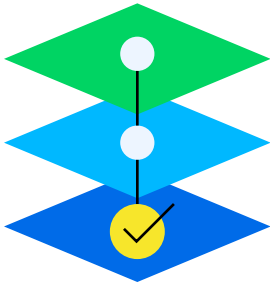


The Hidden Cost of Poor Data Access Layers

Why Enterprise Connectivity Is a Strategic Business Imperative



Organizations today generate and consume more data than ever before. Applications, analytics platforms, AI initiatives and business processes all depend on timely access to trusted information. Yet many enterprises continue to rely on fragmented, outdated or poorly designed data access layers that create hidden costs throughout the organization.

While the impact is not always immediately visible, poor data access layers increase development effort, slow application performance, introduce security risks, delay analytics projects and raise long-term maintenance costs. As organizations expand across cloud, on-premises and hybrid environments, these challenges become increasingly difficult to manage.

A modern, standardized connectivity strategy powered by enterprise-grade solutions such as [Progress® DataDirect®](#) technology helps organizations reduce complexity, improve performance, strengthen security and accelerate digital transformation initiatives.

Introduction

Data has become one of the most valuable assets in modern business. Organizations rely on data to support customer experiences, operational efficiency, business intelligence, regulatory compliance and AI-driven innovation.

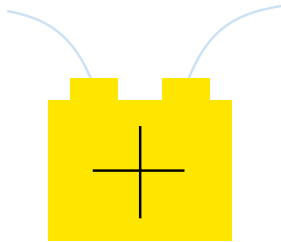
However, the value of data is directly tied to how easily applications can access it.

Many organizations focus heavily on databases, cloud platforms and analytics tools while overlooking a critical component of the technology stack: the data access layer. This layer acts as the bridge between applications and data sources, enabling communication across databases, cloud services, APIs and enterprise systems.

When the data access layer is poorly designed or maintained, organizations often experience hidden costs that impact productivity, performance and business outcomes.

Understanding the Data Access Layer

A data access layer provides the connectivity infrastructure that allows applications to communicate with data sources.



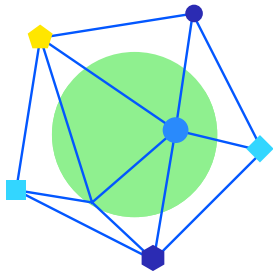
This includes technologies such as:

- **ODBC drivers**
- **JDBC drivers**
- **ADO.NET providers**
- **REST API connectivity**
- **Cloud application connectors**
- **Database access middleware**
- **Database gateways**

The data access layer is responsible for establishing secure connections, managing authentication, optimizing performance and supporting reliable data delivery between applications and data sources.

Whether data resides in relational databases, cloud applications, APIs or hybrid environments, the data access layer serves as the critical bridge between applications and the information they need. A well-designed connectivity strategy helps organizations simplify integration, improve performance, strengthen security and support scalability across increasingly complex technology ecosystems.

When connectivity is standardized and optimized, applications can access information efficiently and securely. When it is not, organizations face significant operational and financial consequences. Traditional integration approaches rely heavily on custom development, requiring teams to build and maintain separate connectors for each data source and API. This results in fragile integrations that are difficult to scale and support, slowing development lifecycles and increasing maintenance overhead.



The Hidden Costs of Poor Data Access Layers

Many organizations rely on custom-built integrations to connect applications with databases, cloud platforms, APIs and other data sources. While these integrations may solve an immediate business need, they often create long-term challenges that become increasingly difficult and expensive to manage as the technology landscape evolves.

Each new data source typically requires its own connector, configuration and maintenance process. Development teams must invest significant time building, testing and supporting these integrations while also adapting to software updates, API changes and evolving business requirements. As organizations adopt additional applications and platforms, the number of integrations grows, creating a complex web of dependencies that can be difficult to maintain and scale.

Over time, connectivity-related work begins consuming resources that could otherwise be dedicated to innovation, product development and strategic initiatives. Instead of focusing on delivering new capabilities and business value, development teams are often forced to spend their time troubleshooting connection issues, updating integrations and managing compatibility challenges across multiple systems.

The impact extends beyond the IT department. Longer development cycles can delay business projects, slow digital transformation efforts and increase overall engineering costs. New applications take longer to deploy, enhancements are delivered more slowly and organizations struggle to keep up with changing market demands. What may initially appear to be a technical issue ultimately becomes a business challenge that affects productivity, agility and competitiveness.

As data environments continue to grow in complexity, organizations that rely heavily on custom connectivity approaches often find themselves trapped in a cycle of ongoing maintenance and technical debt. Without a standardized connectivity strategy, development costs continue to rise while the organization's ability to innovate and scale becomes increasingly constrained.



Poor Application Performance

Application performance is heavily dependent on the quality of the underlying data access layer. When organizations rely on inefficient data connectors, outdated connectivity technologies or poorly optimized integrations, even routine data requests can introduce latency and processing delays. As applications scale and transaction volumes increase, these inefficiencies become more noticeable across both customer-facing and internal systems.

