

How Anaplan Used Splunk Cloud and ITSI to Monitor Our Cloud Platform

Martin Hempstock
Monitoring & Metrics Architect
Anaplan

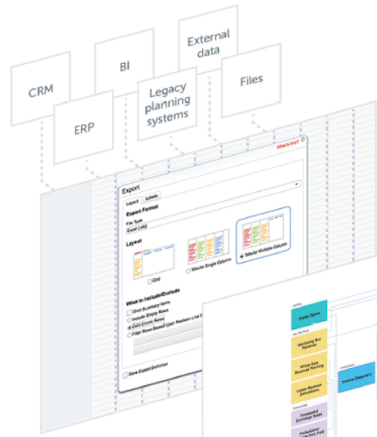
About Anaplan



About Anaplan



The Anaplan Smart Business Platform™



Data Integration

- Self-service UI
- Pre-built connectors and automation
- Rest APIs

Predictive and Modeling

- 64 bit in-memory
- Real-time modeling engine
- Hyperblock™ calculation engine
- Model and data change history manager



App Management

- Custom apps with app designer
- Pre-built apps on App Hub
- Monitor apps

User Interface

Web, MS Office, Mobile

- Analytics, reporting, planning
- Model map and settings
- Administration

Users

- Marketing
- Finance
- Sales
- HR
- Supply Chain
- Operations
- R&D
- IT



Smart business for your enterprise

FINANCE

Planning, Budgeting, and Forecasting
Corporate Strategic Planning
Financial Consolidation
Reporting and Analysis
Tax and Treasury

HR

Workforce Planning
Workforce Optimization
Headcount and Payroll Planning
Succession Planning
Onboarding

IT

Agile Implementation

MARKETING

Marketing Performance Management
Marketing Resource Management
Trade Promotion Planning
Account Segmentation and Scoring

SALES

Territory and Quota Planning
Incentive Compensation
Sales Forecasting
Deal Desk



SUPPLY CHAIN

Supply Planning

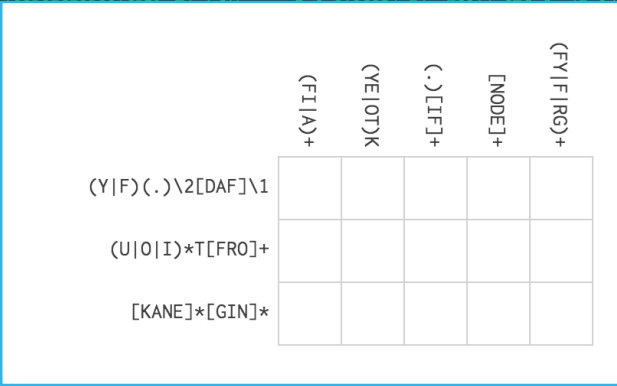
Demand Planning

Sales and Operations Planning

Life before Splunk

- Logs were stored on a central log server
- Used egrep to interrogate logs
- Only Level 3 and TechOps had access to the logs.
- Understanding of the logs was limited

```
1. bash
2016-06-17 13:05:45,195 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 11ms
2016-06-17 13:05:50,221 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 1ms
2016-06-17 13:05:52,831 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 0ms
2016-06-17 13:05:53,354 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 0ms
2016-06-17 13:09:37,686 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 0ms
2016-06-17 13:09:40,305 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 0ms
2016-06-17 13:09:40,809 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 0ms
2016-06-17 13:09:42,532 INFO (ModelTransactionScheduler[D5BFC0E919EA4CFA9180B8F650B80A6D]) [ModelManager] 8a8196824e54cc76014e67fafce45e8d
8a8196824e54cc76014ecf8ff29a1fcd D5BFC0E919EA4CFA9180B8F650B80A6D 65C4E399C20747AE8AADF392F4E950BC-1 endTransaction ModelTransactionSched
uler.run: initialTransactionType=RefreshTransaction isolationLevel=READ_ONLY, duration 0ms
Martin's-MacBook-Pro:tmp mhempstock$
```



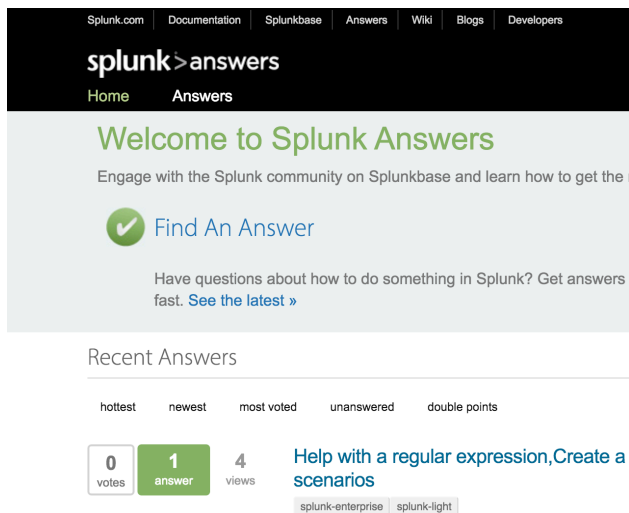
Search for a log management tool

Requirements

- Tamperproof
- Speedup incident resolution
- Scale
- Easy to use
- Grep like functionality

Why splunk>cloud™

- Powerful
- Cloud
- Community



The screenshot shows the Splunk Answers website. At the top, there is a navigation bar with links for Splunk.com, Documentation, Splunkbase, Answers, Wiki, Blogs, and Developers. Below this is the 'splunk>answers' logo and a 'Home' link. The main heading is 'Welcome to Splunk Answers', followed by a sub-heading 'Engage with the Splunk community on Splunkbase and learn how to get the r...'. A prominent green checkmark icon is next to the text 'Find An Answer'. Below this, there is a paragraph: 'Have questions about how to do something in Splunk? Get answers fast. [See the latest »](#)'. The section 'Recent Answers' is visible, with a sub-menu containing 'hottest', 'newest', 'most voted', 'unanswered', and 'double points'. A specific answer is highlighted with a green box, showing '0 votes', '1 answer', and '4 views'. The question text is 'Help with a regular expression,Create a scenarios'. Below the question, there are two tags: 'splunk-enterprise' and 'splunk-light'.

