

NAVIGATING CONTENT SERVICES MODERNIZATION

Learning from Customer Stories

whitepaper



Navigating content services modernization

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Executive Summary

“I belong to the warrior in whom the old ways have joined with the new.” This quote from an American film entitled *The Last Samurai* has a peculiar commonality with the world of content services. The film chronicles a transition of a culture from older ways of doing pretty much everything to the latest modern trends. The overall resonance of the story was that modernism cannot be avoided, however the process of adopting modern methods does not have to be achieved at the cost of the core value or purpose. Metaphorically we will take this story and apply it to the world of content services and how IBM has evolved that technology beyond Enterprise Content Management.

While words or acronyms like IBM, FileNet and ECM are relatively well known in the enterprise space, many do not know how far the technology has evolved and how the FileNet content management platform is leading the industry as an open, modern and feature rich platform. With a very large market share and proven track record of delivering client value, IBM is poised to bring thousands of customers forward to a modern, cloud native content services architecture that delivers the world class benefits these clients have come to rely on for mission critical business applications. Benefits of FileNet cloud native architecture include:

- Rapid deployment (in minutes), zero down time upgrade and fast container boot time providing faster return on investment
- Stability and security through easy and seamless patching and zero down time upgrades
- Granular incremental consumption and scalability through microservices containers offering better resource utilization and lower total cost of ownership
- Flexibility in deployment through Docker containers managed in Kubernetes; natively deployable to any certified public cloud (IBM Cloud, Amazon Web Services, Microsoft Azure, Google Cloud Platform, etc.), private cloud (RedHat OpenShift), as well as on-prem or across hybrid-cloud.

Content is Central to Digital Transformation and Automation

The focus of this document is to help organizations modernize how they capture, manage and govern their ever-increasing content. It's important to highlight that we must select a content services platform that achieves all that and also contributes to a broader business strategy. The strategy we are referring to here is Digital Transformation enabling automation via Digital Labor; the end-to-end solutions that create a stronger digital workplace and create value through automation, analytics and artificial intelligence. FileNet Content Manager (and Content Services on Cloud - IBM's fully Cloud-Native SaaS offering) is the pivotal component for content services within IBM's Automation platform called the Digital Business Automation. In upgrading to the latest release of FileNet Content Manager, customers establish the core foundation to roll out their broader digital transformation strategies.

If modernization is on a spectrum, clients will be found in different positions along that spectrum. Some have positioned themselves on a modern platform but may have yet to realize cloud-native architecture. Some clients may not be able to execute on their governance and regulatory expectations. Some, like many, may have one or more legacy repositories from which they need to migrate to fully modernize how content services are delivered in their company. This paper will introduce customers to the innovative changes IBM has made to the Content Services arena and provide illustrations of how IBM and Datum Solutions are helping clients navigate the process of modernization.

Modernization of the Content Platform

In IBM's Digital Automation strategy there are many familiar words or technologies. When saying things like ECM, FileNet, or Content Manager, many customers will immediately recognize at a high level what needs these technologies are supposed to meet. However, these terms have also been around for a long time and don't adequately represent how much IBM has invested in FileNet Content Manager to make it the industry leading open, modern and cloud-native platform offering existing and new clients tried and tested content services with flexible deployment options on premise, cloud or hybrid.

A simple example of what we're describing here is that many customers will readily confuse FileNet Image Services with IBM FileNet Content Manager. These technologies are dramatically different from one another with one solution being legacy and one being a modern, ever growing solution.

At Datum Solutions, we have routinely observed executives confusing the FileNet name. Although this is understandable, some executives with Image Services deployments go looking for a solution that they already have in FileNet Content Manager. While FileNet Image Services has a multi-decade history of reliability and performance and houses some of the world's most mission critical workloads, it is not the most modern software. FileNet Content Manager is a very different story however and this section will showcase the incredible transformation that has taken place there.

