ITSI'ing ITSI:

How to leverage the internal ITSI indices to extend your service capabilities

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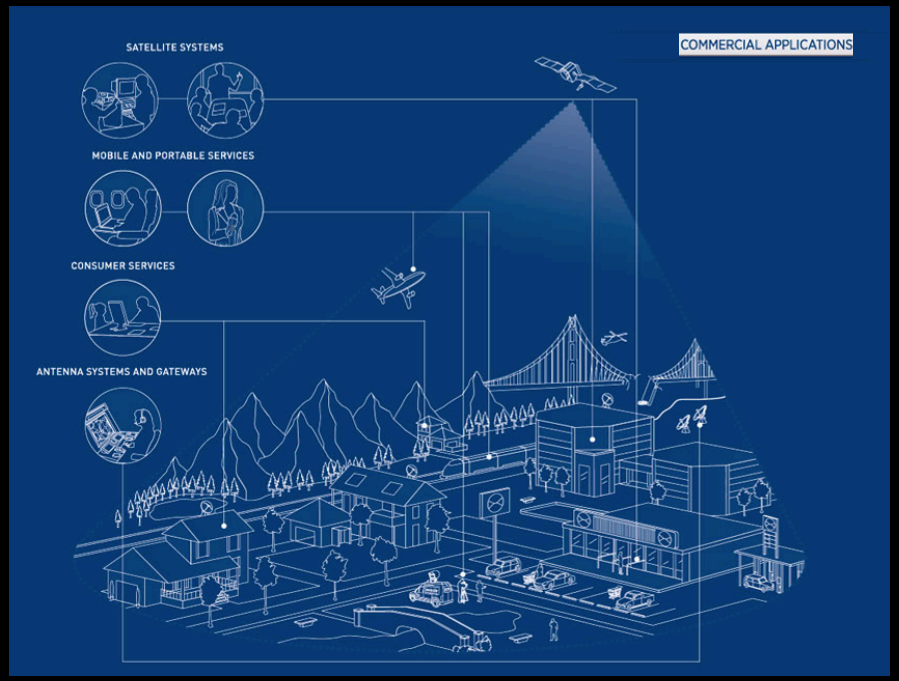
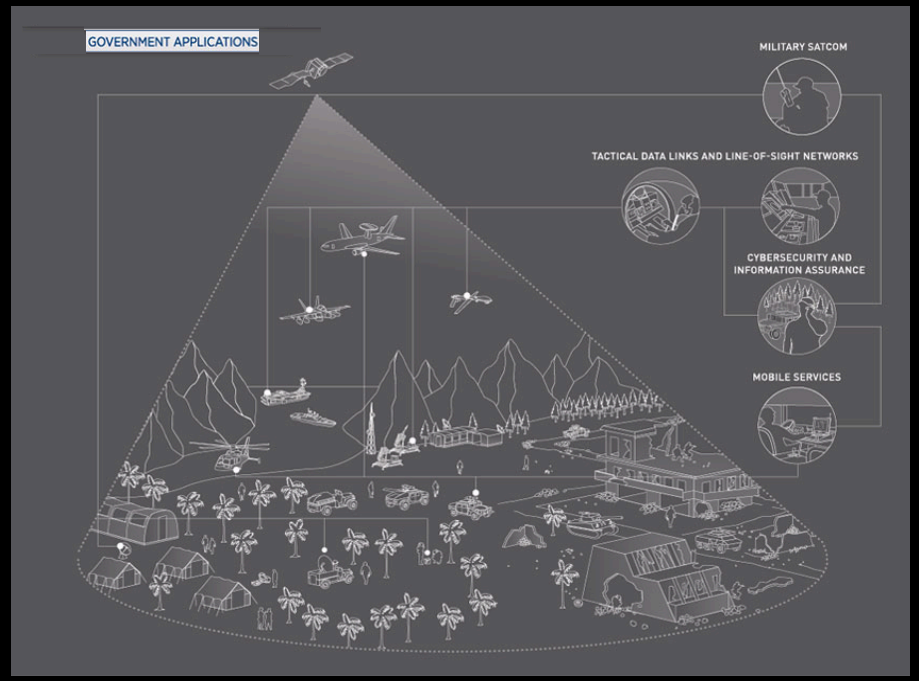
ViaSat: Connecting the World is Our Mission

- Global communications company that believes everyone and everything in the world can be connected
- More than 4,500 employees across 26 offices





