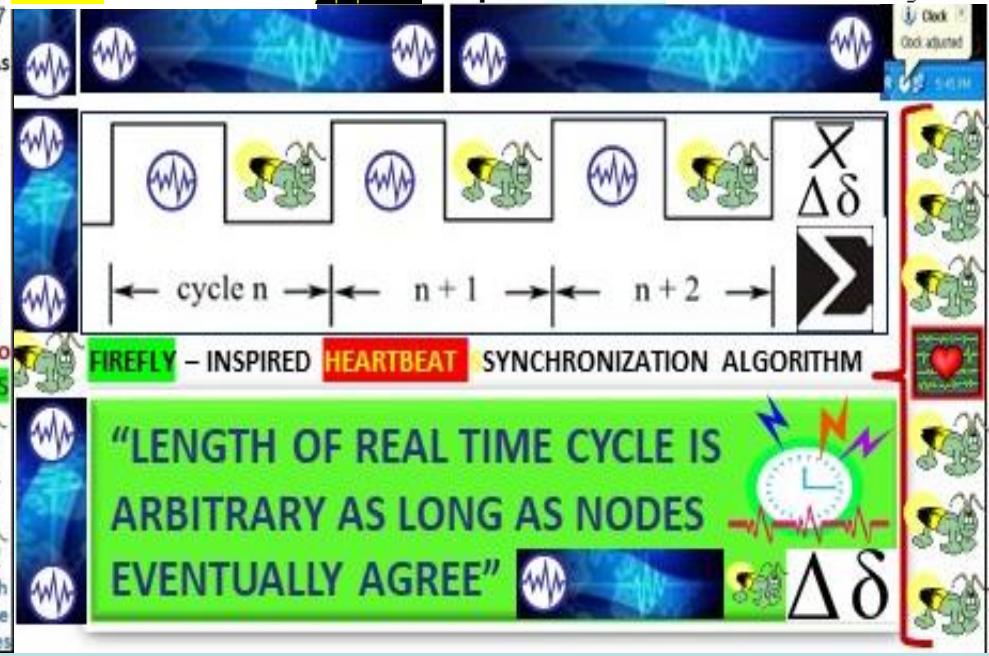


Geo Spatial

Temporal Series



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



## DON: DECENTRALIZED ORACLE NETWORKS



### Explicit Staking

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

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



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



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



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



ALERT LEVEL >

> NEWSCAST ZONE

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



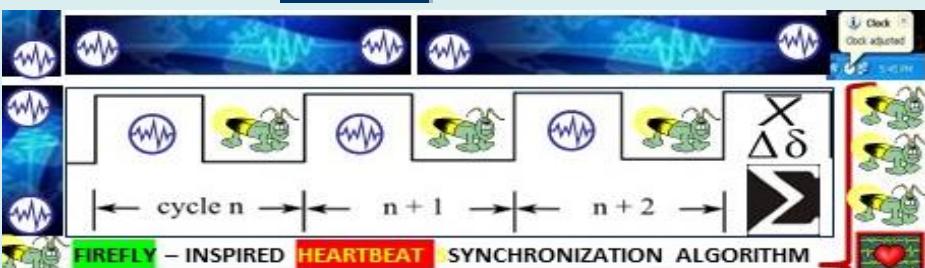
## DISTRIBUTED AUTONOMOUS ORGANIZATIONS DAO

# Heart Beacon Cycle

## FEDERATE / TRADE FEDERATIONS

### Linear Sequential Meme

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



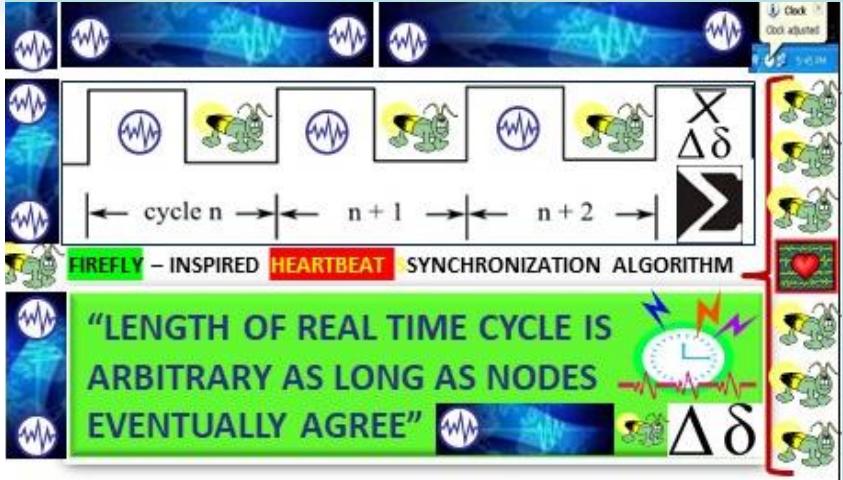
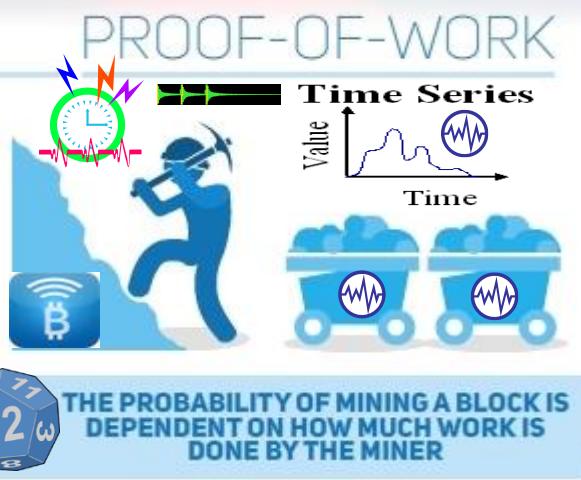
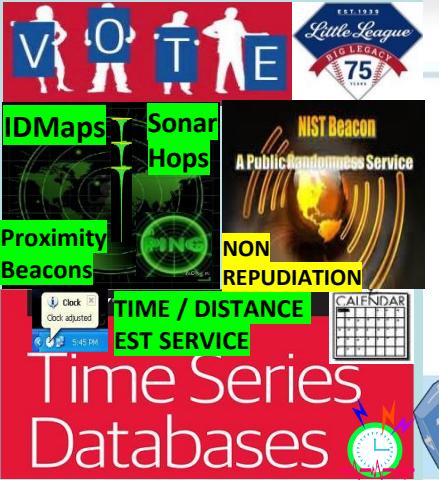


Adaptive  
Procedural  
Checklist

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

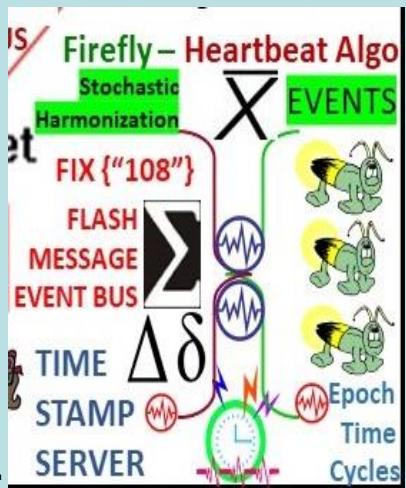
### Example of Proof-of-Activity (PoA)

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



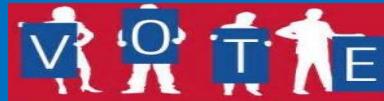
PROOF-OF-WORK

HEART BEACON CYCLE 13/573,002

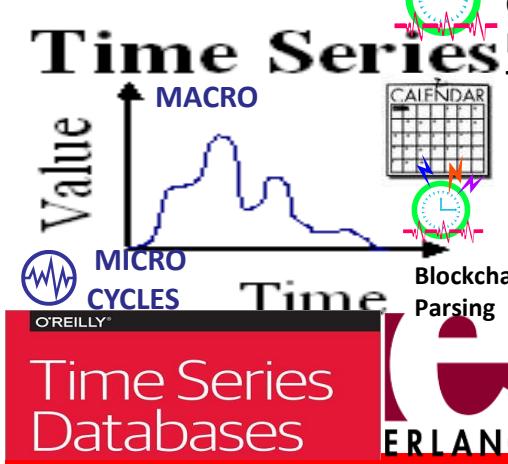


# SAWTOOTH LAKE POETIC CONSENSUS PROOF OF ELAPSED TIME: POET

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



## PROOF OF ELAPSED TIME



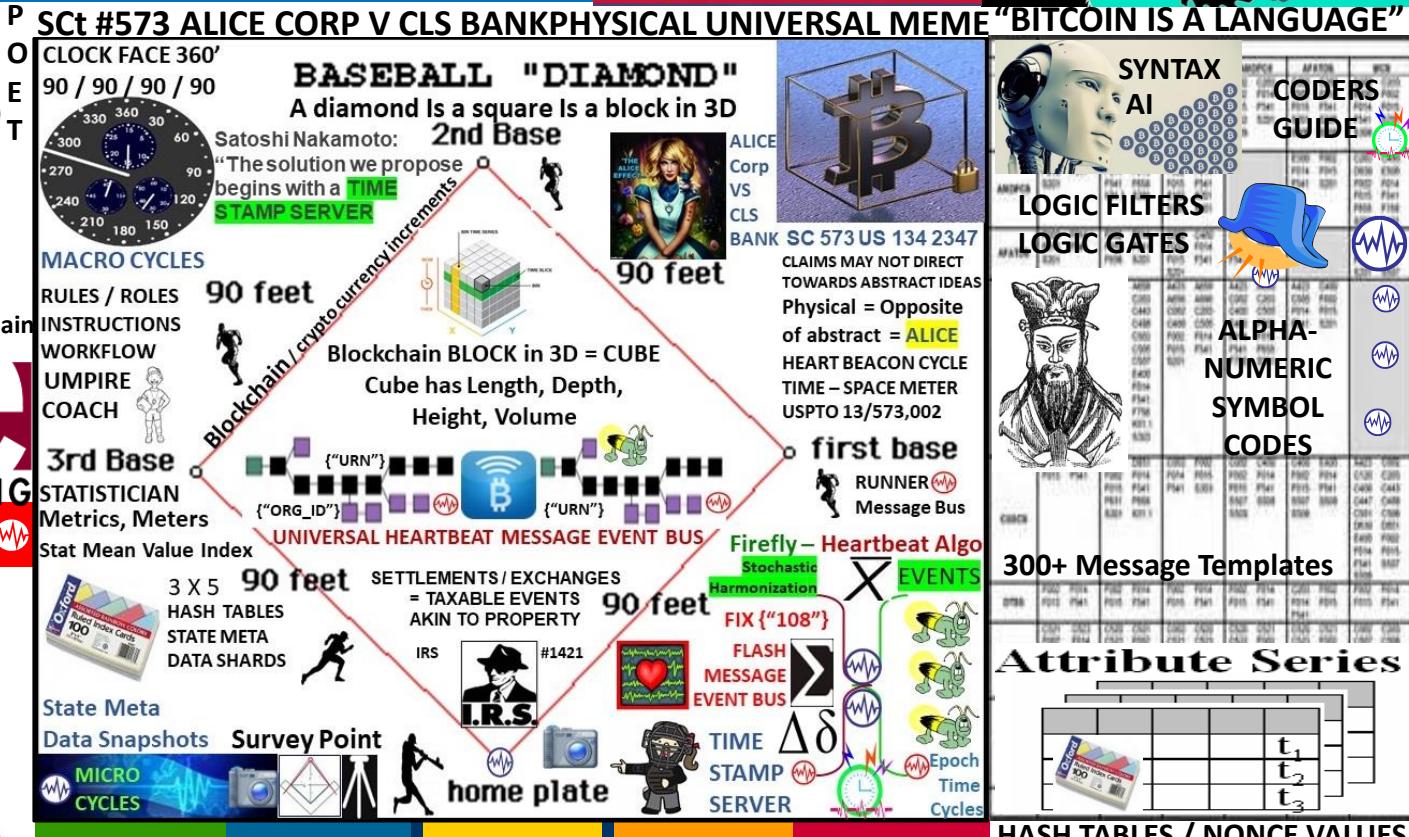
Voting Based Selection: stake size & block generators selected by votes

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



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

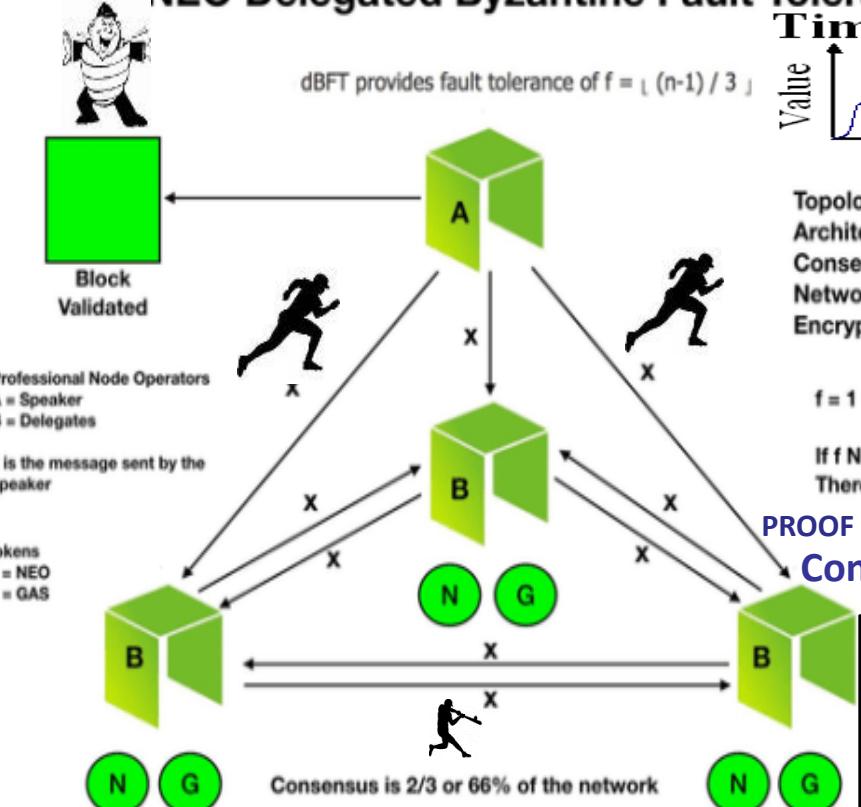
## TOURNAMENT LEAGUE BOARD



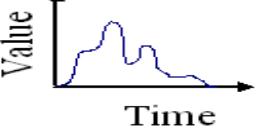
Capture ledger's state  $\Delta\delta$   
Transaction language changes ledger state  
Consensus, transaction acceptance protocol



# NEO Delegated Byzantine Fault Tolerance (dBFT)



## Time Series



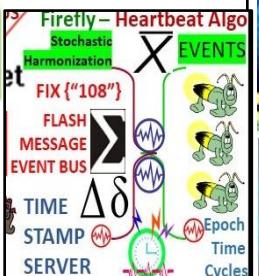
dBFT provides fault tolerance of  $f = \lfloor (n-1) / 3 \rfloor$

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

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

If  $f$  NOT 1 OR  $< 0.66$   
There is no consensus

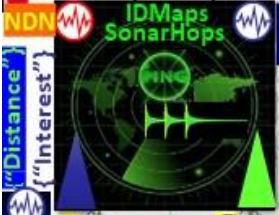
## PROOF OF ELAPSED TIME Consensus Order



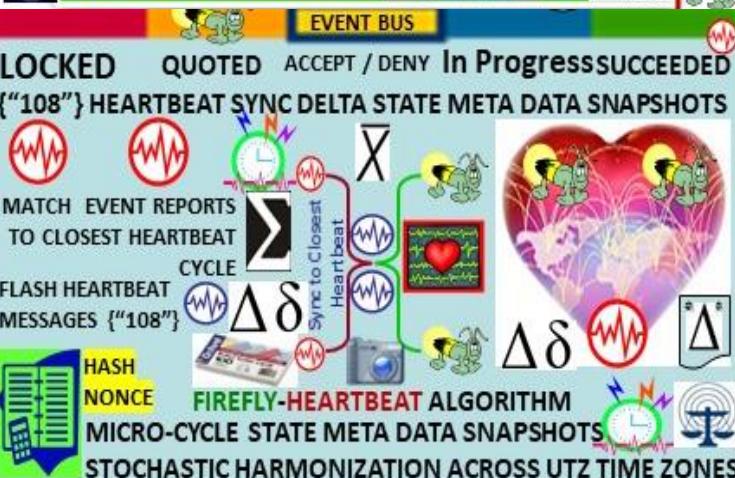
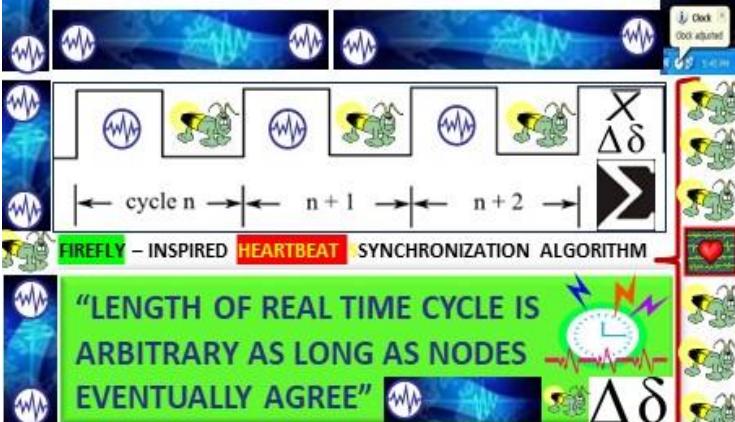
USPTO 13/573,002  
[sawconcepts.com/index](http://sawconcepts.com/index)

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

## TRIANGULATION



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



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

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





**HASHGRAPH**  
Directed Acyclic  
Graph DAG

Hashgraph consensus algorithm  
for replicated state machines

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

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

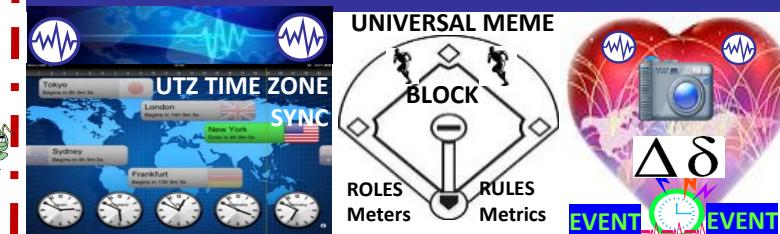
Gossip In Bitcoin: transactions and mined blocks are gossiped.  
Consensus is enhanced via "gossip about gossip"



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



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



Round created  
Witness

Famous witness

Election

Vote

See

Strongly see

Supermajority

Decide

Round created

Round received

Consensus timestamp

Consensus order  $\Delta\delta$

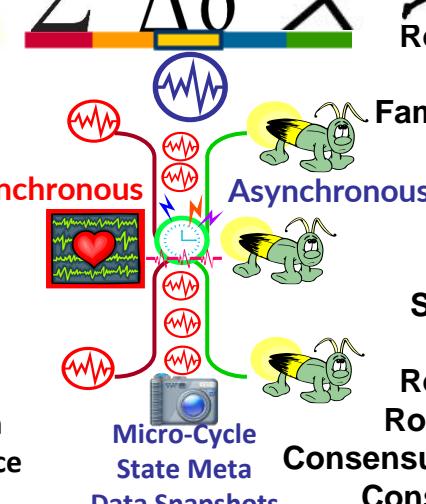
Hashgraph Member Event Transaction Consensus Order Timestamp Gossip protocol Self-parent Other-parent Graph Hash Hashgraph



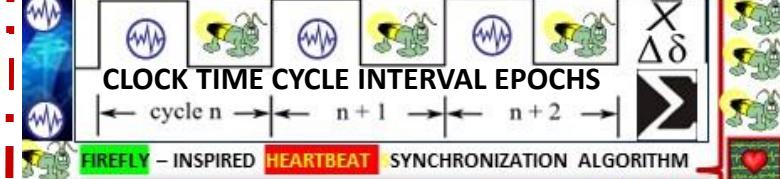
Hash  
Nonce

Micro-Cycle  
State Meta  
Data Snapshots

Consensus timestamp  
Consensus order  $\Delta\delta$



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



"LENGTH OF REAL TIME CYCLE IS ARBITRARY AS LONG AS NODES EVENTUALLY AGREE"  $\Delta\delta$



# Proof of Burn



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

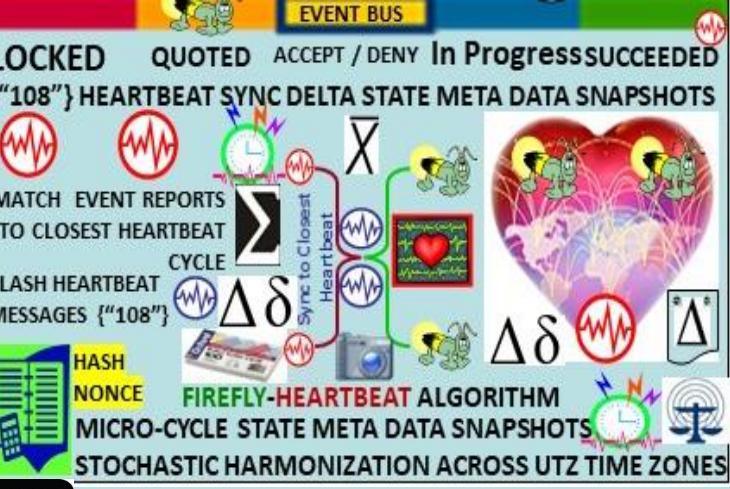
Iain Stewart, the inventor of the POB algorithm, uses an analogy to describe the algorithm: burnt coins are like mining rigs. In this analogy, a miner burns their coins to buy a virtual mining rig that gives them the power to mine blocks. The more coins burned by the miner, the bigger their virtual mining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

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



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

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



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

Phase 2: Shared file stores data for 5 tags:  
(1) Active ID  
(2) Heartbeat 1.  
(3) Heartbeat 2.  
(4) Device Status 1.  
(5) Device Status 2.

