Tame SaaS Sprawl with a SaaS Devops Platform

By Vernon Keenan, Sr. Industry Analyst @ SalesforceDevops.net

Software-as-a-service (SaaS) applications are like business superpowers for rent. For the cost of a monthly subscription, SaaS lets business creators quickly compose money-making solutions that build companies. The SaaS industry is successful because it lets businesses of all kinds grow by expensing critical IT infrastructure. Relying on SaaS for business operations is now proven to be the way that business leaders drive sales, manage employees, deliver services, and find customers in the 2020s.

The natural result is that SaaS applications have taken center stage for businesses of all sizes and varieties. It started with sales management and revenue operations. But now there are SaaS offerings for enterprise marketers that deliver experiences to their customers in new and innovative ways. And there are SaaS solutions for IT managers to deploy global automation solutions. And SaaS is even encroaching on the system-of-record territory of enterprise resource planning (ERP). For a whole range of IT managers, business executives, and creators, SaaS is proven to be an essential business building block.

But the prevalence of critical SaaS applications creates new challenges. Companies now face governance requirements for their SaaS implementations. In global Centers of Excellence (CoE), teams are struggling with multi-SaaS issues. Because of process blockages, innovative organizations now seek a cohesive management strategy for multi-SaaS system management.

What is SaaS Devops Sky

Devops is a funny word. It means different things to different people, that is for sure. Today, the original word DevOps is blurred. It has changed from its original meaning breaking down the barriers between developers and system operations staff. Instead, today the word's meaning is now much more expansive. Understanding devops means you know "how to create world-class agility, reliability, and security in technological organizations," according to Gene Kim, lead author of **The DevOps Handbook**.

Additional IT thought leaders, like the authors of **Team Topologies: Organizing Business and Technology Teams for Fast Flow**, have injected a "teams of teams" concept into business management. With the Team Topologies backdrop, these writers crystalize the idea of digital product development within an enterprise. Also, Mr. Kim and his co-authors have novelized industry analysis in engaging books like **The Phoenix Project**. All these books are aimed at breaking logjams in IT, linking everyday work to stakeholders, and simply making IT work less dreadful.

Questions abound for enterprises in a multi-SaaS world. What is a cohesive SaaS management strategy? How do operational industries using SaaS applications make sure SaaS applications are properly governed? And how do enterprises deal with the cognitive overload of managing governance for multiple SaaS systems?

In this white paper we will check market research to verify a key business assumption – that SaaS applications are taking over corporate IT. Next, we will examine the challenges found in managing and running multiple, powerful SaaS applications. The requirements of a multi-SaaS approach to enterprise application development and governance will be examined. Finally, we will see how a SaaS devops platform gives enterprise managers the tools for accelerating SaaS application development safely, and according to the needs of the enterprise.

SalesforceDevops.net Industry Map

| Executive and Stakeholder Governance |
| Value Stream Management |
| Application Delivery Teams |
| Application Lifecycle Management |
| System Reliability & Incident Management |
| Pipeline Orchestration |
| DevOps, Developer & Low-Code Tools |
| Repository Management |

(Testing — left vertical label; Cybersecurity — right vertical label)

SaaS Devops Map adapted from SalesforceDevops.net Industry Map

But too many people still have IT impasses, don't know why they're doing a project, or hate their job. If that sounds like your organization, then understanding devops may provide you a map towards making things better.

Seeing this expansive perspective, I describe SaaS Devops to be how your organization goes about defining, building, and delivering digital products using SaaS. SaaS devops is obviously a huge topic, and not everybody needs to see the big picture all at once. One way to break it down is to stack up the technologies and management practices in the SaaS Devops Map.

The map breaks down SaaS devops technologies into 11 categories. Not everybody needs to understand every part of the map. If you are trying to get started with automation or break some logjams, dive into the blue portions of the map. However, for big companies or Center of Excellence (CoE) staff, you should make sure you have all **11 categories** covered in your SaaS devops management plan.

And then there are the cultural aspects of devops that gives it the power to transform organizations. When people talk about a devops culture, they are really focusing on two things devops encourages: scientific thinking and continuous learning.

