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EUROPE'S LEADING AEM DEVELOPER CONFERENCE
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AEM & Edge Delivery Performance in China

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The Team



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What We'll Cover

- What are the challenges with web performance in China, both in-general and for AEM & EDS specifically, and why should you care?
- What are the approaches for improving AEM and EDS performance in China, and what are the trade-offs?
- A demo of a solution that can effectively and economically solve for EDS, 6.5, CS and Magento being served to users in China.

Why You Should Care About China

Sheer Size of China's Internet Userbase



- China has 1.2 BILLION Internet Users
- More Internet users than India, USA and Brazil combined

Global Sites SHOULD See China Traffic

- Some sites are just domestic, have no purpose in reaching China
- If your site has global reach, isn't getting **SIGNIFICANT** traffic from China, something is **DEFINITELY WRONG**
- There are multiple reasons why you're not seeing China traffic
- Translation alone does not move the needle much

What Makes China Challenging

What Makes China Challenging?

- Two primary factors make China Challenging
 - The Great Firewall
 - Internet Content Provider Licensing

Licensing is a mega factor

- **Licensing** is another big factor
 - Licensing (ICP License) needed for locally-hosted sites
 - Licensing needed for submitting your site to search
 - Licensing needed for video hosting inside China

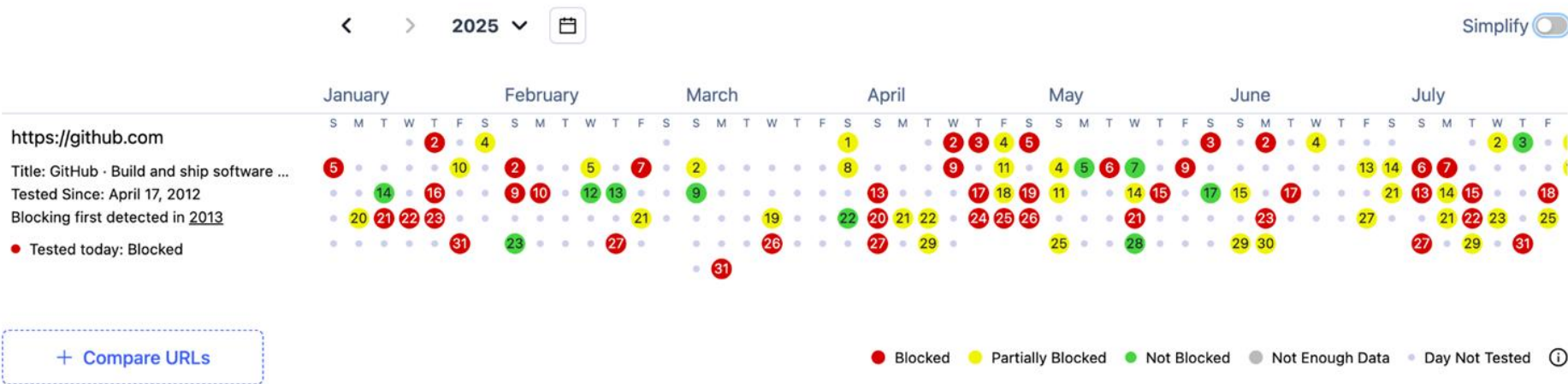
What is the Chinese “Great Firewall”?

- Great Firewall of China:
 - **Dynamic blocking mechanisms:** Utilizes advanced techniques like DNS poisoning, IP blocking, and deep packet inspection to monitor and restrict web traffic in real-time
 - **Challenging to predict** as request timing & success rate can change day-to-day and hour-to-hour.
 - **Highly variable** by geography, city, datacenter and even your hotel or apartment building

Great Firewall Unpredictability

- Even switching hotels will give you different results
- Web Page Test will not give you accurate results for your site in China

Even backend services get blocked



- Github gets fully/partially blocked in China a significant percentage of the time (<https://blocky.greatfire.org>)

You're Probably Flying Blind

- Your analytics are probably way off
 - GTM and AA need mods to work well in China
 - Most monitoring systems DON'T WORK in China (New Relic, Dynatrace, Datadog, etc)



Limitations of Global CDNs

- Global CDNs like Fastly, Cloudflare, Cloudfront, Azure Front Door, Akamai all don't have local points of presence in China
- The closest you can get is NEAR China.
- From a network perspective, Hong Kong is NOT CHINA

