

TECHNICAL WHITE PAPER

## IT Professional's Guide to Cumulus



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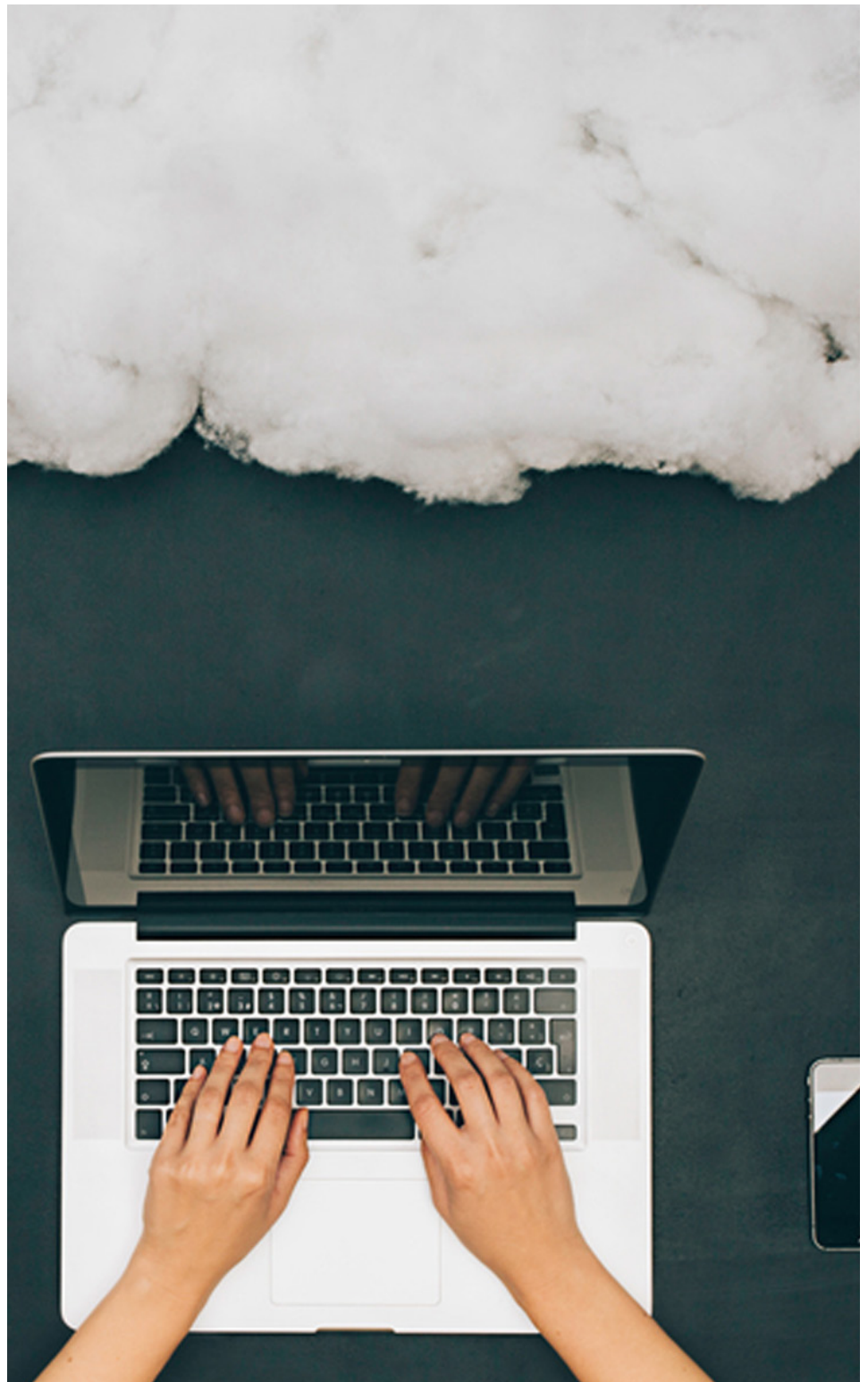
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## Introduction

Are you an IT decision maker, system administrator or project manager considering implementing Cumulus as your digital asset management system? Regardless of the technology you choose, digital asset management can be a complex topic affecting several departments and systems. This white paper outlines the questions you should ask before setting up your DAM environment, and how Cumulus addresses those questions.

You will learn what Cumulus digital asset management will provide you with, what you need to take into consideration when it comes to system architecture and how you can configure the system based on your individual requirements.