The following illustration highlights some of the core differences between Image Services and FileNet Content Manager:

IBM FileNet Content Manager	IBM FileNet Image Services
<p>Content Services platform for securely storing, managing, collaborating with, and enriching business content in all types of formats</p>	<p>Storage and management of large volumes of fixed information with high availability for users</p>
<p>Core Content Management</p> <ul style="list-style-type: none">● Content Storage and Retention● Rich Metadata & Search● Content-based Search● Annotations● Tagging, Comments, Likes● Collaboration & Productivity● Granular Auditing● Lifecycle & Versioning● Case Management & BPM● Events & Subscription● Modern GraphQL API's● Rich, Object-level Security Controls<ul style="list-style-type: none">● Role-based Access Control● Meta-based Access Control	<p>Core Content Management</p> <ul style="list-style-type: none">● Content Storage● Basic Metadata & Search● Annotations● Workflow● Security
<p>Storage Support</p> <ul style="list-style-type: none">● Connectors to EMC Centera, IBM DR550 and SnapLock magnetic write-once, read-many (WORM) environments● Cloud Object Storage	<p>Storage Support</p> <ul style="list-style-type: none">● Connectors to EMC Centera, IBM DR550 and SnapLock magnetic write-once, read-many (WORM) environments● Integrates with magnetic storage and retrieval systems
<p>Repository Support</p> <ul style="list-style-type: none">● Federation Services to connect to IBM FileNet Image Services and other repositories● CMIS API's● Cross-Repository Search	

Product Comparison

Datum Solutions wants to ensure that customers who have access to FileNet Content Manager via existing enterprise agreements realize it's true potential and not confuse it with legacy FileNet Image Services. There are, unfortunately, competitive platforms that seek to confuse customers by falsely associating the limitations of Image Services to the broader FileNet product set, thus attempting to lure customers away.

Image Services is also not the only legacy imaging platform that companies are utilizing. ImagePlus, Info Image, Global360, and Documentum are example of other platforms that, when compared to FileNet Content Manager, pale in scalability, flexibility and modernity. Later in this paper we will share case studies of customers that have successfully migrated content from these legacy systems to FileNet Content Manager. But first, let's explore some of the recent advancements that IBM has invested in what is already a leading content services platform.

A History of Innovation and Added Capability

Now, let's talk about the innovation that IBM has poured into FileNet Content Manager. There's a reason that IBM's flagship content services platform remains a repeat Gartner Leader in Content Services. The last two years alone have been filled with some of the best roadmap and innovation material that the platform has ever seen. From enhanced productivity changes for content creators to incredible advancements in architecture choice, IBM's new approach to Continuous Delivery, Continuous Improvement is truly an advantage for their customers. Here are just a few of the highlights worth noting:

- Dramatically simplified the configuration and installation of the platform.
- Merged the Process Engine components into the Content Engine, creating a singular Content Platform Engine.
- Added a full-service batch processing framework to help facilitate background "sweep" operations such as retention, reporting and content migration.
- Created the IBM Content Navigator framework and user experience platform which brings innovations such as:
 - Desktop Edit Services - streamlined integration with Desktop applications.
 - Docusign Integration
 - HTML5 Document Imaging with Merge and Split.
 - Role-based Redaction
- Added support for File Sync and external share
- Modernized integration services via REST and GraphQL APIs.
- Added support for broad-based cloud object storage services
- Simplified concurrent user pricing model and multi-cloud delivery options

There are many other advancements that could be listed in just the past six months. For example, existing customers gained three additional pieces of entitlement when version 5.5.3 was released including Watson Explorer Analytics Edition, Daeja Add Ons and the Bulk Import Utility.

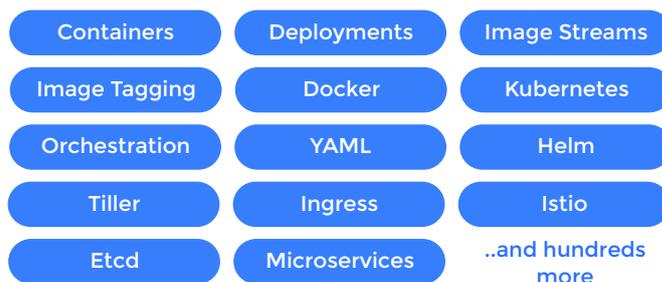
Even with all of these advancements to the architecture and capabilities, readers will be encouraged to find that IBM has not stopped innovating the platform. In addition to the aforementioned changes, we have not yet covered one of the most fundamental advancements; cloud-native architecture.

Modern, Cloud-Native Architecture

The FileNet Content Manager platform has proven to be one of the most scalable, highest performing, most secure content management platforms ever built. One sign of a strong architecture is its ability to advance over time to meet the competitive challenges of evolving marketplaces - proving its capabilities and rewarding its clients with the benefits of a long-term strategic investment. One key element that has enabled the FileNet platform to evolve effectively is having stateless components that enabled it to scale as the deployment environments have evolved from bare metal, to virtual servers, and now containerized deployments. Another is having pluggable service layers at key points for storage, identity management, federation, lifecycle management, and more. This has enabled IBM to emerge from traditional, on-prem services to more modern, cloud-hosted services - cloud object storage is a key example here. A third is the use of open source technologies, where possible, that have benefited from community investment and contribution.

