new world of work Threefold Farmer

nwow e. Gen.

www.nwow.at

new World of Work

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THREEFOLD

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Agenda

1) **Wer sind wir ? - Wolfgang**

2) Threefold - Dezentrale Cloud -Wolfgang

3) Threefold –Technologie - Geert

4) Demo - Peter

Beratergenossenschaft nWoW e.Gen Geschäftsbereiche

Decentralized Cloud

Vienna Cherry Chapter

www.nwow.at/abt/vcc-treefold-farm/

Seit 2019

IT Services, Training

Projektmanagement

www.nwow.at

Seit 2012

Sailing

www.nautika.at

Seit 2014

Vienna Cherry Chapter – Teil von nWoW

Decentralized Cloud
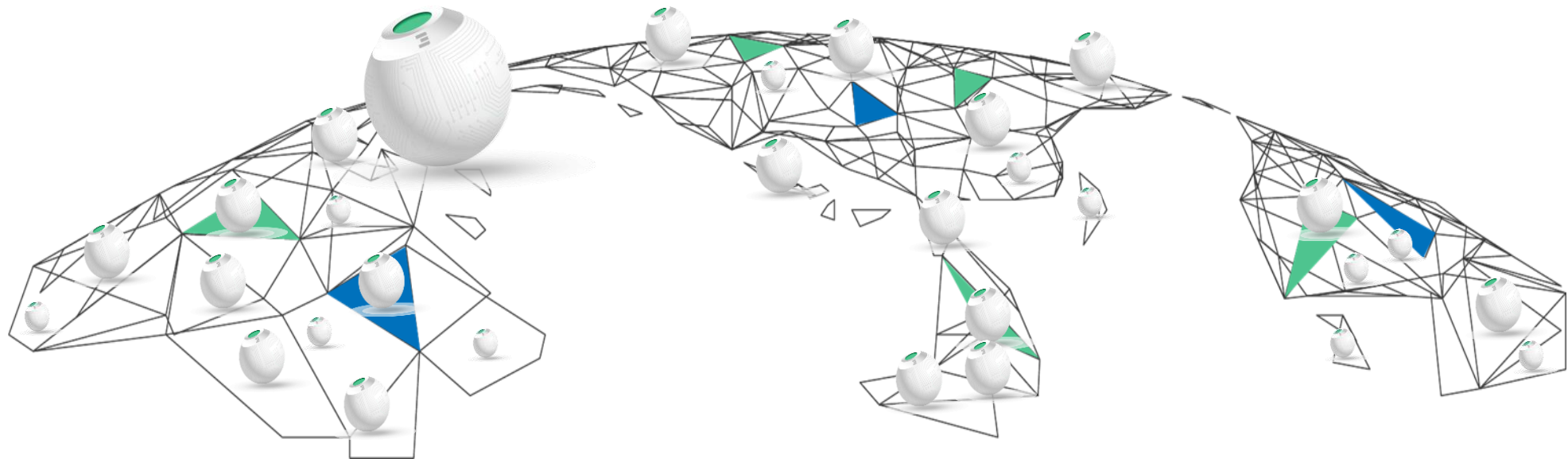
Vienna Cherry Chapter

Farmer Threefold Cloud

Seit 2019

Agenda

1) Wer sind wir ? - Wolfgang

2) **Threefold - Dezentrale Cloud -Wolfgang**
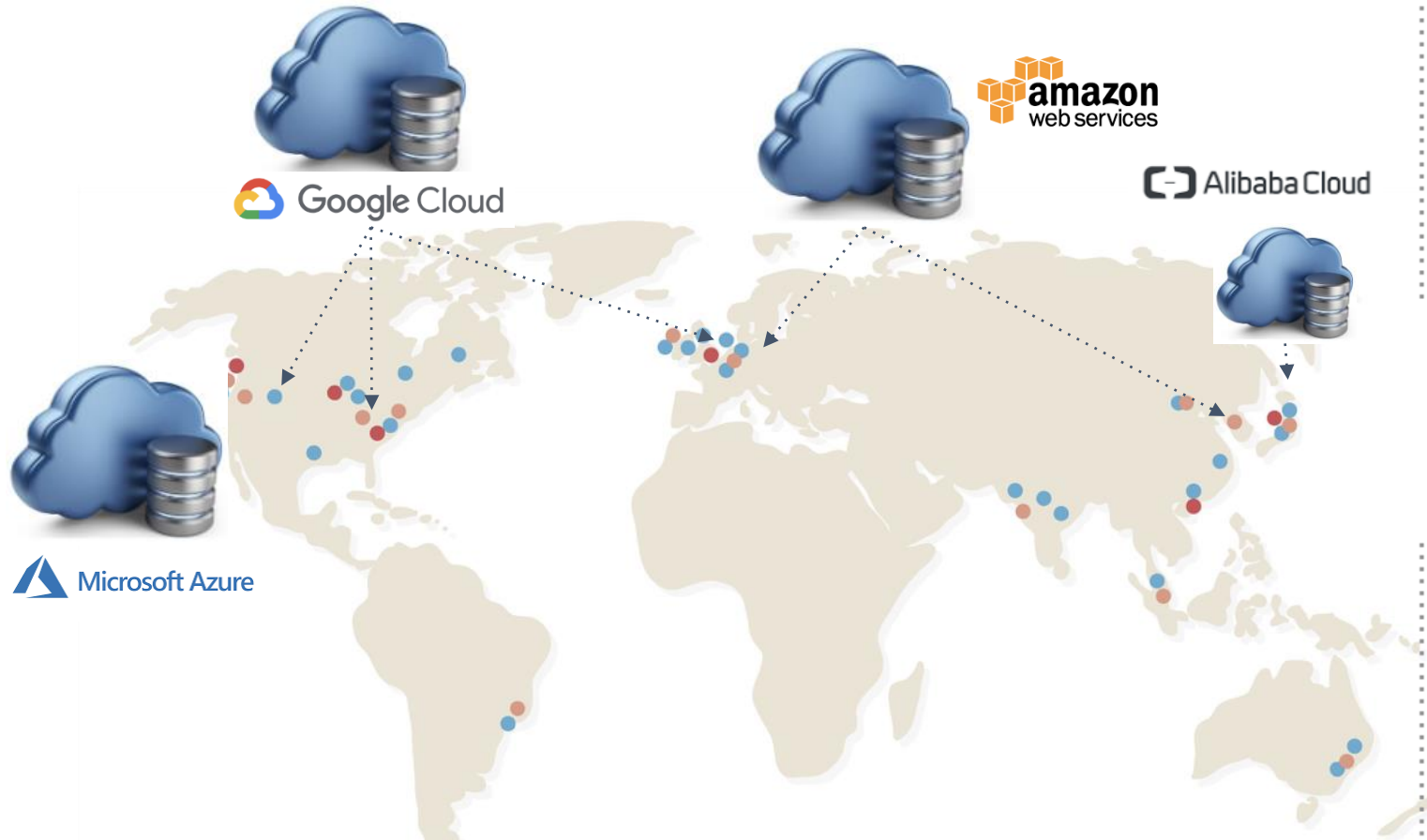
3) Threefold –Technologie - Geert

4) Demo - Peter

AN INTERNET BY EVERYONE
FOR EVERYONE, EVERYWHERE

INTRODUCTION Video
https://wiki.threefold.io/#/

80% of Internet/IT capacity (compute & storage) is generated by less than 20 "Cloud Vendors"

They consume up to 10% world's electricity today.
Data centers are neither scalable nor efficient.

