# ABOUT NETSSO

**netsso**
secure cloud organiser

## About Netsso

Netsso.com is a suite of integrated internet services made by HST Netsso Ltd in County Donegal Ireland. Contact:  Brian O'Doherty, CEO, email: Brian@Netsso.com

## 1.  Overview of the product

Netsso's mission is to enable the typical internet user to do all or most of his or her internet business in a secure and highly productive manner, after just a single login, on any computer, most devices.

Working through your Netsso brings extra smooth comfort and speed in navigating around your web. Using Netsso you don't forget where you might want to go to that web page you came across once... you search to find it very fast, and click, to go there speedily and reliably. Many of your actions are in private—depending on your options—including searching inside Netsso, free of tracking, spam or intrusions.  Your Netsso is exclusively yours, personally, made and shaped by you, to suit your interests. It is both your "Memory Palace" for all places and objects on the internet which you decide may be of interest to you in the future; and your Library of Knowledge Resources, linking you to any data or content online which you want to store, in any data format, optionally partly or fully secured, in a simple, strong encryption system, under your control, to assure your privacy.

Your data can be shared with anyone you choose, and even managed in group or team environments, such as common interest groupings or corporations, without loss of privacy. Indeed it seems ideally suited to the file sharing and communication needs of the new world of "distributed companies", where an increasing percentage of workers, and especially tech workers, work from home or other remote offices. This trend, already begun some years ago, is driven by the move of computing to the "Cloud", the arrival of technologies enabling remote working with security and, above all now, the consequences in society of climate change. Netsso fits well into this distributed-remote working world and, indeed, is, itself, a fully remote-working company.

Because Netsso's Single Sign On (SSO) is your one login to all the places known by and liked by you on the internet, as well as your personal administration files, Contact Lists, phone directory, web mails, instant messaging and other communication methods, it is obviously a great Start Page for your daily internet journeys. And if you keep it On in the background, you can add newly found places and objects to it with a simple click.

## 2. Briefly, the Main Services and Features
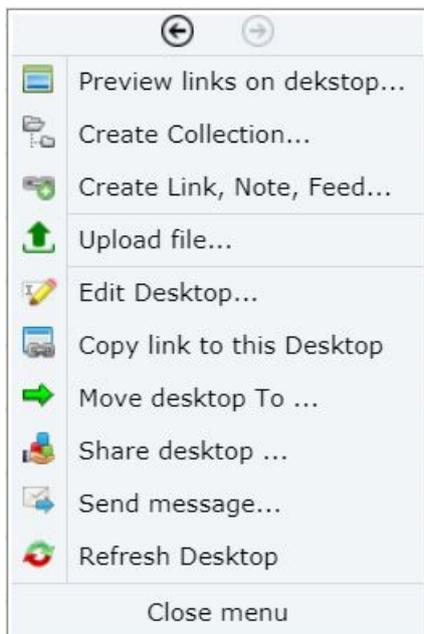
### 2.a Password Management

Netsso started out as a Password Manager, a service that enables users to remember passwords for their apps and certain other web sites—those requiring logins, usernames, passwords—before giving access. As users sign up for more and more web places, they need systems for helping them remember their usernames and passwords, their "credentials" for these places. Otherwise they are tempted to use the same password everywhere, or simple passwords which they can easily remember, as can hackers. Various services developed to handle this problem, typically places where users joined up, provided lists of their apps and associated passwords and then, when later trying to login to an app, were reminded of the passwords.  Tens (perhaps hundreds) of millions of users have signed up for password management services and the number is increasing fast as concerns about lost passwords, hacking, privacy have been growing in recent years.

*Figure 1. Desktop Context Menu*

Netsso's password management service is different in that credentials, where needed, are known to your local Netsso and supplied, along with link data, to the target web page and logged in by Netsso; so there is no need for users to stop, be reminded of the correct passwords, and then have to type, or copy-paste them.

## 2.b   Bookmarking

Secondly, Netsso offers a bookmarking service, where users create links to any "url"s, anywhere on the internet where they might wish to go to, ever. The system stores up to many thousands of links, on a unique "landscape-style" palette, divided into tabbed pages ("Desktops"), on which links can be created, dragged around, annotated, grouped into "collections", be dressed with icons , on many different backgrounds, encrypted, as needed, and shared, encrypted or decrypted, to other members or—unencrypted—to any email address.