Today, this architecture is supporting the induction of millions of documents a day, the concurrent usage of thousands of employees and the support of double-digit lines of business in just a single deployment. It has demonstrated cloud-scale deployments even prior to modern, cloud-based services. So, it is no surprise that IBM is leading the drive to Cloud in the Content Services space, with FileNet containers that are CNCF (Cloud Native Computing Foundation) certified, and both IBM and RedHat certified as well. These certifications ensure that the containers meet production level requirements.

What does this mean to enterprises that aren't interested in taking mission-critical workloads to Public Clouds? The advent of Cloud-Native technology enables enterprises to run workloads within their own data centers, using the same (or similar) approach to running those workloads in the public cloud. They can leverage the technologies that were created in order to support the high volume and rapid delivery demands of SaaS, PaaS and IaaS and bring reliability, scalability and flexibility to their non-public cloud deployments.



Common Terms Relating to Cloud-Native

IBM has made the notion of supporting cloud-native architectures one of the top priorities for all of their solutions, new and old. One of the first solutions in their Automation stack to adopt cloud-native adherence is the FileNet Content Management Platform. With the release of FileNet 5.5.x, IBM added Docker Images as a supported deployment method for the Content Platform Engine. Using a newer approach to Continuous Improvement and Continuous Delivery, IBM has quickly tacked on support for Kubernetes and hence deployable on all leading public clouds (Amazon Web Services, Microsoft Azure, Google

Cloud Platform) as well as hybrid cloud orchestration platforms like industry leading OpenShift from RedHat.

Using these improvements to administer and scale FileNet is a game changer, especially for companies that are looking to make their existing FileNet footprints more agile and modernize the underlying architecture. Replacing the larger Virtual Machine deployment methods has reduced the installation and deployment time for FileNet Content Manager in some cases by a factor of four. Here are just a few examples of the realities that can be achieved as a result of IBM's innovations:

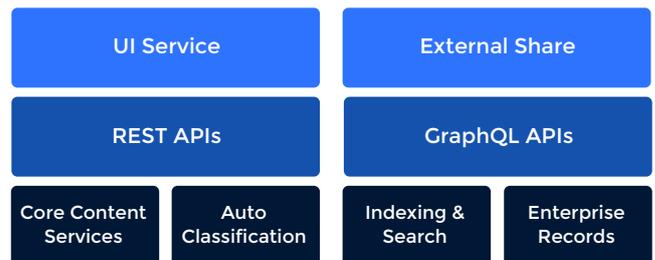
 <p>Rapid FileNet Sandbox Deployments</p> <p>A process that used to require the commissioning of VMs, Storage and Database resources can now be achieved by point and click in a matter of minutes, as opposed to days or weeks.</p>	 <p>Zero Impact Patching and Updates</p> <p>Reducing the cost and risk of keeping the platform current with fixes and new functionality with zero down time.</p>	 <p>Workload-Based Scaling</p> <p>Using only the CPU and Memory necessary to support the workload needed at any given time.</p>
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This adoption of a Cloud-Native foundation has also helped facilitate another crucial innovative step being taken by IBM, the movement to Microservices.

There are a lot of great resources on the web to explain the Microservices movement. While not every workload can be replaced with Microservices, many of FileNet's components are a fantastic candidate for the transformation. As an example, IBM's newly added External Sharing functionality is deployed within a separate container from the Content Platform Engine. Business areas with no interest in external sharing can simply ignore the container and save their compute resources for functionality they actually need. However, some organizations (like Financial Institutions or Health Care Payers) have large external sharing practices within their FileNet workload. Having External Share deployed as a microservice within its own container image allows those organizations to scale their external sharing workload up and down directly without having to scale the rest of the platform.

In this document, we have only scratched the service of how IBM has innovated and modernized the FileNet Content Management platform. Content Navigator, REST APIs, GraphQL APIs, and the Lucence-powered Content Search Services have also been given container deployment options. Having the ability to deploy, manage and scale these elements independently provides more degrees of freedom in managing resources and maintaining system availability. Now we will address one of the biggest obstacles to helping customers realize the value of these innovations, the cost of upgrading or migrating their legacy platforms.

