



SAP Data ETL Solution

# Data Connector for SAP

V100N



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1. Trends in Cloud Adoption
2. Barriers of Change
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2. Concepts(Transport & Utilization)
3. Features
4. Solution Screen & Demo

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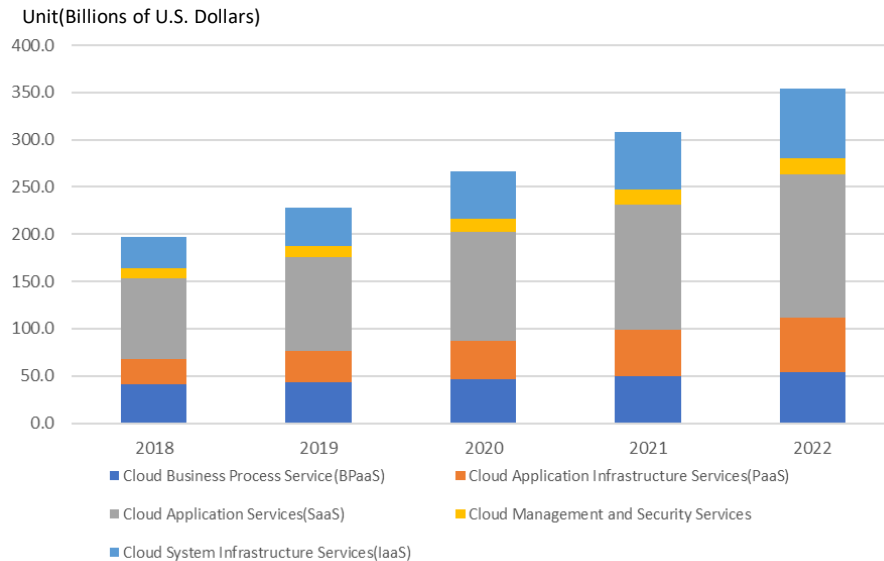
## **03 FAQs**

1. Solution Architecture
  2. Solution Installation
  3. Cost Estimation
  4. Prerequisite
-

## Accelerated Migrations toward Cloud Computing

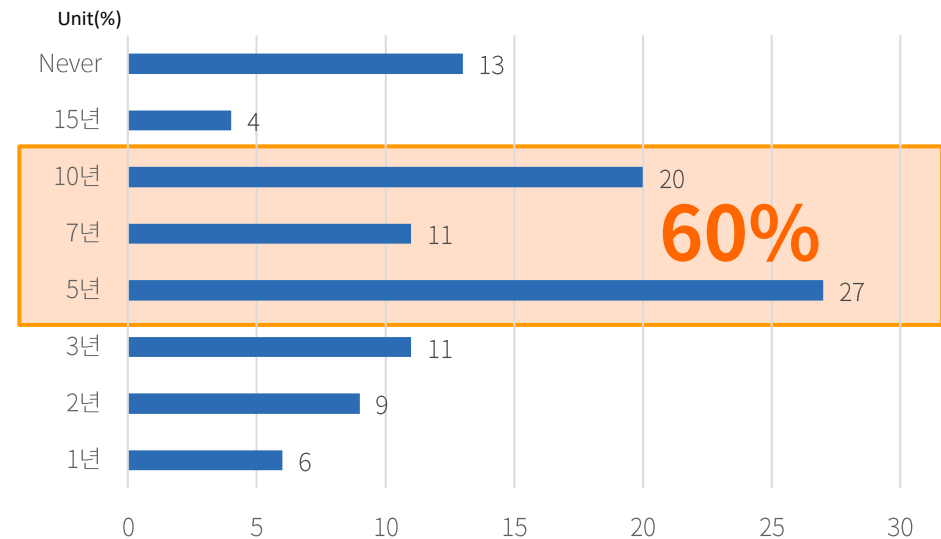
- The transition to cloud becomes inevitable. Gartner estimates global public cloud market revenue to \$354 billion by 2022
- The cloud transition is happening; with 95% of IT environments are expected to complete the transformation in 5-10 years.

### Public cloud service market sales forecast



Source : Gartner(November 2019)

### Expected period of complete transformation to cloud

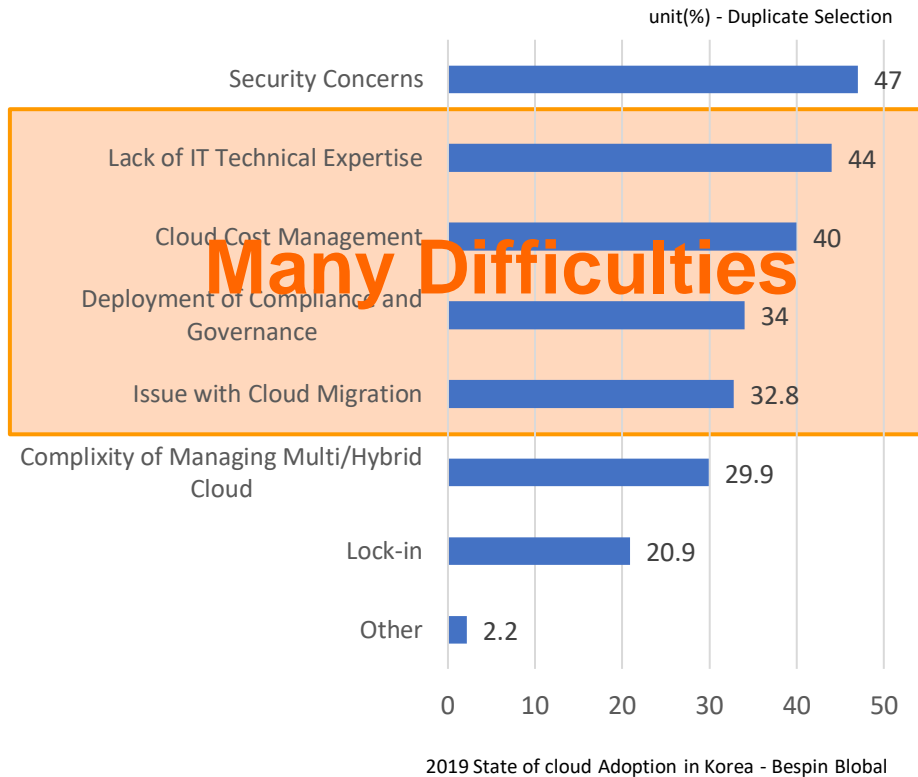


Cloud Vision 2020: The Future of the Cloud Study- LogicMonitor

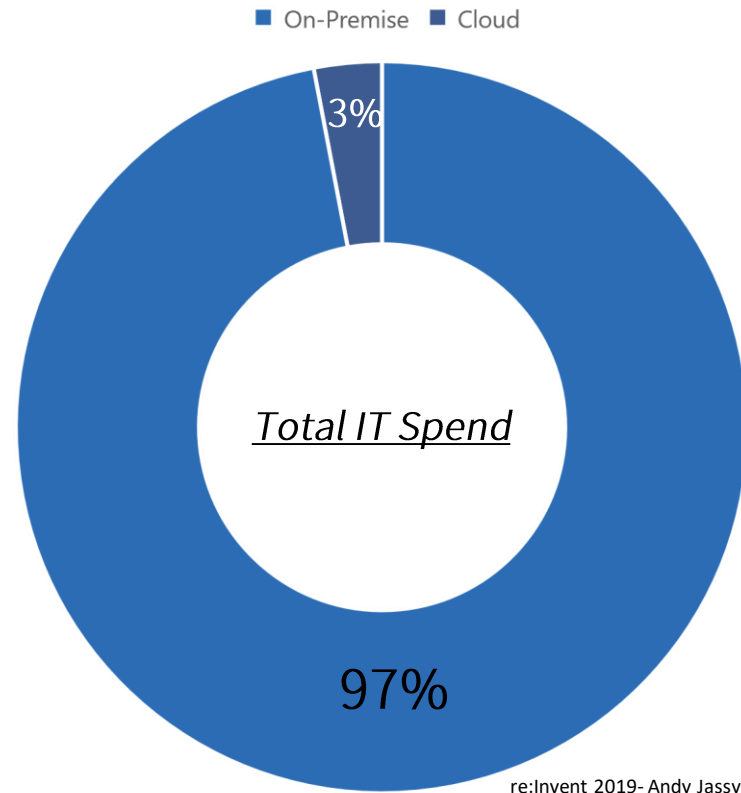
## Cloud Migration Status & Difficulties

- Companies acknowledge the need for transformation, but are struggling with operational differences and technical barriers
- As announced by AWS re: Invent in 2019, the world's cloud transition has only been 3% to date.