Netsso's ambition for the bookmarking service is to enable any web object or place, web site, page, image, music track, video, etc—any place or object with its own URL—to be linkable from Netsso, with one click by the user. Inevitably, some of these links will be destined for user's apps or membership sites, where he must login credentials, username/password. In those cases the bookmarking service is fully integrated with the password management service, and, having clicked the link to go there, the user finds himself being logged in to the target destination by Netsso at high speed.
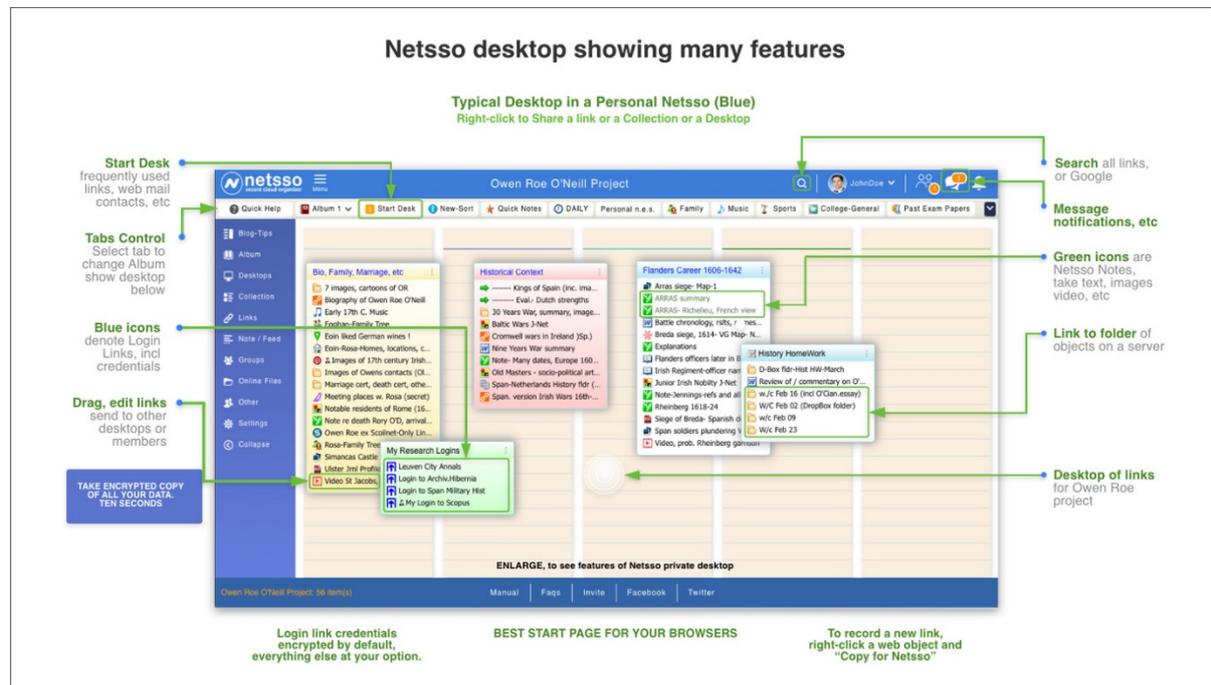


*Figure 2. Netsso Desktop*

*Enlarged version:* http://www.netsso.com/viewimage/personal-annotations-rev2.jpg

## 2.c   Secure Online File Management

In recent years, as a result of the "move to the Cloud" and contributing greatly to the move, online file storage has become a major internet service and hundreds of millions of web users rely on it for storing and sharing files. (Over two billion people on the planet have signed up for membership in one or more of the storage services). Billions of files are uploaded or downloaded or transferred every day. Therefore Netsso, in its ambition to provide a one stop (or Start) shop, with just one SSO password, for all a user's navigation needs on the internet, decided to extend the scope of its service to include users' click-access to their files online.

 It therefore offers a simple procedure in which a user can upload files to any (or all) of Dropbox, Google Drive and OneDrive storages and click-encrypt individual files while doing so; and then manage those files as per the storage service's normal management options, pick up the files from storage on any computer/ most devices, decrypt them as needed while picking them up, and/or share them, still encrypted, with other members of Netsso, or, in unencrypted mode, with email addresses. No manual actions are needed, apart from one or two clicks. Further, Netsso links can be simply made to the individual files (or folders) in their stores and placed on any Netsso desktops, integrated with the bookmarking service. They can be managed and decorated, and categorised like any other Netsso bookmarks and the files can be fully managed via their links, obviating the need to even open the storages in order to access the files.  The links to any and all files on any or all storages can be mixed together and managed in Netsso without reference to their actual location, in effect extending the operations of the storages and the utility value of each.

Access from Netsso to the participating storages is of course password-protected, by built-in passwords and of course neither the administrators of Netsso or of the storage services can read users' encrypted files. All decryption is local, on users' computers or (Android) phones.

## 2.d   Collaboration Groups

Netsso was, and is, designed to be private and personal, a single-sign-on dashboard in cyberspace from where a user can manage all his web-based resources and activities, his personal internet world, productively and securely. But the economic and social environment in which our user works is changing fast, and indeed with urgency, due to climate change. Soon, familiar societal structures will be replaced by new structures and configurations designed to be less damaging to the planet, by reducing fossil fuel consumption in the transport of millions of workers daily to centralised offices and the encouragement of remote working by individuals and small groups in less stressed locations. The move to the distributed organisation, in business, education, government will bring with it a demand for advanced internet communication methods and, in particular, web-based collaboration systems.

Netsso is already a "distributed, remote-working" company, using its own services and, in particular, its "collaboration" mechanisms to do all its work efficiently and securely.

 A Netsso collaboration group can be set up by any Netsso member, very quickly. In fact, technologically, it is treated as a new member of Netsso, that is, it is regarded as an entity with its own personality, and is entitled to all the normal Netsso services, features and functions that a new member would have. It can have its own master password—though it never needs to use it—and its own space in online stores for storing its own files online. It has desktops, collections, backgrounds, links, etc and, in fact, looks very similar to a private personal Netsso, minimising the familiarity time for new members, when invited to join by the user who set it up and becomes its manager. The manager also awards various access, editing and other permissions to members of his group and he can take an encrypted backup of all data in the group for archiving purposes, if needed. The one big difference in the collaboration group is internal communications, which is provided in the form of encrypted messaging, "chats" on any topic set up by any group member, and Discussion Notes, for threaded iterative development of ideas and debate on decision making and other purposes.

