F5 Synthesis Information Session

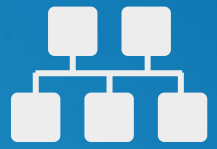
April, 2014

Agenda

- Welcome and Introduction to Customer Technology Challenges
- Software Defined Application Services
- Reference Architectures for Today's Customer Challenges
- Total Cost of Ownership and New Business Models
- Multi-network Environment and Partner Ecosystem
- Making it Happen with Global Services
- Q & A

Technology Shifts Are Creating Opportunity

Advanced threats

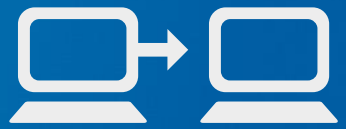


"Software defined" everything

SDDC/Cloud

Internet of Things

Mobility



HTTP is the new TCP

Impact on Data Center Architecture: Applications

MICRO-ARCHITECTURES

Each service is isolated and requires its own:

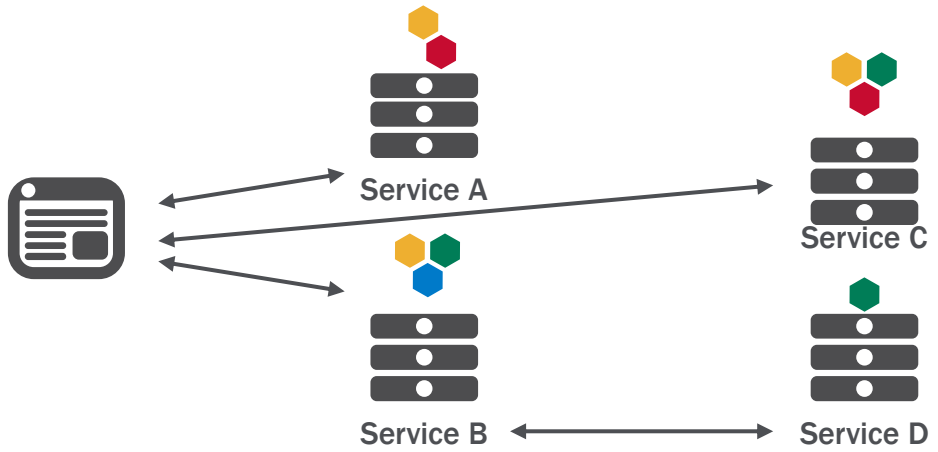
- Load balancing
- Authentication / authorization
- Security
- Layer 7 Services
- May be API-based, expanding services required

API DOMINANCE

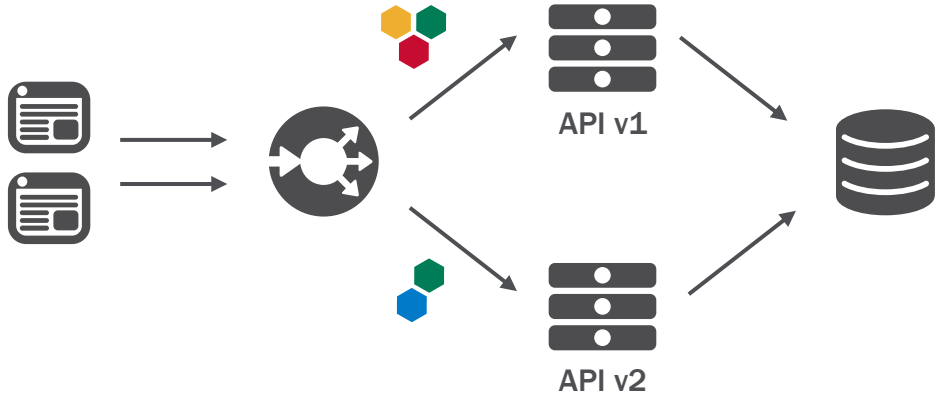
Proxies are used in emerging API-centric architectures for:

- API versioning
- Client-based steering
- API Load balancing
- Metering & billing
- API key management

More applications need services



More intelligence needed in services

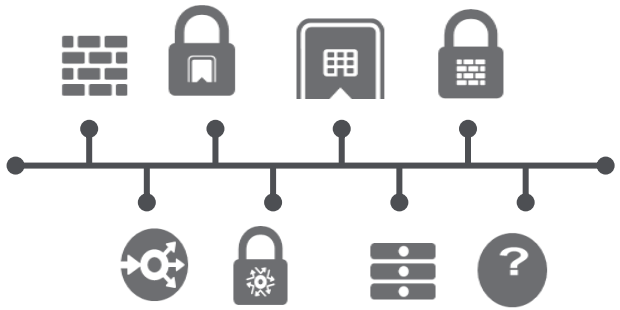


Impact on Data Center Architecture: Network

SOLUTION SPRAWL

Increasing threats and client platforms result in need for:

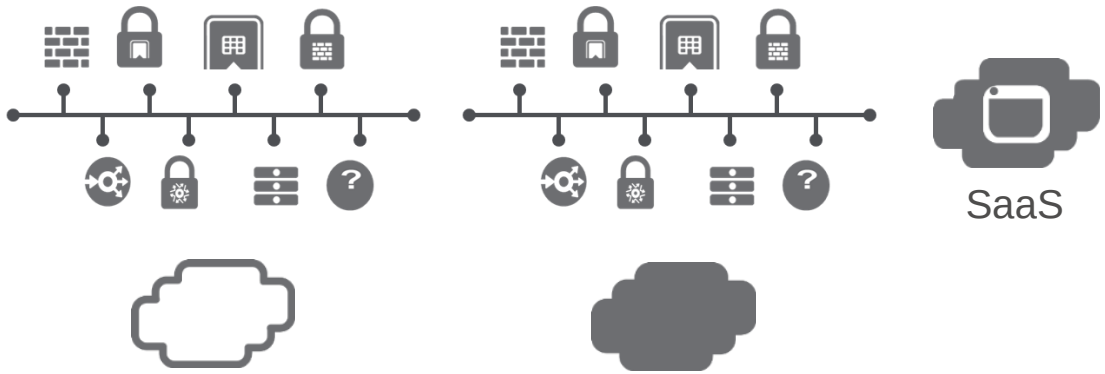
- Mobile device management
- Mobile access management
- Mobile security
- DDoS
- Application layer threats
- Malware



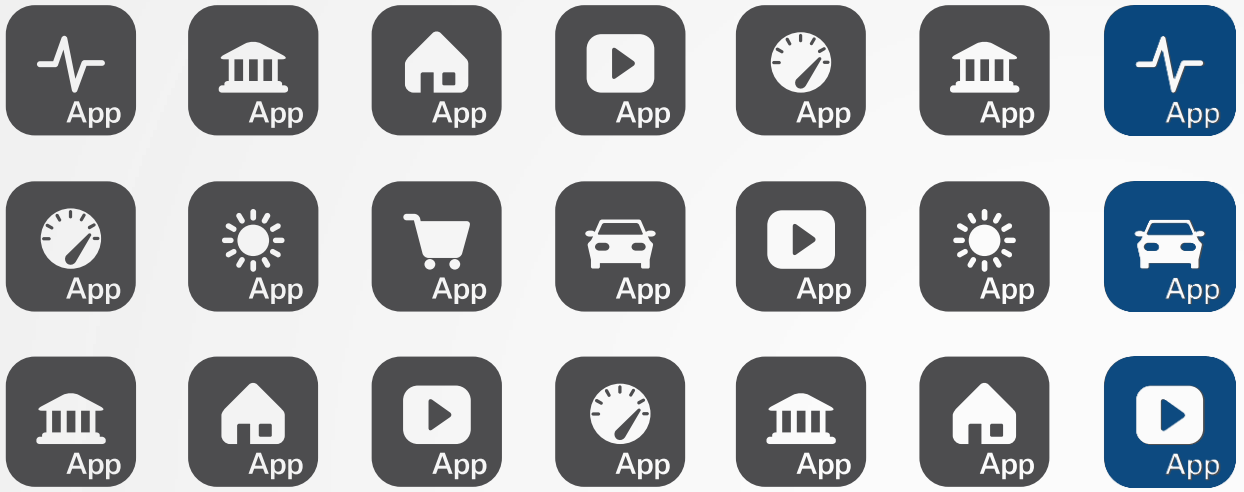
OPERATIONAL INCONSISTENCY

Introduction of off-premise cloud solutions without architectural parity results in:

- Inconsistent enforcement of business and operational policies
- Unpredictable application performance and security
- Increased OpEx as new management paradigms are introduced



“Leave No Application Behind”



