



The Heart Beacon Cycle

Time – Space Meter

- 300+ Structured Data Exchange Templates
 - Syntax Lexicon Library Code Repository
 - IoT / IoT, Big Data, net of \$ Blockchain Sync
 - Ecologically supportive Econometrics Metrics, Meters
 - Swords To Plowshare Network Enabled Operations NEO Reuse





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

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

CHECKLIST: TRADE FEDERATION ECONOMIC FRAMEWORK EX:

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



Humanitarian Assistance Networked Donor System

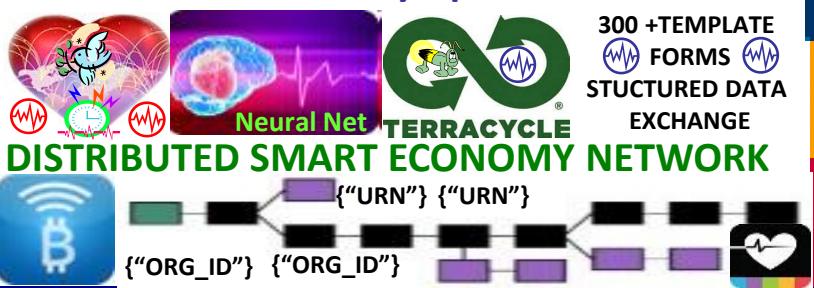
H.A.N.D.S: "Based on the need to speed up the processes of influencing an adversary, new concepts result in the adaptation of military doctrine, organization, training, material, infrastructure, interagency interaction, leadership, personnel and facilities" ... German Bundeswehr : concepts of "Network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



<https://neo.org>



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



Federation Gateway

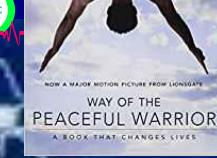


WORLD BEYOND WAR.org
a global movement to end all wars



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

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

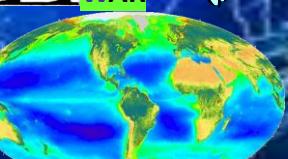


Beacon Communities

Vernetzte Operationsführung



Closer < \$\$\$ < FUEL



Proximity Beacons
JAEGERS



FREELY
HEARTBEAT
EVENT / ALERT Flash Heartbeat Message Bus
ALGORITHM



KAIJU

DAO: Distributed Autonomous Organization

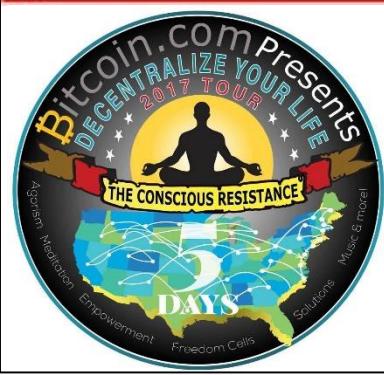
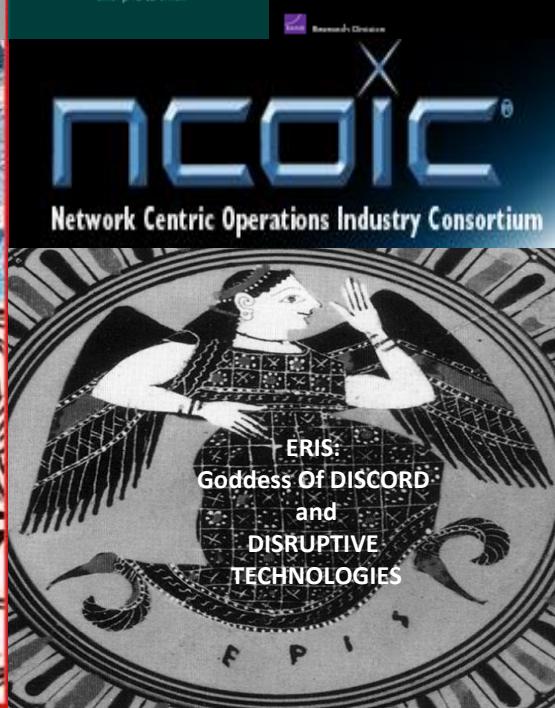
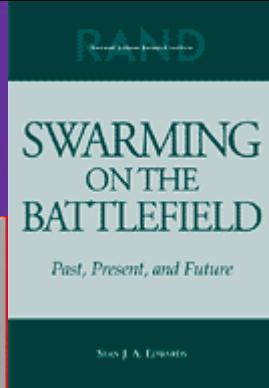
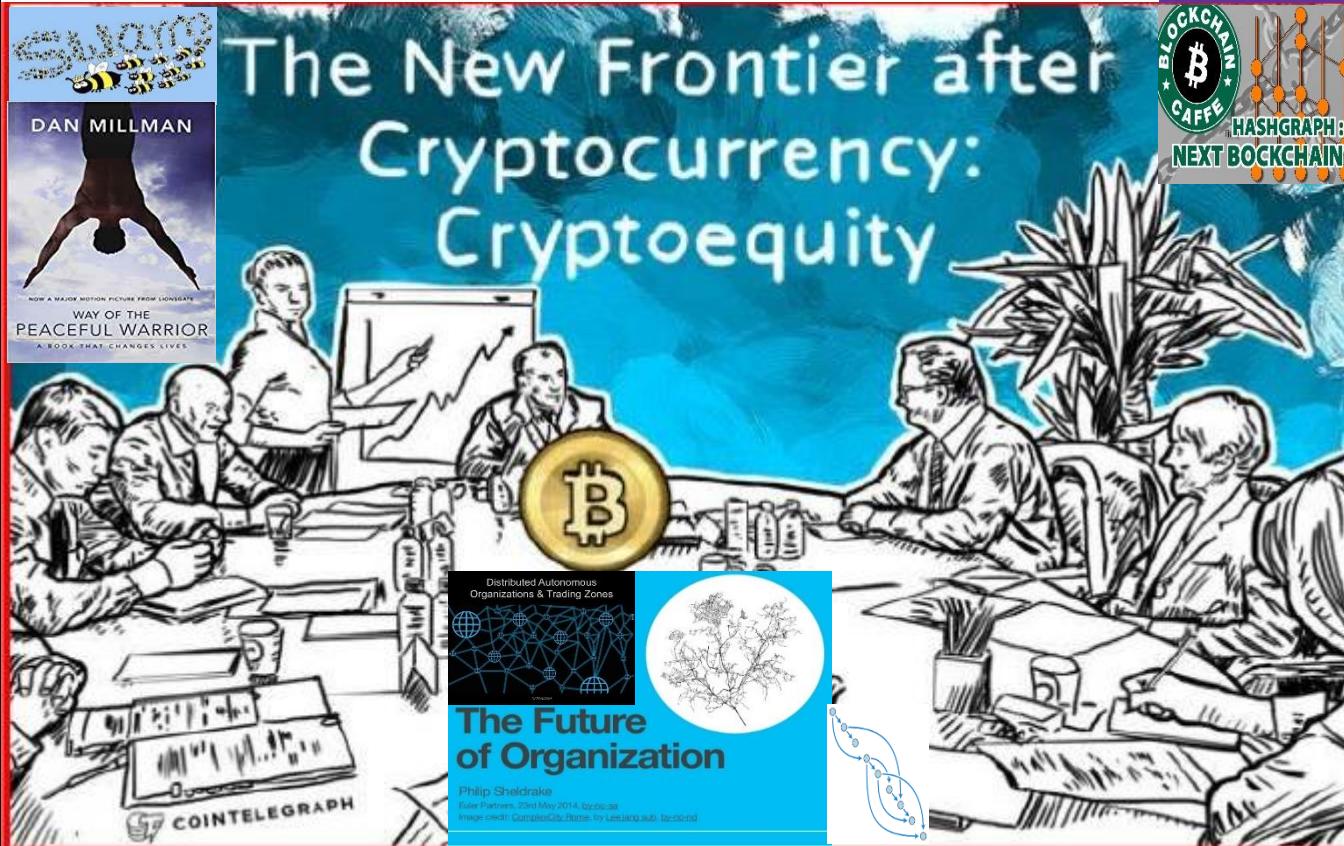
RAND term circa 2000 / The TAO OF THE DAO

SWARMING AND THE FUTURE OF CONFLICT



RAND
Monograph Report

THE
ADVENT
Of NETWAR



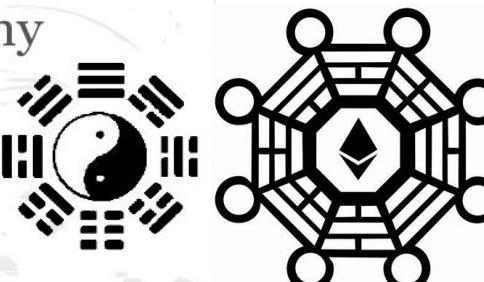
<http://cointelegraph.com/news/112077/the-new-frontier-after-cryptocurrency-cryptoequity>

Taoism Philosophy

Taoism represents:

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

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



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

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

@TheBitcoinArmy



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

"In the beginning"

"The Word"

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

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

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

Gideon Greenspan "Beware the impossible smart contract"



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

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Heart Beacon Cycle

FEDERATE / TRADE FEDERATIONS



ECONOMIC HEARTBEAT
K %



DAO
FEDERATE
SHARE
WIN

BITNATION



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

Federation
Gateway



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

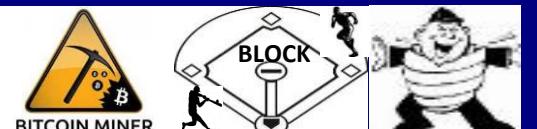
{"GLOBAL"}
{"SHARED"}
{"DOMAIN"}
{"COMMUNITY"}
{"PRIVATE"}
{"GROUP ID"}



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



Bitcoin Mining Pools
MEME / METAPHOR MEDIATION



DISTRIBUTED AUTONOMOUS ORGANIZATION = DAO RAND Corp

term coined circa 1991 now in use by Blockchain tech corporations

Uniform_Resource_Name



FIREFLY FLASH
HEARTBEAT MESSAGES

IeT DEVICE / PLATFORM
IoT SENSOR DEVICE

{"Asset_Type"}

</RESOURCE> {"URN"}
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STOCK EXCHANGE

MIC MARKET IDENTIFIER
CODES / BREVITY CODES



Office 365 Groups



Microsoft Teams

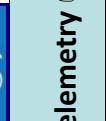
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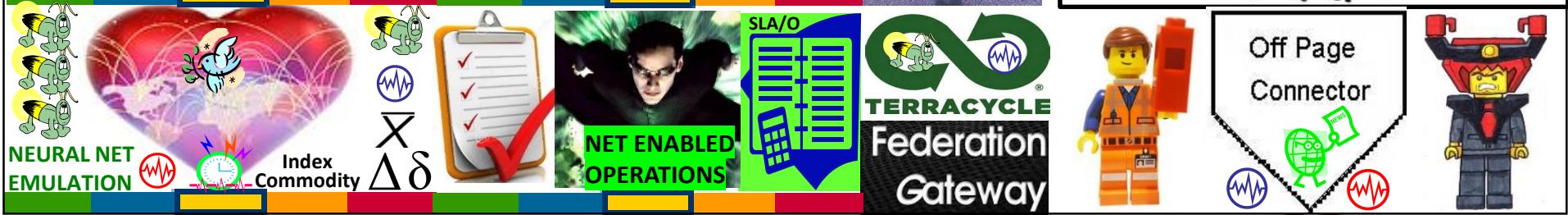
QR CODE



{"DUNS #"} {"Org_ID"} Heartbeat Snaps
QR CODE MICRO-CYCLES
{"URN"} {"URN"} {"URN"}

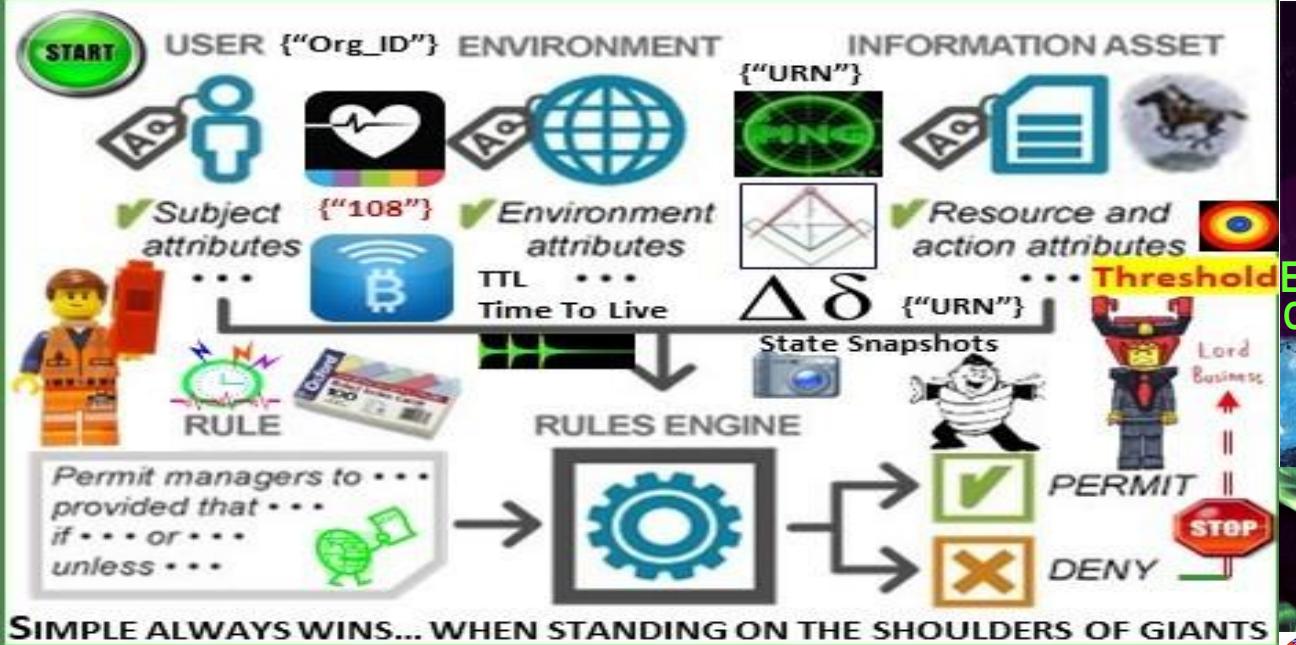


Signalling, Telemetry



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





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

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



Vernetzte Operationsführung

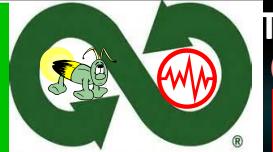
OOTW: Operations Other Than War





Firefly - Heartbeat Algo

University of Bologna Italy / Hungary



THE HEART BEACON CYCLE

{"108"}

108



K%



TERRACYCLE

ECONOMIC MACRO CYCLES

ECONOMIC HEARTBEAT

K% GDP ECONOMIC PULSE FEDCOIN WORLDCOIN

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



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



LUXOR
EGYPT

HEARTBEAT FLASH MESSAGE EVENT BUS

PRECEDENCE
PROCESSING

ETHEREUM THRESHOLD
GAS

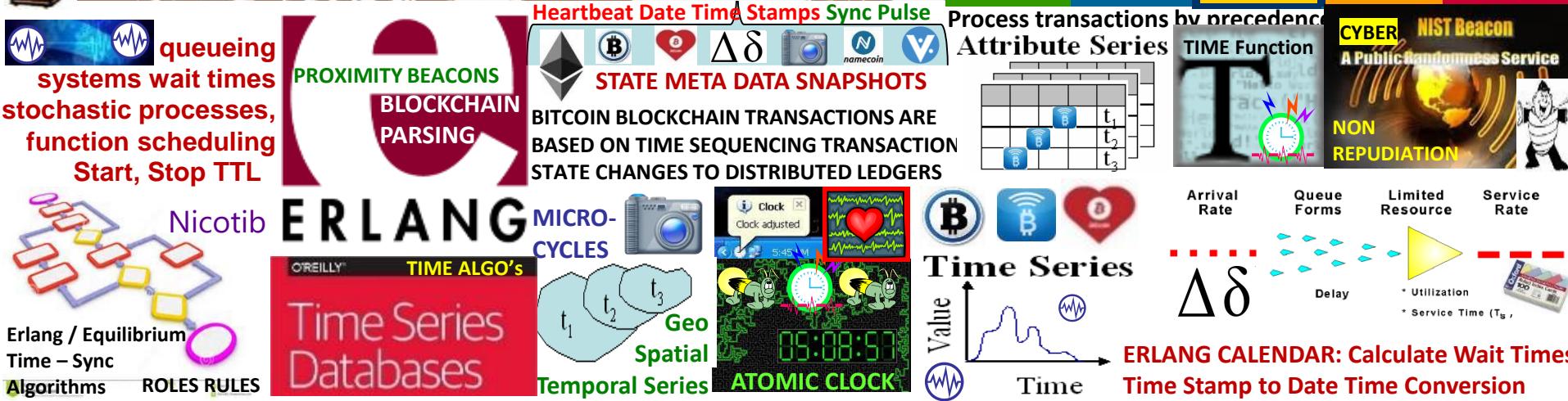
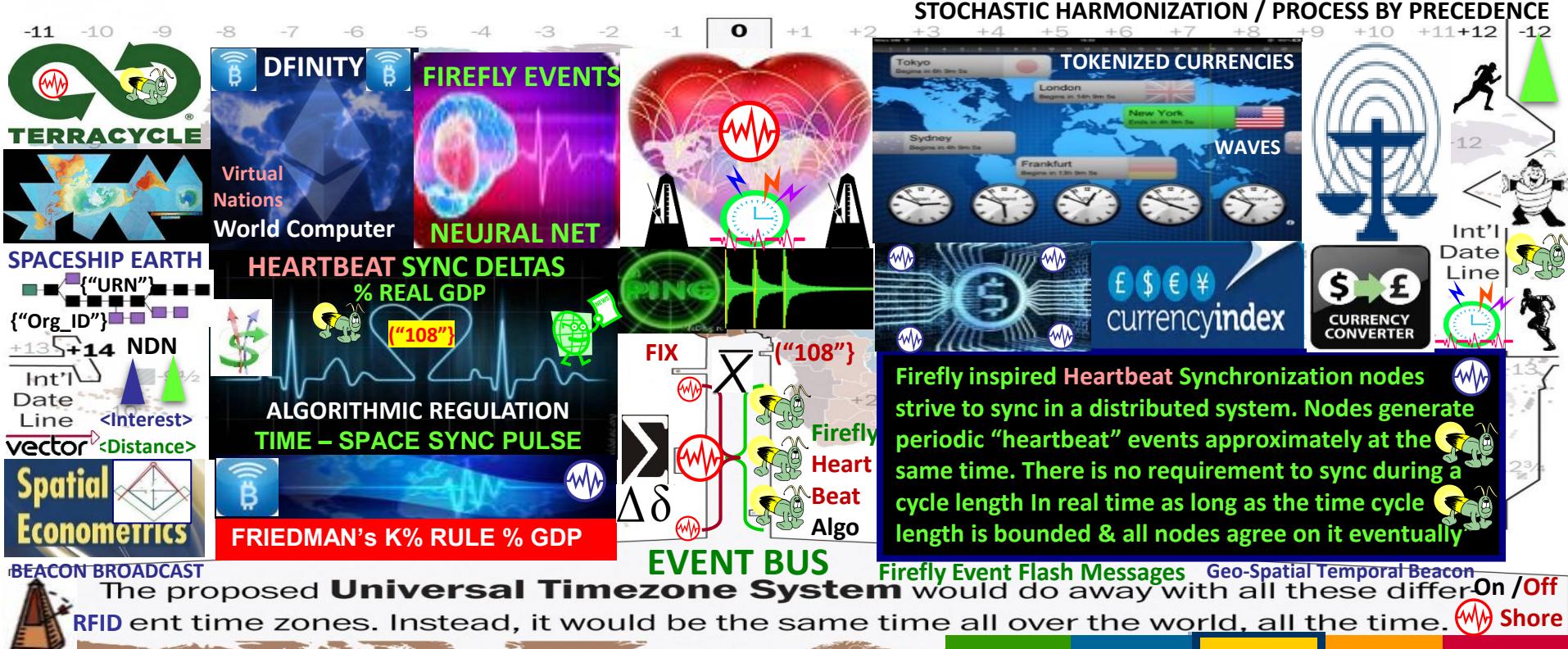
METRICS



TERRA
TRC



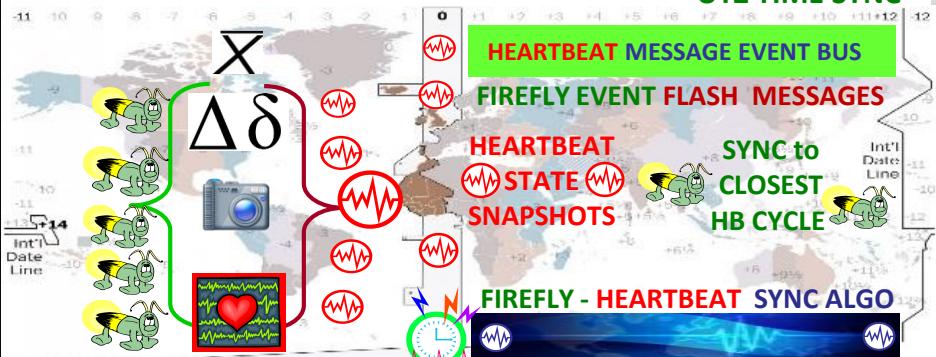
The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen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





ALGORITHMIC REGULATION

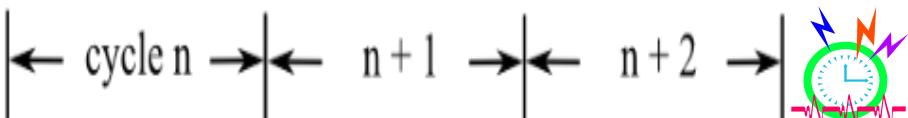
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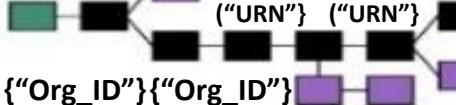
The proposed **Universal Timezone System** would do away with all these different time zones. Instead, it would be the same time all over the world, all the time.



CPU CLOCK EPOCHS / HEARTBEAT CYCLES $\Delta\delta$



K% VARIABLE YEARLY GDP SNAPSHOT



currencyindex



'K-Percent Rule Macro economic money-supply heartbeat automatically adjusts \$ supply by a set amount "K" variable regardless of cyclical state of the economy e.g., set growth rate variable to real yearly % GDP

ripple

LEADING ECONOMIC INDICATORS



"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"







Blocknet internet of blockchains

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

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

Any coin that supports OP_CHECKLOCKTIMEVERIFY and has a stock JSON RPC interface cloned from Bitcoin Core

P2P atomic swap exchange using BIP65 capable chains

BlocknetDX Specs:

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

• core components are:

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

• The core services are:

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



PHOENIX

Phoenix Project Financial Algorithm

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

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

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



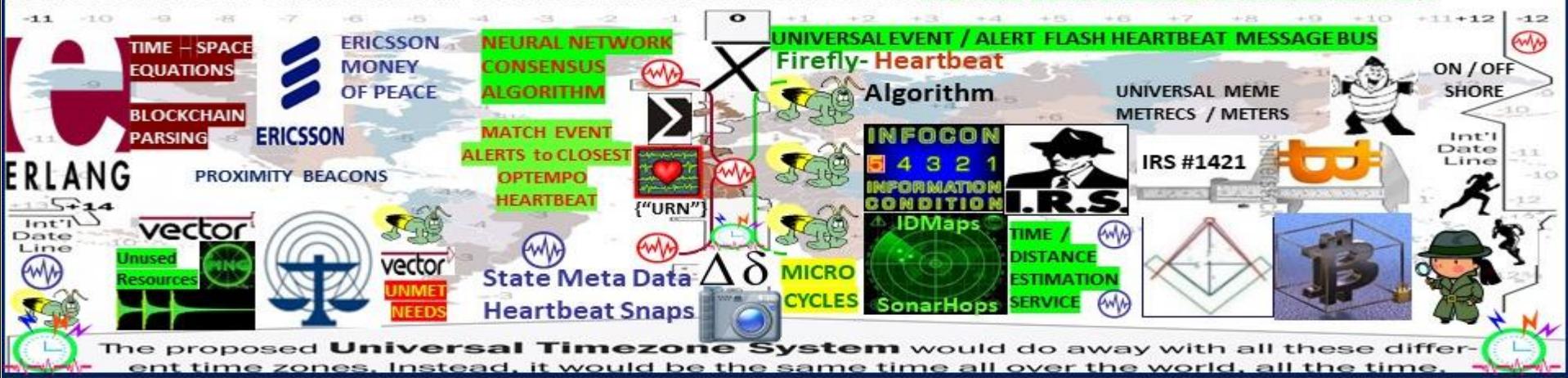
The current standard time common throughout the world is based on a 24-hour clock, with zones that are either 12 hours ahead or behind **Coordinated Universal Time (UTC)**. However, these time zones are decided upon by individual governments, without overall coordination and can even extend fourteen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



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.

