

- Economic Framework systemic incentives:



- DARPA / NATO System of Systems framework based
 - Syntax lexicon library with 300 + use cases, thousands of message sets
 - Syntax alpha-numeric brevity OPSCODES are mapped to symbol sets (A.I.)
 - NATO bases are cities transact everything described by Host Nation Agreements easily converted to Service Level Agreement smart contracts

- EPOCHS: all things internet, net of money are formed using:

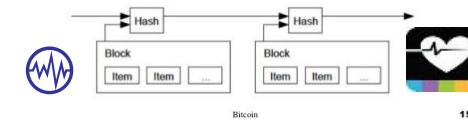
“In the beginning (of time), there was the word” (syntax)



Timestamp Server



A timestamp server takes a hash of a block of items to be timestamped and widely publishing the hash. The timestamp proves that the data must have existed at the time in order to get into the hash. Each timestamp includes the previous timestamp in its hash, forming a chain , with each additional timestamp reinforcing the ones before it.



Genesis Block

The first block of a blockchain

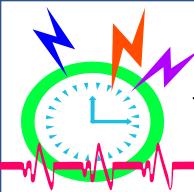
GENESIS BLOCK

The Genesis Block is the ancestor to every block in the blockchain.

The first ever Genesis Block, from the Bitcoin blockchain, dated 3 January 2009

~~because there was no previous block~~ was added in 2000

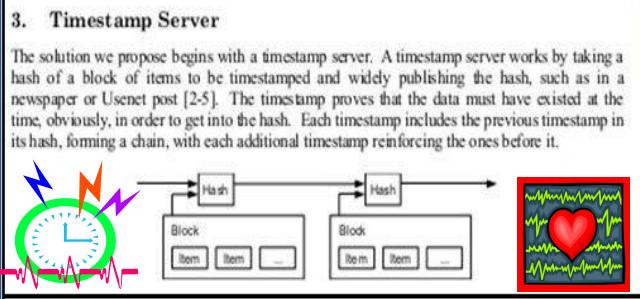
DATA	XBRL / CDL / DAML	STRUCTURED DATA EXCHANGE TEMPLATE FORMS	SYNTAX / SYMBOL LEXICON LIBRARY
CODE	STOCK MIC CODES		
FORMAT			
LOGIC			
CONTROLS			
PERIOD			
NOTES			
DISCLOSURE			



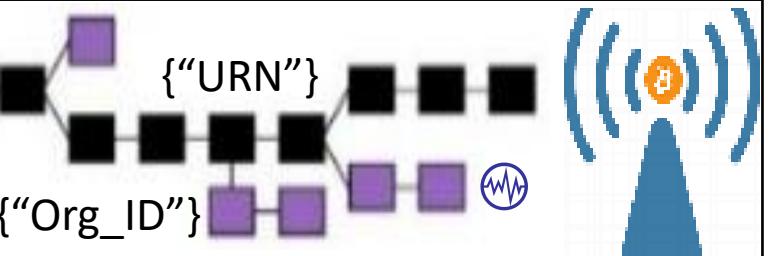
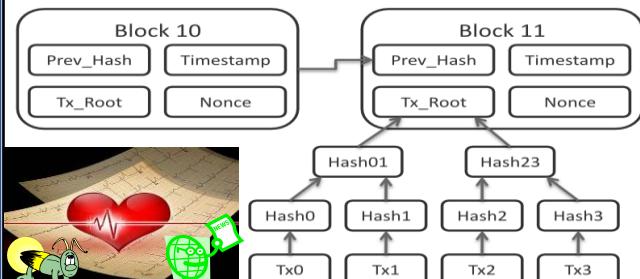
Epoch Time Cycles / Syntax

Internet / Internet of Money building blocks

Satoshi Bitcoin Blockchain
Time Stamp Server



THE SOLUTION WE PROPOSE
BEGINS WITH A
TIME STAMP SERVER



Semantic blockchain

CLOCK FACE 360°
90 / 90 / 90 / 90



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

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

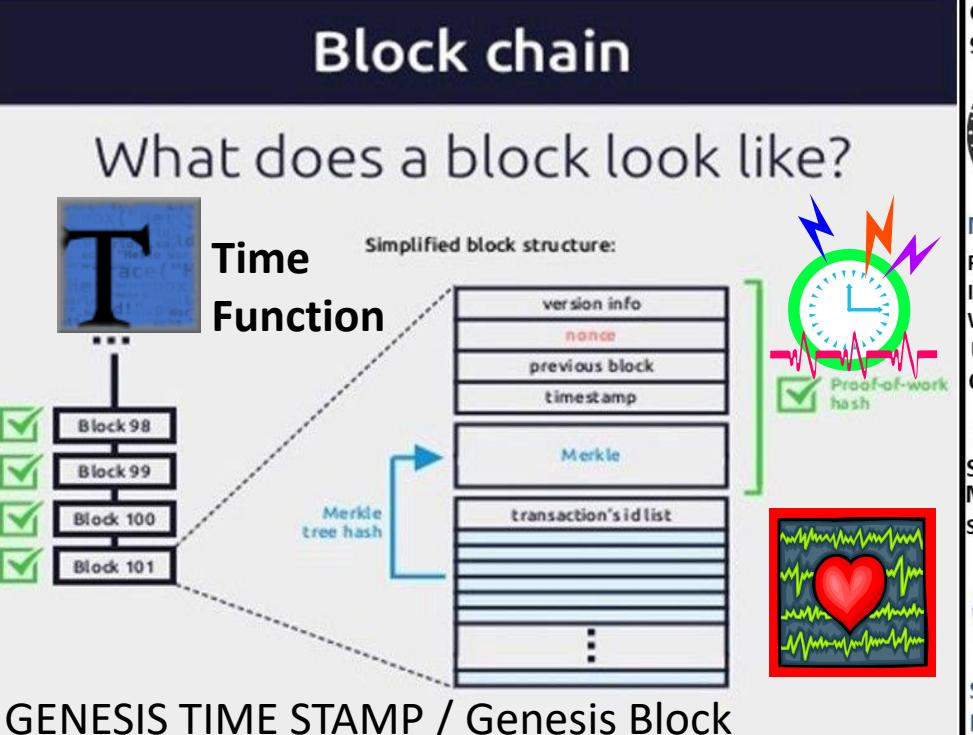


CLAIMS MAY NOT DIRECT
TOWARDS ABSTRACT IDEAS
Physical = Opposite
of abstract = ALICE
HEART BEACON CYCLE
TIME – SPACE METER
USPTO 13/573,002

first base
RUNNER Message Bus

firefly – Heartbeat Algo
 Stochastic Harmonization

FLASH MESSAGE EVENT BUS
 TIME Δδ
Epoch Time Cycles



CLOCK FACE 360°
90 / 90 / 90 / 90



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OPSCODE	Brevity	Codes	Mapped
AI	SYNTAX	To Symbol Sets	



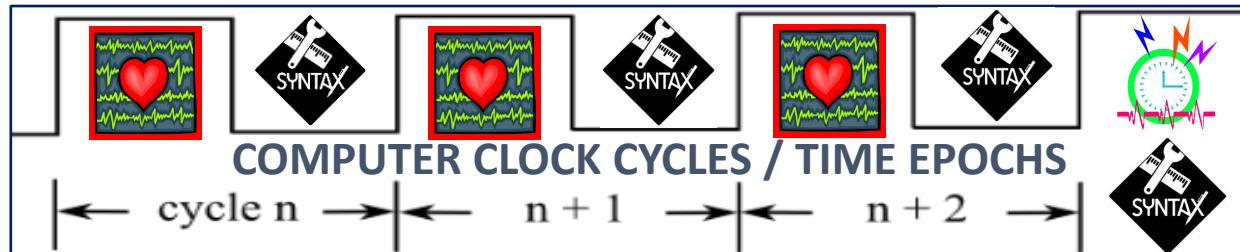


Time Epochs / Syntax:



Crypto Currency Programmable Blockchain Money

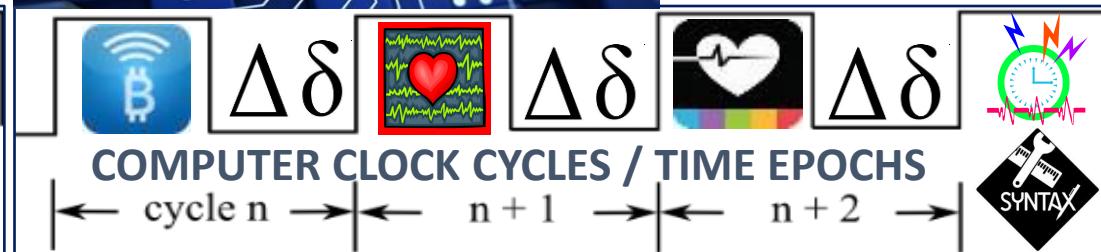
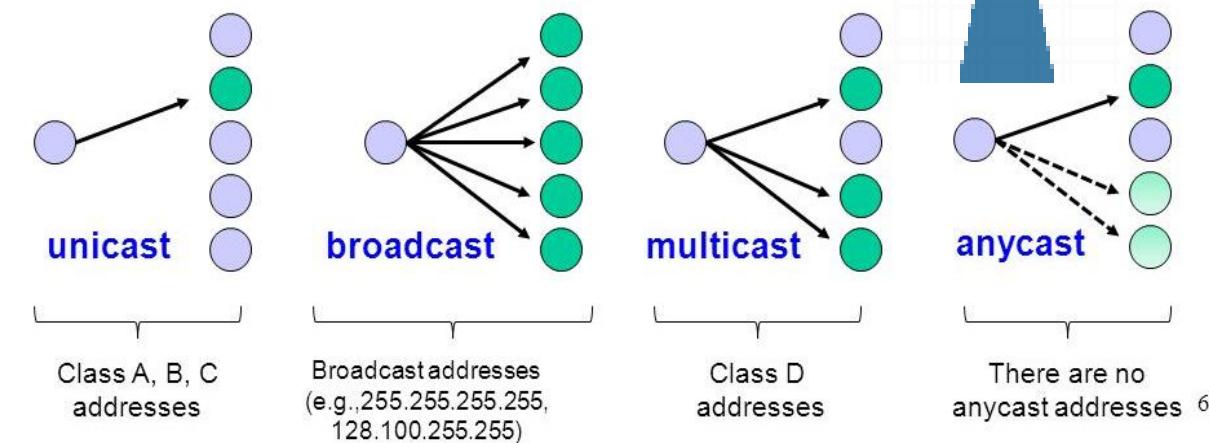
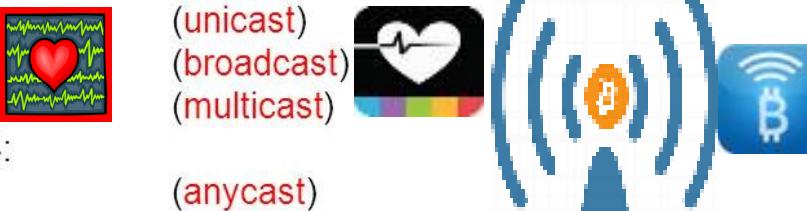
How the net, net of \$ actually work...



