

# What's New in Splunk Enterprise and Cloud

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Sept 26, 2017 | Washington, DC





### **Action Packed Session!**



Live Demos



Audience Challenges



Learn More "Pop Outs"



# **Forward-Looking Statements**

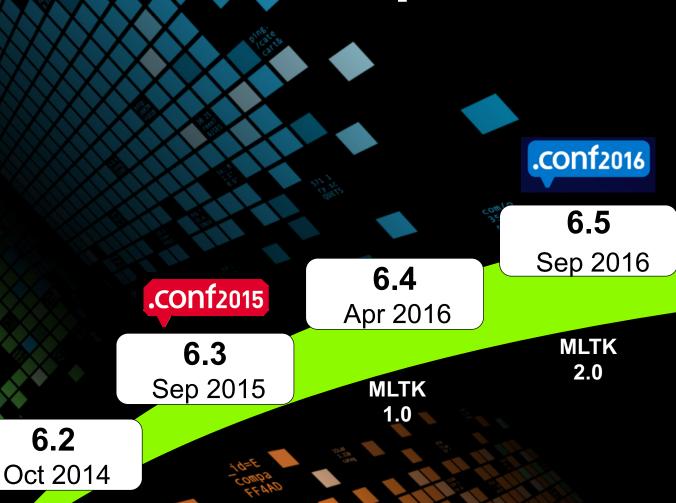
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# Splunk Enterprise Releases









Monitoring & Investigation

Increased productivity for a wider range of users



Performance, Scale & Manageability

Faster, more scalable and easier to manage than ever before



Machine Learning & Intelligence

More powerful and extensible machine learning capabilities

Solve problems faster

Grow more easily

Do less work





Monitoring & Investigation

Increased productivity for a wider range of users



Performance, Scale & Manageability

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Machine Learning & Intelligence

More powerful and extensible machine learning capabilities



# Metrics

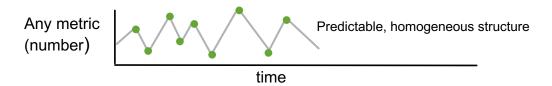


## **Metrics and Events**

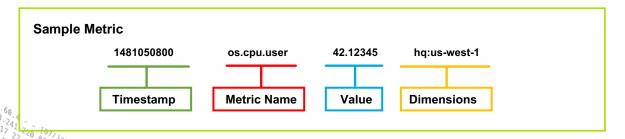
#### New, high-speed metrics engine that integrates seamlessly with events!

#### **Metrics**

- ▶ Set of numbers describing a particular process or activity measured over an interval of time i.e., *time series data*
- Virtually unlimited number of use cases



- Common metrics sources:
  - System metrics (CPU, memory, disk), Sensor data (temperature, ...)
  - Infrastructure metrics (AWS CloudWatch), Web Tracking (Google Analytics)
  - Application agents (Application Performance Monitoring, error tracking)



#### **Events**

- Traditional Splunk typically text, binary, un/structured data that describe a set of discrete events that happen over time
- Virtually unlimited number of use cases

Traditional
Splunk

\*\*The control of the control of

- Common event sources:
  - System and server logs (syslog, journald), APIs (Twitter, Wunderground)
  - Firewall data (Palo Alto Networks, etc)
  - Application, platform and other logs (log4j, log4net, Apache, MySQL, AWS)







## **New Metrics Features in the Platform**

Ingest and Query metrics natively with new, high speed metrics engine





New metrics engine and index to ingest and store metrics *natively* at scale



mstats

Query metrics data from metrics indexes (similar to tstats)



**Metrics Catalog** 

REST APIs and mcatalog to query lists of ingested metrics and dimensions



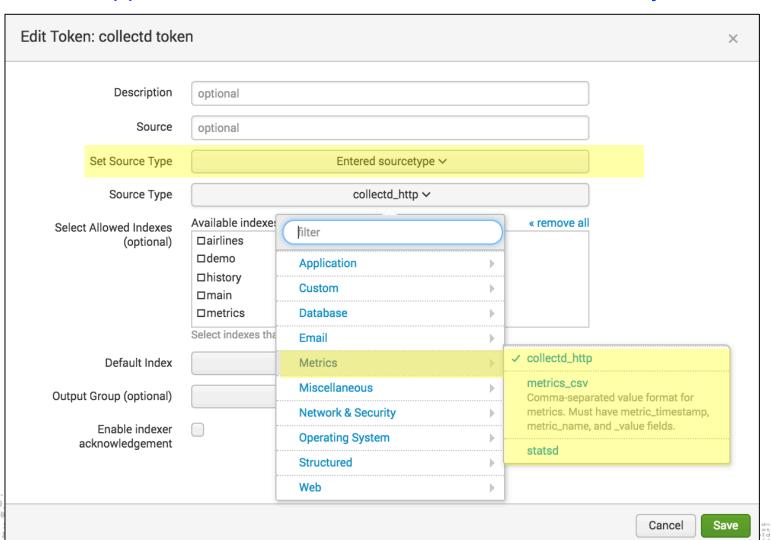
# **Splunk Metrics – Index Creation**

#### **New Metrics Index Data Type**

ew Inde	ex						×	
neral Set	ttings							
	Index Name							
		Set index name (e.g.	. INDEX_NAME). Search using index:	INDEX NAME			J	
	Index Data Type	☐ Events			☐ Metrics			
		The type of data to s	store (event-based or metrics).					
	Home Path optional							
		Hot/warm db path. I	_eave blank for default (\$SPLUNK_DE	B/INDEX_NAME/db).				
metrics	Edit Delete Disable	Max Size of Entire Index	500	GB ✓	'db	N/A	✓ Enabled	
metrics2	Edit Delete Disable [		Maximum target size of entire index.		2/db	N/A	✓ Enabled	
power_of_spl	Edit Delete Disable	Max Size of Hot/Warm/Cold	auto	GB ✓	of_spl/db	N/A	✓ Enabled	
splunklogger	Edit Delete Enable	Bucket	Maximum target size of buckets. Enter 'auto_high_volume' f	or high-volume indexes.	ogger/db	N/A	♠ Disabled	
summary	Edit Delete Disable	Frozen Path	optional		ydb/db	N/A	✓ Enabled	
About Support File a Bug Documentation			Frozen bucket archive path. Set this if you want Splunk to automatically archive frozen buckets.			© 2005-2017 Splunk Inc. All rights reserved.		
		Арр	App Search & Reporting ✓					
		Storage Optimization						
		Tsidx Retention Policy	Enable Reduction	Disable Reduction				
					Save			
				Cancel				

# **Splunk Metrics – Data Ingestion**

#### Supports StatsD, CollectD, and CSV files natively



# Supports other Metrics Clients via manual configuration

```
# props.conf.example

[graphite_plaintext]
TIME_PREFIX = \s(\d{0,10})$
TIME_FORMAT = %s
NO_BINARY_CHECK = true
SHOULD_LINEMERGE = false
pulldown_type = 1
TRANSFORMS-graphite-host = graphite_host
TRANSFORMS-graphite-metricname = graphite_metric_name
TRANSFORMS-graphite-metricvalue = graphite_metric_value
category = Metrics
```





# **DEMO - Splunk Metrics**



What is the CPU impact of plugging in my phone and playing a video?