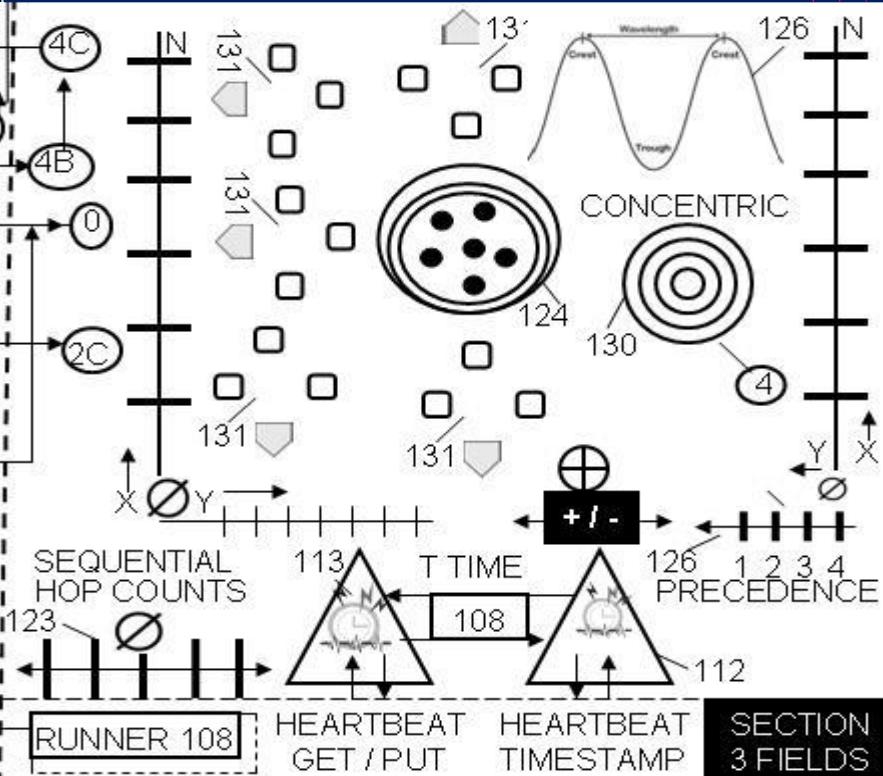
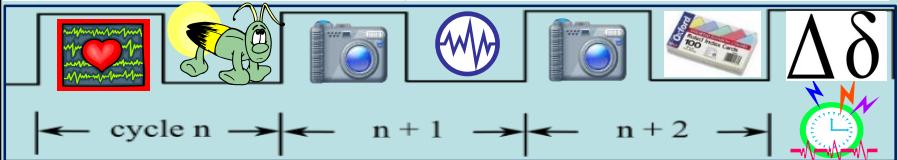
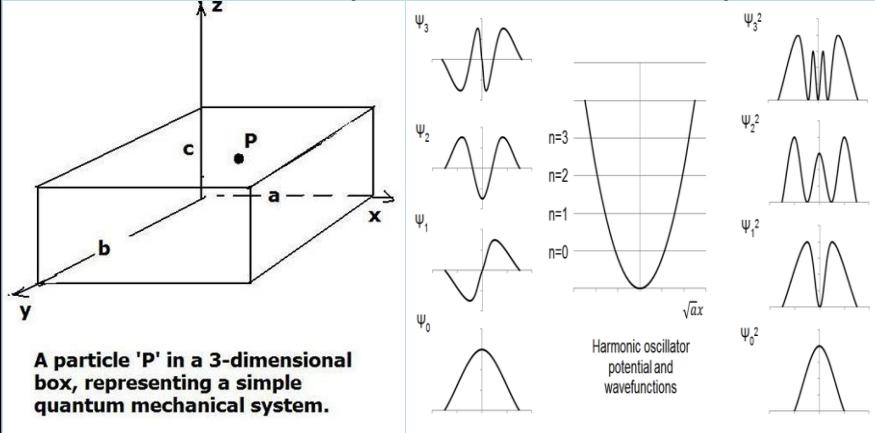


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QUANTUM COMPUTING / HBC TIME – SPACE METER / METRICS



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

US Sct Alice Corp Vs CLS Bank Physical memes

Linear sequential “Paul Revere” meme = horizontal polarization

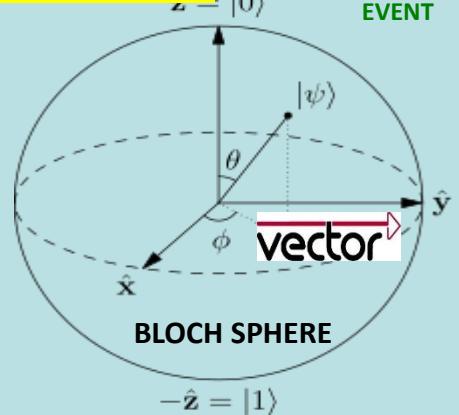
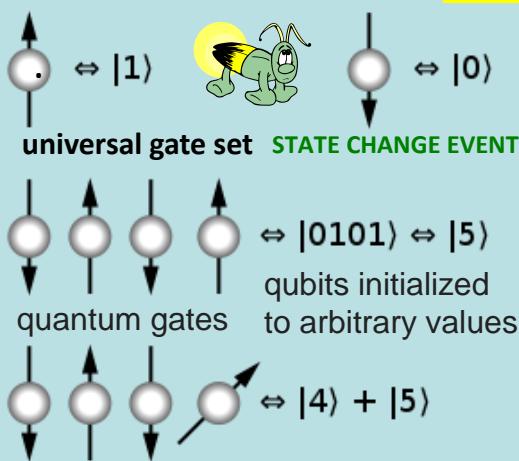
Vertical polarization vectors from a known point 0 null Sonar Hop meme



particle representation / samples



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



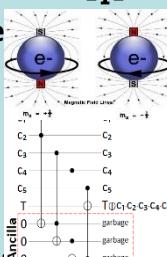
qubits can be in a superposition of all the classically allowed states

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



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

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



CLOCK FACE 360'

90 / 90 / 90 / 90

MACRO CYCLES

HASH TABLE

Nonce /
Syntax

90 feet

RULES / ROLES

INSTRUCTIONS

UMPIRE

COACH

3rd Base

STATISTICIAN

Metrics, Meters

State Meta
Data Snapshots

MICRO-CYCLES

Survey

Point

home plate

UMPIRE

BLOCK in 3D = CUBE

Cube has Length, Depth,

Height, Volume

90 feet

BASEBALL "DIAMOND"

A diamond Is a square Is a block

2nd Base

Runner =

Messages
Signals /
Telemetry

90 feet

SC 573 US 134 2347

Physical = Opposite

Of abstract

Euclidian Geometry

TRIANGULATION..

first base

EVENT BUS

#1421

Org ID

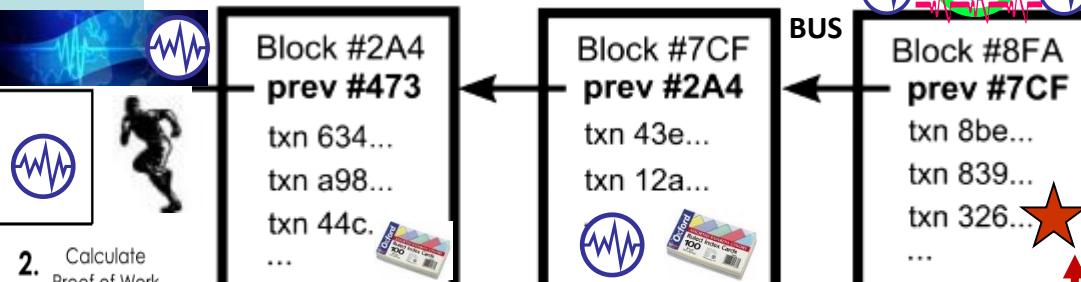
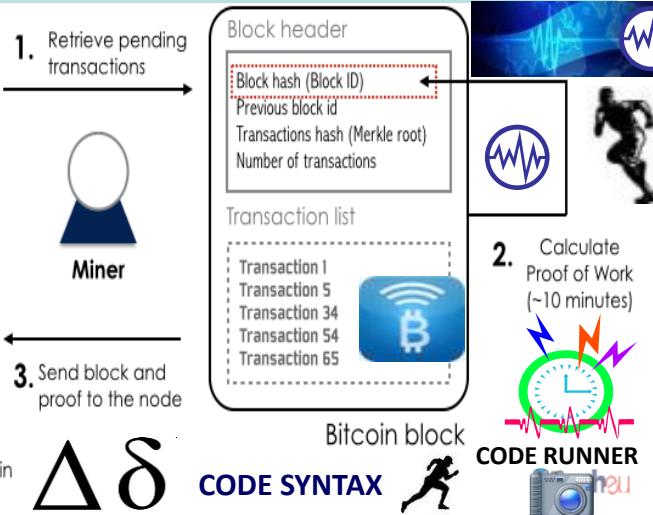
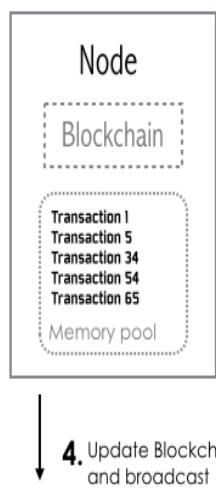
Blockchain Blocks

/ Coins Awarded

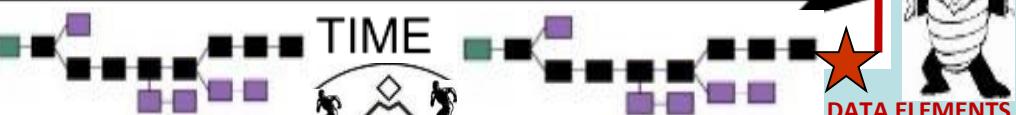
90 feet



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



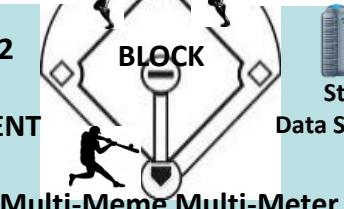
BLOCKCHAIN = TIME / SYNTAX



USPTO 13/573,002

PHYSICAL MEME
MAIN EMBODIMENT

RULES
Metrics $\Delta\delta$



State Meta
Data Snapshots

ROLES
Meters

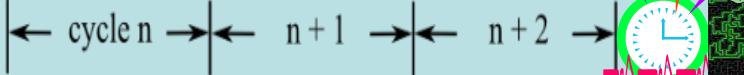
XBRL / CDL / DAML
STOCK MIC CODES

STRUCTURED
MILITARY MESSAGE
TEMPLATE FORMS
LOGIC / FILTERS

SYNTAX
LEXICON LIBRARY

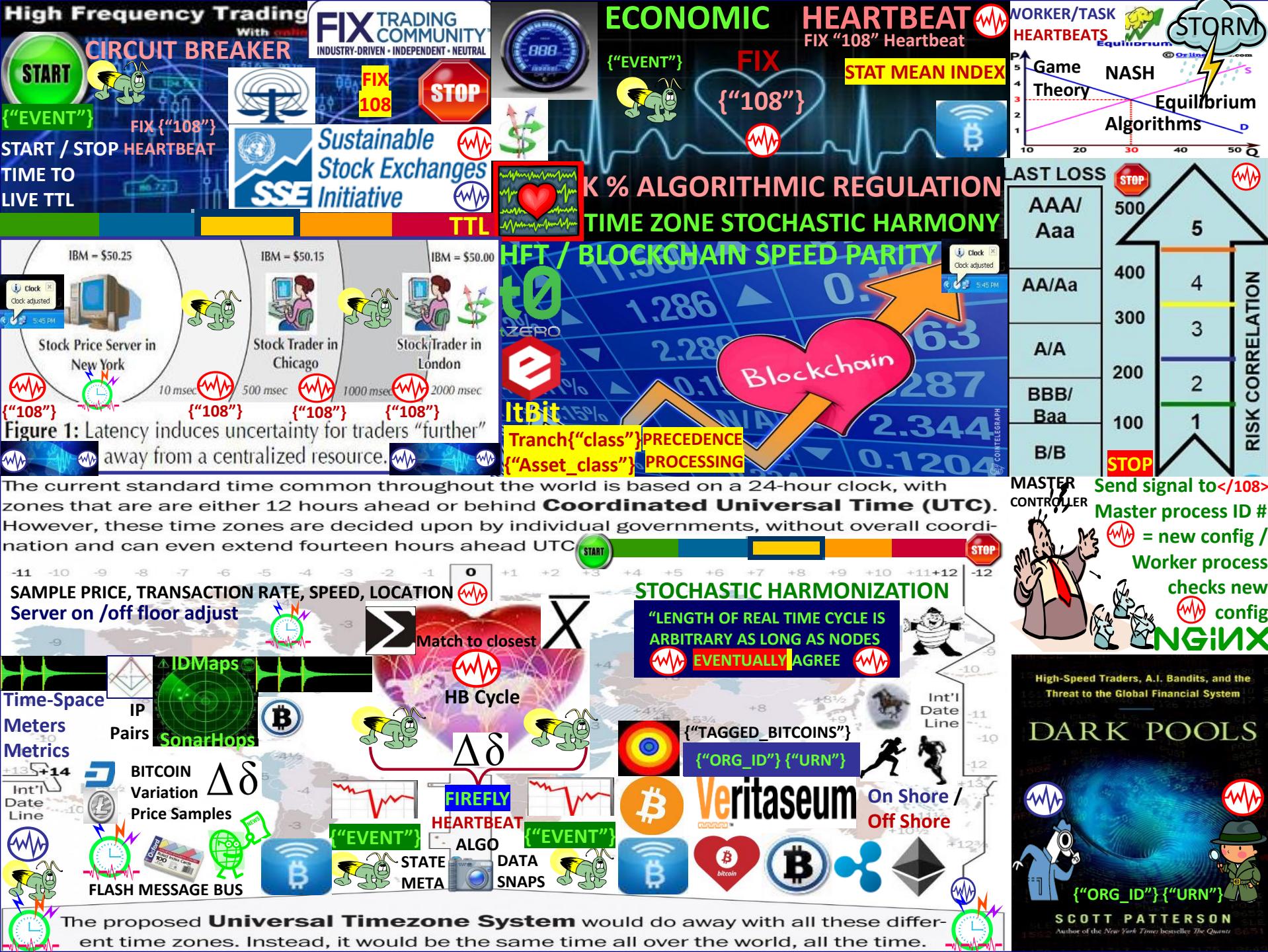


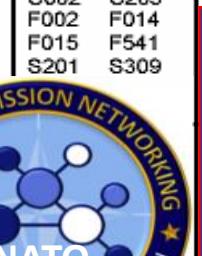
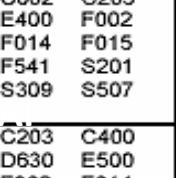
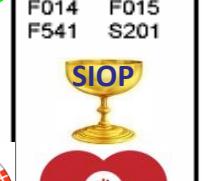
ASIC CHIP CLOCK CYCLES TIME EPOCHS



TIME
EPOCH
CYCLES

ATOMIC CLOCK



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

ALPHA-NUMERIC BREVITY CODES

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



G Data Elements: entity, attribute, relationship equivalents



HEARTBEAT MESSAGE = K00.99



{“Org_ID”} {“URN”} FILTER

FFIRN Field Format Index Reference

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

BY Form Field Position & NUMBER



FILTERS



PROCESS MESSAGE BY PRECEDENCE UNIVERSAL EVENT / ALERT MESSAGE BUS

MESSAGE CATALOG

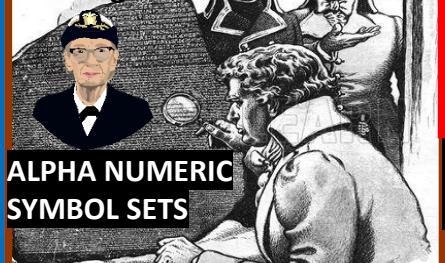
300 + Use Cases

Object Categories		Information Categories and Examples						
Examples	Location	Movement	Identify	Status	Activity	Intent		
OOB	SYNTAX LEXICON	STRUCTURED DATA lat/long	EXCHANGE spd/hdg	Message country / alliance, type/class	Sets readiness	targeting, reconitering	COA	{"Java JS"}
Infrastructure	Comm, power, transportation, water/sewer	network, grid	throughput, flow rates,	name, part-of relationship	BDA, op levels	repair, broadcasts	YAML	expansion mlane
Sociological	Culture, religion, economic, ethnic, government, history, languages	temples, historic structures	E-R Model Entity	Class Diagram Class	Relational Database Table	Object DBMS Class	XML DTD / Schema Element	TADILs Message
Geophysical	Terrain, weather, climatology, oceanography, astrometry	feature lat/long, alt/dpth	Attribute Domain Value	PURCHASE CODES	Field / Column Instance, Value	Child Element or Element Attribute	DFI	FFIRN / FFN / FUDN
					FEDERATE		DUI	FUD

OPERATIONAL NODES / ACTIVITIES

DATA SYSTEM FUNCTIONS		PERFORMANCE	
11.4 - Classification		11.8 - Kinematics	
11.4.1 - Category		11.8.1 - Pos / Vel / Acc (PVA)	
11.4.1.1 - Confidence Level		11.8.1.1 - Acceleration	
11.4.1.2 - Estimate Type		11.8.1.1.1 - Angular	
11.4.1.2.1 - Alternative		11.2 - Linear	
11.4.1.2.2 - Evaluated D		11.2.1 - Estimate Type	
11.4.1.3 - Value		PURCHASE	11.2.1.1 - Estimated
		CODES	11.2.2 - Observed
			11.2.3 - Predicted
			11.2.4 - Smoothed
SYMBOL	Friend	Neutral	Hostile
2525C	Partner		
11.4.1.3.1 - Substance			Competitor
11.4.1.3.5 - Surface			
11.4.2 - Platform / Point / Fe			4 - Velocity
11.4.3 - Specific Type			1.4.1 - Horizontal
11.4.4 - Type Modifier			1.4.2 - Vertical
11.4.5 - Unit			VA Confidence
			1 - Bearing Angle
			2 - Bearing Angle Rate
			3 - Covariance Matrix

Structured Data Exchange



ALPHA NUMERIC SYMBOL SETS

Coder's Guide

lexicon.

FROM	GCCB-A	TO	AFATDS	MCS
ASAS	F002 C003 F002 F014 F015 F041 S201 S309	F015 F041 F014 F015 F002 F003 K011 S201	F002 F003 F015 F041 S201 S309	
AMDPBS	F002 F014 F015 F041 S201 S309	F002 F003 F015 F041 K011 S201	F002 F003 F015 F041 S201 S309	
AFATDS	F002 F014 F015 F041	F002 F014 F015 F041 F002 F003 K011 S201	F002 F003 F015 F041 S201 S309	
MCS	A423 C003 C005 F002 F015 F041 F541 S201	A403 A605 C003 F002 F015 F041 F541 S201	A456 A690 C003 F002 F015 F041 F541 S201	A423 C003 C005 F002 F015 F041 F541 S201

STRUCTURED
<CONTENT>
EXCHANGE
TEMPLATES

XML

MIL STD 2525ABC

Universal Parser

json

"SYMBOLS RULE THE WORLD"

11.8 - Kinematic	STRATML	XAML
11.8.1 - Pos		
11.8.1.1 -		
11.8.1 -		
XBRL		
THE BUSINESS REPORTING STANDARD		
BINARY XML		
Decision		
UBL		
DDL DATA DEFINITION LANGUAGE	TOSCA	YAML
1 - Horizontal		
2 - Vertical		
Confidence		
Bearing Angle		
Bearing Angle Rate		
Covariance Matrix		

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



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

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

MESSAGE TEXT FORMAT :

{"URN"} {"URN"}

vector

{"TRANSACTION ID"}

SEG RPT OCC CLASSNAME SETID SEQ FIELD OCCURRENCE SET FORMAT NAME
O 11NUPRES EXER 1 /M /O // (NU) EXERCISE IDENTIFICATION



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



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



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



M // (NU) REFERENCED MESSAGE

DATE-TIME GROUP



M /M /M /M /C // (NU) ORGANIZATION DESIGNATOR

M // (NU) 1.A ENEMY FORCES / COMPETITORS



M // (NU) 1.B FRIENDLY FORCES / TRADE FEDERATION

'M // (NU) 1.C ATTACHMENT / DETACHMENT



M // (NU) 1.D COMMANDERS EVALUATION

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

M 11NUPRES GENTEXT 13 /M /M // (NU) 2. MISSION

K00.99 / FIX / SWIFT / E-911 Heartbeat Message

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

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

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

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

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

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

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

SYMBOLS Friend Neutral Hostile MEDICAL EVAC & HOSPITALISATION

Partner Competitor MILITARY OPERATIONS

NUMBERS ARE THE UNIVERSAL LANGUAGE / Symbols Rule the World"

Δδ

INDEX REFERENCE #:

M015 STATUS :

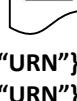
EFFECTIVE: 14-DEC-99



PURCHASE CODES



FEDERATED PEGS



{"ASSET_CLASS"}



{"ASSET_TYPES"}



ISO 10383 – MIC



Market Identifier Codes



DAO



{"URN"}



{"Org_ID"}



WAVEFORM



STOCK EXCHANGE



NDN NAMED DATA NETWORKING



PRECEDENCE



MIC CODES PROCESSING



FILTERS



INFOCON



5 4 3 2 1



INFORMATION CONDITION



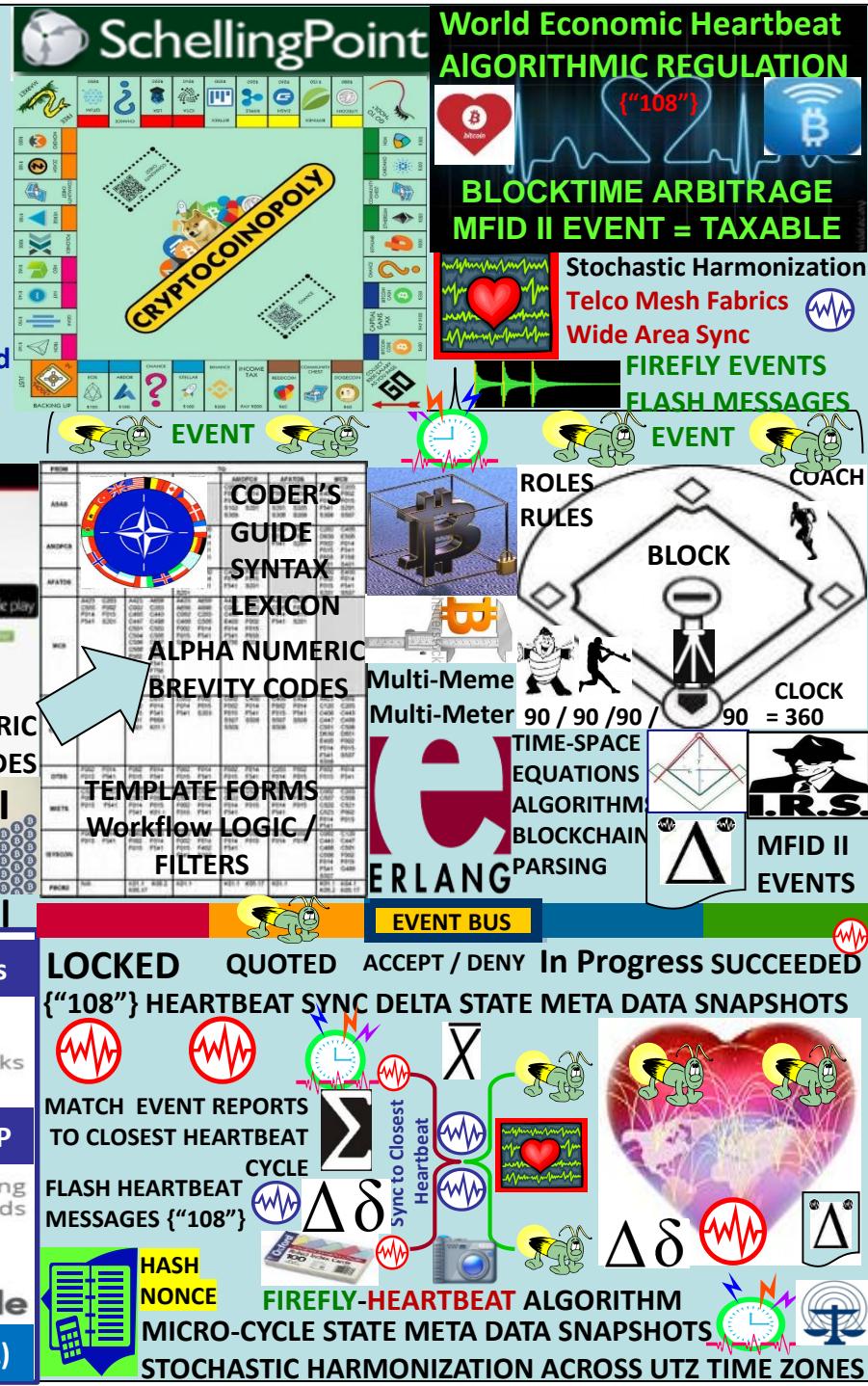
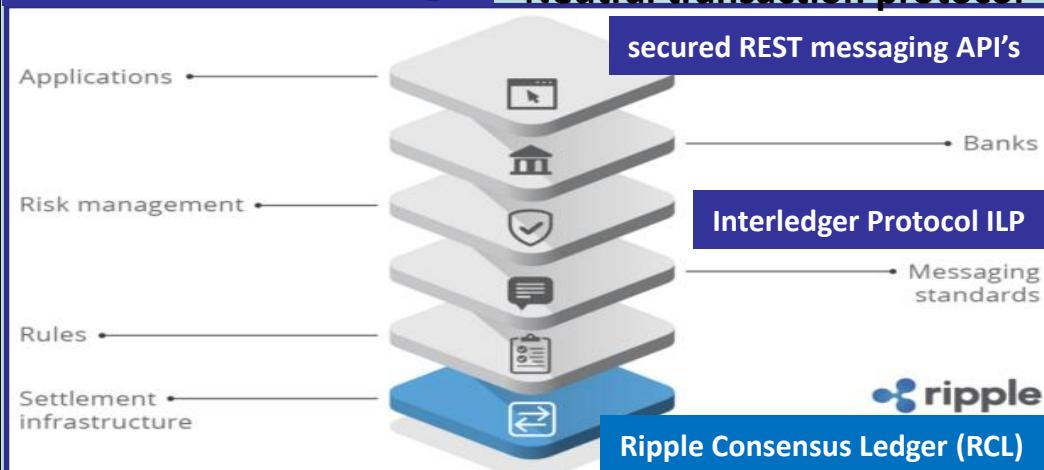
**real-time gross settlement system,
currency exchange, remittance network**

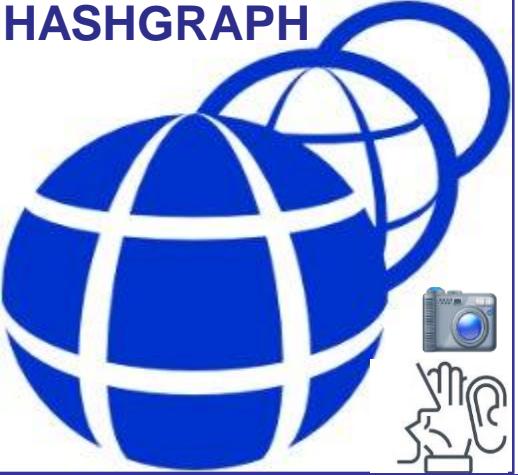
A.K.A Ripple Transaction Protocol or Ripple protocol, built on a distributed open source Internet protocol, consensus ledger and native currency called XRP. Ripple enables "secure, instant and nearly free global financial transactions of any size with no chargebacks." Ripple supports tokens representing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

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

Provides information about total costs of the transaction.

