

WHY DIGITAL TRANSFORMATIONS ARE FAILING

The case for making **integration** a first-class citizen



Introduction

Over the past several years, there has been a sudden rise in the demand for digital services. Industries that resisted the shift to digital for decades are now scrambling to keep up.

To adapt, organizations like banks, insurance companies, and financial services firms have shifted to take advantage of the cloud, enabling modern development practices such as Devops. However, becoming fully cloud-native is a risky and expensive endeavor. The time it takes to implement such drastic changes is often far longer than these organizations have to address their immediate needs.

As a best-of-both-worlds approach to the massive undertaking that is a total migration to the cloud, adopting a “hybrid cloud” approach became the new standard—enabling enterprises to reap the benefits of cloud computing without large-scale changes to their existing technology.

Today, organizations complete their digital transformation programs in record time and deliver exciting innovations faster than ever before.

Or so we thought ...

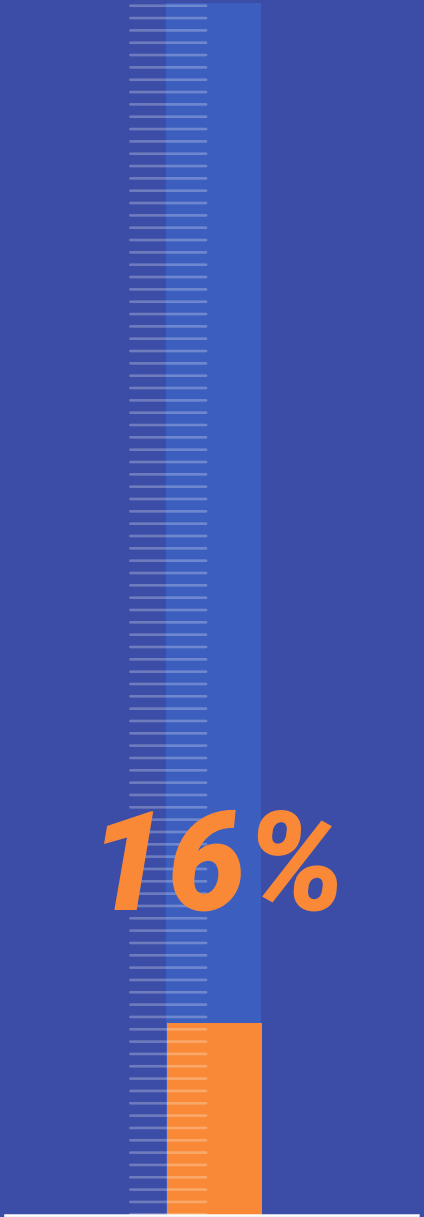


“Only 16 percent of [these companies] say their organizations’ digital transformations successfully improved performance and equipped them to sustain changes in the long term.”

— McKinsey & Company

What companies failed to realize is that the hybrid cloud introduced a new obstacle in achieving the automation and speed of DevOps: integration with legacy.

In this ebook, we explain how DevOps exposed the need for a comprehensive integration strategy and how organizations are adopting an API factory approach to ensure long-lasting benefits from their digital transformation efforts.



