

WEB DAY 2023

MILANO 16 MARZO



Mini CDN economica e
scalabile con Azure Storage
Account

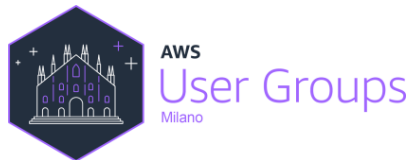
Massimo Bonanni

Technical Trainer@ Microsoft

/* Sponsor */



/* Partner */



A day like many others,
in a company like many others...

Jane
Project manager



John
Solution Architect



The requirements

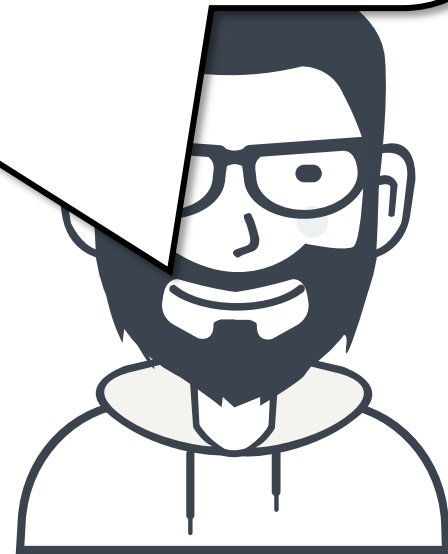
- We produce an average of 100 Mb of new contents every hour in two different locations
- Contents are frequently accessed in the first 10 days, very rarely after a month, and can be deleted after 1 year
- The contents cannot be deleted for 10 days after publication
- The maximum downtime in a single month must be under 5 minutes
- The costs must be kept to a minimum
- We need daily statistics on the number of contents available, and on the space occupied



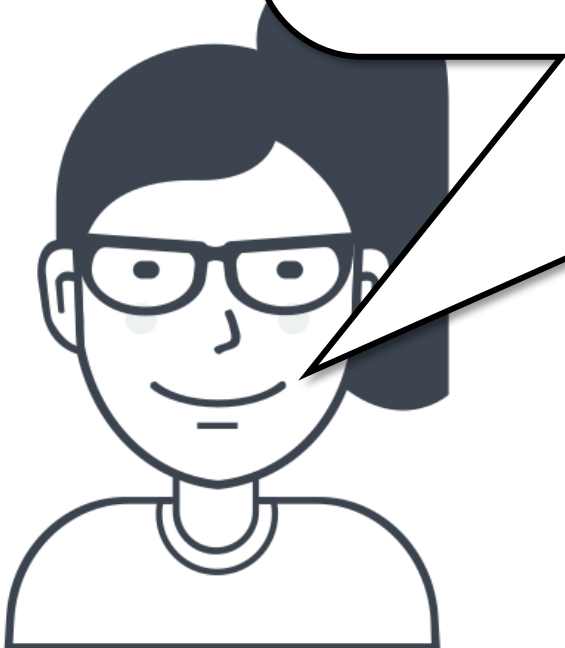
The solution

Storage Account
is the way!!

?????

