MOODY'S ANALYTICS

Whitepaper

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Cloud-Based Credit Origination Solutions are Not all the Same

Introduction

Software as a Service ('SaaS') is already an established option among loan origination software vendors. It is a simple concept riding on a strong business case: clients subscribe to an application hosted by the vendor over the internet, rather than licensing software and installing it on their own hardware. This allows lenders to focus more on user onboarding and aligning the software to their specific needs, while requiring less time and fewer internal resources to maintain the software.

Lenders are striving to become leaner. The SaaS delivery method aligns to this goal with the promise of reliability and timeliness, without the need to maintain a large base of highly skilled IT resources. SaaS also offers lenders reduced deployment time and increased cost-effectiveness. Vendors like the SaaS model too, because it increases client satisfaction. It is therefore not surprising that both lenders and vendors share strong enthusiasm for adopting the SaaS model.

As more vendors build SaaS offerings, however, the discussion is moving from "Is SaaS viable?" to "Which features and capabilities of the solution make it a better SaaS offering?" In this paper we will look at four key questions that organizations should ask as they explore a SaaS solution for loan origination.

1. Are there deployment options?

While many organizations understand which functionality would address their loan origination requirements, they are often less certain about which deployment model would best meet their needs. They struggle to choose between the three primary options – public cloud, private cloud, or a hybrid deployment with multiple cloud and/or on-premise components.

Private cloud deployment uses proprietary architecture dedicated to a single organization, which retains a level of control over both hardware and software. Public cloud deployment uses proprietary architecture to support multiple organizations and the hardware topography is managed by the cloud provider of choice, for example Azure, Amazon Web Services, Google Compute Engine. Some countries have regulatory requirements that make public cloud deployment challenging, because they prohibit storage of data outside of specific geographies or in multi-tenant scenarios where more than one organization is using the same application. Offerings in the public cloud therefore require stronger due diligence for data security and regulatory compliance.

A hybrid deployment distributes components of a single application across both public cloud and private cloud. For instance, a bank that deploys its loan origination application on public cloud could have instances of integrations with its legacy applications running on a private cloud. In this way, any country-specific regulatory concerns could be addressed by retaining sensitive data in the private cloud. The vended product's architectural support for data residency becomes critical in such situations. When the same data needs to be consumed by users in other geographies as well, the architecture needs to ensure appropriate data access and performance for those users.

Multi-cloud strategy is another option whereby vendors deploy their software to multiple public clouds to have a back-up and sufficient failsafe capacity to keep services running reliably. Multi-cloud deployments are typically used to reduce downtime and satisfy client needs in multiple time zones.

Deployment selections need to take into consideration not just the initial application, but also any additional modules that will be subsequently added to the application. Before settling on a particular deployment option, lenders should ask how quickly and seamlessly new modules can be deployed if they are added after the initial application. In a well-architected SaaS solution, this deployment occurs without disruption to either users or user-configurations.

Lastly, on-premise deployments require IT staff to install, test and maintain the software, as well as implementing any additional modules that may be acquired after the initial application. For most lenders, on-premise deployments provide a high level of control, but also incur the highest total cost of ownership. As a result, the industry is largely moving toward cloud deployments.

2.   Can my organization easily extract data?

The goal of any origination software is to create a process that is seamless for users. Ideally, users would be able to access one system for key credit decisioning and monitoring activities, and build a single repository for credit and risk related data. Having one single source of truth produces a robust credit information database with high data integrity. Not all SaaS providers allow data extraction from the hosted platform and if they do they may not offer it with consistent/simple API.

Lenders who can extract clean and true data, are better able to meet audit and regulatory requirements, which is often a key driver for upgrading an origination system. However there are many more benefits to a modern origination system than required reporting. Real-time, on-demand extraction of data enables lenders to gain meaningful insights at the single obligor level, which in turn empowers them to manage their portfolio more effectively. Lenders should therefore evaluate data extraction methodologies when selecting a vendor, for example, by asking whether the solution offers Representational State Transfer – Application Programming Interfaces (REST APIs) for on-demand data extraction.

In addition, lenders should determine whether the vendor offers offline batch data extraction, so that they may extract less time-sensitive data to be stored in a central data warehouse or pushed to downstream systems. This functionality will enable their organizations to methodically deal with large volumes of data.

3.   How does the solution integrate with software I already have in place?

Good vendors offer a set of industry best-practice capabilities that leverage their unique expertise, coupled with an integration framework that simplifies communication with other bank systems and pertinent vendor solutions. Lenders should evaluate vendor integration frameworks, seeking a framework that lets them construct the solution that best meets their needs, instead of adapting their business processes to the rigid design of a single solution.

