Automated Zone Management for F5 BigIP DNS Environment

Datasheet by FusionLayer Inc. & F5

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Datasheet by FusionLayer Inc. & F5, November 23, 2020.

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Introduction

Information security and digital transformation are two key trends shaping the Information and Communication Technology (ICT) landscape. While many organizations are investing in secure application delivery networks and cloud-based business infrastructure, there has insofar been no simple solution to integrate these two areas for maximized Return on Investment (ROI).

To solve this problem, FusionLayer and F5 Networks have introduced a solution that allows service providers and data centers to introduce zero-touch integration between their cloud-based business infrastructure and application delivery networks. The solution is based on a blueprint architecture consisting of FusionLayer Infinity and F5 BigIP DNS technologies.

Business Benefits

Network Agility through DNS Automation:

- Automated DNS management

- Zero-touch DNS provisioning

- Instant changes to F5 BigIP DNS:

- REST API automated workflows

- Manual changes via Graphical User Interface (GUI)

Compliance with ITIL and Best Practices:

- Authorization, authentication and audit trails for all changes

- Delegated visibility into DNS zones managed in the system

- Introduce SD-IPAM and DHCP management for F5 environments

Slash Operating Expenses (OPEX):

- Automated self-service models for DNS management

- Automated provisioning for clouds and orchestrators

- Minimize man-years spent on DNS management tasks

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FusionLayer Infinity–Software-Defined IPAM (SD-IPAM):

FusionLayer Infinity is the world's first Software-Defined IP Address Management (SD-IPAM) solution enabling unified management and provisioning of all network resources such as blocks, networks, release-parameters, and DNS forward/reverse zones. Infinity has off-the-shelf connectors that enable plug-and-play integrations with F5 Big-IP DNS and popular orchestrators/controllers via REST APIs, seamlessly integrating with virtually any service automation architecture.
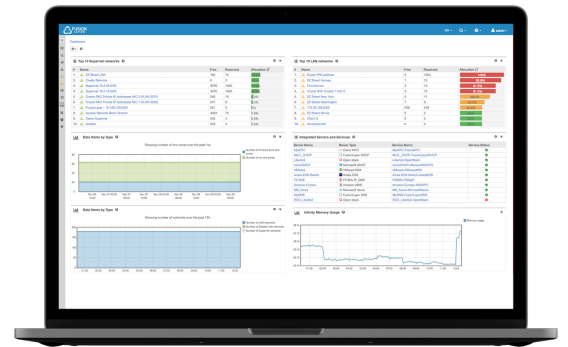
In addition to its patented business logic for provisioning free network prefixes and release parameters, Infinity enables granular Role-Based Access Control (RBAC) to facilitate self-service DNS. When deployed alongside the F5 Big-IP DNS, FusionLayer Infinity functions as the authoritative management system and provisioning source for all network-related information.

Ease-of-Use:

- Intuitive workflow for effortless network management

- Smooth user experience offering simplicity and peace of mind

- Role-based access for self-service DNS provisioning

Ease-of-Integration:

- Simple plug-n-play integration with F5 in just minutes

- Flexible data structure for individual customer needs

- Powerful REST API enabling DNS automation

Scalability:

- Scale x25 over competing systems

- Manage 100K+ networks together

- Architecture designed for infinity:

    o IoT with sensor networks

    o Dual-stack and IPv6

    o Hybrid multi-cloud scenarios

Zero-Touch DNS Provisioning

Step 1:

- Orchestrator deploys workload, sends a request to FL Infinity (via IPAM driver).

