

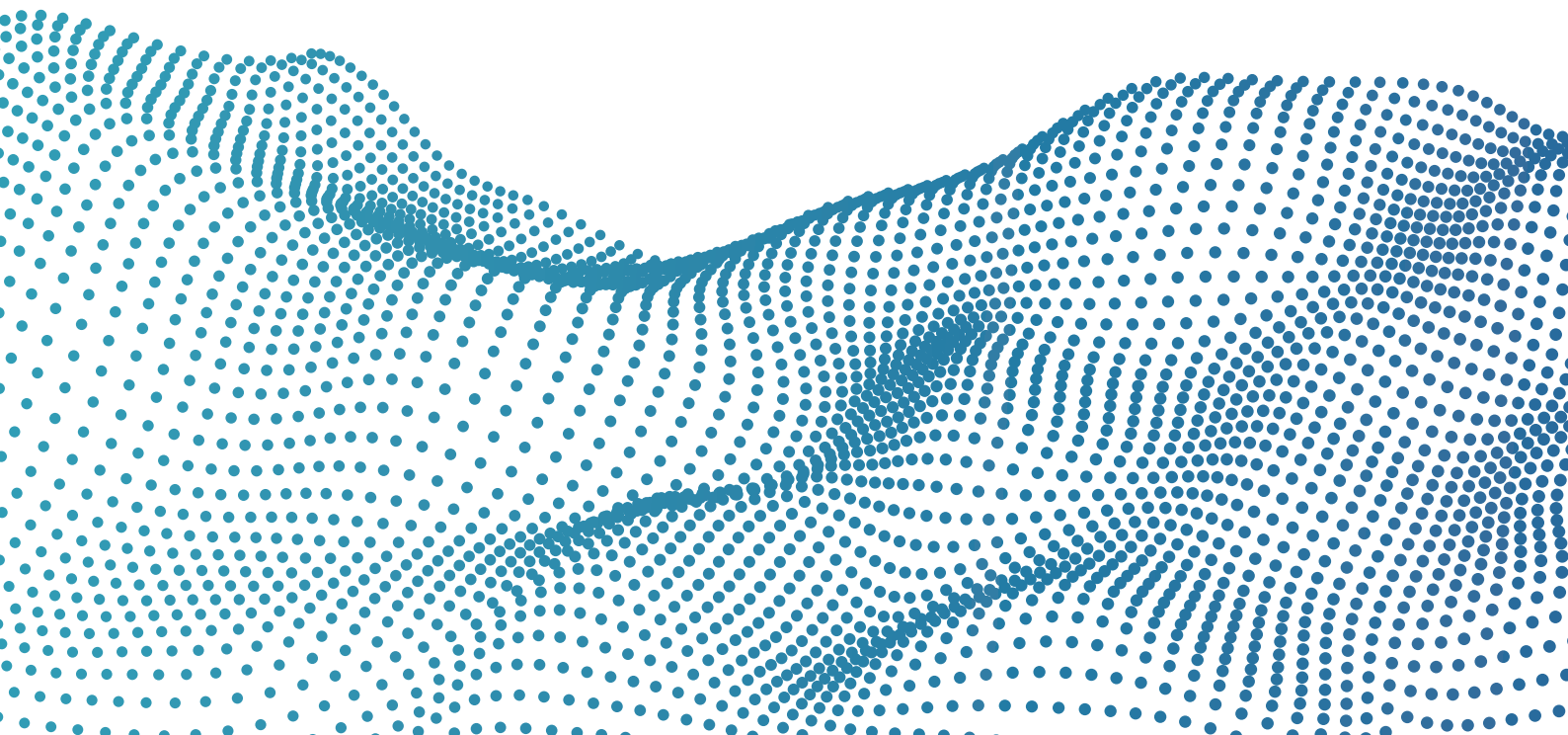


ETHERNA

Blockchain-as-a-Service

Engineered and developed by

 **net service**
Information Technology





Net Service has been investing in Blockchain technologies since 2013.