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





HASHGRAPH

Hashgraph consensus algorithm for replicated state machines

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

data structure that records who gossiped to whom in what order

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

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

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

DAG finite directed graph
= no directed cycles

Consensus Order

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

Round created
Witness
0 / 1

Famous witness
Election

Vote
See
Strongly see

Supermajority
Decide

0 / 1

Round created
Round received

Consensus timestamp

Consensus order

$\Delta\delta$

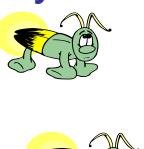
Hashgraph Member Event Transaction Consensus Order Timestamp Gossip protocol Self-parent Other-parent Graph Hash Hashgraph



Synchronous



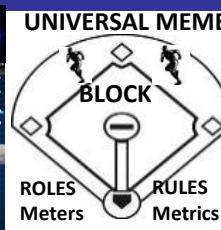
Asynchronous



Micro-Cycle
State Meta
Data Snapshots

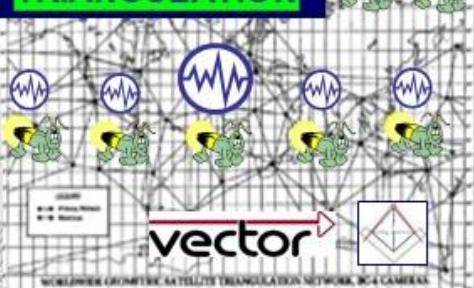
Hash
Nonce

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



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

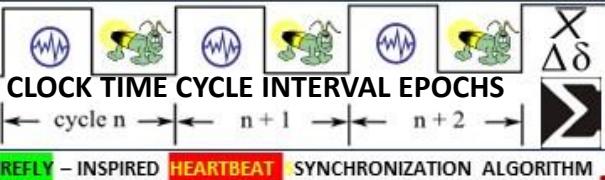
TRIANGULATION



vector

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

FIREFLY HEARTBEAT Synchronization Algorithm



FIREFLY – INSPIRED HEARTBEAT SYNCHRONIZATION ALGORITHM

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

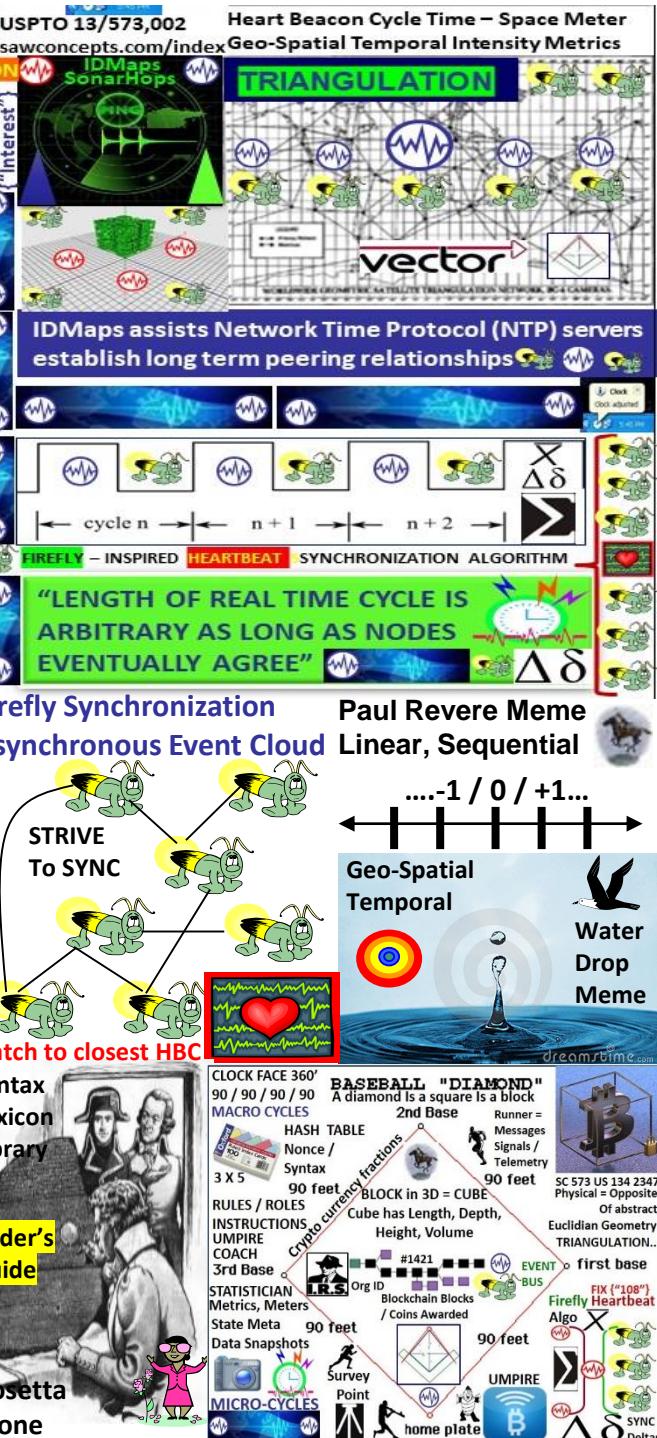
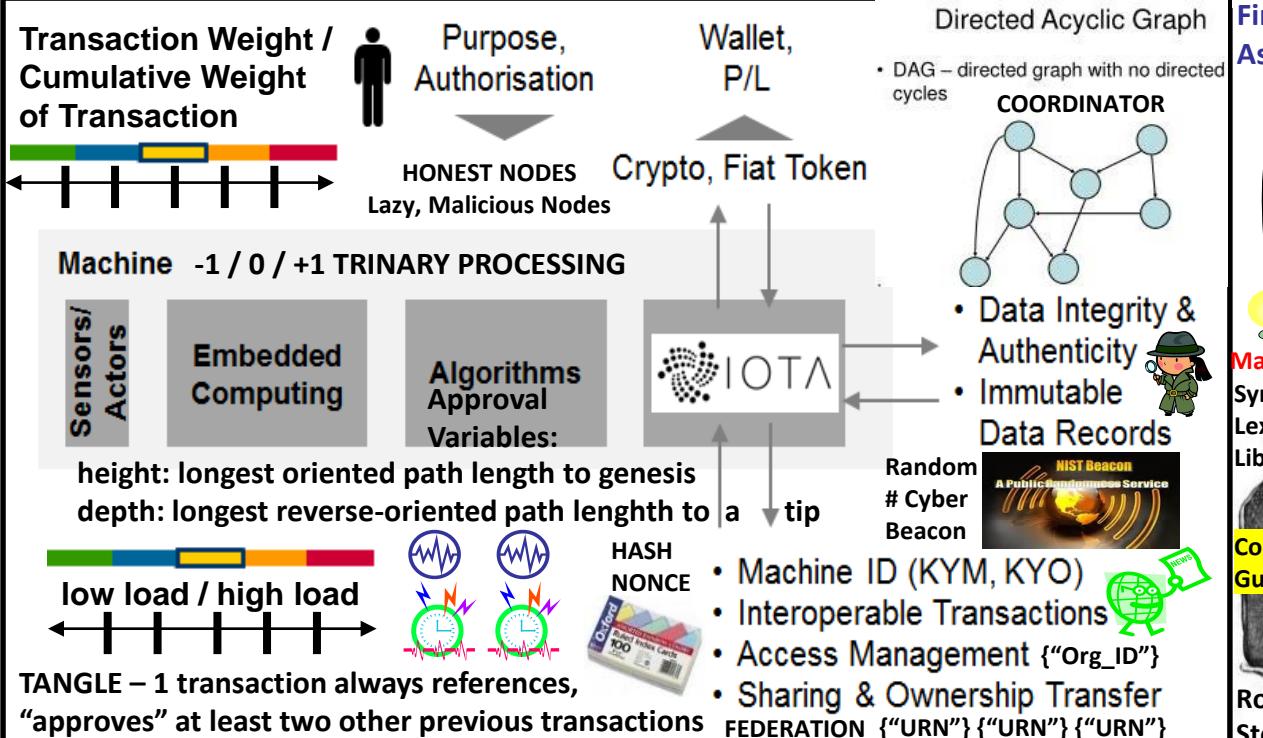


OTA: Internet Of Things IOT distributed ledger
with microtransactions without fees

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



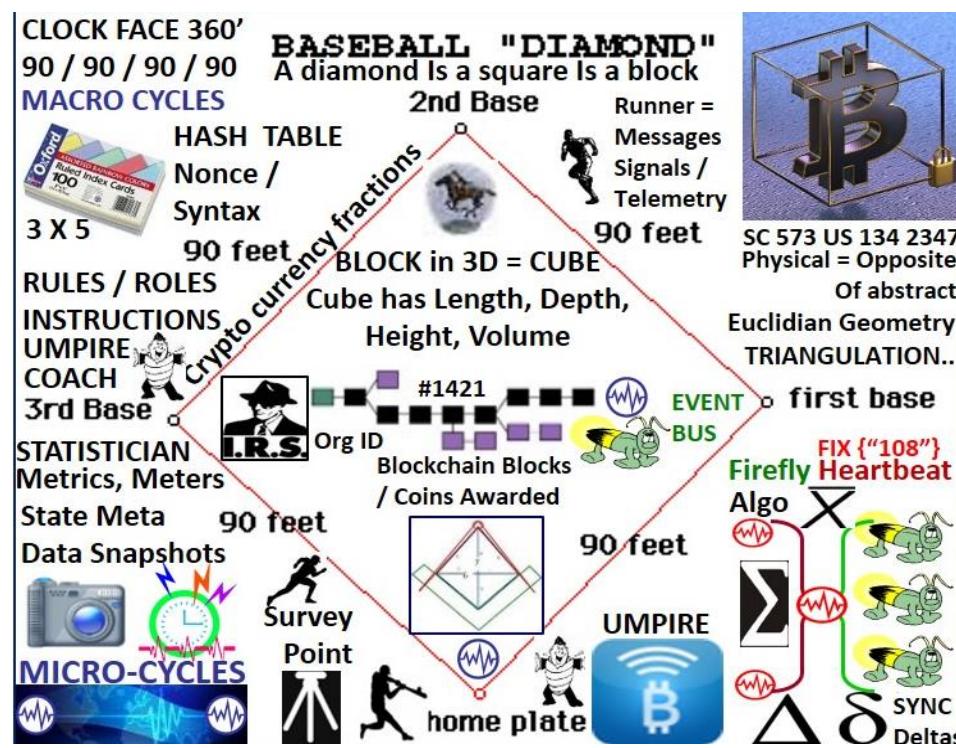
STELLAR LUMEN



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

CUSTOMIZABLE PAYMENTS INFRASTRUCTURE

middleware between financial products and institutions







ZEPPELIN

ZEPPELIN OPEN, GLOBAL ECONOMY

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

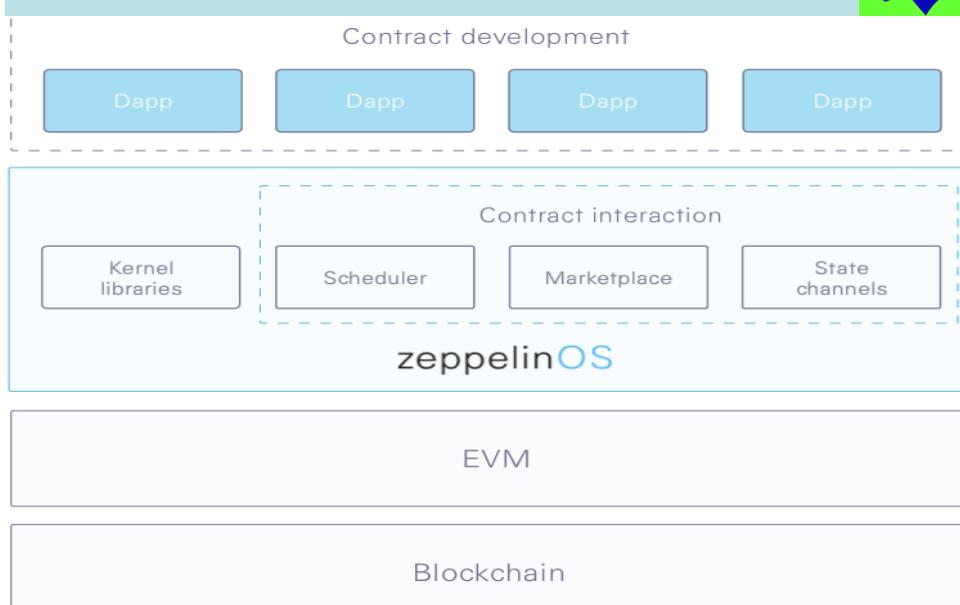
zeppelinOS, operating system for smart contracts
“the rate of innovation in building decentralized applications is limited by the manual and duplicative efforts developers must make to ensure basic usability and security.”

ZEPPELIN / zeppelinOS Common Functionality:

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

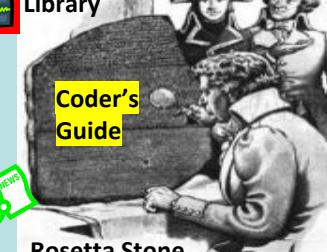
Create and customize your own ERC20 Token.

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



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

Syntax 300 + Templates
Lexicon
Library



STRUCTURED DATA EXCHANGE

LOGIC / FILTERS ALPHA-NUMERIC BREVITY CODES

STOCHASTIC HARMONIZATION for TELCO Mesh Fabrics



CE



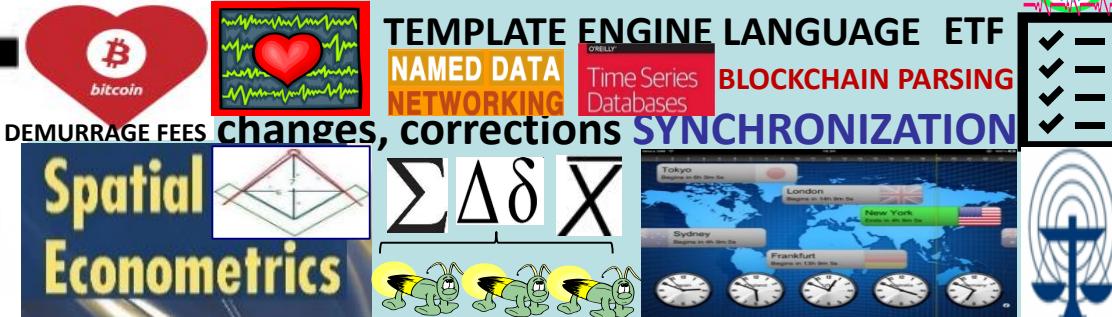
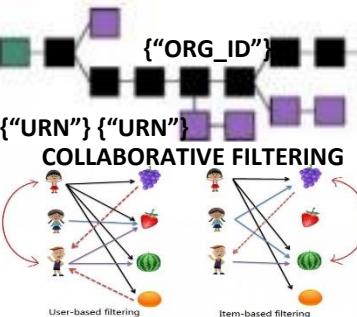


EGAAS

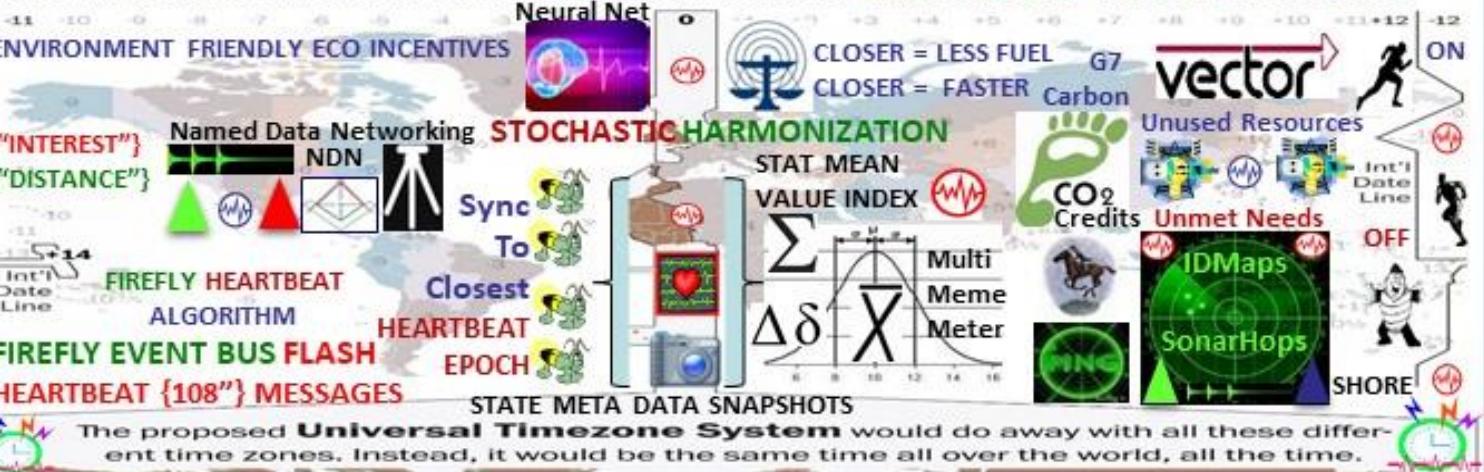
ELECTRONIC GOVERNMENT AS A SERVICE

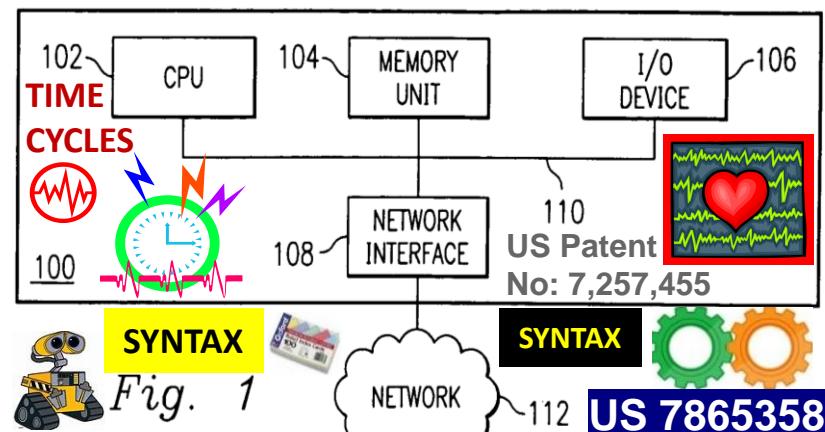
Distributed digital asset registries were the first projects that used blockchain systems such as databases designed for secure storage of records on real estate property, stocks, copyright and so on. It is assumed hosting any document on the blockchain is equivalent to notarization of its content at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

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



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



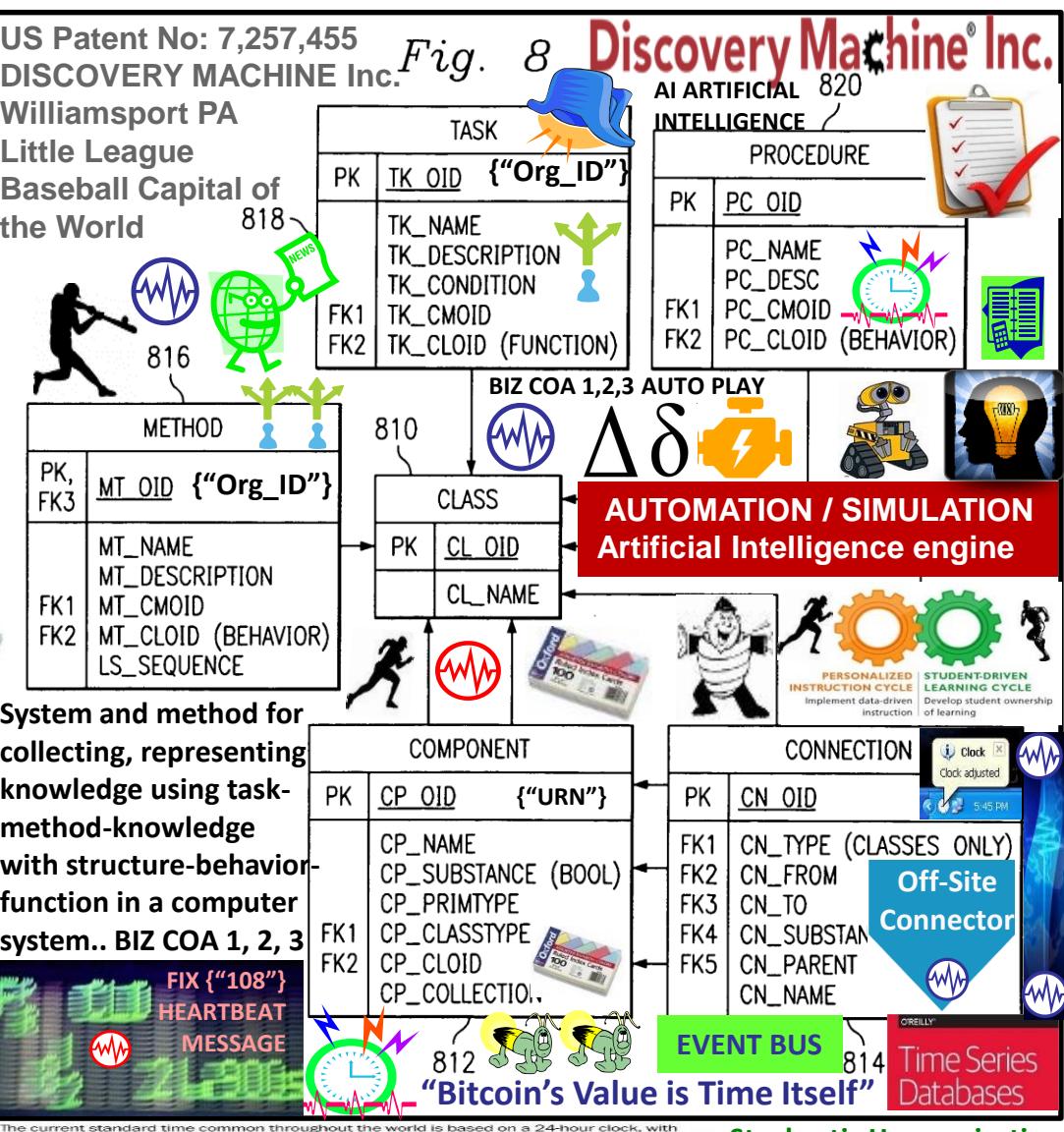
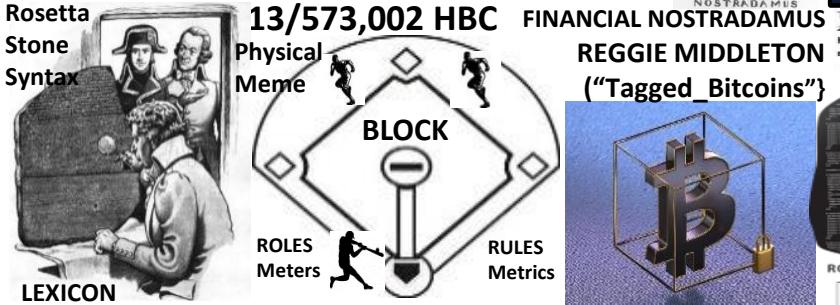


Machine-based system for transforming data from a source form to a target form, a tool is provided for sharing information established in developing a transformation model. The shared information may relate to rules for mapping source collection terms to standardized terms, rules for ordering or **SYNTAX**,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

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

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

ORACLE Veritaseum





"EARTHDAY EVERYDAY ON THE BITCOIN BLOCKCHAIN"

"GIVE A HOOT, DON'T POLLUTE" Woodsy The Owl

GNOSIS

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

Futarchy PREDICTION MARKETS
GnosisAMA

Gnosis trading interface alpha
WIZ token fee payment
INFORMATION ARBITRAGE ECONOMICS

TERRACYCLE Price Oracle

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

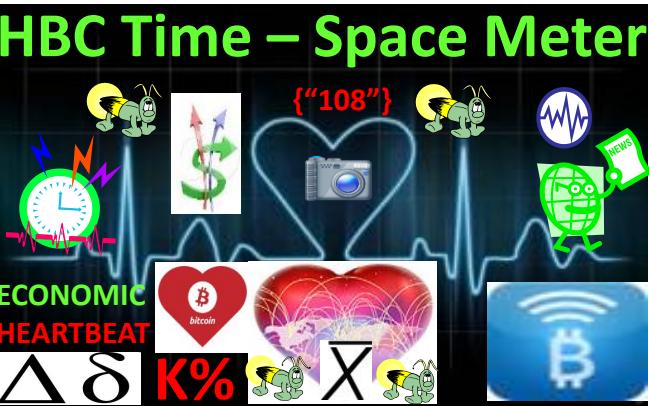
Gnosis tokens (GNO) generate Wisdom token s(WIZ) via smart contract

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.