Search for a log management tool

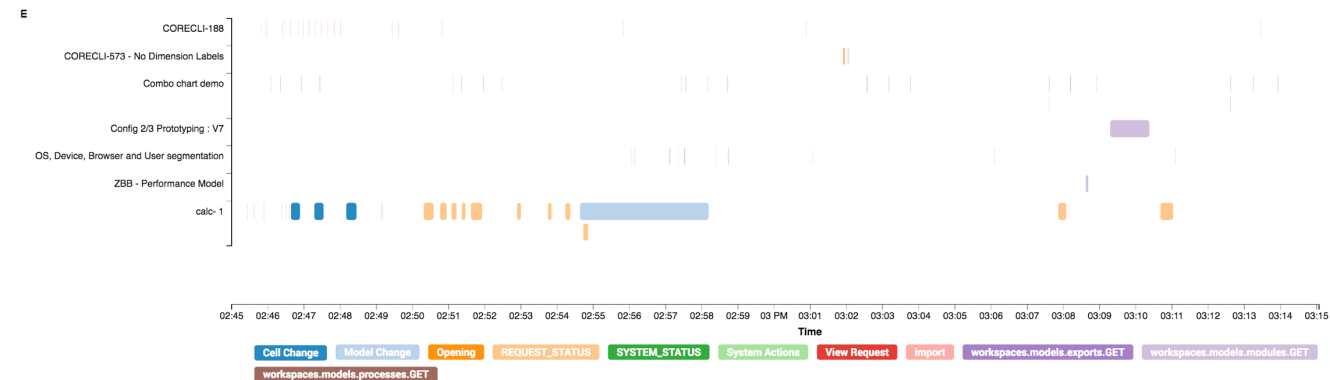
Model Performance

Gantt Chart - Transaction or Request Duration (seconds)

Local Time Transaction Duration Event: By:

UTC Request Duration

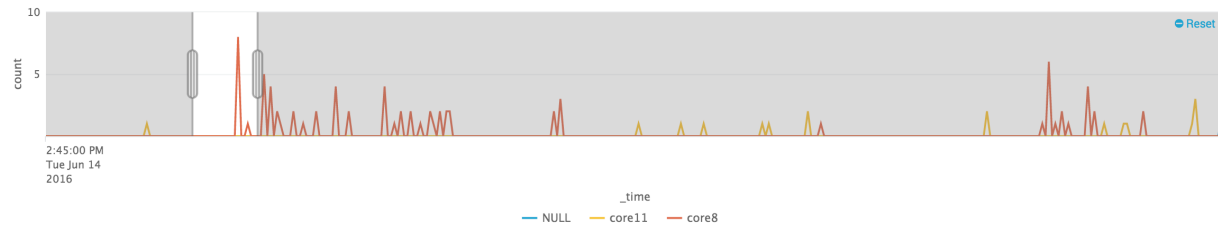
This chart shows the duration of selected transaction or request. Use the options above to customize the chart.



Core Errors

Show Source: : Show Warnings: Yes No Search Filter:

To view the raw logs, click Show Source then, if required, select a time period by dragging a box over the chart below. Optionally, enter a Search Filter using splunk query language (for example, **NOT "For input string"**)

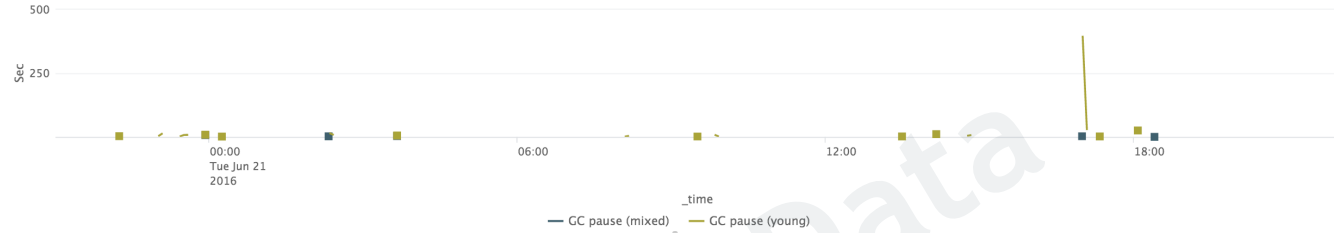


Core Errors Source

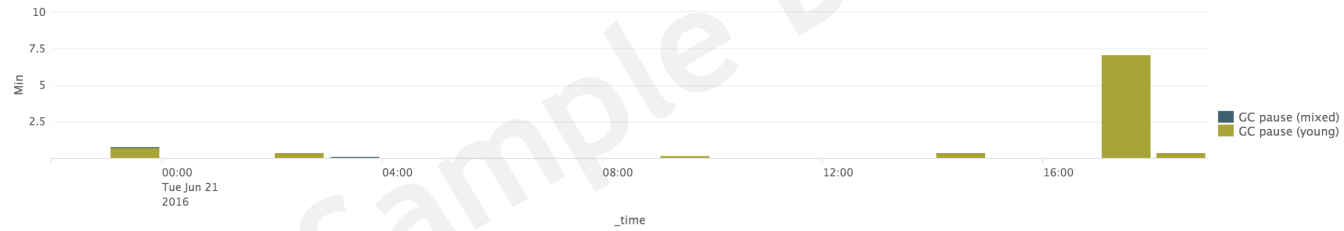
#	Time	Event
>	6/14/16	2016-06-14 13:50:10,434 ERROR (ajp-10.1.22.19-8009-29) [[localhost]] Exception Processing ErrorPage[exceptionType=java.lang.Throwable, location=/error.jsp]
	2:50:10.434 PM	java.lang.OutOfMemoryError: Java heap space at EDU.oswego.cs.dl.util.concurrent.ConcurrentReaderHashMap.put(ConcurrentReaderHashMap.java:521)