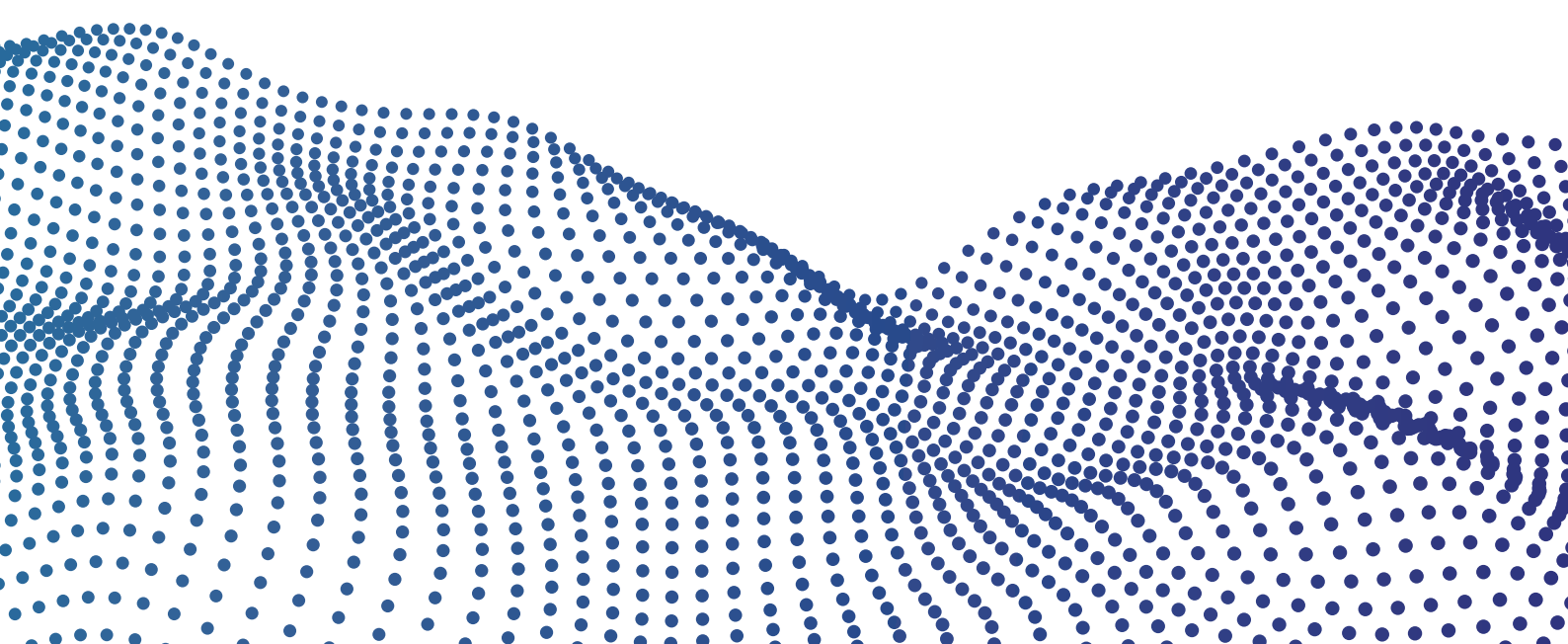
Net Service has set up a **Blockchain Competence Center** for system integration and R&D activities on smart contracts and decentralised applications.

In 2018 **Flosslab**, the first Spin-off of the University of Cagliari, joined Net Service Group strengthening and completing the company's skills and solutions.

Net Service group is proud to introduce



and its configured solutions:





ETHERNA

Blockchain-as-a-Service

Ethernal is a platform that makes the use of Blockchain technology simple and transparent for any application and process integration. It intertwines with its SideChain and the public Blockchains of Bitcoin, Ethereum and Litecoin.

Net Service designed Ethernal as a distributed platform for the supply, through high-level APIs, of services based on Blockchain technology, including **B-Cert**, **B-Voting**, **B-Supply** and **B-Signature**.

Employing SideChain natively avoids problems with the integration of applications, at the same time overcoming Blockchain’s typical limitations.

The mode of use of the services provides a specially designed API (Application Programming Interface), capable of making any Customer independent (both System Integrators and End Users).

Services are available via dedicated APIs, which make system integrators as well as end users independent in using Ethernal.

Ethernal simplifies Blockchain.

Ethernal supports the following Blockchains



SideChain Ethereum
(ETHERNAL)



Public Blockchain
BITCOIN



Public Blockchain
ETHEREUM



Public Blockchain
LITECOIN

WHAT IS SIDECHAIN ETHERNAL?

Sidechain Ethernal is a consortium Blockchain infrastructure promoted by Net Service Group, with Proof of Authority consent and based on the official products of the Ethereum Foundation. Sidechain allows clients to share controlled-cost Blockchain infrastructure with other Partners, while ensuring high immutability through periodic synchronizations on the Ethereum public Blockchain.