### Cloud Transition Difficulties



### Still early days for Cloud

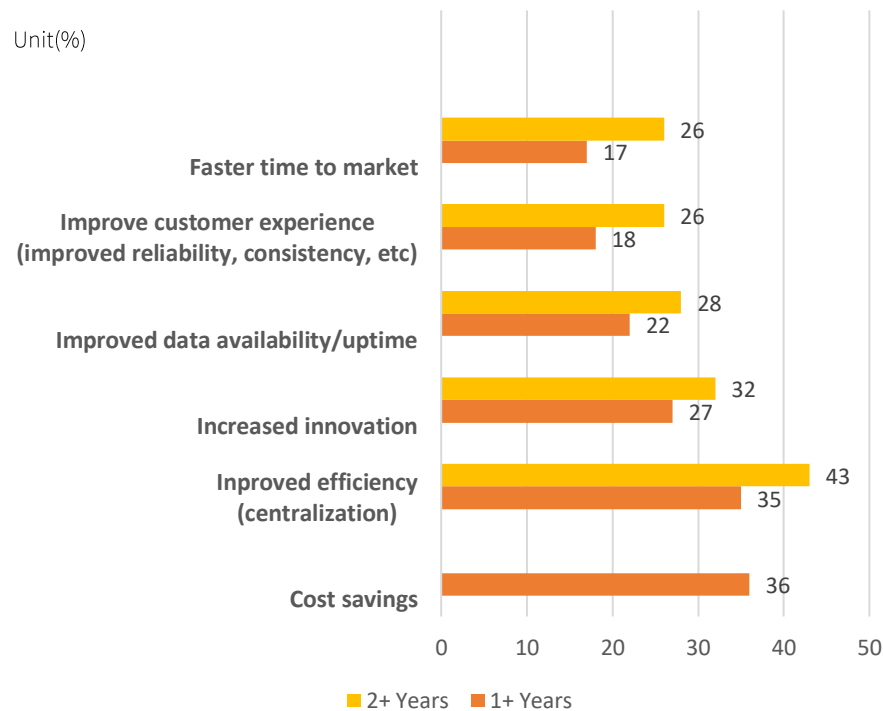


# 3. Benefits of Migration

## Cloud transitions benefits & plans of customers to migrate

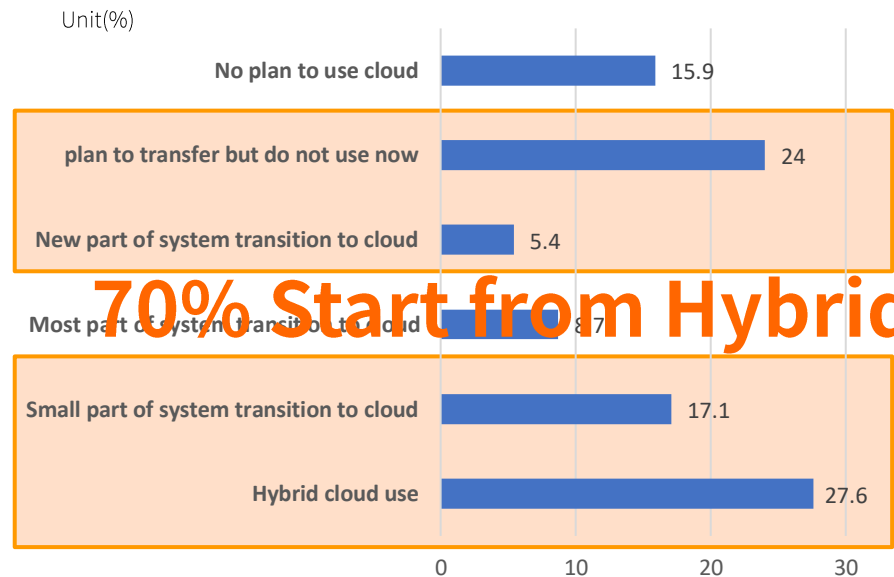
- The success of complete transition to SAP on AWS, and witnessed experiences on numerous innovations in cloud, motivates our customers to create a hybrid cloud strategy in most affordable way.

