

Original Article

Data Intelligence and Planning using AI and Machine Learning with SAP Analytics Cloud - SAC

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Abstract - “Data is the new oil,” and this is now well understood and accepted by the medium scale to big organizations around the globe. Data is the number one priority for all the digital transformation initiatives being deployed by the companies involving multi-million dollars spent on the latest and greatest technologies that can handle terabytes of data with just a matter of a click.

With the revolutionized innovation in the field of smartphones and tablets, social outlets, wearables, embedded sensors, and connected devices, tons of data are being generated every minute. Also, there are multiple social media platforms available on fingertips to immediately float your thoughts over the internet. Big companies are now considering all this unstructured data over the internet to create an emotional intelligence framework and use it to offer their products and services back to the community. This definitely generated more revenue for the companies but also helped common people to address their needs.

Enterprises must choose a strong tool or technology to implement a solid data intelligence solution that can apply Artificial Intelligence and trained Machine Learning data models to slice and dice the big-data and turn it into a piece of meaningful information to be utilized by business analytics teams. Not only the data from social media but also the business data, i.e., data from product sales or services provided by any company, is also very important to be analyzed to make day-to-day decisions and, most importantly, to predict the future. This is only possible by implementing a robust and intelligent data analytics solution.

This paper aims to help enterprises in making a smart decision to choose a Data Analytics Solution provided by SAP called SAP Analytics Cloud. This cloud-based Software-as-a-Service (SAAS) tool helps to resolve data glitches in terms of big-data, analytical capabilities, security, and performance by using state-of-the-art Artificial Intelligence and Machine Learning capabilities that come together with this tool out of the box.

Keywords - Business Intelligence, SAP Cloud, Financial Planning, SAP HANA, Predictive Analytics

I. INTRODUCTION

Cloud computing has picked up a lot of space in the last 4-5 years, and this technology has definitely revolutionized the way enterprises are managing their systems and data. One of the major components that cloud computing brings to the table is Data Analytics. SAP Analytics Cloud is one of such cloud-based Software-as-a-Service platforms to perform state-of-the-art data analytics and business financial planning. This is one of the best products launched by SAP to address today's needs to put AI-powered analytics in the hands of every business user. SAP Analytics Cloud provides analytics capabilities - BI augmented analytics, and enterprise planning within one single solution.

There are other various tools available as well, which could also be utilized for performing business intelligence and planning but are not be as robust as SAC. Customers mostly do not know the pros and cons of these tools, and hence it becomes really difficult for companies to decide to adopt any of them. This article will help customers understand the incomparable business benefits provided by SAP Analytics Cloud as one solution for BI, Predictive, and Planning.

II. CAPABILITIES

A. What is SAP Analytics Cloud?

SAP SAC is a cloud-based Software as a Service (SAAS) Solution. Hosting is done on SAP and AWS data centers across several regions. SAP Analytics Cloud connects to a variety of on-premises and cloud data sources, allowing you to access your information from various lines of business in the same application.

B. Key elements of SAP Analytics Cloud SLA

- SAP guarantee a 99.5% system availability percentage during each month for production versions
- Meets all Cloud Industry standards of Security, Emergency Maintenance
- SAC upgrades by SAP



- SAC solution is updated quarterly, and this is performed/maintained by SAP. The new features are rolled out to every user when they are made productive, and the users can choose to use them or not.
- Every time a new version is deployed, SAP publishes official content documenting new changes and functionalities.

C. SAC geographic redundancy

- Cloud continuity covers disaster recovery for specific scenarios, like the total loss of a data center, which could seriously impact the availability of the cloud infrastructure, as bundled in service models and delivered as-a-service.

D. SAC Data Protection

a) Data in Transit

- All Data is encrypted in transit over HTTPS with 256-bit AES encryption
- Any files sent for scheduled/batched imports would be over a customer-unique SFTP account with full support for PGP file encryption before the transfer

b) Data at Rest

- SAP provides data encryption at rest via a hardware approach. Encryption is provided for all data stored on our SAN by the SAN hardware itself. Whenever Data is written to disk, it is written and saved in an encrypted format. AES 256-bit encryption is the encryption method.
- All customer database backups are stored on-disk only and encrypted at the AES 256-bit protocol
- SAP manage all encryption keys, and the vendors we use for key management have passed FIPS 140-2 level 3 certification testing

E. SAC Single Sign-on with Microsoft Active Directory or Azure Directory

- SAP Analytics Cloud fully supports the SAML 2.0 web browser-based SSO. SAP Cloud Identity is delivered by default and can act as the identity provider of a single sign-on system with minimal configurations.
- By default, SAP Cloud Platform Identity Authentication is used by SAP Analytics Cloud. SAP Analytics Cloud also supports single sign-on (SSO) using your identity provider (IdP) tool.
- MS AD FS (Active Directory Federation Services) can also be used to authenticate users in SAP Analytics Cloud (SAC)

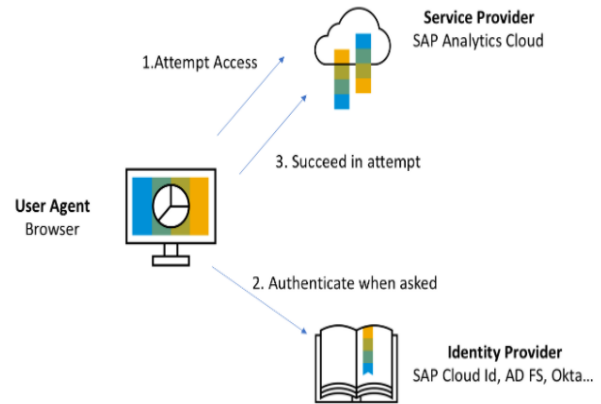


Fig. 1 SAC Security Design

F. SAC security posture

Security is one of the main concerns which customers have while going to adopt any cloud solution. SAP Analytics Cloud does come with a robust security mechanism for data protection.