The Do's and Don'ts of ITSI

Knowing Your Use Case for Initial Success

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Know Your User Requirements

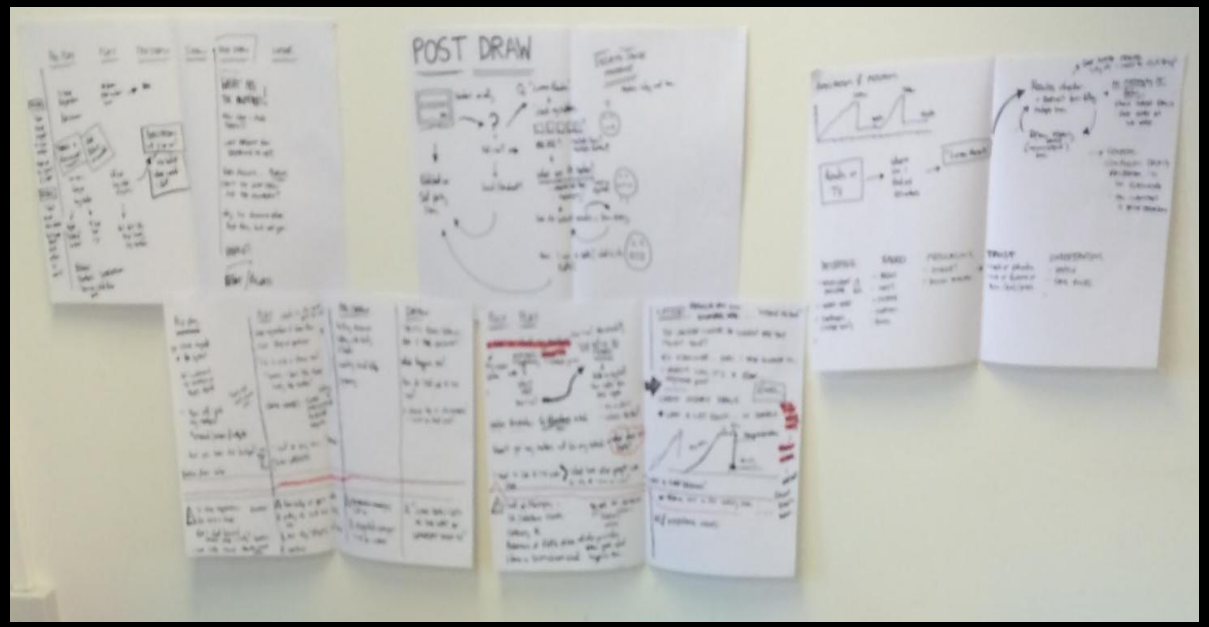
Don't Use the Ferrari if They Only Need a Bicycle

- If all they need is one function of Splunk, ITSI might not be the right fit
  - Scheduled Reports
  - Static alerts
  - Dashboards that never change

- If they need actual performance management (not just alerts) than you do!
  - Aggregated performance over time
  - Predicting future performance
  - Impacts of one part of your environment on another
  - Anomalies in normal behavior
  - Service lens

Know and Agree on What Healthy Means

AND Make Sure Everyone Else Does Too!



- Know all of the components of your service
  - KPI's
  - Entities
  - Dependencies
- Make sure cross functionally *everyone* is on the same page
  - KPI Calculation
  - Service Definition
  - Search Schedule
  - Thresholds

Be Willing to Stay Engaged

Both With Your ITSI Deployment and Your Users

Services Are Needy!

- Adaptive Thresholding
- Environment expansion
- Entity discovery

The NOC is Needy Too!

- They need this information to do their job
- Introducing a lot of change to a change-averse culture
- Alert conditions are a moving target

Be Patient When Building Your First ITSI Service

Build- Re-Evaluate- Modify!

Factors for Getting ITSI Right

- Good KPI Base Searches
- Correct Thresholds
- ….and we haven't event talked about entities yet!

Be Okay With Iterating!