Devops is designed to improve processes in your organization. When well-managed, some organizations extend devops and value stream management to all operational activities, not just IT-related. This is when devops becomes the instrumentation of a finely tuned engine that lets operators pass their competitors with ease.

Databases in the Sky

Since Salesforce launched in 1999, many in the IT industry have worked towards a shared vision of databases in the sky. Now, millions of businesses around the world have subscribed to this vision by running their businesses in the cloud. Many new businesses and organizations around the world operate exclusively using the public cloud. To them, on-premises systems seem anachronistic, or something that belongs in the past.

SaaS applications are the ultimate form of business process outsourcing. This is because they allow users to access best-in-class work processes with just a web browser. SaaS is also a powerful force which has swept data from people's desktops, server closets, and data centers into the cloud. The vision of making data available to anyone who needs it anywhere, anytime is fulfilled with SaaS and the public cloud in 2022. But there is a spectrum of SaaS adoption that varies by industry, so not every aspect of business operations is anywhere/anytime, yet.

The evidence for cloud supremacy in key business categories is everywhere. A study published at SalesforceDevops.net cited a survey of public cloud companies that confirms strong industry growth. The study found that the SaaS industry has sustained growth rates of at least 26% per year since 2019. And the study projects that $125 billion in 2021 SaaS revenue will grow to $279 billion by 2024.

Public Cloud Revenue, 2000-2021

Billions USD($)	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010	
Company Type	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth
SaaS	0.005		0.022	328%	0.048	122%	0.086	80%	0.158	84%	0.28	78%	0.45	61%	0.68	51%	1.08	59%	1.78	64%	2.91	64%
Infra	0.475		1.147	142%	1.383	21%	1.247	-10%	1.415	13%	1.94	37%	2.24	16%	2.88	28%	2.80	-3%	3.31	12%	3.38	8%
CSP									0.076		0.28	275%	0.63	121%	0.86	37%	0.92	8%	0.95	3%	0.98	3%
Annual Total	0.48	40%	1.17	143%	1.43	22%	1.33	-7%	1.65	24%	2.5	52%	3.32	32%	4.42	33%	4.80	9%	5.85	22%	7.27	24%

Billions USD($)	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021	
Company Type	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth	Revenue	Growth
SaaS	4.73	62%	6.84	45%	12.1	77%	16.9	39%	24.3	25%	32.9	35%	46.8	42%	58.7	26%	78.1	33%	98.3	26%	125	27%
Infra	4.46	32%	11.87	166%	16.1	36%	32.2	100%	39.7	25%	49.3	24%	62.5	27%	81.4	30%	105.5	30%	134.6	28%	173	29%
CSP	0.08	16%	0.09	20%	0.11	18%	0.13	24%	0.16	35%	0.40	145%	0.8	98%	1.1	43%	1.8	58%	2.5	40%	3.7	47%
Cybersecurity	0.01		0.03	154%	0.11	285%	0.20	72%	0.33	27%	0.55	69%	1.3	133%	2.0	56%	3.1	54%	4.4	42%	6.5	47%
DevOps	0.97	-1%	1.12	15%	1.18	5%	1.45	23%	1.71	30%	2.06	21%	2.5	19%	3.1	26%	4.6	49%	8.0	74%	11.5	43%
Annual Total	10.2	40%	235	29%	29.6	49%	50.8	72%	66.2	30%	85.2	29%	113.8	32%	146.3	29%	193.1	32%	247.9	28%	319.7	29%