## Asset Storage

### Where will my assets be stored?

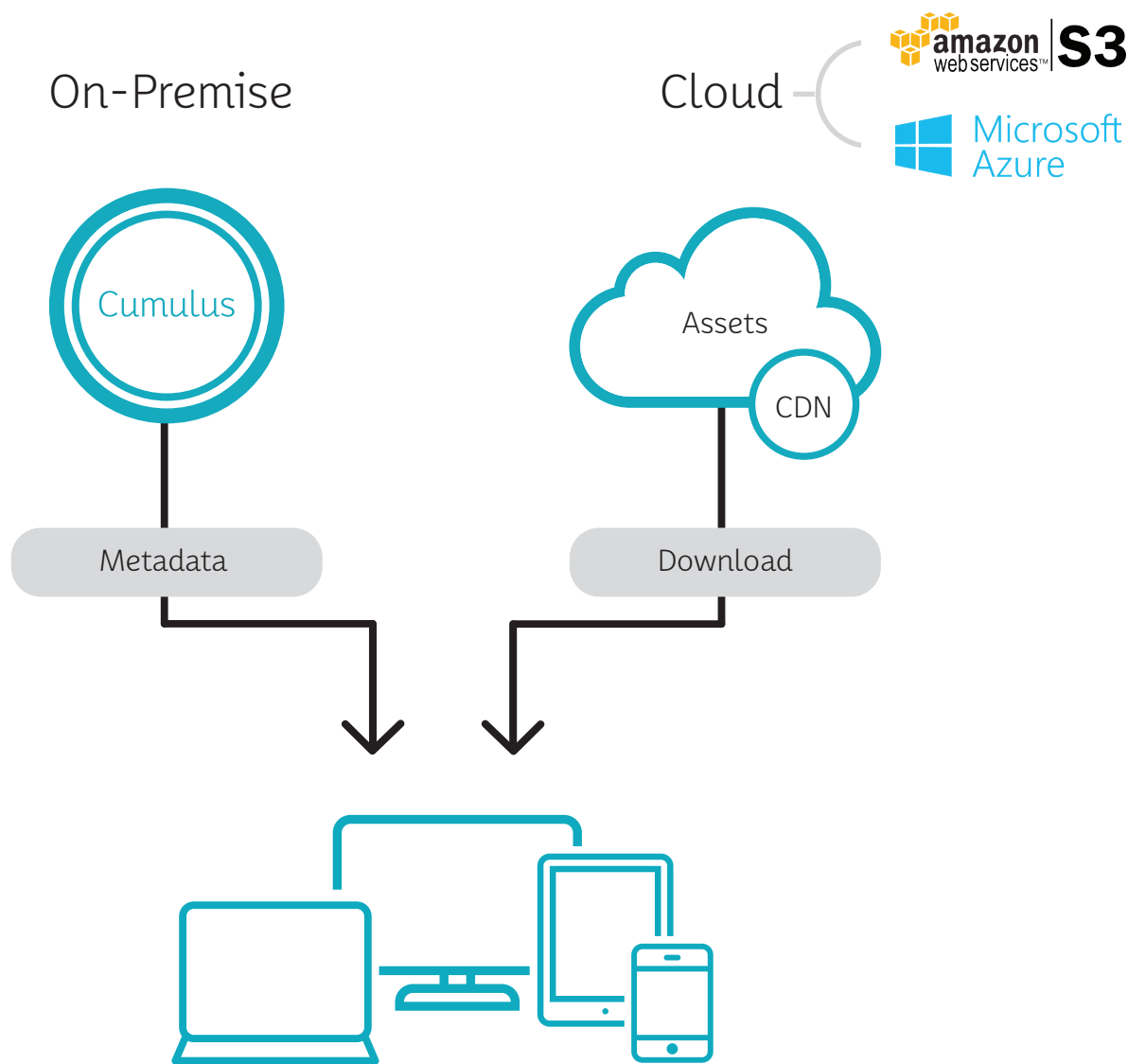
The first question usually is about storage location. The answer depends on the type of assets you plan to put into the system as well as your workflows, internal corporate policies and the systems you already have in use. Digital assets can be stored both on premise and in the cloud. Cumulus offers the classic on premise installation, a private cloud option and hybrid models with Amazon S3 and Microsoft Azure. No matter which option you choose, your

files are stored in a file system, with pointers to their location from the DAM. The file system is made available through the operating system, and therefore needs no special requirements. Based on individual preferences, assets can be stored on a SAN, NAS, RAID or a file server.

### Can I use different storage locations for my assets?

A lot of times customers do not want to save all their assets in the same place. It might be necessary to store

video files in a different location because of the storage space needed. Sometimes different departments may want to use different storage locations because they are working on different stages of the asset lifecycle. For large production assets that need to be changed frequently the on premise option is more suitable — while archiving assets can very well be handled in the cloud. Even security and privacy policies may differ depending on asset type and department. For these use cases, a hybrid architecture is the ideal solution.



Portals • Web Client • Mobile Client

Figure 1.

## Cumulus Video Cloud

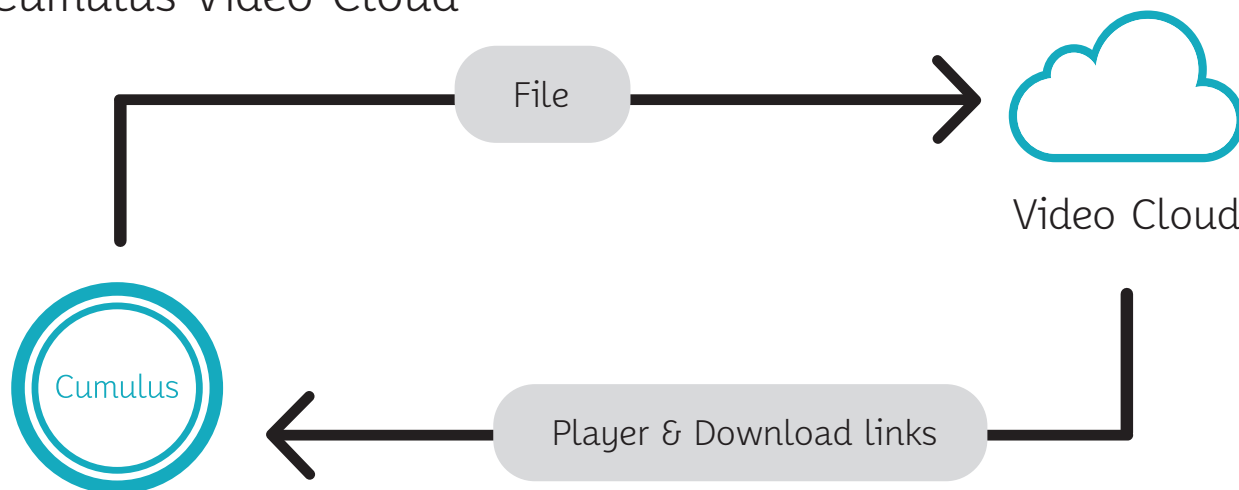


Figure 2.

