



# CoreMedia Fundamentals

Fundamental knowledge about the CoreMedia CMS



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With CoreMedia CMS you  
can deliver flexible,  
omni-channel digital  
experiences that connect  
with your customers'  
world.

# Agenda

- CoreMedia CMS in a nutshell
- A guided tour through the CoreMedia CMS
  - CoreMedia Quickrun
  - Content editing
  - CoreMedia document models
  - Publication
    - Overview
    - Using workflows
      - Direct Publication
      - Reviewed Publication
- CAE (Content Application Engine)
- Summary

# What can the CoreMedia CMS do for you?

- Have all content in a central managed place
  - You always know what content there is
  - Displayed Content is always fresh
  - Links are always valid
  - You can search all content
  - You can have access rights on your content
- Reuse of content
  - Save content once, deliver it to a variety of output formats and formatting styles
- Separate content from layout
  - When changing the layout of your site, the content does not have to be changed in any way
  - Authors can write content without knowledge of HTML/XML/etc.
  - Authors can use comfortable and specialized editing software

# What can the CoreMedia CMS do for you - cont'd

- Automate your publication process
  - Publishing content usually requires approval to guarantee high quality
  - Workflows allow to model your publication process in a formal way
  - A workflow engine ensures that the publication process actually complies to that model
- Have an architecture geared towards large scale
  - Have a component oriented architecture
  - Physical separation of Management and Delivery
  - Staging into a DMZ (Demilitarized Zone) is supported
  - A high performance search engine is already included
  - Highly efficient caching capabilities

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One of the main  
tasks of a CMS is

**CREATION**  
and  
**MANAGEMENT**  
of content

# Creation/Management: Central Component

- holds all content
- content is the fundamental data type
- a full object oriented model is supported
- manages users and rights
- allows for CRUD (Create, Read, Update, Delete) actions on content
- publishes to delivery components
  - usually through a firewall into a DMZ

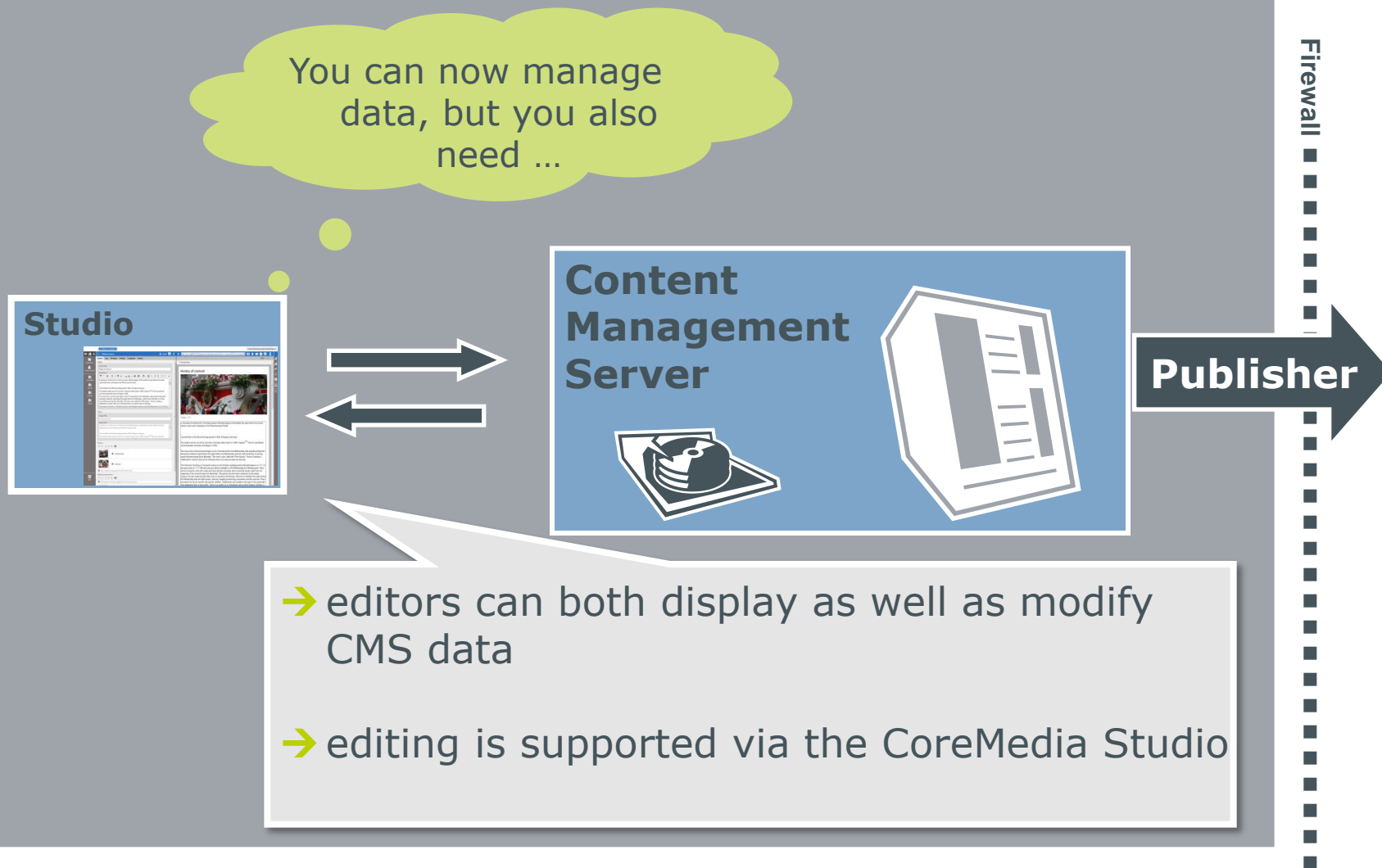
**Content Management Server**



**Publisher**

Firewall

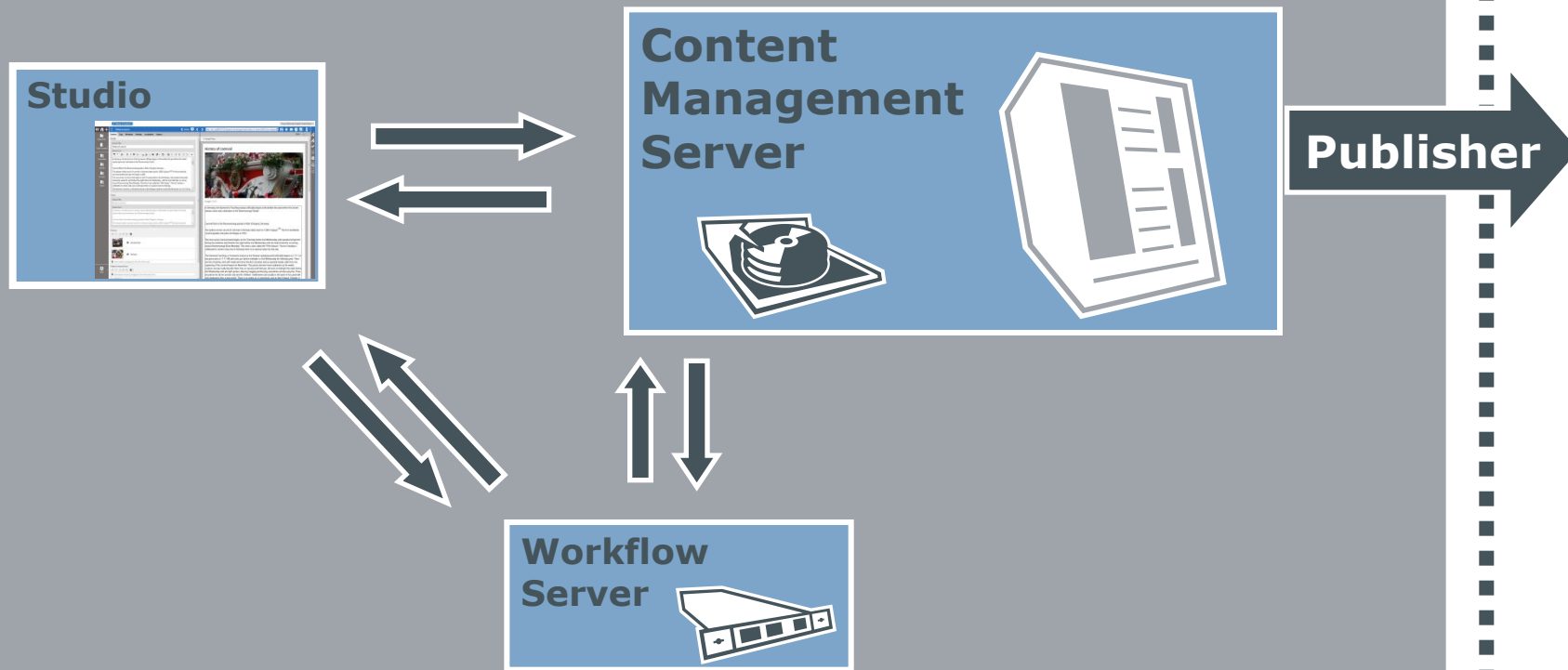
# Creation/Management: Editing



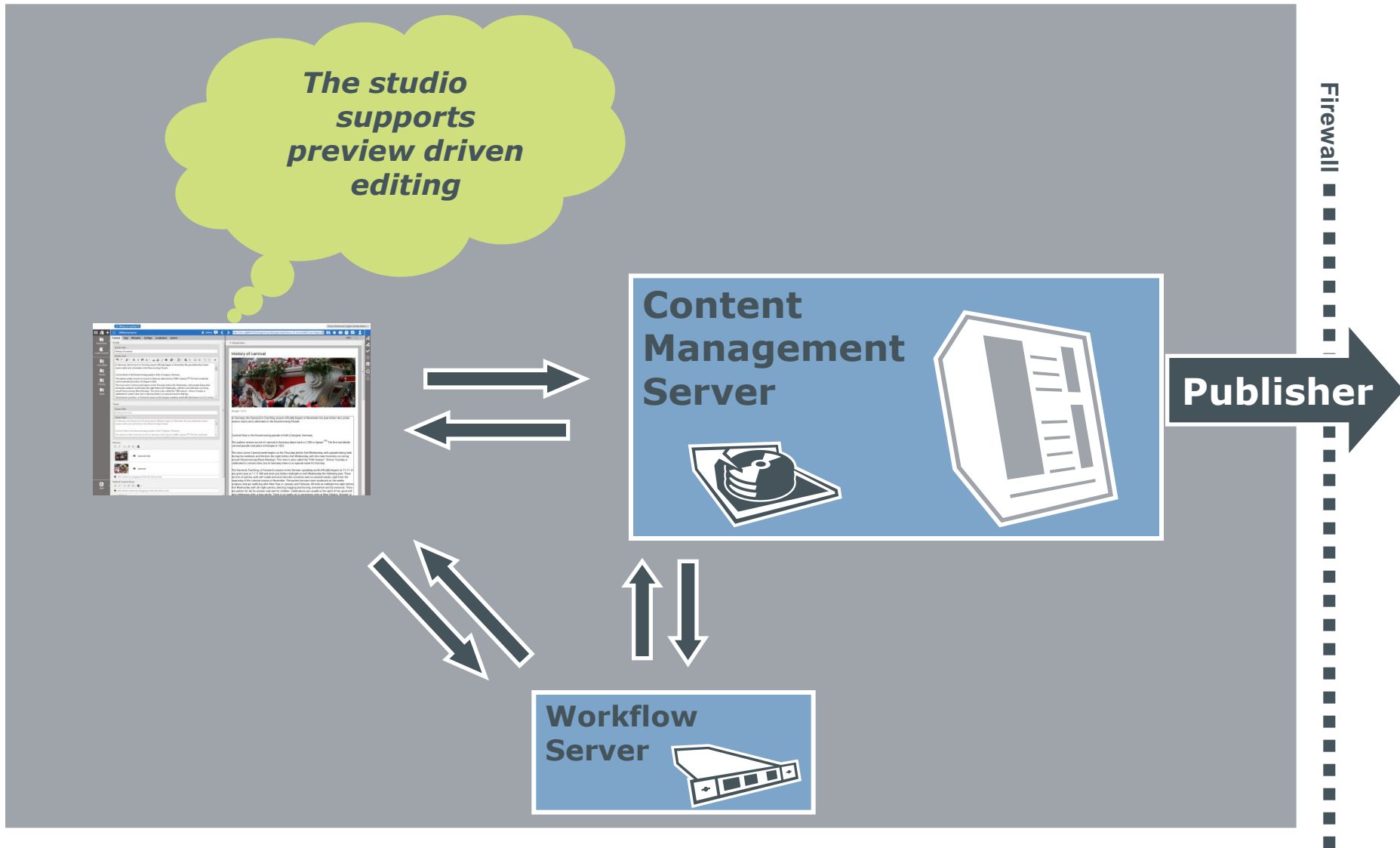


# Creation/Management: Workflow

- acts like a server to the editor
- is a client for the content management server
- already supports a number of standard publishing workflows
- can be extended with your custom workflows