#### **Metrics**

- Ingest CPU metrics data from my laptop (using CollectD into HTTP Event Collector)
- Take a video of all you (everyone wave)!
- Plug in my phone, Play the video
- Watch what happens to my CPU

#### **Events**

- Monitor system.log for events that signal I plugged in my phone
- Look for events with "connected apple"
- Run the query
- Save the query to use later

Combine Metrics and Event data using new Event Annotation



# **Splunk Metrics**

#### Taking the *meh* out of metrics

- New, high speed metrics engine and index
- Get all the benefits of the Splunk platform:
  - Visualizations and alerting
  - Easy Data ingestion
  - Clustering, Scaling
  - Leverage open source for existing sourcetypes (statsd, collectd)
- ▶ 20x and beyond performance improvement for monitoring and alerting use cases with metrics data
- Integrates beautifully with traditional Splunk events



...and we're just getting started...lots more to come!



# **Splunk Event Annotation**

#### Surfaces more insights from your data

- Doesn't just correlate logs and metrics in a single view
- Adds context to any time chart (e.g., line, column, area)
- Under the covers, it's just an embedded search that enables you to pull markers and labels from many different sources

(e.g., log data, lookup files, or external sources)





Event

Annotation

# Chart Enhancements & Report Actions



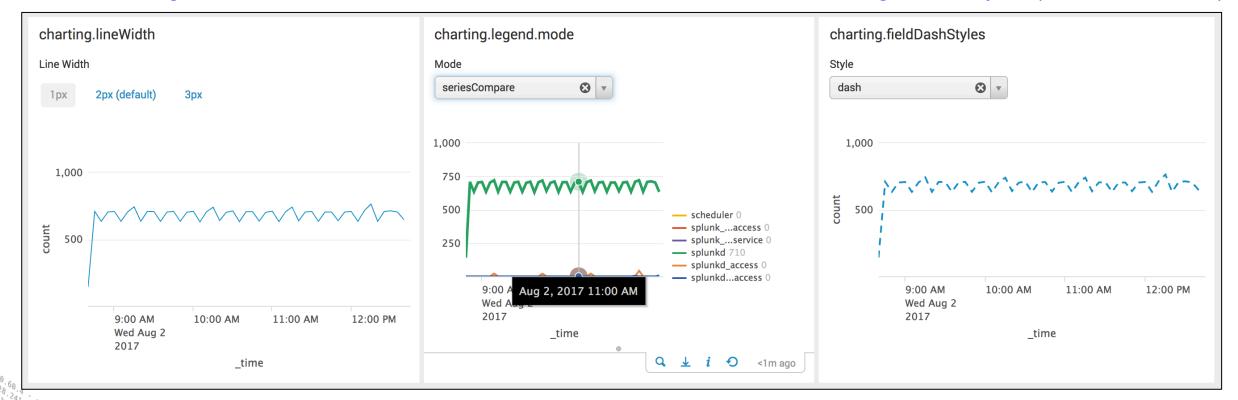
## **Chart Enhancements**

Perfect for metric and multi-series monitoring use cases

**Change Line Width** 

View and Compare Values in a Chart Legend

Change Line Styles (dashes, dots etc)

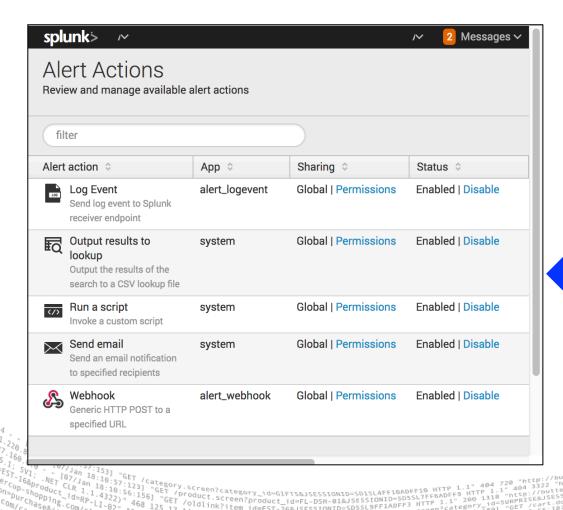


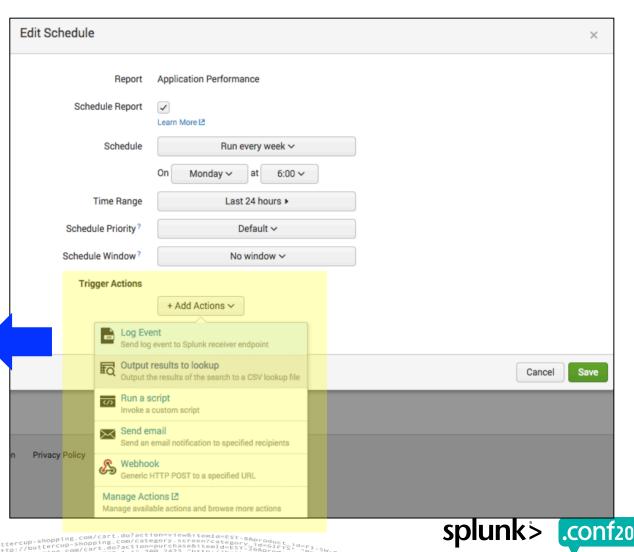


# **Report Actions**

#### Ability to set any action when scheduling a report

 Use any action that is installed and enabled in your alert actions framework





# Trellis Layout

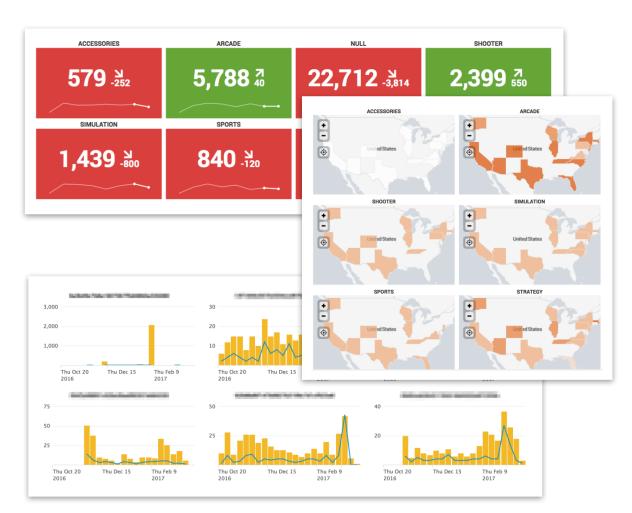




# **Trellis Layout**

#### Go from one chart to multiple charts with a single click of a button!

- Perfect for comparing information across dimensions
- ▶ Super easy to use via new #Trellis icon directly in the UI
- Super efficient at runtime as it executes the base search only once
- ▶ Uses results from chart, stats, and timechart commands
- Works in Search, Reports, Dashboards



