Agility CMS:
Scalability Unleashed
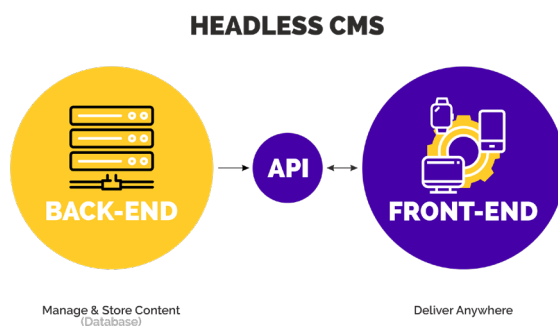
Joel Varty, Updated March 2021

Unlimited Scalability with Headless Architecture

As a Headless CMS, Agility was designed to scale. The main concept of Agility CMS as a managed platform is that your content is available to all of your digital properties – no matter how fast and how often you add them.

Agility is in the heart of our philosophy, architecture and mission (not just name!). No matter how large or complex a solution may seem, Agility can scale to meet your needs.

Contrary to a traditional CMS, a headless content management system is entirely decoupled from the presentation layer or frontend, which is referred to as the "head".

HEADLESS CMS

BACK-END → API ↔ FRONT-END

Manage & Store Content
(Database)   Deliver Anywhere

Since the back-end and front-end are separated, if the back-end CMS platform has any performance issues or needs maintenance, it won't create any downtime to your website or compromise its performance. Your hosting options are unlimited with a headless CMS and deployment environments as well.

In Search of the Monolithic Dinosaur

Monolithic CMS platforms struggle with both horizontal and load scalability. They often can't integrate well with other systems, limiting growth in flexibility and agility. Instead of scaling one platform to manage content for different products and channels, many businesses find themselves adding more and more CMS creating content silos and disconnect.

Eventually developers get tied up in CMS maintenance and content workflows. Marketing teams cannot maintain the content. Organizations slow down and cannot keep up with customers' expectations.

The Scalability Metrics

The Agility CMS Enterprise packages are tiered based on the most common needs for large solutions. The following indicators are something that you can estimate to help provide a baseline from which to design a solution that will last.

Number of Properties

- The most important indicator for scale. This is the total number of websites, apps, or other digital properties in your solution. Depending on the nature of your content, you may wish to split up a large property that has content which maps to several different logical areas. Agility can handle thousands of properties due to our API-based headless architecture.

Number of Users

- The number of members the content team in your organization. This can range anywhere from 500 to 5,000+ people. Agility CMS can handle Unlimited number of users. There is no Max limit set on how many user can be included in Agility CMS Enterprise Package.

Number of Entries

- Indicates the number of pages, assets and content items on a particular digital property, such as a website. The ranges for the number entries are often in the order of millions (1M, 2M, 5M, and so on). Unlike ither Headless CMSs, Agility CMS offers Unlimited number of content models and types for your content and number of entries can grow infinitely and delivered instantly via our Global CDNs.

These 3 indicators are the most common ways to determine what the scaling requirements of your solution are. Note that we do not mention Bandwidth or Asset Storage as scaling indicators. Agility's backend systems automatically handle the scaling of these resources as necessary. While increased Bandwidth or Asset Storage may incur costs, they do not indicate a need to scale the actual CMS implementation.

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Different Kinds of Scaling

Scaling can be grouped into 2 different categories: horizontal and vertical. Depending on the nature of a given solution, we can choose between either one to help provide adequate resources in all situations.

Horizontal Scalability

Adding more content, products, channels, websites, and digital experiences

Vertical Scalability

Adding more complexity, language, localization, personalization, integrations

Horizontal Scaling

This is how horizontal scaling works: **some problems are best solved by many small things working in tandem.** As a problem becomes bigger or more complex, we can add more "things" to help keep up to the demand. If you've heard of the term "parallelization," or the action of doing many jobs in parallel, this is what horizontal scaling is all about. A good example of this is cleaning a house, where "many hands make light work" gets the job done much faster than a single person.

Vertical Scaling

Where horizontal scaling works to solve problems with a higher **quantity** of resources, vertical scaling works to solve problems by using **bigger** or more **powerful** resources. The best real-world example here is the idea of a fitting a lot of people into one room. The only way to solve that problem is to have a bigger room.

How Agility CMS uses Microsoft Azure for Scale

The Agility CMS platform is hosted exclusively in Microsoft's Azure Cloud. Azure provides several options and patterns for scaling out solutions. In Agility's case, this includes the capability to scale out a multi-tenanted SaaS platform for a customer with specific needs.

What this means for customers is that if you can estimate and describe the aspects of your solution as outlined above, we can design a scaling framework to handle it.

