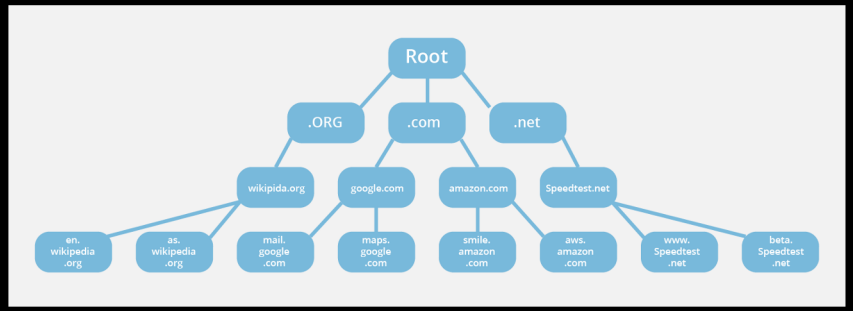
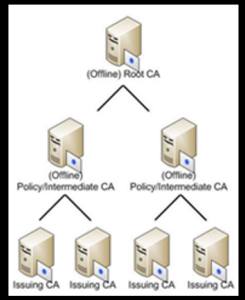
VOGSPHERE

BLOCKCHAIN-DRIVEN DECENTRALIZED TRUST INFRASTRUCTURE

Crisis of Trust: How Did the Net Get Centralized?



Centralized DNS



Centralized Public Key Infrastructure (PKI)

- The Internet's trust layer (Web PKI) was only partially implemented, and compromised by poor UX and bad governance
- Corporate monopolies actively walled in network services, communication, user identity, and personal data
- Governments compromised networks for surveillance, censorship, and propaganda purposes

Decentralization Is The Solution

Decentralization has the potential to return **trust and privacy** to individuals, businesses, and communities.

Yet, even with hundreds of millions of dollars in investment, decentralization platforms are based on fundamentally rigid and **unscalable** solutions, in particular, **Ethereum**.

Scaling distributed crypto is hard. Making distributed crypto run at near **real-time** speed is final boss hard. They said it couldn't be done.

Vogsphere has done it.

Drivers for Decentralization Span People and Companies

Human Drivers

- Crisis of Trust
- Loss of Control
- Surveillance Fear
- Degraded User Experience

Business Drivers

- Distributed Applications
- Single Points of Vulnerability
- Compliance Risk
- Vendor Lock-in

"Centralized enforcement of global policy is unlikely to scale over the long-term without placing far too much burden on people"

--Jack Dorsey, CEO, Twitter Announcing Bluesky on Dec. 11, 2019

Vogsphere: The Next-Gen Decentralization Platform

Secure by Default

- Frees IT from legacy security technologies
- Simplifies application stack & attack surface
- Provides true ‘zero-trust’ security

Lighting Fast

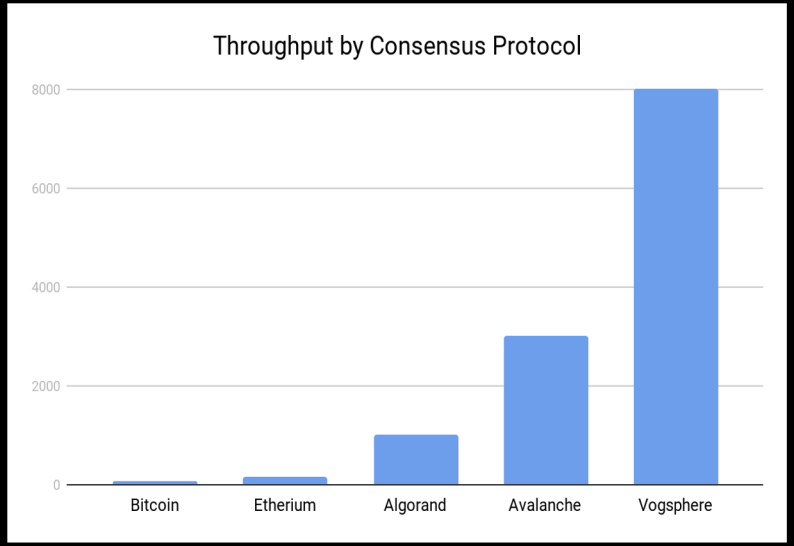
- Approaches the speed of credit card networks
- Real-time, low-latency performance

Massively Scalable

- Unbounded horizontal scalability
- Compute can expand as demand increases

Versatile

- Securely serves user experiences directly to web browsers
- Runs on devices and cloud platforms agnostically, with no dependencies



Vogsphere Consensus is Faster than Other Protocols

Key Features: Vogsphere Decentralization Platform

Dynamic P2P Trust Nets

- Easily model real-world trust relationships among organizations
- No upfront key and certificate provisioning
- Flat and fair organizations
- Requires no central admin
- Zero-trust federation -- even beyond corporate firewalls