- Learn from your mistakes and user feedback
- Let changes soak
- If all else fails…backup and restore

ITSI Internal Index Overview

What ITSI is Doing in the Background

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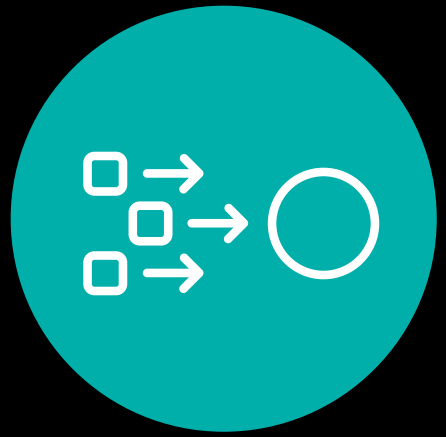
The Big 4

Where Your Most Important ITSI Data is Located

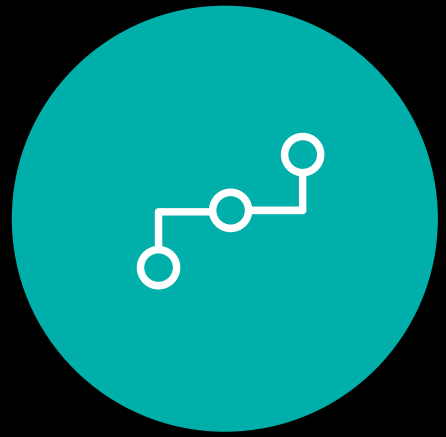
itsi_summary

Service and KPI information



itsi_tracked_alert

Active Notable Events



itsi_notable_audit

Notable Event Action Details

itsi_notable_archive

Historical event metadata

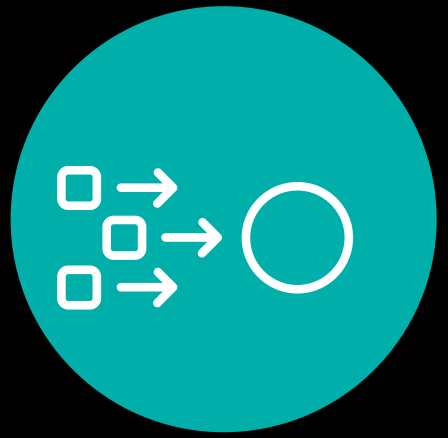
