

## Cisco and Splunk

Innovation through the Power of Innovation

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# Eight Years of Integration and Innovation

A brief history of Cisco and Splunk together
With Robert Novak



#### Why Does Hardware Still Matter?

- Splunk will run on almost anything (even my laptop)
- Standalone servers have lower admin overhead
- ▶ Build up your clusters and you have to keep them consistent
- Grow your data sources (and uses) and you have to add servers
- Cluster constipation is bad, mmmkay?



#### Why Does Hardware Still Matter?

- Cisco customer big data pools tend to grow 2-3x/year
- Cisco customer IT staff doesn't grow as fast
- ► The Cisco Unified Computing System (UCS) provides scalable, repeatable, predictable, and manageable deployments across dozens to thousands of servers for any application deployment
- Pallet to production in hours, not days or weeks
- Deep engineering integration between Cisco and Splunk with tested and proven configurations

More on this later...



#### Big Data at a Big Customer: Cisco

- ▶ 10s of thousands of employees, contractors, devices
- ▶ 100s of offices, business apps, audiences
- Lots of data in lots of places
- ▶ No one tool (not even Splunk) can do everything for everyone all the time
- ► High volume, low value, low shelf life
  - Stealthwatch (formerly Lancope), Hadoop feed into Splunk
- Low to moderate volume, high value, (any) shelf life
  - Splunk on its own, sometimes with fronting dashboards
- Additional visualizations with Platfora, Tableau, etc.



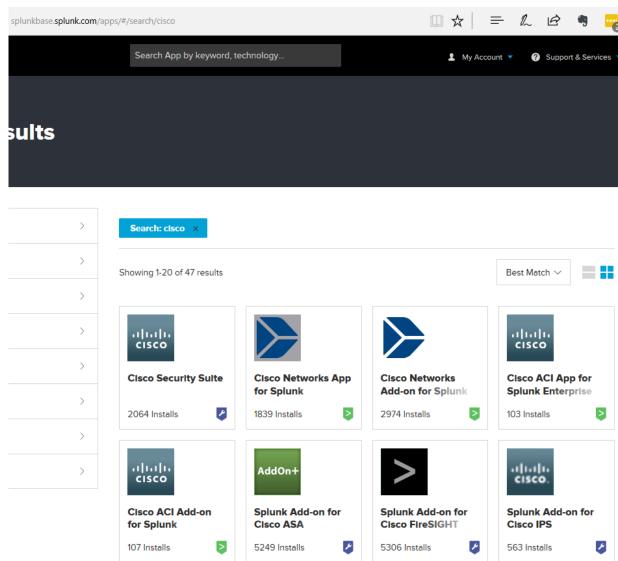
#### A closer look at Splunk within Cisco

- Customer for 8+ years, strategic partner for 4+ years
- Geographically disparate data collection and analysis
- Over 70 business applications/use cases across the company
  - Around 20 teams using Splunk including Cisco IT and CSIRT
- ► Nearly 10x growth in search volume from 2014-2016





#### Dozens Of Apps And Add-ons At Splunkbase



Always more being added and updated, by Cisco, Splunk, partners, third party developers, and end users!

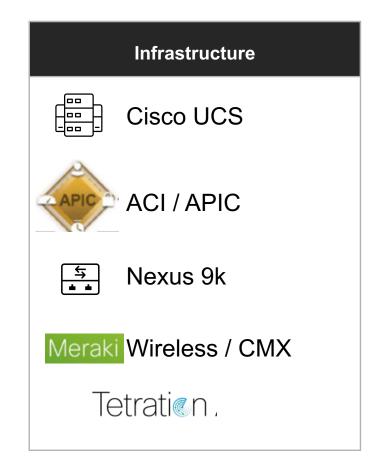


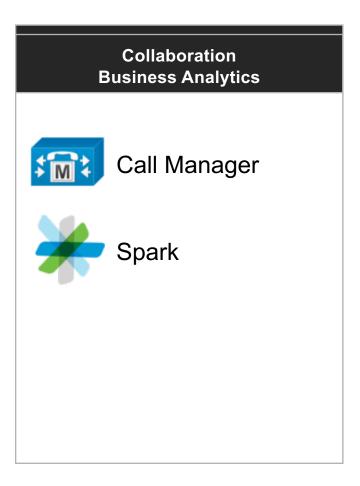
#### Splunk and Cisco API-based Integrations



Programmable Operational Analytics at Scale

Security		
	Identity Services (ISE/pxGrid)	
	FirePOWER Next Gen Firewall	
Umbrella	Umbrella (DNS)	
()	CloudLock	
	ThreatGrid*	





and many more here <a href="https://splunkbase.splunk.com/apps/#/search/Cisco/">https://splunkbase.splunk.com/apps/#/search/Cisco/</a>





## Cisco Security Integrations

Making sense of a broad security platform using Cisco and Splunk technologies

With Douglas Hurd



#### Splunk & Cisco Security – "Better Together"



### Security Breadth, Customer Reach, Infrastructure for Automation

- Largest security footprint in the industry
- Produces broad range of security telemetry across most security technologies
- Ubiquitous network footprint enables bidirectional integration for executing security automation
- High investment in Splunk apps for serving joint customers

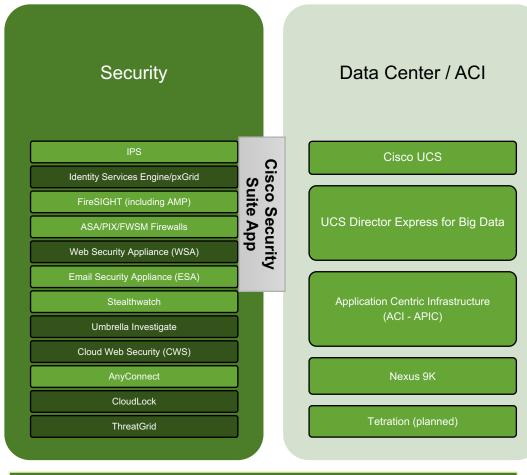


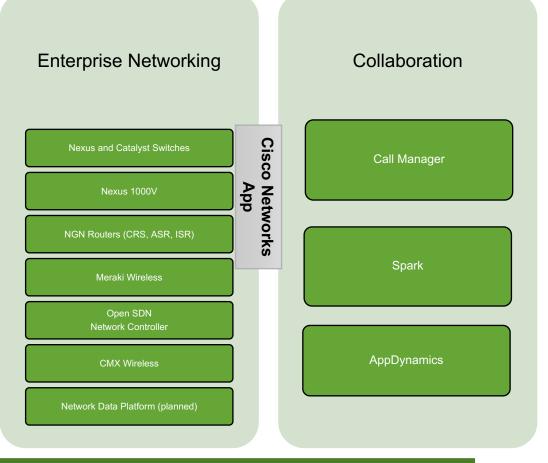
### **Analytics Efficacy, Ability to Automate, Committed Customers**

- Voluminous, context-rich Cisco data sources drive license volumes while enabling improved security & compliance, more effective SIEM use cases and new use cases beyond security
- Automated actions in Cisco network environs
- Proven, supported integrations accelerate time to value

#### **Cisco Splunk Integrations**









✓ Inaugural SIEM & Threat Defense Partner

0:37:123] "GET /product.screen?category\_id=GIFTS&JSESSIONID=SDISL4FF10ADFF10 HTTP 1.1" 20 1318
322) " 56:156] "GET /product.screen?product\_id=FL-DSH-01&JSESSIONID=SDSSL7FF6ADFF9 HTTP 1.1" 200 1318
-02" " 468 125.17 Jdlink?item id=EST-26&JSESSIONID=SDSSL9FF1ADFF3 HTTP 1.1" 200 1318