### What if I want to take some load off my own infrastructure?

In this case, you can use a hybrid structure. With Canto you can choose an on premise installation and combine it with external storage such as Amazon S3 or Microsoft Azure. The assets can then be moved to these external locations as needed and are directly accessible via download. See Figure 1.

### What about operating systems and browsers?

When choosing your DAM you should keep in mind the kind of operating systems your company works with. The Cumulus Server runs on Windows, Mac and Linux systems. The Admin client is available for desktop use on Windows and Mac. The web-based applications, Cumulus Web Client and Cumulus Portals, are accessible via the latest versions of all major internet browsers.

### How can I optimize performance for an on premise installation?

Since Cumulus is a database application, the performance is highly dependent on the I/O performance of the hard drive in use. We recommend the use of an SSD hard drive for the database to achieve optimum results.

### Cumulus Architecture

The Cumulus architecture includes several components. For on premise scenarios, the Cumulus Server will be installed on your own infrastructure. Users have several user interfaces available to access the content. The Admin Client offers the widest feature range and is designed primarily for system admins and power users. Cumulus Web Client is the standard application for all users working with the system on a daily basis. The web-based application can easily be accessed from desktop computers, laptops and tablets and is

### Storing video files

Video storage comes with special requirements. Not only file size, but also video conversion and high-performance streaming have technical challenges. This is why we have developed the Cumulus Video Cloud. Of course it is possible to archive video files in an on premise architecture — but if you want to stream videos globally we recommend the Cumulus Video Cloud which is directly accessible from the Cumulus interface. Assets are loaded in the background into the cloud where the video is converted into various formats — that can be accessed via Cumulus. Cumulus Video Cloud also includes a player to ensure a seamless viewing experience across all devices.



Cumulus Architecture - Overview

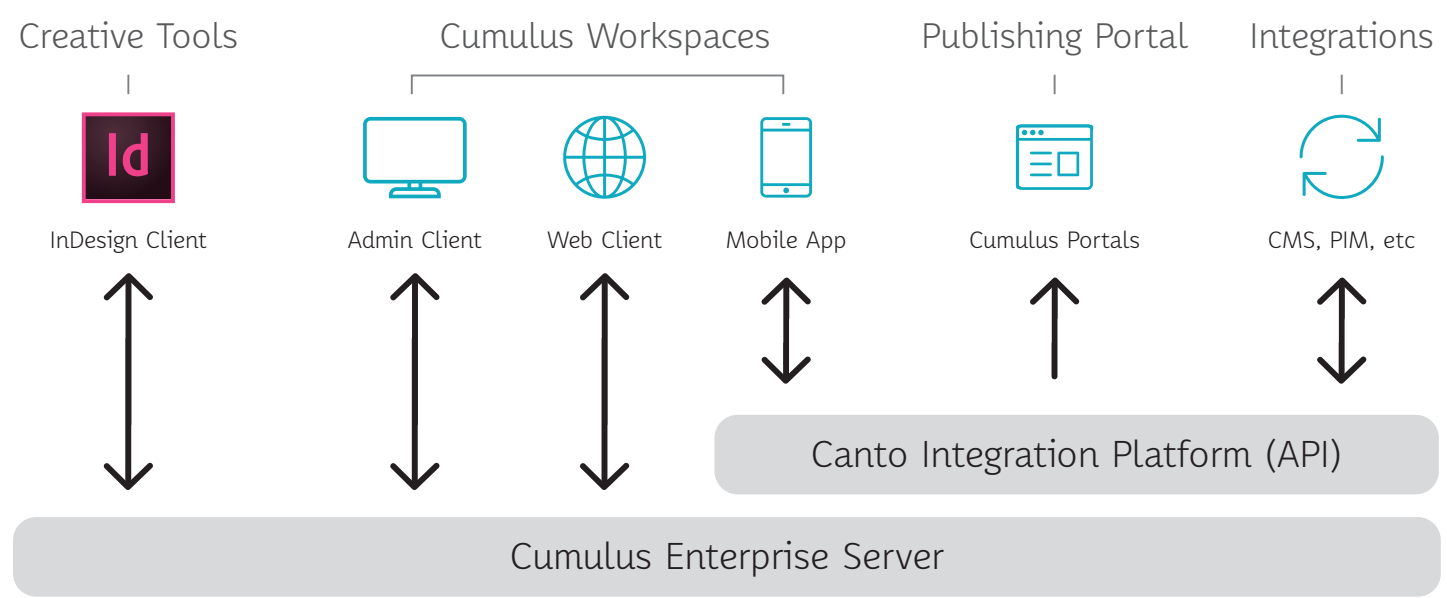


Figure 3.

used to upload and download assets, edit metadata, create collections, start workflows and execute all other activities occurring on a daily basis when working with digital assets. Our mobile app for iOS devices allows users to upload and download assets on the go, or create a collection for later use. Cumulus Portals is a publishing portal that can be accessed for read-only / download-only use by an unlimited number of users without occupying a license seat. If needed, Portals access can be password protected. The InDesign Client provides access to assets directly from Adobe InDesign. Other systems can be connected via the Canto Integration Platform.



