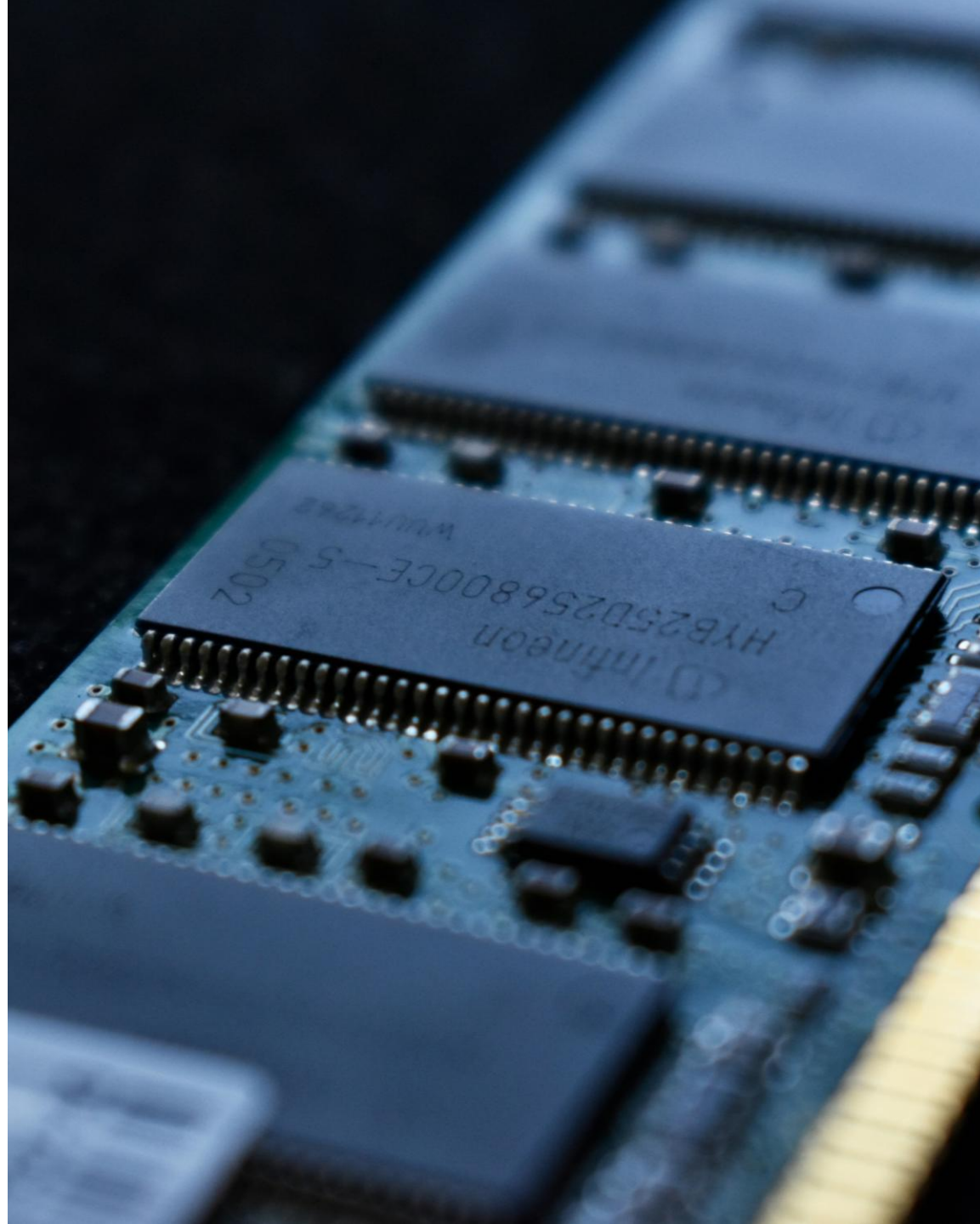


Hybrid Cache förändrar allt



- Umbracos nya cache för content och media
- Introducerades med .NET9 och Umbraco 15
- Hur påverkar det oss?





umbraco
MVP 2023

Markus Johansson

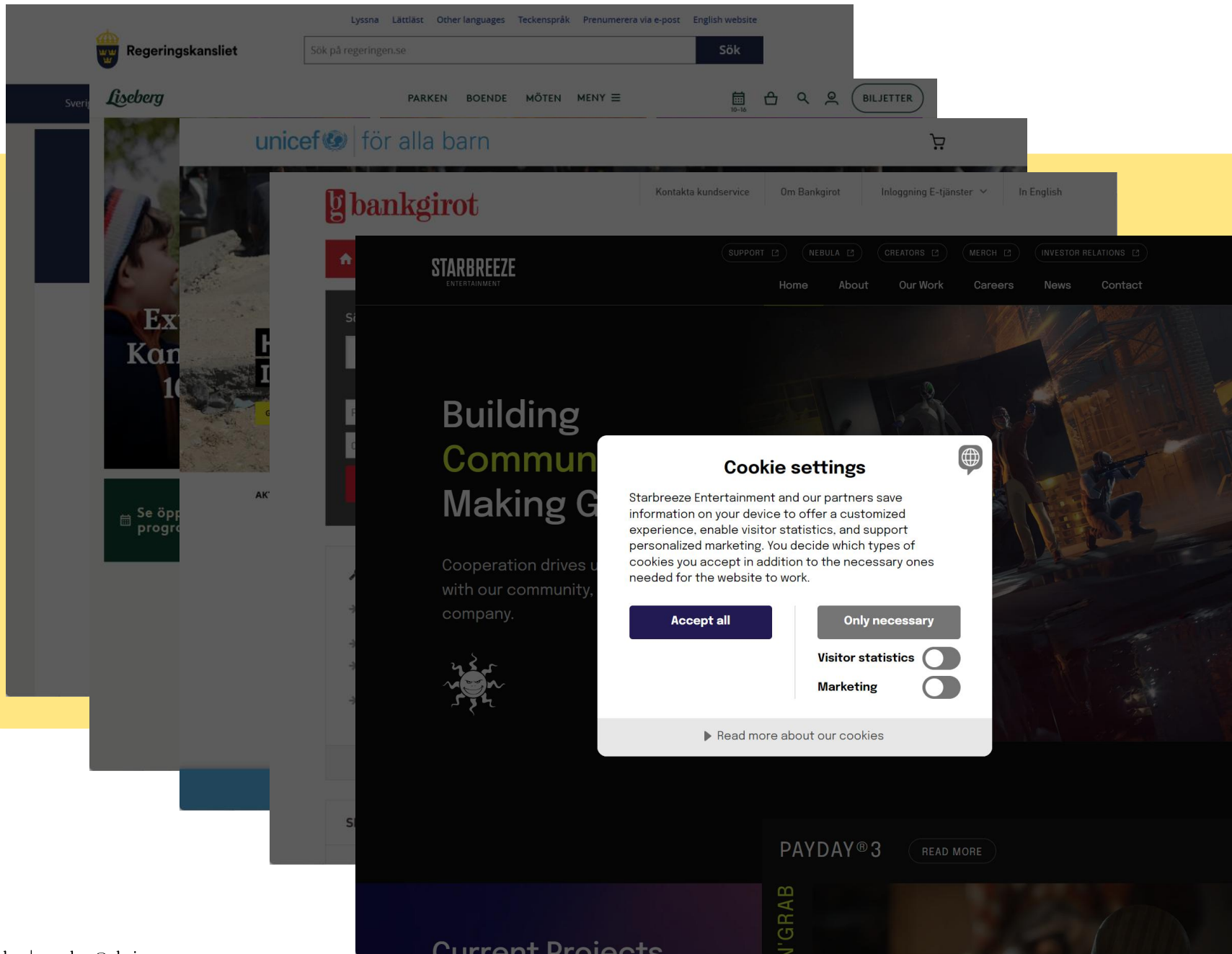
@markusjoha





Cookie Tractor





Hybrid vadå?

Microsoft HybridCache

- Paket från Microsoft för att underlätta cache-hantering
- Hybrid mellan
 - MemoryCache (L1)
 - IDistributedCache (L2)
- Factory-pattern för att hämta eller skapa entries
- Stampede protection