Containerized Content Services Enable Individual Scale-Out and Management



Minimizing Time to Value Migrations

Barriers to Migration

In some places, 'migration' of content is a four-letter word. This is more than understandable as a migration can cost organizations hundreds of thousands of dollars (if not more) in hardware, software, professional services and personnel time, which is often one of the most overlooked costs.

Legacy content platforms such as those powered by Image Services, ImagePlus, and others have provided immense value in managing, securing and governing mission critical content. Changes in architectural dependencies and the advent of more flexible, open solutions like FileNet Content Manager have created a need to migrate from these legacy solutions. Unfortunately, these environments come with some inherent characteristics that make migration difficult.

Sheer Volume

In our experience, it is common to hear the word 'billions' in association with the number of documents in a client's content platform. Large customer bases, high transactional volume counts and strict regulatory compliance policies make content growth one of the biggest detractors to a migration exercise. These large content pools have a direct impact on the time to complete a migration. The longer the migration persists the more costly the migration, especially if the client is having to license two software platforms at the same time.

Integrating Applications

Another historic challenge is baked into the fact that legacy content platforms were not easily adopted into the rest of a digital, automated solution within the enterprise. In many cases, custom integrations and custom applications have been constructed to facilitate gaps in legacy content platforms. All of these customizations have to be evaluated and considered prior to executing a migration.

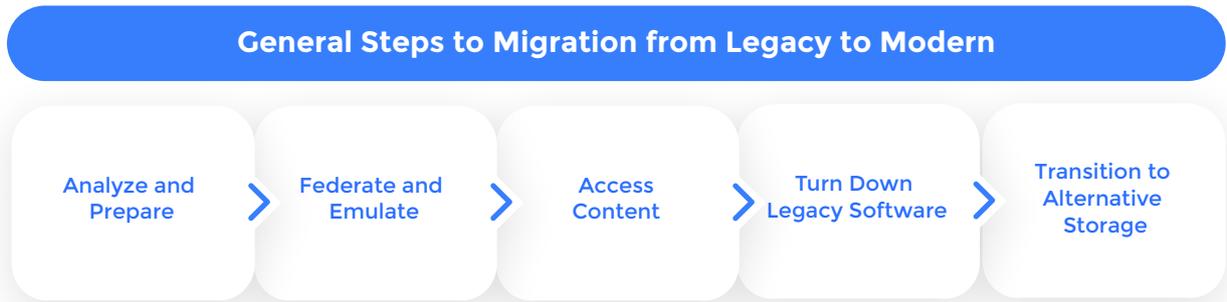
Proprietary Technology

Rounding out the barriers to migration is the use of proprietary technologies that have intentionally and unintentionally created a kind of vendor lock-in. OpenText platforms for example have had wrappers around content that made migrations complicated for clients to perform on their own. FileNet Image Services often utilized proprietary forms of storage for which modern platforms may not have the necessary connectors or drivers.

Some honorable mentions would also include personnel expertise and internal IT service bureaucracy but the three factors above tend to be the most common barriers. Thankfully, IBM and partners like Datum Solutions have largely eliminated these challenges.

Even in the past year there have been some significant advancements to help revolutionize the migration process. Here are some examples of how customers have overcome migration barriers and realize quicker time to value.

Case Studies: Migrating from Legacy Systems



Study 1: Image Services to FileNet Content Management Platform

A large healthcare company in the Southeast had very large implementations of FileNet Image Services, as well as a newer implementation of FileNet Content Manager. The Image Services platform supported multiple mission critical workloads in areas such as Claims, Enrollment and Benefits Management to name a few. Though the Image Services platform had fulfilled its purpose, the platform was rapidly becoming outdated.

While the customer wanted to migrate, the cost of migration in regard to the length of time served as a detractor. However, Datum Solutions Rapid migration accelerators helped introduce a method to turn off the Image Services platform in a quarter of the time that a typical migration would take. This method utilizes a unique technique to federate access directly to the content while it rests in the existing storage medium. By eliminating the need to migrate the documents themselves, the client is able to turn off the Image Services platform much sooner in the migration initiative.

From this point, if the client prefers to leave the documents in the existing storage medium they can do so. However, we have also included the ability to seamlessly migrate the content in the background in a manner that is completely transparent to the audience and eliminates the need for dual licensing. Additionally, with IBM's robust support for various storage backends in FileNet Content Manager, the customer can migrate to low cost storage such as virtual tape or any S3 Cloud Object Storage such as IBM cloud object storage or Amazon storage.

