

X3-cloudRAID

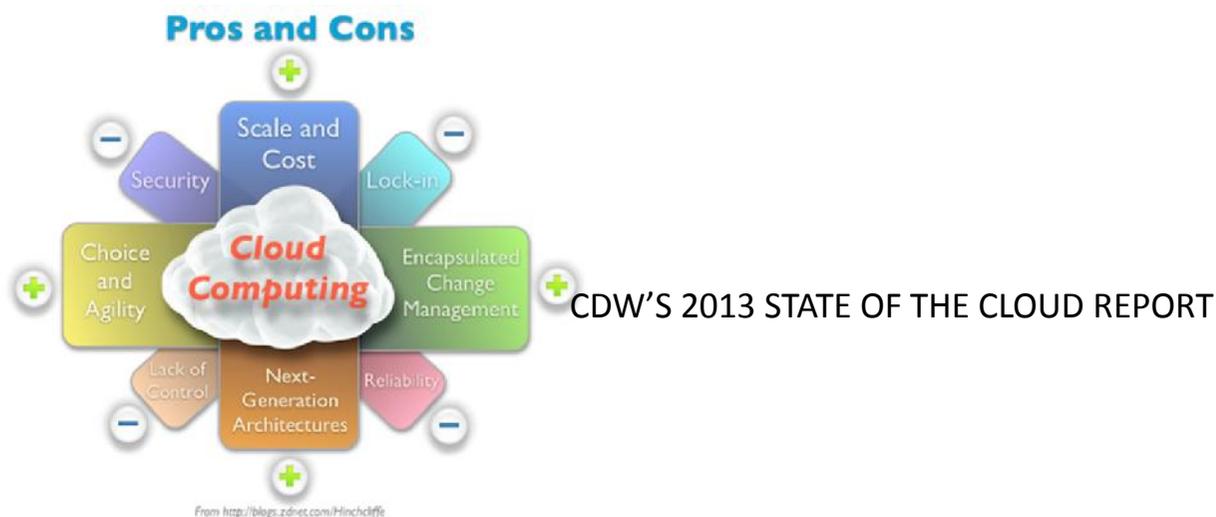


Tired of being held hostage by your cloud provider?



Cloud benefits according to cloud users

- #1 Increased efficiency (55%)
- #2 Improved employee mobility (49%)
- #3 Increased ability to innovate (32%)
- #4 Freed current IT staff for other projects (31%)
- #5 Reduced IT operating costs (25%)
- #6 Enabled us to offer new products/services (24%)



Concerned about the security of your content?



Biggest impeding factors to cloud

#1 Concerns with security of proprietary data/ applications (39%)

#2 Concerns with performance of cloud services (30%)

#3 Lack of information to compare options - based on cost analysis, cloud is not compelling enough to adopt (18%)



CDW'S 2013 STATE OF THE CLOUD REPORT



Solution : combine security with independence



How does it work?

- Local data is synch'd automatically to 5 cloud providers
- Intervals can be set by the client
- Each provider has a part data and a part parity (as with RAID)
- If one of the providers cannot provide service for any reason, the remaining 4 rebuild to another supplier
- A single provider can go out of business or lose all stored data without affecting the archived files
- All data is encrypted so the cloud provider doesn't have access to the content and the data can be deleted without problem

Providers will have to compete on service aswell as price again



X3-cloudRAID pricing & formats

- **SMB product:** data volume up to about 2 TB per year
- **Enterprise & Content provider version available on demand**
- If > 1Mb/s upstream bandwidth is available, higher volumes are feasible (or combine with X3-AIRgap)
- Storage cost: approx. € 0.10 per GB per month, € 1200 per TB per year
- Archives any kind of data, but works best for e-mail, Office documents and other well-known file types (PDF, HTML, etc.)
- Supported documents are converted to PDF/A and full-text indexed
- Works with file systems, Exchange servers and SharePoint servers
- Container-type files (ZIP, ISO, VHD, PST, etc.) can be searched for documents
- Data is deduplicated prior to archiving, so the same document, stored both in a file folder and in a PST file, will only get archived once



X3-cloudRAID RAID & encryption

Archived files are spread over 5 different public cloud storage providers, with 25% redundancy (4+1)

- A single provider can go out of business or lose all stored data without affecting the archived files
- Missing data is automatically repaired or migrated to a new provider as needed
- Everything is AES-256 encrypted, with the keys secured by a USB crypto token
- Private key on the token is backed up to Blu-ray and paper, which can be used to create a new token if the existing one breaks or is lost



X3-cloudRAID archiving

Data which is inactive for a long period of time can be automatically deleted from the local system

- The complete archive is always presented as a virtual file system, making it easy to browse through with Windows Explorer
- If a file is accessed which is no longer present locally, it is transparently retrieved from the cloud
- Once every year, a complete Blu-ray set is produced of the archived data and sent to the customer
- Can be quickly restored locally if needed, even if the service is discontinued



User Interface Overview

- The next 4 slides show the main user interface
- Actual daily browsing in Windows Explorer
- Runs in the background and is rarely accessed by users
- Runs as a regular Windows application, uses HTML/JS for layout
- Data to be displayed is supplied as JSON
- The settings interface will be implemented in a similar way



Cloud Archive

 **cloudRAID** 

Status Content Search Events Support

 Archiving is operational and all data is available.
Data repair in progress for 1 cloud provider.