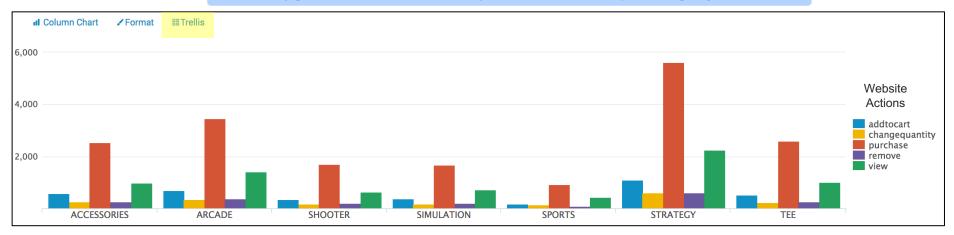




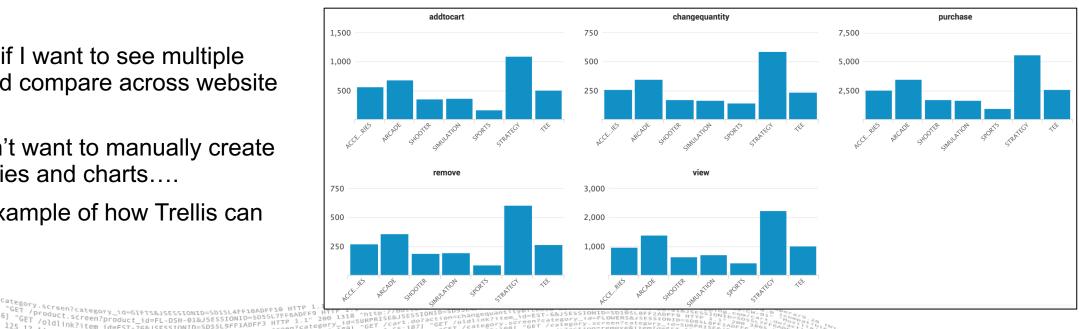
# **DEMO - Trellis Layout**

Buttercup Games - Show me the count of all website actions across product categories

buttercupgames action!=NULL | chart count by categoryId, action



- But what if I want to see multiple charts and compare across website actions?
- And I don't want to manually create new queries and charts....
- Simple example of how Trellis can help!





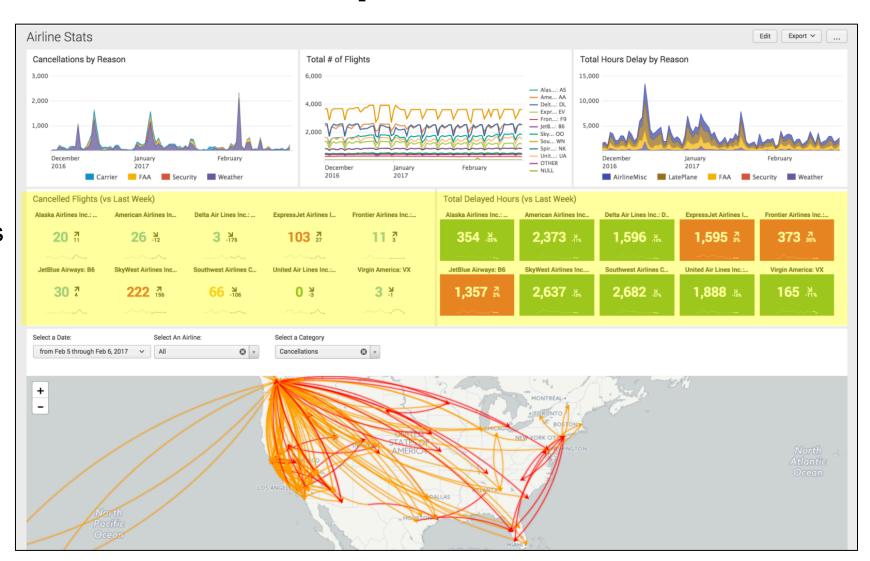
# **Trellis Example**

#### Splunk Blog – Episode 6

May 2017, Stephen Luedtke, Splunk

#### **Traveling on Time with Trellis**

- Airlines with the most cancelled flights (vs previous week)
- Airlines with the most delays (vs previous week)
- Leveraging simple Single
   Value visualization





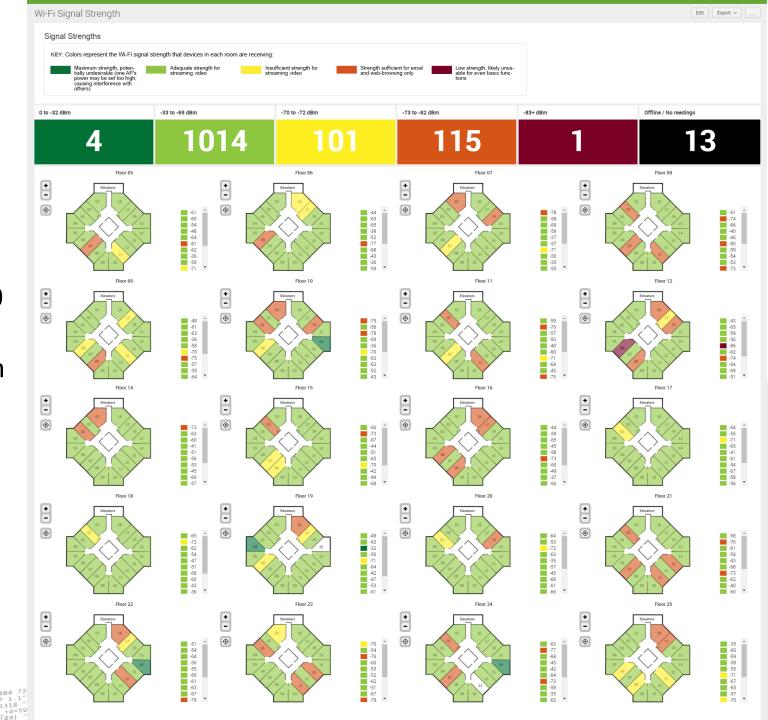


# Trellis Contest Winner

#### Matt Zerfas, SONIFI Solutions

- Shows Wi-Fi Signal Strength across 40 floors of a hotel
- Uses Trellis with a customer choropleth map
- Measures wi-fi signal strength in dBm (decibel milliwatts)

/product.screen?product id=FL-DSH-01&JSESSIONID=SDSSL7FF6ADFF9
T /Old:



# Dashboard, Search, and Datasets

**User Productivity Improvements** 



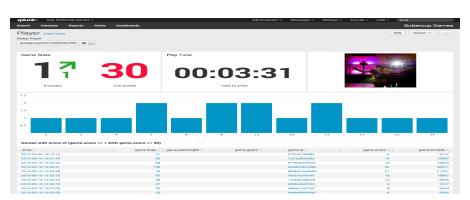


## **New Dashboard Drilldown Editor**

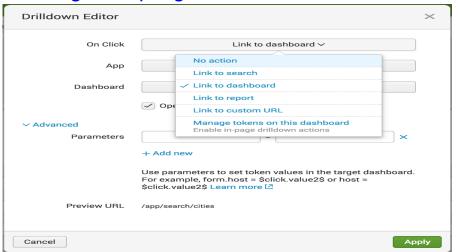
Build custom interactivity in your dashboards without the need to learn XML