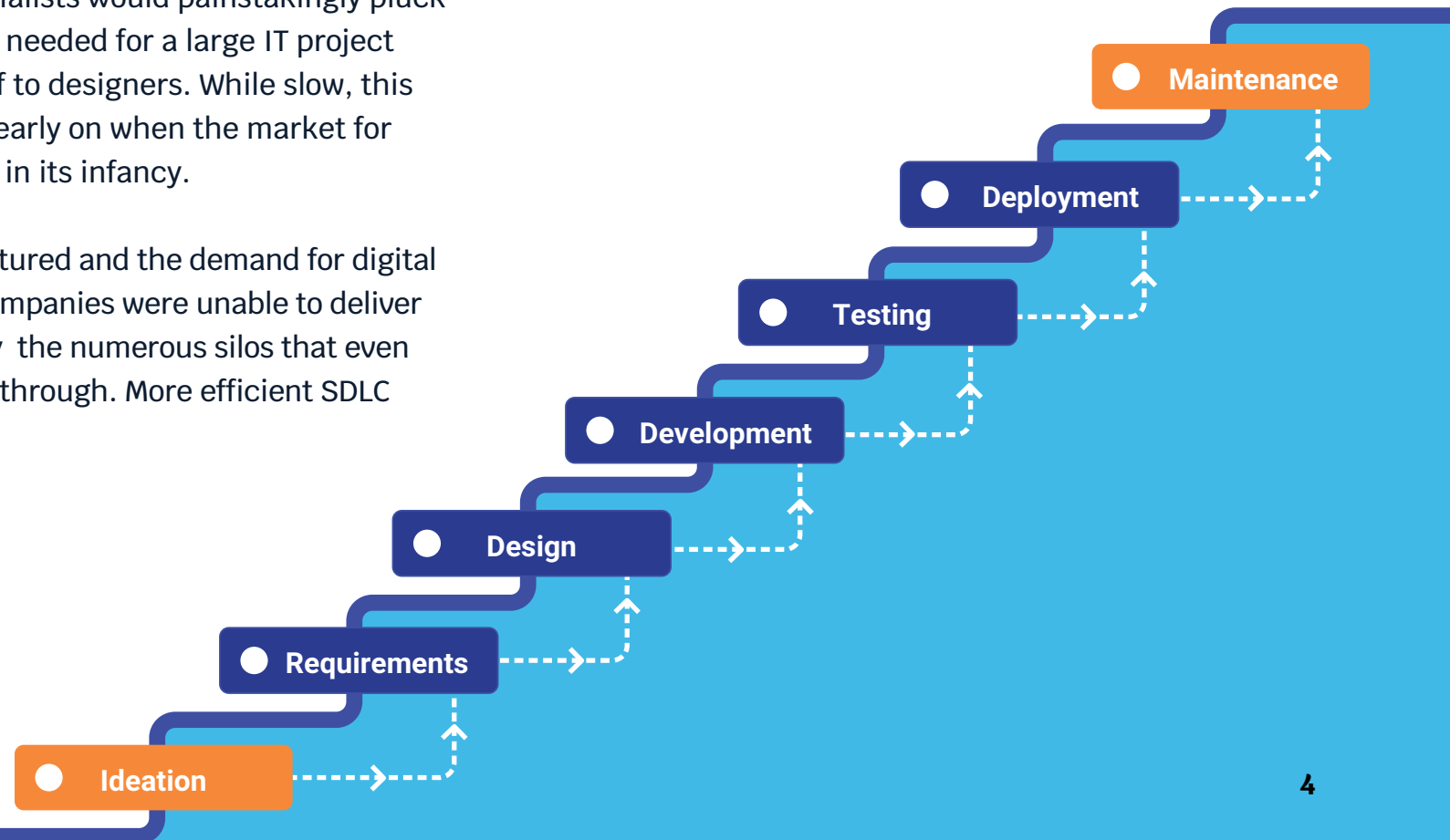
16%

DevOps: The New Standard

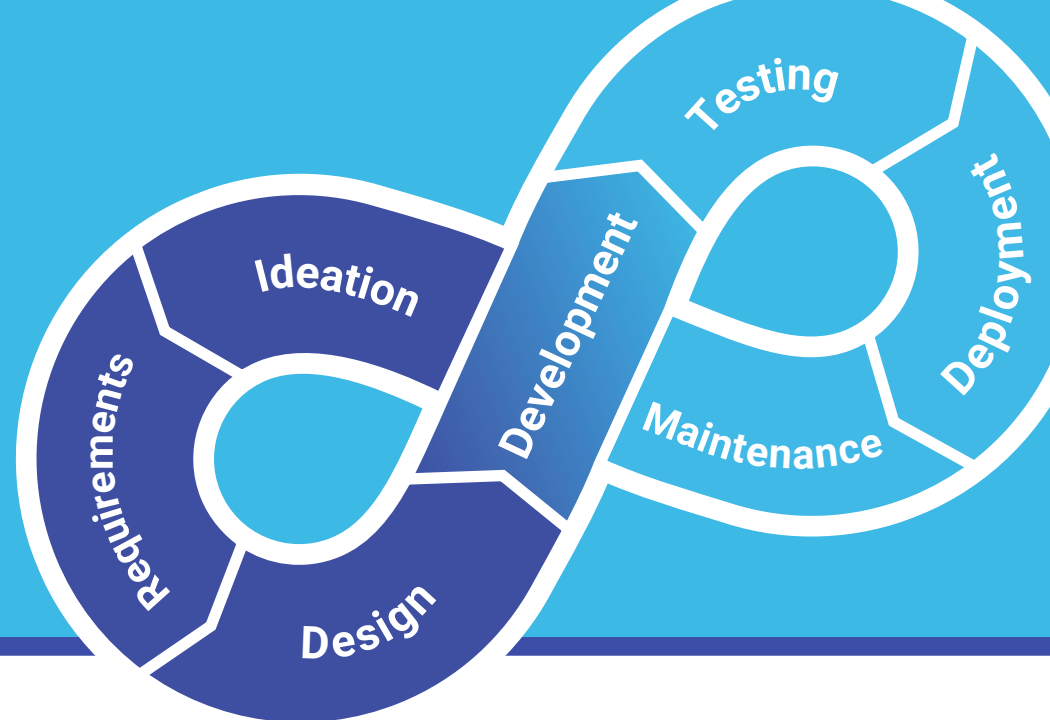
Traditional IT departments operated using the ‘waterfall’ model to complete the Software Delivery Life Cycle (SDLC). This sequential approach was inefficient and created teams that operated without any view of the other stages in the SLDC. This was especially true of integration, where specialists would painstakingly pluck all the necessary assets needed for a large IT project before handing them off to designers. While slow, this cycle wasn’t a problem early on when the market for digital services was still in its infancy.

But once the market matured and the demand for digital innovation escalated, companies were unable to deliver quickly, bottlenecked by the numerous silos that even small updates had to go through. More efficient SDLC

approaches—like the iterative and agile methods—provided temporary relief, but the demand for digital services quickly outpaced even their capabilities.



Finally, in the late 2000's, the rise of cloud computing and DevOps yielded a new solution. With the power of the cloud, DevOps engineers could own all parts of the digital innovation journey.



The benefits of the new method included:

Faster delivery time

Under DevOps, researchers, integration specialists, designers, testers, and developers work concurrently. With multiple phases of the SDLC working at the same time, no department is reliant on another for assets.

Automated testing

DevOps stresses automation in every stage of the SDLC. As they build new applications, teams quickly identifying incidents, address problems, and debug in real time instead of at the end of a review cycle.

Holistic development

DevOps forces teams to share accountability for all new releases. Working closely together, teams account for every step of the innovation process to make sure they don't put stress on any other team. For example, maintenance is a key focus during the design stage, forcing integration specialists to optimize the amount of APIs and reduce the load on their operations teams.

By breaking down barriers to democratize and accelerate the SDLC, DevOps delivered on its promise of faster time-to-market. The 2019 State of DevOps study found that DevOps teams deployed code 208 times quicker and patched incidents 2,604 times faster than traditional teams.

But, these improvements weren't available to every company.

DevOps requires transparency into the entire SDLC—something cloud-native companies support. With the agility to have multiple teams work on the same project concurrently, deploy new products instantaneously, and allocate resources automatically, cloud computing enables the DevOps principles of collaboration and speed. However, those stuck in the era of legacy (mainframes) can't reap these benefits.

Therefore, these organizations rely on digital transformation to deliver.

