Solution Brief

Cisco UCS Central Software Plus Splunk Enterprise: End-to-End Operation Visibility for Multiple Cisco UCS Domains with Machine-Generated Data

Gain real-time operation visibility into multiple Cisco Unified Computing System™ (Cisco UCS®) domains with Splunk Enterprise integrated with Cisco UCS Central Software, which together can identify and resolve problems faster, proactively monitor systems and infrastructure, track key performance indicators, and understand trends and patterns of activity and behavior.

HIGHLIGHTS

- Manage multiple Cisco Unified Computing System™ (Cisco UCS®) domains end to end: Cisco UCS Manager embedded device management software manages each Cisco UCS domain across the entire system as a single logical entity. Cisco UCS Central Software extends these management features to multiple Cisco UCS domains, which may be distributed across different data centers.
- Gather and correlate machine data with data from multiple technology tiers in Cisco UCS domains: When integrated with Cisco UCS, Splunk Enterprise collects, indexes, and harnesses machine data generated by Cisco UCS and infrastructure, including physical, virtual, and cloud resources. It allows correlation of this data with performance, event, and log data from hypervisors, operating systems, applications, storage resources, and other infrastructure components.
- Harness operation data for greater efficiency and reliability: Splunk Enterprise is a highly scalable engine for machine-generated Big Data that helps system administrators harness the massive amounts of operations data in multiple Cisco UCS domains to gain operational analytics for troubleshooting, proactive performance monitoring, cost and asset reporting, capacity planning, and change tracking.

Cisco Unified Computing System and Cisco UCS Manager

Cisco UCS is the first data center platform that integrates industry-standard x86-architecture Cisco® servers with networking and storage access into a single converged, computing, networking, and storage system. Cisco UCS Manager provides a single point of management for each Cisco UCS domain of up to 160 servers and associated infrastructure. Using a policy-based approach to server provisioning based on service profile templates, Cisco UCS Manager is used by administrators to quickly reproduce existing physical configurations, including I/O, firmware, and settings. A role-based access control (RBAC) model helps ensure the security of system configurations.

Cisco UCS Central Software

Cisco UCS Central Software extends Cisco UCS Manager features across multiple Cisco UCS domains. It allows companies to manage unified computing environments on a global scale, putting computing capacity close to users while managing infrastructure with policies defined centrally. With Cisco UCS Central Software, helping ensure global policy compliance is much easier, with subject-matter experts able to choose the resource pools and policies that must be enforced globally or locally. Cisco UCS service profiles can be moved between geographical locations with drag-and-drop simplicity to enable fast deployment of infrastructure as needed to support business workloads.

Splunk Enterprise for Cisco UCS

Cisco UCS environments are dense computing environments that often run hundreds of applications, different operating systems, and hypervisors. Data such as faults, events, power consumption, temperature, and performance can be analyzed to understand system behavior, user experience, application response times, and much more. The collection and cataloging of this massive amount of data together with data from applications, operating systems, hypervisors, and other devices in the environment is a Big Data challenge.