- Link to search
- Link to dashboard
- Link to report
- Link to custom URL
- Manage tokens



#### Using a simple gui-based drilldown editor



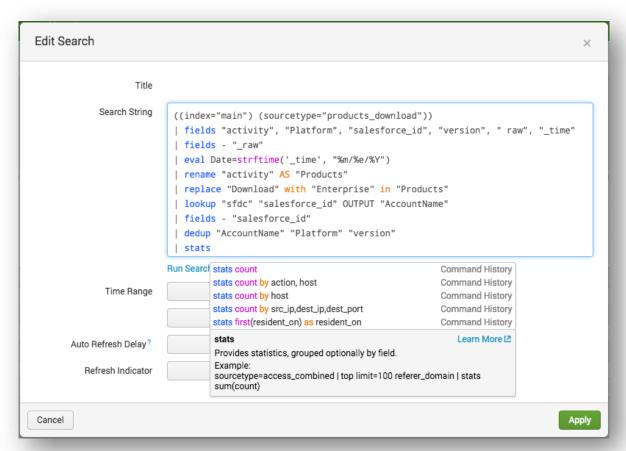




## **New Dashboard Search Editor**

Improved search editing experience on dashboards

- ► Added Search Assistance to Dashboard Search Editor
  - Syntax Highlighting
  - Keyboard Shortcuts
  - Compact Search Assistant





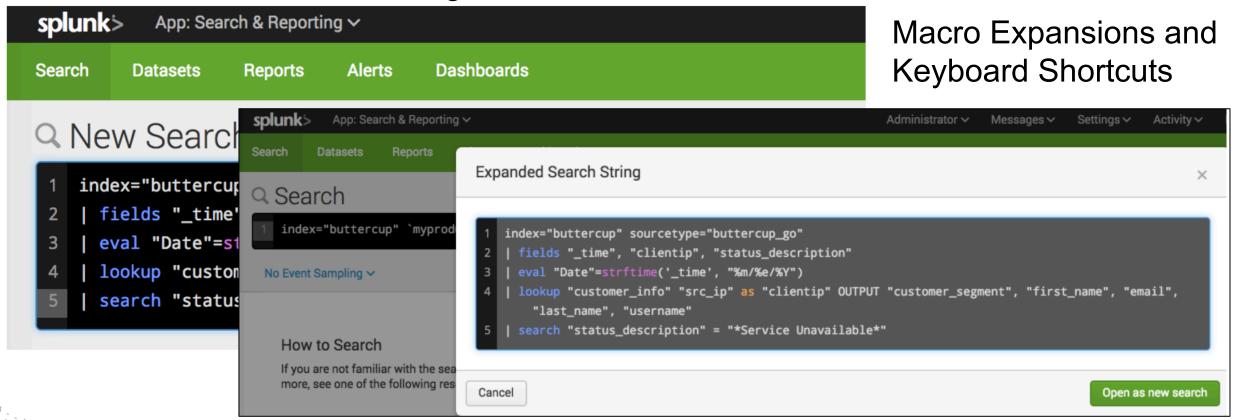




# **Search Productivity Enhancements**

Continuing to implement the most asked for Search IDE productivity features

Line Numbers, Auto-formatting, and Dark Mode

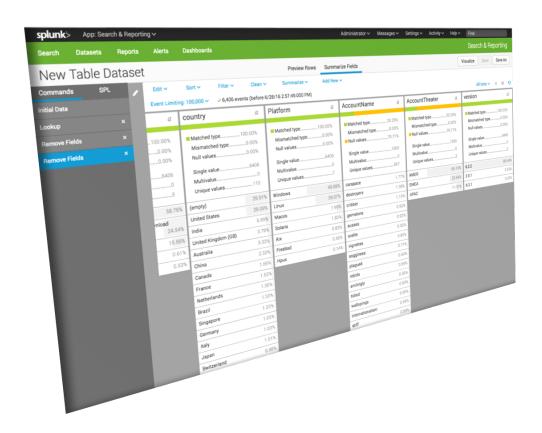






## **Table Datasets**

Turn raw, unstructured events into structured tables without writing SPL



- ► Launched last year with Enterprise 6.5
- Available from Datasets Listings page
- ▶ Lots of new capabilities in 6.6...