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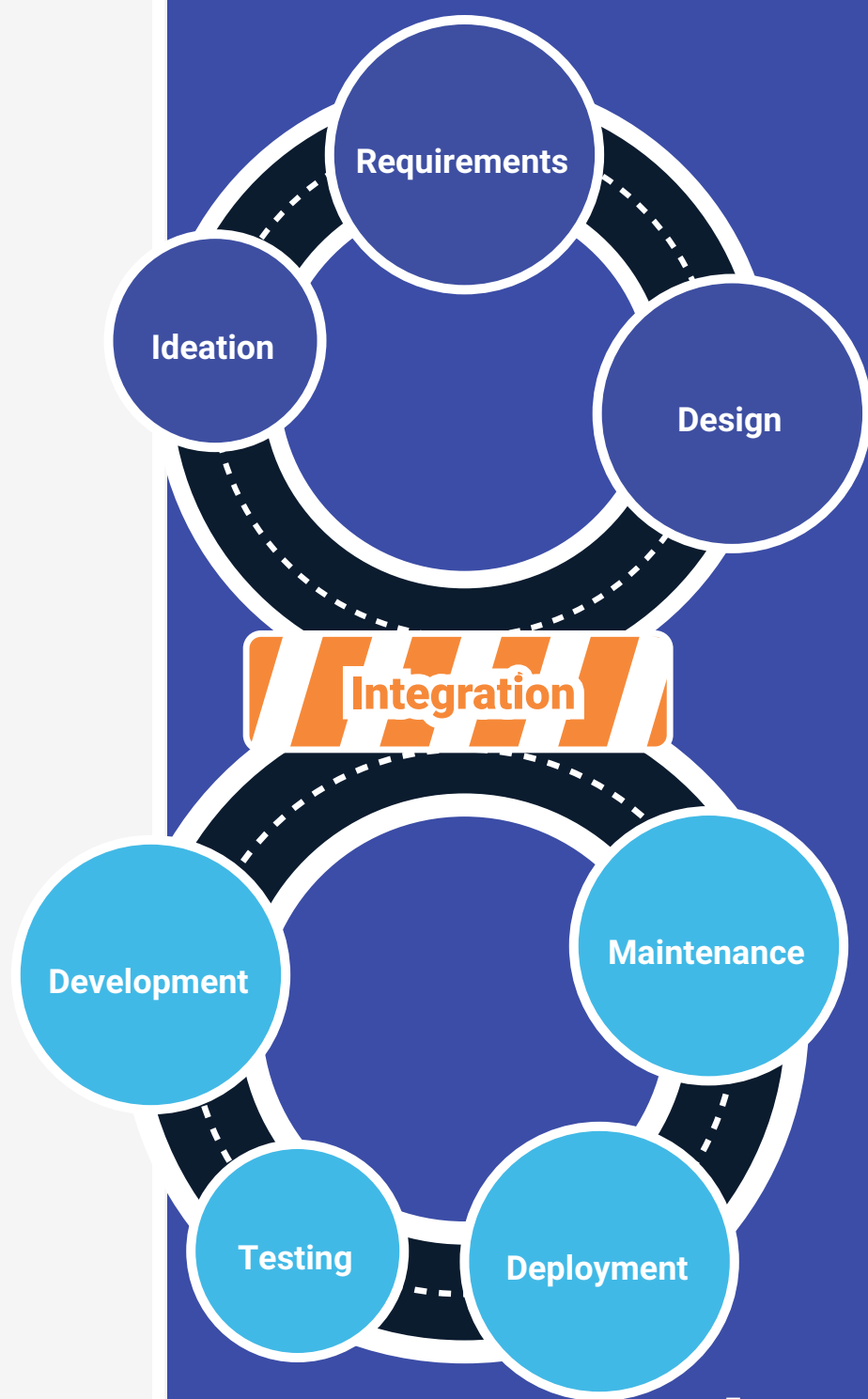
The New Silo

Digital transformation via the hybrid cloud indeed facilitates *some* DevOps procedures. Developers can own the end-to-end processes of design, development, testing, and maintenance, all while securely keeping sensitive data and mission-critical infrastructure on-premise.