Country Firewalls cut Internet Into Pieces.
Encryption to be made illegal?
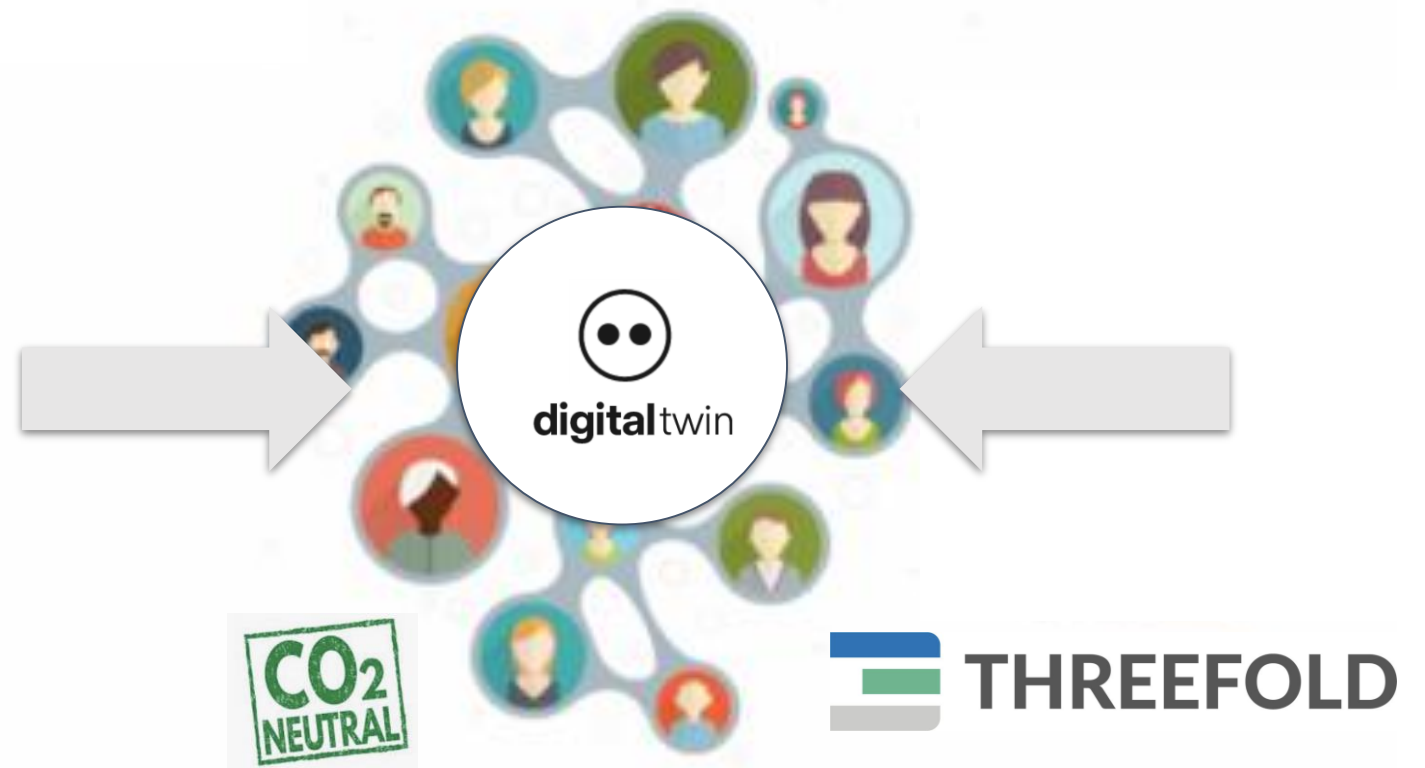Backdoors in technology.
IT is way too complex & expensive.

CENTRALIZED

PEER to PEER

sovereign   secure   digital inclusion   fair
sustainable   green   endless possibilities   no marketing

CO₂ NEUTRAL

THREEFOLD

digital twin

FROM CENTRALIZED TO PEER2PEER

WHAT SOLAR PANELS DID FOR THE ENERGY INDUSTRY -
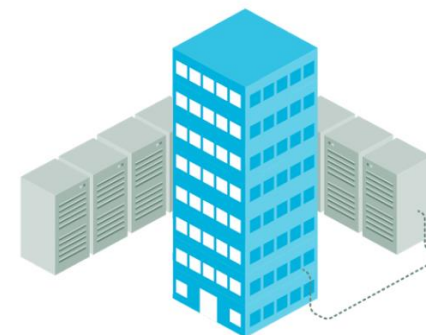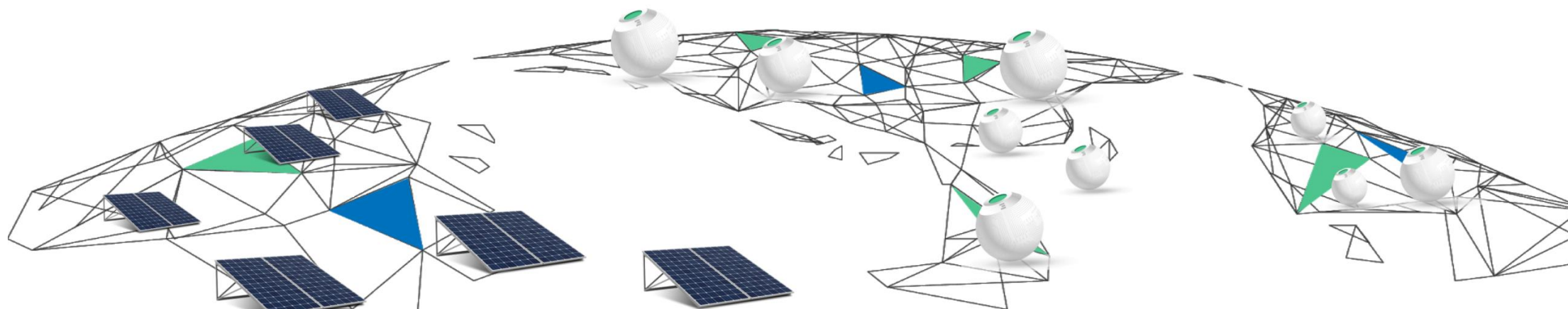## WE DO FOR INTERNET CAPACITY
... BRINGING CLOUD ITSELF TO THE EDGE

POWER PLANT > **SOLAR PANEL**   **3NODE** < **DATACENTER**

Kristof
De Spiegeleer

Founder ThreeFold Foundation & CEO ThreeFold Tech

Kristof De Spiegeleer

CEO/Founder at Threefold

Lugano, Ticino, Switzerland ·

https://www.linkedin.com/in/despiegk/
http://kristof.threefold.me/

Passionate social entrepreneur who believes that respect & transparency is the basis for solid business. We believe that doing good for the world & providing return for investors can co-exist.

Kristof has a history of inventing and developing new IT infrastructure systems (storage, automation, cloud computing). Kristof has founded more than 10 companies of which 6 have been acquired by large IT players.

Kristof was lucky to be part of the first teams building the Internet and has helped to grow datacenters & ISPs mainly in Europe.

Kristof strongly believes there is need for a decentralised, neutral, affordable, green internet (owned by billions) and is super dedicated to make this happen.

Spare time. Although very fond of being in front of his computer coding, in his spare time Kristof loves being outdoors. Hiking, sailing, kitesurfing, you name it, Kristof can do it (– some things better than the others, but he's always looking to grow). A business, a sport, whatever you throw at him, Kristof's reply will be, "Let's go."

+500m USD exits for cloud & storage related projects, +44% IRR.
Kristof believes that doing good for the planet
and providing return for our investors goes hand in hand.

