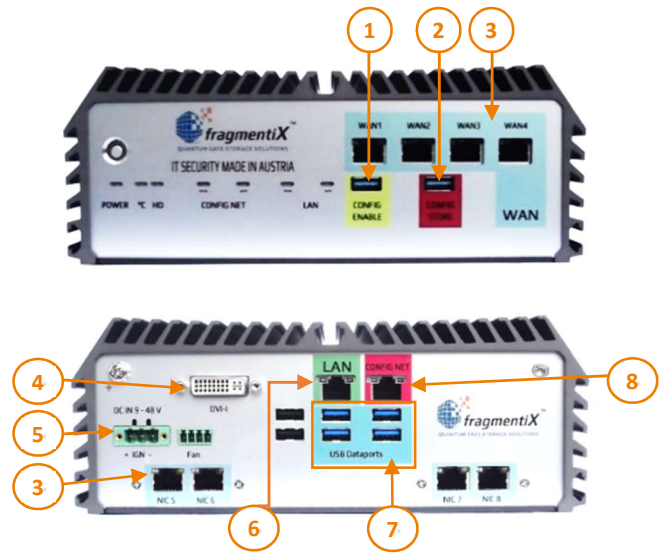**fragmentiX**®
QUANTUM AGE CYBERSECURITY

fragmentiX THREE®, fragmentiX FOUR®
... to use hybrid/multi cloud storage without risks

fragmentiX THREE® and fragmentiX FOUR® storage appliances ensure protection and strong resilience for backups, documents and any other sensitive data in hybrid/multi cloud storages for small and medium businesses, as well as large workgroups up to 40 employees. Strong industrial hardware provides enough power to fulfill several storage functions at the same time.

First and only world-wide commercially available quantum-computer safe standard cloud storage solution

➢ Privacy by design

➢ Highest protection against several traditional cyber risks and quantum computer attacks

➢ High availability of data and strong resilience against data loss

➢ Compatible with all relevant cloud storage protocols and providers

➢ Easy-to-use with the fragmentiX® desktop client software for Windows and MacOS environments or directly as S3 proxy

❖ Hardened frXOS operating system

❖ Secret-sharing algorithms

1 | 1 x USB CONFIG ENABLE
2 | 1 x USB CONFIG STORE
3 | 4 / 8 x 1 Gbit/s WAN
4 | VGA display port

5 | 1 x 12-48 Volt DC Power
6 | 1 x 1 Gbit/s LAN
7 | 4 x USB 3 Dataports
8 | 1 x 1 Gbit/s CONFIG NET

Technical specification of fragmentiX® storage appliances

	fragmentiX THREE®	fragmentiX FOUR®
Application environments	Department Office up to 20 users	Large groups and Authorities up to 40 users
Max. storage LOCATIONs	16	26
fragmentiX desktop client	unlimited, 10 licences incl.	unlimited, 20 licences incl.
frXOS firmware/OS updates	1 year included	1 year included
CONFIG NET	1 x 1 Gbit/s	1 x 1 Gbit/s
LAN interface	1 x 1 Gbit/s	1 x 1 Gbit/s
WAN interfaces	4 x 1 Gbit/s	8 x 1 Gbit/s
Size	227 x 261 x 88 mm	227 x 261 x 88 mm
Weight	4,7 kg	4,7 kg
AC Input	100-230V AC	100-230V AC
Power supply	120 W	120 W

Privacy by design: Information-Theoretic Security with Secret Sharing

Secret sharing algorithms guarantee information-theoretic security (ITS) for the data stored with the fragmentiX® storage appliances. The data - no matter what files or directory structures - are divided into a number of fragments and each of them is stored on a different storage LOCATION.

Any single fragment does not contain any information about the original data. Not even a small number of stolen / hacked fragments means a threat to your data's privacy - only a sufficient number of fragments allows the data to be restored.

Highest protection against several traditional cyber risks and future quantum computer attacks

The fragmentiX® product range brings protection against storage (data on rest) related traditional cyber risks. A data leak from your cloud provider or a misconfigured S3 bucket won't lead to disaster - because no provider or bucket alone contains abusable

content. Typical insider and administrator threats can be largely mitigated by splitting responsibilities and using a fragmentiX® central design principle: There is no longer a need to trust a single storage provider or your storage administrators.

Many countries and large companies are investing billions of USD/EURO/RMB every year in the development of larger quantum computers. Among many positive effects, quantum computers will also pose additional risks to existing encryption technologies and products in the near future - leading to a new kind of arms race in hybrid information warfare.

The fragmentiX® product range protects your sensitive data stored in cloud storages against the newly emerging cyber risks posed by large quantum computers: Several attackers are already collecting encrypted data streams on a large scale in order to be able to decrypt and abuse this stolen information later on with quantum computers.

As a result, there is already a high urgency to protect cloud data.

fragmentiX® products are the best way to increase the protection of sensitive data against traditional and future quantum computer threats - today and tomorrow!

High availability of data and strong resilience against data loss

Regionally or globally distributed, redundant storage LOCATIONs in different regions or data centers used by the fragmentiX® appliance increase the availability of data even if individual parts of the internet or the company's own networks fail. The use of multiple redundant fragments provides a high level of robustness against data loss even if individual fragments fail.

Easy-to-use with fragmentiX® desktop client software or directly as S3 proxy

In a typical scenario, the fragmentiX® appliance provides network drives on its LAN side to the existing desktop PCs and servers with the fragmentiX® desktop client.

If your applications already use S3 storage you can simply add the fragmentiX® appliance as an S3 proxy without having to change your application and without any additional client software.

Multiple storage types reachable over multiple WAN/LAN/VPN connections

On its WAN side, the fragmentiX® appliance stores the created fragments in the configured LOCATIONs, e.g. S3 buckets at your cloud providers.

The following storage types can be used with fragmentiX® storage appliances:

- S3 and S3 compatible hybrid/multi cloud storage on the internet and/or intranet
- Microsoft Azure Blob storage
- NFS compatible storages
- USB storage media flash or hard drives connected via USB 3 hub via USB Dataports

All data stored with the fragmentiX® storage appliance is divided into fragments using threshold cryptography and stored on the predefined LOCATIONs - NO user data remains locally on the fragmentiX® storage appliance. Choosing and combining up to 16 (fragmentiX THREE®) and up to 26 (fragmentiX FOUR®) LOCATIONs allows to achieve better security and resilience than any other single storage solution can offer.

Hardened operating system frXOS

frXOS - the fragmentiX® storage appliance's hardened operating system - was developed by fragmentiX® to make it both secure and easy to use for users and administrators. All functions are kept up to date through regular updates, which can be carried out locally by the administrator. A valid maintenance contract is required to receive the latest frXOS updates beyond the first year after delivery of your system.

Advanced protection measures

The use of state-of-the-art Crypto-USB sticks ensures that all security-relevant data can only be read on the respective fragmentiX® storage appliance and modified by the authorised administrator. Optionally, QKD devices and advanced link encryptors can be added to increase the level of data protection, if required.

For further information:

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