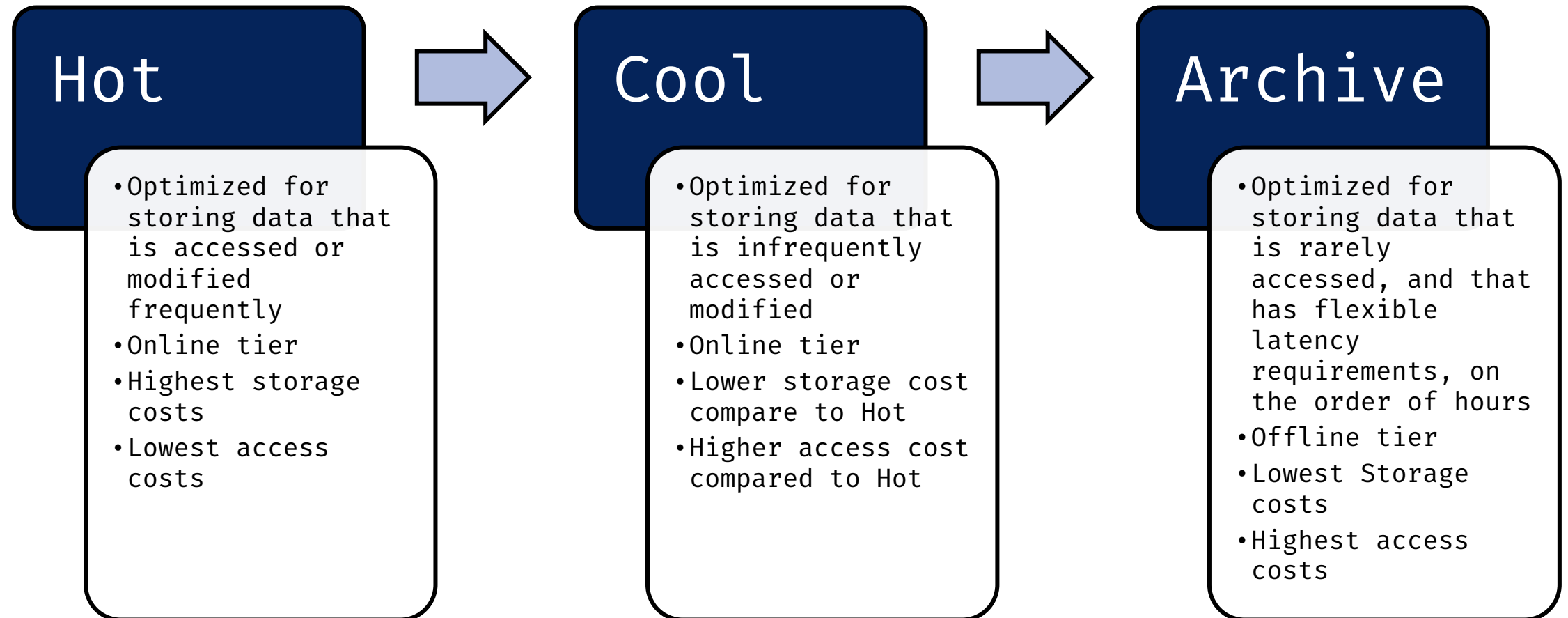


How do we minimize costs?



Access Tiers

Azure storage offers different access tiers so that you can store your blob data in the most cost-effective manner based on how it's being used.



Access Tiers

Azure storage
blob data
used.

Hot

- Optimal for data that is accessed or modified frequently
- Online tier
- Highest storage costs
- Lowest access costs

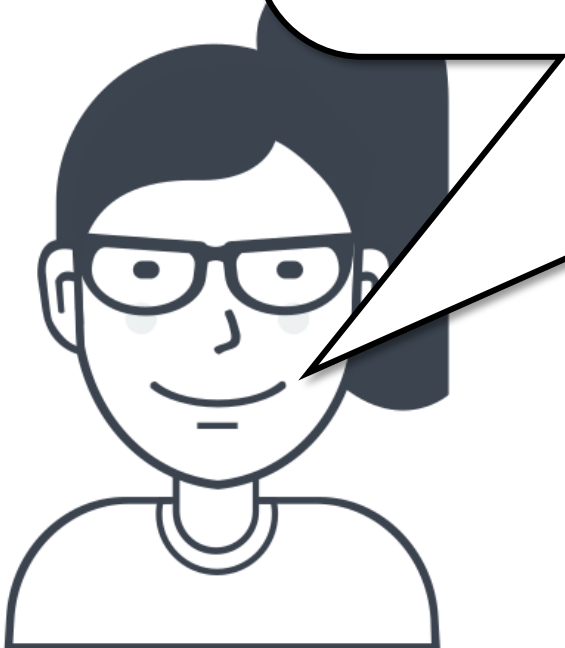
Contents will be stored in the **Hot** tier for the first **10 days**, then will be "moved" to the **Cool** tier for the next **20 days**, and then will be "moved" to the **Archive** tier.

- Is infrequently accessed or modified
- Online tier
- Lower storage cost compared to Hot
- Higher access cost compared to Hot



that
rarely
used, and that
flexible
elements, on
of hours
tier
Storage
access

But... who “moves” the contents?



Blob Lifecycle Management

Azure Storage lifecycle management is a **rule-based policy** that allows you to “move” blob data to the appropriate access tiers or to expire data at the end of the data lifecycle.

A lifecycle management policy is comprised of one or more rules that define a set of actions to take based on a condition being met.



Blob Lifecycle Management

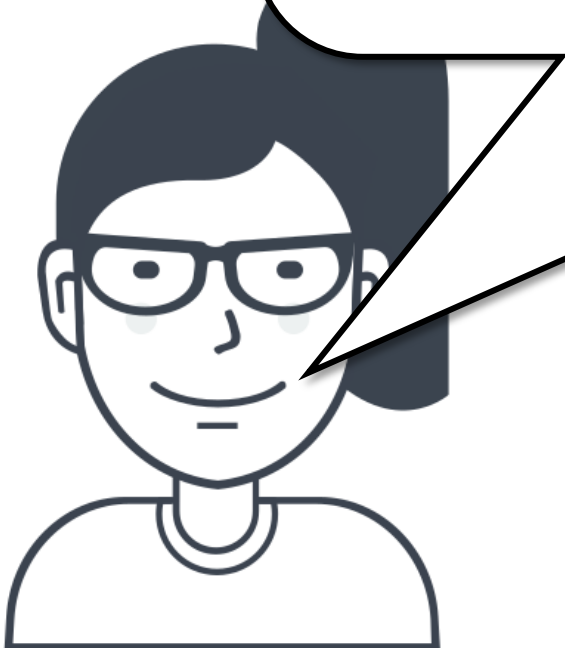
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Let's create a rule that moves contents to the **Cool** tier **10 days** after their creation and moves them to the **Archive** tier after **30 days**...and deletes them after 1 year.