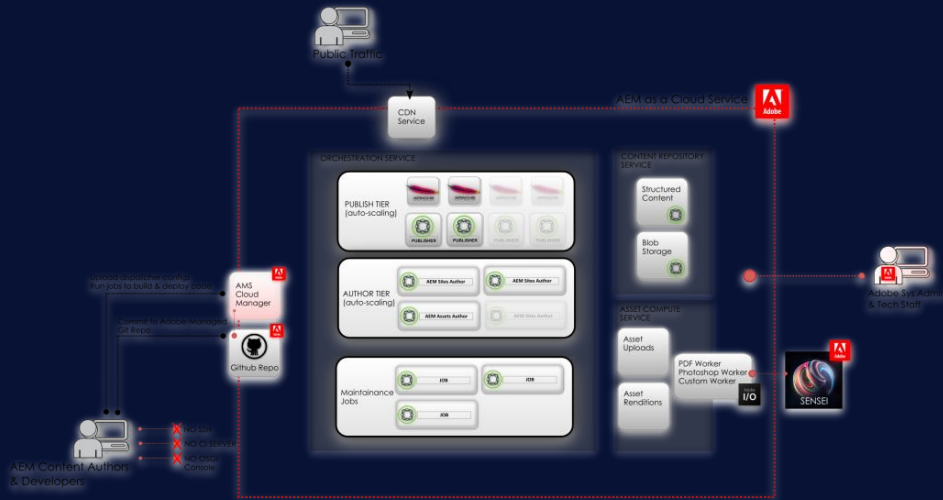
AEM-Specific Challenges in China

Adobe's AEM Offerings in China

- AEM as a Cloud Service is not offered in China
- AEM Managed Services has a China offering for AEM 6.5, but it's not connected to the rest of AMS – it's an entirely separate service, with separate CI/CD, codebase and infrastructure. With this product you're essentially deploying an entirely different website in China.

Why Can't Adobe Put AEMaaCS in China?

- AEMaaCS is built from a combination of Fastly, Azure and MongoDB cloud services, none of which are available in China



Edge Delivery Service in China

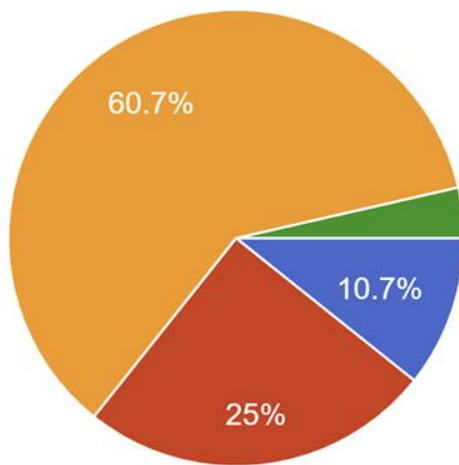
- Edge Delivery Services is based on Cloudflare and Fastly
- Neither Cloudflare nor Fastly have POPs in China
- Closest they can get is Tokyo/Hong Kong

What about my site?

- Given all of those firewall limitations, is EDS performance really that bad in China?
- We surveyed AEM architects & site owners about the current state of their sites China

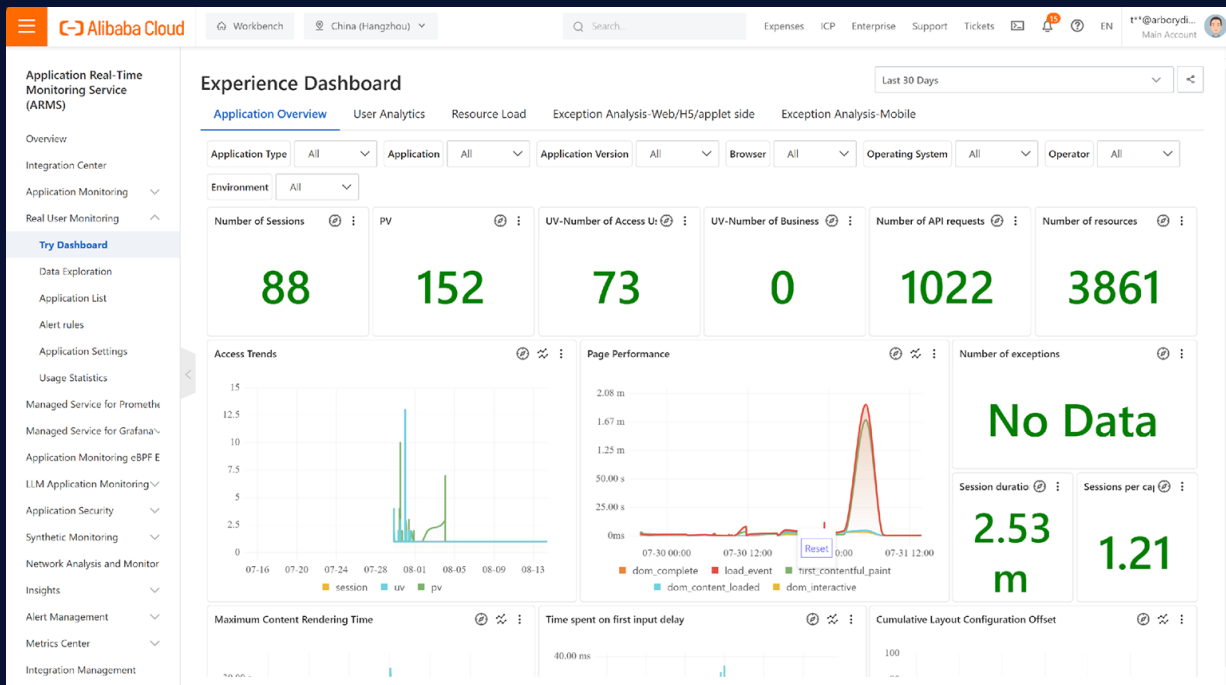
“We’d prefer not to know”

In your project, do you know how your site performs for users in China?



