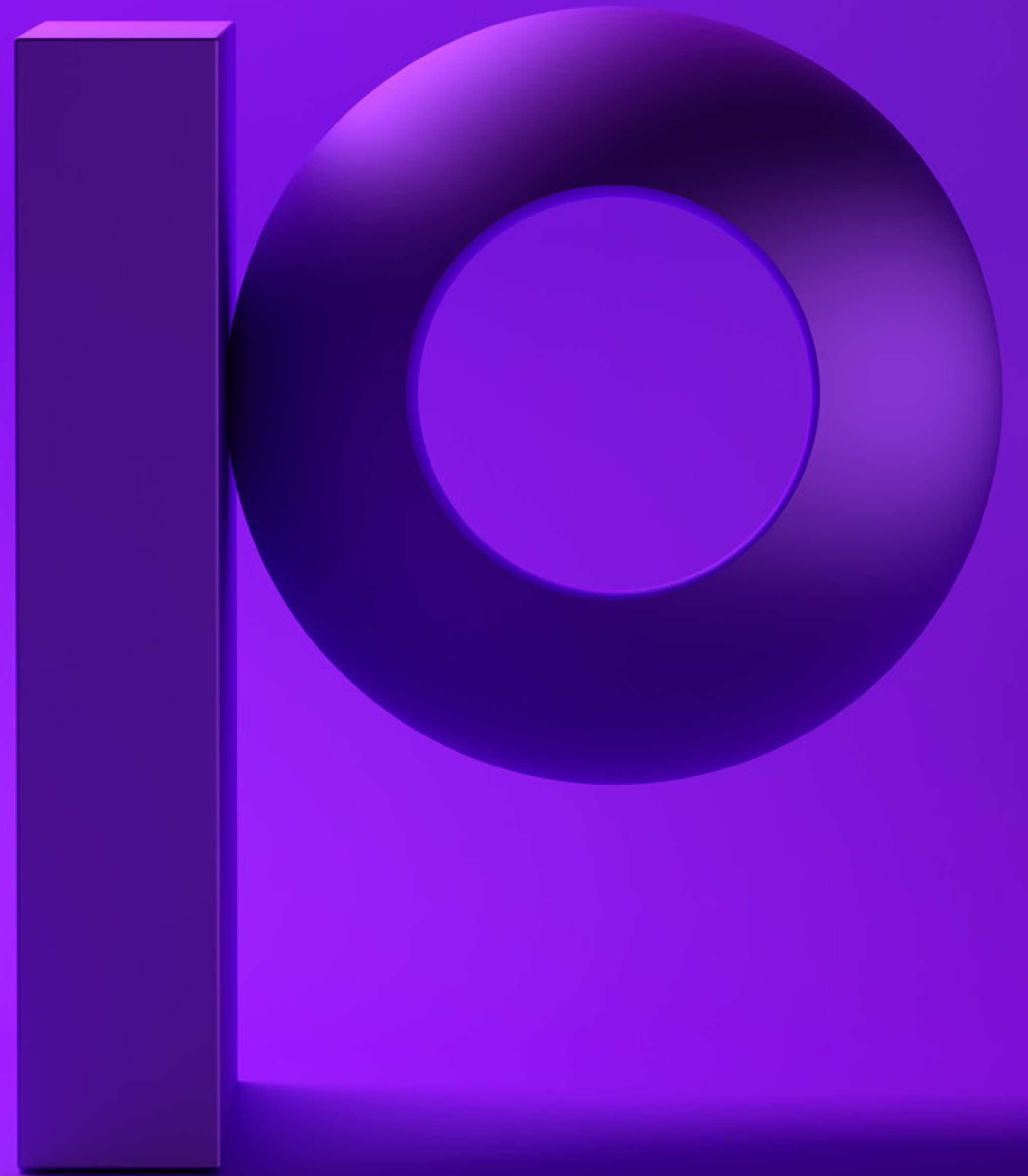


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Best Practices for Data Integration in Hybrid Cloud



Introduction

Digital business transformation has caused many organizations to change their approaches to data integration. Rapidly changing requirements and higher expectations to deliver data in real-time has created a demanding environment for IT departments. With tightening budgets and resources, it has become challenging to meet these demands with existing IT infrastructures.

