
F5 Networks Japan Technical Information Documentation

F5 Networks, Inc.

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F5 2023 Read The Docs Guide

F5 Distributed Cloud ??????????Mesh?

F5????????????????



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1.1 Network

Network?????????

??	??
Interface	Site?Inside?LAN??Outside?Internet??IP?????DHCP????DNS?????
Virtual Network	Global Network?????????????????Site-to-Site?????????
Network Connector	Site?Inside Local Network?Global Network?????SNAT?Forward Proxy?????????
Fleet	?????Site?????????????????Fleet?????????Site?????
BGP	Site?Inside/Outside?????????????BGP Peer
Static Routing	Site?Inside/Outside?????????Static Routing???
Site Mesh Group	Site?????????????????????IPSec?????????Volterra RE???????????

???????????

1.2 Site Interface

CE Site????????????? – Inside Interface ✖Outside Interface???????Site???????????

CE Site?????????? – Outside Interface Outside?????????BGP Peer?????????

1.3 Virtual Network

Site??LAN-to-LAN??????Site??

1.4 Network Connector

Site??LAN-to-LAN????????Site?Inside?Virtual Network??????

Site?Inside???????????

1.5 Fleet

????Interface?Network Connector?Virtual Network??????Site????

????Fleet?Site????Site???????????

1.6 ??????????Node??

????????????????????GW??????????

1.7 Routing BGP?

1.8 BGP???Route??

Site????????????????Node????????????????

1.9 Static Route

Virtual Network????

1.10 Site Mesh Group

????????Site-to-Site????????????????????Volterra RE????

??

? Spoke???Hub???????

? Hub Site???????Spoke????????????Hub?Spoke??????

? IPSec-VPN?????SSL-VPN?????????

? Path MTU Discovery?????????

Spoke????????Initiator?Hub?Responder???????

???????IP????????IP????Responder??UDP4500?NAT????????????????

Site Mesh Group?????????

Hub?Spoke??Site???Virtual Site?????????

IPSec VPN?????IP??????????????

Site Mesh Group??

1.11 ???????

2

2.1 Virtual Network?

CSP Site??CE????Fleet??????????CSP Site??????????? Global Networks???????LAN-to-LAN?????????

?

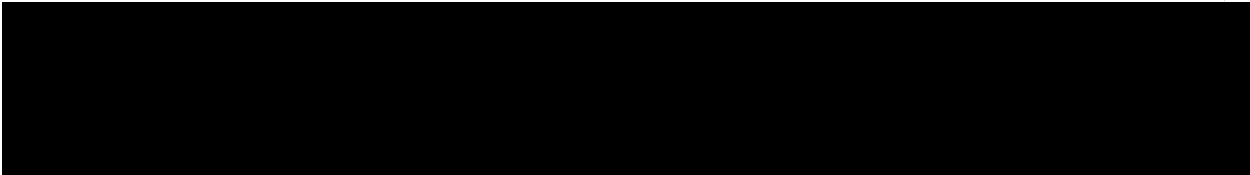
2.2 Static Route?

?

2.3 Site Mesh Group?

???????CE??????????????

?



3.1 Virtual Network?

Network Firewall????????????

???	???	??
Network Policy	L3-4	?????????Ingress/Egress????????????????????????????????
Fast ACL	L3-4	CE???RE?????VIP?LB?????????DDOS???TCP Flag??L4 Policer?
Forward Proxy Policy	L7	?????IP Prefix?????TLS Domain?HTTP URL?IP Prefix?BGP ASN????

??????????

3.2 Network Policy

? .. figure:: images/image-03-04.png

width 1080

3.3 Network Policy – Label??

Network Interface????????????????????

? Network Policy???????

?

3.4 Fast ACL

Fast ACL?????

Policer????Protocol Policer???Fast ACL????

Protocol Policer????Fast ACL????

3.5 Forward Proxy Policy

Network Connector?Forward Proxy?SNAT???????

Forward Proxy Policy????

???All Permit?Policy???????????Network Firewall?Policy??????