A lifecycle management policy is comprised of one or more rules that define a set of actions to take based on a condition being met.

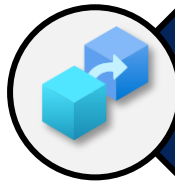


But...we have **multiple storages in multiple regions** and all our users must see the same contents in all the regions.

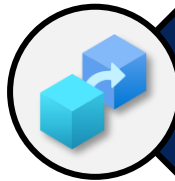


Object Replication

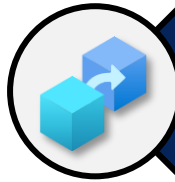
Object replication asynchronously copies block blobs between a source storage account and a destination account.



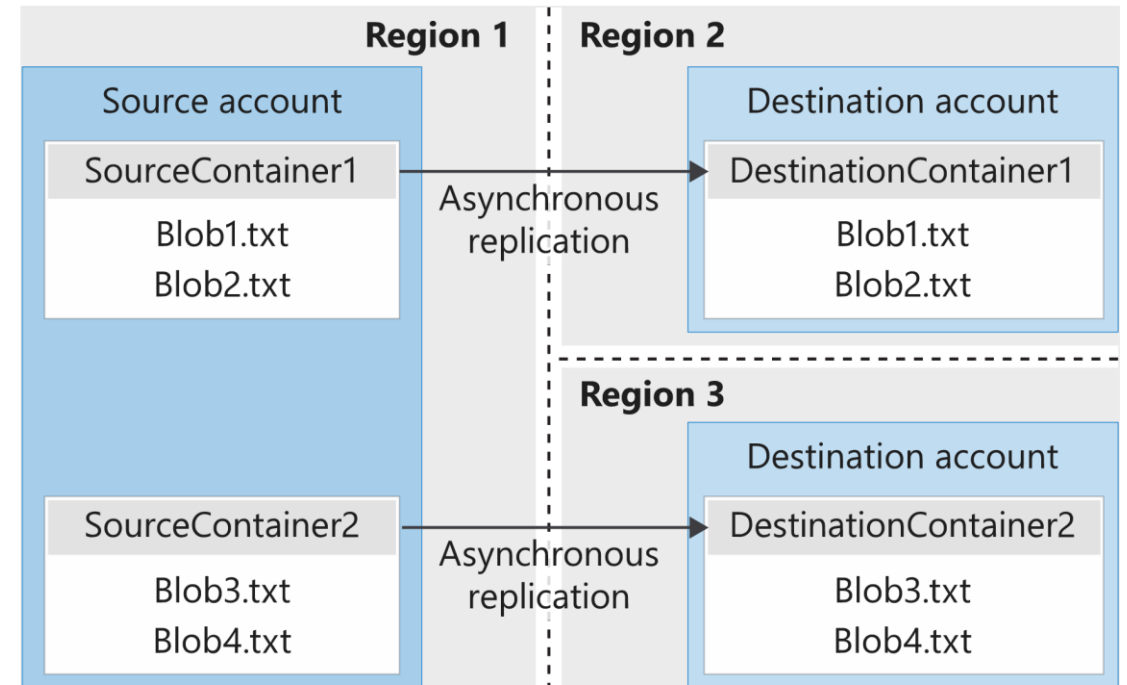
Minimizing latency



Optimizing data distribution



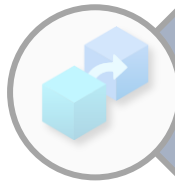
Optimizing costs



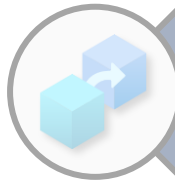
Object Replication

Object replication is an asynchronous process where blobs are replicated from one storage account to another.

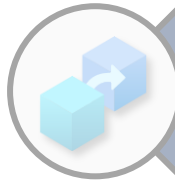
Contents produced in one region will be **replicated to the other regions**, so the web apps in each region will read all contents **locally**.