But unlike cloud-native companies whose data resides in the cloud for easy resource allocation, organizations that rely on legacy applications to hold their business logic and data face integration challenges far more complex than ever before.

Mainframes and other legacy applications were built on now-antiquated languages. Expensive, highly skilled specialists are required to build and maintain connections. Without this expertise, businesses risk breaking application continuity or exposing themselves to security risks.

Even with the human resources available, integration requires hundreds of low-level APIs to build robust applications, making point-to-point integration painstakingly inefficient. Developers must wait for the specialists to parse, test, and design every integration asset before they can begin building.



Connecting to legacy applications brings up two more issues in the hybrid cloud DevOps model: testing and maintenance.

Testing hundreds of low-level APIs demands a heavy lift from developers. Instead of testing business-functional pieces for integration, developers must spend time testing each API. The overcommunication that results puts a burden on mainframes, as well. To lessen the load, companies often supplement with middleware solutions like ESBs, which require constant maintenance and hold incrementally increasing costs per connection.

By adding an additional layer into the SDLC, multiple facets of DevOps principles begin to become convoluted. For example, Gartner estimates that nearly 70% of work for mobile projects is integration-related.

Without a way to quickly expose and reuse core assets, easily combine multiple APIs, and future-proof against sudden changes, organizations risk further hindering their ability to meet consumer expectations while **wasting millions of dollars**.