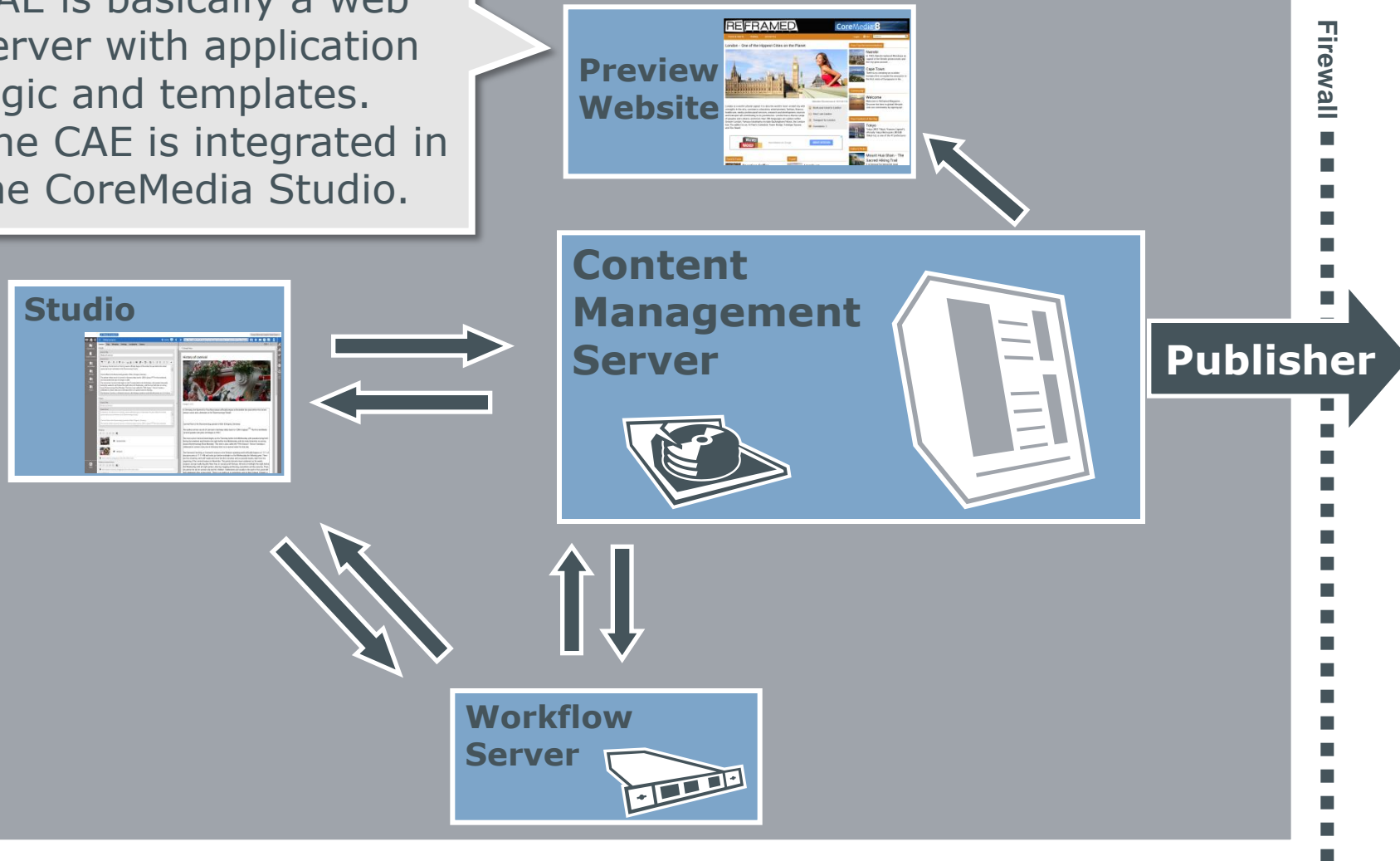


# Creation/Management: Preview

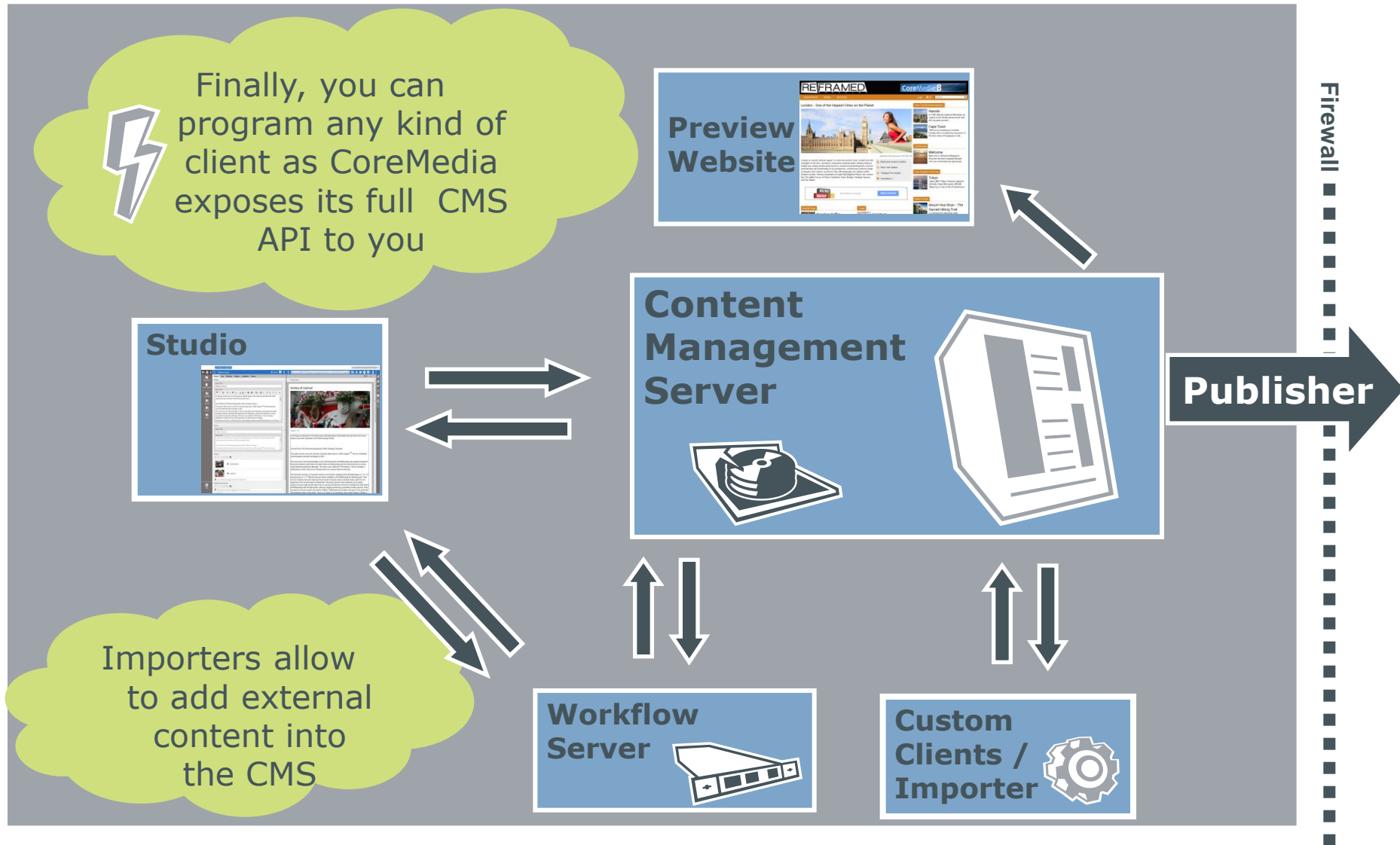


# Creation/Management: Preview

→ CAE is basically a web server with application logic and templates. The CAE is integrated in the CoreMedia Studio.



# Creation/Management: Custom Clients



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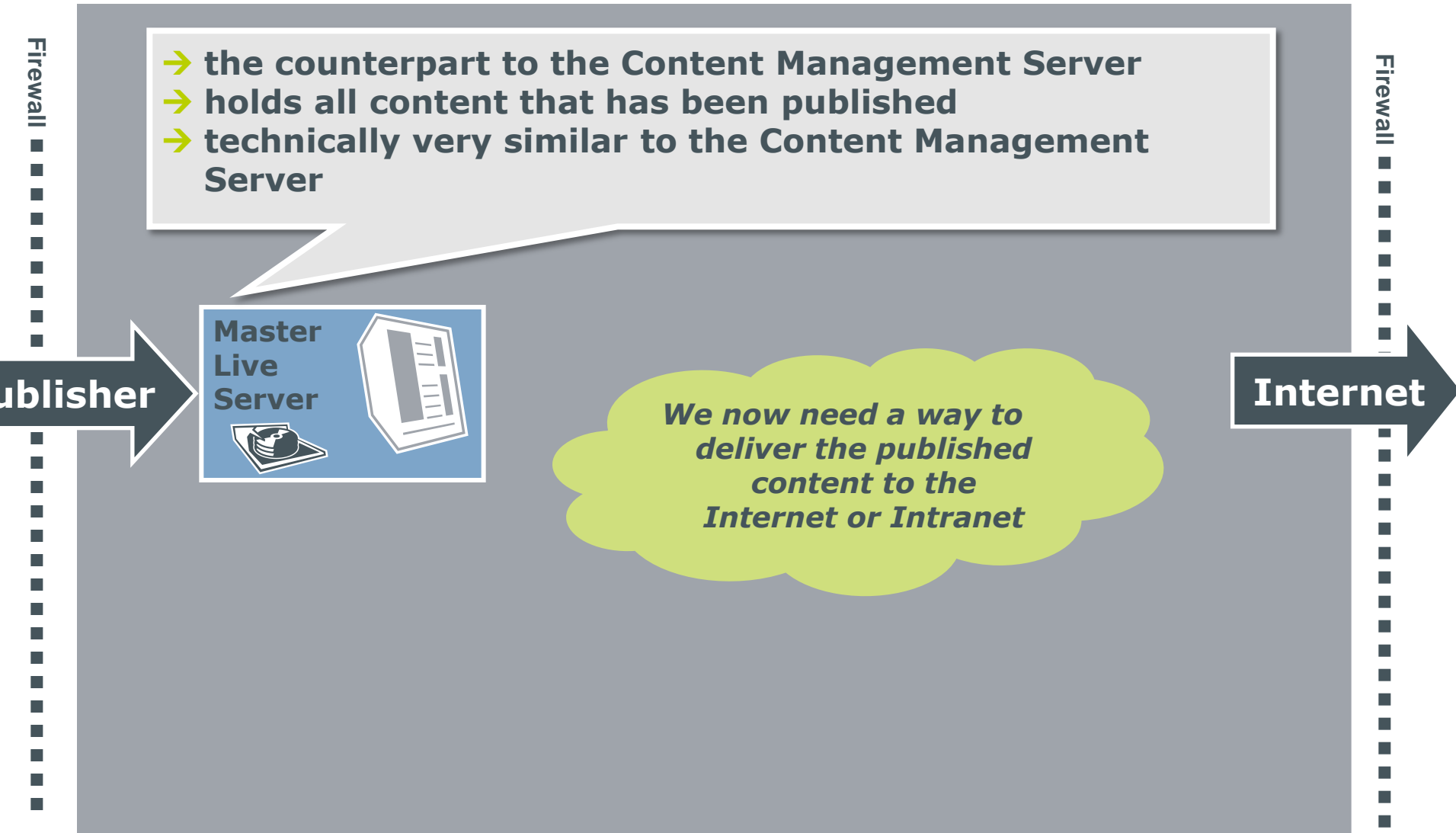


