

# Transforming Legacy IT Systems with API-led Integration





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Hexaware, partnering with MuleSoft, has created a Centre of Excellence that enables digital transformation and improves customer experience. Our partnership with MuleSoft is the catalyst that enables us to deliver cutting-edge iPaaS & API management solutions.



## **Power to the People**

Today's customers have a lot of power. They use the internet to compare products and find reviews. And if they are unhappy with a purchase, they can make their feelings known very easily. Keeping customers delighted at every stage of the purchase process is essential. It's difficult though. Increasingly, customers use multiple channels to interact with brands – websites, mobile phone apps, retail centre, social media, aggregators like hotels.com and LendingTree, and even the telephone. Understanding consumers who use so many different channels is extremely difficult.

Technology such as Big Data analytics and Artificial Intelligence helps to provide a solution to this problem. But it also adds complexity to the picture: these new opportunities are often very difficult to integrate with legacy systems such as customer databases. And because technology changes so rapidly, organizations too must change constantly to maintain their competitive edge.

#### oeio The Trouble with Complexity

Organizations are making more and more use of digital technology. Powered by mobile, edge computing and the cloud, a large volume of data is being collected and processed to generate better insights among the customers and markets.

## A large volumes of data is being collected and processed to generate better customer insights

This trend is set to continue further as more and more digital devices inter-connect. Be it the cars, wearables, smart speakers, and other home devices, they all process data that can be used to generate additional value for organizations. Thus, those organizations that focus purely on the mobile technology will miss out the race.

Also, the use of Software as a Service (SaaS) is growing. Organizations are contracting with multiple expert vendors to provide data services. Ideally, these services will be able to pass data between them, but most are not capable of an easy integration.

Furthermore, many organizations have a lot of dependency on their legacy systems. Often developed some years ago, these systems customer databases, the manufacturing machinery controls, power systems, financial systems, etc. - provide critical functionality. They are not designed to link up with different systems.

On the top of these issues, there is an increasing requirement for data security and privacy, which may be compromised when systems are inter-connected.



The solution to all these issues is to use APIs as a bridge between the disparate systems.

APIs are software tools that act as an interface between different systems or data sources. They are developed to play a specific role, such as gathering data from databases, providing data for business processes, or delivering an experience to an end user. Because they are designed to fulfil a particular purpose, they can be reused wherever that purpose is needed.



In a traditional point-to-point (P2P) architecture, each system needs to connect to every other system. The same code is repeated by the consumer systems to extract data from data providers. This adds redundancy, increases system complexity, and reduces maintainability. When API-led connectivity is implemented, the individual systems don't need to connect with multiple systems. Each system simply connects to an appropriate API, which in turn connects to the other systems as required. APIs transform the complex and hard-to-scale P2P architecture into a far simpler and easy-to-maintain API-driven Integration Architecture.



One way of looking at APIs is to think of them as serving three levels of an organization:

- 1. End customer experiences (like a web page)
- 2. Business processes (like a quote engine or a room reservation)
- 3. Business system (like a product inventory, customer database, or payment gateway)



The different levels have different functions. At the top "experience" level, the APIs can serve to deliver a consistent customer experience, no matter what channel is being used. For instance, the shop worker, mobile app, contact centre operator, and website can have access to the same data about an individual customer.

At the process level, the business processes can be handled efficiently. Adding new processes or expanding existing ones to the newer systems can be managed simply. These APIs can access data from different systems - like an inventory, a loyalty file, a pricing engine, and a logistics system. This enables a complete set of information to be created and delivered to the business or the end customer via an experience API.

Adding new processes or expanding existing ones to the newer systems can be managed simply

At the bottom level, the system APIs allow access to the core assets of an organization, such as their customer databases, financial records, or SaaS data sources. These assets are critical to the organization and thus, system APIs are generally built with strong security and other compliance features.



API-led connectivity can easily integrate different systems from **different geographical markets.** Imagine an organization formed by a merger that runs an Oracle database in Europe and SAP database in the USA. This would be inefficient and expensive to maintain. Also, the business processes designed to speak to one type of software (e.g. Oracle) may well be unable to speak to another type of software (e.g. SAP), thus preventing essential business functions from being completed. Amalgamating the two databases to solve this would be difficult, as would be migrating the data from one database to another. However, when an API is used as an intermediary, business processes such as marketing can easily connect to both without the need for expensive redevelopment of legacy systems.

Business processes can easily connect without expensive redevelopment of legacy systems

Individual APIs are **simple to develop** as they have a defined purpose and simpler coding. Hexaware uses MuleSoft as an API manager to manage API life cycle, thus giving organisations an ability to build, scale, monetise, and analyse their APIs with ease. The diagram below elucidates API management life cycle.





