

Internxt

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## Introduction

Here at Internxt®, we are disrupting thrilling industries through the use of revolutionary technology. In an attempt to create innovative services, Internxt has created X Core, a decentralized cloud computing infrastructure that allows users from all over the globe to cooperate in the creation of a decentralized, more secure Internet. Users can sell the resources of their machines to those looking to Host their data in a more private, secure and efficient way. X Cloud is the first of a wider range of services that will be making use of X Core. Internxt's secure cloud service, X Cloud, not only offers a superior technology to that one of traditional cloud services, but it also strives to be competitive in terms of price and user experience. We emphasize the security and accessibility of the users' information distributed among numerous computers throughout the Internet. Being cryptographically encrypted, all files in our P2P network are reliably protected against hacks and leaks. The very architecture of our system provides the secure storage of any data. Since all our code is open source (AGPL and LGPL licenses, depending on the product), it is available for peer review in our GitHub. Internxt strives to create a revolutionary, intuitive technology that's as user-friendly as the one from already existing top-tier services. Internxt wants to make sure that X Cloud is accessible by everyone, regardless of their knowledge. A great focus is being put on providing a seamless transition from traditional services to Internxt. Internxt is registered in 2425 Olympic Boulevard Suite 4000-W PMB #701, 90404, Santa Monica, California, United States, as Internxt Inc.

## Why

There are many massively adopted services which need to be rebuilt from the ground up. Internxt provides innovative tech products and services that strive to outperform those currently used by the mass market. A major issue with existing cloud platforms is security and data centralization. In fact, cloud computing is a computing paradigm, an abstraction where data and services are accessible all over the network to authorized users and processes. Abstraction of computing away from the physical Host entails a loss of control of corporate data and loss of visibility into who has access to it. Another dimension to cloud computing with very serious implications for security is the deployment model: who owns the infrastructure and how is it accessed. A Private cloud refers to a collection of resources used by a single organization. This is typically owned and managed by the organization itself, and hence in practical terms is little different than any other data owned and managed by that enterprise. A Public cloud refers to resources accessible by anyone usually over the public Internet, managed and owned by a third party. A third category, Hybrid cloud, refers to a combination of private and public clouds along with the connecting fabric between the two. Our cloud brings a new and revolutionary solution into this. The data is spread on public network ran by users, but all the files are encrypted before being sent out. There are no single points for the hackers to attack, it is incredibly complex for someone to grab a hold of files, and even if they do get them, they cannot use them without the private key held by the user. We want to fight this security and privacy issues the current Internet is facing with the development of our first service; X Cloud.

# What

## X Core

X Core sits at the very core of Internxt's products and services, giving life to the decentralized era of the Internet. X Core is formulated by Hosts. This eliminates the need for a central controller, as each Host is important as one another. Hosts donate the unused resources of their computer creating a global network of storage and computing servers. By Hosting unused computer resources on the X Core network, users are paid in our token, INXT. Users do not need to be on their computer, they can leave it running in the background and the computer will earn a passive income. X Core is a simple downloadable open-source application that enables anyone to act as a decentralized node to store and transfer data. Financial rewards for Hosting encourages more people to sign up and grow the X Core network. The more Hosts, the better the network will run. The system detects failing nodes and transparently adjusts and corrects the impacted blocks automatically. This removes the destructivity of having data stored in a central location and ensures the network always functions optimally. User files are end-to-end encrypted and split into small pieces when Hosted in the P2P network.



Each Host decides how much computer resources they designate to the network, as well as when and how long for. X Core automatically finds the optimum Host specific to the user location, so the data is retrieved much faster. Designed to handle large numbers of Hosts joining the network by balancing the data-load across multiple nodes. Since the number of the running nodes may vary in the course of time, the feature

of an automatic adjustment enables X Core to regulate the workload of each networked computer efficiently. It means that the fluctuations in the number of users online don't affect the usability of the entire network nor the working capacity of each particular computer within the network. Thus, the system automatically maintains the right balance between all available users in order to provide them with an equal operability of the network making the overall functionality of the system faster than the rest analogs. Additionally, a much higher download speed is achieved through a simultaneous synchronization with many different nodes. X Core features desktop interfaces available for Windows, Mac, and Linux.

# X Core

A powerful application that enables data to be shared all around the world.



