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Data in the Cloud Open Discussion

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Agenda Item 4.5

WGISS-60

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Oberpfaffenhofen, Germany



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Cloud Infrastructure, Services and Ground Segment Operations

Share informations and define potential joint objectives

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→ THE EUROPEAN SPACE AGENCY

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Objectives:

- Exchange information on Cloud solutions, processes, infrastructure, services and technologies
- Sharing of know-how, main challenges, issues and lessons learned
- Explore interoperability procedures, defining objectives
- Monitor and assess new solutions, technologies and future trends

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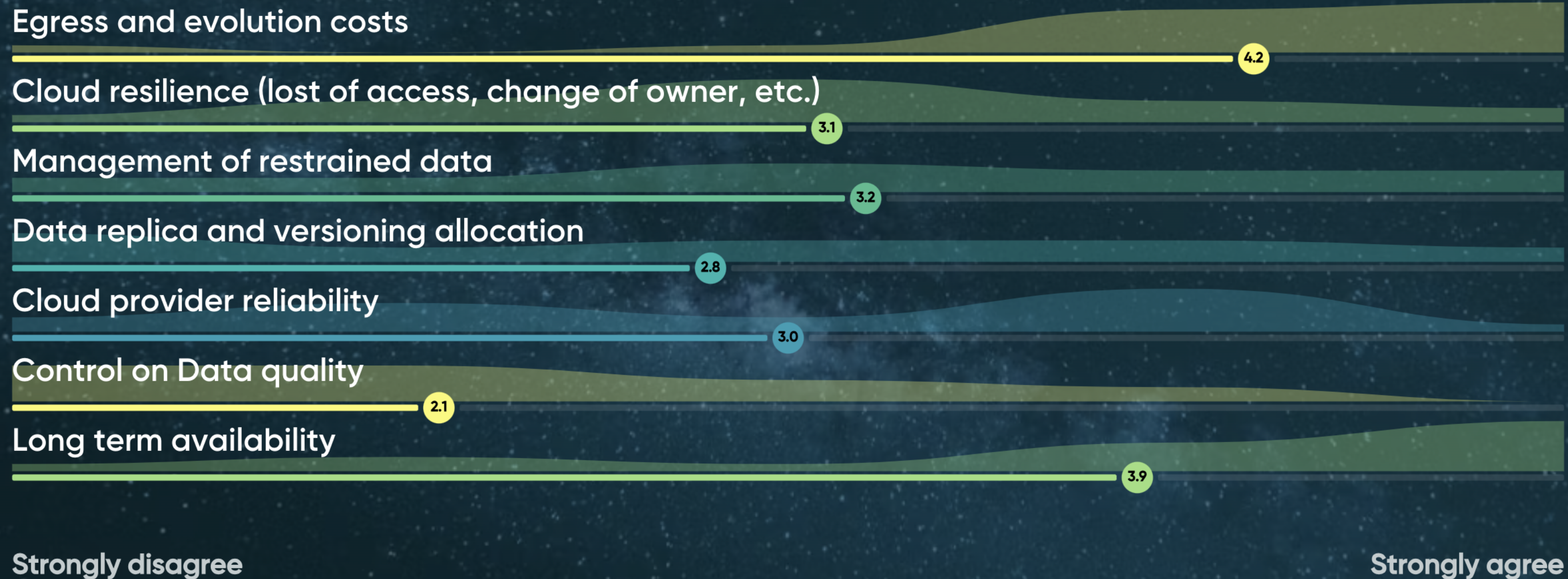


Data in Cloud

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Which risks do you see to archive data in Cloud?



Follow-up: Which risks do you see to archive data in Cloud?

I think that the cloud providers are very reliable, and they will exist for a long time. But human error, or configuration mistakes, are a very serious risk. One person could make a mistake easily.

Vendor locking Limited regional access

vendor lock-in access performance (and costs for scale-up) costs and time for migration if needed

carbon footprint of cloud-based data centres

long term existence of cloud provider

Concentration on few providers, clumping risk if something goes very wrong

Risk if the Data Replica management process is not controlled

Complex data retention policy, eventually associated to costs

Cost in migrating data somewhere else.

Long term availability of the cloud provider. And the subsequent need to migrate the data to another cloud

Ownership, foreign access, modification by third-party, laws forcing deletion...

Follow-up: Which risks do you see to archive data in Cloud?

configuration mistakes, are a very serious risk. One person could make a mistake easily.

carbon footprint of cloud-based data centres

long term existence of cloud provider

Concentration on few providers, clumping risk if something goes very wrong

Risk if the Data Replica management process is not controlled

Complex data retention policy, eventually associated to costs

Cost in migrating data somewhere else.

Long term availability of the cloud provider. And the subsequent need to migrate the data to another cloud if CSP closes. The time to migrate a large archive to a cloud in the first place.

Ownership, foreign access, modification by third-party, laws forcing deletion...

Loosing Long-Term Stewardship

Follow-up: Which risks do you see to archive data in Cloud?

✦ 7 groups found



vendor lock-in

4 responses

"vendor lock-in access performance (and cos..."



provider longevity

3 responses

"long term existence of cloud provider", "Loos..."



human error

1 response

"I think that the cloud providers are very relia..."



environmental impact

1 response

"carbon footprint of cloud-based data centre..."



Follow-up: Which risks do you see to archive data in Cloud?

✦ 7 groups found



migration costs

1 response

"Cost in migrating data somewhere else."



data access

1 response

"Risk if the Data Replica management proces..."