- one-to-one
 - one-to-all
 - one-to-many

• Not supported by IPv4:

 - one-to-any

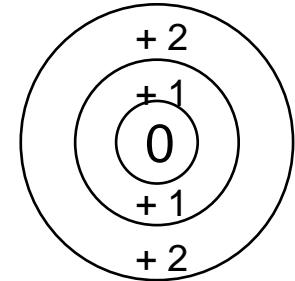
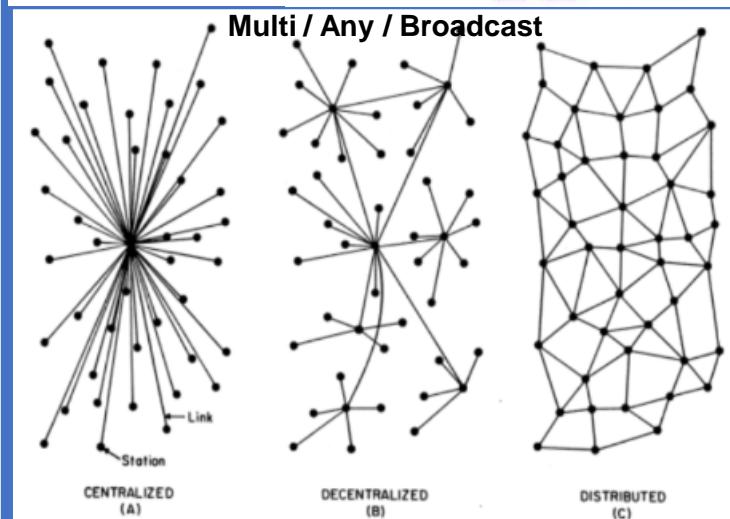


COMPUTER CLOCK CYCLES / TIME EPOCHS

UNICAST =



Time Epochs...Time is \$\$\$



Null 0 = Genesis Time Epoch

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



- FILTERS

Workflow

Sync Deltas

CLOCK FACE 360'
90 / 90 / 90 / 90



MACRO CYCLES

RULES / ROLES

INSTRUCTIONS

WORKFLOW

UMPIRE



COACH

3rd Base

STATISTICIAN

Metrics, Meters

Stat Mean Value Index



3 X 5

HASH TABLES

STATE META

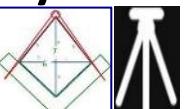
DATA SHARDS

State Meta

Data Snapshots

Survey Point

MICRO CYCLES



BASEBALL "DIAMOND"

A diamond Is a square Is a block in 3D

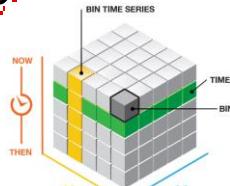
2nd Base

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

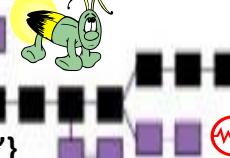
90 feet



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



90 feet



ALICE Corp
VS CLS
BANK SC 573 US 134 2347

CLAIMS MAY NOT DIRECT
TOWARDS ABSTRACT IDEAS

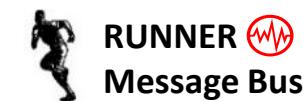
Physical = Opposite
of abstract = **ALICE**

HEART BEACON CYCLE

TIME – SPACE METER

USPTO 13/573,002

first base



UNIVERSAL HEARTBEAT MESSAGE EVENT BUS

90 feet



SETTLEMENTS / EXCHANGES
= TAXABLE EVENTS
AKIN TO PROPERTY

IRS



#1421

90 feet



Firefly – Heartbeat Algo

Stochastic Harmonization

X EVENTS

FIX {"108"}

FLASH MESSAGE

EVENT BUS

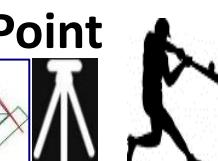
Σ

$\Delta \delta$

TIME STAMP

SERVER

Epoch Time Cycles



home plate



THE BITCOIN BLOCKCHAIN FOR DUMMIES

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

Satoshi Nakamoto Bitcoin Paper



Satoshi Nakamoto

Craig WRIGHT

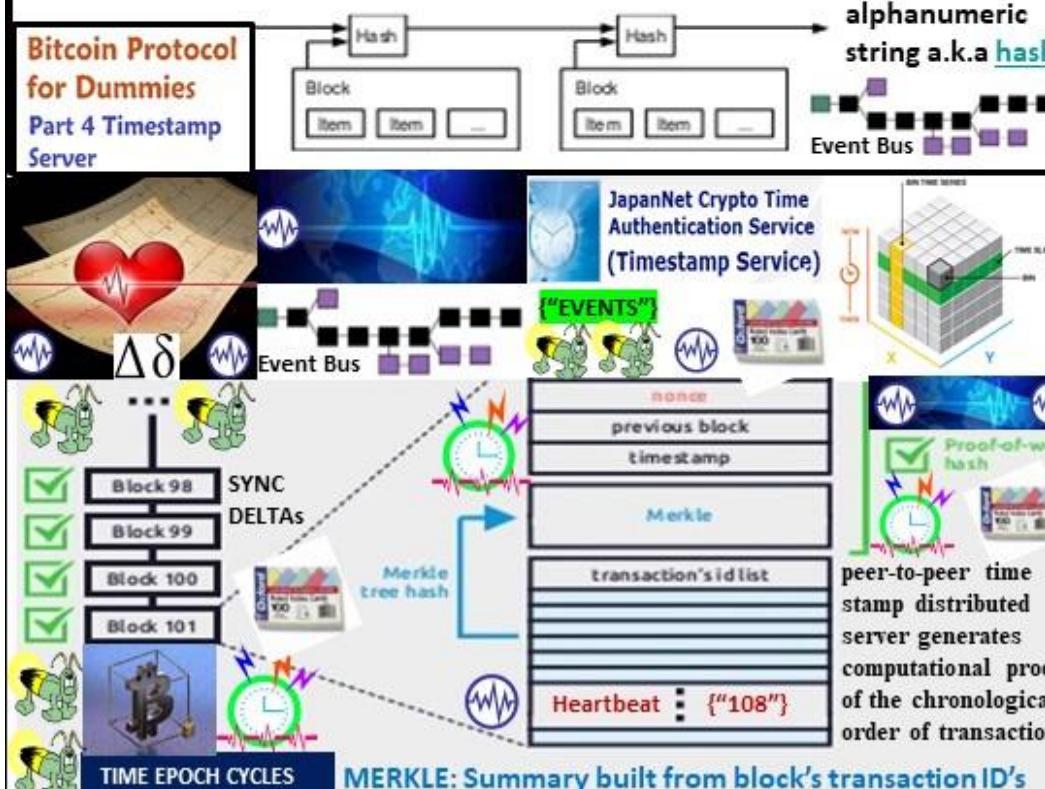
 "THE VALUE OF
BITCOIN IS
TIME ITSELF"

Wright Brother's 1st Flight Cape Hatteras Outer Banks

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

3. Timestamp Server

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



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

"THE VALUE OF BITCOIN IS TIME ITSELF"



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

A horizontal collage of various icons and text labels. From left to right, it includes: a 'State Meta' icon with a blue gradient; a 'Data Snapshots' icon showing a bar chart with a red peak; a 'Survey Point' icon with a camera and a triangle; a 'MICRO CYCLES' icon with a waveform; an 'I.R.S.' icon with a man in a suit; a 'home plate' icon with a baseball player; a 'TIME STAMP SERVER' icon with a person in a hard hat; a 'MESSAGE EVENT BUS' icon with a speech bubble; and an 'Epoch Time Cycle' icon with a sun and a waveform.

All things internet of money are formed w CPU time cycles used to process, syntax, instruction / code