The laptop screen displays the X Core desktop interface. The background is a scenic image of a lake with mountains and autumn foliage. Overlaid on the right side of the screen is a dark-themed dashboard with the following data:

Network Data	
Status	Uptime
Connected	20m 15s
Upload Speed	Download Speed
190 kb/s	135 kb/s

Current Earnings	
Per Week	Per Month
0.35616 INXT	1.52638 INXT
Per Year	All Time
18.3165 INXT	14.9552 INXT

Beta available Q3 2018

## X Cloud

Internxt's X Cloud lets the user store files in a truly secure, private and reliable cloud, without compromising on user experience. X Cloud is faster, cheaper, and more secure than traditional cloud storage platforms. We believe the intention of creating beautiful design not only ensures pleasing aesthetics but a joyful product experience. We built X Cloud to be simple, intuitive, yet powerful and customizable. We created web and mobile interfaces that can dynamically change to suit the personalized user taste, to allow for a more limitless workflow. X Cloud's desktop interface consists of an easy-to-use folder where files are automatically synchronized with X Core. The fast synchronization of various files throughout numerous computers runs with Qt/C++ technology. With X Cloud, user data is no longer stored in a central location, but instead end-to-end encrypted, split into pieces, and then distributed amongst different machines all around the world. So now, only the user has access to his/her digital possessions, the way it should have always been. Today's adopted cloud is vulnerable to a variety of attacks which can lead to encryption walls being bypassed, which makes user personal information accessible to hackers.



For far too long, companies like Google and Facebook have abused their position and violated their users' privacy. Recent events have highlighted the problems that their business models can create. Protecting their users' privacy conflicts with their business model, which is to use your data in order to serve you targeted ads. That's why these companies collect more data than what is actually needed. We want to be transparent about our superior security and privacy practices. Here, we highlight the 3 most important steps we're taking to protect your data on X Cloud.

First, we encrypt all your data before it leaves your device and reaches X Core servers, using AES 256 bit encryption. This is the same type of encryption that is being used by banks and government agencies to protect sensitive information. This is already a major difference to mainstream services such as Dropbox or Google Drive, which only encrypt customer data in transit and at rest, which means that these companies can still access and use your data. With our encryption model, only you hold the keys to your data. As a result of this, we can't access your data, and most importantly, in case we'd get hacked intruders wouldn't be able to access it either. Mainstream providers could offer this functionality too, but they do not. As a matter of fact, Google started developing a way to encrypt emails end to end in Gmail after the Snowden revelations, but the project has been abandoned (and that's why projects like ProtonMail also happen to exist).

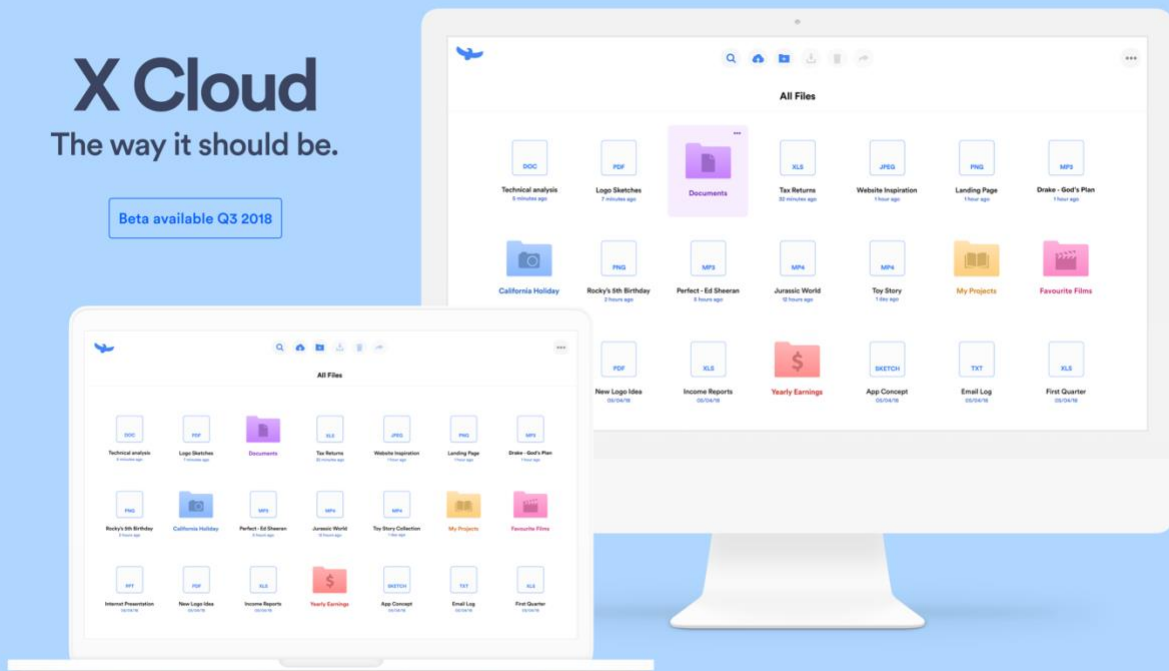
Second, we don't store your data ourselves in a single place, but we spread it across a large decentralized network. An attacker would, therefore, have to breach millions of servers in order to obtain your data and it would still be encrypted. In order to protect your privacy, Hosts on our decentralized network never know whom a file belongs to. Additionally, we only store small parts of a file with a single Host. This way your data is everywhere and nowhere at the same time. This is a fundamental difference between our service and other providers of end to end encrypted storage services such as Tresorit or Sync.com.