a) Antivirus/ Ransomware:

- SAP utilizes a malware management process to consistently and continuously ensure secure service delivery free of viruses, spam, spyware, and other malicious software. It consists of anti-malware agent deployment, regular scan, and malware reporting sub-processes.
- Anti-malware software or equivalent is installed on servers in the SAP Cloud landscape during the system set-up process for all data processing systems. Newly installed anti-malware agents are automatically added to the central malware management group. Proper installation is validated by testing connectivity and software versions.
- If any issues occur, follow-up actions are performed for any server not properly connected to the malware management console. The central malware management server is configured to automatically distribute daily new malware definitions to all connected servers

b) System update/patching policy

- The security patch management process mitigates threats and vulnerabilities according to the required SAP security standards. SAP security team rates security patches based on the CVSS (Common Vulnerability Scoring System) standard for operating systems, databases, and virtualization in cloud services upon the occurrence and assigns them into categories.
- SAP has the right to request downtimes to implement critical security patches on short notice for its cloud services. This applies to critical security vulnerabilities that endanger SAP's service delivery capabilities. The customer is informed at least 48 hours before downtime and is not allowed to reject or hinder

downtimes, which are necessary for security changes. In this regard, SAP will execute regular maintenance after prior information to customers to avoid the aging technical status of the system (e.g., services, patches) and provides system stability and security.

- Upgrade will be mandatory to all cloud services ensuring SAP's current system operations standards. Note that this section does not modify the availability service level as agreed between customer and SAP. For purposes of the availability commitment, the customer contract defines how availability and downtime are calculated.

G. SAP Analytics Cloud modernized User Interface

- SAC has a contrast ratio of colors, fonts, icons, and placement of certain elements. SAP incorporated a new flat design that's consistent throughout the application as well as other SAP products. This enhanced accessibility makes fonts easier to read, even on projectors.

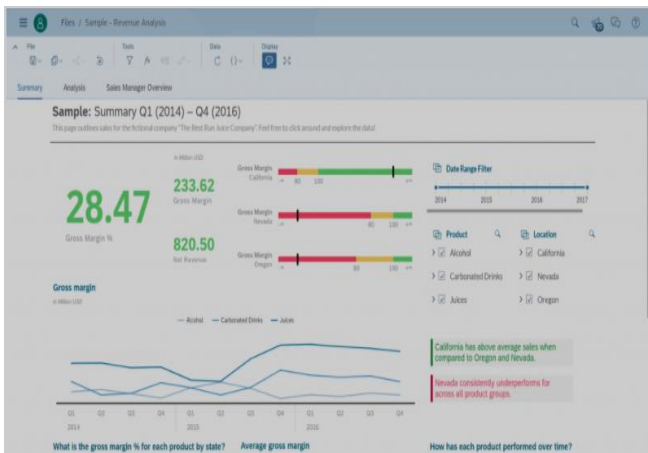


Fig. 2 SAC User Interface (UI)

H. SAP Analytics Cloud integration with other systems

SAP Analytics Cloud provides API's in the following areas:

- SAP Analytics Cloud REST API - Access system data stored on an SAP Analytics Cloud tenant programmatically.
- SAP Analytics Cloud Analytics Designer API - Use Analytics Designer API scripts to create interactive analytic applications.
- SAP Analytics Cloud User and Team Provisioning API – REST-based API to programmatically manage users and teams.
- SAP Analytics Cloud URL API - Directly open SAP Analytic Cloud stories using a URL with parameters.

I. SAP Analytics backup/disaster recovery

a) Who's responsible?

- SAP built and established a service-wide Business Continuity Plan to ensure service continuation in case of a disaster. The plan foresees operational alternatives based on internal capabilities, agreements with 3rd parties, or potential substitution of 3rd party providers.

b) Backup and Data retention period

- Backups are kept (complete data and log) on a primary location for the last two backups and on a secondary location for the last 14 days. Backups are deleted afterward. Recovery is therefore only possible within a time frame of 14 days. Restoring the system from files on a secondary location might take some time, depending on availability.
- Recovery up to the last transaction is supported within the database recovery process. The maximum lost time for a customer is 2 hours - if the primary data center is destroyed.
- SAP Cloud Platform Infrastructure is BS25999 certified in the field of business continuity management (BCM) to facilitate continued operation in case of critical situations. This standard sets the requirements for a business continuity management system to protect against business disruptions so that the organization can recover in the event of a disruption.

c) Archiving

- For productive databases, a full data backup is done once a day. Log backup is triggered at least every 30 minutes. The corresponding data or log backups are replicated to a secondary location every two hours.
- Backups are kept (complete data and log) on a primary location for the last two backups and on a secondary location for the last 14 days.

III. CONCLUSION

One of the most exciting journeys which have been adopted by enterprises today is 'Digital Transformation,' and the technology innovations that happened to make this a reality are also top-notch. To meet the business demand to process the data and turn it into meaningful information with solid data security in place, it is imminent to implement a solution that provides all the required features.

SAP Analytics Cloud provides such a platform with artificial intelligence and machine learning algorithms that can find trends in the data provided and able to come up with state-of-the-art dashboards and reports with just a click of a button. Data security provided by SAP Analytics Cloud is incomparable to any other tool available as of today in this space. The cloud connector and cloud agent config keep the Data always secure via HTTPS protocol and do not

let any hacking take place. The planning feature of SAP Analytics Cloud makes it possible to plan for the near future or predictive planning for long term business decisions

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