Unlocking Agency Data to Deliver Service and Inform Better Decisions

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INTRODUCTION

Making timely, informed decisions requires that government agencies at all levels gather as much relevant data as possible. The three biggest challenges to this type of data gathering are understanding what data you have, where it resides, and making it available to the people and systems that need it and are authorized to access it.

At many government agencies, the data that is needed to make informed decisions is locked away in legacy systems operating on application servers, mainframes, and other disparate enterprise systems of record. This adversely affects decision making for a number of reasons, including:

Response times will be slow.
It's difficult to unlock the data in legacy systems in a timely manner because those systems were not designed to integrate with other platforms. Writing extracts to access the data takes time, and those extracts have to be managed as production reports instead of real- time connections. Further, there is often data cleansing and other logic required within these extract procedures that introduce opportunities for error. It doesn't take many situations where decision makers discover errors within the extracted data to introduce a lack of trust in the underlying data source.

Cloud-based tools cannot get easy access to the data.
Some of the most powerful, cost-effective tools for data analytics, machine learning (ML), and artificial intelligence (AI) are offered via the cloud. But your agency can only take advantage of these tools if they can access your data.

Coordinated, inter-agency responses become very difficult.
It's not uncommon for agencies to coordinate on decision making, especially in times of crisis when speed is critical. Having data locked away in a legacy system in your agency is hard. Having data locked away in systems across several agencies at each level of government is a nightmare. This can lead to poor decisions based on incomplete data — and worse.

Data is how government agencies like yours understand where they are and how they can get to where they want to be. This is why unlocking data and making it available is crucial. It saves time, money, and it can even save lives.

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REAL-LIFE SCENARIO: THE COVID-19 PANDEMIC

Real-Life Scenario:
The COVID-19 Pandemic

The COVID-19 pandemic demonstrates the need for government agencies to integrate systems and make critical data available and shareable in a timely manner.

The data used every day to plan pandemic response comes from multiple sources. Different systems at different agencies and levels of government are used to track and aggregate data related to:

- The availability of materials like personal protective equipment (PPE) and ventilators

- Testing capacity and result

- Identification of clusters of infection

- Hospital capacity

When government agencies can't communicate accurate information in real time, the result is not only a slow response, but one that doesn't reflect the reality of the situation.

Data drives more than the healthcare response to the pandemic. The Paycheck Protection Program created as part of the pandemic-related economic stimulus package also relies on systems that can easily share data. Applications for the program are handled by retail banks, but the program itself is administered by the U.S. Small Business Administration (SBA), so data must flow freely between these partners for businesses to apply for the program.

Another pandemic-related example of a lack of communication and data sharing led to more than 1 million stimulus checks being sent to deceased citizens.

The coronavirus pandemic is just one example of why agencies need to integrate systems and share data. As we all know, global pandemics are quite rare. But every year, your agency likely deals with incidents that require a fast, accurate, data-driven response. Natural disasters from hurricanes to blizzards to wildfires occur throughout the country on an annual basis. Each of these incidents require coordination at the local, state, and federal level to protect people and property.