### Benefits of SAP on AWS



IDG 2018 Study

### Plans for Cloud Transition

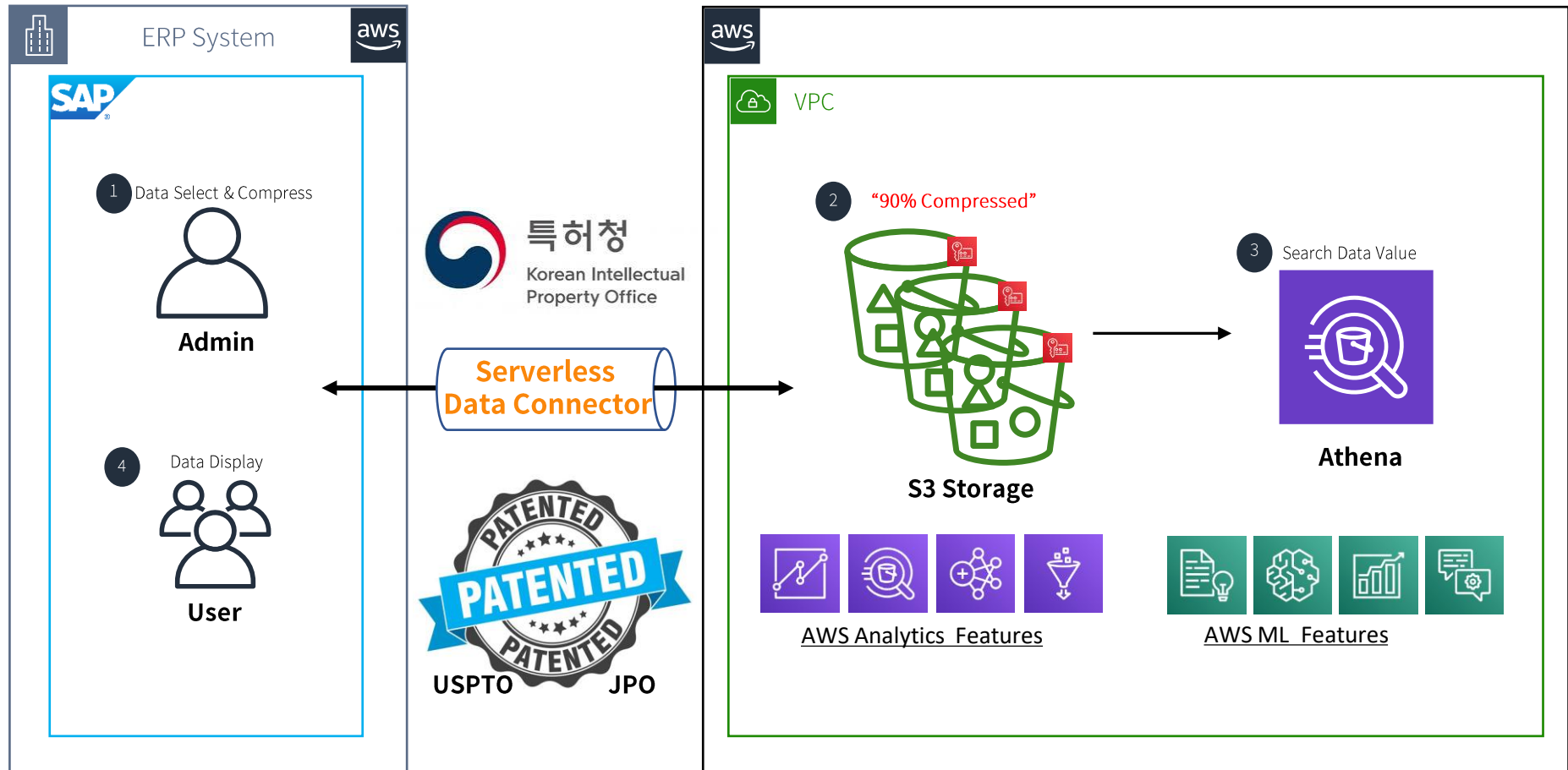


**70% Start from Hybrid**

Cloud usage status research - IDC

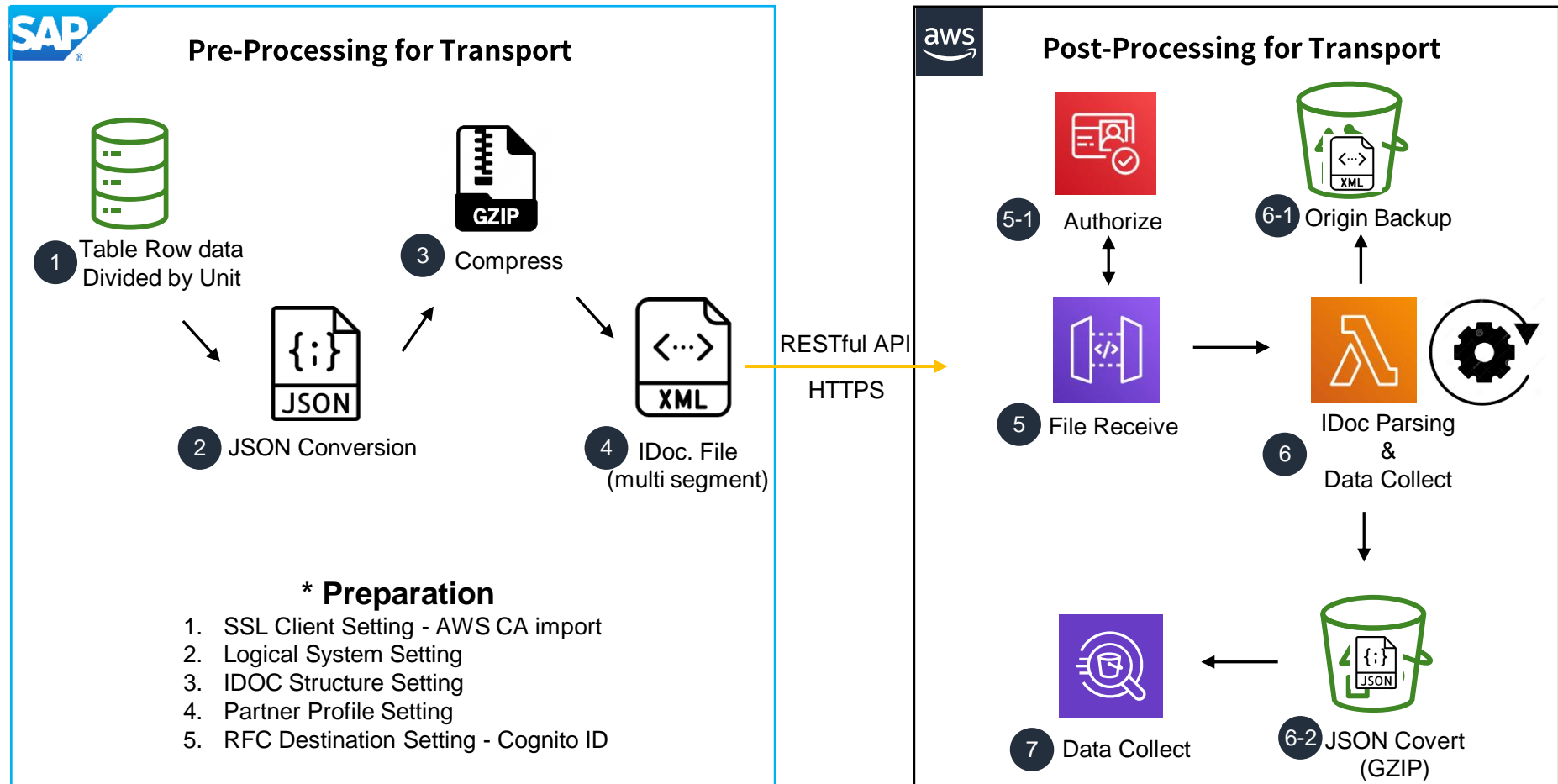
## Data Connector for SAP on AWS

- Safely and effectively transfers SAP data to the AWS Cloud, helping to discover the various values of “integrated data”
- “METHOD AND SYSTEM FOR HYBRID CLOUD-BASED REAL-TIME DATA ARCHIVING(KIPO, USPTO, JPO)” Patent(Application number : 10-2020-0108750) based Product