1000

Average number of applications deployed within an enterprise

DDoS

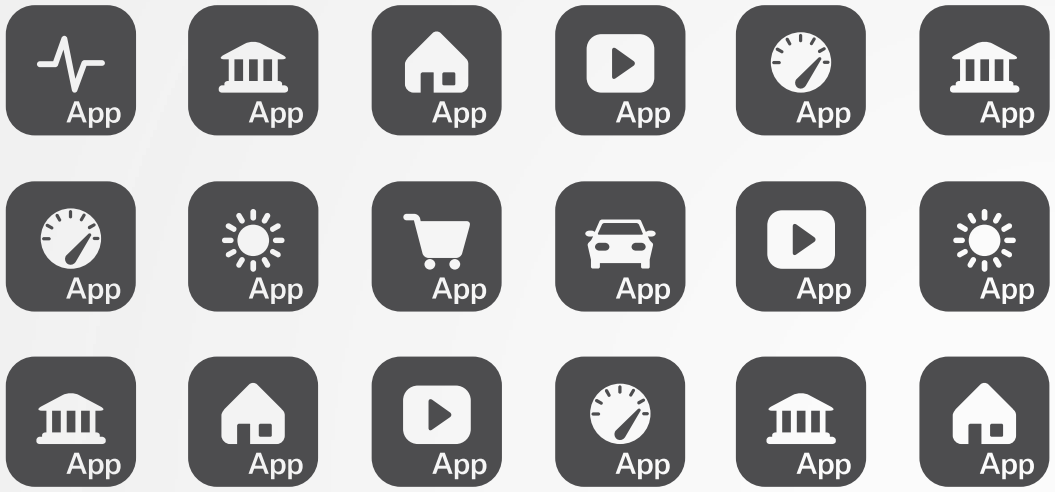
WAF

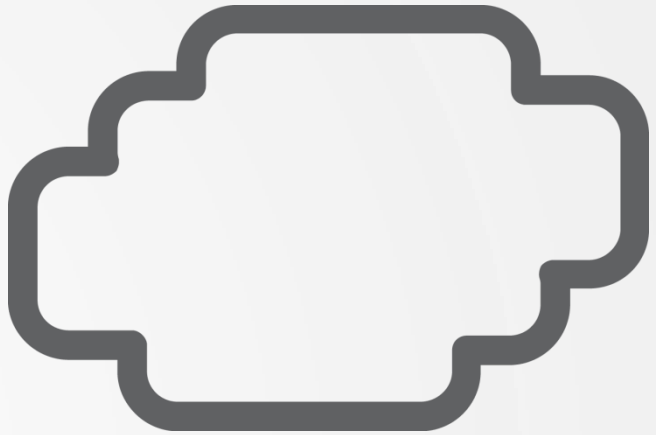
SSL

Acceleration

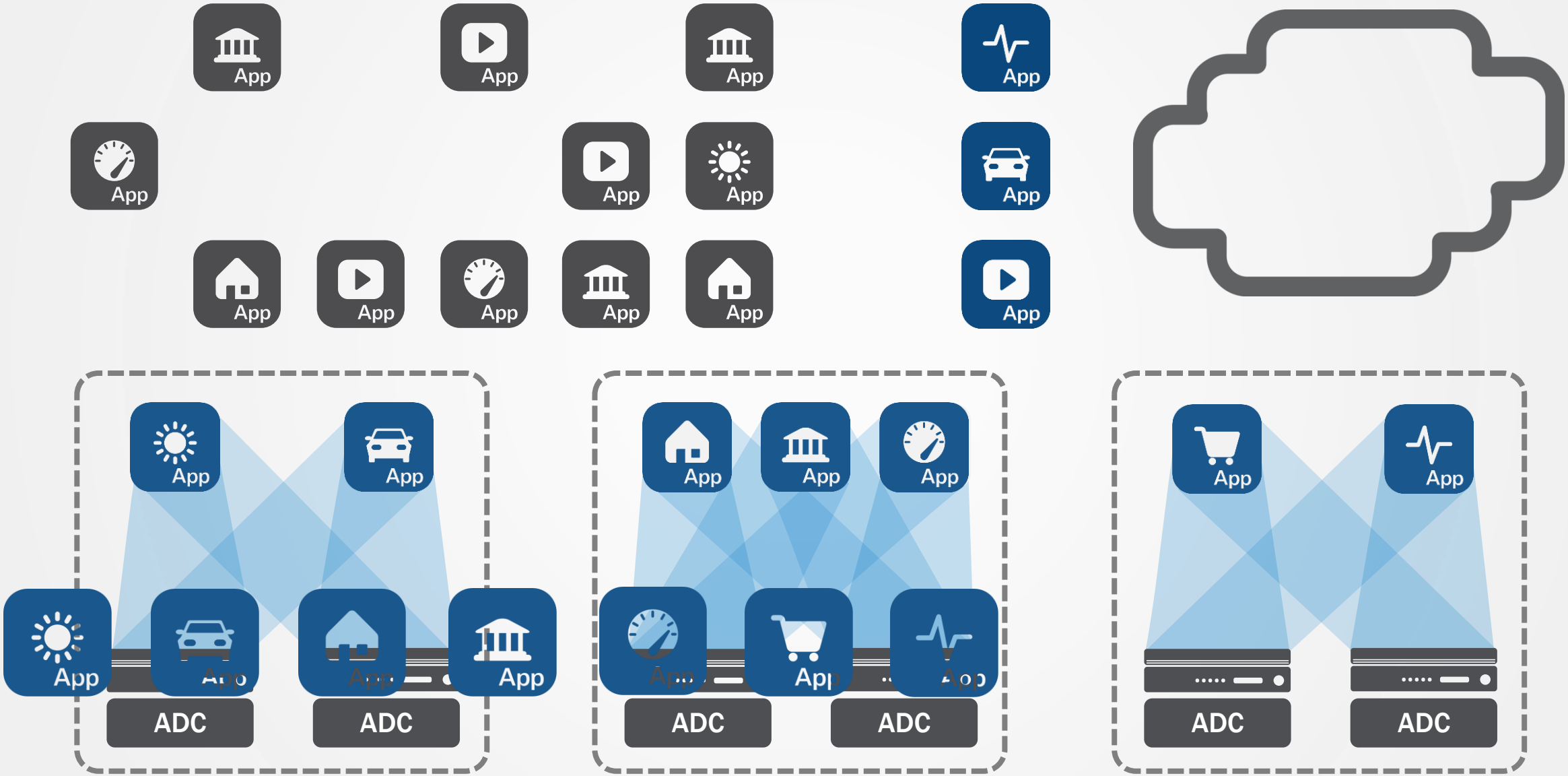
LTE

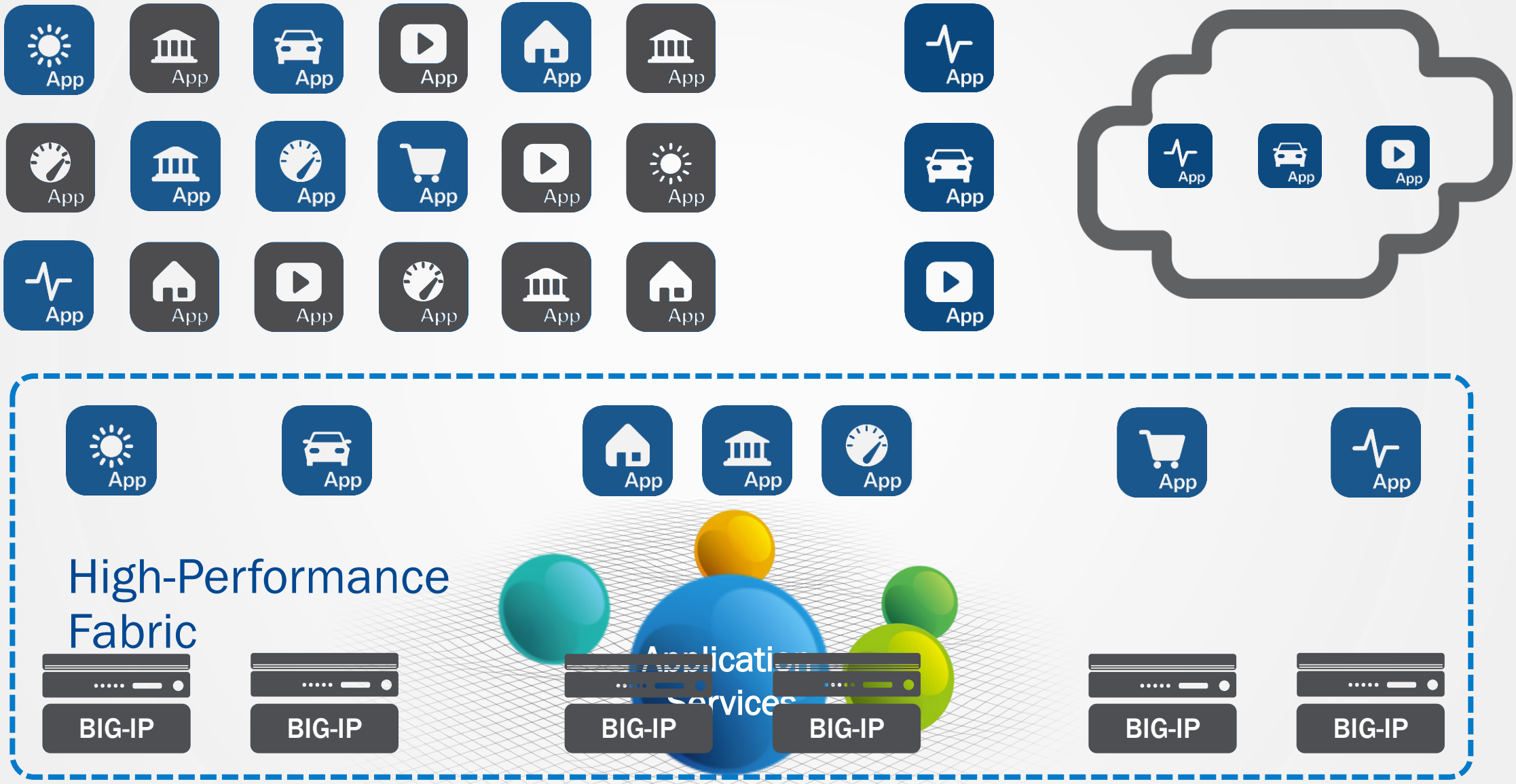
Applications require services

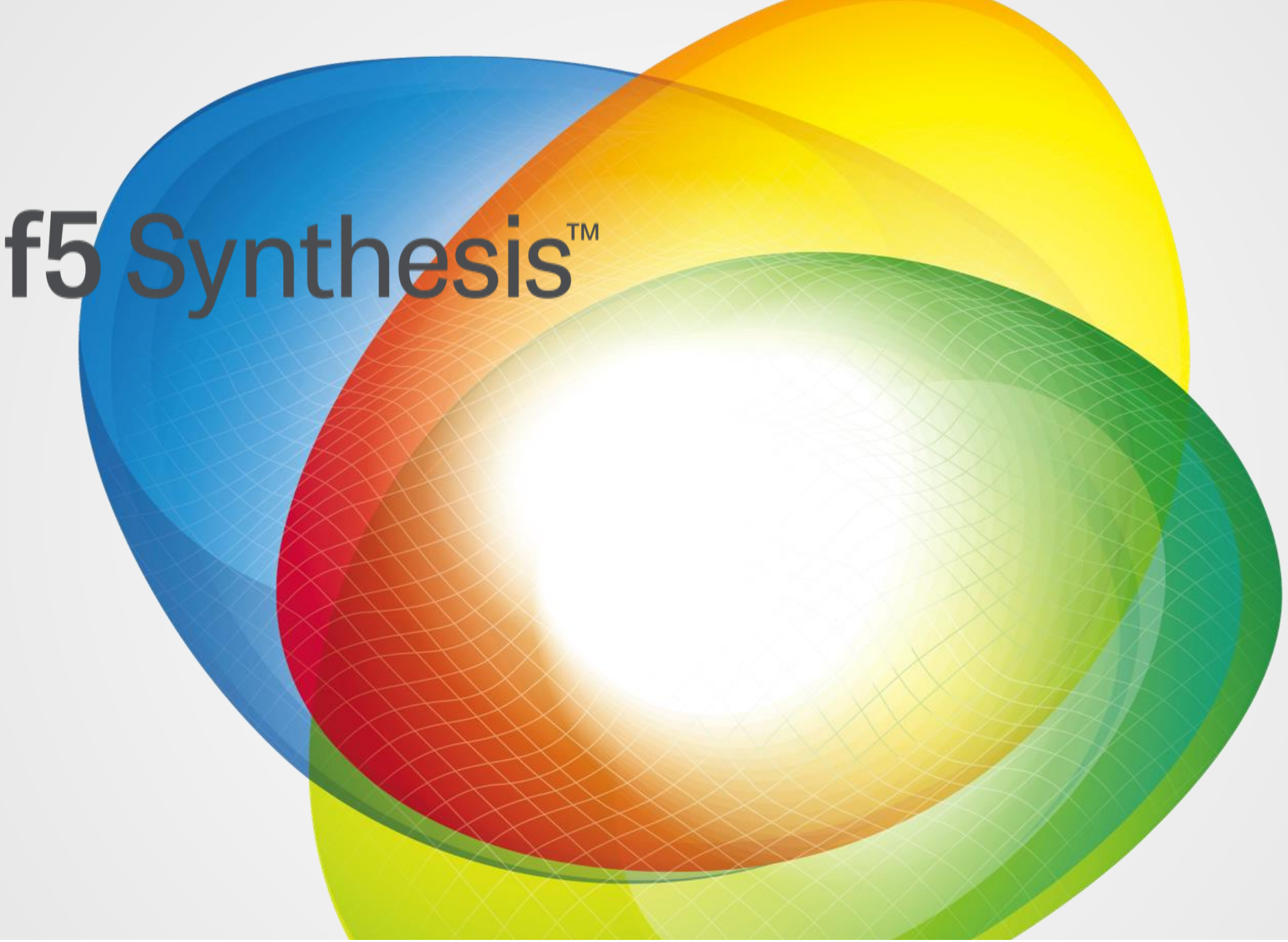




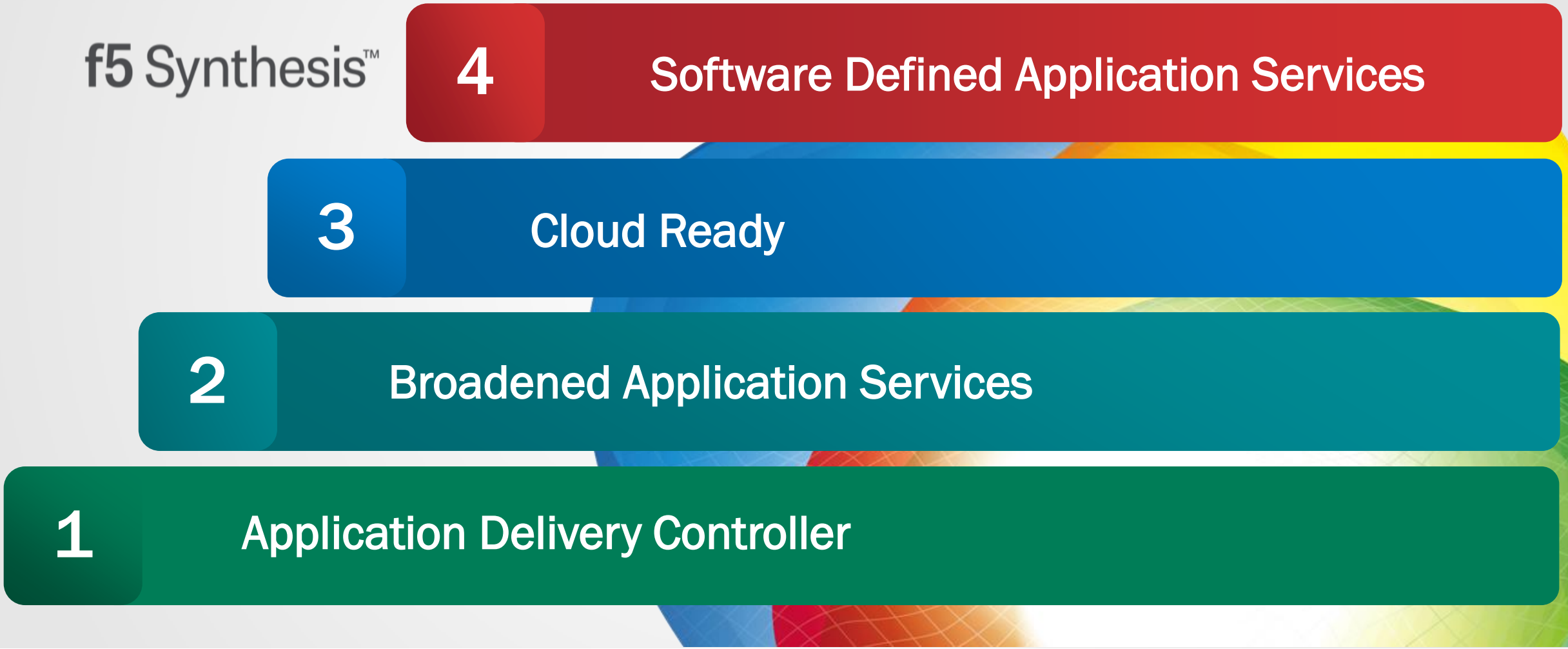
The selected few







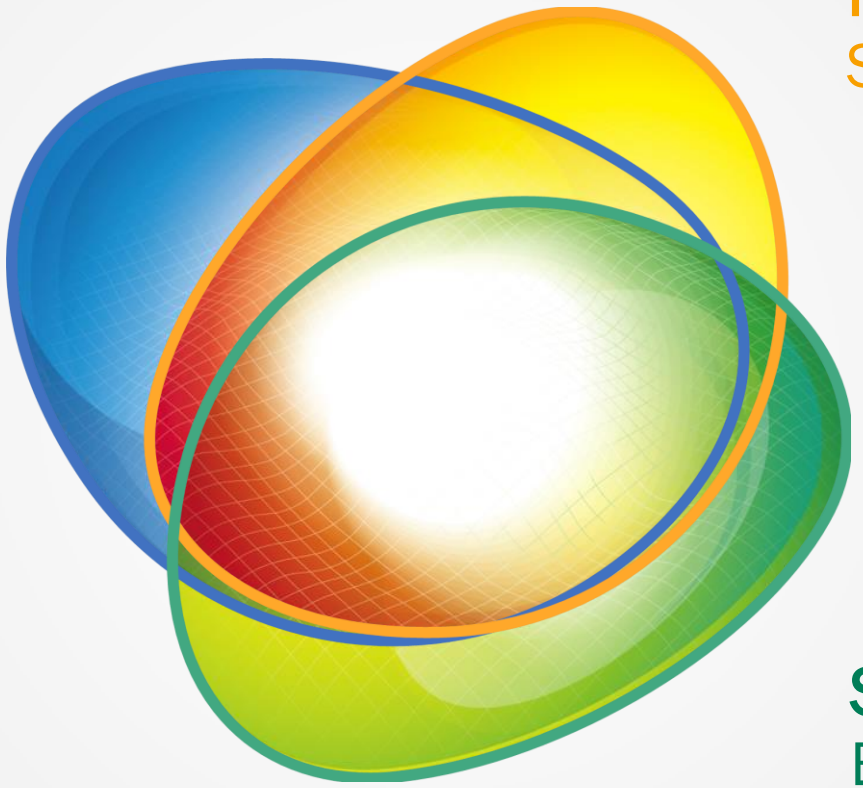
The 4th Phase of the Evolution



Software Defined Application Services Elements

Intelligent
Services Orchestration

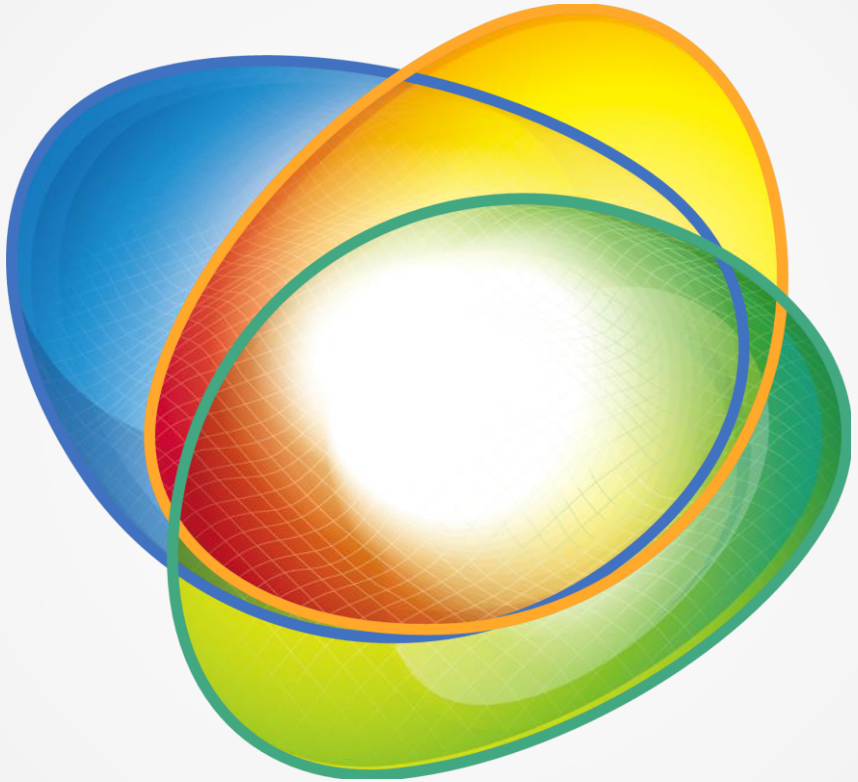
High-Performance
Services Fabric



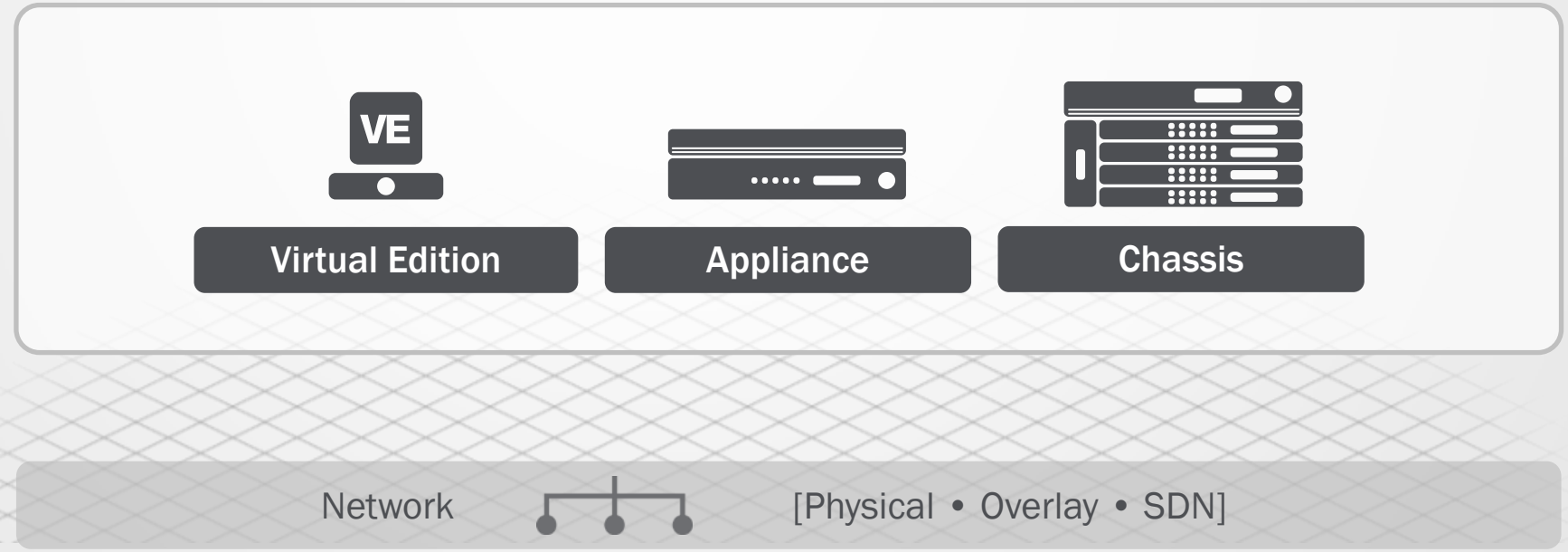
Simplified
Business Models