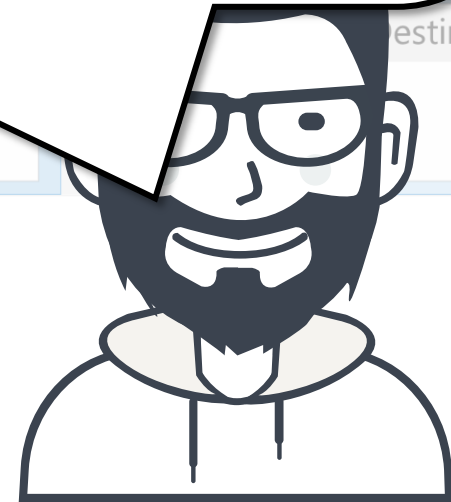
Minimizing latency



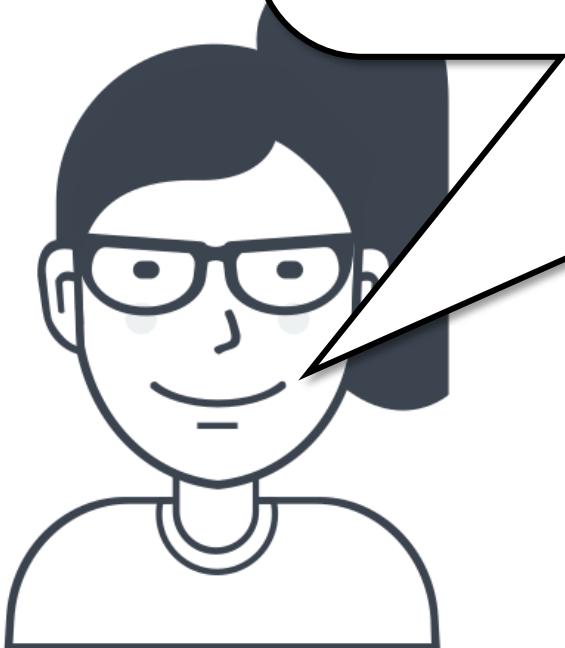
Optimizing data distribution



Optimizing costs



Cool...but...we need also to
create a software that
analyze, **every day**, the
contents in each storage
to save **statistics**



Storage Inventory

Blob inventory feature provides an overview of your containers, blobs, snapshots, and blob versions within a storage account managed by Azure.



Inventory reports for blobs and containers



Custom Schema



CSV and Apache Parquet output format



Manifest file and Azure Event Grid event per inventory report

Storage Inventory

Blob i
contai
within

Using inventory, **every day**, we will have a **CSV file** with all the info we need to create our statistics.

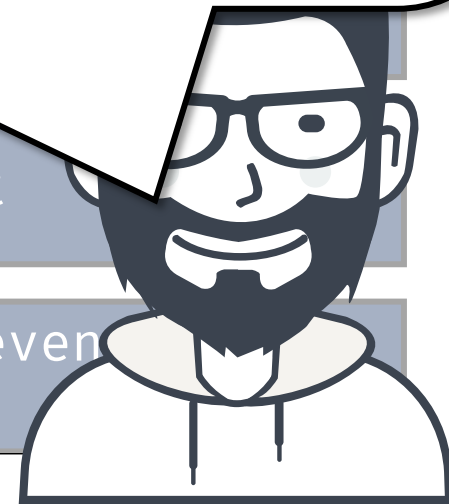
your

We will use **Event Grid and Azure Functions** to extract data from Inventory file when it will be generated by Azure.

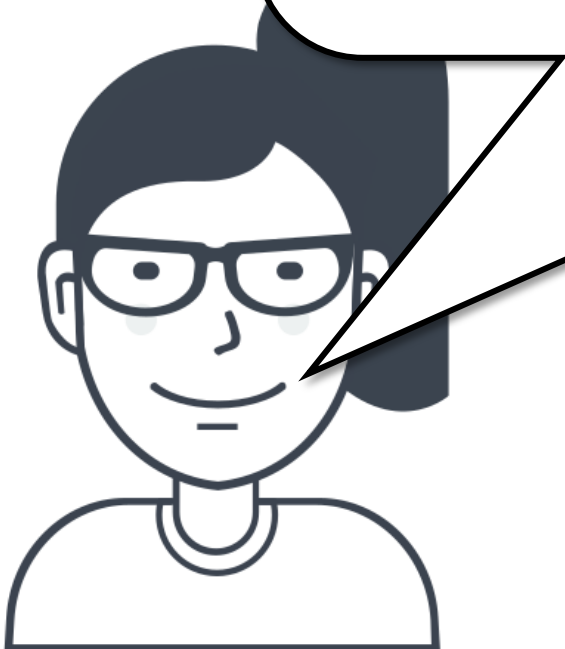


CSV and Apache Parquet output format

Manifest file and Azure Event Grid even
inventory report



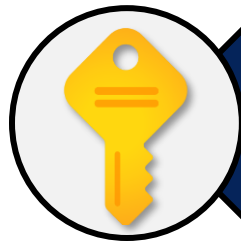
...and what about **avoid**
contents **deletion** in the
first **10 days** after their
creation?



