



JAXA's Archiving of EO data

JAXA/RESTEC
Yosuke IKEHATA
Shinichi SEKIOKA



Contents

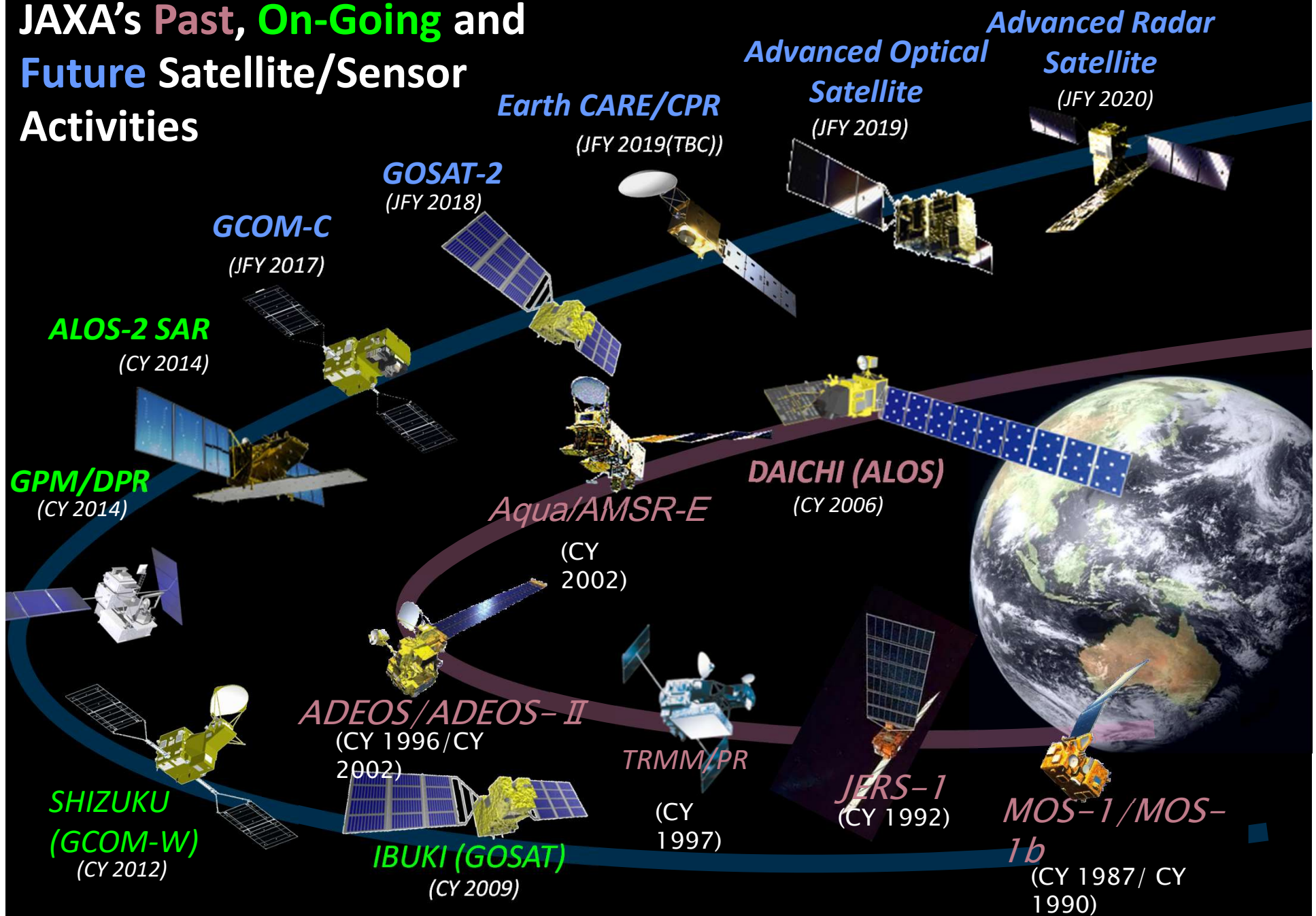
- ▶ JAXA's Satellite/Sensor Activities
- ▶ Satellite Operation Stage
- ▶ Data Preservation Policy
- ▶ Data Preservation
- ▶ Data Archive Infrastructure
- ▶ Data flow Overview
- ▶ Archive data Volume and Trend
- ▶ Scientific Data Stewardship Maturity Matrix
– SELF CHECK–



Contents

- ▶ JAXA's Satellite/Sensor Activities
- ▶ Satellite Operation Stage
- ▶ Data Preservation Policy
- ▶ Data Preservation
- ▶ Data Archive Infrastructure
- ▶ Data flow Overview
- ▶ Archive data Volume and Trend
- ▶ Scientific Data Stewardship Maturity Matrix
– SELF CHECK–