Usually, the entity that

**DELIVERS**

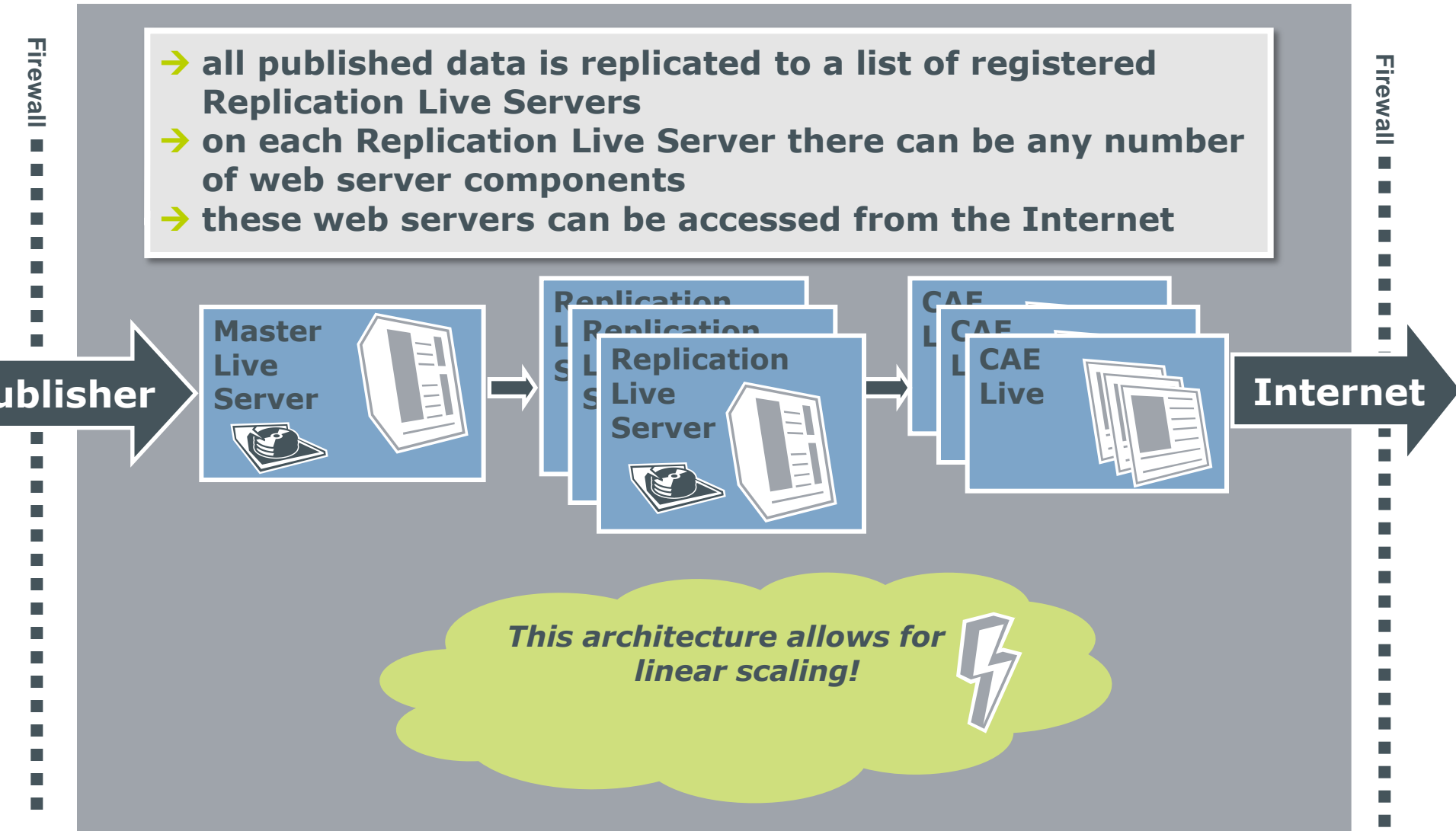
content to the customer  
runs on a separate  
system

# Delivery: Central Component



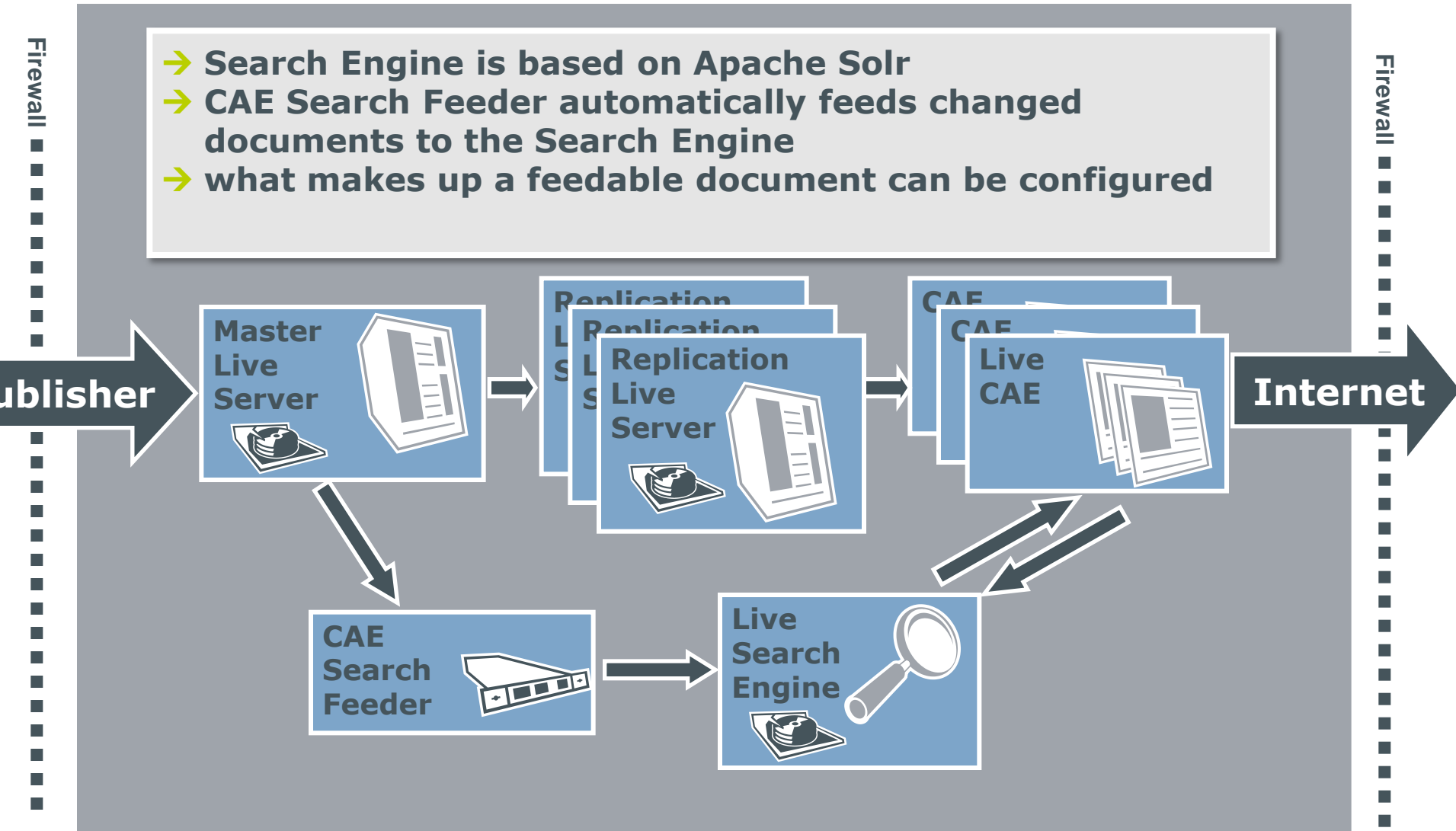
# Delivery: Data flow

- all published data is replicated to a list of registered Replication Live Servers
- on each Replication Live Server there can be any number of web server components
- these web servers can be accessed from the Internet



# Delivery: Search

- Search Engine is based on Apache Solr
- CAE Search Feeder automatically feeds changed documents to the Search Engine
- what makes up a feedable document can be configured



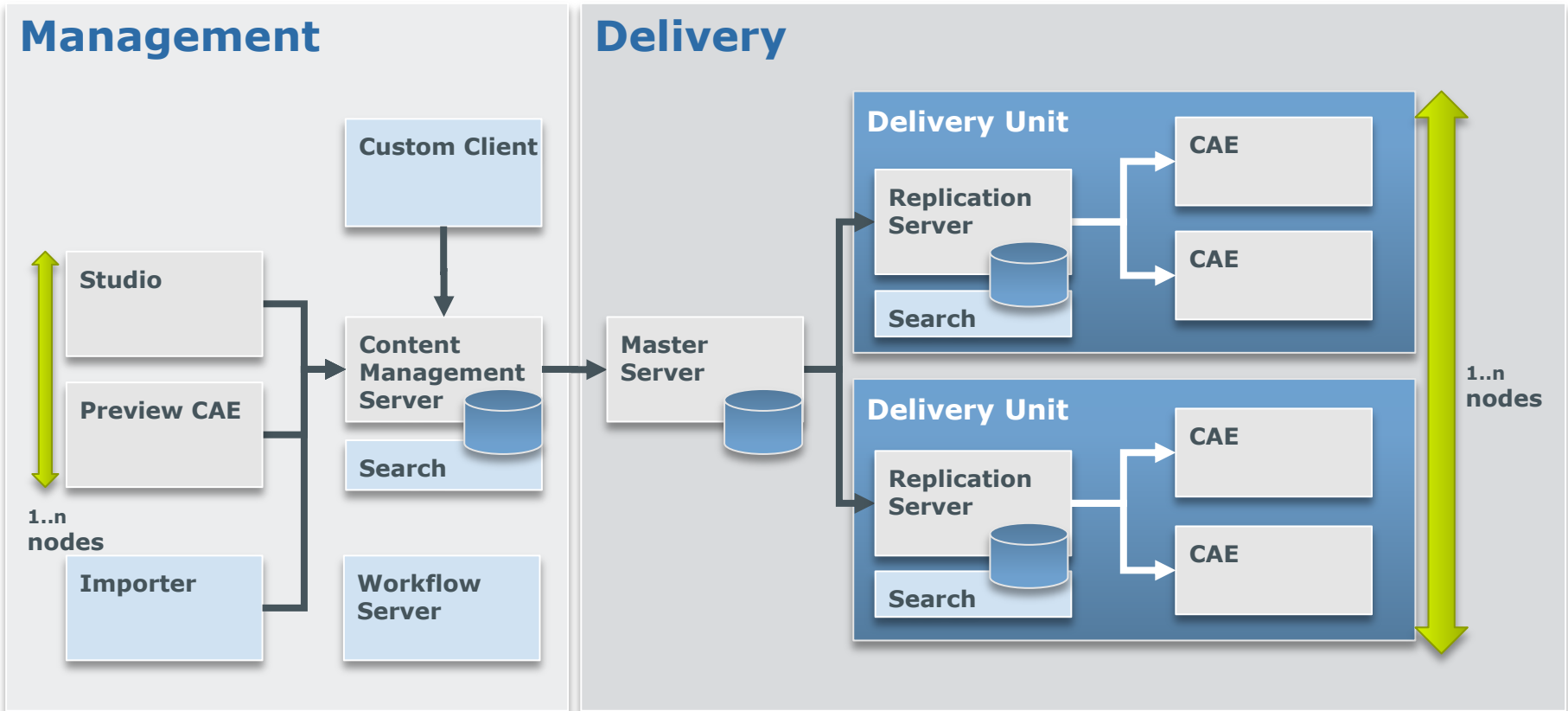


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Now, we go for all  
components in a  
single image

# CoreMedia Components



# CoreMedia Blueprint

- *CoreMedia CMS* is delivered with *CoreMedia Blueprint* that contains
  - a sample integration of all of these components
    - example websites for different purposes
      - responsive design
      - taxonomies
      - integration of web analytic tools
      - publication and translation workflows
      - control room
      - dashboard

# CoreMedia Blueprint

## → Web Developers

- Using well known industry standards like J2EE, JSP, Spring
- Maven based environment
  - all components integrated as maven artefacts
  - Developers are able to test all the various *CoreMedia CMS* components directly in the **blueprint development workspace**



# CoreMedia Blueprint

→ *IT Operations*

→ **CoreMedia Blueprint deployment workspace** creates:

- rpm or zip artifacts out of the box
- integrated chef as provisioning tool
- integrated vagrant as virtualization tool
- integrated configuration approach for deployment



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# Installation: What components can be started?

