SAP’s Commitment to On-Premise SAP IQ Customers

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Agenda

SAP’s Commitment to SAP IQ Customers

SAP IQ Major Release Summary

SAP HANA Cloud, Data Lake

SAP IQ On-Premise Feature Summary

SAP ASE and IQ in SAP HANA Cloud
Our Commitment to SAP ASE and SAP IQ Customers
Our Commitment to SAP ASE and SAP IQ Customers

On-Premise Stability

SAP ASE and SAP IQ will have a long support cycle and confidence of multiple-year support

- New release of SAP ASE 16 planned for 2020
- Future release of SAP ASE 16.1 planned for 2022
- New release of SAP IQ planned for 2021
- New cloud services will provide a flexible option for ASE and IQ customers to move on-premise workloads to the cloud

Cloud Innovation

SAP HANA Cloud will include new managed services based on SAP ASE, SAP IQ, and SAP Replication Server

- Customers will benefit from a managed solution, elastic scaling, on-demand deployment, and consumption-based pricing.
- Customers will benefit from the additional services offered by SAP HANA Cloud, such as data virtualization or advanced analytics capabilities to all of their data.

* SAP announces future product versions, options, and maintenance extensions with significant lead times in consideration of our customers’ changing requirements.

Note: This is the current state of planning, and may be changed by SAP at any time without notice.
SAP IQ Used in SAP Applications

**HANA Database**
- In-Memory
- Extension Node
- Native Storage Extension
- Extended Store

**Native HANA**
- PMEM
- Extension Node
- NSE
- Dynamic Tiering

**BW on HANA BW/4HANA**
- PMEM
- Extension Node
- NSE
- BW NLS, BW4 DTO w/IQ

**Suite on HANA S/4HANA**
- PMEM
- Data Aging
- ILM Store w/IQ

**External Store**
- SAP IQ
- HDFS, K8s, Cloud Storage

**SAP IQ**
- DWF/DLM (XSC)
- DW/F DLM with Spark Controller
- BW NLS, BW4 DTO w/IQ
- BW NLS, BW4 DTO
- ILM/Archiving
One concept for hot, warm and cold data
- Data tiering based on Advanced DataStore Object Partitions
- Partition temperature as local setting (no transport needed)
- Using HANA technology such as SDA, scale out and disk storage in SAP IQ

Easy and central definition and implementation
- Data temperature defined in Advanced DataStore Object only
- No additional configuration of data archiving processes

Displacement of data as simple and periodic housekeeping activity
- Single data tiering optimization job that periodically moves data to defined storages
- No complex process chain modeling for data archiving

Non-disruptive approach and protection of past investments
- Seamless conversion or co-existence with existing SAP BW NLS IQ/Hadoop approach as of sharing some central technical concepts for cold data storage

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**SAP HANA**
- **Hot Data**: Allocate by aDSO or aDSO partition

**Extension Nodes**
- **Warm Data**: Allocate by aDSO or aDSO partition

**SAP IQ/Hadoop**
- **Cold Data**: Allocate by aDSO partition

**Automatic Displacement of Data**
ILM Store

Benefits

- Store and manage your archive index and data on column-based DB
- Eliminate costly third-party compliant store SW and HW
- Consolidate your storage infrastructure
- Reduce system landscape complexity
- Increase performance for archiving and data access
- Increase search capabilities
- Optimal data compression
- WORM-like security
Built-In Data Lake

Features

- Automatically provisioned and administered with HANA Cloud
- Highly optimized Smart Data Access connection
- High-speed ingestion
- Shared storage using the NetAppCloud Volumes Service
- Elastic scale, independently of HANA DB

Benefits

- Access anything from data stored in a data lake to data stored in memory through a single access layer
- Access to Cloud Service Provider cloud storage (e.g. AWS S3, Azure Blob Storage/ADLS)
- Columnar architecture for optimal data compression and faster analytic processing.
Gartner Positions SAP as a Leader in Magic Quadrant for Data Management Solutions for Analytics Six Years in a Row.