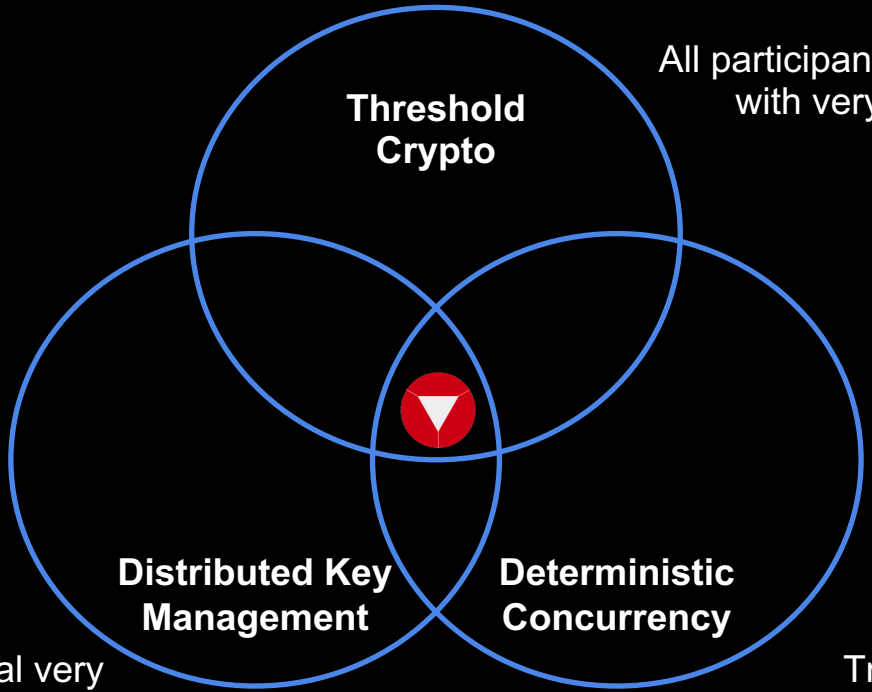
Rich Trust Services

- Supports any Web stack
- Nodes can serve APIs
- Nodes can generate and consume trust claims
- Supports any trust-oriented DLT:
  - Cryptocurrency & tokens
  - Access control lists
  - Host and zone files

Real-time Enforcement

- Security and compliance enforced at the network layer
- Fast enough for real-time human interaction
- No single point of failure
- Eliminates ‘zombie’ certs
- Increases ‘defensibility’ of compliance actions

Vogsphere Innovation: Web Scale Consensus



All participants sign transactions with very low overhead

Participants get key material very quickly with no operator intervention

Transaction order is agreed upon very quickly and at scale

The Magic: Vogsphere Decentralized Consensus

Threshold Cryptography

- Leaderless and voterless
- All nodes sign transaction blocks
- Only one signature for all nodes
- Extremely fast, secure, and scalable

Deterministic Concurrency

- Nodes process transactions in the same order
- Transactions can't be re-ordered
- No locks to slow down performance
- No clock dependence

Distributed KMS

- Automated key provisioning
- No single point of failure
- Nodes can dynamically join or leave federations
- Malicious nodes lose keys automatically

Patent Filed

Areas of Adoption

Digital Governance & Compliance Services

- High speed decentralized network services
- Runtime enforcement of end user choice and consent (e.g. AdTech)
- Pseudonymized end user data management

Beachhead

Zero-trust Security Architecture

- Secure decentralized blockchain-based identity, authentication, authorization
- Flexible membership, dynamic key management (No setup lag/costs)
- ‘Virtual’ cross-border federations and provisioning aross projects, supply chains, and industries

Enterprise

Decentralized Web of Trust

- Open Network Services: Distributed DNS, with no centralized root certificates or CAs
- End-user driven, per-web site trust policies
- Cryptocurrencies, P2P payments and remittance
- Decentralized Exchanges and AI-driven Arbitrage

Take over the world

Vogsphere Go-To-Market

Enterprise

- Focus on digital governance and GDPR/CCPA compliance market
- Target early adopter security architects in the Fortune 1000
- Software license + support ADS $250K+
- Leverage partner channel
- Hire first enterprise sales after founders close 3-5 deals in 2020

Developer

- Build community via evangelism
- Open source crypto libraries and tools
- Deliver tools, APIs, SDKs, sample applications
- Enable public decentralized network services
- Freemium: Modest monthly subscription plus transaction fees (where applicable)

Partner

- Partner with key companies in security and compliance
- Target 2 pilots by Q2CY2020
- Partner-enablement marketing and tech tools
- Hire BD at appropriate time

CIOs report Security/risk management as #2 initiative driving the most IT investment in 2020

Why Us? This Is Our Life's Work

Andrew Brown

- Background in Anthropology
- 20+ years at Bay Area tech firms
- Leadership roles in marketing and products
- Focus on security, APIs, and database tech

apiary

apigee

AMBERPOINT

ORACLE

Together

The founders have practical experience building companies that deliver security, cryptography & privacy products used by real people and companies.

