Expand Your Data Search and Analysis Capability Across a Hybrid Cloud

Powered by Cisco Intercloud Fabric and Cisco UCS

Highlights

Extend Your Data Center and Cloud
· Build a hybrid cloud from your IT resources and public and provider-hosted clouds with Cisco Intercloud Fabric™ for Business.

Support Business Initiatives
· Create a modern technology foundation for your cloud, big data, and desktop virtualization initiatives with Cisco UCS® Integrated Infrastructure solutions.

Accelerate Query Response Time
· Get a deep and comprehensive understanding of data convergence from multiple sources with Elasticsearch running on Cisco Unified Computing System™ (Cisco UCS).

Keep Data Available
· Store frequently accessed (hot) data on your premises and extend it to a public cloud without compromising security, while preserving easy access to infrequently accessed (cold) data on cost-effective cloud infrastructure.

Expand Your Search Capability
· Run distributed search queries on multiple data sets regardless of location.

Simplify Cloud Infrastructure Management
· Use a single-pane interface to manage your cloud infrastructure, including virtual machines, routers, and firewalls.

If your business needs to expand and accelerate search and analysis capabilities, it's time to deploy a hybrid cloud powered by Cisco Intercloud Fabric™ and the Cisco Unified Computing System™ (Cisco UCS®).

Extracting deep insights from stored information within limited time frames becomes harder as data volumes grow and infrequently accessed data is archived to free capacity for new data. Many organizations use public cloud deployments to take advantage of additional resources and alleviate the strain on overburdened IT infrastructure. With Cisco Intercloud Fabric, Cisco UCS, and Elasticsearch software, you can keep active data on your private cloud and move infrequently accessed information and data to public cloud resources without compromising data accessibility, search and query performance, or IT security.

Expand Your Data Center with a Hybrid Cloud

Cisco and Elastic deliver a distributed querying solution that solves the challenges associated with creating infrastructure for big data analysis solutions. By extending your private cloud to a public or provider-hosted cloud with Elasticsearch software running on IT infrastructure built with Cisco Intercloud Fabric, your IT department can create an enterprise hybrid cloud that lets you easily gain insight from data stored in multiple locations.

Cisco Intercloud Fabric for Business
Cisco Intercloud Fabric for Business makes it easy to build a secure hybrid cloud and extend your data center to public clouds on demand. With this open, flexible, and secure solution, your organization can take advantage of elastic cloud capacity, accelerate access to resources, lower costs, and gain the freedom to place workloads across private and public clouds with ease and confidence (Table 1).

Because Cisco Intercloud Fabric for Business provides a unified system based on a single data center fabric, your applications typically don't know where the on-premises system ends and the public cloud system begins. Unlike solutions that require components to be managed separately, Cisco Intercloud Fabric Director gives you a single point of management and control for your virtual workloads across multiple private and public clouds.

Cisco Intercloud Fabric Director serves as the end-user and IT portal for the provisioning and management of your public cloud extension. This single console provides visibility into virtual machines in private clouds, complete lifecycle management for virtual machines running in public clouds, and management of cloud network services (Figure 1). Open APIs support integration with third-party management tools.
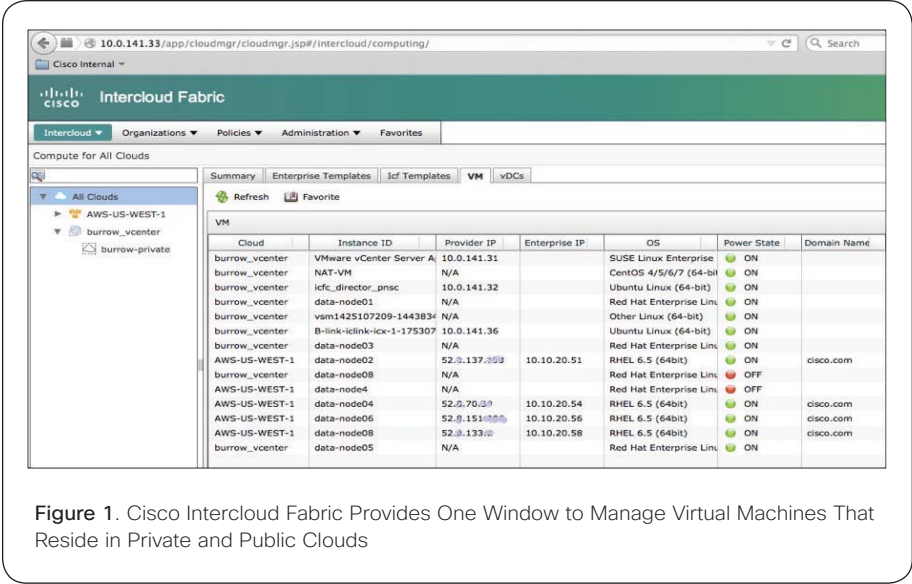