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



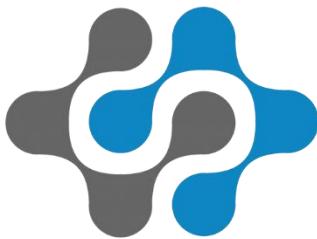
Ardor is a blockchain-as-a-service platform that will allow people to utilize the blockchain technology of Nxt through the use of child chains.



ARAGON

Unstoppable organizations

Create value without borders or intermediaries



bitsquare

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

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



 BitTorrent

 bitcoin

 bitsquare

 OpenBazaar

 BitMarkets





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

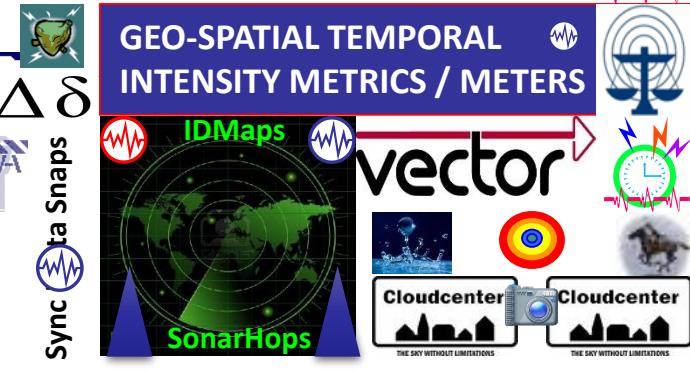
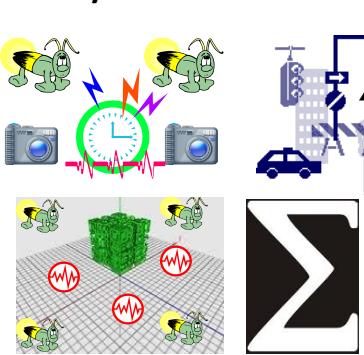
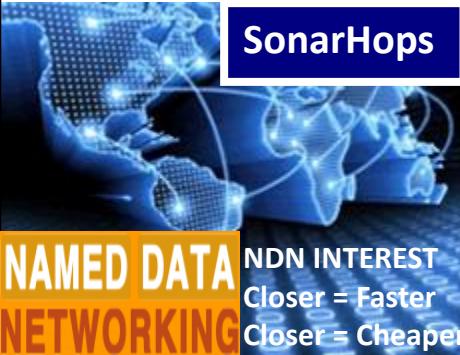




IDMaps: Global Internet Host Distance Estimation Service



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



IDMaps scalable Internet-wide architecture measures, disseminates distance information



HOP COUNTS

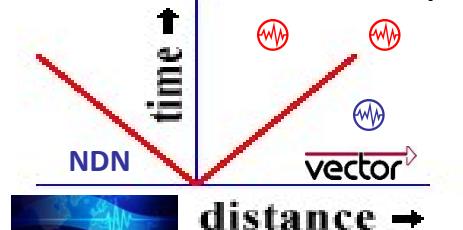


REACHABILITY



/localhost/nfd/fib/add-nexthop

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



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

Name Prefix
<Org_ID> Trie (NPT)



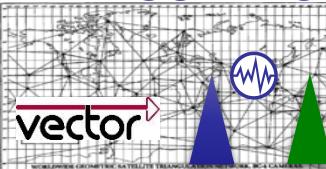
NDN NAMES

NDN NAMED DATA NETWORK RIB / FIB Datasets event notification

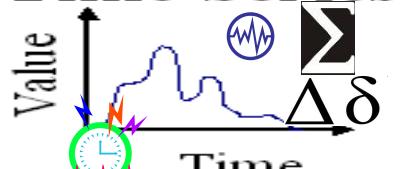
Distance information adjusts to “permanent” topology changes e.g., splits, joins, adds, moves, drops, merges in lieu of formal merger / acquisition



TRIANGULATION



Time Series



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

Datasets and Event Notification

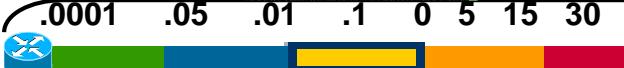
IDMaps assists Network Time Protocol (NTP) servers establish long term peering relationships



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



MICRO-CYCLES



NDN INTEREST LIFETIME = TTL Time To Live



HEARTBEAT STATE META DATASNAPSHOTS

13/573,002 HEART BEACON CYCLE

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

The four dimensions of Big Data

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

TIME STAMP BY Org_ID, URN Before FUSION CENTER

Position of a point in space relative to another point





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

FINANCIAL
NOSTRADAMUS
REGGIE MIDDLETON



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



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



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

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

Place Order

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

NEWS EVENT BUS FIREFLY HEARTBEAT ALGO EVENT BUS

DAO Distributed Autonomous Organization SOFTWARE POOLS

All Market Orders Search

UTZ TIME SYNC Collateral Notional Expiry

Heartbeat Flash Messages Precedence Processing

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

INVESTOR POOL WORLD COMPUTER DFINITY

UTZ Stochastic Harmonization

REGGIE MIDDLETON

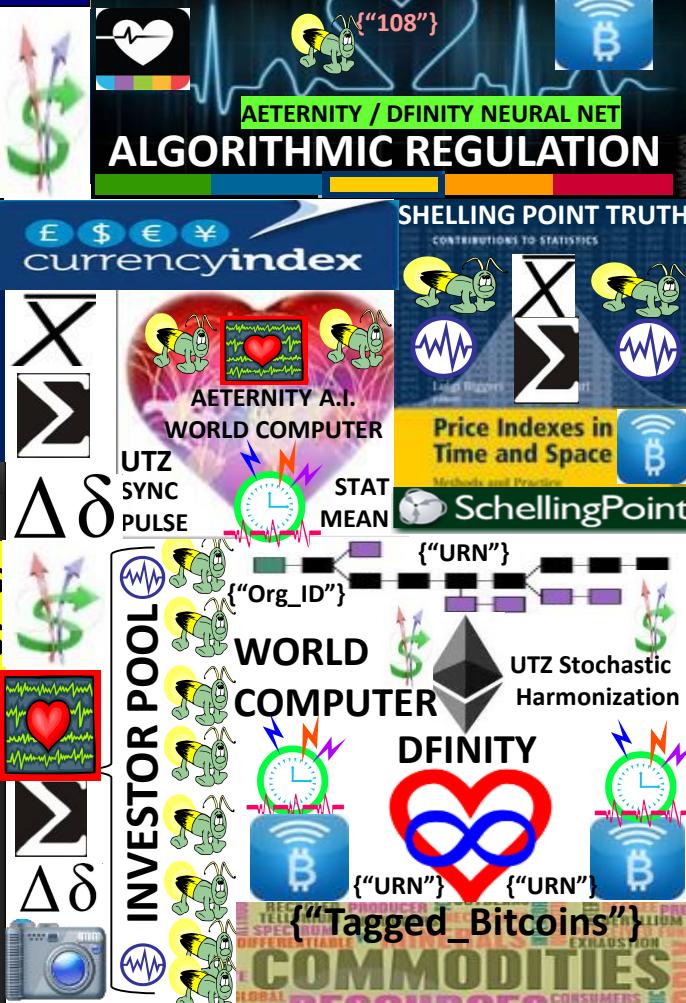
FINANCIAL NOSTRADAMUS

COMMODITIES EXHAUSTION

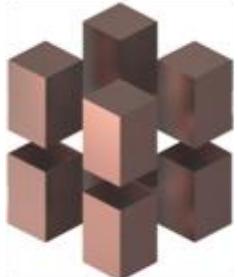
GLOBAL RESOURCES CONSUMERS

RENEWABLE ENERGY SPECTRUM DIFFERENTIABLE PRODUCERS

“Tagged_Bitcoins”







FOAM

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

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

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

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

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



district0x

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

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

- | | |
|---|---|
| Signaling via CarbonVote | Graphene executables: |
| Status = browser, messenger, gateway | witness_node, cli_wallet, genesis_util |
- Posting and listings
 - Search and filtering
 - Ranking and reputation
 - Payments and invoicing

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

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

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

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

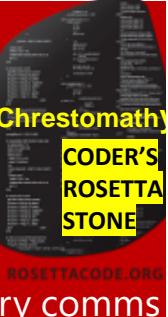
Dharma Credit is a suite of tools that make it easy to plug a line of credit into any decentralized application. In lieu of forcing your first-time users to purchase crypto at a brokerage or exchange, a Dharma Credit integration will give your users a button that they can click and get a small cryptocurrency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



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



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



Functional Sequential Erlang

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

SORTING ALGO'S

Ericsson Open Money
For Society Patent App



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

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



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

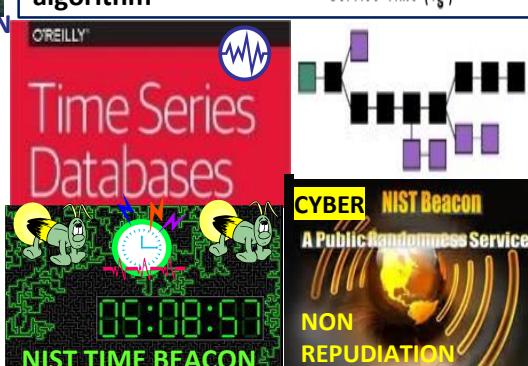


distributed "noSQL" database, embedded right into Erlang, supports indexing, replication, transactions, and fail-over

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

Mnesia database ("Organization_ID") Global name resolution

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





PROOF-OF-WORK



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



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



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

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



GUESS stores the guess
Effectively, it begins at infinity.



Proof-of-Work: users perform some form of work to participate. Work must be difficult for the client but easy for the server/network to verify. POW determines the approximate time between blocks = rate that new bitcoins are created. Work is submitted as a message/timestamp payload with a nonce value. Payloads are made unique through use of public key encryption or address.Nonce allows checking the work without retracing all the procedural steps.



MESSAGE ex:

- Hashing string
 - Hash Table

300+Message Templates

LOGIC FILTERS LOGIC GATES

SYNTAX LIBRARY LEXICON

CODER'S GUIDE

POW PAYLOAD : COMBINATIONS OF ENCRYPTED SYNTAX **Attribute Series**

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

HASH TABLE
Nonce /
Syntax
90 feet

3 X 5
RULES / ROLES

INSTRUCTIONS
UMPIRE

COACH

3rd Base
STATISTICIAN

Metrics, Meters
State Meta

Data Snapshots

MICRO-CYCLES

Survey Point

TRANSACtIONS

PER CYCLE

METRICS

BASEBALL "DIAMOND"

A diamond Is a square Is a block

2nd Base
Runner =
Messages
Signals /
Telemetry

90 feet

BLOCK in 3D = CUBE

Cube has Length, Depth,
Height, Volume

Euclidian Geometry

TRIANGULATION..

Org ID

Blockchain Blocks /
Coins Awarded

90 feet

UMPIRE

home plate

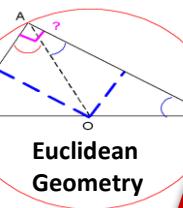


SC 573 US 134 2347
Physical = Opposite

Of abstract
Euclidian Geometry

TRIANGULATION..

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



Euclidean
Geometry

NAMED DATA NETWORKING

Time Series

Value
Time

FIX {"108"}
time ↑
distance →

NDN

STRUCTURED {"CONTENT"} TEMPLATES

Attribute Series

Digital Asset

Contract Description

DAML Language CDL

("INTEREST")
("DISTANCE")

LOGIC – FILTERS

CODE SEQUENCE

ROLES / RULES

SYNTAX, SYMBOLS LEXICON LIBRARY

SPATIAL TEMPORAL Series

Firefly – Heartbeat Event Bus

SPATIAL TEMPORAL Series

Sync Deltas

ROLES / RULES

Sync Deltas



Event Bus

Modeling Language

DAML Language CDL

(INTEREST)
(DISTANCE)

IDMaps SonarHops

FBI

Sync Deltas

VOTE

1: prove coin ownership <Org_ID> Coin Issuer

2: # coins sent where, when Lat / Long, DTG

3: NIST Random # Beacon Non-Repudiation

4. Issuing {"Org_ID"} adjudicates w buyers

FIREFLY-HEARTBEAT ALGORITHM EVENT BUS

O'REILLY'

Time Series Databases

CALENDAR

Little League BIG LEGACY 75 YEARS

COMPUTER CHIP EPOCHS

cycle n

n + 1

n + 2

COMPUTER CHIP EPOCHS

cycle n

n + 1

n + 2

PROOF-OF-STAKE

UXTO

Mined Bitcoins

Survey Methods

Proximity Beacons

Unmined Bitcoins

MICRO-CYCLES

Survey Methods

Proximity Beacons

Unmined Bitcoins

MICRO-CYCLES

CALENDAR

CALENDAR

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

I.R.S.

IRS Memo #1421
Bitcoin purchase
= property

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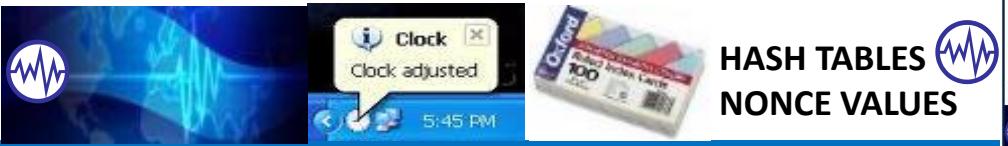
1421

1421

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



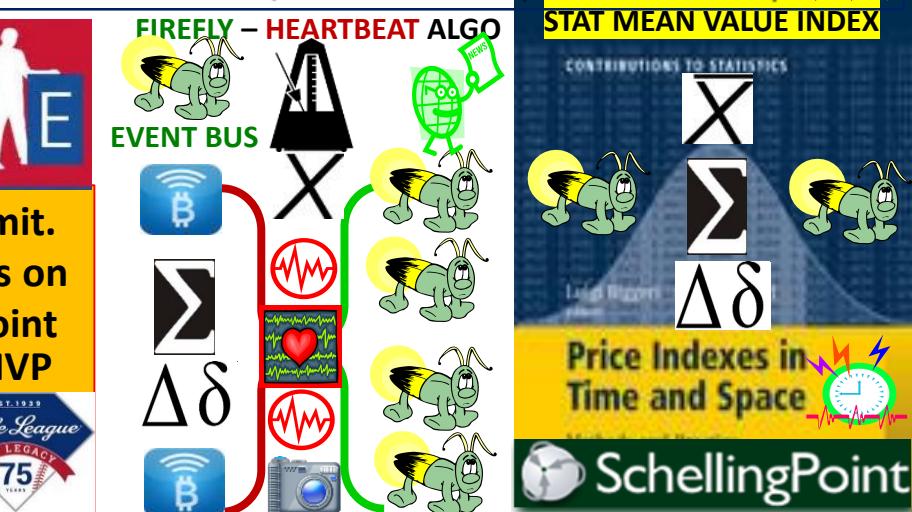
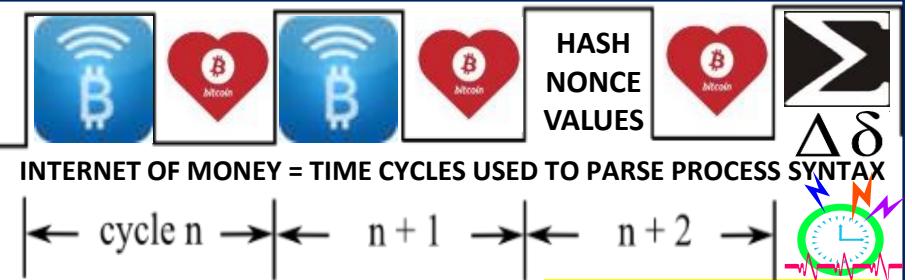
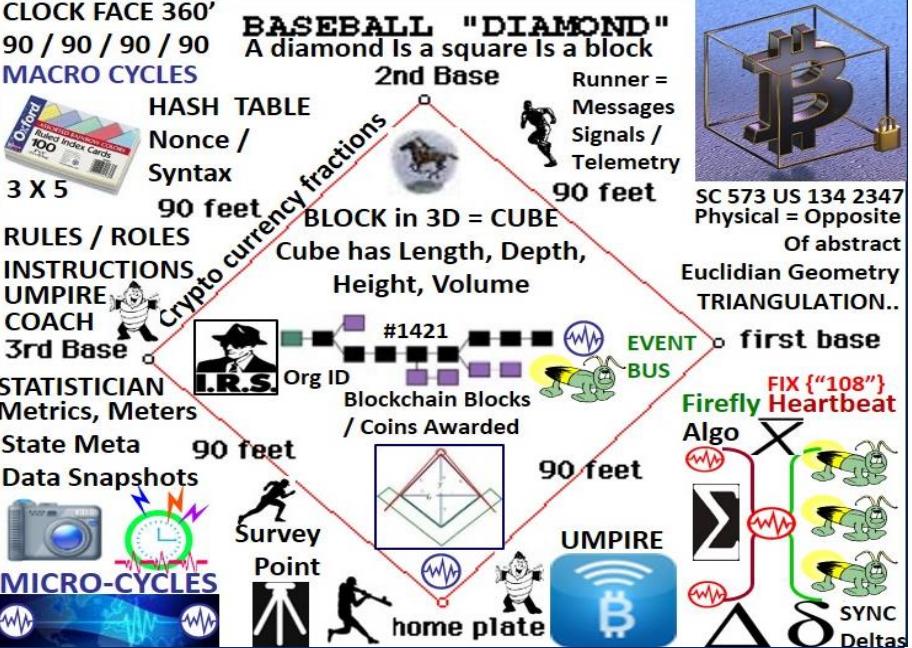
ALL THINGS INTERNET FORMED W 1) TIME EPOCHS 2) SYNTAX



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



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



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

AZURE: Core/Kernel/Universal Protocol

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

Unspent Transaction Output protocols UTXO

Crypto Tokenized Assets Digital Bearer Bonds
unique identity for owned artifacts

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

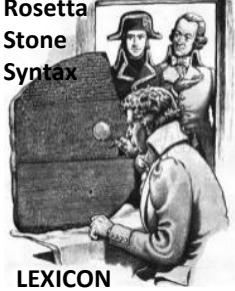
Blockchain middleware: identity and operations management, data, intelligence services like analytics and machine learning. New middleware works with existing Azure services, like Active Directory and Key Vault

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

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

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

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



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

LEXICON

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

FIREFLY EVENTS
FLASH MESSAGES
SYNC TO CLOSEST HEARTBEAT EPOCH

ent time zones. Instead, it would be the same time all over the world, all the time.