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Gartner®

Guide to fixing the last silo

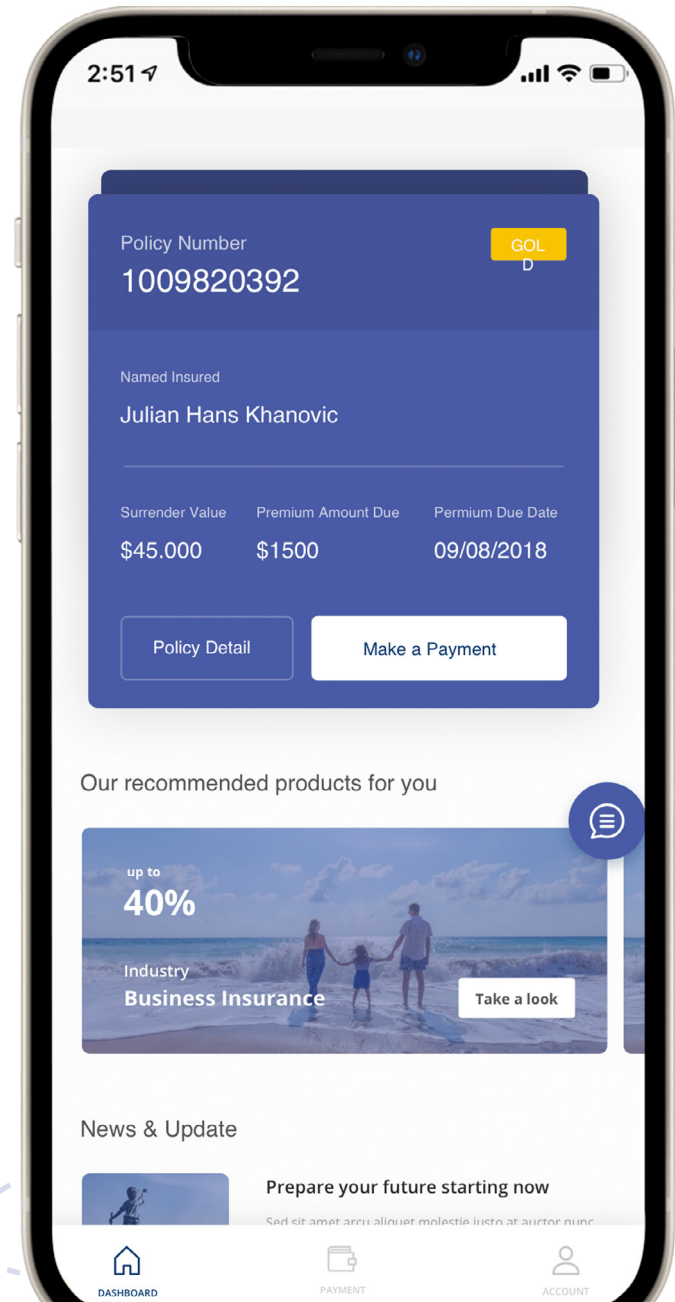
with a  company

At the beginning of their digital transformation journey, an insurance enterprise adopted a .NET/C# microservice-based architecture to accelerate development and deployment. But the organization knew this change alone didn't increase their delivery speed, because of the complexities of integrating with their existing architecture.

Like most other enterprises that provide data-laden services, this Fortune 500 organization relies heavily on their on-premise assets—specifically their Oracle database.

Instead of moving forward with point-to-point integration like their contemporaries, the organization opted for an API factory that automated the creation of basic modules based on their Oracle infrastructure through a simple command-line-interface (CLI). The CLI allowed users to create scripts that integrated into any DevOps tool.

The assets then entered a low- no-code flow engine, which combined them with the other datasets needed to build the new application, producing APIs containing all the business logic and data needed for development.



Now, the organization could expose assets quickly and reduce the number of connections, cutting the time it took to test and ultimately lowering the burden on their mainframes.

Leveraging their new API factory with their microservice-based architecture, the Fortune 500 company reduced the time it took to develop a new digital service end-to-end by 94%.

They weren't done yet.

In the same McKinsey & Company research which found that only 16 percent of companies said digital transformation improved their performance, 7 percent of the respondents said performance improved after digital transformation—but, those improvements were not sustained.

This Fortune 500 company made sure they were *not* part of that 7 percent.

The image displays the OL HUB interface, which includes a terminal window on the left and a visual workflow diagram on the right.

Terminal Window Output:

```
You are now logged in to OL-HUB

C:\Users\gidis>ol create module vsam-customers --connector vsam-cics
Module vsam-customers created and saved to folder: C:\Users\gidis\vsam-
Run "cd C:\Users\gidis\vsam-customers",
and then "ol test connection" to test connection,
and add assets inside the new module

C:\Users\gidis>
C:\Users\gidis>cd vsam-customers

C:\Users\gidis\vsam-customers>ol test connection --base-url http://1
DONE
Test connection succeeded

C:\Users\gidis\vsam-customers>
C:\Users\gidis\vsam-customers>ol test asset olvsamal
DONE
Test asset for olvsamal case-1 succeeded.
response:
{
  "responseCode" : 0,
  "responseCode2" : 0,
  "returnCode" : 8,
  "recordsReturned" : 0,
  "returnMessage" : "BAD OP CODE",
  "outputKeyOffset" : 0,
  "outputKeyLength" : 0,
  "outputRecordLength" : 0,
  "outputFfu1" : "\u0000\u0000",
  "readRecords" : 0,
  "outputFileType" : "\u0000\u0000\u0000\u0000",
  "outputRbaType" : "\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000",
  "forwardKey" : "AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA",
  "outputFfu3" : "\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000\u0000"
}

C:\Users\gidis\vsam-customers>
```

Visual Workflow Diagram:

The diagram shows a workflow for the `policy-microservice` project, specifically for the `list-policy` operation. The workflow consists of the following steps:

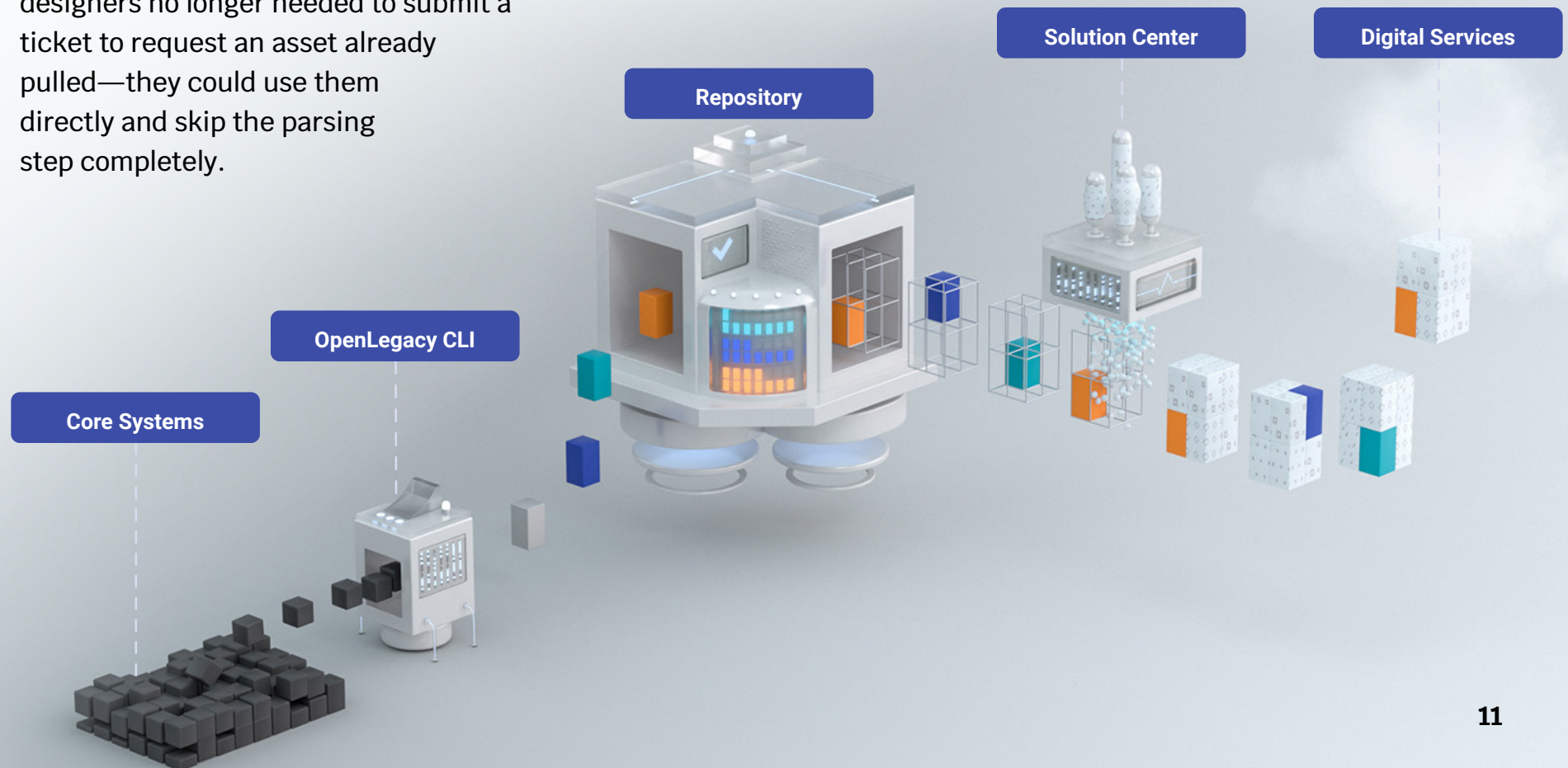
- Input** (Start node)
- Mapper** (Transformation node)
- Poizist** (Service node)
- Mapper** (Transformation node)
- Output** (End node)

The diagram also shows a detailed view of the `Poizist` service, which is a `poizist-policy-as400-cobol-gc-mvate-step`. The `Output` section lists various fields and their corresponding data types, including:

- `header` (LONG)
- `policyOut` (STRUCTURE)
- `policyRecOut` (COLLECTION)
- `success` (STATUS)
- `operation` (STATUS)
- `recCount` (NUMBER)
- `resultSigcodeSign` (STATUS)

The organization's API factory not only pulled assets from their Oracle database, but transformed them into language-agnostic integration modules, avoiding the problems of language specialization and obscurity so many other legacy applications have.