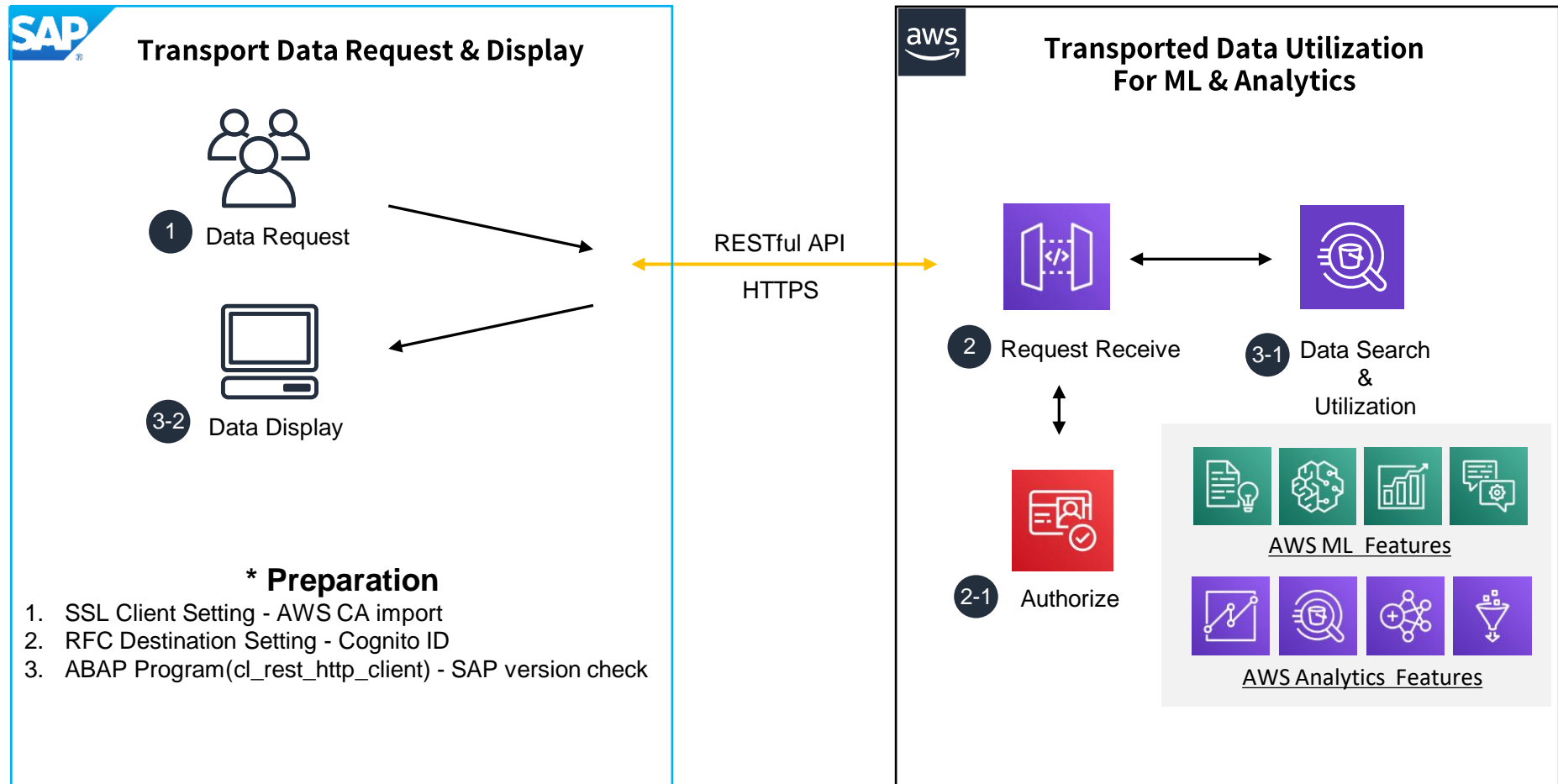
## Data Transport from SAP to AWS Cloud

- Stable and efficient data transmission using SAP IDOC technology and ARMIQ compression processing technology
- Application-based transmission technology is applicable to all SAP systems as it is not restricted by database vendors



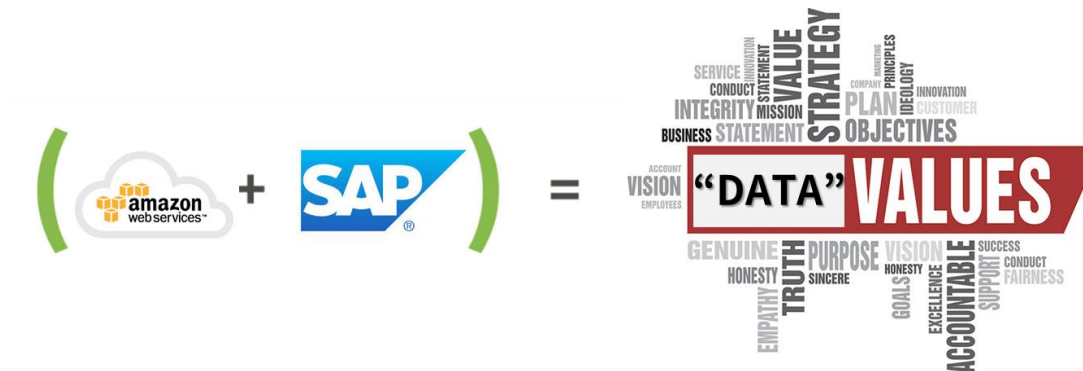
## Data Utilization SAP and AWS Cloud

- After data transfer is complete, SAP cloud data inquiry and various analysis and utilization support in cloud environment
- Pre-converted from SAP to JSON, data can be used immediately without additional conversion in the cloud area



## Data Connector for SAP Features

- Supports to utilize Enterprise Data by linking SAP and cloud based on IDOC interface provided by SAP



### SAP Data Cloud Integration

Data analysts and data scientists use SAP Data for their research and analysis. It can be easily used for business, and it supports innovation activities of core business by comprehensively understanding enterprise data.

### Low Cost

Data Connector for SAP compresses and transmits SAP data into 10,000 to 50,000 cases. This can effectively reduce the cost of data transmission and S3 data storage. It is possible to delete tables that are not in use, so operating costs can be reduced.

### Immediate use of data

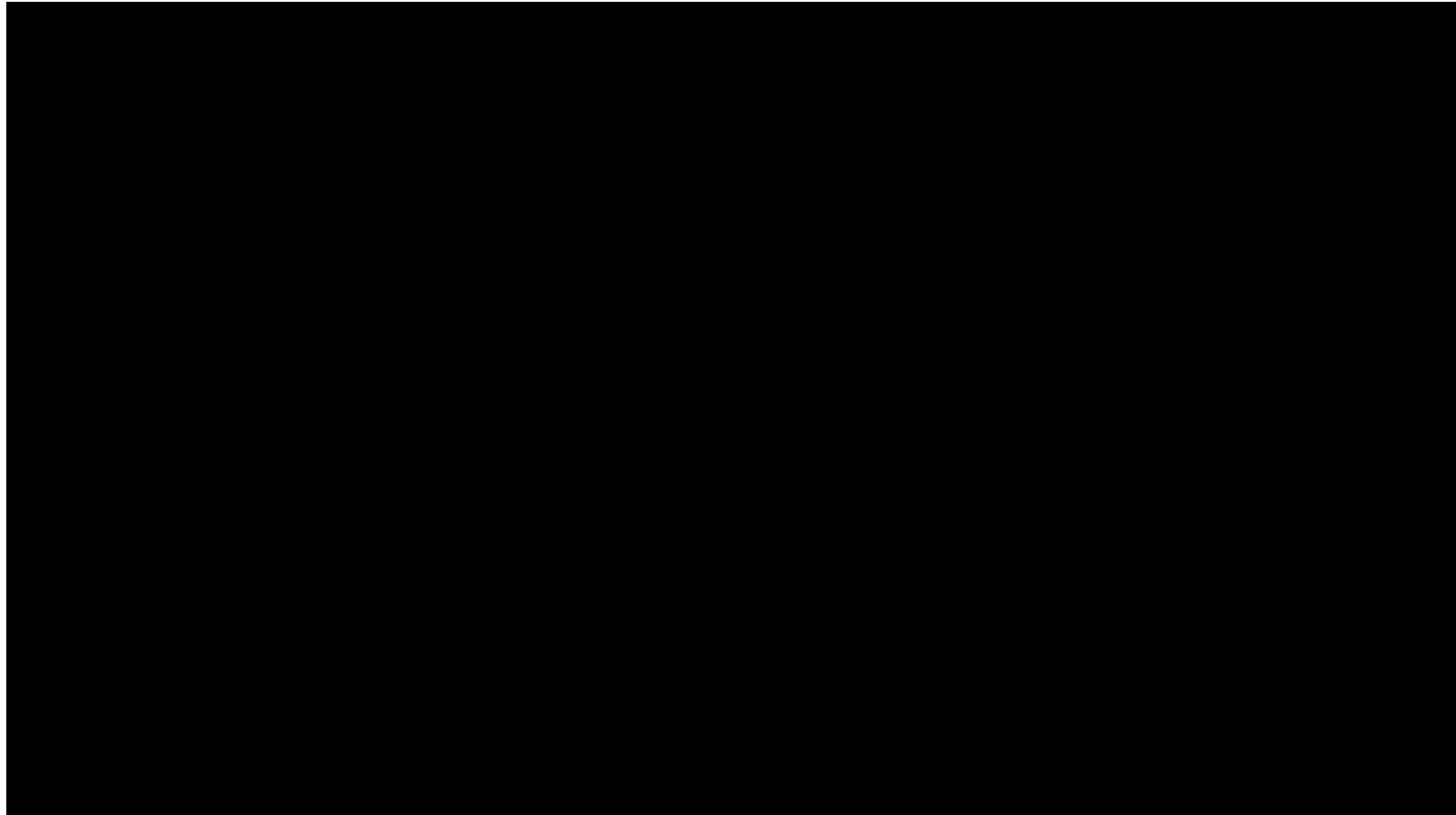
SAP table data is automatically converted into JSON format that is easy to use in the cloud, and data divided into blocks is integrated into Athena, so data analysts and data scientists can use it immediately without the need for data conversion

### Safe and guaranteed transmission

Data Connector for SAP can easily monitor all data transmission situations and is transmitted securely by utilizing IDOC and HANA Client technology provided by SAP, which can be linked to the cloud regardless of database vendors.