THE DEMAND
FOR DECENTRALISATION IN THE DATA ECONOMY
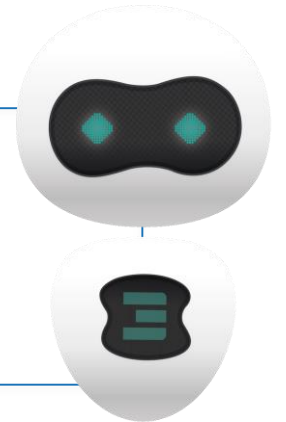
this is the era of

DECENTRALISATION

DIGITAL TRENDS DEMAND IT !!!

...EXPONENTIAL GROWTH IN DATA VOLUME
AND DATA GENERATION AT THE EDGE

PEOPLE DEMAND IT !!!

...DATA OWNERSHIP AND PRIVACY IN THE
DATA ECONOMY IS NON NEGOTIABLE

The annual volume of data is growing at an exponential pace; and will reach 175 zettabytes by 2025

Processing of data will move to the edge, from 20% in 2018 to about 80% in 2025;

e.g. Edge Computing, IOT, 5G, AI, swarm learning, VR, Autonomous Transport, Blockchain etc

Why? A growing global awareness of the value of our data in the data economy and that ownership, privacy and sovereignty are non negotiable !!! e.g. Digital Citizens, Governments, Policy Makers, Smart Cities, Indigenous Tribes,.Municipalities are demanding data ownership.

Ref: The Great Hack, **Social Dilemma**, The Creepy Line

OPPORTUNITY
MEETING THE DEMAND FOR DECENTRALISATION IN THE DATA ECONOMY

this is the era of
DECENTRALISATION

DECENTRALIZED CLOUD QUANTUM SAFE

...the decentralisation of
Compute, Network and Storage capacity

The ability to build scalable digital capacity everywhere, ultra secure, on demand, really close to the end users is what is needed to serve the digital workloads of tomorrow.

e.g. Edge Computing, IOT, 5G, AI, swarm learning, VR, Autonomous Transport, Blockchain etc

DECENTRALIZED DATA OUR DIGITAL TWIN

...the decentralisation of
Data ownership & privacy of information

The ability to provide data ownership to all parties involved while maintaining full regulatory requirements as well as security, scale & privacy.

e.g. Digital Citizens, Governments, Policy Makers, Smart Cities, Indigenous Tribes, Municipalities etc
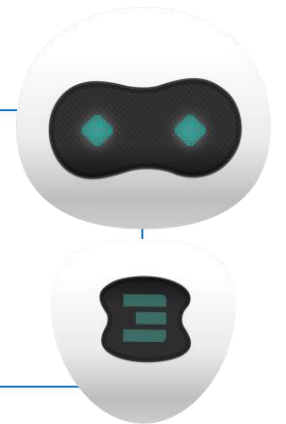
DECENTRALISATION IS THE ONLY WAY
TO DELIVER A SUSTAINABLE, SCALABLE & **SECURE** SOLUTION TO MEET THIS DEMAND

A NEW INTERNET SYSTEM AS ENVISIONED BY THREEFOLD.

Sovereign <u>your</u> own data private in <u>your</u> own country.
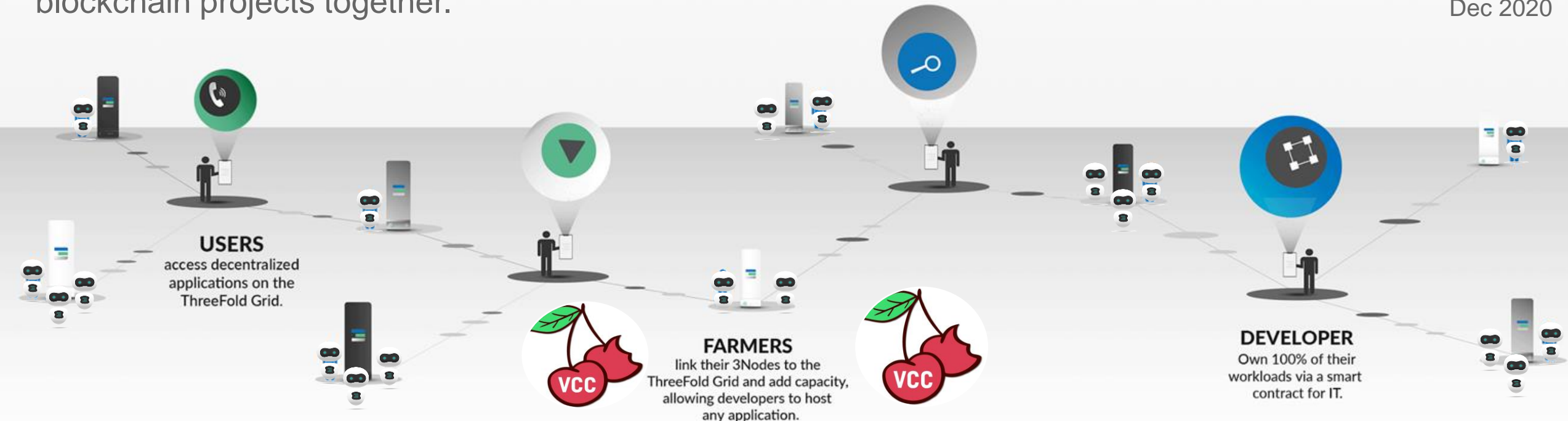**Equal** everyone equal rights to education, information, ...
Sustainable 10-100x less power usage
A **Solution** to the **Cyber Pandemic.**

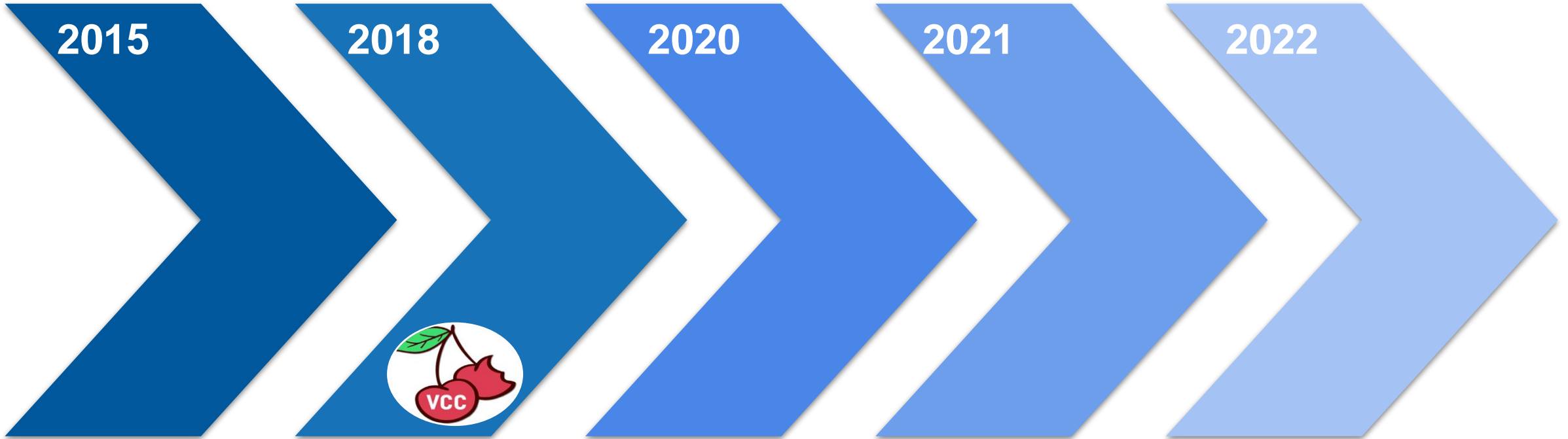More capacity online compared to the sum of all blockchain projects together.

