WAAP Buying Guide

End-to-End Protection for Apps and APIs

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What's WAAP?

Organizations that strive to deliver secure digital experiences will achieve competitive advantage by safely unleashing application innovation that delights customers. However, changing dynamics in the way applications are designed and deployed have expanded the threat surface and have necessitated a paradigm shift in the way security is delivered.

Efforts to stay ahead in a digital-first world by leveraging modern app development, agile methodologies, and automation are derailed by sophisticated attackers that compromise and abuse apps and APIs, resulting in data breach, downtime, and account takeover (ATO). This is further exacerbated by friction in the customer experience. Strict security controls inadvertently frustrate customers (while burdening InfoSec teams with alerts), and the resulting subpar performance can result in transaction and brand abandonment.

Security and risk management leaders need to defend the business by protecting apps and APIs while operating at the speed of business. Manual security testing and tuning that slows the release cycle and time-consuming incident response that turns out false positives needs to be minimized while performance and usability that improves the customer experience must be optimized.

More organizations are considering cloud-delivered, as-a-Service solutions to help manage the complexity of securing digital experiences. Namely, web app and API protection, or WAAP. Applications are increasingly evolving toward highly distributed multi-cloud architectures driven by performance, compliance, and ecosystem interoperability. This paradigm shift in the way apps are designed and deployed introduces new architectural risks. APIs are subject to the same types of risks as traditional web applications and attackers know the complexity of modern apps plays in their favor—security teams simply cannot keep pace with a continuously evolving fabric of digital touchpoints and an increasingly difficult risk calculus. Observability, actionable insights, and end-to-end protection that uses machine learning to adapt to emerging threats is a must-have for multi-cloud security.