Software Defined Application Services Elements

High-Performance
Services Fabric



High-Performance Services Fabric

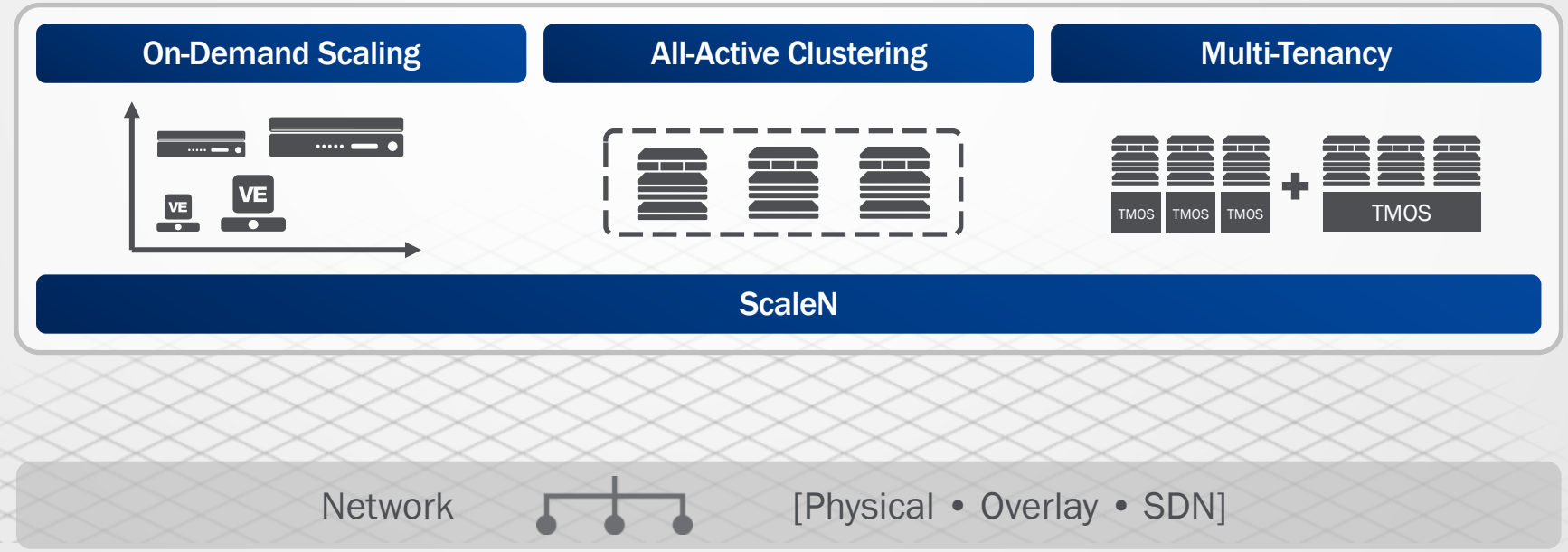


High-Performance Services Fabric

Elastic, multi-tenant platform

All-active

Application-aware



High-Performance Services Fabric

Elastic, multi-tenant platform

All-active

Application-aware

Performance leader

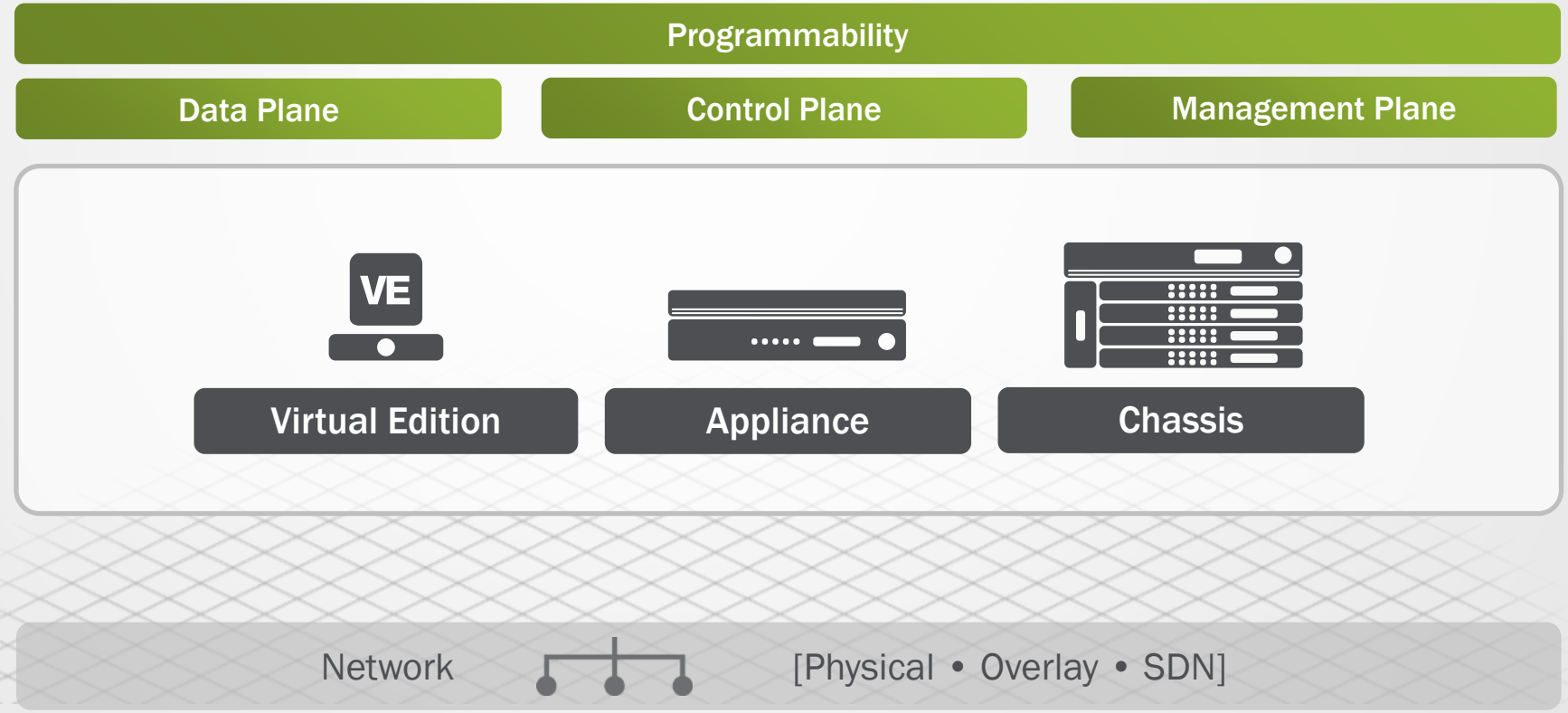
20Tbps	320M	9.2B	80*	32
Throughput	Connections per second	Concurrent connections	Multi-tenant instances per device	Device service clusters

Network  [Physical • Overlay • SDN]

*40K when combining admin instances with vCMP

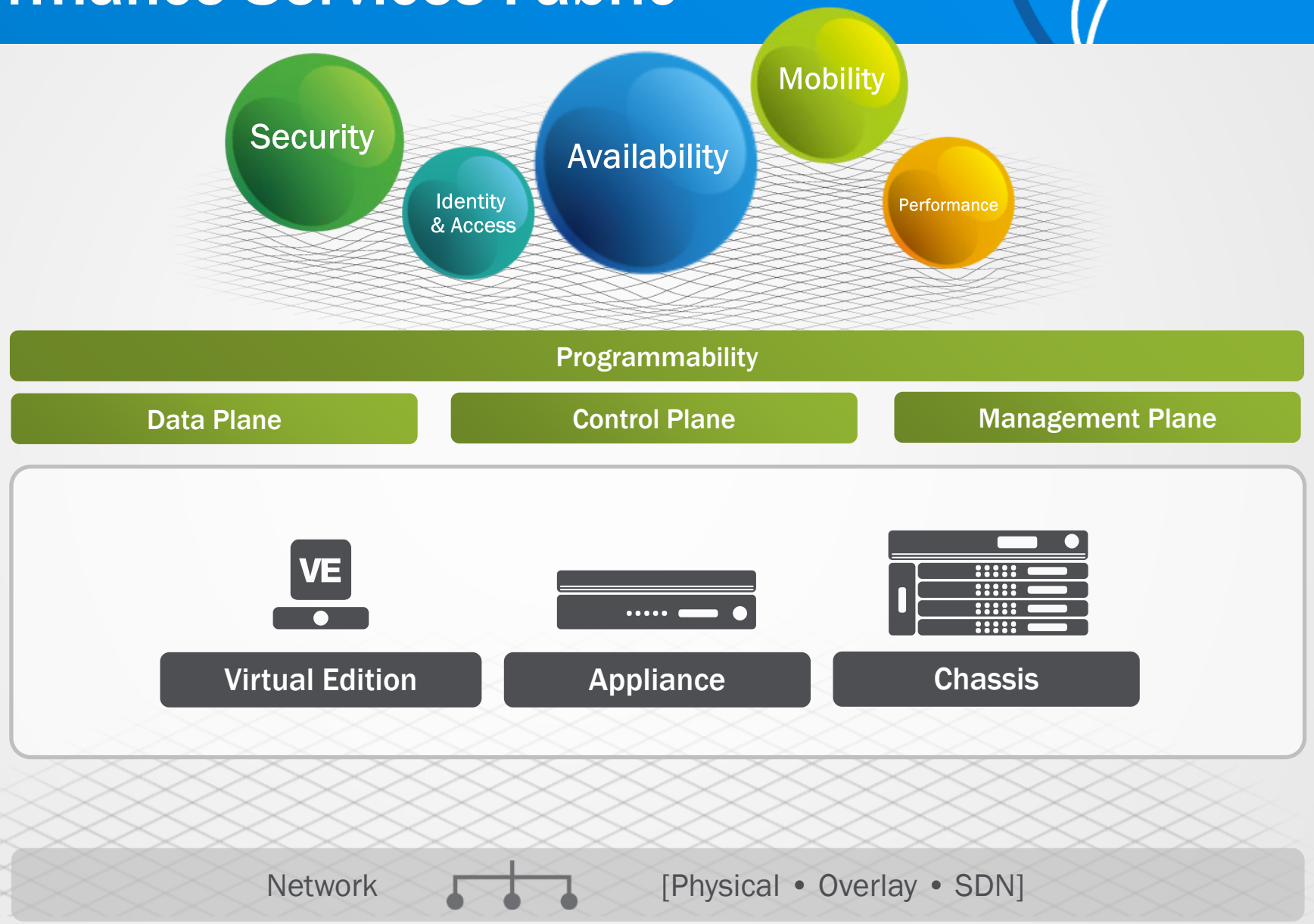
High-Performance Services Fabric