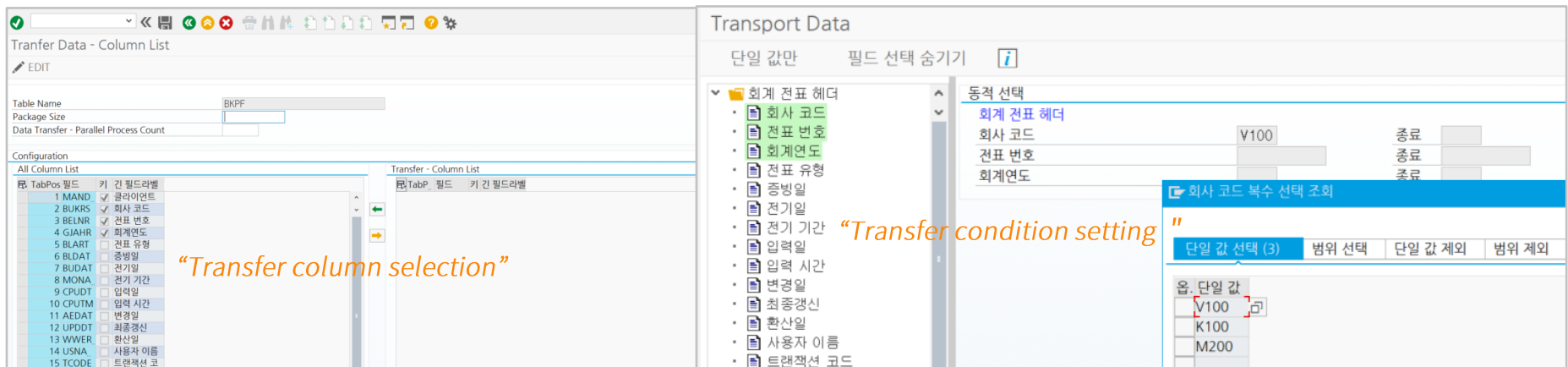
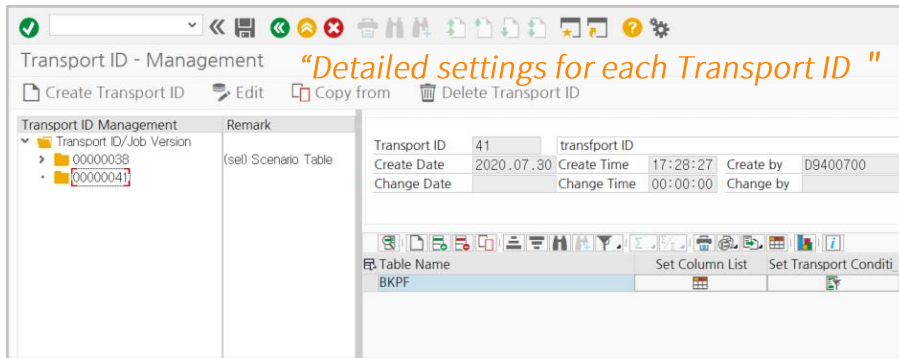
## Solution Screen & Demo

- Demonstration of configuring data in Athena using Glue while transferring SAP data through IDOC to AWS S3
- 1. Transport ID config, 2. Transport execute, 3. progress and result monitoring, 4. AWS Data delete, 5. Cloud data inquiry in SAP



## Solution Screen & Demo

- Batch transfer by setting SAP data by Transport ID (transfer column, transfer condition)



## Solution Screen & Demo

- Transfer status can be monitored, and unused data after transfer can be deleted in table units, and transfer queries can be freely executed in the case of HANA.

Data Transfer - Monitoring "Transfer Status monitoring"

REFRESH

**Header Information**

Transport ID	46	Description	table BKPF
Job Version	2	Comment	TEST TABLE BKPF
Job Start Date	2020.07.30	Job Start Time	18:23:00
Data Transfer - Parallel Count	8	Package Size	50,000
		Parallel Process Count	5

**Detail Information**

Job Name	Step	Job Status	Start Time	End Time
ZAWS_P01_000002_001	Read Data	○○○	18:23:00	18:27:13
ZAWS_DATA_TRAN_000002	Transfer Data	○○○	18:23:00	18:27:14

Table Name	Data Sequence	IDoc Number	IDoc Status	Description	Start Time	End Time
BKPF	1	5297215	03	포트로 데이터 전달 OK	18:23:08	18:23:10
BKPF	2	5297216	03	포트로 데이터 전달 OK	18:23:09	18:23:11
BKPF	3	5297217	03	포트로 데이터 전달 OK	18:23:09	18:23:12
BKPF	4	5297218	03	포트로 데이터 전달 OK	18:23:10	18:23:13
BKPF	5	5297219	03	포트로 데이터 전달 OK	18:23:11	18:23:14
BKPF	6	5297220	03	포트로 데이터 전달 OK	18:23:12	18:23:15
BKPF	7	5297221	03	포트로 데이터 전달 OK	18:23:13	18:23:16
BKPF	8	5297222	03	포트로 데이터 전달 OK	18:23:14	18:23:17
BKPF	9	5297223	03	포트로 데이터 전달 OK	18:23:15	18:23:18
BKPF	10	5297224	03	포트로 데이터 전달 OK	18:23:16	18:23:19
BKPF	11	5297225	03	포트로 데이터 전달 OK	18:23:17	18:23:19
BKPF	12	5297226	03	포트로 데이터 전달 OK	18:23:18	18:23:20
BKPF	13	5297227	03	포트로 데이터 전달 OK	18:23:19	18:23:21
BKPF	14	5297228	03	포트로 데이터 전달 OK	18:23:20	18:23:22
BKPF	15	5297229	03	포트로 데이터 전달 OK	18:23:21	18:23:23
BKPF	16	5297230	03	포트로 데이터 전달 OK	18:23:22	18:23:24
BKPF	17	5297231	03	포트로 데이터 전달 OK	18:23:23	18:23:25
BKPF	18	5297232	03	포트로 데이터 전달 OK	18:23:24	18:23:26
BKPF	19	5297234	03	포트로 데이터 전달 OK	18:23:24	18:23:31
BKPF	20	5297233	03	포트로 데이터 전달 OK	18:23:25	18:23:31
BKPF	21	5297235	03	포트로 데이터 전달 OK	18:23:26	18:23:32
BKPF	22	5297236	03	포트로 데이터 전달 OK	18:23:26	18:23:34
BKPF	23	5297237	03	포트로 데이터 전달 OK	18:23:27	18:23:34
BKPF	24	5297238	03	포트로 데이터 전달 OK	18:23:27	18:23:34
BKPF	25	5297239	03	포트로 데이터 전달 OK	18:23:28	18:23:36
BKPF	26	5297240	03	포트로 데이터 전달 OK	18:23:28	18:23:37
BKPF	27	5297241	03	포트로 데이터 전달 OK	18:23:29	18:23:37
BKPF	28	5297242	03	포트로 데이터 전달 OK	18:23:30	18:23:38
BKPF	29	5297243	03	포트로 데이터 전달 OK	18:23:31	18:23:39
BKPF	30	5297244	03	포트로 데이터 전달 OK	18:23:32	18:23:39
BKPF	31	5297245	03	포트로 데이터 전달 OK	18:23:33	18:23:41
BKPF	32	5297246	03	포트로 데이터 전달 OK	18:23:33	18:23:41
BKPF	33	5297247	03	포트로 데이터 전달 OK	18:23:34	18:23:42
BKPF	34	5297248	03	포트로 데이터 전달 OK	18:23:35	18:23:43
BKPF	35	5297249	03	포트로 데이터 전달 OK	18:23:36	18:23:44
BKPF	36	5297250	03	포트로 데이터 전달 OK	18:23:37	18:23:44
BKPF	37	5297251	03	포트로 데이터 전달 OK	18:23:38	18:23:46
BKPF	38	5297252	03	포트로 데이터 전달 OK	18:23:39	18:23:46
BKPF	39	5297253	03	포트로 데이터 전달 OK	18:23:40	18:23:47