Unlike other decentralized storage providers such as Storj and Sia, we understand that it not only requires of a superior technology to disrupt a market. It takes of much more effort to cross the chasm between early adopters and the mass market. You need to tackle disruption from the right angle. That's why we've built outstanding user interfaces and a seamless user experience and a flagship infrastructure (as will be evident in our Beta release) and are trying to get the right message across. We also understand that businesses have different requirements than consumers and that they also require certain legal protection. This is why we will offer a special version of our services for regulated customers, such as businesses, that are subject to the General Data Protection Regulation (GDPR). This version of our service will also rely on a decentralized network, but we will control and carefully monitor which Hosts can participate in it. Every Host will have to sign a Data Processing Amendment with us and we will also require adherence to certain standards, which ensures that your data is not only protected from a technical point of view, but also from a regulatory side.

# X Cloud

The way it should be.

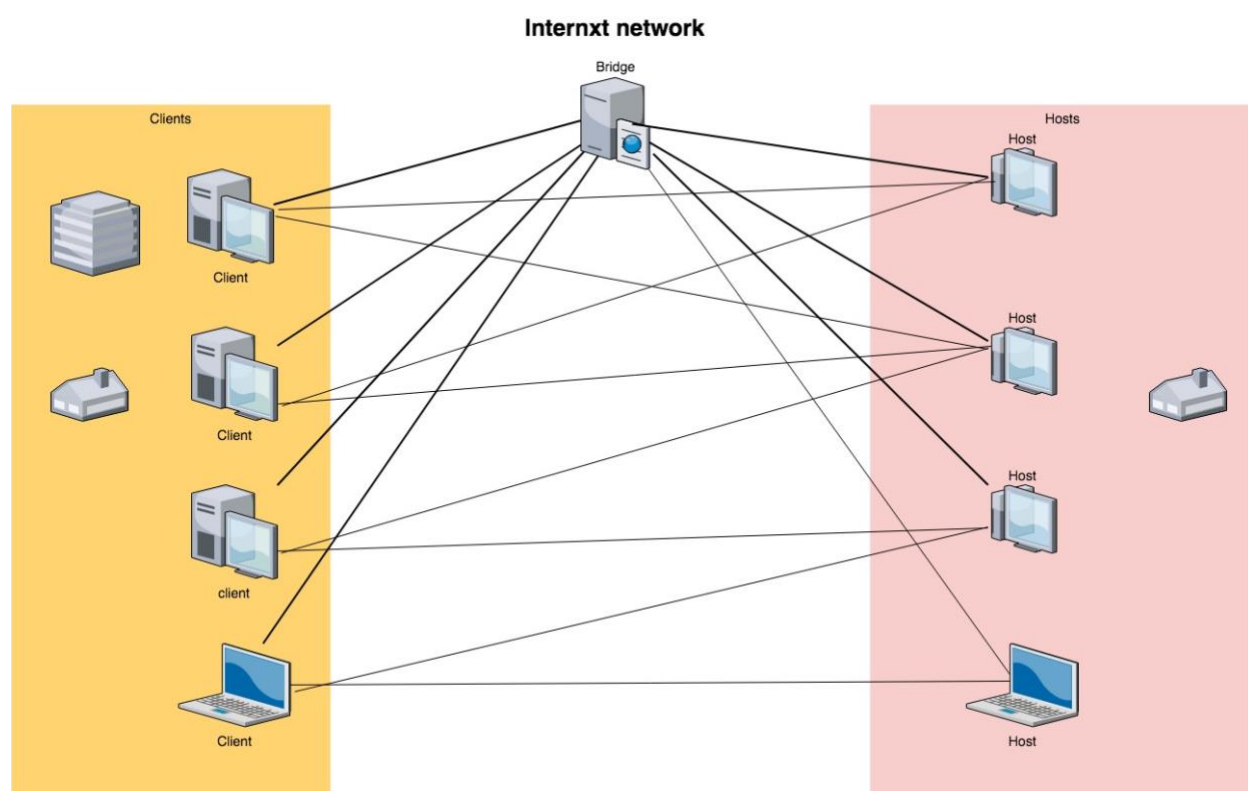
Beta available Q3 2018





## How

In order to arrange the interaction of all users within our network, we established two agents capable of managing the data movement between all network entities. One agent is responsible for making nodes interconnected. We call this functional unit the Bridge. On the other hand, Hosts offer their computer capacity for the clients. Hosts constitute the second main agent of our network structure. Our software solution provides everybody with an ability to become a Host in the network. It implies sharing a computer to store data of clients running X Cloud. In order to keep the data private and secure, distributed ledger technology is applied to the process. Before placing a file in a Host's computer, we encrypt it with AES 256 CTR along with the subsequent sharding the data into separate pieces. Such an approach goes in line with the very essence of the serverless decentralization of our services.



Any kind of file can be uploaded using X Cloud into our X Core platform. The encrypted shards are dispersed among separate Hosts, while the Bridge holds information about both the entire structure and the location of each distributed data. Thus, nobody but the data owner is able to read the files since all shards should be collected and decrypted back to reassemble the file. It is technically impossible to read a piece of information stored at a separate Host's computer. The security of our network correlates directly with its size. The bigger number of Hosts that participate as nodes, the more complex the entire system becomes and, therefore, the bigger number of shards all data can be divided in. At the same time, the P2P network protocol we use provides parallel data transfers making bandwidth demands irrelevant. Besides, the

multiple mirroring of shards adds extra security to X Cloud where data availability is enforced proportionally to the growing number of nodes. This translates in an incredibly fast, reliable and resilient network.

X Core was forked from Storj, and some of its core features were kept as Storj developed them. Our task is on improving their network speed, reliability, adding features, creating intuitive interfaces and transmitting a message that the mass-market understands. We are also running continuous independent audits to find vulnerabilities in our infrastructure and make sure that it's as robust as it can get. We also implemented JSON data-interchange technology, which enables users to work with their files within a highly structured filesystem tree where both a root folder and numerous subfolders can be created in a very simple manner. X Core uses