digibee

WHITEPAPER

Solving the integration challenge with digibee

Table of Contents

About Digital Innovation in the New World

The digitalization of the world has created a new generation of consumers used to innovative services and a consumer experience previously unavailable in traditional organizations.

Digital leaders like Spotify, Uber, Amazon, Google, and so many others have not only redefined experiences, and the way consumers relate to businesses, they have also defined new markets and toppled traditional markets. These winners understood the demand of the new generation of consumers to solve problems on their own, immediately, and using digital channels such as bots, smartphones and smart gadgets, making intermediaries to products and services irrelevant.

Traditional organizations now struggle to innovate and survive in the face of this new market dynamics and consumer relationship. The main reason is that, these organizations live in a different reality than digital winners.

While digital companies are already born using modern technology platforms and with little or no technical debt, traditional organizations have to live with various information systems that do not talk to each other running on a lagged technology architecture. This reality is a tremendous obstacle that prevents traditional organizations from creating disruptive new services or products to compete in the new digital world.

Considering this scenario, a huge challenge emerges: How can traditional corporations, with all the previously invested \ technology assets, be able to compete with companies like Amazon, Facebook, Netflix, Apple, Microsoft, or Alibaba? In addition to these digital winners, new entrants inflated by venture capital anabolics attract customers in a much simpler and more cost-effective way. These companies are already born without technical debts, are on the technological frontier, have leaner costs, are more efficient and are closer to new consumers with their disruptive models. Added to this, there is the mind-blowing speed of the markets, the need to incorporate new technologies such as Machine Learning, IOT, Artificial Intelligence, etc., etc., etc. yes, it's a tough world out there.

Ok, so where do we start?

Among a multitude of needs, one that is considered very important to pave the way for digital transformation is the implementation of a modern integration architecture that will modernize legacy systems, reuse much of the investments made and create an efficient environment where connecting these legacies with the new generation of digital services is a much simpler process.

In summary, building and providing an agnostic integration platform that enables the coexistence of any legacy, even the oldest technology asset, with modern digital systems is the strategy that companies should follow to enable and foster innovation.

The Current Integration Predicament

The challenge of integrating systems is an old problem that has become more prominent by the new digital reality. Integrating existing systems is a complex activity where companies often have to deal with outdated technologies and high maintenance costs.

Integrating systems that have been written 5, 10, 20 years ago like the traditional ERPs and CRMs on the market, or even proprietary home-developed systems, have proven to be a real marathon; consuming time, money, and specialized resources. Even the latest systems, already API or Web Services oriented, face the need for specialized knowledge to connect to the world through code. Replacing legacy systems involves many business downtime risks that executives are often unwilling to run or pay for.

The traditional integration approach with the ESB, ETL and EDI have been shown extremely complex, expensive, difficult to deploy and maintain over time. These approaches, besides not solving the problem, become another problem themselves, sometimes more serious and/or complex than the original problem that needed a solution; the fix becomes worse than the problem.

> *"Specialized resources are rare, expensive and difficult to hire. We live in a time of scarcity of technical and quality professionals. These resources are hotly contested and often change jobs with poorly differentiated offers. Integrating systems also have proved unattractive for these professionals, who prefer other technical challenges instead of integration work perceived as a less noble task."*

These technical challenges end up discrediting the technology areas of companies to their business colleagues. The business demands are not delivered on time by the technology area or the necessary deadlines inhibit the time to market. Launched products and services do not always present a consistent customer experience, affecting the company's image and expected return. The costs that the technology area has end up making projects unfeasible or lengthening the return on investment.

NO CODE model to Digital Integration

Traditional Approach

The traditional approach to integrating systems requires code, and coding is very expensive. Professionals consider it an intellectually pleasurable activity, but it is still a skill that requires talent, even among technology professionals. For every line of code written, whether for systems or integrations, you need to debug, compile, test, ensure quality, security, deploy, execute, operate, monitor, maintain, alter, and continually improve this code. These activities, which are complex and require a great deal of material and human resources, are often minimized despite the high cost and time required.

Coding integrations require patterns that are often ignored or overlooked. Each integration becomes unique and known only to the developer. Business rules are eventually implemented in integrations, making systems maintenance and evolution very difficult. Over time, the amount of seamlessly created integrations will eventually become characteristic of an entangled knotted ball that is hard to untie. The new digital technology reality, with automated assistants, bots, Internet of Things, mobility, artificial intelligence, machine learning, big data, and analytics, demand a new integrations' model.