Moreover, these language-agnostic modules could then be easily searched and reused from a repository built within their API factory. This meant that these datasets no longer needed to be pulled via the CLI more than once, and API designers no longer needed to submit a ticket to request an asset already pulled—they could use them directly and skip the parsing step completely.



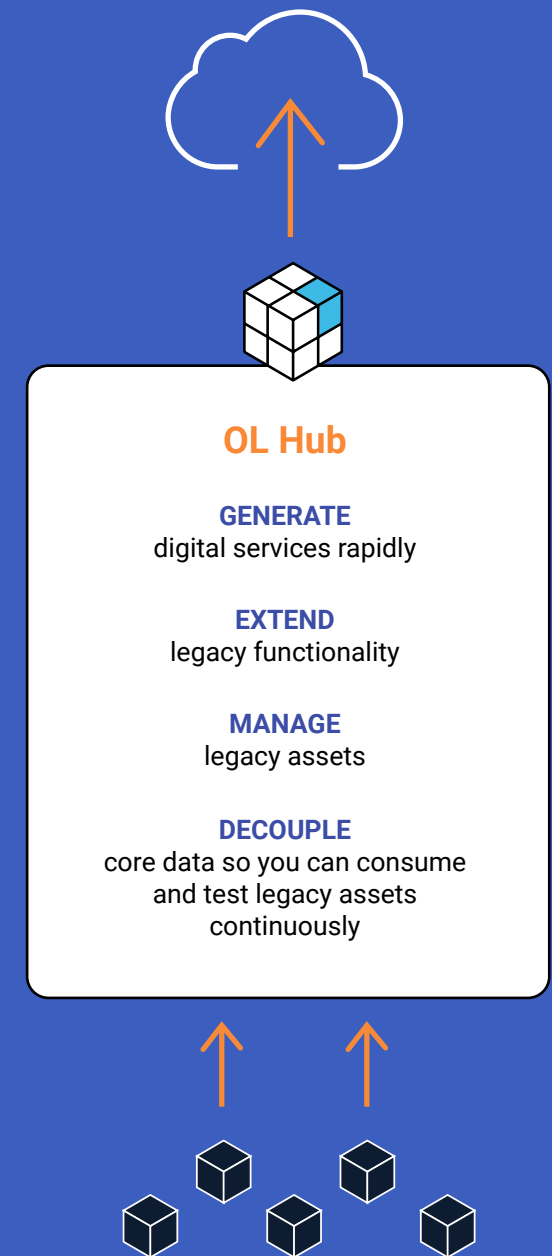
The new DevOps for hybrid cloud architecture

With DevOps revolutionizing IT teams, cloud-native companies have the advantage.

To combat these young contenders, incumbents must forge a cloud-based composition platform capable of addressing silos constructed by legacy technology. Just as cloud-native companies enabled their organizations to fully adopt DevOps principles and truly democratize their IT teams, an API factory is doing the same for organizations adopting the hybrid cloud.

With OL Hub, a major insurance enterprise was able to untangle the interfaces to their monolithic database and create composable building blocks for their exciting new digital offerings.

The Fortune 500 company is just one example of the speed, agility, and ingenuity made possible when digital transformation is done properly. With OpenLegacy, hundreds of companies are combating the new integration silo to unlock the true power of the hybrid cloud.



About OpenLegacy

OpenLegacy's Digital-Driven Integration enables organizations with legacy systems to release new digital services faster and easier than ever before. It connects directly to virtually any core system, automatically creating microservice-based APIs that power exciting new digital experiences. OpenLegacy helps industry-leading companies drastically reduce time, costs and resources while helping them become digital to the core.

Sources:

Unlocking Success in Digital Transformations, McKinsey&Company

2021 Accelerate State of DevOps Report

Competitive Advantage through DevOps, New Harvard Business Review Analytic Services Study

What IT Leaders Need to Know About the Mobile App Integration Puzzle, Gartner



www.openlegacy.com
sales@openlegacy.com

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