Web Application and API Protection

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WAAP

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Agenda

Drivers for WAF and Use-Cases

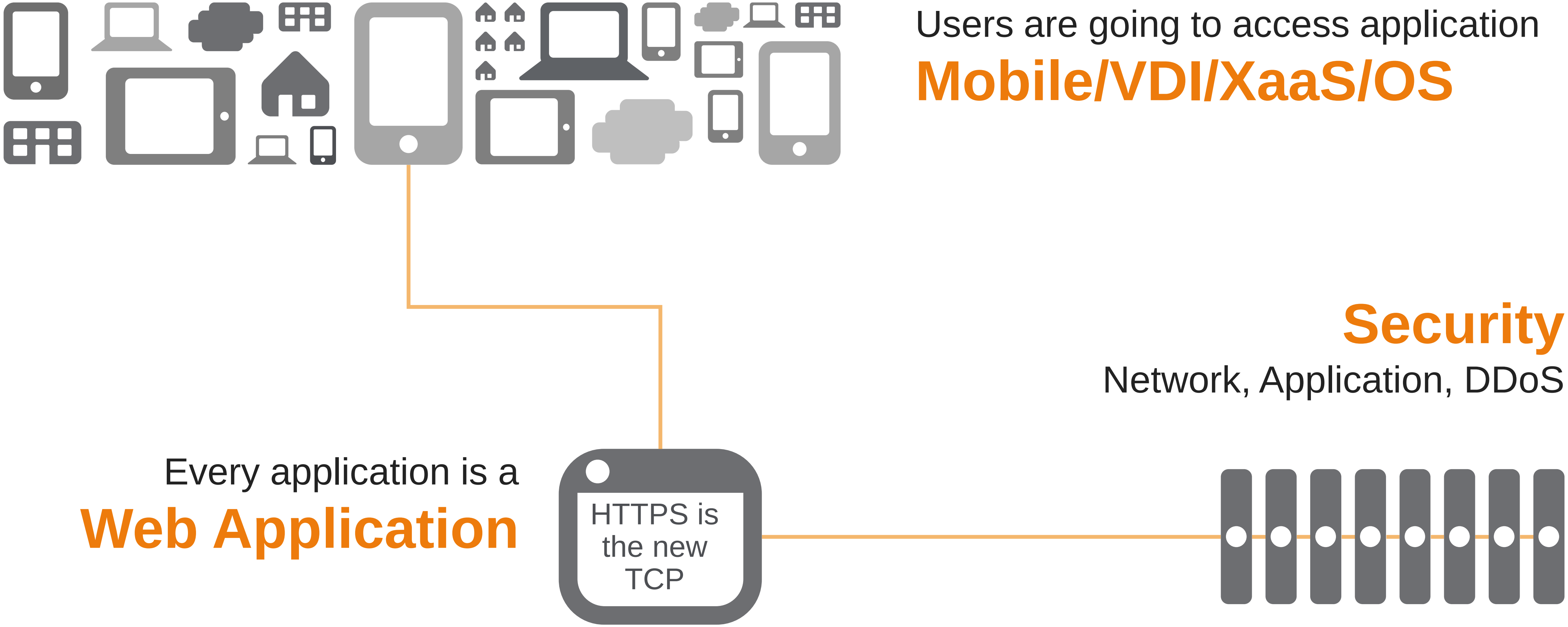
Deployment Options and Management

WAAP

Conclusion

Drivers for WAF and Use-Cases

The 21th Century Application Infrastructure



Users are going to access application
Mobile/VDI/XaaS/OS

Security
Network, Application, DDoS

Every application is a
Web Application

HTTPS is the new TCP

Real life customer use-cases

- OWASP Top 10 Protection
- Bot Prevention
- Layer 7 DDoS Mitigation
- API Security
- Very often in combination with:
  - Traffic Management
  - Scalable and secure TLS/HSM
  - Authentication Proxy – Federation, Formbased, Client-Cert