- yes, we track in-detail with Realtime User Monitoring (RUM)
- sort of, we've spot-checked it with tools like Web Page Test
- not really
- we'd prefer not to know

Locally-Hosting APM & Analytics



- Alicloud has a low-cost RUM solution called ARMS that allows for detailed real-use metrics captured from within China
- We deployed this on a few of our Edge Delivery sites to gather data

<https://www.alibabacloud.com/en/product/arms>

Current China EDS Performance



- From US/EU:
1.5 Seconds

- From China:
152 seconds

(and that's when it loads at all)

What are your options?

What are your options?

- Provisioning in-China infrastructure (the AEM 6.5 way)
- Use a static site generator to deploy a static replica in China
- Remove features not supported in China
- Configure an in-China CDN
- Integrate a solution to proactively push your AEM data into China

What about just using a China CDN?

- How do you pre-warm the cache for a whole site?
- Any update to the site invalidates the whole cache
- Navigation? Search? Dynamic features? They all don't work
- It might as well be an SSG

Guiding Principles for any solution

- ANY data traversal over the Great Firewall will be unreliable, no matter what you do
- In-China Clients should NEVER have to access data from outside the Great Firewall

Our Solution: DX Mesh

- We turn the cache model upside down
- Dynamic & flexible solution to push content & code to a lightweight system hosted inside China
- Super-flexible for EDS, AEMaaCS, AEM 6.5, Magento and other services

Solution for EDS & AEM in China

- Our solution involves:
 - Edge Delivery Services (also supports AEM)
 - Clusters located outside China in various locations
 - Clusters located INSIDE China for customer access

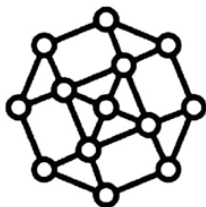
Our Solution

Clusters mesh



Cluster types

Control Plane



PILOT

- *single cluster*
- *control plane for project definition and deployment*

Data Plane



PROCESSING

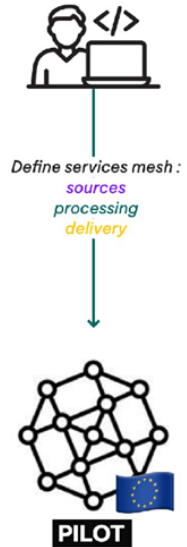
- *single cluster*
- *receives data from Edge Delivery Services /AEM/Magento*
- *processes content for delivery*



