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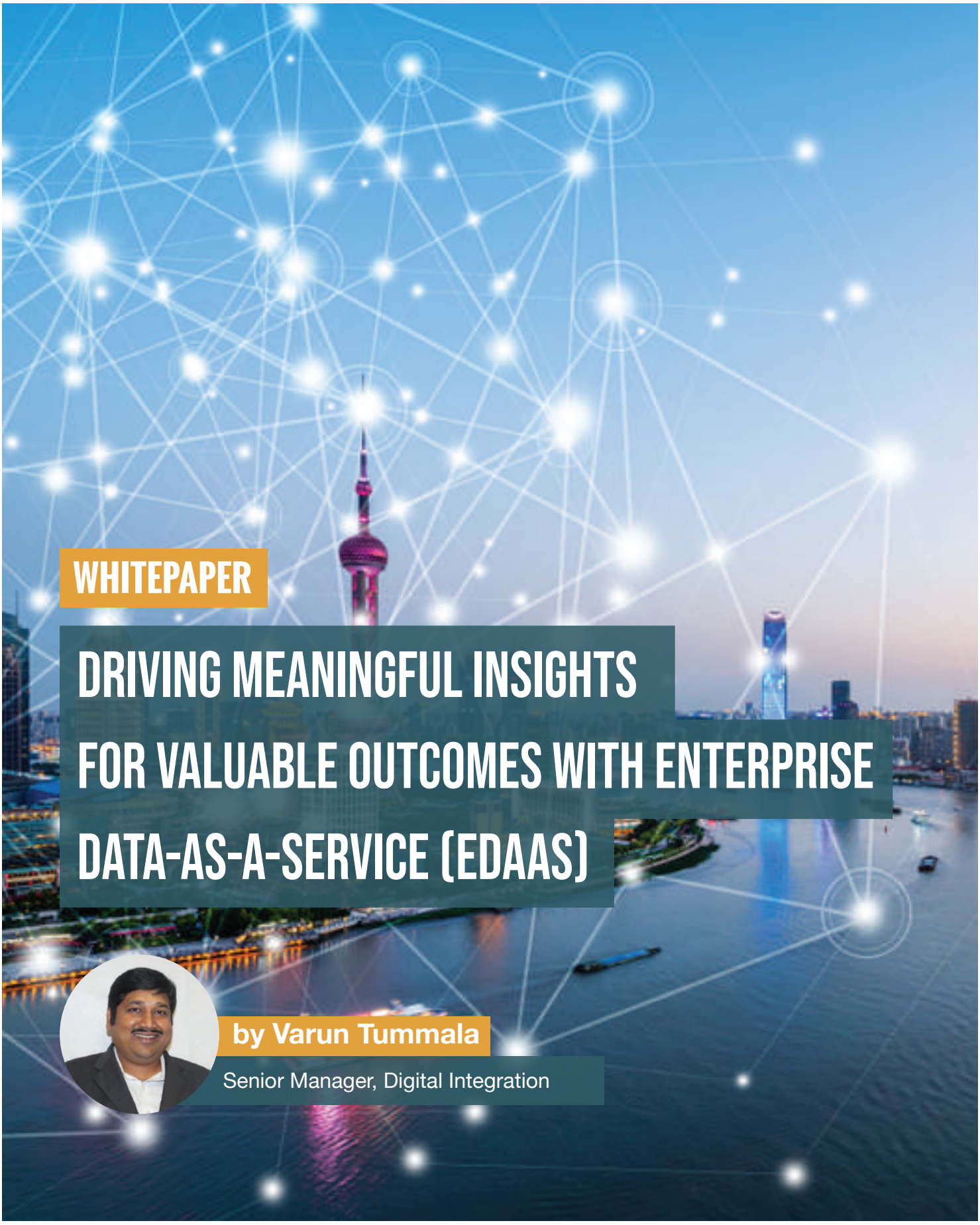

WHITEPAPER

DRIVING MEANINGFUL INSIGHTS FOR VALUABLE OUTCOMES WITH ENTERPRISE DATA-AS-A-SERVICE (EDAAS)

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Overview:

According to a study by Accenture Labs, the hallmarks of Data-Driven Enterprises are faster decision-making, rapid conversion from strategy to action, better collaboration, and a better understanding of the competitive value of their data.