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



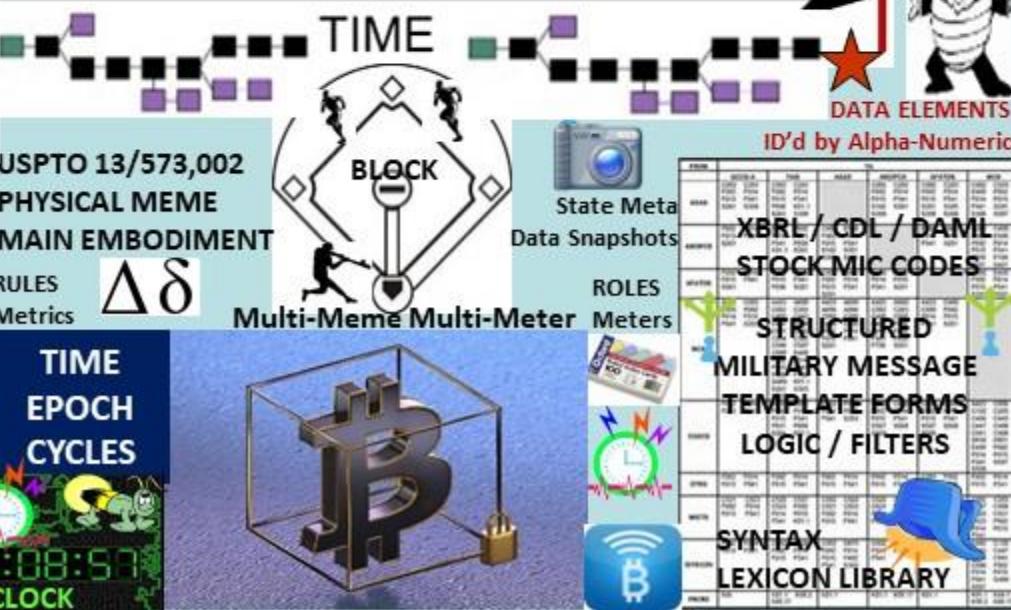
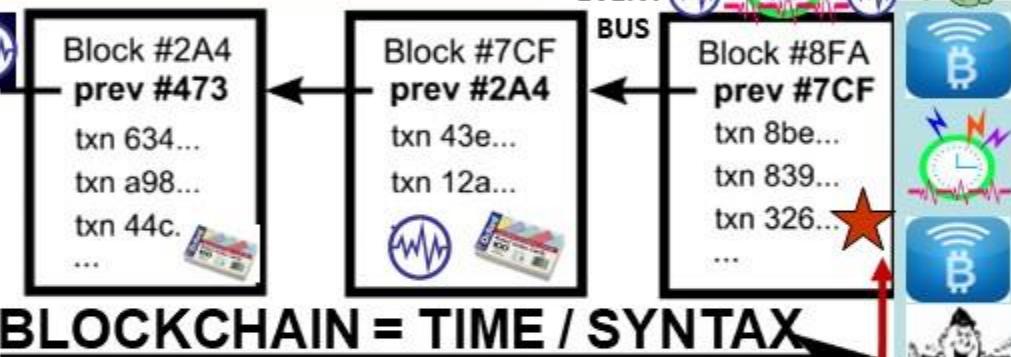
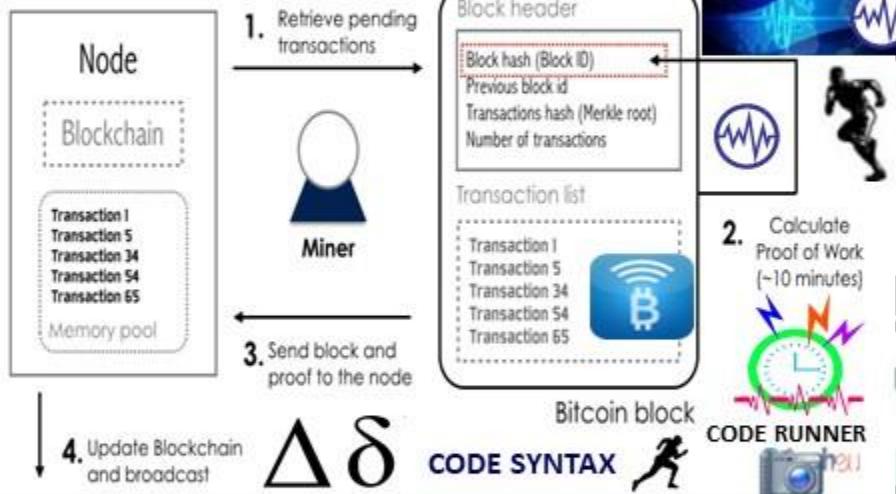
"Bitcoin is a Language"

WIRED

"BITCOIN MAKES MONEY PROGRAMMABLE.
MONEY IS SIMPLY DATA"



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.

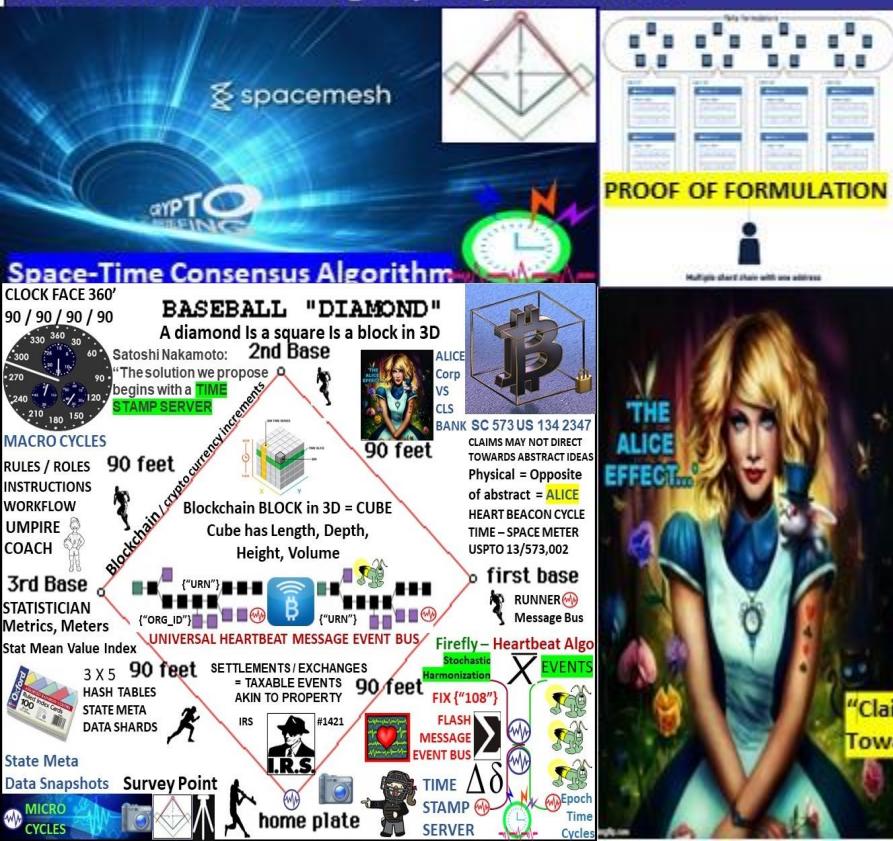


Q: What US Supreme Court Alice compliant (physical = opposite of abstract) meme describes the myriad #blockchain #consensus #algorithms the most comprehensively that uses an algorithm (based on nature) enabling distributed system of systems geo-spatial, UTZ Universal Time Zone temporal, semantic - syntactic sync / OPSCODE brevity code consensus?

Blockchain Consensus Algorithms & Mechanisms

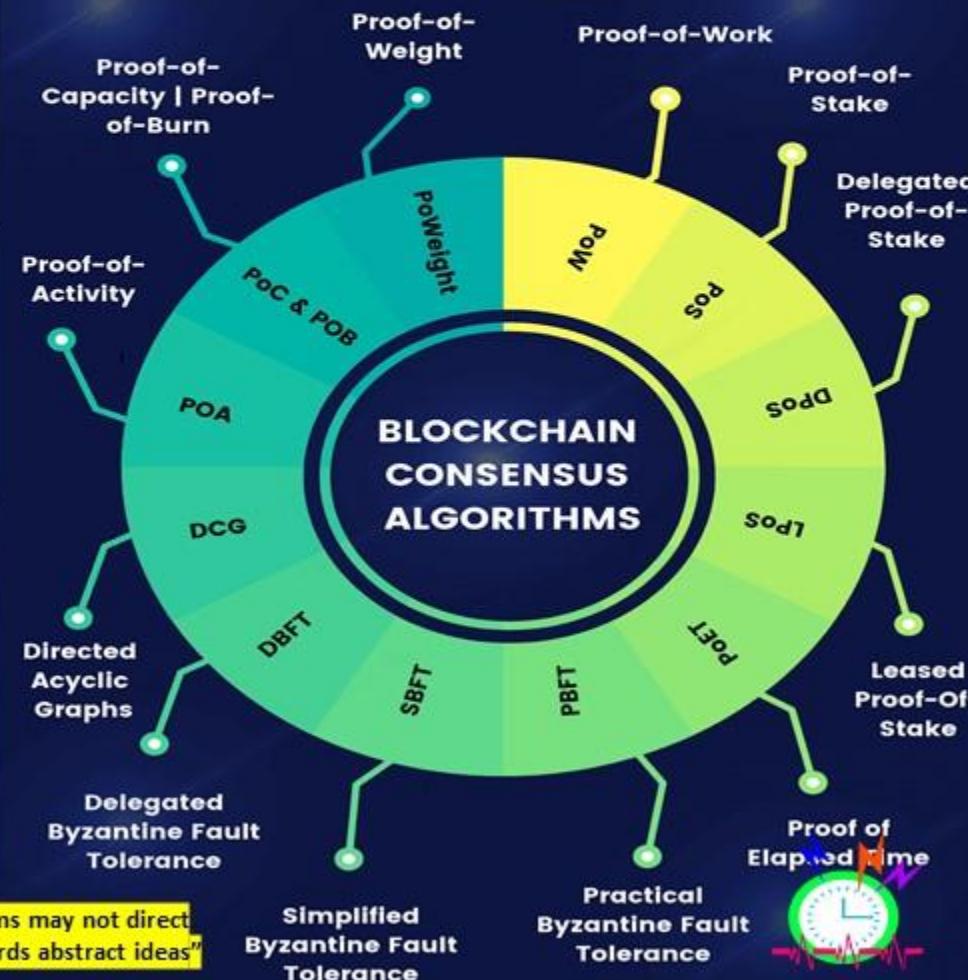
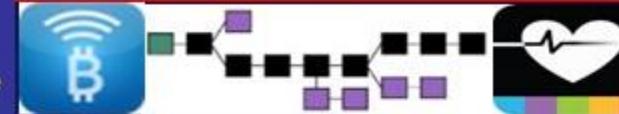
In the world of blockchain consensus algorithms, consensus is the **HEART OF THE BLOCKCHAIN NETWORK**. Its main purpose is to

achieve agreement on transactions among a distributed system (s)
Proof of Formulation: PoF: generation / propagation of blocks
using a previously agreed sequence between participants of the
generation of blocks, formed by two groups: a generator group
and/or Formulator and a group of synchronization.