Digibee NO CODE

The digital transformation challenges require a new system integration model. Digibee has built a platform for the end to end automation, execution and operation of integrations that solves the integration predicament in a fast, organized, efficient and scalable way. In addition, Digibee has built a cost effective SaaS-based business model where our customers can try out and test their assumptions without major investments in hardware, software, people or skills. **We call "pipeline" each integration or transformation platform created as well as operated data flow, in an obvious analogy to a home's plumbing. The platform has structured automations in the three domains of the integration lifecycle:**

DIGIBEE INTEGRATION MODEL

Design: Building Code-Free Integrations

To create new integration, the Digibee platform presents a simple canvas, where the user can simply drag and drop elements, creating integrations on average 10 times faster compared to traditional code-based approaches or other tools.

Digibee has designed specialized connectors for the most diverse systems, business functions, data and entities, which are graphically represented to be easily understood by anyone, without the need for any specialized programming skills.

Today our platform has about 550 connectors ready for different technologies, such as API, Web Services, RPAs, ERPs, Webhooks, databases, files, messages, etc. These connectors are tailored by Digibee to meet the specifics of each application, exposing only the necessary data and using business definitions.

If a connector does not yet exist for reuse, Digibee has two specialized development teams organized in tracks to create connectors for the most diverse and specific systems or technologies. When needed, the development tracks usually build a connector to platform standards in less than two weeks. Many connectors are built faster, in just a few hours, depending on the customer system technology complexity.

In addition to the connectors, the platform provides data transformation components that are also graphically represented, allowing the creation of complex data connection, transformation, and enrichment rules. These components are under constant enhancements and are automatically updated in our SaaS platform.

Another advantage of this visual environment for creating integrations or pipelines is the self-documentation capability. The pipeline flow representation is an easy-to-understand, didactic way of presenting the pipeline purpose and function.

Each client can also create private libraries, proprietary to an organization with limited access to the internal systems, and establishing specific connections to internet services such as maps, social networks, public cloud systems, etc. This feature enables the company to connect internal business functions with any internet based customers, suppliers and business partners provided services.

After design and creation, pipelines are deployed to the platform runtime environment, in a safe, organized and automatic way.

Runtime: Flawless Execution of Pipelines

Traditional technologies such as ESB, EAI, and the like, where execution code is centralized in a single environment, eventually become a single point of failure, suffering from performance loss, and high infrastructure and maintenance costs.

In these types of technologies, service or infrastructure failures are responsible for all running integration services to stop, impacting the entire enterprise. To create high availability environments requires doubling or tripling expensive hardware and software infrastructures, which causes the systems maintenance and upgrading a nightmare.

In the Digibee platform, each pipeline runs 100% isolated in containers (dockers) in a kubernetes infrastructure, optimized exclusively for the proposed integration. Failure of one pipeline does not interfere with the execution of another. In the event of a pipeline crashing or failing, a new instance is started less than a second after the failure, drastically reducing failures caused by integrations. Even if Digibee's management platform becomes unavailable, integrations continue to work regardless of the management platform.

The scalability of the platform is in infinite theory, being limited to the size of the cloud provider availability or infrastructure. Pipelines scale into their default configuration to support 10 concurrent transactions. This flow can be increased vertically by extending the pipeline to support a larger volume of concurrent transactions, or horizontally by creating new instances of pipelines.

This scalability is dynamic and can grow automatically as based on business demand processing or transaction volume at any given time. Each pipeline can run in a high availability and/or disaster recovery configuration simply by instantiating another pipeline in parallel in another cloud region or physical infrastructure.

Several resilience functions are implemented in our runtime, such as the circuit breaker: If an endpoint is receiving a very large volume of requests and it stops responding, our platform has the ability to queue requests or messages and can wait a few seconds until the endpoint recovers or simply discards part of the requests maintaining the service operative.

Data Security is Our Priority

Data security is a main concern in the Digibe Platform. On top of the pipelines isolation in customer only accessible containers, sensitive data flow inside the containers are also encrypted using a Digibee proprietary algorithm or any customer supplied encryption service.

We handle all service authentication using a Gateway API at no additional cost to the customer, with the customer choosing from basic authentication, key authentication, OAuth 2.0, OpenID, among other available methods.

In addition to authentication and security, our embedded API Gateway offers the full functionality of this type of technology such as monitoring, logging, ACL, caching, rate-limiting, serverless, and low latency technology, not usual in conventional gateways.

All these features enable Digibee's platform to operate in mission-critical environments, with high availability, strong security, and high resiliency, which can be fully tailored to any enterprise integration need in every industry. The enntire Digibee platform has been built on a state-of-the-art architecture using the latest and most proven systems engineering. We created the platform to be indestructible and with the resilience needed to modernize legacy systems, and guarantee digital systems performance.

