

# The Cloud-first CMS Going to Headless

Manage, Display, and Personalize Content for Any Device or Channel



云米 21Face 智能储鲜冰箱 [对开门 630L]

# 18 分钟全域净味大屏冰箱



18分钟  
全域  
快速净味

21英寸  
智能大屏  
随心操控

99.9%  
草本杀菌保鲜  
守护健康

语音妙趣交互 | 全屋智能互联 | 极光蓝面板 | 22 格专属分区 | 变频一级



[https://www.tokit.com/ai\\_cooking2](https://www.tokit.com/ai_cooking2)





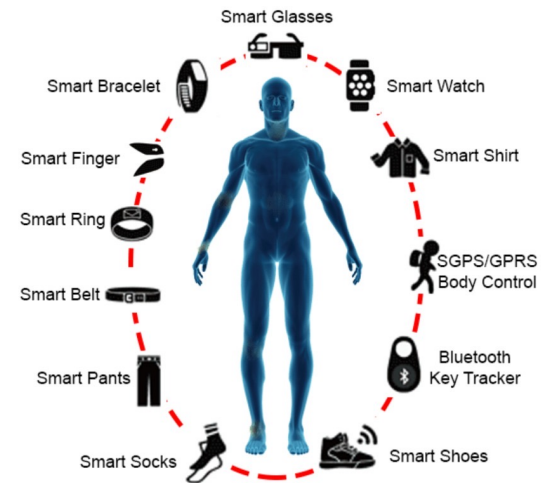
Class 1 EFB



Class 2 EFB



Class 3 EFB



**THE FUTURE SOLDIER**

**HELMET**  
Extreme head protection

**HEADS-UP DISPLAY**  
Enhances situational awareness, provides critical data

**SOLAR PANELS**  
Captures solar energy

**BIOSENSORS**  
Sensors in fabric measuring vitals

**ARMOR**  
Complete ballistic protection

**BODY**  
Nanoparticles protect against impact

**LEG BRACE**  
Captures kinetic energy

**EXOSKELETON**  
Improves performance and endurance

© 2012 U.S. ARMY / SAIPA

CNBC





<https://youtu.be/MDtxOmtVZGs>

<https://youtu.be/llfjE3-pyvK>

# Case Study



The screenshot shows the Marathon Visa website's sign-in page. The background features a photograph of a Marathon gas station at night. The page is divided into several sections:

- Sign In:** A form with fields for "User Name" (containing "adidemo") and "Password". Below the fields are "Remember Me" and "Sign In" buttons. A link for "Forgot your user name or password? Register for Online Access" is provided.
- Enjoy UNLIMITED Rebates:** A list of benefits including 2% rebate on all purchases, 1% rebate on gas, and 2% rebate on groceries. A "VISA" logo is visible.
- 24/7 ACCESS:** A blue box with a clock icon and the text "24/7 ACCESS". Below it are links for "Pay Your Bill", "View Statements", "Update Your Profile", and "Manage On-the-Go".
- Why Register for Online Access?:** A section explaining the benefits of online access, such as managing the account from any device and getting monthly statements.

The screenshot shows the Victoria's Secret website's sign-in page. The background features a photograph of several models in lingerie. The page is divided into several sections:

- Sign In:** A form with fields for "User Name" (containing "adidemo") and "Password". Below the fields are "Remember Me" and "Sign In" buttons. A link for "Forgot your user name or password? Register for Online Access" is provided.
- Welcome, Angel!:** A section with a "New to Account Center?" message and a "Become An Angel!" link. A "Card Benefits" button is visible.
- Card Benefits:** A section with a "More Details & Benefits" link and a "Apply" button.

The screenshot shows the Buckle website's sign-in page. The background features a photograph of a woman sitting in a chair and using a mobile app. The page is divided into several sections:

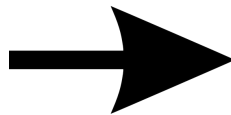
- Sign In:** A form with fields for "User Name" (containing "adidemo") and "Password". Below the fields are "Remember Me" and "Sign In" buttons. A link for "Forgot your user name or password? Register for Online Access" is provided.
- Your Card. Your Style.:** A section with a "Cardmember Benefits" list, including "10% off your first Buckle Card purchase" and "5 Rewards Card for every 300 points earned".
- First Time Here? Apply:** A button to register for the card.

The screenshot shows the Express/Next website's sign-in page. The background features a photograph of a city skyline at sunset. The page is divided into several sections:

- Sign In:** A form with fields for "User Name" (containing "adidemo") and "Password". Below the fields are "Remember Me" and "Sign In" buttons. A link for "Forgot your user name or password? Register for Online Access" is provided.
- EXPRESS NEXT Credit Cardmember Benefits Include:** A list of benefits including "2% points for every \$1 spent" and "\$10 Newcard for every 2500 points".
- Card Benefits Apply:** A button to register for the card.
- Why Register for Online Access?:** A section explaining the benefits of online access, such as managing the account from any device and getting monthly statements.