Table Name Read Count    Transport Data Error Count    Package Size    Data Transfer - Pa

BKPF	13772662/13772662	276/276	0	50,000
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**Data Connector**  
SAP HANA DB to AWS "Free Query possible"

HANA CLIENT      SEND DATA

Host:

Port:

User Id:

Password:

Query:

Data Type:  List     Bulk

**Data Connector**  
SAP to AWS

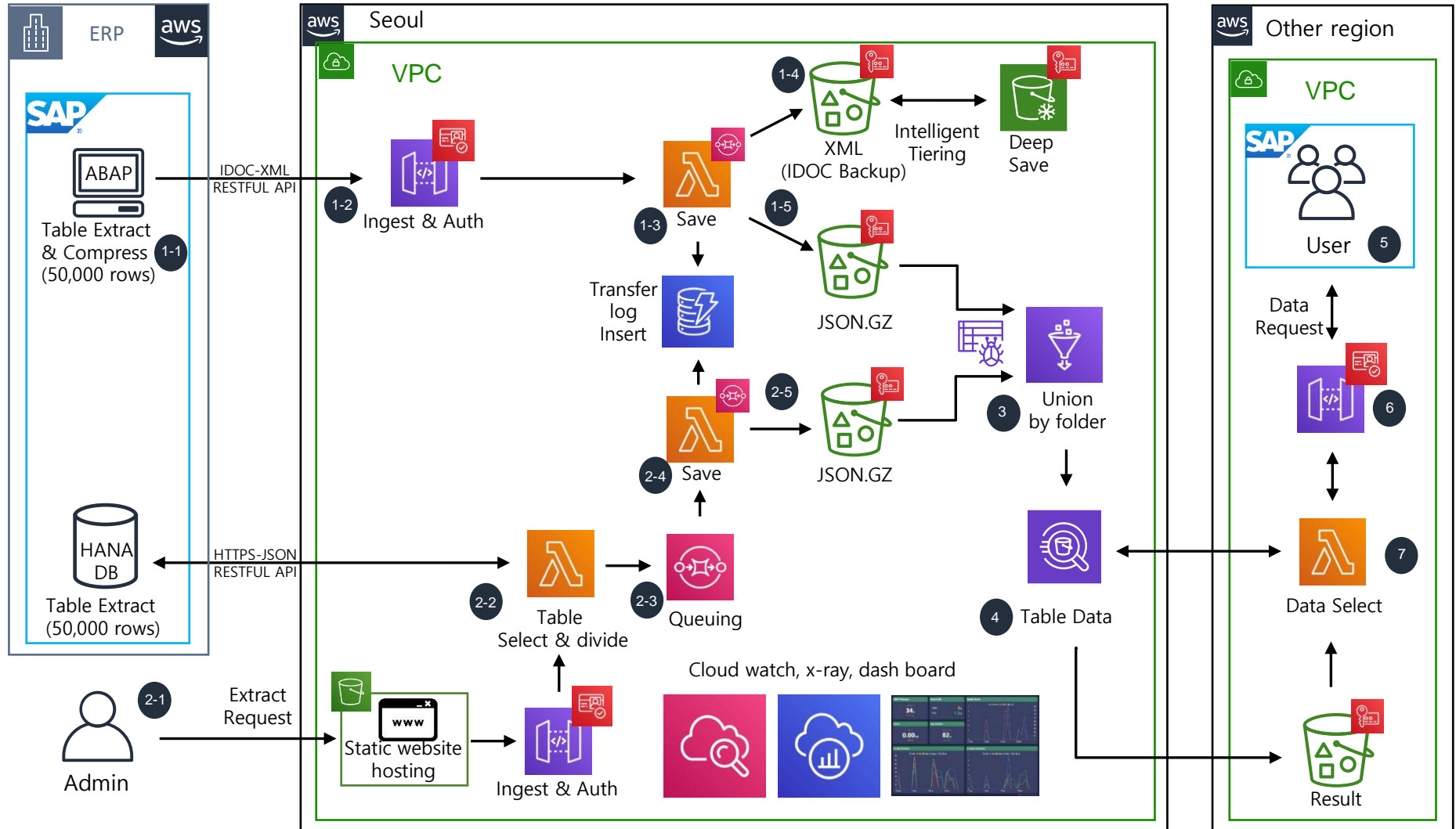
**DELETE**

Table Name:

"Delete Table Data"

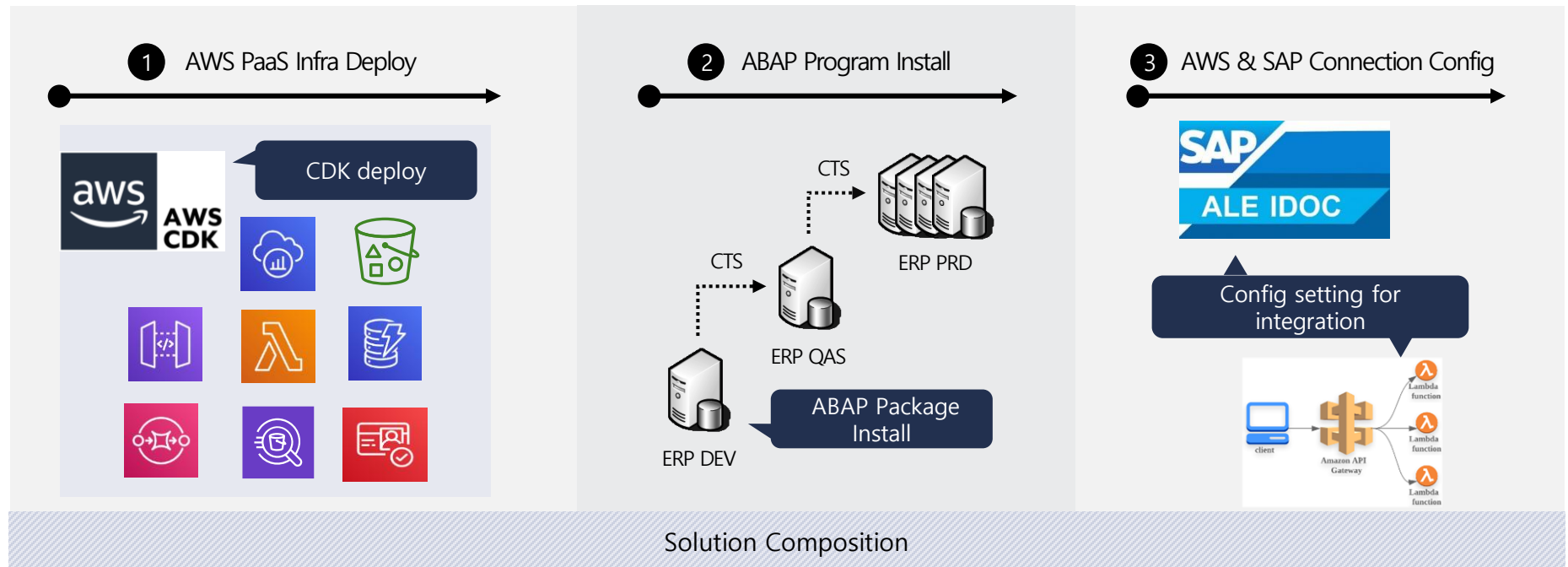


## System Detail Architecture



## Solution Install Process

- You can install the entire product by deploying AWS Service Component to the customer's AWS account and adding ABAP S/W to SAP ERP, and then completing the solution configuration by performing Config settings for linking the two platforms.