# 3. In more detail...

### 3. a  Password Manager

There are quite a few Password managers on the market, many of them with more functionality than Netsso's product. For example, some offer to create and propose passwords for the user. Most offer to present the password for the user's app at the doorway to the app site, reminding the user of the credentials he needs to type in or copy-paste. Most, or all, are sophisticated ways of storing and presenting apps' passwords or other passwords, such as identity passwords to use in making online payments to utility companies, etc.

Many of these products—all, perhaps—are better designed websites than Netsso's password manager site, for the simple reason that Netsso doesn't have a site! There's nothing to look at in Netsso's case. There's no site, or even a web page, to click and open. In Netsso, the password manager function is built into the Bookmarks function as part of the bookmark itself. When the user clicks on a link (bookmark) to get into a web place, Netsso brings him there and, if credentials are necessary, logs him in.  No problem, no fuss!  There is no need for the user to pause, read from some service what his password for that particular site is, and then copy-paste it. That's all done by Netsso, speedily and transparently, as part of the bookmark process

At the other end, in making the bookmark, there is another difference in Netsso's approach: A special type of link, which is called a Login Link, has to be used. Bookmarks to places which do not require credentials for login use normal Simple Links. Login links, made by the "Login Pilot", are special in that they collect a user's username and password, and also other data from the destination site, such as exact URL to the desired page on the site, type of login system used, whereabouts of the login form and how to fill it, etc. Most of that is done by the system in the background, but the user himself has to bring the Login Pilot to the URL and enter his credentials one time (while making the link for the first time). The user's credentials and site information are gathered into the link data and consulted ever afterwards by Netsso when the link is clicked and operated.

These login links can be made for almost any web site, or object requiring credentials. Sometimes, websites prevent the use of "programmed" login data and in that case, the Netsso user can copy-paste the URL of the site onto a special Login Memo link form and, at worst, he will have to use that to go to the site and copy-paste the credentials.

Getting to remember how to make the login link is easy, estimated to take just two tries! Anyway, it has an on-board guide and also a little guide video if needed. Also, leading sites, including most social media sites, can have their Login Links created via a Netsso-supplied template, which just requires the user to enter his username and password when making the bookmark links.

The Login Pilot has another benefit. If it is installed (and it is the only piece of software which you ever have to install in Netsso) and your Netsso is alive—which it should always be, for efficiency—then when you arrive at a new web place which you want to record, you can just right-click on its page and select "Copy for Netsso". Then right-click on some Netsso desktop and "paste". This is very fast link making/recording of Simple links.

Login Link data is always encrypted by default in Netsso. This is to protect from hacking or accidental loss (via a smart phone or laptop, for example). As for all encryption/ decryption in Netsso, the encryption of the Login Link is done locally i.e. on your local machine, and never on the Netsso server. Also, when you try to share a Login Link to another member or email address. Netsso will question you, reminding you that it contains sensitive data, before letting you proceed if you wish.  (The risk is that your recipient could click/Edit the link and see your password for some site).

So, for all intents and purposes, the Login link IS Netsso's Password Manager System. It needs no bells and whistles and does its job perfectly. Without a separate website of its own!

The system has many applications and user types of relevance:  Firstly any internet user who visits many credentialed sites often will certainly benefit from putting those credentials into their Netsso and just clicking to go there in future. People who compile data, or research on the internet, such as journalists, college students,

researchers are also likely users.  Other professionals who need to remember a lot of apps' passwords, for themselves or clients—such as marketing consultants, social media managers, PR companies, will also find the system very productive.

Indeed any person, or group, of people—in a small team, for example—who wishes to use "integrations" to their collaboration software, will often find that simply using Login links to the other apps they wish to use and opening these apps in adjoining windows to the collaboration window can be a satisfactory substitute for deeper integration.

## 3. b   Bookmarks

Netsso Bookmarks look different to other bookmarking systems. Links are not displayed in a linear fashion but as objects, like short files, placed on desktops, made as a wide, landscape-style platter, comfortably holding up to 100 links each, if desired. The links can be placed into "Collection boxes", which open/close with a click, and hold an unlimited number of links, but normally up to twenty. So, the links —assume 80 per desktop—are displayed in click-open Collections on a desktop, denoted by a tab name, and the desktops are then gathered into "Albums". A power user might have 10 Albums—though there's normally no limit—each with, say 20 desktops inside, each desktop denoted by a tab, and each holding average 80 links, making an easy-to-carry total of 16,000 links for the members private Netsso.



*Figure 3. Netsso Structure*

Links and Collections can be dragged from box to box and to other desktops or Moved or Copied by right-click to other desktops or albums. Desktop backgrounds can be changed, picking from c. 30 options supplied by Netsso, or the users own uploaded preferred designs. A range of c. 50 icons is offered for links, denoting different categories and status or urgencies.  In making links, destination sites often download their site link too.  Backgrounds and texts can be displayed in a range of colours selected by the user and even the complete landscape palette can be changed to other combinations of colours.

