IBM DocumentHub

Lightweight content management system, which stores documents in GitHub, in a human friendly way

- Why DocumentHub?
- Platform Architecture
- Microservices
- Web Components

IBM

Why DocumentHub?

Scenario 1/3: Choose technology stack for a new application

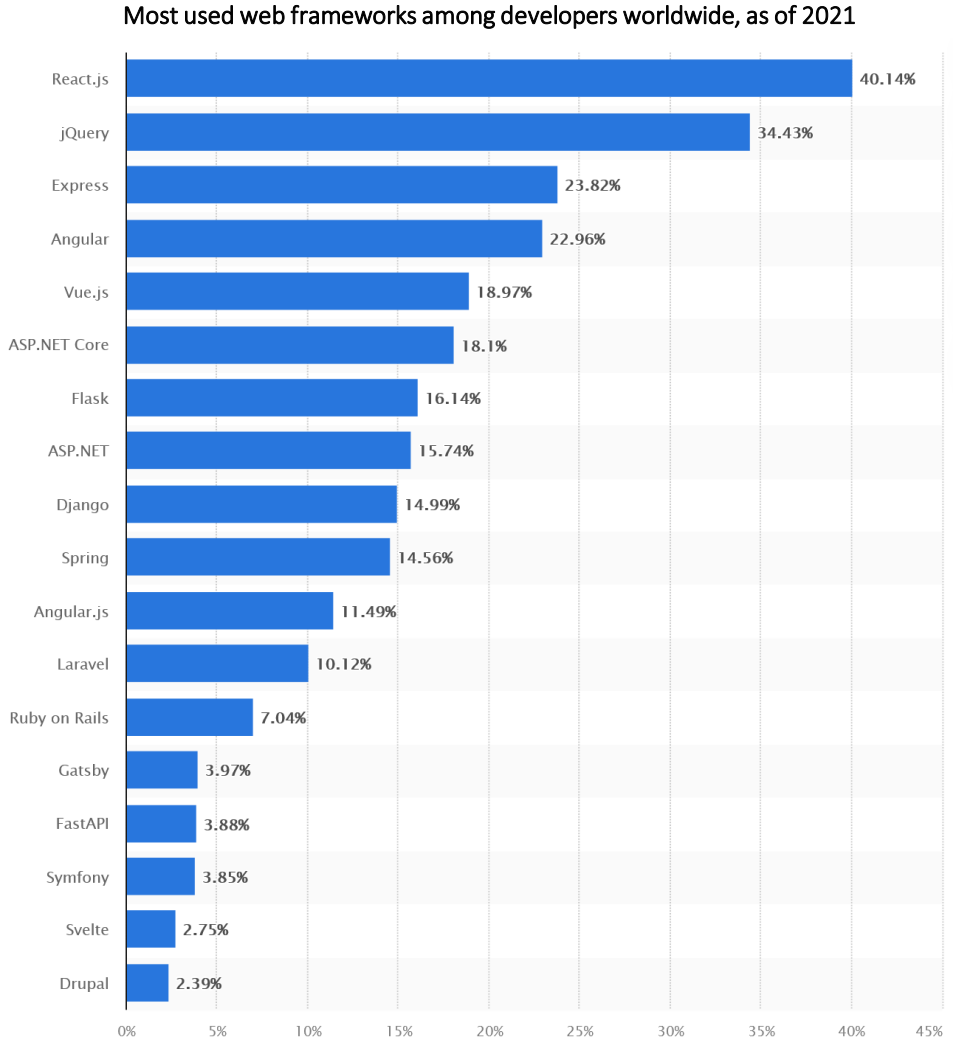
An unpopular technology stack means:

- fewer developers available
- less interest in the project
- higher learning curve
- higher costs

Content Management System	Compatibility with web frameworks
DocumentHub	**100%** (compatible with all top frameworks)
Adobe Experience Manager	< 10%
Salesforce	< 10%
WordPress/Drupal	< 20%

DocumentHub

- ✓ **developer friendly** – compatible with all top frameworks
- ✓ **increased productivity**
  - uses popular technologies
  - simplifies code and architecture



Why DocumentHub?

Scenario 2/3: A user uploads an infected file

*"It is estimated that, worldwide, cyber crimes will cost **$10.5 trillion annually** by 2025" – Cybercrime Magazine*

Other users download the infected file

The manager starts receiving complains that the application is spreading malware

Most **CMS platforms** don't have virus scan

- Infected files are uploaded without scanning
- Infected files are downloaded by other users without scanning

DocumentHub has antivirus scanning for all uploaded and downloaded files.