- ✓ Inaugural pxGrid partner
- ✓ Inaugural member of Cisco Security Tech Alliances program
- ✓ Inaugural ACI Partner
- √ Inaugural Data Analytics Partner

- ✓ **CVD**: Cisco UCS Integrated Infrastructure for Splunk Enterprise (Distributed Deployment, High Capacity) (link)
- ✓ CVD: Cisco Application Centric Infrastructure with Splunk (link)
- ✓ Splunk on UCS Reference Architecture (link)
- ✓ Cisco Cloud Security for VMDC 1.0 Design Guide (link)









## Cisco Firepower & Splunk

Douglas Hurd / Cisco Security Technical Alliances



#### **Threat Defense Security**



**Next Generation Firewall** 

FirePOWER Services FirePOWER Appliances

**Unified Threat Management** 

Meraki Appliances Wired & Wi-Fi Meraki Cloud Management

**Secure Access & Identity** 

Identity Services Engine (ISE) TrustSec, AnyConnect VPN

"SET /Oldlings of the second o

**Next Generation IPS** 

FirePOWER Services
FirePOWER Appliances

**Email Security** 

**Email Security Appliance Cloud Email Security** 

**Web Security** 

OpenDNS Umbrella Cloud Web Security, Web Security Appliance CloudLock **Advanced Malware Protection** 

AMP for Endpoints AMP for Networks

**Sandboxing & Threat Analysis** 

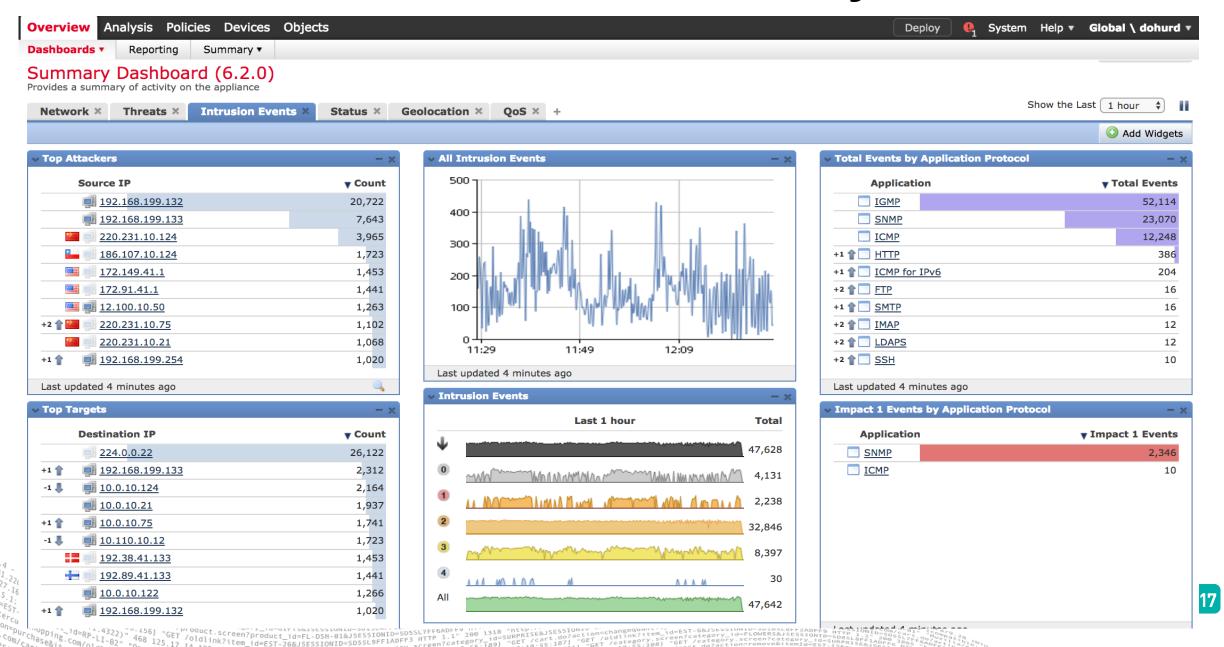
AMP ThreatGRID Cloud & Appliance OpenDNS Investigate

**Network Anomaly Detection** 

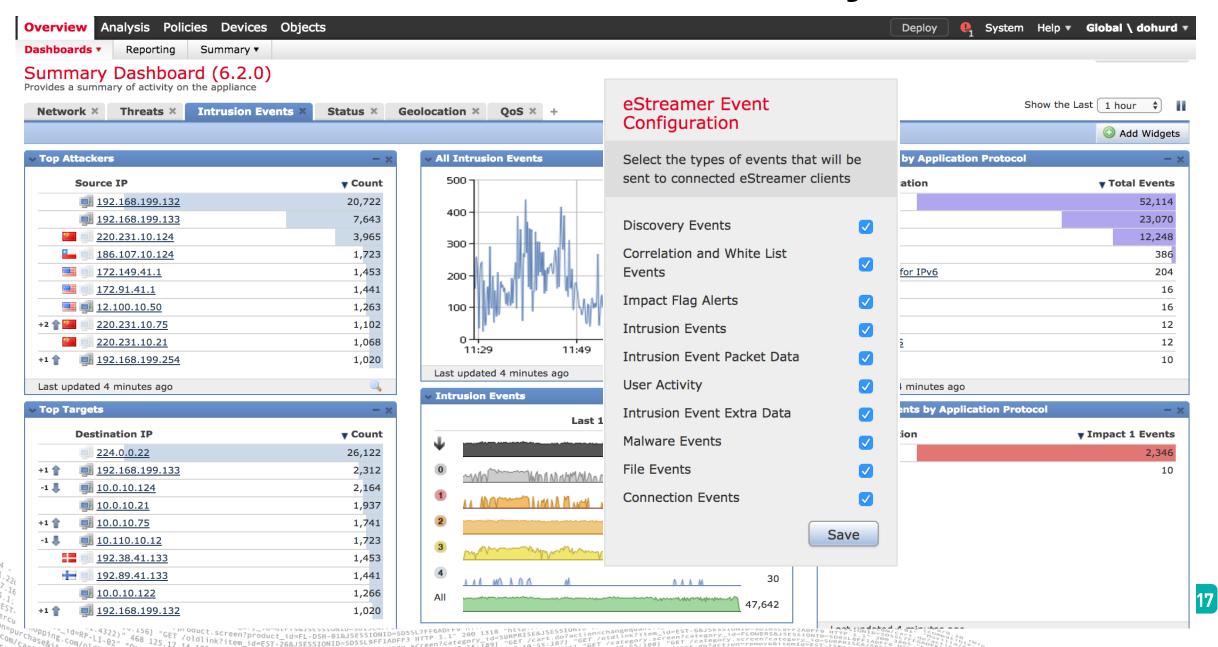
StealthWatch Cognitive Threat Analytics



#### **Threat Defense Security**

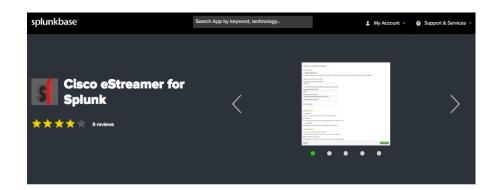


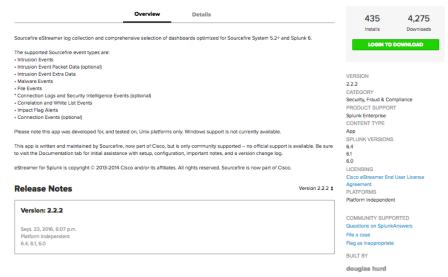
#### **Threat Defense Security**



#### Background on Firepower and Splunk

- Firepower-Splunk mutual customer base expanding
  - ASA to Firepower Threat Defense More FMCs
- Add-Ons for Firepower available on Splunkbase
- Cisco's Firepower TA & App built in 2014, based on v.5.4
  - Over 6000 downloads
  - Not recommended with FMC V6.x
- 'Community Supported' model facing challenges
- Focused on new business model for this critical integration
- ► Resources directed at Firepower 6.x customers

