

# DIASER® SaaS - White Paper



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**About:** DIASER® Software as a Service

Vast quantities of digital information are continually created. Organisations struggle to implement long term data storage solutions. Designing and implementing a cost effective, robust, secure, compliant, data archiving strategy presents a big and costly challenge. An even bigger challenge, when an organisation must retain full legal and administrative ownership of its data when stored in the cloud.

Interlinux designed a strategy and built DIASER® so that our company could archive data cheaply, using a strong structure, retain administrative control in an inherently secure and efficient environment – even when resources are pressured.

To progress from prototype to development, the project was part-funded by a top UK University computer science department, in collaboration with Interlinux Ltd, for six months during 2009. Ongoing beta software testing is and has been successful. We regularly receive community feedback. In the past 12 months the beta software has been downloaded nearly 2000 times and the website has attracted over 1,600 unique visitors.

## **Investment opportunity**

Interlinux and its partners (excluding the University contribution) have already invested more than 2,500 man hours and over £10,000 cash. Interlinux need investors to assist in the completion of the beta development cycle, which will take six months. Interlinux can then reposition as an original support provider. This will enable Interlinux to re-sell third line support to companies that can re-brand, as well as develop in-house branded support. Investment will facilitate accurate scoping and precise projections of the cost benefits an organisation can expect when deploying supported DIASER®.

## **TCO, ROI and insurance benefits against production software**

This paper highlights where TCO and ROI improvements exist and where control procedure costs are reduced.

Aside from data security compliance advantages, TCO is reduced by re-using existing resources, allowing effective use of off-the-shelf storage components, harnessing mature open source technologies. Compared to a tape device deployment the estimated TCO for 2 TiB of storage over 5 years will be reduced by:

**64 %** With existing hardware infrastructure (networked servers with disk space).

**28 %** No existing hardware infrastructure.

Calculation details are defined at the end of this document.

Optimised hardware resource requirements will ensure, operational power consumption and carbon footprint, are low, especially over many years of continual use. Further research will be undertaken to help understand how insurance premiums can be reduced when using the application.

## **Introduction**

The rest of this paper describes the product placement and compares DIASER® (or the application) SaaS with other solutions where network archiving solutions are highlighted. Essential security features are tabulated followed by desirable qualities of SME network archiving applications. Data security compliance within the UK, EU and SAS Type II context is given. The technical advantages and benefits are discussed, followed by a professional support service overview. Resources and a legal disclaimer end this white paper.

DIASER® archives the information stored on your system and ensures long-term data security at minimum cost.

The application automates the archival process and allows the recall of volumes across your organisation's network, thus bypassing the labours involved in running a traditional tape archival system, for example. More complete than many NAS only deployments, the application automatically distributes archives across three nodes. This multiple redundancy ensures that your archive is practically impervious to data loss.

The application can use off-the-shelf equipment, which minimises hardware costs and ensures that system maintenance is straightforward. DIASER® is open source (with a commercial support option) so it is free to use, and uses open standards, so you can try the application without worrying about being locked in to its use in the long term. Unlike data centres, and other cloud-based archiving solutions, with DIASER® your information is stored on resources that you own. This means that you never lose ownership of your information.