Each user will have a default Start Desk, where he arrives after login, and, by recommendation, where he might keep his most used links, or collections of links waiting to be studied and re-allocated, as well as his Contact list, his Profile and other administrative data. The same Start Desk will appear in every Album.

Netsso provides different link Types, for different purposes: The majority of normal bookmarks will be made as Simple Links; Login Links will be used to make bookmarks which hold users' login data for the target sites/web places requiring credentials, as described in Netsso Password Management; Login Memos are links which hold login information in rare cases where complete automatic logins are not possible, as happens with a small percentage of websites; there are also links to Notes, which are html documents made and stored in Netsso, highly functional, as explained elsewhere. Also Netsso has special links to installed RSS feeds; special links to online storages, set up for Netsso's Secure Online File Manager (SOFM), explained elsewhere.
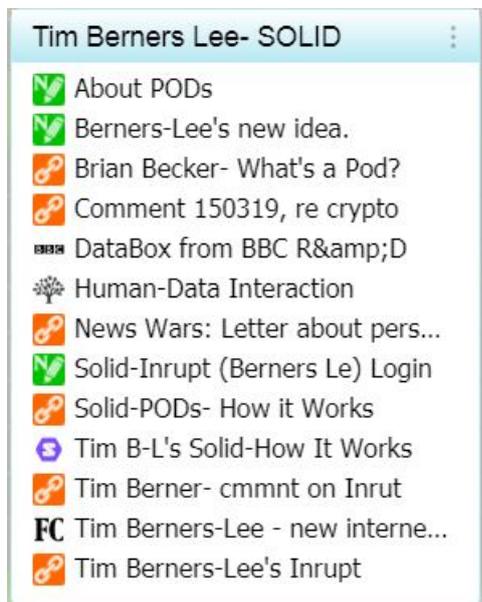


*Figure 4. Collection of Simple Links, Notes (green) and other links*

In making a link, the user can provide information about it, why it is considered important or relevant to his interests, or any other notes, in the special Descriptions Field of the link-making form. This takes up to 400 characters and together with other meta-data is searchable. (Notes are fully searchable). Descriptions popup as "mouseovers"

Whereas most bookmarking software is for "social bookmarking" purposes, where newly found sites are displayed for the general public to review them, Netsso's is private and personal, primarily for the user's personal use. The links may relate to his professional work, or study, or other research, and are categorised by him accordingly (into different desktops or collections). But, in the same Netsso he can carry all other information he needs or wishes to have at hand on any computer

or most devices, or simply wishes to store for posterity. (He has the option to "Save the Content" (of Simple links) and Netsso will go get the content and save it for him in an online storage service and folder there, designated by him). He could have special desktops for Family, Interests/ Sports, Health, including large selections of resources on health issues of concern to him, legal documents, his will, annual financial reports and tax returns, as well as all his contacts, copies of correspondence, Twitter tweets and attachments, etc. In summary, anywhere on the internet with its own URL, and not to forget, folders of sundry papers held in Dropbox, for example, and his education records and documents to support his CV, his webmail, of course and also of importance "work-in-progress" temporarily saved in a collection box suitably named to remind him, for example, to continue the project from another computer later.

The user can click to "Encrypt" his links fully, (in which case they cannot be searched in Netsso, and the user should add some tags to the link so he can later search by tags).

Although it is primarily a "Memory Palace" of user's contacts, resources and web-based Knowledge, the bookmarks can be shared with other Netsso members by speedy "right-click/Share", or, by email to any others. Individual links, collections of links, desktops full of links can all be shared speedily, and, if received by another Netsso member will arrive perfectly formatted ready to be clicked by the recipient. Netsso will normally warn the user if he attempts to share encrypted links, in case he has accidentally forgotten that they may contain sensitive information. But the sharing can continue after user confirmation. Netsso Notes can be shared too, securely. User A can write a long document in a Netsso Note, encrypt it, and click/share to another user, who will be able to decrypt it, if he is the designated recipient. He can then edit the note, re-encrypt and send it back to user A.

Sharing in Netsso is "outward" sharing, that is documents are transferred to the recipients; for security reasons Netsso does not share like many other apps, by letting outsiders come into private folders or web pages.  A Netsso user's data is "ring-

fenced" for him alone, and can only be "outward-shared" by his decision. Even the user cannot update his data via email.

All of a user's data in Netsso, including all bookmarks, descriptions, notes, etc. can be backed up, for security reasons, to any computer, in seconds, where it will arrive encrypted by the user's Netsso Master Password. This is to protect against data loss should something catastrophic happen to the Netsso server or data centre where it is hosted. Netsso data is backed up by the server Administrator anyway, but he cannot read or retrieve encrypted data belonging to users.

Making new links is simply a matter of right-clicking (or tapping on tablets) and entering the data on the appropriate form. If the Login Pilot (see Password Manager) is installed, and  Netsso is running (alive), then a new website, or place or image or, other web object can quickly be linked by right clicking on the site or page and choosing "Copy link for Netsso", and then pasting in to the chosen desktop.