It can be difficult to modernize data processes and infrastructures under such circumstances. That said, investing in a hybrid cloud strategy offers a realistic solution to what can seem like an impossible problem. A hybrid cloud strategy enables IT to scale capabilities by extending the capacity of existing infrastructure. This enables IT to preserve investments while modernizing systems as budgets or resources permit.

Many enterprises are gaining significant benefits from a hybrid cloud strategy. In a recent Precisely survey of enterprise IT professionals, 35% of respondents noted that hybrid cloud had helped them to reduce costs and 29% noted increased operational efficiency. Other business benefits of a hybrid cloud strategy include:

- Flexibility and scalability to meet changing business demands
- Improved service quality and availability
- Transparency into the cost and consumption of resources
- Establishing a vendor-agnostic strategy to infrastructure
- Maintaining requirements for data sovereignty while investing in new technologies



What is Hybrid Cloud?

Hybrid cloud is the use of both on-premises and public or private cloud resources. With many industry analysts estimating up to 70% of businesses still running on-premises, a hybrid cloud architecture becomes an important part of a larger cloud adoption strategy.



Challenges: Digital Business Transformation and Data Integration

While hybrid cloud helps to facilitate much-needed digital business transformation, it also creates challenges with traditional data integration approaches.

Some of the most common ones include:

Data silo proliferation

One of the benefits of the cloud is that businesses can rapidly deploy applications with minimal investment or dependency on IT. The challenge, of course, is that every department can create their own cloud solutions independent from each other. The expansion of new cloud applications means that businesses are producing and storing more fragmented data across the organization. This data must be rationalized and integrated to not only deliver business insights, but also for data governance and regulatory compliance.

Data diversity

Data is not only fragmented in a hybrid cloud environment, it is also diverse. A hybrid cloud infrastructure must be architected to handle all the data types an enterprise has now, as well as what they might have in the future. This diversity can encompass data structure (structured, unstructured and semi-structured data), real-time data (such as data streams generated from clickstreams and sensors), and data set types (including those found on legacy systems, such as VSAM and IMS).

Skills shortage

Skills shortages present a big problem when it comes to replicating current data integrations processes into the cloud. A recent Precisely survey showed that 38% of respondents said their biggest IT challenge was staffing shortages. The demand for cloud engineers and cloud architects far outweigh the supply, which means, if a company finds them, they will be expensive. These professionals will be certified by one of the top cloud vendors (Microsoft, AWS or Google Cloud are the most popular) and will also have experience with containerization (Kubernetes), cyber security, and big data frameworks like Spark. In addition, they need to be able to work with the diverse data types mentioned above, including the mainframe data typically found in most large enterprises.

Increased pressure for rapid deployment and ROI

Disruptive business models and increasing pressure for smarter experiences have caused the pace of business to increase rapidly over the past decade. For many organizations, this means the pressure is high to integrate data from a variety of sources and targets to accelerate value. However, limited IT budgets and a skills shortage means that much-needed integrations are often not available in time or at all when the business requires them – leaving valuable insights unseen. There is also pressure to quickly demonstrate value from investments that are made in creating and supporting a hybrid cloud infrastructure.



Best Practices for Data Integration in Hybrid Cloud

A hybrid cloud strategy is necessary for any business beginning their transformation journey from on-premises solutions. The following best practices can help ensure that journey is successful:

- Understand the nature of your data
- Design flexible workflows
- Know your data regulatory requirements

Best Practice: Understand the Nature of Your Data

Working purely on-premises can be an extremely expensive format, and one of the benefits of moving to a hybrid cloud is the lower cost overall to maintain environments. Hybrid cloud environments give a business the ability to scale processing when they need a spike and make better overall use of their environments. When moving from on-premises to the cloud, it is important that you have a clear understanding of the nature of your data, including:

- **Sensitive data:** You should know where all sensitive data, including personally identifiable data (PII) resides, and any limitations around moving and storing it. This can include restrictions on public cloud usage and clouds hosted outside the country of origin. Security and compliance considerations become paramount when dealing with sensitive data.