Co-founded Nanobiz, acq. by Verisign

Sun microsystems

nanobiz.com

VERISIGN

Daniel Guinan

- Serial entrepreneur and inventor
- Fomer CTO, TrustArc (5 years)
- Machine learning, distributed systems, crypto, security
- Built AdChoices, founded Truste Web Services Lab
- Multiple patents awarded

C-MIL

AdChoices

TrustArc
the new TRUSTe

WELLS FARGO

Vogsphere Roadmap

2019 Accomplishments

- Self-funded
- Built Vogsphere platform MVP (See next slide)
- Onboarded first tech partner (BlockXLabs)
- Began angel raise
- Branding/Positioning
- Strategic partners engaged

2020 Objectives

- Raise angel funds (~$500K)
- Public launch of testnet
- Pilots with strategic partners
- Raise seed round
- Build out commercial applications and tooling for Vogsphere capabilities
- Ramp engineering, community and sales
- Achieve annual run rate of $1M+

What's in the Vogsphere Testnet?

Decentralized Consensus Protocol

- 'M-of-N' BLS threshold consensus
- Distributed key generation and advanced 'emergent sliced signatures'
- Participation key-blockchain
  - Private key proof of possession
  - Bit-field aggregate signature consensus identification and verification

Networking

- Pluggable P2P network topology providers
- TCP plugins for inter-node and client-node communication
- Encrypted, nested transactional database

Extensibility

- Pluggable Protocol Providers
- Sample Applications

Enterprise Readiness

- Administrative APIs and out-of-box admin web server
- Cloud "ready", runs in standard containers

What's Next for Vogsphere?

Conceptual plans exist for decentralized. . .

- Naming service (dDNS)
- Secure Messaging
- AdTech
- Exchanges (DEXs)
- Trading platforms

Integration into enterprise consensus-based systems

- Consortium cross-certification (dPKI)
- Decentralized Identity and Access Management (Claims + Zero Knowledge Proofs)
- Claims/Attestation Services for GDPR/CCPA
- Privacy-hardened APIs

Test-net with decentralized internet services

- Decentralized Secure DNS
- Decentralized SSL/TLS certificate generation
- Currency/token test-runs
- Ready for testnet, very easy to expand upon, modify and adapt
- Ready for potential test-runs in limited geographic locales

Post-money Team Composition

Corporate HQ (NYC)

- CEO (Andrew Brown)
- 1 marketing assistant
- Operations, marketing, sales, legal, HR

Office of the CTO (Philippines)

- CTO (Daniel Guinan)
- 1 remote software engineer
  - Previous experience at Sun, currently engineering lead at Datastax
- 4 local software engineers
  - Previous experience together at TrustArc, Datastax, Cebu Machine Intelligence Lab, Genewaves, OveractiveInk

Engineering Department (Oslo, Norway)

- Developer/community lead

Contact

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Technical White Paper Available By Request

Appendix: Vogsphere Decentralization Platform

Portable

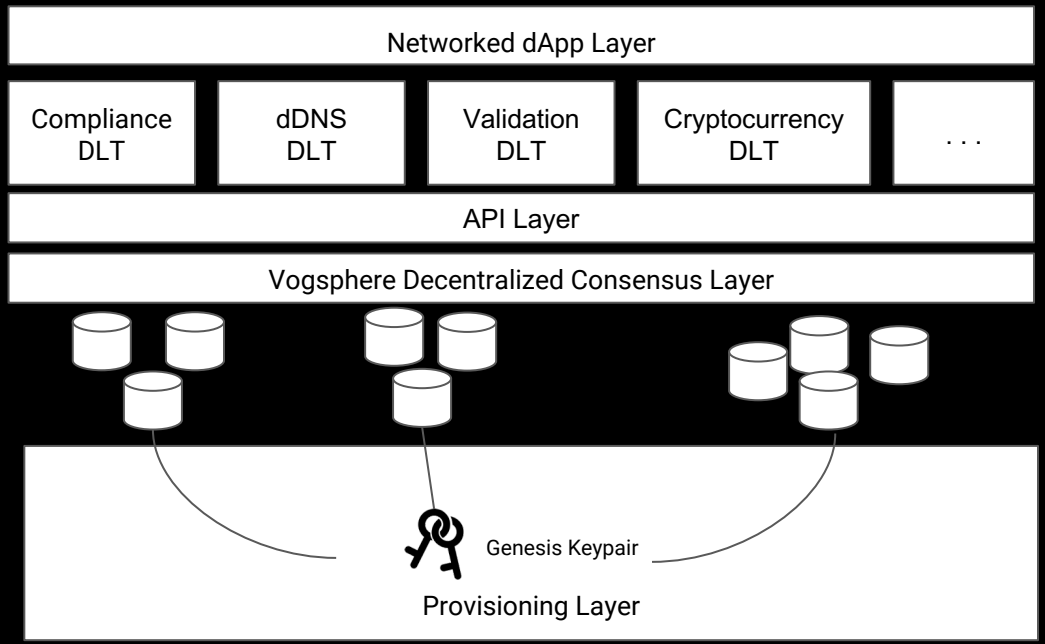
- Nodes can run on any platform; from Android to AWS