JAXA's Past, On-Going and Future Satellite/Sensor Activities



Satellite Operation Stage



satellite Design Life

Project Team

【Scope】

- Mission GOAL, Operation
- Budgets
- Definition of preserved data set content

Satellite Applications and Operations Center(SAOC)

【Scope】

- Mission Operation
- Data Archive
- Maintenance of the grand system



Contents

- ▶ JAXA's Satellite/Sensor Activities
- ▶ Satellite Operation Stage
- ▶ **Data Preservation Policy**
- ▶ **Data Preservation**
- ▶ Data Archive Infrastructure
- ▶ Data flow Overview
- ▶ Archive data Volume and Trend
- ▶ Scientific Data Stewardship Maturity Matrix
– SELF CHECK–

Data Preservation Policy

▶ Policy

JAXA/SAOC established a guideline based on "LTDP Guidelines".
Each satellite project define data preservation policy in own satellite project.

【EO Preserved Data Set Content】

◆ Master data:

No re-creation, Source of EO products

e.g. Raw data, Level 0 data, Ancillary data etc...

-> Dual copy in two different geographical location.

Permanent preservation

SAOC preserve them responsibly.

◆ The other:

Level 1 and higher levels products, NRT products, other data records.

-> Follow each Project policy.

e.g. preservation period, Generation management etc...



【Documents】

◆ Mission Related Document:

e.g. Sensor Specification document, Ground Segment Specification document, Quality Information etc.

- Paper and PDF
- Viewable via In-house portal (Set access control)
- Permanent preservation

◆ EO Related Document:

e.g. Product format specification, Algorithm theoretical basis document etc.

- PDF
- Viewable via Published portal (G-Portal)
- Permanent preservation

【USER Tools】

◆ ALL tools are available One Stop (from G-Portal).

e.g. Viewer, EO data Format conversion tool etc.

(Format conversion :HDF5 -> GEOTIFF, KMZ, NetCDF)

*JAXA EO Data Portal :G-Portal
<https://www.gportal.jaxa.jp>

Data Preservation

	MOS MOS-1b	JERS-1	TRMM	ADEOS	ADEOS- II	Aqua/ AMSR-E	GOSAT	GCOM-W	GPM
Master data	L0, Products	L0, Products	L1A21	L0, Products	L0	L0	L0, Auxiliary data	L0, Auxiliary data	L1A, Auxiliary data
In Storage (Master)	Disk @EOC	Disk @EOC	Disk @TKSC	Disk @EOC	Disk @TKSC	Disk @TKSC	Disk @TKSC	Disk @TKSC	Disk @TKSC
In Storage (Backup)	LTO-3/4 @TKSC	LTO-3/4 @TKSC	Disk @JSS2	LTO-3/4 @TKSC	Disk @JSS2	Disk @JSS2	IBM3592 @EOC	LTO-4 @EOC	LTO-4 @EOC



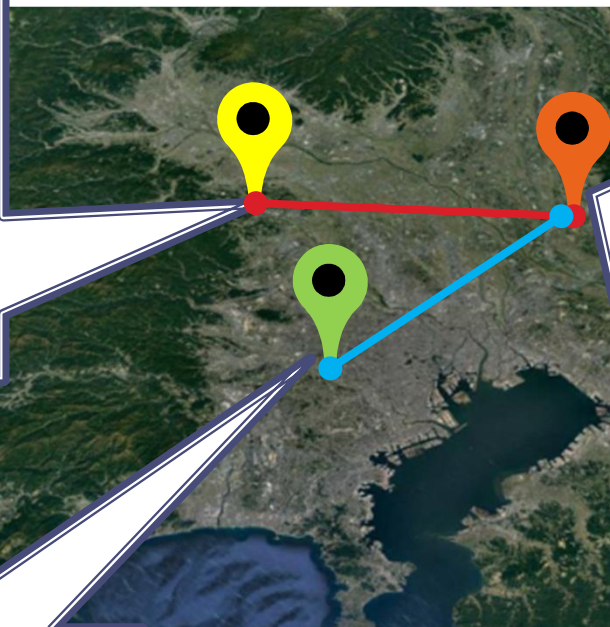
Contents

- ▶ JAXA's Satellite/Sensor Activities
- ▶ Satellite Operation Stage
- ▶ Data Preservation Policy
- ▶ Data Preservation
- ▶ **Data Archive Infrastructure**
- ▶ **Data flow Overview**
- ▶ Archive data Volume and Trend
- ▶ Scientific Data Stewardship Maturity Matrix
– SELF CHECK–