Nor are emergencies the only time your agency can benefit from unlocking data and making it available to other systems. Everyday business scenarios can benefit from the free exchange of data as well.
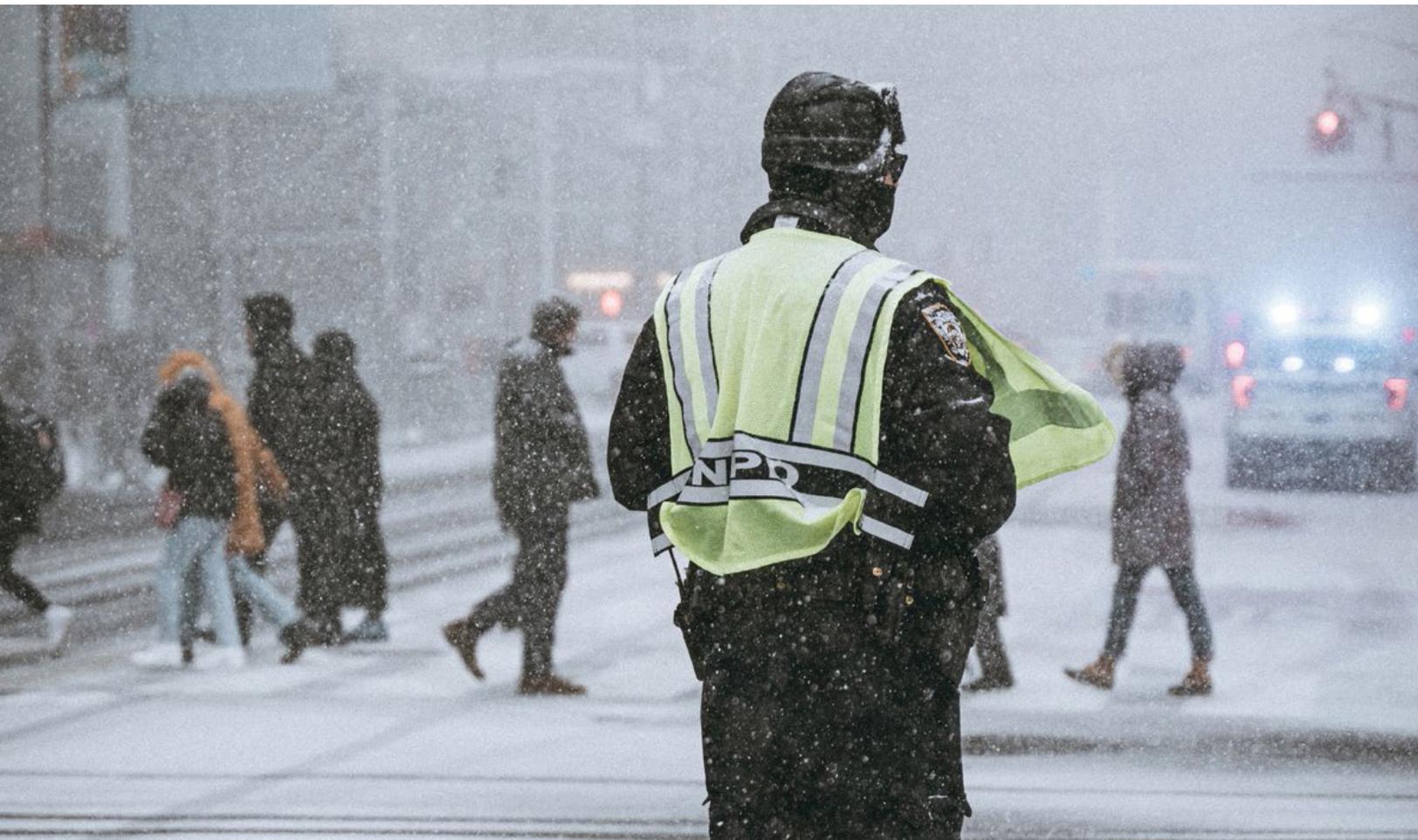
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UNLOCKING DATA
AT THE IRS

Unlocking Data at the IRS

At the U.S. Internal Revenue Service (IRS), unlocking information from mainframes and other systems allows the agency to manage its data as an enterprise asset. Getting started, however, was not an easy process.

The first priority at the IRS was to get its people on board. The IRS was one of the first U.S. agencies to deploy digital technology as part of its mission, but that eventually led to aging systems hosting massive amounts of data (running on some of the most modern infrastructures available). Ripping out these systems and replacing them with something entirely new was not an option

Because its legacy systems did not rely on database technology like a new system would, the IRS then needed to create a data model and databases to identify data types, structures, and map dependencies.