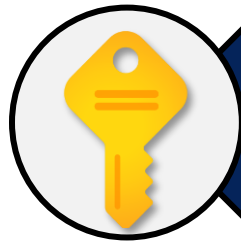
Immutable Storage

Immutable storage for Azure Blob Storage enables users to store business-critical data in a **WORM (Write Once, Read Many)** state.

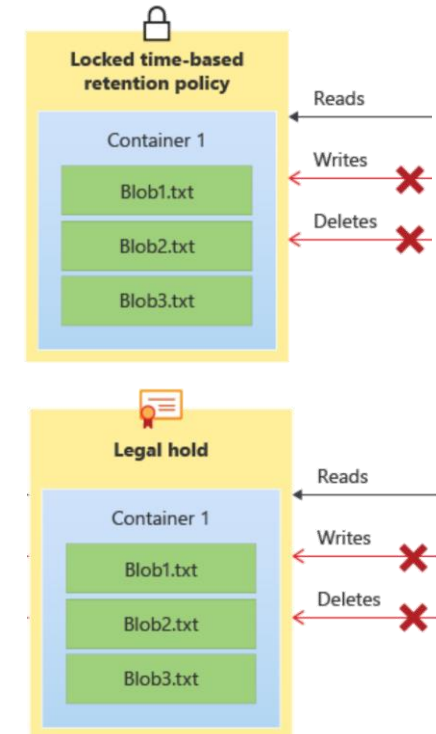
While in a WORM state, data cannot be modified or deleted for a user-specified interval.