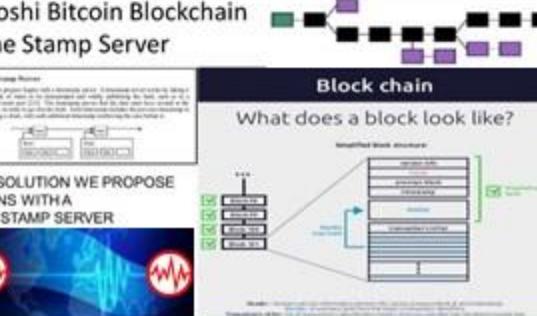
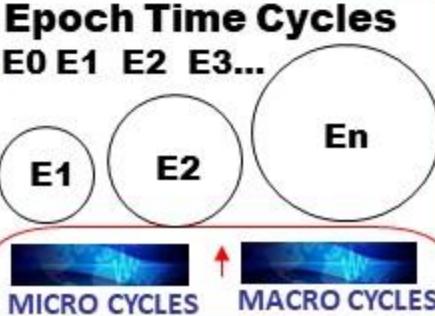


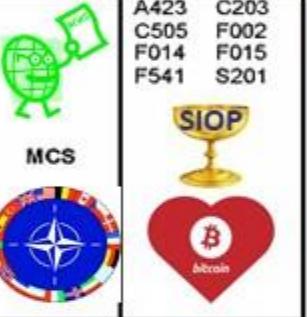
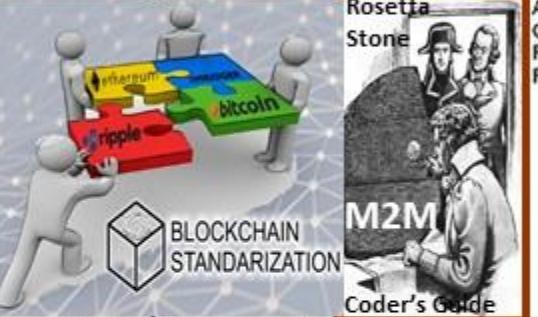
BLOCKCHAIN CONSENSUS ALGORITHMS

ULTIMATE GUIDE FOR BEGINNERS



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

Interface Name	HEARTBEAT Administration Interface [SCOP]		
Documentation URL	http://scop.sourceforge.net/ http://linuxvirtualserver.org/software/index.html		
API Information #leT  #Big_Data 	Functionality Areas  Idea 	Cloud Interface Management configuration, start, stop cloud services, edit configuration (heartbeat messages)	
Programmable Money World Computer / Blockchain 	API Operation Count 	Web service access type Network Effects / A.I.	Web application, front end to [network, device, system, blockchain] heartbeat
LANGUAGE / PLATFORM BINDINGS Interface Characteristics 	PHP Java Erlang... 	SCOP is a web application, PHP based front-end to heartbeat, IP Virtual Server ipvs and Idirectord [e.g., check interval @ 5 seconds] SCOP can start/stop services, view/ edit configuration files e.g., heartbeat message state management snapshots, backups, take a service online/offline, add/ remove virtual/real servers, services etc.	
"The external environment could update resources at random... One solution is a heartbeat: defining a default lease duration delaying updates until the next cycle"  QubitCoin Interval: Every 30 Seconds	Satoshi Bitcoin Blockchain Time Stamp Server 	Epoch Time Cycles E0 E1 E2 E3... 	

FROM		ALPHA-Numeric BREVITY CODES						CODE GUIDE																																																																															
GCCS-A		C002 C203	C002 C203	C002 C203	C002	ATDS	MCS																																																																																
ASAS	GCCS-A	C002 C203 F002 F014 F015 F541 S201 S309				C203 F014 F541 S305 S309	C002 C203 E400 F002 F014 F015 F541 S201 S309 S507																																																																																
		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																																																																																					
		A423 C203 C505 F002 F014 F541 S201		Rosetta Stone	A423 C400 C505 F002 F014 F015 F541 S201																																																																																		
	MCS						"SYMBOLS RULE THE WORLD"																																																																																
																																																																																							
MESSAGE CATALOG 300 + Use Cases		Data Elements: entity, attribute, relationship equivalents																																																																																					
<table border="1"> <thead> <tr> <th colspan="10">Information Categories and Examples</th></tr> <tr> <th>Object Categories</th><th>Examples</th><th>Location</th><th>Movement</th><th>Identify</th><th>Status</th><th>Activity</th><th>Intent</th><th colspan="2"></th></tr> </thead> <tbody> <tr> <td>OOB</td><td>SYNTAX LEXICON</td><td>STRUCTURED DATA lat/long</td><td>EXCHANGE spd/hdg</td><td>country / alliance, type/class</td><td>Message Sets readiness</td><td>targeting, reconning</td><td>COA {"Java JS"}</td><td colspan="2"></td></tr> <tr> <td></td><td></td><td>Machine Trust Language MTL</td><td></td><td></td><td>CDL Contract Description Language</td><td></td><td></td><td colspan="2"></td></tr> <tr> <td>Infrastructure</td><td>Comm, power, transportation, water/sewer</td><td>network, grid</td><td>throughput, flow rates,</td><td>name, part-of relationships</td><td>BDA, op</td><td>repair, broadcasts</td><td>YAML expansion plans</td><td colspan="2"></td></tr> <tr> <td>Sociological</td><td>Culture, religion, economic, ethnic, government, history, languages</td><td>temples, historic structures</td><td></td><td></td><td></td><td></td><td></td><td colspan="2"></td></tr> <tr> <td>Geophysical</td><td>Terrain, weather, climatology, oceanography, astrometry</td><td>feature</td><td>lat/long, alt/dpth</td><td></td><td></td><td></td><td></td><td colspan="2" rowspan="7"></td></tr> </tbody> </table>										Information Categories and Examples										Object Categories	Examples	Location	Movement	Identify	Status	Activity	Intent			OOB	SYNTAX LEXICON	STRUCTURED DATA lat/long	EXCHANGE spd/hdg	country / alliance, type/class	Message Sets readiness	targeting, reconning	COA {"Java JS"}					Machine Trust Language MTL			CDL Contract Description Language					Infrastructure	Comm, power, transportation, water/sewer	network, grid	throughput, flow rates,	name, part-of relationships	BDA, op	repair, broadcasts	YAML expansion plans			Sociological	Culture, religion, economic, ethnic, government, history, languages	temples, historic structures								Geophysical	Terrain, weather, climatology, oceanography, astrometry	feature	lat/long, alt/dpth														
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<p align="center">FEDERATE</p>																																																																																							

Information Elements Roles

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



FILTERS

FFUDN: Field Format Unit Designator #

FFIRN Field Format Index Reference #

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



BY Form Field Position & NUMBER

 Firefly-Heartbeat Flash Messages

PROCESS MESSAGE BY PRECEDENCE
UNIVERSAL EVENT / ALERT MESSAGE BUS

OPERATIONAL NODES / ACTIVITIES

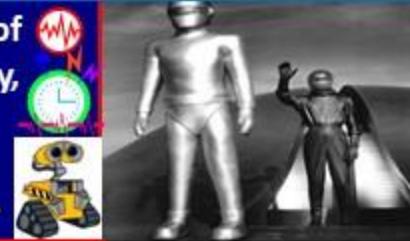
DATA	SYSTEM FUNCTIONS	PERFORMANCE
11.4 - Classification	11.8 - Kinematics	
11.4.1 - Category	11.8.1 - Pos / Vel / Acc (PVA)	
11.4.1.1 - Confidence Level	11.8.1.1 - Acceleration	11.8.1.1.1 - Angular
11.4.1.2 - Estimate Type	11.8.1.2 - Linear	11.8.1.2.1 - Alternative
11.4.1.2.1 - Alternative	11.8.1.2.2 - Estimated	11.8.1.2.2.1 - Observed
11.4.1.2.2 - Evaluated D	11.8.1.2.2.2 - Predicted	11.8.1.2.3 - Spotted
11.4.1.3 - Value	11.8.1.2.4 - Smoothed Data	
	CODES	

SYMBOL	Friend	Neutral	Hostile
2525C	Partner		Competitor

11.4.1.3.5 - Surface	1 - Velocity
11.4.2 - Platform / Point / Feature Type	1.4.1 - Horizontal
11.4.3 - Specific Type	1.4.2 - Vertical
11.4.4 - Type Modifier	VA Confidence
11.4.5 - Unit	1 - Bearing Angle
	2 - Bearing Angle Rate
	3 - Covariance Matrix



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"}}, {"TRANSACTION ID"}, INDEX REFERENCE #: M015 STATUS : EFFECTIVE: 14-DEC-99
vector
 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 /O // (NU) MESSAGE IDENTIFIER
 M MIP OUT ORDPLAN 4 /M /O /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. MATERIEL AND SERVICES
BLOCKCHAIN STANDARIZATION

STOCK EXCHANGE MIC CODES NDN NAMED DATA NETWORKING PRECEDENCE PROCESSING
FILTERS INFOCON 5 4 3 2 1 INFORMATION CONDITION
 SYMBOLES Friend Neutral Hostile MEDICAL EVAC & HOSPITALISATION
 Partner Competitor - MILITARY OPERATIONS
 NUMBERS ARE THE UNIVERSAL LANGUAGE / Symbols Rule the World"



INFOCON
5 4 3 2 1
INFORMATION CONDITION

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

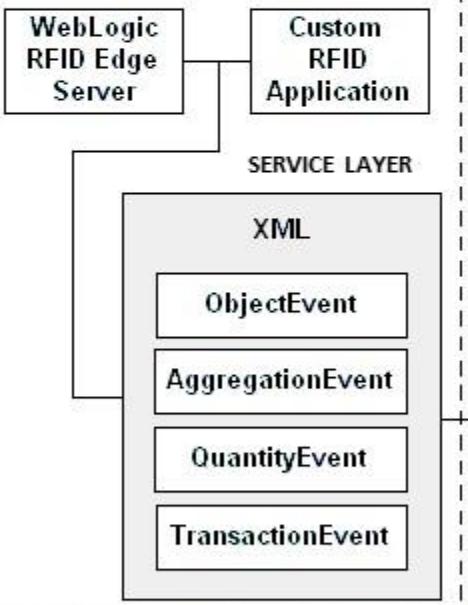


HBC
SYSTEM OF SYSTEMS
TIME-SPACE SYNC

UNIVERSAL EVENT BUS

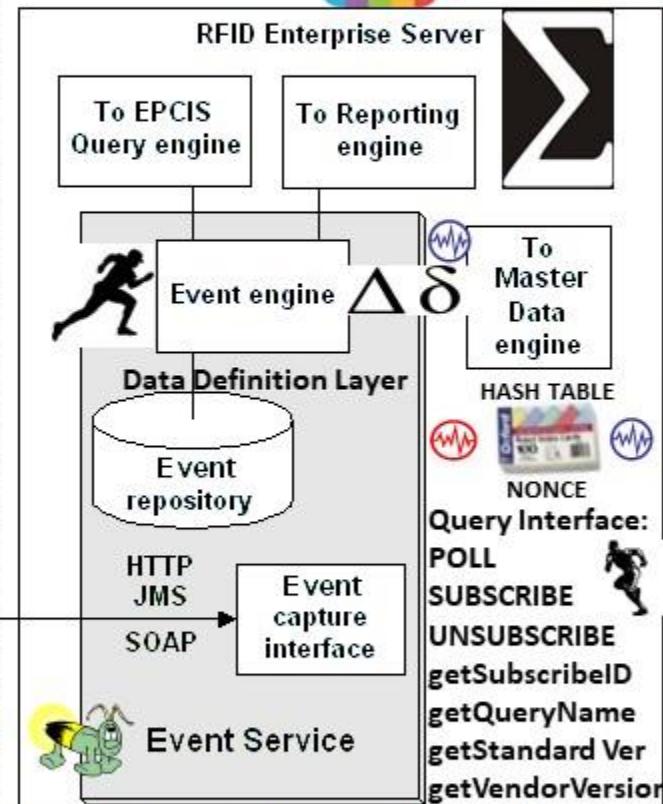
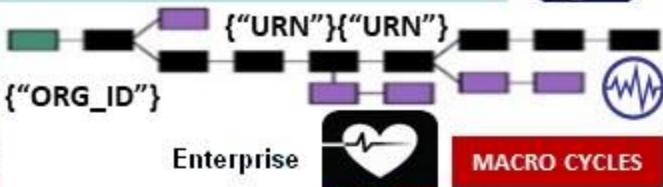


EPCIS DATA MODEL



Core Business Vocabulary (CBV)

- What identifiers of object(s) or entities / subject of the event
- When date time when event took place, local time zone in effect
- Where location identifier where event occurred, identifier of location where object(s) are expected to be following the event
- Why Information about the business context, including:
 - a Identifier that indicates the business step taking place



1



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

ST
L

BIZ USE CASES ALPHA NUMERIC BREVITY CODES

A small, rectangular illustration showing two men from the chest up. The man on the left wears a dark tricorn hat and a white cravat. The man on the right has glasses and a mustache. They appear to be in a courtroom or similar setting.