- Elastic, multi-tenant platform
- All-active
- Application-aware
- Performance leader
- Extensible and programmable



High-Performance Services Fabric

- Elastic, multi-tenant platform
- All-active
- Application-aware
- Performance leader
- Extensible and programmable
- Catalog of application services



Software Defined Application Services

Software Defined Application Services

Service Provider and Enterprise

Device, Network and Applications

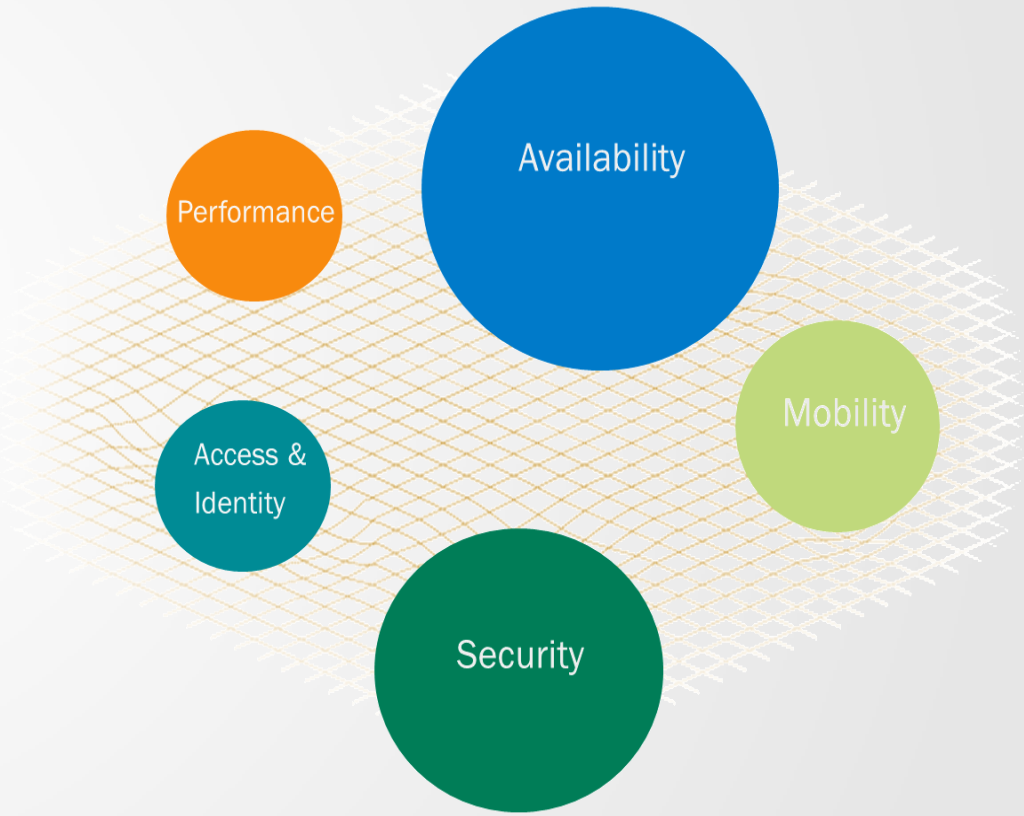
Performance and Scale

Extensible and programmable

Automation and Orchestration

F5 Software Defined Application Services (SDAS)

A rich set of services that address the delivery challenges faced by businesses today.