L1

MemoryCache

L2

IDistributedCache



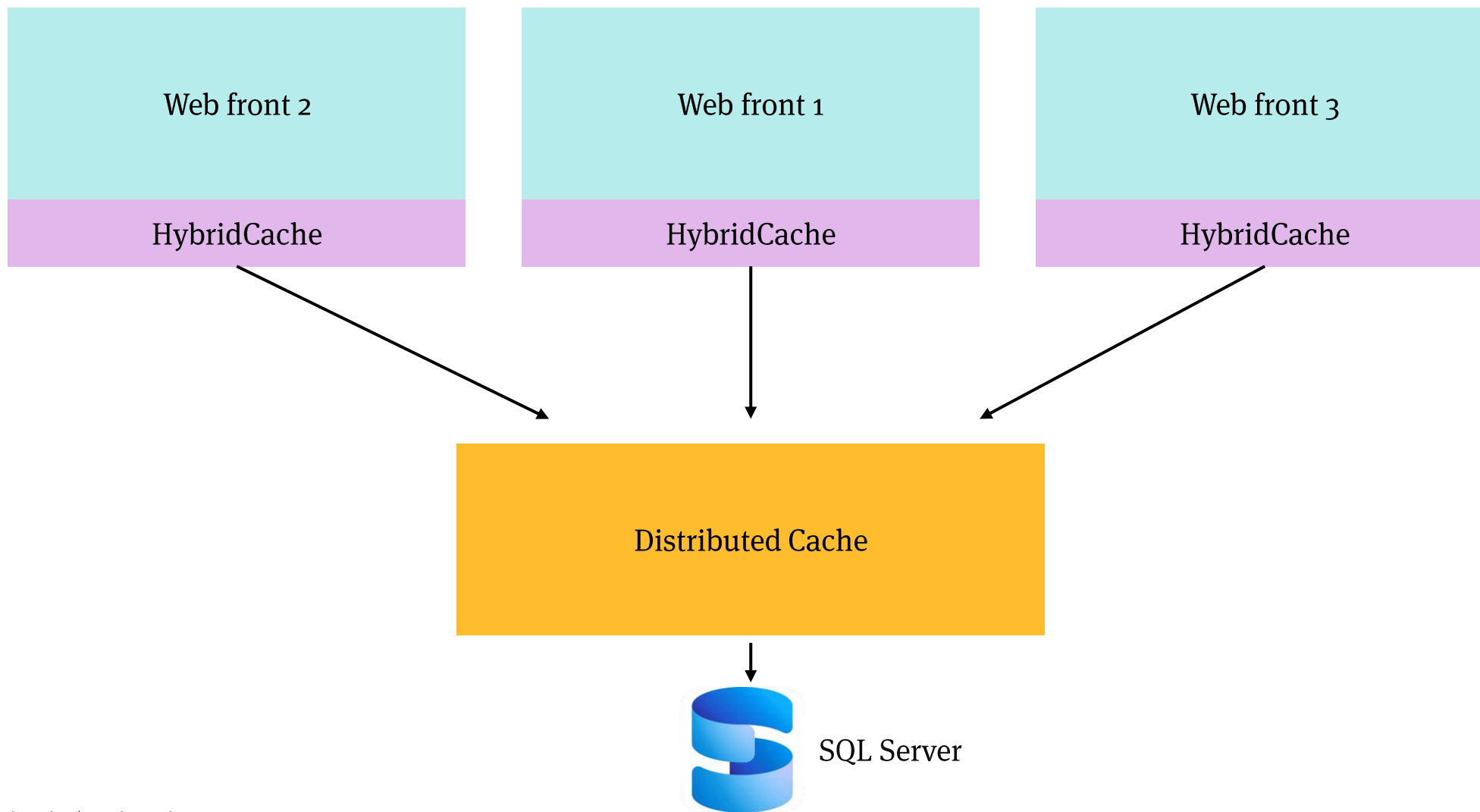
Redis



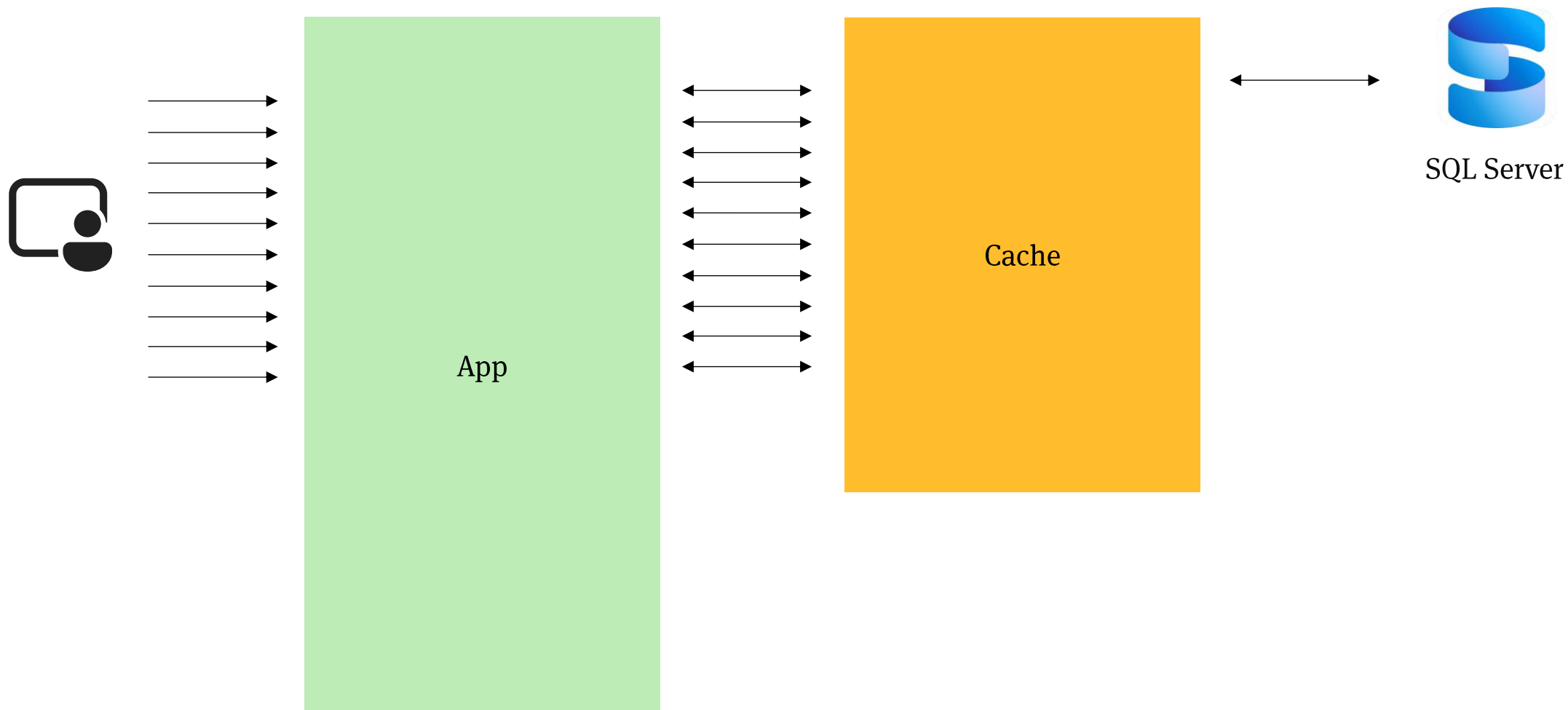
Garnet



SQL Server



Stampede protection



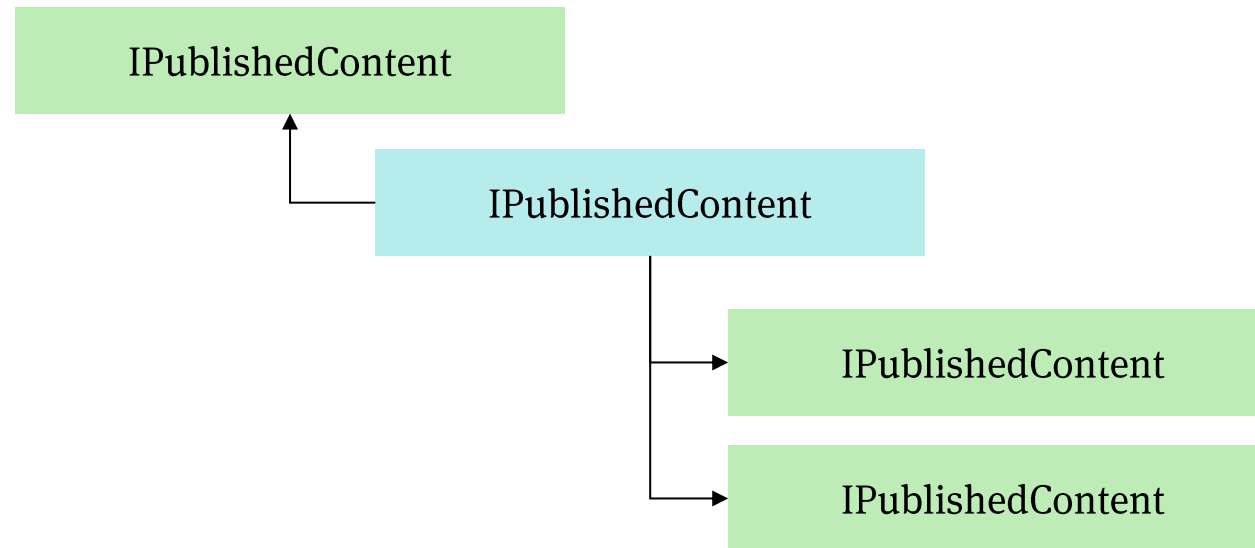


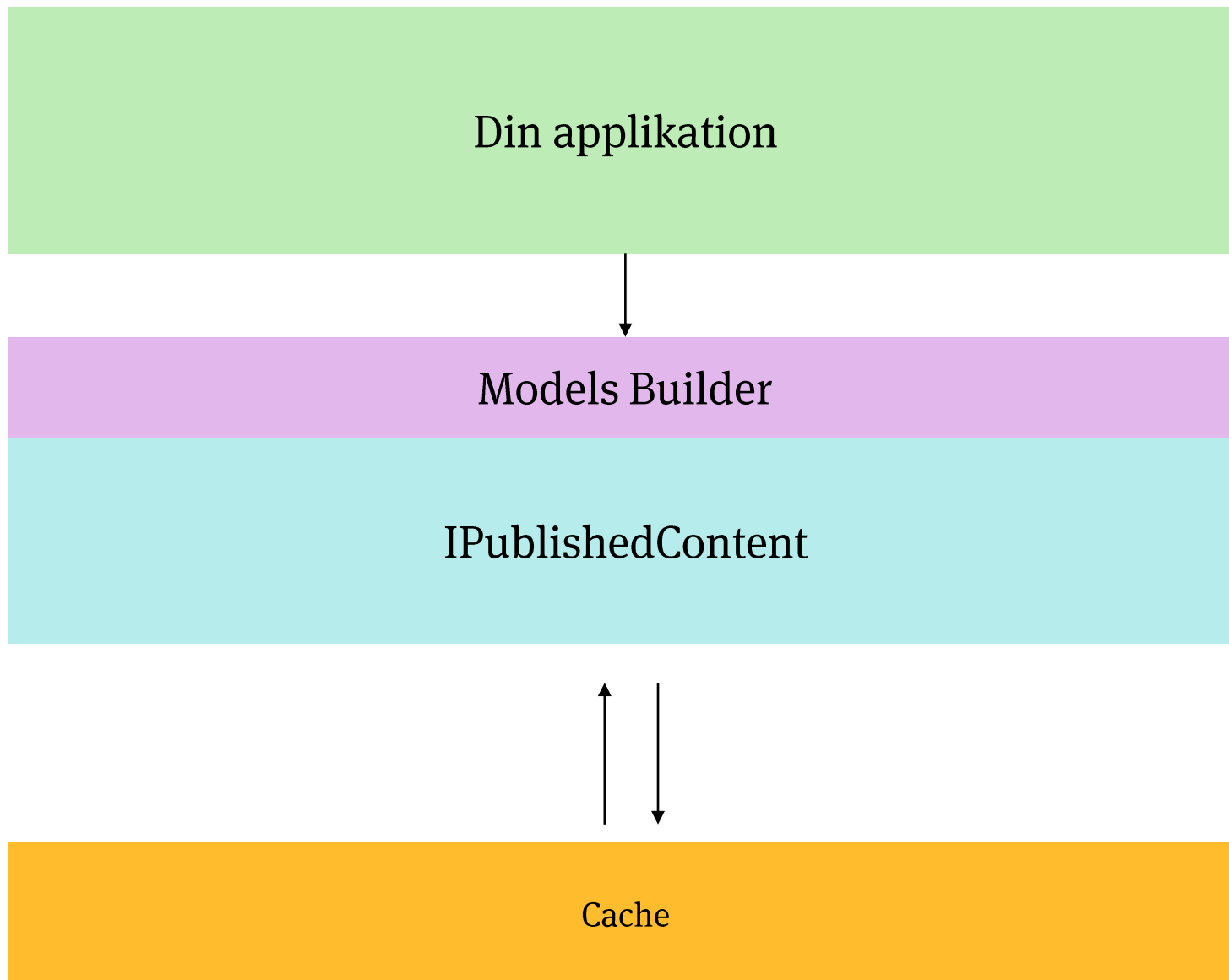
```
var item = await hybridCache.GetOrCreateAsync(  
    $"cache:{key}",  
    async result => await ExpensiveCallAsync(key)  
);
```

Vad innebär det för Umbraco?