JVM Data

Garbage Collection (Sec)

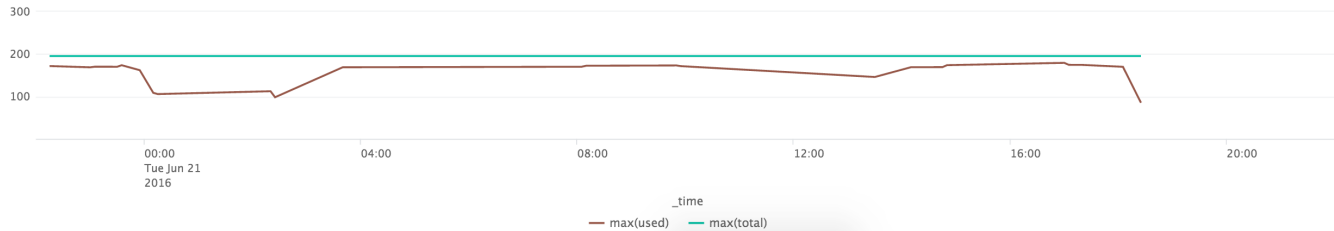


4 minutes ago



7 minutes ago

HeapSize (Gb)



Debug Dashboard

Select Transaction to Debug

_time	_raw
2016-07-20 13:55:34.227	2016-07-20 13:55:34,227 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:55:14.404	2016-07-20 13:55:14,404 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:55:14.160	2016-07-20 13:55:14,160 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:55:12.797	2016-07-20 13:55:12,797 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:55:09.678	2016-07-20 13:55:09,678 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:54:25.865	2016-07-20 13:54:25,865 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:52:54.154	2016-07-20 13:52:54,154 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:52:53.973	2016-07-20 13:52:53,973 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:52:50.522	2016-07-20 13:52:50,522 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C
2016-07-20 13:49:16.121	2016-07-20 13:49:16,121 INFO (ModelTransactionScheduler[238C795BBE2441558D678D1CCAA1DAC3]) [ModelManager] 8a819488469c08790146a4d4003d2c98 8a819488469c0879C

◀ prev

[Open Worker task Gantt Chart](#)

Worker Tasks by Module in MS (Multi Threaded not true times)

WorkerTasks by Lineltem in MS (Multi Threaded not true times)

Module	TotalDataTasksMS	CountTotalDataTasks	SumDataTaskMS	CountOfDataTasks	Module	Lineltem	TotalDataTasksMS	CountTo
	74523	839728	17181	99			76804	
	74523	839728	8161	196			76804	
	74523	839728	7791	232			76804	
	74523	839728	6372	139			76804	
	74523	839728	6367	45			76804	
	74523	839728	5247	36073			76804	
	74523	839728	4279	21360			76804	
	74523	839728	2704	116			76804	