The impact extends beyond IT. Slow application performance can frustrate users, reduce employee productivity and increase infrastructure costs as organizations attempt to compensate for connectivity bottlenecks with additional hardware or resources. Over time, performance issues can negatively affect customer experiences and ultimately impact revenue.

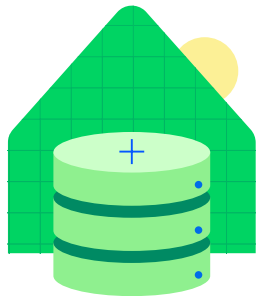
Security and Compliance Risks

As data volumes continue to grow and regulations become more stringent, security has evolved from a technical concern to a business imperative. Organizations are expected to protect sensitive information while maintaining compliance with industry regulations and internal governance policies.

Poor data access layers often rely on inconsistent security practices that create unnecessary risk. Weak authentication methods, inadequate encryption and fragmented access controls can leave critical systems vulnerable. Beyond the immediate security implications, these weaknesses can result in compliance challenges, reputational damage and significant financial consequences. At the same time, organizations must evolve their security requirements with modern authentication standards, integrate with enterprise identity providers and enforce increasingly sophisticated access controls across cloud, on-premises and hybrid environments. As businesses adopt zero-trust security models and stronger governance frameworks, legacy connectivity solutions often struggle to meet these expectations.

Support for modern authentication standards such as OAuth, OpenID Connect and Kerberos enables seamless integration with corporate identity providers, allowing organizations to enforce single sign-on (SSO), multi-factor authentication (MFA) and zero-trust access policies. Combined with robust encryption and secure connectivity protocols, modern connectivity solutions help organizations strengthen security, simplify compliance efforts and maintain consistent governance across their data ecosystems.

As a result, organizations should evaluate data connectivity not only for performance and compatibility, but also for its ability to support current and future security requirements. A secure data access strategy can help reduce risk, improve compliance readiness and build greater confidence in how enterprise data is accessed and managed.



Rising Maintenance Overhead

The hidden cost of connectivity often becomes most apparent over time. Each custom integration, connector or workaround introduces another component that must be maintained, updated and supported.

As organizations adopt new technologies and expand their digital ecosystems, the complexity of managing these connections grows rapidly. IT teams must continuously address API changes, software updates, compatibility issues and security requirements across multiple platforms. What begins as a short-term solution can quickly evolve into a significant operational burden, consuming resources that could otherwise be dedicated to innovation and strategic initiatives.

Delayed Analytics and AI Initiatives

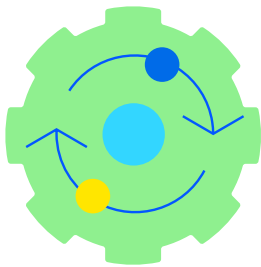
Organizations are investing heavily in analytics, machine learning and AI to improve decision-making and gain competitive advantages. However, the success of these initiatives depends on one fundamental requirement: access to reliable, high-quality data.

When data is fragmented across multiple systems and connectivity is inefficient, teams spend a disproportionate amount of time locating, preparing and integrating information. Instead of focusing on generating insights, they are forced to resolve data access challenges. This slows analytics projects, delays AI adoption and reduces the overall return on technology investments.

Why Modern Enterprises Need a Better Approach

The growing complexity of modern data environments requires a new approach to connectivity. Organizations must support cloud applications, hybrid and multi-cloud architectures, REST APIs, analytics platforms, AI initiatives and legacy systems—all while maintaining strong security and governance standards.

Meeting these demands requires more than individual connectors or point-to-point integrations. Organizations need a modern data access strategy that delivers consistent performance, enterprise-grade security, scalability and long-term supportability across the entire technology ecosystem. Connectivity should not be viewed as a technical afterthought; it should be recognized as a foundational capability that directly influences business agility, innovation and operational success.



How Organizations Can Modernize Their Data Access Strategy

Addressing the hidden costs of poor data access layers requires more than simply replacing individual connectors or upgrading databases. Organizations need a connectivity strategy that can support growing data volumes, increasingly distributed architectures and evolving business requirements.

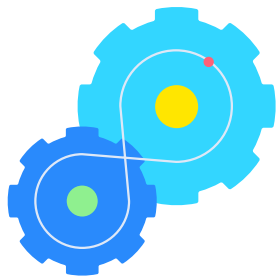
A modern data access layer should provide consistent connectivity across databases, cloud applications, APIs and legacy systems while maintaining high levels of performance, security and reliability. Standardization plays a critical role in reducing complexity, allowing development teams to spend less time building and maintaining custom integrations and more time delivering business value.

Performance is equally important. As organizations become increasingly dependent on real-time analytics, AI-driven applications and digital customer experiences, slow or inefficient connectivity can quickly become a business constraint. Reliable, high-performance data access helps provide critical information that applications, reports and operational systems need without introducing unnecessary latency or bottlenecks.