Software Defined Application Services

- Eliminate single points of failure
- Application fault isolation
- Context-aware
- Elastic scale
- Extensible and programmable
- Public, private and hybrid cloud

Global Server LB
Load Balancing
Global Server LB
CGNAT
Global Load Balancing
Authoritative DNS
DNS Caching & Resolving
Disaster Recovery
Cloud Bursting
Business Continuity
Intelligent EPC node selection

Software Defined Application Services

Any device, any user, anywhere

Performance-related protocol support

Context-aware

Cloud or data center

Compression

Traffic Management

Caching

Acceleration

Optimization

Web Performance Optimization

SPDY Gateway

Traffic Shaping and QoS

Application Optimization

Software Defined Application Services

- Single Sign-on
- Identity federation
- Context-aware
- Endpoint inspection and protection against fraud
- Extensible and Programmable
- Any device, anywhere

SAML Federation

Cloud Federation

Access Control

Single Sign-On

Anti-Malware

SSL VPN

Endpoint Inspection

Active Sync Proxy

Secure Web Gateway

Web Access Management

Software Defined Application Services

Secures device, network and application

Protects critical infrastructure from disruptive attacks

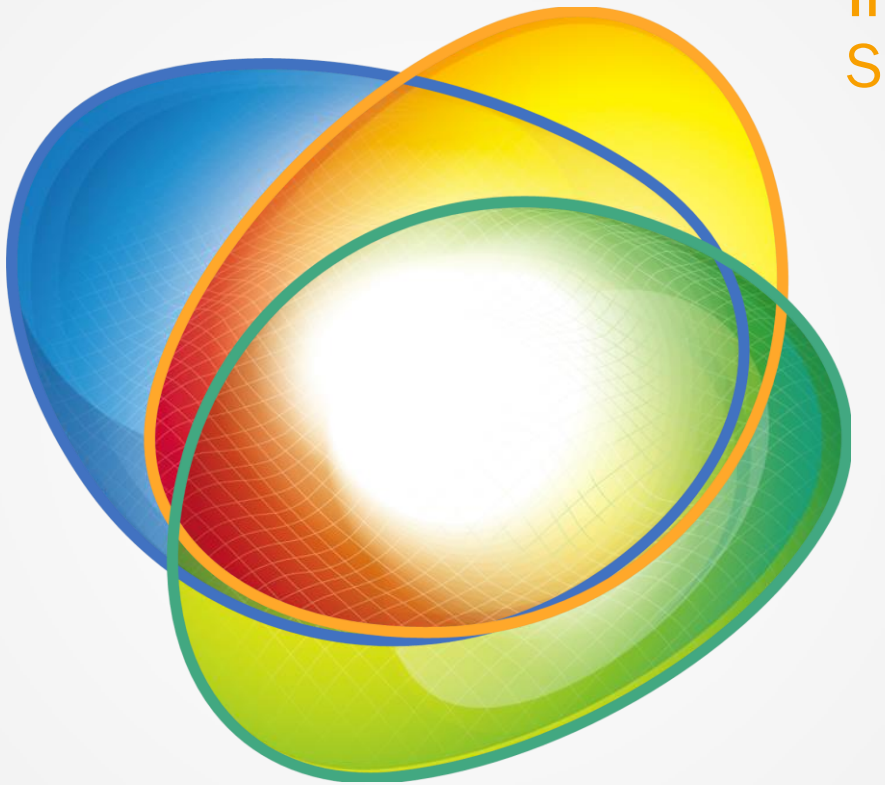
Application-aware

Extends protection into the cloud

Extensible and programmable

Anti-Fraud
Programmability
DNS Security
WAF
SSL Inspection
Anti-Phishing
SSL intelligence
DDoS
DNSSEC
ADF
SSL VPN