- **Cold data:** As the amount of data collected, and stored, explodes, the cloud can be extremely useful for keeping costs down. Cold data – that which is infrequently accessed – can be a good candidate for cloud storage. However, since much of this data is kept for compliance reasons, it is important to know if keeping it in the cloud is a satisfactory solution.
- **Transactional data:** Data generated from transactions can be highly critical for feeding business analytics, which are increasingly taking place in the cloud. However, most of the world's transactional data is processed on traditional, on-premises systems like the mainframe, so you need a way to pull transactional data from a mainframe to make it useful to feed business insights.
- **Data in motion:** Data that comes from sensors, IoT devices, clickstreams, etc. is often constantly feeding analytics or AI/ML initiatives. When it comes to integrating data in motion, you should consider security the flexibility of workflows and categorization methods as data moves through the cloud.

Best Practice: Design flexible workflows

Complex data integration workflows can cripple efforts to implement a hybrid cloud environment. Moving to a hybrid cloud means assessing how data integration workflows are built and whether they can be migrated across to cloud solutions. When making these assessments it is important to ask yourself several key questions:

- How will I get my data into distributed cloud storage formats?
- Will I have to re-design all the jobs I built to work on-premises and the cloud?
- What is my strategy for performance tuning for an environment that constantly changes?
- How will I use existing resources and skills to manage data integration workflows?

Assessing technology solutions that enable the design of flexible workflows through a design once, deploy anywhere approach are key to avoiding the common pitfalls of time loss and expensive skills investments when migrating to a hybrid cloud.

Best Practice: Know your data regulatory requirements

Government and industry regulations are rapidly expanding in number and scope. Whether your organization must comply with broad privacy laws like General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), or industry-specific regulations like HIPAA or Anti-Money Laundering requirements, you must have documented processes for managing and securing your data across your on-premises and cloud platforms.

When it comes to integrating your data in a hybrid cloud environment, ensure you have complete visibility into where your data came from, how it is used, and how it changed along the way – from the source systems to the cloud.

Of course, as noted above, security is critically important. This is particularly true when moving data from on-premises to the cloud. Ensure your data is secure when it is at rest and in motion, and that your data integration tools support the latest in security protocols.



How Precisely Connect Can Help

The Precisely Connect product family connects today's infrastructure with tomorrow's technology to unlock the potential of all your enterprise data. Precisely Connect can be deployed on-premises, on a private or public cloud, or in a hybrid environment. Execute on a single server or a distributed processing framework like Spark for maximum performance at scale.

Precisely Connect integrates all data across an organization, including mainframes, relational and NoSQL databases, the cloud, Hadoop data lakes, and more. Precisely Connect helps you maintain the best practices needed to successfully implement a hybrid cloud environment – all while delivering data in real-time to feed business applications and analytics.

- Easily integrate complex data types – such as VSAM and IMS – into a hybrid cloud environment by making data accessible and usable with new platforms and frameworks.
- Visually design data integration workflows once and deploy them anywhere – on-premises or in the cloud – without the need for re-design, re-compiling or re-work.
- Have a full view of your end-to-end data lineage for reporting and compliance.
- Move entire database schemas in a matter of minutes – with the ability to filter tables, columns and data types to only move the data you need.

[Learn more about Connect here!](#)





Precisely is the global leader in data integrity, providing accuracy and consistency in data for 12,000 customers in more than 100 countries, including 90 percent of the Fortune 100. Precisely's data integration, data quality, location intelligence, and data enrichment products power better business decisions to create better outcomes. Learn more at www.precisely.com.

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