Extremely Extensible

- Unique limited trust model + APIs/SDKs for decentralized services and dApps
- Supports heterogeneous tokens and dApps
- Multi-level permissioning lets them all run together safely

Interoperable

- Enables decentralized exchange across services dApps
- Frictionless exchange among claims, tokens, etc.



Appendix: Enterprise Scenario, Loyalty & Reward Points

Drivers:

- Customers in loyalty programs are 100%+ more valuable than others
- Want customers to join program, upgrade, and spend points in real-time
- Want to integrate across franchises

Challenges:

- Settlement is not real-time
- Difficulty ordering transactions
- Large cloud infrastructure investment: databases, servers, streaming, etc.
- Fraud is widespread

Vogsphere Solution

- Deploy Vogons to cloud platform (AWS/GCP)
- Implement custom token (loyalty point) using Vogsphere API
- Implement and distribute co-branded wallet app (Android/iOS) to customers
- No additional application infra needed
- Real-time P2P Settlement
- Txns automatically ordered
- Double spending prevented

Appendix: Why Blockchain Won't Solve This Problem

Blockchain 1.0

Blockchain is an end in itself

The Vision

- Decentralized consensus
- Trusted transactions
- E.g., Bitcoin, Ethereum

The Reality

- Slow! Only 3-20 transactions per second
- Incredibly energy-inefficient
- Privacy and security issues

Blockchain 2.0

Blockchain is dead, long live the blockchain!

The Vision

- Accelerate performance of blockchain 1.0
- Retrofit scale on a bottlenecked platform
- E.g., Plasma, Loom, Lightning Network. . .

The Reality

- Faster, but limited in functionality
- Complex sidechain/channel transactions and protocols
- Riddled with security issues

Appendix: Patents Awarded to Daniel Guinan

- Managing data handling policies
  - Patent number: 10395052
- Managing exchanges of sensitive data
  - Patent number: 10270757
- Multi-party electronic transactions
  - Patent number: 7536336
- Compatibility checking between instruments, operations and protocols in electronic commerce
  - Patent number: 6073113

Appendix: Vogon Functional Roles and Capabilities

- Any Vogon node can fulfill the following roles and associated capabilities

Application server:	Handle incoming application messages and return results
Transaction server:	Accept, process, and return results of transaction requests
Blockchain server:	Maintain state that emerges from blockchain evaluation Expose APIs to rapidly query that data
Blockchain processor:	Generate and synchronize blockchains Expose APIs to access those blockchains
Key infrastructure provider:	Manage and maintain keychains that derive from blockchains Expose APIs to rapidly query keychain data
Cryptographic artifact processors:	Produce and consume cryptographic artifacts Expose APIs to rapidly query artifact data

Appendix: Protocol Comparison

	Hashgraph	Avalanche	Vogsphere
Consensus Method:	Gossip	'Metastable' random sampling	Threshold signatures + deterministic concurrency
Throughput:	~10 tps	~2,000 tps	~5,000+ tps
Network Membership:	Permissioned	Unpermissioned	Multi-level Permissioning
Security:	High*	Low*	Very High
Extensibility:	Low	Medium	Very High
Total Funding:	$118M	$6M	Self-funded
Investors:	BlockTower Capital, Elysium Venture Capital	Andreessen-Horowitz	Founders
Founded:	2017	2018	2018

Appendix: Shameless Plug

Christopher Allen
Speaker, Consultant, Advisor
July 10, 2008, Christopher worked with Daniel J but at different companies

As an angel investor doing due diligence on Nanobiz, I was particularly careful to take a look at the development team. I was impressed by Daniel's depth and knowledge of his field, and appreciated his willingness to listen to outside ideas. Nanobiz ended up being a profitable investment for Alacrity Ventures during the post-dot-com period of time in which few startups survived, much less gave a return on investment. See less

Phillip Hallam-Baker
Web Pioneer, security consultant and expert witness.
March 5, 2008, Phillip worked with Daniel J but at different companies

We liked nanobiz so much we bought the company.