EDGE

- *multi-cluster & globally distributed*
- *serve processed content to users*

Defining services mesh

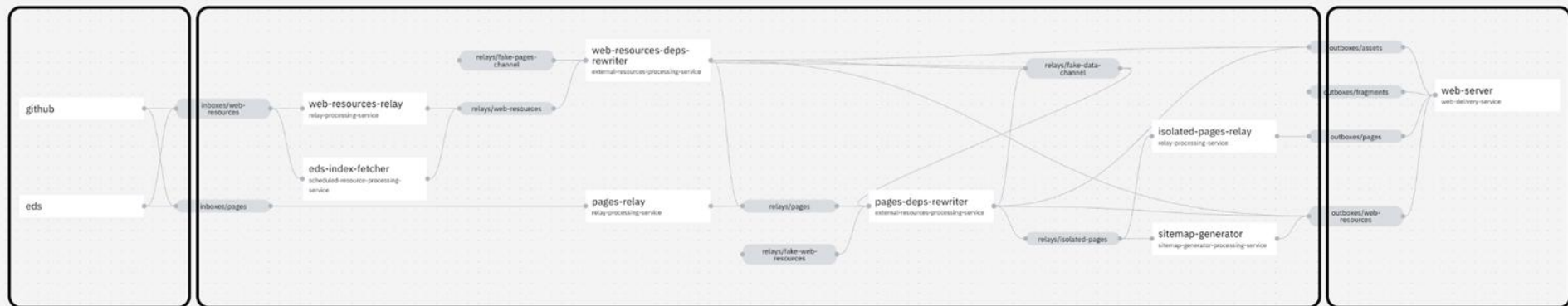


Services mesh

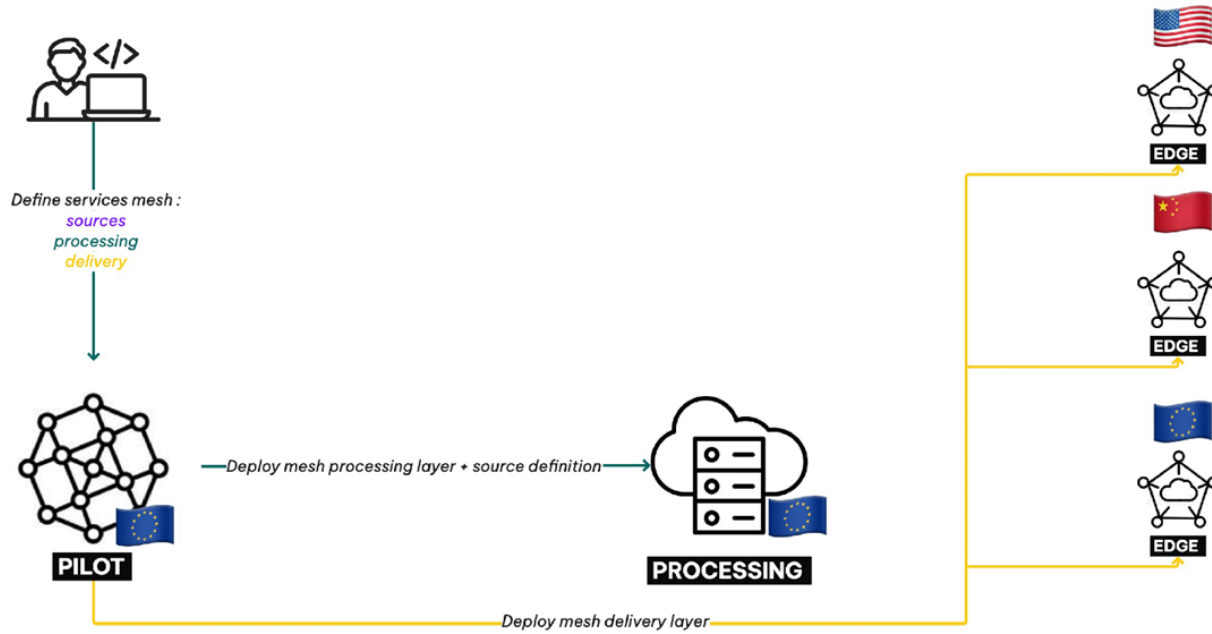
Sources