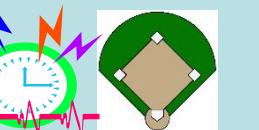
TAG	SLA/O	Token Award
{"Org_ID": ActiveID}	[UFO2_ACTIVEID]	</EVENT>
IF1_Heartbeat (IF-Node1)	[UFO2_HEARTBEAT:#]	</EVENT>
IF2_Heartbeat (IF-Node2)	[UFO2_HEARTBEAT:#]	</EVENT>
{"UUID": IF1_DeviceStatus (IF-Node1)}	[UFO2_DEVICESTAT:#]	</EVENT>
{"UUID": IF2_DeviceStatus (IF-Node2)}	[UFO2_DEVICESTAT:#]	</EVENT>
IF1_State (IF-Node1)	$\Delta\delta$	[UFO2_STATE:#]
IF2_State (IF-Node2)	$\Delta\delta$	[UFO2_STATE:#]

# Proof of Capacity PoC



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

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



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



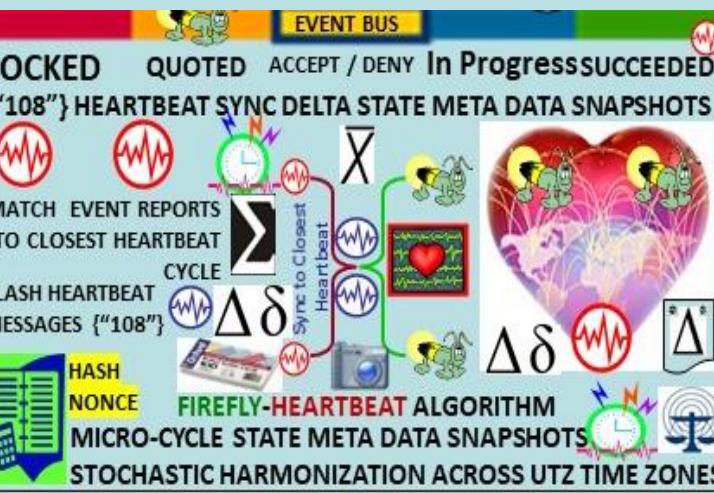
The larger the hard drive, the > possible solution values one can store on the hard drive, the more chances a miner has to match required hash value from his list, resulting in more chances to win the mining reward.



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



Bitcoin purchase akin to property





# Proof of Authority



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

Not pay to play, Node identity is kept as stake

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



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

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

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



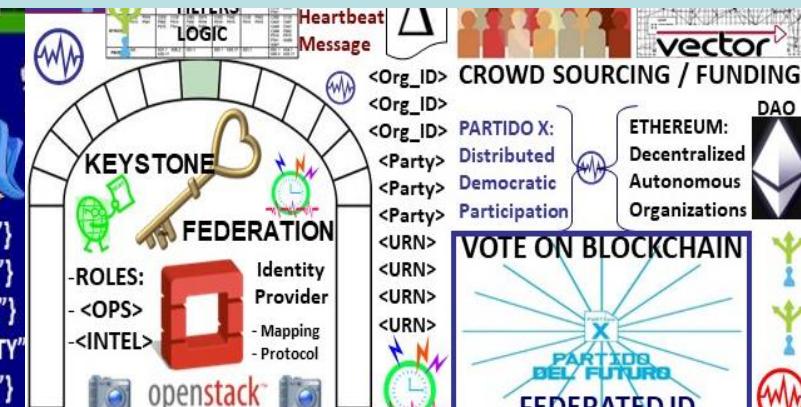
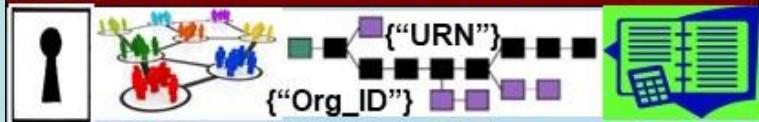
Net joins, drops, splits, merges, moves

Agile, adhoc NETOPS Vs acquisition preserves the

DISTRIBUTED AUTONOMOUS ORGANIZATIONS DAO

## Heart Beacon Cycle

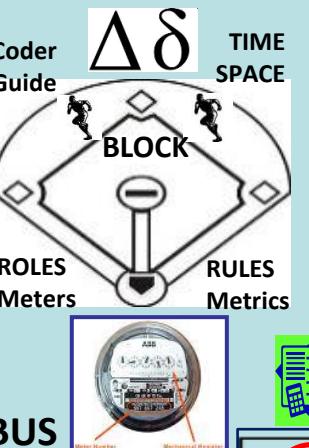
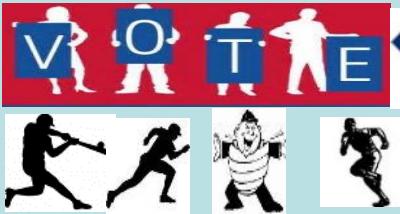
### FEDERATE / TRADE FEDERATIONS



**BITCOIN NG NEX GEN / Heart Beacon Cycle 13/573,002**

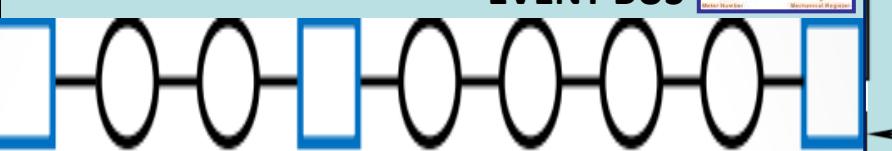
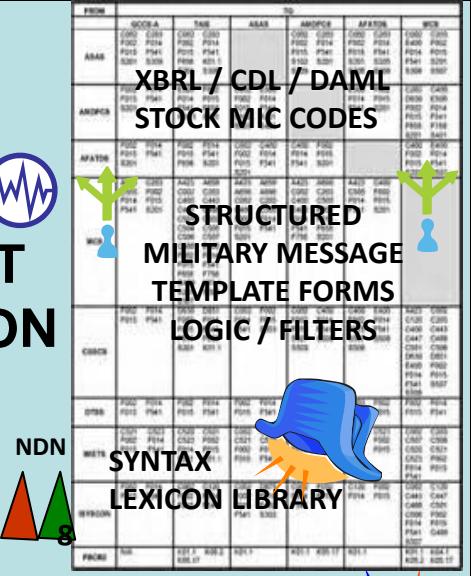
## **KEY BLOCKS:**

- NO CONTENT = NULL
  - LEADER ELECTION

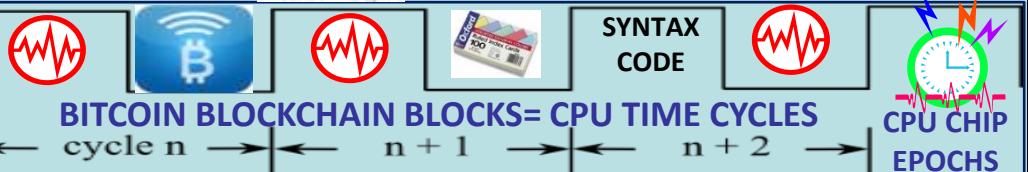


# MICRO BLOCKS:

- ONLY CONTENT
  - NO CONTENTION

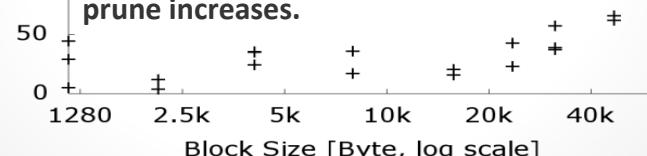


## long exponential intervals (10 min)



## 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)



MICRO-CYCLES



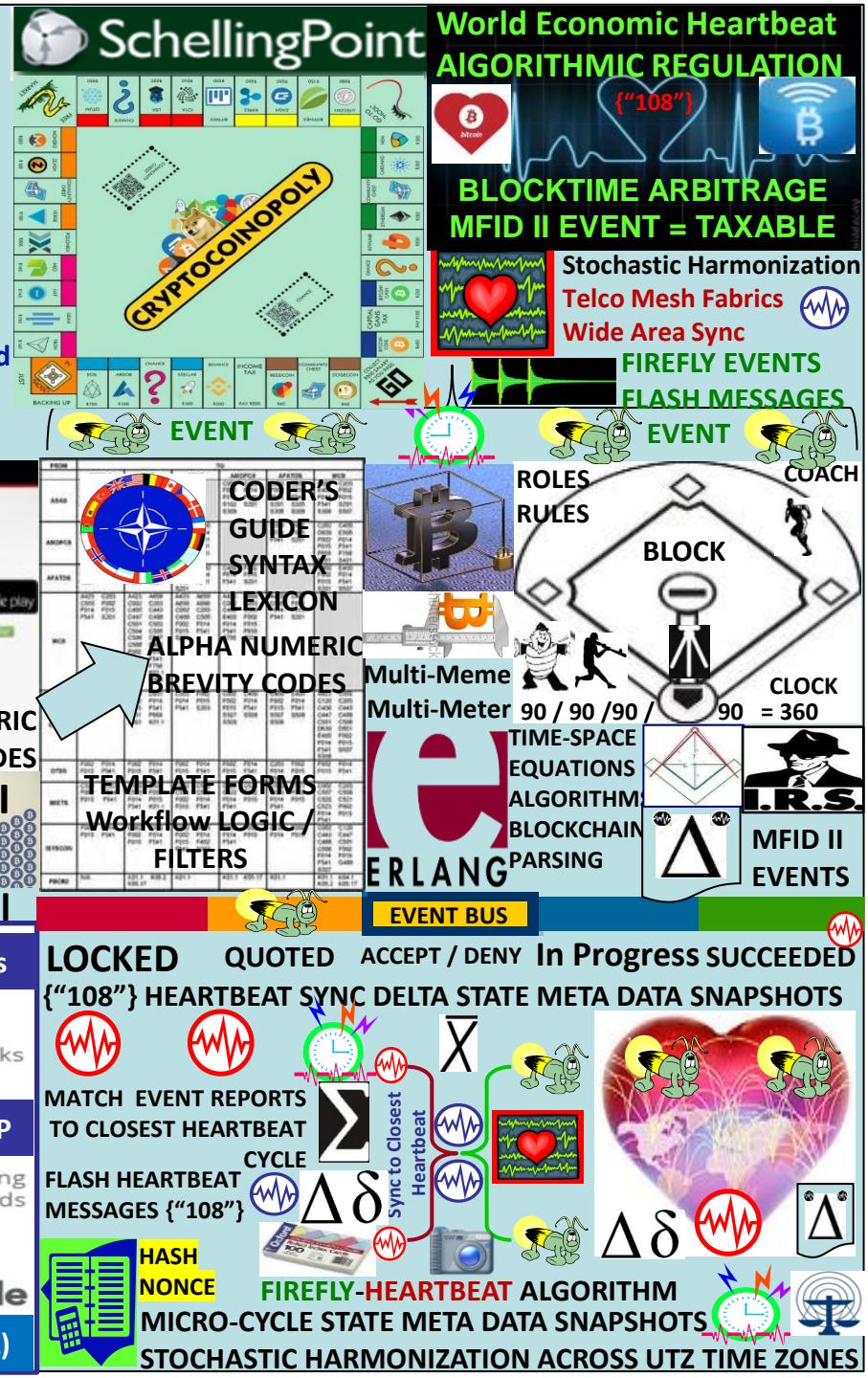
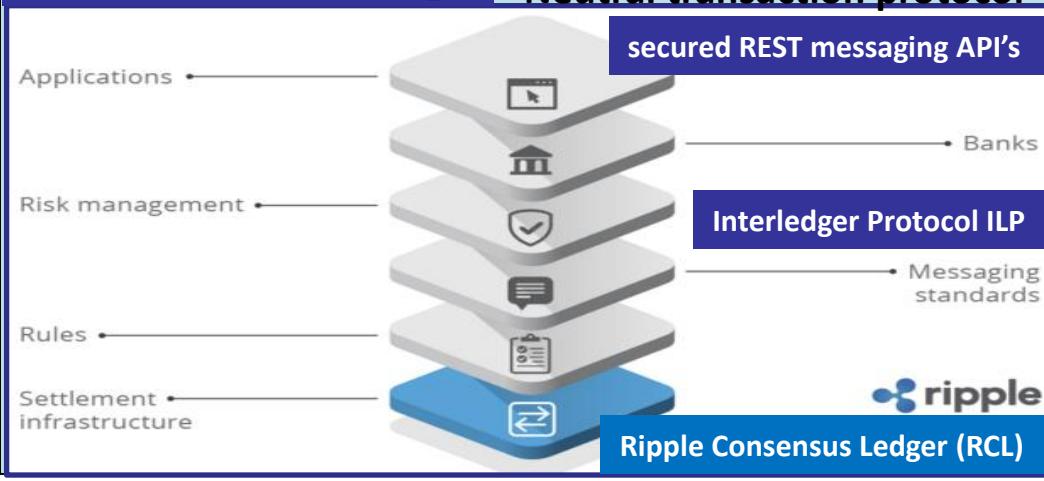
**real-time gross settlement system,  
currency exchange, remittance network**

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

Connects to receiving bank's Ripple Connect to exchange KYC, risk info, fees, payment details, expected time of funds delivery

**Provides information about total costs of the transaction.**  

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







# UNICOIN

## Digital Capital Exchange

### Unicorn: IMF CBDC legal tender settlement coin

Universal Monetary Unit (UMU), a.k.a Unicorn: store of value cryptography, artificial intelligence (A.I.) Goals: continuous purchasing demand, minimal price volatility, and annual asset pricing targets.

**The primary value of any commodity is its utility value.**

**Utility = pay for goods, services, and debts, preserve value over a long period of time.** Employs machine learning trading bots. UMPC will establish yield payout rates for wallet holders to stake Unicorn in the Staked Proof of Trust (SPOT) consensus protocol. PoT consensus selects

validators I.A.W contribution to the DeFI network

### The DCMA – Digital Public Monetary System

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

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





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## Digital Capital Exchange

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

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





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wallet holders to stake Unicoin in the Staked Proof of Trust  
(SPOT) consensus protocol. PoT consensus selects  
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Ü



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.



INFOCON  
4 3 2 1  
INFORMATION  
CONDITION

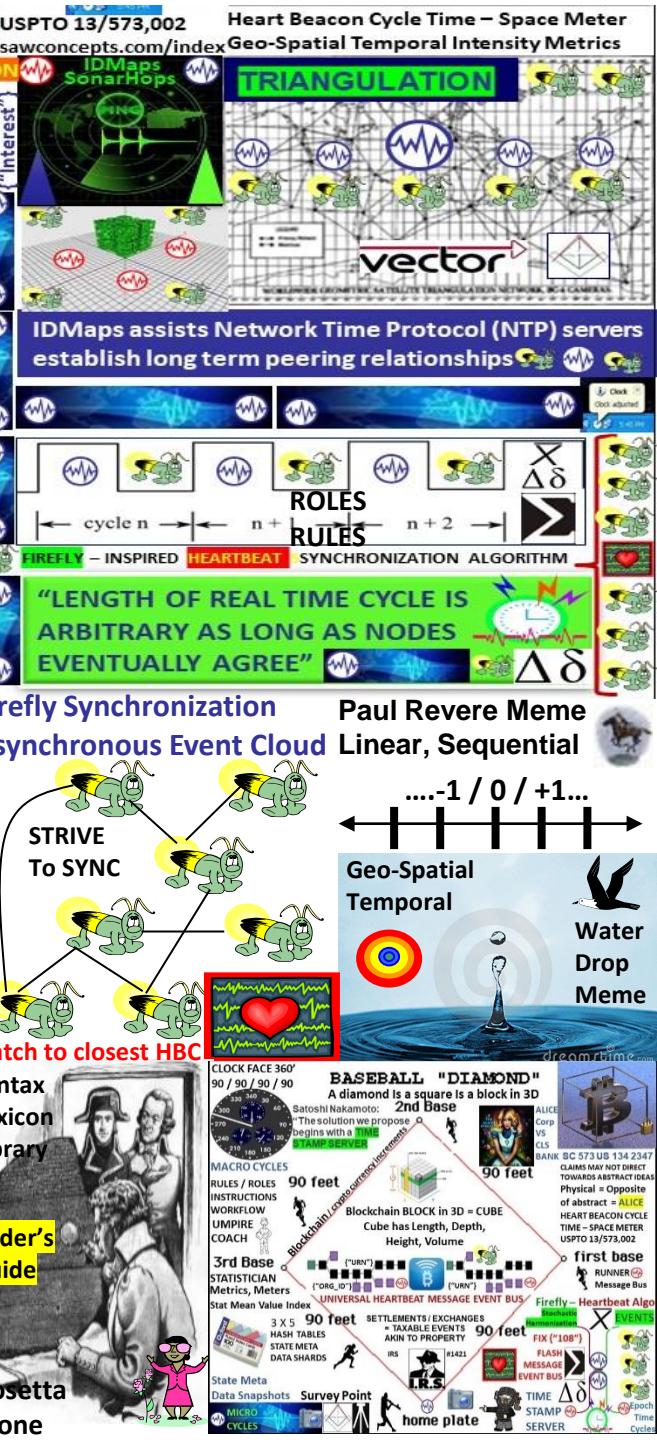
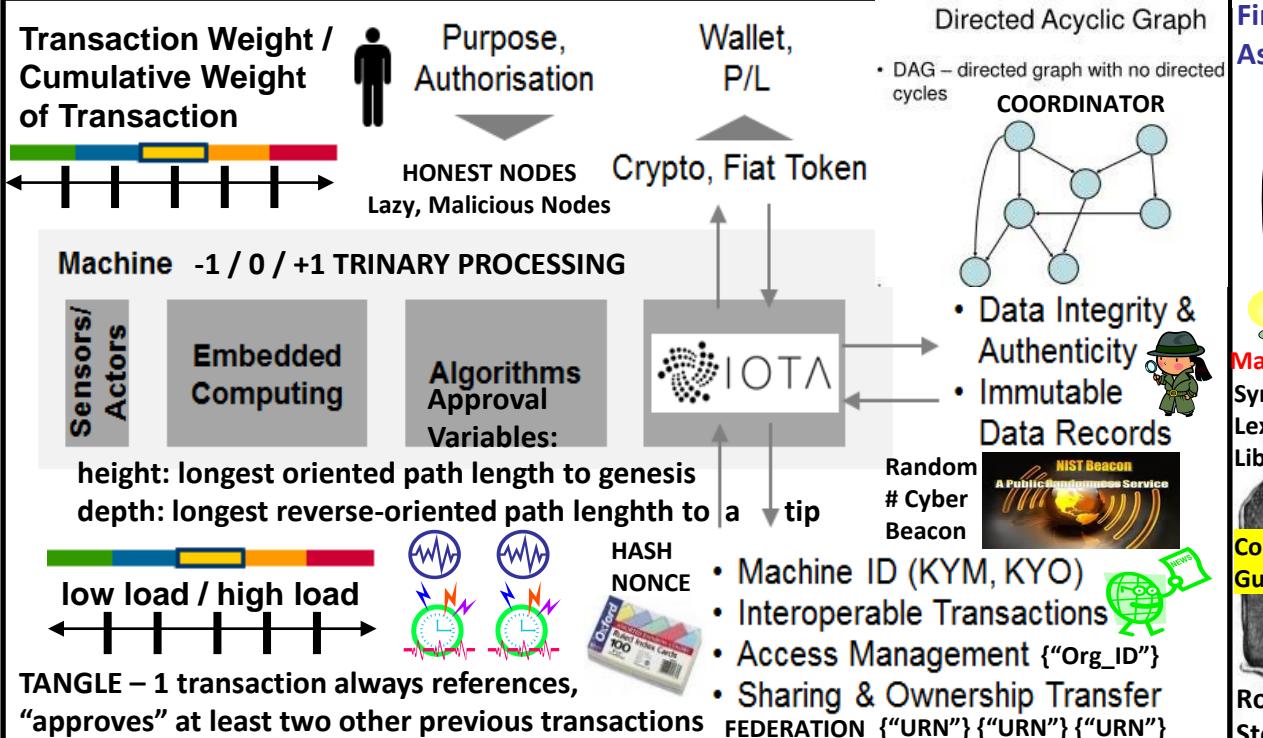


OTA: Internet Of Things IOT distributed ledger  
with microtransactions without fees

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

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

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





# ZEPPELIN



## ZEPPELIN OPEN, GLOBAL ECONOMY

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

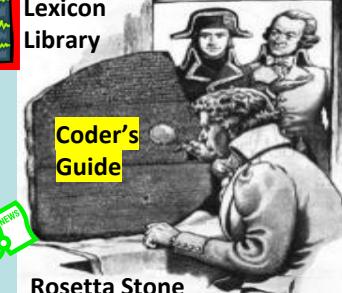
zeppelinOS, operating system for smart contracts  
*"the rate of innovation in building decentralized applications is limited by the manual and duplicative efforts developers must make to ensure basic usability and security."*