Why DocumentHub?

Scenario 3/3: A user discovers that his data suddenly disappeared

User blames the application for the missing data

The manager checks with the team to figure out if it's a user mistake or an application bug, before it escalates

The team's classic technology stacks can be of little help:

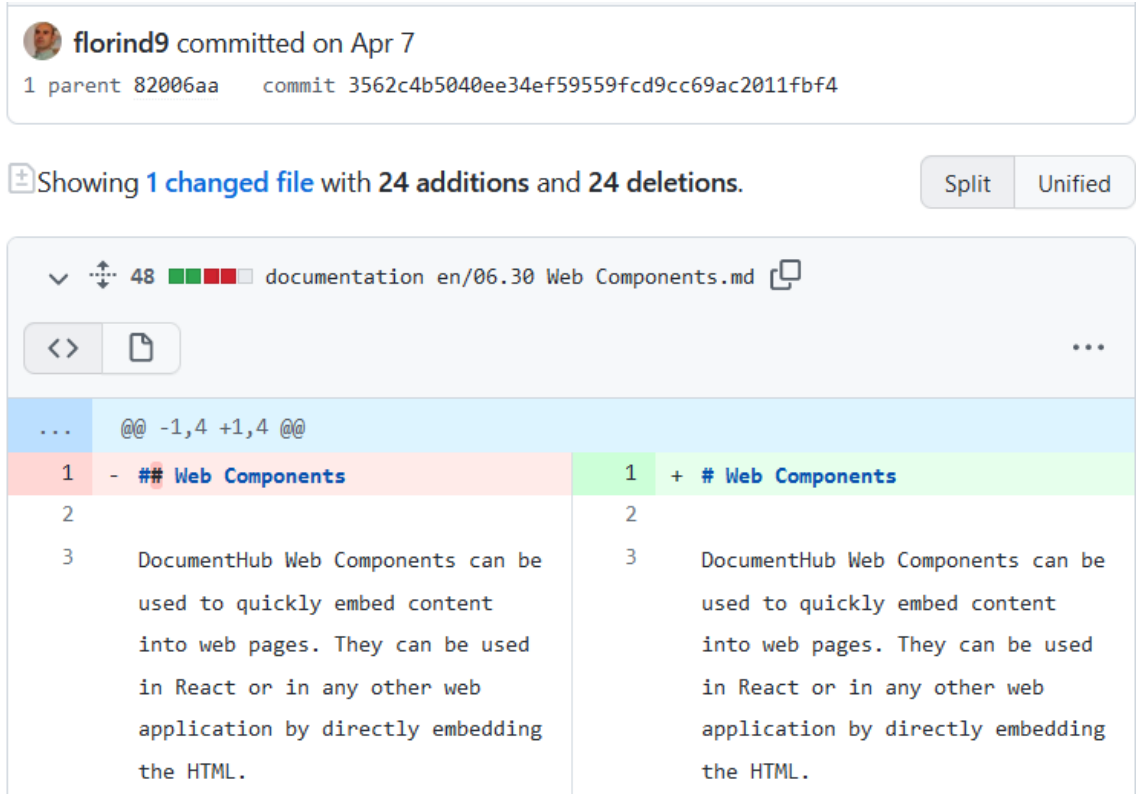
- Databases don't have a tracking system for the changes
- Databases don't correlate changes with the users
- Comparing the current database with a backup is difficult and time consuming
- Even so, the comparison will show a lot of irrelevant changes since the last backup
- Writing a complex change tracking system can be time consuming and expensive
- Even with a tracking system, only the user actions are logged but not the application bugs

How do you solve this, before it escalates?

