Beyond Integration:
Future-Proofing Your Enterprise through a Holistic, Data-Centric Approach to Compliance
EXECUTIVE SUMMARY

OVERVIEW

Enterprises turn hybrid by leveraging both in-house and cloud-based solutions to fully harness data for a smarter, insightful decision. Although hybrid model provides a huge advantage to data-driven enterprises, this constitutes complexities such as ensuring full compliance with various local and international regulations. And because observance of regulations can be costly, enterprises should look to a solution that enables full compliance without incurring significant losses.

In this white paper, the challenges that today’s enterprises in highly regulated industries have to contend with, the alternatives that they can leverage, and the limitations of these alternatives are discussed. We conclude this white paper by introducing Liaison’s Continuous Compliance Model powered by Alloy Platform, the world’s first data Platform-as-a-Service (dPaaS), which hybrid enterprises can leverage to reduce compliance costs and proactively sidestep other unforeseen compliance-related risks and challenges.

THE CHALLENGE

Hybrid enterprises should cost-effectively comply with various local and international regulations including SOC 2, HIPAA, PCI DSS, European Data protection Directive (Directive 95/46/EC), and European Annex 11 requirements for Computerized systems.

ALTERNATIVES AND THEIR LIMITATIONS

Various in-house and cloud-based alternatives promise innovative data management and integration. But these alternatives fall short of compliance needs of highly regulated, data-driven industries. In-house integration can be too expensive and unwieldy, whereas cloud-based solutions, although offers lower TCO, only offer partial compliance of data, application, servers, storage, and networks. iPaaS is perceived a better alternative, but since it’s application-centric, it cannot ensure data compliance at all levels and across different environments.
THE SOLUTION:
Simplifying Compliance through Liaison Continuous Compliance Model

Liaison introduces its Continuous Compliance Model powered by Alloy Platform, the world’s first data Platform-as-a-Service. This model enables hybrid enterprises to address the complexities of both handling an insurmountable amount of data and managing compliance. It addresses the need for infinite scale, resiliency, and robust security. It empowers business users to comprehensively solve compliance challenges that traditional middleware, iPaaS, and other cloud-based alternatives fail to address.
Industries can leverage either on-premise, cloud-based, or hybrid solutions, with cost and relevance of the solutions to their unique business requirements and environment being the key deciding factors. Although on-premise solutions provide enterprises a complete control over their business environment, help them deliver greater stability, and enable them to obtain faster results, cloud is seen as a potential alternative for data management. According to an IDC U.S. SMB survey, on-premise solutions are most likely preferred by the legal, manufacturing, banking/finance firms, and communications and media, whereas cloud is the top choice of real estate and retail firms. Enterprises that show a bias for cloud see that this alternative allows for rapid prototyping, pay-as-you-go model, lower cost of entry, higher adoption rates, scalability and integration, secure anywhere access, and lower total cost of ownership, as the upgrades, uptime, and security concerns can be offloaded to a cloud service provider.

To be able to deal with all possible contingencies, enterprises leverage an integrated, hybrid solution by utilizing both cloud and on-premise solutions. Aramark Uniform Services, for one, leveraged Salesforce with an on-premises customer database application for a simplified connection among various applications and for real-time updates. But, although this “having the best of two worlds” strategy can give businesses huge advantage, this constitutes complexities such as ensuring compliance with various regulations.

1 http://www.idc.com/getdoc.jsp?containerId=256293
JUGGLING THE COMPLEXITIES OF DATA GROWTH AND COMPLIANCE REQUIREMENTS

The volume, variety, and velocity of data is increasing at a very rapid rate, with 40 zettabytes of data forecast to be generated by 2020, even as information published by regulators and exchanges are ever-increasing. Managing both data growth and changes in regulations can be very challenging, costly, and daunting. Nevertheless, as non-compliance can result in more costly and exacting consequences, enterprises have to comply with various compliance regulations to gain more credibility, ensure customer loyalty, and avoid potential risks. Here are few of the compliance types and requirements for the enterprises.

COMPLIANCE TYPES AND REQUIREMENTS

SOC 2 is designed for technology-based service organizations that requires enterprises to provide a written statement of assertion and a description of their systems.

Key requirements/provisions:

1. Security
2. Availability
3. Processing Integrity
4. Confidentiality
5. Privacy

HIPAA. Intended to enhance the health care system, HIPAA requires health care providers, health plans, health clearingshouses and business associates, including people and organizations that perform claims processing, data analysis, quality assurance, billing, and benefits management, to adopt the national standards for electronic health care transactions and code sets. By virtue of the HITECH Act, HIPAA requirements are significantly updated.