Vendors operating in the SaaS space often establish a set of APIs and standards for data exchange among applications and integration with on-premise systems. Using API's for bi-directional integrations with both bank internal systems and third-party systems ensures lenders can benefit from best-of-breed systems, for instance, by freeing users from needing to re-key data between systems.

Lenders have many integration priorities. For example, integration with document management systems that are compliant with the industry standard Content Management Interoperability Services (CMIS) is important to many lenders. Most lenders also care about

integration with core banking systems, customer relationship management systems, and workflow engines that are Business Process Model and Notation (BPMN) 2.0 compliant. When evaluating a vendor solution, it is important to understand how each of your high-priority integrations will work after implementation.

With a vendor offering good integration capabilities, banks can build their origination solution at the pace their organization requires, replacing big blocks of capital investment with more flexible and targeted operating expenditures. Improved deployment of capital is not just an outcome in this case, but a key financial objective for most banks.

4.   How closely do the features of the system meet my organization's origination needs?

Expectations and requirements of an origination solution often vary with the size of the bank, complexity of the portfolio, geographical footprint, and investment in legacy systems. While each organization's needs are different, in this section we will address configurability, versioning, and reporting topics, which when implemented thoughtfully, will help the organization meet their evolving needs.

Robust Configurability

Requirements for an origination system can often be highly dynamic, as changes in either regulatory or business conditions frequently alter the playing field. With traditional technology, a lengthy and costly cycle of engagement between the vendor and the organization was required before changes could be implemented in the system. This process impacted productivity as organizations waited for changes to be completed.

Modern technology improves this situation dramatically. With today's SaaS solutions, lenders can be very self-sufficient in the management and maintenance of their software. Superior software solutions are architected to provide maximum configurability that can be implemented by the business administrators and other designated non-IT resources. Robust and agile configuration capabilities provide functionality built directly into the user interface to adjust the data model/structure, screen layout, and business rules of the system.

Controlled extension of the vendor solution greatly reduces the reliance on IT skills for common scenario changes. Software solutions offering graphical tools for user configuration best support this objective. Data model, user interface and business rule configuration capabilities together play a critical role in extending the in-product validations, filters, and contextual rendering of fields in the user interface. Additionally, given capability to write business rules in natural language, business administrators can tackle numerous business conditions that might otherwise exceed their technical capabilities.

Out-of-the-Box Configuration

It is important to recognize that the theme of greater configurability and active client control is subsidiary to an out-of-the-box configuration set that suits a significant portion of an organization's day to day activities.

For instance, in the credit origination space, core credit and risk activities associated with loan origination should be pre-configured. These would include management of legal hierarchies and client relationship structures, risk grading models, facility structuring, covenants management, risk mitigation, credit analysis memos and some basic business process management. Lenders should be able to choose for themselves which capabilities they need, and alter or extend the out-of-the-box solution to reflect the processes unique to their organization. An example of this would be configuring an additional entity hierarchy, beyond typical credit and legal hierarchies, to reflect key supplier relationships.

Robust configuration tools, combined with industry leading out-of-the-box product capabilities, allow lenders to more readily move from standard configurations in their SaaS solution to a tailored product that is tightly aligned to their policies and processes.

Extensibility Toolkit

Lenders benefit from the extensive configurability that characterizes a superior SaaS solution because it reduces cycle times in addressing common update scenarios. However, they may still occasionally want to extend the product capabilities beyond the boundaries of configuration, for example in order to produce new revenue streams. To have this flexibility, lenders should seek a vendor solution that offers a framework and detailed documentation to guide and support programmatic extension of the platform. Salesforce.com does this with its Force.com platform, encouraging developers to create new tools using its APIs which deliver increasing productivity gains to their end-users and even external customers.

A well-architected extensibility toolkit extends the functionality of the platform, and ensures that lenders can build new and appropriate functionality to improve their internal performance, address operational challenges, and stay current with industry changes. In the credit risk space, for example, an analyst could use the extensibility toolkit to implement logic for credit risk instruments and techniques that have yet to be invented.

A strong SaaS vendor typically demonstrates its commitment to supporting client extensibility through its commensurate investment in developing these capabilities and retaining client and outside parties' participation. Vendors may even incorporate published innovative third-party cloud software to increase client offerings, or they may offer enhanced supportability through use of Platform as a Service (PaaS) technology.

Capability to extend the product in this way is a powerful option for lenders functioning in complex environments with highly skilled IT resources.