Table 1 – Public Cloud Revenue 2000-2021, source SalesforceDevops.net

Public Cloud Revenue by Cloud Type and Year, 2011-2021

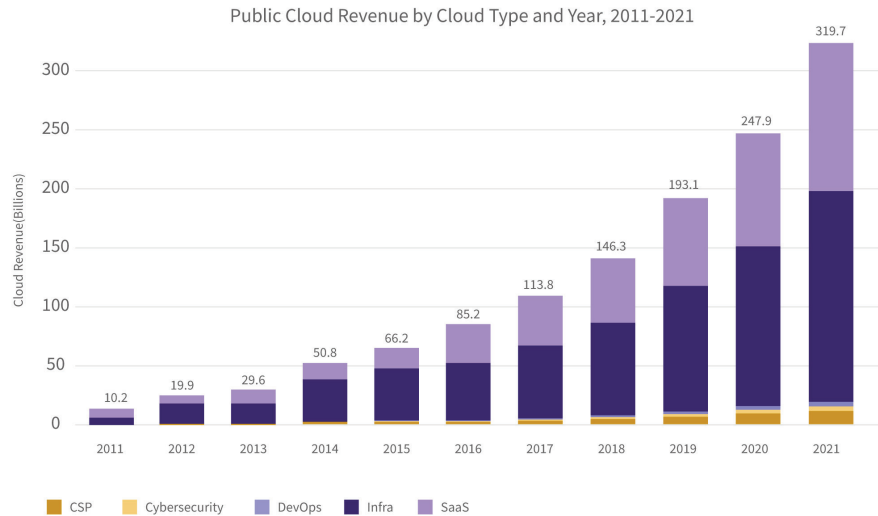Public Cloud Revenue by Cloud Type and Year, 2011-2021

Figure 1 – Public Cloud Revenue by Type and Year, 2011-2021

Significantly, the SalesforceDevops.net study found 35 new public SaaS companies have posted cloud revenue since 2018. The introduction of new SaaS companies will help to sustain the industry's growth rate, according to the study.
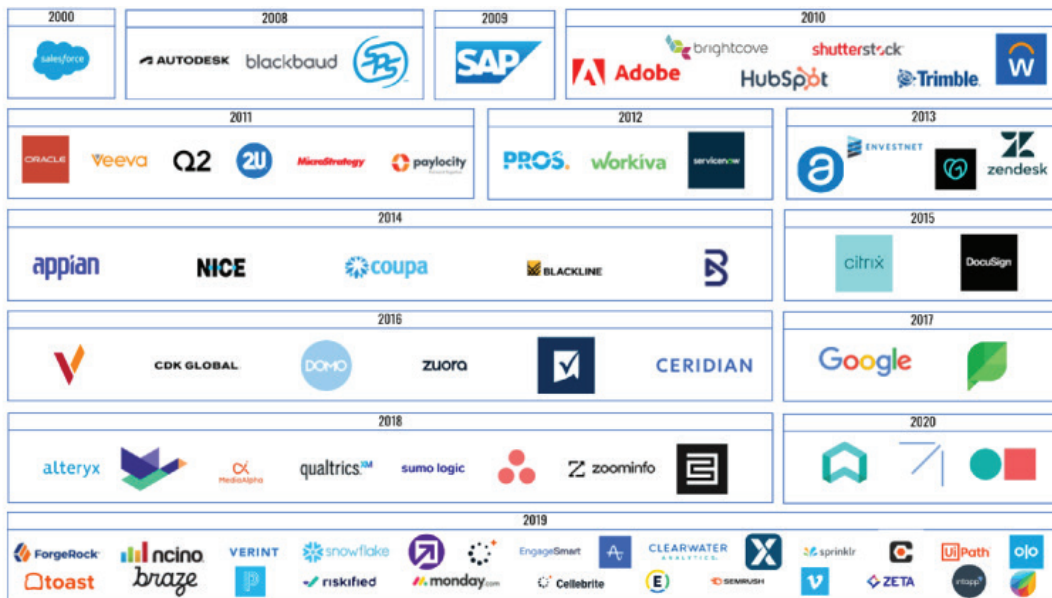
Public SaaS Companies Reporting Cloud Revenue

Figure 2 – Year Public SaaS Companies Started Reporting Revenue, source SalesforceDevops.net