**!st Compiler
DESIGN
Still the **BEST****

SOFTWARE DEFINED NETWORKING

NETOPS

Command Syntax

REST State Transfer

COMMAND SYNTAX
STATE TRANSFER
Unicast / Multicast
Flow Tables / Workflow

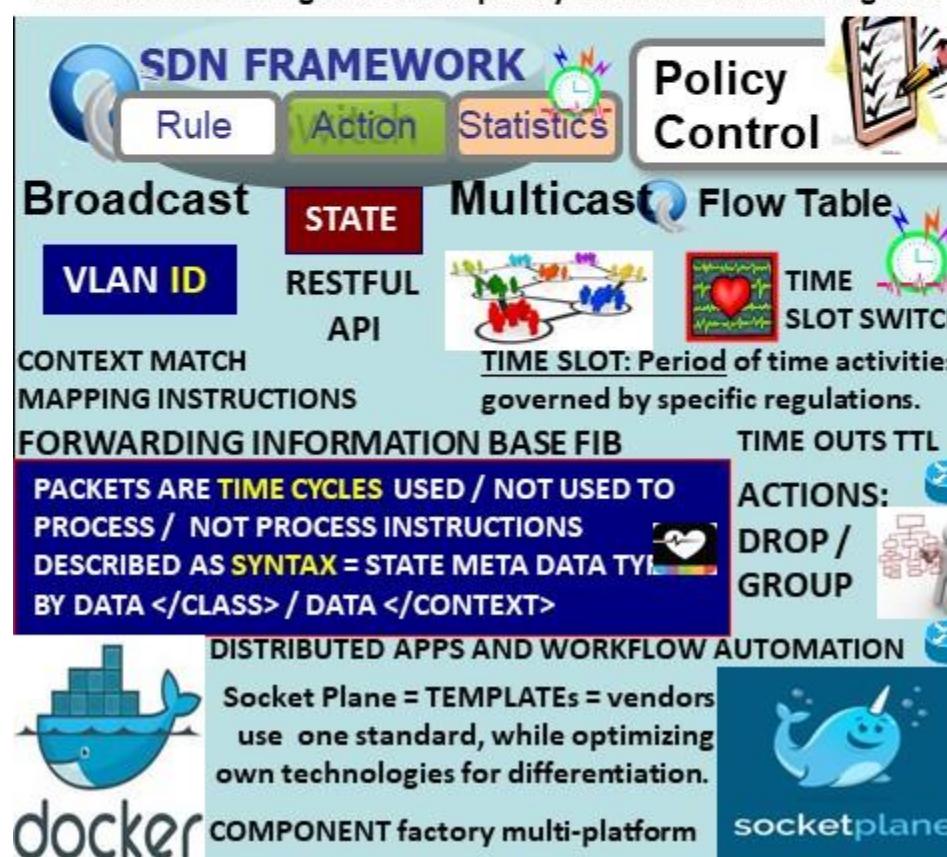
Dynamic Network

NETOPS

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

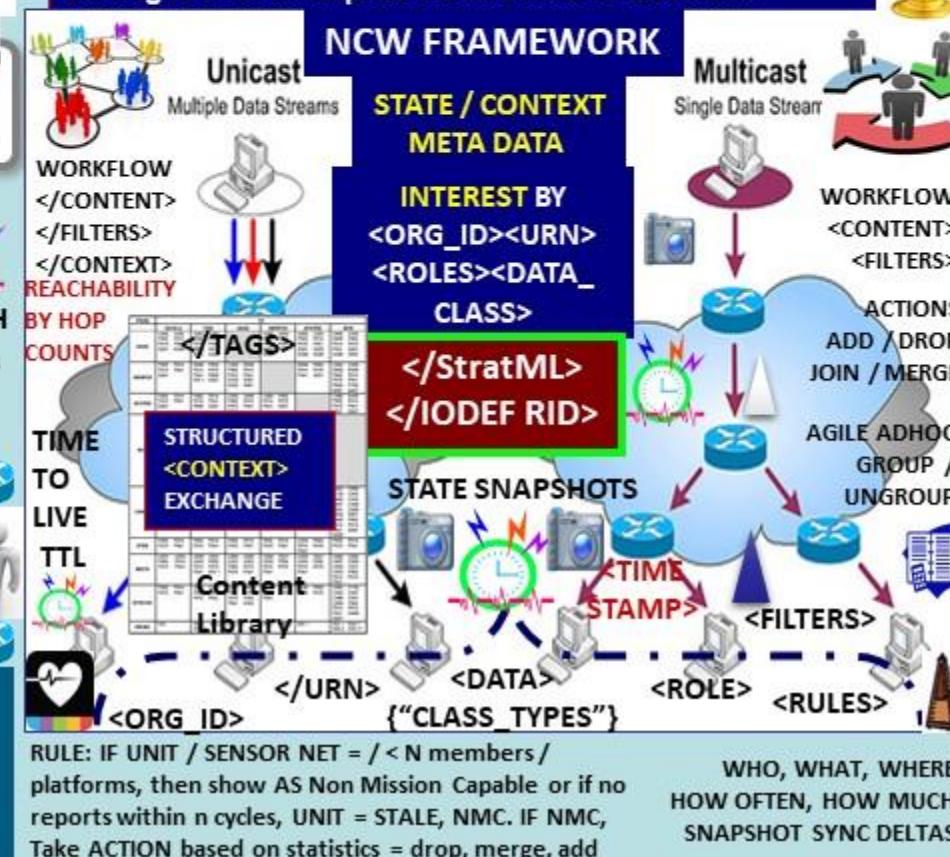
- SDN is a *framework* to allow network administrators to *automatically* and dynamically manage and control a *large number* of network devices, *services*, topology, traffic paths, and packet handling (quality of

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



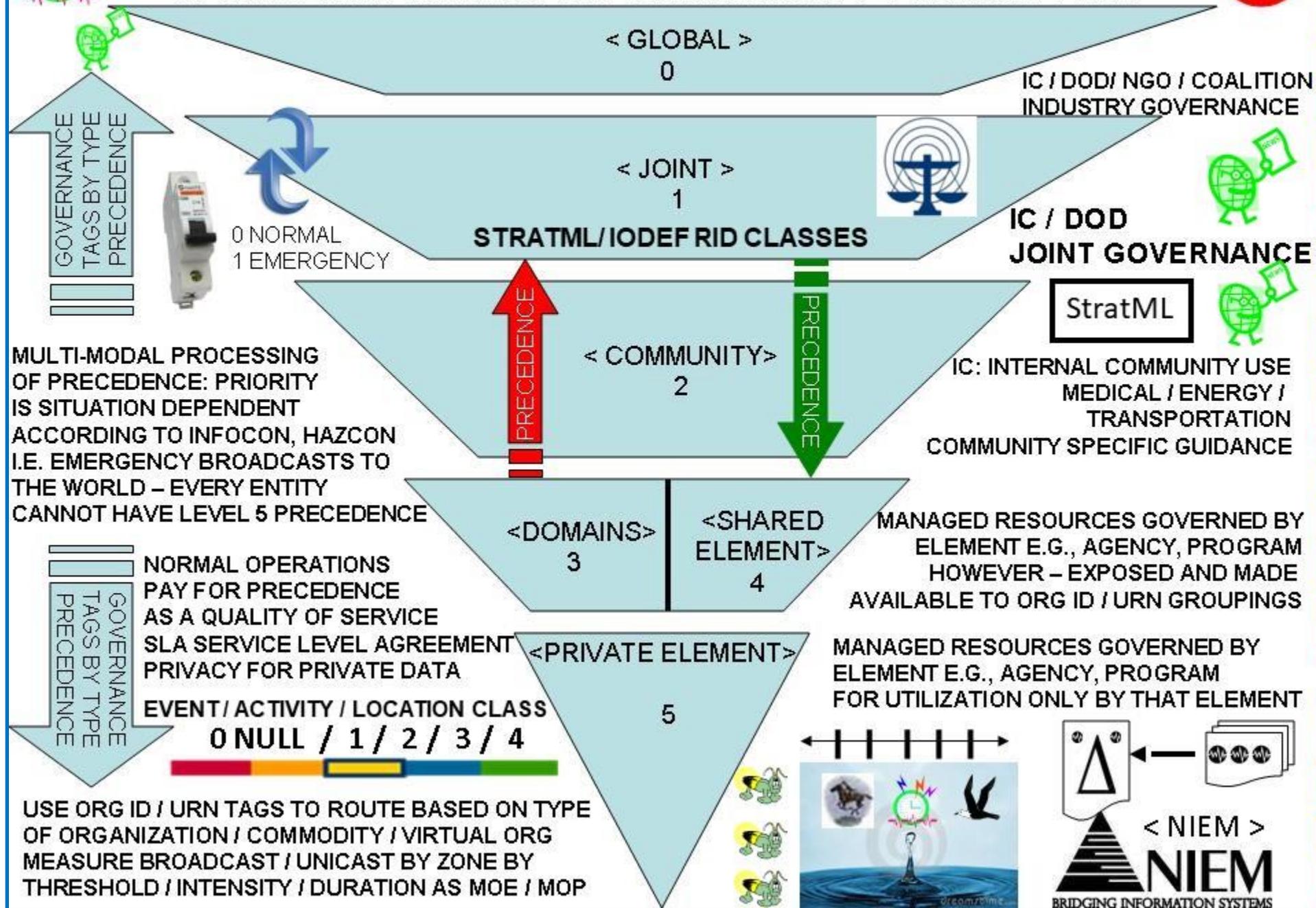
Netcentric / "network-centric" participating in a continuously evolving, complex community of people, devices, information and services interconnected by a network to optimize resource management and provide information on events and conditions.