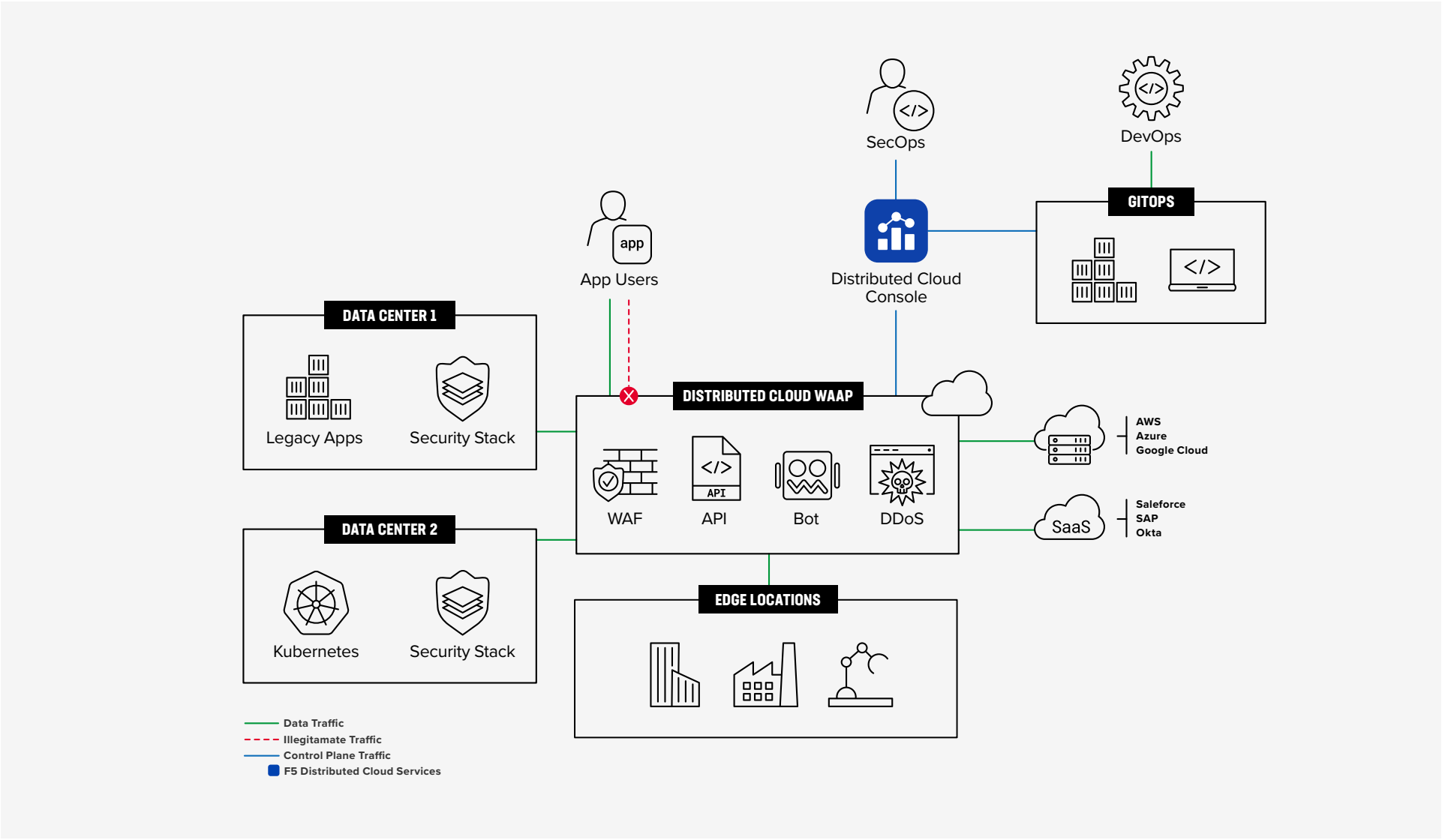


Figure 1: Web App and API Protection.

Why Do Organizations Need WAAP?

Business leaders are grappling with unprecedented change and uncertainty as the pace of digital transformation continues to accelerate, serving as a forcing function to better align and strengthen alliances across security and application teams. The complexity of managing both legacy and modern apps across hybrid and multi-cloud environments has led to friction between security and apps teams, customer frustration, and increased vulnerability to attacks.

Complexity

The biggest challenge is complexity, brought on by a proliferation of architectures resulting from a constant need to deliver capabilities and features to gain competitive advantage. For example, the pressure to innovate quickly has resulted in large-scale adoption of third-party integrations via APIs, which can introduce unknown risks to the business—especially when these interdependencies are outside the purview of security teams.

Legacy and Modern Apps

Architectural decentralization and modern software development have led to the creation of an array of assets that must be secured, significantly increasing the risk of compromise as organizations maintain legacy applications as well as new digital catalogs. While three-tier custom web stacks in the data center still have a place, cloud, microservices, and container technologies—like APIs—have facilitated an explosion of innovation that application teams leverage to improve their digital capabilities. The pace of architectural and tool sprawl is making manual security practices untenable.

Friction and Frustration

Security teams can struggle to keep up with rapid feature and code releases that leverage open source and third-party components, leading to missed opportunities and internal friction. With so many ways to buy in the digital economy, customers have become intolerant of friction from excessive authentication that inhibits their ability to transact. Customer expectations are also driving digital touchpoints to be deployed closer to the edge, as any performance hiccup may result in transaction, revenue, and even brand abandonment.