# Current Application Technology

Content Management System



Publishing Static HTML files



Consumed by dated JSF Application







# Current State Problems

## Delivery Focused on a Single Consumer Application

- High Cost to Entry into CMS for new applications

## Not Scalable to amount of White Labeling Needed

- Static content not easy to personalize or change for brand variants

## Tightly coupled architecture leads to Slow and Complex Deployment Model

- Install tasks and coordination are very costly. Most installs take at least half of developer's time for any given feature release.

## Outdated Monolithic JSF tech stack makes it extremely hard to keep up to date with evolving technology trends including personalization, accessibility, UX design practices, multivariate testing, and DevOps practices.

- Organizations have been frustrated with the cost, complexity and user adoption of monolithic, centralized applications with antiquated interfaces and lengthy deployment cycles



# Business Drivers

The following are some of the major business drivers that will impact Enterprise Content Management within the next 3 years. These do not correspond to individual projects, rather they represent major themes that may be implemented by several projects.



## Stability and Scalability

Exceed CMS user and content consumer expectations through high availability of CMS services.



## Speed to Market: Deployment and Development

Increase speed and efficiency in the development and deployment cycle



## Adoption to ECM & Content Reuse

Adopt digital application suites throughout the enterprise through displaying the value of content management. Create an enterprise wide content hub for maximum content reuse.



## Client Customization

Support effective client customization



## Ease of Use

Make content management easier to use, less investment to enter, and less of a risk for the impacted resources.



## Improved Insights into Marketing Content

Increase the level of reporting and analytics to allow the CMS to be most effective.



## Marketing Capabilities

Give the marketing teams the proper flexibility to manage and expand our brand and client marketing to increase value of applications.



## Content Personalization

Deliver relevant content to the customer through persona based personalization and effective multivariate testing.





## Relevant Technology Trends

The following are some of the major technology trends that will have potential impact on Digital applications. This sub-section identifies strategies for leveraging or preparing for these trends.



Headless CMS Content Model



Content as a Service Architecture



Enterprise Content Governance



Devops/Release Management



Client side MVC Frameworks



Enterprise Wide Centralized Content



Content Delivery Network



Personalization Framework



# Future Application Technology

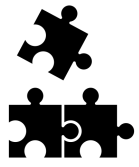
Tridion CMS  
In Headless  
Architecture

Publishing Dynamic Content

Content Delivered  
through DXA data  
provider services in  
CaaS Architecture

Consumed by Angular  
Application and Many  
other presentations





# Future State Opportunities

## Modern Business and Technology Architecture

- Reduced complexity within technology group. Faster speed to market.

## Enables 1 to 1 Marketing Personalization

- Better operational model for business teams to have 1 to 1 personalization strategy implemented with dynamic content

## Ability for Multiple Enterprise Wide Application Consumers

- Enterprise centralized content repository strategy allowing for lower cost to enter into the CMS space. This lowers the threshold for other enterprise applications to begin using CMS practices and content causing natural evolution.

## More UX flexibility though decoupled front end presentation layer

- Any application consumer's presentation layer is completely controlled by that application. Allows for UX to easily make enhancements without the content team's involvement. This allows the content teams to focus on solely content.

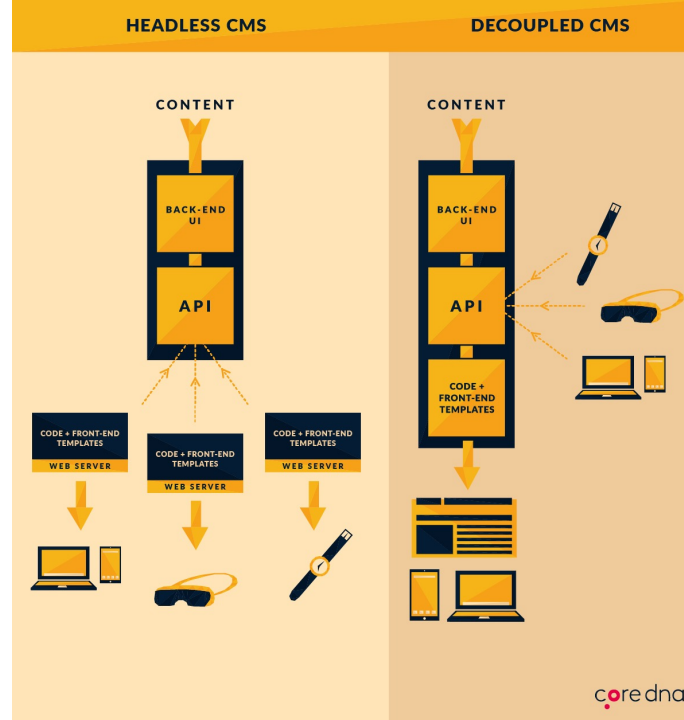
## Scalability

- Through enterprise centralized content strategy and dynamic CaaS, the CMS will be much better suited to scale to demands of personalization and white labeling.