API-led connectivity also enhances **scalability**. With MuleSoft, you can start small, say in one part of your organization, and then grow by adding APIs as required. Or if your business is growing rapidly and you need to add new products, outlets, or customer types on a regular basis, you can simply add new units to your network which then connect to your existing APIs.

Accelerated transformation is another important benefit. With a monolithic system that develops new services as a single project, a new product or customer experience may take 6 months or more. But by moving to a more modern architecture where products are developed as a series of microservices, owned by separate teams and connected through APIs, the product development life cycle can be accelerated significantly. API-led connectivity means that projects can be delivered up to 3.5 times faster and team productivity can be increased by 300% as compared to legacy or homegrown integration solutions.

## Seamless Customer Experience

What does this mean to your customers? The result of using API-led connectivity is a seamless and consistent customer experience across all channels.

Customers can be given the experience most appropriate to their channel. For instance, someone on a smartphone can be served via mobile app rather than a website which may not deliver an experience most appropriate to the size of screen (small) and environment of use (in a bus perhaps). The use of APIs means that it is simple for both web browsers and mobile app to access the same information and display it.

Personalized content can be delivered, depending on the previous customer choices or changing organizational priorities. Customer loyalty can be recognized across channels by enabling a true "omni-channel" customer service strategy.



Hexaware's API and Integration practice enables organizations to build robust digital ecosystems and helps businesses to take advantage of the fastest growing API and connectivity ecosystem. Our solutions cover all the aspects of integration, including seamless legacy system integration and complete API life cycle management by using MuleSoft's Anypoint Platform.



An important area to consider is cloud migration and edge computing. Where organizations are moving from on-premises systems to cloud or hybrid systems, our API-led solutions enable efficient integration of these different architectures.

Governance, compliance, and security are central to everything we do. A governance framework underpins all our engagements. This enables services to be monitored, measured, and audited. It also facilitates life cycle management. The design, build, and operational phases have security-centric reviews, including vulnerability assessment and penetration testing.

Hexaware employs 390+ API and integration consultants across different regions - USA, Europe & APAC. Among 150+ MuleSoft professionals, there are 100+ certified consultants (developers and architects). Altogether, we have over 1000+ person years of integration experience and 5+ years of experience working with MuleSoft as our integration partner. We have delivered 20+ Greenfield MuleSoft implementations successfully.

## 390+ API and integration consultants and over 100+ MuleSoft-certified consultants

We have experience of delivering numerous complex enterprise-wide integration & digitalization projects with several hundred services, higher throughput requirements, larger pay-load sizes, high-availability requirements etc.

Because of our breadth of experience, we have been recognized by top-notch technology analyst firms for our capability in API, microservices, and integration management. We have worked with customers from many industry sectors including retail, insurance, personal care, property, and tourism as well as with multiple standard software packages that need to be integrated with others. Learning from a customer in one industry can easily be applied to customers in other industries. And insights from the integration of a standard software programme, which may have flaws, can be carried over to another integration project for a different client. This experience means that development and transformation projects can be achieved more rapidly and with a higher level of quality. Through this continual learning experience, we have delivered the following business values to our customers.

- Process optimization
- Improved time-to-market
- Increased user adoption
- Enhanced visibility for API operational metrics
- Better quality with Hexaware's accelerators

Hexaware's deep understanding of the benefits of API-led connectivity, combined with experience across multiple industries and projects makes us your ideal partner for integration projects involving legacy systems, SaaS, or new services.

### **Case Study**

By partnering with MuleSoft, Hexaware helped a leading Asian hospitality and property management firm to integrate its different IT systems, which lead to cost reduction and better scalability.

Originally the property company ran two reservation systems, an internal system and an external system, supplied by a large specialist plus a variety of other IT systems for functions such as HR, marketing, and facilities management. This created a very complex point-to-point architecture where each building in the company's portfolio had to connect to multiple different systems. Adding new properties or new functionalities to this system was time consuming and error prone.



The solution provided by Hexaware involved an ESB implementation using MuleSoft CloudHub that enabled each property to have a single gateway to the ESB, which then connected to the different IT systems. This was far simpler to manage, and scale as new properties were now easy to add and, new systems such as a mobile marketing package could be added without difficulty.



An additional benefit was that the company was able to connect its properties directly to third-party reservation systems such as hotels.com. Prior to using the ESB, the company had to access these third-party systems via the external reservation system and a fee was charged for each reservation. Once the ESB was implemented, properties could now connect to online aggregators by disintermediating the external reservation system. This saved substantial costs with improved application performance.