distributed technology and will be constantly maintained and updated to meet the requirements of our future services. In contrast to the ordinary cloud platforms, our system is empowered with several types of cryptographic encryption at almost every stage of our processes. Files, shards, access passwords, and other textual data are protected with either SHA 256 or AES 256 CTR cryptographic methods. Both algorithms are applied to hashing and encryption of various data. While SHA256 creates digital signatures when the user's passwords are to be hashed, AES (Advanced Encryption Standard) is used for both encryption and decryption of files and shards. Even if a hypothetical hacker is able to figure out the exact location of a particular shard or a set of shards, the AES encryption protects the user's data from being read by an unauthorized person. In addition to the huge computation power necessary to hack even a single AES-encrypted shard, hackers should spend unprecedented efforts to select all dedicated shards that constitute a definite file from a huge amount of data randomly distributed among various Hosts. Besides, the difficulty of the hacker's task is multiplied many times over due to numerous mirrors available for each shard that are distributed among different Hosts. Different Hosts can also change their state from active to inactive and vice versa over unpredictable periods, thus the complexity of figuring out the exact location of all shards of every single file comes to the verge of exhaustion.

Since users interact with our data management unit, the Bridge, they are relieved from a necessity to perform many operations manually. For example, they don't have to worry about the available storage space because no single Host can limit the overall size of the cloud. This is the task of the Bridge, to collect information about all available disk space throughout the active Hosts. Hence, the data on storage space, velocity, and bandwidth all currently running Hosts can offer is managed automatically by the Bridge. A data owner needs to announce the size of a file to be placed in the cloud. It is performed when a file from a local computer is uploaded to the X Cloud app. After that, the Bridge as a smart agent "decides" in which number of shards the file should be divided as well as among which Hosts the shards along with all their mirrors should be distributed.

A similar process in the opposite direction occurs when a data owner wants to retrieve a file from the cloud. In such a case, the data owner's X Cloud app informs the system about a particular file residing somewhere in the cloud. Holding the encrypted keys of both the user and the file the Bridge collects all necessary shards through the X Core apps installed on the Hosts' computers. Neither the Bridge nor any Host is able to read the encrypted content of the file since the decryption process is executed only with the X Cloud app holding the unique keys on a local computer of the data owner. The system cannot mistakenly confuse a particular data owner and another person's file. No mistake is possible because the Bridge connects a particular data

owner only with those Hosts where the necessary shards reside. This process can be called a proof of availability since the data owner's X Cloud app shares shards along with the specifically hashed keys with the X Core apps of the selected Hosts. Any action where both a particular data owner and dedicated Hosts are involved implies exchanging the shards' hashes between them. The hashed keys are automatically updated in the course of action between data owners and Hosts. The whole process runs on a programmatic level when the users from both sides are not involved in such a precise and secure proof of availability. Thus, the entire functionality of the system provides human-factor-free workflows when both premeditated and inadvertent errors are excluded.