IPublishedContent

- Vilka här vet vad IPublishedContent är?
- Representation av publicerad content / media





IPublishedContent

- Name
- ContentType
- Writer
- Cultures
- Properties
 - De vi konfigurerar på en Content Type

IPublishedContent

Property



```
<html>
```

```
<body>
```

```
<h1>@Model.Value("heading")</h1>
```

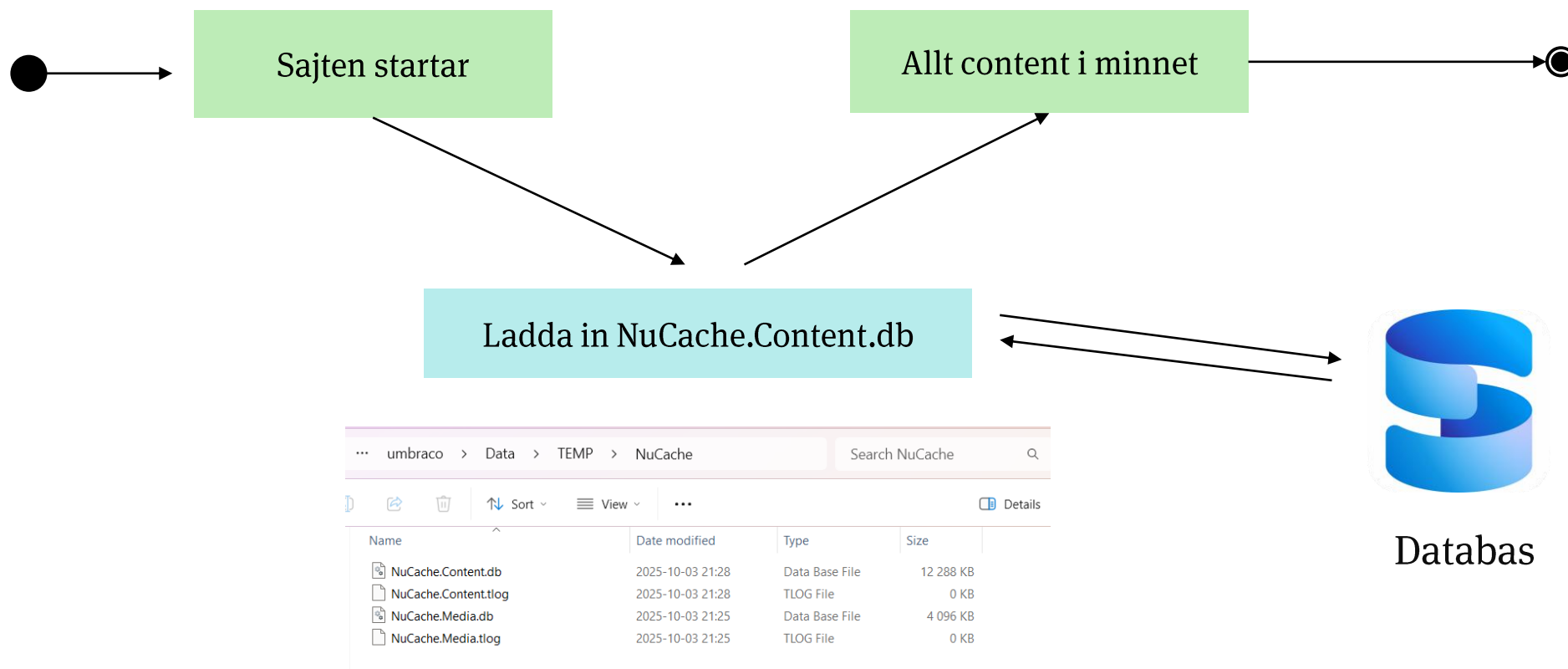
```
</body>
```

```
</html>
```

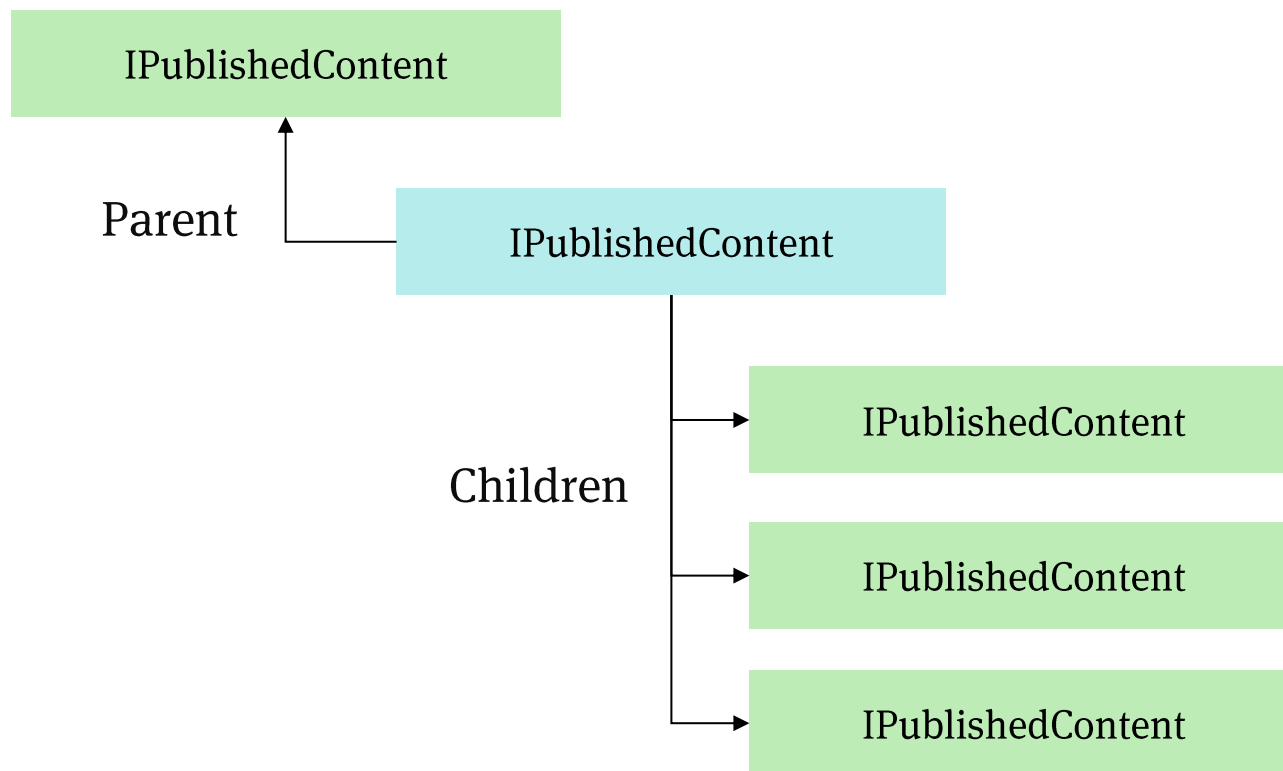
A vertical orange line on the left side of the slide.

NuCache .

NuCache Umbraco 8 - 14



NuCache Umbraco 8 - 14



Det är väl nice?

- Ja. För små och medelstora sajter
- Förödande för väldigt stora sajter
- Förödande i resurssnåla miljöer

Ett exempel

- 4k innehåll på nod
- 35 språk
- 250 000 sidor
- 33 GB



HybridCache .

“The best code is no code at all”

Jeff Atwood,
Co-founder Stack Overflow and Discord



UmbHiss-pitch för HybridCache?

- Endast delar av innehållet i minnet
- Lägre minnesbehov
- Snabbare uppstart
- Hot / Could content. Sidor som inte läses ofta kan släppas ut minnet.

