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iTwin the Limitless Pendrive

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ABSTRACT: With iTwin, users can view, edit, and share all of their files and media between any two online computers, no matter where they are in the globe. It is an endlessly secure USB device. The hard disk size of the PC is the sole restriction. With iTwin, you can enjoy bi-directional file access without having to worry about the security and privacy dangers associated with USB flash drives and the cloud. iTwin makes use of carefully considered crypto techniques and protocols. It supports passwords, doesn't store temporary files, can be disabled remotely, and uses twin trust authentication.

KEYWORDS: cloud storage, encryption protocols, USB, iTwin, VPN (Virtual Private Network).

I. INTRODUCTION

Using a large capacity USB storage device is one approach to access the data when you are not close to your computer. However, what if I told you that you could safely access any computer while traveling, including your personal computer? You may remotely access files and devices connected to your home network using iTwin, a device that plugs into your PC. It was created by combining two halves, and it resembles a USB device in appearance. You must constantly carry the second half, which is connected to your home or work PC. A firm called iTwin produced a brand-new file-sharing and remote access gadget called iTwin. It resembles two ends of a cable quite a bit, although the cable is not necessary. Using it is easier than using a flash drive. It is merely a plug-and-play gadget. Any two online computers, located anywhere in the world, can be connected with iTwin. Lux Anantharaman, an Indian, is credited with creating iTwin. He has an Electrical and Electronic Engineering bachelor's degree under his belt. He attended IIT Chennai and IISc Bangalore to get his master's degree. Lux placed his education on pause while he finished his part-time MBA at NUS Business School in Singapore because to the possible

II. LITERATURE SURVEY

The literature review covers a range of research and technological advancements in the areas of data sharing, encryption techniques, and secure remote file access that have helped to establish iTwin. The comparison of cloud-based and direct device-to-device solutions, encryption standards, and remote file sharing protocols are some of the important topics covered.

III. METHODOLOGIES

The creation and application of the iTwin device entail a number of crucial approaches that are centered on data access, security, and usability. The main techniques and technologies used in the development and use of the iTwin for safe remote file access and sharing are described in this section.

System Architecture and Design

Two internet computers can securely view files in both directions using the iTwin system's design. The elements that make up the architecture are as follows:

The iTwin USB device: is made up of two identical USB halves, one of which has the device identity and a unique cryptographic key.

Client Software: To enable communication between the iTwin devices, very little software is needed. The TwinTrust Authentication Mechanism makes sure that the two devices pair and communicate securely.

Security and Encryption

A key component of iTwin's architecture is security, which guarantees that data is private and safe while being transmitted. Among the techniques used are: AES 256-bit Encryption: To ensure strong security against unwanted access, AES 256-bit encryption is used for all data sent between the two iTwin devices.

Device Pairing: The two iTwin parts securely pair by exchanging cryptographic keys during the first connection. The authentication process makes sure that only the connected devices may communicate by having the devices authenticate each other with the keys that were previously transferred during each subsequent use.

HOW IT WORKS

With two USB connectors, the iTwin Connect is a gadget that resembles a USB flash drive. A secure connection can be established between two computers or between a single machine and the iTwin server using the densely packed iTwin device. The software is installed immediately and the computer is set up for a remote connection when you connect the iTwin Connect device to your main home computer. A secure connection will be immediately established between the two machines by iTwin. You can access and manage files as if they were locally stored on either computer while the devices are linked. Drag and drop files into the iTwin window to move them between Computers A and B; the files will sync safely between the two. Any modifications made to files on one computer are automatically mirrored on the other thanks to bi-directional synchronization.



Fig 1 Working of iTwin

You must unplug the device from the main computer and separate the two USB port sections that belong to the two different USB devices. At less than two inches, the two independent devices are extremely dense. It is convenient and simple to always carry with you due to its small size. The second half will automatically install itself on your laptop when you connect it to it while traveling. You won't need to do anything. Additionally, if you lose the device, you can set up a unique password that will disable it. This guarantees you can secure your files to prevent unauthorized users from accessing them.