Growing Splunk at Anaplan

Evolution of Splunk At Anaplan

January
2014

- Splunk is Born at Anaplan

March 2014

- Splunk is extended to Customer Success

December
2014

- Full time Splunk Architect role created

Feb 2015

- Splunk is used for Customer Health Monitoring

July 2015

- Second Splunk Hire

September
2015

- Built a center of excellence

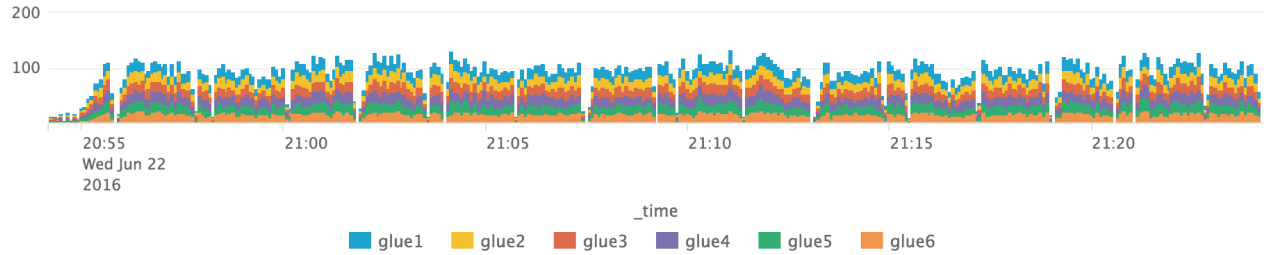
March 2016

- Splunk ITSI

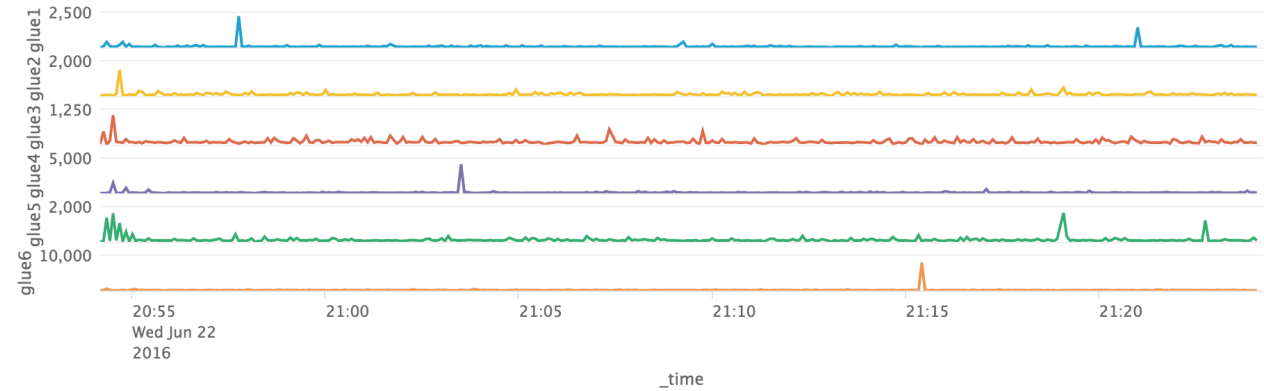
Development

Glue Analysis

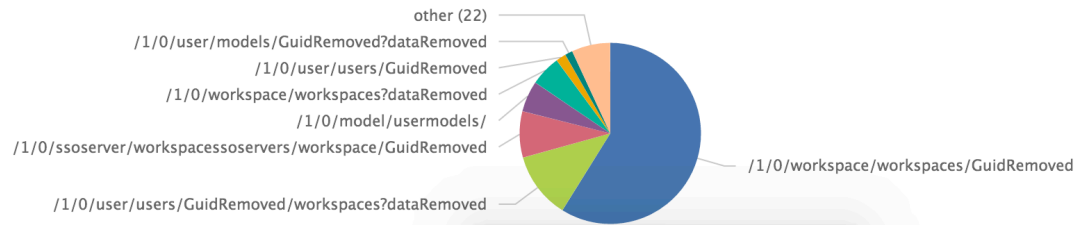
Glue Load



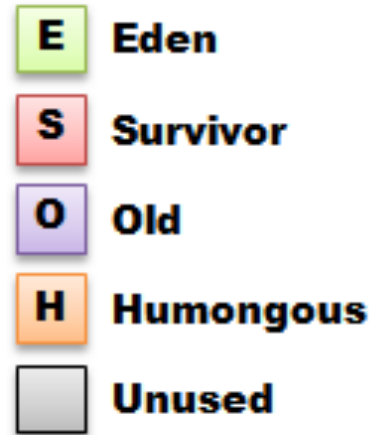
Avg Response "elapsed accept-close"



Top Calls



Memory Optimization



Memory Optimization

Region Allocation

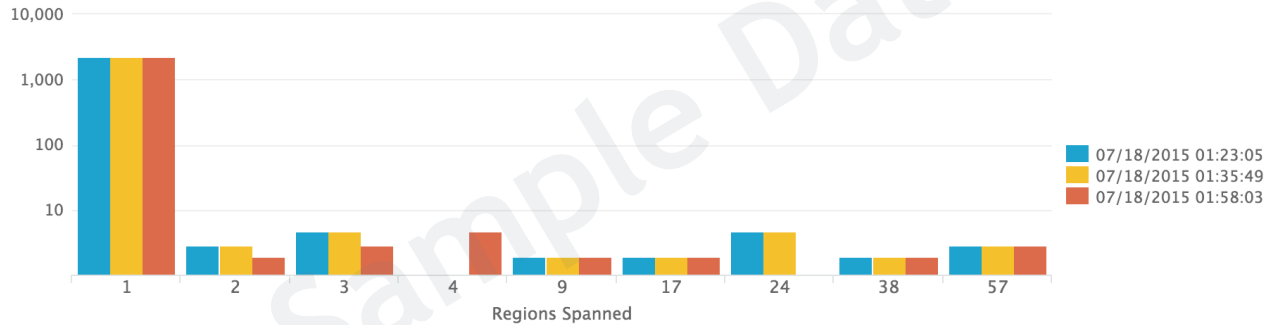
Edit ▾ More Info ▾  

Date time range ▾

Input String

core=core024 index=gc

Humongous Regions



Regions By Type

pool ▾	07/18/2015 01:23:05 ▾	07/18/2015 01:35:49 ▾	07/18/2015 01:58:03 ▾
NOTPOOL	4057	4057	4057
byte	26	26	26
double&obj	1501	1501	1501
int	660	660	660
short	2	2	2

Usage Statistics

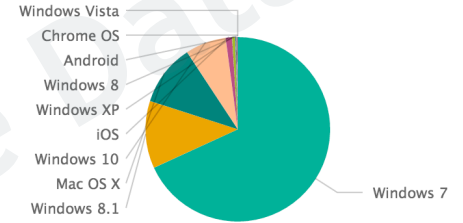
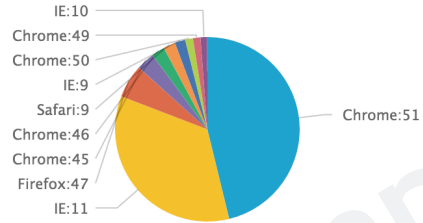
Browser & OS 7d

Browser

× All

Version

× All



	browser	count	percent		ua_os_family	count	percent
1	Chrome:51	12716	41.059089	1	Windows 7	21102	68.136907
2	IE:11	9522	30.745883	2	Windows 8.1	3655	11.801744
3	Firefox:47	1610	5.198579	3	Mac OS X	3337	10.774943
4	Chrome:45	878	2.835002	4	Windows 10	2213	7.145625
5	Chrome:46	640	2.066516	5	iOS	341	1.101066
6	Safari:9	579	1.869551	6	Windows XP	168	0.542460
7	IE:9	507	1.637068	7	Windows 8	62	0.200194
8	Chrome:50	368	1.188247	8	Android	40	0.129157
9	Chrome:49	364	1.175331	9	Chrome OS	30	0.096868
10	IE:10	330	1.065547	10	Windows Vista	9	0.029060

Sample Data

Application Debug



Development Apps

In house tools

- TA-anaplan-build-check
- Anaplan-DWA-Simulator
- TA-alerta
- Word Tools

Development Apps

TA-user- agents



TA-user-agents

[DOWNLOAD](#)

OVERVIEW

DETAILS

This Add-on provides a dynamic lookup for parsing User Agent strings. This version was built to be faster, and does not require internet access from your Splunk systems.