+14,000 CPU Cores
+80.000.000 GB of storage live
Dec 2020

USERS
access decentralized applications on the ThreeFold Grid.

VCC

FARMERS
link their 3Nodes to the ThreeFold Grid and add capacity, allowing developers to host any application.

VCC

DEVELOPER
Own 100% of their workloads via a smart contract for IT.

5 STEPS TO A GLOBAL AVAILABLE PEER2PEER CLOUD

2015

2018

2020

2021

2022

FIRST SUCCESSFUL PROOF OF CONCEPT

in LAB

LARGER SCALE NON PUBLIC TEST PHASE

+18000 CPU cores
+80.000.000 GB
+50 locations

FIRST PUBLIC TESTS + CLOUD USE CASE

+90% functionality.
+40m USD invested

THREEFOLD PREFERRED PARTNERSHIPS

STRATEGIC PARTNERSHIPS and LARGER INVESTMENT

GLOBAL COVERAGE

The only real carbon neutral Peer2peer cloud. Available everywhere in the world.

THREEFOLD

OUR PARTNERS

See
https://threefold.io/public/#/partners

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TECHNOLOGY

USERS OF OUR PEER2PEER CLOUD & INTERNET SYSTEM

DEVOPS & SYSTEM INTEGRATOR

eVDC = Virtual DataCenter

open to standards:

Docker, Kubernetes, S3 storage server ...

IT SYSTEM DEVELOPERS

Virtual System Administrator
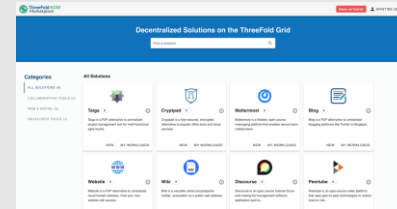
FOR EXPERTS WITH NO LIMITS (-:

3BOT
Virtual System Administrator

COMMUNITY BUILDERS

THREEFOLD.NOW
Ready made solutions that are available for communities seeking alternatives to centralized services

DAPP DEVELOPERS (Q1 2021)

any javascript app can interface through the

PROTOCOL.ME INTERFACE.

DIGITAL TWIN
Your Digital Self

DIGITAL TWIN
Your Digital Self

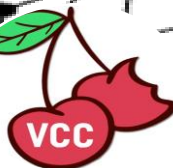| 3Node	3Node	3Node	3Node	3Node	3Node	3Node	3Node
Autonomous Sovereign Capacity	Autonomous Sovereign Capacity	Autonomous Sovereign Capacity	Autonomous Sovereign Capacity	Autonomous Sovereign Capacity	Autonomous Sovereign Capacity	Autonomous Sovereign Capacity	Autonomous Sovereign Capacity

VCC

THREEFOLD

HARDWARE : 3NODE Operating System = Zero-OS

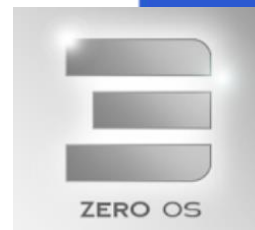## REPLACES 20+ LAYERS OF EXISTING "IT" TECHNOLOGY

As easy as using Electricity from The Electricity Grid

'PLUG AND PLAY'
Connect it to power supply and internet

GENERATE IT CAPACITY
More reliable, cost effective & green.

INTERNET CONNECTION

POWER OUTLET

ZERO OS

Beta Version 2.7 On Testnet

NETWORK, COMPUTE & STORAGE SERVER
Enabled by Zero-OS

THREEFOLD

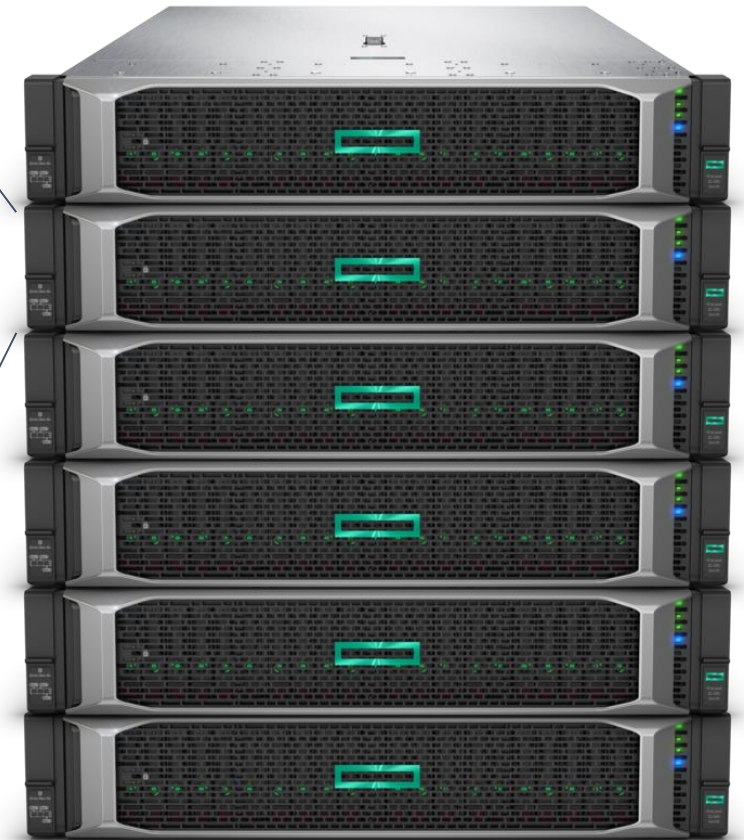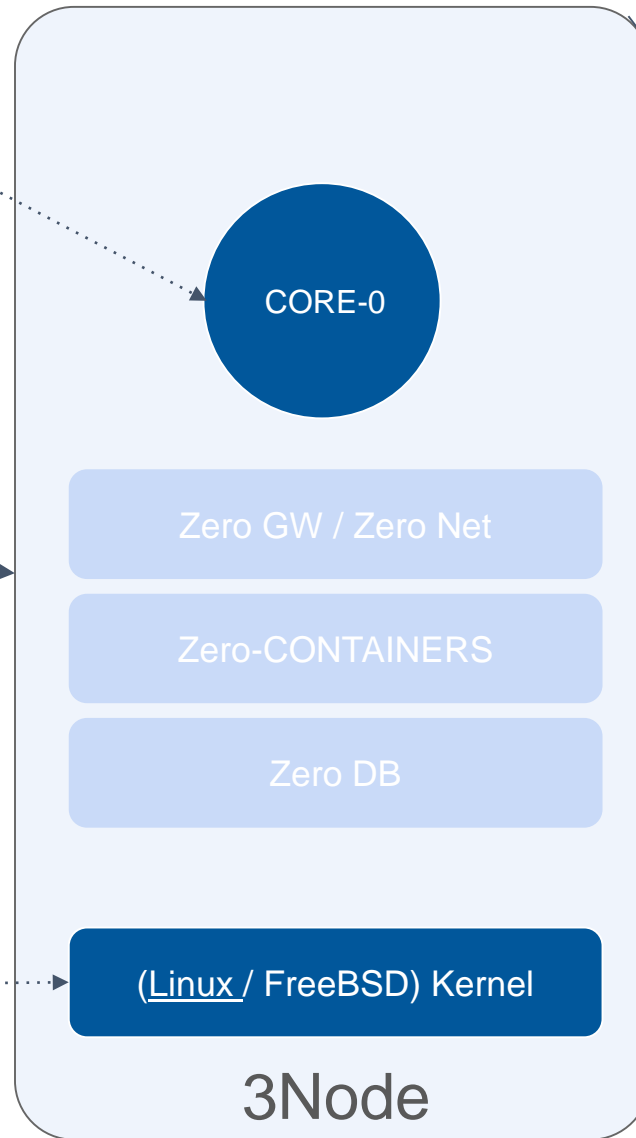# ZERO-OS: A LIGHTWEIGHT STATELESS SECURE OPERATING SYSTEM

Core-0

First process launched on the Zero-OS. This process kicks off all activities on the node and allows the full OS to be booted over the network maintaining full integrity and hacking surfaces.