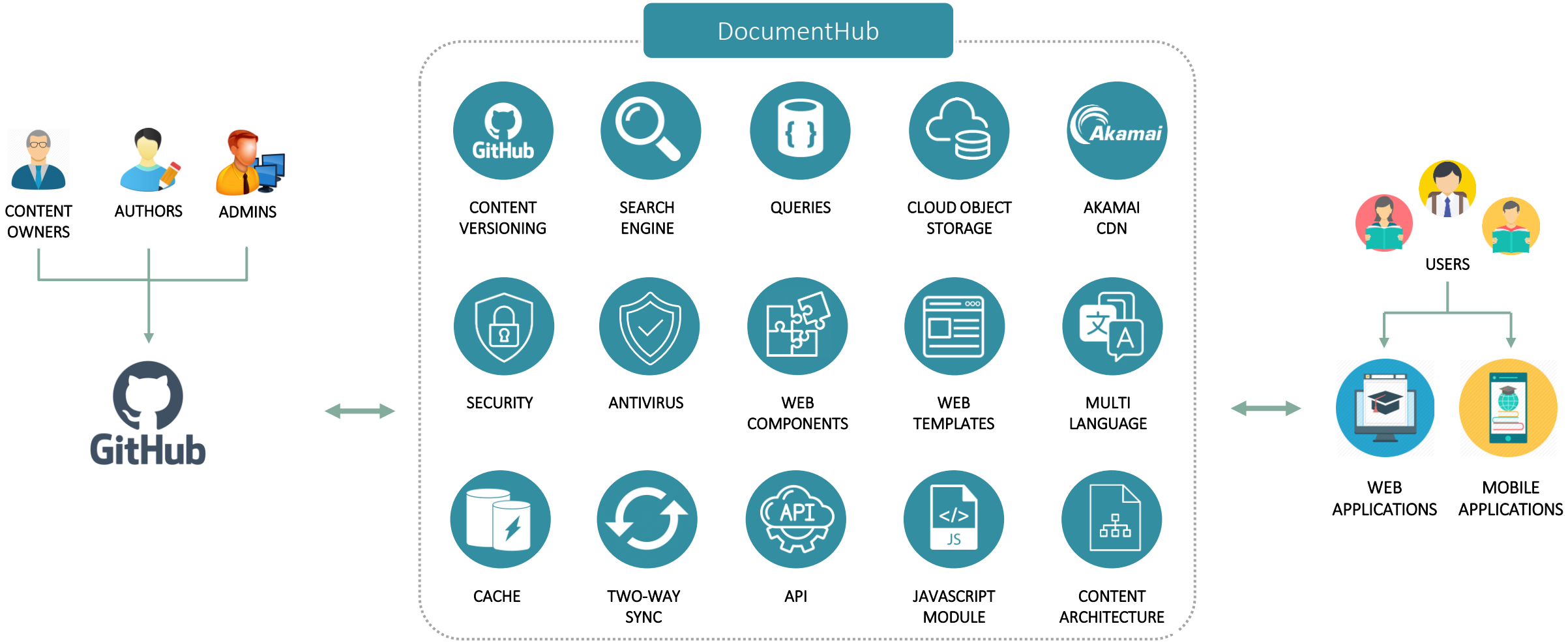
Why DocumentHub?

DocumentHub stores the data and the content in GitHub

- GitHub is the best content versioning system
- Change log, history and differences for all the changes
- Changes are correlated with users
- Easy to identify a change and revert it
- Content is stored in a friendly, human readable format
- Friendly UI to browse and edit the content
- No database admins to run SQL queries. Anyone can manage the content
- Edit the content in GitHub UI, your application, or any external editor
- You own the content repository. DocumentHub only syncs the content with your application
- IBM Enterprise (github.ibm.com) or public (github.com)
- No costs



How it works?


CONTENT OWNERS
AUTHORS
ADMINS
GitHub
DocumentHub
GitHub
CONTENT VERSIONING
SEARCH ENGINE
QUERIES
CLOUD OBJECT STORAGE
Akamai
AKAMAI CDN
SECURITY
ANTIVIRUS
WEB COMPONENTS
WEB TEMPLATES
MULTI LANGUAGE
CACHE
TWO-WAY SYNC
API
JS
JAVASCRIPT MODULE
CONTENT ARCHITECTURE
USERS
WEB APPLICATIONS
MOBILE APPLICATIONS

Why DocumentHub?