The IRS systems relied heavily on languages like COBOL and assembly language. In order to unlock its data, the IRS needed to migrate toward a standard data model for defining what data means, its logical and physical representations, and utilize a state of the art programming language like Java for new development. This would help mitigate the problem of not having enough people who knew older programming languages over time, and ensure data could always be accessed if needed in new applications

But IT professionals built their careers sustaining these legacy systems, so enrolling them into the new development and sustaining architecture of data models became paramount. By using the knowledge of the current programming staff to define the data model and learn Java, while also sustaining the legacy systems, the barriers to change were overcome.

To identify integration platforms that could help the IRS connect its systems and unlock its data, the agency developed a list of requirements. At a high level, these included:

- Massive scaling

- Auditability/traceability

- Security

- Real-time data access

- Data independence

- Robustness

- Support for Disparate Systems

The IRS worked toward implementing standard Application Programming Interfaces (APIs) to gain access to the data in its legacy systems in a quick and reliable manner. In the meantime, while it prepared for a new world of integrated systems and unlocked data, the IRS still needed to maintain its legacy systems and the report extractors it relied on to make data available.

One of the first areas of focus for the IRS was electronic tax filing. For US taxpayers who electronically file their taxes, the process seems like a modern digital experience. Behind the scenes, however, it's a fairly complicated transaction with a number of moving parts.

First, every electronic tax return goes through a tax preparer. Electronic filing is not done directly with the IRS, which means the preparers' systems and the IRS systems need to share information. Once a return is transmitted to the IRS, it touches more than 36 of the 700 systems the agency runs, all of which need to share data to make electronic filing possible.

Beyond electronic filing, the IRS has other business rules that need to be implemented across its system portfolio. There are business rules, for example, that prevent people from accessing tax returns they are not authorized to see. There are also rules that need to be put in place to support new legislation as it's passed into law. One example of this is the requirement to verify income as part of the Affordable Care Act (ACA), which is done by sharing data housed within IRS systems to external consumers.

The IRS chose the webMethods platform from Software AG to serve as their Government Integration Hub. With the Government Integration Hub, agencies like the IRS can manage their data where it resides, eliminating the need for special production report extractions.

Software AG's platform can reach into any system of record, ingest large amounts of data, and route it for processing. It connects to existing systems using hundreds of prebuilt adapters available for enterprise applications. The Government Integration Hub is a wizard-driven system with a drag-and-drop authoring tool that solves the problem of having to write code to unlock important data.