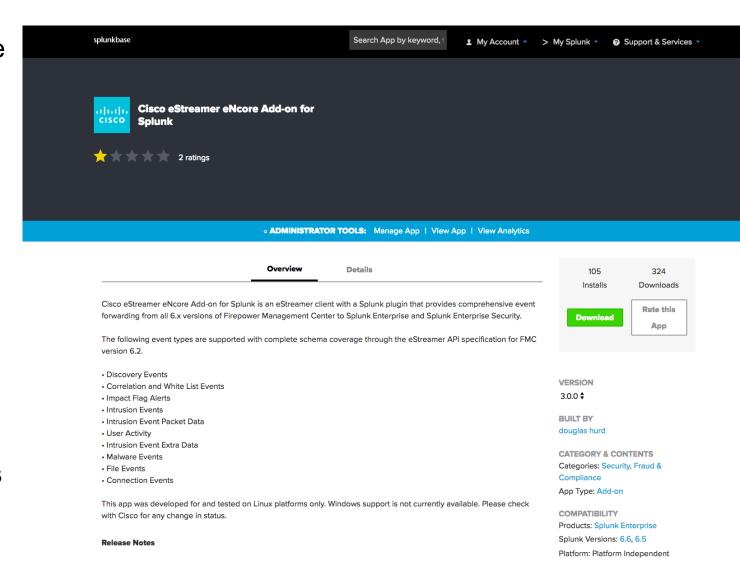




Subscribe

#### Background on Firepower and Splunk

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- Resources directed at Firepower 6.x customers



#### Data Consumption – Eat In or Delivery?

**Expectations and User Roles are Changing** 















#### **Data Parity**

Some customers want all data to be replicated on their SIEM











/product.screen?product\_id=FL-DSH-01&JSESSIONID=SDSL7FF6ADFF9

T /oldlintsreen?product\_id=FL-DSH-01&JSESSIONID=SDSL7FF6ADFF9





#### New Cisco eStreamer 'eNcore' for Splunk

- Scalable app with major improvements
- ▶ TAC Support option will be offered
  - Free for customers that do not want TAC support
  - Chargeable for customers that want TAC support
- Official GA Release: End of June
- Beta II underway during May thru June 2017
- ▶ PID: FP-SPLUNK-SW-K9
- Description: "Cisco eStreamer eNcore for Splunk
  - Software downloads: software.cisco.com

	Free Version	Pay Version
App Cost	Free	\$\$\$
Community Support	Yes	Yes
TAC Support	No	Yes
App Updates	Yes	Yes

#### Improvements and Enhancements

Feature	Benefit
Built from scratch in Python	<ul> <li>No Perl dependencies</li> <li>Python very popular</li> <li>Completely up to date with entire 6.2 API schema</li> </ul>
Multi-process	Highly scalable
Multi-FMC Support	<ul><li>Connect multiple FMCs to one instance</li><li>Reduce complexity</li></ul>
Fully Qualified Event Output	Encoded event info is written out in text
Event de-duplication (Future)	<ul> <li>Avoid paying Splunk for redundant event data</li> <li>Gives Firepower HA configurations more flexibility</li> </ul>
TAC Supported option available	End to End support for Firepower Splunk customers
Forward Compatible	Ongoing maintenance to support new eStreamer API versions



## PXGrid?



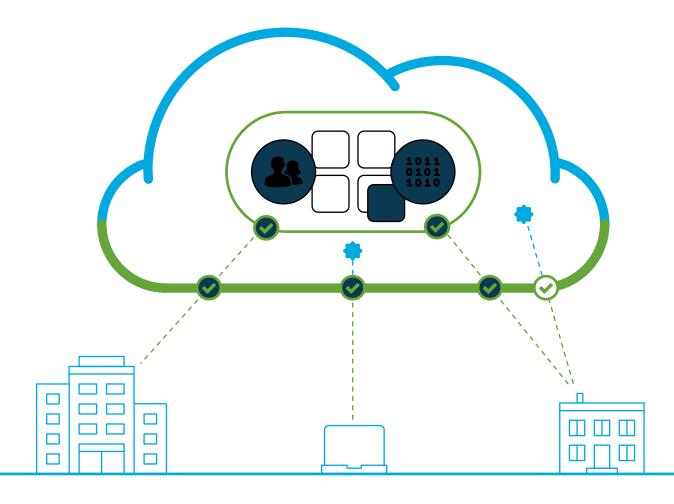


#### **Cisco Cloud Security**

**Umbrella** 

Cloudlock

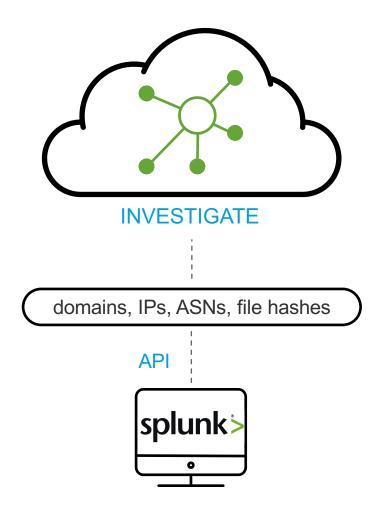
Investigate







#### Splunk Add-on for Cisco Umbrella Investigate

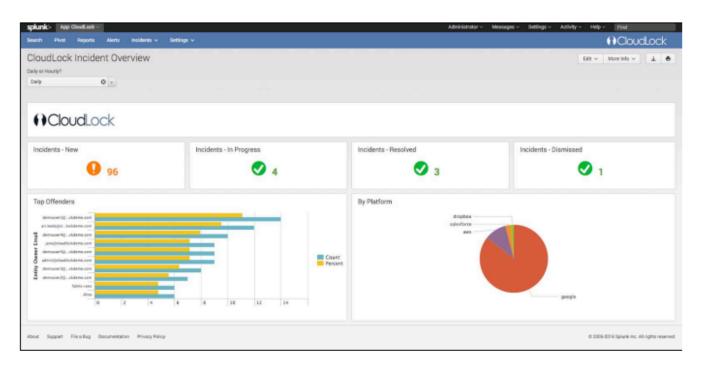


Automatically enrich security alerts inside Splunk, allowing analysts to discover the connections between the domains, IPs, and file hashes in an attacker's infrastructure.