## **Table Datasets**

Turn raw, unstructured events into structured tables without writing SPL

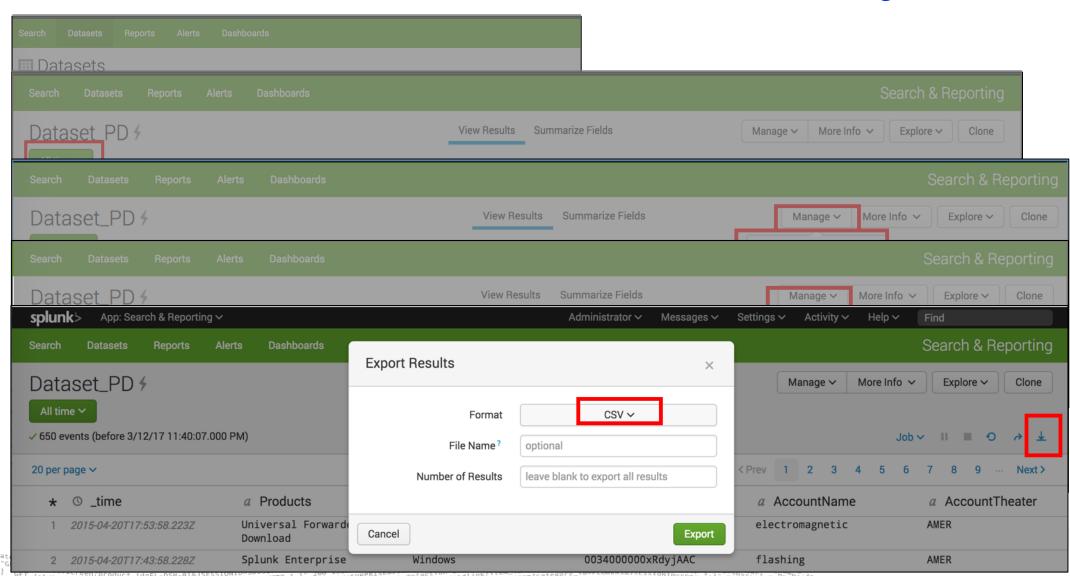
Accelerate Datasets

Select Time Range

Improved Editing

Schedule Reports

Export Results



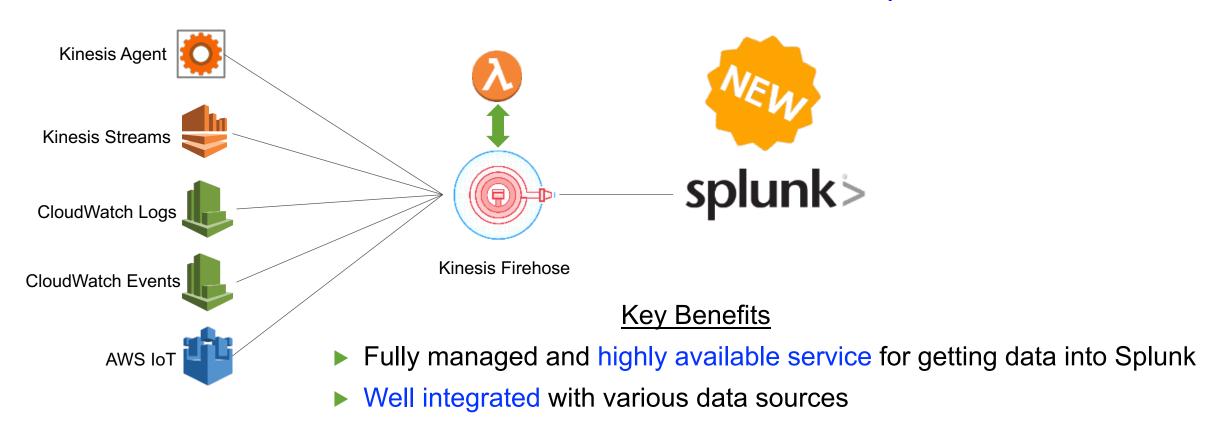


# Amazon Kinesis Firehose



# **Amazon Kinesis Firehose Support (Private Beta)**

Push data from Kinesis Firehose into Splunk



- Bypass the need for setting up and managing heavy weight forwarder
- Ability to transform raw data prior to sending it to Splunk
- Easy to use with no programming requirement





Monitoring & Investigation

for a wider range of users



Performance, Scale & Manageability

Faster, more scalable and easier to manage than ever before



Machine Learning & Intelligence

More powerful and extensible machine learning capabilities



# Improved Search Performance & Scale



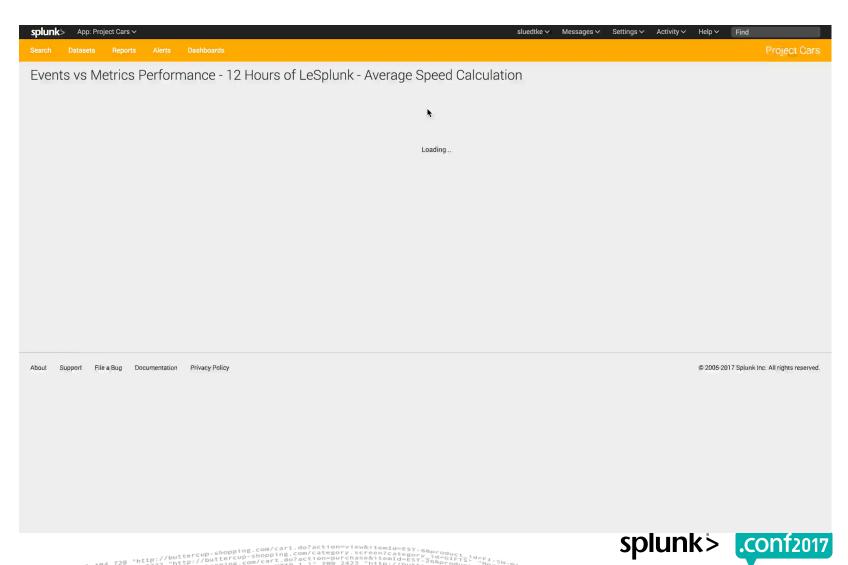
# **Splunk Metrics Performance**

Monitoring and Alerting use cases with metrics improved 20X+

#### Racing Data (4MM+ Events)

- Chart average speed over 12 hours
- Top panel is Standard Splunk Event Index
- Bottom panel is new Metrics Index
- Watch how quickly the Metrics index (bottom) finishes

Play Video →





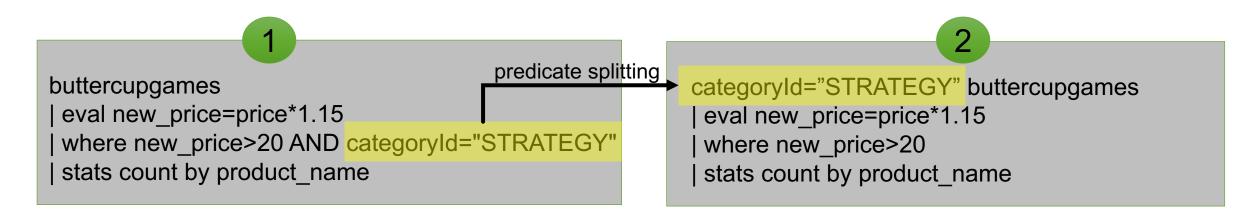
# Demo – SPL Optimizer



#### **Buttercup Games**

If we raise prices 15%, how many of the Strategy products could we sell for over \$20?

Can you make this search more efficient?



...search result out of 232,630 events

product_name \$	/	′ count ≎ ✓
Dream Crusher		5609
Final Sequel		4887
Mediocre Kingdoms		5922

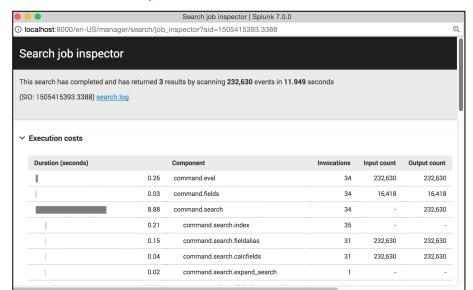
# SPL Optimizer

# You Actually Don't Need to Know!

Under the covers, Splunk optimizes the search for you

#### Without OPTIMIZER

Scanned 232,630 events in 11.949 seconds



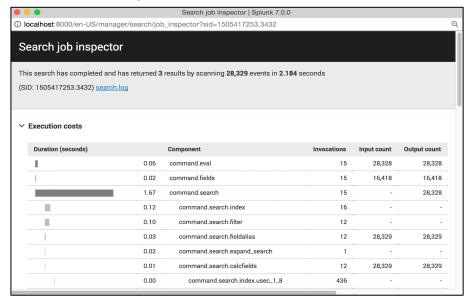
predicate splitting

| eval new\_price=price\*1.15 | where new\_price>20 AND categoryId="STRATEGY" | stats count by product\_name

buttercupgames

#### With OPTIMIZER

Scanned 28,329 events in 2.184 seconds



#### categoryId="STRATEGY" buttercupgames

eval new\_price=price\*1.15
where new\_price>20
stats count by product\_name





# **Search Performance Optimizations**

## Predicate Splitting

Splits predicates and execute early (Splits ANDs not Ors)

search 500 | eval x=a\*b | where x=100 AND y="Test"



search 500 y="Test" | eval x=a\*b | where x=100

limits.conf:

[search\_optimization::predicate\_split]

enabled = true

### Projection Elimination

Removes commands that produce unneeded new fields

search 500 | eval x=a\*b | lookup cust id OUTPUT name | stats count by host

search 500 | stats count by host

limits.conf:

[search\_optimization::projection\_elimination] enabled = true

cmds\_black\_list = <Commands List>

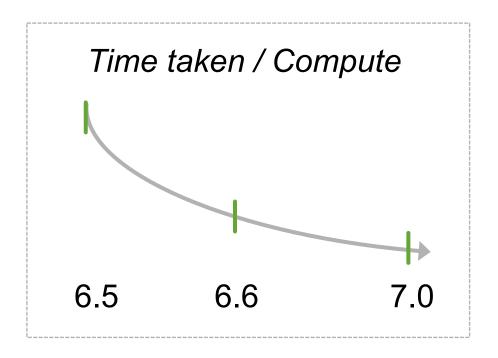
Automatically applies optimizations to optimize query execution speed



# Faster Data Model Acceleration (DMA)

Big Improvements in Search Performance and Resource Usage

- Applicable to both platform and premium solutions
  - Acceleration searches run up to 3x faster\*.
  - Data Model summarization lag is up to 1/3 less\*.
  - Less Resources used (CPU, MEM, IO)
  - Improved Responsiveness acceleration data available more quickly for tstats querying
  - Enterprise Security models get a big boost in speed





<sup>\*</sup> From  $6.5 \rightarrow 7.0$  (based on test lab data)

### **Enhanced Indexer Clustering Scalability**



- 1.5 Million Unique Buckets
- 4.5 Million Total Buckets



#### 6.6

- 5+ Million Unique Buckets
- 15+ Million Total Buckets

Delivers seamless scalability to 100s of Petabytes



# Improved Manageability

Improved Resiliency and Developer Productivity

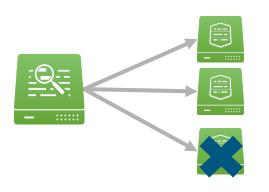




### **Cluster Resiliency**

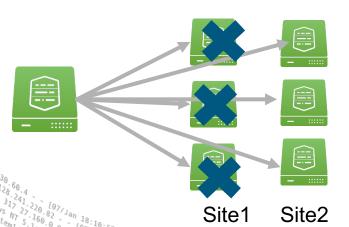
#### Improved resiliency to hardware and networking failures

#### **Indexer Clustering**



If an Indexer goes offline, search is not disrupted

Indexer recovery time is much faster



In a multi-site cluster, Forwarders can automatically failover to a secondary site

#### **Search Head Clustering**

Smarter knowledge object (config) replication across search heads



Intelligent captain selection based on configuration awareness





Improved replication speed across search heads and indexers for apps, lookup tables, etc







#### **Cluster Management**

Improved manageability as you grow and scale

#### **Indexer Clustering**



Manual Indexer Detention -Selectively control the flow of data into an Indexer



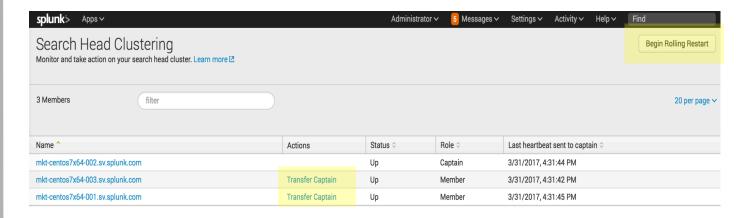
Deploy new apps (with reloadable configs) without cluster restart



Rollback to previous configuration if any operational issues encountered

#### **Search Head Clustering**

#### **New User Interface**





Transfer Search Head Captain



Begin Rolling Restart

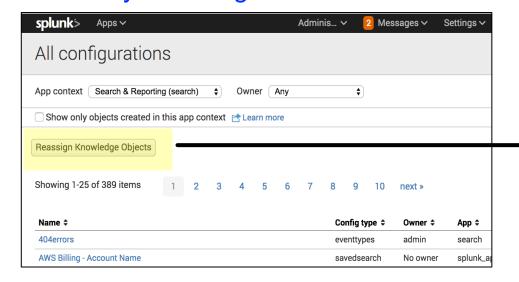




### **Knowledge Object Management**

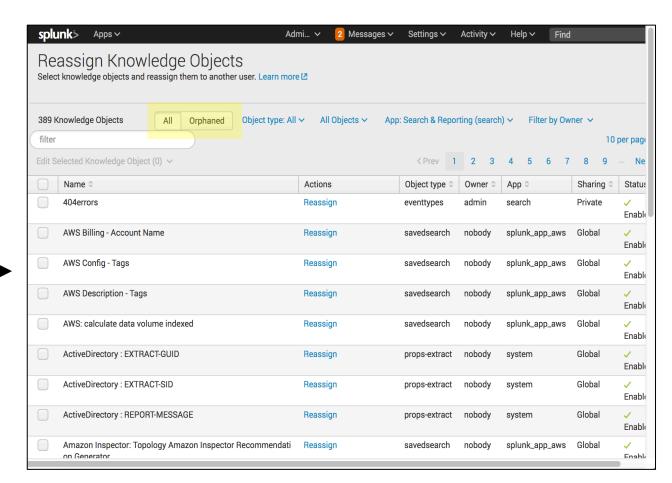
# Automatically detect orphaned Knowledge Objects when an employee leaves your company

#### Manually Re-assign to a different user



Settings → All Configurations

/Product.screen?product\_id=FL-DSH-01&JSESSIONID=SD1SLAFF10ADFF10 HTTP 1.1"
T/Oldingsteen?product\_id=FL-DSH-01&JSESSIONID=SD3SL7FF6ADFF9 HTTP 1.1"
200 1318 "





## **Data Ingestion Management**

New Regex Profiling views for Admins to monitor incoming data

#### **New Monitoring Console Views**

- ► Found in the Monitoring Console under "Indexing → Indexing Performance"
- ► Find CPU time spent on Regex Extraction
- Split-by source, sourcetype, index and host





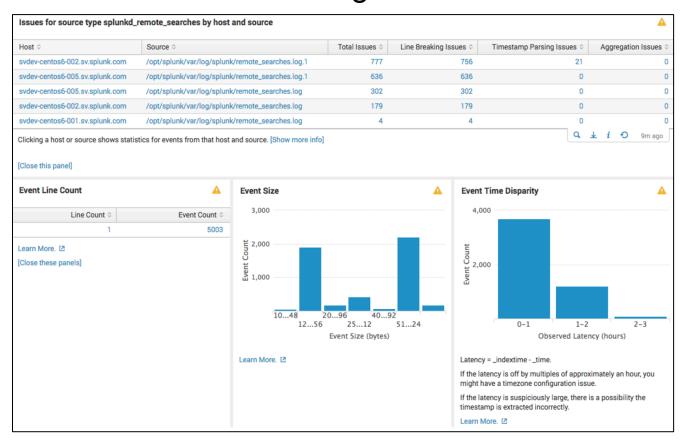


## **Data Ingestion Management**

New Data Quality views for Admins to check the accuracy of incoming data

#### **New Monitoring Console Views**

- ► Found in the Monitoring Console under Indexing → Inputs
- Surfaces index-time warnings and errors (splunkd.log)
- Find Timestamp, Linebreaking, and Aggregation issues with incoming data