ETHERNA ADVANTAGES



Blockchain-as-a-Service

Etherna simplifies use of Blockchain technology and integration with customer applications



Immutability

Etherna guarantees that the registrations have not been altered over time since their registration



Temporal validity

The date of registration on the Blockchain is certain and guaranteed by the consent among all nodes of the Blockchain used



Transparency

The mechanisms for verifying immutability and temporal validity are made possible through a transparent process and public verification tools



Application compatibility

Etherna guarantees full application compatibility and interoperability with the client's existing IT system thanks to the availability of APIs supporting reading and writing activities on the supported Blockchain



Advanced features

The API level beyond accessing the raw data stored on the Blockchain is capable of writing Smart Contracts, interrogating them or updating them according to the requests of authorised users

SUPPORT SERVICES

- **Application-level Assistance**
- **System Integration**
- **Customisations and Configurations**
- **Consulting and Change Management**
- **Ongoing Maintenance**
- **Education and Training on the Job**



BLOCKCHAIN DATA CERTIFICATION



B-Cert certifies registration on the public Blockchain for all file types.

B-Cert works as a notary system guaranteeing the existence and immutability of specific digital content at the date of registration as well as the ownership of the information.

B-Cert protects the content. The hash (fingerprint) of the file is recorded on the Blockchain, but not its content.

Content integrity can be demonstrated at any time and in a transparent way, by checking on B-Cert or by directly querying the Blockchain.



Certify your files and customised messages on public Blockchains



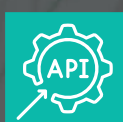
Check if your file is already certified on a Blockchain



Manage your certifications through the control dashboard



Share your certification



Integrate B-Cert in your system via APIs

Case study

CERTIFICATION OF A PRIVATE COMPANY



Design engineers import on B-Cert the design process progress via BIM standards and share them with customers.

Operators on the construction site upload a photo via the B-Cert app on their smartphone, certifying the status of the work. The site manager, accessing B-Cert, shares the certificate and the link of the site's image with the customer.

The director of operations uploads on B-Cert the certification, thus guaranteeing the document's anti-counterfeiting process of cement-compression tests for a given cement casting.

B-Cert certifies all the Company's technical and administrative documents on a daily basis, massively and completely independently, thus guaranteeing the date and immutability of the files.

Case study

CERTIFICATION OF A UTILITY COMPANY



Operators upload a photo of the meter via the B-Cert app on their smartphone, thus certifying the meter reading status.

B-Cert periodically certifies all files massively and completely independently, thus guaranteeing the date and immutability of the readings.

The files are uploaded to a long-term digital storage system, available in case of disputes.

The company's customer receives the B-Cert certification with the invoice and can contact an operator to view the relevant photograph.



ENTERPRISE SERVICES

- Massive Certification System
- Desktop Application
- Personalized Certification Systems on Private Blockchains
- Custom User Accounts for certification
- Access to Private Storage for File Reading
- File Saving on Private Platforms

MAIN INDUSTRY SECTORS APPLICATIONS

- Utilities
- Industry
- Law
- Consulting
- Arts and Music
- Intellectual Property

SUPPORTED BLOCKCHAINS



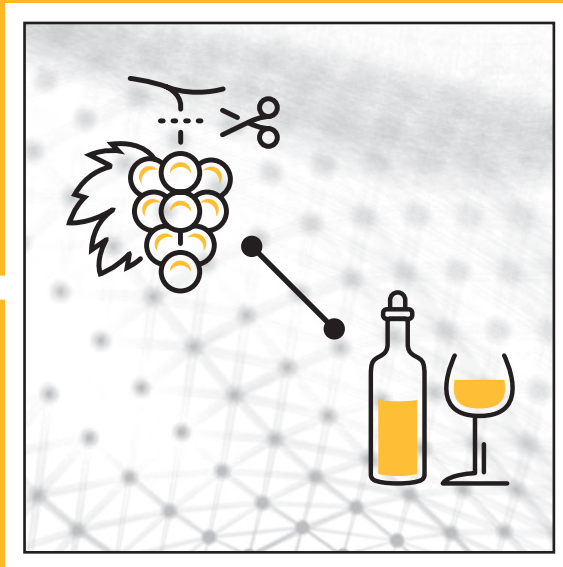
ETHEREUM



BITCOIN



DESIGNED FOR CERTIFYING AND TRACKING
PRODUCTION PROCESSES



B-Supply is a certification and tracking solution for production processes based on Blockchain.