Key requirements/provisions:

1. Electronic Transaction and Code Sets Standards
2. Privacy Rule
3. Security Rule
4. National Identifier Requirements
5. Enforcement Rule

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2 www.idc.com
**PCI DSS.** Developed by the founders of the PCI Security Standards Council, including American Express, Discover Financial Services, JCB International, MasterCard Worldwide and Visa, PCI DSS requires businesses to enhance security of payment and customer account data. It helps facilitate global adoption of consistent data security measures, and includes requirements for procedures, security management, policies, software design, network architecture, and other critical protective measures. PCI DSS affects retailers and financial firms.

**Key requirements/provisions:**
1. Public Company Accounting Oversight
2. Auditor Independence
3. Corporate Responsibility
4. Enhanced Financial Disclosures
5. Analyst Conflicts of Interest
6. Commission Resources and Authority
7. Studies and Reports
8. Corporate and Criminal Fraud Accountability
9. White-Collar Crime Penalty Enhancements
10. Corporate Tax Returns
11. Corporate Fraud Accountability

**OTHER REGULATIONS**

**Broadly applicable laws and regulations.** Sarbanes-Oxley Act (SOX); Gramm-Leach-Bliley Act (GLB) Act; Electronic Fund Transfer Act, Regulation E (EFTA); Customs-Trade Partnership Against Terrorism (C-TPAT); Free and Secure Trade Program (FAST); Children’s Online Privacy Protection Act (COPPA); Fair and Accurate Credit Transaction Act (FACTA), including Red Flags Rule; Federal Rules of Civil Procedure (FRCP).


**Key state laws.** Massachusetts 201 CMR 17 (Mass Data Protection Law); Nevada Personal Information Data Privacy Encryption Law NRS 603A.

Aside from local compliance regulations, US companies with global reach should also consider strict international requirements to remain globally competitive, such as:

**European Data protection Directive (Directive 95/46/EC),** which is a European Union Directive that regulates the processing of personal data within the European Union. It prohibits processing of personal data without meeting transparency, legitimate purpose, and proportionality.

**European Annex 11 requirements for Computerized systems,** which is the EU version of 21 CFR 11. It requires enterprises that export to EU and those who manufacture in EU to see to it that the same product and quality assurance is preserved when using a computerized system.

And the list does not end here. The State and private sectors will unceasingly draft regulations to protect the interests of both the business and the customers, and this poses various compliance challenges.
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KEY COMPLIANCE CHALLENGES

The continuous proliferation of data and regulations causes fatigue to US businesses. According to Thomson Reuters Annual Cost of Compliance Survey, the ever-increasing/complex regulatory changes, rising personal liability, growing resource staffing challenges, regulatory and IT risks are the key challenges that are expected to increase throughout 2015.3

Ever-increasing/complex regulatory changes

Thomson Reuters found that “70% of firms surveyed expect an increase in the amount of regulatory information that the regulators will publish in the next year, with 28% expecting significantly more.”3 70% of the respondents also surmise that the information published by regulators and exchanges will increase, too. This can result in significant challenges; keeping abreast of the regulatory changes and dealing with the complication of cross-border inconsistencies and divergence can be costly and risky. It requires enterprises to devote more time, effort, and money to understand, interpret, apply, and update reports to deal with it.

The graphs below show how regulatory changes carve out a greater share of an organization’s resources.

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**Figure 1**

**TIME SPENT ON TRACKING AND ANALYZING REGULATORY DEVELOPMENTS**

source: https://risk.thomsonreuters.com/sites/default/files/GRC02332.pdf

**Figure 2**

**TIME SPENT ON AMENDING POLICIES AND PROCEDURES**

source: https://risk.thomsonreuters.com/sites/default/files/GRC02332.pdf
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**FIGURE 3**
TIME SPENT ON CREATING AND AMENDING REPORTS FOR THE BOARD

IN AN AVERAGE WEEK, HOW MUCH TIME DOES YOUR COMPLIANCE TEAM SPEND CREATING AND AMENDING REPORTS FOR THE BOARD (IN HOURS)?

**FIGURE 4**
TIME SPENT ON CONSULTATION

IN AN AVERAGE WEEK, HOW MUCH TIME DOES YOUR COMPLIANCE TEAM SPEND CONSULTING WITH THE LEGAL, INTERNAL AUDIT AND RISK FUNCTIONS ON COMPLIANCE ISSUES (IN HOURS)?