HybridCache Umbraco 15+

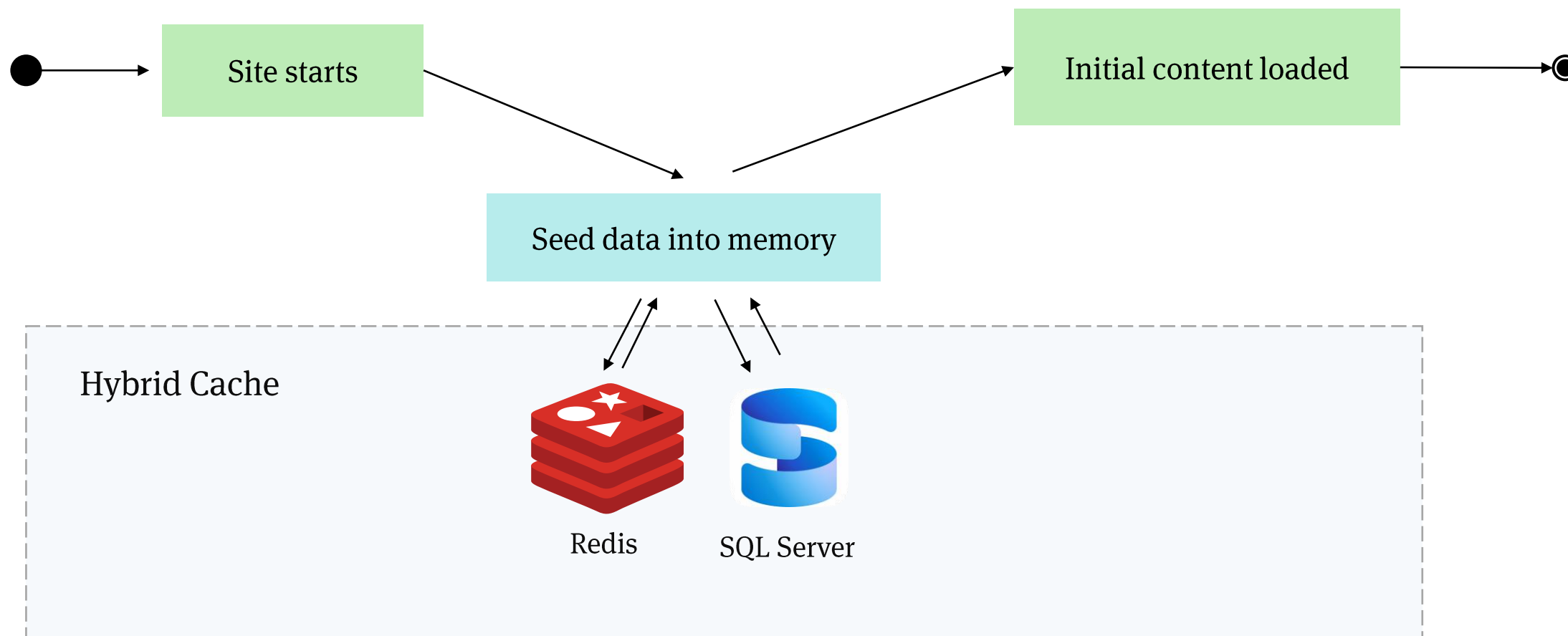


Umbraco 13



Umbraco 15+

HybridCache Umbraco 15+



Startup seed settings

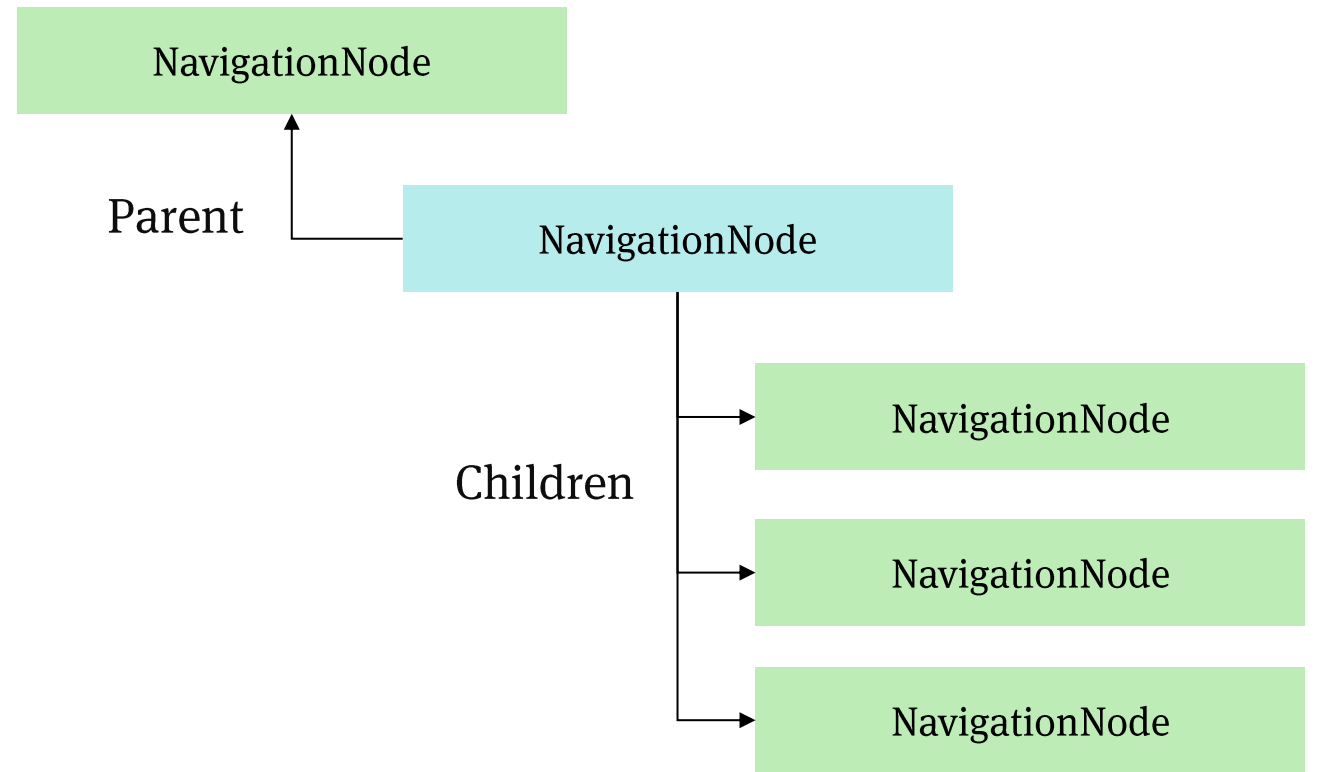
- Ladda X antal noder (100 som standard)
- Ladda alla noder av typen Y & Z
 - Startside
 - Meny-noder
 - etc.

```
"Cache": {  
  "ContentTypeKeys": ["36843c07-846d-4053-998a-a435fe871c2f", ...],  
  "DocumentBreadthFirstSeedCount": 50000,  
  "DocumentSeedBatchSize": 500,  
  "MediaBreadthFirstSeedCount": 50000,  
  "MediaSeedBatchSize": 500  
}
```

```
public interface ISeedKeyProvider
{
    ISet<Guid> GetSeedKeys();
}
```

NavigationNode

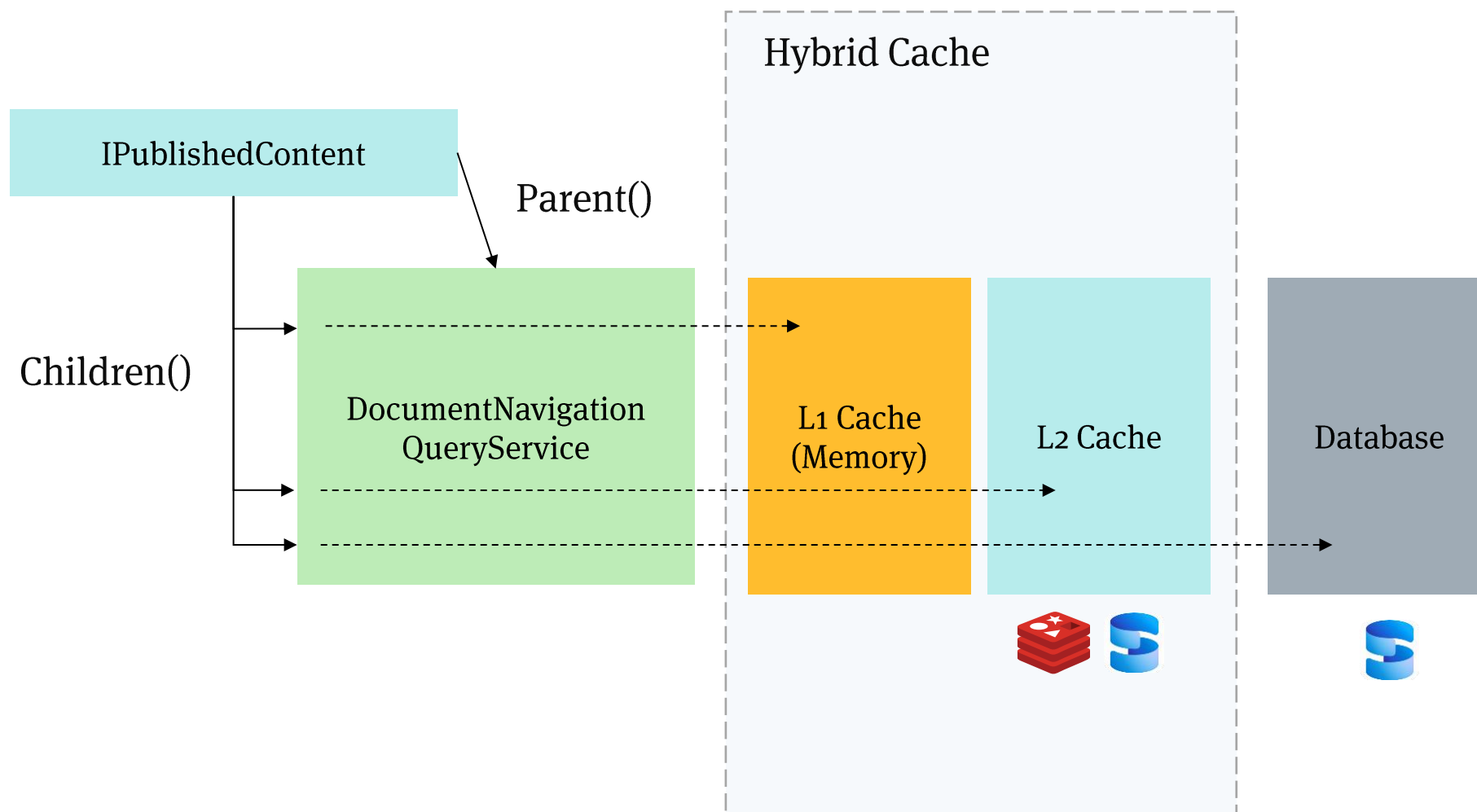
- Key
- ContentTypeKey
- SortOrder
- ParentKey



DocumentNavigationQueryService

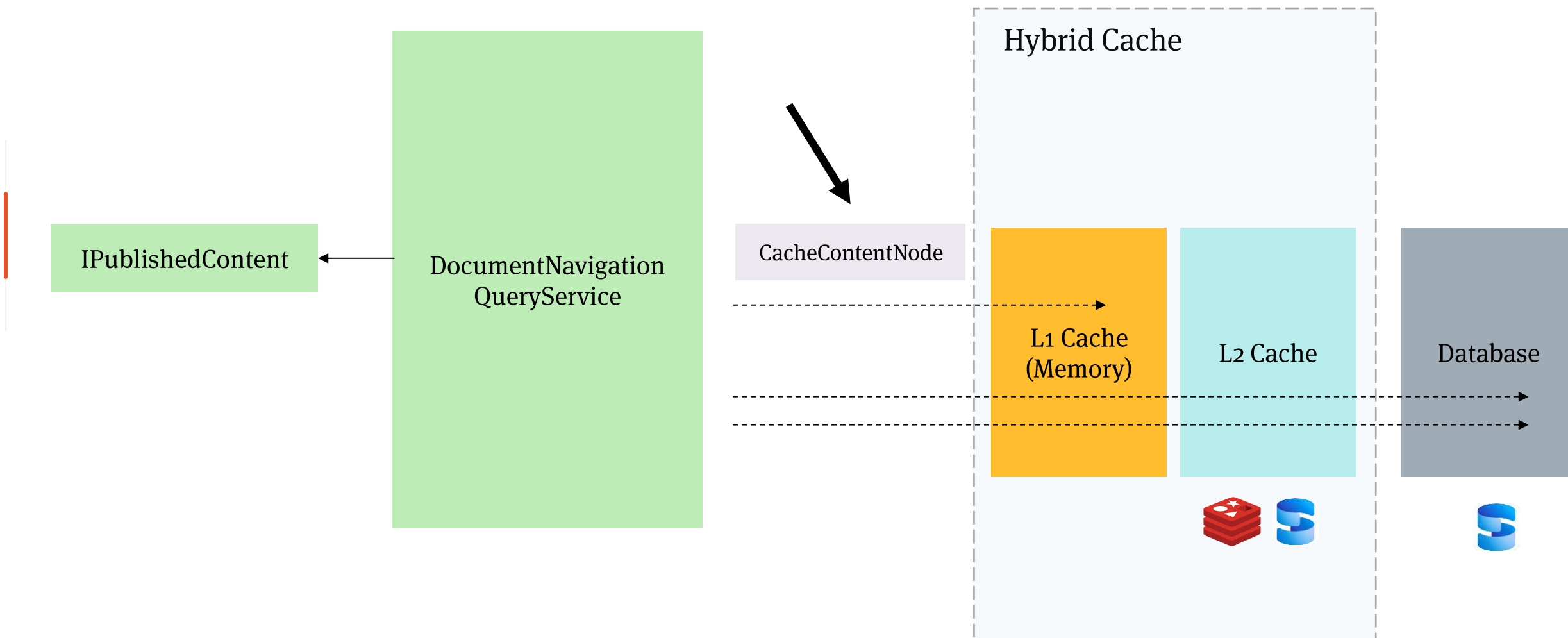
- TryGetChildrenKeys
- TryGetChildrenKeysOfType
- TryGetDescendantsKeys
- TryGetAncestorsKeysOfType
- TryGetAncestorsKeys
- TryGetDescendantsKeysOfType
- TryGetLevel

HybridCache Umbraco 15+

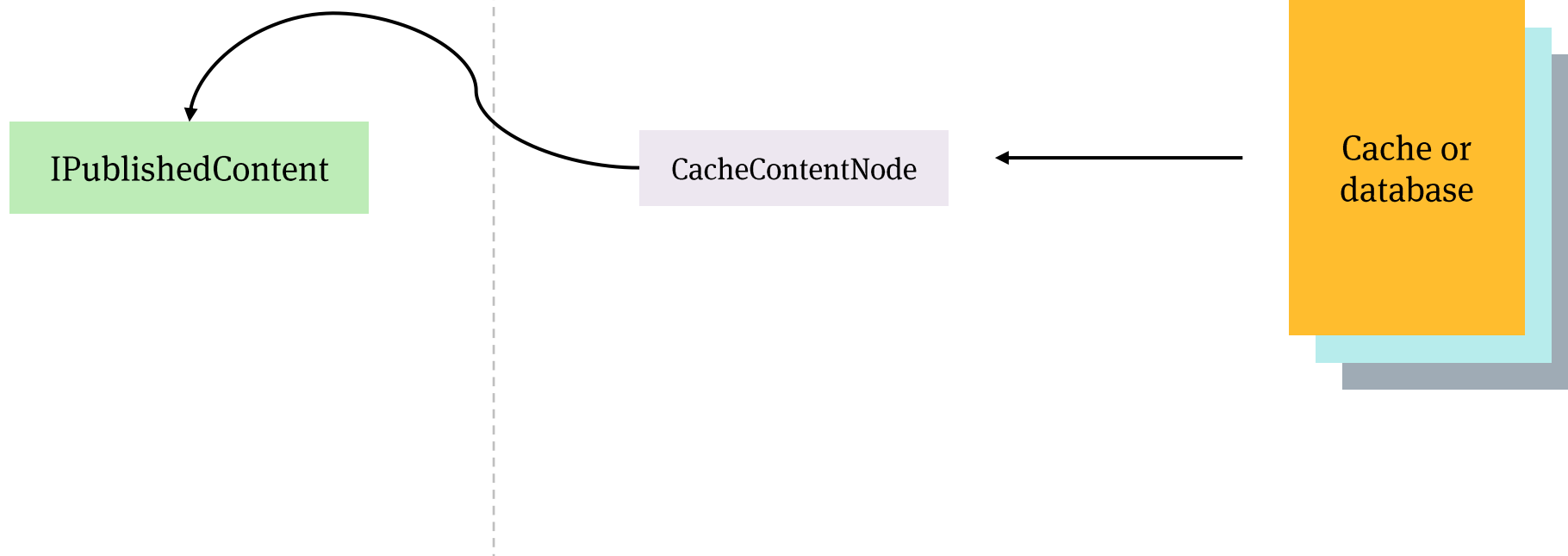


**Ladda in allt
i minnet?**

HybridCache Umbraco 15+



Varje request



Memory pressure

Insights		Allocations	Call Tree	Functions	Collections
Type	Allocations				
Small Object Heap					
System.String	4 796				
UmbHybridCache.CmsNe...	17				
System.Object	1 214				
System.Func<,>	1 280				
System.Collections.Concu...	1 071				
Umbraco.Cms.Infrastruct...	413				
System.Collections.Concu...	7				
Umbraco.Cms.Core.Mode...	388				
Umbraco.Cms.Core.Cache...	791				
System.Collections.Generi...	463				
Umbraco.Cms.Infrastruct...	413				
System.Collections.Generi...	479				
System.Object[]	16				
Umbraco.Cms.Core.Prope...	388				
Umbraco.Cms.Core.Prope...	388				
System.Byte[]	8				