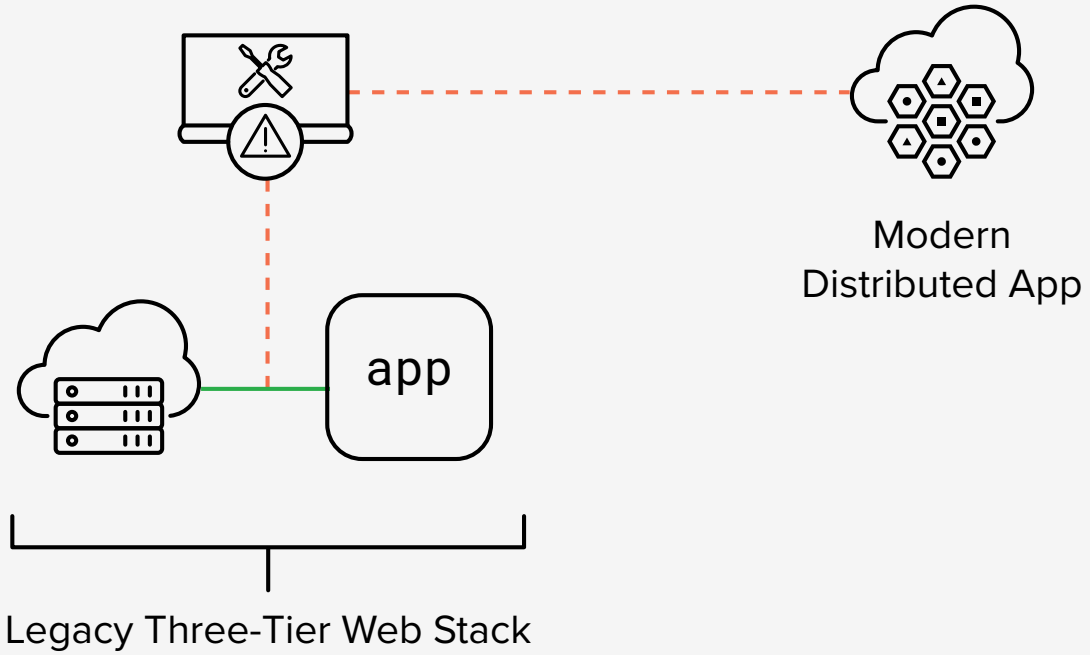
There will be over a billion APIs in use by 2031.[1]

Attacker Economics

The complexity of managing legacy and decentralized modern apps has made the economics of cybercrime more attractive. A constant cadence of vulnerabilities, weaponized exploits, and compromised credentials continues to expand the threat surface, and sophisticated automated tools and readily available botnet infrastructure provide attackers with an attractive ROI for their efforts. The most sophisticated criminals and state actors are not easily deterred and constantly retool to evade detection.

On average **one in five** authentication requests comes from malicious automated systems like credential stuffing bots.[2]

Figure 2: Complexity driven by architecture decentralization dramatically expands the threat surface.



What Makes WAAP Effective?

There is a clear opportunity for organizations that leverage security as a competitive advantage to protect the business and satisfy customers. By integrating security into development frameworks, distributing security inspection close to apps and APIs, and continuously adapting to both security and performance conditions, the business can focus on earning and engaging customers with compelling digital experiences.

Platforms that can abstract the intricacies of different environments—whether digital touchpoints are in the data center, a private cloud, across public clouds, or at the edge—consistently enforce policy, and automatically remediate threats offer the best way for security teams to keep pace with the speed of digital business. Risk assessment and mitigation must leverage durable telemetry and highly-trained machine learning to maintain resilience; especially as attackers embrace artificial intelligence to enhance their threat campaigns.

Fundamentally, visibility and enforcement are still paramount considerations.

9 out of 10 organizations that operate in multiple clouds report complexity of tools and APIs.[3]

Visibility

Deployment

Effective and easy-to-operate security deploys consistently across clouds and architectures, integrates into CI/CD pipelines, and updates with continuous threat intelligence.

Policy Tuning

Adaptive security that reacts as apps and attackers evolve using machine learning and human oversight continuously mitigates risk from compromise and abuse.