MULTI-MEME MULTI-METER

Microsoft
AZURE BLETCHLEY

Blockchain Startups

Top Blockchain startups disrupting non-financial markets

MYRIAD MEMES MEDIATION

BLOCKCHAIN

{"URN"}
{"Org_ID"}
{"NEW"}



Blockchain Startups

Venture Radar



OFF-SITE
OFF-PAGE
CONNECTOR



{"URN"}
{"Org_ID"}
DAO



CLOCK FACE 360'

90 / 90 / 90 / 90

MACRO CYCLES

3 X 5



HASH TABLE

Nonce /

Syntax

90 feet

RULES / ROLES

INSTRUCTIONS

UMPIRE

COACH

3rd Base

STATISTICIAN

Metrics, Meters

State Meta

90 feet

Data Snapshots

Survey Point

MICRO-CYCLES

EVENT BUS

HEART BEACON

STATE META DATA SNAPSHOTS

CYCLE

TIME-SPACE EQUATIONS ALGORITHMS

BLOCKCHAIN PARSING

ERLANG

CLOCK FACE 360'

90 / 90 / 90 / 90

MACRO CYCLES

3 X 5

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MICRO-CYCLES

EVENT BUS

HEART BEACON

STATE META DATA SNAPSHOTS

CYCLE

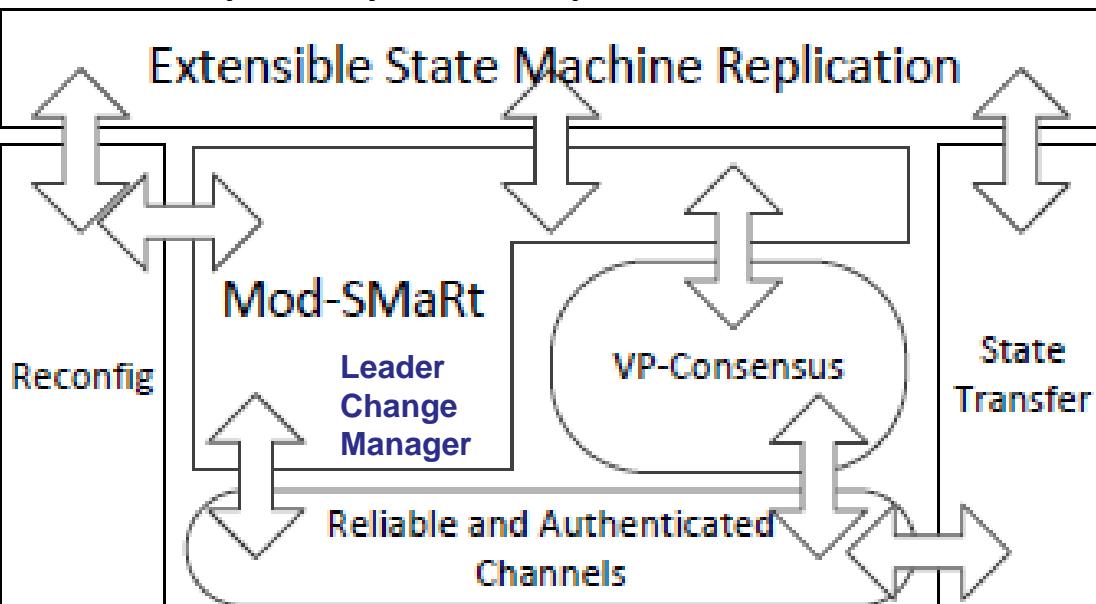
TIME-SPACE EQUATIONS ALGORITHMS

BLOCKCHAIN PARSING

ERLANG

Byzantine Fault-Tolerant State Machine Replication

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



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

BFT-SMaRT needs an eventually synchronous system

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

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

USCt ALICE CORP V CLS BANK

PHYSICAL = OPPOSITE OF ABSTRACT



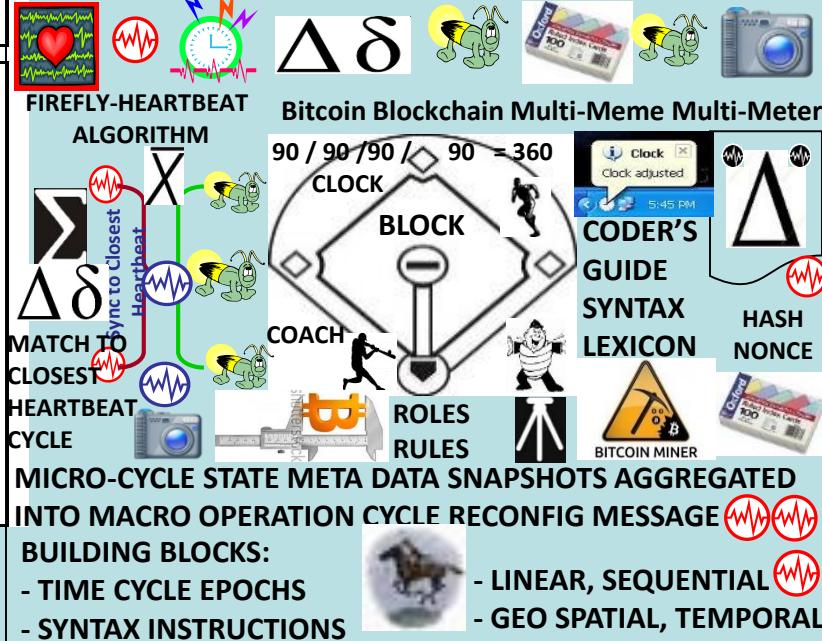
DERIVED FROM BATTLEFIELD DIGITIZATION DISTRIBUTED AUTONOMOUS ORGANIZATION DAO SYSTEM OF SYSTEMS

FEDERATED ID / ORGANIZATIONAL IDENTIFIER {"ORG_ID"}

ADDS, JOINS, DROPS, MOVES TO / FROM DAO

CHANGES IN STATE VIEWED IN "APPLIQUE' OVERLAY VIEWS

K0.99 HEARTBEAT SYNC DELTA STATE META DATA SNAPSHOTS



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

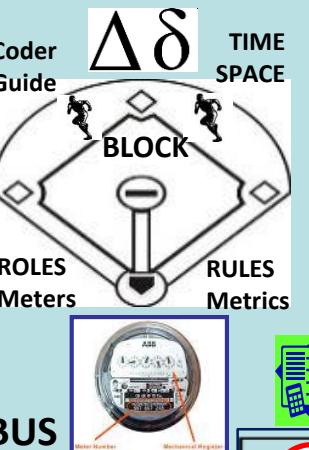
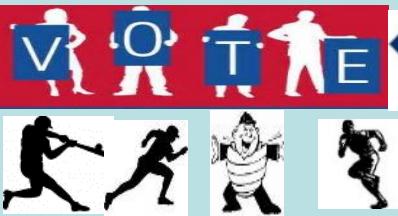
It differs from classical clock sync in that nodes are not interested in counting cycles to agree on the ID of the current clock cycle. There is no requirement to sync during a cycle length In real time as long as the length is bounded and all nodes AGREE ON IT EVENTUALLY"



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

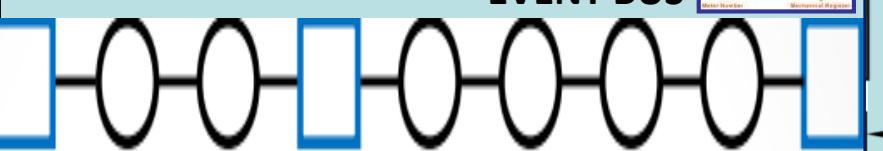
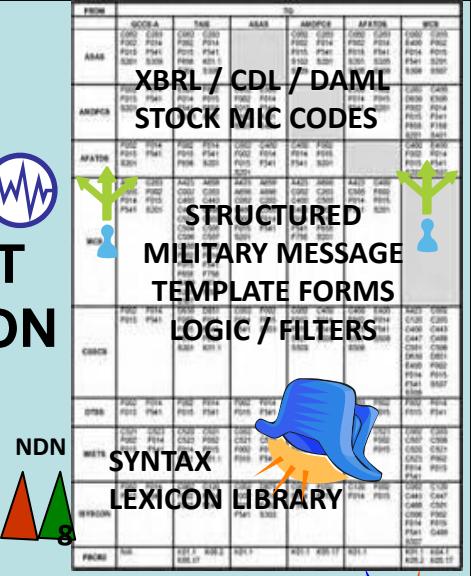
KEY BLOCKS:

- NO CONTENT = NULL
 - LEADER ELECTION

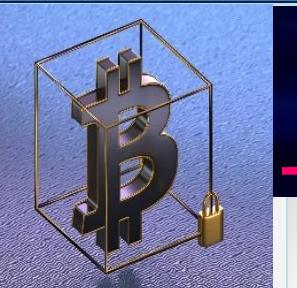


MICRO BLOCKS:

- ONLY CONTENT
 - NO CONTENTION



long exponential intervals (10 min)



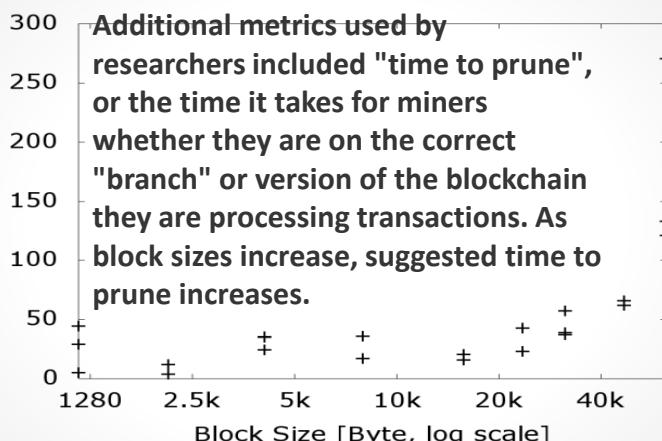
Subjective Time to Prune

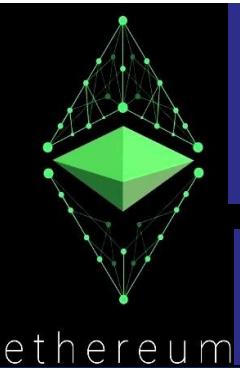
MACRO – CYCLES

short deterministic intervals (10 sec)



MICRO-CYCLES





ETHER: Compensate Resource Contribution

Gas: price to
Run contract
transactions

ethereum

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



Ether hedged against other
crypto / FIAT currencies
price changes

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

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

3 X 5
HASH TABLE
Nonce / Syntax
90 feet

RULES / ROLES
INSTRUCTIONS
UMPIRE

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

MICRO-CYCLES
Survey Point
home plate

BASEBALL "DIAMOND"
A diamond is a square is a block
2nd Base
Runner = Messages Signals / Telemetry
90 feet
BLOCK in 3D = CUBE
Cube has Length, Depth, Height, Volume

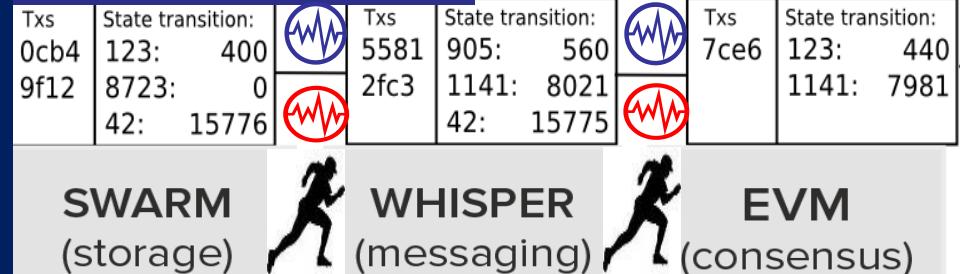
Org ID #1421
Blockchain Blocks / Coins Awarded

90 feet
EVENT BUS
FIX {"108"}
Firefly Heartbeat
Algo

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

first base
SUM, ADD, AGGREGATE

UMPIRE
MICRO CYCLE SAMPLING
STATE META-DATA
HEARTBEAT SNAPSHOTS



HEARTBEAT FLASH MESSAGES
BLOCKCHAIN HASH TABLES
UNIVERSAL EVENT BUS
STATISTICAL MEAN SAMPLING
STOCHASTIC HARMONIZATION

MACRO ECONOMIC CYCLES
STAT MEAN VALUE INDEX
SUM, ADD, AGGREGATE
MICRO CYCLE SAMPLING
STATE META-DATA
HEARTBEAT SNAPSHOTS
SPACE-TIME METRICS
BITCOIN MULTI MEME
MULTI-METER

BIGCHAIN DB

D F I N I T Y

RANDOM # BEACON

NIST Beacon
A Public Randomness Service

QUANTUM RANDOM #

Blockchain Nervous System
HEARTBEAT {"108"} State Meta Data Snapshot Msgs

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

GROUP Signature is random number

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

HYPER GEOMETRIC PROBABILITY CALCULATOR

CONSENSUS / RANDOM BEACON

Threshold relay chain generates randomness, records network metadata & validation tree "state root". State 3 x 5 and updates to state stored on shards... State transitions passed to Validation Tree

Each process has mining identity

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

Threshold Relay Chain techniques

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

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

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

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

UTZ TIME ZONE SYNC

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

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

2nd Base Runner = Messages Signals / Telemetry
90 feet

HASH TABLE
Nonce / Syntax

3 X 5

RULES / ROLES

INSTRUCTIONS

UMPIRE

COACH

3rd Base

STATISTICIAN
Metrics, Meters

State Meta Data Snapshots

90 feet

Crypto currency fractions

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

90 feet

EVENT BUS

#1421

Org ID

Blockchain Blocks / Coins Awarded

Survey Point

home plate

90 feet

UMPIRE

FIX {"108"}

Firefly Heartbeat Algo

X

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

first base

Sync Deltas

Σ

∞

δ



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.



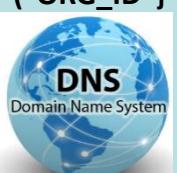
Aeons: energy for applications implemented on the platform.

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



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

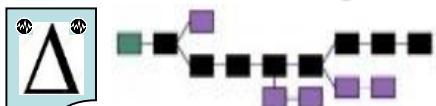
Federation Gateway
(“ORG_ID”)



HYPER LEDGER OPEN SOURCE BLOCKCHAIN

Core APIs, & SDKs

$\Delta\delta$ Shared Ledger



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

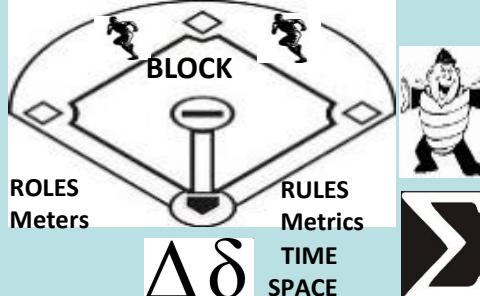
FEDERATION
Federation Gateway

METRICS ("Organization ID")
METERS

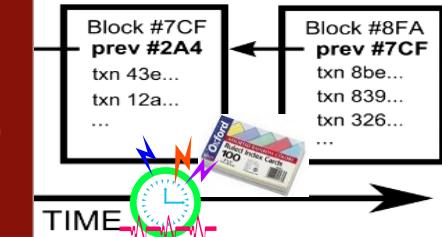
RESTFUL SYNC DELTA
CHANGE MANAGEMENT
MICRO-MACRO CYCLE



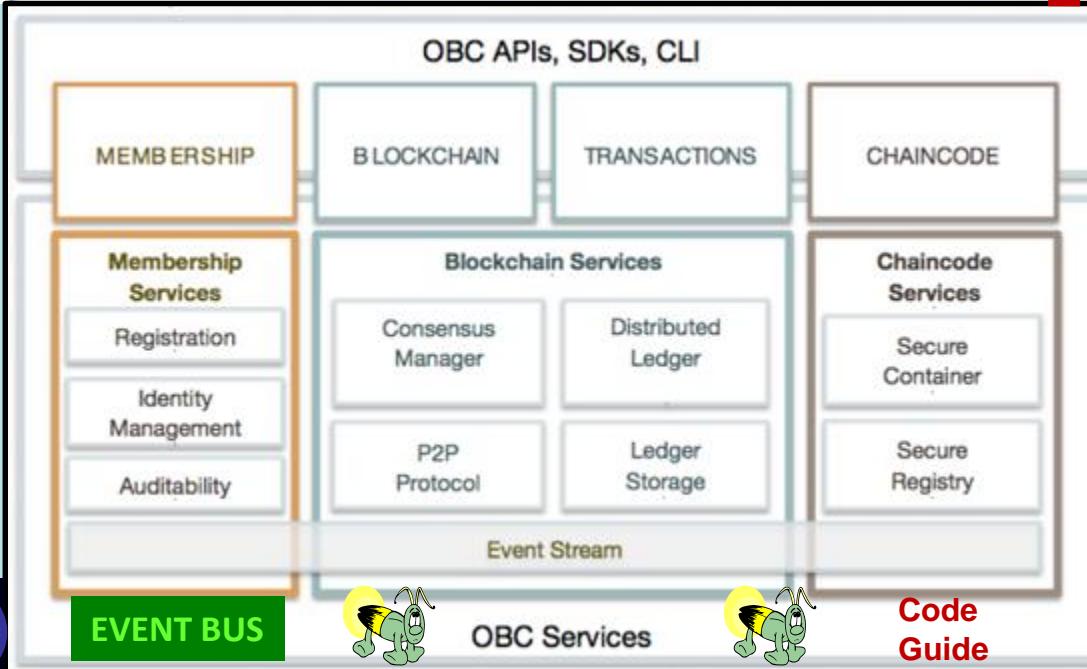
BLOCKTIME ARBITRAGE



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



Alpha-Numerics



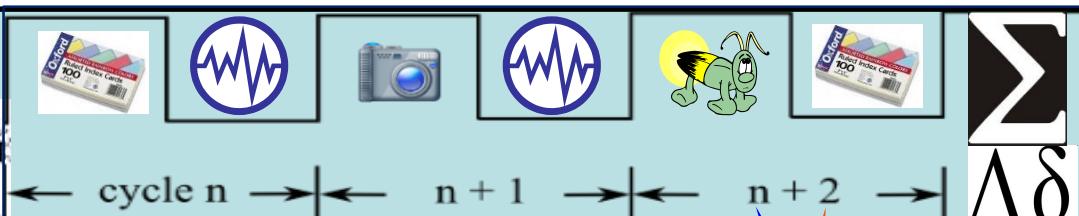
ROSETTA STONE

XBR / CDL / DAML
STOCK MIC CODES

STRUCTURED
MILITARY MESSAGE
TEMPLATE FORMS
LOGIC / FILTERS

SYNTAX
SYMBOL LIBRARY

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



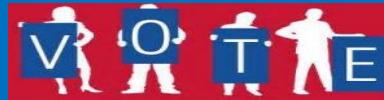
MICRO-MACRO CYCLE SCHEDULE

FFIRNS
FFUDNS

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

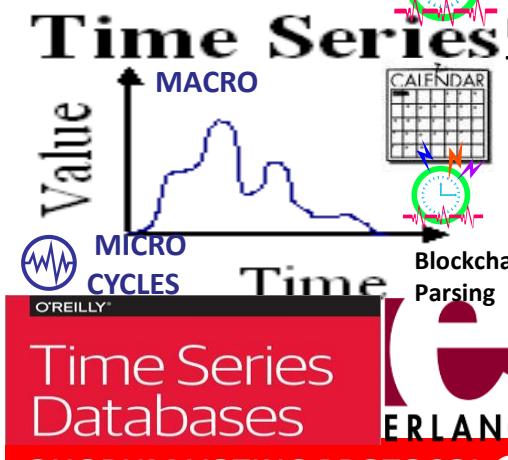
SAWTOOTH LAKE POETIC CONSENSUS PROOF OF ELAPSED TIME: POET

"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."



NEWBTO
BITCOIN PAYMENT METHODS

PROOF OF ELAPSED TIME



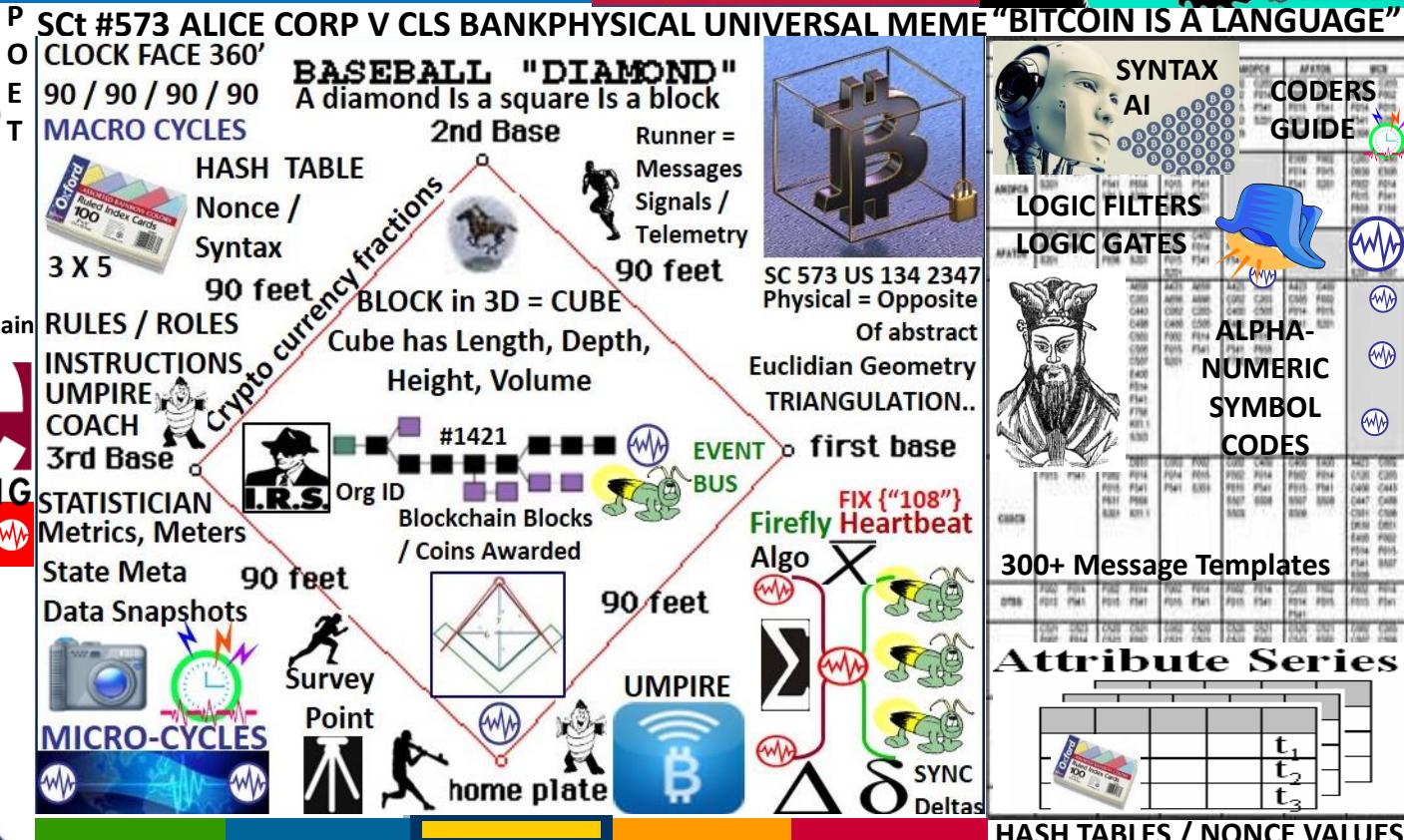
Voting Based Selection: stake size & block generators selected by votes

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



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

TOURNAMENT LEAGUE BOARD



FIREFLY-HEARTBEAT FLASH MESSAGES UNIVERSAL EVENT BUS



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



DASH



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

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

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

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

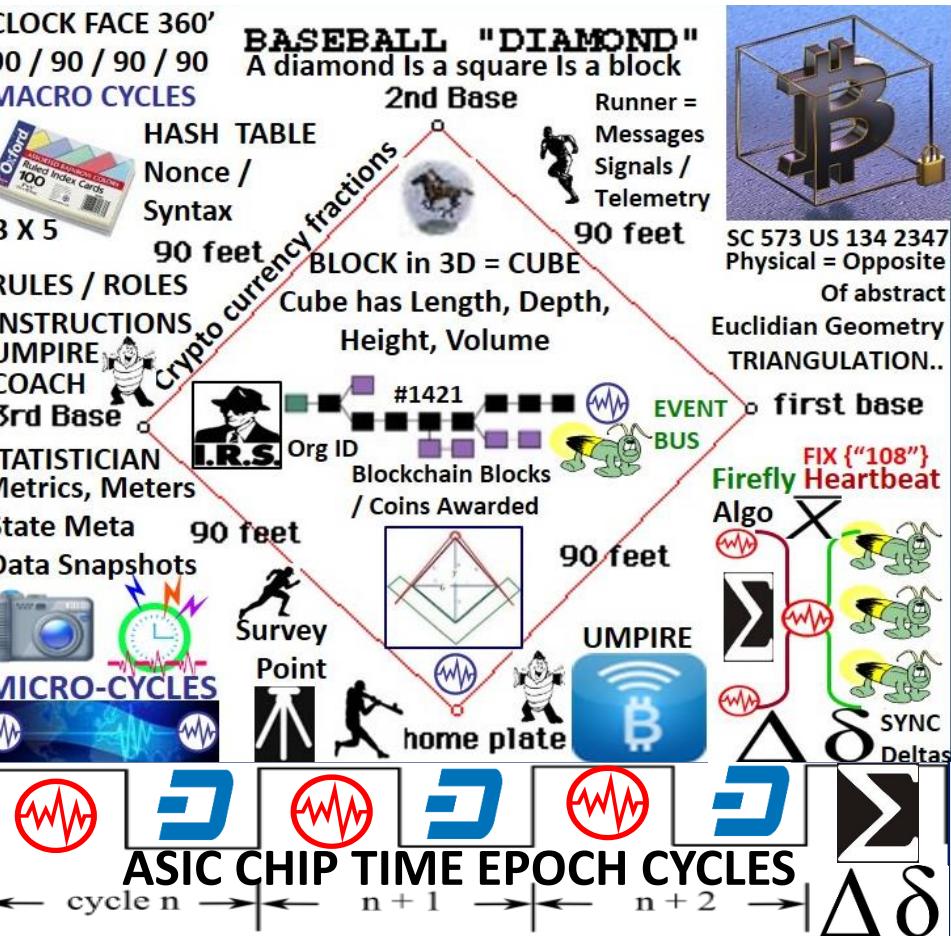
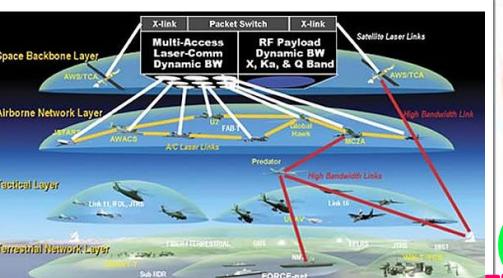
"Its makeup is thus: the block reward is divvied up in three parts. The first 45 percent goes to [Dash's miners](#). Another 45 percent goes to its Masternodes. And 10 percent is set aside to fund whatever other jobs or expenditures the Dash network deems necessary"

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

Masternodes receive payments for their service to the network.