Deployment options and Management

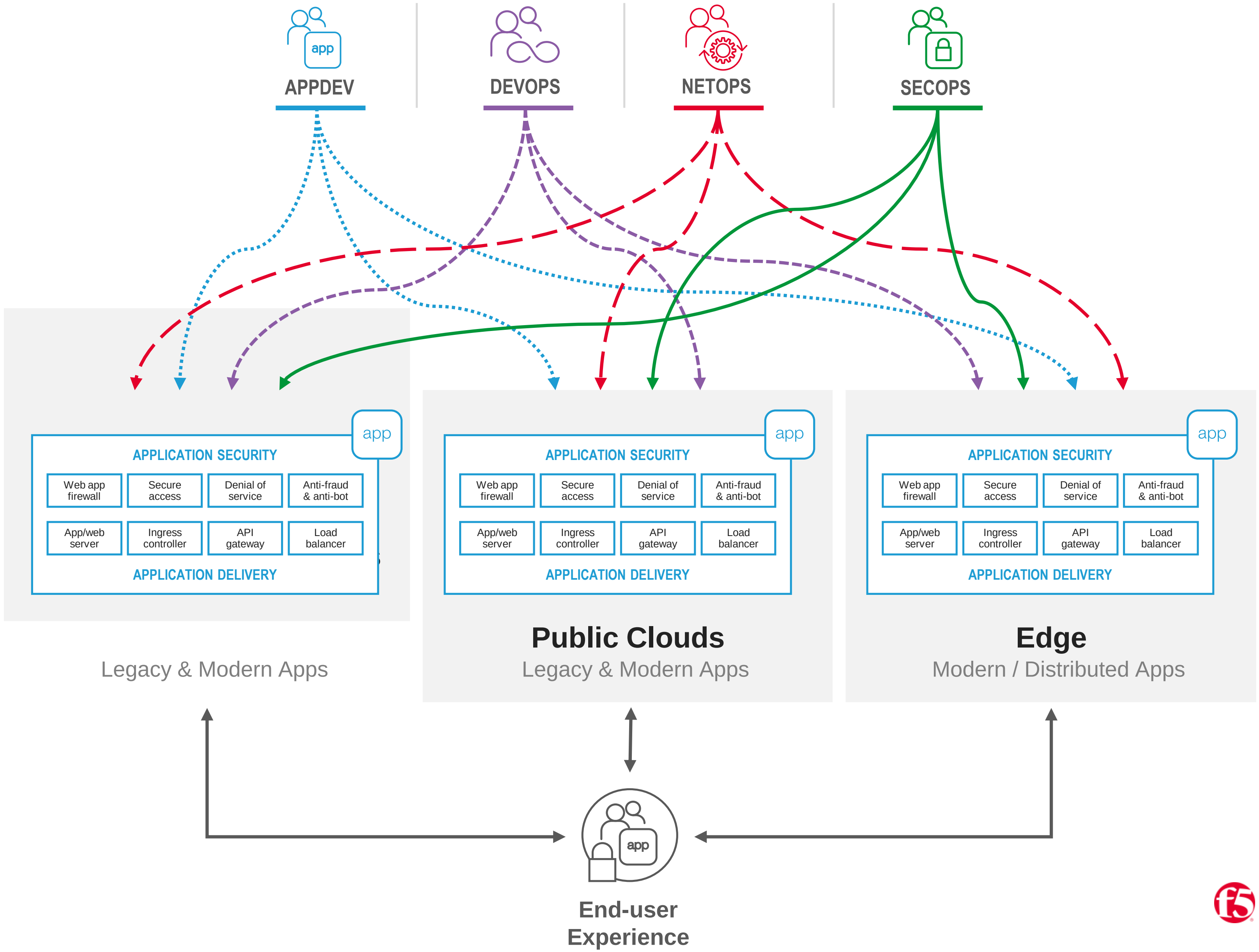
App Services without Mesh and centralized management

#1 Complex coordination because of technology inconsistencies between teams and across environments

#2 Automation challenge ”stitching” multiple environments, layering net, security, and apps, at scale

#3 Security difficulties due to multiple different attack surfaces and sophistication of bad actors

#4 Limited observability of silo’d telemetry trapped in disjointed systems & environments