VERSION: 1.6

RELEASE NOTES

- * Updated to the latest version of the ua-parser
- * Changed URL for the ua-parser to the new project page
- * Added app icons

June 28, 2016
Platform Independent
6.4, 6.3, 6.2, 6.1

★★★★★ 6 ratings

Rate this app

1,441 downloads
[Subscribe](#)
[Share this app](#)

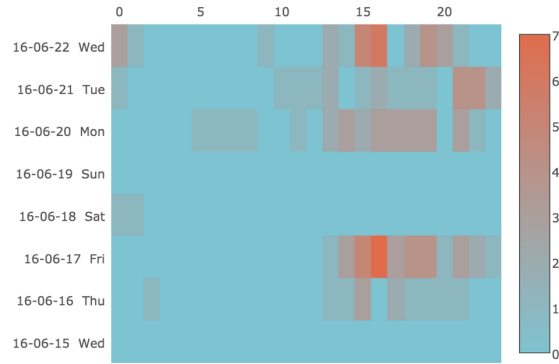
VERSION 1.6

Cool Stuff
Splunk Enterprise
Splunk Cloud
Add-on
Splunk 6.4, 6.3, 6.2, 6.1
CIM 4.4, 4.3, 4.2, 4.1, 4.0, 3.0
[End User License Agreement for Third-Party Content](#)
Platform Independent

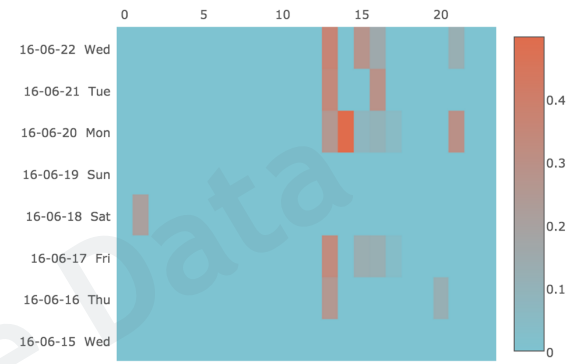
Customer Success

Performance

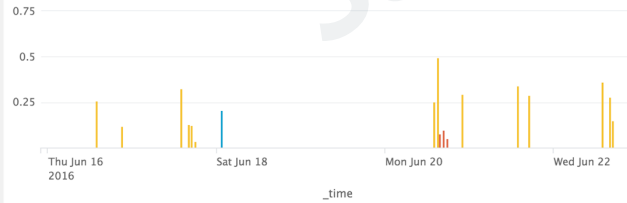
User Count



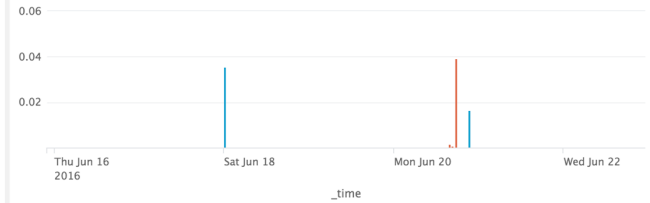
Import Processing Hour Heatmap



Imports by Email Address



Exports by Email Address

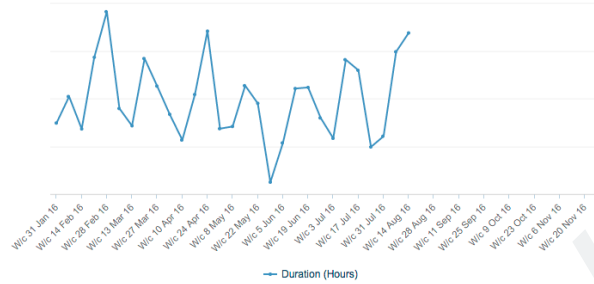


Sample Data

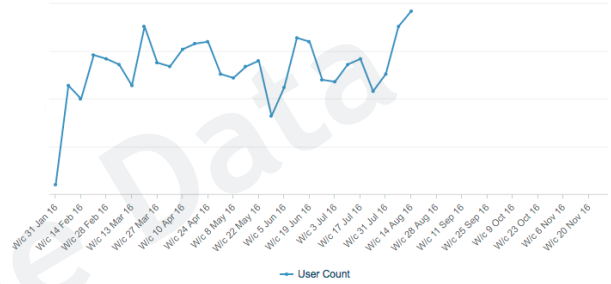
Anaplan Integration

Usage Statistics, Workspace Utilization and Contract Information

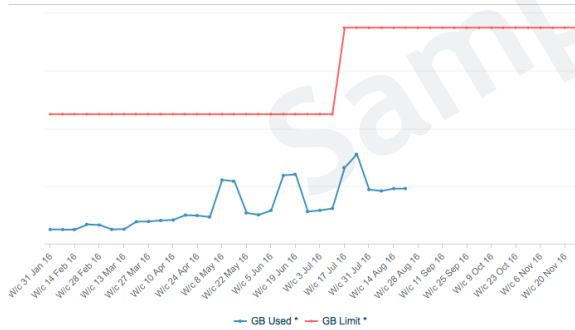
▼ User Time (KPI1)



▼ Active User Count (KPI2)



▼ Workspace Utilization (KPI7)



Support Metrics

▼ All Periods

Created	Closed (Support)	Avg. Response (Minutes)	Avg. Response (Hours)	Avg. Close (Hours)	Open (Support)	Open (L3)	Pending (Support)	Pending (L3)	On-Hold Tickets (Backlog)	Avg. Hold Time (Hours)
0	0	0.8336	0.01389	1.27	0	0	0	0	0	0