Hardware Node

All nodes are based on Intel, AMD or ARM* based CPU's. The peripheral hardware requires an amount of CPU cores, GB's of memory and physical storage devices, ideally a mix of SSD and HDD storage.
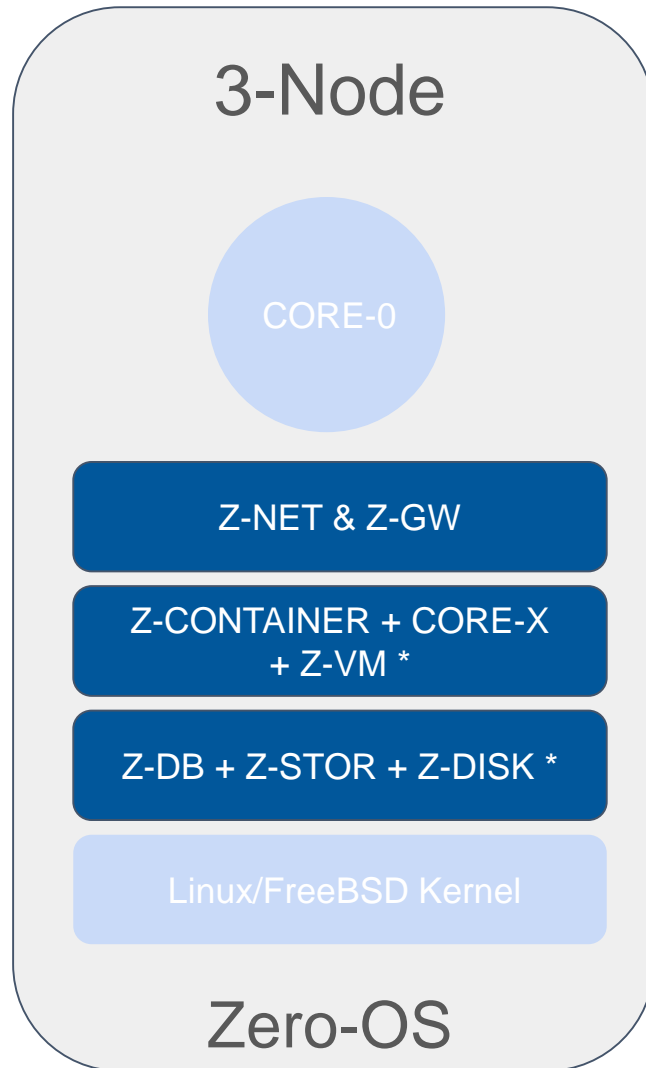
Kernel

Zero-OS uses the well known Linux kernel because it has device drivers for almost any hardware that exists (Intel / AMD processor types). TFTech customized the kernel: make it smaller and added secure boot elements.

CORE-0

Zero GW / Zero Net

Zero-CONTAINERS

Zero DB

(Linux / FreeBSD) Kernel

3Node

* on request

THREEFOLD

ZERO-OS : BASE FUNCTIONS

3-Node

CORE-0

Z-NET & Z-GW

Z-CONTAINER + CORE-X + Z-VM *

Z-DB + Z-STOR + Z-DISK *

Linux/FreeBSD Kernel

Zero-OS

Z-CONTAINER

Super efficient container technology.
Compatible with Docker.
Much more efficient storage layers.

compute

Core-X

Secure process manager which can be accessed by sysadmin 3Bot if required. Web & SSH interface if required (optional).

compute

Z-STOR

Highly efficient storage engine which uses "forward looking error correcting codes" aka dispersed storage to store data over multiple remote Z-DB's and as such get to much more security, resilience and privacy.

storage

Z-NET

Overlay network.
Allows all containers to talk to each other in all privacy & security.   network

Z-GW = Zero-Gateway
Connect the Z-NETs to the internet using HTTP(S), load balancing and VPN technology. Allows to connect any private Z-Net to any other network.

network

Z-DB
Our highly optimised storage engine technology. Knows how to write most efficient to a specific medium like SSD or HD.
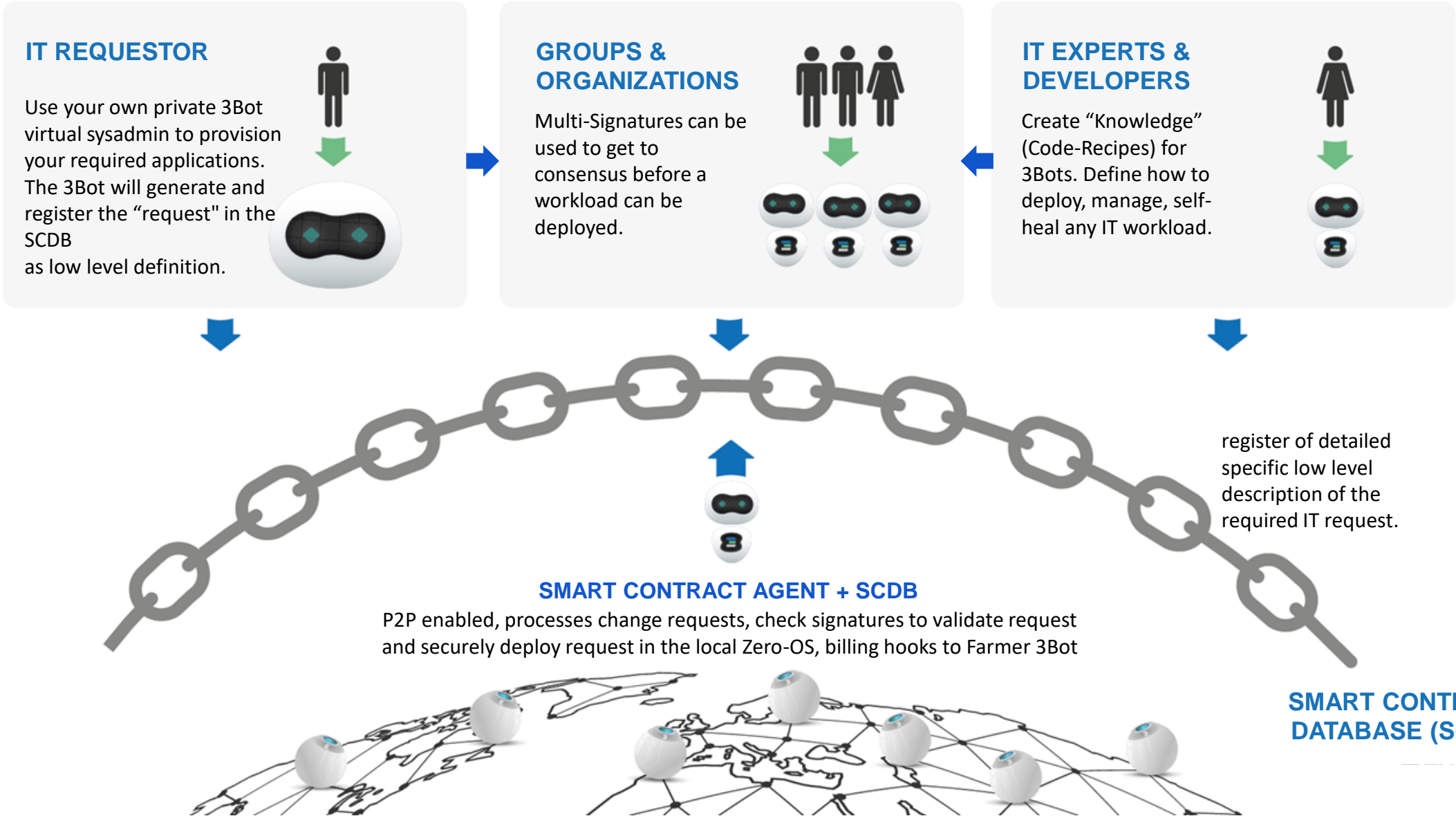
storage

