Delivering consistent and predictable network services across a hybrid cloud environment with NS1

Relentless March Toward Cloud

Cloud Adoption has been accelerating at a rapid pace over the last few years. Enterprises enjoy flexibility, scalability as well as the ability to innovate in a rapid fashion by embracing the cloud. In fact, according to a recent survey by Gartner, 81% of public cloud users operate two or more cloud environments. With the availability of multiple options, enterprises can avoid vendor lock-in. This allows enterprises to exploit the strengths of each cloud provider to their specific needs. Reliability and availability can be fortified by spreading workloads across multiple clouds. However, multi-cloud introduces a lot of complexity.

Rise of Hybrid Clouds

Managing multiple cloud environments becomes extremely complicated as IT needs to learn and constantly keep up with each cloud provider's services. Security and compliance of data and applications hosted in the cloud become a key concern. IT also has to grapple with rising costs associated with different cloud providers. End-users may experience erratic application performance due to functional differences across different cloud providers.

A hybrid cloud strategy wherein enterprises employ both public and private clouds to get the best of both worlds addresses some of these pitfalls. Sensitive data and mission-critical workloads can be hosted on a private cloud which is directly managed by IT staff. Having total control of such data and workloads in a private cloud also enables enterprises to easily comply with regulations. This tighter administrative oversight gives enterprises control over costs. Adopting a hybrid cloud strategy, however, introduces its own set of challenges.

Challenges of delivering network services across a Hybrid multi-cloud environment:

Ensuring uninterrupted services

There are numerous operational scenarios involving integration between public and private cloud environments. Applications residing in public clouds may need to access data hosted on-premise. For example, personally identifiable customer information may be stored in a private cloud. This data, after anonymization, may be forwarded to an application hosted on a public cloud for processing and analysis. Another example of a hybrid cloud use case would be cloud bursting wherein traffic flows to the public cloud when an application running on a private cloud reaches its resource limits. In all these cases, seamless connectivity across a hybrid cloud environment is crucial for achieving application performance, reliability, and availability SLAs.

Operational complexity

Network services provided by cloud providers are designed to operate only in their own environments. They are certainly not optimized for providing network services across a hybrid cloud environment. With some providers, it may entail using several different components.

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With other providers, network operations teams need to build custom DNS servers and provide for-warders to on-premise services. All these idiosyncrasies add substantial overhead - and costs - when using a cloud provider's native network services. It also leads to inconsistencies in operational procedures impeding agility.

Steep learning curve

Functionality offered by each cloud provider as well as the management layer to deploy, provision, and operate network services are different. Network operations teams have to learn the functional and operational details of each cloud provider. Furthermore, these teams have to constantly keep up with new capabilities, services, and updates to avoid building up technical debt. Network operations teams have to spend a considerable amount of time and effort learning and keeping up with services offered by each provider.

NS1's Standardize Network Services Across a Hybrid Multi Cloud Environment

NS1 provides a cloud-native DNS, DHCP, and IP Address Management solution that's flexible, portable, and platform agnostic. NS1 Enterprises DDI platform empowers network operations teams to achieve consistency in functionality, operational procedures and application performance.

NS1's solution resolves the challenges of delivering DNS, DHCP, and IP Address Management across a hybrid cloud environment:

Delivery of uninterrupted services: Steering traffic in an optimal manner beyond simple mechanisms such as round robin plays a vital role in ensuring seamless connectivity across hybrid clouds. NS1's patented point & click filter chain capability enables users to configure powerful traffic shaping algorithms based on location, weights, resource availability, stickiness and load. NS1 enables ingestion of health metrics from load balancers and monitoring solutions resulting in intelligent traffic routing that is informed by data. For instance, a configuration where 90% of the traffic is sent to the private cloud and 10% to the public cloud can be deployed with just a few clicks.

Minimize complexity: NS1's Enterprise DDI solution can be deployed on any cloud platform. Network operations teams thus achieve consistency in provisioning, deploying and managing network services across any environment thereby speeding up the deployment of infrastructure and applications. There's no need to patch together multiple components and sub optimal services offered by cloud providers. Another benefit of using the same solution for providing DNS, DHCP, and IP Address Management in any environment is stability in application performance across different environments.