Enforcement

Discovery

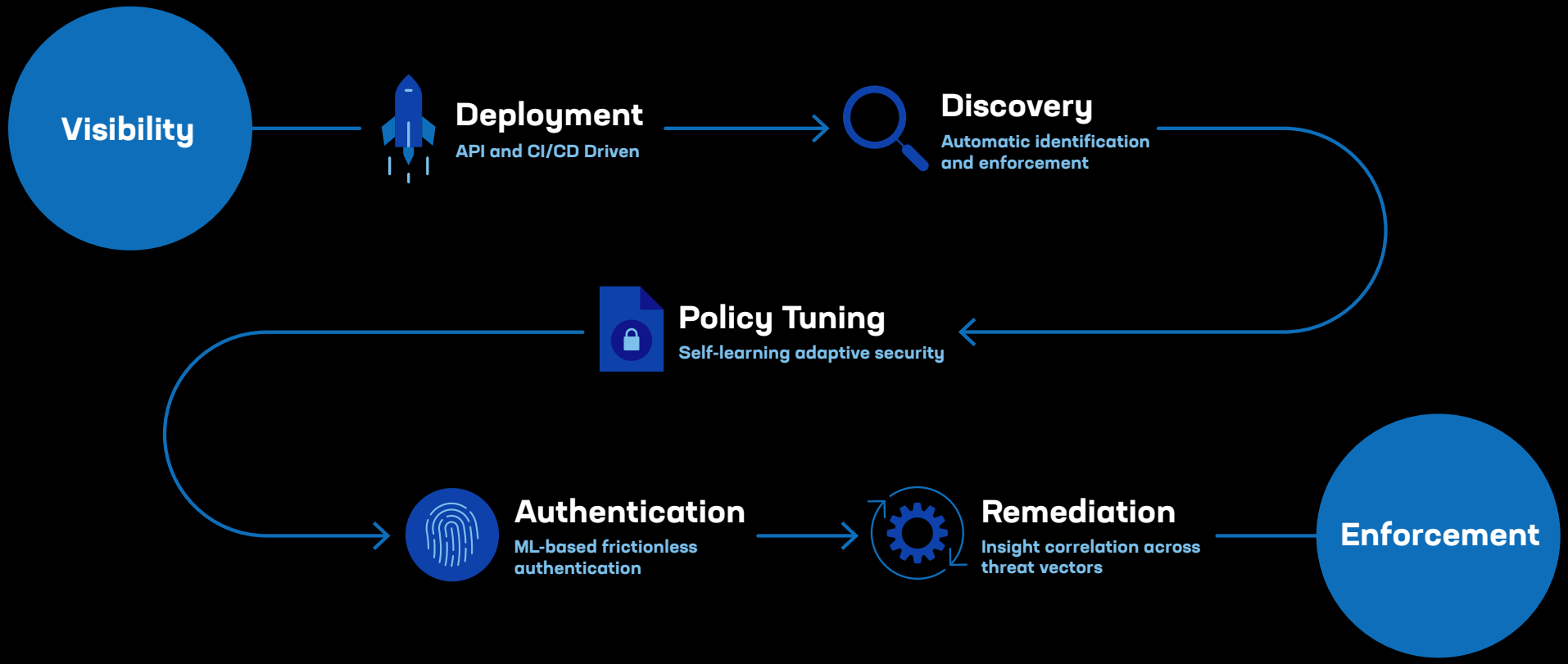
Dynamic API discovery with anomaly detection, behavioral analysis, and automated risk scoring protects against unintended risk in the API-driven digital economy.

Authentication

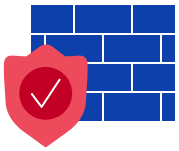
Accurate and durable telemetry with highly-trained AI removes the need for strict security challenges that frustrate the customer experience.

Remediation

Automatic mitigation and suppression of false positives and insight correlation across threat vectors minimizes operational burdens and allows InfoSec to focus on risk and incident response.


Visibility
Deployment
API and CI/CD Driven
Discovery
Automatic identification and enforcement
Policy Tuning
Self-learning adaptive security
Authentication
ML-based frictionless authentication
Remediation
Insight correlation across threat vectors
Enforcement

What Makes the Best WAAP?