 Data only on local system: 4 TB
Both local and in cloud: 6.2 TB (+300 GB)
Only in cloud: 10.2 TB (+690 GB)
Off-line Blu-ray archive: -
20.4 TB
(+990 GB)

Data transfer	Upload	Avg. speed	Download	Avg. speed
Last 24h	123 MB	1 Mb/s	12 MB	3.2 Mb/s
Last hour	12 MB	0.7 Mb/s	1 MB	12 Mb/s
Current/pending	4 MB	0.6 Mb/s	-	-

 Current bandwidth limits are 1 Mb/s up, 2 Mb/s down, until 18:00.

Provider	Status	Pending uploads	Pending downloads	Pending repairs
Amazon EBS	Online	0.8 MB	-	-
Google Storage	Online	0.7 MB	-	-
Microsoft Azure	Degraded	0.8 MB	-	123 MB
RackSpace CloudFiles	Online	0.8 MB	-	-
HP Cloud Storage	Online	0.6 MB	-	-

The 'gear' dropdown accesses the settings menu. It should only be necessary to use this in case actual settings changes need to be made: the main screens should show all required information for day-to-day use.

- First on the status screen is the overall system status, either re-assuring green, or something to the effect of "USB token not found: archiving and cloud data access is suspended until the token is operational again"
- Next is the overview of the total amount of data in the archive, plus any local data not yet archived (because it is 'too new', for example). Numbers in brackets represent archive overhead, i.e. space consumed by PDF/A conversions and metadata
- Below that, the total amount of data transferred and the average transfer rate for all providers, both inbound and outbound, for the time periods indicated. If bandwidth limits are configured, this will be noted here as well, to prevent confusion about "why things are so slow"
- Finally, an overview of the cloud providers in use and their current status. If a provider is degraded or offline, a tooltip will provide some more information about what that actually means (for outages, detailed information will be retrieved from the X3-cloudRAID site).



Cloud Archive



Settings

Status Content Search Events Support



17.4 TB

Known document files: 1.8 TB

Other data files: 14.6 TB

PDF/metadata overhead: 990 GB

Document type	Count	Original Size	Overhead
E-mail message	12345	1 GB	800 MB
Microsoft Word	456	1.2 GB	820 MB
Microsoft Excel	123	234 MB	123 MB
Microsoft PowerPoint	64	2 GB	789 MB
PDF	2345	1.6 GB	12 MB
Plain text	678	123 MB	12 KB



Document files converted OK: 1.7 TB

Invalid/encrypted documents: 100 GB

File name	Status
Encrypted file 1.xlsx	Encrypted
Junk.docx	Not a valid DOCX file
Whatever.ppt	Not a valid PPT file

The cloud content screen shows a more detailed breakdown of the data stored in the cloud (pending uploads included, but not the data that is only stored locally at this time)

- Files that have a known and supported type will be converted to PDF/A and full-text indexed. The PDF/A copy of the document (or e-mail) is stored in the cloud alongside the original document.
- Files that are not of a known type and/or not supported (for example, due to being encrypted with an unknown password) are only stored in the cloud as-is: no indexing will take place for these either.
- The source of each document (e.g. the normal file system, a ZIP file or a PST file) is not shown here (nor anywhere else, except in the full metadata record for the document).
- Since this is important to maintain a complete archive, we *do display the* ratio (and a complete list) of the files that could not be converted, either because they're not the kind of document that their extension or signature would suggest, or because they're protected with an unknown password. A list of known passwords is part of the application settings, and a document-specific password can be provided via the context menu.



Cloud Archive

 **cloudRAID** 

Status Content **Search** Events Support

File name contains:

Document type:

Last modified between: and

Document contains:

and () or () but not

File name	Last	Size	Status
Status report.docx	12 Mar 2009	123	in cloud
E-mail: Project X status	13 Mar 2009	45 KB	in cloud

The search screen allows the user to query the full-text index and find matching documents.

- In addition to the basic search screen shown, there should probably also be an advanced search, which allows more complicated queries to be constructed. The basic screen should cover 80% of use cases, though.
- In the results grid, the context menu offers the following options for each document:
 - View details (this will open a modal information screen with all document properties etc.)
 - Retrieve and open PDF/A copy
 - Retrieve and open (or just open, for local files) original document
 - Remove document from archive
 - Documents retrieved from the cloud will be cached on the local system for a preconfigured period of time (14 days, by default).
 - The 'remove from archive' feature will obviously require a good security model. It would in fact be best not to have this feature at all, but since service is charged by the gigabyte for archived files, there has to be a way to recover from mistakes...



Cloud Archive

 **cloudRAID**  

Status Content Search Events **Support**

cloudRAID version 0.0.1024.1
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Subscription ID: G047528.
Status: active, expires 13 Dec 2016.

Open local documentation in my web browser 

Visit my on-line account page
Go to the on-line knowledge base
View my open support tickets
Open a new support ticket

Please enter your message

Attach system information and log files to my message
[View which information will be sent](#)

The support screen should contain all the information required to do basic troubleshooting.

- Initially, the message area shown is hidden: it only becomes visible when 'Open a new support ticket' is selected. This function can't be entirely web-based, since we need a way to attach a ZIP with system information and log files to the ticket, and this ZIP needs to be created and uploaded by the client software.
- If 'view my open support tickets' is selected, a grid with the subject/status/link for all prior tickets is shown, along with a hyperlink for each ticket which will open the ticket details in the web browser.