- All components can be started locally on your Windows System
- In a real world scenario each component would run as a service on a dedicated hardware
- The CoreMedia 8 Quickrun



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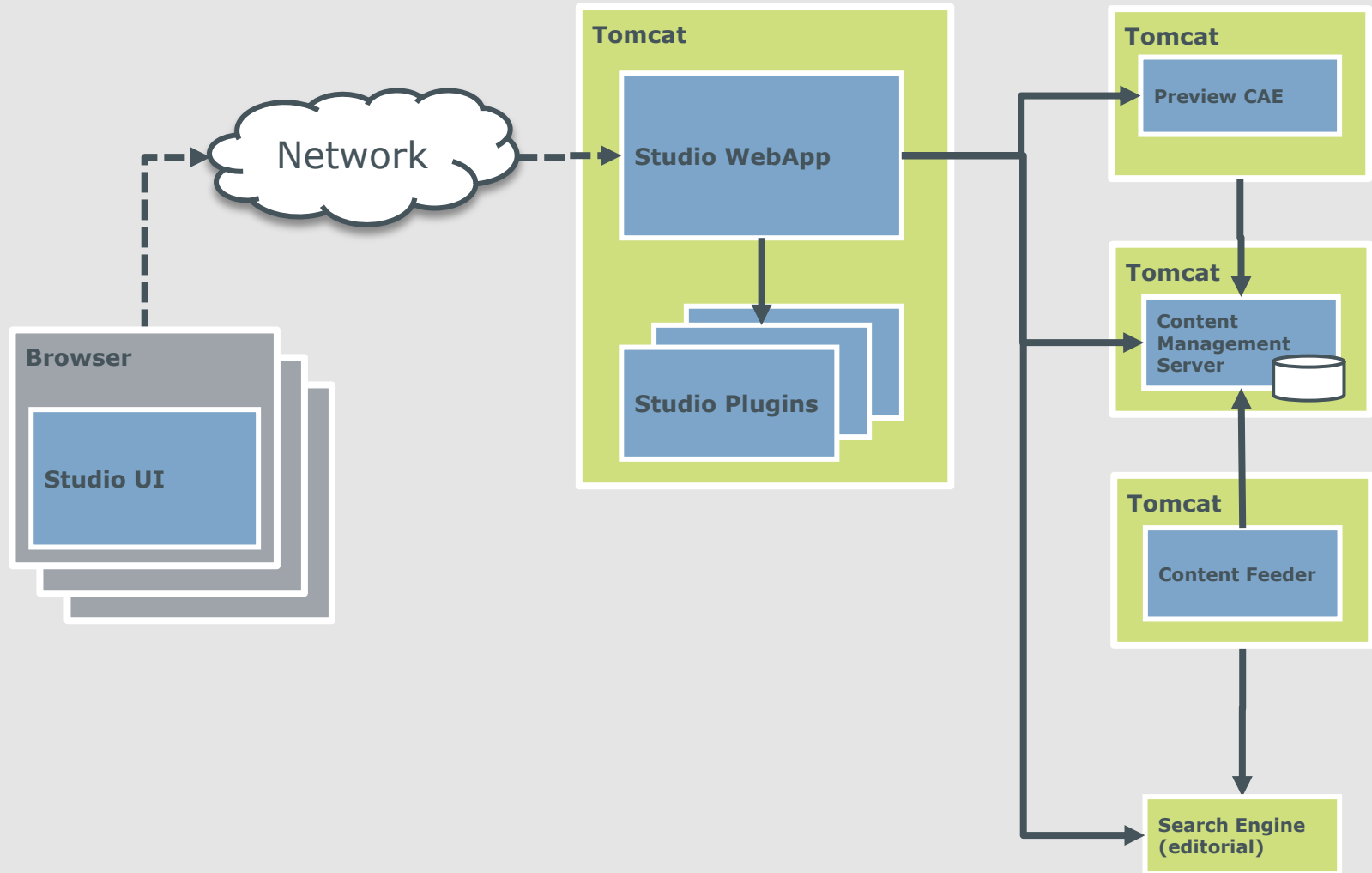


# Content Editing

## → Web Application CoreMedia Studio

- single-page AJAX application
  - can easily be customized and extended by plug-ins
- All kinds of editors can be developed using *Unified API*

# Architecture CoreMedia CMS



# CoreMedia Studio Customizations

→ lives in the CoreMedia Development Project Workspace



Localization



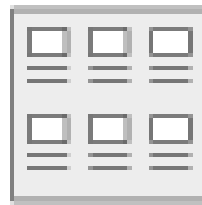
Search Buttons



Forms



Excluded Types



Thumbnails



Meta-Data

# CoreMedia Studio

## → Presentation

History of carnivalPumpkin Salad Recipe...Volkswagen Bus Article X

English (Unit...Article

ContentTagsMetadataSettingsLocalizationSystem


Details

Article Title

Touring Across the US with a VW Bus

Article Text

When I first lay eyes on this vehicle, I knew I had to have it. An original 1956 VW bus. To be precise, it is a Volkswagen Transporter T1, the first model ever made. The most luxurious version of this car made was the Sunroof Deluxe, also known as Volkswagen Samba.



From 1950 to 1956, the T1 (not called that at the time) was built in Wolfsburg, Germany; from 1956, it was built at the completely new Transporter factory in Hanover, Germany. This one was still made in Wolfsburg. Like the Beetle, the first Transporters used the 1100 Volkswagen air-cooled engine, a 1,1 liter flat-four-cylinder boxer engine rated at 24 HP and mounted in the rear of the car. This car already has the newer 30 HP engine, also known as the

Teaser


Teaser Title

Touring Across the US with a VW Bus

Teaser Text

Love at first sight. Travelling across the US in a 1956 VW bus is not for the faint of the heart but the experience of a lifetime. Our writer Samuel J. Altman takes this classic across the country.


Pictures



VW Bus on Beach Picture

Add content by dragging it from the Library here.


Related Content Items



San Francisco Article


Default View

Touring Across the US with a VW Bus



Manuel Fernandes/Shutterstock 42960841

When I first lay eyes on this vehicle, I knew I had to have it. An original 1956 VW bus. To be precise, it is a Volkswagen Transporter T1, the first model ever made. The most luxurious version of this car made was the Sunroof Deluxe, also known as Volkswagen Samba.



San Francisco - Beauty At The Bay

Death Valley: Breathtakingly Hot

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Among American enthusiasts, it is common to refer to the different models by the number of their windows. The basic Kombi or Bus is the 11-window (a.k.a. three-window bus because of three side windows) with a

# Upload files and create an article in the Studio

perform

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The object oriented  
blueprint  
document model  
specifies the  
structure of your  
content

# Identifying building blocks of a site

each fragment can be represented as an object of a specific type

most of the web pages you have seen are composed of fragments

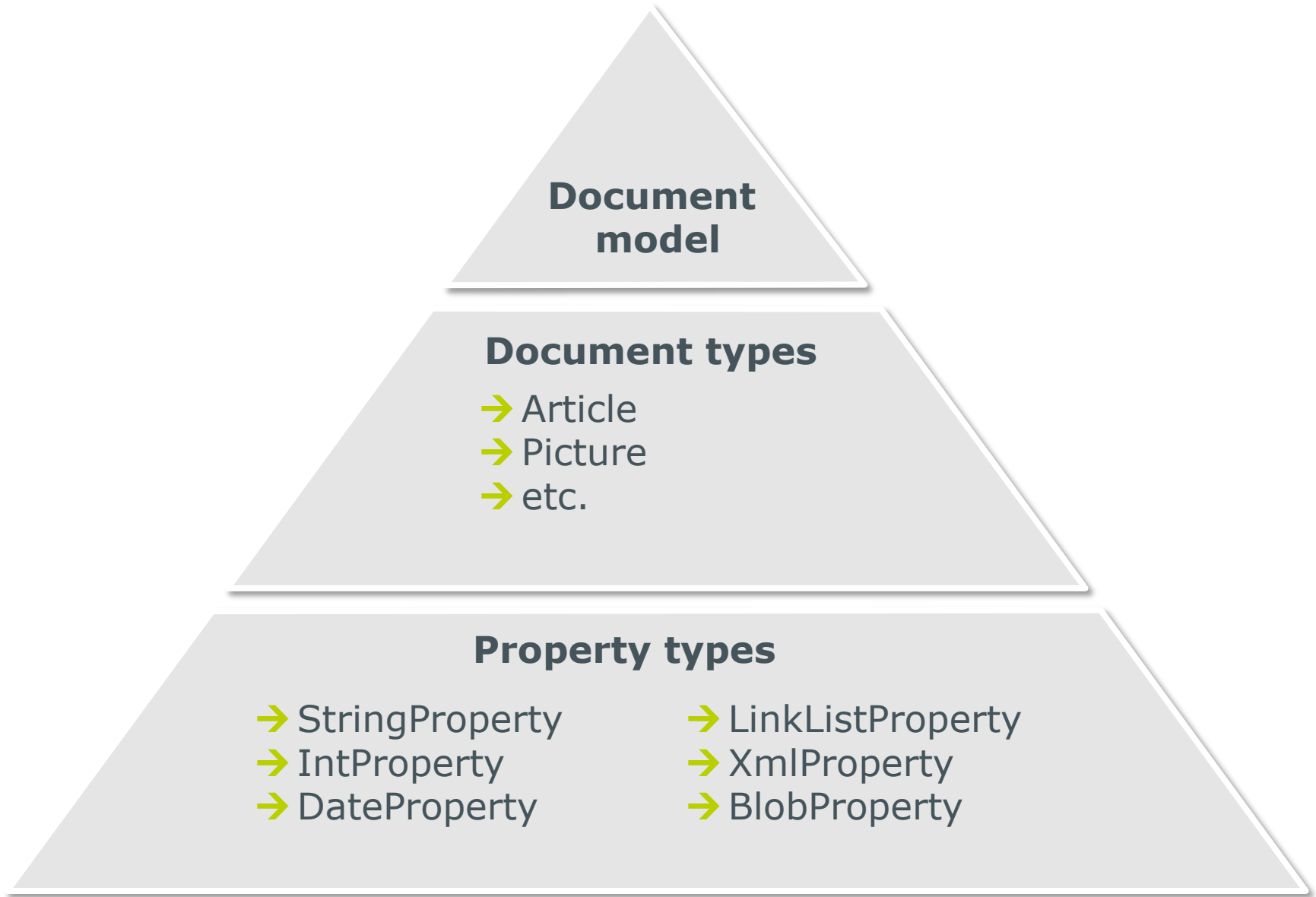
The image shows a screenshot of the REFRAMED MAGAZINE website, which is powered by CoreMedia 8. The layout is composed of several distinct building blocks, each labeled with a white box:

- Navigation:** Located at the top left, below the magazine title.
- Picture:** A large image of a woman in a red dress leaning over a railing, positioned in the upper middle section.
- Article:** A text block below the large picture, starting with "London is a world cultural capital. It is also the world's most-visited city with strengths in the arts, commerce, education, entertainment, fashion, finance, healthcare, media, professional services, research and development, tourism and transport all contributing to its prominence. London has a diverse range of peoples and cultures, and more than 300 languages are spoken within Greater London. Famous landmarks include Buckingham Palace, the London Eye, Piccadilly Circus, St Paul's Cathedral, Tower Bridge, Trafalgar Square, and The Shard."
- Teaser:** A small image and text snippet for "Nairobi" in the top right.
- Picture:** A small image of a cityscape, likely Nairobi, below the first teaser.
- Teaser:** A small image and text snippet for "WELCOME" in the middle right.
- Picture:** A large image of a mountain landscape, labeled "Mount Hua Shan - The Sacred Hiking Trail", in the bottom right.
- Teaser:** A small image and text snippet for "Yosemite National Park" in the bottom middle.
- Teaser:** A small image and text snippet for "Autumn Dishes" in the bottom left.
- Teaser:** A small image and text snippet for "Roasting Coffee" in the bottom left.