- No need additional hardware or change system configuration for data connector construction
- ABAP software is installed by adding-on to SAP ERP system as CTS
- AWS Infra is composed of Serverless Architecture and batch deployed with CDK

“

*No Hardware*

”

“Add-on” ABAP Software

+

AWS “Serverless Architecture”

# 3. Cost Estimation(1/3)

## A total of 11 AWS PaaS Services used

➤ Estimated cost is estimated assuming 1TB of data transferred (10TB before compression), number of transfers (1,000,000), and data inquiry (2TB)

NO	Service	Pricing	Expected billing details	Estimated Cost (USD)
1	API GW(REST)	Number of Requests (per M) 3.50 USD/monthly	1M Request( $1M \times 3.5USD/1M = 3.5$ USD) 3KB Response( $3GB \times 0.126 = 0.36$ USD)	3.86
2	Lambda (1,536MB)	Number of Requests (per M) 0.20 USD	1M Request, 1Second Compute( $1,000,000 \times 1,536/1024 = 1,500,000$ GB/Second) $1,500,000 \times 0.0000025 = 3.95$ USD	3.95
3	Cognito	100,000 MAU, 0.0055 USD/ monthly	free tier of 50,000 MAUs (after the 50,000 free tier) 0.0055 USD/MAU	1.00
4	DynamoDB	Write request Units (1M) 1.3556 USD	Write request 1M(1.35 USD), Read request 1M(0.271), Data Storage 0.27075/GB $1,000,000 \times 1.35/1,000,000 + 1,000,000 \times 0.271/1,000,000 + 1 \times 0.27075 = 1.89$ USD	1.89
5	S3(IA)	50TB, 0.025 USD/GB	Frequent Access(0.025/GB), Infrequent Access(0.018/GB) $200 \times 0.025 + 800 \times 0.018 = 19.4$ USD	19.40
6	KMS	Number of Requests(10,000) 0.03 USD	Encrypt requests 10,000, Decrypt requests 200,00, 1 CMK $0.03 \times 10,000/10,000 + 0.03 \times 200,000/10,000 + 1 = 1.63$ USD	1.63
7	CloudWatch	0.76/GB USD(Log collect)	Log collect 10GB/monthly, log store 5GB $(10-5) \times 0.76 + 5 \times 0.0314 = 3.95$ USD	3.95
8	Glue	first million tables is free	Storage 2,000,000 nodes, request 2,000,000, 2 DPU Running time 30minute $1 \times 100,000/100,000 + 1 \times 1,000,000/1,000,000 + 0.5 \times 2 \times 0.44 = 2.44$ USD	2.44
9	X-Ray	First 0.1M traces free/monthly	0.1M traces record, 1M traces retrieved, scanned $100,000 \times 5/1,000,000 + 0.5 \times 1,000,000/1,000,000 + 0.5 \times 1,000,000/1,000,000 = 1.5$ USD	1.50
10	SQS (Standard Queue)	Number of Requests (per M) 0.4 USD/monthly	1M Standard Queue request , No internet data transfer $1,000,000 \times 0.4/1,000,000 = 0.4$ USD	0.40
11	Athena	Scanned data/TB, 5.00 USD	2TB data scanned, $2 \times 5 = 10$ USD	10.00
<b>Total(Estimated monthly cost, Asia Pacific (Seoul)ap-northeast-2)</b>				<b>50.02</b>

## Example of actual transmission billing

- Table transfer with 22 columns Actual billing cost: 100 million / 8 GB (7/21, 7/22), 400 million / 32 GB (7/23), 1 billion / 80 GB (7/24)

**AWS Cost Management**

- Home
- Cost Explorer
- Reports
- Budgets
- Recommendations
- Savings Plans
  - Overview
  - Inventory
  - Recommendations
  - Purchase Savings Plans
  - Utilization report
  - Coverage report
  - Cart 0
- Reservations
  - Overview
  - Recommendations
  - Utilization report
  - Coverage report
- Preferences
- Billing Console [🔗](#)
- Documentation [🔗](#)

Jul 21, 2020 - Jul 24, 2020
Daily
Stack

Group by: Service Linked Account Region Instance Type Usage Type Resource Cost Category More

To see usage data, filter by "Usage Type" or "Usage Type Group" filters with matching units (e.g., hours).

Download CSV

Service	Jul-21*	Jul-22*	Jul-23*	Jul-24*
<b>Total cost (\$)</b>	1.56	1.52	2.60	4.16
Lambda (\$)	0.48	0.17	0.74	1.84
S3 (\$)	0.25	0.18	0.38	0.88
Glue (\$)	0.02	0.45	0.60	0.42
CloudWatch (\$)	0.34	0.26	0.36	0.51
Key Management Se... (\$)	0.23	0.23	0.23	0.23
DynamoDB (\$)	0.20	0.20	0.20	0.20

**FILTERS** CLEAR ALL

- Service Include only
  - API Gateway ✕
  - Athena ✕ 11
- Linked Account Include all
- Region Include only
  - Asia Pacific (Seoul) ✕ 1
- Instance Type Include all
- Usage Type Include all
- Usage Type Group Include all
- Resource Include all
- Cost Category Include all
- Tag Include all
- API Operation Include all
- Charge Type Exclude only
  - Refund ✕
  - Credit ✕ 2
- Availability Zone Include all
- Platform Include all
- Purchase Option Include all
- Tenancy Include all
- Database Engine Include all
- Legal Entity Include all
- Billing Entity Include all

[Show less](#)

**ADVANCED OPTIONS** 📘

# 3. Cost Estimation(3/3)

## Example of PoC usage of Company D

- 2.6 million data transfers, 11 service cost checks

						1~10일	11~20일	21~말일
Product	23일	28일	29일	30일	31일			
S3	\$0.00	\$0.01	\$0.11	\$0.14	\$0.06			
CloudWatch		\$0.00	\$0.06	\$0.02	\$0.00			
AWSDataTransfer		\$0.00	\$0.00	\$0.00	\$0.00			
AWSLambda		\$0.00	\$0.00	\$0.00	\$0.00			
AWSGlue	\$0.00	\$0.24	\$1.54	\$2.37	\$0.00			
AWSQueueService		\$0.01	\$0.01	\$0.01	\$0.01			
DynamoDB		\$0.00	\$0.00	\$0.00	\$0.00			
ApiGateway		\$0.00	\$0.02	\$0.01				
AWSXRay		\$0.00	\$0.00	\$0.00				
SNS	\$0.00	\$0.00	\$0.00	\$0.00				
awskms		\$0.00	\$0.00	\$0.00				
Athena		\$0.00	\$0.01	\$0.00				
Cognito		\$0.00	\$4.62					
	\$0.00	\$0.27	\$1.73	\$2.55	\$0.07			

## Prerequisite for RESTful API

- Notes 2628631 - ABAP REST Library (package SREST) is not available in the system and classes cannot be found for ABAP REST programming

**2628631 - ABAP REST Library (package SREST) is not available in the system and classes cannot be found for ABAP REST programming**

<b>Version</b>	4	<b>Type</b>	SAP Knowledge Base Article
<b>Language</b>	English	<b>Master Language</b>	English
<b>Release Status</b>	Released to Customer	<b>Category</b>	How To
<b>Component</b>	BC-MID-RST (REST-based Protocols)	<b>Released On</b>	02.10.2018

Please find the original document at <https://launchpad.support.sap.com/#/notes/2628631>

**Symptom**

- ABAP REST Library (package SREST) is not available in the system, AND
- Classes from the ABAP REST Library (for example: CL\_REST\_HTTP\_CLIENT) cannot be found on the system.