### Glossary

**Applications.** Programmes or groups of programmes designed to fulfil a task. An example would be a word processor like Word, a game like Solitaire, or a social media tool like Instagram. Often shortened to "App".

**API.** Application programming interface. An interface that allows two different applications to communicate. For instance, when your web browser wants to load the information for a web page like Hexaware.com, it has to get that information from the remote computer holding that information. The API is the software that translates the browser's request into an instruction to the remote computer so that it shares the information with your browser.

**ESB.** *Enterprise service bus.* Sometimes known as middleware. ESB take data from one service or app to another. It acts as a universal translator between different systems or data sources, doing away with the need for point to point communications which can get very complex.

**Experience API.** An API designed to make products and services available to end users. It takes all the data a user has requested, such as information about buying a product on a website and translates it into a form that the end user can understand such as a page on Amazon.com.

**Microservices.** Large applications can be broken down into a number of separate but linked microservices. Small teams will manage each microservice independently. The different microservices are loosely coupled so that if one malfunctions the others can continue.

**Omnichannel.** Consumers use many different channels to interact with brands – shops, websites, mobile phone apps, telephones etc. With an omnichannel strategy, these different channels are designed to work closely together so that the customer gets a consistent and high-quality experience whatever channel they are using

**P2P.** *Point to Point.* A network structure where each element of the network connects separately with each other element. When you only have a few elements in a network there are not too many separate connections. But when you have a large number of elements, there will be a very large number of connections which can be hard to manage.

**Process API**. An API that handles one or more business processes such as taking an order, fulfilling an order, updating a customer loyalty file, and identifying other products to recommend.

**SaaS**. *Software as a Service.* A software licensing and delivery model in which a licence to the software is sold and the software itself is centrally hosted, meaning that customer can always have up to date versions of the software.

**SOA**. Service orientated architecture. Individual services or applications are separated at enterprise level rather than at the microservices level. These separate services are provided to the user via a bridge like an ESB (qv) so the provider of each service doesn't have to talk to each consumer individually.

**System API**. An API that acts as a way into major business legacy systems, such as customer databases, payment gateways, quotation engines, and warehouse inventory systems

#### **About the Authors**



#### **Dheeraj Gupta**

Assistant Vice President Solution & Presales Application Transformation Management

Dheeraj Gupta works as an Assistant Vice President, Application Transformation Management at Hexaware Technologies. He comes with 24 years of IT experience and has worked in various roles like enterprise architect, chief architect, lead architect, industry architect, solution architect, and SOA architect as a part of various modernization programs, cloud transformation journey, and architecture consulting globally.



#### Amol Kunte

Principal Consultant API & Integration, Solution & Presales Application Transformation Management

Amol Kunte has 18 years of IT experience and has worked in various roles, like application developer, technical lead, and solution architect. He has been a part of complex development projects across technologies, business domains, and geographies. He has an experience in providing solutions for requirements around application development, integrations, and API management.

#### **About Hexaware**

Hexaware is the fastest growing next-generation provider of IT, BPO and Consulting services. Our focus lies on taking a leadership position in helping our clients attain customer intimacy as their competitive advantage. Our digital offerings have helped our clients achieve operational excellence and customer delight. We are now on a journey of metamorphosing the experiences of our customer's customers by leveraging our industry-leading delivery and execution model, built around the strategy– 'AUTOMATE EVERYTHING<sup>TM</sup>, CLOUDIFY EVERYTHING<sup>TM</sup>, TRANSFORM CUSTOMER EXPERIENCES<sup>TM</sup>! Hexaware services customers in over two dozen languages, from every major time zone and every major regulatory zone. Our goal is to be the first IT services company in the world to have a 50% digital workforce.

Learn more about Hexaware at http://www.hexaware.com

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Certain statements in this press release concerning our future growth prospects are forward-looking statements, which involve a number of risks, and uncertainties that could cause actual results to differ materially from those in such forward-looking statements. The risks and uncertainties relating to these statements include, but are not limited to, risks and uncertainties regarding fluctuations in earnings, our ability to manage growth, intense competition in IT services including those factors which may affect our cost advantage, wage increases in India, our ability to attract and retain highly skilled professionals, time and cost overruns on faxed-rine, frame contracts, client concentration, restrictions on immigration, our ability to manage our international operations, reduced demand for technology in our key focus areas, disruptions in telecommunication networks, our ability to successfully complete and integrate potential acquisitions, liability for damages on our service contracts, the success of the companies in which Hexaware has made strategic investments, withdrawal of governmental fiscal incentives, political instability, legal restrictions on raising capital or acquiring companies outside India, and unauthorized use of our intellectual property and general economic conditions affecting our industry.