SAP HANA & SAP IQ

SAP HANA can increase analysis speeds by 10,000x which equals to walking from California to New York in 6 minutes.

SAP IQ compresses 100 TBs of raw data on to as little as 20 terabytes of disk.

The world's largest data warehouse is 12.1 PB which was built with SAP HANA and SAP IQ.

SAP HANA can enhance SAP IQ by providing:
- Advanced analytics
- Data federation/virtualization
- Data temperature
- Innovative applications

GARTNER Magic Quadrant for Data Management Solutions for Analytics (2020)

“The combination of SAP IQ & SAP HANA hold the Guinness World Record for the World’s Largest Data Warehouse Audited Record: 12.1 Petabytes”

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“SAP’s BDW focuses on real-time analytics, scalability, and integration. Enterprises use SAP HANA for in-memory data marts and SAP BW/4HANA implementations that integrate with other data warehouses, including SAP IQ…”

1,000,000,000,000 bytes = 1 Petabyte

1,000,000,000,000,000 bytes = 1 Exabyte
IQ is currently managing 45 PB of raw data for operational reporting purposes (4.5 PB compressed in IQ)
~100-200 TB of raw data is loaded daily (10-20 TB compressed in IQ)
~40 IQ servers (three clusters) deployed
SLA for Statement of Account (SOA) end-user query on mobile is < 5 sec
User data will be aged out of IQ after 13 months
400 million users by end of 2018 will represent ~80-100 PB of raw data (~8-10 PB compressed in IQ)
Predictive Maintenance at Trenitalia Using SAP HANA and SAP IQ

- Implemented SAP Predictive Maintenance and Service solution on **SAP HANA** to support real-time monitoring of the train fleet
- Handles 5000 sensor signals per train every second
- Scaled large quantities of data in **SAP IQ**, reducing required in-memory storage
- 700 TB of data managed per year through SAP HANA and SAP IQ
- Improved asset reliability and service, thanks to predictions and error forecasting
- Reduced maintenance costs
SAP IQ – Major Releases Since Acquisition

Feature Rich Releases

- IQ 16 XLDB Analytics
- IQ 16.1 sp01 XLDB Analytics
- IQ 16.1 sp02 XLDB Analytics stabilize
- IQ 16.1 sp03 XLDB Analytics performance
- IQ 16.1 sp04 XLDB Analytics storage
- IQ 16.1 sp05 XLDB on premise and in the cloud

- Next generation columns store
- High performance parallel data loading
- Continuous concurrent loads into In-memory RLV (row level versioned) delta store
- New patented N-Bit indexes
- Tiered High Group indexes
- Catalog SQLA 17
- 32 bit drivers deprecated
- New DB scope variables
- 30 → 90 day grace period
- Changes to create db
- Stabilization release
- Gzip table extracts
- Adjustable compression ratio
- Shared nothing deprecated
- Statement Performance Monitoring
- Zone maps
- New DB options + procedures
- Ability to load data into SAP IQ from Apache Parquet files
- 7-digit precision TIMESTAMP data type
- Enhanced support for distributed file systems, such as GPFS

2014
2017
2017
2018
2019
2020
2021
2021

SAP HANA Cloud, Data Lake
SAP HANA Cloud, Data Lake
Native IQ Support
SAP IQ Release Cycles: 2009 – 2030 and Beyond

SAP HANA Cloud Data Lake
**SAP IQ 16+ Engineering Focus Areas**

**Expand file system support**
Added support for GPFS file system

**Enhanced Indexing**
Implemented zone maps to optimize scan processing, improving the query execution engine’s ability to exclude unnecessary page reads

**SAP HANA Cloud, Data Lake**
SAP IQ is the database engine for the data lake service in SAP HANA Cloud

**Asynchronous I/O optimization**

**TCO**
SAP IQ 16.1 SP05+ Engineering Focus Areas

Engineering Focus Areas

- **Extreme Scale**
  - DBCC performance improvement

- **Data Center Operations**
  - Additional diagnostic tooling
  - Extended backup functionality