APPDEV

DEVOPS

NETOPS

SECOPS

app

APPLICATION SECURITY

Web app firewall | Secure access | Denial of service | Anti-fraud & anti-bot

App/web server | Ingress controller | API gateway | Load balancer

APPLICATION DELIVERY

Legacy & Modern Apps

Public Clouds

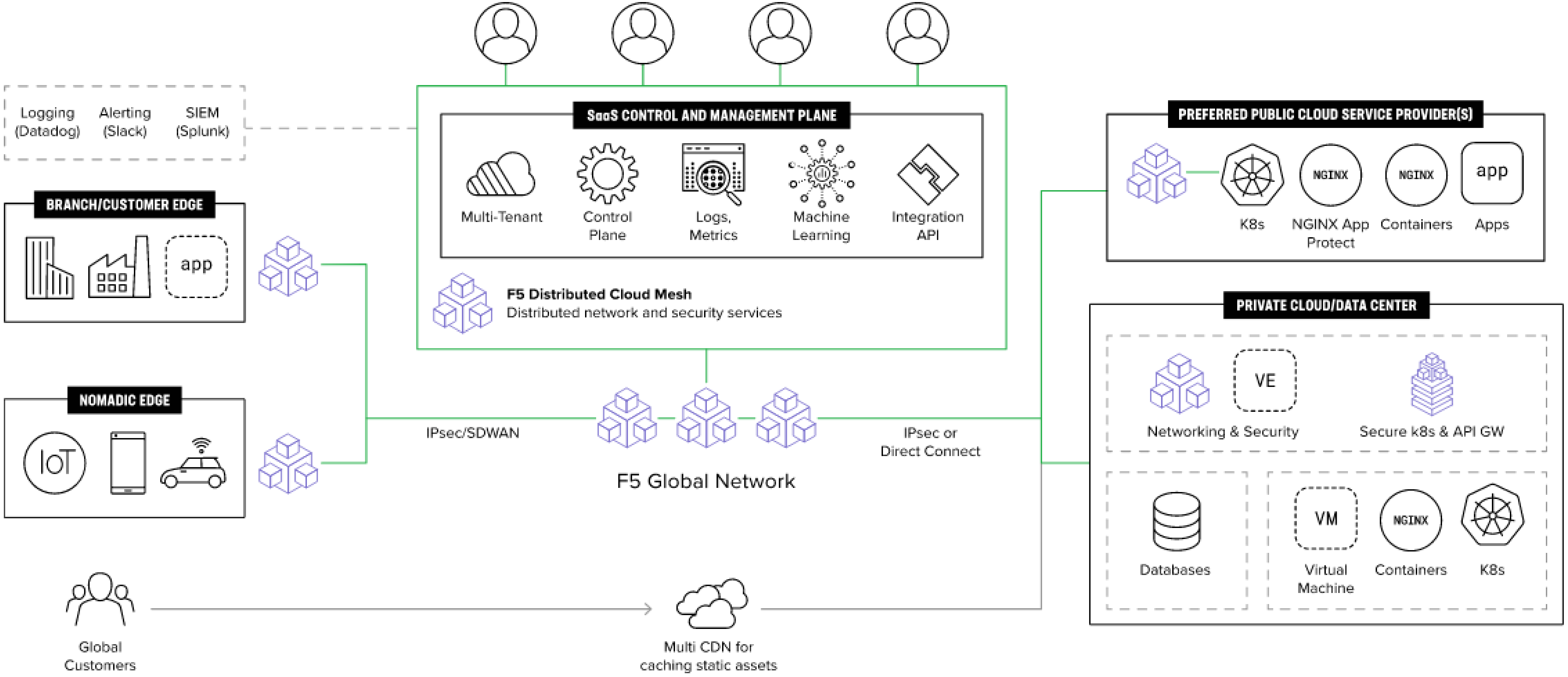
Legacy & Modern Apps

Edge

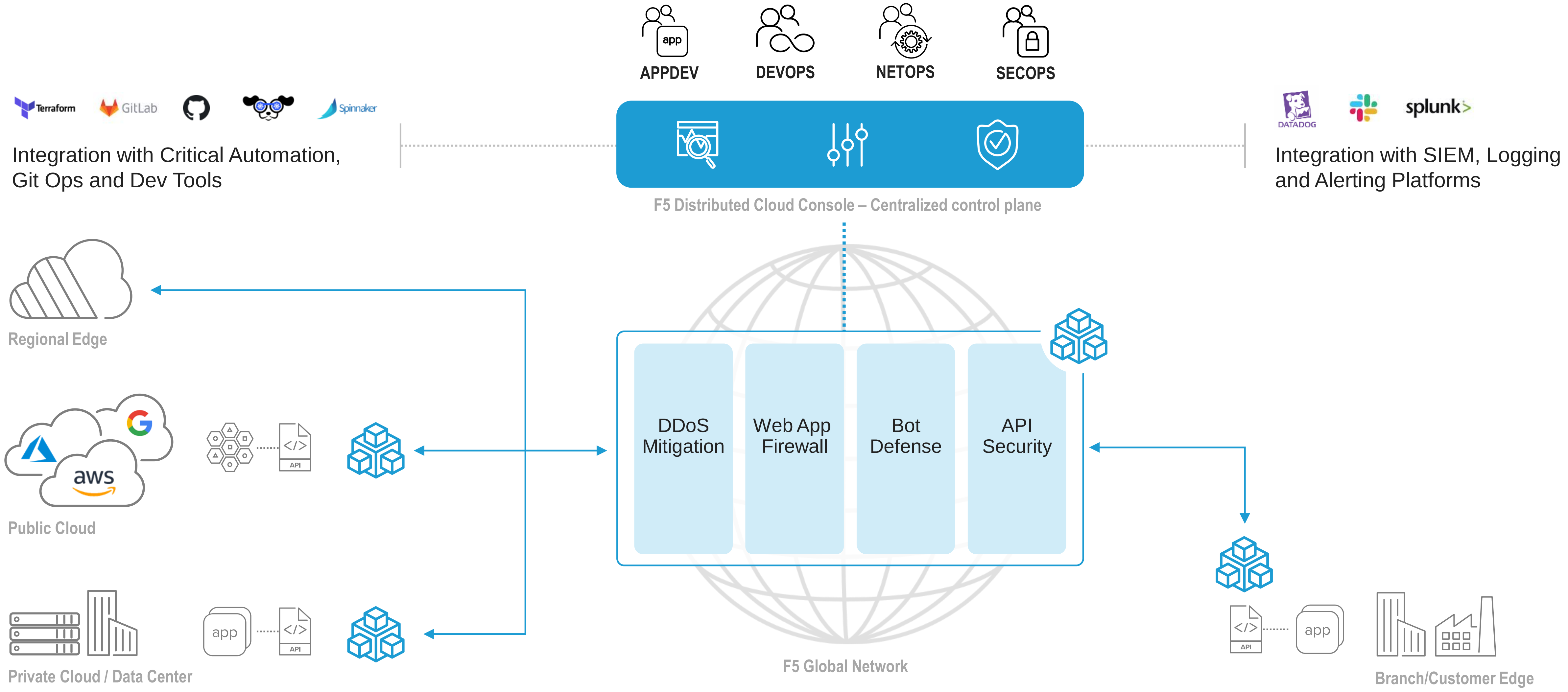
Modern / Distributed Apps

End-user Experience

Welcome to the century of Multi-Cloud networking



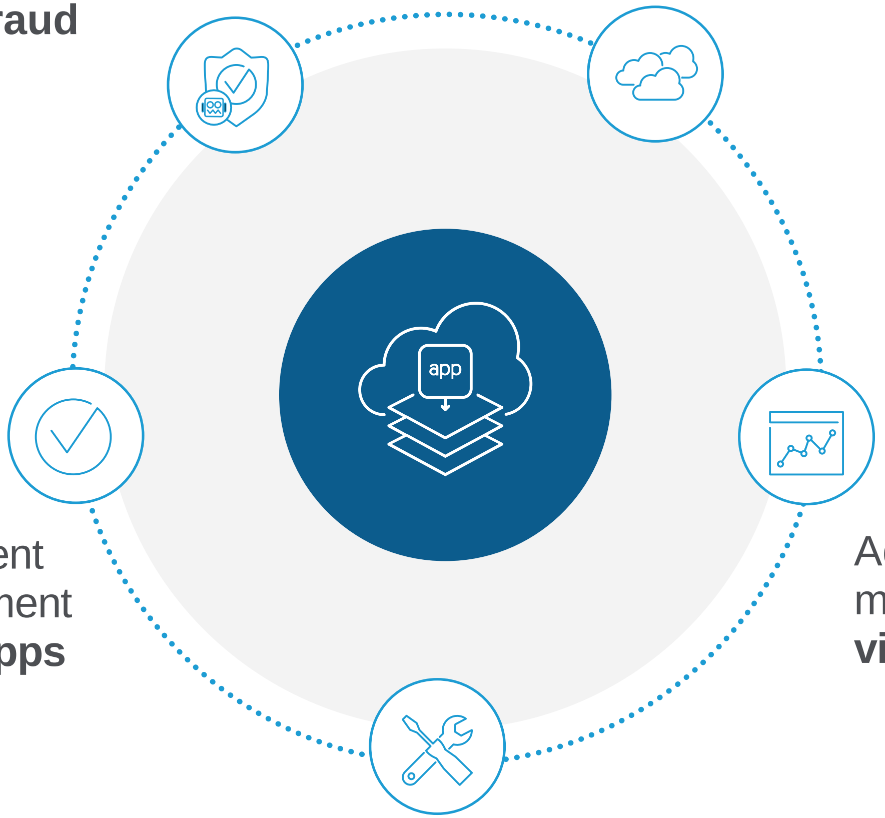
Centralized control and flexible deployments