A few words about Security

What needs to be backed up?

Data security and backups are an important topic. You will need to plan on not only backing up your assets, but also backing up the database, individual configurations and the operating systems.

How can I back up my data with Cumulus?

The Cumulus system comes with a backup manager that will take care of backing up your database and individual configurations on a regular basis. Our customers often prefer to rely on their own backup

solutions, which is why Cumulus does not include an automatic backup of the assets. Canto is happy to support you in developing and setting up your individual backup plan. The graphic shows a sample backup plan:

Sample of On-Premise Backup

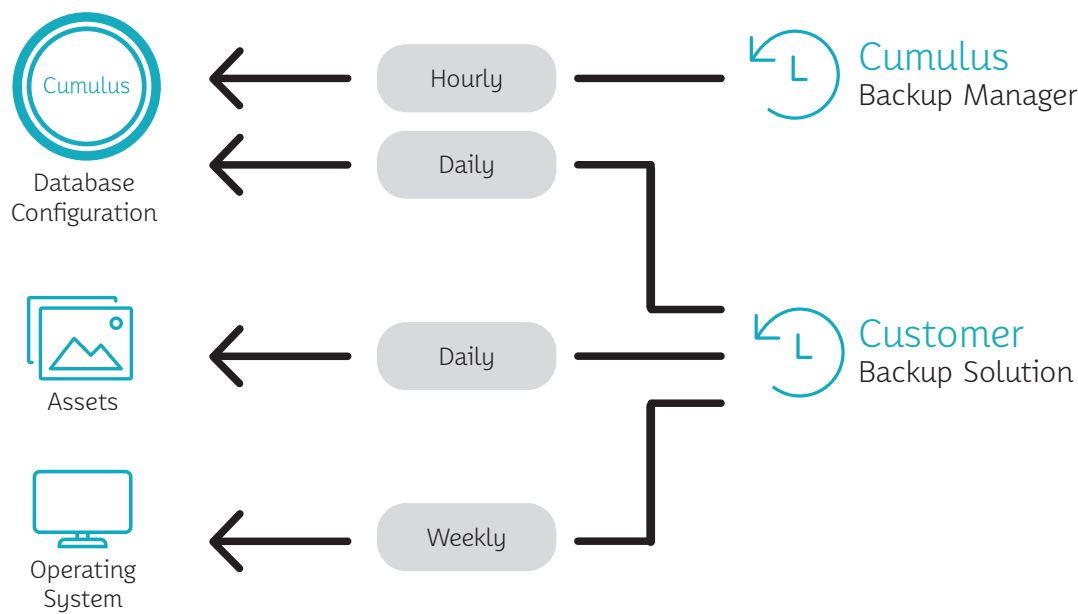


Figure 4.

Sample of backup plan: The Cumulus Backup Manager performs an hourly backup of the Cumulus database and configuration files. The customer’s backup-system takes care of backing up the most recent Cumulus backup every day and backs up all Cumulus systems including the operating system on a weekly basis.



What about external access via the Internet?

Many DAM systems offer access to some of their functionality via web applications. Both Cumulus Web Client and Cumulus Portals are web-based. If the applications are available on the Internet, you will need to set up a web application service in a DMZ (Scenario A). The Cumulus Server will be located in the backend. For on premise installs this will be within your walls. For Cumulus Private Cloud customers, Canto will set this up for you on our virtual private servers. If working

with integrations into third-party systems that are accessed from the Internet, the Canto Integration Platform will need to be set up within the DMZ as well. Alternatively, the web server can be replaced by a “reverse proxy” in the DMZ which will then be forwarded to the web application server in the backend (Scenario B).

Is it necessary to encrypt my communication?

We recommend an SSL encryption for externally accessible web applications to protect

password data. An encryption of communication between the web server and Cumulus Server is not necessary, because it is not being executed via the Internet.

What adjustments will I need to be made on my firewall?

It is not necessary to mount the operating system on which the assets are maintained into the DMZ. The asset transfer is being executed via a secure connection between web application and the Cumulus server that requires a technical port (9287) only.