- **IQ and HANA**
  - Maintain HANA dynamic tiering

- **HANA Cloud**
  - Extend SAP HANA Cloud, Data Lake to support migration of existing on-premise SAP IQ systems
SAP IQ (On-Premise)
Product Road Map Overview – Key Themes and Capabilities

Recent Innovations

Enterprise ready, mature columnar RDBMS
- Proven multi-Petabyte structured data warehouse capability
- Pioneering compression and indexing
- Industry leading query processing for complex, ad hoc workloads

Extreme scale
- Enhanced support for distributed file systems, such as GPFS
- Asynchronous I/O prefetch manager
- Ability to export data in zipped format
- Performance improvements and other enhancements to operational utilities, such as database consistency checker (DBCC)
- Improved query performance
- User-defined mutexes and semaphores
- Ability to load data into SAP IQ from Apache Parquet files

Data center operations
- Point in time recovery & integrated storage replication solutions

SAP ecosystem integration
- SAP HANA Cloud, Data Lake: cloud native data lake service
- SAP HANA dynamic tiering – 7-digit TIMESTAMP, asynchronous table replicas

2020/2021 – Planned Innovations*

Data center operations
- Object level backup/restore
- Performance improvements of DBCC
- Improved corrupt page handling
- Improved trace features and adding replay functionality

SAP software ecosystem integration
- SAP HANA Cloud, Data Lake: support migration of existing on-premise SAP IQ systems to cloud
- SAP HANA dynamic tiering: reducing the memory footprint for anti-aging operations
- SAP HANA dynamic tiering: improving system replication initialization performance

2022+ Product Direction*

Extreme scale
- Continued performance improvements to server side diagnostics
- Additional server side diagnostics for enhanced monitoring and supportability
- Increase of the maximum database file-size limit from 4 TB to 100 TB
- Automatic load balancing

Data center operations
- Read access to data during DDL
- Transactional DDL

SAP software ecosystem integration
- SAP HANA Data Lake: Native hyperscaler storage architecture
- SAP HANA Data Lake: Automated data tiering
- SAP HANA Data Lake: Unstructured/semi-structured data analysis

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SAP ASE and IQ in SAP HANA Cloud

- **Compatible**
  Existing ASE applications will run within a new Adaptive Server Enterprise service, and existing IQ applications will run within the Data Lake service. In addition, we will add the ability to run Replication Server in a new Adaptive Server Enterprise Replication service to ensure parity with on-premise architectures.

- **As a service**
  Elastic scale, on-demand provisioning, consumption-based pricing

- **Managed**
  Database managed by SAP

- **Cloud choice**
  AWS, Azure or GCP

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Things to Consider

- EOMM for SAP IQ 16.0
- Understand all the innovations available in SAP IQ 16.1
- Adaptive Server Platform edition (ASP) = SAP IQ with all options
- Attend the ASE & IQ Cloud Roadmap sessions
- Reach out to your SAP Account Team
Join Us for More Webinars in This Series

- The Next Generation: SAP ASE and IQ in the Cloud → Available On Demand
  Thursday, April 16, 2020, 08:00 AM PDT

- SAP’s Commitment to On-Premise SAP ASE Customers → Available On Demand
  Wednesday, April 29, 2020, 08:00 AM PDT

- SAP’s Commitment to On-Premise SAP IQ Customers
  Wednesday, May 13, 2020, 08:00 AM PDT

- Future Roadmap for SAP HANA Cloud, Adaptive Server Enterprise
  Wednesday, May 27, 2020, 08:00 AM PDT

- Future Roadmap for SAP HANA Cloud, Data Lake
  Wednesday, June 10, 2020, 08:00 AM PDT

- Future Roadmap for SAP Replication Server
  Date coming soon
Thank you.