## WORLD ECONOMIC HEARTBEAT



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

Syntax Lexicon Library  
300 + Templates



### STRUCTURED DATA EXCHANGE

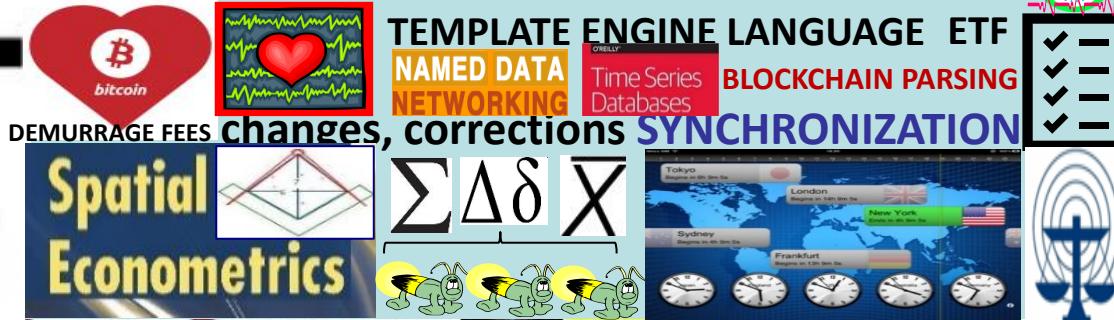
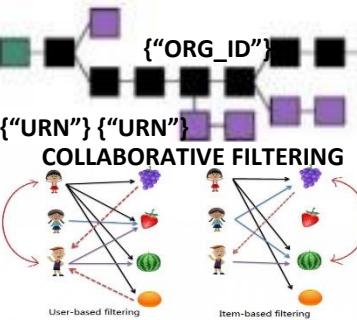
Protocol	Version	Standard	API	Implementation	Specification	Language	Notes
ABAP	P101	PSI01	P101	P101	P101	ABAP	
ANCHOR	P101	PSI01	P101	P101	P101	ANCHOR	
APACHE	P101	PSI01	P101	P101	P101	APACHE	
ARM	P101	PSI01	P101	P101	P101	ARM	
CLOUD	P101	PSI01	P101	P101	P101	CLOUD	
COAP	P101	PSI01	P101	P101	P101	COAP	
DDS	P101	PSI01	P101	P101	P101	DDS	
EDIFICE	P101	PSI01	P101	P101	P101	EDIFICE	
EMBEDDED	P101	PSI01	P101	P101	P101	EMBEDDED	
FAT	P101	PSI01	P101	P101	P101	FAT	
FMN	P101	PSI01	P101	P101	P101	FMN	
HTTP	P101	PSI01	P101	P101	P101	HTTP	
ICMP	P101	PSI01	P101	P101	P101	ICMP	
IMPERITY	P101	PSI01	P101	P101	P101	IMPERITY	
IP	P101	PSI01	P101	P101	P101	IP	
IPMI	P101	PSI01	P101	P101	P101	IPMI	
IRIS	P101	PSI01	P101	P101	P101	IRIS	
MQTT	P101	PSI01	P101	P101	P101	MQTT	
NETCONF	P101	PSI01	P101	P101	P101	NETCONF	
OPENAPI	P101	PSI01	P101	P101	P101	OPENAPI	
OSPF	P101	PSI01	P101	P101	P101	OSPF	
PUBSUB	P101	PSI01	P101	P101	P101	PUBSUB	
RTP	P101	PSI01	P101	P101	P101	RTP	
RTSP	P101	PSI01	P101	P101	P101	RTSP	
SDP	P101	PSI01	P101	P101	P101	SDP	
SNMP	P101	PSI01	P101	P101	P101	SNMP	
TCP	P101	PSI01	P101	P101	P101	TCP	
UDI	P101	PSI01	P101	P101	P101	UDI	
UDL	P101	PSI01	P101	P101	P101	UDL	
UML	P101	PSI01	P101	P101	P101	UML	
URN	P101	PSI01	P101	P101	P101	URN	
VLAN	P101	PSI01	P101	P101	P101	VLAN	
WEBSOCKETS	P101	PSI01	P101	P101	P101	WEBSOCKETS	
X.25	P101	PSI01	P101	P101	P101	X.25	
X.29	P101	PSI01	P101	P101	P101	X.29	
X.40	P101	PSI01	P101	P101	P101	X.40	
X.50	P101	PSI01	P101	P101	P101	X.50	
X.55	P101	PSI01	P101	P101	P101	X.55	
X.56	P101	PSI01	P101	P101	P101	X.56	
X.57	P101	PSI01	P101	P101	P101	X.57	
X.58	P101	PSI01	P101	P101	P101	X.58	
X.59	P101	PSI01	P101	P101	P101	X.59	
X.60	P101	PSI01	P101	P101	P101	X.60	
X.61	P101	PSI01	P101	P101	P101	X.61	
X.62	P101	PSI01	P101	P101	P101	X.62	
X.63	P101	PSI01	P101	P101	P101	X.63	
X.64	P101	PSI01	P101	P101	P101	X.64	
X.65	P101	PSI01	P101	P101	P101	X.65	
X.66	P101	PSI01	P101	P101	P101	X.66	
X.67	P101	PSI01	P101	P101	P101	X.67	
X.68	P101	PSI01	P101	P101	P101	X.68	
X.69	P101	PSI01	P101	P101	P101	X.69	
X.70	P101	PSI01	P101	P101	P101	X.70	
X.71	P101	PSI01	P101	P101	P101	X.71	
X.72	P101	PSI01	P101	P101	P101	X.72	
X.73	P101	PSI01	P101	P101	P101	X.73	
X.74	P101	PSI01	P101	P101	P101	X.74	
X.75	P101	PSI01	P101	P101	P101	X.75	
X.76	P101	PSI01	P101	P101	P101	X.76	
X.77	P101	PSI01	P101	P101	P101	X.77	
X.78	P101	PSI01	P101	P101	P101	X.78	
X.79	P101	PSI01	P101	P101	P101	X.79	
X.80	P101	PSI01	P101	P101	P101	X.80	
X.81	P101	PSI01	P101	P101	P101	X.81	
X.82	P101	PSI01	P101	P101	P101	X.82	
X.83	P101	PSI01	P101	P101	P101	X.83	
X.84	P101	PSI01	P101	P101	P101	X.84	
X.85	P101	PSI01	P101	P101	P101	X.85	
X.86	P101	PSI01	P101	P101	P101	X.86	
X.87	P101	PSI01	P101	P101	P101	X.87	
X.88	P101	PSI01	P101	P101	P101	X.88	
X.89	P101	PSI01	P101	P101	P101	X.89	
X.90	P101	PSI01	P101	P101	P101	X.90	
X.91	P101	PSI01	P101	P101	P101	X.91	
X.92	P101	PSI01	P101	P101	P101	X.92	
X.93	P101	PSI01	P101	P101	P101	X.93	
X.94	P101	PSI01	P101	P101	P101	X.94	
X.95	P101	PSI01	P101	P101	P101	X.95	
X.96	P101	PSI01	P101	P101	P101	X.96	
X.97	P101	PSI01	P101	P101	P101	X.97	
X.98	P101	PSI01	P101	P101	P101	X.98	
X.99	P101	PSI01	P101	P101	P101	X.99	
X.100	P101	PSI01	P101	P101	P101	X.100	
X.101	P101	PSI01	P101	P101	P101	X.101	
X.102	P101	PSI01	P101	P101	P101	X.102	
X.103	P101	PSI01	P101	P101	P101	X.103	
X.104	P101	PSI01	P101	P101	P101	X.104	
X.105	P101	PSI01	P101	P101	P101	X.105	
X.106	P101	PSI01	P101	P101	P101	X.106	
X.107	P101	PSI01	P101	P101	P101	X.107	
X.108	P101	PSI01	P101	P101	P101	X.108	
X.109	P101	PSI01	P101	P101	P101	X.109	
X.110	P101	PSI01	P101	P101	P101	X.110	
X.111	P101	PSI01	P101	P101	P101	X.111	
X.112	P101	PSI01	P101	P101	P101	X.112	
X.113	P101	PSI01	P101	P101	P101	X.113	
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X.116	P101	PSI01	P101	P101	P101	X.116	
X.117	P101	PSI01	P101	P101	P101	X.117	
X.118	P101	PSI01	P101	P101	P101	X.118	
X.119	P101	PSI01	P101	P101	P101	X.119	
X.120	P101	PSI01	P101	P101	P101	X.120	
X.121	P101	PSI01	P101	P101	P101	X.121	
X.122	P101	PSI01	P101	P101	P101	X.122	
X.123	P101	PSI01	P101	P101	P101	X.123	
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X.125	P101	PSI01	P101	P101	P101	X.125	
X.126	P101	PSI01	P101	P101	P101	X.126	
X.127	P101	PSI01	P101	P101	P101	X.127	
X.128	P101	PSI01	P101	P101	P101	X.128	
X.129	P101	PSI01	P101	P101	P101	X.129	
X.130	P101	PSI01	P101	P101	P101	X.130	
X.131	P101	PSI01	P101	P101	P101	X.131	
X.132	P101	PSI01	P101	P101	P101	X.132	
X.133	P101	PSI01	P101	P101	P101	X.133	
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X.135	P101	PSI01	P101	P101	P101	X.135	
X.136	P101	PSI01	P101	P101	P101	X.136	
X.137	P101	PSI01	P101	P101	P101	X.137	
X.138	P101	PSI01	P101	P101	P101	X.138	
X.139	P101	PSI01	P101	P101	P101	X.139	
X.140	P101	PSI01	P101	P101	P101	X.140	
X.141	P101	PSI01	P101	P101	P101	X.141	
X.142	P101	PSI01	P101	P101	P101	X.142	
X.143	P101	PSI01	P101	P101	P101	X.143	
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X.145	P101	PSI01	P101	P101	P101	X.145	
X.146	P101	PSI01	P101	P101	P101	X.146	
X.147	P101	PSI01	P101	P101	P101	X.147	
X.148	P101	PSI01	P101	P101	P101	X.148	
X.149	P101	PSI01	P101	P101	P101	X.149	
X.150	P101	PSI01	P101	P101	P101	X.150	
X.151	P101	PSI01	P101	P101	P101	X.151	
X.152	P101	PSI01	P101	P101	P101	X.152	
X.153	P101	PSI01	P101	P101	P101	X.153	
X.154	P101	PSI01	P101	P101	P101	X.154	
X.155	P101	PSI01	P101	P101	P101	X.155	
X.156	P101	PSI01	P101	P101	P101	X.156	
X.157	P101	PSI01	P101	P101	P101	X.157	
X.158	P101	PSI01	P101	P101	P101	X.158	
X.159	P101	PSI01	P101	P101	P101	X.159	
X.160	P101	PSI01	P101	P101	P101	X.160	
X.161	P101	PSI01	P101	P101	P101	X.161	
X.162	P101	PSI01	P101	P101	P101	X.162	
X.163	P101	PSI01	P101	P101	P101	X.163	
X.164	P101	PSI01	P101	P101	P101	X.164	
X.165	P101	PSI01	P101	P101	P101	X.165	
X.166	P101	PSI01	P101	P101	P101	X.166	
X.167	P101	PSI01	P101	P101	P101	X.167	
X.168	P101	PSI01	P101	P101	P101	X.168	
X.169	P101	PSI01	P101	P101	P101	X.169	
X.170	P101	PSI01	P101	P101	P101	X.170	
X.171	P101	PSI01	P101	P101	P101	X.171	
X.172	P101	PSI01	P101	P101	P101	X.172	
X.173	P101	PSI01	P101	P101	P101	X.173	
X.174	P101	PSI01	P101	P101	P101	X.174	
X.175	P101	PSI01	P101	P101	P101	X.175	
X.176	P101	PSI01	P101	P101	P101	X.176	
X.177	P101	PSI01	P101	P101	P101	X.177	
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X.181	P101	PSI01	P101	P101	P101	X.181	
X.182	P101	PSI01	P101	P101	P101	X.182	
X.183	P101	PSI01	P101	P101	P101	X.183	
X.184	P101	PSI01	P101	P101	P101	X.184	
X.185	P101	PSI01	P101	P101	P101	X.185	
X.186	P101	PSI01	P101	P101	P101	X.186	
X.187	P101	PSI01	P101	P101	P101	X.187	
X.188	P101	PSI01	P101	P101	P101	X.188	
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X.190	P101	PSI01	P101	P101	P101	X.190	</



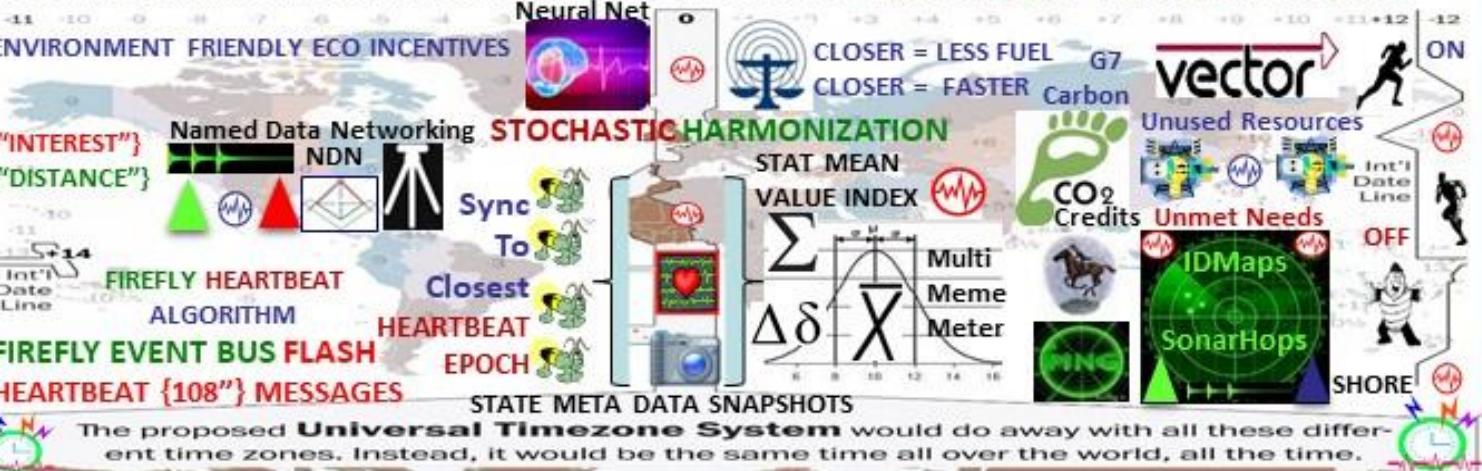
# EGaaS

ELECTRONIC GOVERNMENT AS A SERVICE

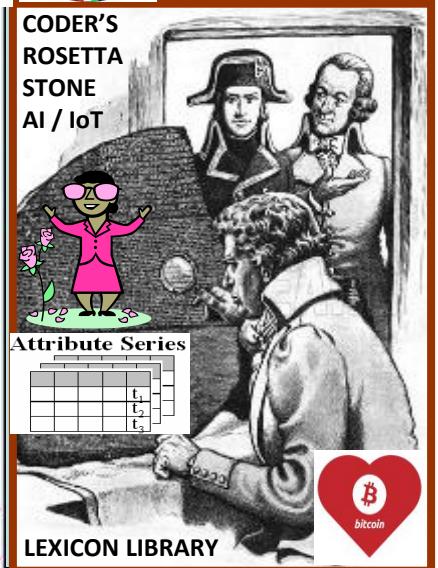
Distributed digital asset registries were the first projects that used blockchain systems such as databases designed for secure storage of records on real estate property, stocks, copyright and so on. It is assumed hosting any document on the blockchain is equivalent to notarization of its content at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



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



E-GaaS: international blockchain platform for organizing economic, state, social activities of citizens , communities on the basis of smart law, smart contract system. eGaaS offers a comprehensive solution needed for state and business management on the blockchain platform.





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

# GNOSIS

"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



Price Oracle

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.

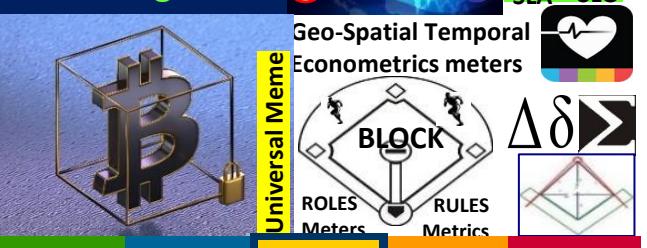


## THE TERRA (TRC)

Trade Reference Currency



## Demurrage Fees

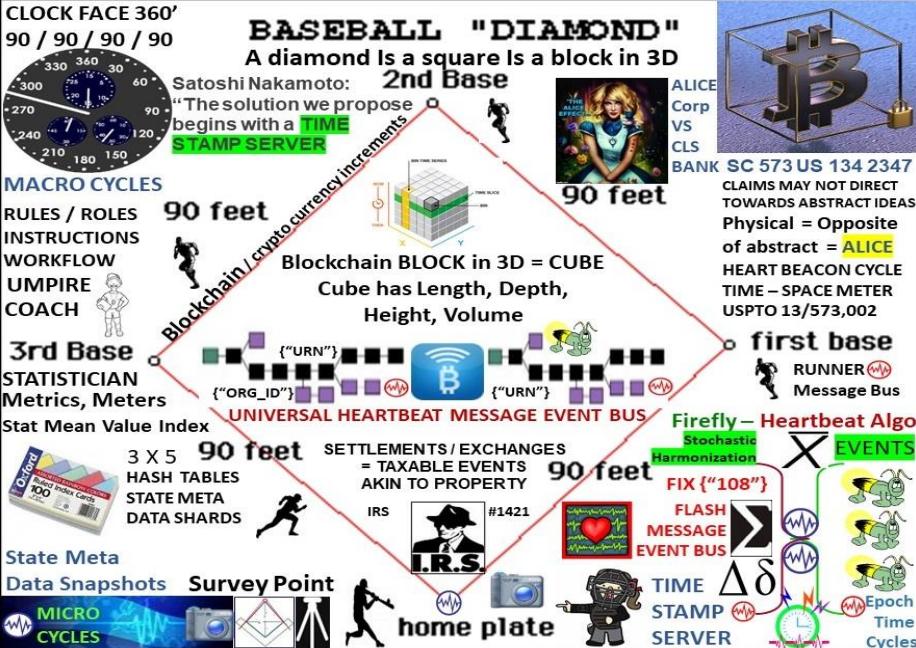


Firefly inspired Heartbeat Synchronization nodes strive to sync in a distributed system. Nodes generate periodic "heartbeat" events approximately at the same time. It differs from classical clock sync in that nodes are not interested in counting cycles to agree on the ID of the current clock cycle. There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

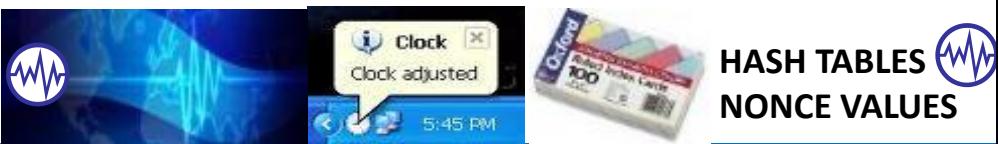




Bitcoin Classic seeks to mitigate the problem of more transactions, which are causing transaction backlogs and increased transaction costs, by increasing the block size - the number of kilobytes in a block of transactions - from 1MB to 2MB.



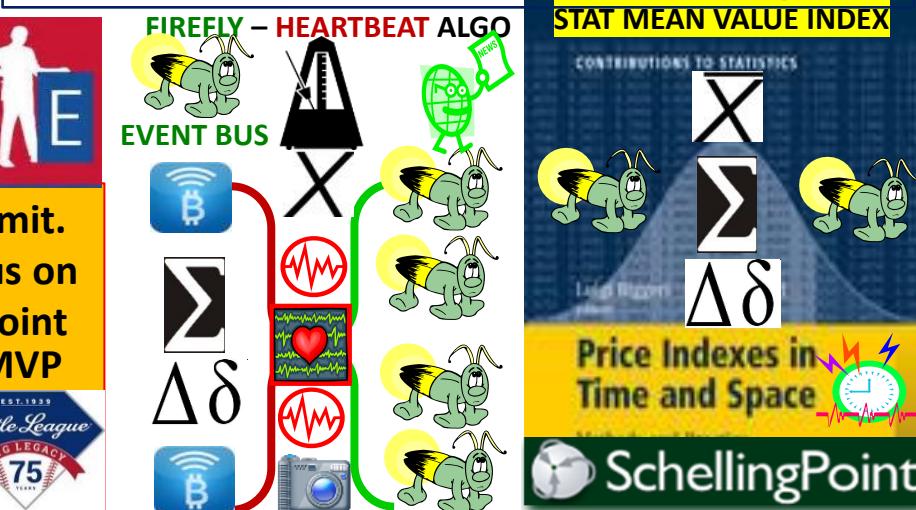
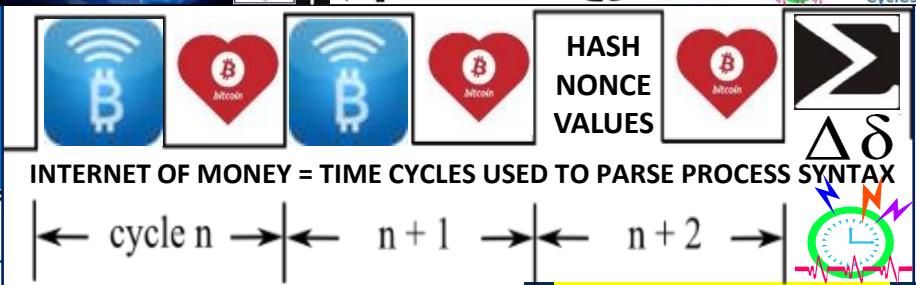
### ALL THINGS INTERNET FORMED W 1) TIME EPOCHS 2) SYNTAX



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



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



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

**AZURE: Core/Kernel/Universal Protocol** 

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

**Unspent Transaction Output protocols UTXO**

**Crypto Tokenized Assets Digital Bearer Bonds  
unique identity for owned artifacts**

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

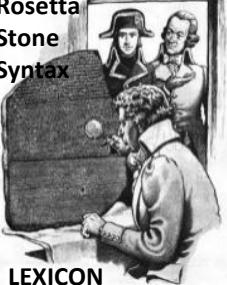
**Blockchain middleware: identity and operations management, data,  
intelligence services like analytics and machine learning. New middleware  
works with existing Azure services, like Active Directory and Key Vault**

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

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

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

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



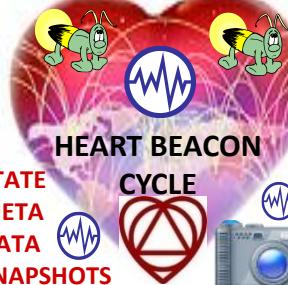
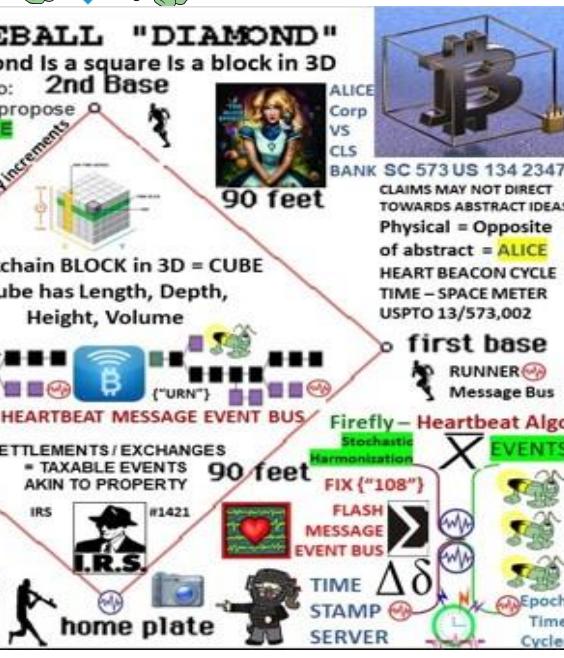
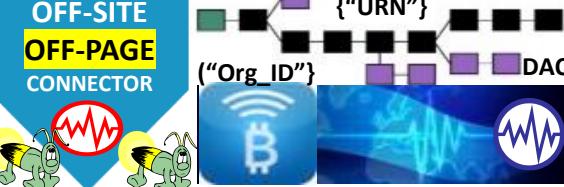
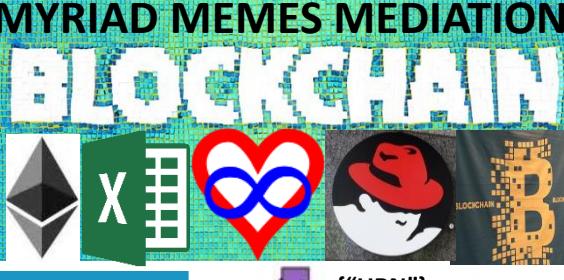
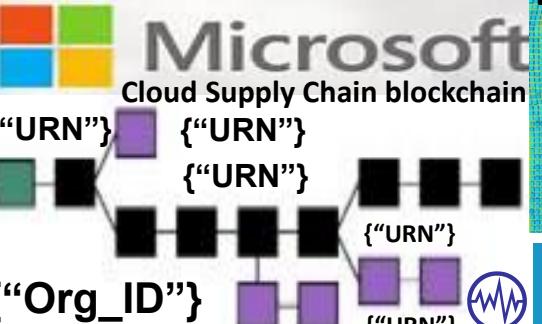
ALPHA NUMERIC
BREVITY CODES
SYMBOL CODES