#### Splunk App for Cisco Cloudlock

- Manage Cloud Security incidents within Splunk
- Seamless extend Security
   Operations to cloud environments
   while maintaining existing
   workflows
- Leverage Splunk's rich data visualization, alerting and reporting functionality
- Two leaders Partnership Strength



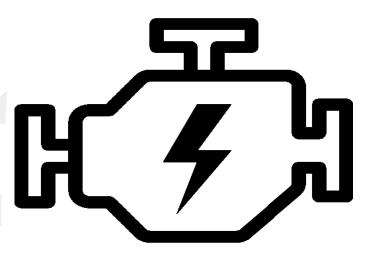


#### ShadowlT for Cisco FP and Splunk Customers

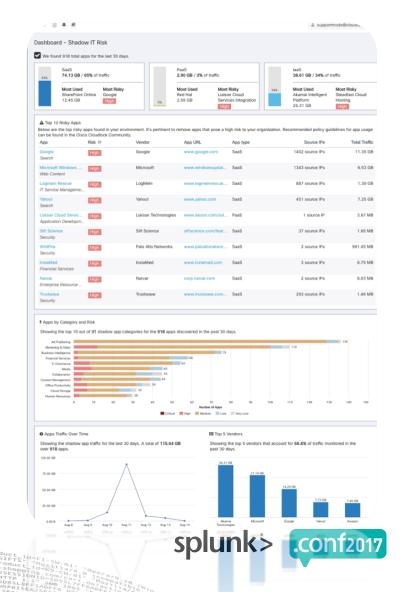








DESIGNED TO SUPPORT
ANY DATA SOURCE





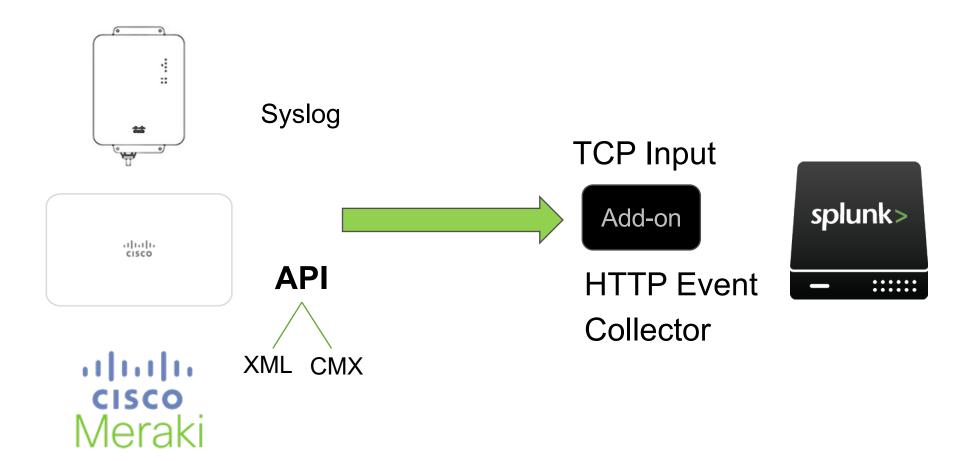
# Correlating Network And Infrastructure Data Around The World

Using open APIs monitor and manage connectivity and security for the largest Latin American country

Colin Lowenberg



#### **Collecting Meraki Data Into Splunk**

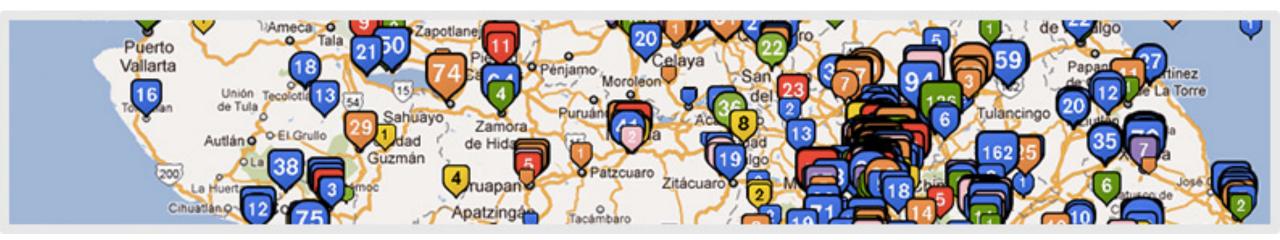


#### Cisco Meraki + Splunk

México Conectado connects all Mexican government buildings using Meraki



- Managed WiFi in all Mexican Gov't buildings: libraries, health centers, community buildings, etc.
- ▶ Indoor and outdoor APs for gov't and public use
- ▶ 22K+ sites across Mexico







## Smart Cities & Government Analytics

The Mexico Conectado Project

Country Digitization
Analytics Platform
CDAP
(powered by Splunk)

#### esumen del Mes

esenta Indicadores de Usabilidad tales cómo: Cuántos Usuarios (dispositivos) utilizan México Conectado, Cuánto Ancho de Banda consumen, Qué tipo de licaciones utilizan, Qué páginas visitan. Se presenta el resumen del Mes en curso. Universo de Sitios: 40,100

Cuántos Usuarios se Conectan en Total:

### 3,841,279 Usuarios Únicos

El número representa la suma de los dispositivos únicos en el periodo de tiempo especificado. Se realiza el supuesto de que un dispositivo es igual a un usuario.

#### Cuánto Ancho de Banda se Consumió de Internet:

#### 172.8 TeraBytes

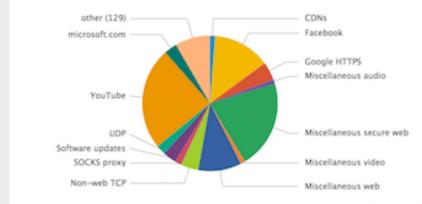
Suma del Tráfico Recibido en el periodo de tiempo

#### Cuánto Ancho de Banda se Generó hacia Internet:

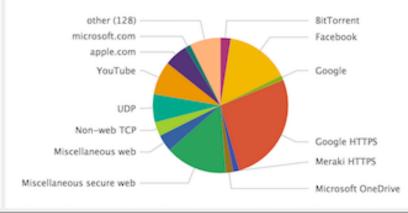
#### 20.2 TeraBytes

Suma del Tráfico Enviado en el periodo de tiempo

#### Cuánto Tráfico se Recibe por Tipo de Aplicación:



#### Cuánto Tráfico se Envía por Tipo de Aplicación:





# Your Splunk Environment: Better on Cisco UCS

Automate deployment, correlate with your entire datacenter, and optimize for management and scalability

With Karthik Karupasamy







#### Splunk Add-On for Cisco UCS

- Splunk-built rewrite of original UCS add-on
- Aggregates, monitors, trends and analyzes all relevant data from Cisco UCS Manager instances
- Enables proactive capacity and performance monitoring/ management, fault trending, power and cooling, and more
- Works with other Splunk add-ons and data sources (including Enterprise Security and PCI Compliance add-ons) to aggregate and correlate data across your enterprise













#### **Accelerated Troubleshooting with Splunk & UCS**



See demo on Youtube at bit.ly/splunk-ucs-mtti



# Cisco Unified Computing System

A differentiated, revolutionary approach



- Networking with fewer components
- Lower cost and easier scaling
- Fewer management touch points
- Stateless: any resource, any time
- Better TCO/ROI



**Unified Management** 

- Faster deploy/ provision
- Unification leads to reduced complexity
- Management via a single interface



Higher Performance

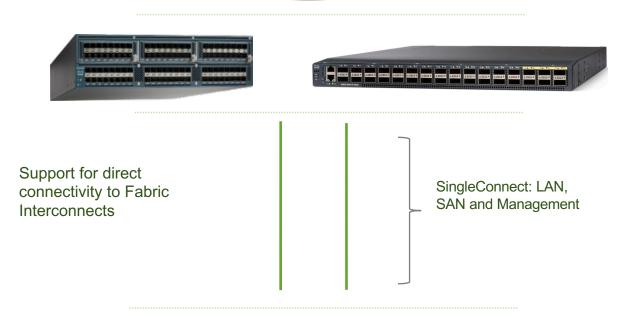
- Brings out the best of x86 architecture
- Optimized resource utilization for compute, networking, and management