Other visible elements include the "CoreMedia 8" logo, a search bar, and various category links like "Your Top Recommendations", "Community", "Your Content of the Day", and "Editor's Picks".



# Components of a document model



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**Picture and  
Article** are two  
document types

# All content data is stored in properties

document  
type called  
*Article*

can contain a fixed  
length of  
unformatted text

**CMArticle**

+Title: String  
+Text: XML richtext

Pictures

can contain any  
length of  
formatted text

contains an image of  
type LinkListProperty  
named Pictures

→ document type called Picture  
→ blob property called Data

**CMPicture**

+Data: Blob  
+Caption: XML richtext

## New York City: A Place for Fashion Addicts



Anton Oparin/Shutterstock 142770481

Fashion model posing in a sexy, wearing long evening dress on a rooftop location in Brooklyn | Image 1 of 3

If you are into fashion, you should consider a visit to New York city. Most people consider Milan or Paris the fashion hot spots. However, a recent study by the institute "The Global Language Monitor" has revealed that New York City not only has gained attractiveness among fashion lovers but has overtaken Europe's cities with respect to the vividness of the fashion scene.

If you are looking for high-end designer fashion in New York, you should visit Madison Avenue. Among the places-to-be there is "Barneys New York" (660 Madison Avenue). For those who can afford, the shop offers everything from Manolos to the \$34,000 backpack "Alligator" from "The Row". Madison Avenue also houses the flagship stores from Armani to Versace.

Spring Fashions For Her -  
Gallery

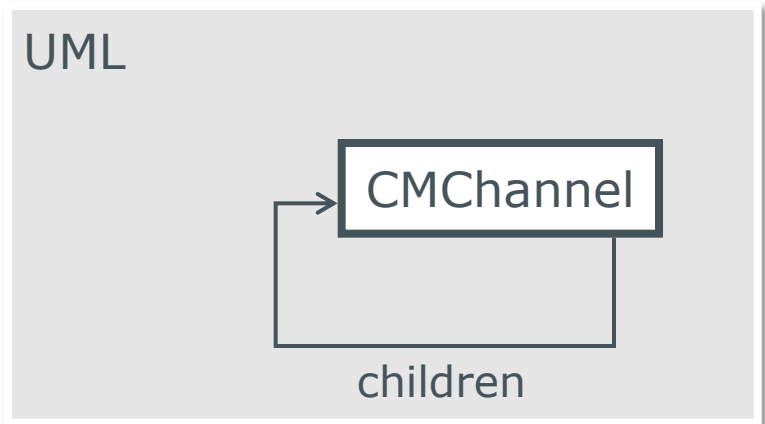
Spring Fashions For Him -  
Gallery

Among the hotspots for smaller budgets are the stores Artist & Fleas (70 North 7th Street). Artists & Fleas offers a rotating selection of different vendors. The products range from local craftspeople and designer to pet accessories. Similarly interesting is Space Ninety 8 (98 North 6th Street). This multi-floor market sells moderately priced fashion and even houses a restaurant and a bar from chef Ilan Hall.

# From style guide to implementation: Navigation

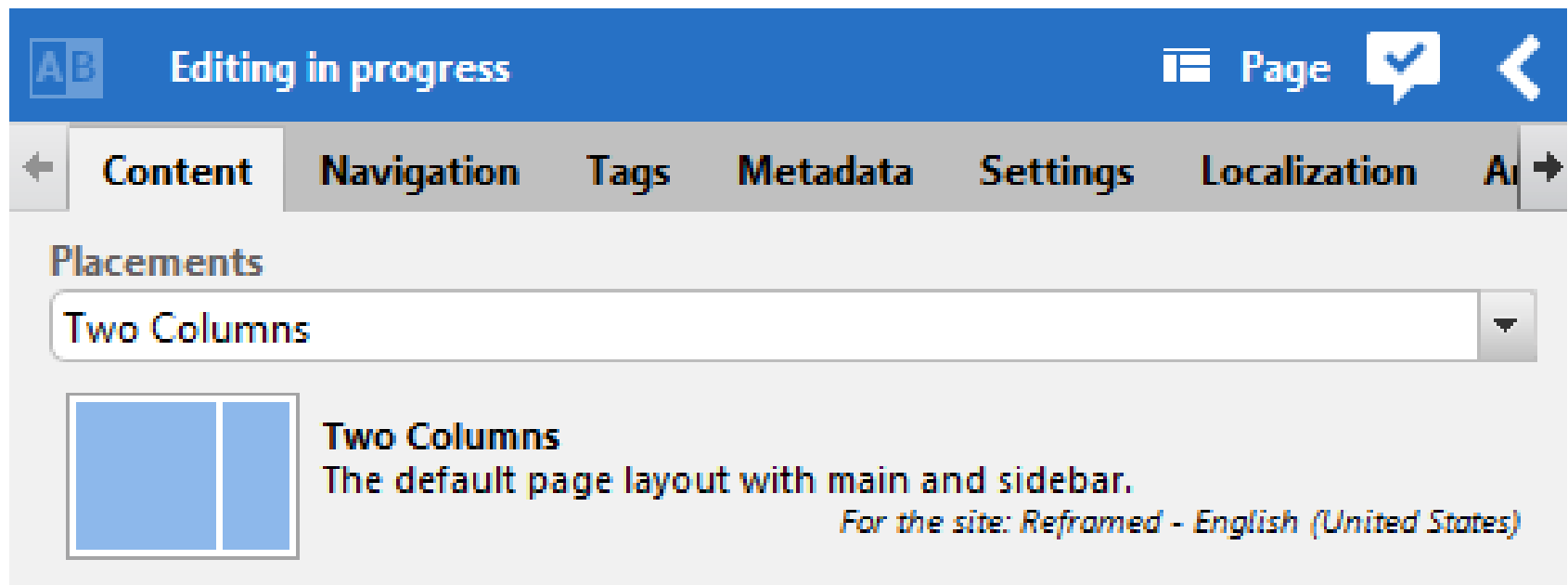


→ children are displayed as Sub-Sections in the navigation



# From style guide to implementation: CMChannel

- A CMChannel is represented by a Page in the Studio
- Editors can manage pages directly by editing the "placements" in the page grid in CMChannel documents



**Link your article to the  
Travel Hero Collection**

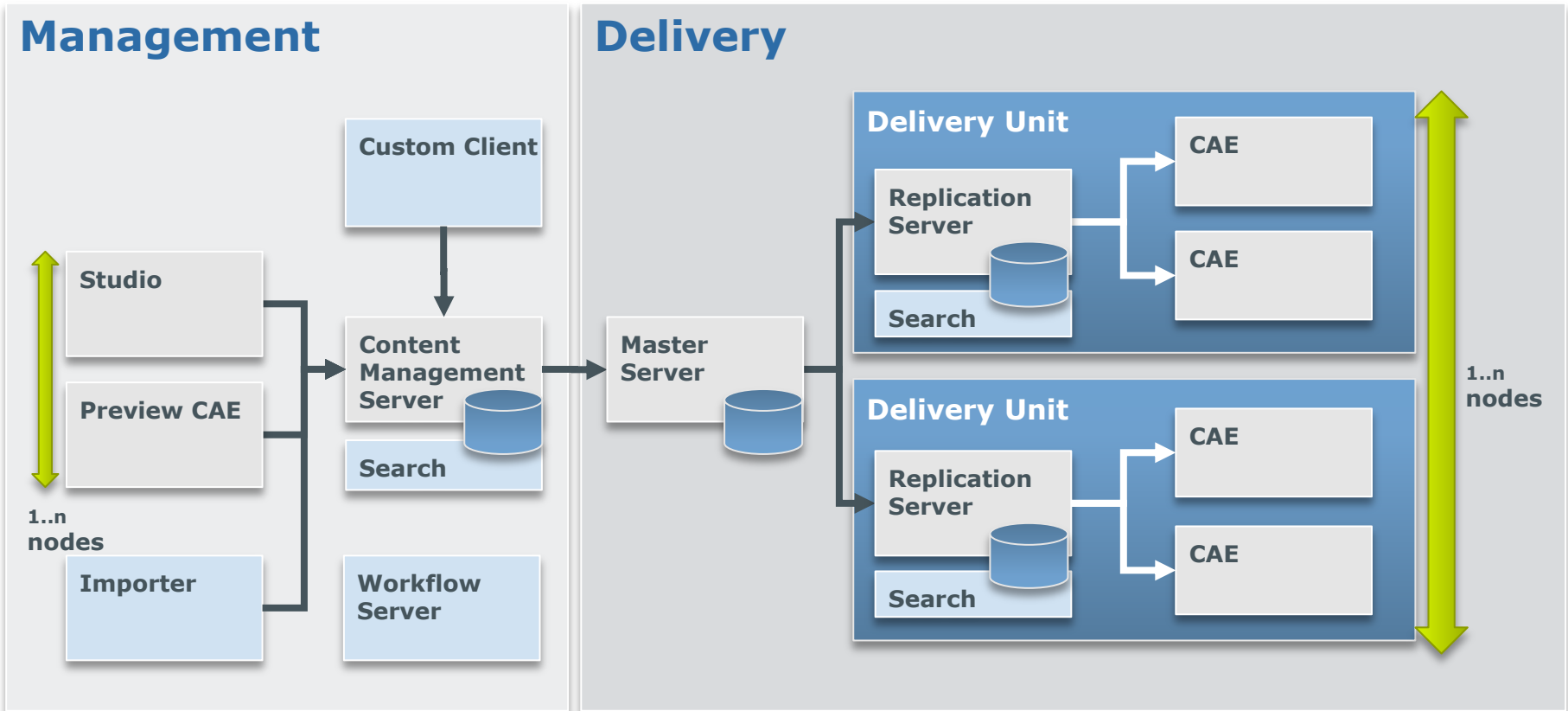
**Repeat what we've done so far with the context cooking. Use the material folder 'Cooking'.**