Migration Statistics	
Total Content to be Migrated:	2+ Billion (Approximately 120 TBs)
Document Conversion and Ingestion into Target Platform (Per Day):	7.5 Million
Document Extraction from Legacy (Per Day):	144 Million
Annotation Extraction from Legacy (Per Day):	280,000

Study 2: Multiple Legacy Image Platforms to FileNet Content Management Platform

Another large healthcare organization in the United States carried a complex legacy platform composed of multiple

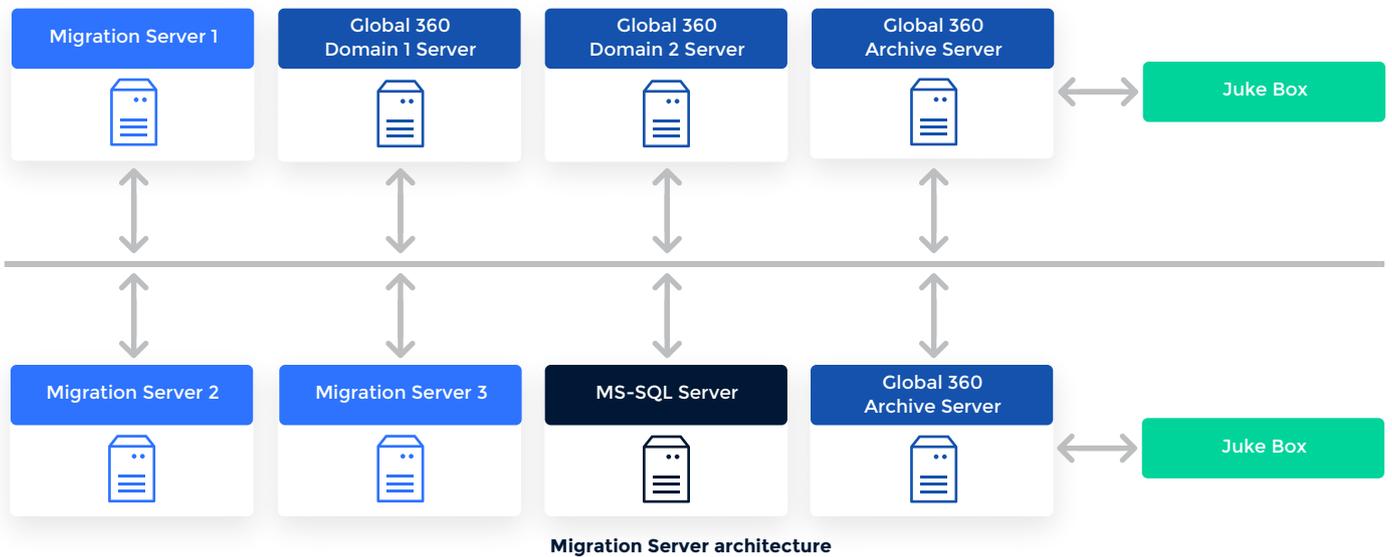
legacy imaging solutions. The legacy solutions included but were not limited to the following:

Migration Statistics			
Platform	Document Count	Annotation Count	Storage Total
Global360	191 Million	Several Million	47 Terabytes (Optical Platters)
InfoImage	230 Million	Several Million	48 Terabytes (Optical Platters)
ImagePlus	399 Million	n/a	60 Terabytes (DASD)

In total there was over 500 Terabytes of content and 100 Million annotations to be migrated. Along with the content to be migrated were complex supporting databases and custom applications. Each legacy platform had or treated annotations differently. Some platforms had multi-version documents and some did not. Platforms such as ImagePlus used proprietary image formats like AFP or MOD/CA and

had to be converted after extraction. This added to the complexity of the migration because extracting the documents from the platforms weren't enough, they also had to be converted to a modern viewable format like PDF.

Here's an example of the server architecture that had to be produced in order to migrate the Global360 content:



Again, FileNet's Content Management platform proved to be an ideal target repository due to robust content management capabilities, intuitive governance functionality and extensible APIs to accelerate the replacement of legacy custom applications with out of the box, supported frameworks. Thanks to FileNet's Domain architecture, the client was able to construct a multi-Object Store document classification taxonomy.