- Infinity returns requested parameters and uses them in deployment
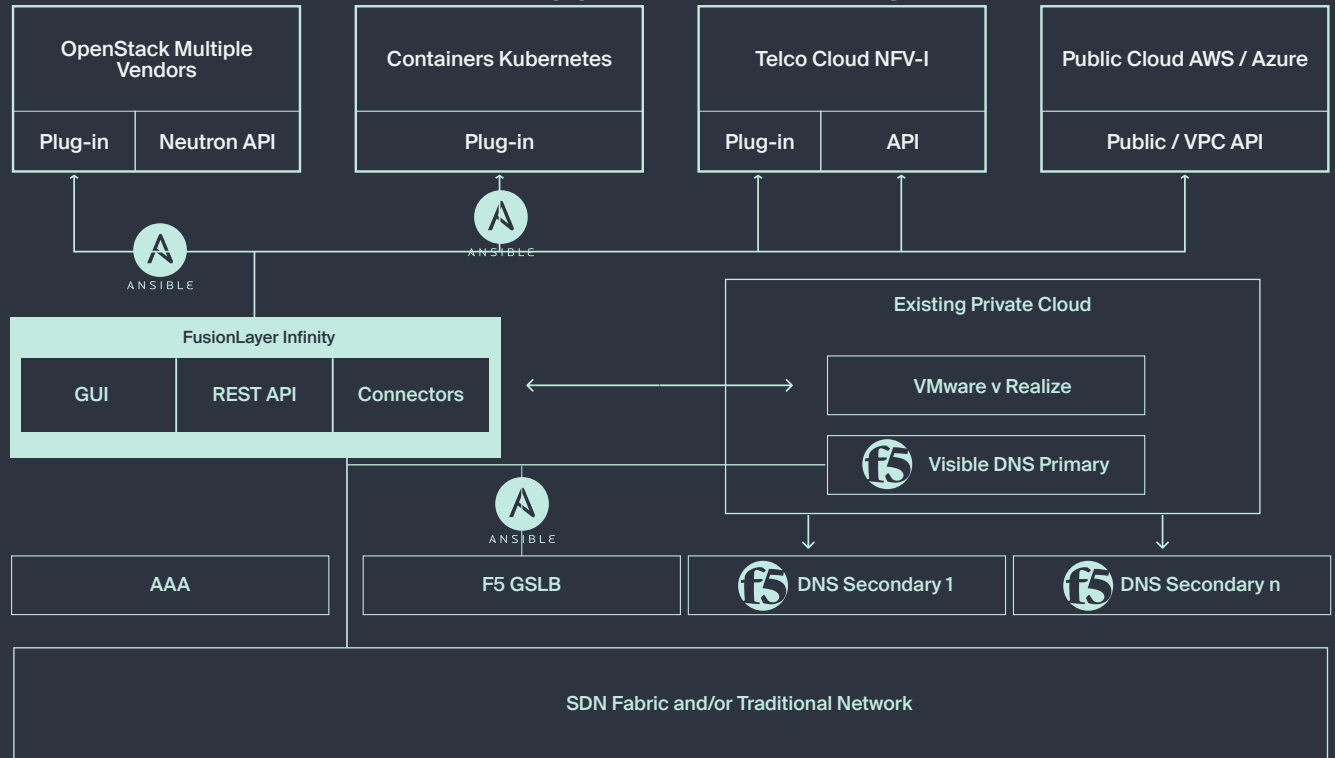
STEP 2:

- FL Infinity issues an IP address from the correct subnet.

- Automatically creates DNS name based on user-defined subnet-specific pattern

Step 3:

- FL Infinity adds DNS name to subnet-specific zone.

- Automatically propagates the change across authoritative F5 BigIP DNS instances.

F5 BIG-IP DNS for Secure Application Delivery:

OpenStack Multiple Vendors		Containers Kubernetes	Telco Cloud NFV-I		Public Cloud AWS / Azure
Plug-in	Neutron API	Plug-in	Plug-in	API	Public / VPC API

ANSIBLE

ANSIBLE

FusionLayer Infinity

GUI	REST API	Connectors

Existing Private Cloud

VMware v Realize

Visible DNS Primary

ANSIBLE

AAA	F5 GSLB	DNS Secondary 1	DNS Secondary n

SDN Fabric and/or Traditional Network

BIG-IP DNS improves the performance and availability of global applications by sending users to the closest or best-performing physical, virtual, or cloud environment. It also hyperscales and secures DNS infrastructure from DDoS attacks and delivers a real-time DNSSEC solution that protects against hijacking attacks.

BIG-IP DNS hyperscales up to 100 million responses per second (RPS) to manage rapid increases in DNS queries.

With a set of features that includes multicore scalability, DNS Express, and IP Anycast integration, BIG-IP DNS handles millions of DNS queries, protects your business from DDoS attacks, and ensures top application performance for users.

BIG-IP DNS delivers a real-time, signed DNSSEC query response and DNS firewall services for attack protection and mitigates complex threats by blocking access to malicious domains. Its services also integrate with DNS zone management solutions, increase DNS performance at the network edge, and mask the DNS back-end infrastructure. All of this translates into higher productivity, server consolidation,

About FusionLayer

Managing complex corporate and telecom networks is a challenge where the cost of failure is enormous. FusionLayer collates all network information into a single Network Source of Truth, accessed securely by both engineers and automation to eliminate the chance of network downtime – on-premise, at the edge, and in the public cloud. This provides our customers with reassuring realtime information, so their digitalized operations can connect 24x7x365.

About F5

F5 (NASDAQ: FFIV) makes apps go faster, smarter, and safer for the world's largest businesses, service providers, governments, and consumer brands. F5 delivers cloud and security solutions that enable organizations to embrace the application infrastructure they choose without sacrificing speed and control. For more information, go to f5.com. You can also follow @f5networks on Twitter or visit us on LinkedIn and Facebook for more information about F5, its partners, and technologies