Resources / Developers
- Compatible with the latest technologies, which developers are enthusiastic to use

Time, Costs and Risks
- Faster development by using DocumentHub components and services
- Reduced costs with development, test, maintenance and hardware
- Reduced risks by using components and services proved to be reliable and secure

GitHub
- Content is stored in GitHub
- GitHub is the best content versioning system
- Content is stored in a friendly, human readable format

Security
- Verified security with internal and external PEN tests
- Access control lists and access control rules for content
- Automatic filtering of the content based on the access for each user
- Virus scanning for files

Cloud Object Storage
- Media files are automatically uploaded to IBM Cloud Object Storage

Akamai CDN
- Media content is automatically cached around the globe and optimized for slow connections

JavaScript Module / API
- JavaScript module gives a quick and simple access to content
- From any other language you can you can access the content with API

Web Components / Web Templates
- Embed web component in your application like a full search page, a course or a quiz
- Add IBM SSO to your application with just one line of code
- Choose an app starter template for your application to speed up development

Search
- The fastest search engine, 5x faster than IBM Enterprise Search
- Accurate search for precise results and fuzzy search for finding matches even for a typo

Cache
- Two levels of cache: memory cache for JSON and text content and database cache for other files
- Access to content stored in GitHub to the same speed as a database

Sync
- Two-way (bi-directional) synchronization between application and GitHub
- Update the content in application and the changes will be stored in GitHub
- Update the content in GitHub and the changes will be available in application in 2 seconds

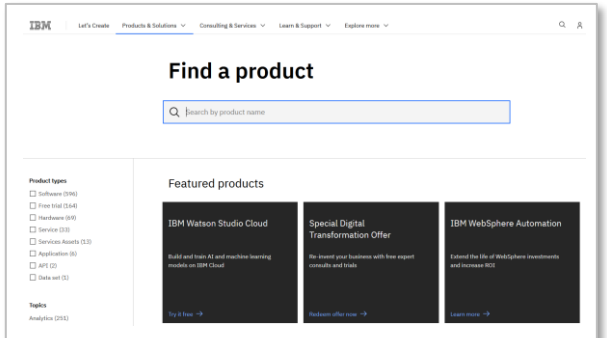
Who uses DocumentHub?

300,000+
total users

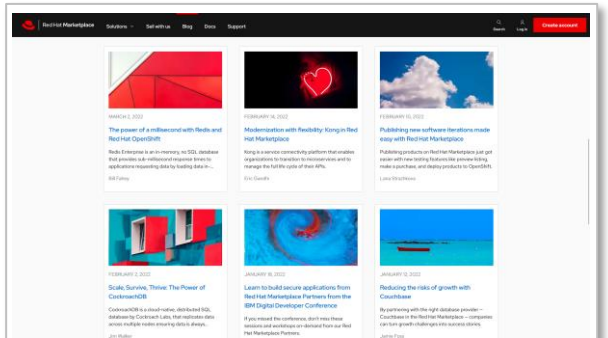
100,000+
requests/day

1 millisecond
execution time

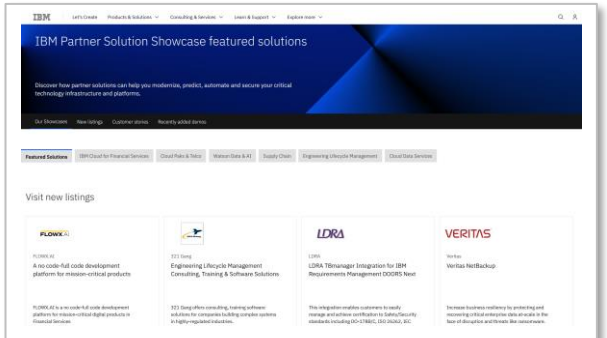
1,000+
GitHub branches



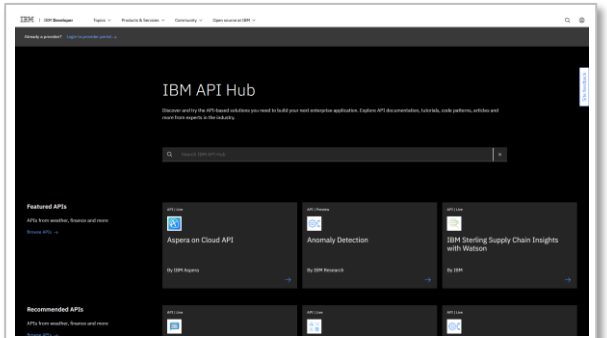
IBM Products ibm.com/products



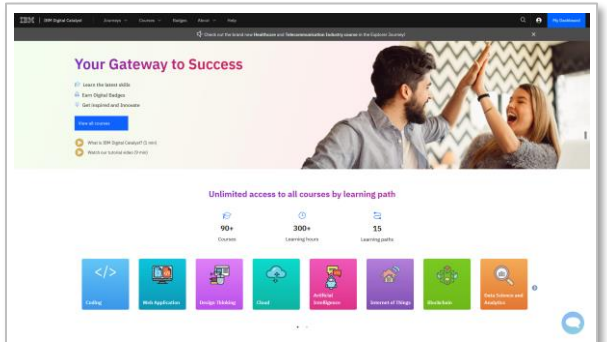
RedHat marketplace.redhat.com/en-us/blog