Time-based retention policies

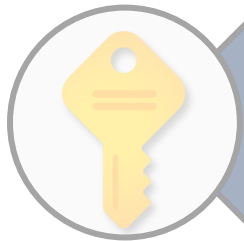


Legal hold policies

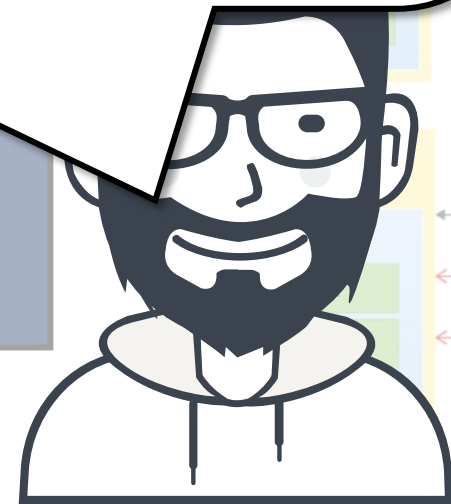


Immutable Storage

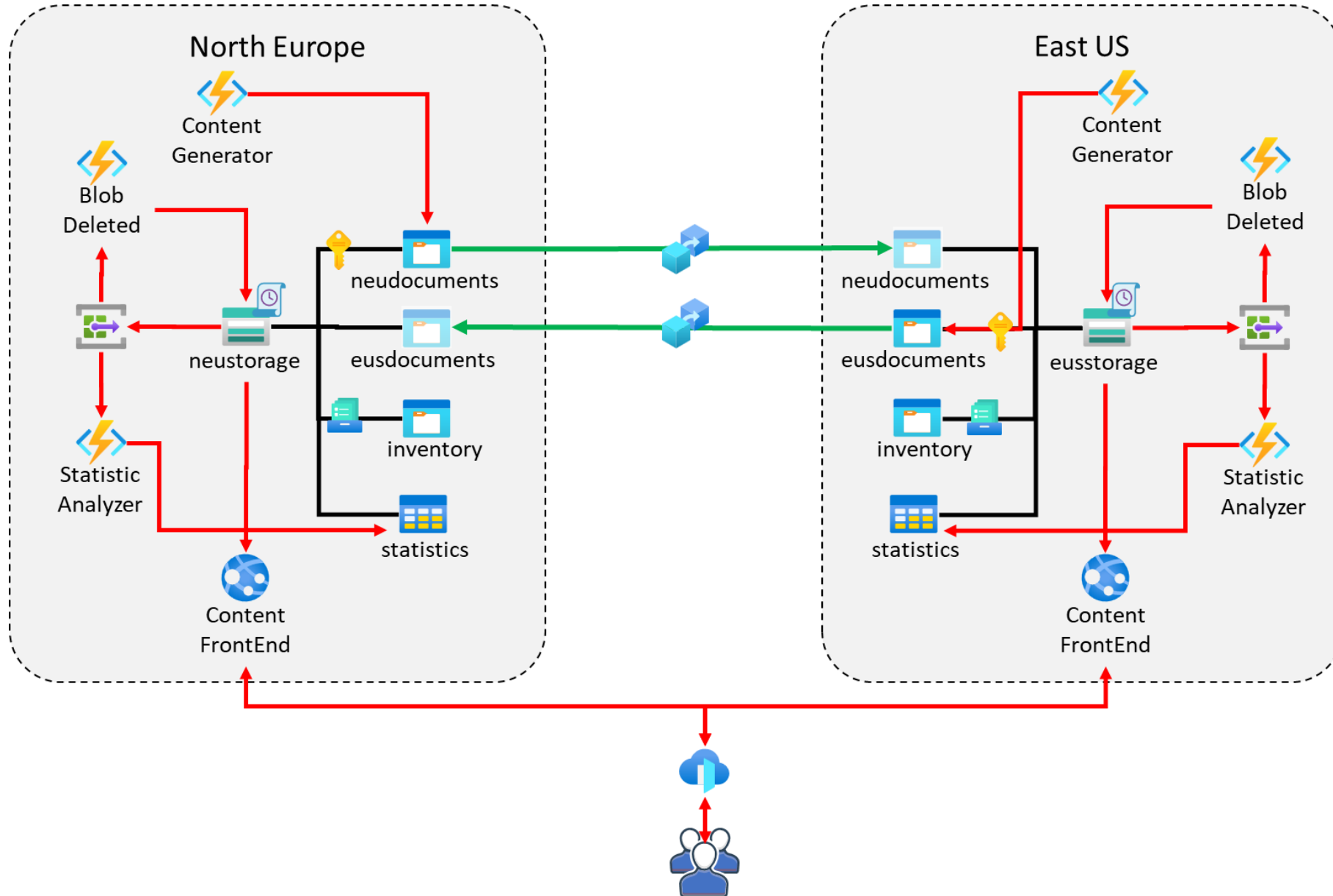
We will set a **time-based policy** to avoid deletion in the first **10 days** after content creation.



Legal hold policies



The solution



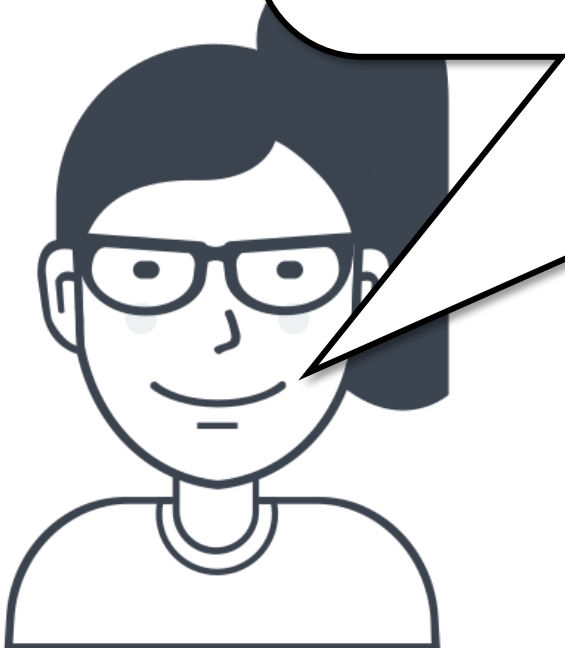
DEMO

Storage Content Platform

[GitHub repo](#)



...are you sure we can
provide at most **5**
minutes of downtime
every month?

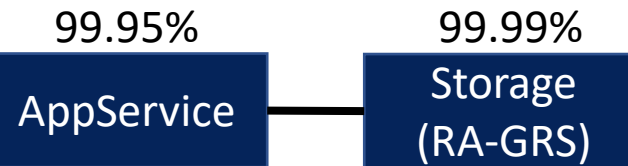


SLA of the solution

5 minutes of downtime every month

SLA 99.9885 %

SLA of single region



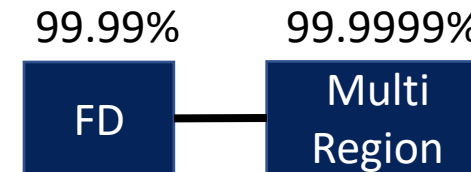
$$SLA_{sr} = 99.95\% * 99.99\% = 99.94\%$$