Operations: Tracking 100% of Transactions

Digibee designed the platform for easy operation and troubleshooting. Using Big Data and Analytics, our platform is able to track and monitor 100% of the processed transactions.

Through dashboards, we evaluate the pipelines' health and transactions consistency. In case of problems, we are able to isolate past transactions and expose the data payload for root cause quick troubleshooting. We can identify the hop-to-hop steps of an integration, including each step duration and especially the time spent at the endpoints.

All logs are captured and maintained independently of the pipeline, without performance burdens. The logs are stored in an Elastic Search cluster and can be accessed through the platform or using third party analytics tools.

Another feature of our operation is the ability to organize and structure company integrations. Traditionally, integrations are developed near one end to be integrated, not following any pattern. This lack of methodology or process leads to chaotic, undocumented and difficult to maintain environments. The Digibee platform organizes and categorizes pipelines in a dashboard with the description and status of all integrations, isolating the integration process of the endpoints involved in a single operating environment.

The platform implements DevOps, managing development, testing and production environments, and has a fully automated pipeline deployment and publishing process.

Digibee uses Google Cloud today for its excellence in Kubernete architecture, but the platform is completely cloud agnostic and can run on Google, Amazon, Azure or OpenShift on premises.

Innovative Business Model

All the technology developed by Digibee has been designed for ease of use and on a do-it-yourself concept. Nevertheless, our model is to take on the full responsibility of our customers integration.

Our unique business model is based on a per pipeline usage. Our clients are not bound to annual contracts and do not need to make major upfront investments in technology, professional services and training. The technology platform, hosting, traffic, operation and monitoring are included in the pipeline value and governed by a service SLA.

Therefore, we offer a "frictionless" engagement business model. It is very easy for our customers to try new ideas, test our services, carry out temporary projects and modernize their architecture on very low risk and transparent cost structure.

The Digibee Platform is hosted on Google US and Brazil public cloud and is licensed by the number of "Pipelines" consumed in the month prior to billing. A "Pipeline" is a cross-system integration flow, with platform-defined data transformation and enrichment logic, running and operating on the Digibee Cloud.

Each pipeline supports up to 10 concurrent transactions and scales up to 64 MB of memory in our cloud. If any pipeline needs to process more than 10 concurrent transactions or consume more than 64 MB of memory, this pipeline will consume a new license with each new range. For example, if a single pipeline scales to support 80 concurrent transactions, this pipeline will consume 8 platform licenses. Similarly, if a pipeline consumes 128 MB of memory, this pipeline will consume 2 platform licenses

The table below illustrates this concept:

Number of Concurrent Transactions	Memory Allocated to the Pipeline	Number of Licenses Required
10 Transactions	64 MB	1 License
40 Transactions	256 MB	4 Licenses
80 Transactions	512 MB	8 Licenses

What it Includes

Digibee licenses the pipelines in "packs" of 10, 100 or 1000 units. We do not license quantities less than 10 or different quantities than the above packages. If more than 10,000 units are required, a new enterprise proposal shall be negotiated.

- Digibee licenses the pipelines in "packs" of 10, 100 or 1000 units. We do not license quantities less than 10 or different quantities than the above packages. If more than 10,000 units are required, a new enterprise proposal shall be negotiated.
- Digibee platform licensing includes the following modules and services:
- Up to 50 users access to the integration and operation portal;
- Use of all platform components, including API Gateway;
- Hosting of pipelines in public cloud;
- 24x7 platform operation and monitoring;
- Access to operation and monitoring dashboards;
- 8x5 technical support during business hours;
- Availability SLA;
- Platform improvements and new features;

Although our primary service offering is the SaaS model on our Digibee Cloud, we offer the following custom offerings:

- SaaS in a dedicated Digibee Cloud environment;
- SaaS in customer's Cloud environment;
- Licensing on premises.

Conclusion

Digital transformation brings integration and technology modernization challenges that turn out to be a very difficult hurdle for companies of any size.

The Digibee approach solves the problem of integration in an elegant, modern and frictionless way. We take on our customers end-to-end integration problems using our technology to create, execute and operate integrations, organizing environments that are often chaotic and unstable.

We integrate systems 10 times faster and at a fraction of the cost of traditional approaches. Building integrations with Digibee is now as simple as drag and drop, allowing companies to focus on innovations rather than problems. All in an innovative and frictionless business model.

Digibee's platform enables companies to work in mission-critical, high availability, strong security, and high resiliency environments that are fully tailored to the needs of any vertical corporations and enterprises.

With our platform, legacy systems that are trapped in old and expensive models gain momentum and agility to meet business demands in the digital age. New micro-services and APIs based systems bring the orchestration, performance and resiliency that are standard for the digital winners.