Other Important Data Sets

service_kpi_lookup

Service Metadata lookup

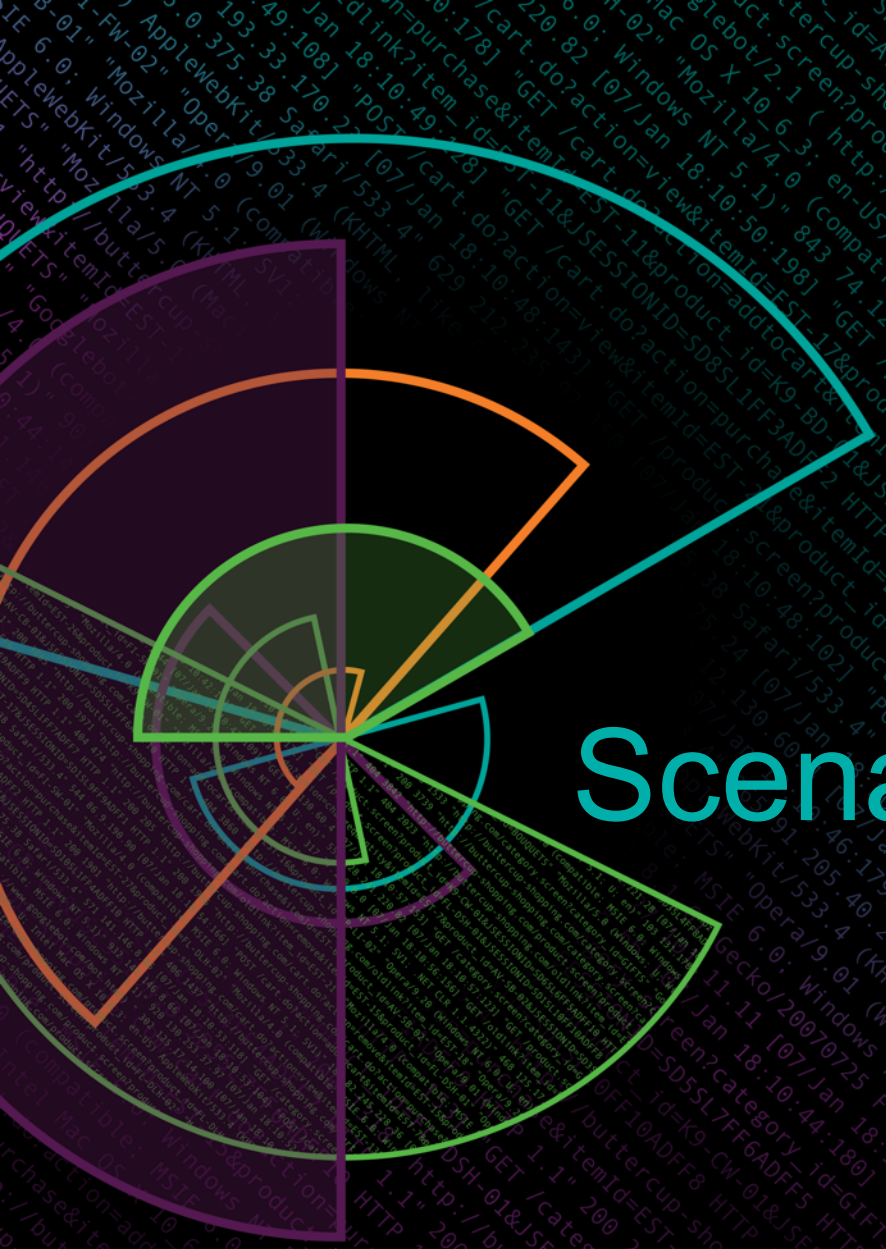
index=anomaly_detection

KPI anomaly detection from services



index=itsi_grouped_alerts

Active notable event groups



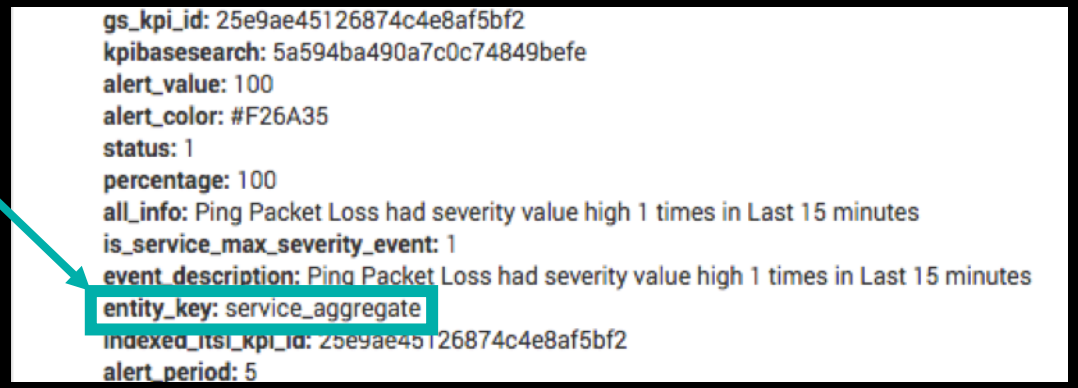
Scenario 1: Better Multi-KPI Alerts

The Problem

Entities and Stuff…

- What Multi-KPI alerts are good for off the shelf
  - Website Performance
  - User impact
  - General Cloud Tenancy/VPC degradation

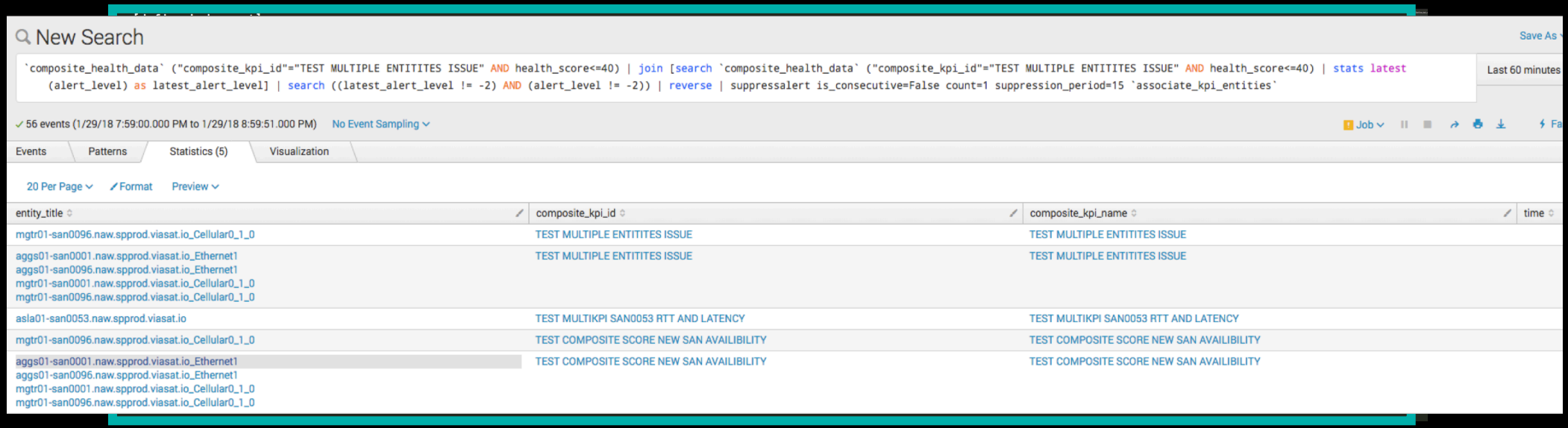
- What am I supposed to do with this?