Umbraco 13

Insights		Allocations	Call Tree	Functions	Collections
Type	Allocations				
Small Object Heap					
Umbraco.Cms.Infrastructure.HybridCache.PublishedProperty	125 403				
System.Threading.Lock	126 071				
Umbraco.Cms.Infrastructure.HybridCache.PublishedContent	25 619				
System.String	32 680				
System.Threading.Tasks.Task<>	76 847				
System.Guid[]	25 177				
Umbraco.Cms.Infrastructure.HybridCache.ContentNode	25 605				
Microsoft.Extensions.Caching.Hybrid.HybridCacheEntryOptions	25 607				
Umbraco.Cms.Core.Models.PublishedContent.IPublishedProperty[]	25 604				
System.Collections.Generic.HashSet<>.Entry[]	25 590				
System.Int32[]	26 015				
System.Func<,>	26 502				
UmbHybridCache.CmsNews	25 006				
System.Collections.Generic.HashSet<>	25 597				
Umbraco.Cms.Infrastructure.HybridCache.Services.DocumentCacheSer...	25 589				
System.Collections.Generic.List<>.Enumerator	25 116				
System.Collections.Generic.HashSet<>.Enumerator	25 080				
System.Collections.Generic.List<>	25 938				
System.SZGenericArrayEnumerator<>	25 350				

Umbraco 16

Closed

#20209



enkelmedia opened on Mar 31 · edited by azure-devops-sync

Edits

Contributor

...

Which Umbraco version are you using?

15.3.0

Bug summary

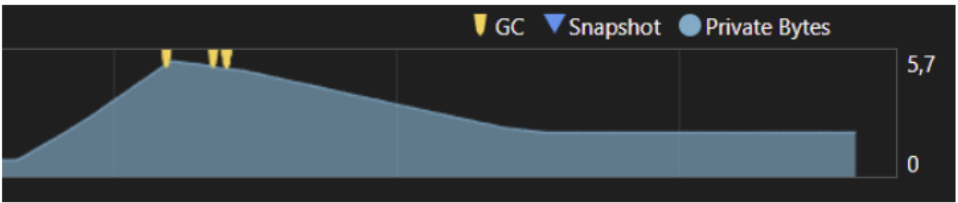
While testing out v15 with a "real world database" from one of our projects I'm noticing quite a difference in throughput between v13 and v15.

Umbraco 13.7.2

Median load time: 9ms
Request per second: 343

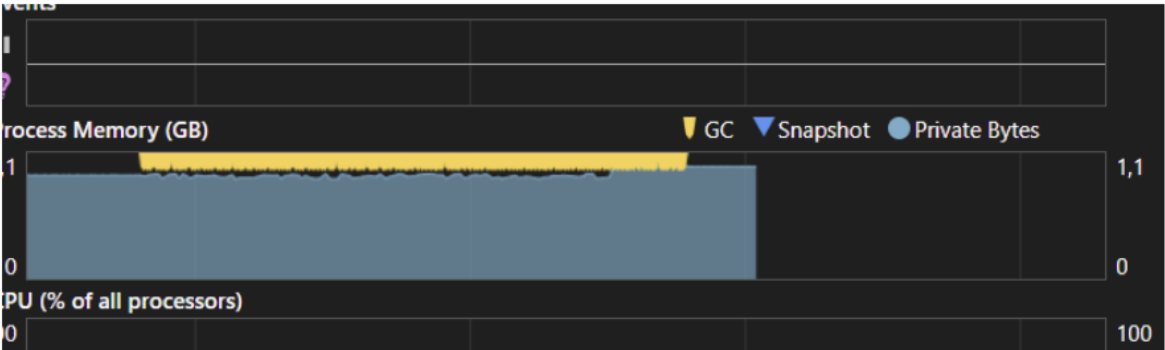
Umbraco 15.3.0

Median load time: 28ms
Request per second: 131



Umbraco 15:

In Umbraco 15, the GC runs almost all the time.



Assignees

No one assigned

Labels

affected/v15

type/bug

Type

No type

Projects

No projects

Milestone

No milestone

Relationships

None yet

Development

Code with agent mode

Caching: Don't remove null values from hybrid cache to avoid broken content references repeatedly requiring a database hit (closes #18892)

umbraco/Umbraco-CMS

Notifications

Customize

Unsubscribe

You're receiving notifications because you're subscribed to this thread.

Participants

+5

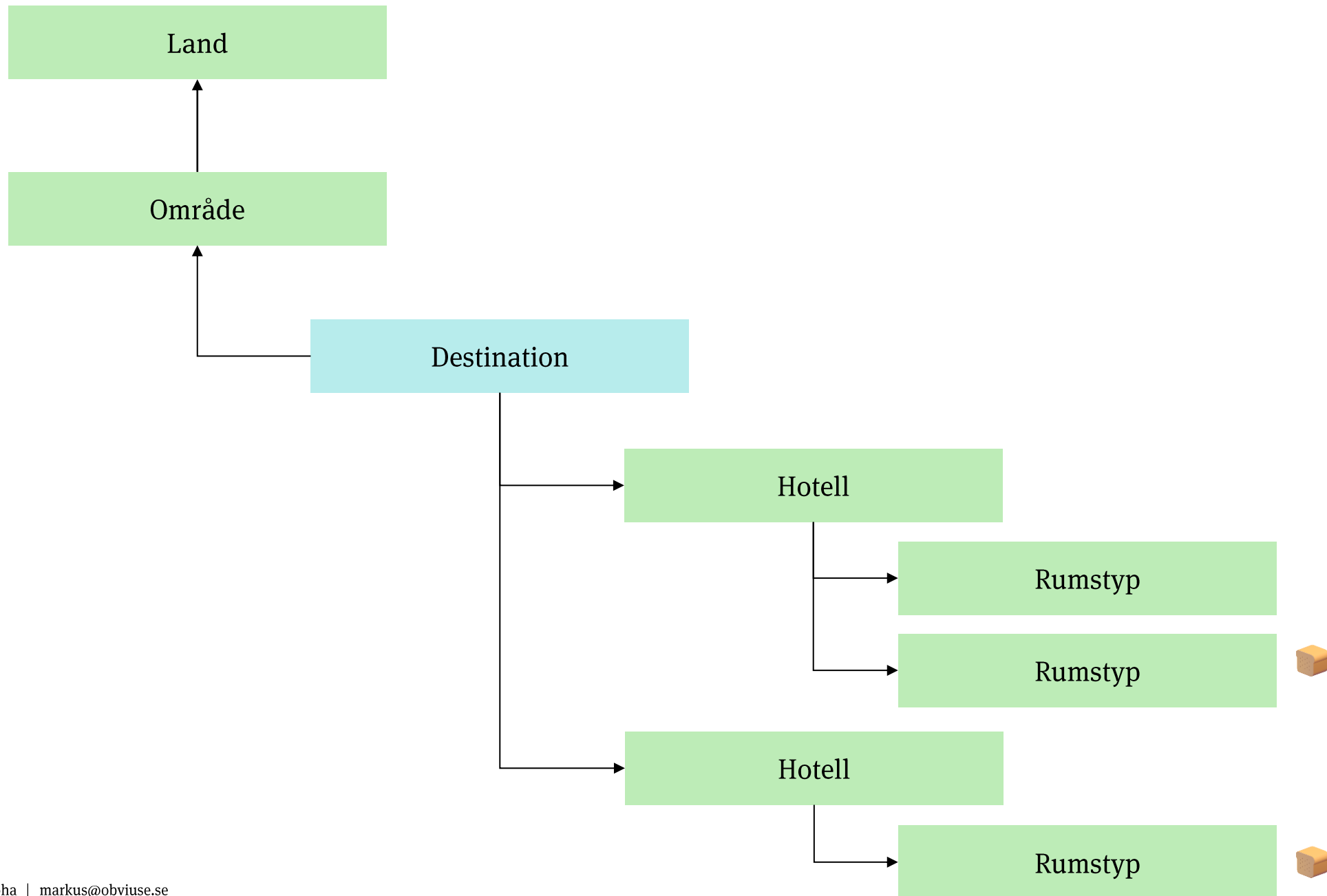


Markus Johansson | @r

Vad innebär det här?

Så påverkas det dagliga arbetet

- Inte så mycket om sajten är ”liten”
- Traversering av trädet kostar betydligt mer
- Påverkar filtrering `.Children().Where(...)`
- Påverkar referenser. Tex. Conditions på Content Picker



16

16.latest 

Umbraco CMS Documentation
 Legacy Documentation 
 Release Notes 
 Contribute 
 Sustainability Best Practices 

FUNDAMENTALS

Get to know Umbraco
 Setup 
 Backoffice 
 Data 
 Design 
 Code 

IMPLEMENTATION

Learn how Umbraco works

Querying with Descendants using DescendantsOrSelf

When using queries like this, you need to understand the implications. Here is a particularly bad scenario:

You have 10,000 content items in your tree and your tree structure is something like this:

```
- Root
-- Home
-- Blog (Collection with 9495 nodes)
-- Office Locations (Collection with 500 nodes)
-- About Us
-- Contact Us
```

You create a menu on your Home page like:

```
<ul>
  <li><a href="@Model.Root().Url()">@Model.Root().Name</a></li>
  @foreach (var node in Model.Root().DescendantsOrSelf().Where(x => x.Level == 2))
  {
    <li><a href="@node.Url()">@node.Name</a></li>
  }
</ul>
```

The query above renders out: *Root, Home, Blog, Office Locations, About Us, Contact Us*



Benchmarks.

Disclaimer: Korkat



U

ContentMediaSettingsPackagesUsersMembersTranslation

Content

Start Page

Writers

News

Markus första

Quasi est excepturi.

Sunt veniam dolore omnis aliqu...

Perferendis consectetur repelle...

Repellat animi eveniet eum qua...

Pariatur vel magnam neque vel ...

Iste magni qui aut qui aliquid.

Non minima non perferendis ex...

Sed quae quasi.

Dolor expedita laudantium offic...

Eum vitae eum est officia ea velit.

Quasi est excepturi. (1)

Sunt veniam dolore omnis aliqu...