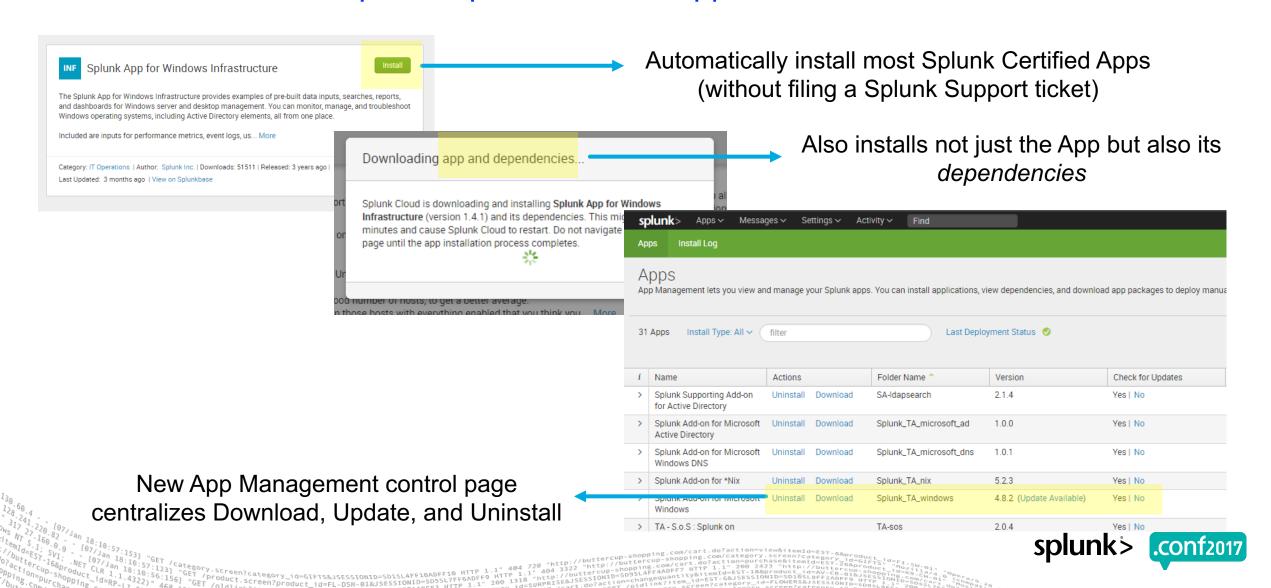






# **Cloud App Management – Certified Apps**

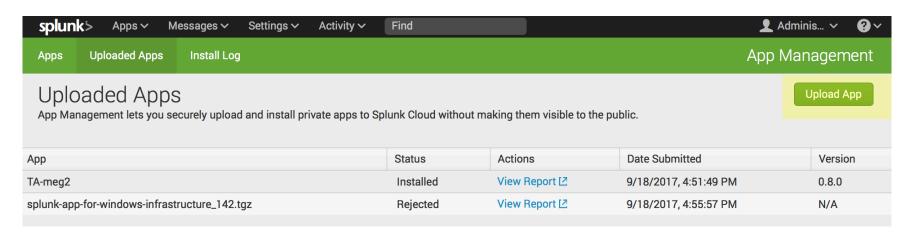
Install and Update Splunk certified apps with the click of a button



Clong

## **Cloud Application Management – Private Apps**

Quickly install and uninstall private apps



- New self-service Upload App interface for the cloud
  - No support ticket needed!
- Automatically runs AppInspect and generates a detailed AppInspect vetting report
- If approved, Install/Update private apps with a single click



# Application Development

Streamlined App Development Lifecycle



Get your apps built and deployed faster than ever!





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More powerful and extensible machine learning capabilities

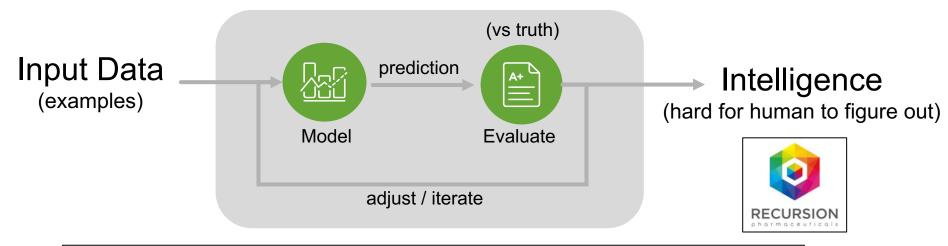


### **Machine Learning Overview**

Use Case / Problem (hard for human to figure out)

Learning by Example

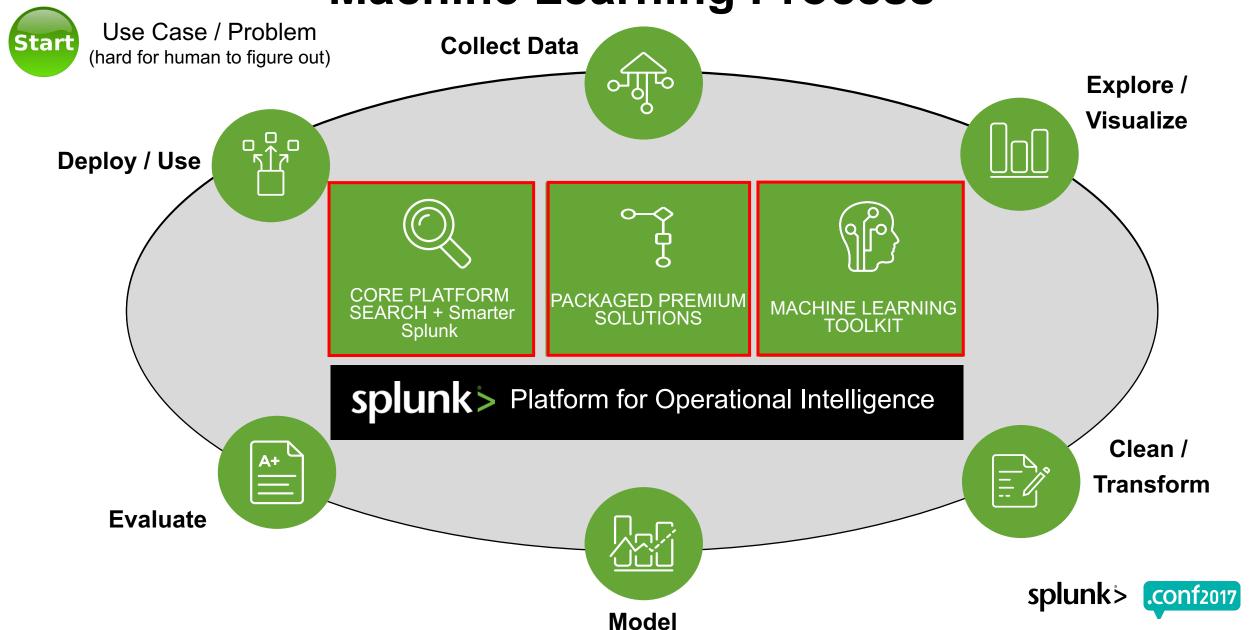
#### Machine







### **Machine Learning Process**



# Machine Learning Toolkit

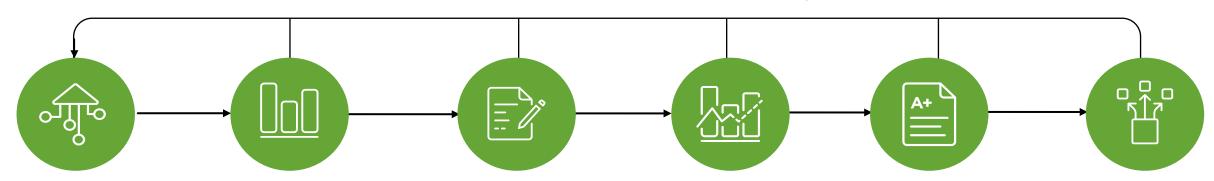




#### **DEMO – Machine Learning Toolkit**

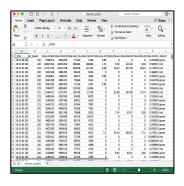


Send me an email alert when Server Power consumption is way outside of predicted values