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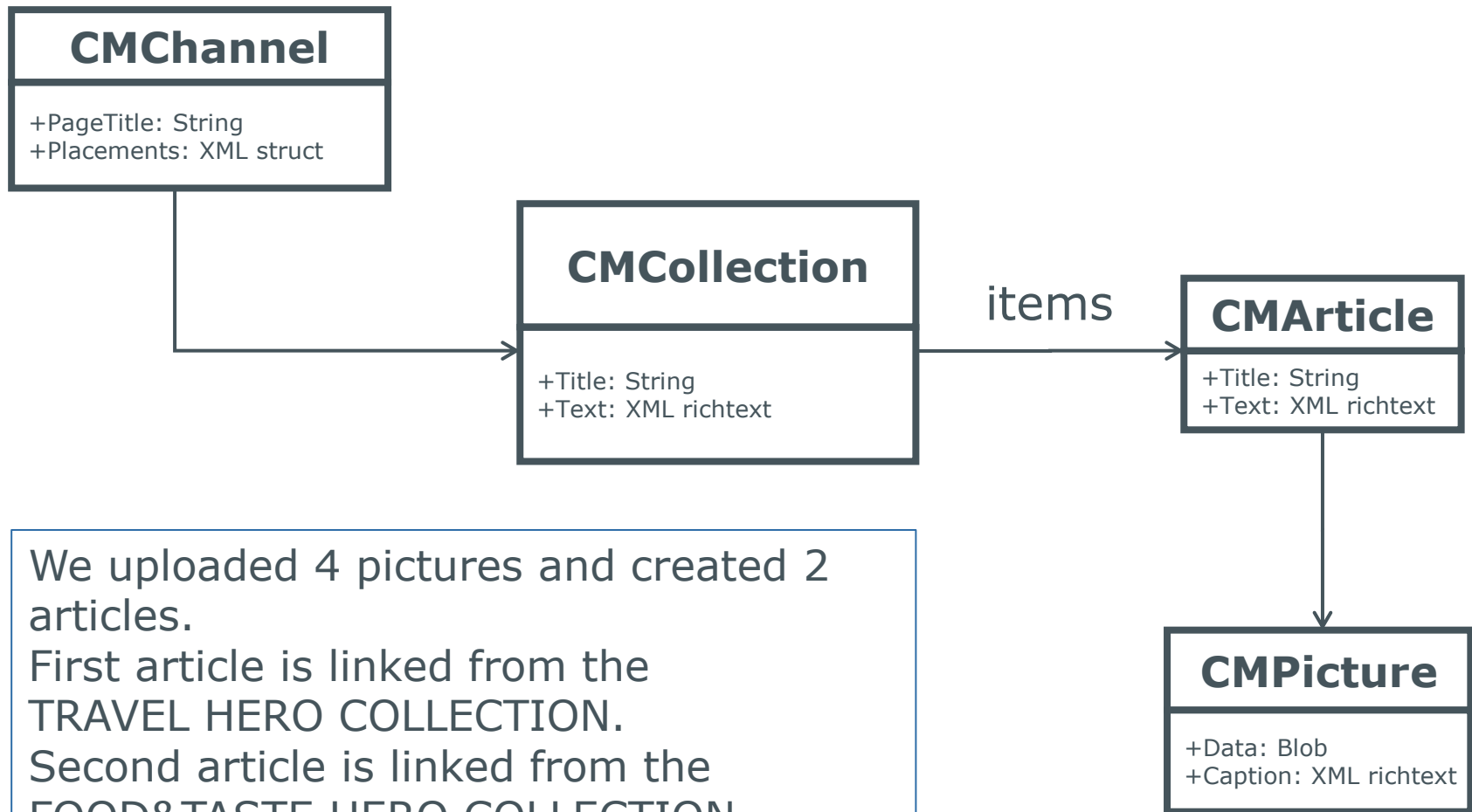


# CoreMedia Components



# Publication

## Content link dependencies



We uploaded 4 pictures and created 2 articles.

First article is linked from the TRAVEL HERO COLLECTION.

Second article is linked from the FOOD&TASTE HERO COLLECTION.

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# Workflows – Overview

- Workflows are used to model the natural publication flow of content authors
- These natural flows are formally modelled
- Compliance to these working flows is supported by the studio
- CoreMedia CMS comes with a set of standard publication and translation workflows
- Workflows are executed on a separate Workflow Server
- Custom workflow definitions can be developed
- Workflow server comes with an XML based modelling language

# Build in Publication Workflows

## → Direct Publication Workflow

- ensures that all interlinked documents are in the publication set
- one editor can execute this workflow without revision by another

## → Reviewed Publication

- ensures that all interlinked documents are in the publication set
- content is reviewed by a different person
- four-eye-principle

# The CoreMedia Studio Control Room

- The Control Room is a new window in *Studio* in which you manage your current work and workflows.
- Control Room: Configurable panel that let users view recently edited content and access collaboration and workflow tools
- Content Sets: Group content into logical sets and share them with co-workers to facilitate improved productivity and collaboration
- Real-Time Updates: Immediate status updates are visible to all users
- Publication Workflows: Built-in support for both direct and reviewed publication workflows.

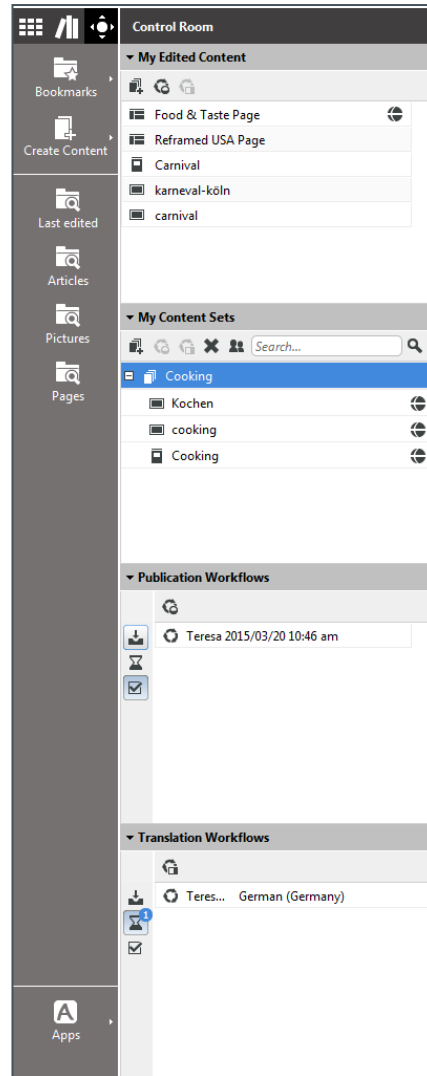
# CoreMedia Studio Control Room

The screenshot displays the CoreMedia Studio Control Room interface, which is used for managing digital content and publishing it to various channels. The interface is divided into several main sections:

- Left Sidebar:** Contains navigation icons for Bookmarks, Create Content, Last edited, Articles, Pictures, and Pages. Below these are sections for 'My Edited Content' (listing collections like Travel Hero Collection, Food & Taste Hero Collection, Cooking, History of carnival, cooking, Kochen, carnival, and karneval-köln) and 'My Content Sets' (with a search bar).
- Top Bar:** Shows the current language (English (United States)), page number (12), and various system icons.
- Content Management Area:** Features tabs for Content, Navigation, Tags, Metadata, Settings, Localization, Analytics, and System. It includes a 'Placements' dropdown set to 'Two Columns' and a 'Main' section with a toolbar and a list of content items: Hero Teaser Collection, Google Leaderboard Ad HTML, Sections Top Teaser Collection, and Automated Top Lists Collection. A 'Sidebar' section below lists various personalized teasers and collections.
- Publication Workflows:** A section for managing content workflows, including icons for upload, publish, and other actions.
- Translation Workflows:** A section for managing content translations, including icons for upload, publish, and other actions.
- Right Panel:** Displays a live preview of the website being managed. The website is titled 'REFRAMED' and 'CoreMedia 8'. It features a main article about London, 'London - One of the Hippiest Cities on the Planet', and a sidebar with recommendations like 'A Perfect Dinner', 'Shrimp Pad Thai', and 'Welcome'. The bottom of the preview shows a grid of smaller articles and a 'SAP HANA Testing' banner.

# Control Room Pane for collaboration and workflows

→ activate by F4



Group content  
in logical sets

Workflows



# Workbook Task 5 and 6

## Direct Publication

**Publish your content set**

## Workbook Task 7

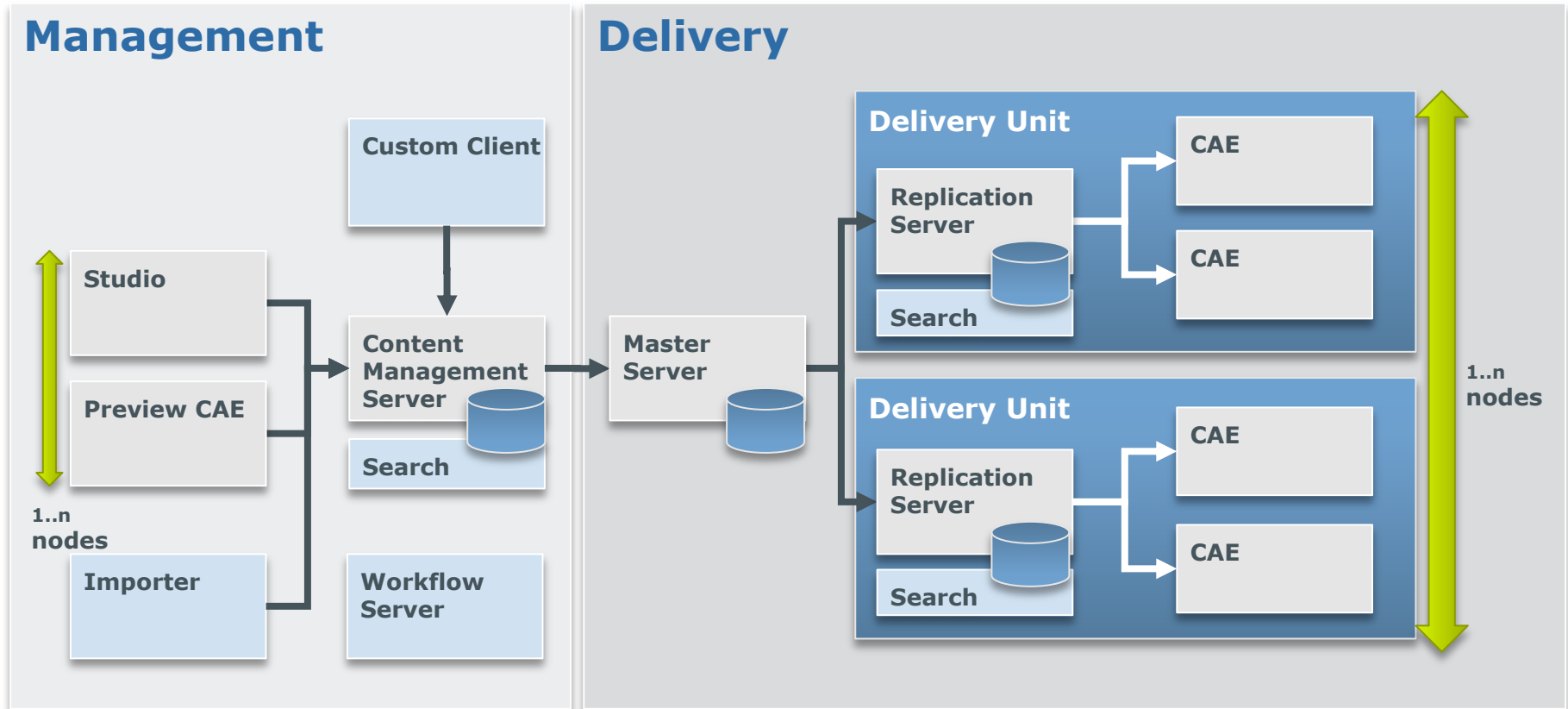
### Reviewed Publication

**Peter will review content  
from Teresa**

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# CoreMedia Components



# Introducing CAE: Content Application Engine

- The main rendering component for content management and delivery
- Based on standards
- Features
  - independent layers
  - object oriented view dispatcher
  - highly effective and configurable caching
  - can render CMS and external content
  - MVC framework (via Spring MVC)
  - jsp and/or ftl view technology
  - JavaBeans as model
  - consistent configuration using Spring
  - easy integration of third-party systems