TechOps / DevOps

Build Report

Core Configuration

Time Range

Last 60 days

Environment

p2

Core

Core Builds

core	env2	dataCenter	latest(build)	latest(Xmx)	LastRestart	LoadedBy
core1	p2	dc5	anaplan-2016.3.0-SNAPSHOT-release-2016.3.0-1-scm.anaplan.com-1	120000m	18/07/16 10:37:30:AM	main
core2	p2	dc5	anaplan-2016.3.0-SNAPSHOT-release-2016.3.0-1-scm.anaplan.com-1	100000m	18/07/16 10:38:45:AM	main
core2	p2	ec2us	anaplan-2.0-SNAPSHOT-trunk-2734-scm.anaplan.com-2734	200000m	15/06/16 02:53:43:PM	main
core3	p2	dc5	anaplan-2.0-bug-CORECLI-1135-SNAPSHOT-bug-CORECLI-1135-3-scm.anaplan.com-3	40000m	15/07/16 02:21:11:PM	main
core4	p2	dc5	anaplan-2016.3.0-SNAPSHOT-release-2016.3.0-1-scm.anaplan.com-1	40000m	18/07/16 11:26:16:AM	main
core5	p2	dc5	anaplan-2016.3.0-SNAPSHOT-release-2016.3.0-1-scm.anaplan.com-1	60000m	18/07/16 11:35:18:AM	main
core6	p2	dc5	anaplan-2016.3.0-SNAPSHOT-release-2016.3.0-1-scm.anaplan.com-1	60000m	18/07/16 11:35:17:AM	main
core7	p2	dc5	anaplan-2.0-bug-CORECLI-1135-SNAPSHOT-bug-CORECLI-1135-3-scm.anaplan.com-3	200000m	15/07/16 02:21:11:PM	main

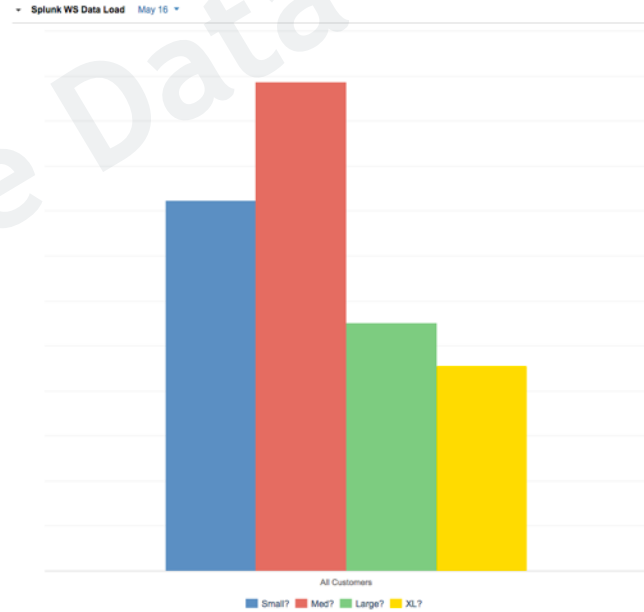
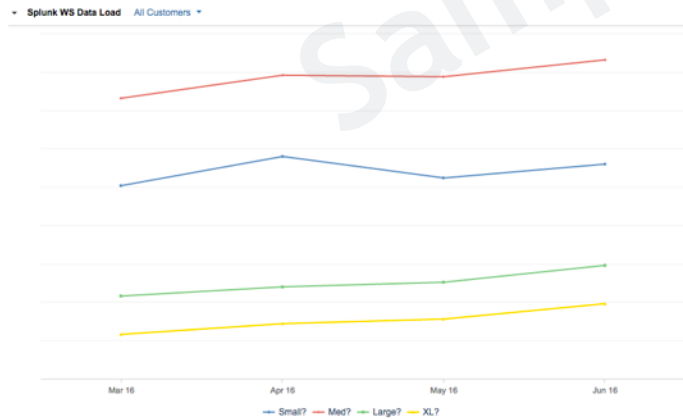
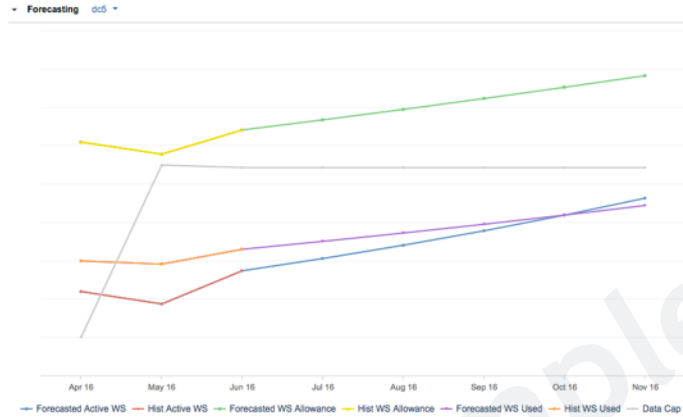
Core Properties

To change properties displayed choose from the list at the bottom

core	Class	Property	lastValue	lastRestart
core9	Settings	Memory available to models	25.391 GB	18/07/16 12:50:14:PM
core9	Settings	Model memory percentage	65.0	18/07/16 12:50:14:PM
core9	ConfigurationFactory	app.clickableLinkValidation.disabled	false	18/07/16 12:50:14:PM
core9	ConfigurationFactory	app.mapChart.disabled	true	18/07/16 12:50:14:PM
core9	ConfigurationFactory	app.numberedList.disabled	false	18/07/16 12:50:14:PM
core9	ConfigurationFactory	app.timelineChart.disabled	false	18/07/16 12:50:14:PM
core9	ConfigurationFactory	core.automaticModelSaveThreshold	60	18/07/16 12:50:14:PM
core9	ConfigurationFactory	core.blockOverAllocationFactor	0d	18/07/16 12:50:14:PM
core9	ConfigurationFactory	core.breakback.heldCellLimit	2000	18/07/16 12:50:14:PM

Bugs

Capacity Planning



IT Service Intelligence

Additional Data Feeds

Add-on for Unix and Linux

Metric	Description
Top	Shows information on processes including CPU usage, memory usage and runtime
CPU	CPU statistics via the <code>sar</code> , <code>mpstat</code> and <code>iostat</code> commands
Disk Space	Free disk space available for each mount via the <code>df</code> command
interfaces	network interfaces via the <code>ifconfig</code> and <code>dmesg</code> commands
bandwidth	Information on network usage
iostat	Information on Input/Output operations
openPorts	A listing of the open ports on a host
time	Information about the time service
vmstat	Information on virtual memory