APPDEV
app
DEVOPS
NETOPS
SECOPS
Terraform
GitLab
Spinnaker
Integration with Critical Automation, Git Ops and Dev Tools
DATADOG
splunk>
Integration with SIEM, Logging and Alerting Platforms
F5 Distributed Cloud Console – Centralized control plane
Regional Edge
aws
Public Cloud
API
app
Private Cloud / Data Center
DDoS Mitigation
Web App Firewall
Bot Defense
API Security
F5 Global Network
Branch/Customer Edge

F5 Distributed Cloud
Web App and API Protection (WAAP)

SaaS-delivered Application Security

A differentiated approach to application and API security



More than just WAF, protect apps and APIs against **bots, automation** and **fraud**

Easily scale and **deploy in any cloud**

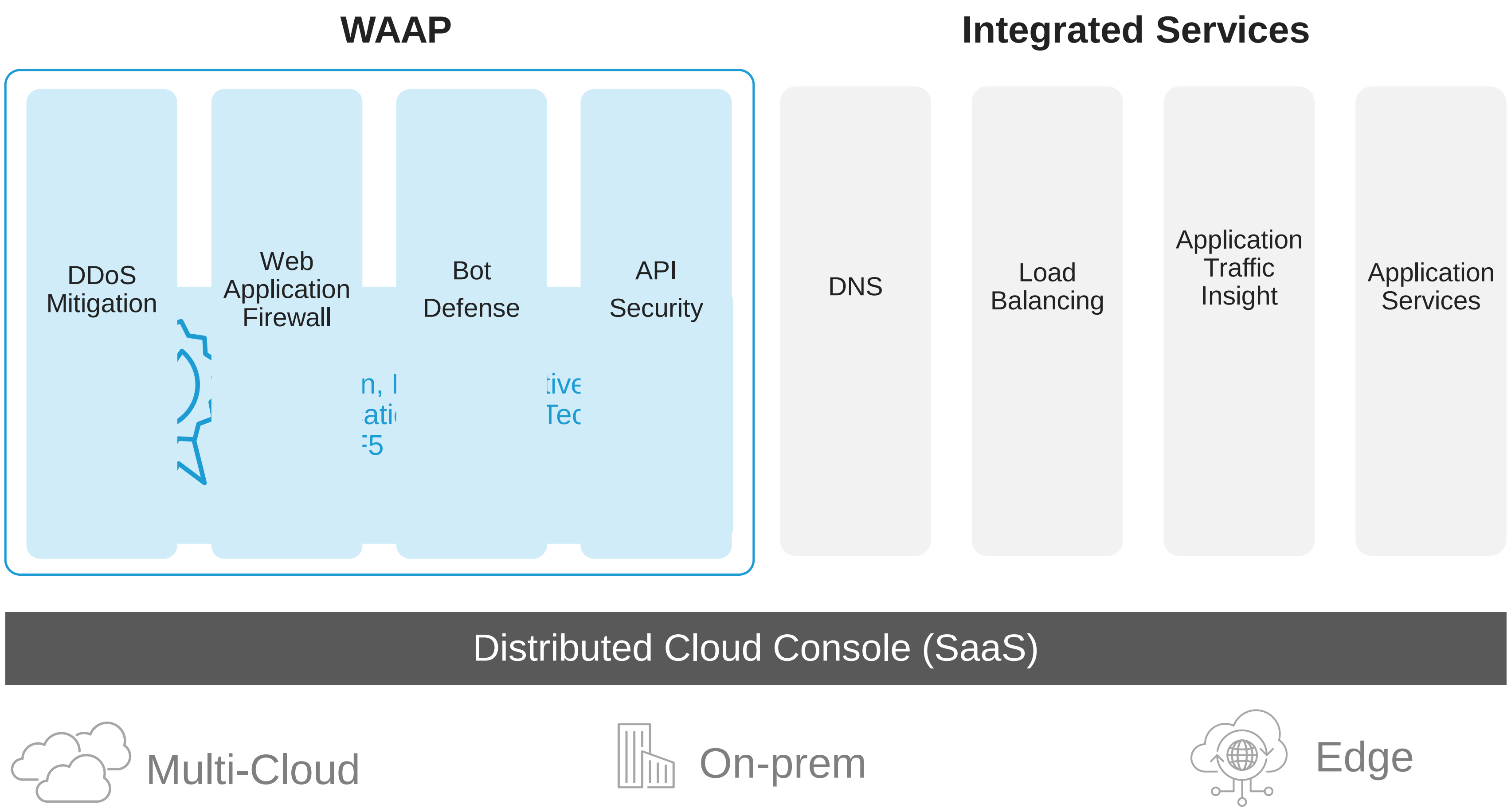
Simplify management and policy enforcement – **deploy secure apps faster**