**STRUCTURED MILITARY MESSAGE**  
TEMPLATE FORMS  
LOGIC / FILTERS

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

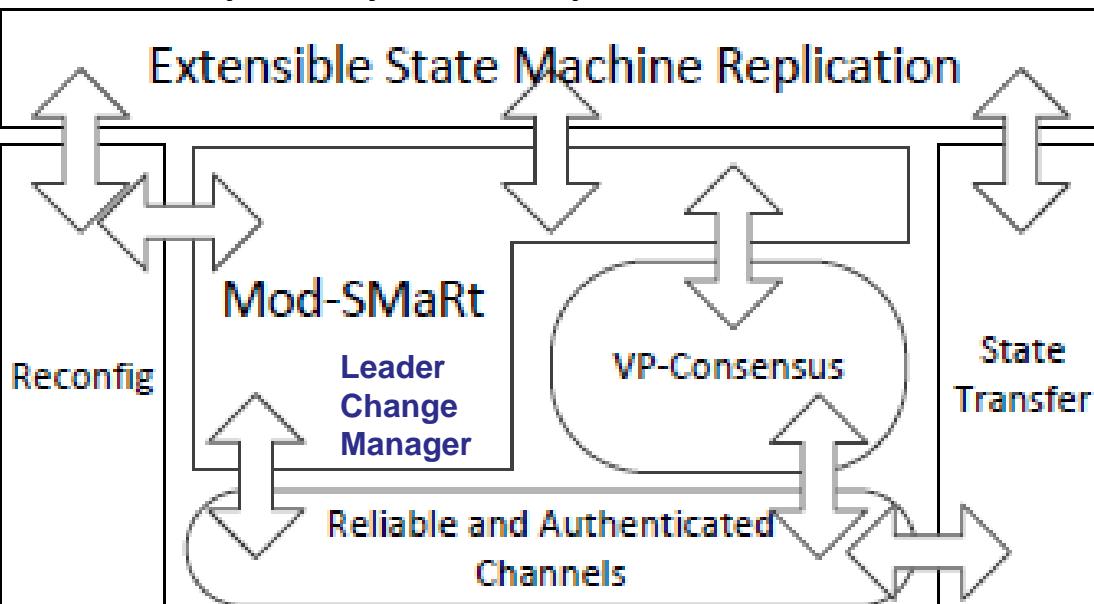


**MULTI-MEME MULTI-METER**



## Byzantine Fault-Tolerant State Machine Replication

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



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

**BFT-SMART needs an eventually synchronous system**

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

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

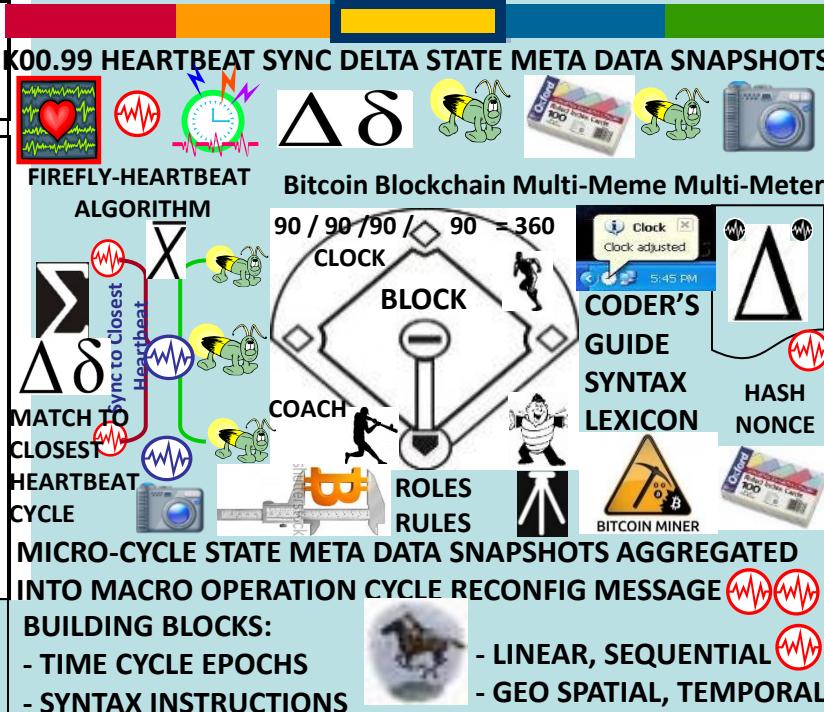
## **US Ct ALICE CORP V CLS BANK**

## **PHYSICAL = OPPOSITE OF ABSTRACT**



# DERIVED FROM BATTLEFIELD DIGITIZATION DISTRIBUTED AUTONOMOUS ORGANIZATION DAO SYSTEM OF SYSTEMS

**FEDERATED ID / ORGANIZATIONAL IDENTIFIER {"ORG\_ID"}  
ADDS, JOINS, DROPS, MOVES TO / FROM DAO  
CHANGES IN STATE VIEWED IN "APPLIQUE' OVERLAY VIEWS**



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

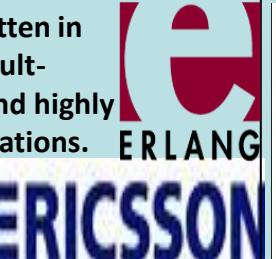






core blockchain code written in Erlang, for distributed, fault-tolerant, soft real-time and highly available non-stop applications.

**ERLANG API FOR BLOCKCHAIN**



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

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

**CROSS – CHAIN ATOMIC SWAPS**

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



Aeons: energy for applications implemented on the platform.

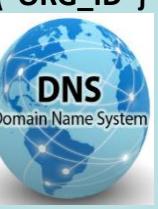
**ACCOUNTS & IDENTITY:** æternity's accounts are permission-less, but allow customization via schema.org's semantic web scheme. Create & own (**federated group**) / individual identities on the æternity network



("ORG\_ID")

("ORG\_ID")

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



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

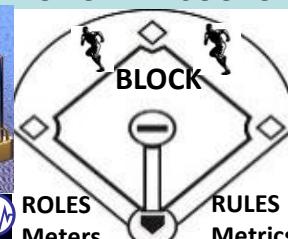
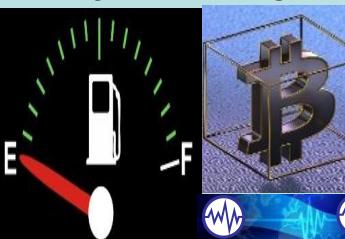
**AETERNITY CROSS-CHAIN ATOMIC SWAPS CORRESPOND TO HEART BEACON CYCLE'S USE OF BATTLEFIELD DIGITIZATION DERIVED HEARTBEAT SYNC DELTAS**



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

**TOKENS REPRESENT REAL WORLD VALUE URN RESOURCES**

ETHEREUM USES GAS GUAGE MEME INDICATING THRESHOLD MET / NOT MET



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

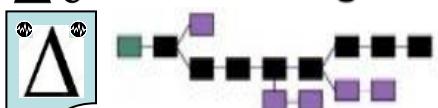
**Federation Gateway**  
("ORG\_ID")



# HYPER LEDGER OPEN SOURCE BLOCKCHAIN

Core APIs, & SDKs

$\Delta\delta$  Shared Ledger



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

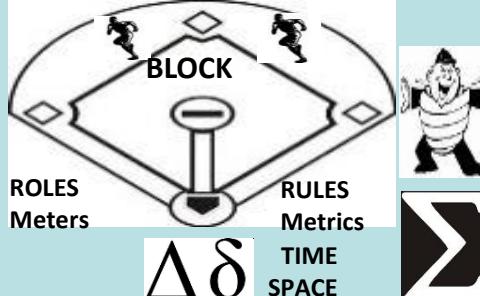
FEDERATION  
*Federation Gateway*

METRICS ("Organization ID")  
METERS

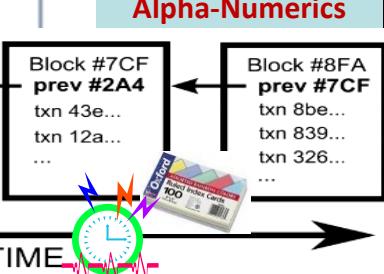
RESTFUL SYNC DELTA  
CHANGE MANAGEMENT  
MICRO-MACRO CYCLE



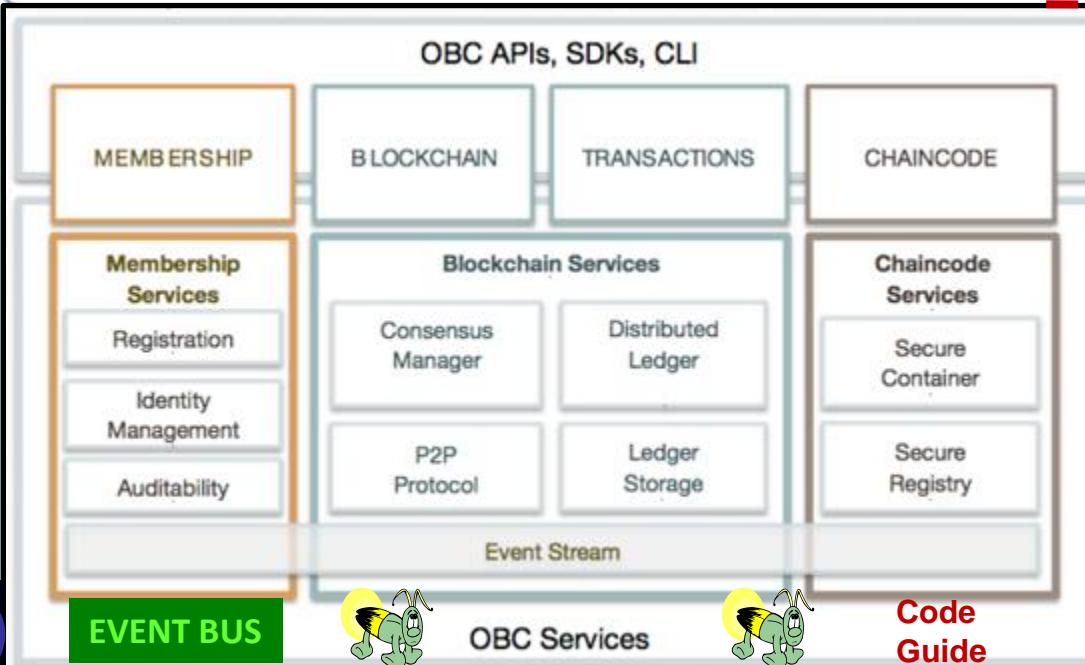
BLOCKTIME ARBITRAGE



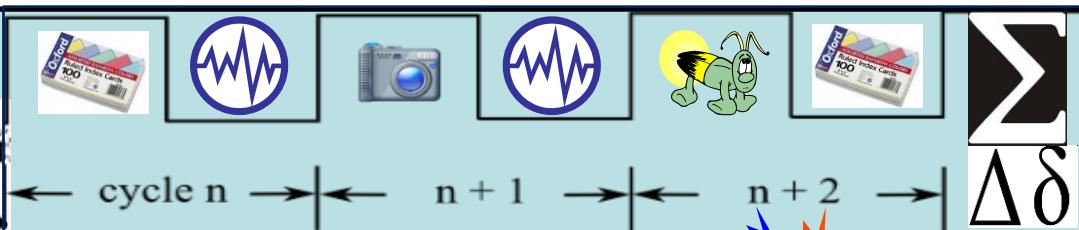
Code execution environment, ledger data structures, modular consensus fwk & algos, and modular membership services, modular storage and event fwks, network peers



Alpha-Numerics



Code Guide



MICRO-MACRO CYCLE SCHEDULE



FFIRNS  
FFUDNS

ROSETTA STONE

XBR / CDL / DAML  
STOCK MIC CODES

STRUCTURED  
MILITARY MESSAGE  
TEMPLATE FORMS  
LOGIC / FILTERS

SYNTAX  
SYMBOL LIBRARY

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

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



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

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

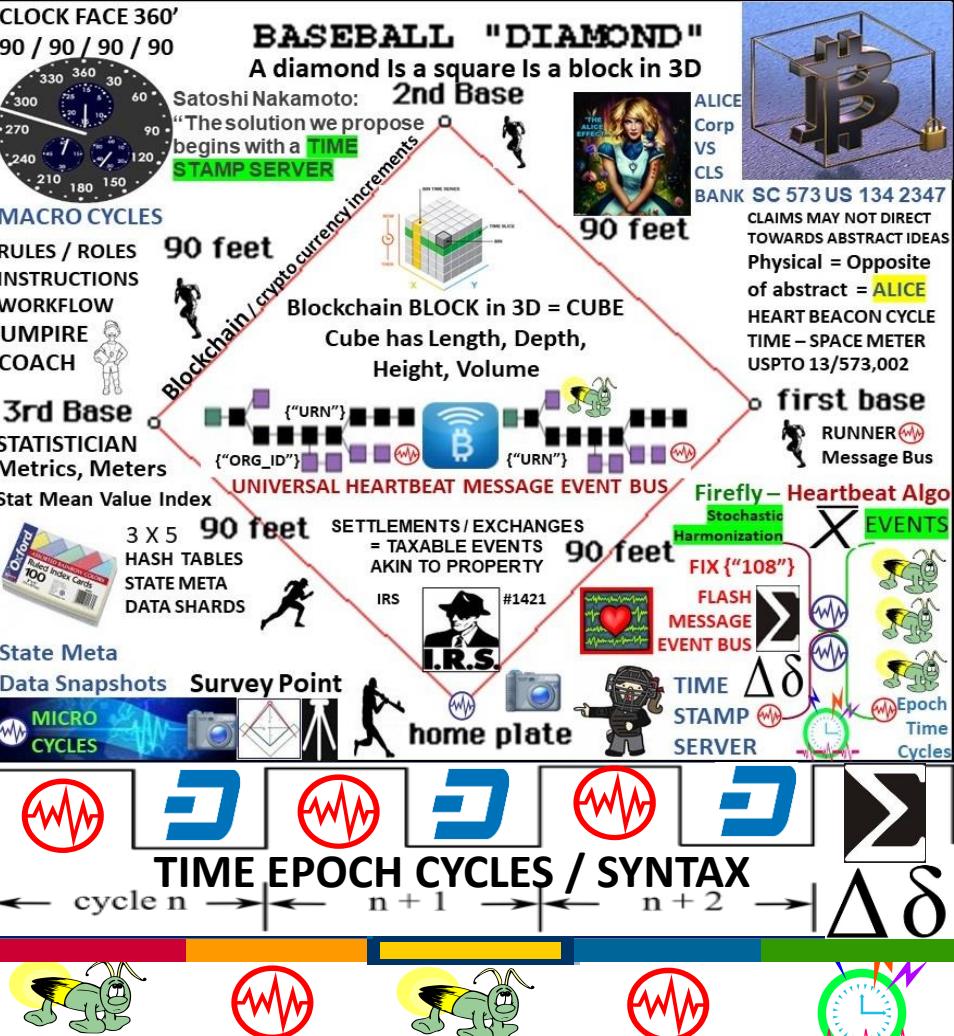
[LINK](http://bitcoinist.net/how-dash-dao-work/) <http://bitcoinist.net/how-dash-dao-work/>

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

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

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

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



**STATE:** stored data at a given instant in time

**STATE CHANNELS:** blockchain interactions

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



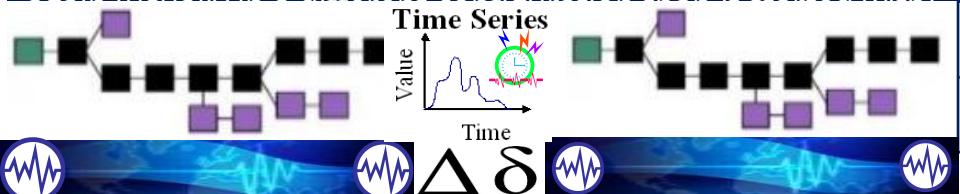
1. Part of the blockchain state is locked via multisignature or smart contract convention, so that a specific set of participants must completely agree with each other to update it.



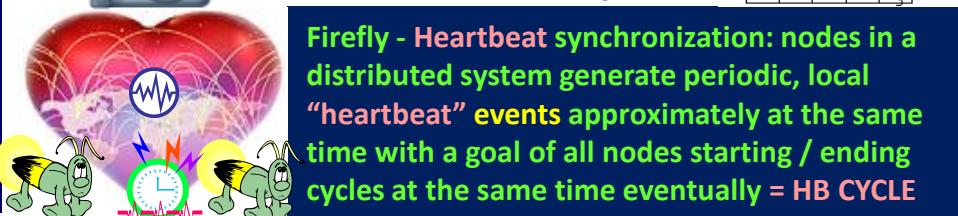
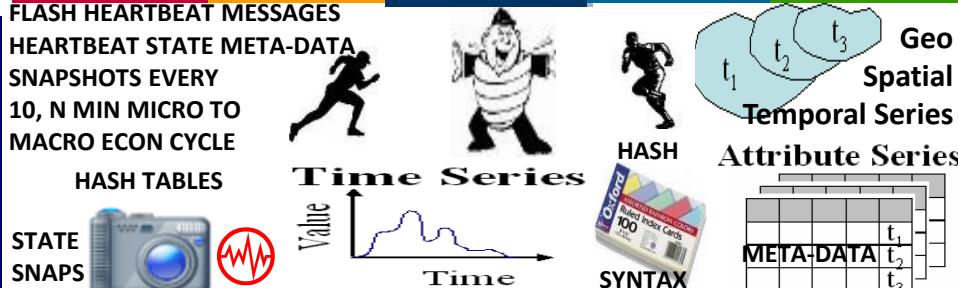
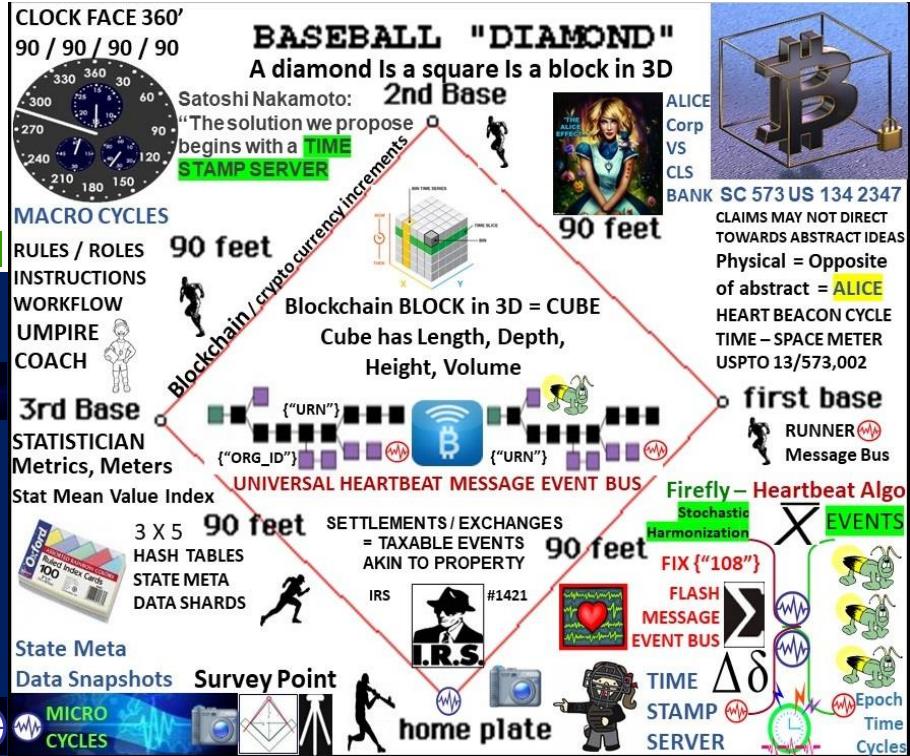
2. Participants update the state amongst themselves by constructing and signing transactions that could be submitted to the blockchain, but instead are made available for a new update "trumps" previous updates.



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



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

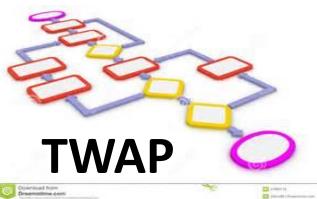


Firefly - Heartbeat synchronization: nodes in a distributed system generate periodic, local "heartbeat" events approximately at the same time with a goal of all nodes starting / ending cycles at the same time eventually = HB CYCLE

# TWAP Algorithm Manages Bitcoin Price Volatility Algorithm



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



FIREFLY HEARTBEAT ALGO  
STAT MEAN VALUE INDEX

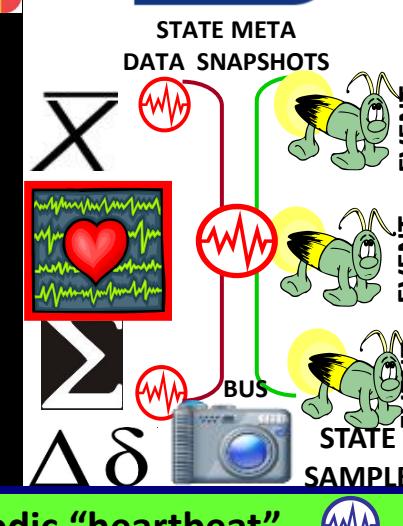
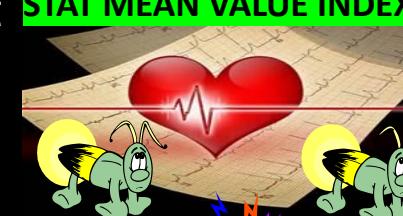
**TWAP Works To gauge trading performance, many traders in different asset classes (equity, fixed income, currency) often use average price as a benchmark. The two common ways to calculate an average are a time-weighted average price (TWAP) and a volume-weighted average price (VWAP). TWAP is the average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



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



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



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



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

**Key Features:**

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



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

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

All rates time-stamped in UTC.



Ability to look up by time-stamp.

Ability to look up by block-height.