Effective Security

The best WAAP maintains resilience with minimal friction and false positives through real-time mitigation, retrospective analysis, and adaptive security.

- Robust security, threat intelligence, and anomaly detection protects all apps and APIs from exploits, bots, abuse, and denial-of-service to prevent compromise, data breach, ATO, and downtime in real-time.
- Correlated insights across multiple vectors and ML-based evaluation of security events, login failures, policy triggers, and behavioral analysis enables continuous self-learning and detection of malicious users.
- Autonomous security countermeasures that react as attackers retool deceives and convicts bad actors without relying on mitigations that disrupt the customer experience.

Easy-to-Operate

The best WAAP provides self-service deployment with low operational complexity through simple onboarding, automated protection, and interactive reporting.

- Self-learning and self-tuning security integrates into event management and CI/CD ecosystems to reduce the burden on InfoSec, DevOps, and AppDev teams.
- Dynamic discovery and policy baselines enable auto mitigation, tuning, and false positive remediation throughout the development/deployment lifecycle and beyond.
- A suite of security dashboards with risk scoring and contextual drill-down maximizes the power of insight correlation for incident response and forensics.

Distributed Platform

The best WAAP provides universal visibility and consistent policy enforcement across all clouds and architectures.

- Insertion points for data center, cloud, container, and CDN facilitate a comprehensive view of the entire application portfolio.
- Declarative policy abstracts underlying infrastructure to prevent misconfiguration.
- Security deploys on-demand where needed for consistent protection from app to edge.