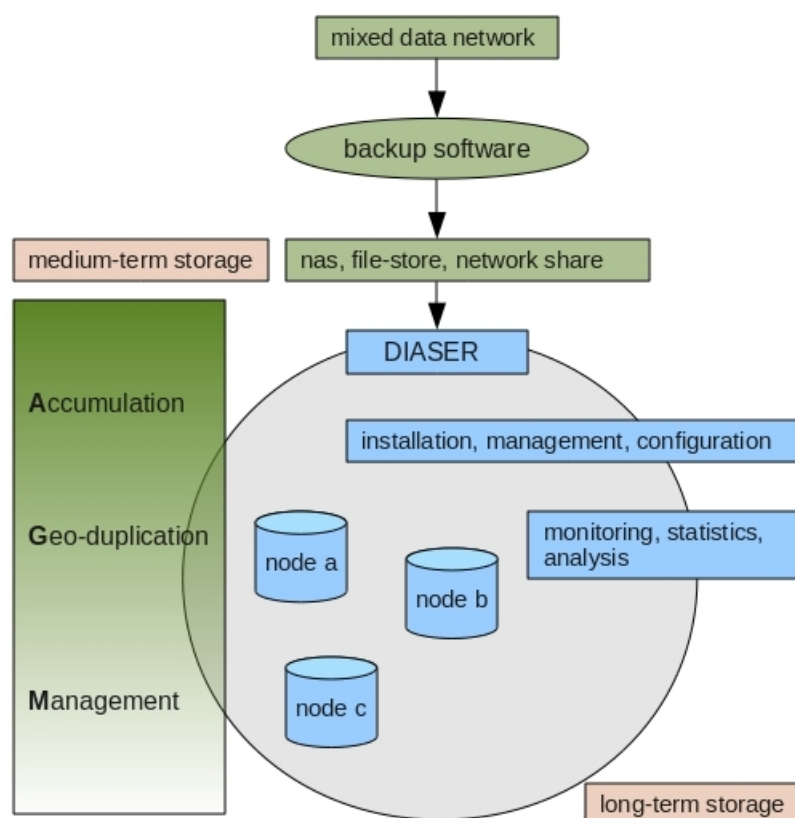
Security is a fundamental concern. The application meets the most stringent security concerns of any organisation, namely; end-to-end and over-the-wire encryption, volume integrity check, RSA certificate generation and authentication.

High specifications have been engineered from conception through innovation to deliver performance. The storage architecture and data transfer methods are optimised. The application is feature rich.

## Product placement overview

Table 1. Product type definitions	
Archivers	Compression and packing tools.
Cloud Storage	Networked online storage hosted on virtual machines generally by third parties where storage is usually metered.
Network Archiving	Where data is collected over time across computer networks and the source may be removed or moved.
Network Backup	A service which will backup data from multiple sources to a central repository.
Network File Systems	Multiple hosts can access files over a computer network. Therefore many users on multiple computers can access shared storage resources and files.

DIASER® exists between the medium-term storage and long-term storage layer.



## Storage product comparison

Table 2. Product type comparison					key: [additional] (future)
Application	Platform: Linux, POSIX, Windows, OSX, Mixed, Other	Licence: Open Source / Propriety	Market sector: SME / Enterprise / Data Center / HPC- Framework	Support: Community / Commercial / 3 <sup>rd</sup> Party	Type: Archivers / Cloud Archiving / Network Archiving / Network Backup / Network Filesystem-Storage
Amanda	POSIX, Mixed	Open Source	SME / Enterprise	All	Network Backup
Bzip2	Mixed	Open Source	SME / Enterprise	Community	Archiver
Bacula	Mixed	Open Source	SME / Enterprise	All	Network Backup
Duplicity	Linux / POSIX	Open Source	SME	Community / 3 <sup>rd</sup> Party	Network Backup
DIASER	Linux / POSIX / Mixed	Open Source	SME / (Enterprise)	Commercial / Community	Network Archiving / Cloud Archiving
EMC SourceOne Email Archiving	Mixed	Propriety	Enterprise	Commercial	Network Archiving
i365 EVault SaaS	Mixed	Propriety	SME / Enterprise	Commercial	Cloud archiving
Mimecast Unified Email Management	Mixed	Propriety	Enterprise	Commercial	Network Archiving
MooseFS (MFS)	Linux / POSIX	Open Source	SME	Community	Network Filesystem-Storage
OGSA-DAI	[Java]	Open Source	HPC- Framework / [Data Warehouse]	Community	Network Filesystem-Storage
OpenAFS	Mixed	Open Source	SME / Enterprise	Commercial / Community	Network Filesystem-Storage
Quest Software Archive Manager	Windows [Exchange]	Propriety	SME / Enterprise	Commercial	Network Archiving
RackSpace Cloud Files	[Mixed clients]	Propriety	Data Center	Commercial	Network Archiving / Cloud archiving
Rdiff-backup	Linux / POSIX	Open Source	SME	Commercial / Community	Network Backup
Relax and Recover (ReaR)	Linux / POSIX	Open Source	SME	Community	[bare metal recovery / consolidation]
Rsync	Linux / POSIX	Open Source	SME / Enterprise	Community / 3 <sup>rd</sup> Party	Network Backup
Symantec Backup Exec	Windows	Propriety	SME	None	Network Backup