DAO: RAND THINK TANK TERM COINED + / - 2001

NETWORK CENTRIC WARFARE
Developing and Leveraging Information Superiority



STOCHASTIC HARMONIZATION FIREFLY-HEARTBEAT EVENT BUS

HEART BEACON CYCLE = IMPROVEMENT TO NETWORK CENTRIC WARFARE



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



STATE: stored data at a given instant in time

STATE CHANNELS: blockchain interactions

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



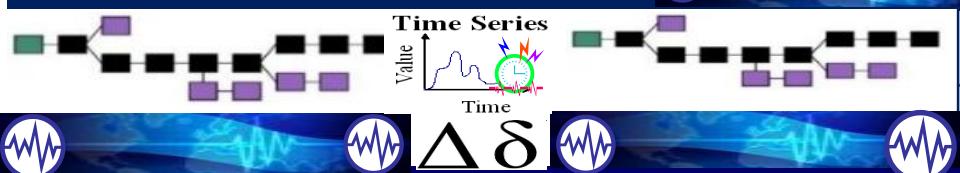
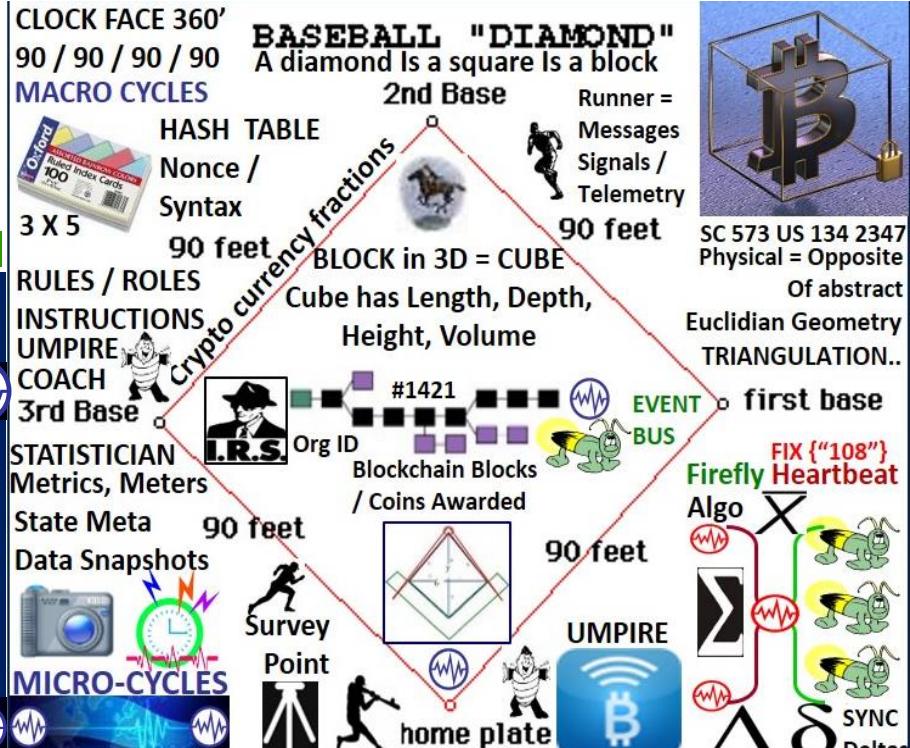
1. Part of the blockchain state is locked via multisignature or some sort of smart contract, so that a specific set of participants must completely agree with each other to update it.



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

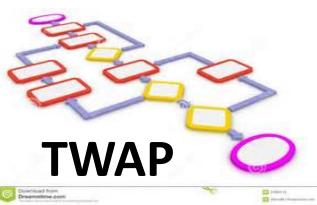


3. Finally, participants submit the state back to the blockchain, which closes the state channel and unlocks the state again (usually in a different configuration than it started with)



TWAP Algorithm Manages Bitcoin Price Volatility Algorithm

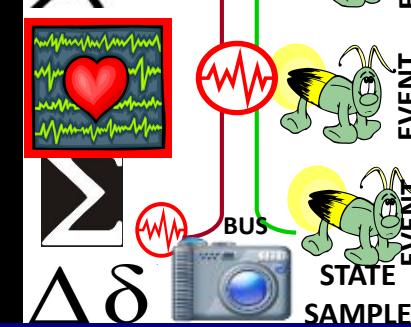
TWAP GOAL: provide a Time Weighted Average Price Benchmark



FIREFLY HEARTBEAT ALGO
STAT MEAN VALUE INDEX



EPOCH TIMES
STATE META DATA SNAPSHOTS



STATE SAMPLE

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



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



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

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



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

Key Features:

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



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

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

All rates time-stamped in UTC.

Ability to look up by time-stamp.

Ability to look up by block-height.

Asset Classes: Digital Currencies

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

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

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

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

BRAVE NEW COIN.
Digital Currency Insights

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





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



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

OPENBAZAAR.ORG
BLOCKCHAIN ARBITRAGE

A graphic featuring a large red heart centered over a grid of ECG leads. A green ECG tracing line runs horizontally across the heart. Two green arrows, one pointing up and one pointing down, are positioned on either side of the heart.

 NETOPS NEO 

STAT MEAN VALUE PULSE MACRO CYCLE AGGREGATE

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

- ## •VALUES:

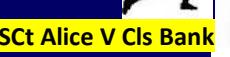
Demurrage Fees TERRATRC TRADE
REFERENCE CURRENCY
“Money of Peace”
Commodity / Currency Index

Free and open markets:

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



HASH Values Nonce Values



•Privacy

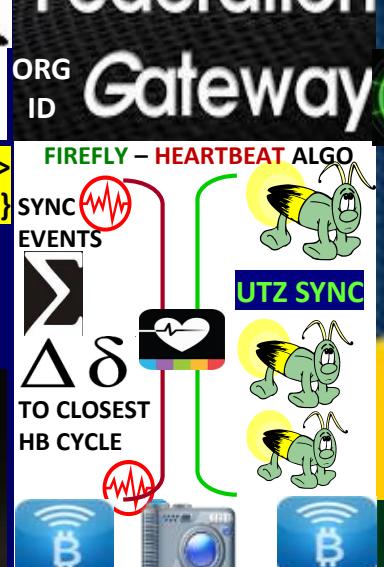
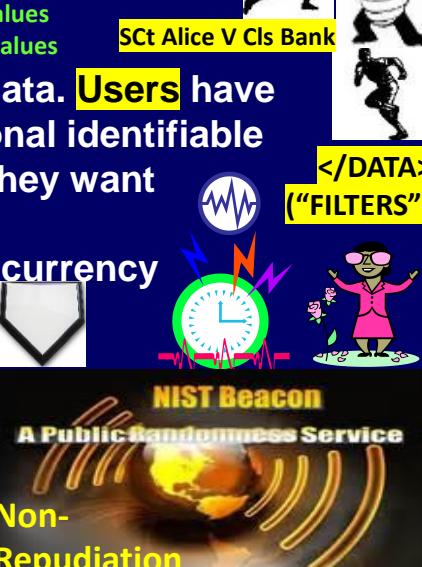
- Users should fully control their data. Users have freedom to reveal as much personal identifiable information as they want, when they want

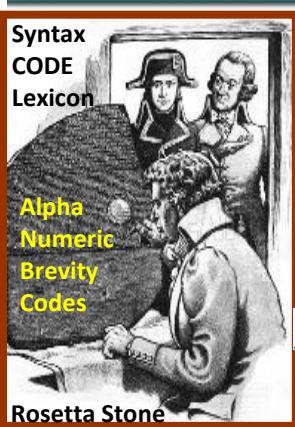
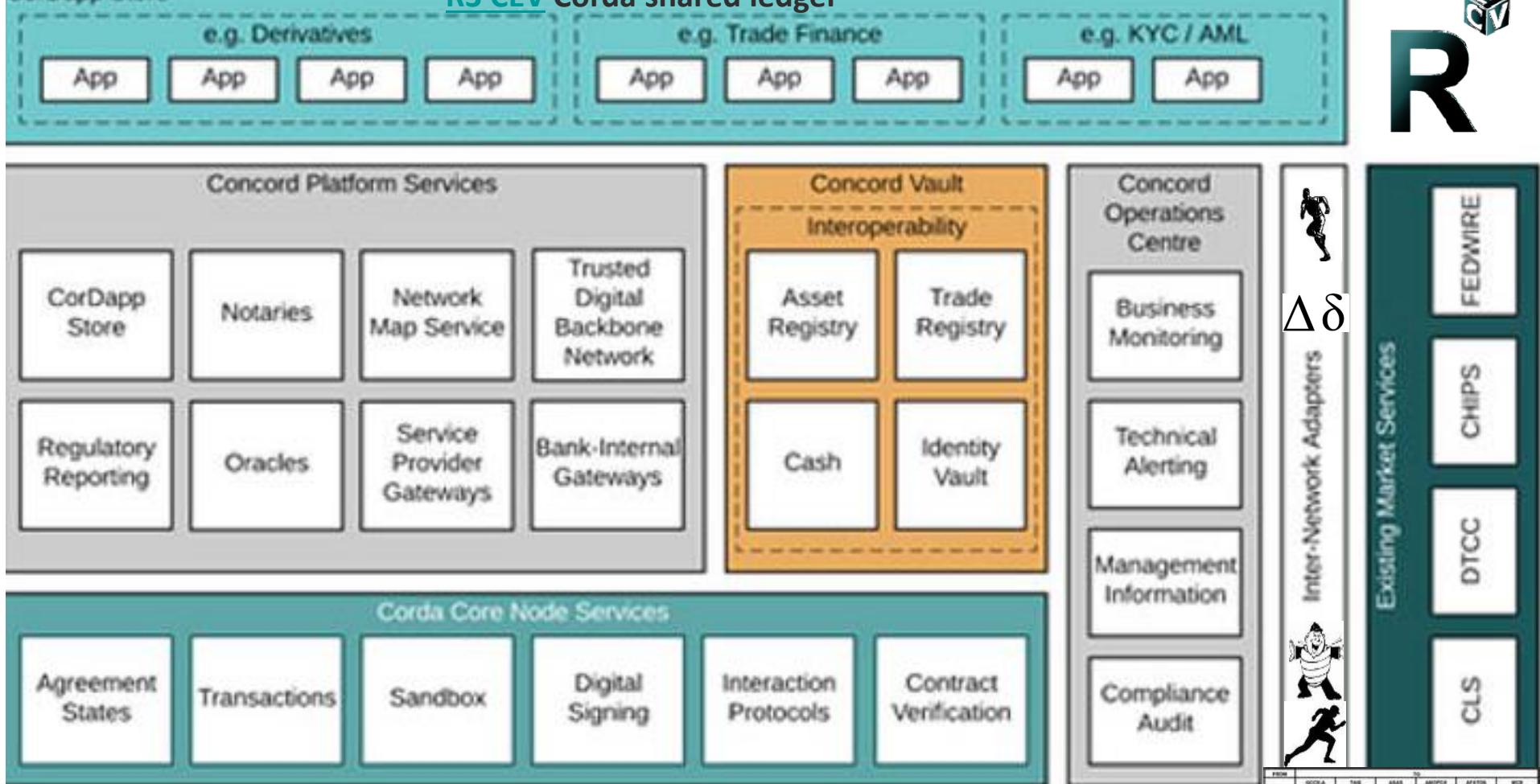
Bitcoin: OpenBazaar transactional currency



Cryptographic Security

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





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

11.8 - Kinematics	
11.8.1 - Acceleration	
11.8.2 - Angular	
11.8.3 - Linear	
11.8.4 - Estimate Type	
11.8.5 - Estimated	
11.8.6 - Smoothed	
11.8.7 - Predicted	
11.8.8 - Smoothed Data	
11.8.9 - Interpolated	
11.8.10 - Bearing Angle	
11.8.11 - Vertical	
11.8.12 - Horizontal	
11.8.13 - Vertical	
11.8.14 - Horizontal	
11.8.15 - Bearing Angle	
11.8.16 - Covariance Matrix	

Federation Gateway

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



XBRL / CDE / DAML STOCK MIC CODES

STRUCTURED MILITARY MESSAGE TEMPLATE FORMS LOGIC / FILTERS

300+ Use Case Templates



R

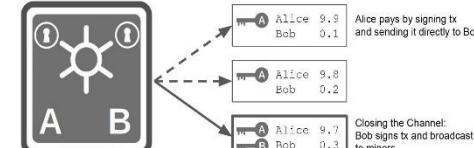
PROJECT LIGHTING



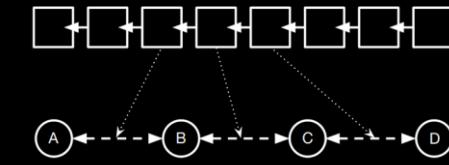
transactions sent over / off chain
micropayment channels

Micropayment Channels

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



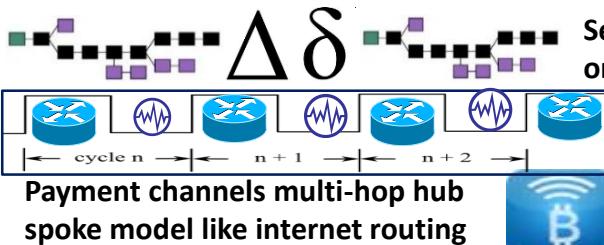
LIGHTNING



Millions of Transactions. Milliseconds of Delay.

Hashed TIME LOCK contracts component for global consensus

OP_CHECKLOCKTIMEVERIFY During Macro Cycle w/ Random # BEACON



Payment channels multi-hop hub
spoke model like internet routing

FIREFLY – HEARTBEAT ALGORITHM



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



HASH TABLE
Nonce / Syntax

90 feet

RULES / ROLES

INSTRUCTIONS

UMPIRE COACH

3rd Base

STATISTICIAN

Metrics, Meters

State Meta

Data Snapshots

MICRO-CYCLES

90 feet

Survey Point

home plate

Blockchain Blocks / Coins Awarded

Org ID

Event Bus

Sync Delta

Sync Deltas

NONCE

SYNTAX / SYMBOL TAGS

Digital Signature

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



Runner = Messages Signals / Telemetry
90 feet

SC 573 US 134 2347 Physical = Opposite

Of abstract Euclidian Geometry TRIANGULATION..

first base

Fix {"108"} Firefly Heartbeat

Algo

X

Σ

MESSAGES

Sync Delta

Sync Deltas

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



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

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

SCt 573 ALICE CORP VS CLS BANK PHYSICAL MEMES

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



TIME / DISTANCE SERVICE LEVEL
AGREEMENT SLA / O Operations

IEEE 802.15.4 OASIS MQTT

TELEMETRY TRANSPORT

IEEE 802.1AG HOP BY HOP
DETECTION

IEEE 802.11
HOP BY HOP CONTROL



Unused Resources / Unmet Needs

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

DISTANCE
INFO SERVICE

Time Series

Value
Time



WATER DROP IN POND MEME IS
SONAR NAVY METAPHOR / MEME

NDN </INTEREST>
NDN {"DISTANCE"}

NAMED DATA
NETWORKING

IEEE C37.118
Harmonization
& Sync heartbeat
update Interval

CLOSER SOURCE
CHEAPER RATE



vector

602

+3

+2

+1

Null

0

+1

+2

+3

5

4

3

2

1

0

UNUSED RESOURCES
UNMET NEEDS

Spatial
Econometrics

TIME-SPACE BEACON

INFOCON

5 4 3 2 1

INFORMATION
CONDITION

Spaceship
Earth
Signals &
Telemetry
Annex



METRICS / METERS
TRADE WITH EARTH

???



SIRIUS DISCLOSURE

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

ASTEROID BELTS =
RARE MINERALS



MAIN
ASTEROID
BELT



MERCURY
VENUS
EARTH
MARS
ASTEROIDS
STOCHASTIC
HARMONIZATION



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.

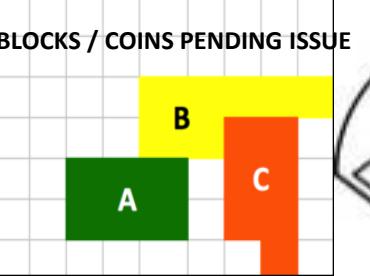


Memo #1421: Purchased Bitcoins are treated akin to property

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"

Coin never travel, but simply switch owners"

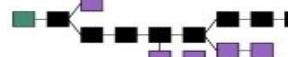


Step 1: prove coin ownership <Org_ID> Coin Issuer

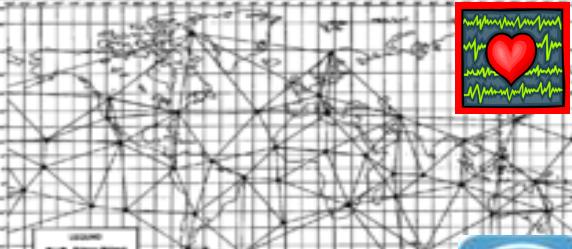
Step 2: coins sent where, when Lat-Long, Time Stamp

Step 3: specify ownership <Org_ID> issuing agent

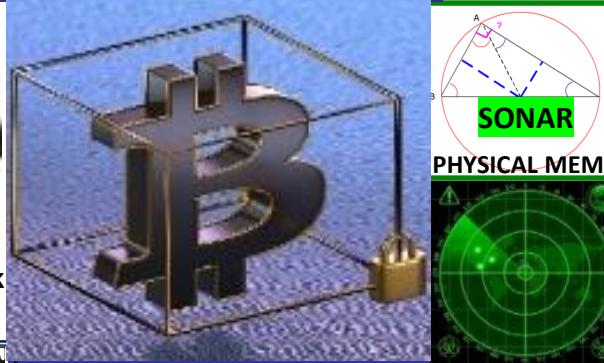
Step 4: Issuing Org of Record adjudicates w buyer



TRIANGULATION



EUCLIDIAN GEOMETRY



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



IDMaps "PING"



NDN
ONSHORE
OFFSHORE

SonarHops



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



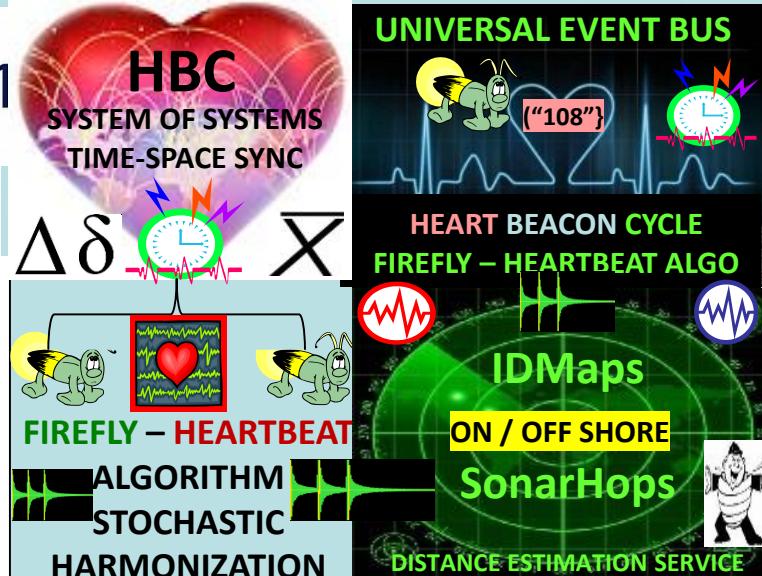
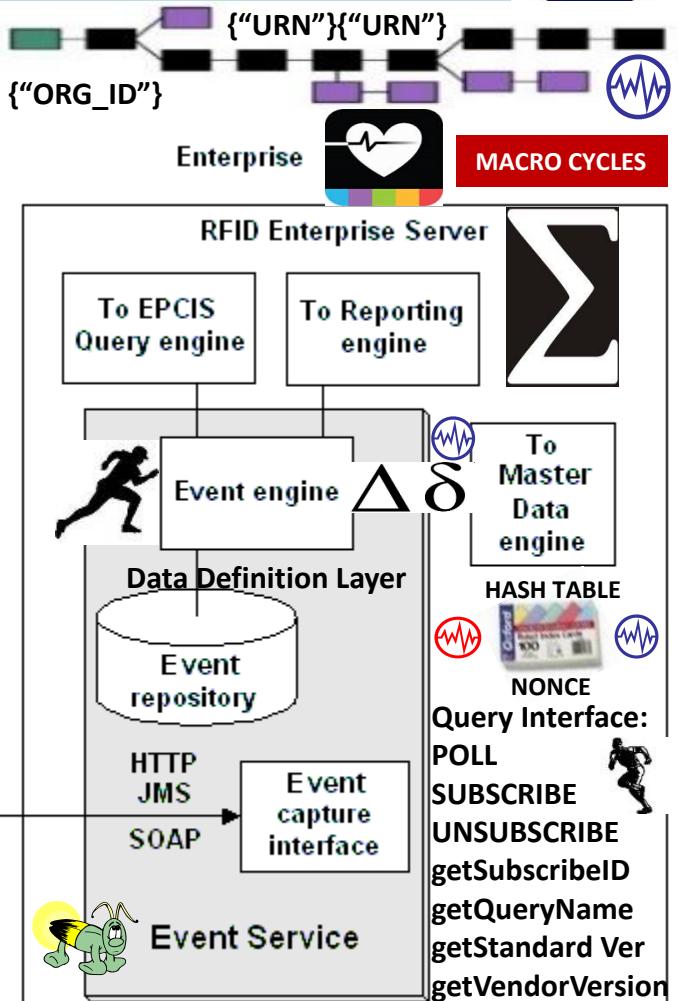


Electronic Product Code Information Services (EPCIS)

GS1 Standard for creating, sharing visibility event data



HBC
SYSTEM OF SYSTEMS
TIME-SPACE SYNC



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

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

Why Information about the business context, including:
a Identifier that indicates the business step taking place



**CLOSER IS CHEAPER
CLOSER IS FASTER**



MICRO CYCLES

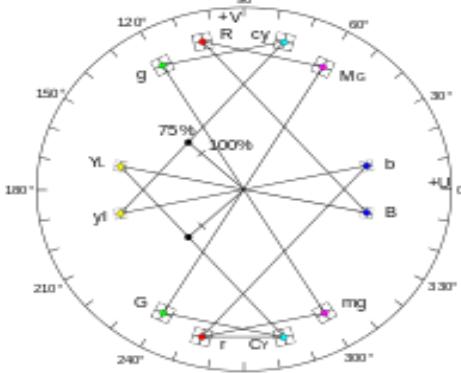
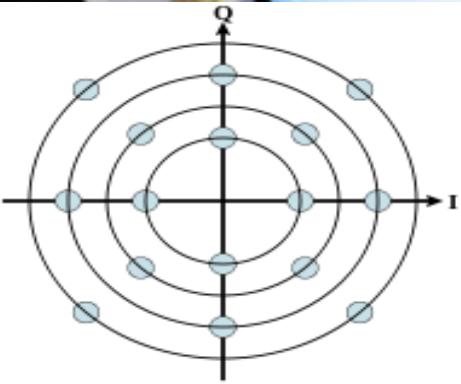
!st Compiler DESIGN Still the **BEST**



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



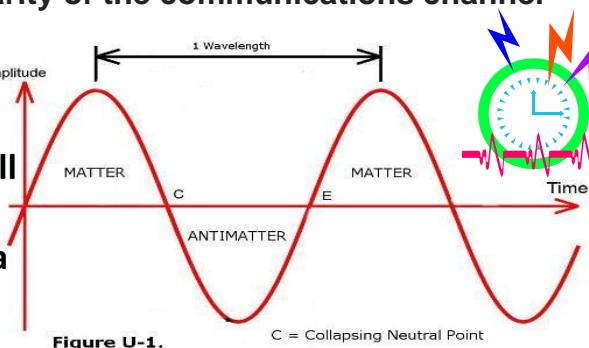
www.RLighthouse.com



Quadrature amplitude modulation

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

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



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



USPTO 13/573,002
sawconcepts.com/index

NDN

IDMaps
SonarHops

("Distance")

("Interest")

vector

triangulation

vector



SOFTWARE DEFINED NETWORKING

NETOPS

Command Syntax

REST State Transfer

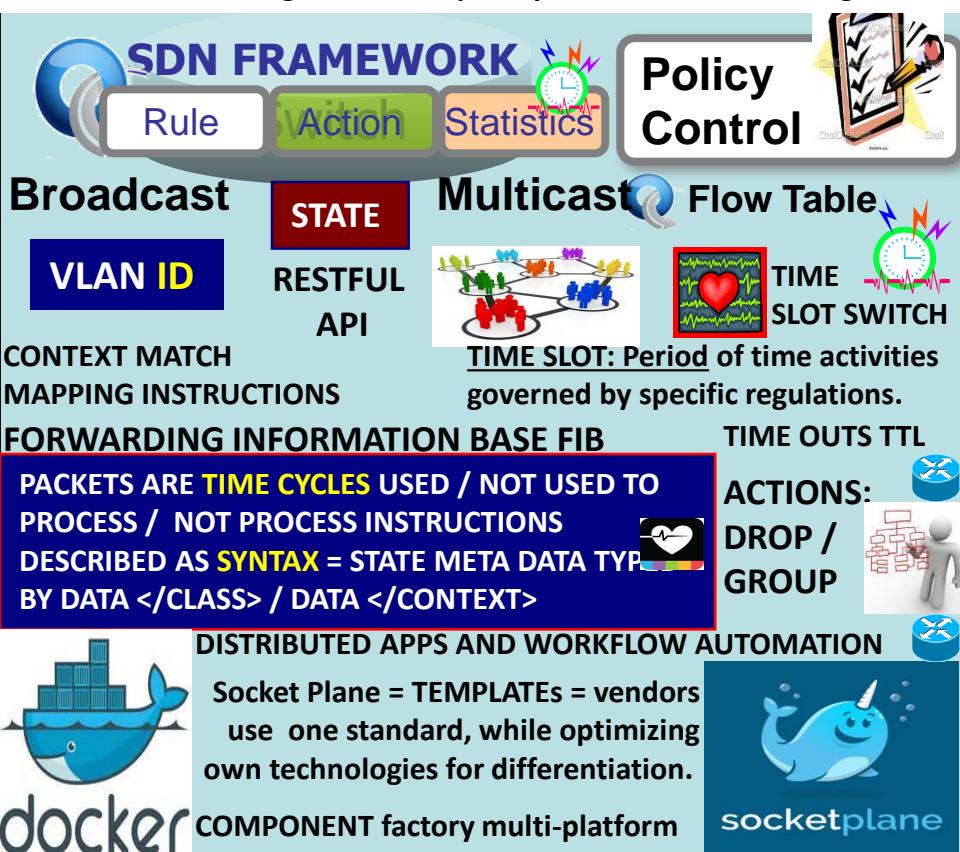
COMMAND SYNTAX
STATE TRANSFER
Unicast / Multicast
Flow Tables / Workflow
Dynamic Network
Configuration Management