**Source:** https://risk.thomsonreuters.com/sites/default/files/GRC02332.pdf
Rising personal liability

Of the firms surveyed by Thomson Reuters, 59% (up from 53% in 2014) expect the personal liability of compliance officers to increase in 2015, although it varies regionally. For example, in 2015, personal liability in the Middle East is expected to increase (84 percent), but this change is not expected in the United States and Canada.”

![Chart showing personal liability expectations](https://risk.thomsonreuters.com/sites/default/files/GRC02332.pdf)

**Figure 5** Personal Liability

Source: https://risk.thomsonreuters.com/sites/default/files/GRC02332.pdf

Growing resource staffing challenges

Because of the demand for seasoned compliance staff, resource staffing has become a challenge for enterprises, with 69% of the surveyed firms expect that in 2015, the cost of senior compliance professionals will increase.

“ANECDOTALLY, THERE IS A GENUINE LACK OF GOOD COMPLIANCE SKILLS IN THE MARKETPLACE, WHICH HAS DRIVEN UP THE COSTS OF COMPLIANCE PROFESSIONALS.”

— Thomson Reuters

Aside from demand, geopolitical risks is perceived as a factor in the increased cost of resource staffing. In the Middle East, for example, 80% of surveyed firms expect the cost of senior compliance staff to increase.
Regulatory matters

Regulatory matters, according to Thomson Reuters, are causing regulatory fatigue as these consume disproportionate amounts of board time, from correcting non-compliance and preventing further sanctions to implementing structural changes to meet new rules.\(^4\)

Besides these issues, enterprises are also facing other multiple compliance-related challenges. They need to consider the business users’ data utilization, BYOD risks, and shadow IT (Third-Party Apps) threats.\(^4\) Likewise, they should also underscore the need for more intensive supervision, demonstrating value of compliance, implementation of regulatory challenge, global reach and inconsistencies, and for hybrid enterprises, maintaining compliance across different environments.\(^4\)

Maintaining compliance across different environments

Data Centers

Data centers offer only compliance-ready colocation. Telx, for example, offer SOC 2, SOC 3, and HIPAA compliance in all of its 20 data centers, and PCI compliance for its Clifton Data Center Campus. But, Telx’s compliance with these regulations does not encompass the compliance of its clients’ on-premise data; the onus remains on the client.

SaaS solutions

Cloud-based IT can automate a company’s compliance and security programs. However, SaaS solutions vendors are also not responsible for the enterprise’s data stored in other environment as they offer compliance only on their cloud.

Notably, there are solutions vendors that offer both colocation and cloud solutions that are compliant to the strictest regulations. 365 Data Centers, for one, offers its clients colocation and local cloud data storage compliant to SSAE 16, HIPAA, PCI DSS, and ISAE 3402. Yet, its clients remain responsible for ensuring compliance of data outside 365 Data Centers’ storage environment.

Given these limitations, and to reduce compliance costs and complexities, hybrid enterprises should look to a holistic alternative for ensuring compliance.
ENSURING COMPLIANCE IS ONE OF THE MAJOR PAIN POINTS IN BUSINESSES. CONSISTENT INVESTMENT NEEDS TO BE MADE IN COMPLIANCE IN ORDER TO KEEP AHEAD OF THE COMPETITION AND THRIVE IN TODAY'S HIGHLY DEMANDING MARKET. THERE ARE VARIOUS ALTERNATIVES THAT HYBRID ENTERPRISES CAN LEVERAGE TO ALLEVIATE COMPLIANCE COMPLEXITY WHILE KEEPING COSTS TO A MINIMUM.

Thomson Reuters suggests that firms should have a lobbying program to manage the future regulatory agenda, and build "an inherent level of flexibility into all technological compliance solutions implemented." Various solutions vendors offer data integration technology, such as iPaaS and in-house, integration software. While these alternatives bring enterprises a huge advantage, these fail to offer a continuous compliance model that is holistic and data-centric.

**Table 1** demonstrates how in-house and cloud-based integration alternatives fall short of the compliance needs of hybrid enterprises in highly regulated industries that struggle with juggling insurmountable amount of data and snowballing regulations.
## DATA COMPLIANCE ALTERNATIVES AND THEIR LIMITATIONS