Asset Classes: Digital Currencies

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

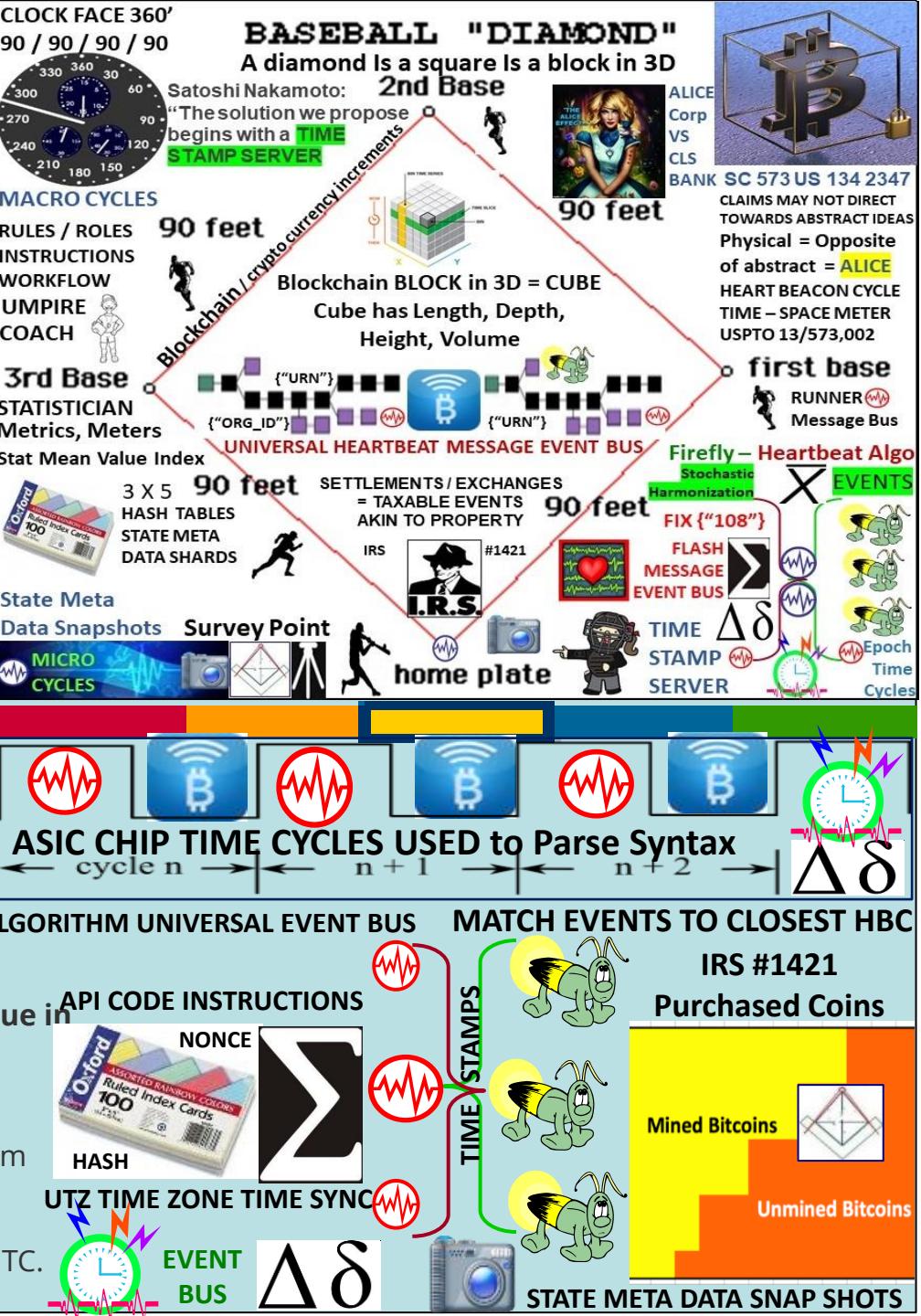
Transaction ID, Block ID, time-stamp, BWAP per block, Value in USD. BTC per transaction, bitcoin transaction fees per transaction.

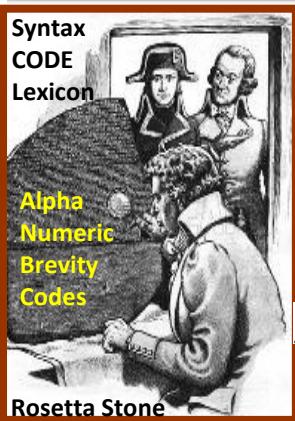
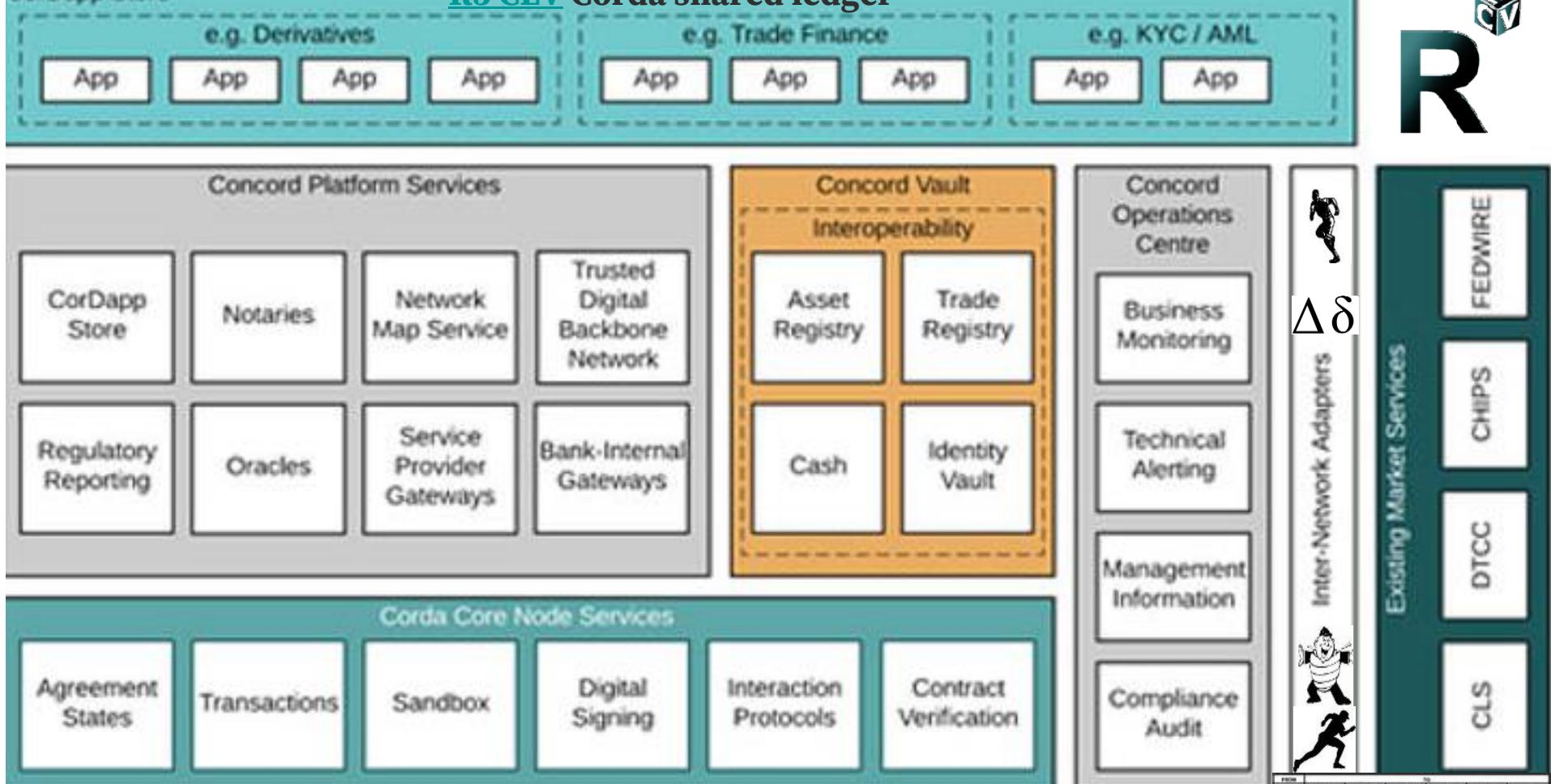
"Blocks are a measure of time":

The Bitcoin Blockchain 'B-WAP'

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

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





UNIVERSAL  
EVENT BUS



- Choreographing workflow between 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

	Q4Q1A	T4T1A	A4A1A	M4P1A	A4F1A	W4W1A
ABAB	F002	F003	F004	F005	F006	F007
AMDFP	F008	F009	F010	F011	F012	F013
AFATPN	F014	F015	F016	F017	F018	F019
AFATPS	F020	F021	F022	F023	F024	F025
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**Federation Gateway**

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AFATPS	F494	F495	F496	F497	F498	F499
AFATPS	F500	F501	F502	F503	F504	F505

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

300+ Use Case Templates



STRUCTURED  
MILITARY MESSAGE  
TEMPLATE FORMS  
LOGIC / FILTERS

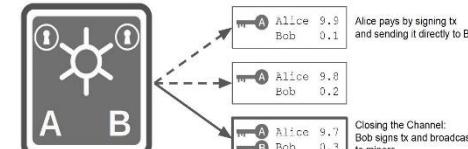




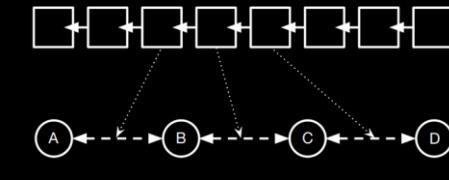
**transactions sent over / off chain  
micropayment channels**

Micropayment Channels

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



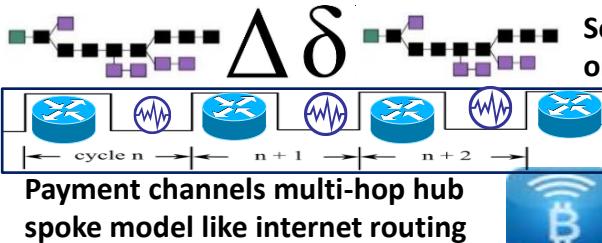
## LIGHTNING



Millions of Transactions. Milliseconds of Delay.

Hashed TIME LOCK contracts component for global consensus

OP\_CHECKLOCKTIMEVERIFY During Macro Cycle w/ Random # BEACON



Server nodes, miners  
only keep recent blocks



Sync Delta  
State Meta  
Data Snaps

## FIREFLY – HEARTBEAT ALGORITHM



### FIREFLY – HEARTBEAT



EVENT REPORTING  
ACROSS TIME-SPACE



### MESSAGE EVENT BUS



## SEGREGATED WITNESS

### SegWit



## BASEBALL "DIAMOND"

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

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

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

Blockchain / cryptocurrency increments  
90 feet

UNIVERSAL HEARTBEAT MESSAGE EVENT BUS

SETTLEMENTS / EXCHANGES  
= TAXABLE EVENTS  
AKIN TO PROPERTY  
IRS #1421

90 feet  
90 feet

Fix {"108"}  
FLASH MESSAGE  
EVENT BUS

TIME STAMP  
SERVER

EVENTS  
 $\Sigma$   
Epoch Time  
Cycles



ALICE Corp VS CLS BANK SC 573 US 134 2347

CLAIMS MAY NOT DIRECT  
TOWARDS ABSTRACT IDEAS  
Physical = Opposite of abstract = ALICE  
HEART BEACON CYCLE  
TIME – SPACE METER  
USPTO 13/573,002

first base  
RUNNER Message Bus

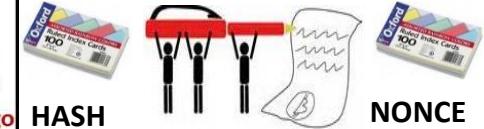
Firefly – Heartbeat Algo

X EVENTS

FLASH MESSAGE  
EVENT BUS

TIME STAMP  
SERVER

Epoch Time  
Cycles



HASH TABLES



SYNTAX / SYMBOL TAGS

Digital Signature

## OUT OF BAND / CHANNEL

Segregated witness = Separated signatures

- signatures are cryptographic proofs also known as witnesses

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

# **Electronic Product Code Information Services (EPCIS) GS1 Standard for creating, sharing visibility event data**

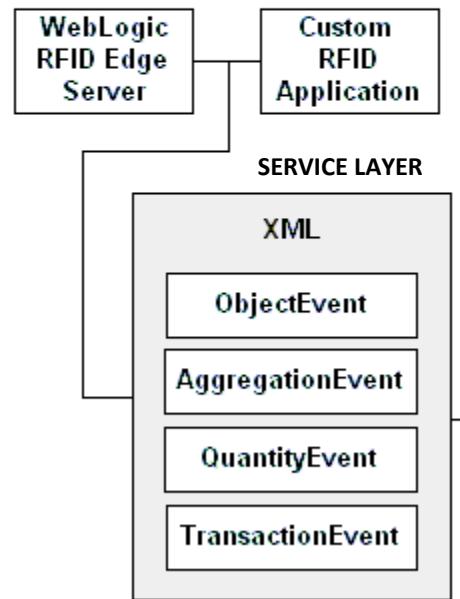


# HBC SYSTEM OF SYSTEMS TIME-SPACE SYNC

# UNIVERSAL EVENT BUS

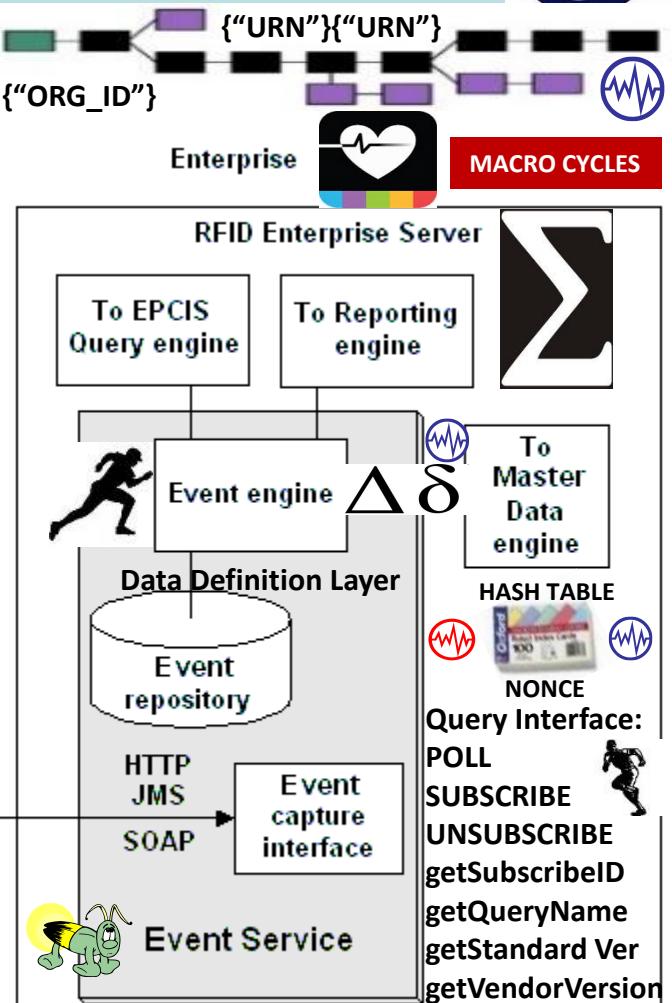


**EPCIS**  
**EPCIS DATA MODEL**



## 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



A small circular image showing a horse's head and neck.

CLOSER IS CHEAPER

CLOSER IS FASTER  
 $\Delta\delta$  

**!st Compiler  
DESIGN  
Still the BEST**

### **ROSETTA STONE**



**Proximity Wireless Sensor Networks in Combination With RFID .. on reading tag in RF-field the router sends heartbeat message**

## RFID Configuration TCP/IP heartbeat message

## **STRUCTURED DATA EXCHANGE / STRUCTURED MILITARY MESSAGES**

# BIZ USE CASES ALPHA NUMERIC BREVITY CODES

**SYNTAX  
LEXICON  
CODE  
GUIDE**







TERRA  
TRC

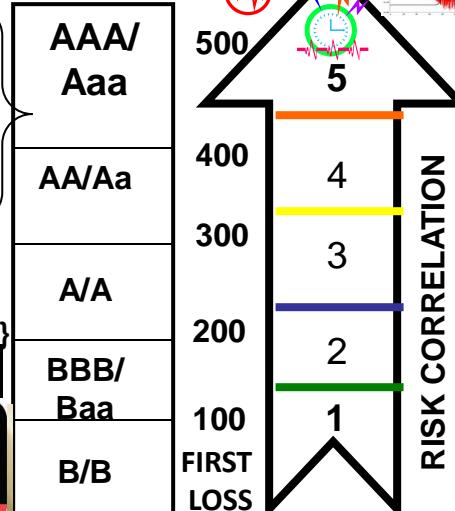


ECONOMIC HEARTBEAT

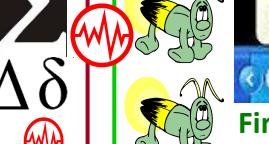
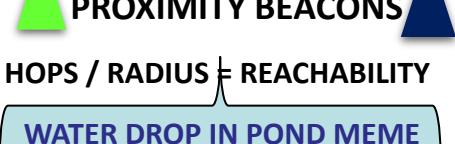
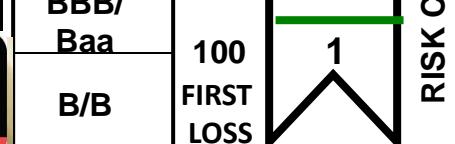
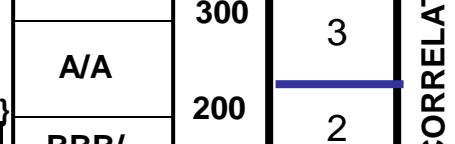
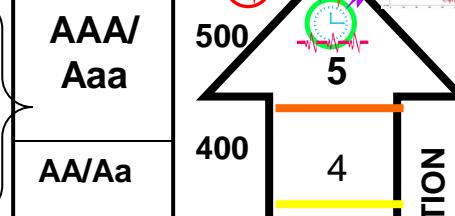
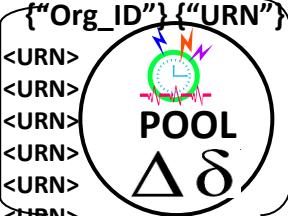


HB MSG </108>  
FIX PROTOCOL  
INDUSTRY-DRIVEN MESSAGING STANDARD

LAST LOSS



PROCESS BY </PRECEDENCE>  
SonarMaps ID\_Hops

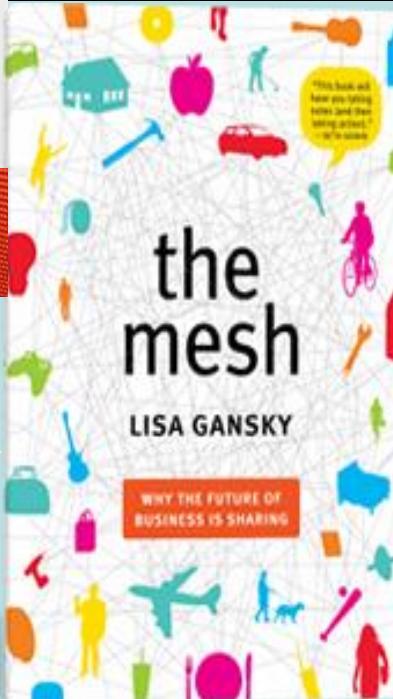
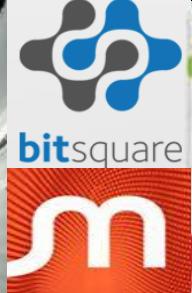




COINTELEGRAPH  
live cryptocurrency community opinion



## Decentralized Exchange Meets Decentralized Crowdfunding



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

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



## Autonomous Device Coordination Framework



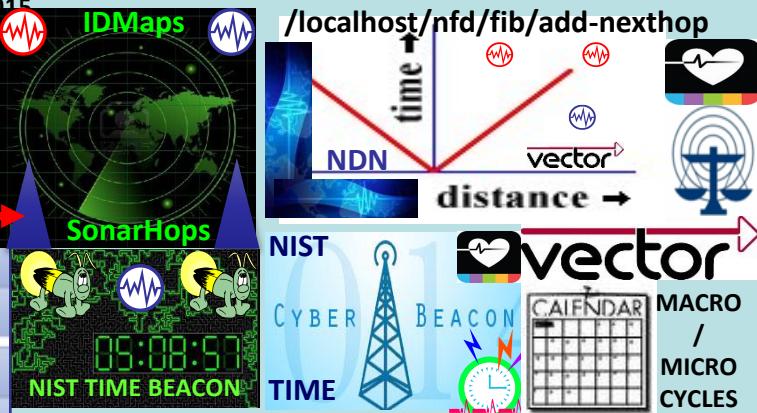
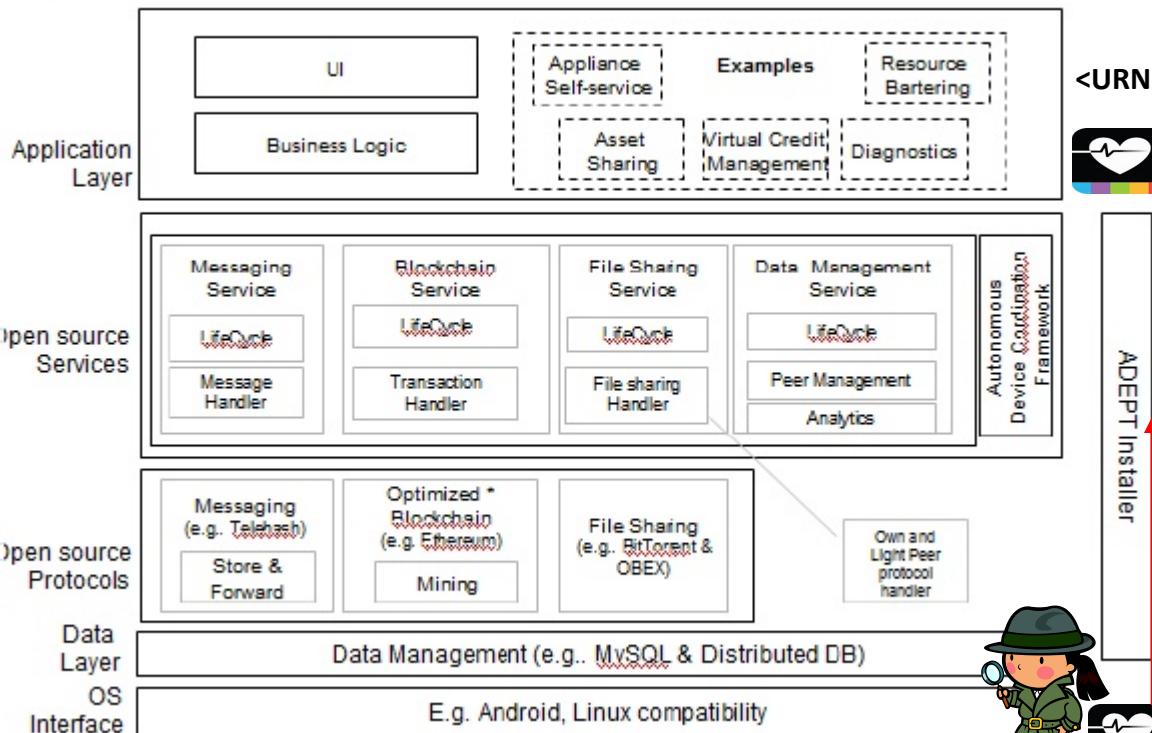
- Registration
- Authentication
- Proximity based rules
- Consensus based rules
- Contracts
- Checklists