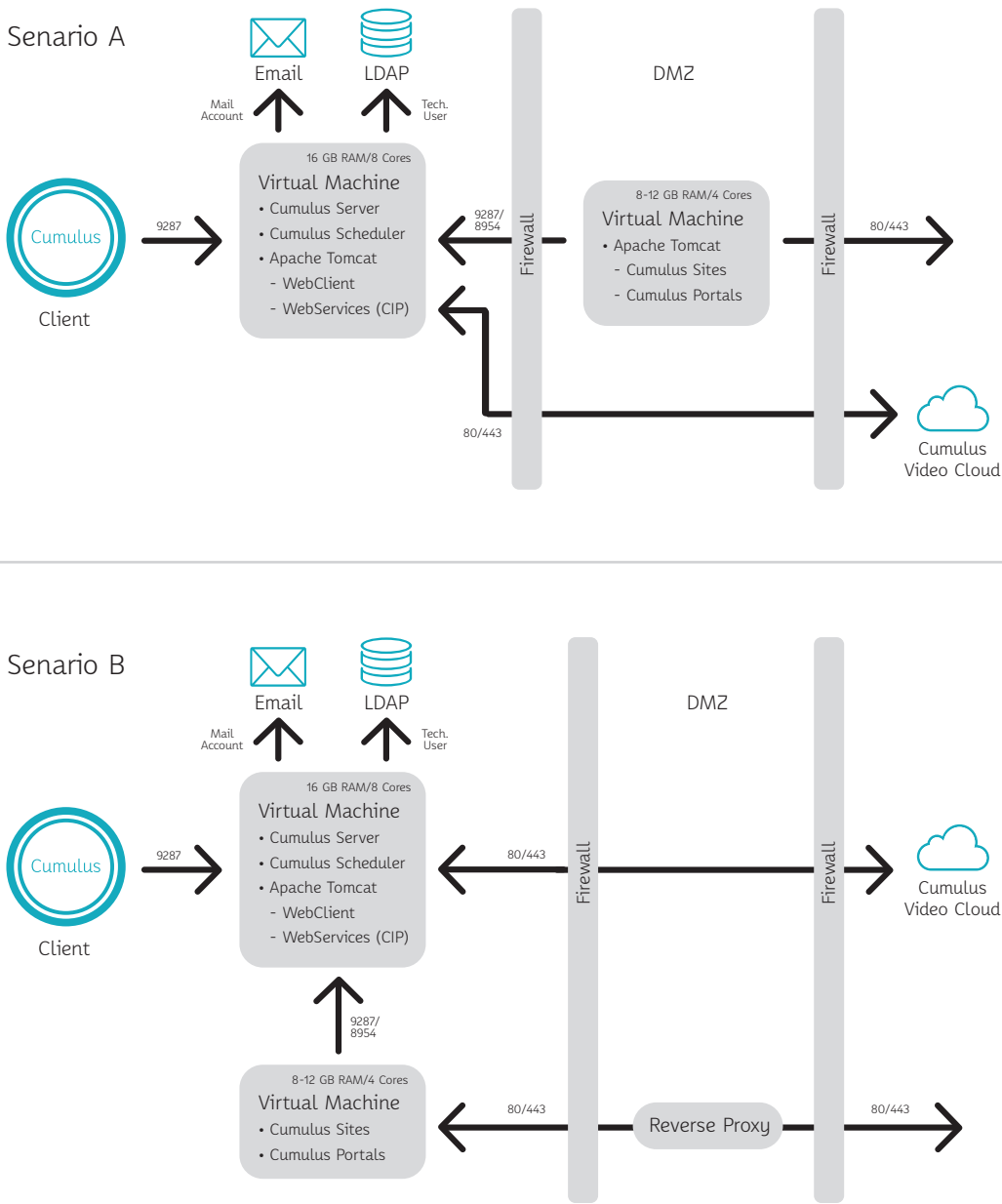


Figure 5.



## User Management and Single Sign On (SSO)

### Can I connect Cumulus to MS Active Directory or LDAP?

**Yes.** To optimize usability and system administration, it makes sense to connect your digital asset management system with your global user management practices. Cumulus supports the connection to Microsoft Active Directory and every user management that provides an LDAP protocol. User Accounts (from LDAP) are not imported into Cumulus, avoiding duplicate accounts. The assignment of individual roles to users is performed in MS Active Directory or LDAP. Application-specific roles are created in Cumulus where they are managed and mapped with the roles from MS AD or LDAP.

### Can I manage external users (e.g. agencies, photographers) that are not registered in Active Directory via Cumulus?

**Yes.** In most companies the DAM needs to be accessed by employees as well as external users. Marketing and creative teams often work with a large network of agencies and freelancers that create and reuse assets. This is why Cumulus user management can be operated in parallel with the LDAP connection. External users who are not in LDAP can be managed in Cumulus and their role assignment takes place in Cumulus.

### Can I set up Single Sign-On (SSO)?

**Yes.** For a better user experience, we recommend setting up Single Sign-On. An automatic authentication of the users managed in your AD can be set up for Cumulus. Other Single Sign-On methods for authentication, such as SAML 2.0, can be implemented if needed.