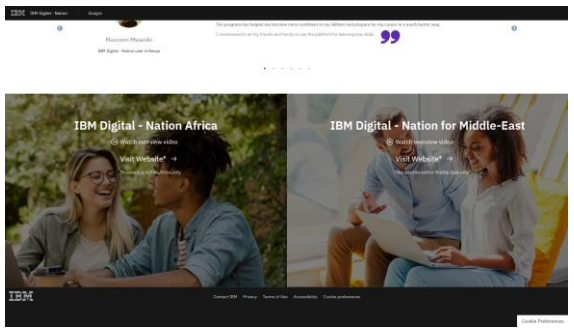
Partners Showcase ibm.com/partners/showcase



API Hub developer.ibm.com/apis



Digital Catalyst ibm.com/skills/digital-catalyst

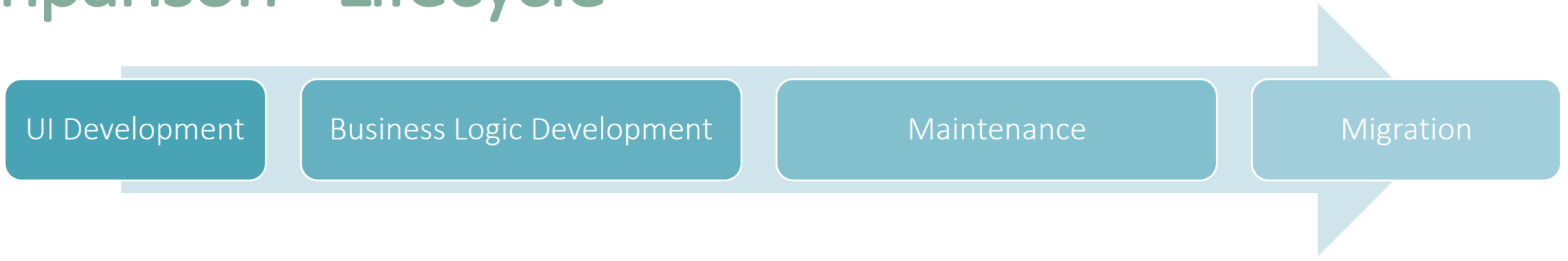


Digital Nation developer.ibm.com/digitalnation

Open Labs developer.ibm.com/openlabs

and others

CMS Comparison - Lifecycle



Content Management System	UI Development	Business Logic Development	Maintenance (content and config changes)		Migration (code or content)	
			Costs	Resources	Code	Content
DocumentHub * recommended for applications with custom development	Very Good Developers can choose the latest languages and frameworks they prefer	Very Good Developers can choose the latest languages and frameworks they prefer	Very Good Cheap cloud instance	Good No developers needed Has change history	Very Good Code is developer friendly	Very Good Content is in GitHub in a human friendly format
Adobe Experience Manager * recommended for large static websites	Good Limited choices, difficult for custom components	Poor Very limited choices, hard to find developers	Poor Pay per usage, expensive	Very Good Drag and drop, WYSIWYG editor	Poor Code is written in a proprietary format	Poor A monolith with a proprietary format
Salesforce * recommended for applications with a common UI and logic	Good Proprietary language, difficult for custom components	Poor Proprietary language, hard to find developers	Poor Pay per usage, expensive	Very Good Drag and drop, WYSIWYG editor	Poor A monolith with its own language	Poor A monolith with a proprietary format
WordPress * recommended for blogs or presentation websites	Poor Limited to PHP, difficult for custom components	Poor Limited to PHP, hard to find developers	Good Dedicated VM	Good WYSIWYG editor	Poor Code is written in PHP	Poor A monolith with a proprietary format
Drupal	Poor Limited to PHP, difficult for custom components	Poor Limited to PHP, hard to find developers	Good Dedicated VM	Good WYSIWYG editor	Poor Code is written in PHP	Poor A monolith with a proprietary format