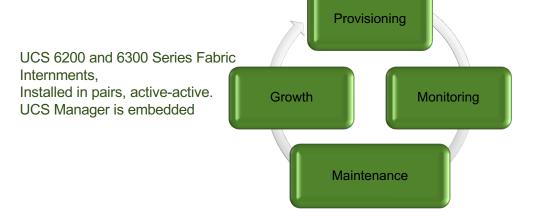
Scale

- Ultimate Scalability Enhanced design capability
- Designed for the future, today

# Cisco UCS Integrated Infrastructure for Big Data Topology







Pre-tested and pre-validated configuration

Fabric-based infrastructure integrates computing, networking, and storage resources

Designed for high performance and availability







# **UCS Director Express for Big Data**

Deploy your Splunk Enterprise Cluster in hours – not in days or weeks

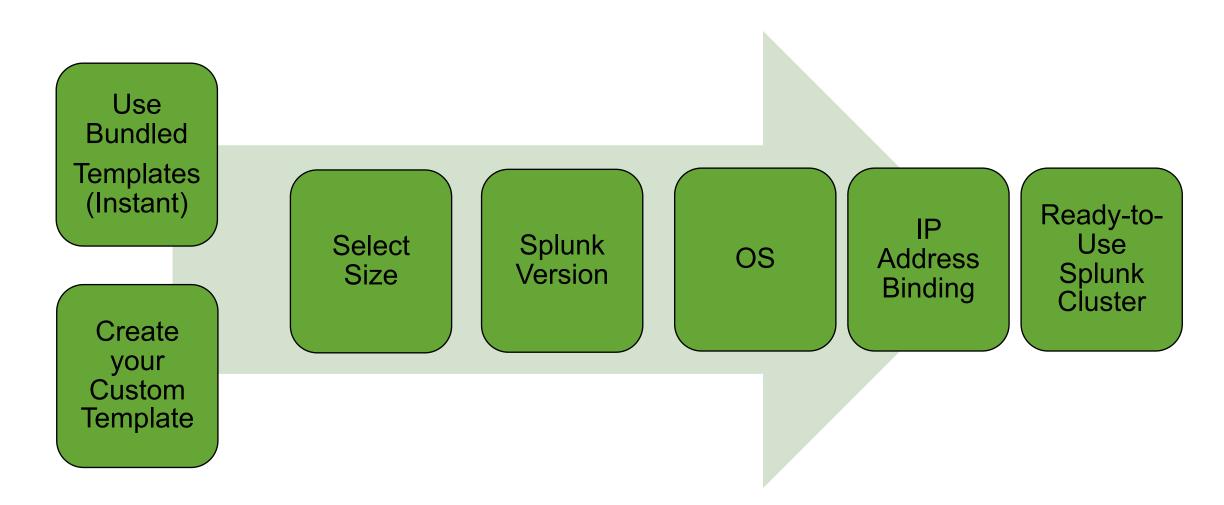
### Features:

- Complete automation of industry-leading validated solution for Splunk Enterprise
- Indexer clustering customizable Replication and Search Factors
- Search Head clustering
- Shared License Master, Deployer for SHC
- Ability to grow the Search head, Indexer clusters.
- Monitoring console

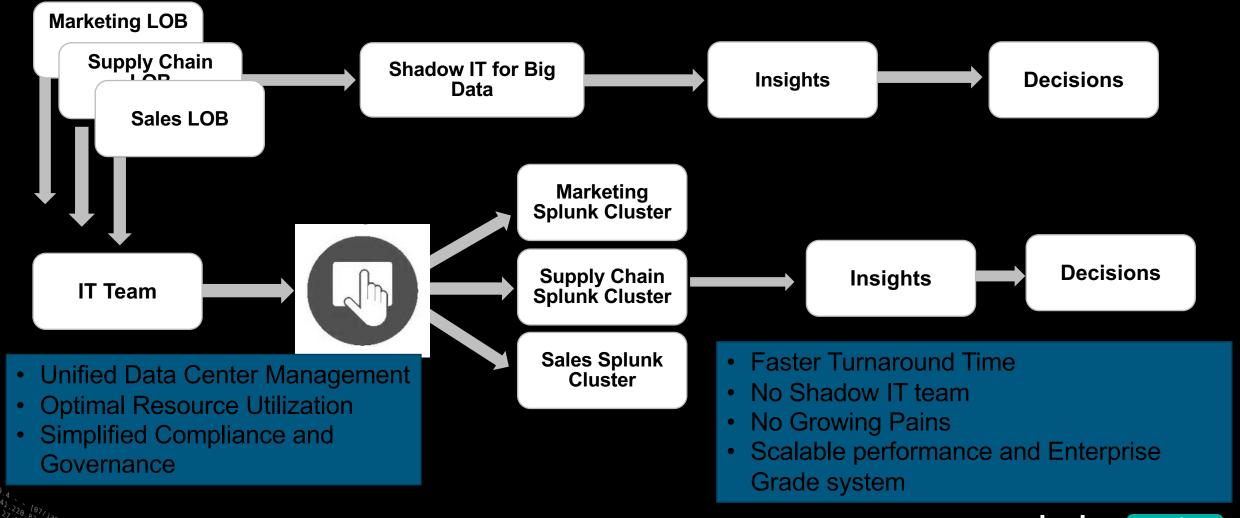


# **UCSD Express For Big Data – Two Ways to Create**

Unified Management Platform for Highly Available Distributed Splunk Clusters



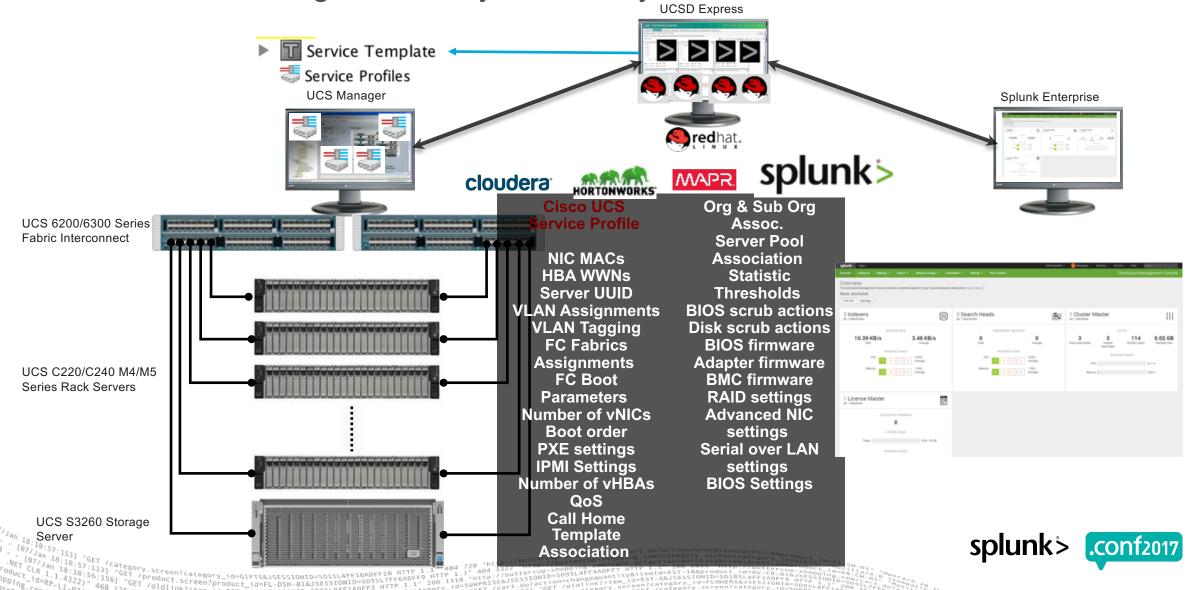
## Instant Splunk Cluster Under One Management