Z-DISK & Z-VM (*OEM ONLY)
High performance Block Device & Virtual Machine Technology. Run any operating system at the edge.

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DEPLOYMENT : AUTOMATED "SMART CONTRACT FOR IT" PROCESS

Consensus driven and ultra secure way to deploy workloads on top of Zero-OS enabled 3-Nodes.

IT REQUESTOR

Use your own private 3Bot virtual sysadmin to provision your required applications. The 3Bot will generate and register the "request" in the SCDB as low level definition.

GROUPS & ORGANIZATIONS

Multi-Signatures can be used to get to consensus before a workload can be deployed.

IT EXPERTS & DEVELOPERS

Create "Knowledge" (Code-Recipes) for 3Bots. Define how to deploy, manage, self-heal any IT workload.

register of detailed specific low level description of the required IT request.

SMART CONTRACT AGENT + SCDB

P2P enabled, processes change requests, check signatures to validate request and securely deploy request in the local Zero-OS, billing hooks to Farmer 3Bot

SMART CONTRACT DATABASE (SCDB)

= abcdefghijk   (16 blocks)

THREEFOLD QUANTUM SAFE STORAGE SYSTEM
10x more efficient

How to visualize?

$$a+2b+c+d+e+f+g+h+i+j+k = 100$$
$$a-3b-c+d+e+f+g+h+i+j+k = 4$$
$$-a+b-4c+d+e+f+g+h+i+j+k = -8$$
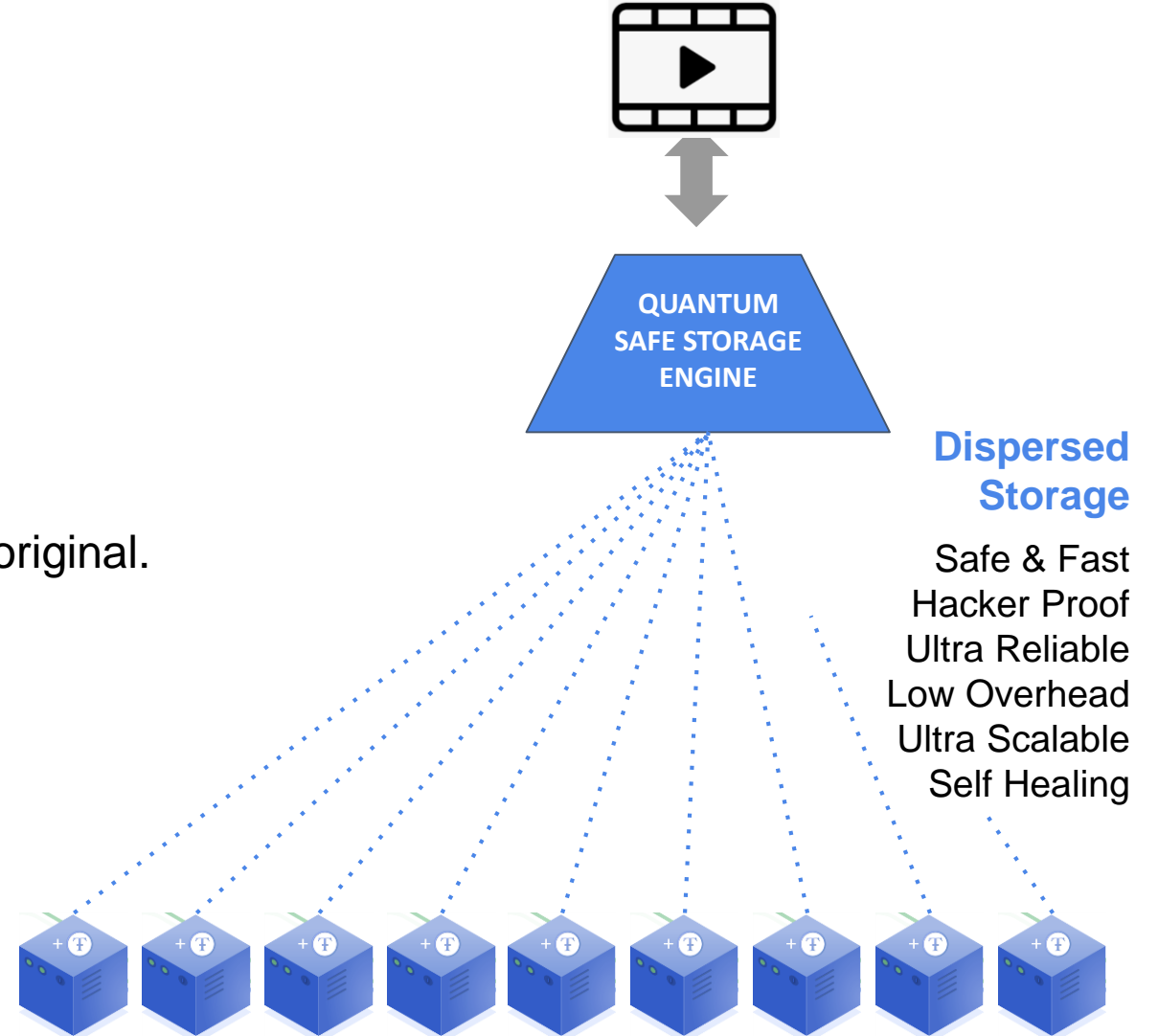
… do this 20 times. Now remember these equations.