Advanced monitoring and **visualization**

Securely and efficiently **handle increasing request traffic**

WAAP-as-a-Service

Multi-layered, highly effective modern app security bringing together the best of F5 application security



WAAP

DDoS Mitigation

Web Application Firewall

Bot Defense

API Security

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Integrated Services

DNS

Load Balancing

Application Traffic Insight

Application Services

Distributed Cloud Console (SaaS)

Multi-Cloud

On-prem

Edge

Mitigate Large, Sophisticated DoS Attacks

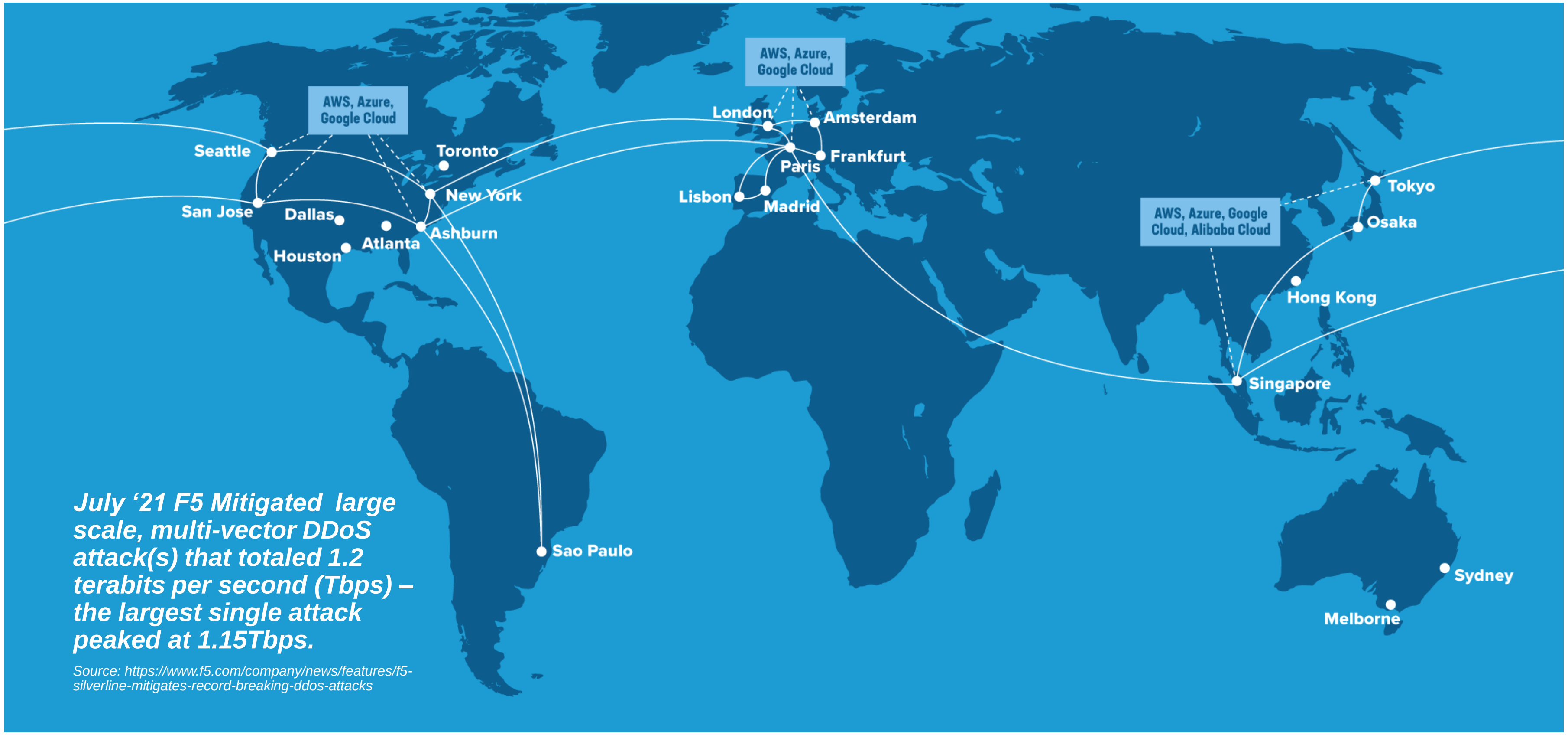
Mitigate closer to the origin away from critical apps and infrastructure

World Class Global Security Operations Center responds to DDoS attacks in < 2 minutes on average.*

Global DDoS Protection Network with 12+ Tb of scrubbing capacity**.**

Flexible Service Options including Always Available or Always On deployments

Connect how and where you need with BGP-based traffic redirection and direct connections, peering or GRE tunnels.