All this cloud spending is transforming IT budgets. In 2022, more than $1.3 trillion in global enterprise IT spending stands to be replaced by the shift to cloud, growing to almost $1.8 trillion in 2025, according to Gartner. Enterprises will soon have no choice but to face the need to manage the cognitive load and governance issues of SaaS sprawl.
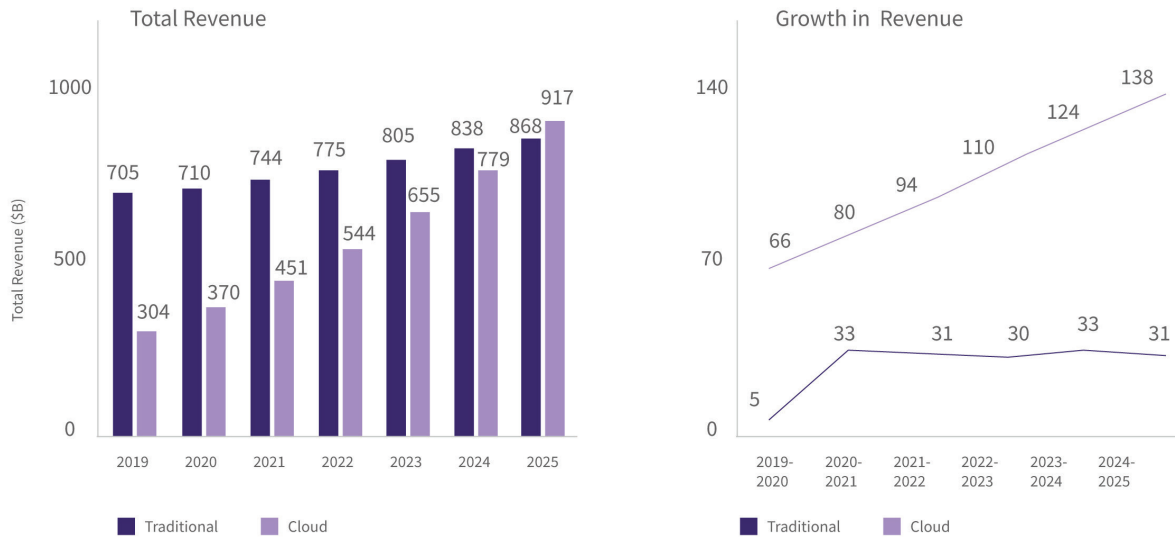
Figure 3 – Cloud Spending vs Traditional, source Gartner

SaaS Adoption Spectrum

The SaaS industry is gobbling up traditional software expenditures one category after another. The SalesforceDevops.net study identified the following current and future SaaS categories.

- CRM & Revenue Operations
- Productivity & Workflow
- Experience Management & Marketing Services
- Service Management
- Enterprise Applications
- Data Warehousing
- Enterprise Resource Planning (ERP)
- Fintech Services, including payments and POS
- Life Science Data Management
- Supply Chain Management (SCM)
- Manufacturing Resource Planning (MRP)

Figure 3 illustrates how much these categories have migrated to the SaaS business model. The horizontal axis of this diagram indicates the relative amount of SaaS adoption in each software and service category listed. The vertical axis is an estimate of the category's 2022 annual revenue.

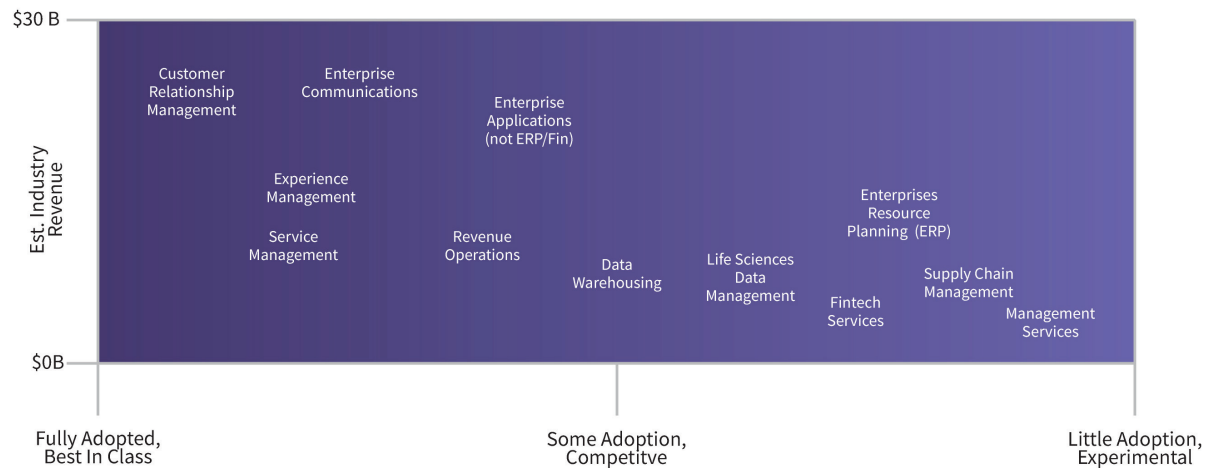**SaaS Migration Spectrum, 2022**

Figure 4 – SaaS Adoption Spectrum 2022, source SalesforceDevops.net

One lesson to take from the adoption spectrum is that there are several larger software categories still available to the SaaS industry. Also, a characteristic shared by low adoption categories is that they are more operational in nature. Operational systems store and manage data critical to the operation of the enterprise. Operational SaaS systems need to be managed with a SaaS devops platform to ensure proper governance.