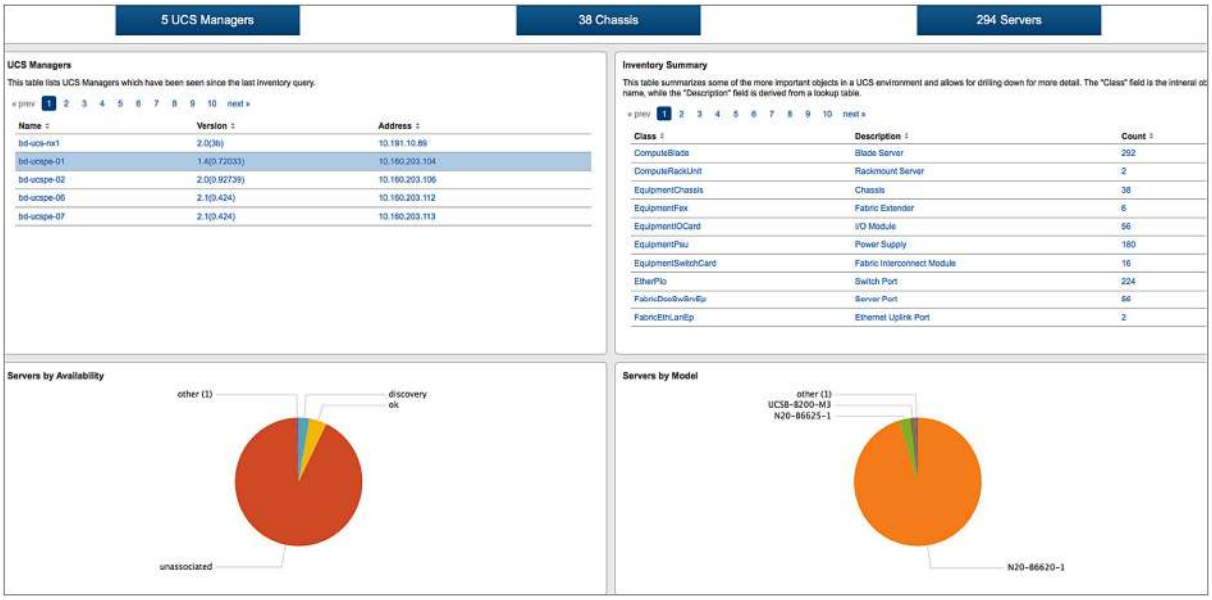
Splunk Enterprise is a scalable and highly versatile engine for indexing and harnessing the intelligence of machine-generated Big Data across a virtualized infrastructure. Splunk lets you:

- Centrally monitor, implement alerts for, create reports for, and analyze metrics, logs, and events in real time across the entire physical and virtual stack
- Correlate and connect events across every level and technology with Splunk's powerful search language
- Proactively detect performance problems and prevent them from affecting end users
- Determine root causes of outages and performance problems up to 70 percent faster
- Retain transient data from every element for trending, historical analysis, security, and compliance
- Flexibly address reporting and operations analytic requirements such as capacity planning, use analyses, and asset reporting in the continuously changing virtual environment
- Scale to handle Big Data problems faced by the largest data centers with Splunk's unique MapReduce-based, schema-less technology

The Splunk App for Cisco UCS works with Cisco UCS Manager and Cisco UCS Central Software to provide the power and flexibility of Splunk in an experience tailored for Cisco UCS technologies (Figure 1). Splunk for Cisco UCS:

- Provides real-time and historical visibility centrally across an entire Cisco UCS deployment
- Helps correlate Cisco UCS performance, fault, and events data with user, application, and hypervisor data to analyze, prevent, and fix problems
- Helps proactively monitor every Cisco UCS environment by providing analytics such as available capacity, trending of faults over time, and tracking of power and cooling costs

Figure 1. Displaying Server State, Availability, Model, and Available Capacity Across Cisco UCS Domains



The Splunk App for Cisco UCS uses the XML API to gather inventory, performance, and fault information. It also uses information sent over syslog, including configuration and state changes and authentication, authorization, and accounting (AAA) information. The Splunk App for Cisco UCS includes views such as:

- Central operations view across multiple Cisco UCS domains
- Trending of faults over time, by cause and by affected assets
- Trending of power consumption, cooling requirements, and networking throughput over time
- Authentication tracking

Correlation of Cisco UCS data with data from other technology layers yields critical insights that can help resolve user- or application-level problems and generate operations analytics such as information tracking the impact of changes across technology tiers. When problems arise at the user or application layer, the capability to correlate events from the underlying hardware through the virtualization stack all the way to the individual application or session can dramatically reduce problem resolution times. With the Splunk App for Cisco UCS, you can now visualize Cisco UCS data in Splunk alongside other operational data such as hypervisor, OS, and application data and use the Big Data analytics capability provided by Splunk to sift through massive volumes of data for faster troubleshooting, root-cause analysis, proactive monitoring, and operations intelligence.

For More Information

- Cisco Unified Computing System: http://www.cisco.com/go/ucs
- Cisco UCS Central Software: http://www.cisco.com/en/US/products/ps12502/index.html
- Splunk Enterprise: http://www.splunk.com

  Download Splunk for free. You get a Splunk Enterprise license for 60 days, and you can index up to 500 MB of data per day. After 60 days, or any time before then, you can convert to a perpetual Free license or purchase an Enterprise license by contacting sales@splunk.com.
- Splunk App for Cisco UCS Central Software: http://splunk-base.splunk.com/apps/54084/splunk-app-for-cisco-ucs

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