The Solution: Part 1

Find Your Entities

- Creating new Nested Macros that are applied in conjunction to the base multi-KPI macro's



Use Cases

Network Alerting

- Link Flaps, IS IS Adjacencies, etc.

Back Office

- Database to order provisioning correlations

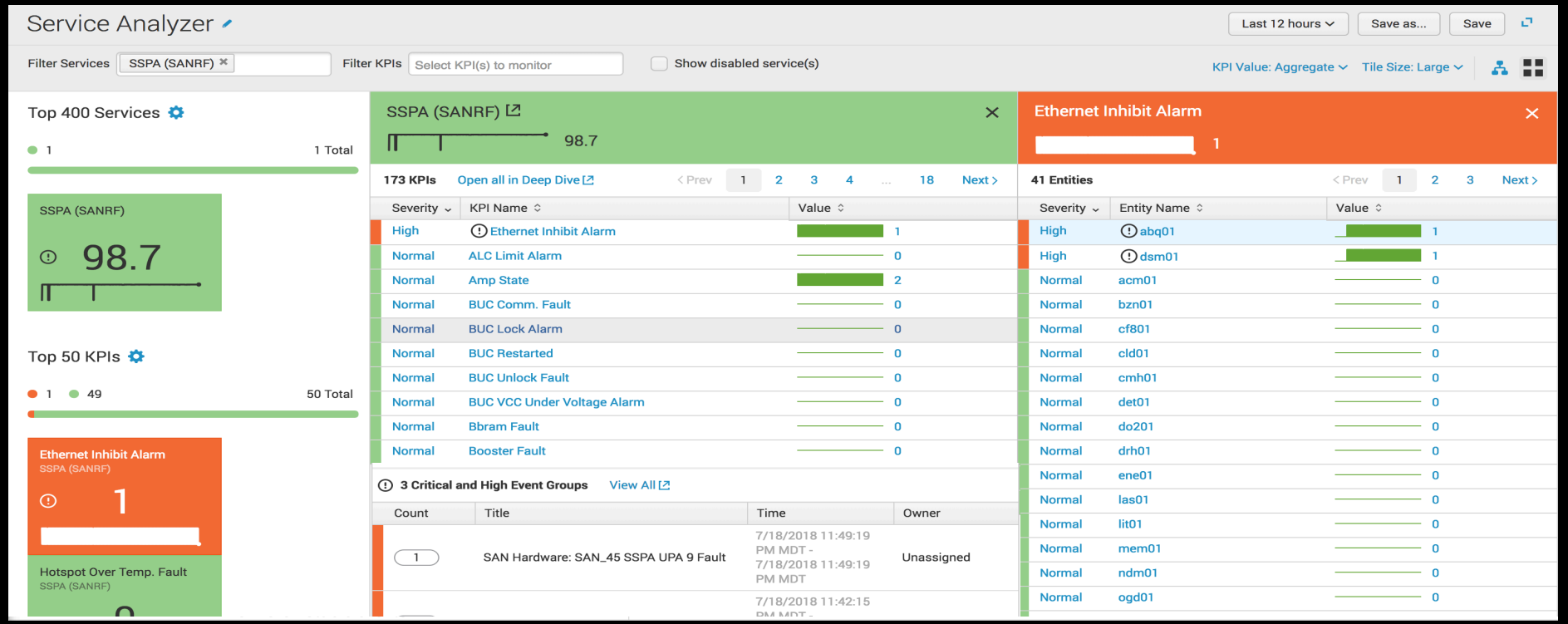
Airlines

- Tail to ground segment hosts

The Solution: Part 2

ITSI Summary in Correlation Searches

- Use the service information in the itsi_summary index to create rich Notable events