### Unified Management with UCS Director Express for Big Data

Programmability, Scalability and Automation



# Programmable Infrastructure

### **Policy based Management**

Abstraction of all configuration and identity information into a service profile speeds deployment, reduces errors, lowers costs



### **UCS Management Software provides:**



### UCS Manager

- Industry leading tool to provision, manage and monitor all software and hardware components
- Policy and model-based management, with service profiles, that improves agility and reduces risk
- Utilizes auto-discovery to detect, inventory, manage, and provision system components
- Offers a comprehensive open XML API, which facilitates integration with third-party management tools

### UCS Central

- Manages multiple, globally distributed Cisco UCS domains with thousands of servers from a single pane
- · Provides global configuration capabilities for pools, policies, and firmware

### UCS Director

- Delivers a unified converged infrastructure management solution
- Provides programmable application containers across computing, networking, and storage resources and extend automation benefits to the entire infrastructure stack

### UCS Director Express for Big Data

- Delivers scalable and reliable Hadoop deployment on UCS Big Data clusters
- Offers centralized visibility across Hadoop and physical infrastructure
- Provides greater IT agility resulting in increased IT impact on business



# UCS Director Express for Big Data

End-to-end provisioning, deployment and management

Subject Matter Expert Define Policies



Hadoop

SME







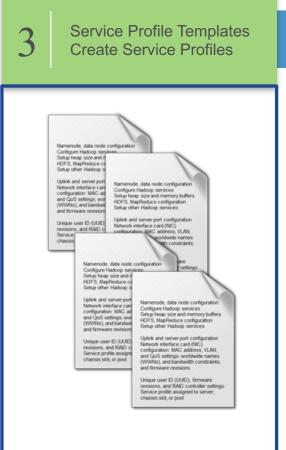
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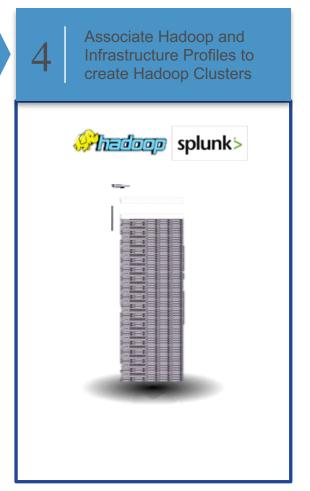
Create Infrastructure Profile

**Create Hadoop Profile** 

**Create Hadoop Application Profile** 









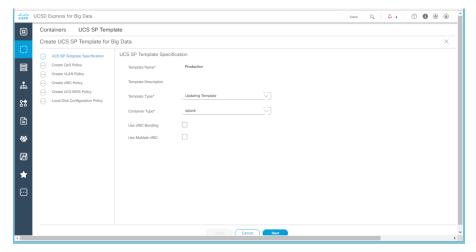


# Creating and Managing Splunk clusters

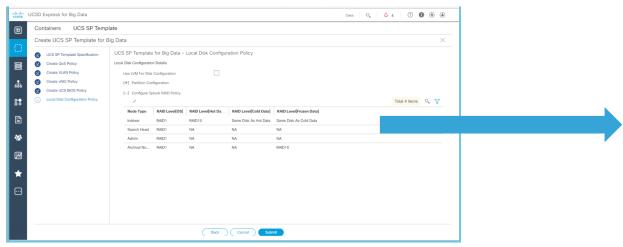


# **Splunk Cluster customizations**

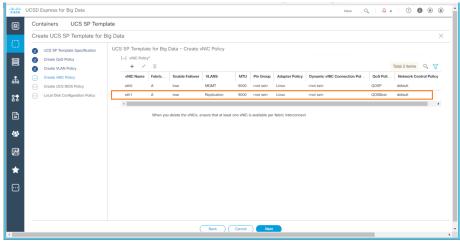
### **Select physical infrastructure options**



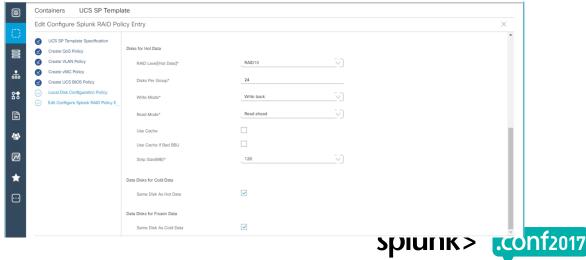
### Select custom RAID policy for each Role



### Optionally add another NIC for Replication Traffic

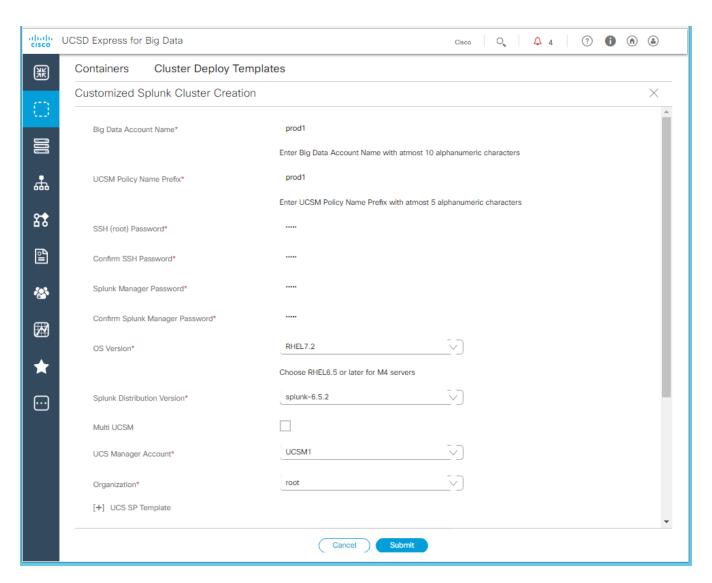


### **Customize Storage Tiers**



## Creating a Splunk cluster

- Cluster Name
- ►OS (RHEL)
- ► Splunk version
- ► UCS Manager
- Organization





Creating a Splunk Cluster

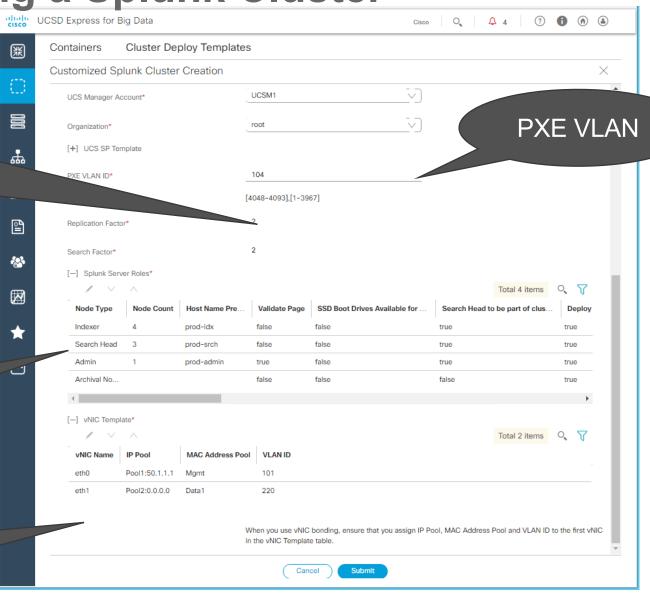
- Server-pools (per role)
- Map vNIC to IP-Pools.
  - Mgmt, (and ingest)
  - Data1 for Replication (optional),