The SaaS Devops Challenge

As organizations continue to strongly adopt and invest in SaaS applications, creating and delivering digital products remains a key challenge for them. And governance issues, which arise when SaaS systems are used for financial or regulated data, continue to complicate SaaS system management.

Devops helps to manage SaaS application development activities and deal with governance challenges (see Sidebar). In multi-SaaS administration, complications occur because each SaaS application manages these devops challenges differently:

- Platform Cybersecurity
- Application Lifecycle Management
- Low Code Application Development
- Software Development Lifecycle (SDLC)
  - Developer Cybersecurity (Shift Left)
- Extract Translate Load (ETL)
  - Data Warehousing/Customer Data Platform (Customer 360)
  - Artificial Intelligence Model Ingestion (AIOps)
- 2nd Generation Testing
- Change Management Documentation
- Environment Management
  - Source Code Repositories
  - Software Delivery

The variety and diversity in devops tooling makes it very complex for enterprises to build cohesive release automation activities for each SaaS offering. As a result, enterprises are struggling to keep up with issues involving multi-SaaS management. Ultimately, the skill with which an organization manages multiple SaaS systems impacts organizational agility, velocity, security, quality, and time to market.

SaaS Application Management Features Required

As SaaS proliferates, vendors need to increase their release management support. SaaS systems need to accept configuration commands and receive data from external systems. If a customer cannot fully configure a SaaS system with an application programming interface (API) or command line interface (CLI), then that should be viewed as a system deficiency.

The ability to ingest and manage each SaaS system's metadata is a critical requirement. The need to manage SaaS metadata is a distinguishing feature of SaaS devops from traditional, or cloud native devops. A multi-SaaS metadata system is needed for identity management compliance and personal identifying information (PII) cybersecurity.

SaaS metadata management is a complicated matter. It requires systems to use metadata intelligence to cope with the dynamic nature of SaaS metadata. Salesforce devops vendors have achieved some success in managing the metadata in very large Salesforce projects. This gives the SaaS industry a pattern of success to emulate. The following Salesforce platform features have facilitated devops vendors:

- **Metadata API** – Salesforce Metadata API, while a work in progress, supports most Salesforce configuration activities to be performed programmatically. The API allows for periodic ingestion of metadata changes, so devops platforms become aware of low code system modifications.
- **Data APIs** – Salesforce REST API allows for full database management, the Bulk API 2.0 supports additional data management activities, and S
- **Sandboxes**– The Salesforce sandbox feature provides the ability to manage releases in multiple environments. Sandboxes are required for those organizations who require low code change management.
- **Platform CLI** – SFDX-CLI, and eventually a unified SF-CLI, provide an important touchpoint between cloud native scripting activities, devops platforms, source code repositories, and the Salesforce platform.

These features are used by devops platforms to properly manage a rigorous release management strategy. Most platform vendors have functionality that covers the SaaS Industry Map (see sidebar).

The SaaS Devops Platform

Before diving into the requirements for a SaaS devops platform, let's examine Salesforce devops. Salesforce devops platforms are popular because they allow for critical system governance by professional developers and business creators using low code tools. There are seven Salesforce devops platform vendors who have extended the cloud native devops model to cover metadata intelligence, pipeline management, value stream management, and advanced testing.