B-Supply records, in a permanent, immutable and punctual manner, all the progresses of the production process phase with the help of Smart Contracts.

B-Supply represents a valid support for quality control within its production chain and limits counterfeiting risks protecting the authenticity of the product and the correctness of the processes.

Certification on Blockchain guarantees highest transparency in tracing the entire life of the product, including the information collected during the transformation processes (i.e. from raw materials to the final product).



Design and configuration of the system based on the client's specific supply chain and production process.



Punctual and permanent registration of all production chain stage progress.



Collection and certification of all process-related documents, such as: transport documents, delivery notes, analysis and compliance documents.



Full automation of registration processes by integration of B-Supply with IOT devices limiting the burden on operators and reducing the risk of incorrect manual certifications.

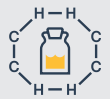
Case study

CERTIFICATION OF WINE SUPPLY CHAIN



The landowners

register their vineyard via the B-Supply app for smartphone.



The agronomist and the farmer

record the treatments carried out in the vineyard, with additional documents if necessary.



Grapes harvesting and weighing

is also recorded and certified on Blockchain.



The analysis lab

records the results and certifies the digital fingerprint on Blockchain via B-Supply.



Inspectors

(e.g. Wine Protection Consortium experts) examine the certified production process and record their approval.



The producer

sells wine lots to retailers also transferring the lot registration tokens. Change of ownership and anti-counterfeiting of the product are guaranteed.




Consumers

scan the bottle label with the B-supply app. The wine's whole story is available, back to the vineyard.





ENTERPRISE SERVICES

- Support to the integration of existing legacy systems
 - Development of document management systems to support the production process
 - Development of applications for Clients or Final Customers
 - Advice and support for the use of Blockchains within the Client's production context
 - Integration of management software with existing processes
 - Integration of automatic certification on Blockchains with existing IOT devices
- 



MAIN INDUSTRY SECTORS APPLICATIONS

- Agrifood
 - Logistics
 - Industry
 - Health
 - Fashion
 - Energy
- 



SUPPORTED BLOCKCHAINS



ETHEREUM



ETHEREUM
CLASSIC



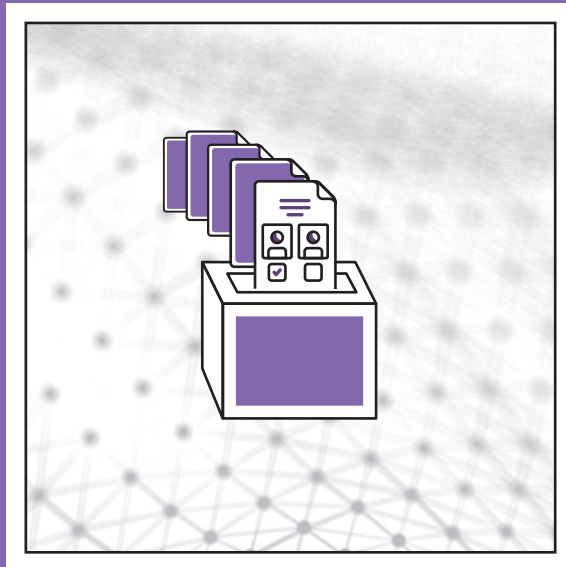
BITCOIN



LITECOIN

b·voting

INTEGRATED ELECTRONIC VOTING SYSTEM



IMPROVED MANAGEMENT OF THE ELECTORAL EVENT

B-Voting (Blockchain-Voting) is the innovative electronic voting system engineered and developed by Net Service, integrated with one or more electoral event management procedures (system set-up, distribution of credentials, voting, collection of ballot papers, counting of preferences, publication of results).

B-Voting overcomes the current limits of the so-called *e-voting* systems, uplifting the organising authority's responsibility of guaranteeing anonymity and non-alterability of the vote and transferring such responsibilities to the voting platform.

B-Voting guarantees accomplishment of essential requirements for a digital voting system, particularly for elective votes:



The vote cannot be tracked back to a voter



The vote cannot be altered



The vote can be verified



The vote count can be verified

Case study

ELECTRONIC BALLOT BOX FOR INSTITUTIONAL ADMINISTRATIVE ELECTIONS VOTING PROCESS



Phase 1 | Preparation

Forwarding OTP: all users with a right to vote receive a unique (anonymous) key in the form of a QR-code and proceed to registration.

Generating accounts: accounts (“wallets”) are created on the Blockchain, to allow voting and verification procedures.