Thanks to AES 256 CTR, we are able to decrypt the file for the user when we get it back. The file is divided into packages only after it's encrypted to be sure that a Host has an amount of data that can't be interpreted anyhow. It is not possible to decrypt one package and see any relevant part of the complete file's data. The maximum possible package size is to be set to 2MB. To be sure that a package saved by a Host was not modified, we use SHA 256 hashing. This is a one-way encryption technology. When we download a file from a Host, we calculate its hash and check if coincides with that one received from the Bridge. If it's not, we download the file from a mirrored Host.

## Market position

Internxt is an innovation company. We are creating revolutionary services that strive to outperform the current solutions in the market. Internxt is ambition, excitement, and the sense of belonging to something better. X Cloud's main competitive advantages sit on privacy, security, and efficiency. X Cloud's price and user experience is as competitive as those offered by the current top providers. There already exist a few direct competitors to X Cloud, which provide a distributed cloud storage solution that aims to improve the way the Internet is organized. Although there are not many competitors, their decentralized technologies are sometimes outstanding. Even though this is the case, these competitors have not yet become mainstream. We believe that the main issue resides in user experience and marketing. With X Cloud, we are focusing on providing an outstanding user interface, that's as easy to use as the current solutions offered by big corporations. X Cloud's Beta service is expected to be released in Q3 2018, and its commercial version is expected for Q4 2018. Both releases will include desktop and web apps. The IOS / Android mobile apps will be released in Q1 2019. During 2019 we will mainly be focusing on growing and improving X Cloud's service. We also expect to develop further services starting on 2019.

Right before the moment of release of X Cloud's Beta service, we expect to have ~10,000 members in X Cloud's waiting list. We assume a conservative 5% conversion rate, meaning that 500 X Cloud paying customers (early-adopters) are expected during the first month running the Beta. The assumed average revenue per customer is \$4, thus making \$2,000 worth of revenue in month 1. We expect the Beta to be running for 2-3 months. Right before the stable release, we expect to hit 1,000 X Cloud Beta paying customers (\$4,000 monthly revenue).

X Cloud's stable version is expected to be released during Q4 2018. Starting from 1,000 X Cloud Beta customers, we expect a higher rate of adoption for our first stable release, as compared to the adoption rate during the Beta. We expect to end 2018 with around 5,000 X Cloud customers. The accuracy of these figures will keep improving over time, as we will be able to gather further information from our actual results, and thus extrapolate them given the customer growth rate.

Internxt's costs (salaries + marketing + other expenses) average \$50,000 per month. Internxt estimates to keep around 10% commission per X Cloud monthly payment (\$0.4/mo on average per customer). The rest (90%), will be paid out to Hosts. For that reason, Internxt is expected to break-even as soon as X Cloud hits 125,000 customers (\$500,000 monthly revenue, \$50,000 commission for Internxt Inc.). This figure is expected to be reached by early 2020. To make sure that we can keep growing and operating until then, we will very likely be going through a Series A during 2019. More details on this will be provided in the coming months. If you feel like you could add value to our company, believe in our mission and would like to be taken into consideration for our Series A, feel free to email us at [ir@internxt.com](mailto:ir@internxt.com).

## Token

Internxt ran a small crowdsale from September 7<sup>th</sup> – 28<sup>th</sup>, 2017, and a total of 629,610 INXT were distributed to crowdsale participants, bounty participants and the company, in varying percentages. The undistributed crowdsale tokens were locked forever (effectively burned). No more Internxt tokens will be generated, thus 629,610 INXT is the circulating and maximum supply of INXT. INXT will be used as a means of payment for all our decentralized Internet services using X Core and potentially future innovative tech services that Internxt may create. All revenue generated from our services is directly converted into INXT, fundamentally the same as customers purchasing and paying with INXT directly (which is also possible). For instance, a \$5M in revenue generated from our products and services during 2019, would mean a direct \$5M in buy orders for INXT on public exchanges. These INXT get then distributed amongst Hosts, keeping Internxt a commission. INXT is divisible by 8 decimal places, allowing it to have decimal exponents if needed in the future.