### Single Sign-On

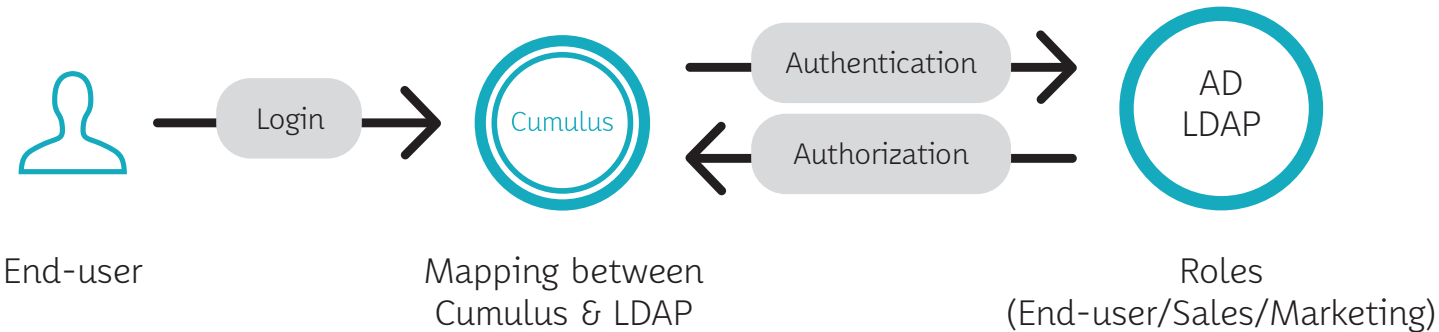
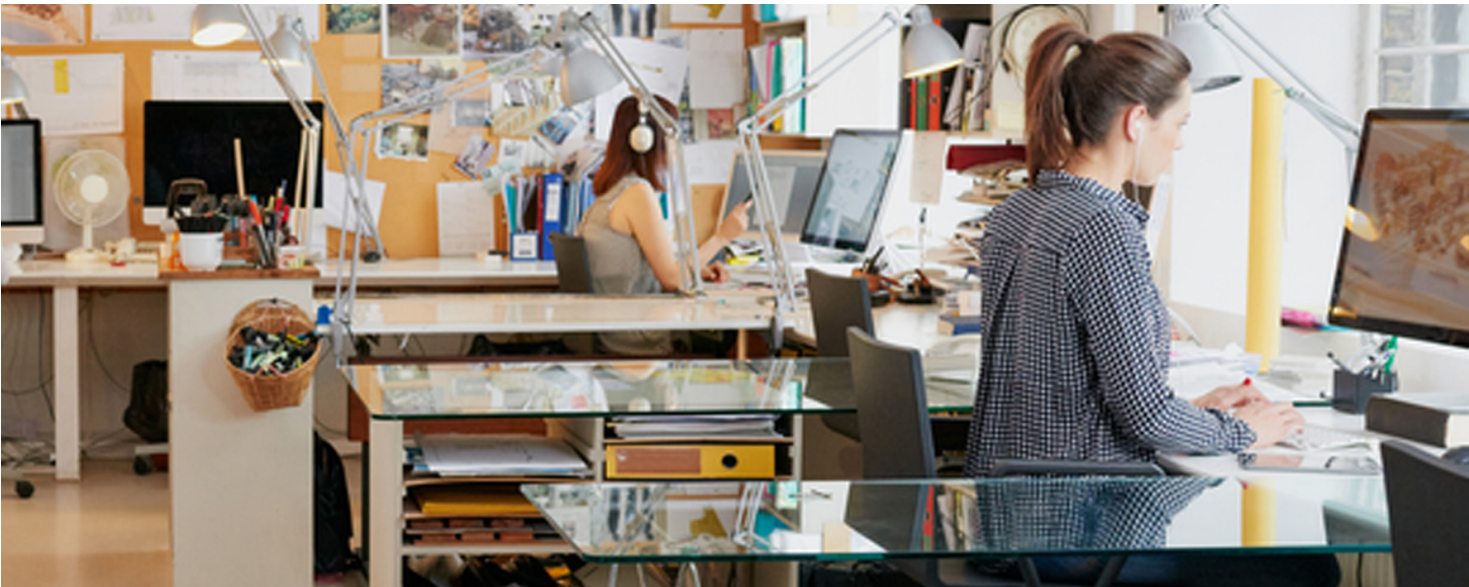


Figure 6.





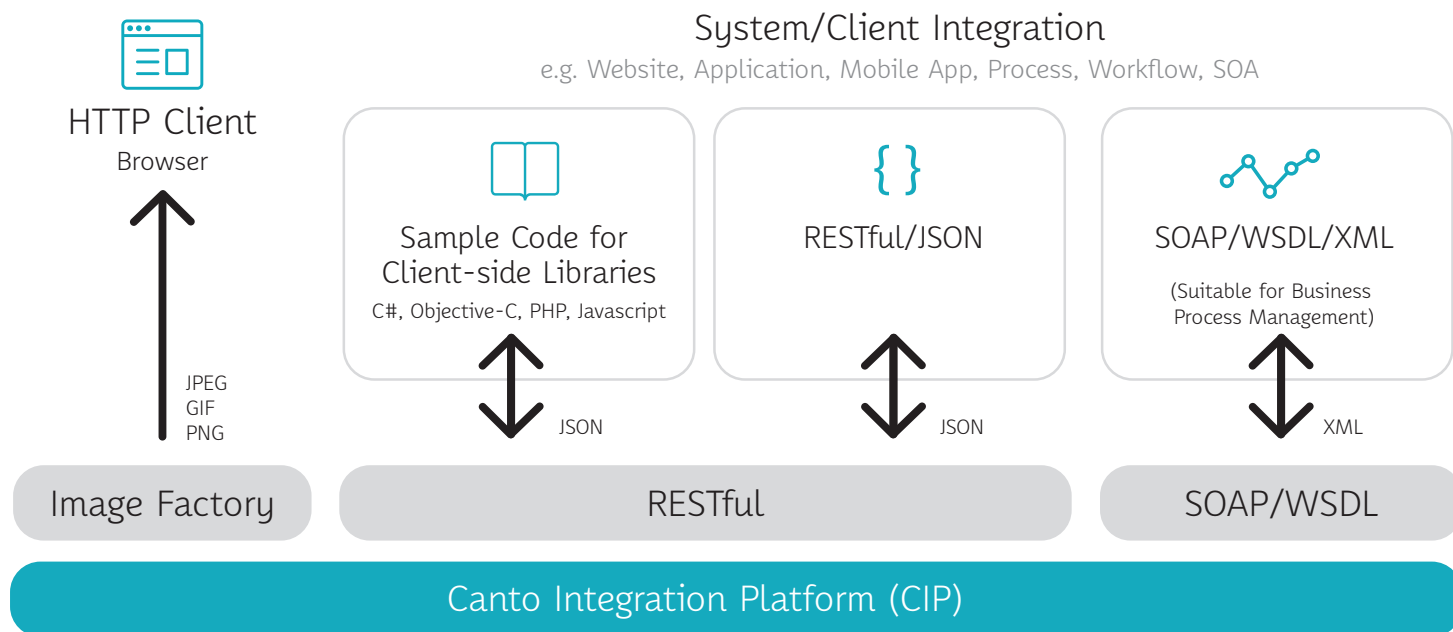


Figure 7.