Markus första

Intro

Writer

Publish Date

Body

Archived

a little into

Markus Johansson

10/13/2025 12:00:00 PM

</> | B | I | U |

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🔗 ↺ | 📎 🖨

This is the **HTML!**

×

Content

Info

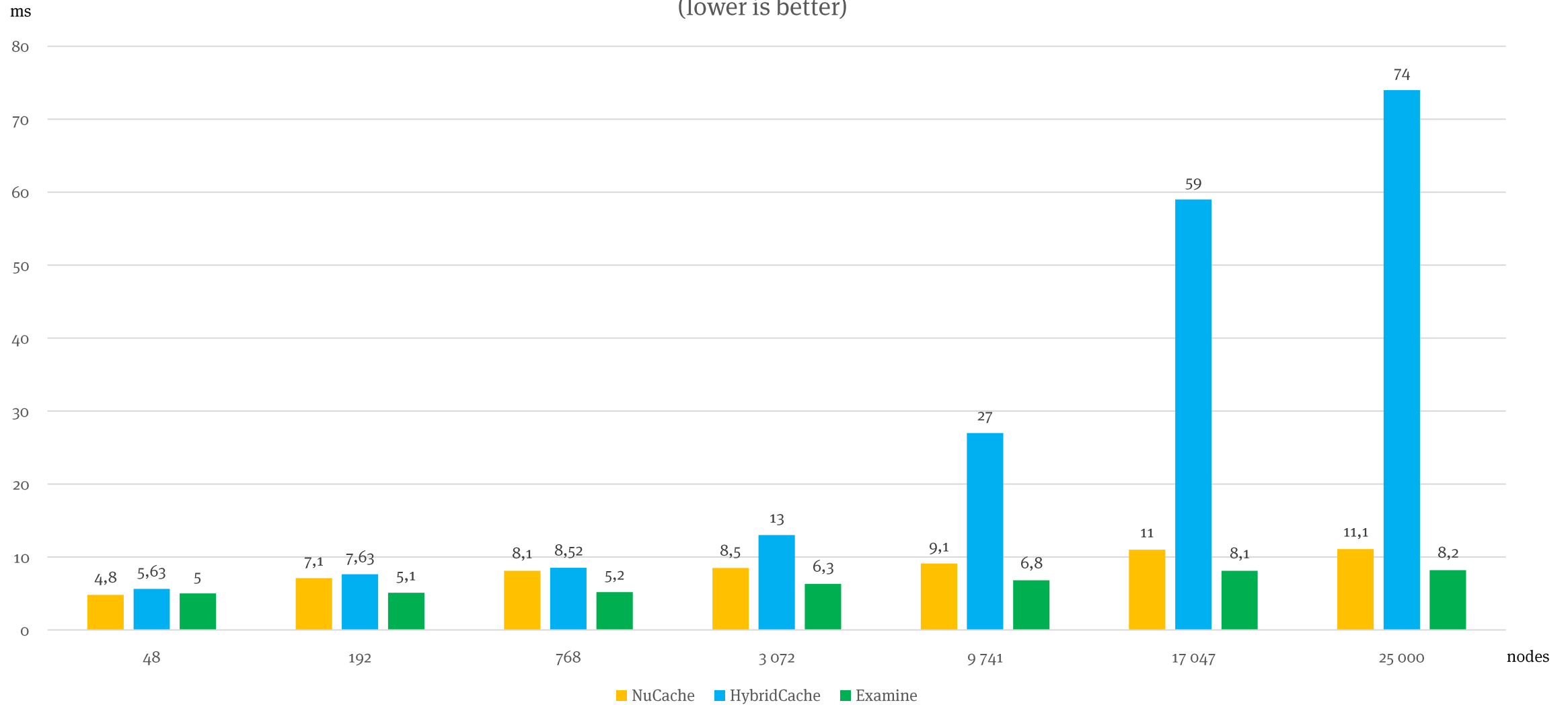


Benchmarks för förståelse

- 48 till 25 000 noder
- Filter på värden tex. från node i content picker
- Mycket dålig idé att köra query mot 25 000 noder
- Examine: "Out of the box" experience går att skrämma upp riktigt ordentligt.

Page Load Time (ms)

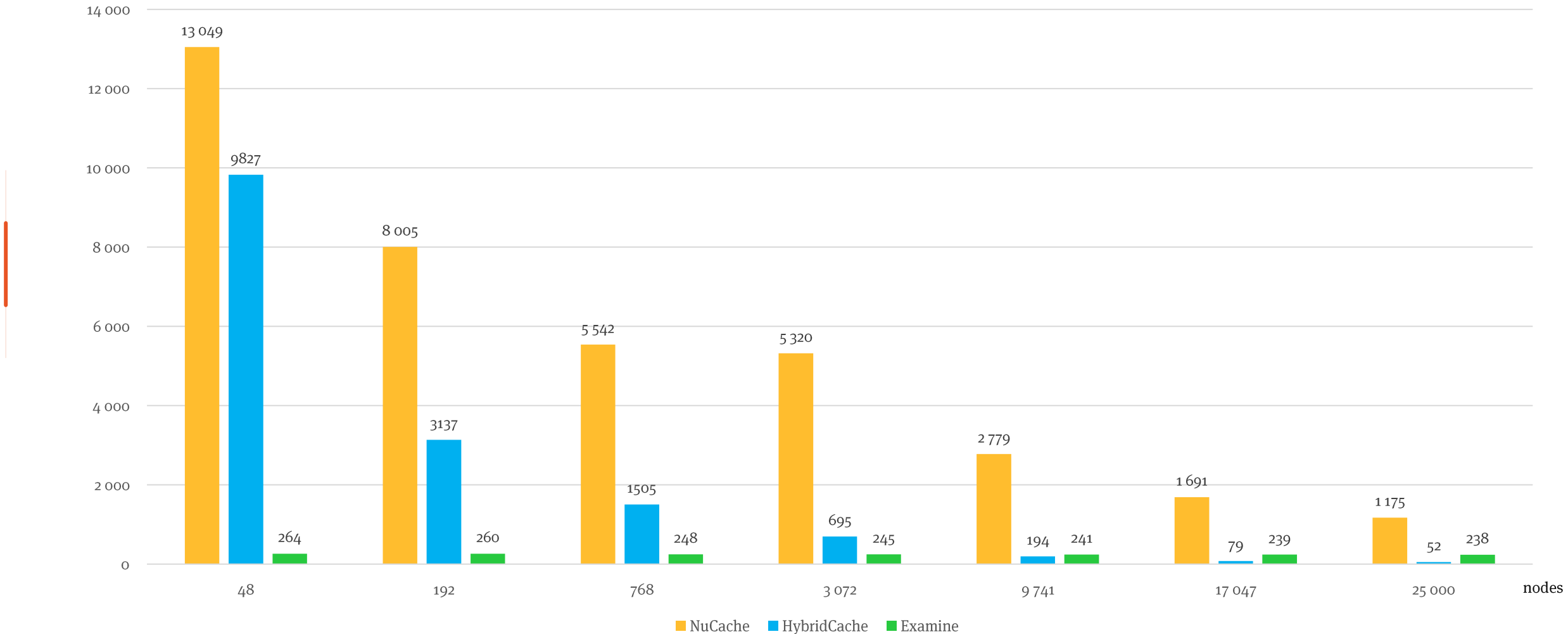
(lower is better)



RPS (Requests Per Second)

(Higher is better)

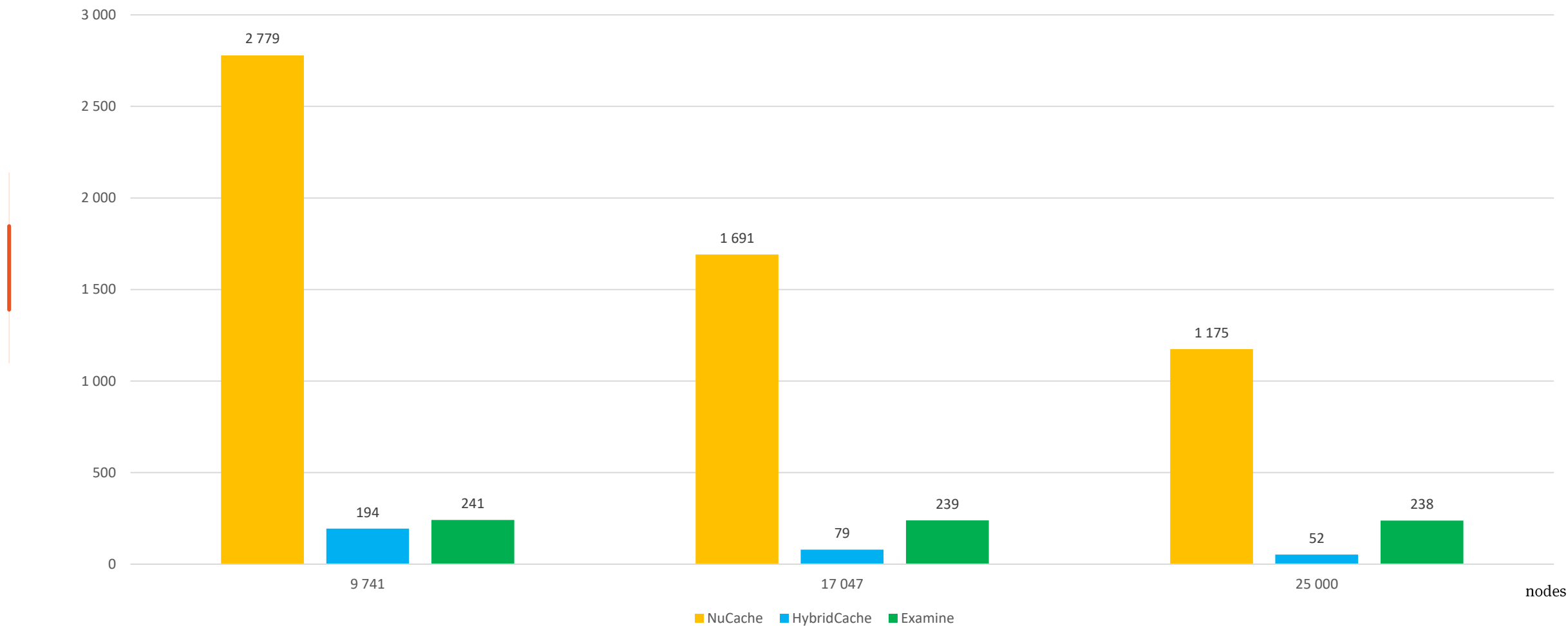
requests / second



Zoom in to RPS

(Higher is better)