Netsso is addictive. Many users never turn it off during a computing session. They move to the next web place in navigating the internet by clicking in their Netsso if the place they want to reach is a revisit and is linked in their Netsso. In such cases, a search in Netsso is likely to be faster and more reliable than using Google. (Over 50% of all Google searches are for places the searcher has been to before, but after some time he doesn't easily remember the original search terms). In any case, Netsso, with its single login to all its contents and web places, is the easy, comfortable, secure and speedy way to surf the internet.

### 3. c    Secure Online Files Manager (SOFM)

A growing part of a typical internet user's time is spent on his uploading, transferring and other management of his files which he wishes, or needs, to hold online. In its efforts to give a member a login-free ability to go to all places he may wish to revisit on the internet, Netsso incorporates the member's access to his many individual online files into its system. After the standard Netsso SSO login password, entered

only at the start of a computing session, the member can click to go anywhere else, including his files online in Dropbox, Google Drive and One Drive.
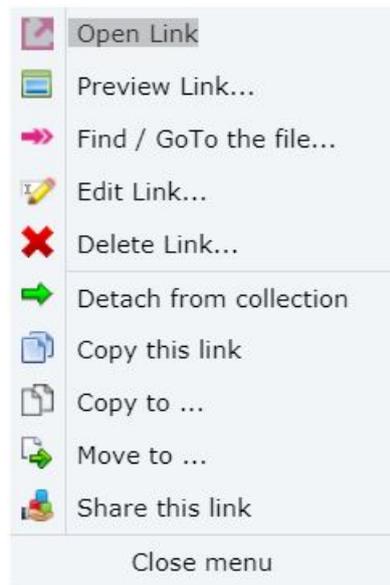


Open Link
Preview Link...
Find / GoTo the file...
Edit Link...
Delete Link...
Detach from collection
Copy this link
Copy to ...
Move to ...
Share this link
Close menu

*Figure 5. Options for link to an encrypted file in storage*

This service, named Secure Online Files Manager (SOFM) is provided on the familiar Netsso landscape-style palette, among other desktop tabs and sidebar navigation, but with a special interface for files inside the three storages – using the same interface for each. (See image) From his Netsso page, the user manipulates the files in his store in approximately the same manner as he would if he was using the standard interface to the stores.  (Except, it is claimed, that via Netsso it can be faster and with some extra functions). He can click-switch between storages in a few seconds and back again, without leaving Netsso.

Two important aspects (if not more!) make this service a very interesting one, perhaps uniquely so, for users wishing to manage their files online securely. The first is encryption, of individual files, and done by the user on his local machine(s) (without installed software). It's extremely simple... just load your Dropbox (or other) files through your Netsso/SOFM page and click to encrypt them, with a random 40 character password, each file individually encrypted. Later download an encrypted file to any computer, where it will decrypt, for you alone. Below is a sample of a typical encryption key made in Netsso which could encrypt your file on your local computer (or Android), and then it is itself encrypted by your Master Password—never forget it! The key is then packed with the file before it is uploaded.

(Typical encryption key: ^Nup0?8hvYWZ7RIbJVFShydhhXJa]MAemAmoi{1t  )

Later, you can download the file, through the SOFM system, to any computer and many devices, including Android phones. It will decrypt for you, or your designated recipient on arrival.

Figure 6. Section-users storage interface

(Decryption in Netsso is Always Exclusively on the user's machine). You can also share the file, to other Netsso members and it decrypts for them, via special "sharing keys" which all members have, generated for each member when he first signs up to Netsso.

One can imagine that in a distributed organisation, for example, this encryption system, combined with the storage of files in public stores, and worked by simple clicks, provides a simple and very secure method of transferring files across an internet network, just as safe as, or safer than the task of transferring files within the corporate LAN. This can be done between any members of Netsso, both individuals and teams. An organisation communicating with remote or outsourced workers simply joins them to the Netsso network and uses SOFM. A doctor can safely communicate with a patient, or hospital, a lawyer with clients, etc.

(This system is integrated also into Netsso Collaboration Groups, with the added benefits of secure instant messaging, discussion notes and adjoining desktops and collections of potentially thousands of links to relevant knowledge files and sources).

By the way, inside your SOFM storage page you will find a preliminary version of Netsso's "Google Doc" appropriately called a Netsso Doc. It is an html file maker (accepting and editing all types of data, images, tables, video, and all "rich text"). You can use that template to create files on line and distribute them as needed.

Netsso also offers a similar facility for making files—and other document types—on your Netsso desktop and for storing in Netsso, where they are fully searchable. a Netsso Note, also an html document. These are a "backbone" in Netsso collaboration system.

Another interesting aspect of Netsso's SOFM is the file link facility. When a file is uploaded to a storage service a link can be made to it and placed in any Netsso desktop (probably a desktop or collection where other links on the same theme are stored). Thereafter, almost all file management tasks—including encryption, decryption, transfer, editing—can be undertaken from the link only, with no need to go to the storage directly. This makes multi-nodal secure file management even simpler! The links themselves can be managed like any other Netsso link. It can be decorated, given a searchable Description, dragged to other, even temporary, collections, shared (in encrypted or plain state), grouped and re-grouped with other links of any type, etc. Many file types, including pdfs, text files, Notes, and images, can be "Previewed" via their Netsso links, that is, speedily viewed before opening.