## Stability

- With additional hardware layers and a new architecture combined, we will have a much more stable CMS and runtime environment.





# Headless Content Management System

# Common Website Scenarios

Static Websites with Content Managed by a CMS

Content-Oriented Website or Brochure Website

Website with a Complex Content  
Governance Process

Single Page Application with Heavy Use of  
JavaScript Frameworks

Social Media

Website in Multiple Languages

Websites and Applications on Any Platform

# Contents & CMS: Typical Scenarios

Common Website Scenarios

Empowering Marketers

Multichannel Publishing

Other Specialized Scenarios

- Dynamic contents always
- Contents websites managed by marketers with very limited developer assistance
- Marketing functionality needed
- Tracking customer activities and personalization of the customer experience



# Complex Multichannel Content Delivery

- “Besides web and mobile, there are many other channels through which customers are engaging with brands. Use cases spanning from **in-store kiosks**, through **smart watch** apps displaying the latest updates based on geofencing data provided by the device, to product descriptions displayed while using your **augmented reality app or headset** while walking through the market. These are all real-world use cases that require CMS solutions to provide a reliable and fast content delivery. Additional channels include **print, email, social, content aggregators, or virtual reality.**”

----- By Kentico Cloud

# In China .....

- 企业网站
- 各种公众号
- B站, 知乎, 微博等等社交媒体
  
- 设备显示器
- 智慧家居网关
- 手机控制程序
  
- 微信群等用户群组







Use a content-first approach



Provide content to any channel and device through an API



Use any programming language and development tools



Always enjoy the latest version without painful upgrades



Have a rock-solid performance and high level of security



Deliver projects of all sizes ahead of schedule

# What is headless CMS vs. decoupled CMS?

- CMS offers a “headless” CMS or “decoupled”
  - an API offered that connects the content repository to a separate presentation layer.
- How can content be organized so it’s easy to reuse across digital platforms?
- How can it be stored separately from code, so the code doesn’t hinder a variety of digital applications?

# What is a headless CMS?

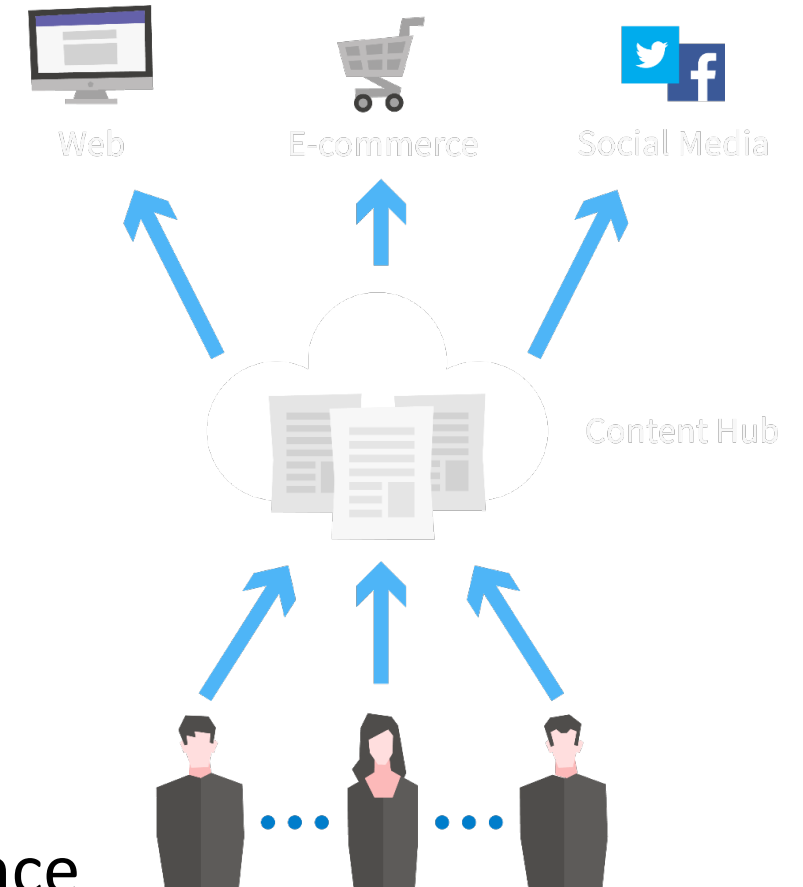
	Traditional CMS	Headless CMS
<b>Hosting &amp; delivery</b>	In-house	In the cloud
<b>Development mindset</b>	Project-focused	Product-focused
<b>Content model</b>	Built for a single page	Building block for many products
<b>Supported devices</b>	Limited	Limitless
<b>Reach</b>	One-to-one	One-to-many
<b>Workflow</b>	Waterfall	Agile
<b>Updates</b>	Scheduled	Continuous
<b>Backend system</b>	Monolithic, all-in-one	Microservice, best-in-class
<b>Investment</b>	Large up-front cost	Quick proof of concept
<b>Technical debt</b>	Inherent to the system	Managed