Requests / s

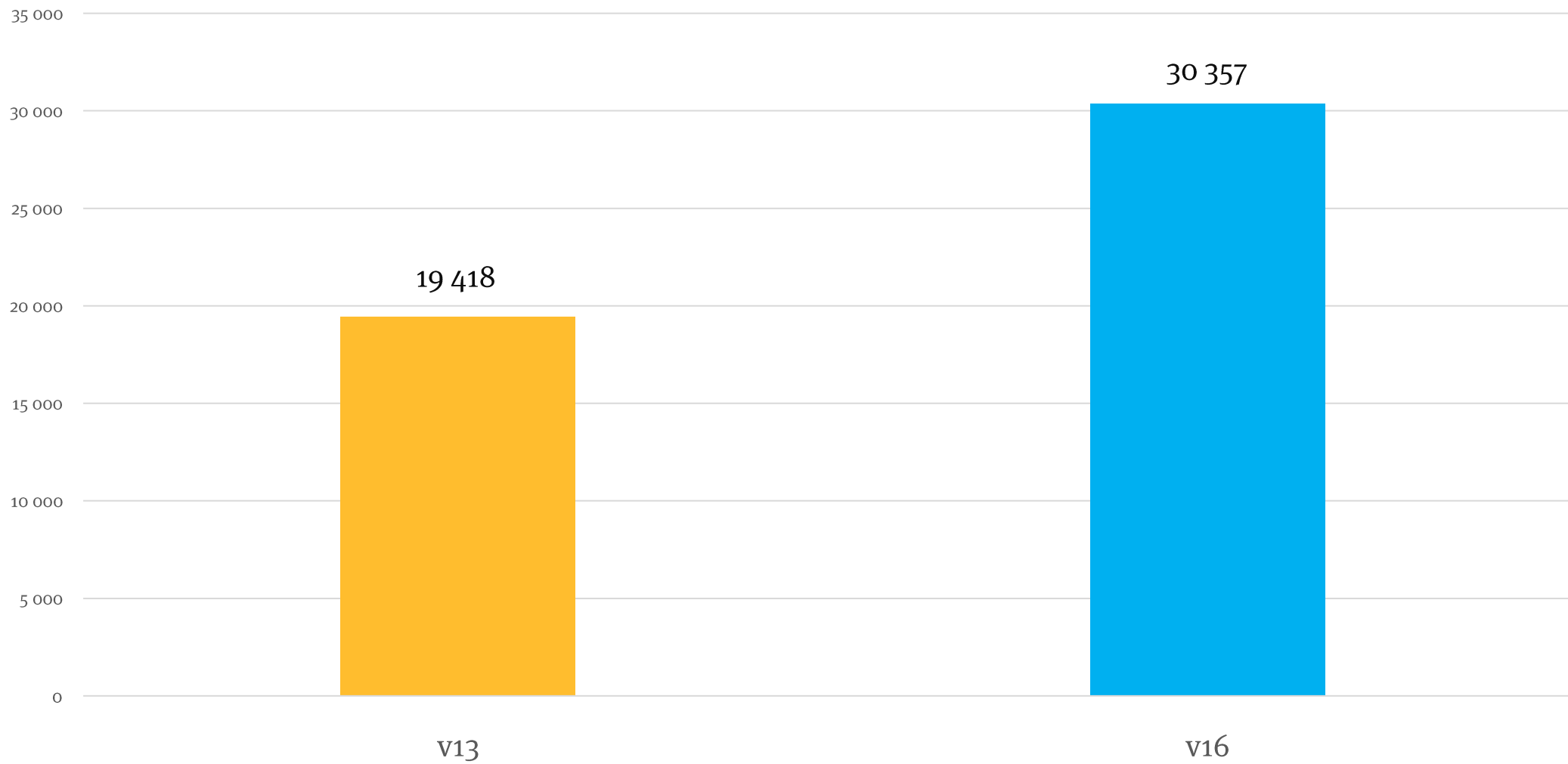


Ajdå...

RPS Single IPublishedContent

Requests / s

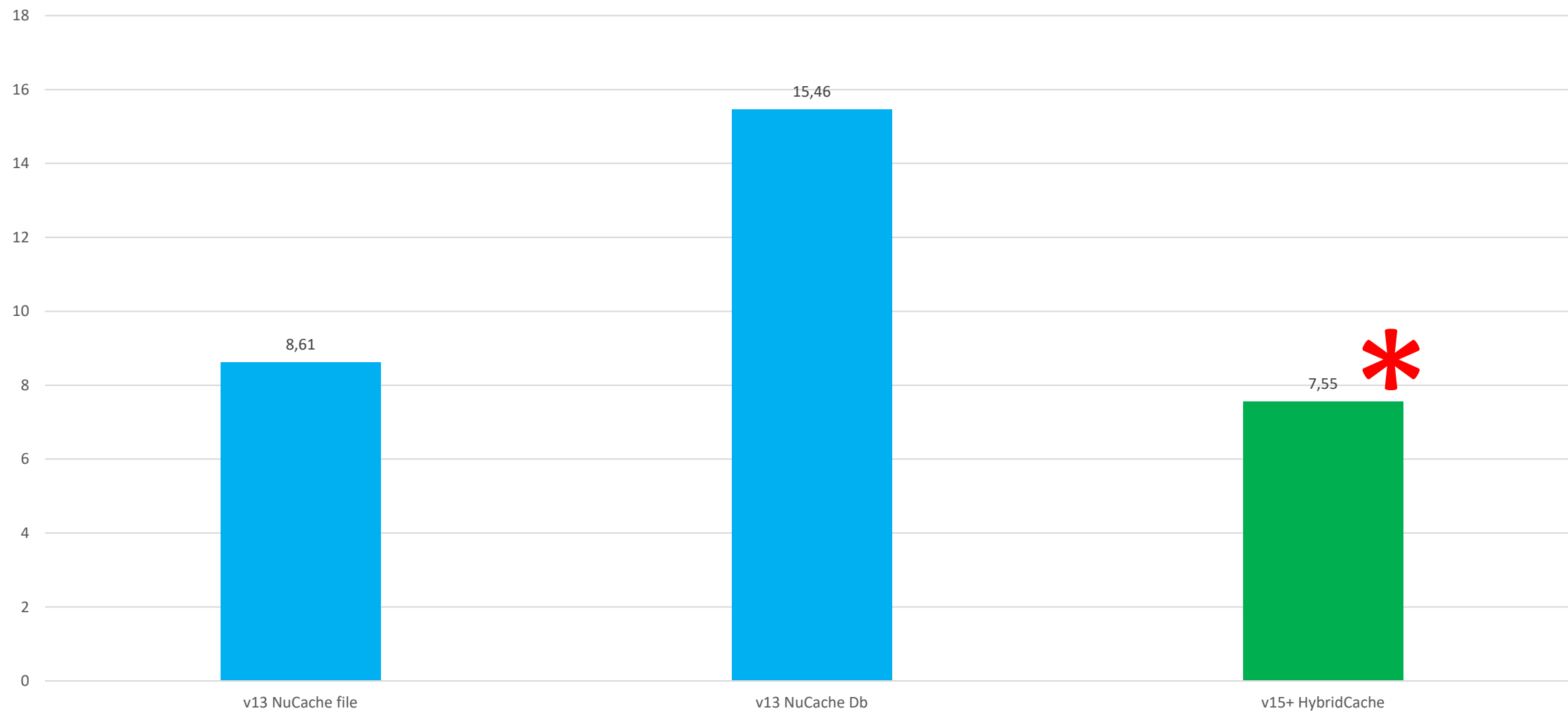
(Higher is better)



Startup Time (ms)

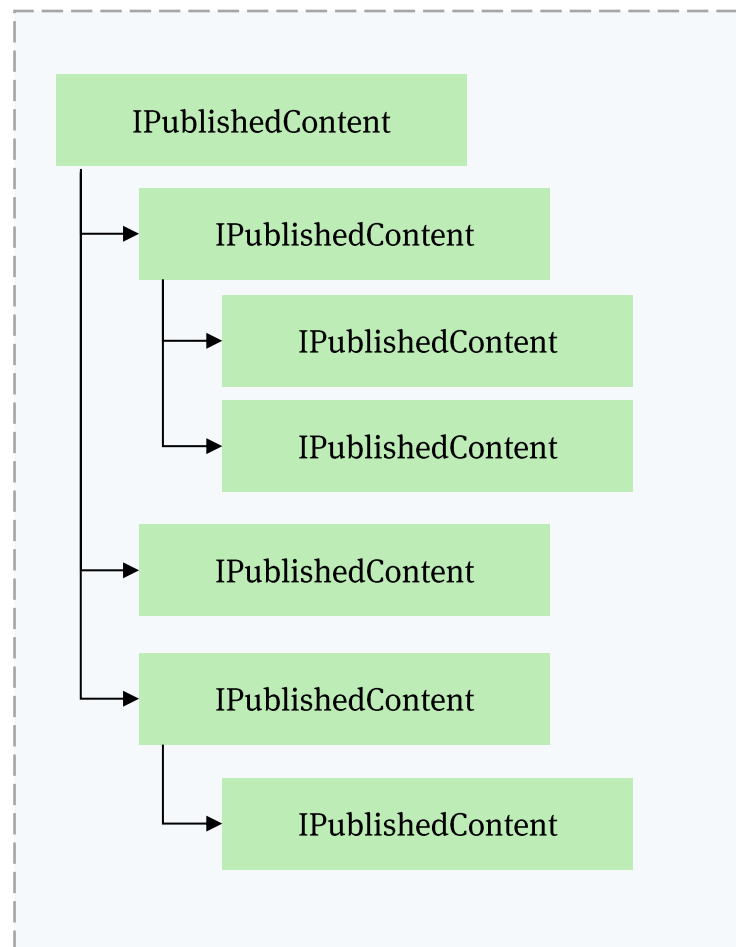
(Lower is better)