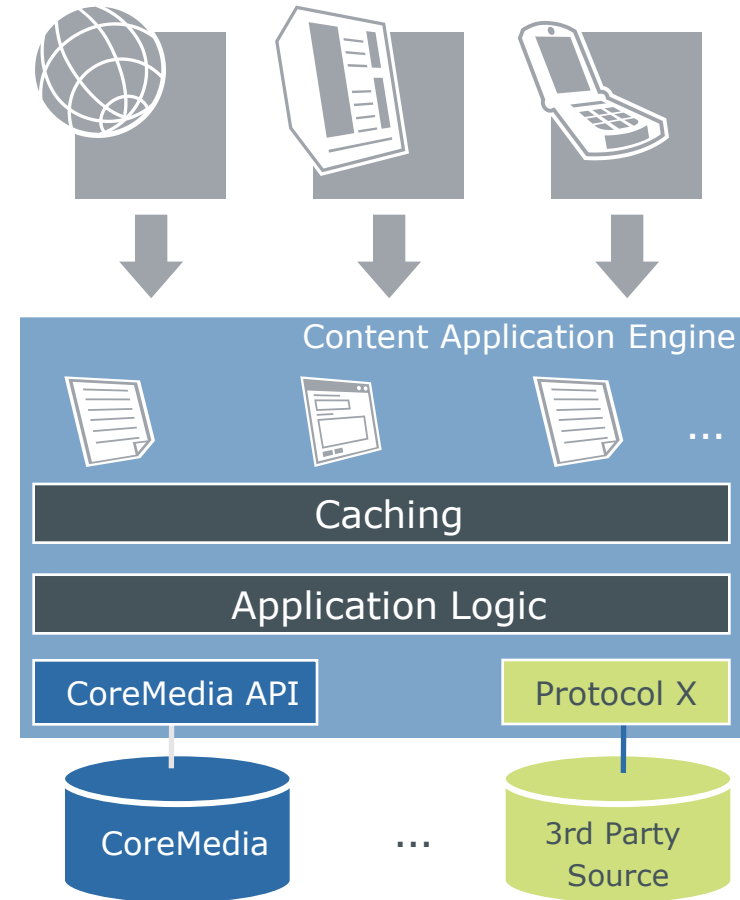
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# Layered Architecture

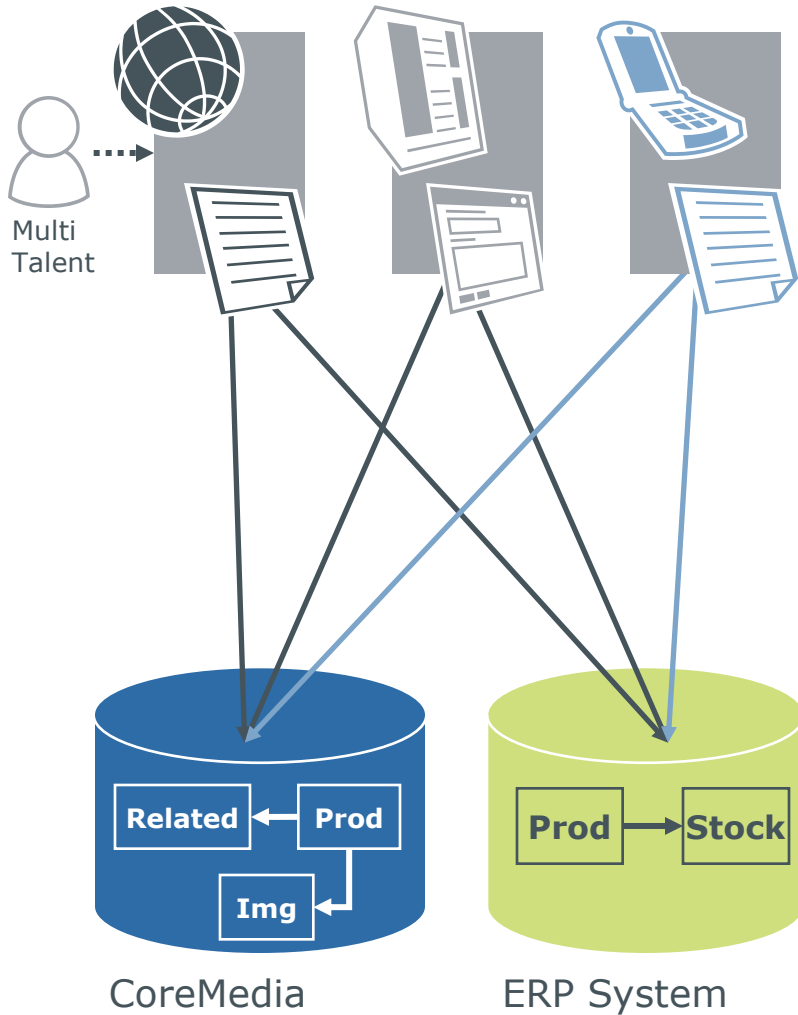
# Architecture Layers

- Layer I: Data Sources
  - CoreMedia Content Server
  - 3rd Party Systems (e.g. SAP)
- Layer II: API
  - CoreMedia Unified-API
  - 3rd Party API
- Layer III: Application Logic
  - encapsulates application and business logic
  - separates logic from rendering
  - aggregates data from possibly multiple sources
  - additional fields can be computed
- Optional Layer IV: Data Views and Caching
  - caches fully computed application logic, not template output
  - automatic dependency tracking
  - time and event based invalidations for 3<sup>rd</sup> party components
- Layer V: Rendering and Delivery
  - uses an object oriented view dispatcher
  - templates in the file system as well as in the content repository