FEDERATION  
AGREEMENTS  
PROCEDURAL  
TEMPLATE

## FEDERATION

- <UUID> <ORG\_ID> <URN>
- LDAP DIRECTORY
- Physical proximity
- Social proximity
- Temporal proximity
- Agreements
- Payments
- Barter

## ADEPT Standard Peer Architecture – Logical View

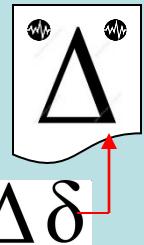


PAYMENTS BASED ON GEO-SPATIAL TEMPORAL METRICS / METERS  
<URN> DESCRIBES COMMODITIES ETC BY UNIFORM RESOURCE NAME BY </INTEREST>>

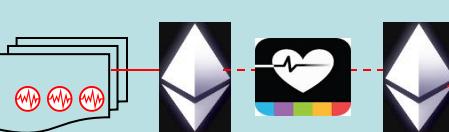


ASSET SHARING WITHIN FEDERATION

BUSINESS LOGIC = WORKFLOW <XML\_Wf>

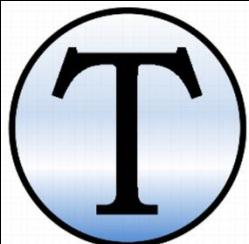


FILE SHARING = CYCLIC SYNC DELTA LEDGER / DOCUMENT REFRESH



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



## 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

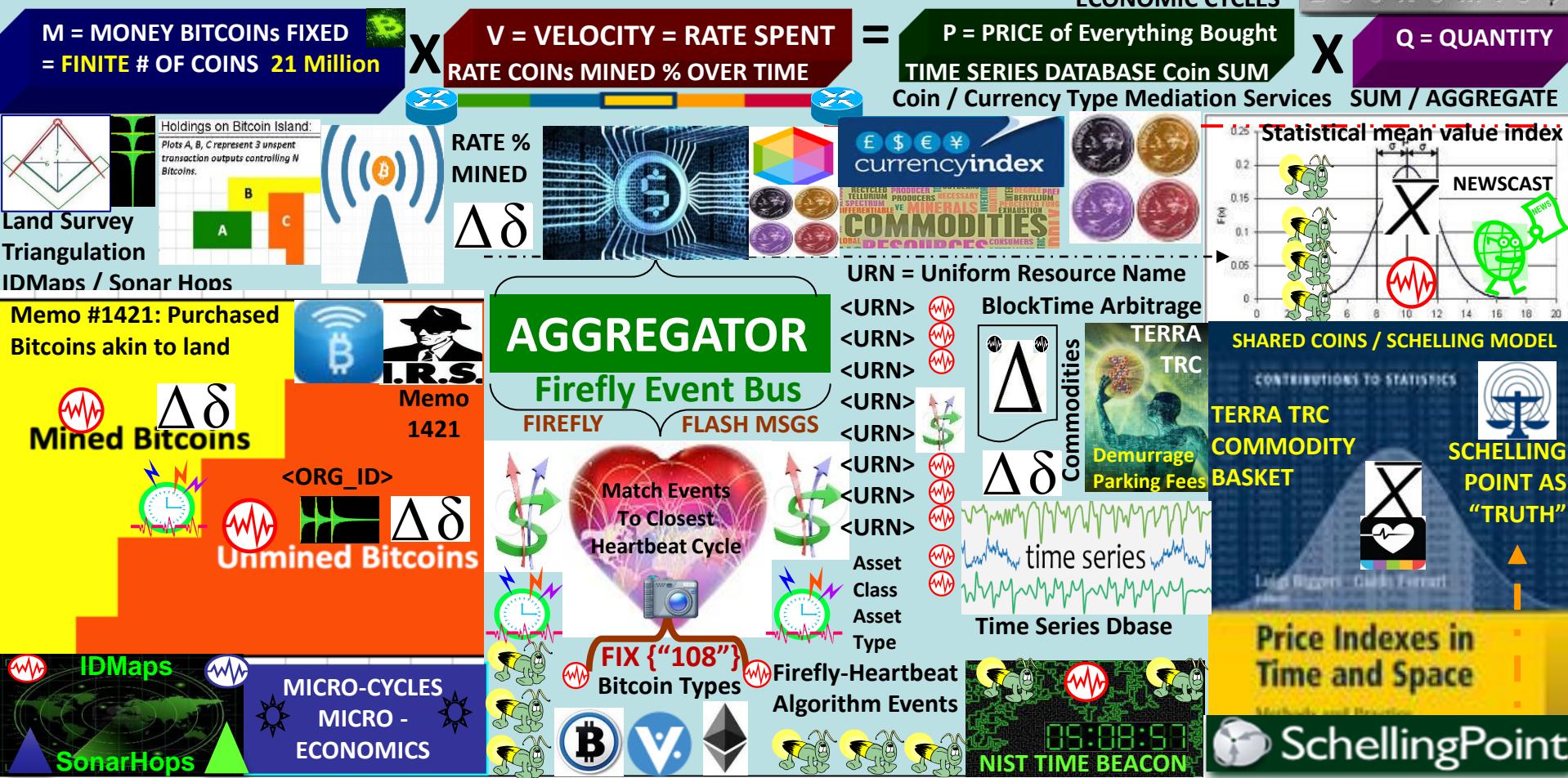


Protocol (Decentralized)	Centralized Non-Protocol
Spoken English	Shakespeare’s Globe Theatre, The Library of Alexandria, MLA Citation Format, Walt Whitman, J.K. Rowling.
Rules to American Football	The NFL, ESPN, The Buffalo Bills.
Bluetooth	A Set of Stereo Speakers, The iPhone 6, A Car Radio Equipped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

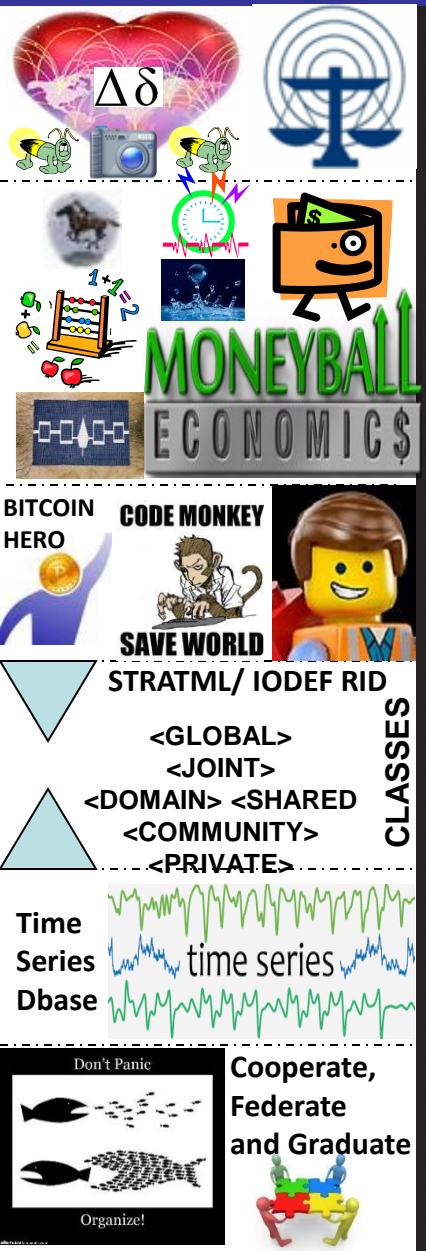
# How 'Bitbanks' Could Solve Bitcoin's Volatility Problem

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

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.



## HOW GAMIFICATION WORKS:

### 5 COMMON MECHANICS

#### POINTS

100 PT

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

#### BADGES

Reward achievements visually

#### LEVELS

Encourage users to progress and unlock new rewards

#### LEADERBOARDS

Organise players by rank

#### CHALLENGES

Encourage engagement by offering specific tasks to complete

### 4 MAIN WAYS TO DRIVE ENGAGEMENT

#### ACCELERATED FEEDBACK CYCLES

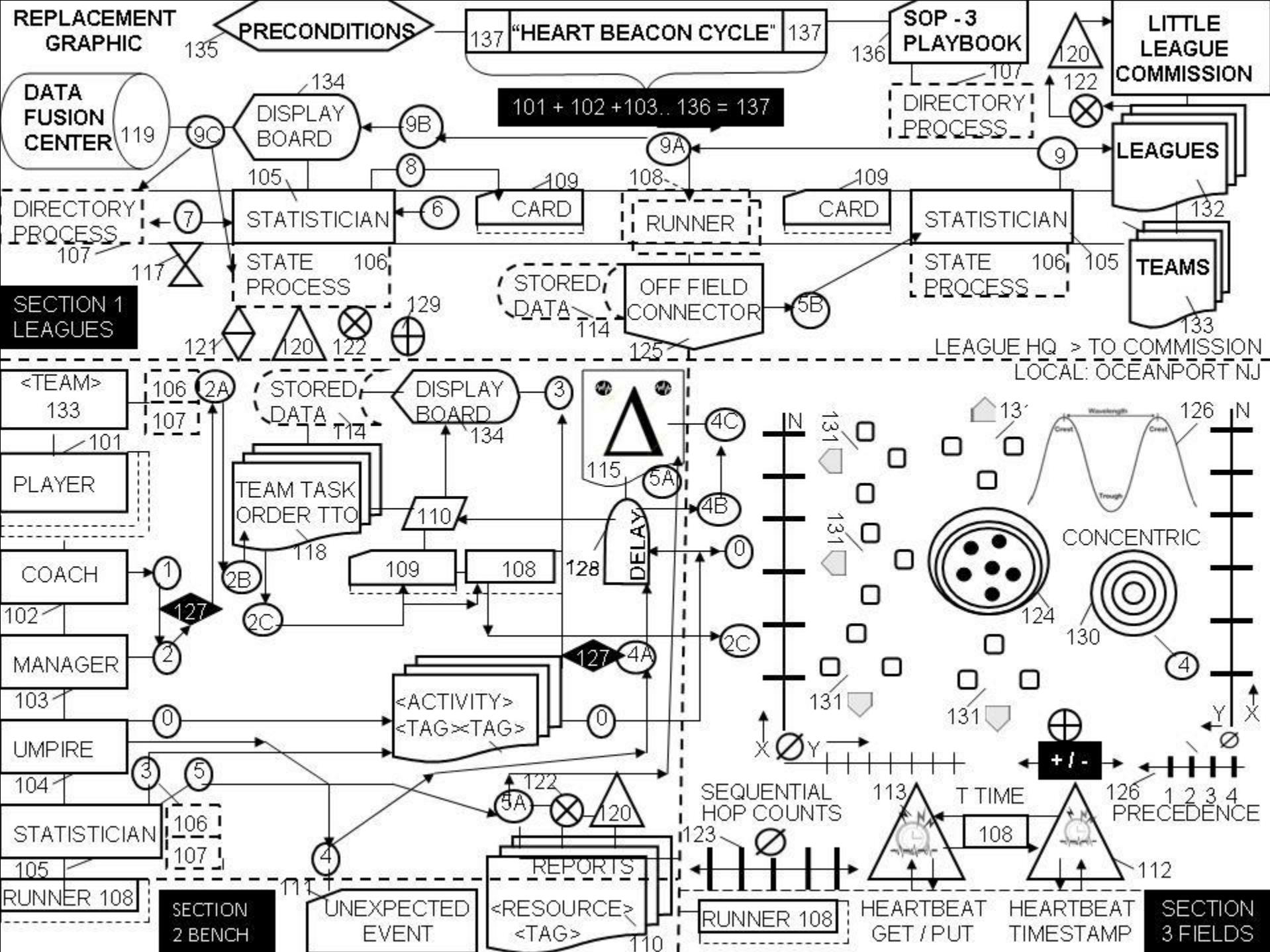
#### CLEAR GOALS AND RULES OF PLAY

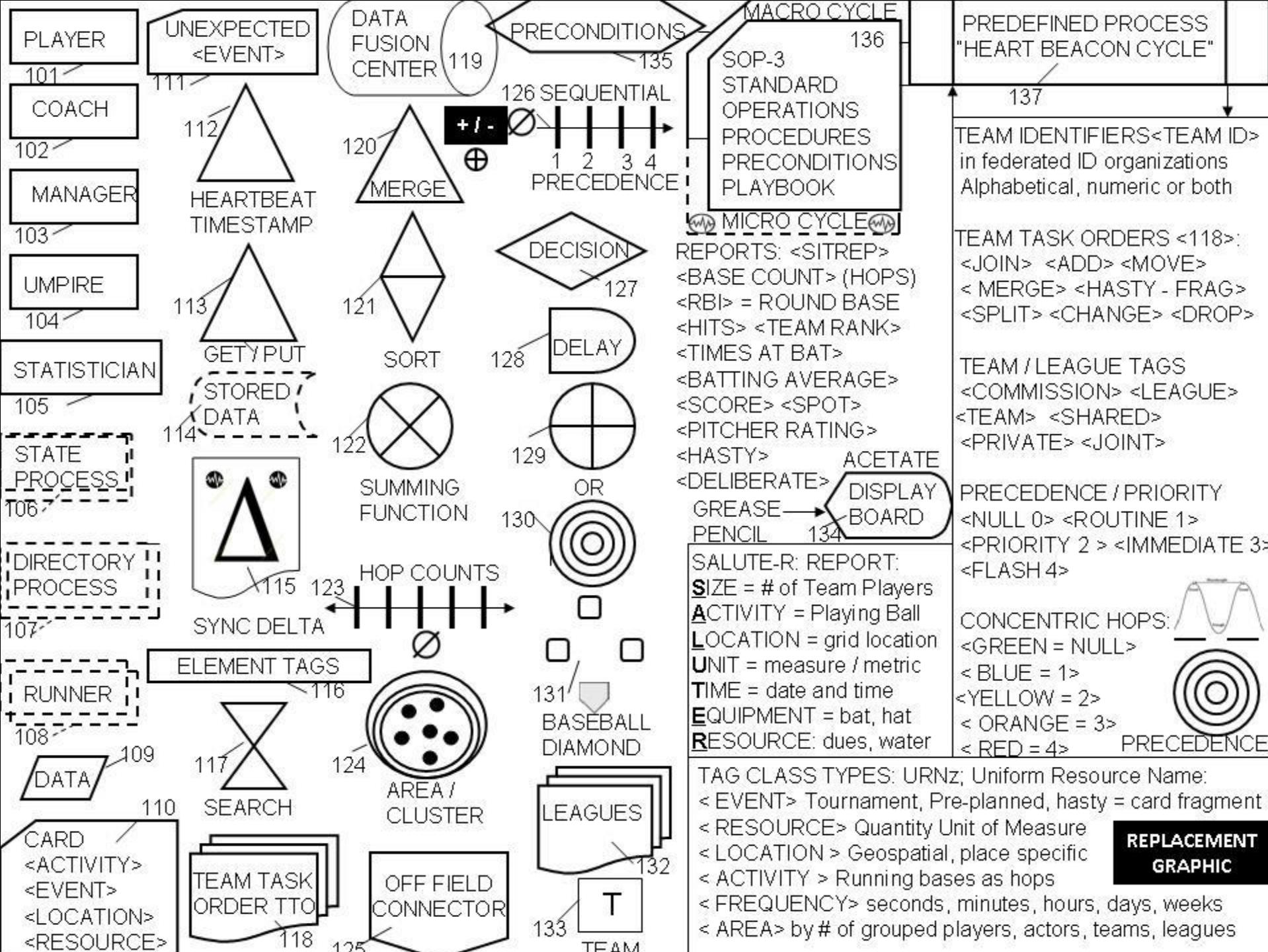
#### A COMPELLING NARRATIVE

#### CHALLENGING BUT ACHIEVABLE TASKS









# BUILDING BLOCKS



TASK ON / OFF

201

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



MACRO CYCLES



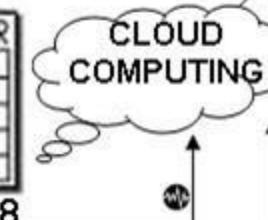
.0001

MICRO CYCLES

216



218



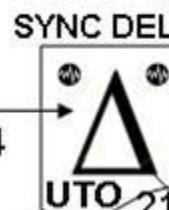
219

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

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

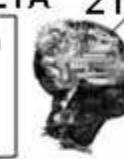


214



UTO 213

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



215 LEADER'S  
INTENT  
DECISIONS



211 SNAPSHOTS

210

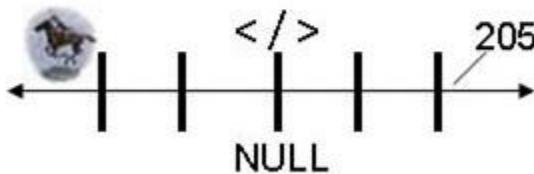


203

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



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



LENGTH, THRESHOLD, INTENSITY, DURATION



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

208



APPLIQUE' OVERLAYS



204

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



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

209



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



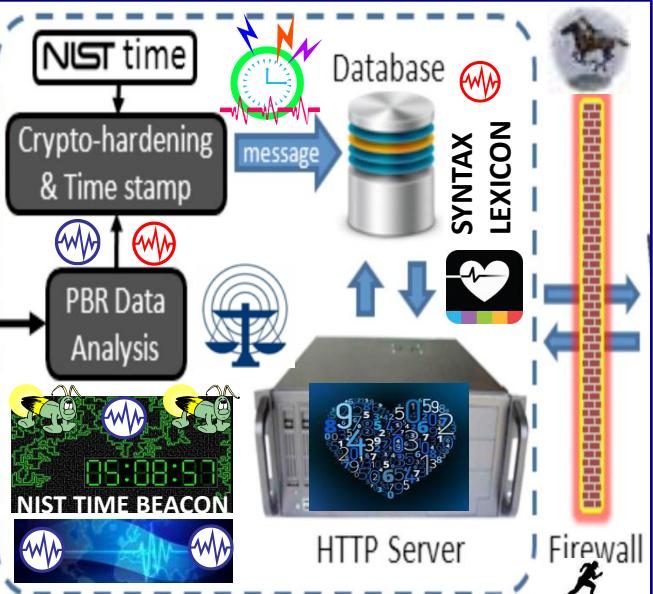
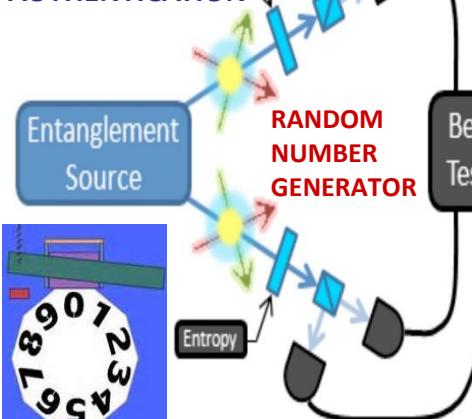
## NIST QUANTUM ENCRYPTION RANDOMIZATION BEACON

UNPREDICTABLE SAMPLING

SECURE AUTHENTICATION

SECURE MULTI

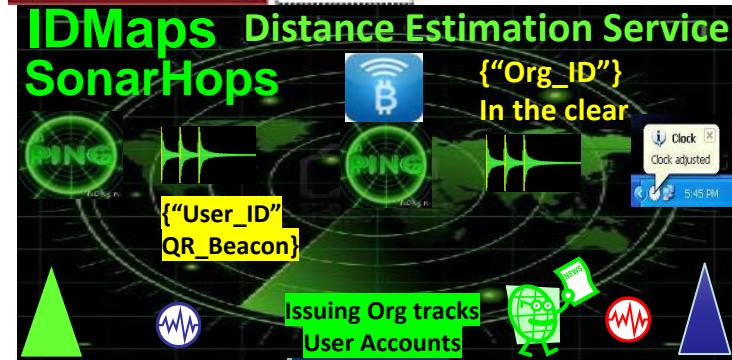
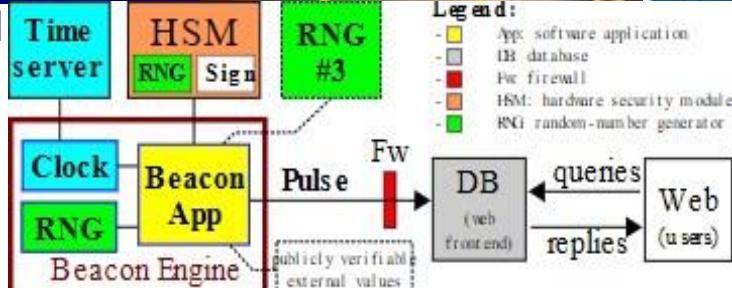
PARTY /  
AUTHENTICATION



**NIST**

**NON  
REPUDIATION**

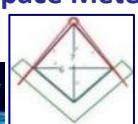
Legend:  
■ App: software application  
■ DB: database  
■ Fw: firewall  
■ HSM: hardware security module  
■ RNG: random-number generator



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

Metrics and Time - Space Meter uses PHYSICAL Memes / Metaphors

**NAMED DATA  
NETWORKING**



NDN  
 </Interest>  
 </Distance>

SURVEY METHODS  
 + TRIANGULATION  
 Euclidian Geometry

Geodesic System Routing Info Base RIB

ACCOUNT BELONGS TO </Org\_ID>

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

DEVICE / SENSORS <UUID><UUID>

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

Time / Distance Metrics



PROXIMITY

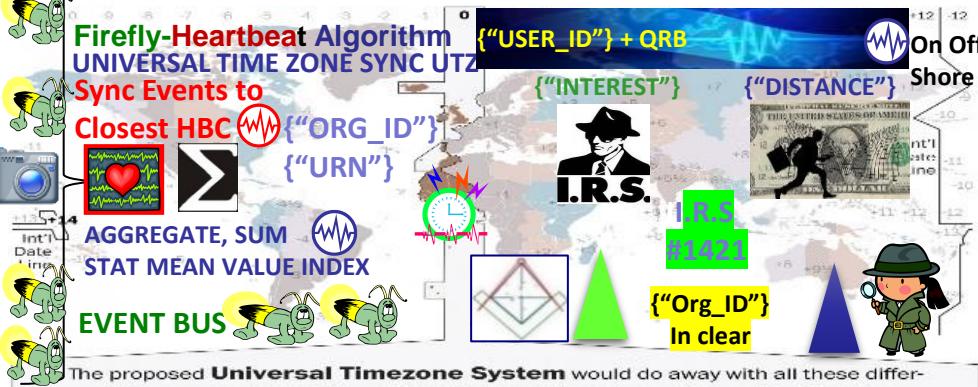
OFFSHORE BEACONS ONSHORE

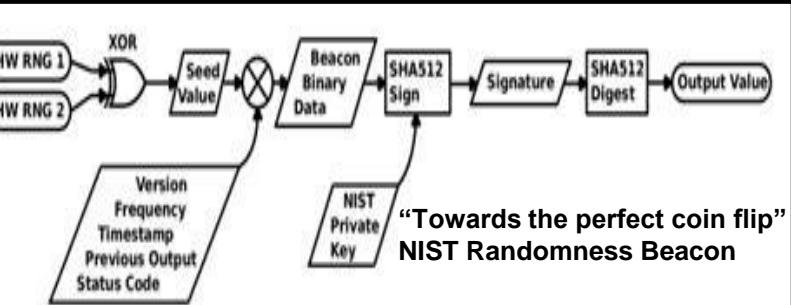
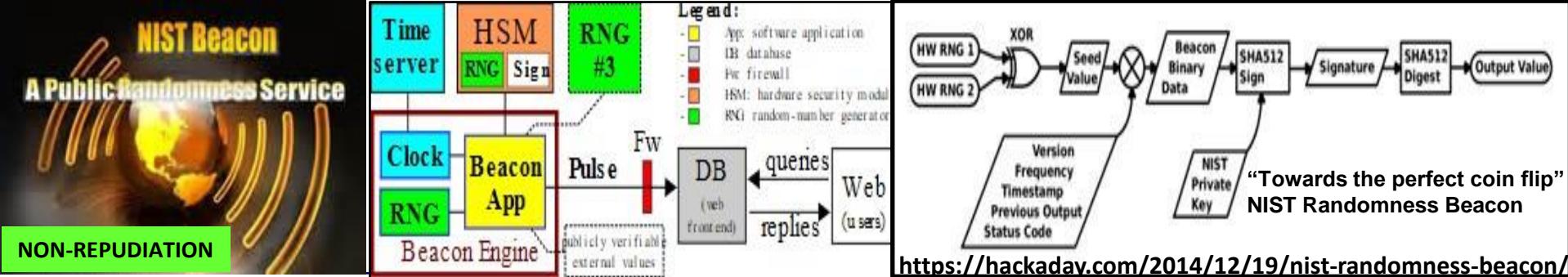
NDN