When your data is everywhere, it is nowhere. The breakneck speed of modern business ensures that as soon as we receive information, we silo it from everything else. As technology continues to give us more information than ever before, our way of dealing with it is continuing to create a critical lack of connectivity. The challenge of combining this data from multiple data silos to obtain actionable insights is clear and present.

Enterprise Data-as-a-Service (eDaaS) solves these challenges by combining the features of Application Programming Interface (API), Microservices, Data Virtualization, and Hybrid Integration Platform; eDaaS offers an efficient, consistent, and secure solution for data challenges.

eDaaS enables enterprises to turn data silos into data pipelines through automation from on-premise to the cloud for secure and instant access. The eDaaS architecture is an improvement from the traditional data management solutions plagued with issues such as lengthy recoveries, incomplete and time-consuming backups, cost overruns, and poor cloud migration performance.

The effectiveness of eDaaS lies in its application-centric approach, wherein data management isn't just from the infrastructure perspective. The eDaaS enables organizations to reduce duplicate data and provide greater efficiency across hybrid infrastructures.

The Explosion of Data and Increase in Data Sources

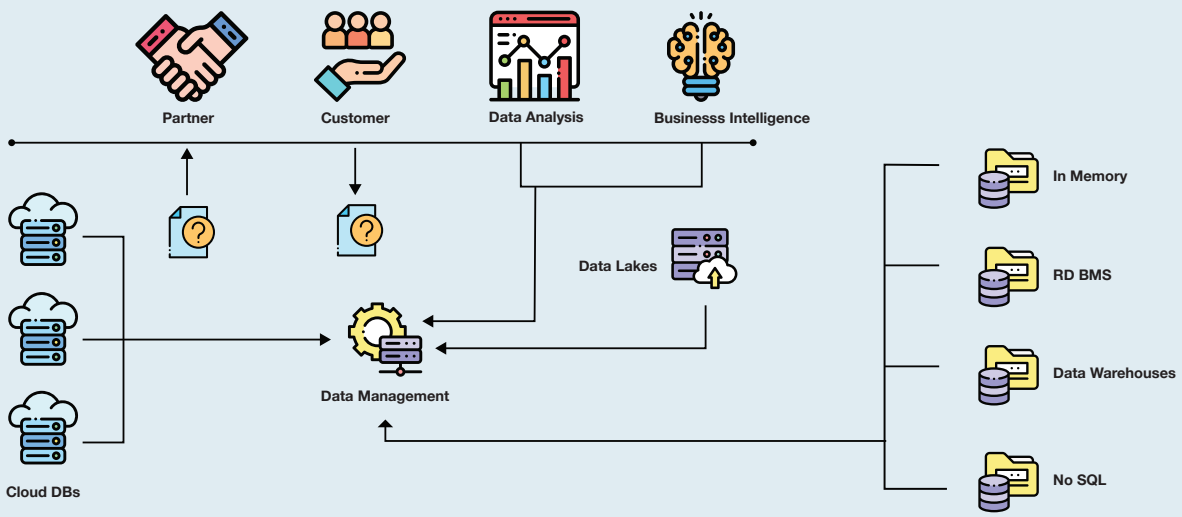
According to a recent IDG Marketplace survey, data volumes are growing by 63 percent per month within enterprises. At that pace, it's no wonder it's so challenging to keep up, let alone turn that data into actionable insights.

Moreover, the data is coming from thousands of sources, including computers, smartphones, websites, social media networks, e-commerce platforms, and IoT devices. With the advent of SaaS and other types of cloud offerings, a significant portion of the enterprise data resides in cloud platforms as well.