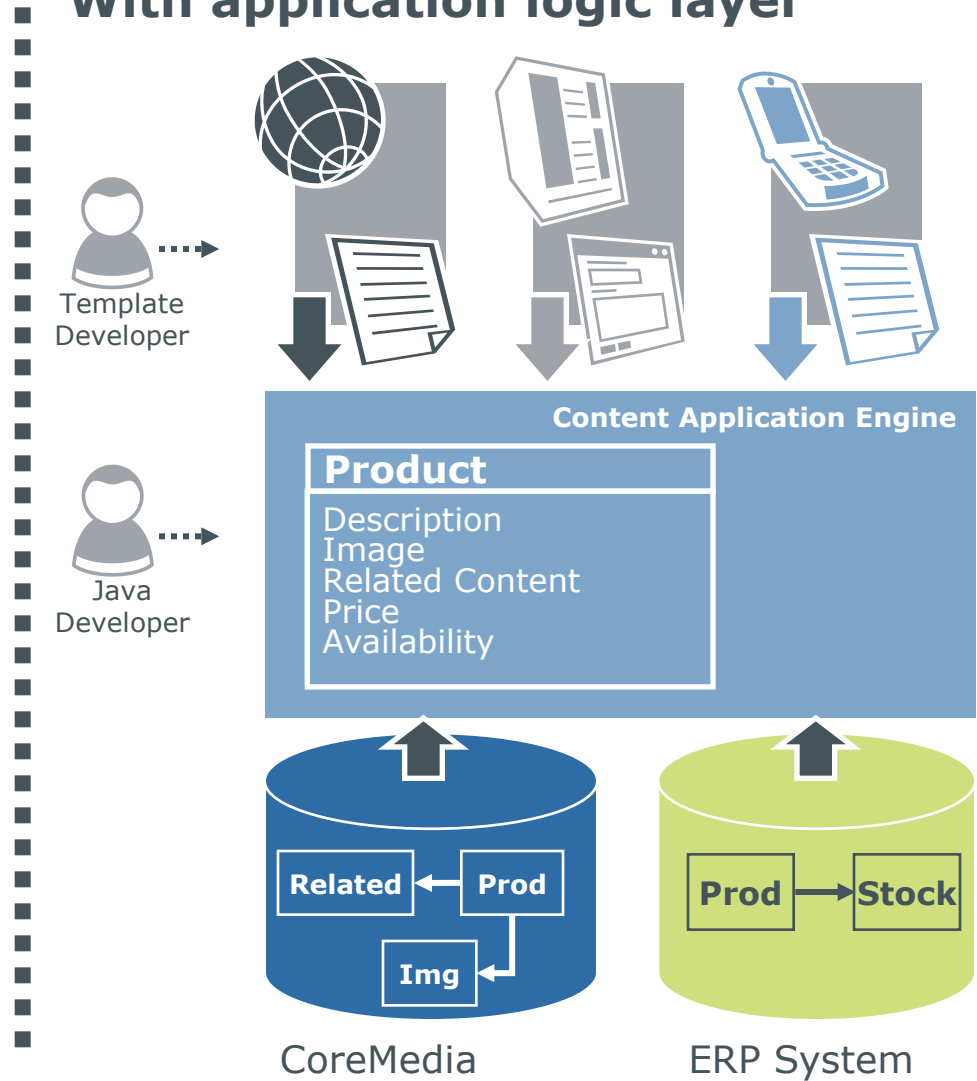


# Benefits of a layered approach

## No application logic layer



## With application logic layer



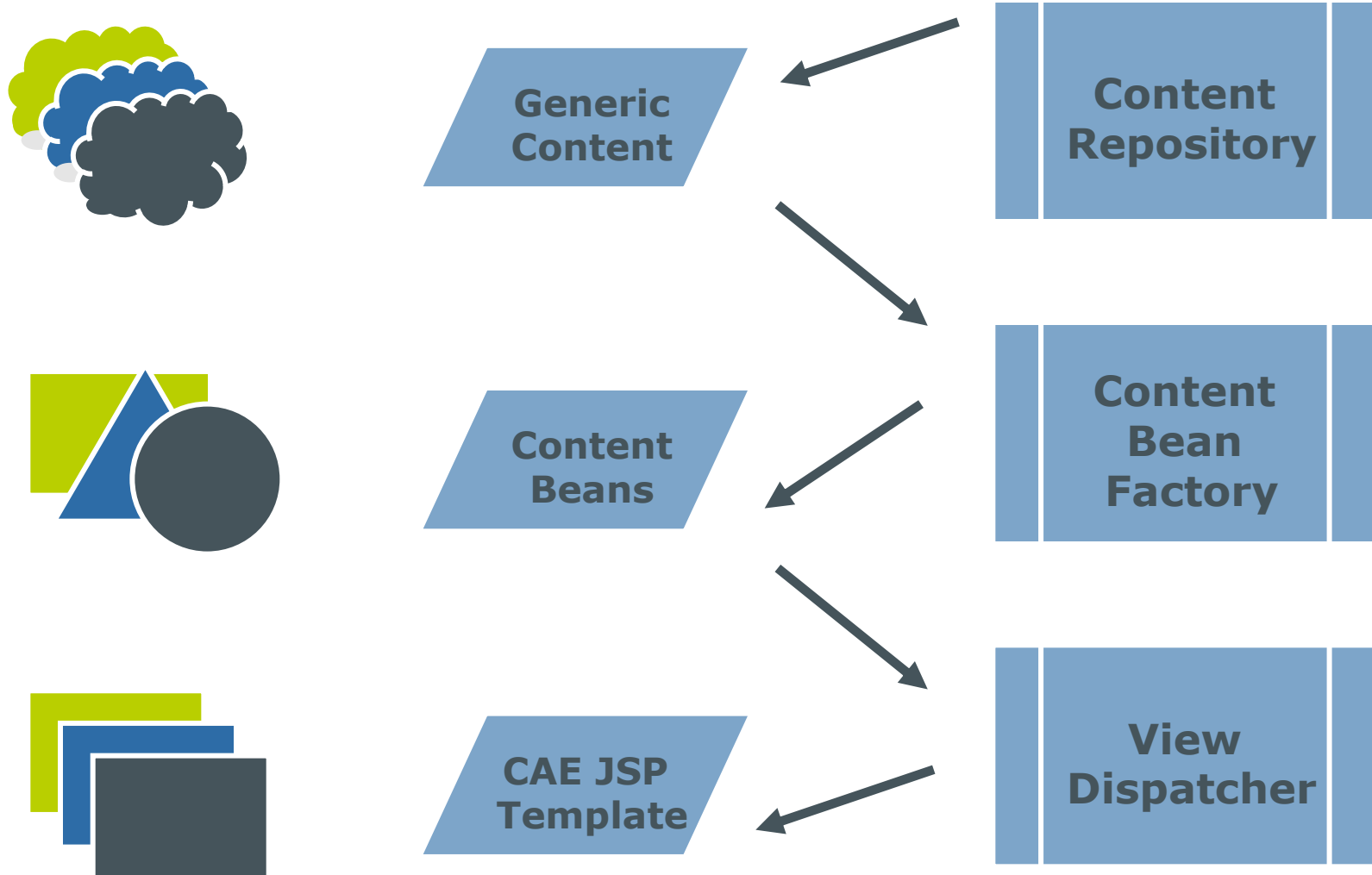


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View  
resolving

# Content beans data flow



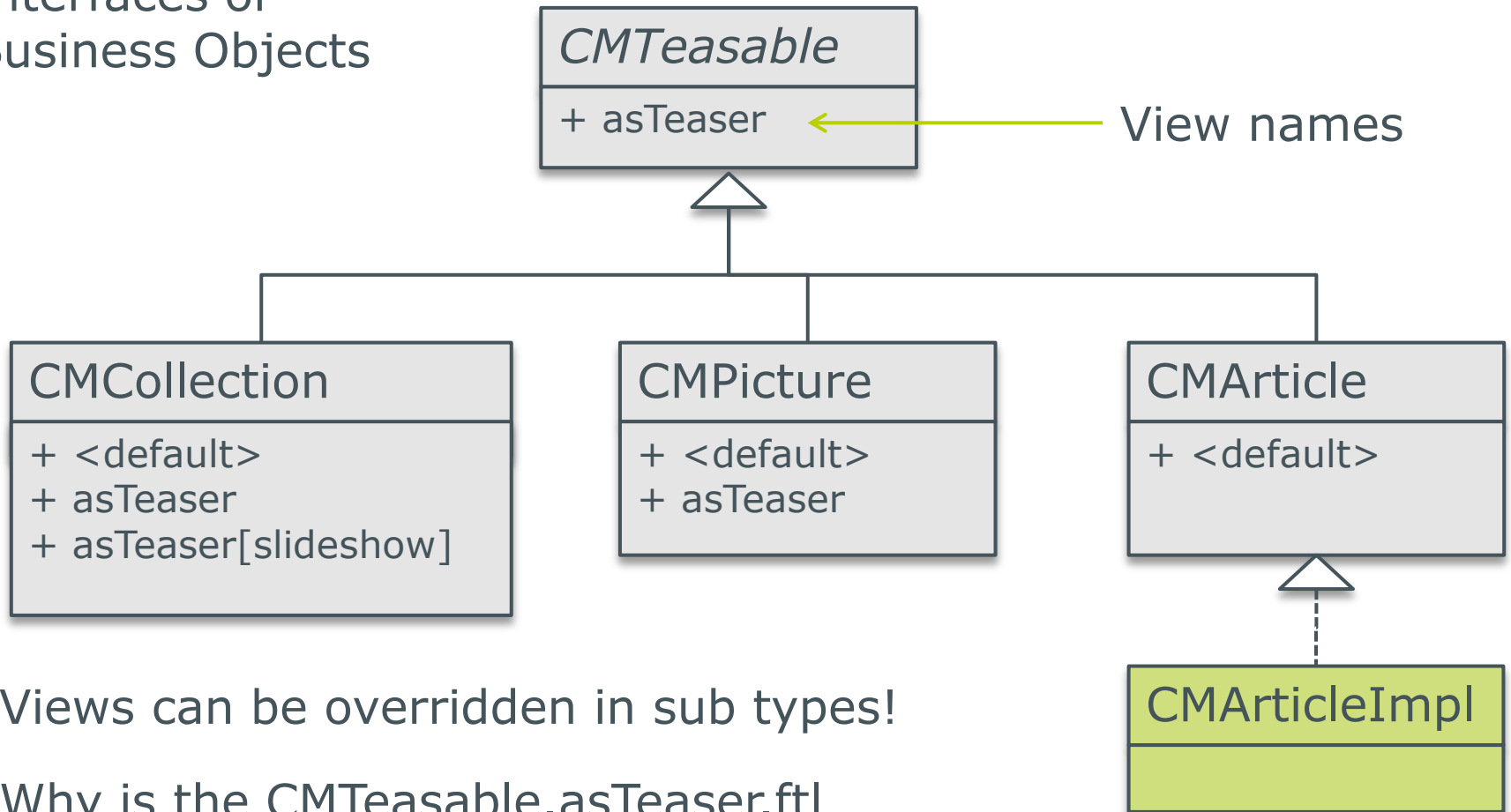
# CoreMedia View Resolver

- templates reside in a directory named after the content bean package e.g. a folder in the file system with the name : `com.coremedia.blueprint.common.contentbeans`
- template names are composed of
  - the content beans interface name (e.g. `Article`)
  - optionally a view name separated by a dot. (e.g. `Article.asPreview`)
  - jsp or ftl as suffix (e.g. `Article.asPreview.ftl`)
- in case there is no template named after the interface



# Object Oriented View Resolver

Interfaces of  
Business Objects



- Views can be overridden in sub types!
- Why is the `CMTeasable.asTeaser.ftl` chosen when rendering an `ArticleImpl` as teaser?

# Dynamic templating

## → Requirements:

In order to quickly implement **microsites**, **campaigns**, or specialized channels with unique template requirements, templates can be updated **without interrupting the service** or requiring a **redeployment** of the application.

## → Solution:

Views can be implemented as FreeMarker templates and uploaded to the Content Repository in a container file, preferably a JAR

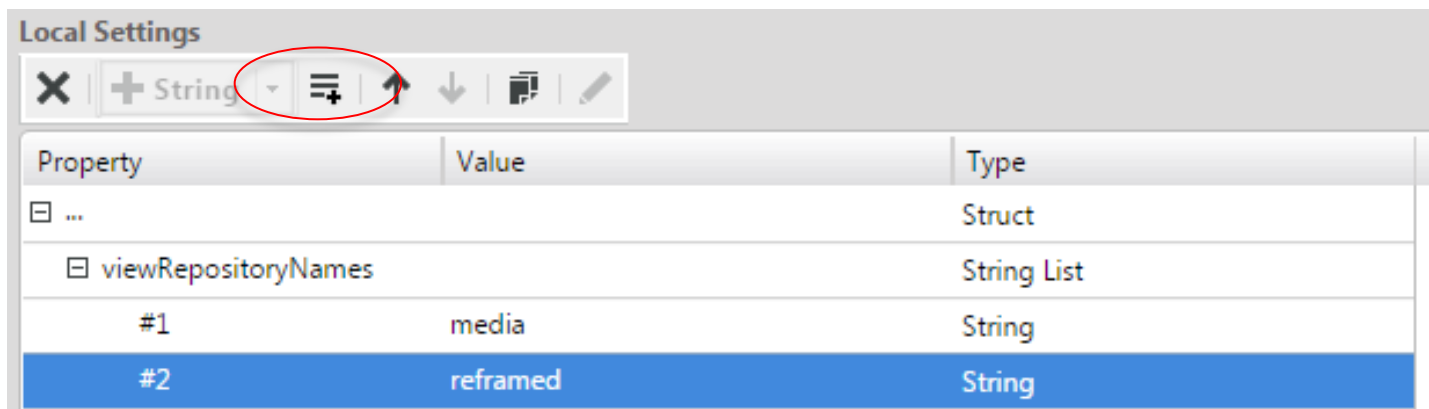


# Dynamic templating

## → Uploading template sets:

*CoreMedia Blueprint* provides the content type Template Set (CMTemplateSet) which is used for this purpose. Create a document of type Template Set in folder /All Content/Themes/Templates and upload the JAR to its archive property. The name of the Template Set document is the name of the view repository.

## → Add the template set to a page e.g. Reframed USA Page/Settings/LocalSettings



Property	Value	Type
...		Struct
viewRepositoryNames		String List
#1	media	String
#2	reframed	String

# Use dynamic templating for studio customisation

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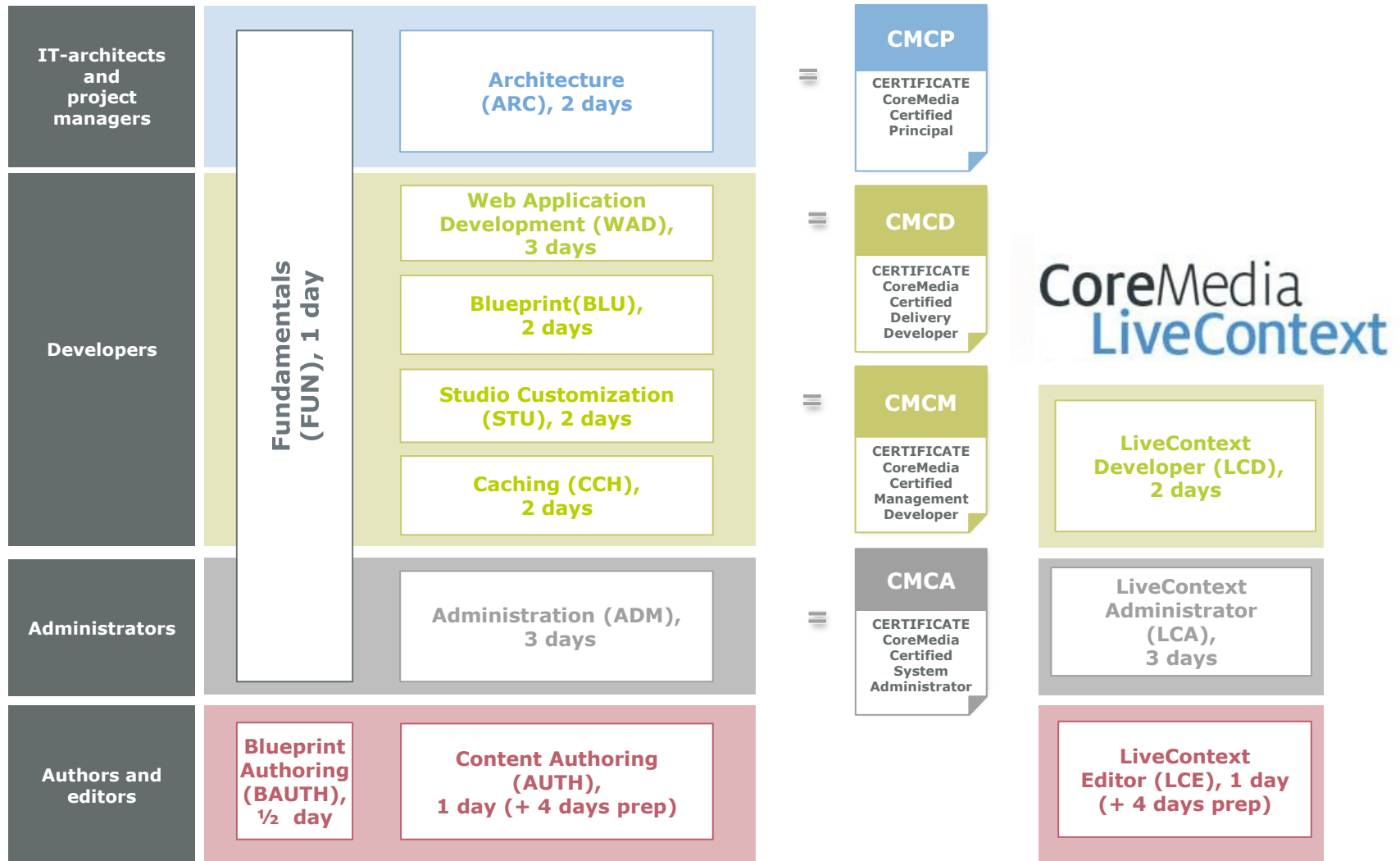
# Summary

## Review Questions

- Which statement is correct?
  - All documents on the Master Live Server are also present on the Content Management Server.
  - All documents on the Content Management Server are also present on the Master Live Server.
  - Both servers always maintain identical content.
  - The studio is a client of the replication server
  - The CAE stores websites
  - Reliability in CoreMedia CMS is ensured by database replication
- Content is separated from layout.
  - What does that mean in the CoreMedia context?
  - What is the advantage?

# CoreMedia Training Program

## CoreMedia 8





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