**Environment**

- SAP Gateway 2.0 (for example: GW\_CORE 200)
- SAP NetWeaver 7.31 or lower (SAP\_BASIS <= 7.31)

**Reproducing the Issue**

1. Open transaction **SE80**,
2. Select **Package** type,
3. Enter the object name: **SREST**.

OR

1. Open transaction **SE24**,
2. Enter one of the classes (Object type) from the ABAP REST Library, for example: CL\_REST\_HTTP\_CLIENT.

**Cause**

The ABAP REST Library is delivered with the **GW\_CORE software component** (add-on) in the **/IWCOR/SREST package** within the SAP Gateway 2.0 Product.

(And the objects can be found in the embedded packages:

- /IWCOR/SREST
  - /IWCOR/SREST\_CORE
  - /IWCOR/SREST\_EXT
  - /IWCOR/SREST\_HTTP
  - /IWCOR/SREST\_TEST
  - /IWCOR/SREST\_UTIL

The relevant **classes of the SREST package** can be found **under namespace /IWCOR/** (for example: /IWCOR/CL\_REST\_HTTP\_CLIENT).

**Resolution**

1. Open transaction **SE80**,
2. Select **Package** type,
3. Enter: **/IWCOR/SREST**
4. Browse in the tree structure: **Embedded Packages**
5. Select the corresponding package, like: /IWCOR/SREST\_HTTP, etc.
6. Browse the object tree for the required ABAP objects:  
Package Interfaces, Class Library (Classes, Interfaces), Programs, Dictionary Objects, Message Classes.

**See Also**

Check prerequisites described in [Installing SAP Gateway Components](#) and in SAP Note [1942072](#) - SAP Gateway 2.0 Support Package Stack Definition.

With SAP NetWeaver 7.40 and higher (SAP\_BASIS >= 7.40) GW\_CORE was retrofitted into **SAP\_GWFND software component** and the ABAP REST Library is available in [package SREST](#). More information can be found in the blog post [Usage of the ABAP REST Library \[SAP\\_BASIS 7.40\]](#).

**Keywords**

REST-Lib, REST-Library, add-on, addon, GW\_CORE, /IWCOR/SREST, SREST, SAP\_GWFND, CL\_REST\_HTTP\_CLIENT, classes

**Products**

SAP Gateway all versions

**Other Components**

Component	Description
OPU-GW-COR	Framework

**This document refers to**

SAP Note/KBA	Title
1942072	SAP Gateway 2.0 Support Package Stack Definition
	ABAP REST Library - Architecture

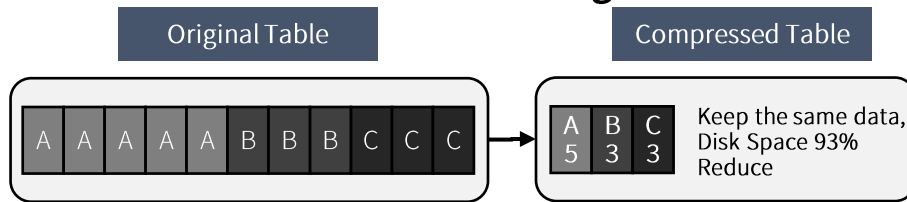
**THANK YOU!**

[info@armiq.com](mailto:info@armiq.com) | [www.armiq.com](http://www.armiq.com)

## ALCS(Armiq Lean Compact System) - Effective storage of historical data for inquiry and fast inquiry support solution

- compressed each individual table based on column, a specialized index is created on the related attribute data during compression.
- Supports fast search with specialized query storage structure and index, and supports complete restoration

### Effective compression and efficient indexing



### Data Structure for quick data inquiry

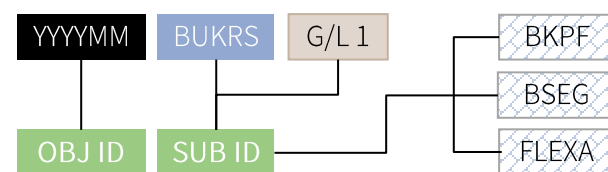
➤ Compressed data storage structure

YYYYMMDD		
1	100,000	PERIOD SPLIT
2	100,000	
3	80,000	

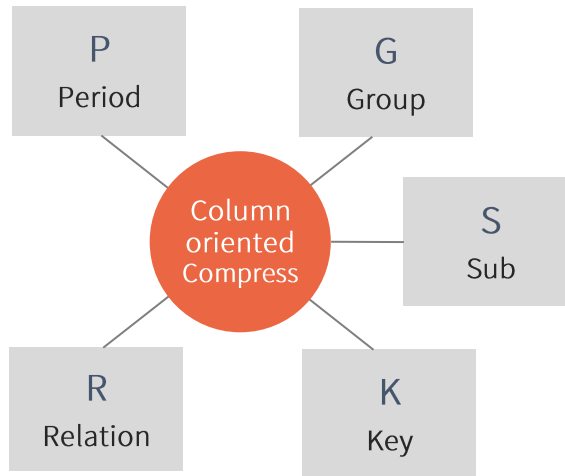
➤ Column-based storage structure

YYYYMM	WERKS			
P100	1	90,000	COLUMN SPLIT	
P200	2	80,000		
P300	3	4,000		

➤ Table relationship structure



### SAP Certified Product



### Success with

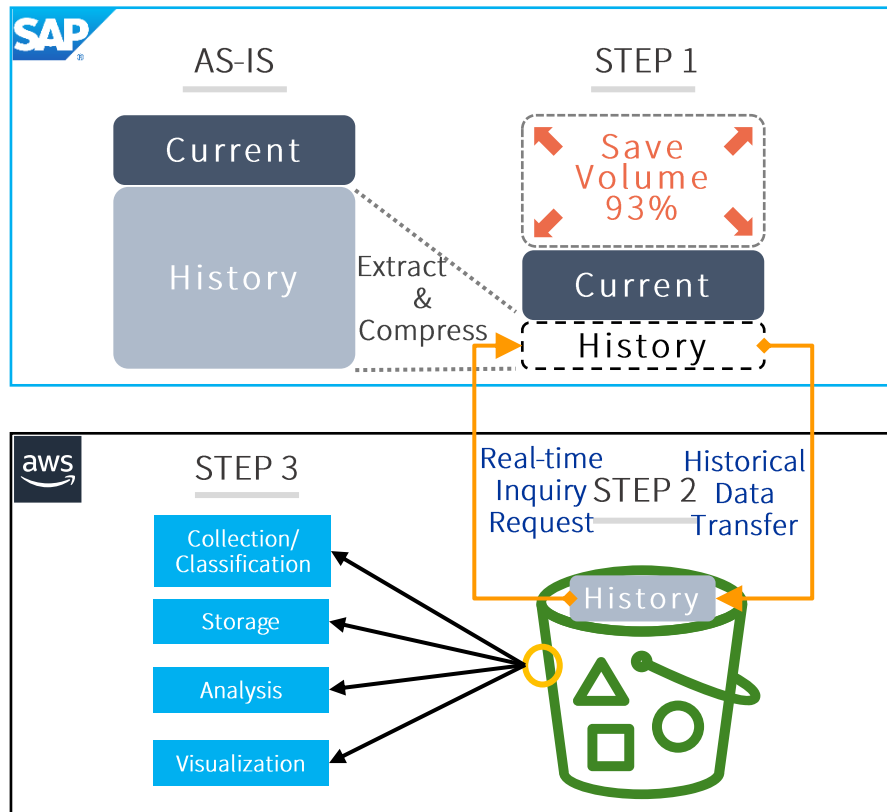


# ❖ One more thing

## Innovation support tool that reduces infrastructure cost and maximizes ERP data effectiveness

- Reduces the cost of expanding existing infrastructure by first transferring historical data that is only searched on the SAP system to cloud storage
- While discovering business innovation using cloud PaaS functions such as ML, VR, etc., a gradual cloud conversion strategy is required

### Reduce infrastructure management costs



### Leverage AWS Innovation Tools