Data Challenge

It is ubiquitous in current landscapes of the typical enterprise to see multiple Relational Databases (RDBMS), NoSQL Databases, and one or more data warehouse/data mart applications. Much of the enterprise data may even reside in various cloud applications and in-memory solutions.

The major challenge for companies across the world now is to integrate their data sources and aggregate the data to analyze it timely. With so many data sources in place, it is also challenging for organizations to share meaningful data to its internal stakeholders, external partners, and customers securely without an overall platform and strategy.



Dark Data

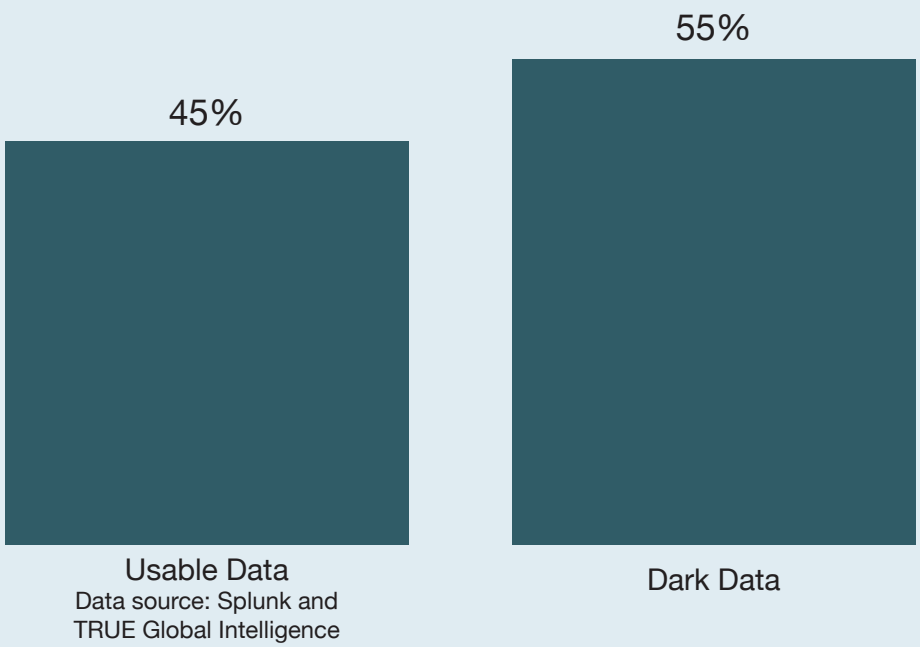
Another serious challenge for companies around the world is to make the best use of their data. For all the talk of how data is the new oil and the most valuable resource of any enterprise, there is a deep dark secret which all companies are reluctant to share — most of the data collected by businesses simply go unused.

Data in raw format, unless it is combined, processed, and analyzed, has very little use.
The unknown and unused data, known as dark data, comprises more than half the data collected by companies. Retaining dark data is also very expensive.

"The information assets organizations collect, process and store during regular business activities, but generally fail to use for other purposes (for example, analytics, business relationships, and direct monetizing)."
-Gartner

55% of Data Collected by Companies is "Dark Data"

Percentage of data that is collected but not used



Data source: Splunk and TRUE Global Intelligence

Data Lakes - Large Dark Data Repositories

On the surface, Data Lakes hold a lot of possibilities for organizations eager to put analytics to work. They offer a storage repository for raw data in its native format, including structured, semi-structured, and unstructured data.

One of the most common challenges organizations face, though, with their data lakes is the inability to find, understand, and trust the data they need for business value or to gain a competitive edge, which often results in more dark data. But when we include data lake in a data platform with good governance strategy, the data it hosts may turn into invaluable assets.

Data Engineering Solutions - Data processed but not consumable

Many data engineering solutions such as cubes, extracts, and aggregation tables, which provide optimized access for different analytical tools, typically require IT teams having strong knowledge of the underlying data sets and their data models.