Salesforce devops platform vendors use metadata intelligence to synchronize the flow of Salesforce activities with business processes. Metadata intelligence delivers key features like change intelligence, which previews change impacts. Using the Salesforce ecosystem as a model, SaaS Devops Platforms should also have these core characteristics:

- **Centralized Operations** – SaaS devops platforms should facilitate teamwork because it provides an important focus for teams to reduce devops sprawl.
- **Value Stream Management** – SaaS devops platforms should be architected with value stream management in mind. This means that process measurements and key performance indicators (KPIs) should be extracted from operational data and presented in dashboards to team members.
- **Application Lifecycle Management** – SaaS devops platforms should have project management and release organization built into workflow operations. Or platforms should interface with industry standard ALM tools like Atlassian Jira.
- **Pipeline Orchestration** – SaaS devops platforms should host a scripted command server which runs the long-running processes involved in release management.
- **Release Management** – SaaS devops platforms should package and move metadata changes between different environments using external source code repositories.
- **Change Management** – SaaS devops platforms must document all changes and tests applied during system releases for governance and reliability.

A multi-SaaS devops platform has additional required characteristics:

- **Multi-SaaS Architecture** – SaaS devops platforms must be extensible where they have a "plug in" or "bus" architecture that allows for adding additional SaaS systems.
- **Knowledge Management** – SaaS devops platforms must address the issue of cognitive overload and help to manage the knowledge needed to operate different SaaS systems.
- **Personal Identifying Information Management** – SaaS devops platforms must coordinate the use of PII between SaaS systems and provide cybersecurity reporting.
- **Customer Data Platform Integration** – SaaS devops platforms must be aware of identifiers used to link customer data and use them to facilitate data integration.
- **Extract Translate Load** – SaaS devops platforms should directly incorporate ETL capabilities to facilitate data transfers.
- **Data Flow Pipeline Management** – SaaS devops platform should manage the flow of data between operational systems, data warehouses, and AI systems using scripted command servers.

Not many vendors have embarked on the SaaS devops journey. Opsera is the exception. Opsera has a multi-SaaS architecture with its SaaS Apps Release Automation Strategy. Their architecture has a logic layer that handles most of the SaaS devops technology stack. And, Opsera has a bus-style, plug-in architecture for adding new SaaS systems.

Opsera has a nice story about making SaaS devops work. It is an easy-to-use, well-integrated service with lots of sources and targets. This helps Opsera give customer team members a common, online place for teamwork to flourish. Finding new ways to work together is the most important first step to joining forces with a vendor on the SaaS devops journey.
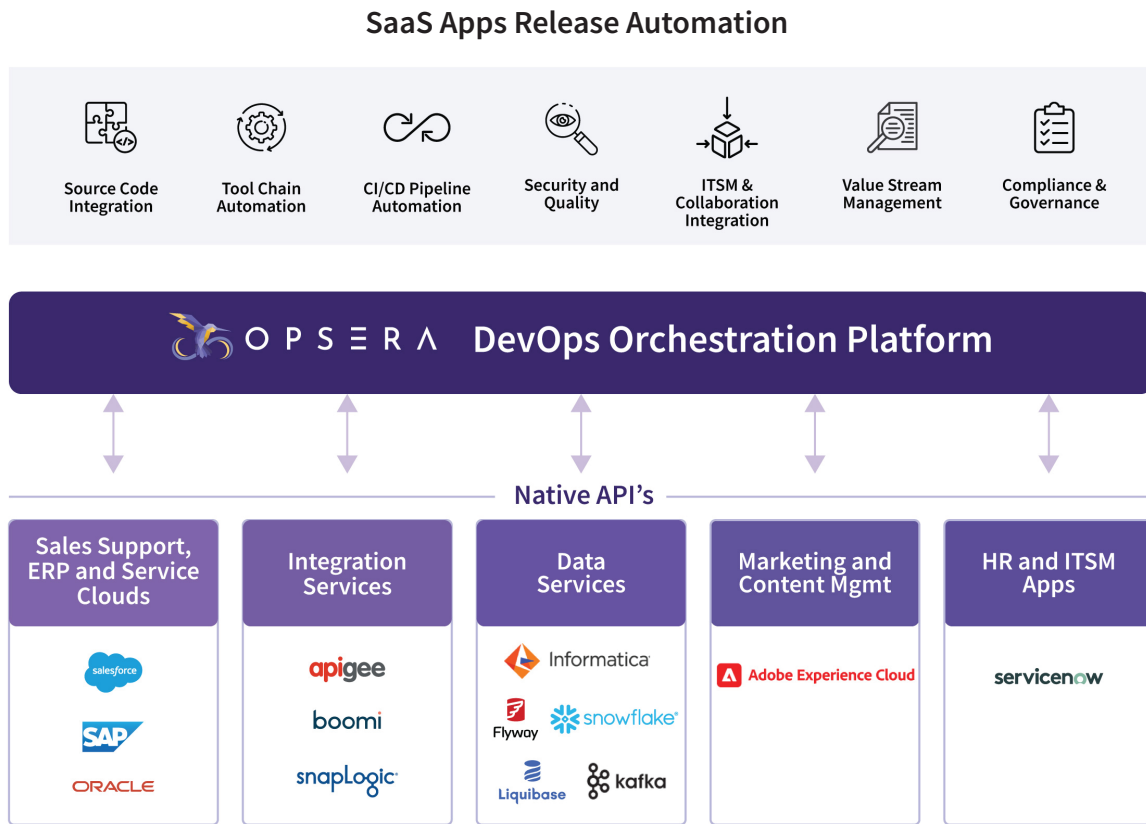
SaaS Apps Release Automation