4

4.1 Origin Pool?

Load Balancing????????Origin Server????????Origin Pool????

? Origin Server???

??	??
IP Address	????/???????IP????
DNS Name	????/???????FQDN
Service Name	K8s???Consul??????

????????????? ???????????????

4.2 Load Balancing Control

Origin Pool?????????Site?????????Site????????????????????

Load Balancer?????????Origin Pool?????????

Load Balancer Algorithm?LB?

??????	??
Round Robin	??????????????
Least Active Request	????????????????????
Random	????????????????
Source IP Stickiness	???IP????????????
Cookie Based Stickiness	Cookie????????????????
Ring Hash Policy	Consistent Hashing???Endpoint????????????????????

Load Balancer Algorithm?OP?

??????	??
Round Robin	??????????????
Least Active Request	????????????????????
Random	????????????????
Ring Hash Policy	Consistent Hashing???Endpoint????????????????????
Load Balancer Override	LB????????????????SourceIP?Cookie?Persistence??????????????

4.3 LB???VIP?? – HTTP/HTTPS

LB??Site?Volterra RE?????????
?????????????LB???IP?VIP???VIP?????????????????????????
????Origin Pool????????????????????

VIP	??
Advertise on Internet	Volterra?????IP?????????????RE??????
Advertise on Internet(Specified VIP)	?????Volterra?????IP?????????????RE??????
Advertise Custom	?????????IP?????????????????IP??????????

?

4.4 VIP????? – HTTP/HTTPS

? VIP????Domain????

VIP	??	??
Advertise on Internet	– HTTP – HTTPS	– Volterra???Domain?????DNS????? – Sub Do- main?Volterra?????DNS?????NS???
Advertise Custom ?HTTP/HTTPS???	– ??????? – ???????	– DNS?????A????????? – Volterra???DNS????A?????????

?

4.5 Namespace

? Load Balancer?Namespace?????????Namespace?????

4.6 Origin Pool

? ??Site?????????Site?????????????????????
 ????????????????

4.7 HTTPS LB – ???????

? | ?????????????Domain???? | TLS????????????

TLS????????

Origin Pool????VIP?LB????

4.8 HTTPS LB – ???????

? | ???????VIP???????? | ? Volterra RE??? | ? Site??

4.9 HTTPS LB – ????????RE???

? ?????????????????Domain????TLS??????Volterra????

Origin Pool?VIP????

????Domain?Delegation?

4.10 HTTPS LB – ????????Site??

? ?????????????????Domain????TLS??????Volterra????

TLS????????

Origin Pool????VIP?LB????

4.11 LB???FQDN??

? ?????????????FQDN???????

4.12 HTTPS Origin Server

? Origin Server?HTTPS???????TLS?????

4.13 ?????????? – Active/Standby

? | Active/Standby????2?? | ? Origin Pool??Active/Standby | ? Origin Server??Active/Standby
Origin Pool?

Origin Server?
Origin Server?Active/Standby?????????

Origin Pool?Active?Standby?Endpoint???
Origin Pool?Active/Standby??Subset LB????
Load Balancers?Active/Standby??Route???

4.14 AnycastIP?????Site??

? ?Site???VIP???????Anycast????????????????????????????????Site??????Site??????Site??????

4.15 BGP???VIP??

? Site?BGP????LB VIP????????

4.16 ?????????????Node??

? | ?????????????????????VIP????DNS????????

```
$ nslookup vk8s.tokyo.com
Name: vk8s.tokyo.com
Address: 10.1.0.2
```

```
?????
$ nslookup vk8s.tokyo.com
Name: vk8s.tokyo.com
Address: 10.1.0.3
```


4.17 TCP LoadBalancing

? ?????????HTTP LB????Origin Pool????????

4.18 UDP LoadBalancing

? Orign Server???Endpoint????

???Endpoint?Cluster??????

Cluster??Route????

UDP LB????

5.1 HTTP LB?VIP????L7??????

??????