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Benefits</th>
<th>Limitations</th>
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</table>
| In-house integration        | Full control over data, virtual and physical servers, networks, storage, and applications; thus, full control over compliance at these environments.                                                        | True cost of ownership is extremely high; guaranteeing ongoing compliance is expensive:  
- need to maintain multiple FTE to research the changes  
- need expertise in application implementation  
- managing the constant flow of upgrades requires time and expertise |
| Enterprise Service Bus (ESB) | - manages access to services and applications  
- present a single and consistent interface to end-users  
- incorporates the features required to implement SOA  
- facilitates constant changing application versions and upgrades | - too expensive and unwieldy  
- leads to delay and complexity as it requires installing three environments: development, test and production  
- inflexible underlying technologies  
- requires expensive integration and compliance experts |
| ETL or Batch Data Integration | - facilitates getting data in and out of a repository (data mart, data warehouse) for analytical purposes  
- often addresses data quality and cleansing as well as MDM requirements | - does not facilitate real-time data processing; thus, it does not cover compliance of data in motion |
| XML-based tools             | - designed to handle smarter data sets at low latencies                                                                                                                                                  | - not ideal for supporting the poly-structured information that’s becoming more common in today’s enterprise; thus, limited compliance |
| Cloud-based solutions       | Compared with in-house integration solutions, it provides lower total cost of ownership and lower compliance costs as CSPs can provide compliance from the host operating system and virtualization layer down to the physical security of the CSP facility | Although this alternative offers lower TCO:  
- it only provides compliance of data migrated to the cloud, leaving the rest of responsibility to the company  
- compliance of CSP does not make the company fully compliant with the regulations  
- legal issues with data residency |
| Public IaaS                 | - CSPs can ensure compliance of physical servers, storage, and networks                                                                                                                                 | - the onus of ensuring compliance of data, applications, and virtual servers (to some extent) is on the company  
- companies should use continuous monitoring for visibility into CSPs compliance |
| Public PaaS                 | - CSPs can ensure compliance of applications, virtual and physical servers, storage, and networks                                                                                                       | - the onus of ensuring compliance of data is on the company  
- companies should use continuous monitoring for visibility into CSPs compliance |
| Public SaaS                 | - CSPs can ensure compliance of applications, virtual and physical servers, storage, networks, and to some extent, data                                                                                     | - it cannot provide full compliance of all company data  
- companies should use continuous monitoring for visibility into CSPs compliance |
| iPaaS                       | It facilitates rapid and economic integration of systems, enabling enterprises merge on-premises and off-premise systems without requiring considerable coding and re-architecting. Compared with traditional middleware, iPaaS provides lower compliance and other costs. | While it provides lower compliance and other costs compared with the traditional middleware, iPaaS is application-centric, integration-focused solution, and not data-centric, which is what hybrid enterprises need for higher-level, continuous compliance. |

**Sources:**
Given the premise that data and information that regulators publish will unceasingly increase, enterprises should future proof their assets by employing a unified compliance management delivery model through leveraging a holistic, data-centric platform — a platform that does not merely integrate applications and systems but scale with data and deliver the benefits of a unified integration and data management solution, enabling enterprises to proactively comply with the strictest standards and regulations.

Continuous compliance means ensuring full compliance of all organization data — be it at rest, in motion, on premise or in the cloud. On-premise and cloud-based solutions fail to provide full compliance. And while iPaaS seems to be a better approach to ensuring compliance by integrating different systems and applications, it does not provide a data first strategy. This what makes data Platform-as-a-Service (dPaaS) a much-needed compliance solution that today’s highly regulated industries should leverage.
Liaison introduces its Continuous Compliance Model that can address the complexities of both handling an insurmountable amount of data and managing compliance. This model is powered by Liaison Alloy Platform, the world’s first dPaaS solution that addresses the need for infinite scale, resiliency, and robust security, and comprehensively solves compliance challenges that traditional middleware, iPaaS, and other cloud-based alternatives fail to address.

Architecturally, the Liaison Alloy Platform consists of three modules:

**Data Orchestration:**
rich set of functionalities to integrate applications and data in cloud as well as enterprise system

**Data Persistence:**
Big Data technologies and usage of polyglot data management techniques with accessible APIs to manage data and support schema on read approach

**Data Visualization:**
transparency into data and data flow through easy to use customizable interfaces
Alloy Platform can ensure compliance of data across different environments and in all states—at rest, in motion, on premise, or in the cloud. Tailored on a multi-tenant platform, Alloy platform gives businesses real-time access to all of their transactions at the data layer, provides full visibility into data and data flows in the right context, and helps integrate data from social media (Facebook) and other analytics tools (Google Analytics and customized tools), allowing for a holistic, continuous compliance.

Alloy Platform also enables businesses to put reporting data in a single view, simplify complexity through automation of the process for managing data flows, and providing the agility missing in the old process. This platform helps businesses improve the timeliness of the analysis throughout their business portfolio.