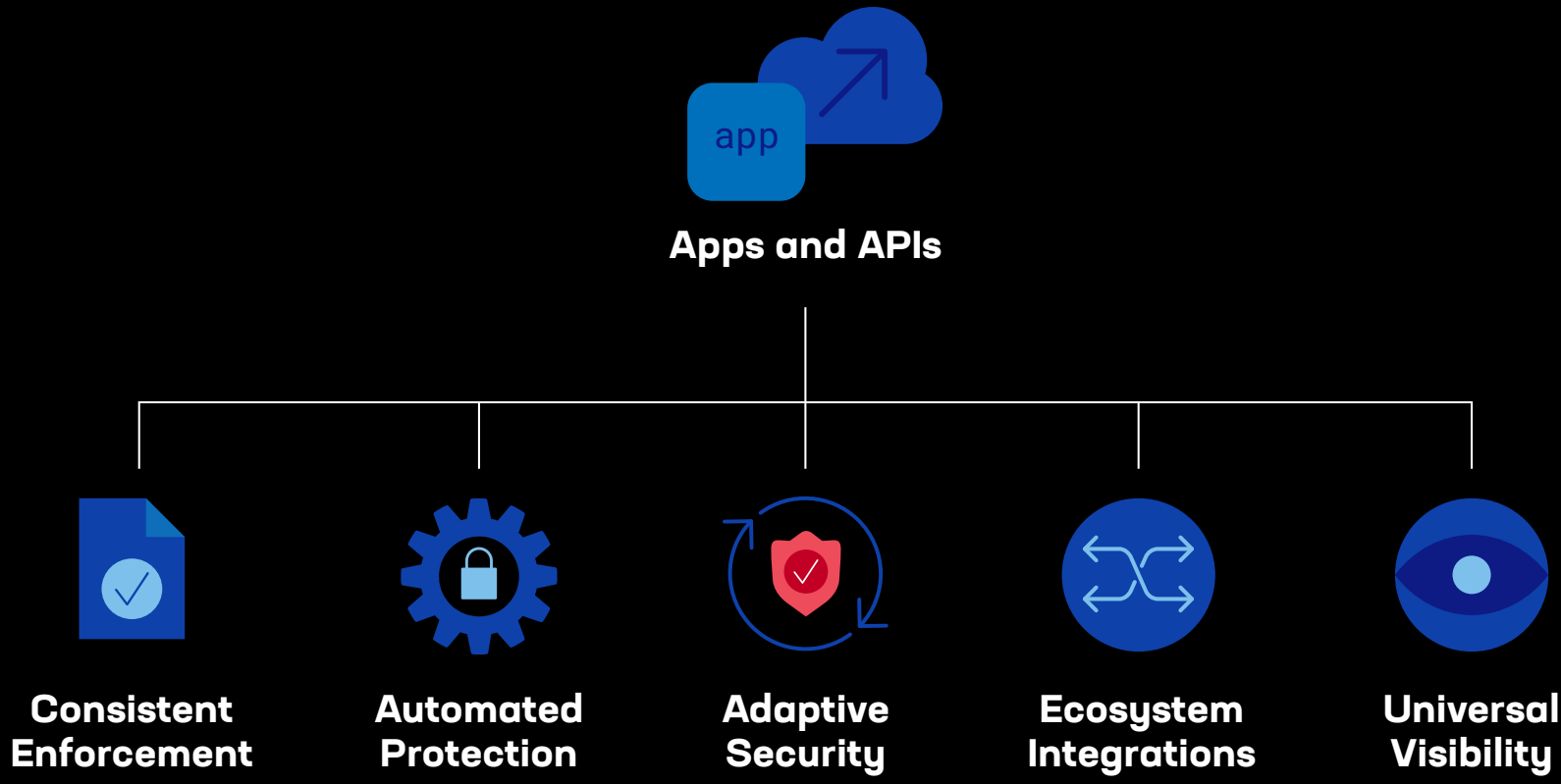
API Protection

The best WAAP dynamically discovers and automatically protects all digital touchpoints.

- Universal distributed platform with durable data analytics and actionable insights.
- Continuous discovery and assessment of potential rogue endpoints—shadow and zombie APIs.
- Diverse protocol support (REST, GraphQL, gRPC), enforcement of API schema, and automated ML-based security.

Key Elements of an Effective WAAP

The best WAAP solution provides universal visibility and consistent policy enforcement across hybrid, multi-cloud environments, using automated protections and adaptive security to maximize efficacy and efficiency of existing security investments.