Software Defined Application Services Elements



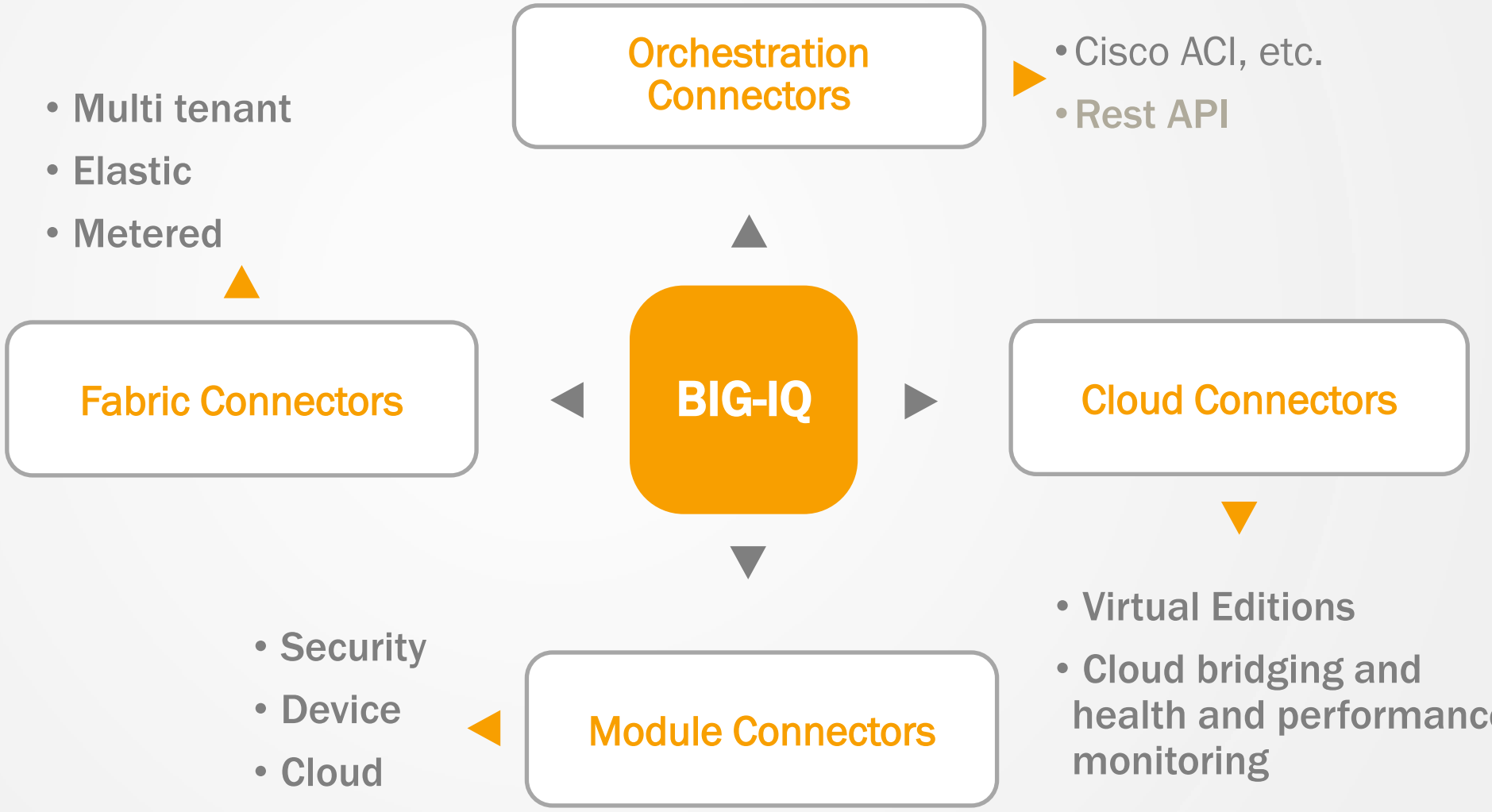
Intelligent
Services Orchestration

Intelligent Services Orchestration

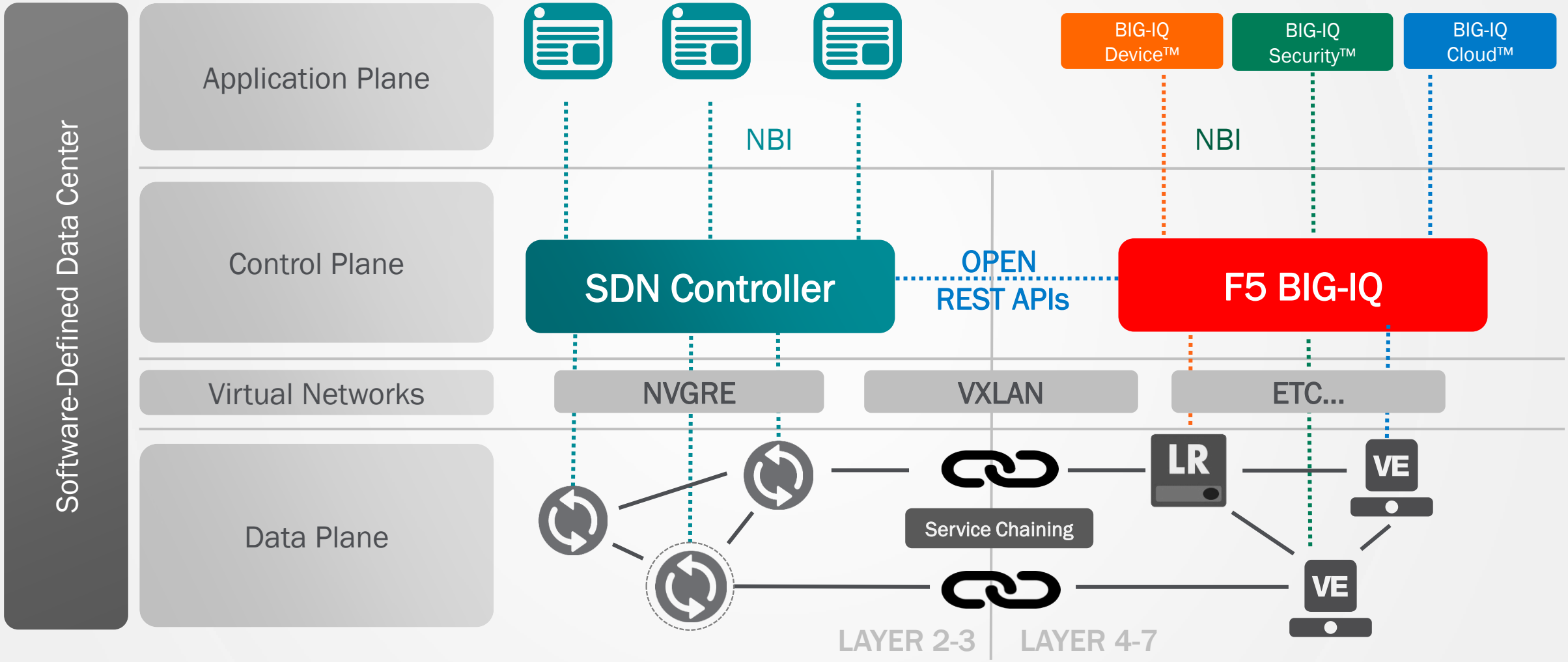
Single pane of glass

Rapid system and service provisioning

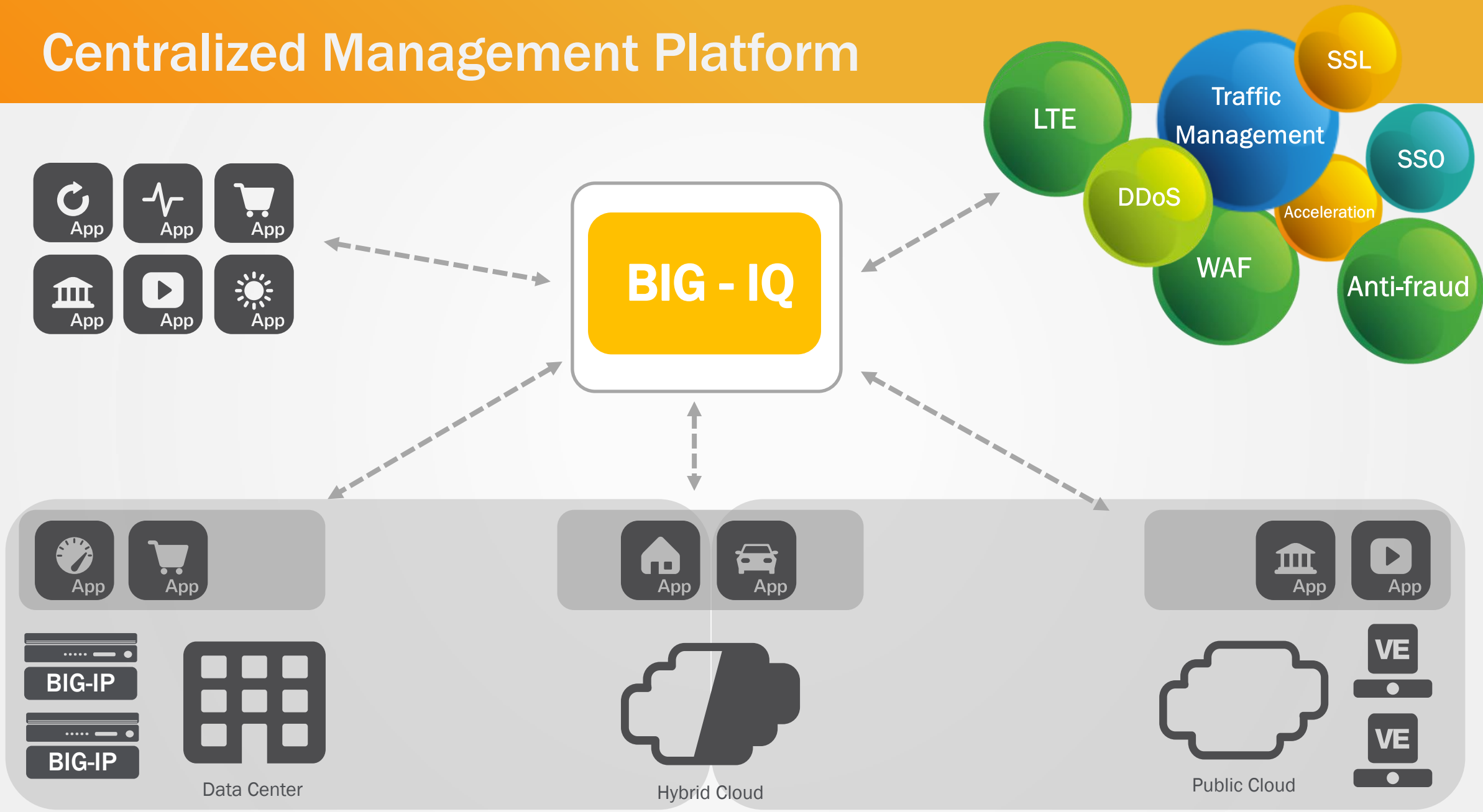
Ecosystem enablement



Completing the SDN Stack



Centralized Management Platform



Application Services Modules

BIG-IQ Device

- ycle Management
- ecycle Management
- etwork Configuration
- DevOps

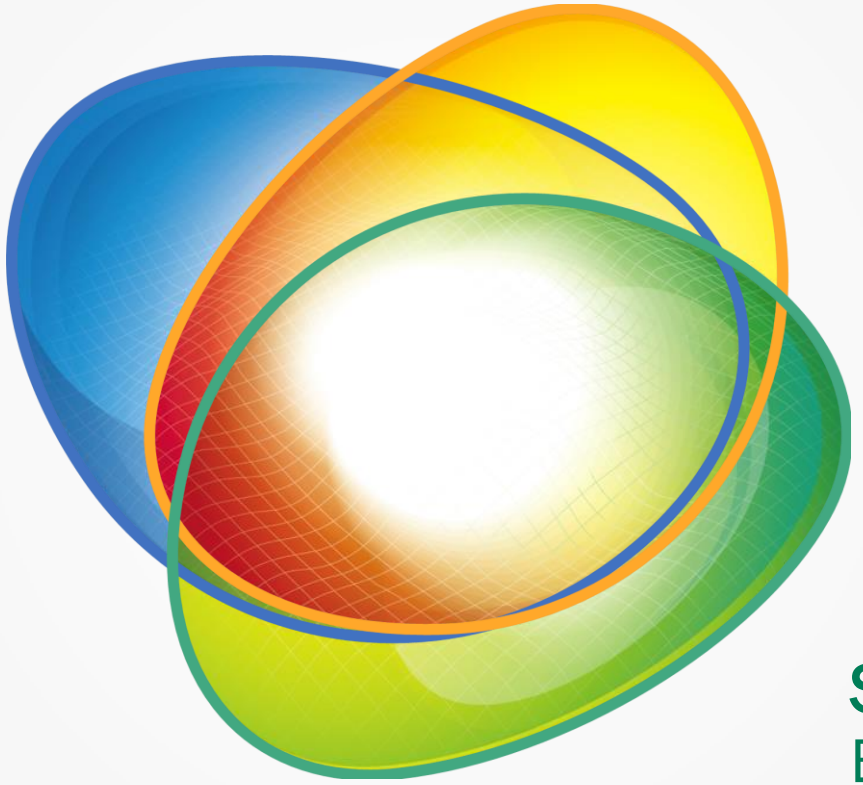
BIG-IQ Cloud

- Management fabric orchestration
- Public cloud connectors
- Application elasticity
- ADC self service management

BIG-IQ Security

- Policy based application security management
- Policy and rule monitoring
- Multi-tenant and multiuser editing and workflows

Software Defined Application Services Elements

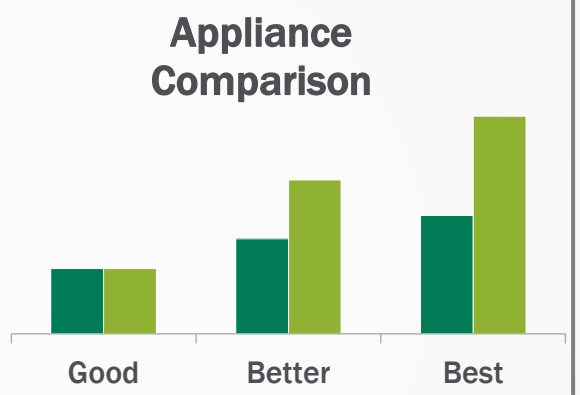


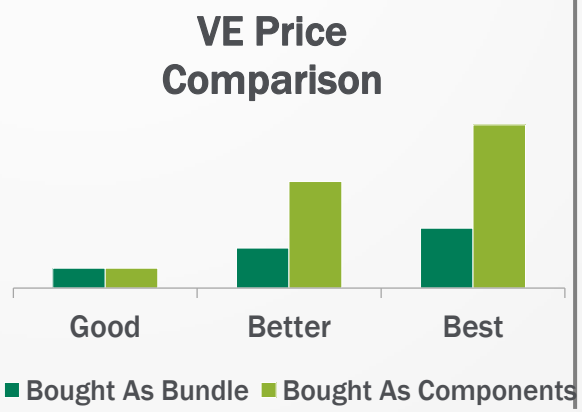
Simplified
Business Models

Good | Better | Best

Delivering Greater Customer Value

GBB Capabilities			
Modules/Services	**Good**	**Better**	**Best**
BIG-IP Local Traffic Manager	✓	✓	✓
BIG-IP Global Traffic Manager		✓	✓
Application Acceleration Manager		✓	✓
BIG-IP Application Protection		✓	✓
SDN Service		✓	✓
Advanced Routing		✓	✓
BIG-IP Access Policy Manager			✓
BIG-IP Application Security Manager			✓





Benefits

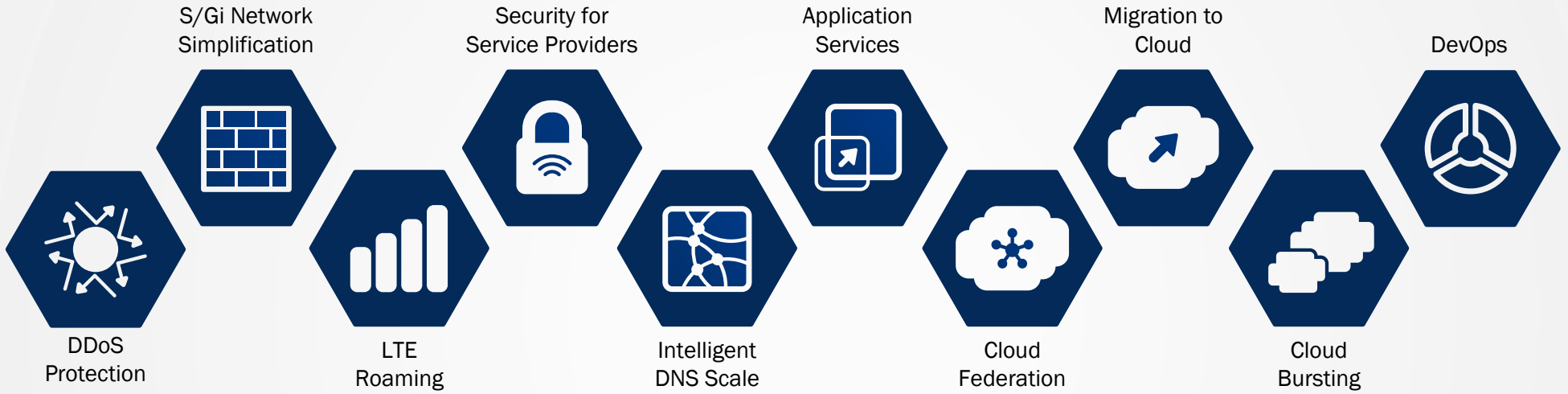
Flexibility	Make it easier to adopt advanced F5 functionality
Simplicity	Consolidate into fewer common configurations
Best Value	Save when purchasing bundles