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





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



GEO-SPATIAL TEMPORAL INTENSITY METRICS, METERS, VECTORS

vector

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

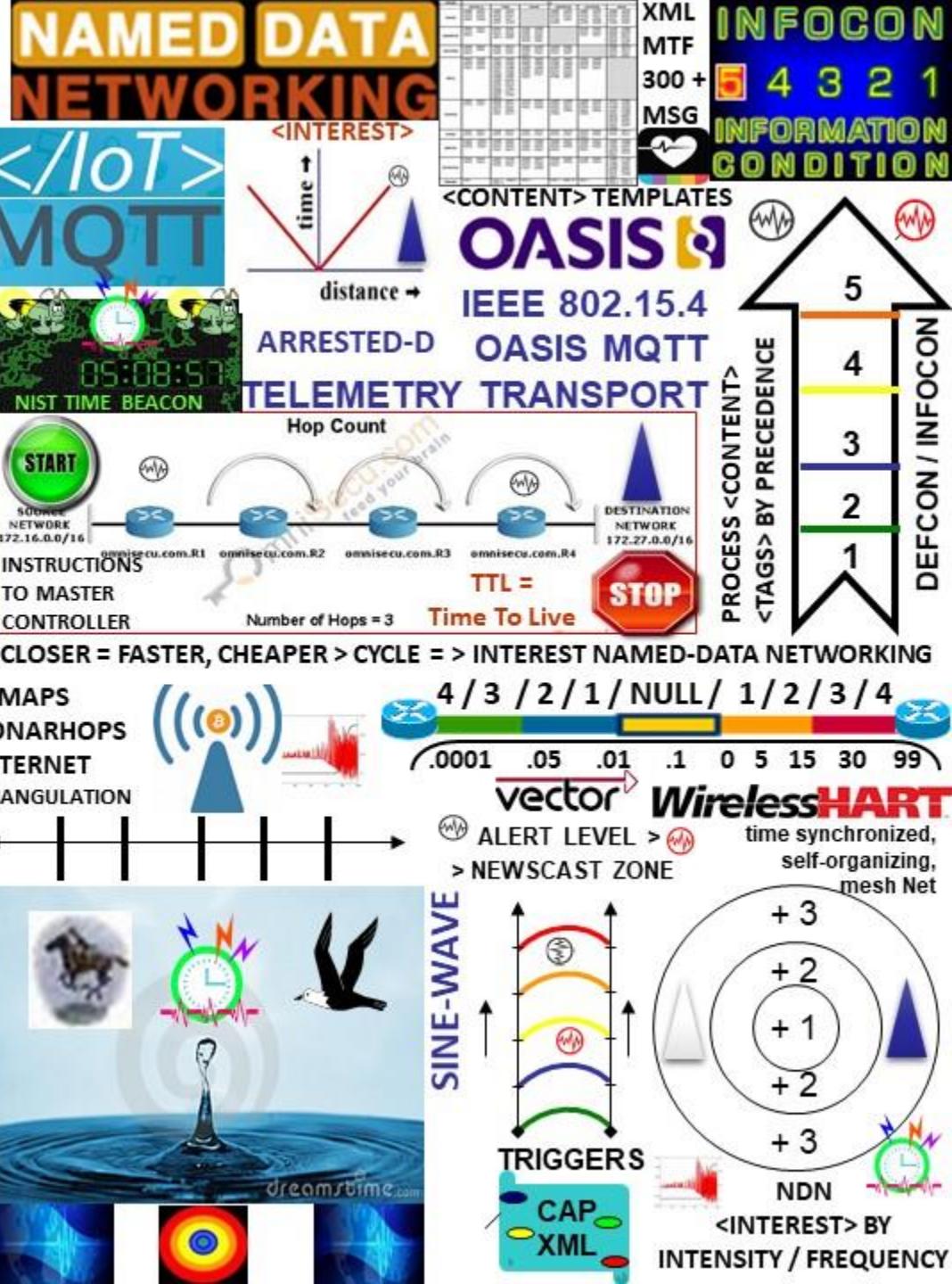
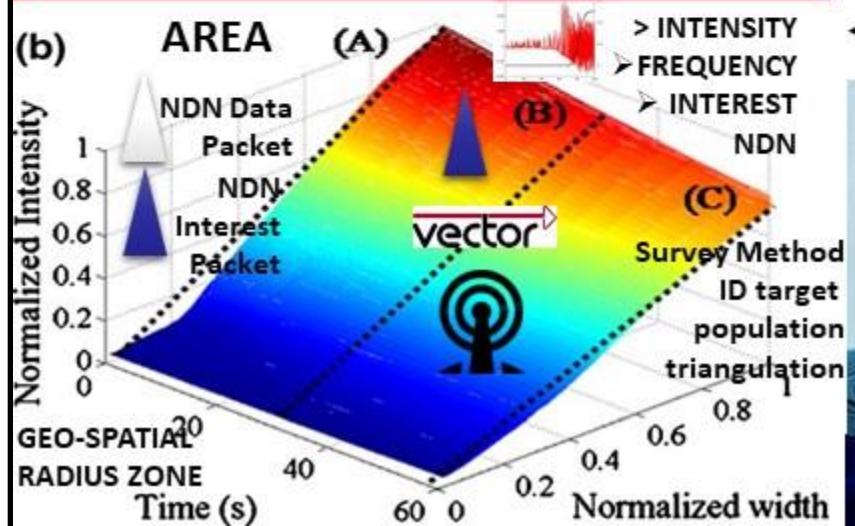
Geo-Spatial Temporal Intensity NOVEL METRICS / METERS:

Paul Revere = linear, sequential



TCP/IP hop by hop counts, by hop controls

Water Drop = AREA / INTENSITY Cyclic Frequency



Situational Awareness Reference Architecture (SARA)

: Identity, Inventory, Activity, and Sharing <http://ics-isac.org/sara/>



ICS-ISAC



IDENTITY: <UUID> = Devices, sensors
Federation
Gateway

<ORG_ID> Organizations

<ELEMENTS>

STRATML / IODEF RID CLASSES:

<GLOBAL><JOINT><SHARED>

<DOMAIN><FEDERATION>

<CITY><STATE><PRIVATE>

STRATEGIC
MARKUP

StratML

LANGUAGE

Industrial Control System
Information Sharing and
Analysis Center

IODEF

INVENTORY: Uniform Resource Name <URN>

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



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

GEO-SPATIAL TEMPORAL INTENSITY METRICS

UNIFIED EVENT / ALERT TRIGGER / THRESHOLDS

GEO-SPATIAL TEMPORAL
INTENSITY METRICS / METERS



ACTIVITY: <EVENT><ALERT>

CONTENT LEXICON
ROSETTA STONE

NDN

<TIME_STAMP><ORG_ID><URN>

<GEO_LOC_GPS><STATUS>

<Halt><Moving><Stale><Ready>



SHARING:

COMMON <TAGS>
<Organizational_ID>
Resource Names <URN>
<Time_Stamps>
<State-Meta_Data>
<DATA_CLASS_TYPE>
<Heartbeat_snapshots>

<TAG> LIBRARY
TEMPLATES

NAMED DATA
NETWORKING
<Content> Centric



<INTEREST>



NIST CYBER SECURITY FRAMEWORK

CYBER SECURITY CONTENT
LEXICON ROSETTA STONE

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

MIL-STD
2525A

STRUCTURED
<CONTENT>
TEMPLATES

<TAG>
LIBRARY

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



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



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

100 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





PROOF-OF-WORK



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



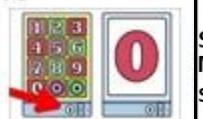
TIMESTAMP marks the point that work started. Additionally, it contributes to the uniqueness of the work by an individual miner



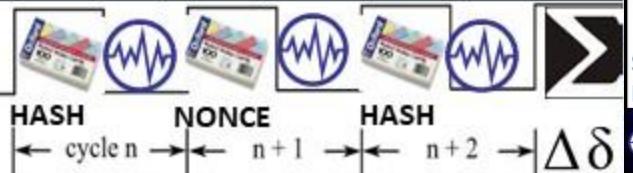
THROTTLE equivalent to difficulty. State
•target = maximum value of 8 bytes Snap
(2^{64}) divided by the difficulty.