# Common features of headless CMS

- [RESTful API](#)
- [Microservices](#) architecture
- Multi-channel publishing
- Editor interface
- Workflows
- [Versioning](#)
- Roles and [permissions](#)
- Content modelling
- Asset library
- Content types and taxonomy
- [Localization](#)
- Visitor [segmentation](#)
- [Personalization](#)

# Product Managers' view: Manage All Contents in One Place

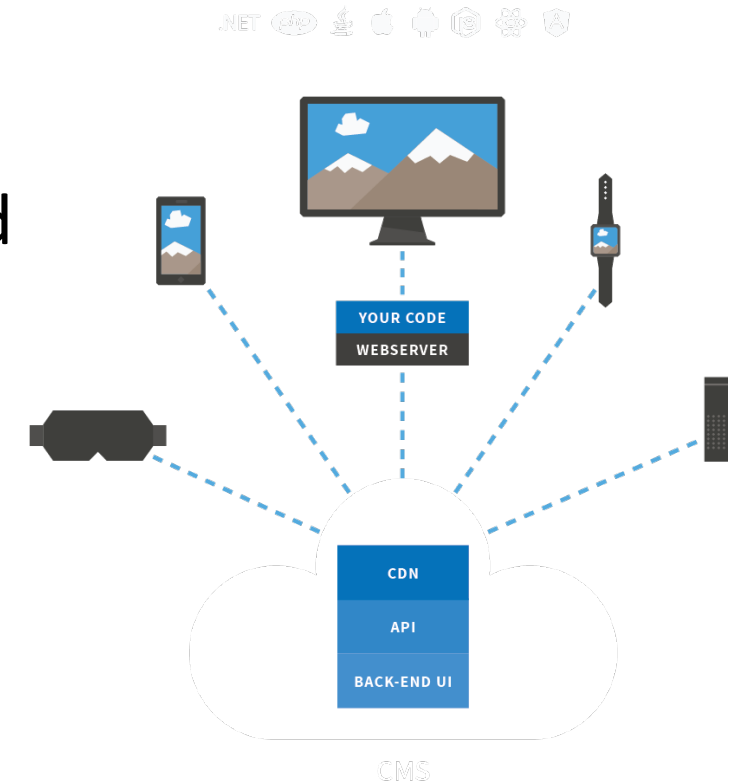
- Centralize content with a Content Hub
- Set up content types with custom elements
- Define own workflow and set due dates
- Organize content with a sitemap
- Categorize content with taxonomies
- Manage users with roles and capabilities
- Track users and record their activities
- Recommend content by using Artificial Intelligence





# Information Designers' view: Display the Content Anywhere

- Deliver a personalized experience
  - Get content what users really need at specific time for specific people
- Retrieve content with APIs
- Focus on application, we take care of the back-end
- Use favorite programming language and tools



# Programmers' view: A Framework for Big Projects

- Cloud-based SaaS/FaaS Architecture
- New content modeling : not pages, but individual elements and relations of them
- Unifies structured data into a single headless content hub
- Content resources highly accessible and reusable as traditional databases
- Micro Services: developers can choose their own tooling/tech-stack for parts
- An agile framework where teams can work in parallel
- Semantic tagged contents enables new AI writing assist technologies (NLG)

# Why you should ditch DITA and adopt headless instead ? —from: kontent.ai

- DITA is a single purpose approach
- DITA isn't truly user-centered
- DITA content isn't portable
- DITA isn't explicit in its semantics
- DITA content isn't truly omnichannel
- DITA is frozen in time
- DITA changes are cumbersome
- DITA is hard to learn and use
- DITA content delivery is slow
- DITA doesn't get the context
- DITA forces you to manage content its way
- **Headless is a better way**

# Headless CMS

## **Open-source headless CMS platforms**

- Strapi
- Cockpit
- Directus
- ...

## **SaaS headless CMS platforms**

- Core dna
- Contentful
- Kentico Cloud
- ...

Thank you for your attention!

俞敬松

[yjs@ss.pku.edu.cn](mailto:yjs@ss.pku.edu.cn)