Reference Architectures

For Today's Customer Challenges

Reference Architectures

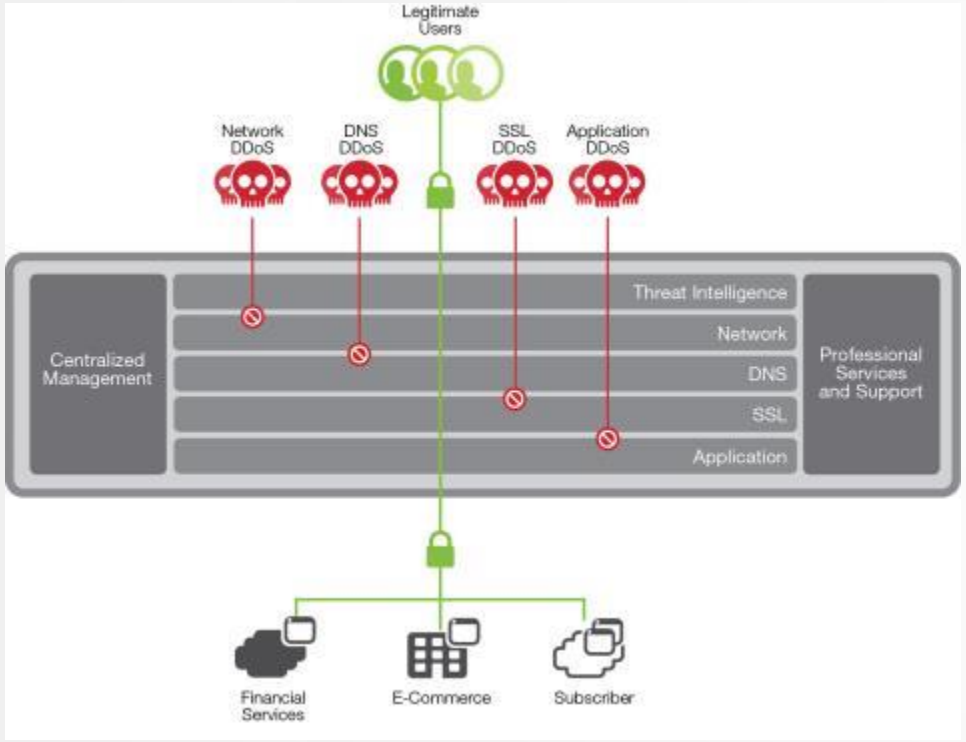
Device, Network, Applications

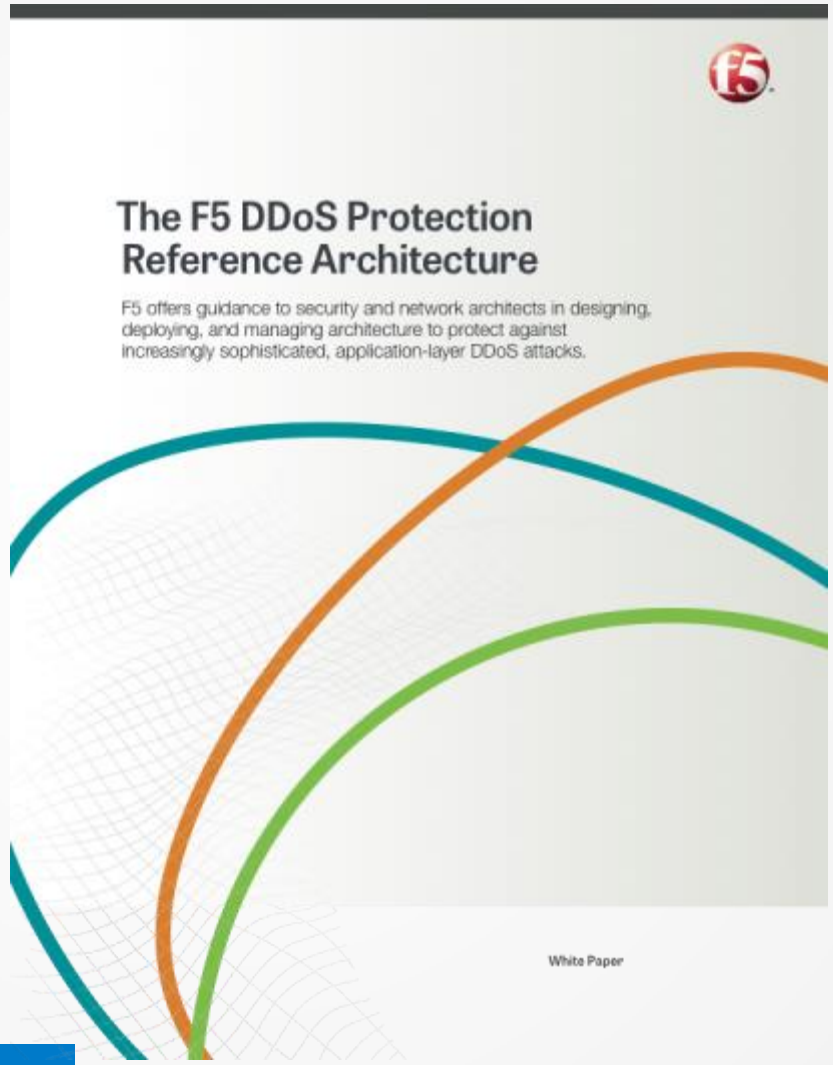


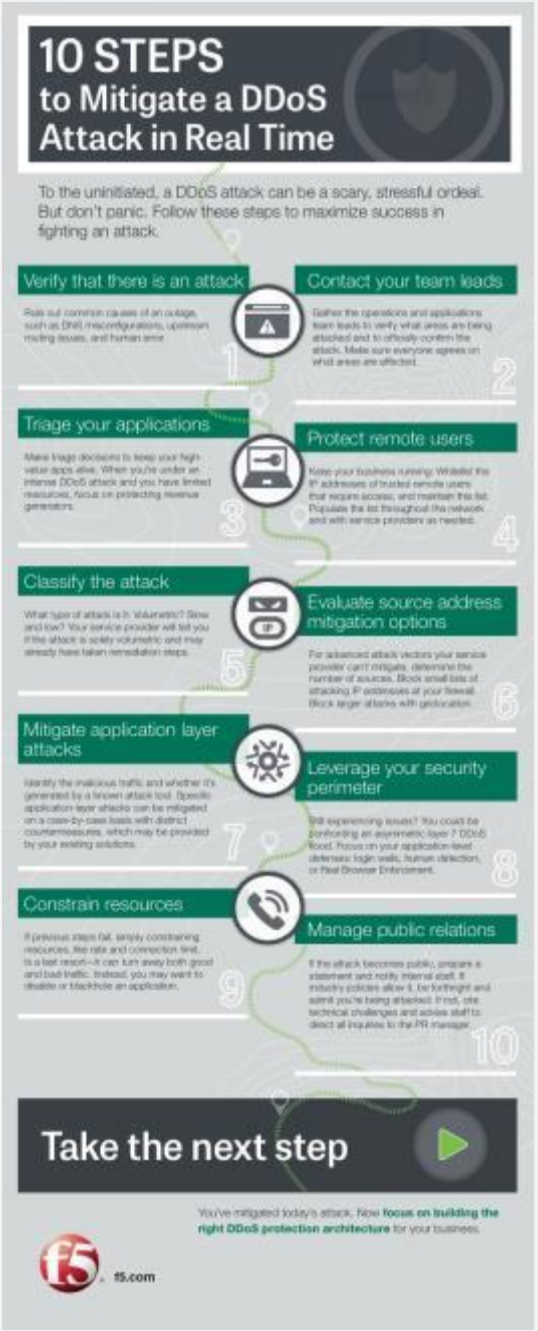
Bill of Materials

- White Paper (Business)
- Solution diagram(s)
- Architecture diagram(s)
- Product map diagram(s)
- Customer Presentation
- Solution Animation/Video
- White paper (Technical)
- Placemat leave-behind