Requests / s

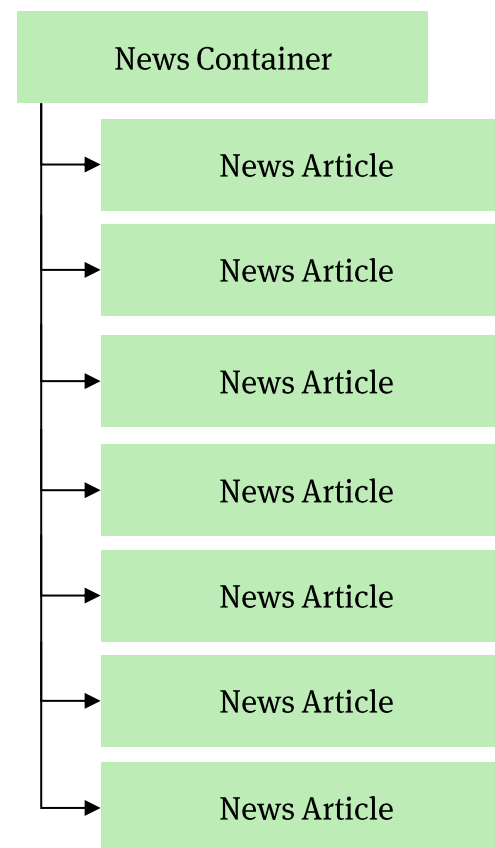




Startup = seeded in batches

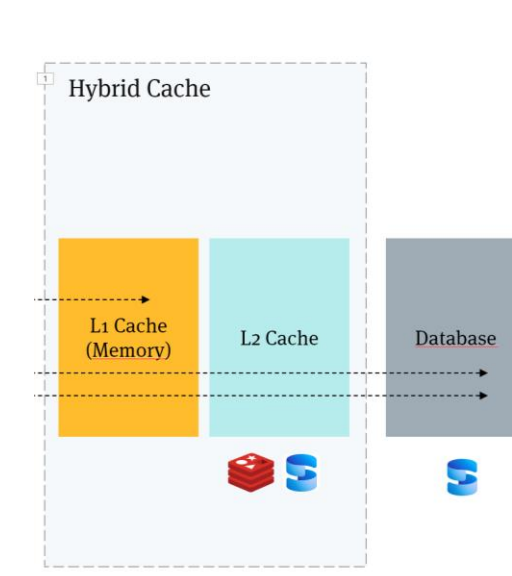


Sedan en och en



För varje nod

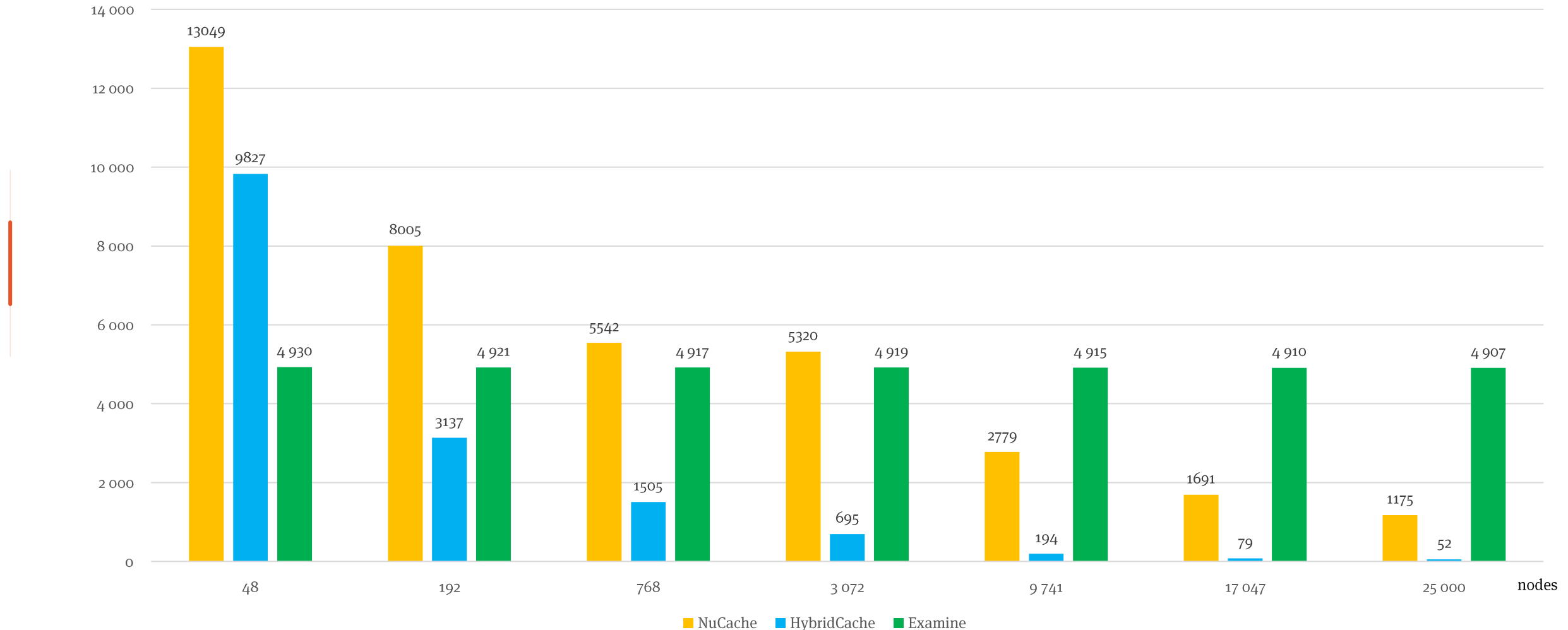
- L1 Cache lookup
- L2 Cache lookup
- Database lookup



RPS (Optimized Examine)

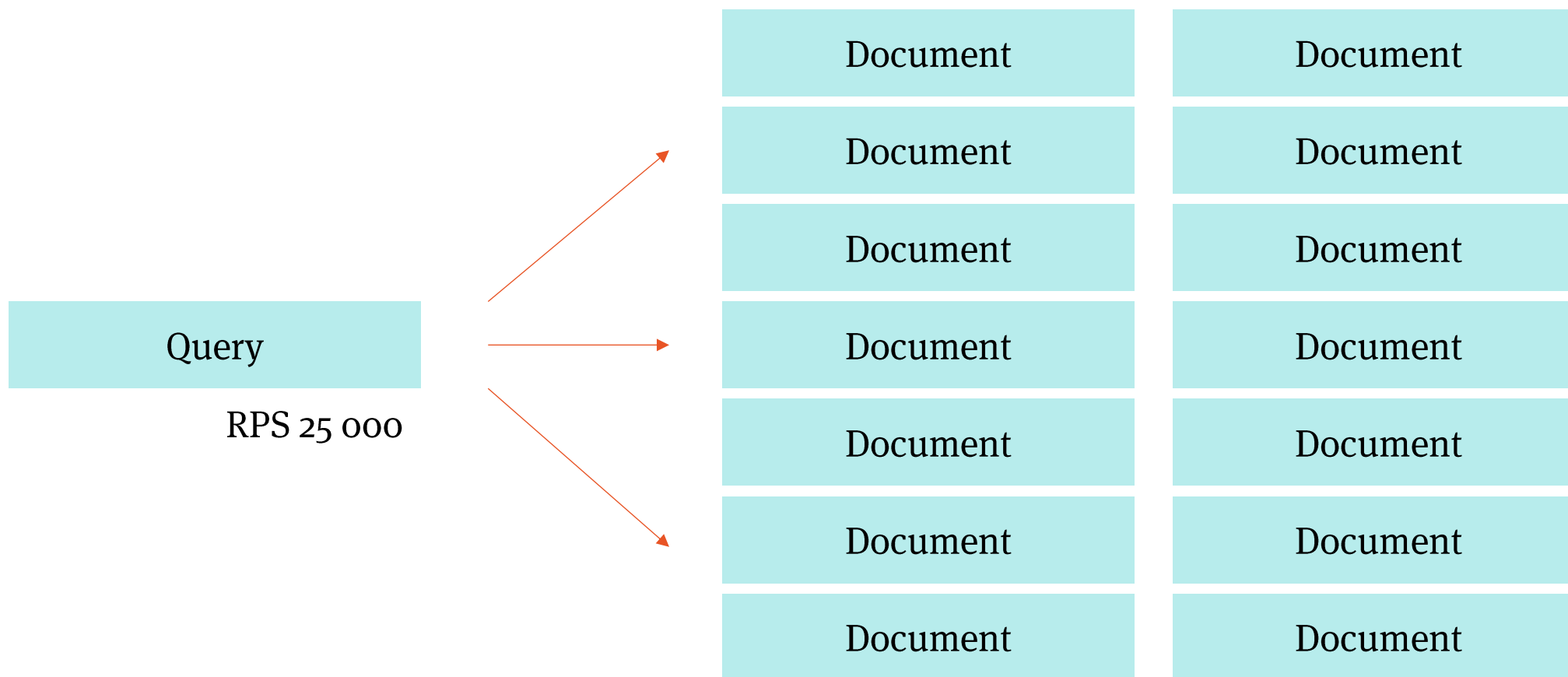
(Higher is better)

requests / second



```
var search = searcher.CreateQuery("content")  
    .NodeTypeAlias("cmsNews")  
    .And()  
    .Field("writerId", "25050")  
    .Execute(new QueryOptions(0,25));
```

Optimized Examine



Vad göra?

HybridCache sammanfattning

- Ökad skalbarhet
- Mindre memory footprint
- Snabbare uppstarter
- Lättare att skjuta sig i foten

Meny & Footer

```
var menuData = _appCaches.RuntimeCache.GetCacheItem(  
    "site_menu"  
    () => BuildSiteMenuDtos()  
)
```

Sitemap

A thin white vertical line is positioned to the left of the 'Sitemap' title, featuring a small white rectangular segment in its center.

Hur göra en sitemap?



Search

Topics

About

Code of conduct

Leaderboard

My posts

More

UMBRACO LINKS

Documentation

GitHub

Discord

Mastodon

Bluesky

CATEGORIES

Questions

Announcements

 ✓ Solved XML sitemaps for large sites

Questions

 Søren Kottal skttl

Mar 24

Porting our internal XML sitemap generator to v15 has got me thinking...

Previously we've simply crawled through the entire content tree looking for signals to determine if a node should be part of the sitemap (in our case, a true/false property with the alias umbracoSitemapHide being false).

But with v15, and the new cache, not necessarily containing all content at all time, I'm thinking this approach is not the best.

What are my options then?

I've been looking into using Examine, but it seems like true/false properties sometimes aren't indexed (I suspect, if the property is added to the content type, after the content node is created, the content node gets a null value in the property and is not indexed). Because of this, the examine based sitemap is missing some pages in my initial tests.

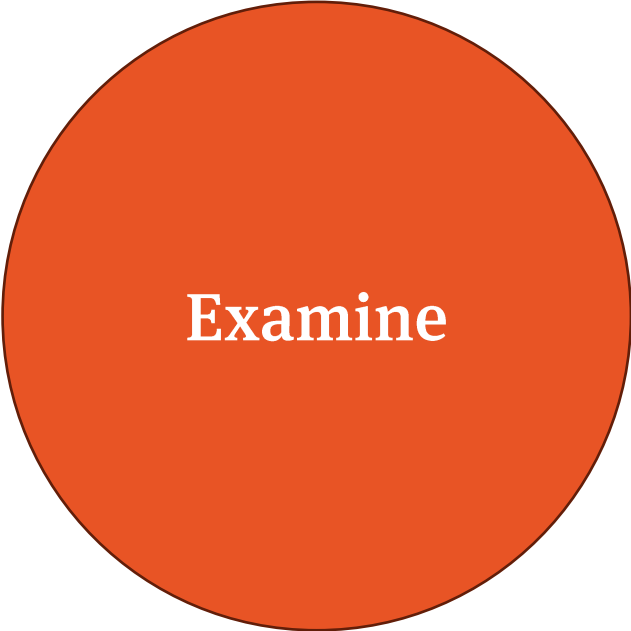
Is there other ways in v15 I can do this? Or should I run through all my content once and for all, to set an actual "false" value in my "sitemap hide" fields, if they aren't there?

What are other people doing for automatically generating xml sitemaps?

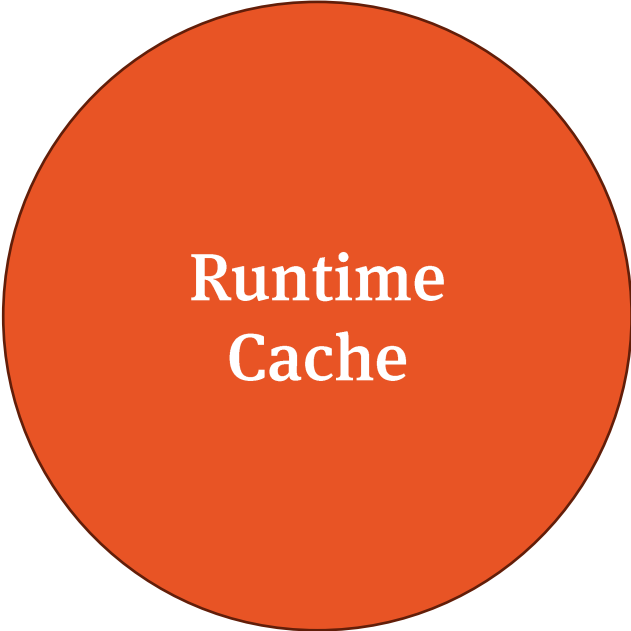
Hur göra en sitemap?

- Använd Examine
- Addera "Url" till external index
- Query som filtrerar bort oönskade noder

Kort och gott

A large orange circle with the word 'Examine' in white serif font.

Examine

A large orange circle with the words 'Runtime Cache' in white serif font.

Runtime
Cache

Key take aways

- Mindre sajt = Mindre av ett problem
- Hybrid Cache är annorlunda och kräver att vi är uppmärksamma
- Scenarion som inte är ”best practice” blir långsammare
- Tänk på Umbraco-cachen som en ”databas”
- Nyttja runtime cache och output cache + Notifications

Tack!

@markusjoha

markus@obviuse.se