These links can be made to files held in any, or all, of the three major storages with which Netsso is integrated. Then they can be dragged, grouped, etc. on any of Netsso's desktops or in any collections. In other words the links to files on different storage services can be mixed together, as needed, and a search of these links (and their 400 character descriptions) means, in effect that you can search all your online stores at the same time.

You can group files with common themes together, irrespective of their actual location, only by manipulating the links, that is, without moving/ touching the files. (In a team situation, where different members often have different opinions on the matter of how to organise and structure the common file system, each member can arrange his own view of the common file structure, just by organising the links to the files in his preferred way, without disturbing the files themselves).

If asked: "Who Needs Netsso's SOFM service?" one would have to answer: "Well... Everybody!" Certainly this includes anybody who uses Dropbox or other major storage services, and are concerned about the risks of people reading their files in storage or stealing their data. And that's probably a lot of people. Dropbox alone claims over two billion signed members. Then there are millions of remote workers in the world. In Ireland alone the estimate is 216,000 employees or independent

professionals working remotely, usually from home. And a strong trend continues towards the "distributed organisation", as mentioned above.
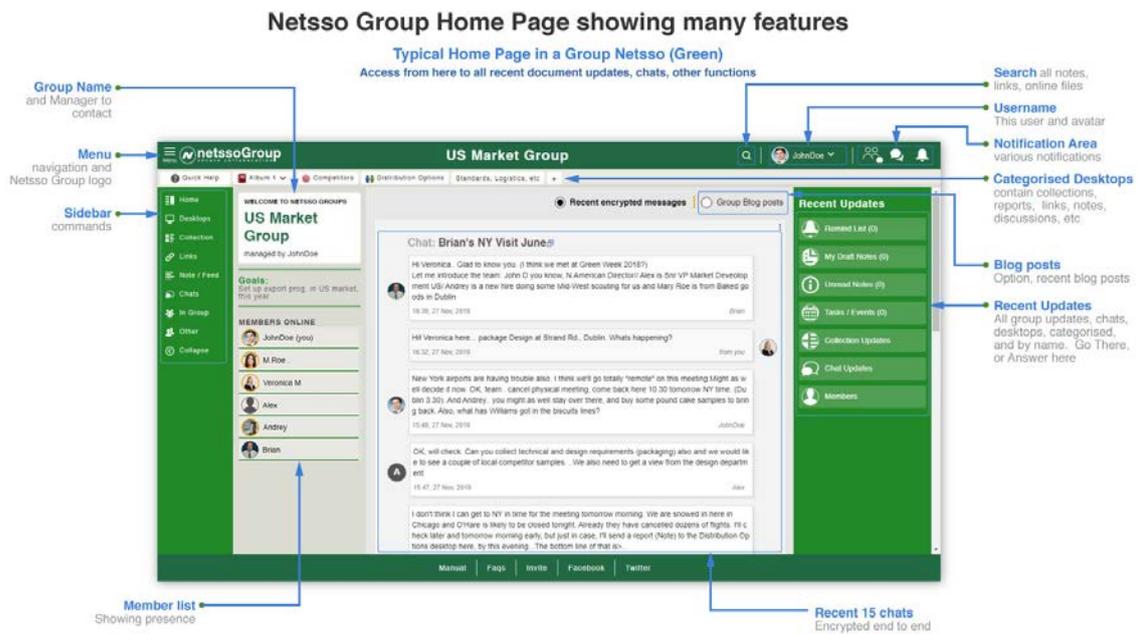
## 3. d    Collaboration Groups, in more detail



*Figure 7. Netsso Group Home Page*

*Enlarge version:* http://www.netsso.com/viewimage/group-annotations-rev2.jpg

Netsso enables the establishment of groups of collaborating members, always private and always by invitation. The group is technically constructed as if it is a new member of Netsso, with its own personality. However, it doesn't register as a new member, nor obtain an independent profile. It is some form of subsidiary of the Netsso member who sets it up, its Manager.

All the services which Netsso offers to personal, private users are also integrated and offered to Netsso Groups but still presented on the familiar highly functional desktop, bookmark fashion.

Any member sets up a group in seconds, and invites any others to participate. The founding member becomes the Group Manager. He sets and manages various access

and editing "permissions" (including Read Only, if he wishes) for the members of the group. He gives the group a name and obtains managerial status, including access to group Activity Logs, management of access to Albums—which can be managed and access-controlled selectively among group members—establishment of the group online storage connections, and editing of the group Blog (which he can also delegate). He also can decide to back up all data currently in the group, by clicking to download the entire contents of the group in seconds, to any computer, where it arrives encrypted by his Netsso master password.

Services include encrypted Note-making (html), link-management and sharing (as per Netsso's Bookmarking service, described elsewhere), online file-sharing in public storage services and also in a special Netsso Drive, currently on trial in groups only. Full or partial encryption of any object is optional to group members. (However, certain items are encrypted by default, such as login credentials to various web destinations). End-to-end encrypted Chat, set up by any member for any topic, for any invitees, is heavily used and very useful for short discussions. Longer discussions are held in Notes, in a multi-editing discussion system.