Seamless Product Upgrades

SaaS deployments make it easier to upgrade software, and database architecture is the foundation upon which the relative ease of delivering and implementing upgrades is defined. Smaller, more frequent upgrades in the SaaS model allow the providers and the clients to ensure continuous compatibility while providing valuable features to users far more quickly than in traditional enterprise software. A well architected solution separates client configurations from the standard out-of-the-box offering to make these upgrades seamless. This separation may be achieved by maintaining two configuration databases – one for the vendor and one for the lender organization. In such a setup, as lenders make modifications to the product, these custom artifacts can be maintained as-is during product upgrades.

Data Versioning Support

Support for versioning of data in the transactional database is essential for auditing and reporting purposes. It allows the trail of changes made to a record to be stored. Snapshots of data related to a business event can be created by simply referencing the record versions that were active at the time of the event. Additionally, because all changes to data are captured, it becomes possible to retrieve field level changes over time by comparing record versions.

Lenders who want to take advantage of the more frequent updates typical of a SaaS solution, must select a vendor capable of ensuring backward compatibility with earlier versions of the solution. A well-designed SaaS solution will define modular dependencies by version, and store the versioned module configuration artifact in the database. With this architecture, dependent modules can continue to work together even if one component is upgraded.

Reporting Framework

Most solutions come with a pre-configured set of reports. Because organizations have unique reporting needs, though, it is essential for the origination solution to offer flexibility to also produce custom reports and dashboards. These may be of the static variety – for example, to provide obligor data to a credit memo – or they may be more dynamic in nature and present key performance indicator (KPI), service level agreement (SLA) data, or other portfolio level information as of a particular point in time or over a period of time.

Often, organizations have already invested in an intelligence tool or reporting framework, and have a broad based in-house skill set to manage the framework. In order to leverage this initial investment in conjunction with the loan origination solution, particularly for portfolio insights, best practice would be to migrate transactional data to an OLAP database specifically designed for reporting needs. This practice allows the organization to continue to utilize the investments they've already made. For organizations that have not heavily invested in other reporting frameworks or are looking for additional types of reporting, it's important the solution offers 'self-service' flexibility built into the product to create new and modify pre-configured reports.

In summary, lenders evaluating SaaS solutions should look for a reporting framework that gives them flexibility to use multiple, internal or external reporting tools.

Open Source Components to facilitate technology advancement

Lenders can enhance the flexibility of their origination systems and benefit from the latest industry advancements, by sourcing vendors that leverage open source software. The marketplace of open source data services is rich with various options such as Postgres, MySQL, Redis, and Hadoop, allowing application developers to choose the right service for the use case without upfront costs. Attributes such as native data versioning, ability to dynamically add content to the database without core schema changes, and increased scalability without massive enterprise licensing help filter options in this space.

Open source offerings in other key loan origination feature areas, such as document management and business process maintenance, are also plentiful and should be utilized where possible.

Although use of open source software by financial institutions does not pose risks that are fundamentally different from those presented by the use of proprietary or self-developed software, there are specific guidelines on the use of free and open source software (FOSS) that should not be ignored when acquiring an origination solution. The Federal Financial Institutions Examination Council (FFIEC) agencies[1] have issued guidance to address unique risk management practices applicable to FOSS.

A key guideline is that the solution should offer an opportunity for financial institutions to modify the software to better align IT capabilities with business strategies. Lenders should therefore ensure their selected solution is configurable and includes an extensibility toolkit.

Another guideline is to ensure the solution meets their needs for compatibility and interoperability. FFIEC emphasizes that integration includes the initial implementation of the software as well as subsequent maintenance and upgrades. This is particularly important in instances where an API framework embedded within the product enables integration with a particular operating system or other application.

Given the open nature of software development, FFIEC lays equal emphasis on safeguarding financial institutions against operational risks. A third key guideline recommends use of mature software, or that the source code should be acquired from a trusted party and tested internally by the vendor before implementation. Documentation, contingency planning and licensing obviate some of the operational and legal issues that institutions are already familiar with from their experiences with proprietary software.

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1 The FFIEC member agencies are the Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, National Credit Union Administration, and Office of the Comptroller of Currency. www.ffiec.gov

Conclusion

When selecting a new loan origination system, there are myriad considerations and options. The traditional options are packaged software products that narrowly meet the lender's business requirements as defined at the time of the purchase. The modern options are SaaS solutions that are configurable to a lender's needs today, but also easily and affordably scalable and adaptable to future business needs as they evolve.

Taking into account the responses to the key questions we've highlighted above, lenders should consider adopting a SaaS solution, characterized by deployment optionality, significant client configurability and extensibility, efficient integration capabilities, and measures for reporting on and preserving data integrity. All this while ensuring compliance with both regulatory guidelines for the software as well as the business.

Meeting these key requirements is a significant undertaking and requires a vendor with proven capabilities in SaaS and enterprise software development, as well as a proven track record of investment in new technologies and feature capabilities.

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