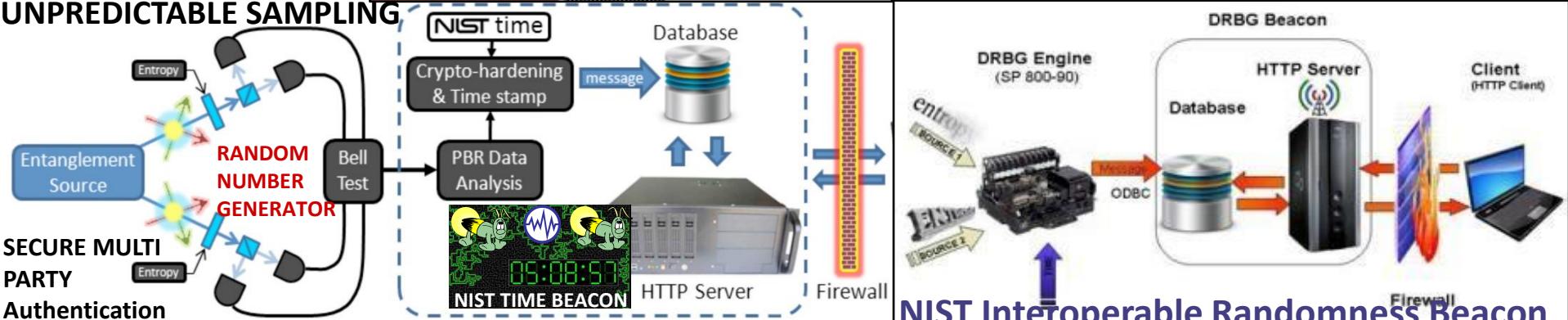
</interest></distance>

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





<https://hackaday.com/2014/12/19/nist-randomness-beacon/>



## NIST Interoperable Randomness Beacon

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

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

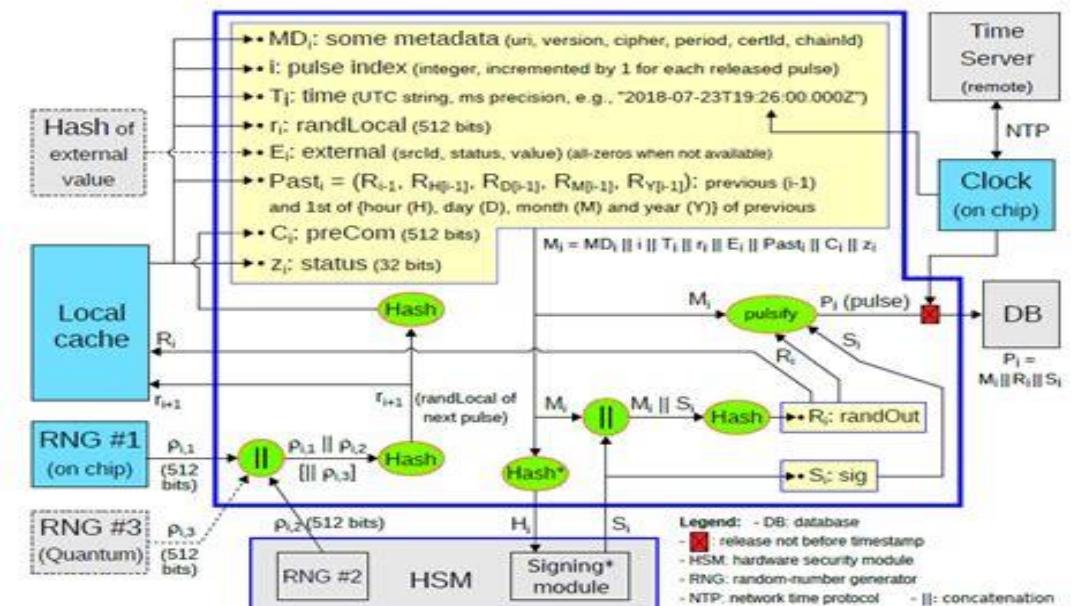


Figure 2. Illustration of the generation of the  $i^{\text{th}}$  pulse by a Beacon App (2.0)

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



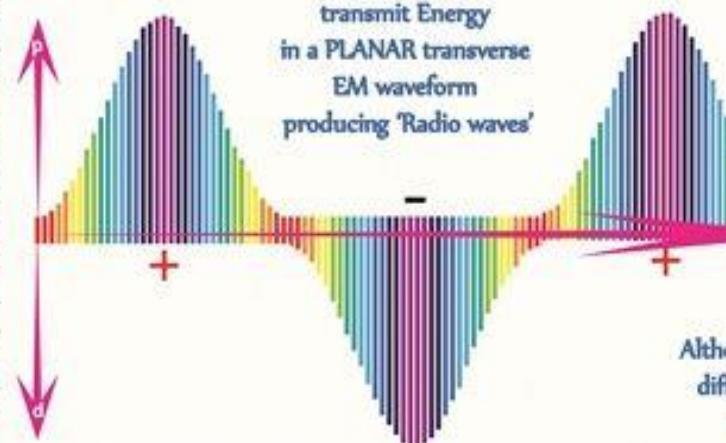
CLOSER = < Infrastructure  
= CHEAPER SLA

# ElectroMagnetic waveforms



ENERGY / DATA  
Over  
Transmission  
Lines / Airwaves

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



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



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

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

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

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

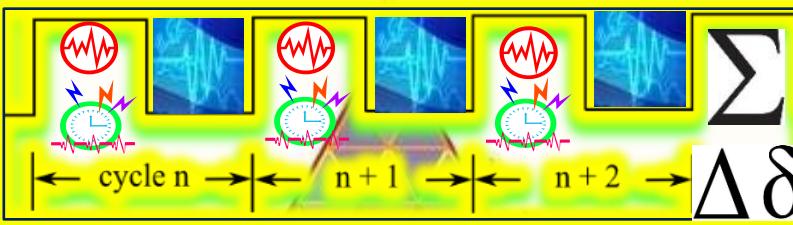
Through longitudinal waves, Tesla transferred energy to receiving devices.  
He sent electrostatic forces through the air, transferred electrical energies  
and noted the lethal forces produced by these waves.

Heinrich Hertz



(22 February 1857 - January 1 1894)

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

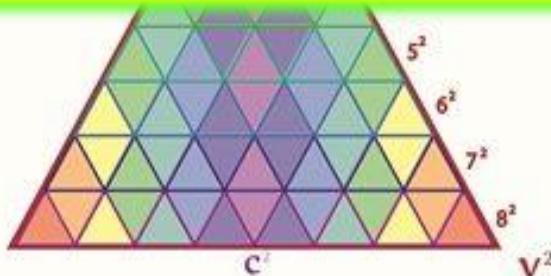


Nikola Tesla



(10 July 1856 - 7 January 1943)

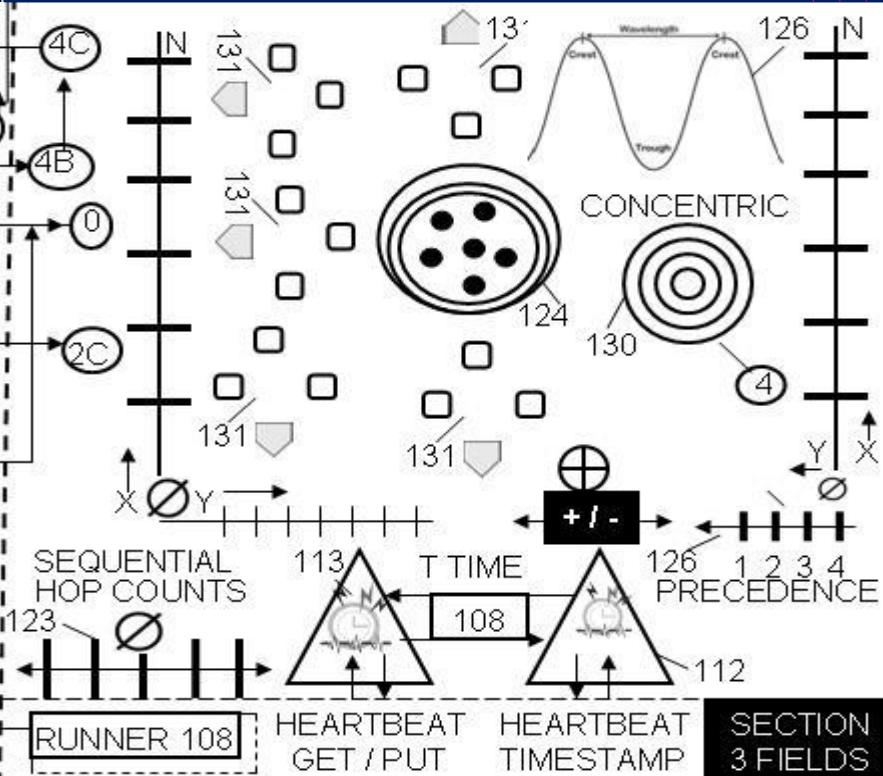
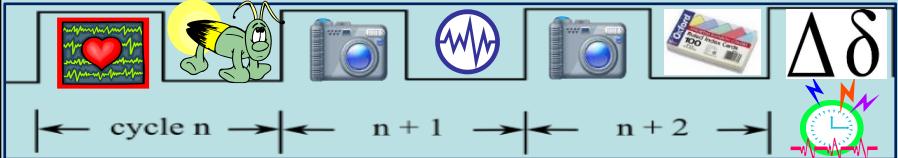
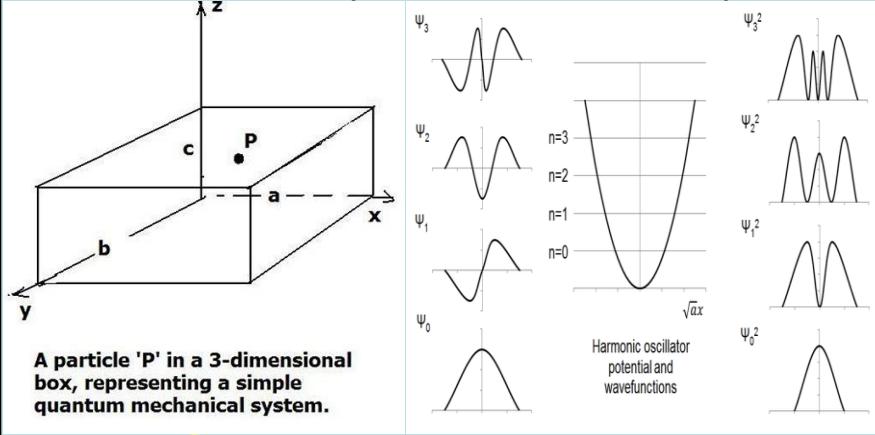
Cycles per Second



Volts per Second

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

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

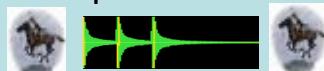


#QuantumComputing USct Alice Corp Vs CLS Bank compliant memes:  
In quantum computing, a qubit (or quantum bit (sometimes qbit)) is a unit of quantum information—the quantum analogue of the classical binary bit. A qubit is a two-state quantum-mechanical system, such as the polarization of a single photon: 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

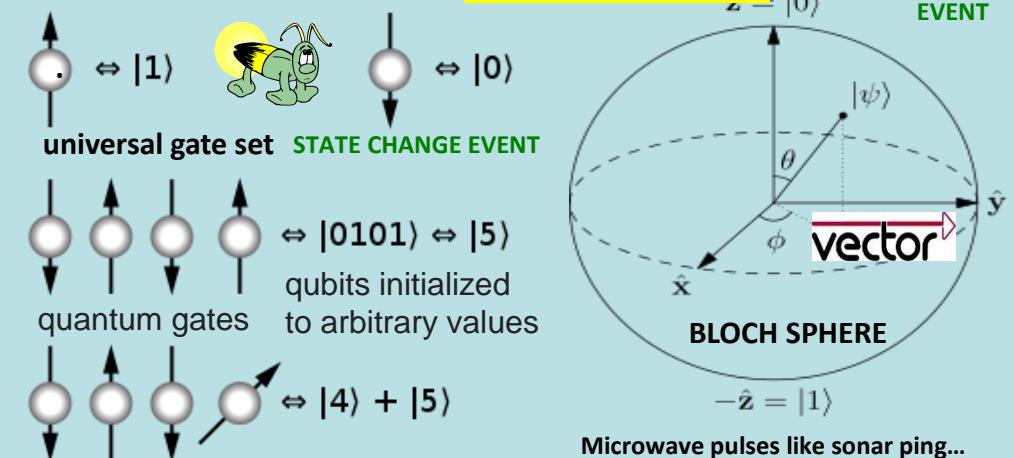
Vertical polarization vectors from a known point 0 null Sonar Hop meme



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?



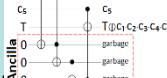
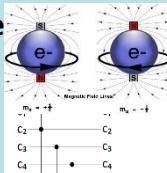
qubits can be in a superposition of all the classically allowed states

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)

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

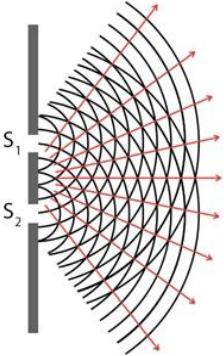


# Double-Slit Experiment

Screen with two slits

PARTICLE ?

Sodium lamp



Screen

WAVE ?

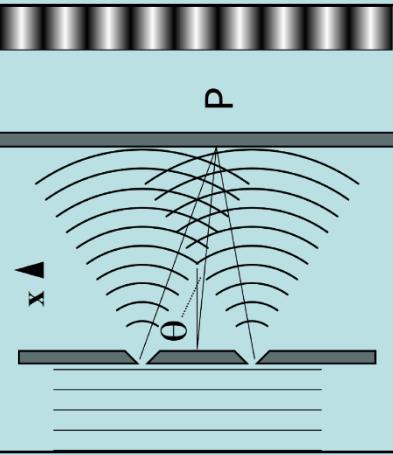


Light source      Rays of light coming from the source reach the slits

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

Alternating bright and dark fringes due to interference of light waves

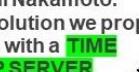
QUANTUM COMPUTING  
- RESISTANT ? - BASED ?  
THROUGH LENS OF SCOTUS  
ALICE LOOKING GLASS RULING



CLOCK FACE 360°  
90 / 90 / 90 / 90



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



CLAIMS MAY NOT DIRECT TOWARDS ABSTRACT IDEAS  
Physical = Opposite of abstract = ALICE  
HEART BEACON CYCLE  
TIME – SPACE METER  
USPTO 13/573,002

first base  
RUNNER  
Message Bus

Firefly – Heartbeat Algo  
EVENTS

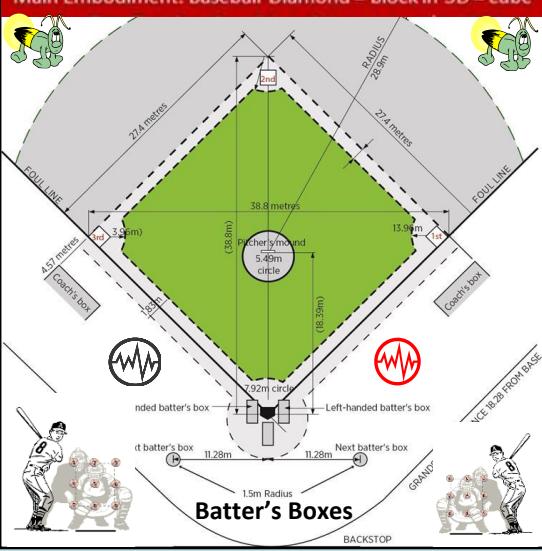
Fix {"108"}  
FLASH MESSAGE EVENT BUS

TIME STAMP SERVER  
 $\Delta\delta$   
Epoch Time Cycles

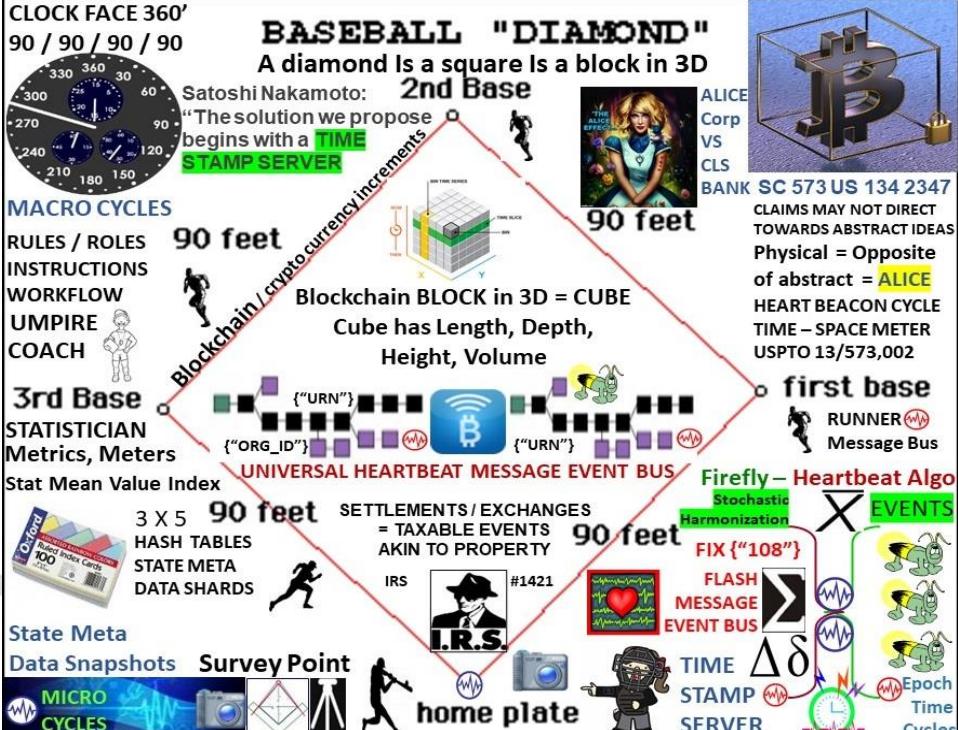
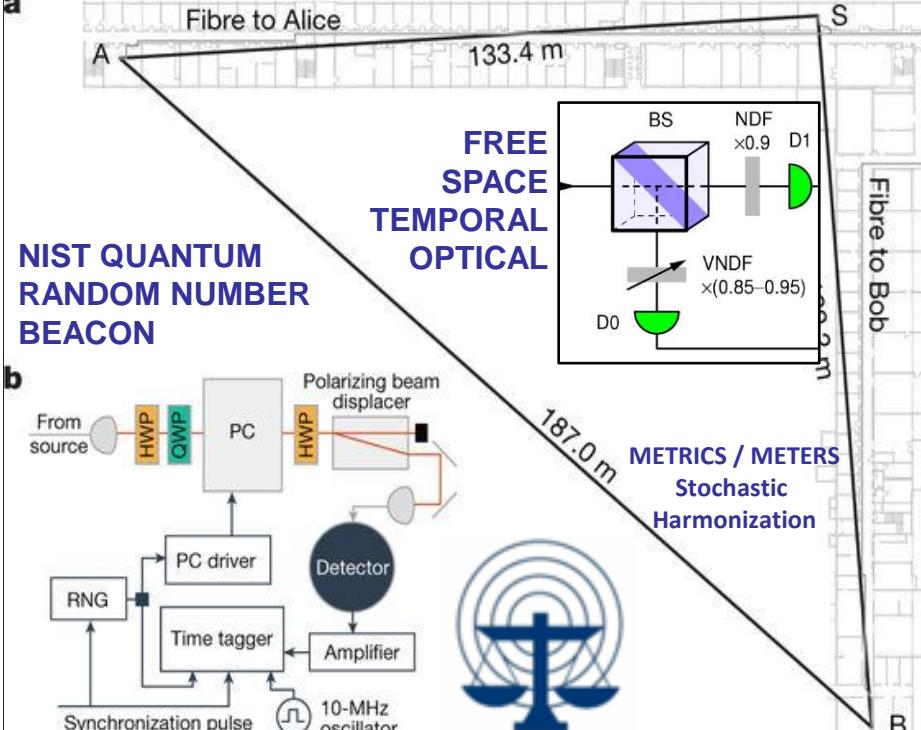
USPTO APPLICATION 13/573 002