Figure 1. Cisco Intercloud Fabric Provides One Window to Manage Virtual Machines That Reside in Private and Public Clouds

Cisco Intercloud Fabric Secure Cloud Extension provides a secure Layer 2 extension from your enterprise data center to the cloud. It includes Cisco Intercloud Fabric Extender virtual machines placed on the private cloud and Cisco Intercloud Fabric Switch virtual machines placed on the public cloud to provide secure connectivity using the standard datagram transport layer security mechanism.

Cisco UCS Integrated Infrastructure

Cisco UCS Integrated Infrastructure solutions accelerate IT operations and create the modern technology foundation you need for your big data and cloud initiatives. The solutions are based on Cisco UCS, a next-generation data center platform that unites computing, network, storage access, and virtualization into a cohesive system. Many technical innovations support Cisco's unified computing vision, including just-in-time provisioning with service profiles, a unified fabric and VN-Link virtualization support, Cisco Extended Memory Technology, performance and energy efficiency improvements, and embedded management capabilities.

Table 1. Cisco Solution Components and Benefits

Cisco Intercloud Fabric	Cisco UCS
• Freedom to place workloads across heterogeneous clouds with unified workload management • Bidirectional workload mobility across clouds • Choice of hypervisor and public cloud providers • Centralized visibility across private and public cloud environments • Consistent operational model with common network and security policies across private and public clouds	• Cohesive system that unites computing, networking, storage access, and virtualization resources • Increased business agility • Dramatic reduction in TCO • Simplified management and provisioning processes • Massive scalability

Cisco UCS reduces total cost of ownership (TCO) at the platform, site, and organizational levels while increasing IT staff productivity. With extensive scalability, a large partner ecosystem, and Cisco UCS Director for centralized automation of your physical and virtual resources, you can take advantage of an open ecosystem approach and extend your data center to increase business agility.

Elasticsearch

Elasticsearch is a powerful, open-source, distributed, real-time search and analytics engine built on top of Apache Lucene. Designed for use in distributed environments that require reliable and scalable search capabilities, Elasticsearch supports real-time analytics and full-text search over stored data. With a robust set of APIs, query data sublanguages (DSLs), and clients for popular programming languages, Elasticsearch is gaining wide adoption as an open platform for the log data used by organizations.

This distributed, real-time document store and search engine indexes every field and makes it available in real time for analysis. The solution can scale to hundreds of servers and petabytes of structured and unstructured data. Using the built-in Kibana data visualization engine, your users can natively interact with their data through prebuilt and custom dashboards. As a result, you can gain a deep understanding of data convergence from multiple sources within your enterprise.