Shots

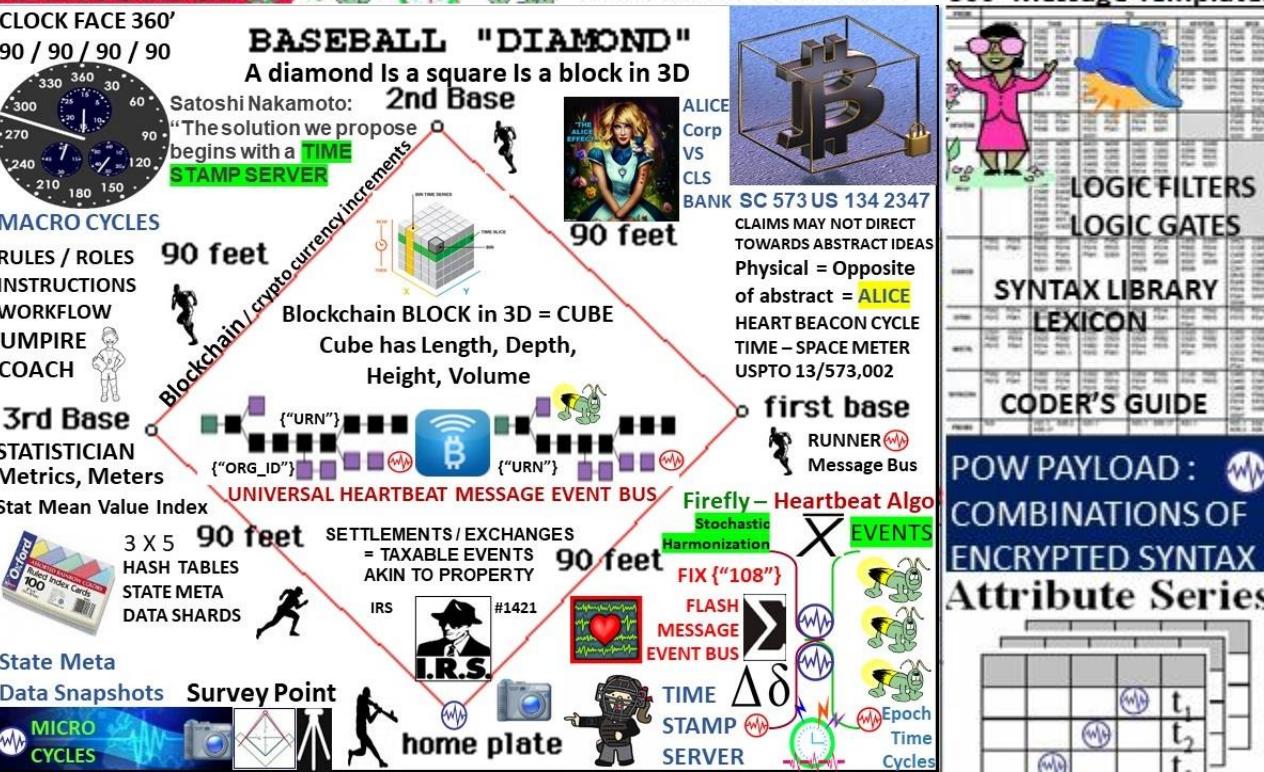
NONCE increments from 0..N until the target is met.



GUESS stores the guess
Effectively, it begins at infinity.



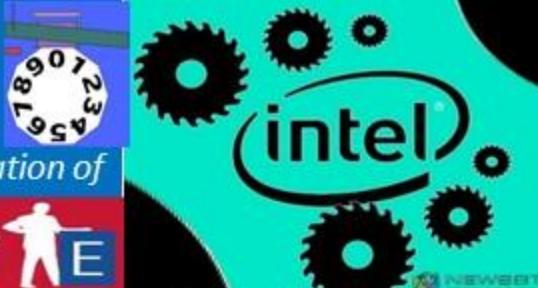
Proof-of-Work: users perform some form of work to participate. Work must be difficult for the client but easy for the server/network to verify. POW determines the approximate time between blocks = rate that new bitcoins are created. Work is submitted as a message/timestamp payload with a nonce value.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





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."



STATE: stored data at a given instant in time

STATE CHANNELS: blockchain interactions

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



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



2. Participants update the state amongst themselves by constructing and signing transactions that could be submitted to the blockchain, but instead are 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 a different configuration than it started with)



NEW UPDATES OVERWRITE THE PREVIOUS: simplest way is to have any unlocking attempt start a timer, during which any newer update can replace the old update (restarting the timer). When the timer completes, the channel is closed and the state adjusted to reflect the last update received. The length of the timer would be chosen for each state channel, balancing the inconvenience of a long channel closing time with the increased safety it would provide against internet connection or blockchain problems. Alternatively, one could structure channel with a financial penalty so anyone publishing an inaccurate update to the blockchain will lose more than gain by pretending later transactions didn't happen.

CLOCK FACE 360'
90 / 90 / 90 / 90
330 360 30
300 270 60
240 210 120
180 150

MACRO CYCLES

RULES / ROLES

INSTRUCTIONS

WORKFLOW

UMPIRE

COACH

3rd Base

STATISTICIAN

Metrics, Meters

Stat Mean Value Index

3 X 5 HASH TABLES

STATE META DATA SHARDS

State Meta

Data Snapshots

MICRO CYCLES

Survey Point

home plate

ASIC CHIP TIME / EPOCH INTERVALS / CYCLES

cycle n

n + 1

n + 2

FLASH HEARTBEAT MESSAGES

HEARTBEAT STATE META-DATA

SNAPSHOTS EVERY

10, N MIN MICRO TO

MACRO ECON CYCLE

HASH TABLES

STATE SNAPS

Time Series

Value

Time

SYNTAX

Geo Spatial

Temporal Series

Attribute Series

META-DATA

t₁ t₂ t₃

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

BASEBALL "DIAMOND"

A diamond Is a square Is a block in 3D

Satoshi Nakamoto: 2nd Base

"The solution we propose begins with a TIME STAMP SERVER

90 feet

Blockchain / crypto currency increments

Blockchain BLOCK in 3D = CUBE

Cube has Length, Depth, Height, Volume

first base

RUNNER Message Bus

Firefly – Heartbeat Algo

X EVENTS

SETTLEMENTS / EXCHANGES = TAXABLE EVENTS AKN TO PROPERTY

IRS #1421

FLASH MESSAGE EVENT BUS

TIME STAMP SERVER

TIME CYCLES

Epoch

Time Cycles

Time Series

Value

Time

SYNTAX

Geo Spatial

Temporal Series

Attribute Series

META-DATA

t₁ t₂ t₃

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



TWAP Algorithm Manages Bitcoin Price Volatility Algorithm

TWAP GOAL: provide a Time Weighted Average Price Benchmark



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..



FIREFLY HEARTBEAT ALGO

STAT MEAN VALUE INDEX



EPOCH TIMES

STATE META DATA SNAPSHOTS



EVENT

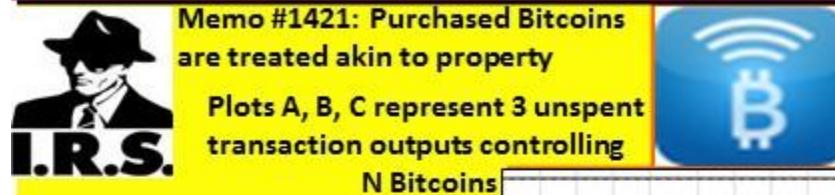
BUS

STATE SAMPLE

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

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.



Mined Bitcoins



Δδ

Unmined Bitcoins



IDMaps-SONARHOPS distance estimation
query-reply service



- End-state Bitcoin quantity will be fixed like land

“Bitcoin as protocol of ownership, not transfer”

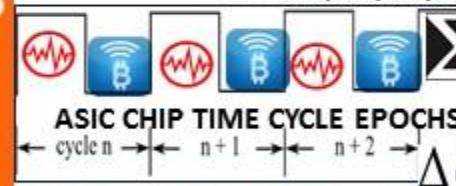
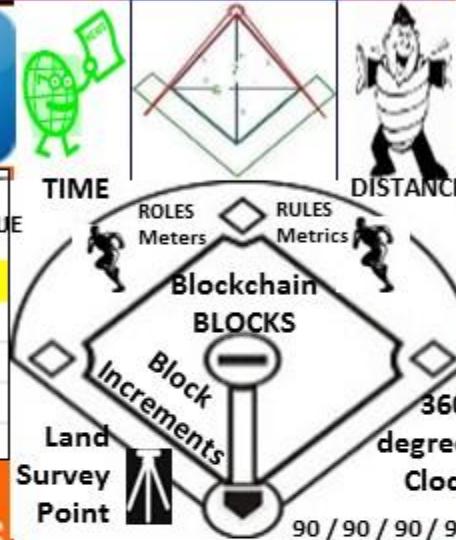
Coins never travel, but simply switch owners.

Step 1: prove coin ownership <Org ID> Coin Issuer

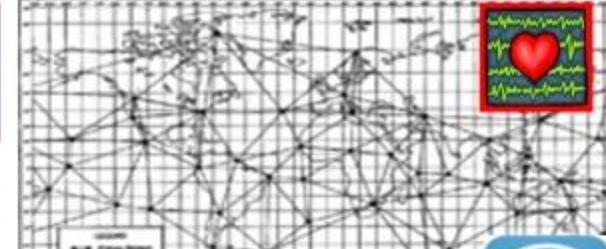
Step 2: coins sent where, when Lat-Long, Time Stamp

Step 3: specify ownership <Org_ID> issuing agent

Step 4: Issuing Org of Record adjudicates w buyer



TRIANGULATION



EUCLIDIAN GEOMETRY



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

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



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



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.

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.



Autonomous Device Coordination Framework



Registration

Authentication

Proximity based rules

Consensus based rules

**FEDERATION
AGREEMENTS**

Contracts

**PROCEDURAL
TEMPLATE**

Checklists

FEDERATION

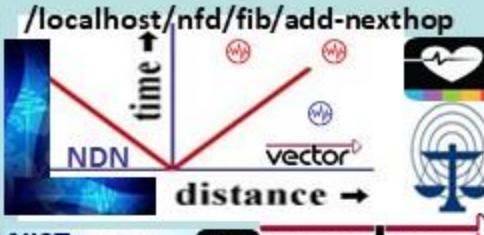
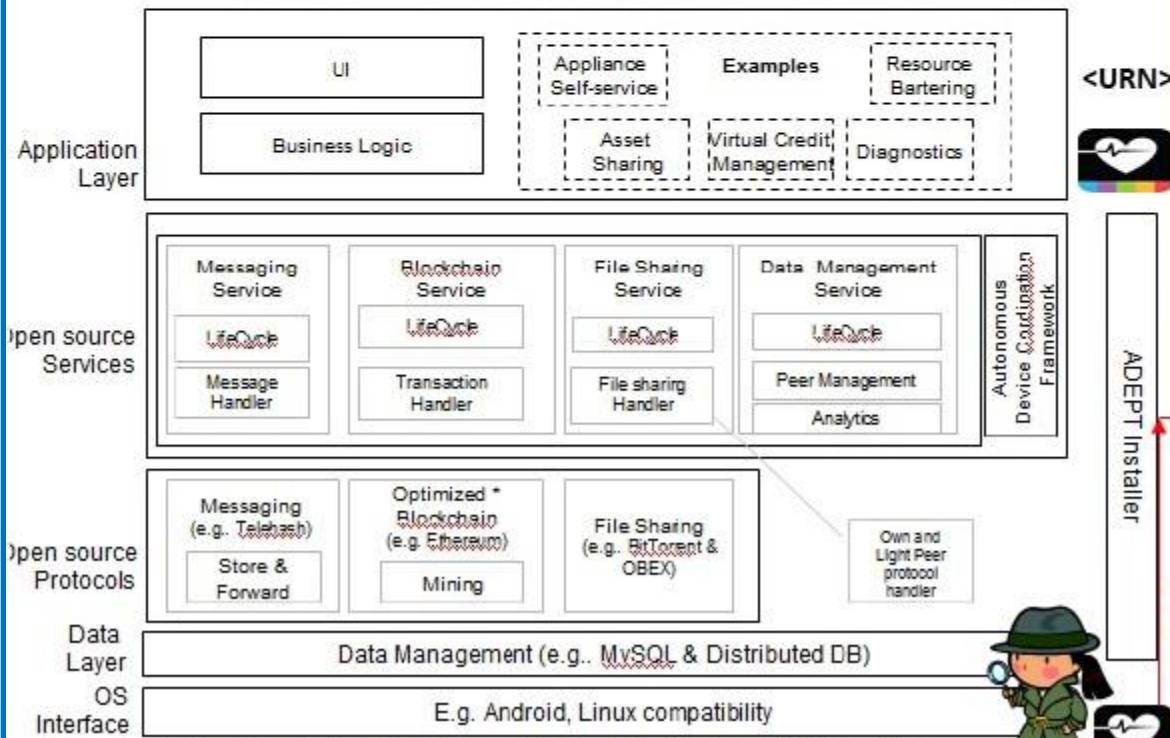
<UUID><ORG_ID><URN>
LDAP DIRECTORY
 Physical proximity
 Social proximity
 Temporal proximity