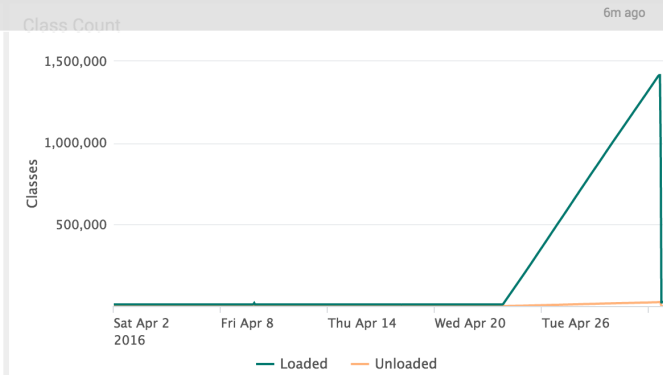
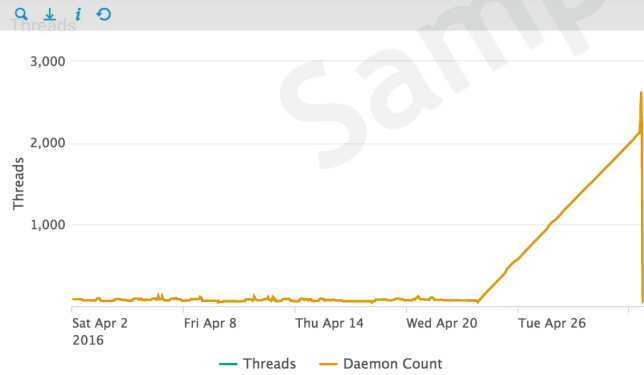
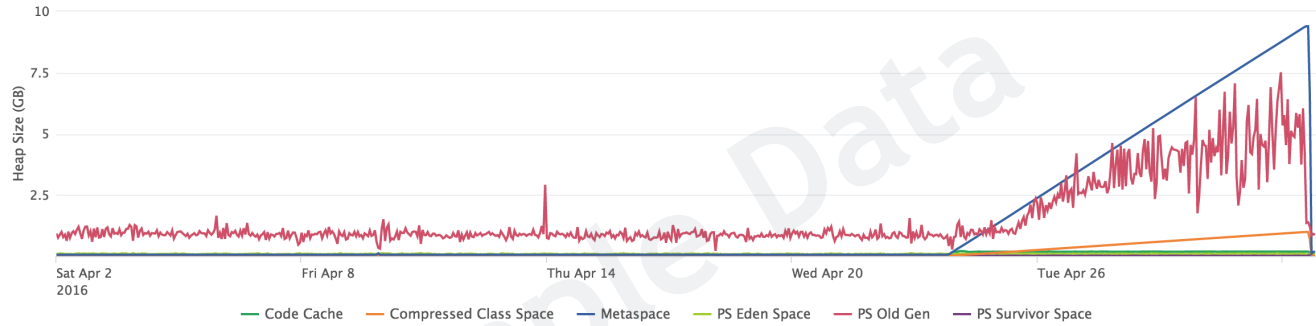
Add-on for JMX

Metric	Description
ClassLoading	Class Loading info; total, current, unloaded
GarbageCollector	Garbage Collection info on the following; memPools, colTime, colCount by gcName
Memory	Shows information on memory; heapUsed, heapMax, heapInit, heapCommitted, objectsPending, nonHeapUsed, nonHeapMax, nonHeapInit, nonHeapCommitted
MemoryPool	Shows by Pool, memManagerNames, peakUsageUsed, peakUsageMax, peakUsageCommitted, peakUsageInit, usageUsed, usageMax, usageCommitted, usageInit
Threading	Show Threading info ; started, count, peak, daemonCount, currentUserTime, currentCPUTime

Add-on for MySQL

Metric	Description
SHOW STATUS	Aborted_connects, Com_admin_commands, Com_commit, Com_delete, Com_insert, Com_select, Com_set_option, Com_show_status, Com_show_tables, Com_update, Created_tmp_disk_tables, Created_tmp_tables, Handler_read_first, Handler_read_key, Handler_read_next, Handler_read_prev, Handler_read_rnd, Handler_read_rnd_next, Innodb_buffer_pool_pages_data, Innodb_buffer_pool_pages_dirty, Innodb_buffer_pool_pages_free, Innodb_buffer_pool_read_requests, Innodb_buffer_pool_write_requests, Innodb_log_waits, Qcache_hits, Qcache_inserts, Qcache_not_cached, Select_full_join, Select_full_range_join, Select_range, Select_range_check, Select_scan, Slow_queries, Sort_merge_passes, Table_locks_immediate, Table_locks_waited, Threads_connected, Threads_running
SHOW GLOBAL VARIABLES	Max_connections