July '21 F5 Mitigated large scale, multi-vector DDoS attack(s) that totaled 1.2 terabits per second (Tbps) – the largest single attack peaked at 1.15Tbps.

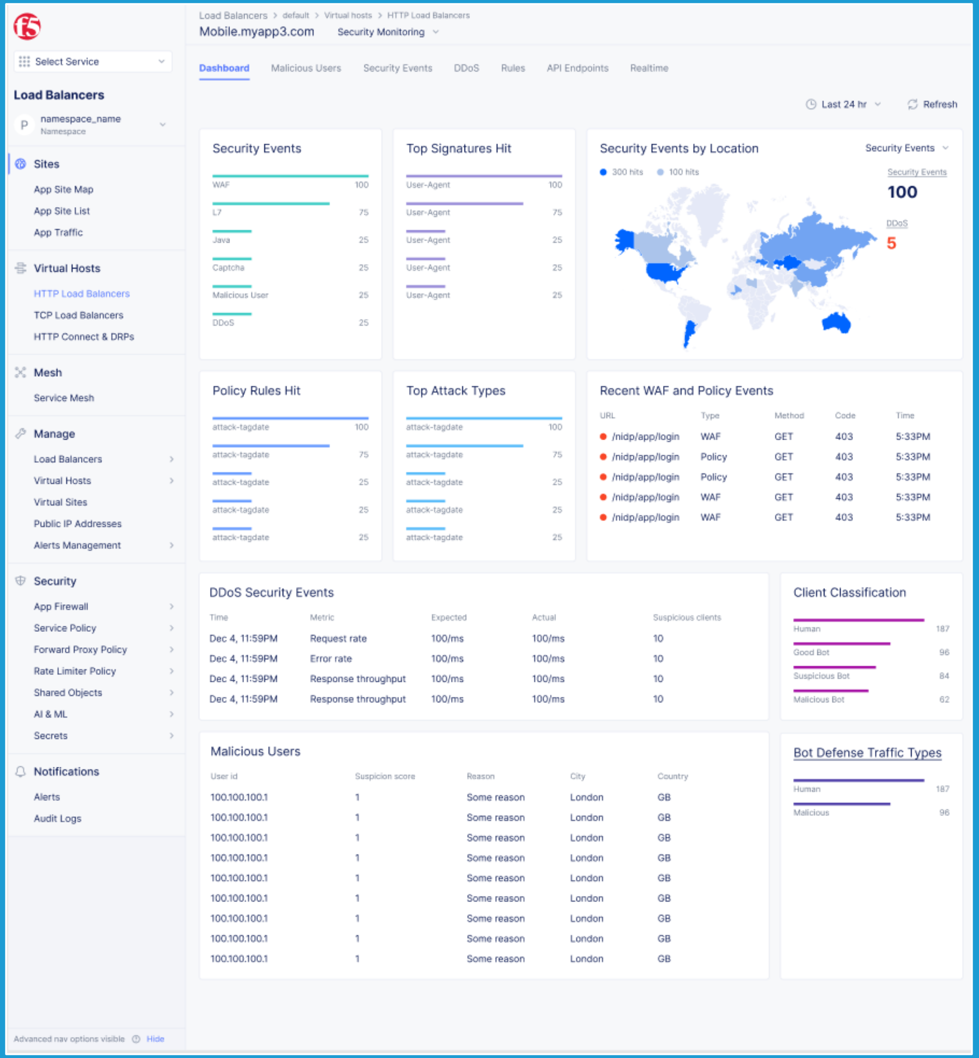
Source: https://www.f5.com/company/news/features/f5-silverline-mitigates-record-breaking-ddos-attacks

Note: Network PoPs without network lines are planned.
Standard DDoS Service offering MSA specifies a 15 Minute Response SLA.