Figure 5 – SaaS Apps Release Automation, source Opsera

Summary & Conclusion

As DevOps strategies are used to shorten application release cycles and enable operational efficiencies, the mega trends surrounding SaaS application delivery (such as Database in the Sky, Internet Marketing, and Customer Data Platform) requires companies to work smarter, not harder.

Harnessing modern technology and new business models, while expanding the ability for cross-functional teams to add business value via the rapid development of new software requires the "invisible hand" of orchestration to automate software delivery without sacrificing critical control factors.

SaaS DevOps gives organizations the path to manage and modernize the many software systems needed by bringing disparate data and siloed development practices together under a singular focus. A common platform approach to SaaS DevOps alleviates the need to build separate development teams, custom data migrations, and release management tactics for each new project. Instead, it can deliver a digital experience that opens opportunities for stakeholders with varying skill sets to take advantage of the inherent agility and automation created to orchestrate software delivery for all kinds of SaaS applications and ecosystems with a cohesive cloud strategy.

Technological waves can either lift a company to new heights or relegate it to the dustbin of history. As SaaS ecosystems evolve, businesses that can continuously improve its ability to more quickly deliver better experiences for its supply chain, workforce and most notably its customers, will win in the marketplace.

Deliver SaaS Faster with Opsera's DevOps Orchestration Platform

For fast, secure, and flexible delivery for all the SaaS apps you need, Opsera takes the brute force out of your application releases with no coding required.

With Opsera, you can deliver flawless and secure SaaS releases up to 80% faster while saving hundreds of hours to gain all the power of SaaS while operating seamlessly across all major cloud environments.

Release management that supercharges your tooling

Opsera makes it easy to merge branches and synchronize dev environments. You can customize everything to fit the tools you use and the ways your team works.

Bake in quality and security, forever

Opsera helps you release quicker by providing the DevOps orchestration layer across teams, tools and functions while improving security, quality, and compliance for all SaaS applications. This demonstrable, automated and repeatable process that will make your IT organization thrive.

Complete visibility every step of the way

Opsera unifies your logs and allows you to see data from all your tools–all in one place. By cutting manual work and adding total visibility across your development lifecycle, with auto-generated KPIs, Opera makes troubleshooting and compliance reporting a breeze. Customers across the board are reporting:

- 50% decrease in manual release tasks
- 25% increase in developer productivity
- 80% faster Salesforce releases

The power of an open, no-code platform for SaaS DevOps

If you want to avoid vendor lock-in or succumb to limited tool choices, Opsera enables you to integrate everything your teams need to go faster. It bridges silos by dramatically simplifying pipelines across your organization and delivers an unmatched SaaS release management and scale for all your business apps.

Opsera simplifies and speeds software delivery by automating any CI/CD toolchain with zero coding, quickly building declarative pipelines that focus on business objectives, and unified insights by role across the enterprise. You now have the flexibility to integrate any tool, cloud or analytics quickly and easily into a single point of access and truth for DevOps.
Learn more at opsera.io/unifiedinsights

Request a Demo

opsera.io   © 2022 Opsera, Inc.