

Hyland™



Architect for the Cloud with Alfresco



How to cut costs and increase
agility with content services in the
AWS cloud



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I. The Case for Content in the Cloud

They say that content is king—which may explain why enterprise content can be such a royal pain to manage.

IT organizations must contend with a growing list of content management challenges, including:

- An ever-expanding volume and variety of content
- New ways of working that change how and where content is used
- Expectations (or unsanctioned workarounds) for secure content-sharing with partners
- Growing compliance obligations due to new data-related regulations
- Lackluster adoption of early enterprise content management (ECM) deployments

In addition, most companies are making efforts to transform digitally. This requires content to flow freely across the business, when more typically it's locked in legacy systems and departmental silos. IT is also being pushed to deliver new solutions faster, and the pressure to keep costs down never lets up.

That's why so many organizations are moving content off outdated on-premises ECM systems and into the cloud.



The Advantages of Managing Content in the Cloud

Organizations of all sizes and industries have embraced content management in the cloud. A study by AIIM found that 44% of organizations manage or move at least 50% of their unstructured content through the cloud.

The advantages you gain by managing content in the cloud include:

- **Modernization:** Innovate with a modern content services platform built to work optimally in the cloud; deliver solutions that drive operational excellence and new customer experiences.
- **Reduced TCO:** Save big with elastic compute and low-cost storage resources; eliminate the upfront infrastructure investment and pay only for the capacity you use.
- **Faster Time to Value:** Implement in days, not weeks or months; avoid provisioning delays and quickly roll out new code using modern DevOps techniques and technologies.
- **More Value from Content:** Make content available to more people and applications; use machine learning and other cloud AI services to make content findable and actionable.
- **Better Collaboration:** Support a mobile, distributed workforce that shares and co-creates content with internal and external partners; improve information flow and decision making.
- **Stronger Information Governance:** Consistently apply governance policies to centrally managed cloud content; leverage the security and compliance investments of cloud providers.

Managing content in the cloud is now mainstream...



44%

of organizations manage or move at least 50% of their unstructured content through the cloud

...and the shift to cloud-based content management is accelerating



37%

of organizations expect that 70%+ of their unstructured content will be in the cloud in the next 1–2 years

AIIM: The True Cost of Data Retention © AIIM 2018, www.aiim.org

II. Architectural Considerations

There are two basic approaches to managing content in the cloud:



1. Software as a Service

One strategy is to adopt a SaaS-based content management solution. Deployment is relatively fast, and the SaaS provider scales and upgrades your solution automatically.

But there are downsides. It's hard to integrate SaaS solutions with other applications and harder still to customize and extend them to meet specific business requirements. You're dependent on the vendor's release schedule for new features and functionalities. And the solutions typically lack critical content management capabilities like integrated governance and process services.



2. Content Services in a Virtual Private Cloud

The other strategy is to deploy your own cloud optimized content services platform in a Virtual Private Cloud (VPC) on Amazon Web Services (AWS), Microsoft Azure or Google Cloud Platform.

This "platform as a service" approach makes advanced content management capabilities available to any enterprise application through open APIs. IT teams can call discrete content services "on the fly" to meet the needs of diverse use cases and lines of business. If you've already moved applications to the cloud, this approach extends your investment in cloud infrastructure and skills.



Why Content Services?

You can't lift and shift a legacy ECM system that's designed for on-premises deployment and realize all the benefits of managing content in the cloud.

Content services platforms are modern, modular and purpose-built for the cloud. Their micro-services architecture and support for containerization let you take full advantage of the cloud's global reach, elastic scalability and pay-as-you-go cost savings. They offer speed and agility when solving content challenges and readily integrate innovations such as cloud AI services.

The features and benefits of a content services platform extend so far beyond those of traditional ECM systems that Forrester and Gartner have renamed the ECM technology category "content services" (or "content services platforms") to reflect this inflection point in the market.

Content Services Platform	Legacy ECM System
Set of modular, lightweight services	Monolithic, heavy-footprint application
Built for the cloud	Optimized for on premises
Open technologies (APIs, standards)	Proprietary technologies
Tailored, user-centric experiences	One-size-fits-all user interface
Easy to integrate and extend	Complex and costly to integrate and extend
Fast time to value	Long development and implementation cycles

"The market has shifted to cloud-native, modern platforms fueled by intelligent content services."