NET CENTRIC WARFARE
SYSTEM OF SYSTEMS TELEMETRY

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

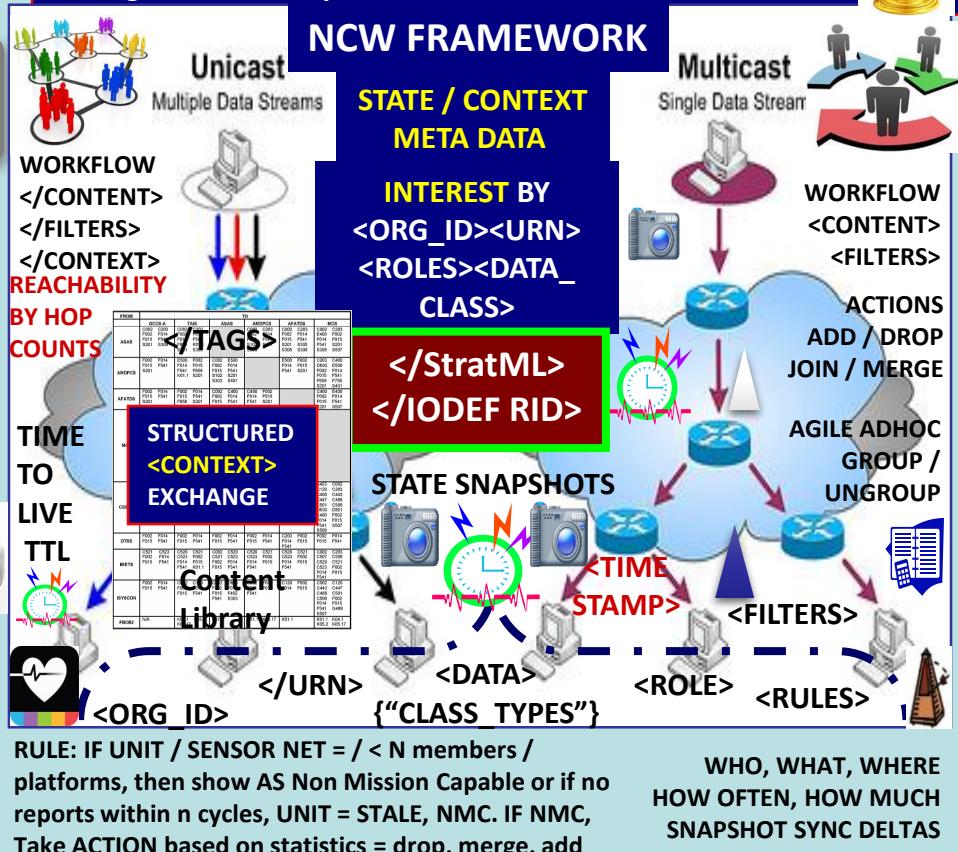
- SDN is a *framework* to allow network administrators to *automatically* and dynamically manage and control a *large number* of network devices, *services*, topology, traffic paths, and packet handling (quality of

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



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

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



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

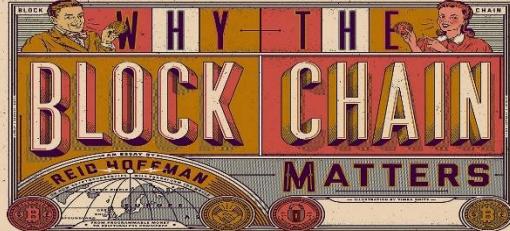
HEART BEACON CYCLE: ALL THINGS INTERNET ARE PROGRAMMED USING TIME CYCLES USED / NOT USED TO PROCESS / NOT PROCESS SYNTAX



TradeNet



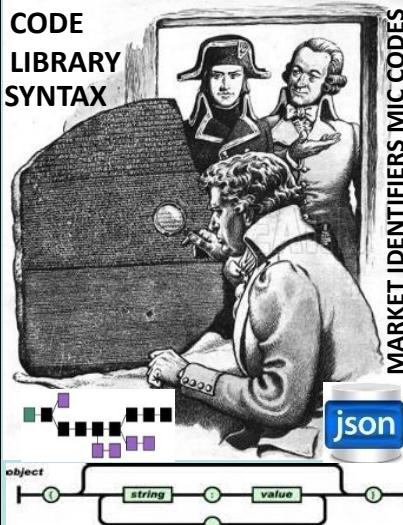
Programmable Money \$\$\$



RIED HOFFMAN 15 May 2015 [LINK](#)

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

CODE
LIBRARY
SYNTAX



MARKET IDENTIFIERS MIC CODES

300 + MESSAGE
TEMPLATES
SYNTAX LIBRARY
PROGRAMMING

STRUCTURED
<CONTENT>
EXCHANGE

BREVITY CODES
MARKET ID CODES

USE CASE TEMPLATES
SIGNALLING, TELEMETRY

NATO

ORGANIZATIONS



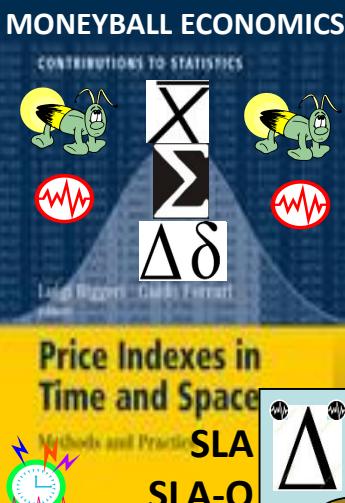
Organizational Units OU, OU

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, properties as E-assets.

WIRE

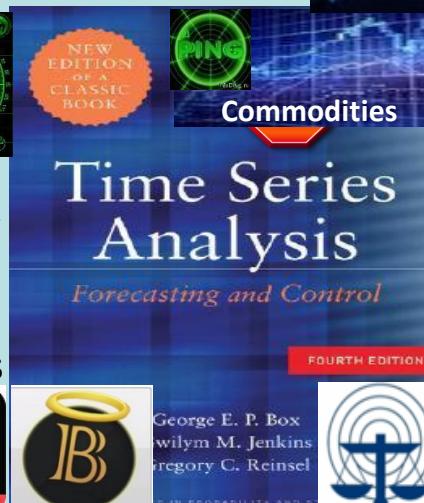
[http://en.wikipedia.org/wiki/Organizational_unit_\(computing\)](http://en.wikipedia.org/wiki/Organizational_unit_(computing))

In computing, an organizational unit (OU) is a way of classifying directories objects, or names in a **DIGITAL CERTIFICATE HIERARCHY**



Price Indexes in
Time and Space
Methods and Practice

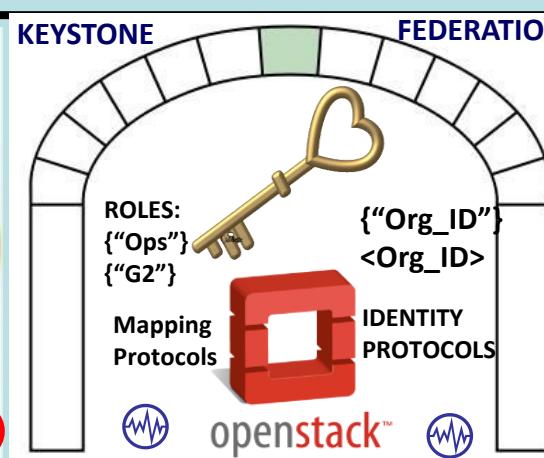
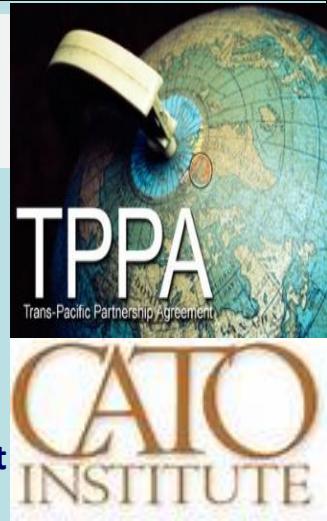
SLA
SLA-O

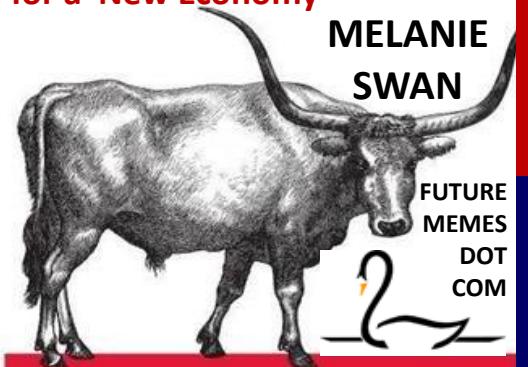




Trans-Pacific Partnership is great for elites. Is it good for anyone else? by [Timothy B. Lee](#) on April 17, 2015

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





Blockchain

BLUEPRINT FOR A NEW ECONOMY



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



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

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



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



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

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



Autonomous Device Coordination Framework



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

FEDERATION
AGREEMENTS
PROCEDURAL
TEMPLATE

FEDERATION

<UUID> <ORG_ID> <URN>

LDAP DIRECTORY

Physical proximity

Social proximity

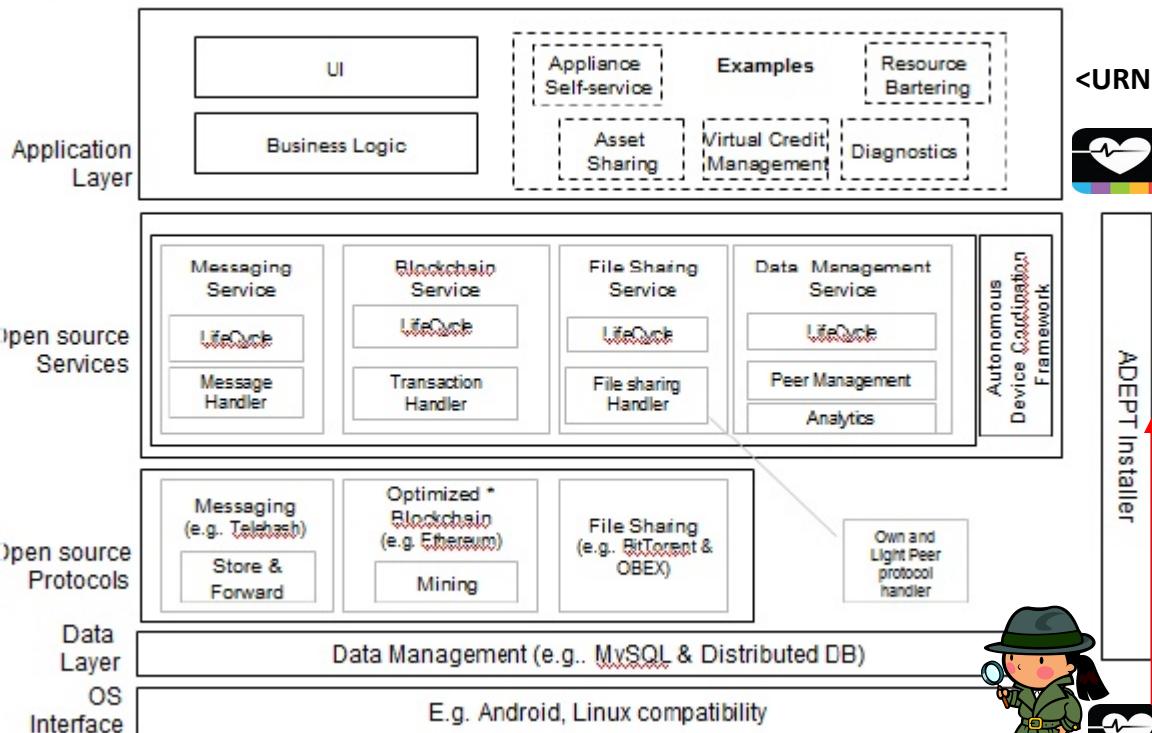
Temporal proximity

Agreements

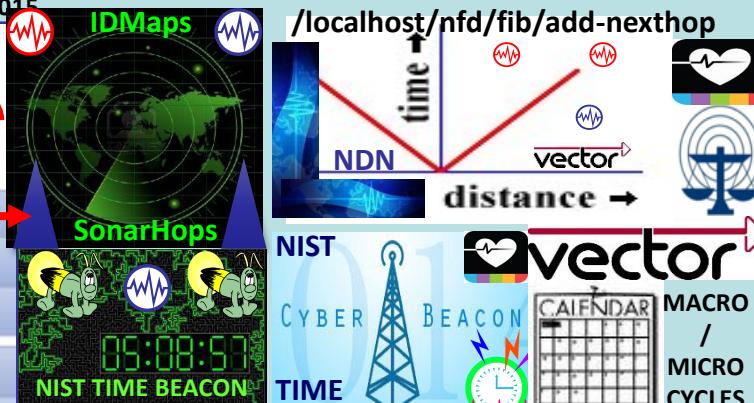
Payments

Barter

ADEPT Standard Peer Architecture – Logical View



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

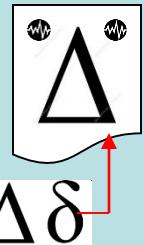


PAYMENTS BASED ON GEO-SPATIAL TEMPORAL METRICS / METERS
<URN> DESCRIBES COMMODITIES ETC BY UNIFORM RESOURCE NAME BY </INTEREST>>



ASSET SHARING WITHIN FEDERATION

BUSINESS LOGIC = WORKFLOW <XML_Wf>



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



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



NIST QUANTUM ENCRYPTION RANDOMIZATION BEACON

UNPREDICTABLE SAMPLING

SECURE AUTHENTICATION

SECURE MULTI

PARTY /
AUTHENTICATION

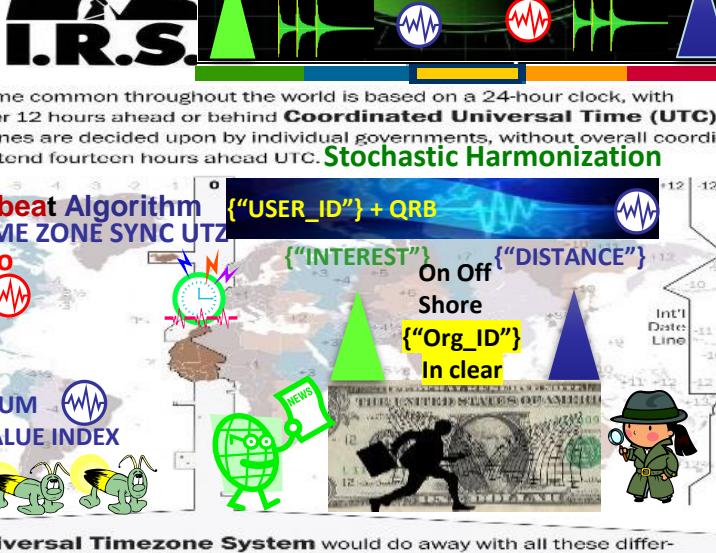
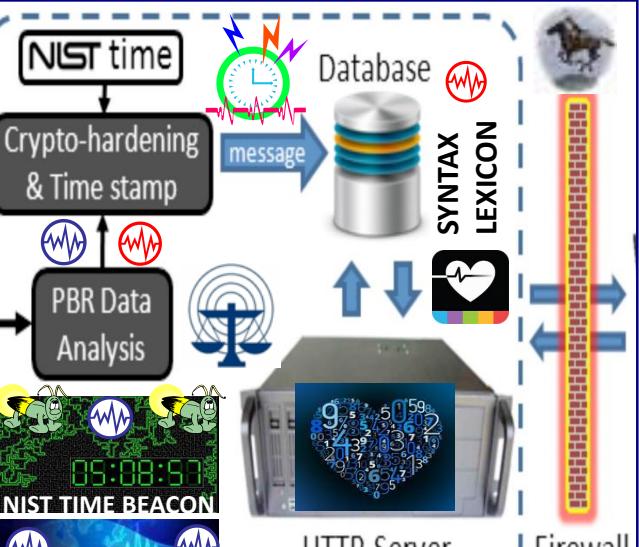
Entropy

RANDOM NUMBER GENERATOR

Bell Test

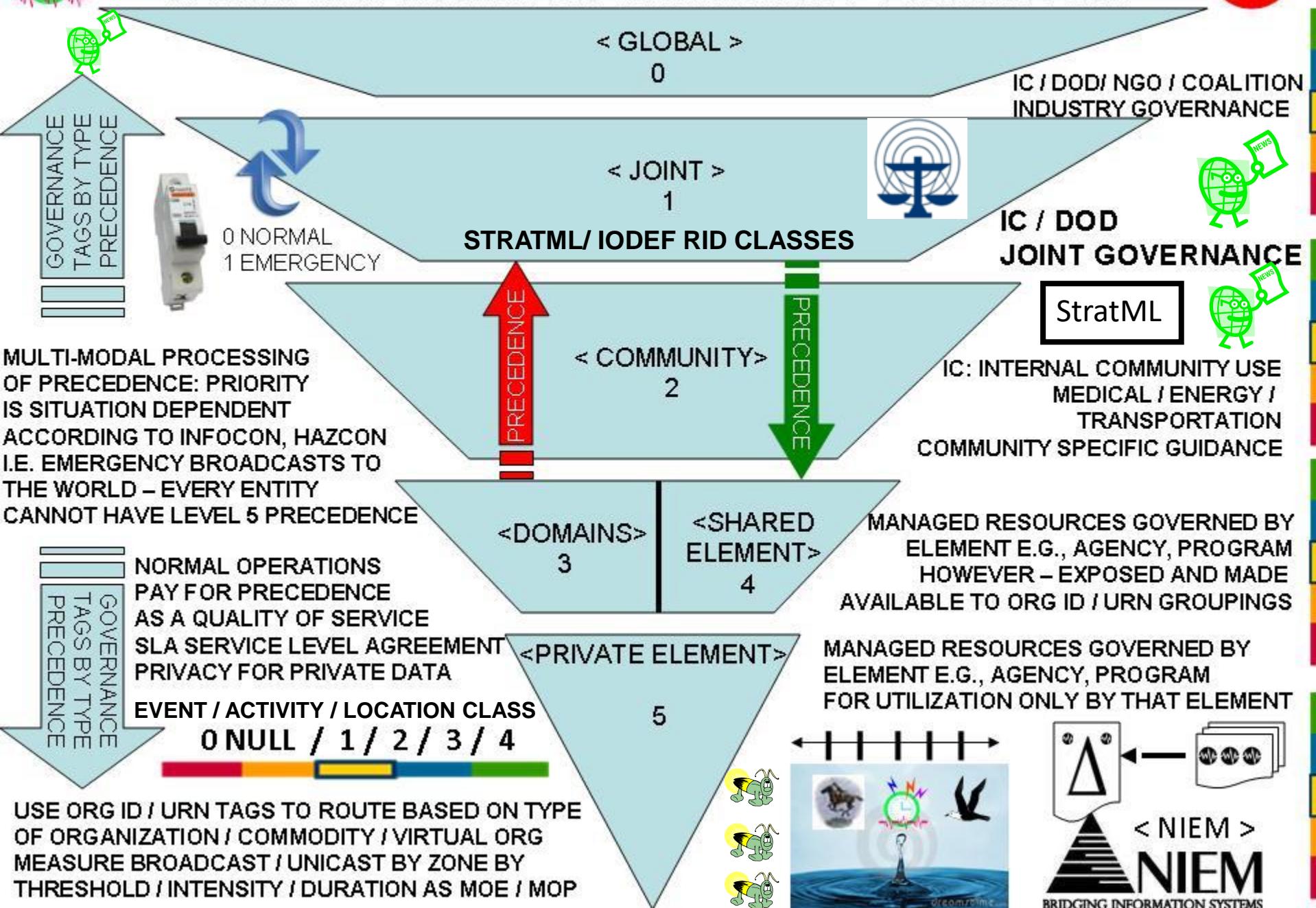
Entanglement Source

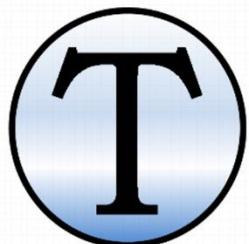
Entropy





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





Three ideas combined

HOW TRUTHCOIN WORKS:

1) Tradable Reputation

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

2) SVD Cross-Validation

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



3) Strategic Use of TIME

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

2. A kind of ‘Future Wikipedia’

	Wikipedia	Truthcoin
Focus	Outcomes of <i>past</i> events. Consensus on known facts.	Outcomes of <i>future</i> events. <i>Future</i> consensus on <i>knowable</i> facts.

Finance Thing	Interpretation	EVENT DERIVATIVE CORP = <Org_ID_1,2,3>
Bond (Debt)	“I, Paul Sztorc, owe \$20 to whoever is holding this bond certificate on 03/02/2015.”	
Stock (Equity)	“I, the CEO of SztorcCorp, owe 1/100 th 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

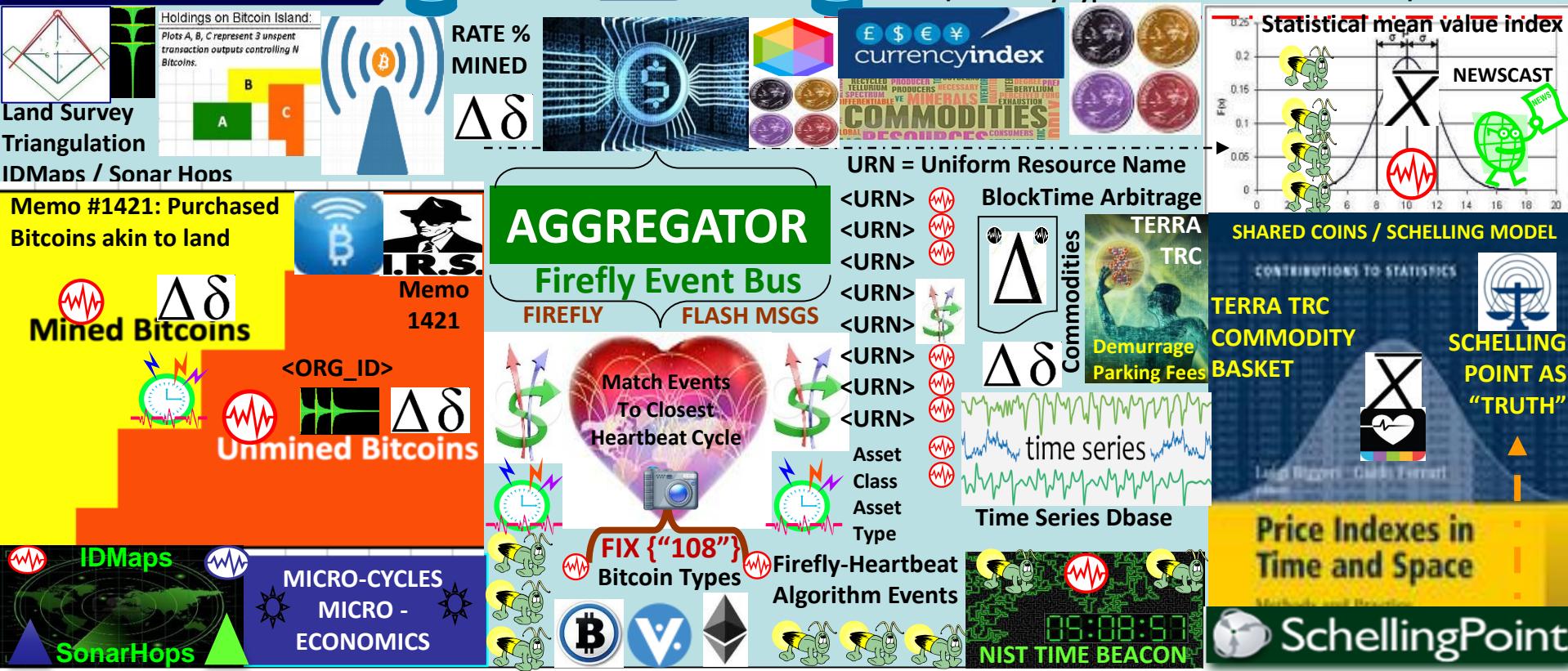
MV=PQ Money x Velocity = Price x Quantity