Although these solutions may serve most of the standard analytical tools, they may not be easily consumable by other internal, external partners and customers.

eDaaS - The Next Big Thing

The most significant driving factor for Enterprise Data-as-a-Service (eDaaS) is that it fills the crucial gap between Software-as-a-Service (SaaS) and Infrastructure-as-a-Service (IaaS) with data, which is the lifeblood for enterprises. It is the final lynchpin that enables enterprises to realize their vision of a hybrid cloud truly. An eDaaS platform empowers enterprises to leverage analytics to monetize their data.

eDaaS is a governance and management strategy of enterprise data that allows operations of Digital Data Life Cycle Management (DLM). Along with this, eDaaS supports patterns and personas of data administration, data gathering, data cleansing, data analytics, and data consumption seamlessly and cohesively.

eDaaS

eDaaS is a comprehensive platform that allows provisioning all data assets as secure APIs, with services designed to serve all internal and external consumer needs. It is with which data providers meet business demands with flexible, simple data services.

Enterprise Data-as-a-service (eDaaS) is a design approach or a style of information architecture geared toward the transformation of raw data into meaningful data assets for agile/timely data provisioning, and the delivery of these data assets on-demand via consistent, pre-built access, with the aid of standard processing and connectivity protocols."
Gartner, 'Hype Cycle for Information Infrastructure, 2016'

eDaaS as a strategy will solve the significant challenges in data management of a digital enterprise by normalizing the solutions for:

- **Gathering data from multiple sources**
- **Handling data multiple types**
- **Processing dark data with analytics**
- **Provisioning data insights that are real and current**
- **Engineering data intelligence solutions**

The benefits of an eDaaS platform:

Agile – Instant access to data from anywhere

Resilient – Comes with built-in data protection, and not bolted on

Secure – Built to prioritize enterprise security and governance

Scalable – Scales limitlessly from a single application to a global enterprise

Key Attributes That Make eDaaS a Winner

Time – The instant capability of making the data available for all the different use cases such as test, dev, or analytics, which would otherwise take weeks owing to the sheer volume.

Cost – It takes a lot of money to make copies of data in addition to the time. A virtualized copy of this data makes a massive difference in terms of the budget or the cost elements.

Risk – eDaaS bring along an element of control over in a global scenario ridden with ransomware and security penetrations. For production purposes, an enterprise must provide the least number of operators with access to additional copies of data required for analytics, test, dev, and management. eDaaS ensures that the data goes through an element of data masking before it is available for the other groups.