## Integrations with other systems

### How can I connect my DAM with other systems?

An enterprise DAM installation accelerates added value if it is integrated with your system infrastructure. This is why Cumulus comes with an extremely powerful API — the Canto Integration Platform (CIP). CIP provides both RESTful and SOAP web services. Cumulus Web Applications and Cumulus Portals have been developed based on CIP. Basically, the entire Cumulus functionality can be accessed via CIP. In addition, for all CRUD operations events are triggered, targeting other systems.

By using our Cumulus API, you can also create new extensions and plugins. CIP ensures that the core product will not be affected by changes and you can still easily upgrade to new versions.

### What other interfaces are available?

Integration options are not limited to Web Services. The import and export of XML and CSV files is possible as well as the import and export of assets to FTP servers. It is also possible to integrate hot folders into the system architecture that can be monitored for the automatic import of assets. This may be useful for when you want to automatically catalog assets stored by users into your DAM. If you want to know more about Cumulus APIs, please read our [blog post](#).

### How are images delivered to other systems? Does the DAM have its own “Image Server”?

Image delivery is a key digital asset management topic — but it comes with its own challenges and not all systems are able solve them.

The primary objective is to avoid duplicates while generating the required formats, sizes and qualities on-the-fly as well as delivering them automatically to the systems that need them — like an ecommerce shop or a website. Canto has developed an Image Server ([see Wikipedia](#)) for Cumulus that delivers the right solution for every architecture. For an on premise installation, customers can choose between the Image Factory and the Media Delivery Cloud for Cumulus. Both tools transform and convert images on the fly, while keeping your source asset safely unaltered. If you decide to go with Cumulus Private Cloud, the Media Delivery Cloud is the right tool for you. See figure 8.

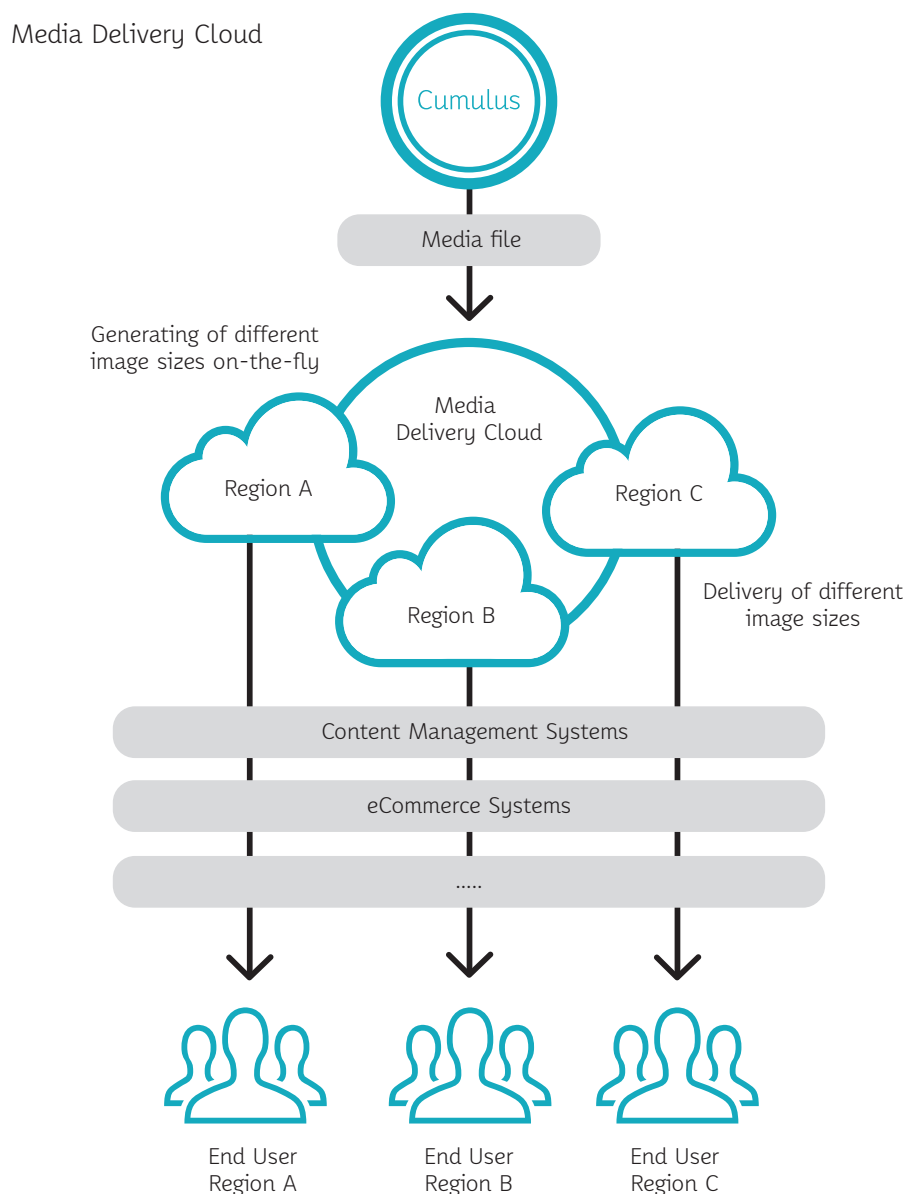


Figure 8.