Agreements

Payments

Barter

ADEPT Standard Peer Architecture – Logical View



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



ASSET SHARING WITHIN FEDERATION

BUSINESS LOGIC = WORKFLOW <XML_Wf>



FILE SHARING = CYCLIC SYNC DELTA LEDGER / DOCUMENT REFRESH



OPEN SOURCE = HBC = PROTOCOL AGNOSTIC

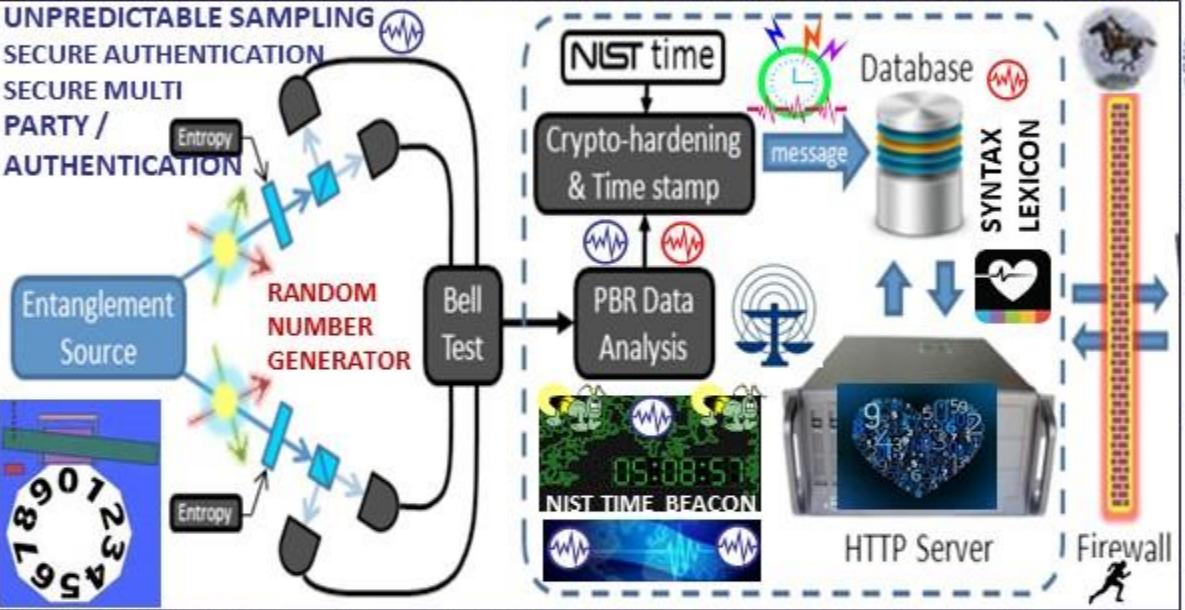
DATA LAYER: STATE META DATA TIME STAMPED BY <UUID><ORG_ID><URN> & DATA PREPPED & "DATA WRANGLER PRIOR TO FUSION CENTER ENHANCED ANALYTICS / PROTECTS BANDWIDTH"



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



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

Metrics and Time - Space Meter uses PHYSICAL Memes / Metaphors



NDN

Interest > + TRIANGULATION
Distance > Euclidian Geometry

Geodesic System Routing Info Base RIB

ACCOUNT BELONGS TO </Org ID>

ESOURCE TYPE: <URN><URN><URN>

DEVICE / SENSORS

Higher-level services collect distance

Time / Distance Metrics

10 of 10

PROXIMITY

PROXIMITY BEACONS

OFFSHORE BEACONS **UNSHR**
LORAN-C  NDN

NDN

14 of 14

data to build virtual distance map State

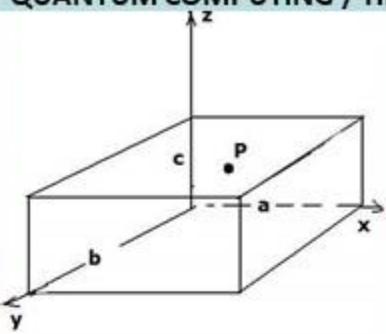
Internet & estimates distance Snap

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

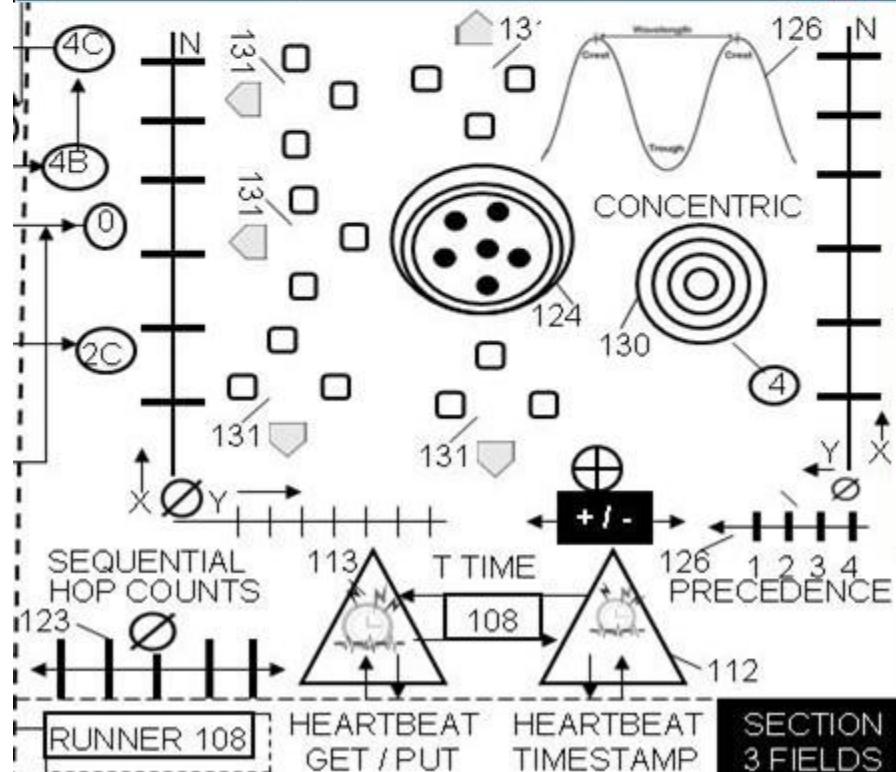
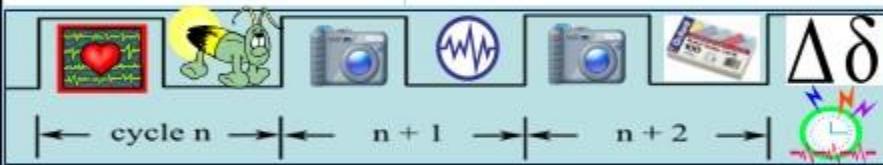
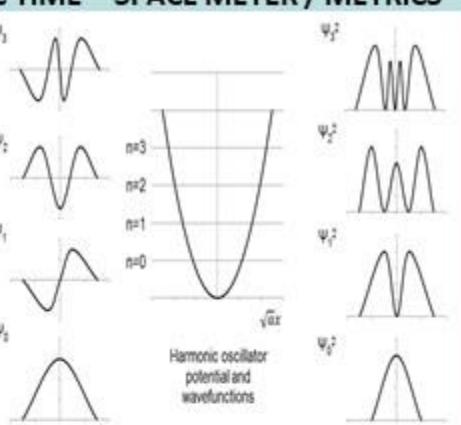


The proposed **Universal Timezone System** would do away with all these different time zones.

QUANTUM COMPUTING / HBC TIME – SPACE METER / METRICS



A particle 'P' in a 3-dimensional box, representing a simple quantum mechanical system.



#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

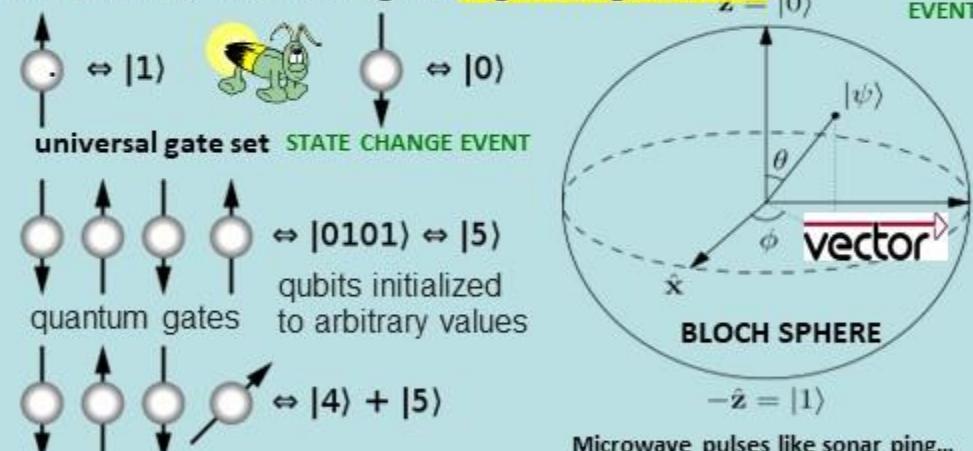
Vertical polarization vectors from a known point 0 null Sonar Hop meme



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

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

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.