Processing

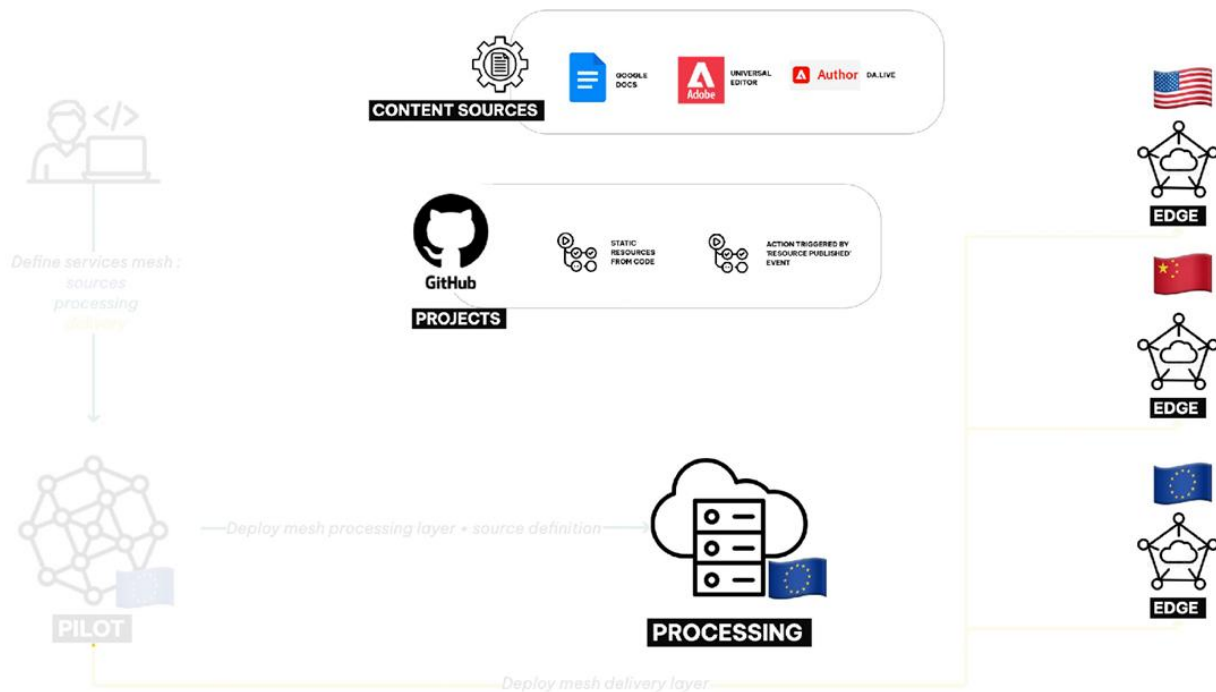
Delivery



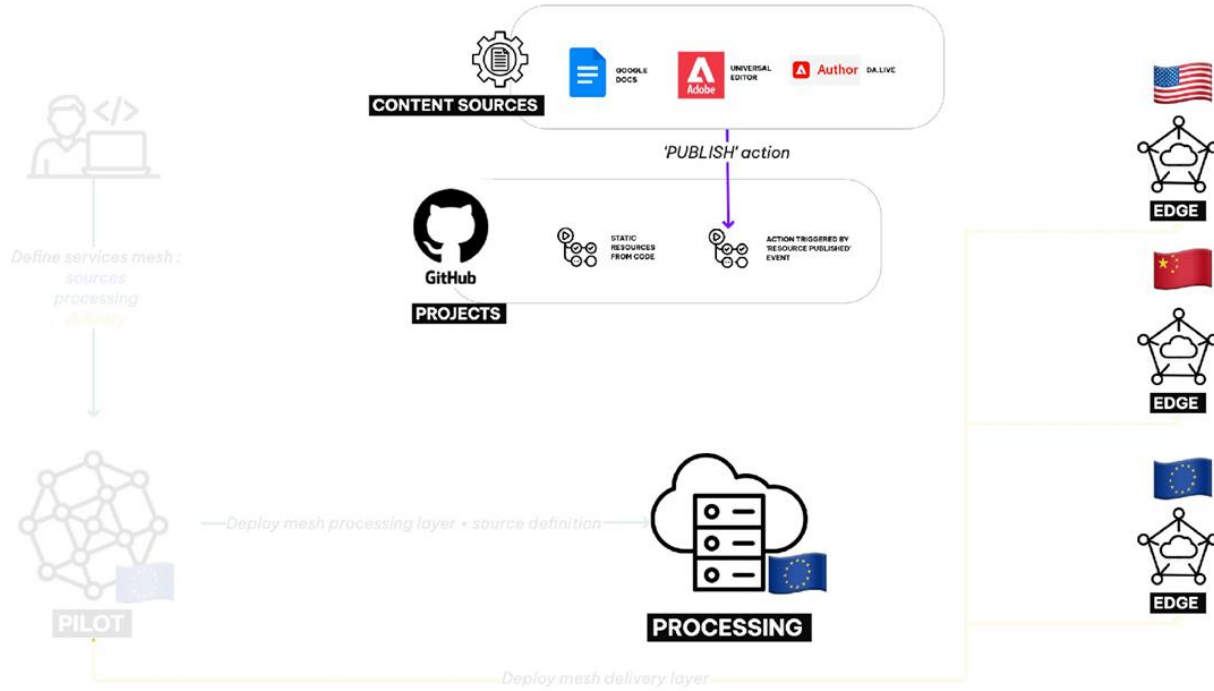
Deploying mesh layers



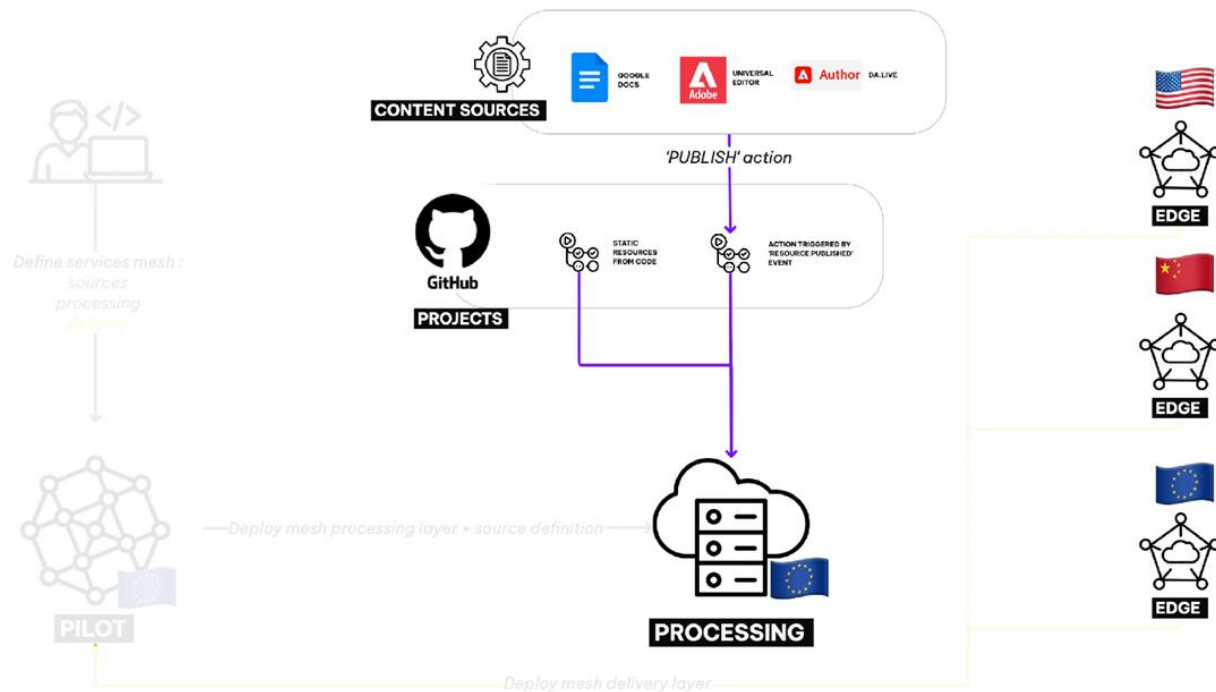
Content sources



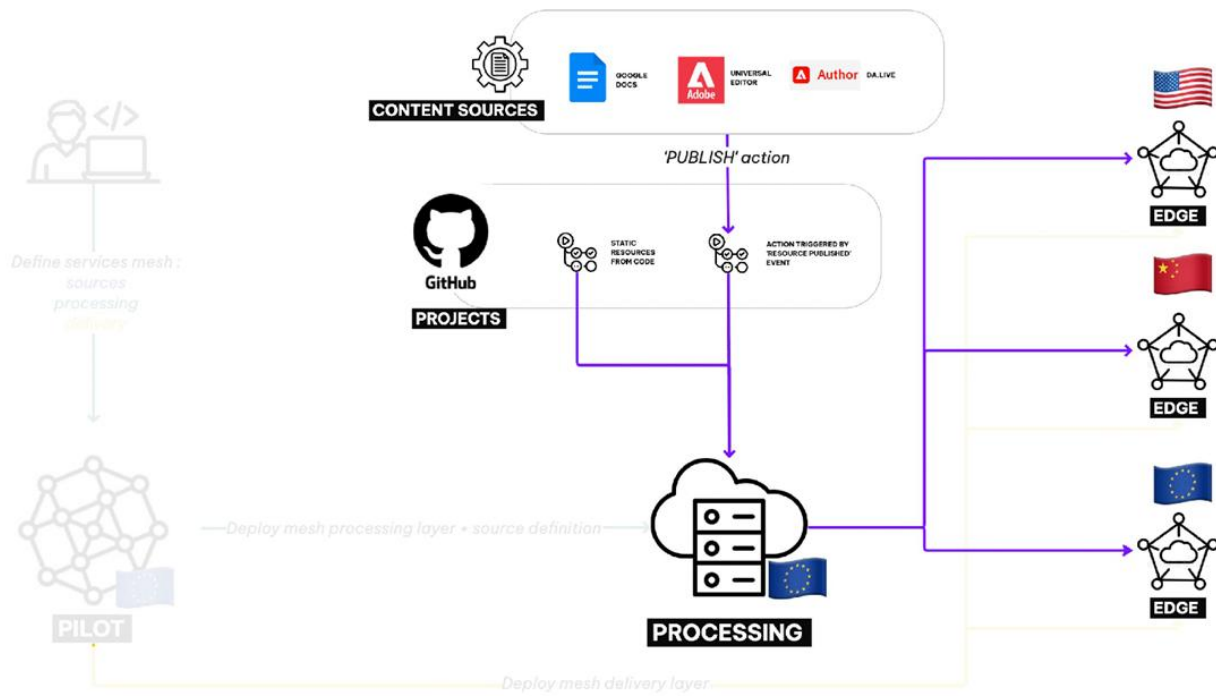