Reference Architectures

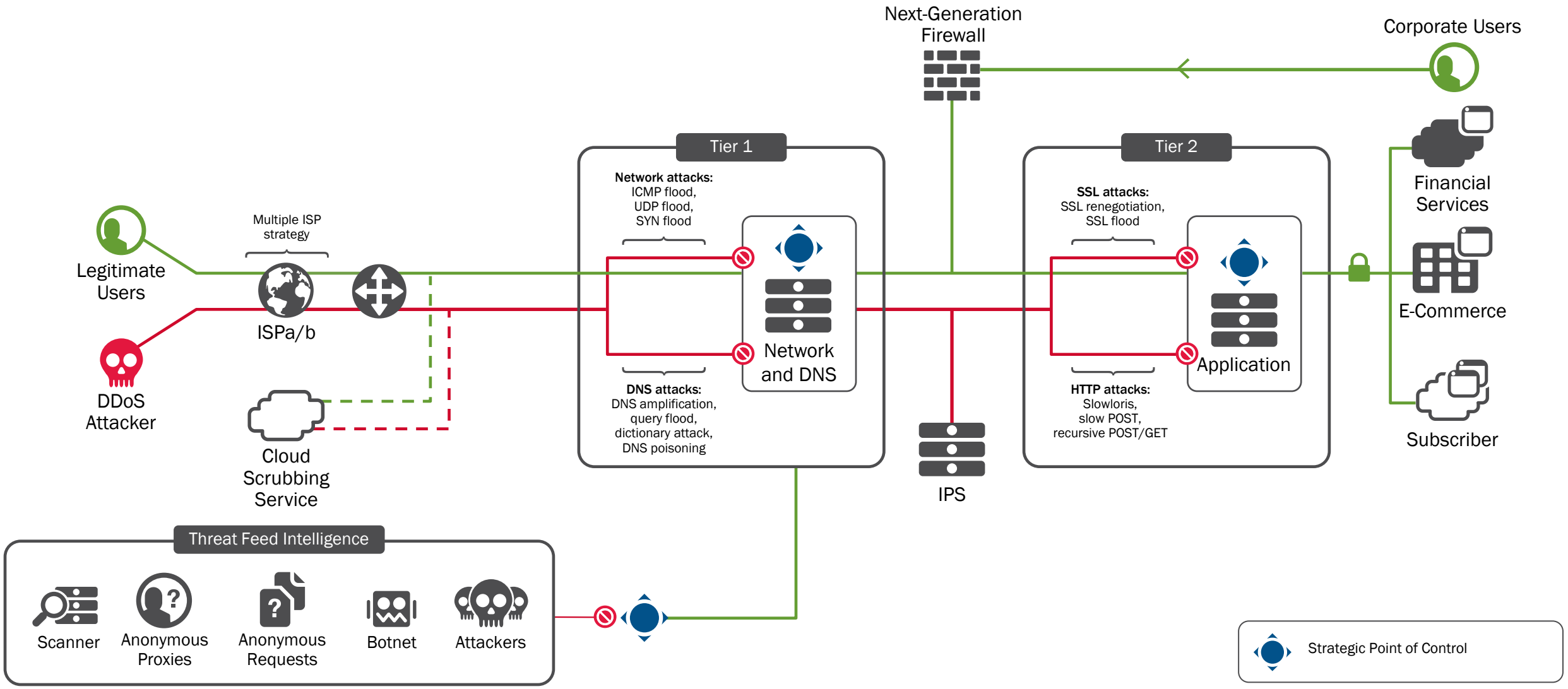




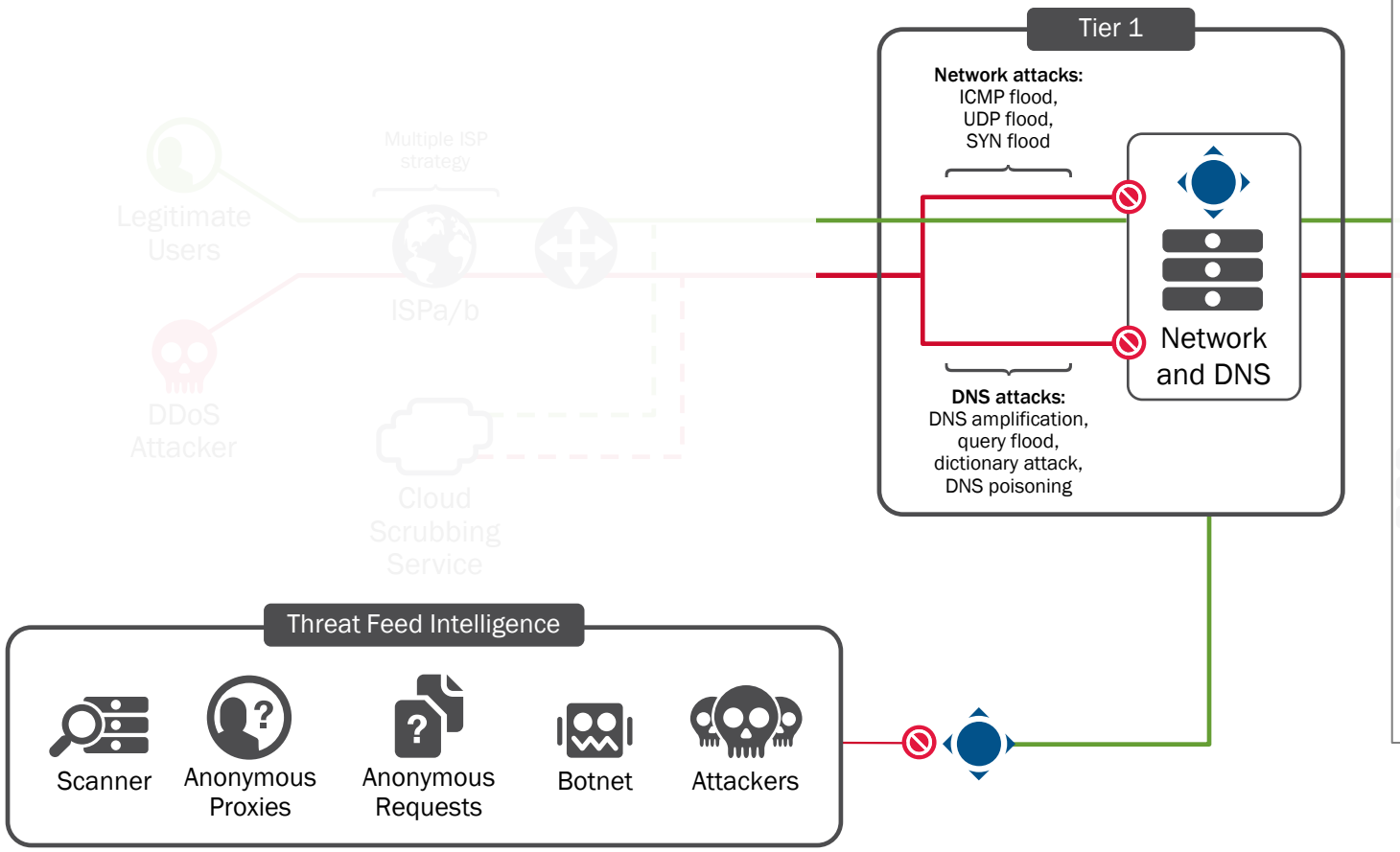


Solution Documents...

DDoS Protection Reference Architecture



DDoS Protection Reference Architecture



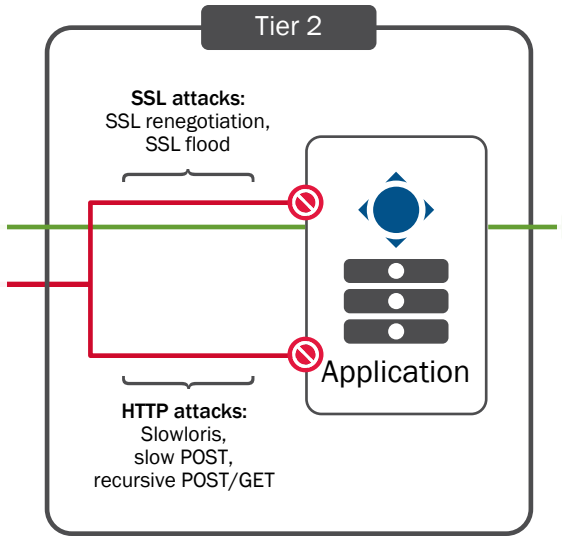
TIER 1 KEY FEATURES

- The first tier at the perimeter is layer 3 and 4 network firewall services
- Simple load balancing to a second tier
- IP reputation database
- Mitigates volumetric and DNS DDoS attacks

DDoS Protection Reference Architecture

TIER 2 KEY FEATURES

- The second tier is for application-aware, CPU-intensive defense mechanisms
- SSL termination
- Web application firewall
- Mitigate asymmetric and SSL-based DDoS attacks



Recommended Practices Configuration Guide

2.3.2.4 Enforce Real Browsers

Besides authentication and tps-based detection (section **Error! Reference source not found.**), there are additional ways that F5 devices can separate real web browsers from probable bots.

The easiest way, with ASM, is to create a DoS protection profile and turn on the "Source IP-Based Client Side Integrity Defense" option. This will inject a JavaScript redirect into the client stream and verify each connection the first time that source IP address is seen.

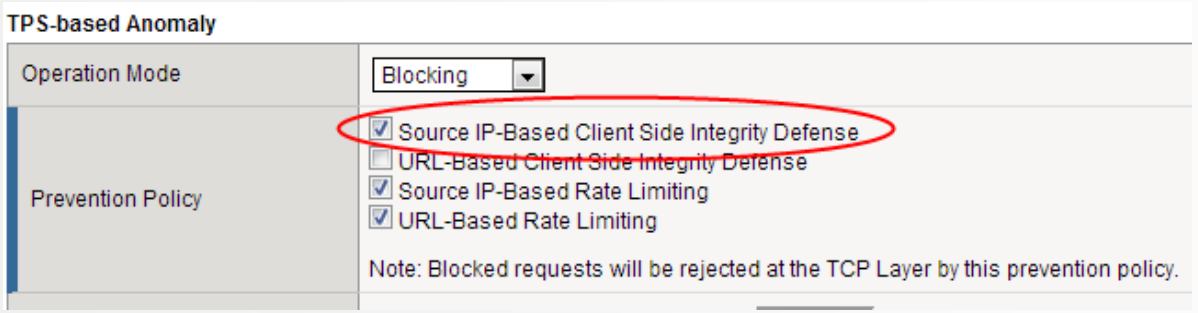


Figure 1. Insert a Javascript Redirect to verify a real browser

32 Page Detailed Guide...

2.3.2.5 Throttle GET Request Floods via Script

The F5 DevCentral community has developed several powerful iRules that automatically throttle GET requests. Customers are continually refining these to keep up with current attack techniques.

Here is one of the iRules that is simple enough to be represented in this document. The live version can be found at this DevCentral page: **HTTP-Request-Throttle**

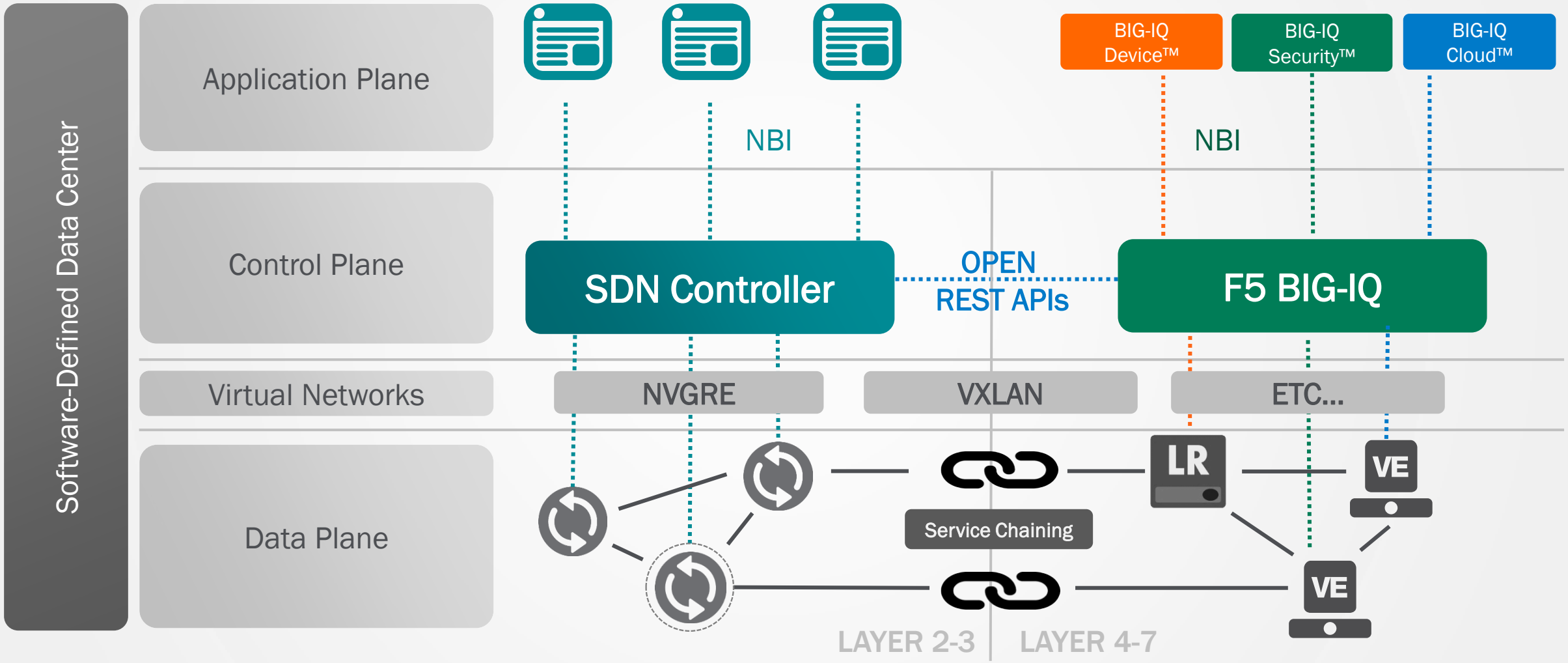
```
when RULE_INIT {
    # Life timer of the subtable object. Defines how long this object exist in the subtable
    set static::maxRate 10
    # This defines how long is the sliding window to count the requests.
    # This example allows 10 requests in 3 seconds
    set static::windowSecs 3
    set static::timeout 30
}

when HTTP_REQUEST {
    if { [HTTP::method] eq "GET" } {
        set getCount [table key -count -subtable [IP::client_addr]]
        if { $getCount < $static::maxRate } {
            incr getCount 1
            table set -subtable [IP::client_addr] $getCount "ignore" $static::timeout $static::windowSecs
        } else {
            HTTP::respond 501 content "Request blockedExceeded requests/sec limit."

            return
        }
    }
}
```

Another iRule, which is in fact descended from the above, is an advanced version that also includes a way to manage the banned IPs address from within the iRule itself:

- URI-Request Limiter iRule **– Drops excessive HTTP requests to specific URIs or from an IP**

Cisco Partnership

Completing the SDN Stack



Partner Integration with Synthesis

Auto-scaling, application provisioning, and automated system maintenance and patching.

Two-way communication
Configure application networking services
Automated network and service provisioning

Integrate network virtualization and ADN services

BIG IQ Cloud

Programmability

F5 SDAS Service Fabric

Programmability

F5 Platforms

Hardware | Software | Cloud

CISCO / insieme NETWORKS

Automate network and service provisioning,

amazon web services™ | EC2

Provisioning and orchestration of BIG-IP in AWS

Cisco ACI Design Philosophy

Why Cisco/ACI matters for Customers

- Cisco and F5 share a common vision for simplifying networking end to end by taking an application-centric approach to solving key pain points in customer's next generation data centers while meeting their critical data center requirements today.
- Working with Cisco on Application Centric Infrastructure, F5 has a unique opportunity to deliver on vision of shaping infrastructure to the needs of the applications.
- Cisco ACI integrates F5 Big-IP appliances (physical and virtual) to deliver application-centric, ADC-enabled network automation in existing and next generation data centers

Benefits

Drive
Business Value

- Improve application availability, reliability, recoverability, performance, security, and velocity

Increase
IT Capabilities

- Common platform
  physical | virtual | cloud
- Moving from managing devices to services

Reduce
Costs

- Lower TCO
- Consolidate user, network, and application services

Future
Proof

- Programmability and orchestration
- Open APIs, open standards
- Application awareness

Growth Opportunities

Security

SDDC/Cloud

Mobility

Reference Architectures

f5 Synthesis™

devcentral.f5.com

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linkedin.com/companies/f5-networks

twitter.com/f5networks

youtube.com/f5networksinc

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