Wallet initialisation: the Institution’s wallet is created and filled with the necessary cryptocurrency (voting token) which is transferred to all the wallets recorded in the accounts generation stage, which will allow future voting.



Phase 2 | Voting procedure

Vote opening: the candidates list is encrypted via the Institution’s public key. The encrypted vote is then recorded on the blockchain

Voting: the candidates list is encrypted via the Institution’s public key. The encrypted vote is then recorded on the blockchain.

Votes collection: votes are collected by the Institution by accessing a dedicated Smart Contract method provided via API. The Institution knows in real time the number of accounts who have voted.

Vote closure: The Institution initiates a private smart contract method close vote collection. This stage provides details of how many voters have actually voted.



Phase 3 | Vote Count

Decryption of votes: the encrypted information (individual votes) is decrypted using the election’s private (secret) key. The vote is recorded and displayed on the vote-count Smart Contract.

Vote Count: the counting process (smart contract) provides for the real-time calculation of the voting’s outcome.

Verification: each voter can invoke the methods of the vote-count Smart Contract to access vote-count operations in real-time.

Publication of the results: the voting ends upon publication of the results.

MAIN BENEFITS OF THE B-VOTING PLATFORM



Transparency

Based on the Smart Contract paradigm, B-Voting guarantees the publication of all the specifications and rules used to ensure the highest level of transparency in the voting process. B-Voting also allows to check the outcome of the voting transaction at any moment in time.



Flexibility

The platform is fully configurable. Each user can design the desired voting system model. The system can be released both as a Web Application and as a mobile DApp.



Safety

Using Blockchain via the B-Voting environment guarantees the immutability of the secret ballot for each voter and the expression of a single vote per voter (Privacy by Design).



Traceability

Traceability of all transactions at all stages allows to certify the origin of the transaction.



Disintermediation

Transactions are managed without intermediaries and without a central management authority.



Limited maintenance

Developing B-Vote with Open Source technology, allows to save management costs. Blockchain-based technologies do not require major maintenance and technical support.



One platform, multiple Blockchains

The Blockchain technologies currently supported are Ethereum, Hyperledger, EOS. Nevertheless the platform can be configured to work with any type of Blockchain, public, private or a consortium.

SUPPORTED BLOCKCHAINS



ETHEREUM



EOS



HYPERLEDGER

b-signature

SECURE MULTIPLE SIGNATURE MANAGEMENT
SYSTEM FOR CERTIFIED DOCUMENTS



A CERTIFIED IMMUTABLE SIGNATURE

B-Signature allows fully secure signature of certified documents on Blockchain in total safety.

Multiple Signatures

With B-Signature multiple subjects can **co-sign** the same document, at the same time or at different times. This feature was engineered to avoid the "cascade" digital signatures that may alter the document to be signed by multiple subjects.

Time-stamp

B-Signature **time-stamps** the document. The creation date is permanently registered on the public Blockchain and cannot be edited or removed.

Security

The certification of the document on the Blockchain guarantees the **integrity** and **immutability** of its content over time.

Versioning

The smart contract allows to manage the **versions** of the document ensuring the **inalterability** of the management action and the identification of the signatories for each version.

Legal validity

The "Simplification Decree" of the Italian Parliament recognises legal validity to the Blockchain acknowledging Blockchain's "*role of temporal validator of written documents and counterpart identifier*".

B-Signature, thanks to the Ethereum public Blockchain and the use of Ethereum Smart Contract, guarantees:

- Document **integrity** certification
- **Date of creation** of the document
- Document **version**
- **Identity** certification of one or more signatories
- Safe and secure process of "*signature*" of the document

Case study

FIVE DIFFERENT ORGANIZATIONS NEED TO CO-SIGN A PARTNERSHIP AGREEMENT TO PARTICIPATE IN A PUBLIC TENDER



1 | Smart Contract document

Once drafted, the document is uploaded to B-Signature and registered on the Blockchain, certifying its creation date and the content in a univocal, indelible and unchangeable way



2 | Identity and signature

The parties access B-Signature, identifying themselves and sign the certified document securely



3 | Identity and signature at different times

Three new organisations are added to the parties. The agreement is signed by the three new parties via B-Signature



4 | Validity Check

The tender commission checks the validity of the document and signatures via B-Signature or directly from the dedicated public Blockchain tool



MAIN BENEFITS OF THE B-SIGNATURE PLATFORM



RAPIDITY OF APPLICATION

B-Signature can be quickly adopted by any organisation or group of organisations to turn traditional work into remote work.