Forrester

Picking a Content Services Platform

Here are some criteria for evaluating your technology options when you're ready to manage content in the cloud.



Vendor's Commitment to the Cloud

Does the vendor's roadmap demonstrate a significant and ongoing investment in content services in the cloud? Look for technology partnerships with leading cloud providers as well as product capabilities that leverage the latest cloud services to enhance your applications.



Industrial Grade in the Cloud

Can the vendor provide benchmarks for processing documents at speed and scale on a cloud technology stack? This is especially important for moving high-throughput workloads to the cloud — like claims administration in insurance or mortgage origination in banking.



Accelerated Cloud Deployment

Containerized deployment options let you put code into production more quickly. Leading vendors kick-start your deployment with a reference architecture that builds in cloud best practices. From there, it's easy to adapt the deployment to your particular use case or development needs.



Capabilities Beyond Content Services

Look for a platform with integrated process and governance services. This lets you set up seamless information flows that deliver content in context with built-in compliance. Add in AI-powered intelligence, and you can achieve new levels of automation and efficiency as you digitize core operations.



Integrates with Cloud AI Services

Cloud AI and machine learning services are game-changers when it comes to unlocking and amplifying the value of unstructured content. By integrating text, image or video analytics into your solution, you can extract new insights from content at unprecedented speed and scale.



Open Technology

IDC calls open technology a "mandatory cloud evaluation criterion." Adopting a content services platform built on open technologies and open APIs lets you customize, integrate and extend your cloud solutions quickly and cost-effectively. Plus, you can tap into innovations contributed by the open-source community.

III. Deploying Alfresco Content Services on AWS

Alfresco Content Services (ACS) provides comprehensive enterprise content management capabilities that allow users to find, view and securely share content with people inside and outside your organization. ACS features an open micro-services architecture that simplifies the integration of content into the many systems and devices in your IT environment.

Optimized for AWS

ACS is fully cloud-native and optimized for deployment on AWS. This means you can quickly deliver new digital solutions that leverage Alfresco's modern content services on the scalable, secure, high-performance AWS cloud. ACS features pre-built connectors to many native AWS services, including Amazon EC2, Amazon EKS, Amazon Aurora, Amazon S3 and Amazon S3 Glacier. A reference architecture is available that bakes in best practices for ACS deployment.



Ready for the Digital Business

ACS is tightly integrated with other modules in the Alfresco Digital Business Platform, including:

- **Alfresco Process Services:** High-performance business process management (BPM) capabilities to digitize and streamline a wide variety of business processes.
- **Alfresco Governance Services:** Rich information governance capabilities, including automated records management, to strengthen compliance and reduce corporate risk.
- **Alfresco Development Framework:** A rapid, unified experience for building modern, responsive, user-centric apps from pre-built components and custom controls.

For companies that want to modernize not just how they manage content but also how they operate, building apps that combine the full capabilities of the Alfresco platform and running them on AWS can be transformative for the business.

For an analyst's perspective, [download IDC's Market Note](#) on the value of the Alfresco Digital Business Platform coupled with Amazon Web Services.

ACS Support for AWS Services

A typical ACS deployment on the AWS cloud uses these foundational AWS services. How you approach your Alfresco implementation will depend on many factors, including your requirements for performance, availability, compliance and cost.