Chats, Notes and Collections are the backbones of the system: Chats can be set up by any member of the group, who invites one or more others to chat about some topic. (Two people could place all their normal communications in a chat, on an ongoing basis, to enable them avoid the nuisance of email). Short, quick messages are written in a chat, and longer reports, proposals, issue descriptions, are placed in a Note. A link to the updated Note, can be attached to the relevant, associated chat message. There is no imposed limit on the number of chats, or notes, which users can create.

Notes can be used for traditional note-taking and reminder purposes and for any other type of document, including long descriptions. They can use Rich Text, to enable images, tables, even video to be included. They can be managed, like any Netsso link, including dragged, encrypted, shared, etc. Very importantly, they are frequently used as Discussion Documents (to supplement shorter discussions in associated Chats).

Anyone who has access to the Note can read and comment on it. The comment will normally display his avatar, name and date, time of the comment, and can be freely inserted into any part of the Note, allowing comments to be directed to any controversial issues, however minor, very exactly/ directly. After commenting the writer may decide to inform his correspondents that he has made the comment by sending a short message in a chat (and dragging-attaching a link to the newly commented note). In any case, Netsso will record the comment as an Update.

The group will typically have specialist Desktops, organised by subject or theme, on which Notes and links to files, held in the online stores, or links to any web data or web objects are placed. In effect these documents and links to web resources are placed there by members as support documentation to the discussions in the Notes. They may be considered as the groups Library of on-board Knowledge.

A major purpose of "web-based chat messaging systems", a hot new item on the internet in recent years, is to avoid the disadvantages of traditional email by enabling collaboration discussions to be focused more exactly onto individual topics, by separating topics in to directly accessible folders called "channels". Although most such systems are working successfully, certain structural problems have been observed: the action is mostly in chats, which are fast moving, synchronous, and best suited for brief discussions, and where it can be difficult to find older information when needed. Also, there have been many complaints about overwhelming amounts of update notifications in users' email, often to announce trivial, irrelevant information, yet distracting to users, who are reluctant to simply ignore the notifications.

Netsso's system is designed to minimise these nuisances:

- Netsso has chats, but most important discussions and updating comments are in associated Notes, and these are placed into Netsso Collection boxes, with other relevant documents, other notes, links to files, links to relevant web resources. In Netsso's scheme, the "channel" is considered to be the Collection box, where all relevant documentation is grouped, securely by topic (and capable of being archived). A Collection can take dozens of links and notes, if

needed. At a higher level, a Desktop is also a channel of common direct communications on matters of common interest.

A recent group formed in Netsso was set up to manage the design of Netsso's new interface. It required participation by three members, all located in different countries, and the preparation and exchange of many draft design ideas, discussion notes, briefings, etc. After 4 months work the job was done. About 100 links were created and stored in 15 collections boxes (or "Channels", for sub-topics), and all placed on one desktop, titled "New interface". The Desktop, containing a full record of the complete project, can be shared to anywhere—e.g. to any other Netsso members or groups, in seconds, or, via email to non-members, a little more slowly—or be put away into an archive, stored for posterity. Searching of older information is never a problem.

- Every update of interest to a user—i.e. where he is associated with the topic/channel—is recorded as a notification by Netsso and a short summary of the accumulated unread updates sent, once daily, to the member via email. He is also notified in his personal Netsso, by a small orange icon, when any group documents are commented or new documents or chats presented. But the main notification is on the Home Page of the group itself, in the "Recent Updates" column, where all updates are gathered, and categorised by the name of the member who updates, type of update (collections, chats, etc.), name of updated file or other object, etc. The member can manage this list to decide what updates he should look at and then click to read the update, and answer it or edit further, without leaving the Home page. This system works superbly.

A trend among some of the bigger makers of collaboration systems (at least Microsoft Teams and Slack and expect Google will do something similar) is to "integrate" with many other apps, so that their members can access their favourite other apps inside the collaboration software interface. Perhaps this is a nice idea for them, but it is not Netsso's intention to do the same. Netsso would be concerned about violations of Netsso security and privacy controls. All of Netsso groups are private, whereas many

of the competitors' groups are large public groups, for large corporations, somewhat like public intranets (although they also offer private versions too). Second, the real service from the integrated apps is, quite often, simply notifications of updates in those apps, which the user can read in the collaboration window (and, sometimes, respond to). Adding more to the notification chaos which is already causing problems in user/worker distractions is not on Netsso's agenda. However, thanks to the integration which natively exists among Netsso's different services, it is entirely possible for any Netsso user to make Login Links to any or all of his external apps, and click to login to them transparently while he is in a group, opening them in adjoining windows from his task bar, should he wish to do so. In addition, Netsso already has deep, effective, productive integration for online file storage with three major storage services, Dropbox, Google Drive and One Drive, as explained in our SOFM section.

Netsso Groups are an excellent method for communicating Knowledge between friends, employees and other collaborators and for channelling communications directly onto designated topic areas.

## 4. More about Netsso Notes (and Docs)

Netsso offers a rather unique entity called a Netsso Note. This is a special html file which is created and lives online in Netsso. It has many Word.doc-type editing possibilities and can be encrypted and shared with other Netsso members or emailed to any address.