As Alloy Platform was built with Big Data in mind and combines integration and data management disciplines that can deal with compliance complexities, it enables enterprises to economically ensure continuous compliance at all levels—from data center to integration, application, compute, and network levels. This can be translated into lower compliance costs and better return on investment (ROI) and return on data assets (RDA).

Use Cases of Alloy Platform

**Integrating a Supply Chain.** By leveraging Alloy Platform, businesses can keep their supply chain compliant and running smoothly. It helps businesses connect and transform day-to-day transactions, regardless of its amount and origin, thus enabling businesses to handle compliance efficiently, while providing limitless scalability and rock-solid security.

**Integrating a Hybrid Environment.** Alloy platform can serve as a hub where data flows through and can take on complex tasks such as data management in hybrid environment. As it integrates data in a hybrid environment, it can reduce compliance complexities.

**Enabling Big data.** Built with Big Data in mind, Alloy Platform enables enterprises to pull data from numerous sources for analytics in a reliable, secure manner; thus, reduces time to insights, increases significant cost savings, and allows for proactive compliance of structured and unstructured data.
Table 2 shows how dPaaS addresses the limitations of in-house and cloud-based integration alternatives

**TABLE 2  DPAAS ADVANTAGE**

<table>
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- need to maintain multiple FTE to research the changes  
- need expertise in application implementation  
- managing the constant flow of upgrades requires time and expertise  
- too expensive and unwieldy  
- leads to delay and compliance complexity as it requires installing three environments: development, test and production  
- inflexible underlying technologies  
- requires expensive integration and compliance experts  
- does not facilitate real-time data processing; thus, it does not cover compliance of data in motion  
- not ideal for supporting the poly-structured information that's becoming more common in today's enterprise; thus, limited compliance | dPaaS can provide the following unprecedented benefits:  
- Holistic, data-centric approach to compliance  
- Lower compliance costs compared to other alternatives  
- Comprehensive approach that incorporates people, process, and technology  
- Pulls together integration and data management disciplines that can deal with compliance complexities  
- Offers both integration and data management in a unified, cloud-based platform  
- Provides insights into the integration layer to enable better compliance, security, and governance while still allowing for full control and access  
- Provides full visibility into the heuristics of the data flow, helping enterprises mitigate risk  
- Tailored solutions on a multi-tenant cloud platform  
- Offers micro-services that are dedicated to specific business functions  
- Automated mapping solution that:  
  - accelerates and simplifies the data conversion process  
  - eliminates the need for laborious and complex hand-coding  
  - reduces the time to create new maps  
  - houses a powerful algorithm for data profiling and cleansing  
  - provides great time to value (TTV)  
  - reduces costs  
- Compliance of data in all states — at rest, in motion, on premise, or in the cloud  
- Data-centric, not application centric  
- Managed services in the cloud |
| Cloud-based solutions | Although this alternative offers lower TCO:  
- it only provides compliance of data migrated to the cloud, leaving the rest of responsibility to the company (partial compliance)  
- compliance of CSP does not make the company fully compliant with the regulations  
- it entails legal issues with data residency  
- companies should use continuous monitoring for visibility into CSPs compliance | |
| iPaaS | While it provides lower compliance and other costs compared with the traditional middleware, iPaaS is application-centric, integration-focused solution, and not data-centric, which is what hybrid enterprises need for higher-level, continuous compliance. | |

Harnessed effectively, Liaison's Continuous Compliance Model can help mitigate the compliance challenges including the ever-increasing/complex regulatory changes, rising personal liability, growing resource staffing challenges, and other regulatory matters, as well as fill in the gaps that other alternatives fail to cover.
The proliferation of data and snowballing regulations are the main pain points of today’s businesses. To enable a future-proofed enterprise, you should cope with domestic rules that have global reach by employing a continuous compliance model, powered by a holistic, data-centric platform.

By leveraging Liaison’s Continuous Compliance Model powered by Alloy Platform, the world’s first dPaaS, hybrid enterprises can reduce compliance costs and sidestep other unforeseen challenges and costs.

REFERENCES
2. www.idc.com

ABOUT LIAISON
Liaison Technologies provides integration and data management solutions to help customers unlock the power of a data-centric approach to their business.

Liaison’s cloud-based approach breaks down the barriers between data silos to tap into the valuable information needed to make better decisions, faster. Tailored to solve complex data problems today while building a robust foundation for tomorrow’s unforeseen challenges, Liaison fosters a seamless flow of information securely and at scale.

Founded in 2000, Liaison serves over 7,000 customers in 46 countries, with offices in the United States, The Netherlands, Finland, Sweden and the United Kingdom.

We can future-proof your enterprise. Contact us for more details.