AWS Service	Role in an ACS on AWS Deployment	The ACS on AWS Advantage
<u>Amazon EC2</u>	Elastic compute resources for content services, search indexing, content transformation and process execution	Maximizes application performance and minimizes cost because ACS micro-services scale independently in response to load. This eliminates the bottlenecks experienced with monolithic ECM systems — for example, when uploading or migrating lots of content.
<u>Amazon EKS</u>	Managed Kubernetes services for a containerized ACS deployment	Makes it easy to deploy, manage and upgrade large ACS implementations. Alfresco has created a reference deployment of ACS specifically for Amazon EKS that you can use as the starting point for a customized production deployment.
<u>Amazon S3</u>	Scalable storage resources for frequently accessed content, plus indexes and audit	Allows you to migrate and manage an ever-growing volume of digital content in the cloud. Alfresco customers run applications that put the content repository under a lot of stress, and Amazon S3 delivers high-throughput performance at any scale.
<u>Amazon S3 Glacier</u>	Extremely low-cost storage resources for infrequently accessed content	Provides a very inexpensive solution for content archiving, compliance and eDiscovery. You can automatically move content from standard S3 storage to cheaper Glacier storage using Alfresco Governance Services or S3 Lifecycle policies.
<u>Amazon Aurora</u>	Cloud-native, MySQL-compatible database to store content metadata and process activity	Enables sub-second access to billions of documents — a must for large-scale, content-intensive use cases. If you already use MySQL, your ACS application should run on Amazon Aurora with few or no code changes.
<u>Amazon AI Services</u>	Pre-built AI services to extend your app with text analytics, image analytics, intelligent OCR and more	Gives you unprecedented opportunities to use content — and the data in it — more effectively. The ability to tag and act on content using AI benefits a multitude of use cases, especially in document-heavy industries.

Example Use Cases for the Alfresco Platform and AWS AI Services

	<u>Amazon Textract</u> Automatically extracts text and data from scanned documents	<u>Amazon Comprehend</u> Uncovers insights and patterns in unstructured data	<u>Amazon Rekognition</u> Identifies objects, people, text and more in images and video
Insurance	Claims Processing: "Read" claims forms to initiate review-and-approval workflows and accelerate resolution	Customer Satisfaction: Conduct sentiment analysis on customer communications to improve service levels	Underwriting: Analyze and categorize the photographs or videos submitted with an insurance application
Financial Services	Loan Processing: "Read" loan applications to initiate the background and credit checks required for loan approval	Compliance: Flag personally identifiable information (PII) and other sensitive data for redaction	Customer Onboarding: Verify the identity of prospective customers for risk analysis and fraud detection
Government	Case Management: "Read" case forms to automate document routing and speed decision making	Legal Review / Research: Automatically identify specific entities or phrases in large volumes of documents	Law Enforcement: Identify missing persons or suspects in large volumes of digital images or videos

IV. Why ACS on AWS

1. Lower Total Cost of Ownership

Migrating content from a corporate data center to Alfresco Content Services on AWS can yield significant financial returns.

First, you can dramatically reduce content storage costs. The cost to store content on Amazon S3 Glacier is **as much as 70% lower** than storing content on premises.* In fact, many organizations find that the storage savings in the first year alone effectively "pay for" the cost of content migration.

You can also lower your storage bill by using AI and Alfresco Governance Services to intelligently and automatically manage content storage across the entire information lifecycle.

Additional financial benefits include:

- Paying for storage, compute and database resources on an as-needed basis
- Reducing the cost of hardware and software support
- Freeing up development time with easily reused content services
- Eliminating shipping and data transfer fees to move content
- Avoiding the investment in extra infrastructure to handle peak loads

FORRESTER®

A Total Economic Impact™ study by Forrester Consulting calculated that running Alfresco Content Services on AWS delivers 148% ROI and pay-back benefits in less than 6 months.

[Download the Study](#)

2. Faster Time to Value



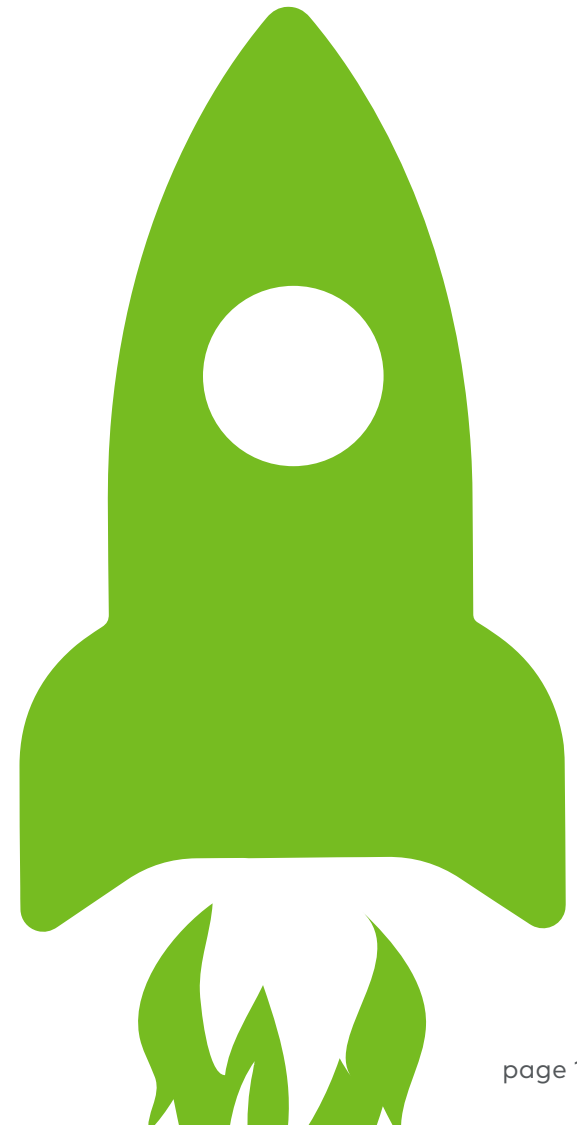
Together, Alfresco and AWS allow you to build and deploy modern cloud applications in record time.