Platform Architecture – decoupled CMS architecture

Content Creation

Use **any tool or platform** to edit the content

Content Repository

GitHub
public or enterprise

Content Delivery

Content as a Service

Content Presentation

Develop web or mobile apps on **any platform or framework**

Edit content with any tool or platform

- GitHub UI
- Your own content editor
- Any external content editor

GitHub - the best content repository

- Content is stored in a human readable format
- Content versioning
- Revision history, changes diffs, revert changes, activity log
- Dev, staging and production branches
- Users access control
- Enterprise and public GitHub

Content as a Service – very fast content delivery

- **Very fast microservices** with memory cache
- **Search and filter** the content by any metadata field
- **Content is reusable** in any other web or mobile application
- **Access control** for content and users
- **Cloud object storage** with **Akamai CDN**

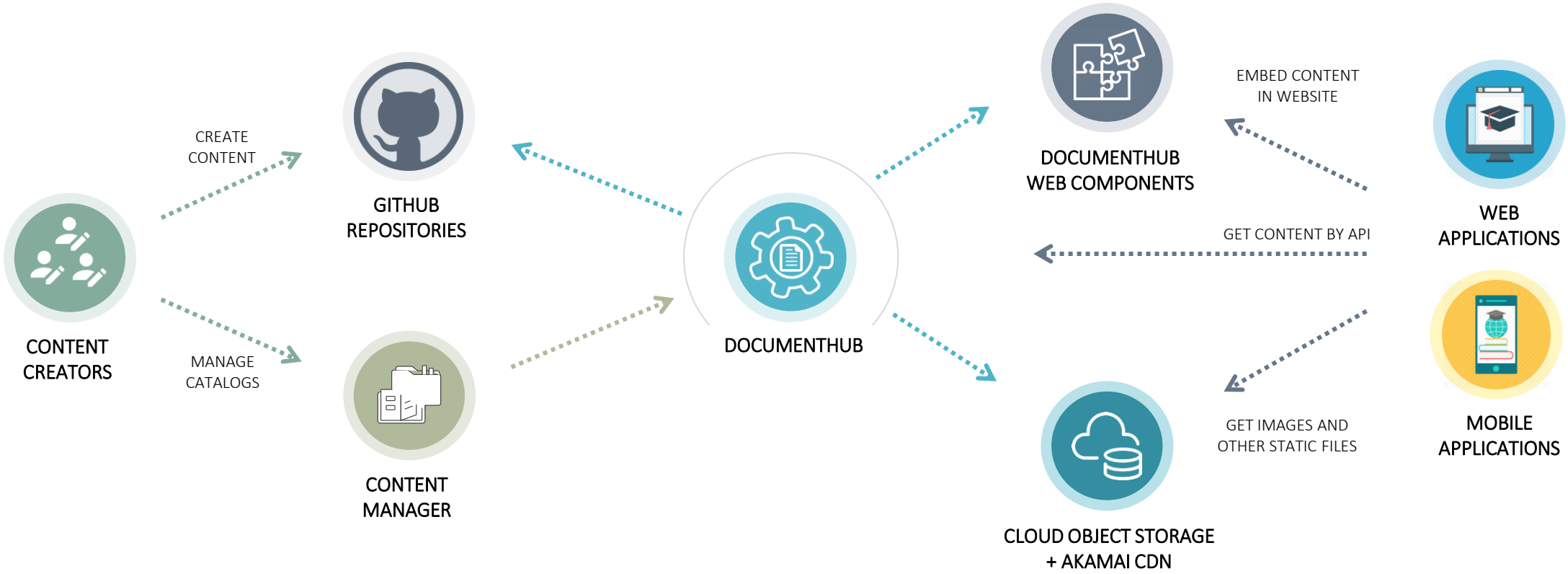
Web or mobile apps on any platform or framework

- **CaaS** delivers the content to any web or mobile applications on platform or framework
- **Web Components** are helping to quickly embed content in websites
- **MyLearning** can be used to quickly share a library with other people
- **Web/Mobile Templates** can be used for a faster development