This ensured the client's ability to support many different types of workloads and facilitate multiple areas of business need while using a consistent architecture and functionality framework across them all.

The client has successfully completed these migrations and are now in the process of migrating other legacy content solutions to the FileNet Content Management platform.

Study 3: A Large U.S. Insurer Needed Help Migrating from Documentum

Merging and acquiring new corporations usually means good things for the purchasing company. The new acquisitions bring in a wealth of new customers, markets, and expertise to expand operations geographically or into new market territories. These exciting ventures don't come absent of challenges however and among them is the arduous process of amalgamating platforms, applications and an abundance of content.

For a large multi-state Insurance company, this was certainly true. Having just acquired a smaller multi-state operation, our client found themselves looking at 1.2 billion documents in a Documentum platform that hadn't been maintained or kept current. The insurer already had a strategy to centralize content services on the IBM FileNet Content Management platform, but they needed help getting all that Documentum content into FileNet.

This is where Datum Solutions and IBM came in to help facilitate extraction and conversion from the Documentum platform (including PLEXUS). After conversion, the documents were moved into an existing FileNet platform. Existing enterprise applications were able to continue viewing content seamlessly thanks to some simple modifications we made to their viewing algorithms.

Thanks to these migration efforts, our client has been able to move on toward realizing the gains of their latest acquisition and get past at least one of the biggest hurdles.

Migration Statistics

PLEXUS:

850 Million Documents

Additional Repositories:

384 Million Documents

Data Migrated:

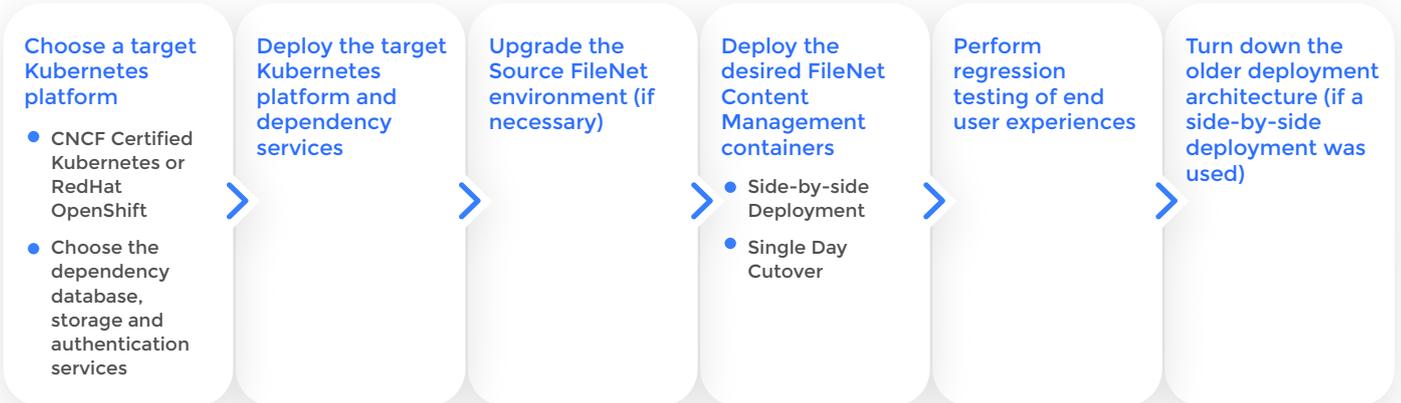
Over 100 TBs

Study 4: Migration to Containers with FileNet Content Management Platform

A large financial company had an initiative to modernize all applications to a more cloud ready platform to reduce costs and improve ease of and time to deployment. The company had several existing FileNet Content Manager instances that supported various lines of business. As part of the application modernization initiative, they wanted to move their existing traditional FileNet environments to a certified Kubernetes container platform. The customer started with one FileNet Content Manager instance that

comprised of development, test and production environments. The requirements for the transition were to minimize the impact to end users and slowly migrate custom applications based on available resources. Additionally, the customer also wanted to take this opportunity to move to a newer version of DB2, as well as, move their content to AWS S3 cloud storage.