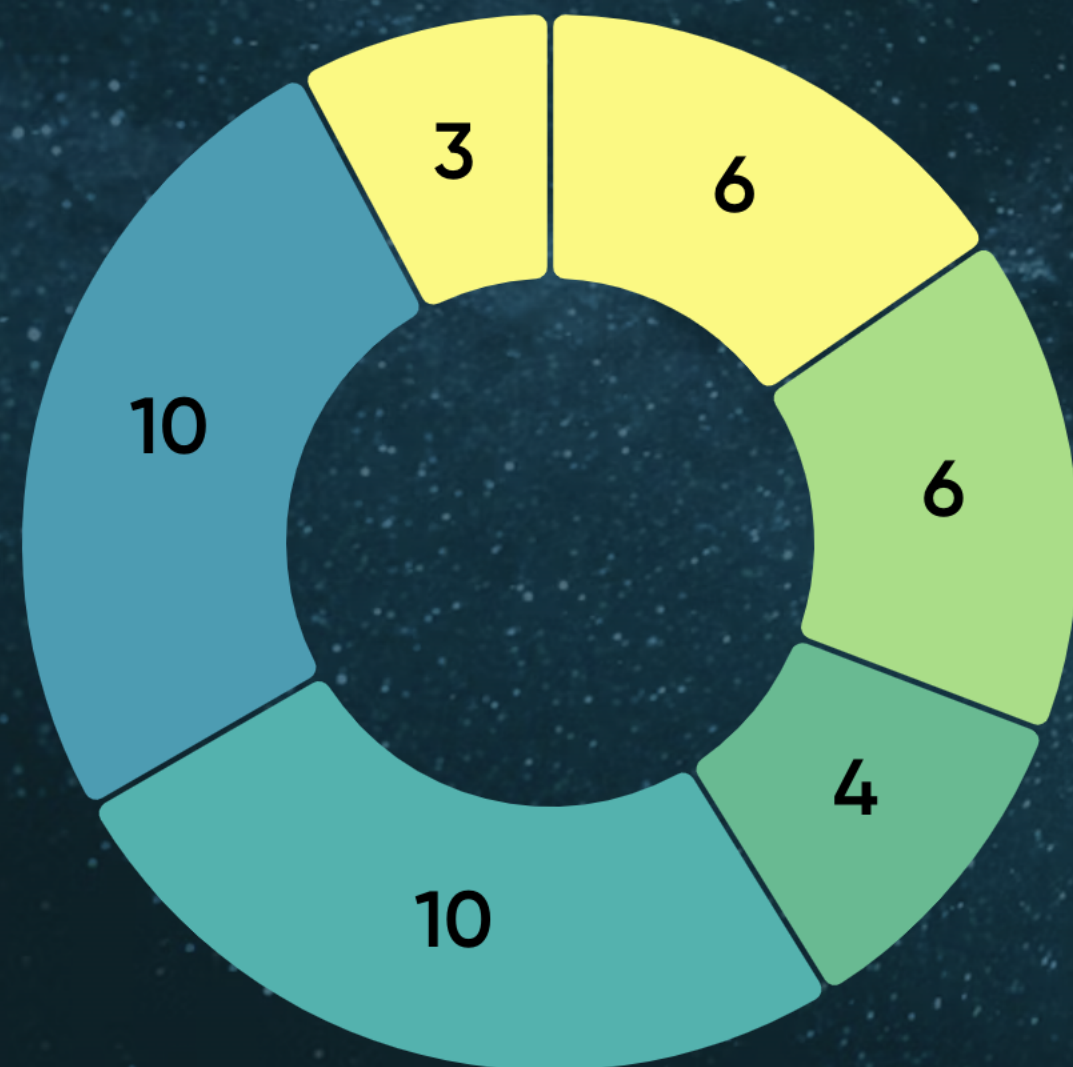
data ownership

1 response

"Ownership, foreign access, modification by t..."



How to mitigate the listed risks



- 6 Long term legal agreements to ensure access
- 6 Hybrid Cloud
- 4 Policy definitions
- 10 Federation - multi source architecture
- 10 Keeping backup copies in data centers
- 3 Requirements and BP definitions

Follow-up: How to mitigate the listed risks

Staff training, professional development and hiring experts.

Don't put all your eggs in one basket!

Cross-supplier agreements

Adapting policies to the cloud rather than trying to adapt the cloud to existing policies

Don't go into lockdown and stop paying your cloud bills

Multi vendor cloud

robust relationships between data provider and cloud provider

I think "egress free" cloud storage service can be resolve vendor lock-in.

Establish replication policies

Implement provenance annotation

Already interesting legal requirements are coming up on satellite data. such as the EU Space

We'll use cloud archiving storage to save the cost. Also, master data will be stored in the local storage.

Follow-up: How to mitigate the listed risks

robust relationships between data provider and cloud provider

Implement provenance annotation

Note: local storage also needs maintenance and regular migration to new storage media. Yet a self-hosting provider (private cloud) can be more cost effective when a large scale has been reached.

I think "egress free" cloud storage service can be resolve vendor lock-in.

Already interesting legal requirements are coming up on satellite data, such as the EU Space Act. The extent to which this will cover cloud risks is unknown but would be interesting to find out

Establish replication policies

We'll use cloud archiving storage to save the cost. Also, master data will be stored in the local storage.

Lessons learned & strategy to be shared within your agency

Wider communication with cloud vendors before procurement is really important.

Training of in-house man-power
Policy what should go to cloud and what not

Find solutions for long-term-archive vs. online, which represent two different access patterns and requirements.

Allow more time for the migration than you might have originally planned. And make sure that you fully understand the pricing structure.

Separation of production, staging and perhaps data archive environments is important. (Alex, DE Africa)

Life Mission data and heritage mission data require different solutions, as funding as well as data usage patterns are different.

Detailed analysis for use case and resources is very important for cost control.

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Any questions?

No questions from the audience!

Incoming questions will show up here so that you can answer them one by one.