Easy to learn: NS1 offers dynamic management - both GUI and APIs are available. NS1offers a simple and intuitive GUI as well as comprehensive set of APIs for DNS, DHCP, and IP Address Management. There is full compatibility between GUI and APIs. Robust documentation for APIs along with sample code as well as client libraries in Go, Python, Javascript and PHP are available. NS1 integrates with commonly used DevOps toolkits and CI/CD frameworks including Terraform and Ansible. There's no need to grapple with operational procedures of multiple cloud providers.

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Interoperability with Cloud Provider's Network Services

In situations where cloud provider's network services are in use, NS1's Enterprise DDI can coexist with these services. NS1 can serve as the primary DNS provider and forward queries to these services. NS1 thus provides frictionless connectivity across a hybrid cloud environment consisting of network services from multiple providers.
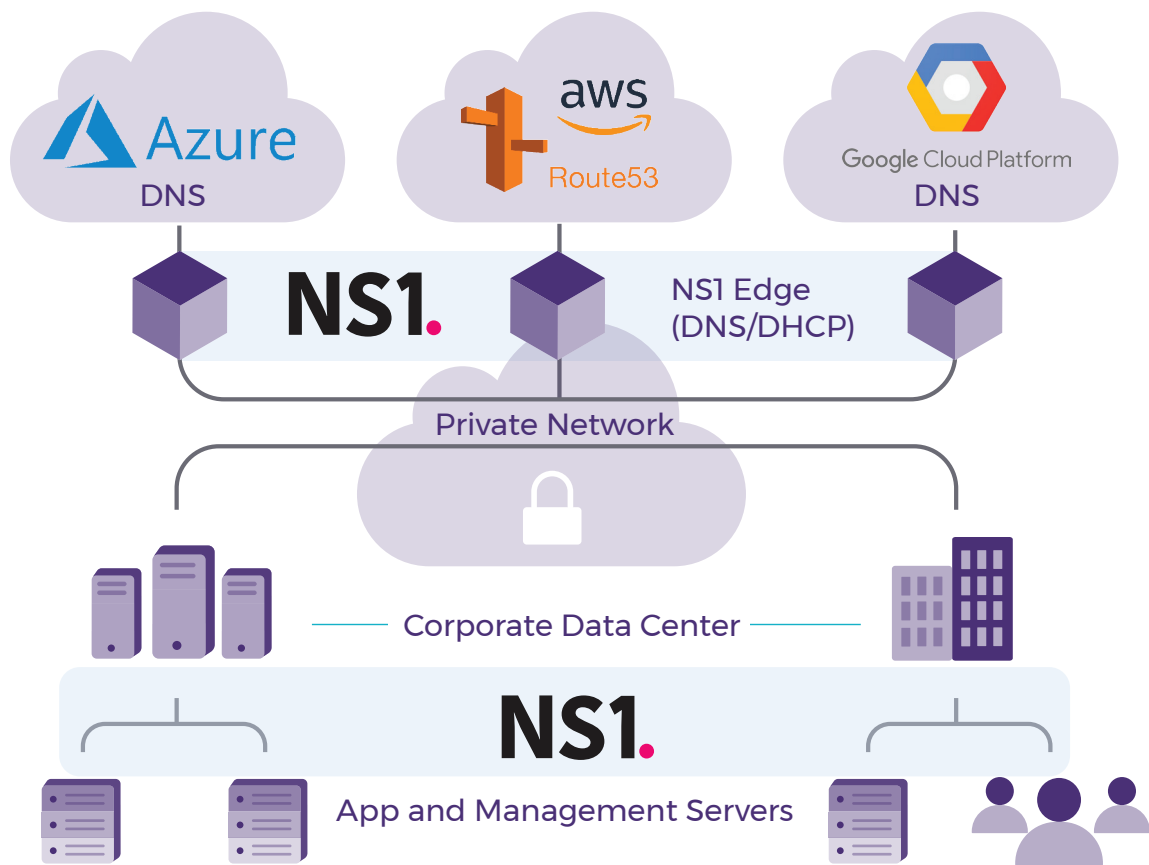
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Hybrid cloud is here to stay - IDC predicts that, "by 2022, 70% of enterprises will integrate their public and private clouds by deploying unified hybrid/multi-cloud management technologies, tools, and processes." Relying on cloud provider's services complicates adoption of a hybrid cloud strategy. Application performance may be adversely impacted resulting in degraded experience for end users due to rudimentary traffic steering capabilities. NS1's Enterprise DDI solution abstracts away the complexities of cloud thereby equipping network operations teams to adopt hybrid cloud quickly, achieve uniformity in the delivery of network services and provide a flawless end user experience across a hybrid cloud environment.

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