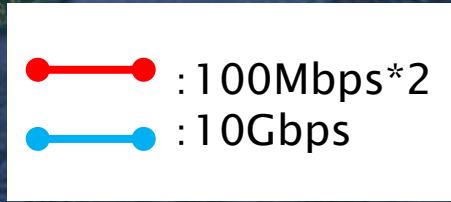
Hatoyama(EOC)



Tsukuba(TKSC)



Chofu (JSS2)



Data LDEO-Columbia, NSF, NOAA
 Image Landsat / Copernicus
 Data Japan Hydrographic Association
 Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google Earth

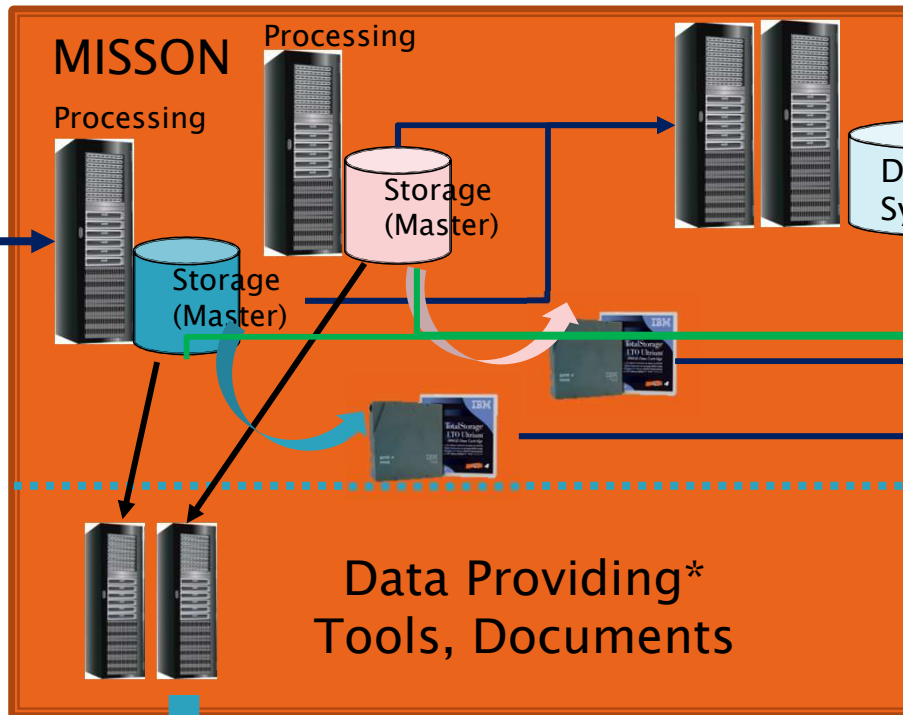
Data flow Overview

Hatoyama



KSAT, JAXA stations

Tsukuba



Off-line I/F

Chofu



User

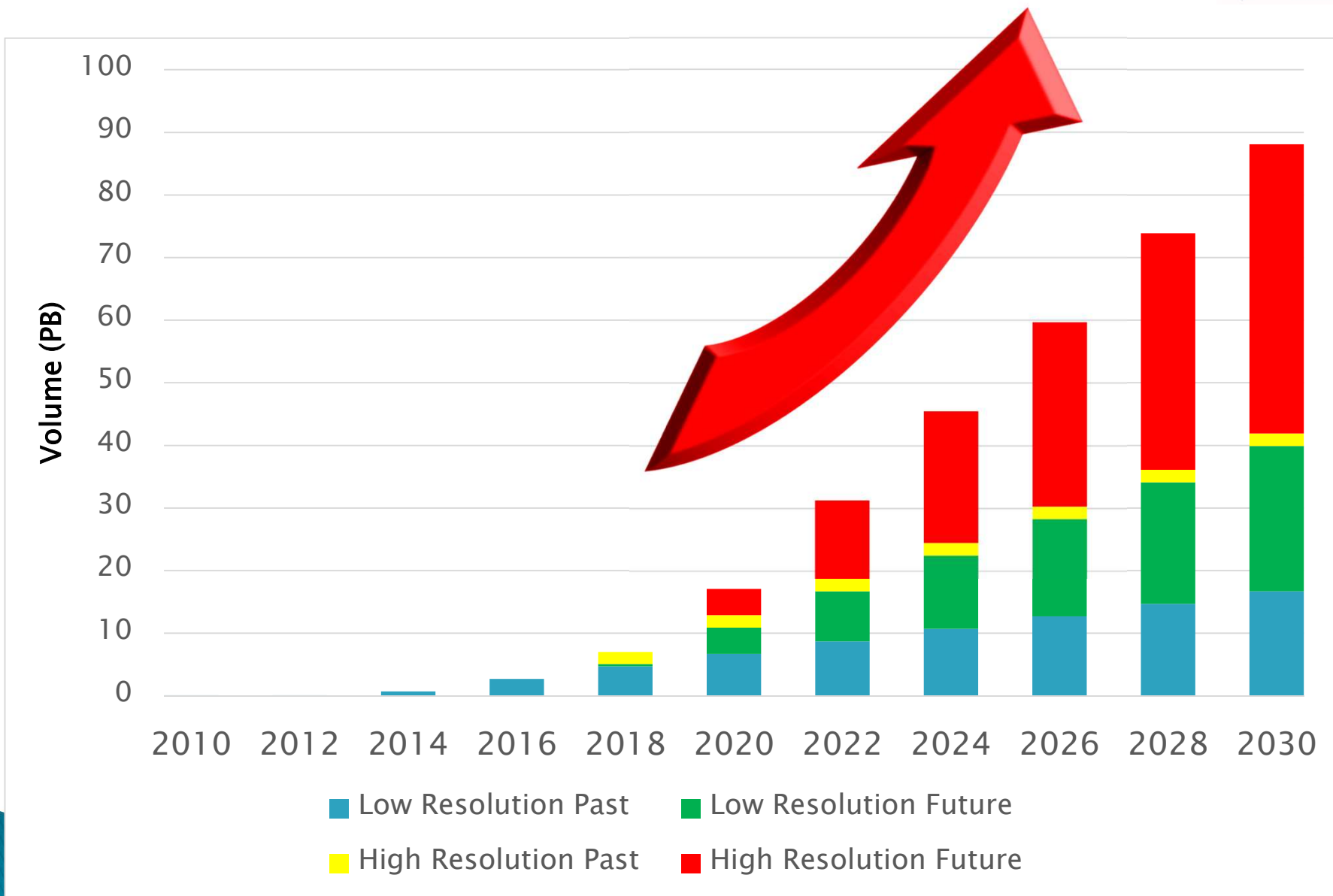


*JAXA EO Data Portal
G-Portal: <https://www.gportal.jaxa.jp>
DPSS: <https://gcom-w1.jaxa.jp>



Contents

- ▶ JAXA's Satellite/Sensor Activities
- ▶ Satellite Operation Stage
- ▶ Data Preservation Policy
- ▶ Data Preservation
- ▶ Data Archive Infrastructure
- ▶ Data flow Overview
- ▶ **Archive data Volume and Trend**
- ▶ Scientific Data Stewardship Maturity Matrix
– SELF CHECK–





Contents

- ▶ JAXA's Satellite/Sensor Activities
- ▶ Satellite Operation Stage
- ▶ Data Preservation Policy
- ▶ Data Preservation
- ▶ Data Archive Infrastructure
- ▶ Data flow Overview
- ▶ Archive data Volume and Trend
- ▶ **Scientific Data Stewardship Maturity Matrix**
– SELF CHECK–



Scientific Data Stewardship Maturity Matrix

– SELF CHECK –