At a high level, these are the steps necessary to upgrade to a container architecture:

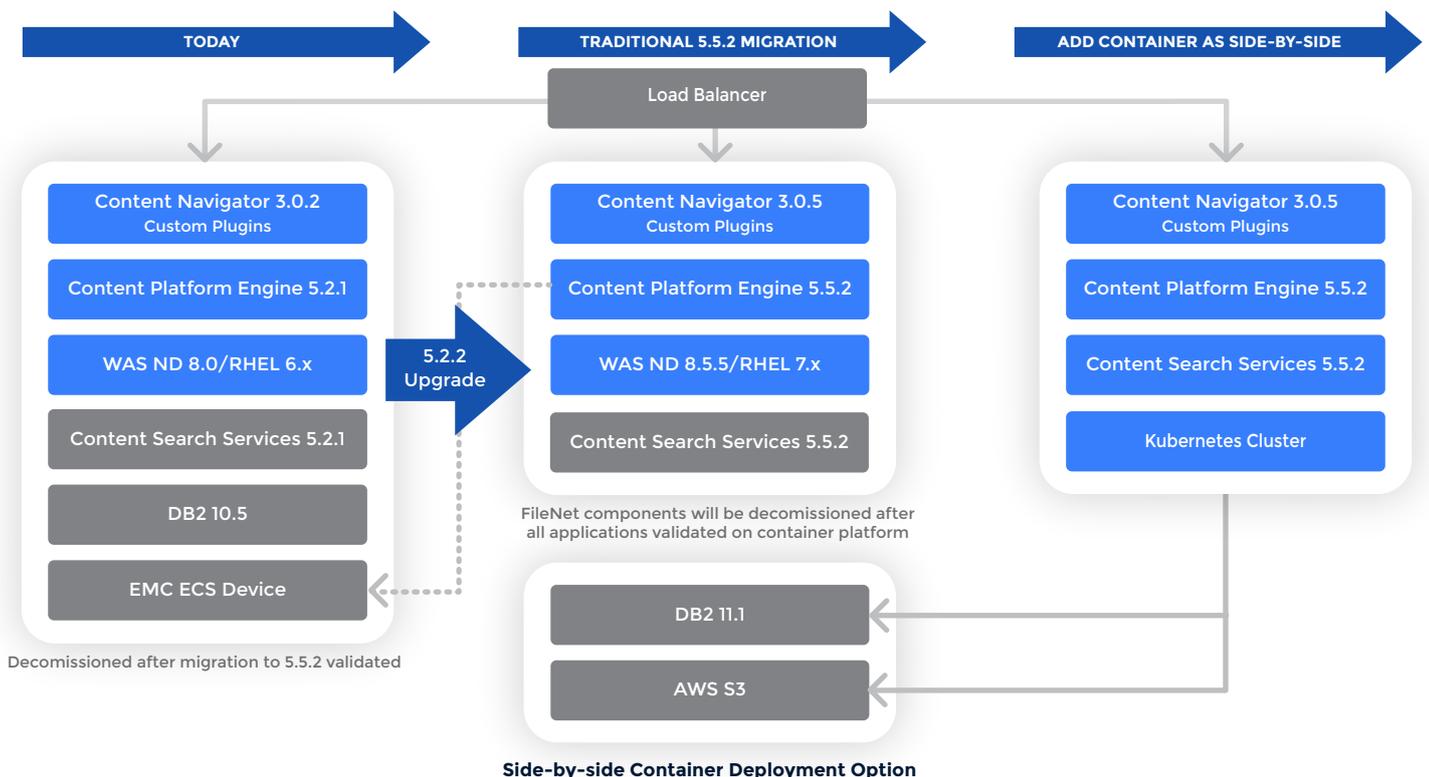


In this customer story, the FileNet Content Manager instances were on an older version (FileNet Content Manager 5.2.1) which was prior to the release of container support. So, the customer had two options to upgrade to the newer version with container platform support:

- Option 1:** Directly upgrade and migrate to containers as a single step
- Option 2:** Upgrade the existing on-premise environment to the same supported version for containers and run a side-by-side configuration.

Due to the requirement of minimizing impact to end users, the customer chose option 2, which also gave the added flexibility of moving workloads and applications to container at their own pace. The graphic below illustrates the steps for Option 2.

The customer, with consultation from IBM, successfully migrated their development environment to Kubernetes based on Red Hat OpenShift Container Platform (OCP). They will now repeat the above steps for their test and production environments.



Content Modernization Summary

In conclusion, legacy content platform migrations are intricate and require thorough planning to understand the unique situations, source systems and expected outcomes. The good news is that IBM's FileNet Content Management platform and IBM's Partner Ecosystem (including Datum Solutions), are more than ready to help customers migrate and realize the fastest time to value of migration in the industry. The combined technology and experience mean customers can be confident on achieving their modernization strategies with their IBM FileNet investments.