SLA of 2 regions



$$SLA_{mr} = 100\% - (0.06\% * 0.06\%) \cong 99.9999\%$$

SLA of full solution

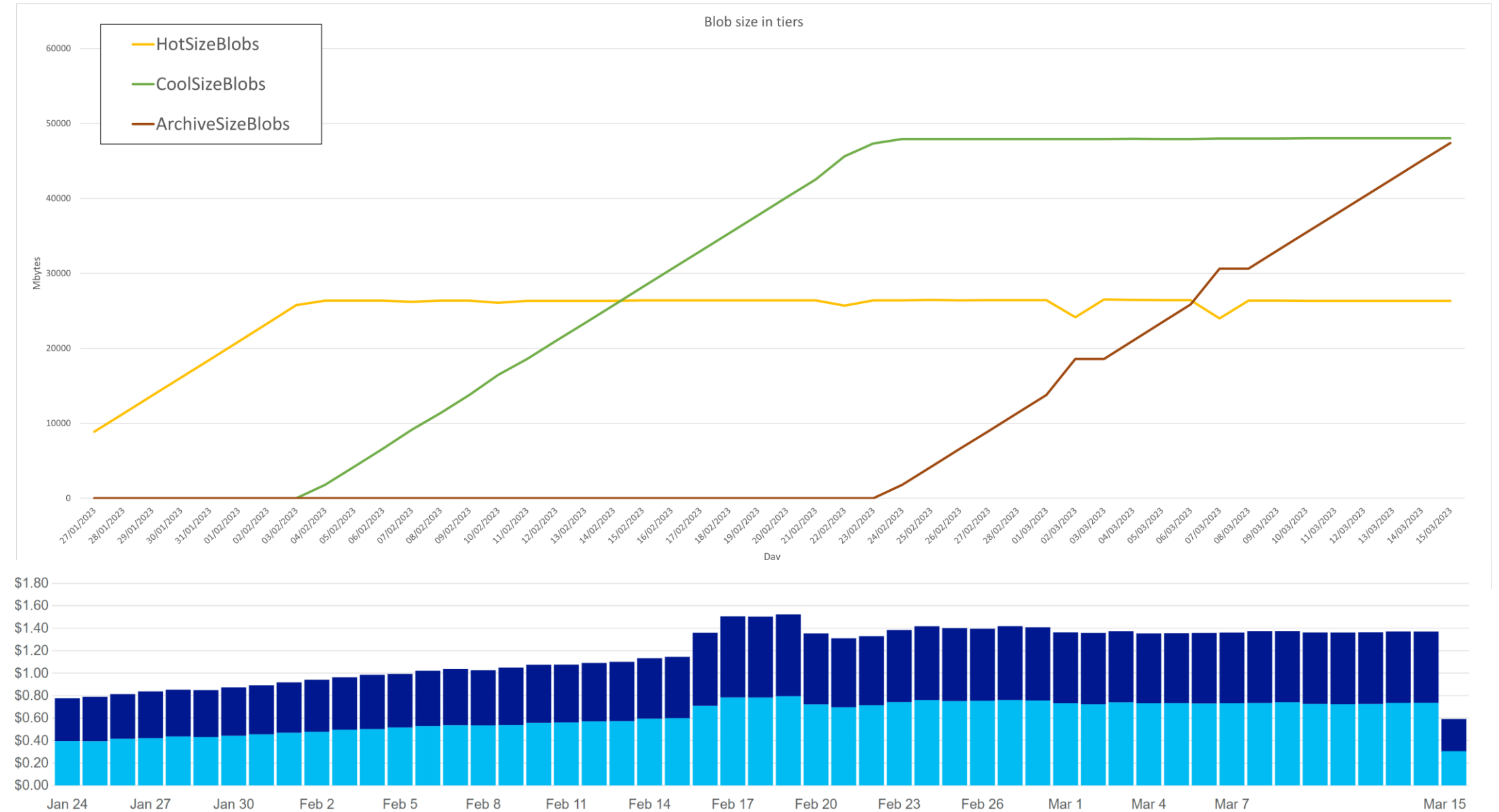


$$SLA_{tot} = 99.99\% * SLA_{mr} \cong \mathbf{99.9899\%}$$

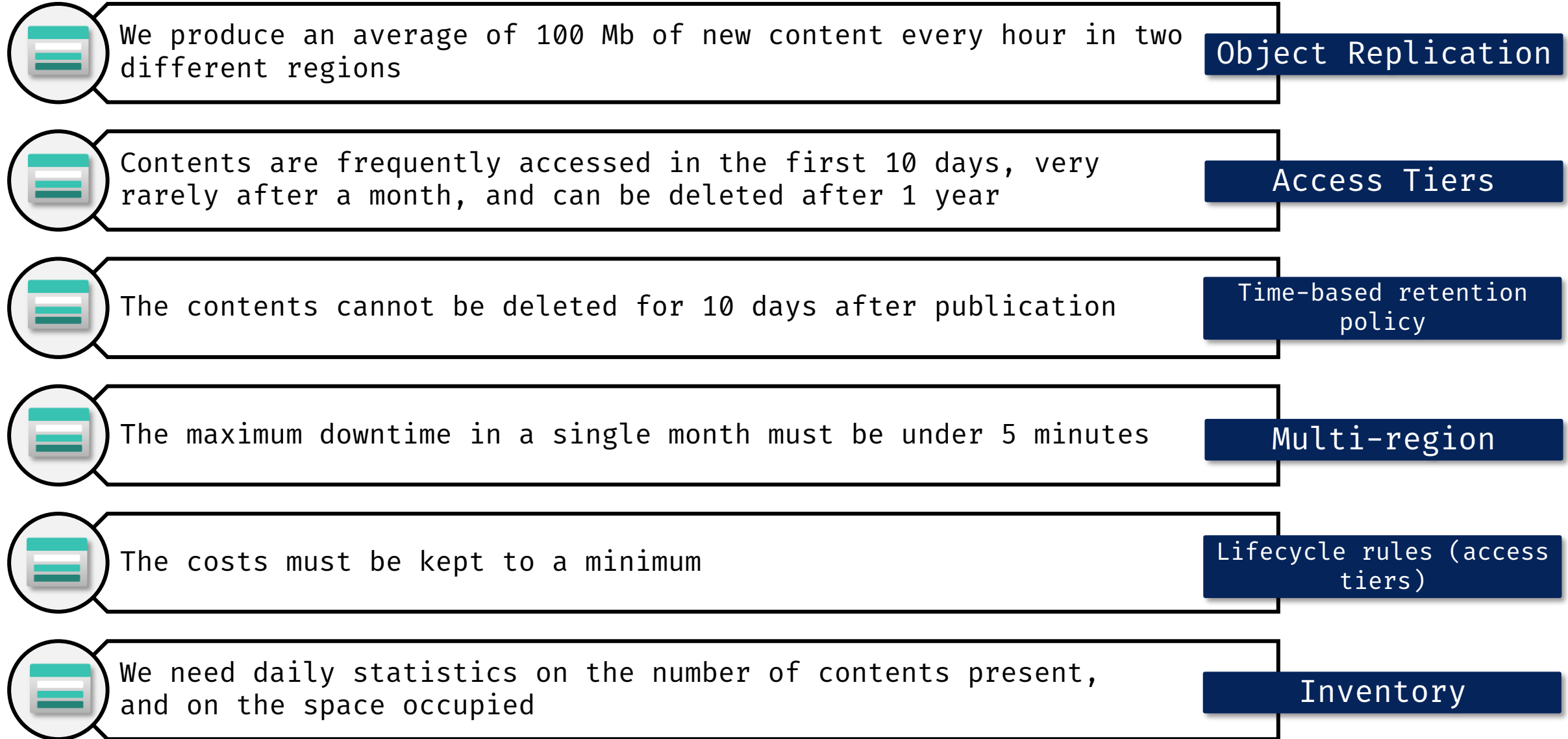