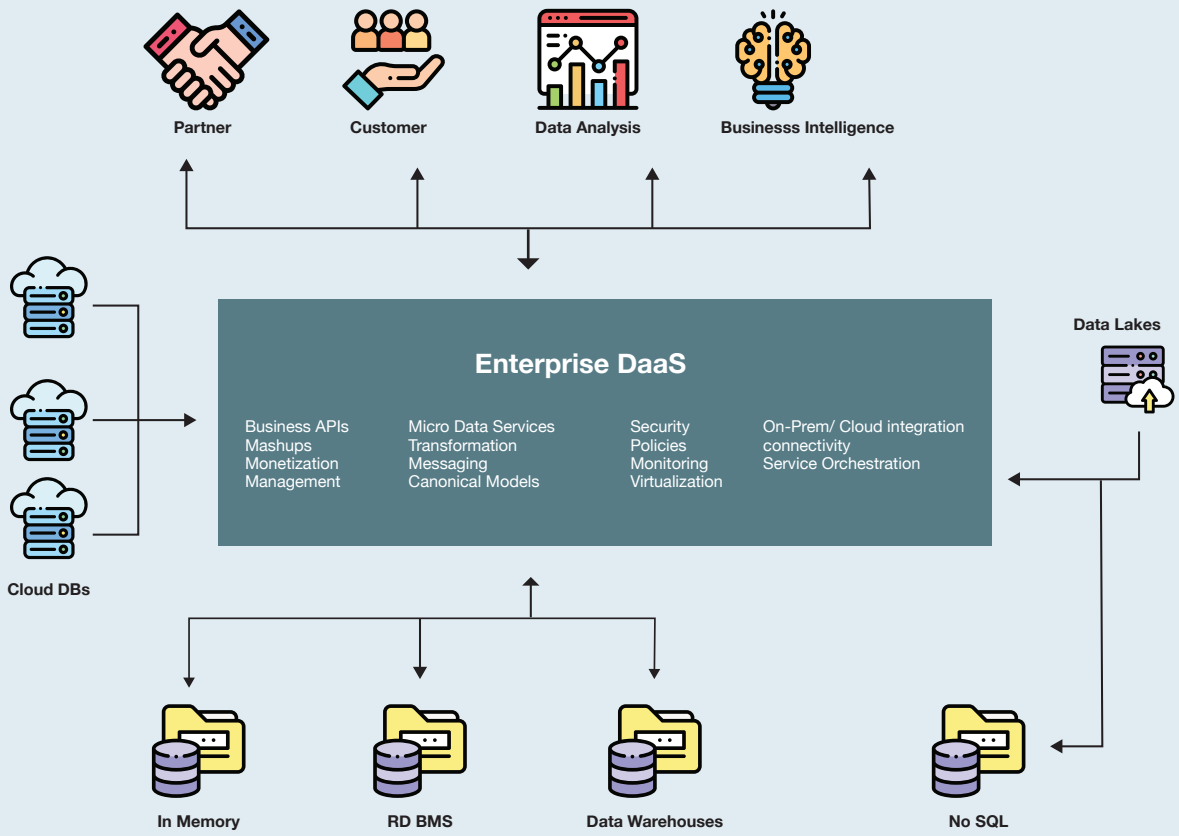
Efficiency – Automation is a crucial aspect of eDaaS. The cloning process of making the data available involves multiple IT tickets, requires a human to sit there, issuing the command actually to make the data available. Human involvement means more risk of something going wrong at times requiring to do the whole thing all over again. However, with eDaaS, an enterprise can mitigate the risk of sensitive information leaking out with automation.

eDaaS Continuum

IT – Private Cloud – Managed Service Providers (MPS) – Public Cloud Providers (AWS, Azure, Google)

Data needs to be a medium that can transparently have rapid movement from an enterprise's IT to the rest of the cloud continuum so that the enterprise can make use of this information.

- **Capture** the application-consistent data at the block level
- **Manage** the lifecycle of the application data as per the SLA
- **Use** the data for multiple applications



Rather than moving data from sources into a single repository, the eDaaS platform integrates the data sources and exposes the data as secure, flexible APIs.

At a high level, the Enterprise DaaS platform consists of two major components – Hybrid Integration Platform (HIP) and API Management Platform (APIM).

The Hybrid Integration Platform (HIP) for data is a vital component of the eDaaS strategy that provides the ability to integrate key data sources of the Digital enterprise to view, copy or replicate the data for further use and eliminating the dark data. The right HIP will integrate disparate cloud data sources, including SaaS applications, Cloud Data Lakes, On-Prem application data sources, and data warehouses, and make data accessible in a normalized way for further processing and analytics. The HIP platform also enables data transformation, data translation, and data cleansing capabilities to data in flight.

The Application Programming Interface Management (APIM) Platform is a second key component of the eDaaS strategy that establishes a seamless and consistent way of consuming data and insights by digital applications and forms on devices. An APIM platform allows for the rapid development of digital and cloud IT systems in agile and DevOps methodologies that consume and expose data and insights. APIM platform manages the life cycle of data APIs and provides for a cloud-neutral and application neutral mechanism for data exchange and consumption.

A HIP is an enabler that integrates disparate disciplines (types of integrations), different persona's (the line of business integrators), different endpoints (apps, things, etc.), and different architectures (hybrid, on-premise, cloud) into a unified digital strategy. Since APIs are one of the integration scenarios in a HIP strategy, and APIs the key artifacts, APIM is a subset of the HIP. APIM is a crucial element of an enterprise's HIP as all other integration patterns hinge on it. A significant similarity between HIP and APIM is that both emphasize on empowering others for self-service along with supporting speed and agility.