Content publish action



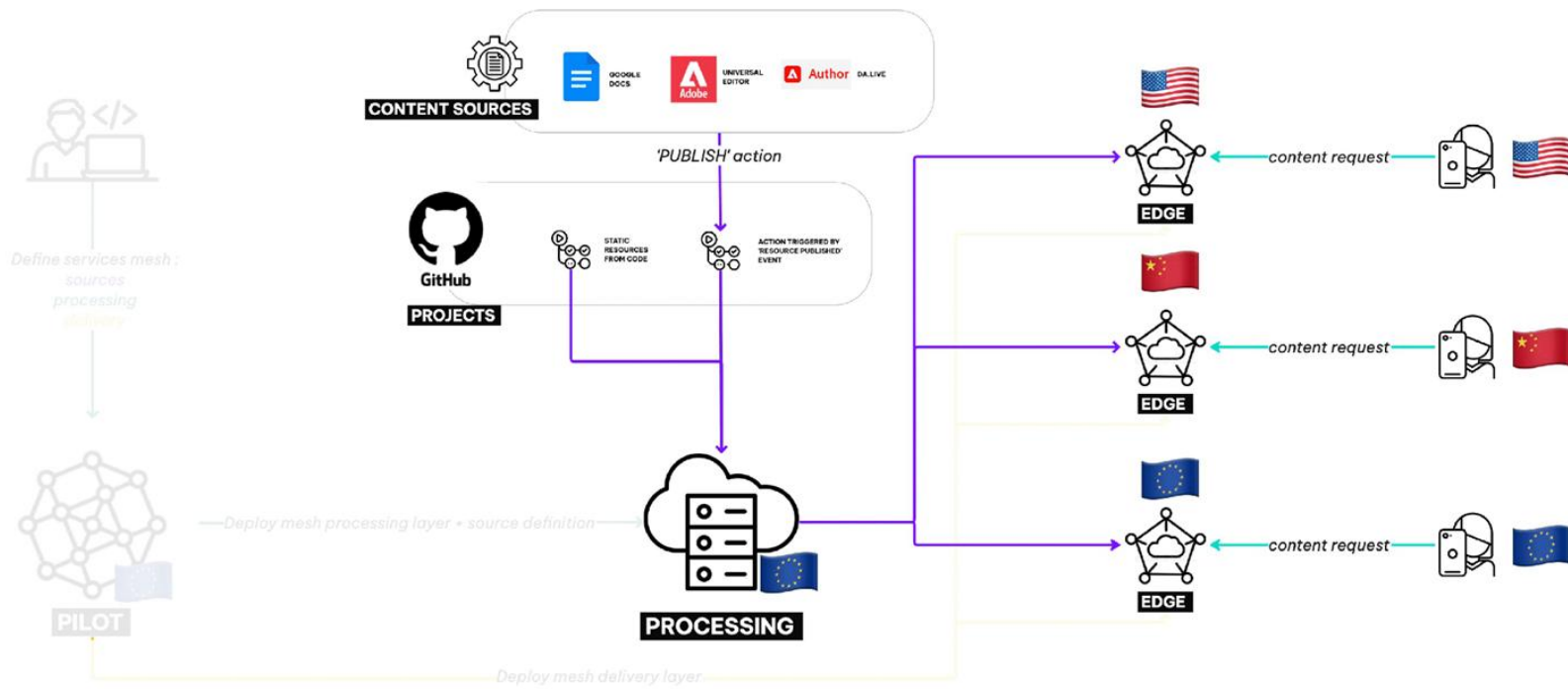
GitHub connector



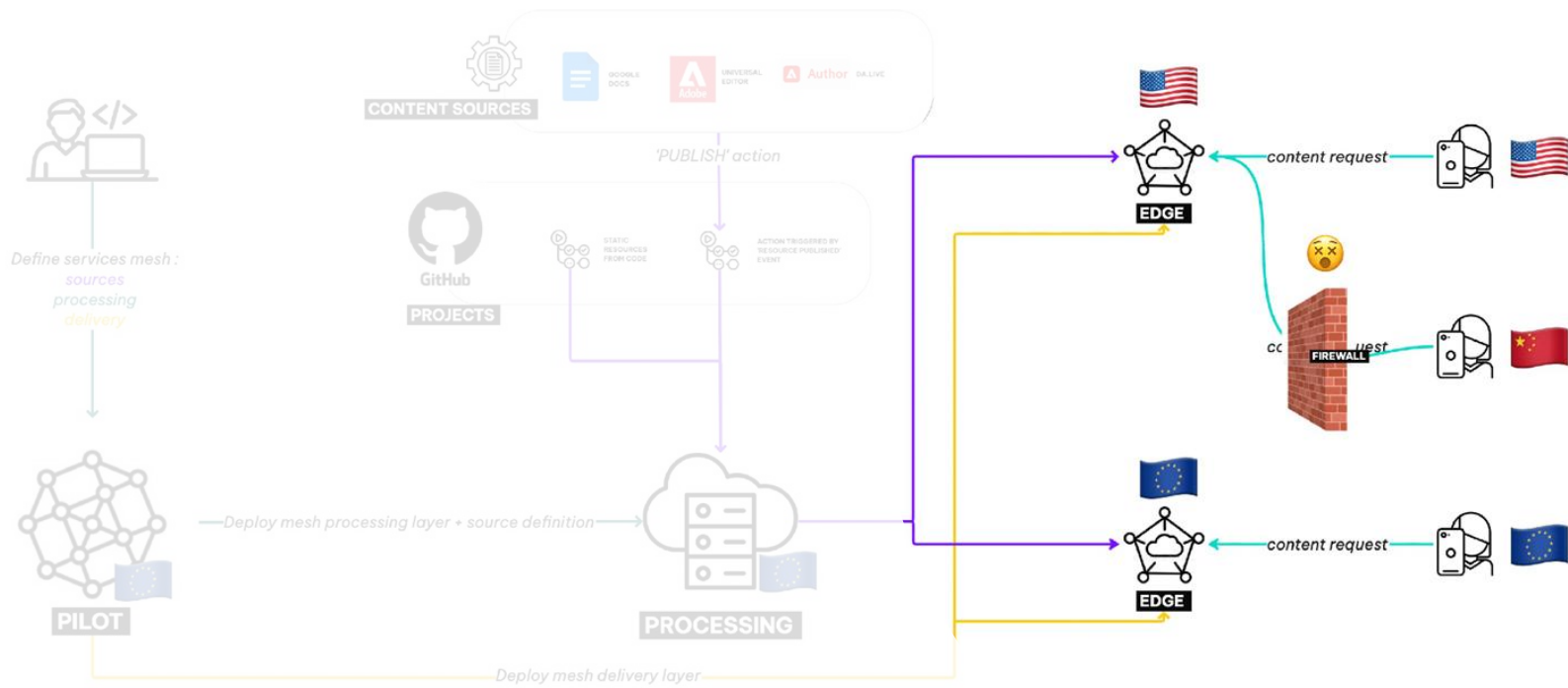
Data flow



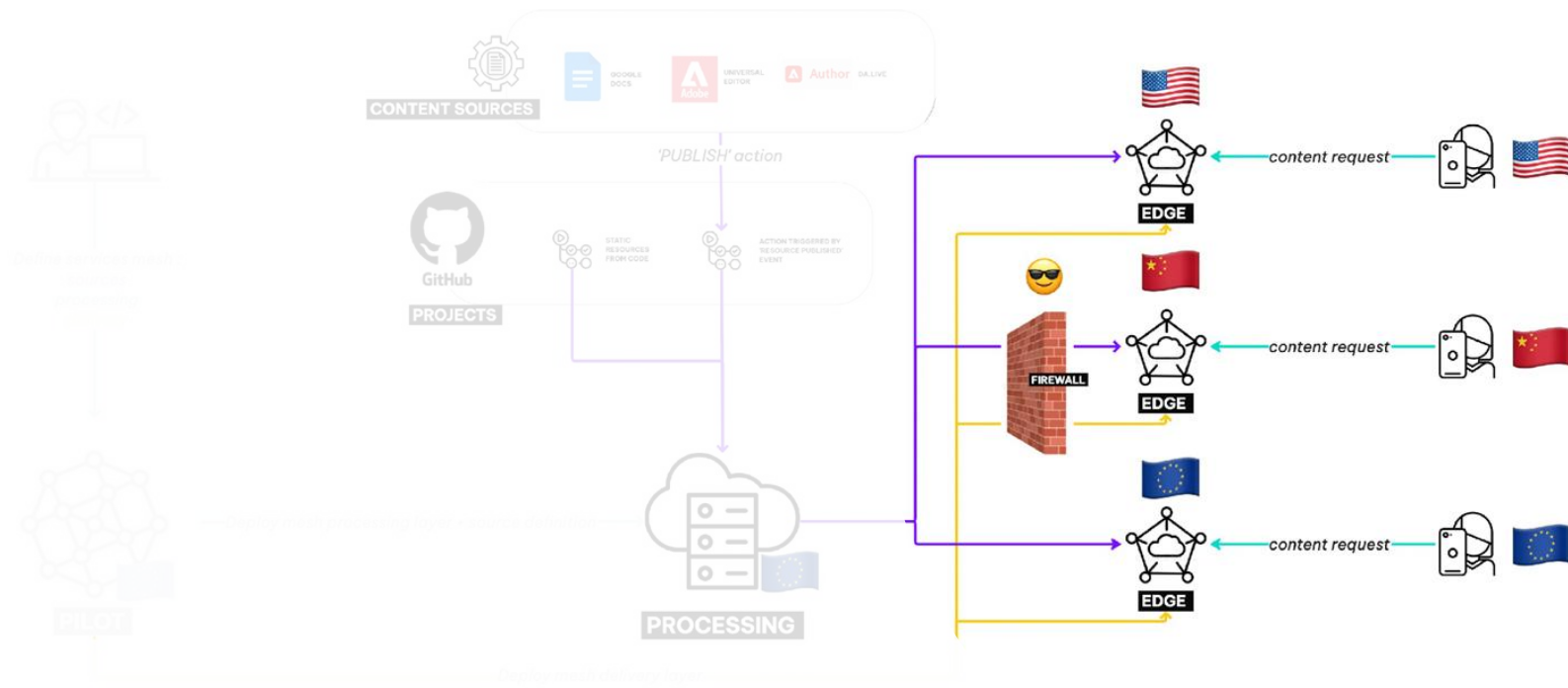
Data delivery



No China Edge



Where is the Firewall now?



Content update

Solution Summary

- We have connectors already operational for EDS, AEM 6.5, AEM Cloud Service, Adobe Commerce (Magento) and more.
- We'd love to discuss more in the Meet the Experts session.

Summary

- There are trade-offs in every architecture
- China web performance is important
- China web performance CAN be solved



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Thank you!