Replication Factor, Search Factor

Click Submit

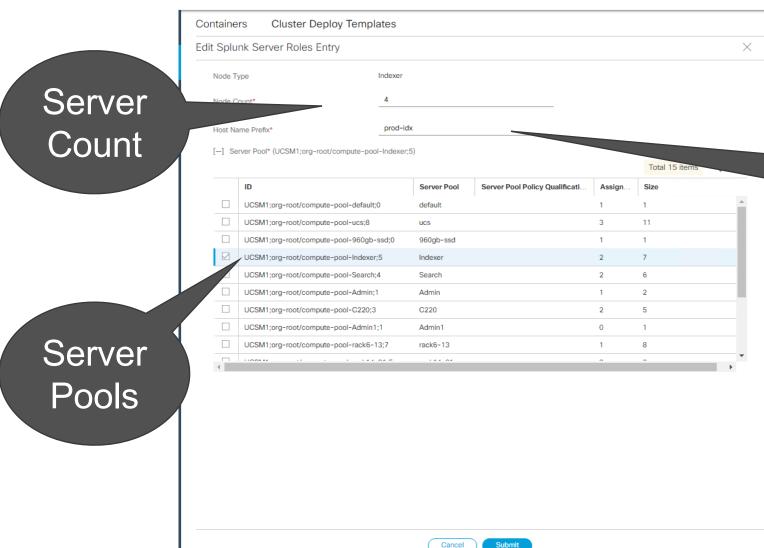
Server Pools

Networking





# Creating a Splunk Cluster -- Server Pool Selection



Hostname Prefix

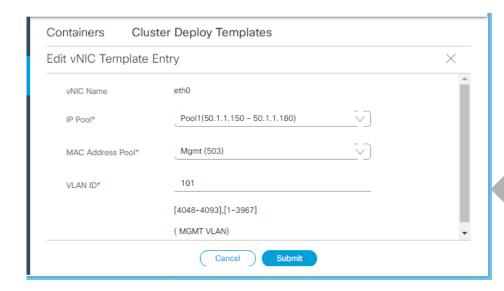


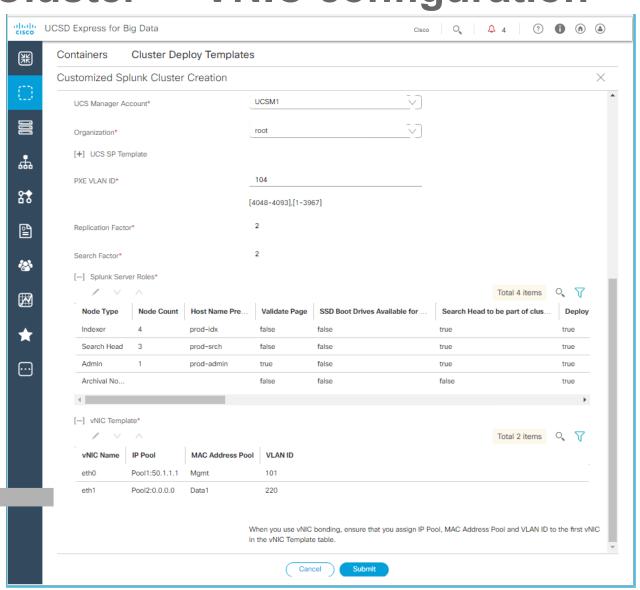
# Creating a Splunk Cluster -- VNIC configuration

► Map vNIC to IP-Pools.

**NOTE**: eth0  $\rightarrow$  MGMT pool binding shown.

Click Submit





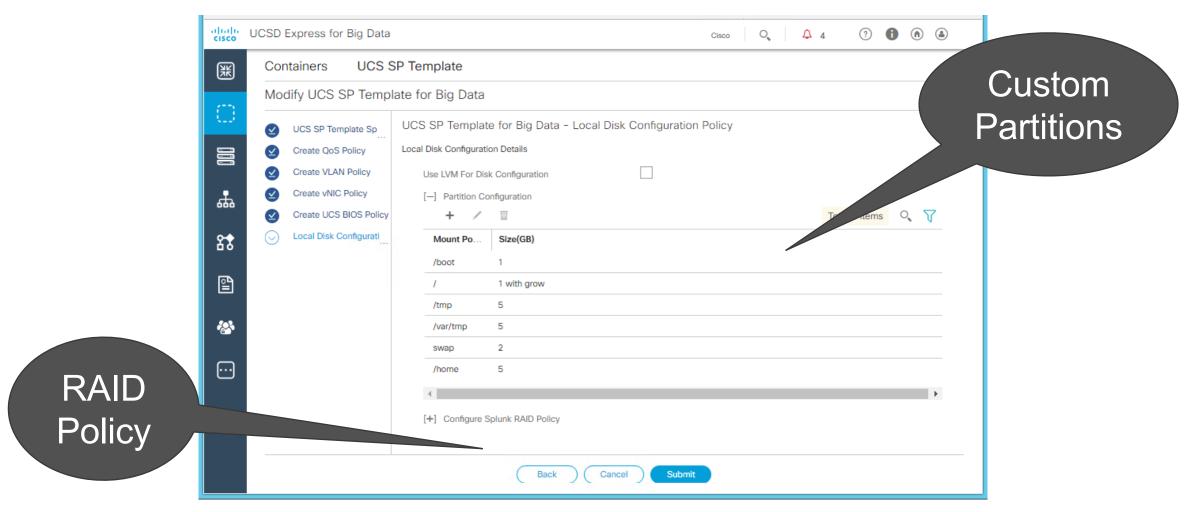


# Flexible RAID config via UCS HW Profiles

- ► Splunk Cluster is powered by Underlying UCS HW Template
- ► Splunk's UCS HW Template comes with Flexible RAID Policy
- ► RAID Policies Supported:
  - RAID1, RAID0
  - RAID5, RAID6
  - RAID10 (default)
  - Future (RAID50, RAID60)
- ► Separate RAID policies for HOT/WARM, COLD and Frozen