IBM's FileNet Content Manager platform also serves as the preferred modern, innovative content platform around which an enterprise can build for years to come. After completing a legacy migration to FileNet Content Manager's modern Cloud-Native architecture (or Content Services on Cloud for SaaS customers), customers are well positioned to expand their Automation, Digital Labor footprint using the rest of IBM's Digital Business Automation suite. They are ready to leverage integrated robotic tasks, automation workflow and cognitive capture capabilities.

Global Presence



USA

**8520 Allison Point Blvd,
Suite 220**
Indianapolis, IN 46250
Tel: (+1) 317 790 6818
Fax: (+1) 317 863 1071

India - Hyderabad

**KTC Illumination Towers,
Plot#203/204/205/206**
Opposite WestInn Hotel
Madhapur, Hyderabad -
500 081

India - Bangalore

**Datum Cybertech India
Private Limited**
CPS House
23/2 Ulsoor Road, 1 Floor
Bangalore - 560042
Tel: (+91) 080 40981801

India - Mumbai

**D-3140, Oberoi Gardens
Estate**
Chandivalli
Andheri-East
Mumbai - 400072

UK

Suites 9&10 Park House
77-81 Bell Street
Reigate, Surrey, RH2 7AN
Tel: (+44) (0) 1737 233946

Spain

**Gran Via de les Corts
Catalanes 145, local**
08014 Barcelona
Tel: (+34) 93 180 70 31

Montenegro

Serdara Jola Pileti a Br. 22
Podgorica
Tel: (+382) 67 508 033

Australia

161 Keilor Road
Essendon VIC 3040

Serbia

**Vitezova Kara or eve zvezde
50**
Belgrade
Tel: (+381) 69 35 25 171

About Datum Solutions

Datum Solutions is a privately held company founded in 2004 and located in Indianapolis, Indiana, USA. Datum Solutions has rapidly expanded its business operations to Europe (UK, Spain and Montenegro) and Asia Pacific (Australia and Singapore, including development and support center in India). Datum provides a group of veteran consultants and strategists globally positioned to assist on any opportunity. Datum specializes in ECM technology systems assessment, software development/re-engineering and technology support services in commercial, health, insurance and government sectors. Datum has become a full service agency which provides assistance to organizations in order to deliver products and services in a timely manner while keeping the information technology implementation costs down. Datum Solutions is an advanced IBM ECM Partner and Reseller as well as PegaSystems Business Partner providing services and support for ECM, BPM, Case Manager, Cloud and Big Data solutions and projects. The Company's delivery model enables us to deliver innovative technology, outsourcing solutions and help you meet your business goals at a great value. Datum maximizes the benefits of its delivery capability, ensuring high adaptability to client needs thus bringing out the most cost-effective and innovative solutions in all fields of business and technology.

Datum's Information Technology Project Solutions services include the following categories:

- Capture, ECM, BPM, Case Management and Cloud Consulting
- Infrastructure – Network and Systems Architecture Design
- Software Deployment and Support Development
- ECM Software Application Support
- Business Process Analysis and Process Automation Testing/QA Services
- Software Re-engineering ECM Support Services Staff Augmentation

Most of these categories include project activities that are carried out to address clients' business needs. The activities are specifically defined for each project based on clients' requirements and needs.

During its presence in the IT industry, Datum has provided services to numerous clients from medium to large scale enterprises. The Company has grown its global team to over 300 consultants/IT professionals working at different locations in the US, UK, Spain, Montenegro, Singapore, Australia, Malaysia, Japan, Mexico and India.

Datum Solutions opens up new horizons for companies in which content management plays a major role. It provides solutions to problems pertaining to business operations along with the focus on cost cutting and time management. Datum facilitates growth for clients by providing a wide range of ECM Cloud (ECM as SaaS), ECM on premises and migration/conversion, software development, ECM staffing and consulting solutions for key elements of strategic framework. Clients also have the possibility to lay out simple and sound business models through Datum Solutions Extended Development Centre (EDC) Model, Extended Support Model, Time & Material Model and Joint Development Venture Model.

Office Address:
Datum Solutions, LLC
410 N Shortridge Road
Indianapolis, IN 46219

Telephone:
(+1) 317 790 6818

Fax:
(+1) 317 863 1071

Email:
info@datumsolutions.net

Website:
www.datumsolutions.net