On the back end:

- Open APIs, open standards and an open-source core simplify integration with line-of-business systems. Pre-built connectors for AWS services as well as Microsoft Outlook, Salesforce and other popular applications also speed solution delivery.
- Support for Amazon EKS means you can deploy global applications in minutes. A reference deployment for Amazon EKS gives DevOps teams a running start, allowing them to move quickly from test through staging to production.

On the front end:


- The Alfresco Digital Workspace provides a simple out-of-the-box interface for people to interact with content in the cloud. You can rapidly onboard users with a streamlined web experience that includes the most common content-related tasks.
- You can also create fit-for-purpose user experiences quickly and easily. The Alfresco Development Framework lets you extend the Digital Workspace with hundreds of reusable, responsive UI components as well as your own customizations.



2. Opportunity for Innovation



Opportunities for Innovation

- Deliver a paperless, personalized customer experience
 - Digitize operations for efficiency and faster access to information
 - Improve service levels with a 360-degree view of the customer
 - Build centralized repositories that can be mined for insights with AI
 - Create invisible information governance to meet compliance needs
 - Launch new digital services that add revenue and customer value
- 

The Alfresco platform and the AWS cloud are a powerful combination for advancing business transformation initiatives with applications that are truly next level.

For starters, you can use Alfresco's tightly integrated content and process services to digitize operations in the cloud. Automating content flows means processes run faster and people have the right information at the right time. (Alfresco Process Services is also optimized to run on AWS with connectors and a reference architecture.)

On top of that, Alfresco's open APIs make it easy to leverage native AWS services for AI, analytics and more. By integrating these emerging technologies, you can deliver innovative applications that completely change how the business works.

For example, Alfresco has built a [mortgage loan processing solution](#) that leverages 55 AWS products and services. The application delivers a highly personalized customer experience by bringing together process automation, machine learning and artificial intelligence and is a model for transforming any document-intensive use case.

[View the Alfresco on AWS Demo](#)

V. Companies That Have Made the Move

Liberty Mutual to Save \$21 Million with ACS on AWS

Insurance is an extremely document-intensive business. For Liberty Mutual, trying to support a global workforce with siloed ECM systems in U.S. data centers simply wasn't sustainable.

Determined to improve productivity and collaboration worldwide, the insurer's Global Specialty business deployed Alfresco Content Services and Alfresco Governance Services on AWS.

The Alfresco services integrate seamlessly with core insurance applications. Underwriters and claims managers work in their familiar interfaces but without the performance issues that previously slowed them down.

The business calls Alfresco Governance Services a "lifesaver" when it comes to meeting data-related regulations worldwide. Global Specialty streamlines compliance by applying information governance policies to a single source of truth housed in a secure AWS environment.

Alfresco's cloud-native architecture has allowed the insurer to rapidly roll out document services to new offices and product lines. Global Specialty deploys a fully functional Alfresco environment on AWS in just 30 minutes using Infrastructure as Code automation and CI/CD pipelines.

Global Specialty foresees a huge financial payoff from managing content in the cloud. The business is on track to save \$21 million over five years thanks to significantly lower paper, printing and document storage costs.

[Watch the Webinar](#)



"Alfresco was the only solution that absolutely met our requirement for cloud-native capabilities."