	Level1 – Ad Hoc Not Managed	Level2 – Minimal Managed, Limited	Level3 – Intermediate Managed, Defined, Partially Implemented	Level4 – Advanced Managed, Well-Defined, Fully Implemented	Level5 – Optimal Level4 + Measured, Controlled, Audit
Preservability					○
Accessibility				○	
Usability					○
Production Sustainability				○	
Data Quality Assurance				○	
Data Quality Control/Monitoring					○
Data Quality Assessment			○		
Transparency/Traceability		○			
Data Integrity	○				

The Issue

COST

◆Who pay cost ?

- On-going Mission: Project
- Completed Mission: ?

◆System

- Increase in EO data volume cause increase in COST.
(e.g. Operation, Network, Maintenance)
- USER want Quick access but...
Quick Access -> Storage on Disk -> Increase of power and limited space.

Using cloud computing, we have many issues.
-> "NO GO"

WANTED ! !

Sharing information and knowledge

- ▶ Archived data duplication
How do you reach the “Archived data duplication“ ?

e.g.

- Duplication data records
–> ALL defined “EO Preserved Data Set Content” or A part of them?
 - Dual copy: Disk or Tape ?
 - Geographical location
-
- ▶ Management of the storage volume
Planning, the organization structure, The budget.
-
- ▶ Monitoring tools
Access history management



Thank you for your attention!
谢谢！！