The Heart Beacon Cycle Time-Space Meter

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



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



# The Hopf Fibration

Edmund Harriss

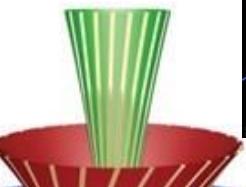
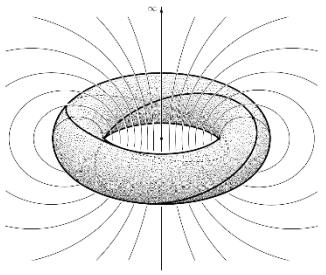
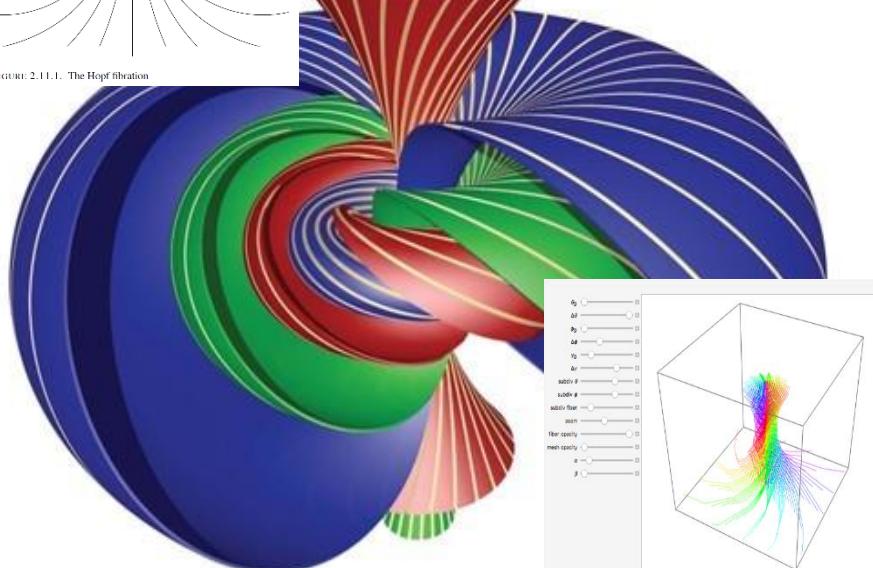
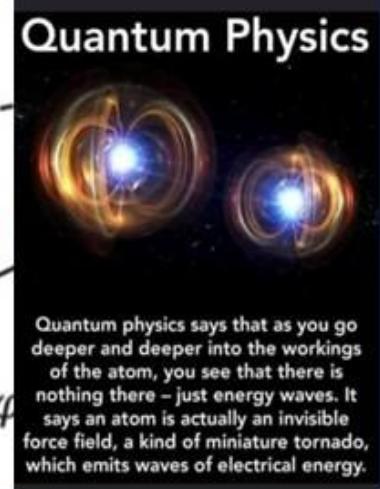
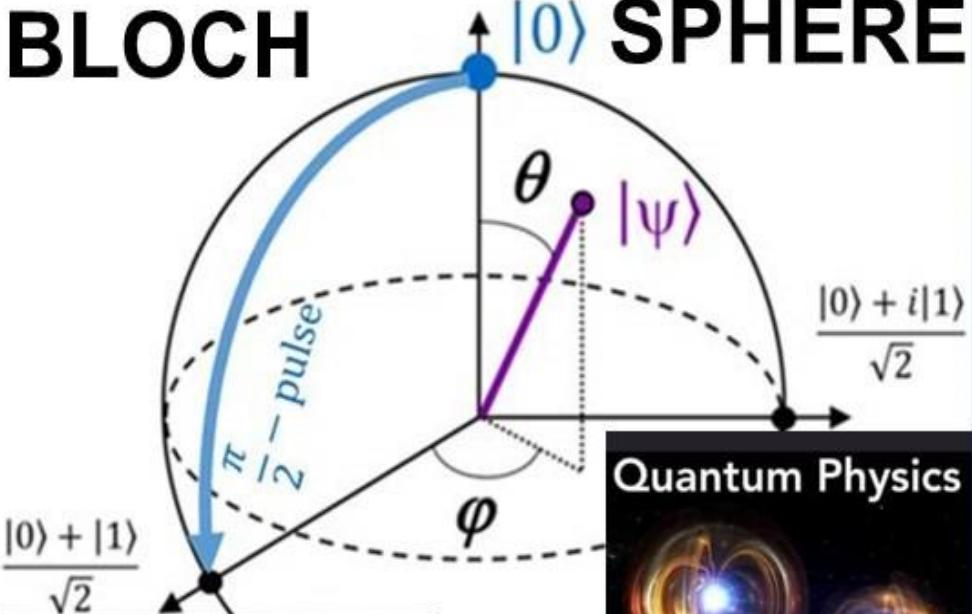


FIGURE 2.11.1. The Hopf fibration



# BLOCH SPHERE



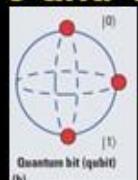
## Hopf Fibration / #Bloch sphere

"the most important object in the universe"

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

Paul Revere linear - sequential hop count meme

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





# THE 1919 WORLD SERIES

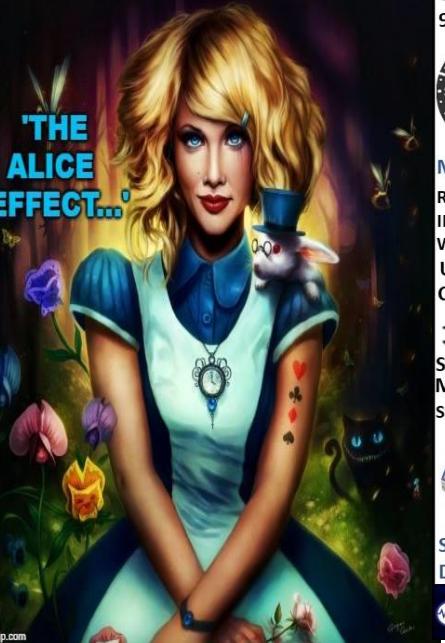
## *What Really Happened?*

**William A. Cook**



**Stop patent trolls.  
Join The Alliance.**

pplication  
velopers  
lliance

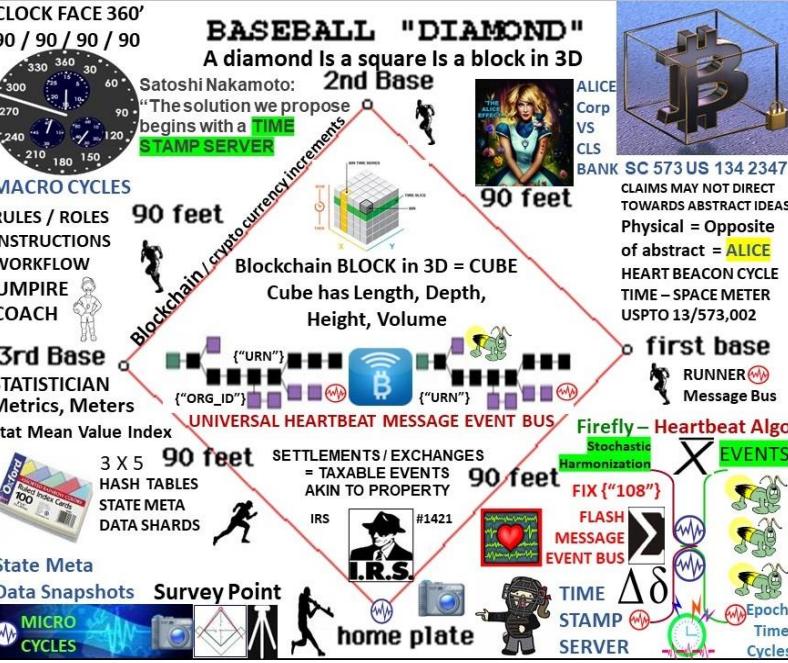


*Alice Corp. v. CLS Bank International*, 573 U.S. 134 S. Ct. 2347 (2014)  
RULING: “claims may not direct towards abstract ideas”



# USPTO SCREEN CAPTURES SUSPENDED PAIR RULES

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





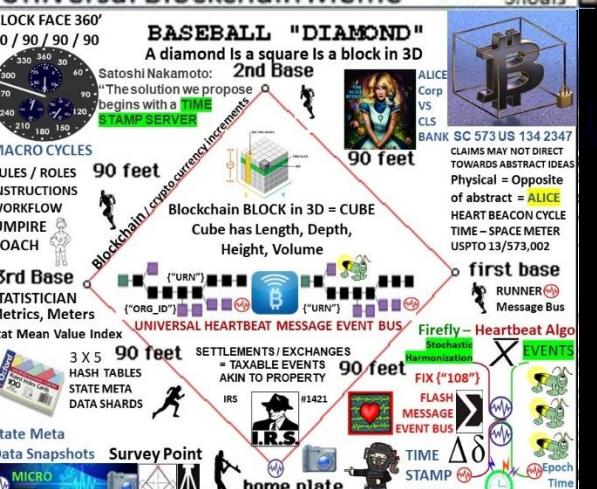
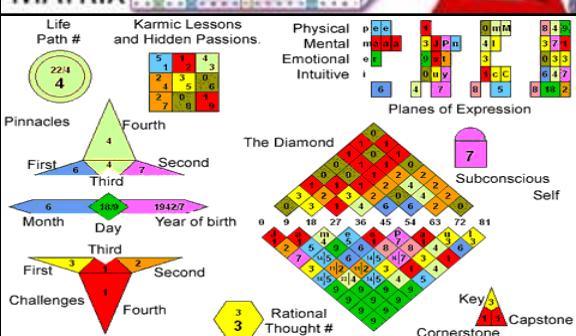
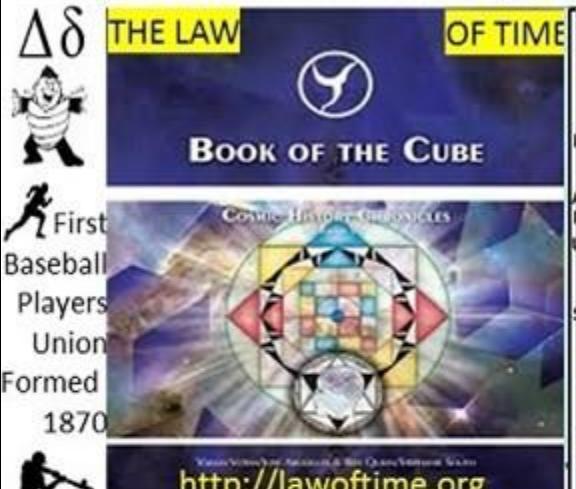
USPTO APPLICATION 13/573 002

## The Heart Beacon Cycle Time-Space Meter

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

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

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



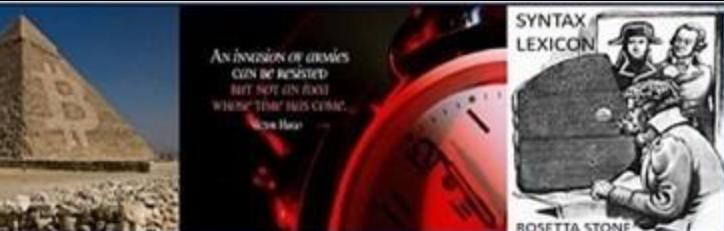
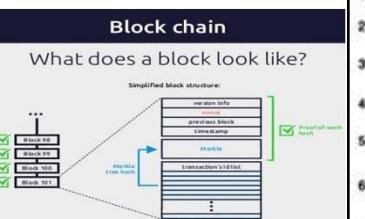
Satoshi Bitcoin Blockchain  
Time Stamp Server

**TIMESTAMP SERVER**  
 In order to propose begins with a timestamp server. A timestamp server works by taking a block of blocks to be timestamped and publicly publishing the hash, such as  $H_1$ , of the first block. This hash is then used to timestamp the second block,  $H_2$ . This continues until the obviously, in order to get into the hash. Each timestamp includes the previous timestamp in its header, forming a chain, with each additional timestamp referencing the one before it.



```

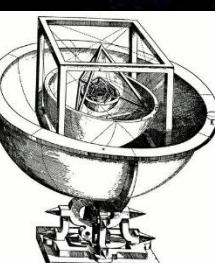
graph LR
    subgraph TS [Timestamp Server]
        direction TB
        TS_in[Blocks] --> TS_out[Hash]
    end
    TS_in --- TS_out
  
```



## Metatron's Cube and the Platonic Solids



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



GENESIS OF ALL FORM



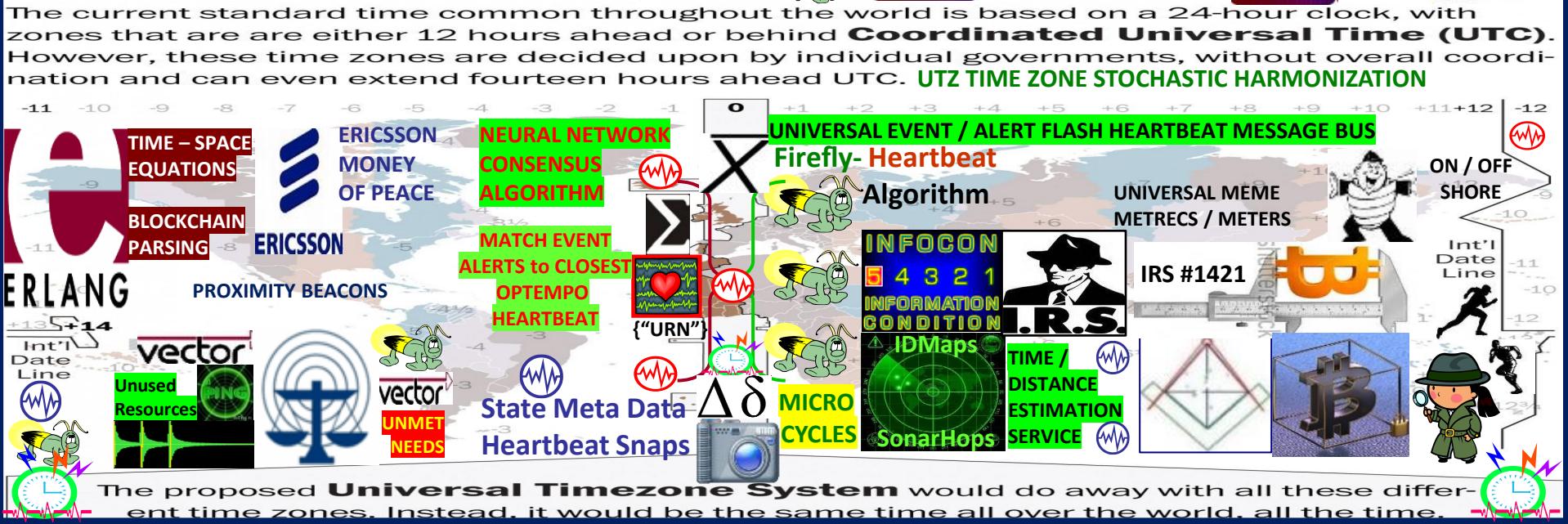
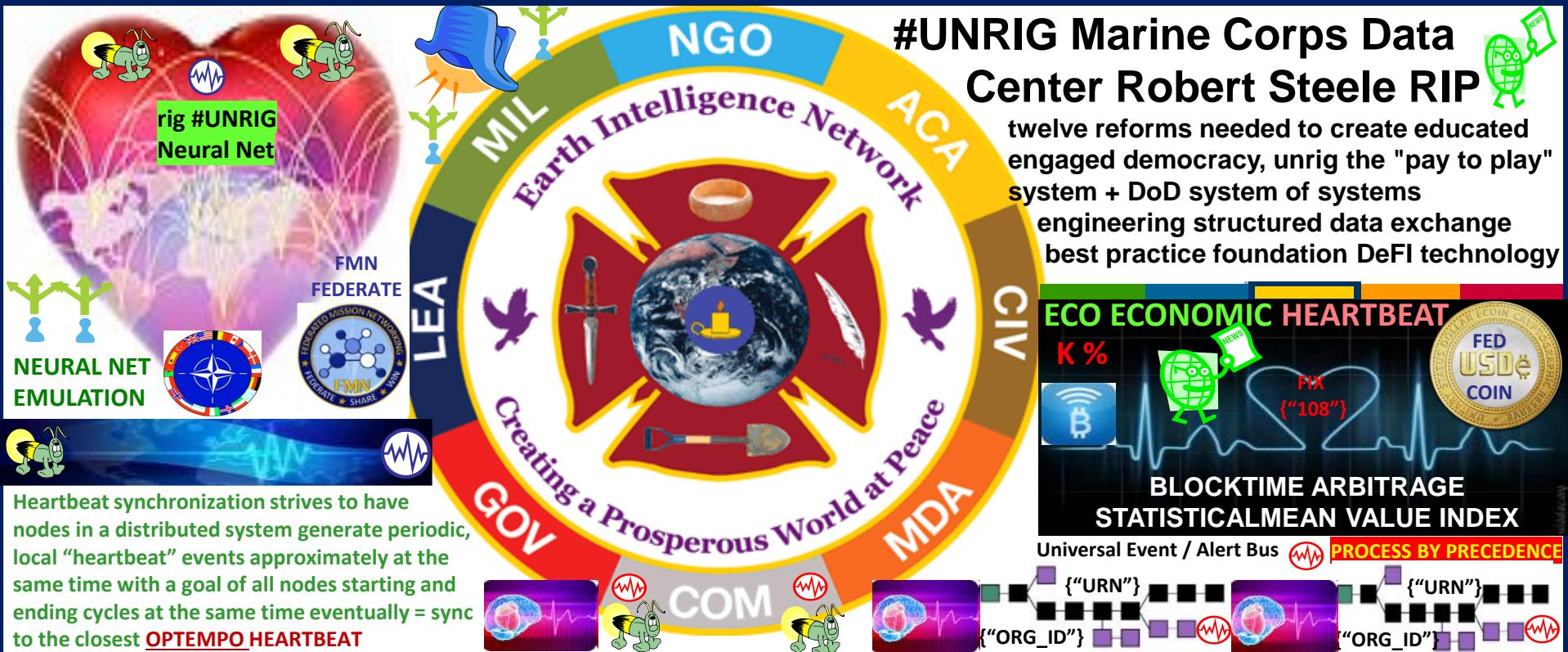


## **MINIMUM LIST OF COMPONENTS, BUILDING BLOCKS, PROCESSES, PROCEDURES AGREED ON BY TRADE FEDERATIONS TO ACHIEVE DISTRIBUTED AUTONOMOUS ORGANIZATION DAO CONSENSUS,**



# #UNRIG Marine Corps Data Center Robert Steele RIP

twelve reforms needed to create educated engaged democracy, unrig the "pay to play" system + DoD system of systems engineering structured data exchange best practice foundation DeFI technology



# DAO: Distributed Autonomous Organization

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

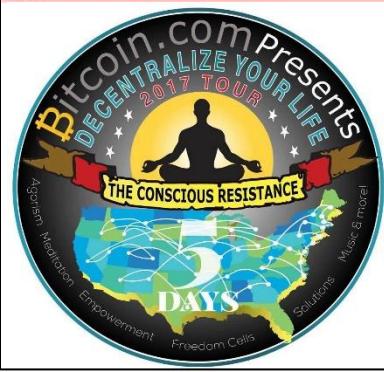
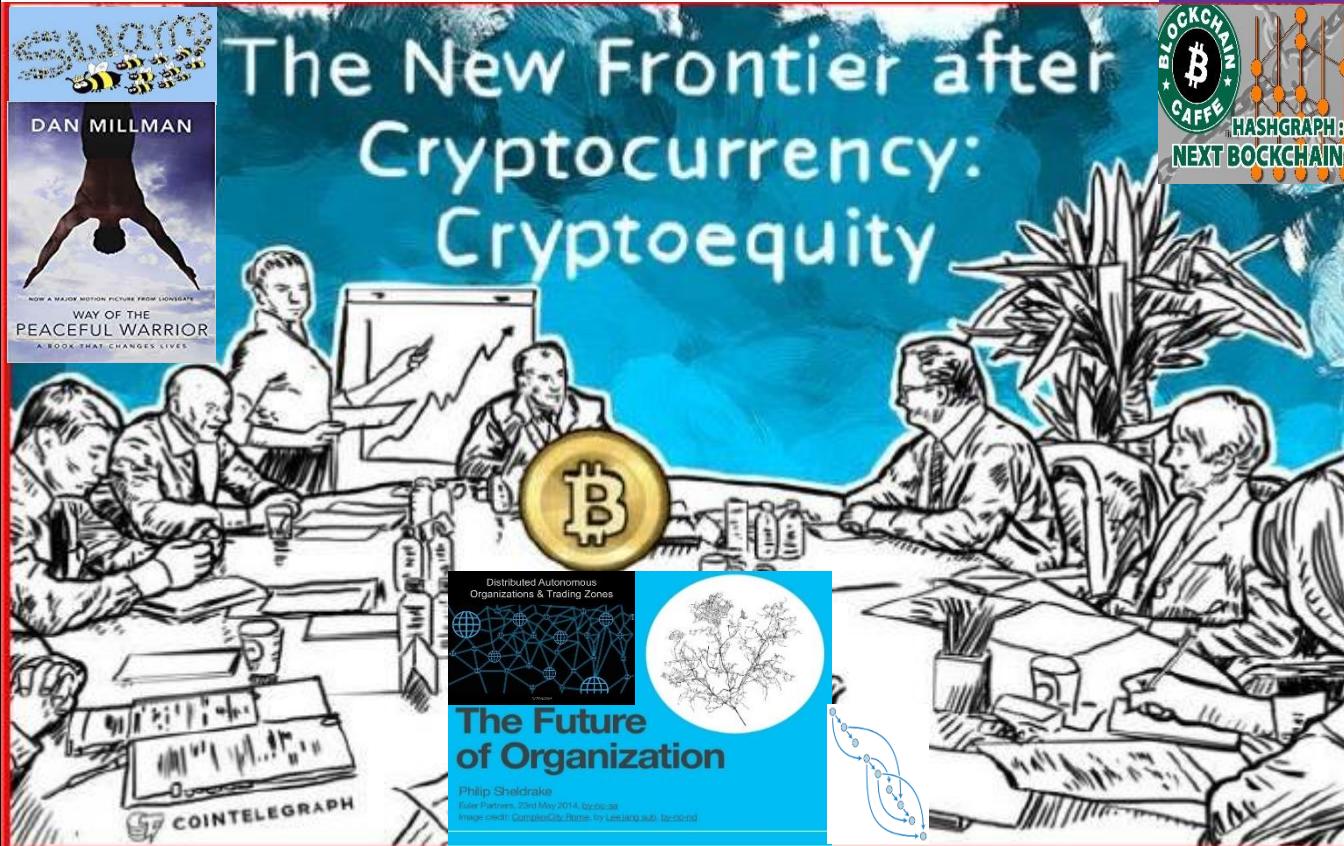
### SWARMING AND THE FUTURE OF CONFLICT



RAND

RAND  
Monograph  
Report

THE  
ADVENT  
Of NETWAR



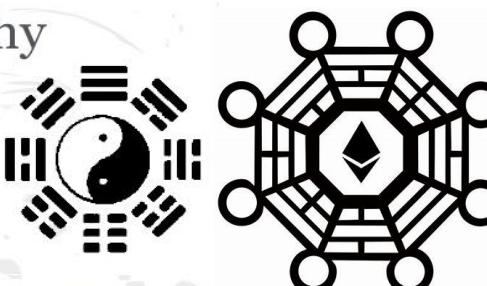
<http://cointelegraph.com/news/112077/the-new-frontier-after-cryptocurrency-cryptoequity>

## 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







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