### Collect Data

Input server\_pow.csv



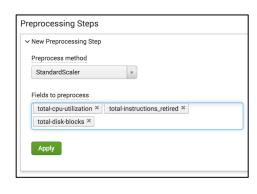
# Explore / Visualize

Checkout the data



#### Clean / Transform

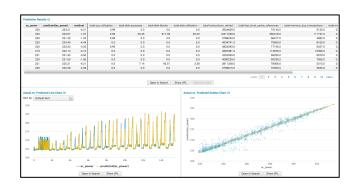
Normalize the data (apply pre-processing step)



#### Model

Predict power consumption

Detect numeric outliers



**Evaluate** 

#### Deploy / Use

Setup thresholds, alerts, and actions



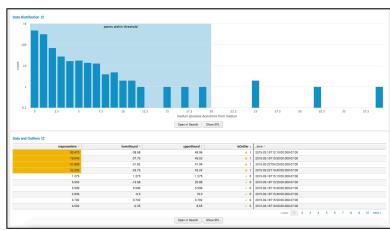


# **Machine Learning Toolkit – What's New**

#### **Enhanced Detect Numeric Outliers assistant**

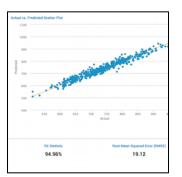


Segment outlier detection by field

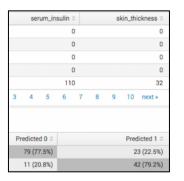


New visualizations, including data distribution histogram

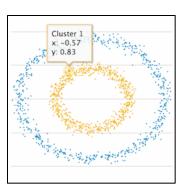
#### **Expanded pre-processing capabilities**



Predict Numeric Fields



Predict Categorical Fields



Cluster Numeric Events

#### **ML-SPL API**



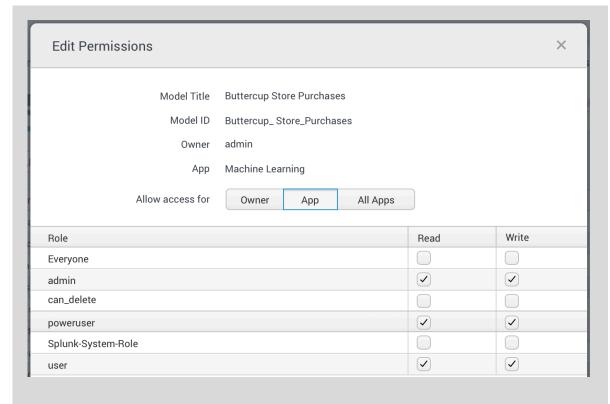
Makes it easier to import open source and proprietary algorithms





### Machine Learning Toolkit – What's New

# Model Management (MLTK 3.0)



Assign permissions to models to control access

# Spark Support (private beta open now)

- Use your existing Spark cluster with MLTK
  - Distributed fit on massive datasets
  - Apply MLlib models for supported algos
- Go to Splunk Innovation Labs (NDA only)
- Contact mlprogram@splunk.com
  - What is your use case (e.g., predicting server downtime)?
  - How are you using Spark today?

Leverage your Spark Infrastructure



## Monitoring & Investigation

Native Metrics ໄດ້ເຂົ້າ ເຂົ້າ ເຂົ້າ

Dashboard Drilldown editor
Dashboard Search Bar
Search Productivity Enhancements
Table Datasets Explorer
AWS Kinesis Firehose Support (Private Beta)



#### Performance, Scale & Manageability

New Hightelp กายาประเมลิธายาgine and easiei ใช้ กาลกลge Improvan ever berive zer Faster Data Model Acceleration

Improved Indexer Scalability (5M buckets)
Improved SHC/IC Resiliency and Management
Orphaned knowledge object detection
New Data Ingestion Management views
Cloud Self-Service App Installation (private apps too)
New App Packaging Toolkit



# Machine Learning & Intelligence

Fully Integrate philiperantes of ortfolio
Enhanced Detate in the machiners assistant
Newning calpatibities
Expanded pre-processing capabilities

Additional Algorithms

Model Management (3.0)

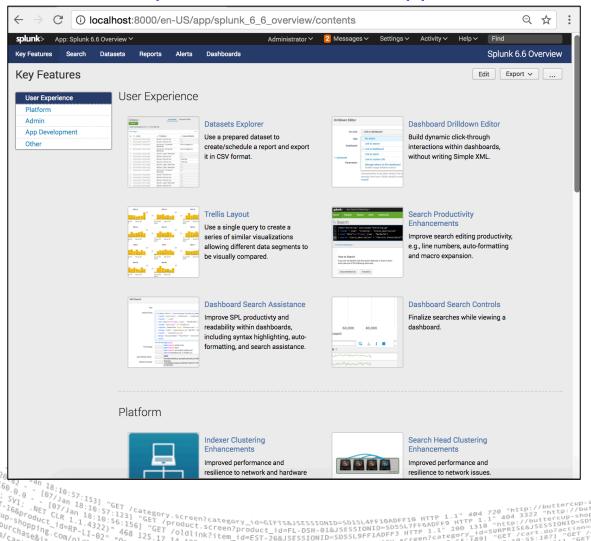
Spark Support (Private Beta)

....plus lots more we didn't get a chance to cover

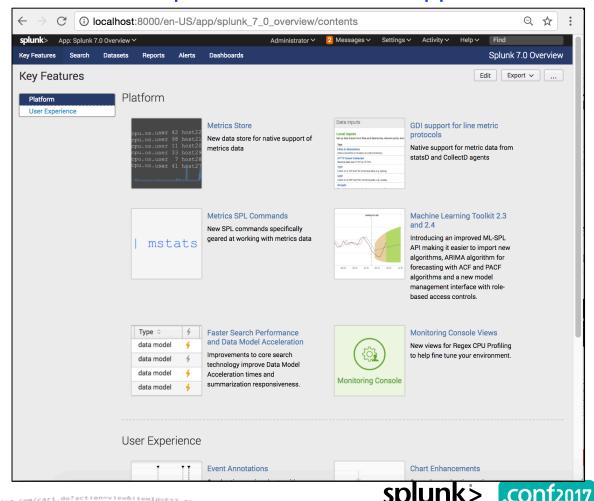
### Splunk Enterprise 7.0 Available Now

Plus check out the Overview Apps for What's New

Splunk 6.6 Overview App



Splunk 7.0 Overview App





# Thank You

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