Hybrid Integration Platform (HIP)

As per Ovum, HIP is **"a cohesive set of integration software (middleware) products enabling users to develop, secure and govern integration flows connecting diverse applications, systems, services, and data stores to meet the requirements of a range of hybrid integration use cases."**

Besides connecting to both cloud and on-premise data sources, HIP provides the following key capabilities.

MicroData Services: HIP hosts data from a single data source as well as aggregations from multiple on-prem/cloud data sources as microservices, which are scalable as per demands.

Transformation: Transformation is among the most critical requirements for any data platform to synchronize data across disparate data sources, data formats, and standards. The HIP provides tools to transform high volumes of data with high performances quickly.

Messaging and Event-Driven use cases: Syncing and standardizing data is crucial. However, if enterprises want to be able to build more engaging customer experiences or react in real-time, they need to have the ability to securely exchange that data across their ecosystem from any cloud-based to on-premise application.

Canonical Models: Canonical models are foundational components of underlying data services, and they play a critical role in the efficient exchange of data across systems. HIP holds canonical models for common data structures, maintains, and guarantees higher

API Management Platform

The API management platform exposes company data and makes enterprise data assets available to internal and external consumers, and acts as a digital layer to customer and partner interactions. It is essential because it enables organizations to secure, scale, govern, analyze, and monetize data.

The API Management platform offers the following critical capabilities along with monetization options for organizations.

Security: Poor data security can spell business failure. An API management platform secures the data at all levels by protecting against hackers, bots, and other suspicious behaviors. It employs advanced cryptography and authentication authorization mechanisms to mitigate security risks.

Business Mashups: The API Management Platform provides citizen developers and analysts having less knowledge of data engineering and real data sources, with capabilities to quickly and easily create new business APIs along with providing opportunities to derive even more insights from the same data available in data sources.

Virtualization: The API Management platform provides a single holistic view of the overall real-time data without requiring technical details of the data. It hides the complexities of the data sources and makes it easy to analyze and makes data more valuable.

Challenges of Enterprise Data-as-a-Service (eDaaS)

Unique security considerations: Because eDaaS requires organizations to move data into cloud infrastructure and transfer data over the network, it can create security risks that would not exist if data remained on local, behind-the-firewall infrastructure. Encryption of data in transit can help mitigate these challenges.

Additional compliance steps: For some organizations, compliance challenges may also arise while moving sensitive data into a cloud environment. However, this does not mean that data can't be integrated or managed in the cloud, but simply that companies subject to special data compliance requirements must ensure that they meet those requirements with their eDaaS solution. For example, they may need to host their eDaaS on cloud servers located in a specific country to remain compliant.

Potentially limited capabilities: In some cases, eDaaS platforms may limit the number of tools available for working with data. Users can work only with the tools that are hosted on or compatible with their eDaaS platform, rather than being able to use the tools of their choice to set up their data-processing solutions. Choosing a eDaaS solution that offers maximum flexibility in selecting tools mitigates this challenge.

Data transfer timing: Transferring large volumes of data into a eDaaS platform can take time due to network bandwidth limitations. Depending on how frequently your organization needs to move data into a eDaaS platform, this may or may not pose a severe challenge. If data bandwidth is limited, data compression and edge computing strategies can help to accelerate transfer speeds.

eDaaS Benefits

Enterprise data ready to engage

When data is aggregated into microdata services and provisioned as API mashups, the data tends to participate with purpose into the Enterprise DaaS platform. Smaller dark data sets, when exposed as services and APIs, uncover hidden opportunities, which will leave very little data unused and hence fewer dark data, enabling a myriad of possibilities.