A Next Gen WAF

High efficacy, low false positives

- **Streamlined set up and management**
- **Robust Signature Engine**
- **Advanced Behavior Engine**
- **Powerful Service Policy engine**
- **Automatic Attack Signature Tuning**



Recent WAF and Policy Events

URL	Type	Method	Code	Time
● /nidp/app/login	WAF	GET	403	5:33PM
● /nidp/app/login	Policy	GET	403	5:33PM
● /nidp/app/login	Policy	GET	403	5:33PM
● /nidp/app/login	WAF	GET	403	5:33PM
● /nidp/app/login	WAF	GET	403	5:33PM

DDoS Security Events

Time	Metric	Expected	Actual	Suspicious clients
Dec 4, 11:59PM	Request rate	100/ms	100/ms	10
Dec 4, 11:59PM	Error rate	100/ms	100/ms	10
Dec 4, 11:59PM	Response throughput	100/ms	100/ms	10
Dec 4, 11:59PM	Response throughput	100/ms	100/ms	10

Malicious Users

User id	Suspicion score	Reason	City	Country
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB
100.100.100.1	1	Some reason	London	GB

Better visibility for security events and traffic with drilldown

Bot support for **full-site protection** with option of **expanded bot defense security** for specific URLs

User Behavioral Analysis

Utilizes the Machine Learning / AI Engine to identify malicious clients.

+

Signature Based Bot Detection

Identifies bots by matching signatures or anomalous behavior

👍 Good

- Both are **included** with the base WAF Service
- Protects both web content and APIs

+

Bot Defense

- Integrated **premium** option
- Designed to **protect highly sensitive parts** of a site or API, such as a login page
- Richer set of specific threat detections that identifies intent such as scraping, account takeover and carding
- A curated active database of known specific threats

✓ Best

Our API Security breaks new ground for operational simplification with automated discovery & policy management

OWASP API Coverage

Full coverage for the OWASP API Top 10 vulnerability exploits that updates automatically as new exploits are identified.

Importing Swagger

Integrate with your CI/CD pipeline when an API changes. The WAAP will know exactly what endpoints, methods and payloads are valid, tightening security against abuse.

Response Analysis

The WAAP will analyze how the server responds to queries, identifying persistent outliers that receive bad response codes but persist in sending bad requests.

Forensics

Once a bad actor is identified, track their history of what they have been trying to exploit and take action.

Automated Discovery

APIs change frequently. As APIs are used, the system determines normal behavior, usage, methods and detects outliers helping you detect shadow APIs.

Determine the Response

Allow, rate limit or **deny** a client using the API based on the threat level that it poses. Allow in-depth forensics on suspicious and malicious traffic.

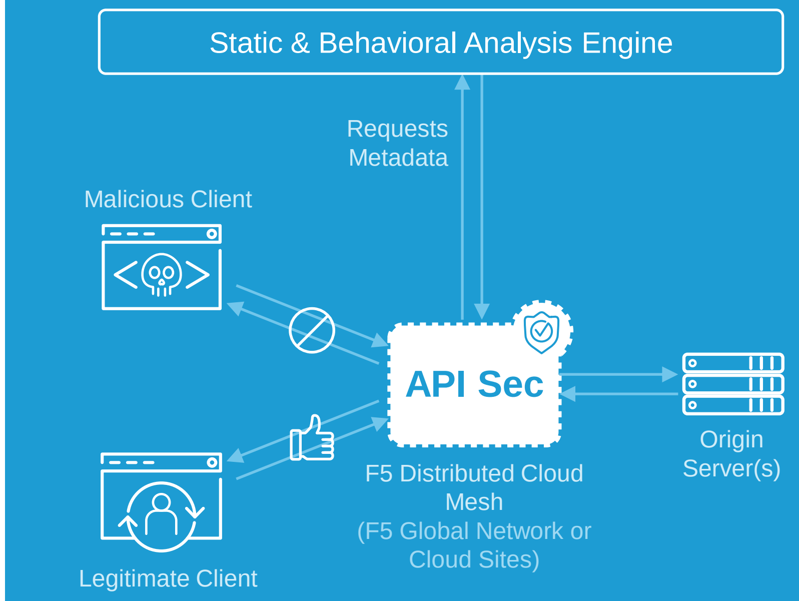
Behavior and Time

By analyzing what endpoints are used, in what order and the frequency, API Protection can identify bad actors not obeying normal behavior and act.

Visualize API Usage

Identify usage patterns for APIs, correlate good and bad actor activity to optimize APIs for a better client experience.

Automated API Protection



Conclusion

- App Security is a basic need for applications
- It‘s a wide umbrella of security functions:
  OWASP Top 10, Bots, Layer 4/7 DDoS etc.
- Centralized Management is a requirement:
  This includes automation, logging and reporting
- Meshing components reduce the complexity on Layer 3
- F5 Technology can be used for all above