???	??
IPv4 Prefix	????????????????????
BGP ASN	???AS????????
Country List	????????????????IP????
Rate Limiting	HTTP LB VIP???????? ???????IP Prefix?ASN?HTTP Cookie?HTTP Header Name?? ??????????????HTTP?????Domain????????
Client Blocking	??????IP Prefix???ASN??????

???????????

??		??
Server	Domain Matcher	????????????????????
Request	HTTP Method	?????HTTP???Get, Put, Post??
	HTTP Query Parameters	?????????query=udp??
	HTTP Headers	?????User-Agent: Mozilla/4.0??
	Cookie Matcher	Session-id=12345?
	Body Matcher	Request Body String?

5.2 Service Policy?Rule???

5.3 Service Policy?Rule????Custom Rule List?

5.4 Service Policy?Active???

6

6.1 Service Policy?HTTP LB????







8.1 App Type??

8.2 App Type?LB???

8.3 ??????API????????????????

????????????????????

??

HTTP LB?VIP??DDoS??????

??	??
Javascript Challenge	JavaScript????????????????????
Captcha Challenge	????????????????????
Policy Based Challenge	ML????????????Block/Javascript/Captcha????????
Rate Limiting	HTTP LB VIP???????????? ????????IP Prefix?ASN?HTTP Cookie?HTTP Header Name?? ????????????????HTTP????Domain????????
Client Blocking	????????IP Prefix??ASN??????

9.1 Javascript Challenge

JavaScript??Cookie????????????????????????????????????

9.2 Captcha Challenge

????????????????????Bot????????????????

9.3 Policy Based Challenge - ML

ML???????Malicious?????3????????????????????

????????????????

????????????????Malicious???=??????IP?????

ML???????

9.4 Malicious????? - ML

9.5 Policy Based Challenge - Static

ML????????????????????????????

9.6 Rate Limiting

HTTP LB VIP????????????
 ????????IP Prefix?ASN?HTTP Cookie?HTTP Header Name??
????????????????HTTP?????Domain????????????

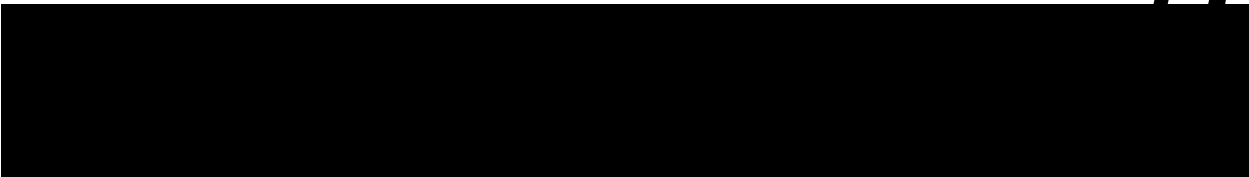
??????????

????????????????

??????????????

9.7 Client Blocking

???????IP Prefix???ASN???????



10.1 WAF

WAF?Web????????????????????????????

WAF??

??	??
Attack Type	??
Attack Signature	????????????????????????????HTTP????????????????
Accuracy Level	????????????????Low????????????????????
False Positive Suppression	????????????????????
Threat Campaign Detection	????????????????????
Violation Detection	HTTP????JSON????????????????????????

10.2 Bot Protection & Defense

Bot Protection?Bot?Web????????????????????????

BOT???

??	??
Good Bot	????????????????????
Suspicious Bot	?????????Bot?????????????Suspicious Bot??????? Tools - Site crawlers, monitors, spiders, web downloaders. Bots - Social media agents, Search Bot?
Malicious Bot	Bot????????????????????????????????

Bot Defense?JS???SDK?????????????????????????????Bot????

10.3 App Firewall

WAF?Bot Protection??App Firewall????

10.4 App Firewall – WAF Custom

10.5 App Firewall – Bot Protection

10.6 HTTP LoadBalancer

App Firewall?HTTP LB????

10.7 WAF ??????

10.8 Bot Protection ??????

10.9 Bot Defense

Bot Defense?LB????

10.10 Bot Defense ??????