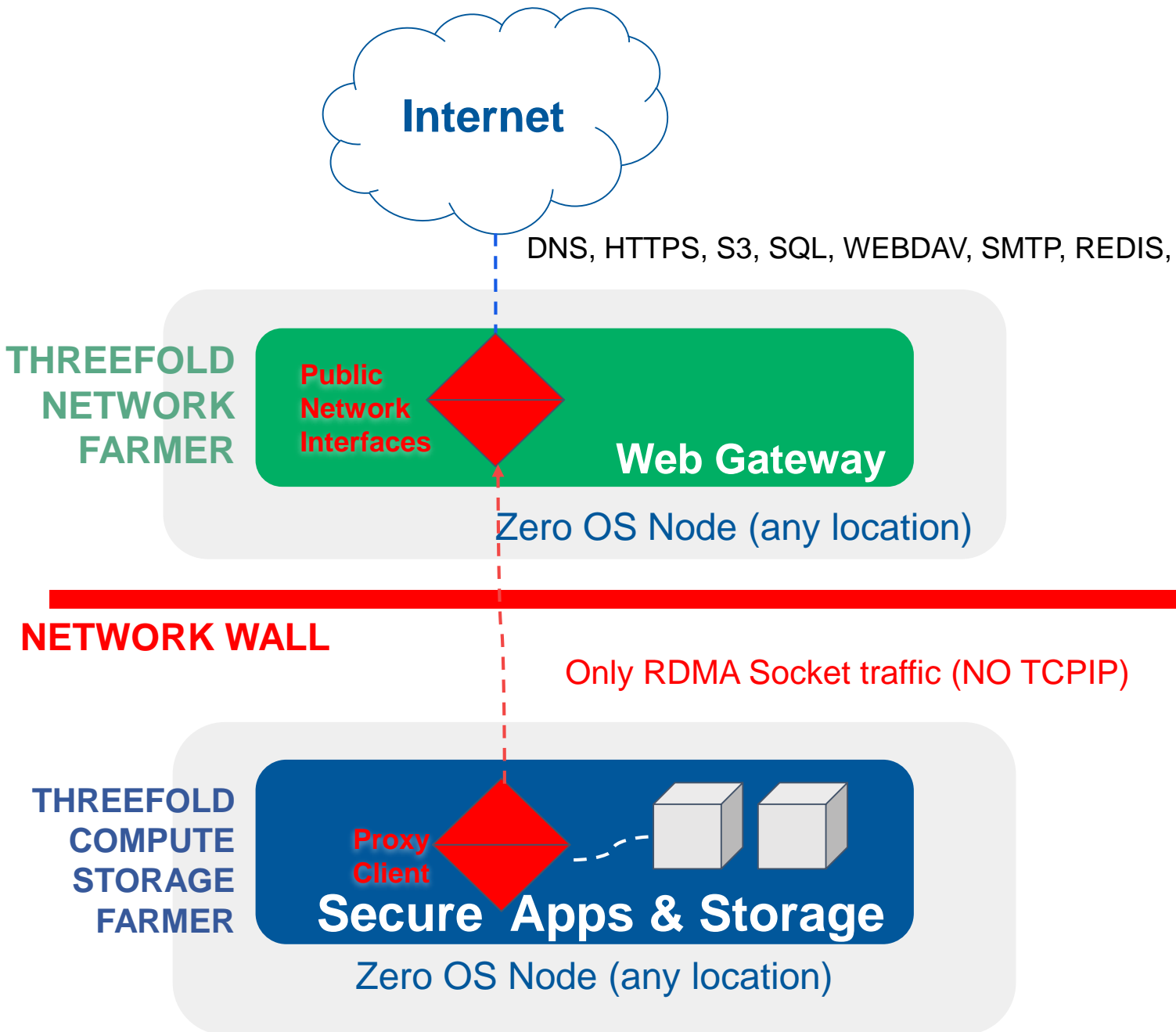Any of the 16 equations allow you to calculate back the original.

Super Efficient: only 20% overhead
= 20x less overhead compared to classic systems

Efficient: Order of retrieval does not matter

Hacker proof: hacker needs to be on 16 locations
physically + have encryption key before possible
to reconstruct.

QUANTUM
SAFE STORAGE
ENGINE

**Dispersed
Storage**

Safe & Fast
Hacker Proof
Ultra Reliable
Low Overhead
Ultra Scalable
Self Healing

THREEFOLD

NETWORK WALL

Internet

DNS, HTTPS, S3, SQL, WEBDAV, SMTP, REDIS,

THREEFOLD NETWORK FARMER

Public Network Interfaces

Web Gateway

Zero OS Node (any location)

NETWORK WALL

Only RDMA Socket traffic (NO TCPIP)

THREEFOLD COMPUTE STORAGE FARMER

Proxy Client

Secure Apps & Storage

Zero OS Node (any location)

100% separation between where compute workloads are and where services are exposed.

Better Security
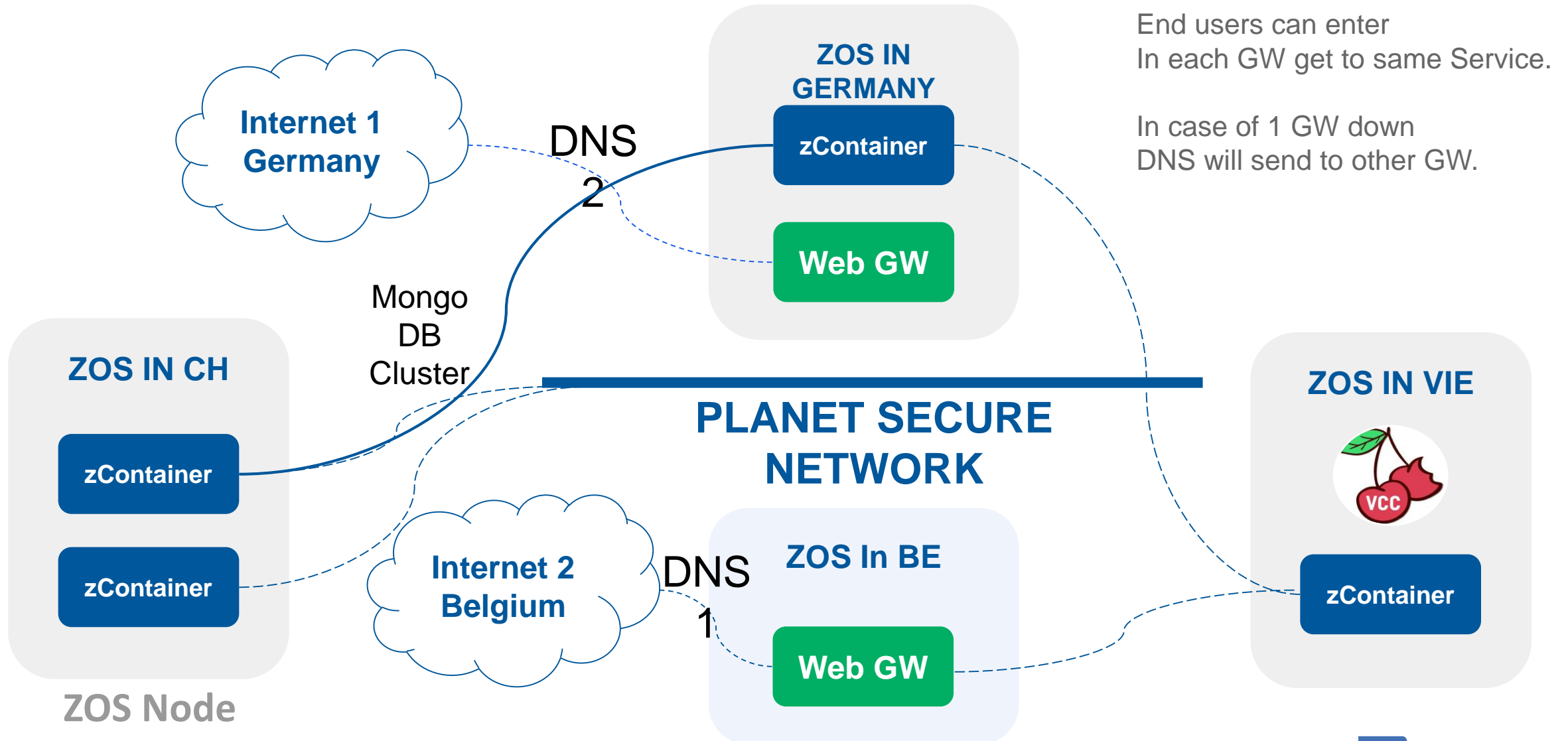No IP (TCP/UDP) towards apps & storage = more security = no incoming network from internet

Redundant
Each app can be exposed on multiple webgateways at once.