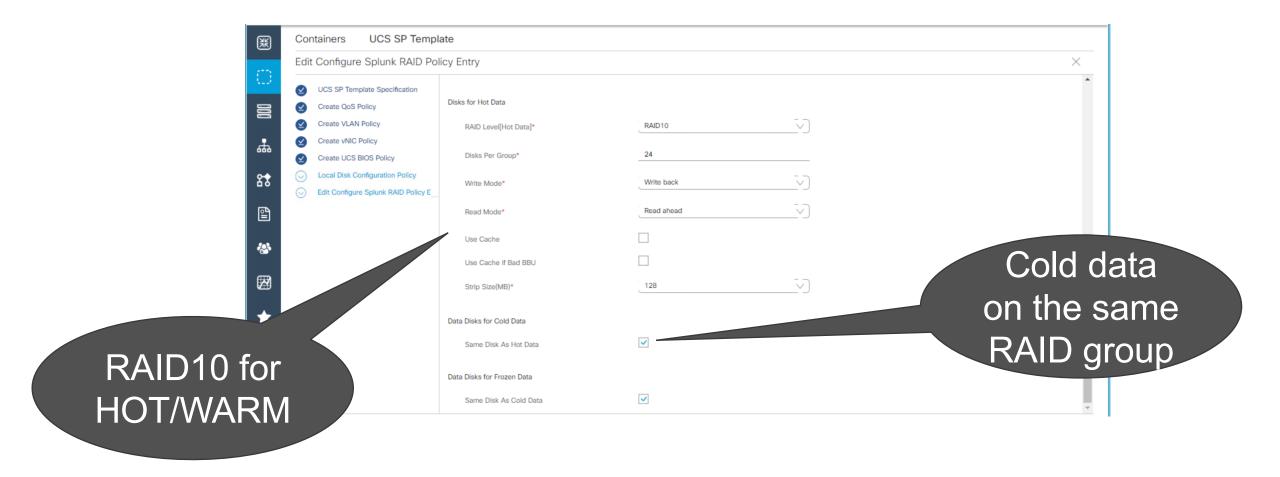


# Splunk UCS HW Template – RAID Policy





# Splunk UCS HW Template – Inside the RAID Policy





# Splunk UCS HW Template – Inside the RAID Policy

UCSD Express for Big Data Q A 4 ? **(1)** (A) (A) Containers UCS SP Template Edit Configure Splunk RAID Policy Entry UCS SP Template Sp RAID10 RAID Level[Hot Data]\* Disks Per Group\* Create VLAN Policy Write Mode\* Local Disk Configurati Read Mode\* Read ahead Edit Configure Splunk Use Cache Use Cache if Bad BBU  $\overline{\vee}$ Strip Size(MB)\* Data Disks for Cold Data Same Disk As Hot Data RAID5 RAID Level[Cold Data]\* Disks Per Group\* Write back Write Mode Read ahead Read Mode\* Use Cache Use Cache if Bad BBU Strip Size(MB)\* Data Disks for Frozen Data **~** Same Disk As Cold Data Submit

RAID10 for

HOT/WARM

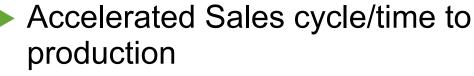
RAID5 for COLD

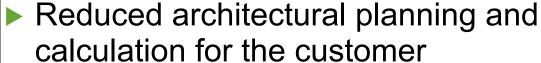


# Typical Big Data Deployment Challenges

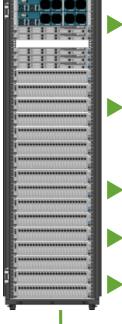
- Paralysis by HW analysis
- Inconsistent configurations
- Repeatable results
- Justifiable costs/TCO/footprint
- Scalability and sustainability

### **Cisco UCS Delivers**





- Consistent, repeatable results
- Comprehensive automated deployment
- Facilitates Splunk expansion at a reduced footprint





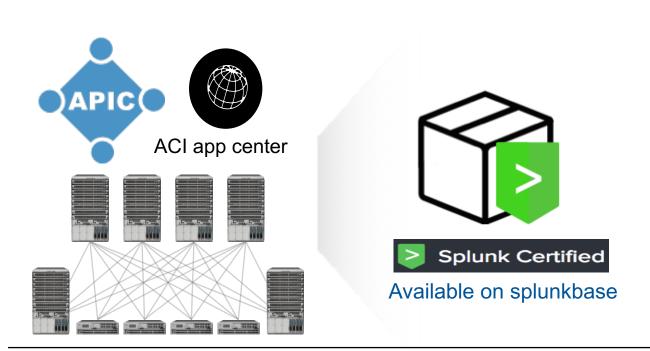


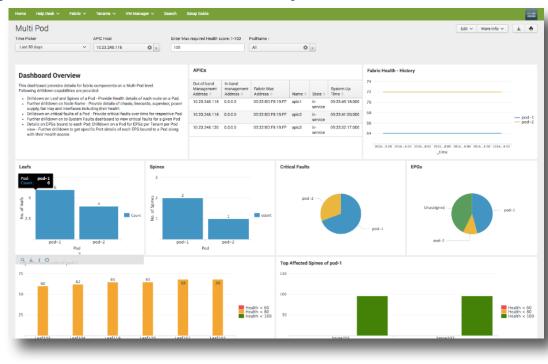
# **ACI and Tetration**



# Aci-splunk: What Is New?

Cisco ACI App & Add-on for Splunk Enterprise version 4.0 – Splunk Certified





Supported on APIC 1.3 and higher

Compatible with Splunk 6.4 & above

Multiple APIC monitoring

Multi-Pod visibility

/product.screen?product\_id=FL-DSH-01&JSESSIONID=SD35L7FF6ADFF9 HTTP T /Oldisscreen?product\_id=FL-DSH-01&JSESSIONID=SD35L7FF6ADFF9 L1" 200 1

Micro-Segmentation support

Enhanced user interface with drill down capabilities

ACI App Center integration



# **Tetration Analytics App for Splunk**

Cisco Tetration App & Add-on for Splunk Enterprise version 1.0



Use Tetration APIs to receive ADM, Endpoints, Inventory data





Tetration App for Splunk V1.0

Send Configuration data, health & performance metrics, syslog and fault information

Enforce policies using Tetration sensors

Cisco Tetration
Analytics

Real-time Application Monitoring

Accelerated RCA & deeper visibility

Policy Enforcement





# Why You Never See Tacos Mounted On Drones In The Real World

Wrapping up the Cisco and Splunk innovation story

With Robert Novak





Don't forget to rate this session in the .conf2017 mobile app



# **Supplemental Information**



Cisco Technology	Description	SplunkBase URL
Cisco Security Suite	The Cisco Security Suite provides a single pane of glass interface into Cisco security data.	https://splunkbase.splunk.com/app/525/
Cisco Firepower™ Management Center	Splunk Add-on for Cisco FirePower Management Center leverages data collected via Cisco eStreamer to allow a Splunk Admin to analyze and correlate reports from Cisco through the Splunk Common Information Model.	https://splunkbase.splunk.com/app/1808
Cisco eNcore for Splunk	Comprehensive eStreamer 'Client' or Splunk 'TA' that collects all ten event types in their entirety from Firepower Management Center 6.x	https://splunkbase.splunk.com/app/3662/
Cisco Umbrella	Automatically enrich security alerts inside Splunk, allowing analysts to discover the connections between the domains, IPs, and file hashes in an attacker's infrastructure	https://splunkbase.splunk.com/app/3324/
Cisco ISE	Splunk App for Cisco ISE. Collects data from ISE via Syslog and provides Adaptive Network Control (ANC) Mitigation Actions via pxGrid.	https://splunkbase.splunk.com/app/1589/ https://splunkbase.splunk.com/app/1915/
Cisco CloudLock	The CloudLock Cloud Access Security Broker harnesses crowd-sourced, actionable cybersecurity intelligence to enable enterprises to securely leverage the cloud.	https://splunkbase.splunk.com/app/3043/ https://www.cloudlock.com/blog/tag/cloudlock- for-splunk/
Cisco eStreamer	eStreamer log collection and comprehensive selection of dashboards optimized for Sourcefire System 5.2+ and Splunk 6.	https://splunkbase.splunk.com/app/1629/
Cisco IPS	The Splunk Add-on for Cisco IPS allows a Splunk software administrator to consume, analyze, and report on Cisco IPS data that conforms to the Security Device Event Exchange (SDEE) standard.	https://splunkbase.splunk.com/app/1903
Cisco CWS	The Cisco Cloud Web Security (CWS) Add-on for Splunk allows a Splunk administrator to analyze and correlate Cisco Cloud Web Security (CWS) log data through the Common Information Model in Splunk Enterprise	https://splunkbase.splunk.com/app/2791
Cisco ESA	The Splunk Add-on for Cisco ESA allows a the Splunk software administrator to leverage Textmail, HTTP, and Authentication logs of Cisco ESA.	https://splunkbase.splunk.com/app/1761
Cisco AnyConnect	The Cisco AnyConnect Network Visibility (NVM) App for Splunk allows IT administrators to analyze and correlate user and endpoint behavior in Splunk Enterprise.	https://splunkbase.splunk.com/app/2992/
Cisco ASA	The Splunk Add-on for Cisco ASA allows a Splunk software administrator to map Cisco ASA devices, Cisco PIX, and Cisco FWSM events to the Splunk CIM.	https://splunkbase.splunk.com/app/1620