Scaling your Content Vertically and Horizontally

Agility keeps each customer's environment, or instance, in separate physical containers in Azure cloud.
Not only does this ensure that your data is always kept separate and secure, but it also allows your data to be scaled independently on a per-instance basis. Often, customers will map their Agility CMS instances to a particular website. In most cases, this allows for easy vertical scaling as a website grows in size.
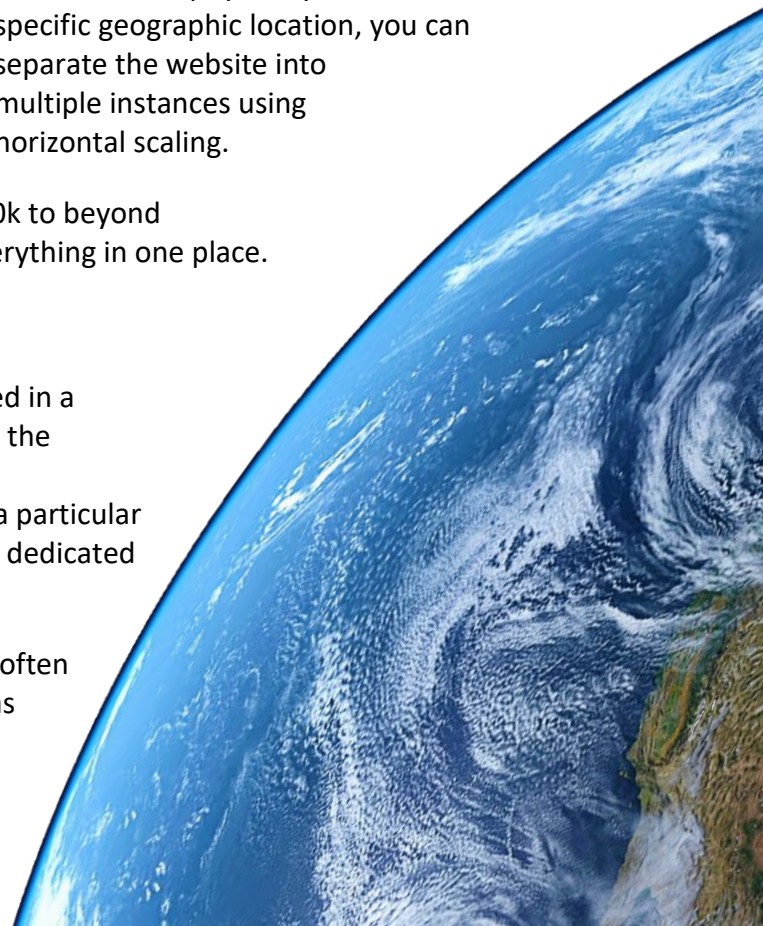
For solutions with many different websites, each with entry counts in the order of less-than-100k, no specific scaling is necessary. However, once a website is estimated to grow beyond a certain size, needs to be partitioned among different content teams, or needs to be physically located in a specific geographic location, you can separate the website into multiple instances using horizontal scaling.

As an instance grows over time into the order of 100k to beyond 1M entries, it can be scaled up vertically to keep everything in one place.

Geo-Scaling

Sometimes it makes sense for your data to be located in a specific physical location. For instance, customers in the USA often want their data located on US soil.
Even more-so, you may want to locate your data in a particular region. For instance, US Government agencies have dedicated Azure Data Regions that can be used for their data.

When we geo-locate data to a particular region, we often co-locate the other Agility resources to that region as

well. This ensures that any data processing and
transfer happens faster and without leaving
the region itself.

How Agility CMS Provides Redundancy as You Scale

One of the main considerations with any solution should be redundancy: how can you be
certain that your data remains intact with full integrity? This is especially important as data is
scaled out horizontally – you need to be sure that high availability is maintained as you scale.
It's because of this need that Agility chose Microsoft Azure, since Azure's resource model was
built with this consideration in mind.

The Power of 3

As a general rule, every resource in Azure is stored 3 times for redundancy. That means every
piece of data is ensured to be available, regardless of any hardware issues that may arise over
time. Customers often ask us about setting up things like "mirrors," "partitions," "shards" or
other terminology commonly associated with data integrity. This is not necessary with Azure,
as it handled by default for high availability.

Agility CMS Scalability Wins

One of the most common challenges among our Enterprise customers is load scalability. Scaling for volume means choosing platforms that can handle more traffic, API calls, buyers, content, payments, etc. — even when it's an unexpected 10x temporarily spike. Businesses need to ensure that the resources they invest in acquiring customers and increasing use won't be undermined by a site or app that crashes.

Agility was designed to handle scalability spikes.

- When **Visit Orlando** moved to Agility CMS in 2017, it was their first Black Friday when their site did not go down.
    - The tickets sales for Orlando's Disney World and Universal attractions reached several millions dollars in one day.
    - Traffic skyrocketed without any downtime.
    - Most importantly, both marketing and IT teams were able to enjoy a day off and celebrate Thanksgiving with their families.

> "In December, my team had taken a 4-day weekend for Thanksgiving for the first time in many years, thanks to Agility CMS!" Shawn Hart, Director of Web Development & Enterprise Applications Visit Orlando

- **Cineplex Entertainment** is Canadian biggest entertainment movie theater network with hundreds of movie theaters across Canada. The traffic spikes and ticket purchases during blockbuster releases like Star Wars and Marvels movies reach 1000x. With Agility CMS, Cineplex did not experience a single hick up since 2007.

- Hockey is everything in Canada. When **Hockey Canada** announced the team for Olympics, the Hockey Canada site set three new record highs and received page views in the millions. Their site on Agility CMS was able to handle it without a glitch.

- **Scotiabank** is an International bank that grows fast and opens hundreds of new locations annually. As the bank expands into new international markets, Agility CMS helps the digital solution to scale securely while keeping all teams efficient.