NO SET-UP COST

A ready-to-use application provides the enabling technology. SaaS provisioning avoids investment costs and guarantees application scalability.



WIDE-RANGE APPLICABILITY

B-Signature is immediately applicable to public sectors such as the national health system, the civil protection, charities, local public administrations, prefectures, police headquarters where a multiplicity of professional staff must ensure compliance with laws and regulations, without the availability of digital signature or certified email.



FULL WEB OR MOBILE

The system allows easy integration with full web signature applications and with mobile applications.

SUPPORTED BLOCKCHAIN



ETHEREUM

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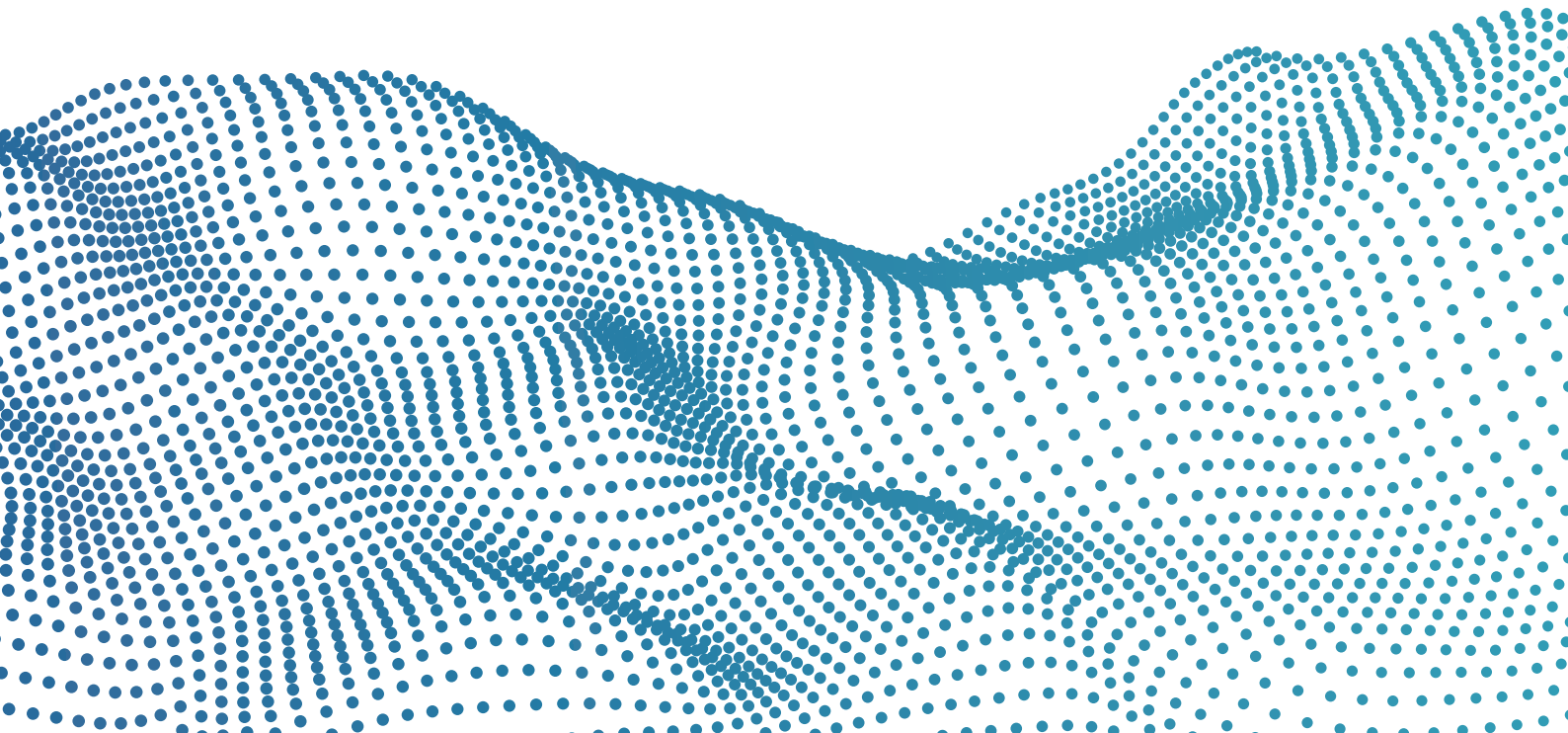
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