Mojgan Lefebvre, SVP & CIO,
Liberty Mutual Insurance



Global Bank Modernizes Document Management to Better Serve Clients

This Top 10 bank is widely known for using technology to improve the customer experience. Case in point: The company's digital document management solution, which has transformed how the bank operates and engages with clients.

The pivotal application is powered by Alfresco Content Services running on AWS. The solution is delivered as a multi-tenant software as a service and provides a single view of client documents to multiple lines of business. Every feature (or microservice) is available as an API call, so different business units can easily leverage digital documents in their own processes and systems.

The solution's greatest value has been to stimulate innovation and process re-engineering — not just shaving steps and time from an operation, but creating a better customer experience. For example, the bank revamped a cumbersome onboarding process to reduce customer touches by as much as 70%.

To accelerate the initial deployment, the bank moved old environments to Amazon S3 and used Alfresco Content Services to index and search the files. The next phase is to transfer 125 million documents to the cloud using Amazon Snowball, classify them with machine learning and then ingest them into Alfresco.

Looking ahead, the company is eager to integrate machine learning into the solution, using data in client documents to speed up processes, power predictive analytics and provide tailored products for customers.

"The business impact is that they're super-excited about all the possibilities. Every two weeks we have something new going in."

Technology Director at a Global Bank

Regulatory Authority Fights Fraud with Text Analytics

This U.S. regulatory organization has a new weapon in its fight against financial fraud: a high-performance, massively scalable solution that unlocks the information contained in regulatory documents.

The solution combines Alfresco Content Services on AWS with sophisticated, internally developed text analytics. The organization runs its analytics against a store of more than 150 million files in order to uncover possible wrongdoing and accelerate investigations. An "all-in" adopter of cloud computing, the organization sees Alfresco and AWS as a natural fit.

The IT team appreciates Alfresco's cloud-compliant architecture because it takes full advantage of AWS's flexible compute, storage and database services. The combined technologies provide virtually unlimited scalability that automatically flexes on the fly.

The organization has given its ACS implementation a real workout. Intensive analytics put the document repository under tremendous load, and the solution has performed well at extreme scalability limits.

When it comes to text analytics, the organization is a trailblazer. It is pushing the boundaries with advanced techniques for entity extraction, pattern matching and document summarization that help regulators zero in on relevant information.

Ultimately, the organization envisions more and more of its unstructured data becoming structured with analytics in the cloud.



"Alfresco is really compliant with best practices in the cloud."

Vice President, Application Platforms
at a Regulatory Organization

VI. Planning a Successful Content Migration

Alfresco has considerable experience helping customers migrate from an on-premises ECM deployment to Alfresco Content Services on AWS. Here are a few lessons learned from successful migrations.

Content Cleanup

Consider your migration a chance to “clean house.” Inventory your content to determine what moves to the cloud, what stays behind and why. Ask: What is the value of this content to the business? And: Is it subject to any compliance requirements? There are a variety of analytic approaches, automated tools and specialist firms to help with this evaluation process. Any redundant, obsolete or trivial (ROT) content – should be disposed of in a legally defensible manner.

Content Context

Use the information gathered in the content analysis to bring as much value as possible to your cloud applications. Enrich your content with the right metadata (and drop any metadata that’s redundant or unused). This will make files more “findable.” You can also use metadata to control content access, move content through a process and automate information governance. Cost and time considerations will determine whether you do this processing before or after content is moved to the cloud.

Content Transfer

How much content do you need to move and by when? Streaming data over a high-speed Internet connection works for smaller content migrations. For large (petabyte-scale) migrations, your best bet is an appliance like AWS Snowball. Transferring data on a “massive USB stick” avoids issues like high network costs, bandwidth constraints, security concerns and long transfer times. You can also do one big upfront transfer using an appliance followed by several smaller online transfers.



VII. Conclusion



Managing content in the cloud is now mainstream. A majority of organizations have migrated at least some content to the cloud to reduce costs, increase agility and better meet the needs of a digital business.

When you deploy Alfresco Content Services on Amazon Web Services, you get the best of both worlds: a modern, open content services platform that's fully optimized for the scalability, reliability, security and high performance that AWS delivers.

[Learn More](#)

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