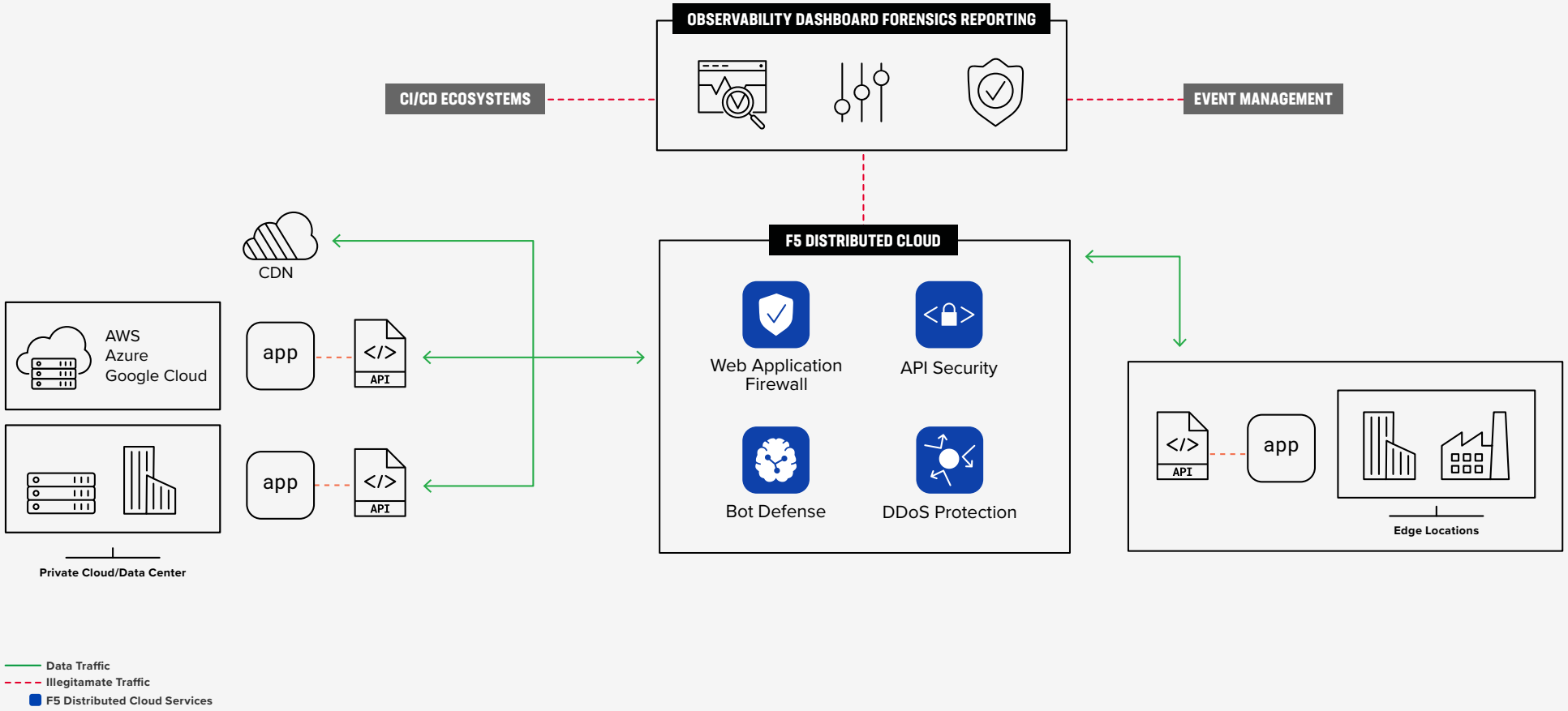


Figure 3: F5 Distributed Cloud WAAP

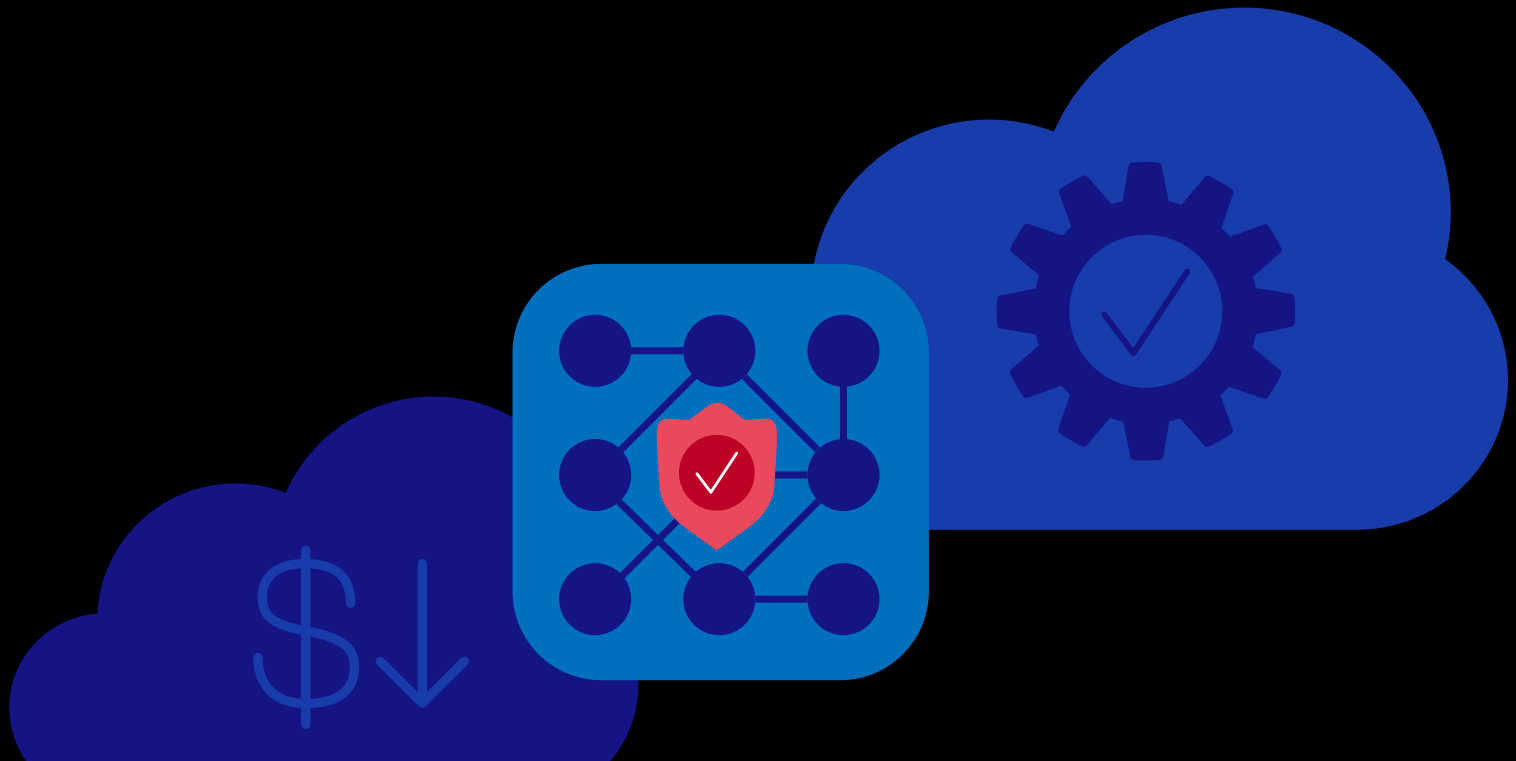
Conclusion

Inevitably, new vulnerabilities will surface, and attackers will enhance their playbooks using AI to capitalize on weaknesses in distributed application architectures. Complex software supply chains, open-source software proliferation, and automation via CI/CD pipelines increase the risk of devastating vulnerabilities and unintentional misconfiguration. Early detection and remediation are critical to mitigate weaknesses in software, critical protocols, and access controls.

A platform with adaptive security can protect applications and APIs across clouds and architectures, and continuously react as apps change and attackers retool, freeing InfoSec from custom authentication rule management and false positive remediation. This allows security and risk management leaders to defend the business while supporting digital innovation.

F5 Distributed Cloud Services provide universal visibility, consistent enforcement, automated protection, adaptive security, and ecosystem integration across the entire application portfolio—protecting apps and APIs while preserving business agility and customer experience.

Shift the perspective of security from a cost center to a digital differentiator by effectively balancing protection and usability to deliver compelling digital experiences while reducing costs and complexity.



Appendix

[1] Rajesh Narayanan and Mike Wiley, "Continuous API Sprawl: Challenges and Opportunities in an API-Driven Economy," F5 Office of the CTO Report (2021) https://www.f5.com/pdf/reports/f5-office-of-the-cto-report-continuous-api-sprawl.pdf

[2] "2023 Identity Threat Report: The Unpatchables," F5 Labs Report (2023) https://www.f5.com/labs/articles/threat-intelligence/2023-identity-threat-report-executive-summary

[3] "State of Application Strategy Report 2021," F5 Report (2023) https://www.f5.com/state-of-application-strategy-report

ABOUT F5

BRINGING A BETTER DIGITAL WORLD TO LIFE

F5 is a multi-cloud application services and security company committed to bringing a better digital world to life. F5 partners with the world's largest, most advanced organizations to secure and optimize apps and APIs anywhere—on premises, in the cloud, or at the edge. F5 enables organizations to provide exceptional, secure digital experiences for their customers and continuously stay ahead of threats. For more information, go to f5.com. (NASDAQ: FFIV).

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