At the IRS, the Software AG platform connects to the agency's mainframes using pre-built mainframe adapters. It then exposes the logic in the legacy systems as APIs so that newer, more modern systems can consume the data and utilize existing business logic. The webMethods technology can even record green-screen interactions to understand a process if there's no other method available.
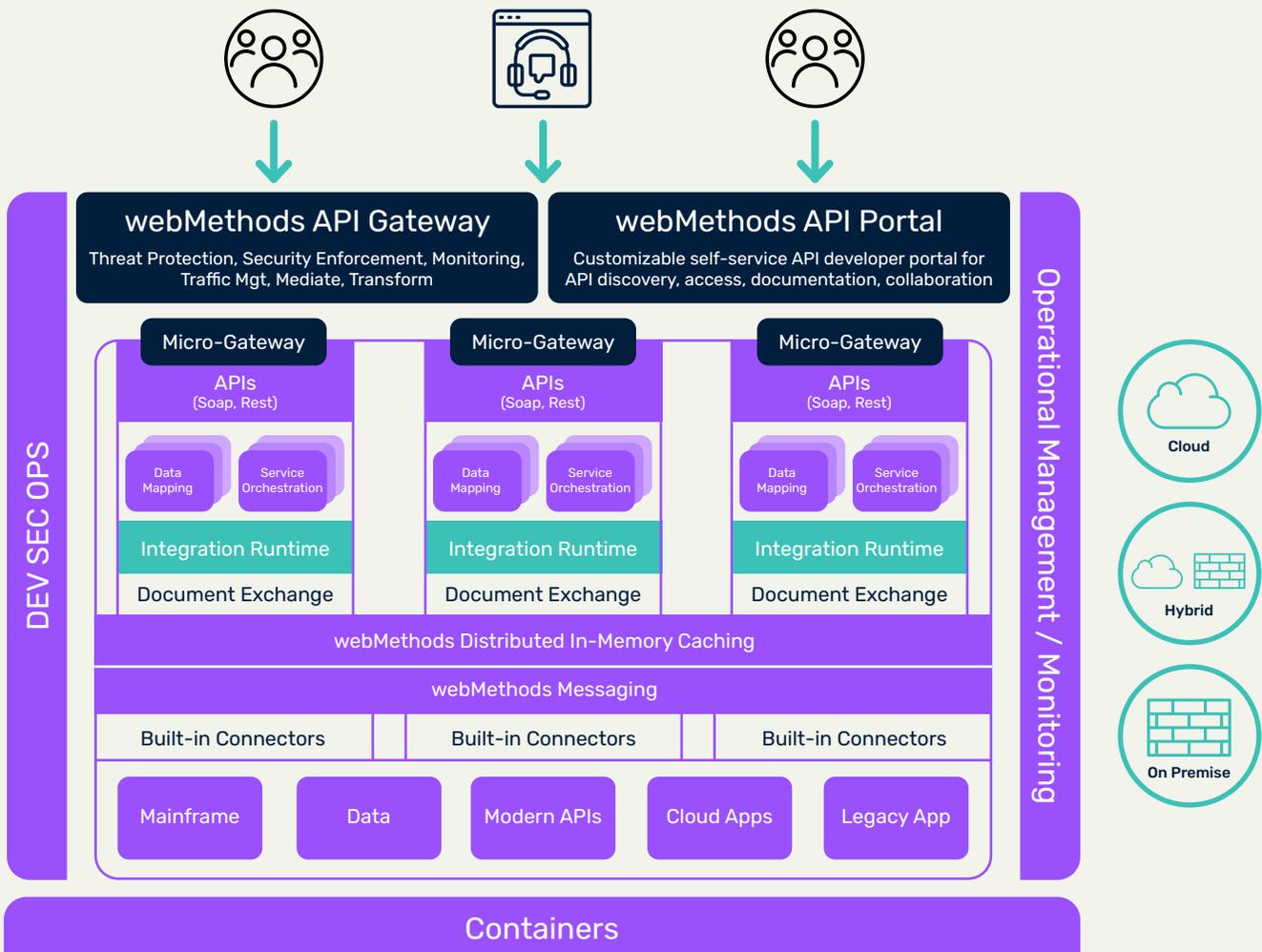
Fortunately, Software AG webMethods has an API Management platform built for just such a task. Both internal API consumers within the agency, as well as external entities require an API Portal where agency specific APIs are published and documented. This allows consumers to discover and browse data sources provided by the agency. To help streamline the on-boarding of new consumers, the Portal contains social and collaborative features. These features help foster a community around the consumers of agency data, making data consumption easier and increasing the value of the agency's data. The API Portal also houses various approval processes that allow the agency to control access to the data it provides.

Once a consumer's access request has been approved, they are issued a set of credentials which are required for each API call that they use to consume data. To govern the run-time consumption of APIs, a centrally managed policy enforcement point is required. This is commonly referred to as an API Gateway because it is the single endpoint that consumers use for data access – regardless of where the actual API and data resides. The Gateway not only allows the agency to ensure the security of the data, but it also allows the agency to log, audit, and measure consumption. Built-in analytics dashboards provide key insights for the agency to understand how its data is being used, and can be leveraged to help guide the agency's investment and modernization plans.

Many government agencies are capable of providing better services and faster, more informed responses to mundane requests and emergencies alike. It's not a lack of data that holds them back. The challenge is finding that data, unlocking it, and making it available to the people and processes that need it.

For more information on Software AG's Government Integration Hub, visit: **www.softwareaggov.com** or email us at **info@softwareaggov.com**