ITWIN FEATURES



Fig. 2. iTwin Features

The ability to safely access your data by setting up a customized virtual private network that can handle several jobs is one of the best advantages of the iTwin gadget. Using Windows Explorer, you can access all of the files and data on your home or office computer.

Additionally, as long as both of your devices have the iTwin Connect device active, you can access files from your isolated PC and save them to the device you're using right now.

A. Remote Desktop

This function gives you access to the primary computer's desktop and lets you control the device. In addition to being a highly helpful tool for remotely controlling your computer, you can use it to provide technical support to someone who is having computer issues without having to sit down in front of the machine. Windows Remote Desktop can also be launched by utilizing isolated Desktop. It only takes one click to accomplish this, giving you access to numerous applications and the data they contain on the distant PC.

B. Teleport Me

The hidden browsing solution that lets you browse the Internet without any restrictions is called Teleport Me. All websites you visit and data you send through the secure Virtual Private Network channel utilize a comparable Internet connection to the one your home or office PC uses. Teleport Me is designed to connect to the iTwin dedicated network services and give you a private connection in the event that the main workstation cannot be left running for any reason. The organization keeps dedicated servers in the US, Europe, and Asia Pacific. The Teleport Me function is a useful utility, especially when using public wifi networks like those found in hotels or other places where security concerns Teleport Me makes sure that no one can pry into your personal details. It also makes sure that no one is monitoring your online activities. There are no browsing restrictions, so you are free to connect to any other website you frequently use, watch shows, and explore your social network accounts.

Network Access at Home and at Work Almost anything that is linked to your home or workplace network can be accessed with the iTwin connect device. This covers hardware on your home server, such as media servers, cameras, and televisions, as well as hardware on your business network, such as disks or network applications. There are no prerequisite connections or setups needed to access the network. It creates a secure VPN connection to your network on its own.

C. Safe256-bit AES encryption

In iTwin, hardware-grade security is offered. The US government has implemented AES (Advanced Encryption Standard) 256-bit encryption as a security measure to protect top secret sensitive data. When every Remote Desktop component This feature allows you to use the gadget and access the desktop of the primary computer.

In addition to being a highly helpful tool for remotely controlling your computer, you can use it to provide technical support to someone who is having computer issues without having to sit down in front of the machine. Windows Remote Desktop can also be launched by utilizing isolated Desktop. It only takes one click to accomplish this, giving you access to numerous applications and the data they contain on the distant PC.

D. No guarantee of a subscription or contract With iTwin Connect, you only need to pay a one-time fee of \$130 to gain lifetime access to the iTwin device; there is no need for a membership or contract. Additionally, you have the option to purchase the gadget and utilize it however you see fit. It's not necessary to be an expert in mobile. In addition to using iTwin Connect for personal purposes, you can use it to assist family members who frequently contact you for assistance with computer issues. You can manage the Desktop and fix the issue if they only have a single piece of the iTwin device.

BENEFITS OF USING ITWIN CONNECT DEVICE



Fig 3. iTwin Device

The majority of professionals and individuals who are constantly on the go and wish to have access to their files and information regardless of their location choose cloud services to store and backup critical documents. Accessing your data from any device with an Internet connection is possible with a cloud service. Security solutions are widely used by cloud service providers to ensure that their clients' data are sent and kept securely. However, since nothing is flawless, a gadget like iTwin Connect can assist you in covering all of your bases in the event of a data loss or disruption. The iTwin Connect gadget ensures the privacy and security of your files. Since you are the owner of the device, it only works when connected to a computer; it has military-grade security, two-factor authentication, and does other tasks that we have covered in this article. Your data and records are safe even if you keep the primary computer running so you can access it from anywhere.

No matter where you are in the world, the iTwin Connect device offers appropriate browsing as well. You can choose your continent using the "Teleport Me" option even if you are crossing a street. For instance, if you are a US citizen traveling abroad, you can choose the US as your destination and continue to enjoy the benefits of US television shows. This benefit may apply the other way around. You can set your browsing tool to the UK and view all of the shows you enjoy while traveling if you are traveling in the US and enjoy watching shows in the UK. From any continent, you can view the shows and news websites you want while waiting for your trip at an airfield.