A Logstash component aggregates data from any system—including log data, time-series data, comma-
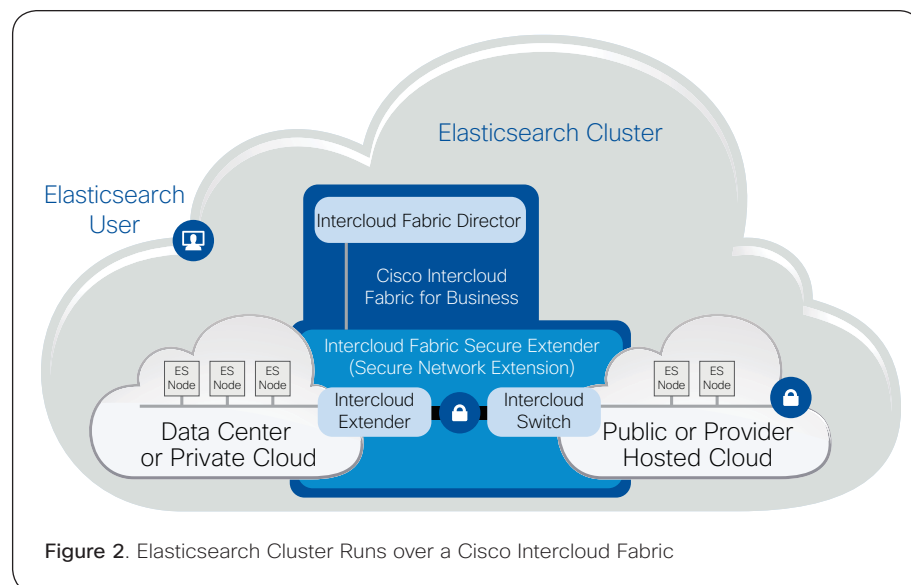
Figure 2. Elasticsearch Cluster Runs over a Cisco Intercloud Fabric

separated value (CSV) data, and more than 40 data sources—into a single repository for additional transformation and processing. Using Elasticsearch as its back-end data store, Logstash creates a powerful pipeline for storing, querying, and analyzing log files.

Shield protects data and helps ensure that it complies with your security policies. This enterprise-class security solution for Elasticsearch deployments includes role-based access control (RBAC); support for authentication and Lightweight Directory Access Protocol (LDAP) servers; and encryption, audit logging, and IP filtering capabilities.

Your IT staff is notified of changes in your Elasticsearch data volumes by Watcher, software that lets you create custom alerts and automate actions based on observed changes in data. All indexed data in the Elasticsearch system can be watched, including

application, network, social, transaction, and monitoring data.

Extend to a Hybrid Cloud

Cisco Intercloud Fabric simplifies the process of securely extending your data center networks from your private cloud to a public or provider-hosted cloud (Figure 2). It enables your enterprise IP address space to be used, facilitating workload mobility and connectivity to your enterprise services, including name services and authentication services, as well as compliance and security processes and policies.

Rapid Provisioning and Data Access

The solution lets you place and instantiate your enterprise computing templates in the public cloud. Your IT staff can quickly create and configure Elasticsearch nodes while maintaining enterprise network connectivity. Using a secure cloud extension, you can

build an Elasticsearch cluster consisting of nodes in any location. As a result, users can simultaneously run analytics on data that resides within your private cloud or on public cloud resources.

Intelligent Data Placement

As data ages and access becomes less frequent, you can move data to the public cloud. This data remains available for search and analytic workloads because the Elasticsearch nodes in the public cloud reside on the enterprise network. Data does not need to be moved between your private and public clouds for analysis.

Cisco Intercloud Fabric offers a representational state transfer (REST) API that can be used to manage the Elasticsearch nodes that reside in the public cloud. You can power-on nodes prior to a search session and power

them off when the search session is complete, increasing the cost-savings benefits from the use of a public cloud.

Conclusion

If you need to improve the search and analysis capabilities used in your business, it's time to deploy a hybrid cloud powered by Cisco Intercloud Fabric and Cisco UCS. With these IT infrastructure solutions, you can quickly and easily connect your private cloud to a public or provider-hosted cloud while maintaining the same level of security and policy across environments. With the capability to access your hybrid cloud resources on demand and use Elasticsearch to search and extract real-time insights from your structured and unstructured data, you can accelerate IT and business innovation.

For More Information

For more information about Cisco Intercloud Fabric, visit http://www.cisco.com/go/intercloudfabric.

For more information about big data solutions using Cisco UCS, visit http://www.cisco.com/go/bigdata.

For more information about Cisco Validated Designs for big data, visit http://www.cisco.com/go/bigdata_design.

For more information about Elasticsearch, visit http://www.elastic.co/products/elasticsearch.

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