...and how will cost it?



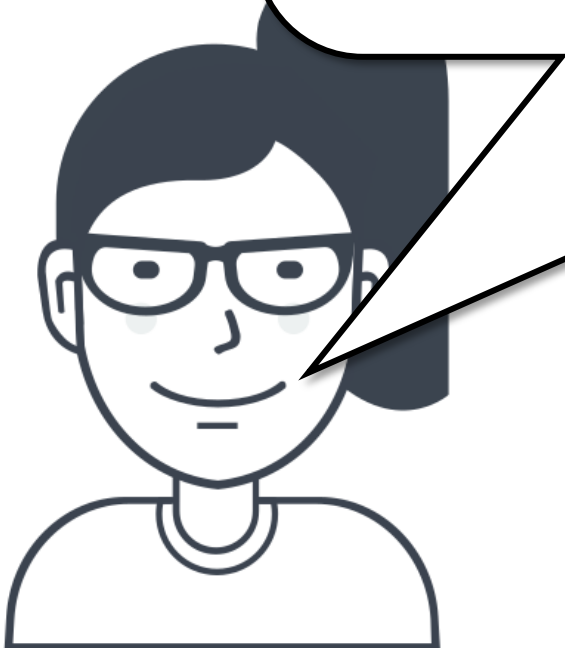
Costs



Feature-to-Requirement mapping



Storage Account
is the way!!



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GRAZIE



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