Comprehensive Platform

Simplistic and wholistic views of enterprise data with secure APIs and underlying microdata services means the end-users need not know the complexities or even the number of data sources. This platform enables organizations and their partners to focus on real-world challenges and help win better customer satisfaction.

eDaaS: The Road Ahead - Success Stories of Real-World Use Cases

Although during the initial years of inception, eDaaS primarily focused on telecom, financial services, and telecom sectors, in recent times, many companies in multiple industries, both public and private sectors, have achieved massive success by adopting Enterprise DaaS strategies. The most significant adopters today are enterprises operating in the domains including healthcare, insurance, retail and e-commerce, and media & entertainment.

Financial Services

A great example of a monetization-based eDaaS business model is D&B Hoovers. The company pioneered by providing business data to their corporate clients in the financial industry and individual subscribers for a specific service fee. The D&B Hoovers website streams data to their client organizations in the form of a list of leads, which go directly to the sales teams to make the sales.

Public Sector and Government

United Nations Statistics Division now provides statistical data as online data services to its members across the world. The organization disseminates country-specific information and statistics such as Gross Domestic Product (GDP), population, education, crime rate, life expectancy, etc.

Healthcare

A prime example of leveraging data services to make patents' data accessible to physicians and healthcare workers to save innumerable lives is Harvard's HealthMap services (http://healthmap.org). The community-based organization spotted the Ebola virus disease outbreak and alerted the medical community even before the World Health Organization (WHO) formally announced the epidemic. HealthMap heavily relied on big data analytics to harness public health information for effectively tracking Ebola. .

Enterprise data, when shared within the organization among different departments, helps better collaboration and growth.

Better ROI

Enterprise Data as a Service also yields better ROI with seamless data sharing capabilities supported by advanced API security and increased customer satisfaction. Compliance becomes easier than ever with the platform.

How to get started with eDaaS?

Although getting started with eDaaS may seem intimidating, given the fact that eDaaS is still a relatively new type of solution, the process is simple.

It is straightforward because eDaaS eliminates much of the setup and preparation work associated with building an on-premises data processing solution. And due to the simplicity of deploying a eDaaS solution and the availability of technical support services from eDaaS providers, the process does not require your company to have specialized staff on hand.

The core steps for getting started with eDaaS include:

1. **Choose a eDaaS solution**. Factors to weigh when selecting a eDaaS offering include price, scalability, reliability, flexibility, and how easy it is to integrate the eDaaS with existing workflows and ingest data into it.

2. **Sign up** for and activate your eDaaS platform.

3. **Migrate data into the eDaaS solution**. Depending on how much data you have to migrate and the speed of the network connection between your local infrastructure and your eDaaS, data migration may or may not require a great deal of time.

Conclusion:

Driven by the new wave of cutting-edge digital innovations, today's enterprises are on the cusp of radical change. It requires a fundamental re-thinking of IT strategy for enterprises to embrace a hybrid cloud architecture, as on-premises infrastructures and archaic data management models hamper the applications.

With Enterprise Data-as-a-Service, organizations understand and visualize their data better, measure what matters the most, avoid pitfalls, and, most importantly, make better use of the majority of their secure data that drives their business to success.

As the volume of enterprise data grows, traditional systems for keeping track of data can't scale. Enterprise data catalog is a comprehensive solution that provides complete visibility across the organization enabling the employees to discover data assets quickly. Data governance in enterprises is not just about data security, privacy, and compliance. It encompasses crucial aspects such as metadata management, data quality, data catalog, along with other nuances of data governance.

Showing haste in taking Digital Integration (DI) strategy implementation decisions is never a good idea. DI implementations need thorough considerations and efficient collaboration with the right digital integration partner. According to a Gartner report, over 60% of businesses will leverage cloud-managed services provided by external service providers by 2022.

We at Kellton Tech, as one of the leading digital integration solutions providers, are committed to solving disparate digital integration challenges. In partnership with renowned companies such as IBM, Microsoft, SAP, SoftwareAG, MuleSoft, among others, we offer end-to-end custom digital integration solutions, right from consultation, advisory to deployment and support.

About Author

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