## Upgrades and Updates

### Can I upgrade the core product to the latest version any time I want?

Canto typically develops two major releases per year, complemented by regular updates every 6-8 weeks that include new features, enhancements and bug fixes. During updates, Canto delivers the necessary installers for all Cumulus components. Usually, you can update your installation independently. For customers with a maintenance contract, all updates are free of charge. If your installation includes individual adaptations — like layout adaptations of web applications — you will need to verify whether some specific configurations need

to be updated manually. Canto Professional Services can assist you during upgrades. By the way — did you know that customers can influence the scope of our updates by suggesting and voting for “ideas” in the [Canto Community](#)?

### Can I operate a sandbox?

The Cumulus Enterprise Edition allows for a second server installation that you can use as a sandbox. We always recommend a sandbox both for functionality tests as well as for testing the integration with third party systems. Thanks to the import and export function for

configurations you can easily transfer individual configurations from one system to the other.

### Can I operate a failover system or a hot standby system?

The second server installation can also be operated as a failover or hot standby system. Cumulus catalogs can be mirrored to a second system (read-only) — or a SQL database (in case this is required due to backup / restore purposes). Canto Professional Services is happy to assist you in developing an individual failover or hot standby concept.

## Database Administration

### Do I need a specific skillset to manage the database?

Cumulus has its own NoSQL database and therefore an Admin client to help you manage the system. All configurations and settings can be performed via a graphical user interface — whether it is setting up workflows, defining rights and role permissions or the creation of metadata fields. If you prefer, configurations and database changes can also be outsourced to Canto Professional Services. Cumulus is highly configurable with little to no coding. Additional tools are not necessary. Coding skills are not required. If you want to manage the system yourself, we recommend Cumulus admin training.

### Does the system write log files?

**Yes.** The level of detail needed in your log files can be configured through the Cumulus log manager. The system writes an Audit-Log (CSV file) that is available for analysis. In addition, all Java-based applications (like Cumulus Web Applications and Cumulus Scheduler) include a Log4j configuration that can be adjusted as needed.

### How can I analyze the data currently stored in the system?

By using the Cumulus Report Manager you can access reports on the number of users, number of assets, search queries and more. It is also possible to automate the execution of these reports in user-defined intervals and send email notifications to the appropriate person.

### Is it possible to monitor the system in order to ensure ongoing operation?

**Yes.** We recommend a regular system monitoring through third-party systems like Nagios or Cacti. The systems automatically check whether all necessary processes are active, whether the system environment is up and running and whether enough storage space is available.

Cumulus Activity Monitor shows which users are currently logged on to the system and how long they've been active. If necessary, components can be separated manually.

If an error is detected (for example, a scheduler job is not working or a formula is faulty), Cumulus can send an email notification.





## What do I need to watch on a regular basis?

To ensure long-term, high-level performance of the system, some standard housekeeping rules should be in place. Make sure to rotate log files to avoid the creation of extra large log files. Make sure to empty the temp folder on a regularly basis. Canto Professional Services can assist you in setting up these activities when implementing the system.

## Can I brand the Cumulus user interface?

**Yes.** The need for digital asset management is often born in the marcom department. Adjusting the user interface to your brand identity is a frequent requirement. This is why you can brand all Cumulus Web Applications: Cumulus Web Client, Cumulus Portals and the Cumulus Mobile App. For Cumulus Web Client, you can easily brand logo and dashboard image via the configurator. For Cumulus Portals changes can be executed via the CSS files — this includes replacing the logo, images and adapting colors. In addition, you can determine which information should be displayed next to which asset by setting up different view sets. The emails sent out from Cumulus can be branded as well.



## Conclusion

We hope this white paper gives you a better understanding of the technical considerations involved with your upcoming digital asset management project, and how Cumulus specifically addresses each topic.

## Next steps

Please contact us with your requirements and contact information. We look forward to working with you to solve your digital asset challenges.



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### About Canto

Canto is driven by delivering digital content more intelligently. This has made the company a global leader in the digital asset management community. By always putting the focus on its users, Canto delivers scalable software and services that match customers' demands. More than one million users from a wide spectrum of market segments have trusted Canto's expertise since the company's founding in 1990. Canto is based in San Francisco (USA), Berlin and Frankfurt (Germany) and serves a worldwide customer base in close cooperation with its worldwide partner network. For more information visit [canto.com](http://canto.com).

### About Cumulus

Cumulus allows companies to easily organize, find, share and create digital content — on any platform. It helps customers protect their brand assets, ensure efficiency and ultimately improve their bottom line. Cumulus can be integrated with popular applications, and customized to support and streamline customer workflows. Canto's worldwide partner network offers many integrations and enhancements for Cumulus, enabling Canto to deliver truly tailored solutions. During its 20 year history, more than one million users from a wide spectrum of market segments have chosen Cumulus.