This is advantageous because, in the absence of this, you would not be able to access programming that is restricted to a certain geographic area using your device's IP address. You can select among sites in the US, Europe, or Asia Pacific with iTwin Connect. Since iTwin routes traffic through their dedicated servers in these places, you can catch up on your favorite shows and news while you're waiting for your trip in the airport.

IV. ITWIN SECURITY

A. Hardware Grade Security

The iTwin gadget generates an arbitrary 256-bit cryptographic key on-board when two of its components are joined and plugged into a computer. Using the specific iTwin connector, the two parts of the iTwin device exchange this cryptographic key. The cryptographic key remains on the device at all times. Using this cryptographic key, all data and information transmitted across the two parts of iTwin is encrypted. The gadget can be "joined up" by the user to produce the keys at any time and in any quantity. The keys are solely stored inside the gadget and are not accessible to outside parties.

B. Two Factor Authentication

authentication is available on the iTwin device for enhanced security. Your data access is granted based on two distinct criteria: Something you possess: your actual iTwin gadget.

You probably already know this: in order to use the iTwin gadget, you must enter a password. It is optional to set an iTwin device password, however we advise you to do so in order to safeguard your network and data in the unlikely event that you misplace the device. The two parts of your iTwin are the only places where the password you set is kept safe.

C. Remote Disable

The Remote Disable Feature can be used to break the connection between the two sides of the iTwin in the event that one half of the device loses connectivity. To accomplish this, go to the iTwin deactivate Web Center and enter a special deactivate code. After 90 seconds, the connection between the two sides of iTwin will be cut off, making it difficult to reconnect. access to your data via the lost device even if somebody finds it.

D. End-to-End Encryption

Using industrial quality AES-256 bit encryption, all data transferred over the Internet is protected by session keys created from the shared cryptographic key kept in the two components of the iTwin device.

E. Twin Trust Authentication

A distinct device ID and an associated device authentication key are assigned to each half of the iTwin during the manufacturing process. Additionally, every iTwin device has Twin Trust servers' certified public certificates embedded within it during production. Every iTwin is authenticated by iTwin's Twin Trust servers prior to permitting any data transfer. Using their previously shared AES 256 bit crypto key, the two sides of iTwin typically authenticate each other after authenticating with Twin Trust. The HTTPS protocol secures all communication between iTwin and the Twin Trust server.

V. ADVANTAGES

- You can use the device for free for the rest of your life with a one-time purchase.
- The option to remotely disable the gadget in case it gets misplaced or stolen.
- There are no limitations on the size or kind of files.
- Secure file and data transit is ensured by its military-grade AES encryption.
- A personal VPN shields you when using public and hotel Wi-Fi networks.
- Two-factor authentication adds an extra layer of protection.
- Having access to other features like the network and devices connected to it at home or at work.
- You can carry on with your regular browsing when traveling thanks to flexible and secure browsing.
- iTwin Connect works effectively with devices running both Mac and Windows.

VI. DISADVANTAGES

- The iTwin Connect device's overall length of 3.5 inches makes it extremely easy for the components to misplace one another when they are split apart.
- When connected in, the iTwin Connect USB dongle may slow down network speed.
- Require mobile device capability; • Files must be shared before they can be accessed.

VII. CONCLUSION

Thanks to the AES 256bit encryption technology, iTwin Connect unquestionably offers a special way to give you safe access to your files and data from a distance. With the exception of sharing data exclusively between your primary computer and yourself, the iTwin connect device functions similarly to peer-to-peer wireless connectivity. You can still access your files if your primary computer is a Mac and you are traveling with a Windows device because iTwin Connect is compatible with both operating systems.

For the home user who wants to safely and remotely view and modify their data, the iTwin is an amazing solution. The iTwin bypasses the virtual world of cloud services and instead turns your physical storage into its own virtual universe. networking solution. The Drop box constraints are resolved affordably and easily with the iTwin. The iTwin is for users who wish to keep files current between two PCs.

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