Support for many interfaces...

Resolves shortage of IPv4 addresses

THREEFOLD

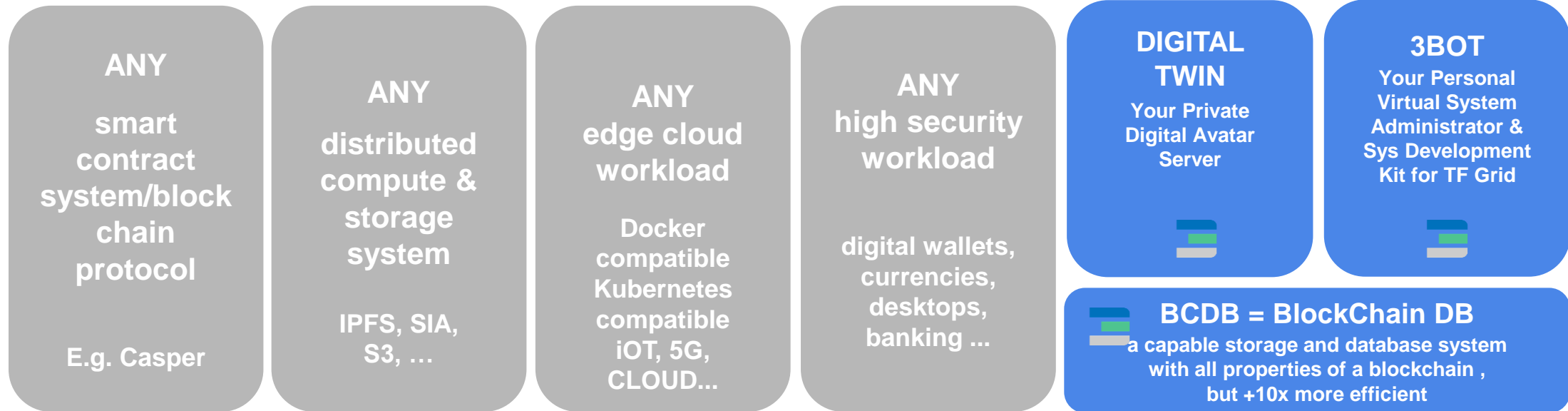# NETWORK : 100% REDUNDANCY & SELF HEALING POSSIBLE

End users can enter
In each GW get to same Service.

In case of 1 GW down
DNS will send to other GW.

THREEFOLD AUTONOMOUS & DECENTRALIZED
UNIVERSAL LAYER FOR A MORE SUSTAINABLE DIGITAL LIFE.

ANY

smart contract system/block chain protocol

E.g. Casper

ANY

distributed compute & storage system

IPFS, SIA, S3, …

ANY

edge cloud workload

Docker compatible Kubernetes compatible iOT, 5G, CLOUD...

ANY

high security workload

digital wallets, currencies, desktops, banking ...

DIGITAL TWIN
Your Private Digital Avatar Server

3BOT
Your Personal Virtual System Administrator & Sys Development Kit for TF Grid

BCDB = BlockChain DB
a capable storage and database system with all properties of a blockchain , but +10x more efficient

ThreeFold Zero OS = storage, compute & network layer + Smart Contract For IT
autonomous (self driving & healing) + more performance, sustainable & security

ThreeFold Grid (enterprise, government & public)
independent ThreeFold farmers and partners are building the biggest global grid of Network, Storage & Compute resource in the world

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4) **Demo - Peter**

Mainnet   **Testnet**   Devnet

3 https://explorer.threefold.io/

https://github.com/threefoldfoundation
https://github.com/threefoldtech

2

Testnet
Testlodge

https://threefold.testlodge.com/projects/40893/test_plans/46868

4

- Test Plans
- Test Suites
- Test runs
- VDC deployment
  "Marketplace"

https://vdc.testnet.grid.tf/

https://threefold.io/info/cloud#/cloud__evdc_deploy

https://threefold.io/info/cloud#/cloud__evdc_marketplace

THREEFOLD

AN INTERNET BY EVERYONE
FOR EVERYONE, EVERYWHERE

https://wiki.threefold.io/

ThreeFold Connect App
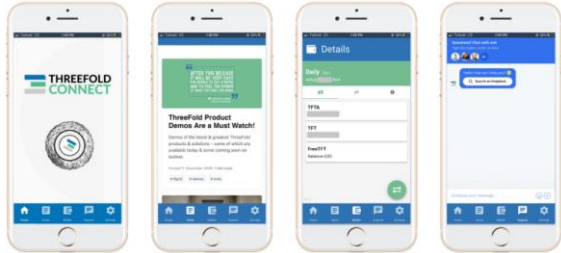
1

https://wiki.threefold.io/#/threefold__threefold_connect

Mainnet
VCC

5

3bot Admin

- Farm setup &
  management

Threefold links

📢 Stay updated on our **News & Updates Channel**! (https://t.me/threefoldnews)

🎥 Check out our Intro **Video** (https://www.youtube.com/watch?v=5DtVU66Z74s)

⬠ **ThreeFold Websites**
ThreeFold Home (https://threefold.io/)
ThreeFold Grid & Farming (https://threefold.io/farming)
ThreeFold P2P Cloud (https://threefold.io/cloud)
ThreeFold P2P Marketplace (https://threefold.io/marketplace)
ThreeFold Token (https://threefold.io/token)

💬 **Channels & Communities**
Telegram Announcements (https://t.me/threefoldnews)
Twitter (https://twitter.com/threefold_io)
LinkedIn (https://www.linkedin.com/company/threefold-foundation)
Facebook (https://facebook.com/threefold.io)
Forum (https://forum.threefold.io/)
YouTube (https://www.youtube.com/c/ThreeFoldFoundation/)
Grid Tester Community (https://t.me/threefoldtesting)
Farming Community (https://t.me/threefoldfarmers)

🍒 **Farmer**
nWoW VCC – Vienna Cherry Chapter (www.nwow.at/abt/vcc-treefold-farm/)

📚 **Resources**
Main Wiki (https://threefold.io/info/threefold)
Cloud Wiki (https://threefold.io/info/cloud)
ThreeFold SDK (https://threefold.io/info/sdk)
GitHub | ThreeFold Foundation (https://github.com/threefoldfoundation) (Promotion)
GitHub | ThreeFold Tech (https://github.com/threefoldtech) (Technology)

⬠ **Other Websites**
Digital Twin (https://mydigitaltwin.io/)
Alliance for a Conscious Internet (https://threefold.io/aci)
ThreeFold Tech (https://threefold.tech/)

🗝 **ThreeFold In The News**
Forbes (https://www.forbes.com/sites/johnkoetsier/2020/06/20/largest-distributed-peer-to-peer-grid-on-the-planet-laying-foundation-for-a-decentralized-internet/)
Cointelegraph (https://cointelegraph.com/news/peer-to-peer-internet-has-lofty-goal-to-bring-true-decentralization)
Hackernoon (https://hackernoon.com/is-it-possible-to-create-a-decentralized-internet-this-startup-and-its-farmers-think-so-ey2e3ycf)

🆘 **ThreeFold Support**
For technical assistance, please contact our live chat through the ThreeFold Connect app or on threefold.io (https://threefold.io/).

🌍 **ThreeFold Ecosystem**
Meet the people behind the project! (https://threefold.io/people)

Vielen Dank
Thank You!

nwow e. Gen.

www.nwow.at

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