Security must also be a foundational consideration. Organizations face growing pressure to protect sensitive data while meeting regulatory and compliance requirements. A well-designed connectivity strategy should support strong authentication, encryption and governance policies that help secure data as it moves across cloud, on-premises and hybrid environments.

Finally, organizations should consider the long-term supportability of their connectivity infrastructure. As environments grow more complex, maintaining custom integrations becomes increasingly expensive and resource-intensive. Standardized connectivity solutions backed by expert technical support can reduce operational burden, improve reliability and help organizations adapt more quickly to changing business needs.

The DataDirect solution helps organizations address these challenges by providing enterprise-grade connectivity solutions that simplify access to data across modern environments. Through high-performance drivers, secure connectivity capabilities and broad support for databases, cloud applications and APIs, organizations can create a more scalable and future-ready foundation for their data initiatives.



CASE STUDY

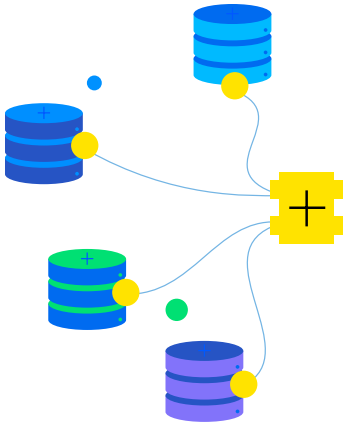
Coffing Data Warehousing Accelerates Cross-System Data Access

Coffing Data Warehousing (CoffingDW) faced a challenge familiar to many modern enterprises: business data was spread across multiple platforms including Oracle, Teradata, SQL Server, MongoDB and Hadoop. Integrating and querying information across these systems required significant manual effort, causing delays in analytics projects and increasing operational complexity. Rather than spending time generating insights, teams were forced to focus on overcoming connectivity barriers.

To address the problem, CoffingDW adopted DataDirect connectivity technology as part of its Nexus Query Chameleon platform. The solution provided a standardized way to connect, query, and move data across disparate systems while maintaining high performance and security.

The results were significant. Projects that previously required up to six weeks to complete could be delivered in as little as one day. The company also improved productivity, reduced time-to-market and enabled seamless cross-platform data integration without relying on complex custom-built connectivity solutions.

This example highlights a key theme of modern data access strategies: the largest costs are often not associated with the data itself, but with the effort required to access, integrate and manage it. By standardizing connectivity, organizations can reduce integration complexity, accelerate analytics initiatives and unlock greater value from their enterprise data assets.



Where Progress® DataDirect Fits

Organizations looking to modernize their data access strategy need more than incremental improvements—they need a standardized, enterprise-grade approach to connectivity that can scale with evolving business and technology requirements.

The Progress® DataDirect product provides a comprehensive connectivity layer that helps organizations simplify how applications, analytics platforms and business users access data across increasingly complex environments. By supporting industry-standard interfaces such as ODBC, JDBC, ADO.NET and OData, DataDirect connectivity enables consistent access to a broad range of relational databases, cloud applications, SaaS platforms, APIs and other enterprise data sources.

Rather than relying on custom-built connectors and point-to-point integrations, organizations can adopt a more standardized approach to connectivity that reduces development effort, lowers maintenance overhead and improves long-term supportability. This allows IT teams to focus on delivering business value instead of managing connectivity challenges.

The DataDirect solution also helps organizations address growing performance and security requirements. Optimized drivers and connectivity solutions support fast, reliable access to data, while enterprise-grade security capabilities help organizations enforce authentication, encryption and governance policies across cloud, on-premises and hybrid environments.

Trusted by enterprises and software vendors worldwide, DataDirect drivers provide the foundation for a modern connectivity strategy—helping organizations improve data accessibility, accelerate development, strengthen security and unlock greater value from their data investments.

Conclusion

The true cost of a poor data access layer is rarely visible on a balance sheet. Instead, it appears through delayed projects, increased maintenance effort, inconsistent data, security risks and missed opportunities for innovation.

As organizations continue investing in cloud platforms, analytics, AI and digital transformation initiatives, reliable connectivity becomes increasingly important. Data access is no longer just an IT concern. It is a critical business capability that influences operational efficiency, decision-making and competitive advantage.

Organizations that modernize their connectivity strategy can reduce integration complexity, improve data reliability, strengthen security and create a stronger foundation for future growth. In an increasingly data-driven world, the ability to access and move information efficiently may be one of the most important factors in determining business success.



**Explore how DataDirect capabilities
simplify and standardize your
enterprise connectivity strategy.**

About Progress Software

Progress Software (Nasdaq: PRGS) empowers organizations to achieve transformational success in the face of disruptive change. Our software enables our customers to develop, deploy and manage responsible AI-powered applications and personalized digital experiences with agility and ease. Businesses of all sizes get a trusted provider in Progress, with the products, expertise and vision they need to turn AI disruption into a competitive advantage. Millions of developers and technologists at hundreds of thousands of organizations depend on Progress every day. Learn more at www.progress.com

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