## Essential security

Table 3. DIASER® security, validation and encryption features	
Authentication	POSIX standards and over-the-wire encryption
End-to-end encryption	Encrypted volumes can be generated easily with readily available open source utilities, i.e. duplicity and GPG
Geo-data redundancy	Triple location security by default
Open architecture	Provides a common point of reference for security review
Open source	High vulnerability visibility for fast problem resolution
Over-the-wire encryption	OpenSSH RSA Certificates. Certificates can be automatically re-generated
Volume integrity check	SHA256 and date stamp generated with each new accumulated volume

## Desirable qualities of archiving software

Table 4. SME, Open source, network archiving applications - desirable qualities										
Application	Availability / data recovery speed	Compression	Cross-platform (Linux)	Installation and integration	Low latency networks	Management of operation	Resilience	Scalability	Storage capacity range	Commercial support
DIASER	excellent / good	yes	yes	straight-forward	yes	yes	excellent	yes	good	yes

## Data security compliance - UK, EU and SAS

Data protection legislation in the UK will require all companies to maintain personal data in a secure manner. The application is designed to help satisfy the legal retention and compliance requirements of archiving email communications; for example, law firms need to keep emails on record as part of their risk management and business strategy. If a law firm cannot find client emails, information etc. clients will lose confidence in that law firm. In terms of time period most law firms will hold information permanently.

DIASER® will enhance an organisation's ability to comply with EU data security guidelines and directives, by protecting personal and sensitive data. Specifically by enabling precise control over storage location and encryption of sensitive and personal data. This will simplify transparency reports as well as business control strategies and procedures, improving your ROI.

DIASER® may be used as a business process control tool which in turn may help achieve and maintain a long-term SAS 70 Type II audit, therefore asserting business transparency, proficiency and enhance marketing capabilities improving ROI.

(SAS 70, Type II, is an American standard).

## Technical advantages and benefits

The transfer between the back-up server and the three nodes is a two-phase process. In the first phase, a volume (i.e. the back-up file) is transferred from the back-up server to Node A (disk staging), then transferred from Node A to Node B. In the second phase, the archive is transferred from Node B to Node C. When phase two has completed, the same volume has been copied onto all three nodes. This multiple redundancy means that the system is practically impervious to data loss.

During installation, the user is asked to specify the times at which the first and second phases occur. The two phases can be selected to coincide with times of low network usage, which ensures that the maximum bandwidth is available on the network. With most organisations, the network typically experiences lowest usage at night when no one is using the network. Each node operates independently at specific times (the nodes are time synchronised using NTP) as directed by its own set of instructions, known as the hypervirtual autochanger mechanism, which are generated according to user-specified settings during installation of DIASER®. This design allows maximum resource re-use lowering the TCO and maximising ROI.

Please see the resources for more technical information.

### Professional support service

Quality expert installation support, quality expert operational guidance, administration and configuration support, priority fault resolution, priority updates and upgrades, early access to new features and enhancements and upgrade concessions as new products are introduced.

### Resources

Interlinux Ltd SaaS and DIASER-Pro EBBS support programme <http://interlinux.co.uk/?q=node/4>

DIASER® community site <http://www.diaser.org.uk>

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### TCO Calculation estimate

<b>Table 5. TCO Per year 2 TiBs</b>	<b>LTO Tape + 10 tapes</b>	<b>DIASER With existing hardware infrastructure (servers with disk space)</b>	<b>DIASER No existing hardware infrastructure</b>
Hardware cost (initial)	£1,500.00 / 5 = £300	£0.00	£800.00 / 5 = £160
Base software cost	£0.00	£0.00	£0.00
Consumables	£250.00	£0.00	£0.00
System admin costs	£3,000.00	£1,000.00	£2,000.00
Router/port/cabling	£50.00	£0.00	£75.00
Support	£100.00	£300.00	£300.00
Insurance	-	-	-
Power consumption	£50.00	£20.00	£120.00
TCO 1 year	£3,700.00	£1,320.00	£2,655.00
TCO 5 years	£18,500.00	£6,600.00	£13,275.00
Savings %		<b>%64</b>	<b>%28</b>

## **Legal disclaimer**

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