A Note can be searched by any keyword in its content, or by tags (useful if it is fully encrypted). It is used in one's personal Netsso for many purposes, from small reminders, on-going calendars, html tables, sharing images or small videos, and drafting long reports (maximum 512 kb currently).

In a Netsso Group, it is also very useful as a "Discussion Note", where long descriptions and iterative synchronous and asynchronous communications are required (as in these situations instant chat begins to become impractical). In a group,

the Note can be edited by all group members, normally. Any user can click to insert his comment at any point in the document. His comments are automatically noted in the Recent Updates column on the Home page of the group, and can be accessed (and further edited) on that page, very conveniently.

(Although designed for communications in groups/ teams, the discussion aspect also works between separate users in their personal Netsso's: A writes a rich text document, and Shares to B, who edits anywhere, adding his comments and Shares back to A, and so forth. The note can also be encrypted, transparently, and only will decrypt for either A or B. It's much more satisfactory than ordinary email.)

Notes can also be downloaded to local computers, for archiving and other purposes.

Netsso also offers a "Netsso Doc", an html file created and stored online by the user, in one of the three online stores which Netsso works with, and which can be encrypted and shared with other Netsso members. The Doc has a file size of c. 10 Mbs. It is used when the user asks Netsso to Save the Content of a link for him, perhaps a link to a large web site, page or object. The user can also make a regular web page with it if he wishes. It is searched by file name only, except possibly in Google Drive, where it may be searchable by all content. It can also be downloaded to local computers/Android phones.

## 5. Applications

Netsso's integrated services are of potential value to a great many internet users, both in their personal private roles and in communication with others. Below we suggest some user types, or situations, where we feel Netsso can make a great contribution to user's internet security and/or productivity:

- According to figures produced by the major online storage services themselves, there would seem to be well in excess of 2 billion users signed up for these services, for storing and transferring files. Netsso can simply encrypt these files at the level of the user's computer or phone and also offer other efficiency improvements.

- Small, medium and large organisations are moving to the Cloud and increasingly becoming "distributed companies". Netsso provides a secure and productive method of connecting to remote workers, alone or in teams.

- Professionals—such as doctors, lawyers, accountants—who provide services, including the conveyance of sensitive private information, to individual consumers, or small groups, will find Netsso excellent, safe and convenient for such tasks, including the need to store records of documents or transactions.

- People who make considerable use of the internet for research purposes will use Netsso as a place to gather and organise, and protect, research information, on a temporary or ongoing basis. As well as offering security, and organised storage of data, Netsso offers a very mobile and flexible system of managing data, categorising, grouping, moving data around, sharing and re-organising as needed.

- Specialists who need to keep data easily available, but editable and secure-patent lawyers and writers for example, should find Netsso's facilities to be near perfect.

- Individual users may use Netsso's very large onboard storage capacity for storing not only professional or work-related information, but also, in separate desktops or albums, for storing personal and family stuff too. including perhaps such items as education records and other records to support one's CV, important legal documents, and agreements with others, wills, medical histories, etc.

- Users of mobile phones will find that a suitable way to surf the internet in Android  phones (IOS still under development right now) is to do so via Netsso's one click bookmark/login system, which brings you to your destination without the nuisance of typing complex urls and hard to remember passwords. Also, click in your mobile, via Netsso, to read your documents held online (even if encrypted), or to transfer them to colleagues and friends.

- Teachers will find Netsso of real value in motivating students by use of game-type, peer-to-peer learning. For example a teacher could form a Netsso collaboration group with 6-8 students, set up to research a semi-obscure topic related to the curriculum. Over a period of week 1, students would research

the internet—at home—for interesting information related to the topic; after a week, the teacher can check their progress, curating their collection of links, and re-orienting them to particular aspects of their research so far; and again for the next 1-2 weeks. By the end of the project students will be excited and proud to present to colleagues an excellent collection of often new information pertaining to the topic, all on one desktop of up to 100 well studied and curated links to external sources and to their own notes.  Other students could be studying other topics in other groups.  The results of each project group can be zapped to other schools in seconds.

- Netsso information repositories should be very useful, to online tutors and even in large online education courses.

- Workers who have to keep track of many different apps, with many passwords, should find Netsso's password management to be very helpful (especially its one-click-login to password-protected apps)

## 6.  Summary

Netsso therefore offers much to the individual internet user, seeking a very convenient method of organising his web resources in private and having them available to him on any device, from where he can speedily search to find the places or objects he needs to revisit without being tracked and profiled by observers and without having to remember complex web addresses or access passwords. Netsso will be attractive to individuals who value their privacy but who also want convenience in traversing their internet worlds.

But Netsso also offers a highly productive and secure environment in which individuals can communicate with others, sharing and developing knowledge, creating and managing projects, whether on a one-to-one or team/group basis. Team chat and user's credentials are always encrypted by default and the user himself has the option to encrypt all other data as he wishes. A member can establish a secure chat channel with one or more of his regular correspondents, obviating the need for email. And,

Netsso's team (group) space is adjacent to each member's on-board bookmarks to all his web knowledge and other resources, including all his files held online. Any other application which a member needs to use from time to time can be accessed with a click.

Netsso's ambition to give members the ability to manage all their web-based activities after a single login (SSO) is substantially achieved, with enhanced security and productivity.

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B.O'D. Dec 24, 2019

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