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

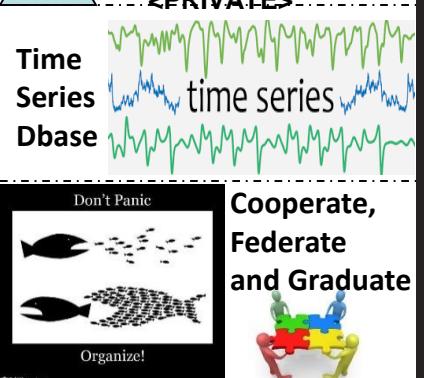
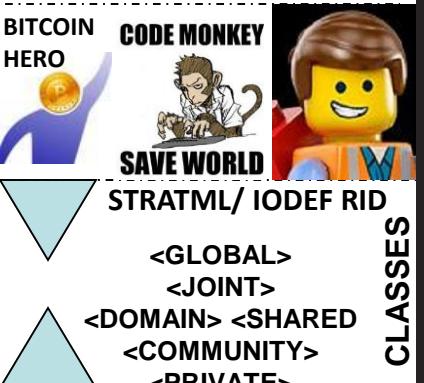
M = MONEY BITCOINS FIXED
= FINITE # OF COINS 21 Million

V = VELOCITY = RATE SPENT
RATE COINS MINED % OVER TIME

P = PRICE of Everything Bought
TIME SERIES DATABASE Coin SUM
Coin / Currency Type Mediation Service



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



HOW GAMIFICATION WORKS:

5 COMMON MECHANICS

POINTS

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

BADGES

Reward achievements visually

LEVELS

Encourage users to progress and unlock new rewards

LEADERBOARDS

Organise players by rank

CHALLENGES

Encourage engagement by offering specific tasks to complete

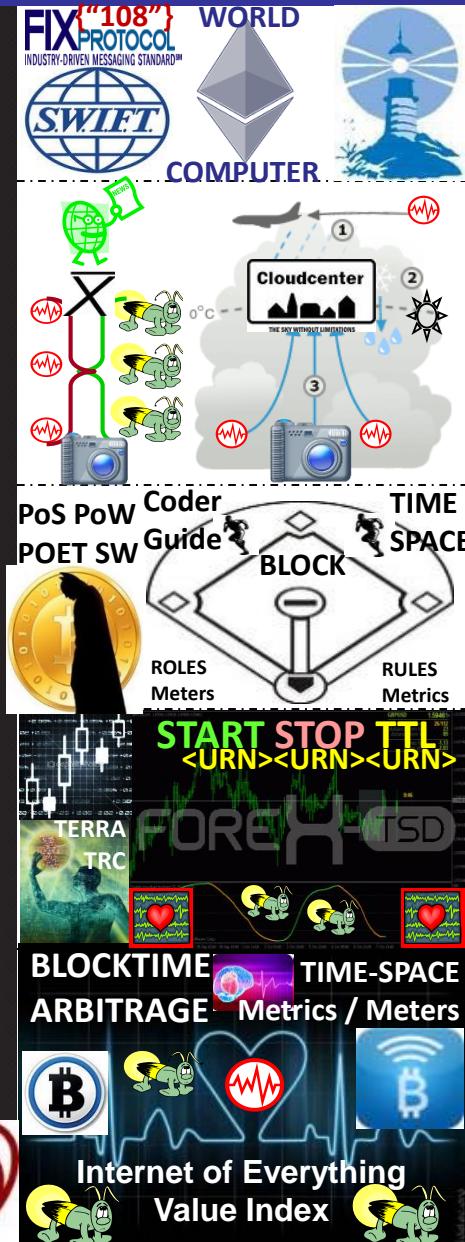
4 MAIN WAYS TO DRIVE ENGAGEMENT

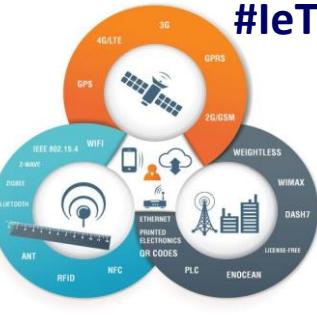
ACCELERATED FEEDBACK CYCLES

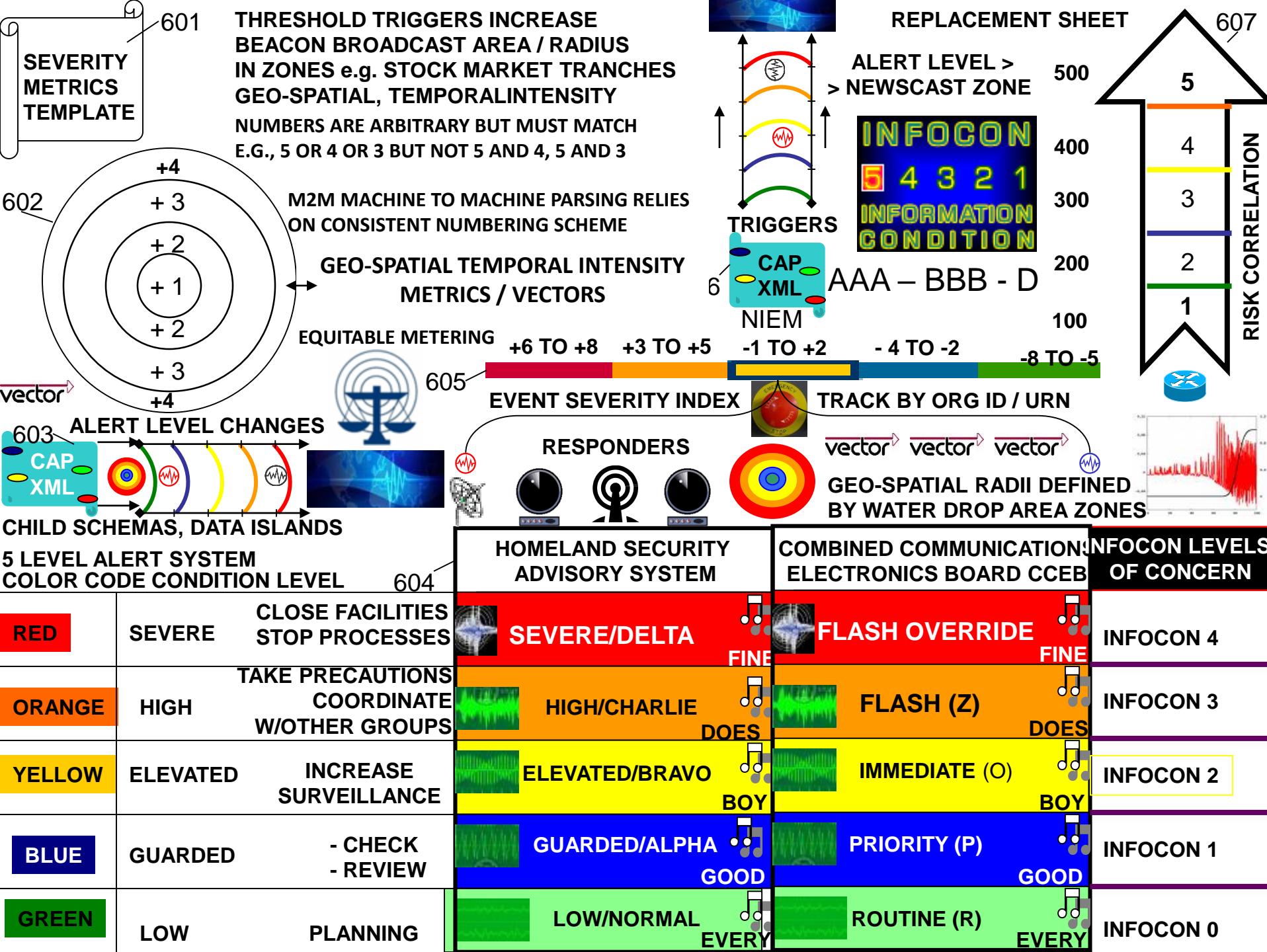
CLEAR GOALS AND RULES OF PLAY

A COMPELLING NARRATIVE

CHALLENGING BUT ACHIEVABLE TASKS



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



GEO-SPATIAL TEMPORAL INTENSITY METRICS, METERS, VECTORS



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



Geo-Spatial Temporal Intensity NOVEL METRICS / METERS:



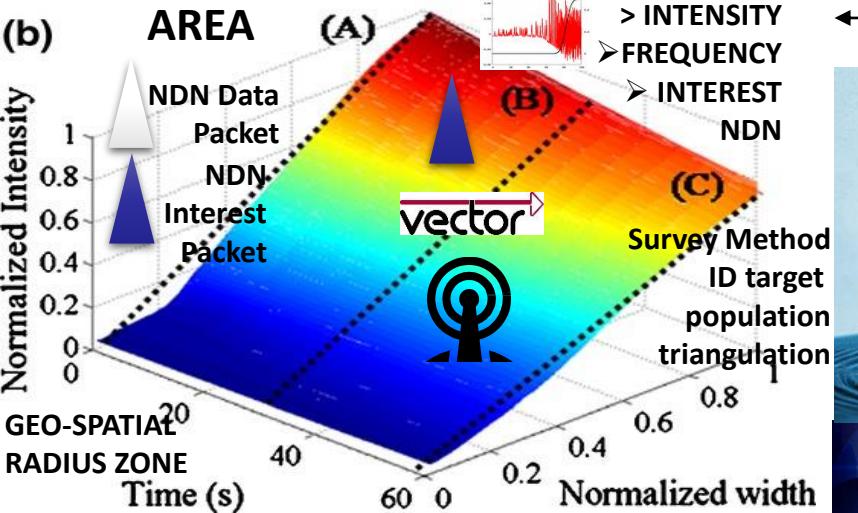
Paul Revere = linear, sequential



TCP/IP hop by hop counts, by hop controls



Water Drop = AREA / INTENSITY Cyclic Frequency



NAMED DATA NETWORKING

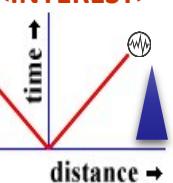
</IoT>
MQTT



NIST TIME BEACON

05:08:50

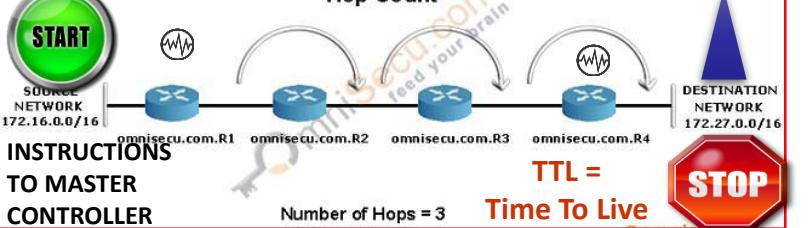
<INTEREST>



ARRESTED-D

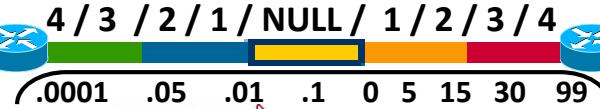
IEEE 802.15.4
OASIS MQTT

TELEMETRY TRANSPORT



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

IDMAPS
SONARHOPS
INTERNET
TRIANGULATION



vector WirelessHART

time synchronized,
self-organizing,
mesh Net

ALERT LEVEL >
> NEWSCAST ZONE



SINE-WAVE

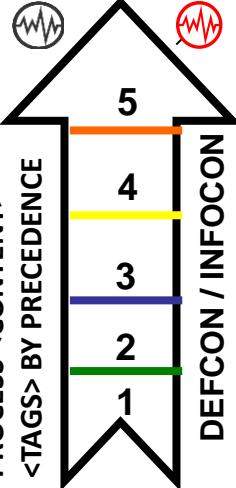
TRIGGERS
CAP XML

+ 3
+ 2
+ 1
+ 2
+ 3
NDN
<INTEREST> BY
INTENSITY / FREQUENCY

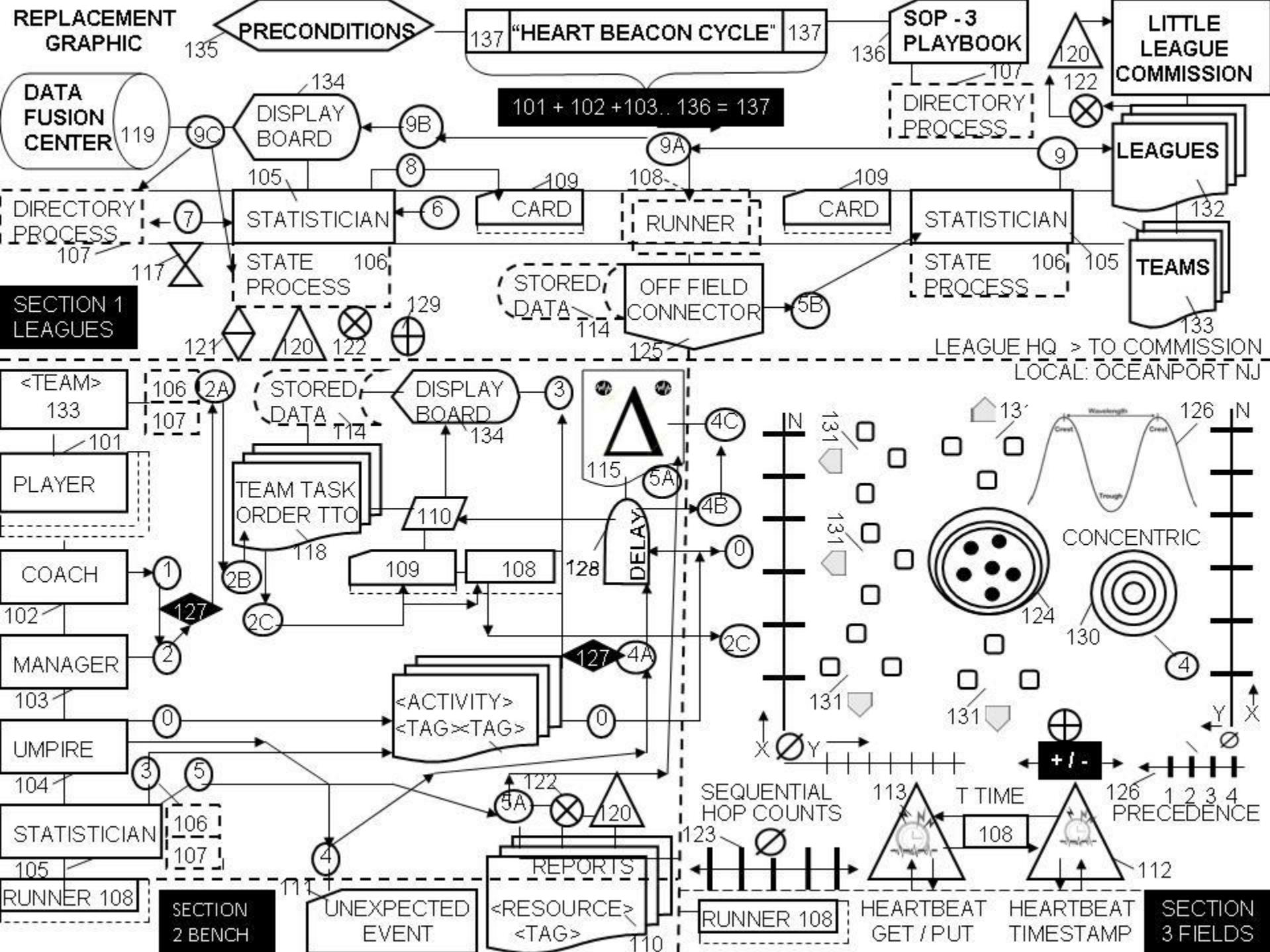
INFOCON
XML
MTF
300 +
MSG

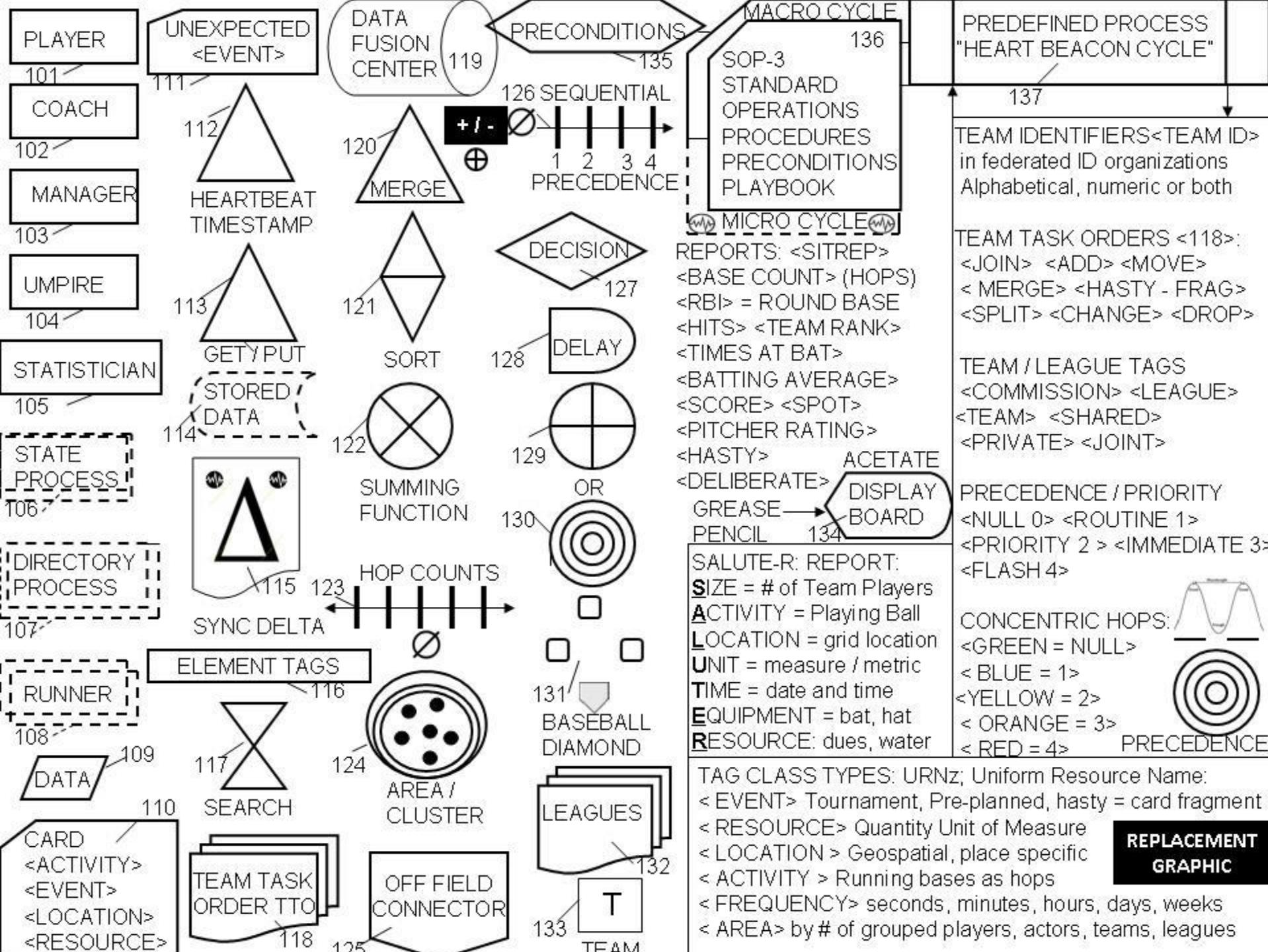
5 4 3 2 1

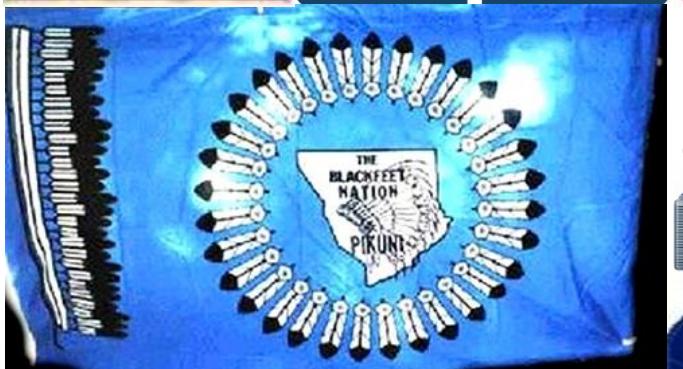
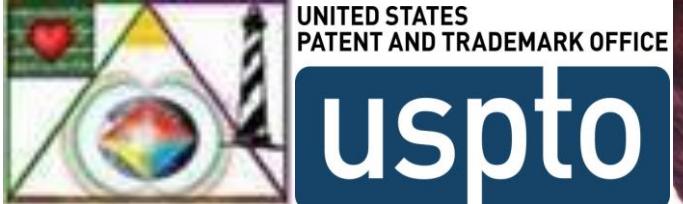
INFORMATION
CONDITION



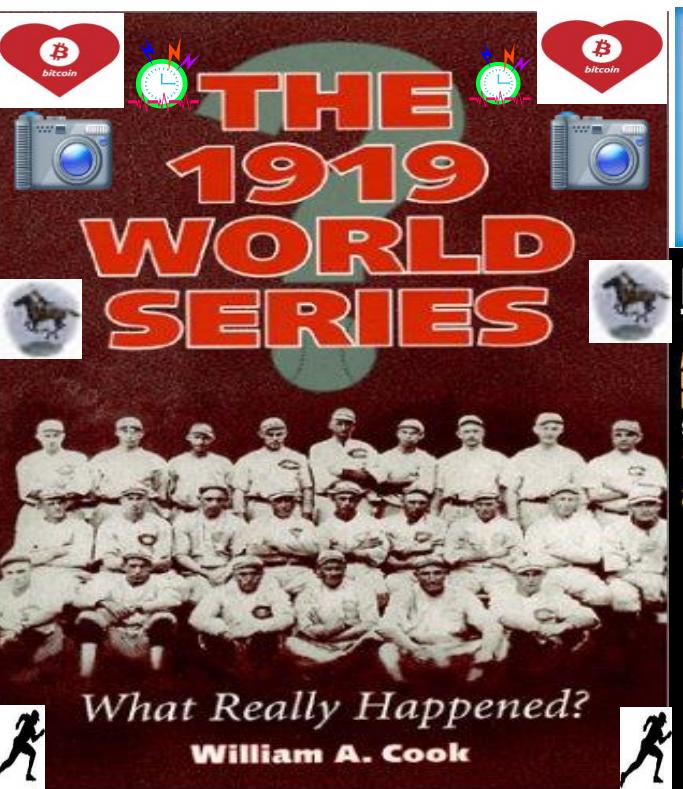
DEFCON / INFOCON







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



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

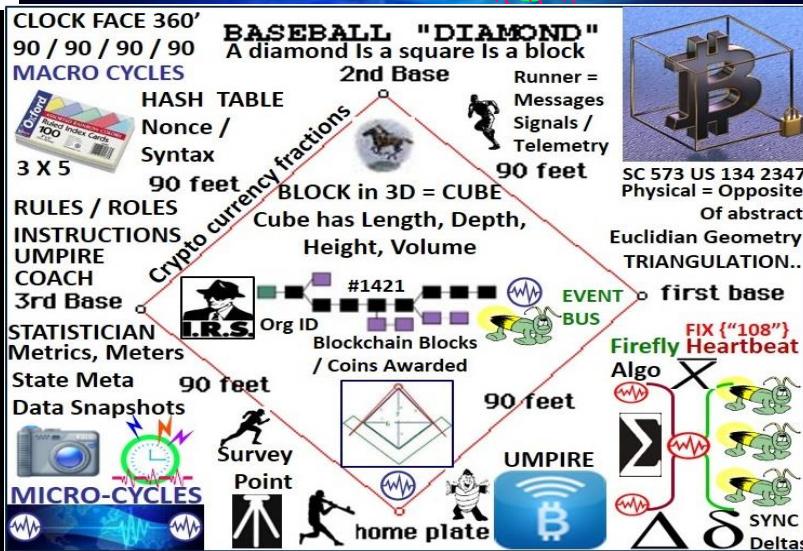


13/573,002

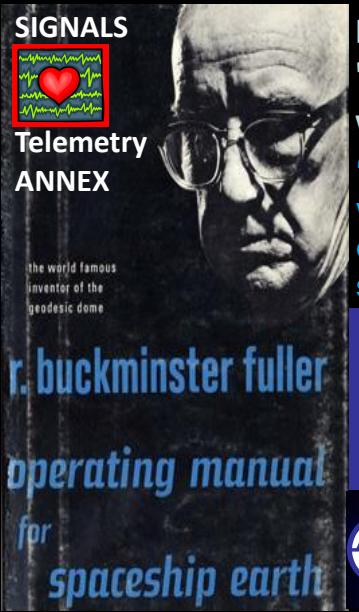


USPTO SCREEN CAPTURES SUSPENDED PAIR RULES

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







Buckminster Fuller 1968 *Operating Manual for Spaceship Earth*

"we can make all of humanity successful through science's world-engulfing industrial evolution. We have the tools"





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



SPACESHIP EARTH: comprehensive planetary planning



describing new strategies intended to enable all of humanity
to live with freedom, comfort and dignity, without negatively
impacting the earth's ecosystem's regenerative ability





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

HEART BEACON CYCLE: SIGNALING, TELEMETRY FRAMEWORK ANNEX

BUCKMINSTER FULLER'S OPERATING MANUAL for SPACESHIP EARTH







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