Platform Architecture

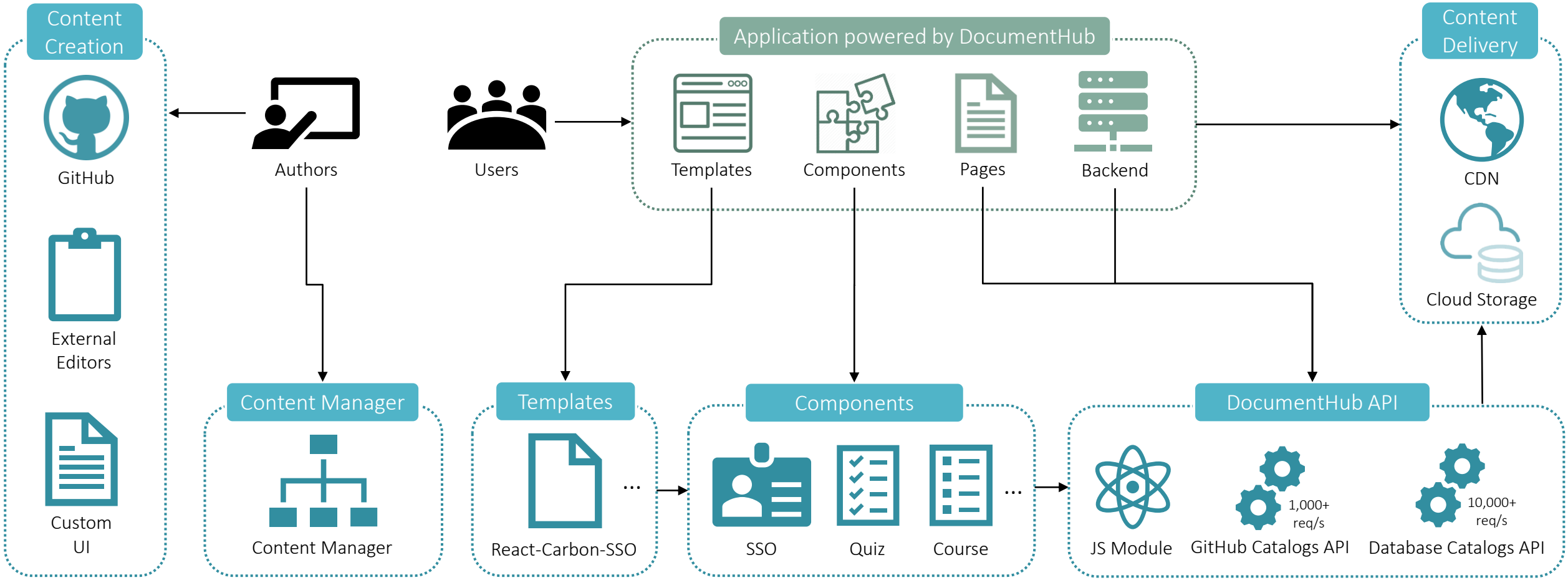
1 Manage the content in GitHub or application

2 Show the content on web or mobile



Content Creation | Content Repository | Content Delivery | Content Presentation

Platform Architecture



Content as a Service API

Very fast access to content

Edge CaaS microservices are using **memory cache** to quickly respond to any content request. API execution time is usually around only a **few milliseconds**.

Reuse the content on multiple websites

You can reuse the same physical document in multiple logical catalogs. In this way you can show documents on multiple websites **without cloning them physically**.

Search and filter the content

Edge CaaS uses the **fastest search engine** to **search** the text content and **filter** the content by any metadata field like title, tags, keywords, type or categories.

Access control on catalogs and documents

Access permissions can be set at **user level** or at **application level** for the entire catalog or for individual documents.

CDN and Cloud Object Storage

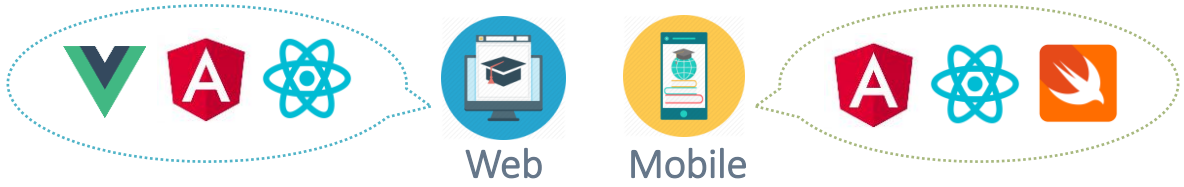
You can benefit of **Akamai CDN** to get the content cached in the nearest location. Attachments are **automatically uploaded to Cloud Storage.**

99.9% uptime

Edge CaaS is running in **IBM Cloud** and is using the **blue-green deployment** model to deploy updates with **no downtime**.