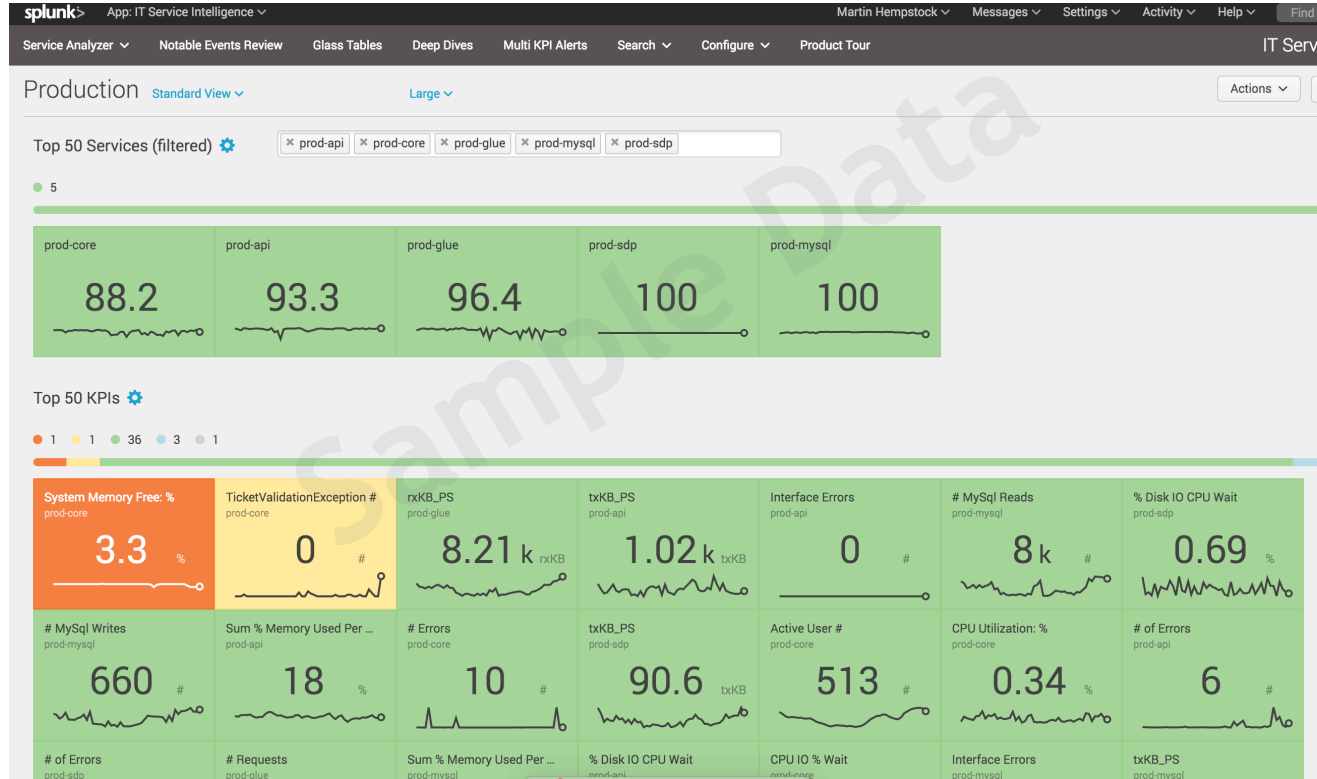
JVM Data



Glass Tables

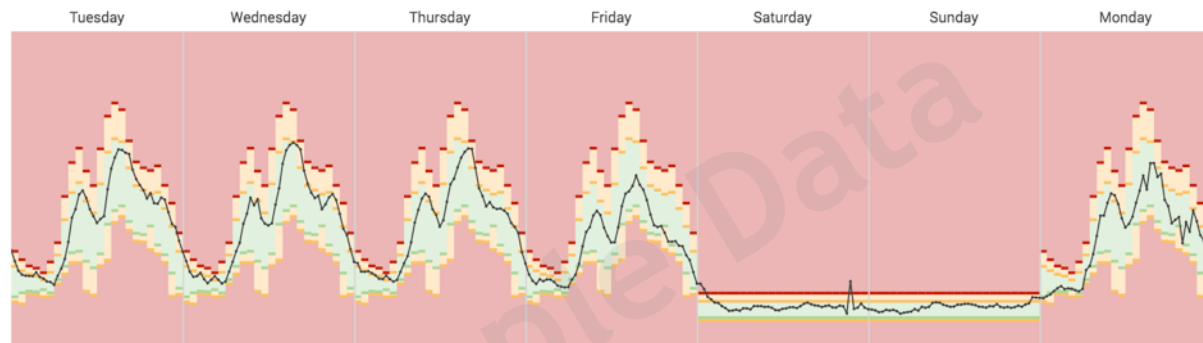


Service Analyzer

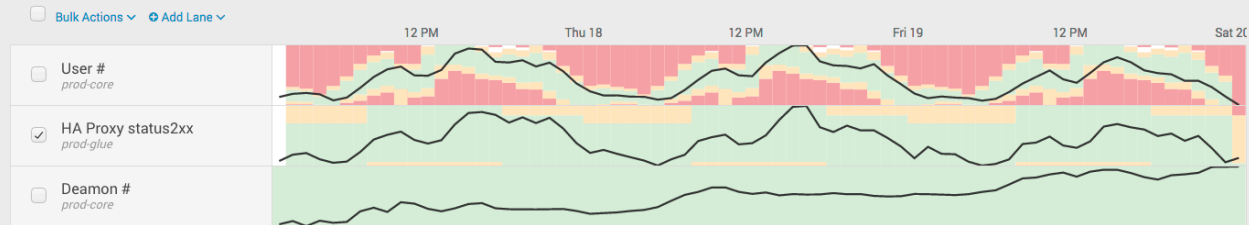


Dynamic Thresholding

Preview Aggregate Thresholds










Deep Dive



KPI Weighting

Composite Score: 52.68 ■ Medium

Range: Critical 0-20, High 20-40, Medium 40-60, Low 60-80, Normal 80-100

KPI Title	Simulated Severity	Importance
# Errors	■ High <input type="button" value="v"/>	
# HTTP Status > 499	■ High <input type="button" value="v"/>	
Active User #	■ Critical <input type="button" value="v"/>	
CPU IO % Wait	■ Normal <input type="button" value="v"/>	
CPU Utilization: %	■ Normal <input type="button" value="v"/>	
System Memory Free: %	■ Normal <input type="button" value="v"/>	
TicketValidationException #	■ Normal <input type="button" value="v"/>	

What Next

- Build on ITSI
 - Add event feeds
 - Use it for event notification
 - Security Feeds
- Prediction and Self-Healing.
- User Behavior Analytics
 - Security
 - Product

Take Aways

- Splunk has gave us the Speed and Flexibility Needed.
- Centrally Managed Splunk Team has worked well for us.
- Look at Splunk Base however it wasn't a steep learning curve to write out own apps.
- With ITSI deployment planning is everything.