Web Components

Light and flexible applications with reusable components on any platform or framework.



API

Fast access to content
Search and filtering
Access control

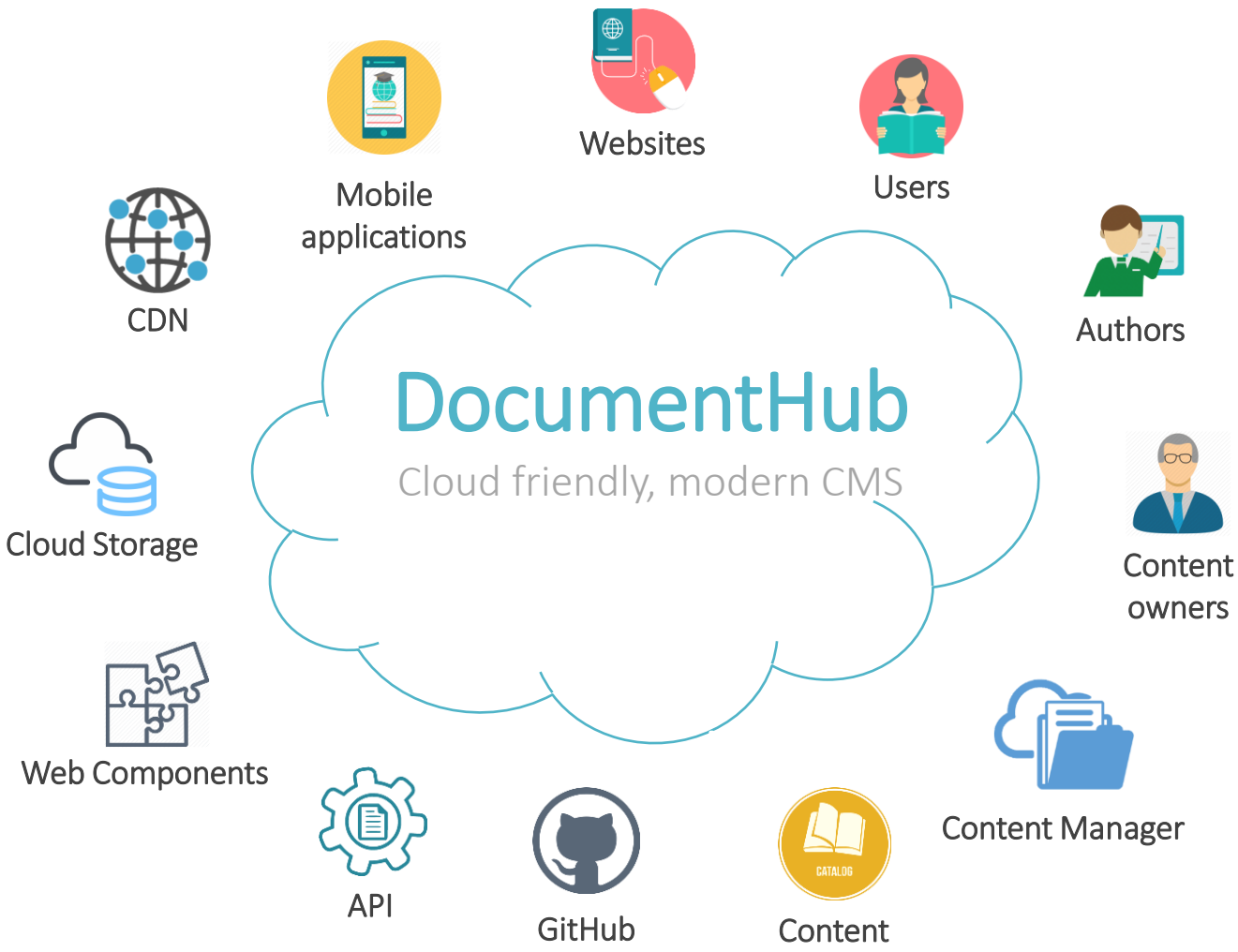
Web Components

Easy embed courses, quizzes, articles and other components

CDN and Cloud Object Storage

Public media files are stored in Cloud Object Storage and delivered by Akamai CDN

Summary



Business contact: laksri@us.ibm.com
Technical contact: florin.dumitrescu@ro.ibm.com