Use Cases

Hardware Alerting

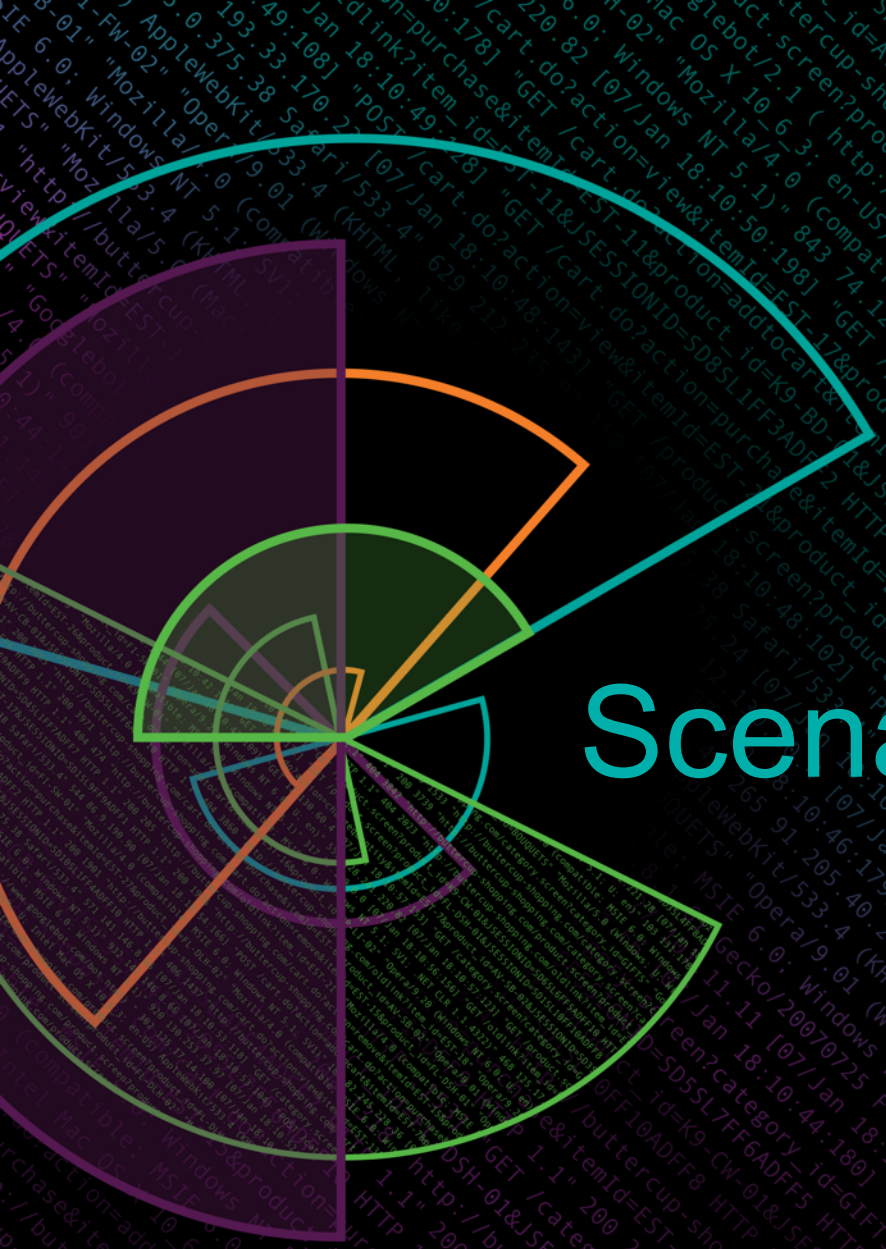
- Same hardware in different locations

NOC Alerting

- Operator information

DevOps Incident Management

- xMatters notifications, automation variables



Scenario 2: Event Orchestration

The Problem

Validating an Issue is Real Before Getting Humans Involved

- Many events can self-recover
  - Link Flaps
  - CPU/Memory Spikes
  - Order processing backlogs
- This pulls resources away from other tasks

Don't wake me up for this…

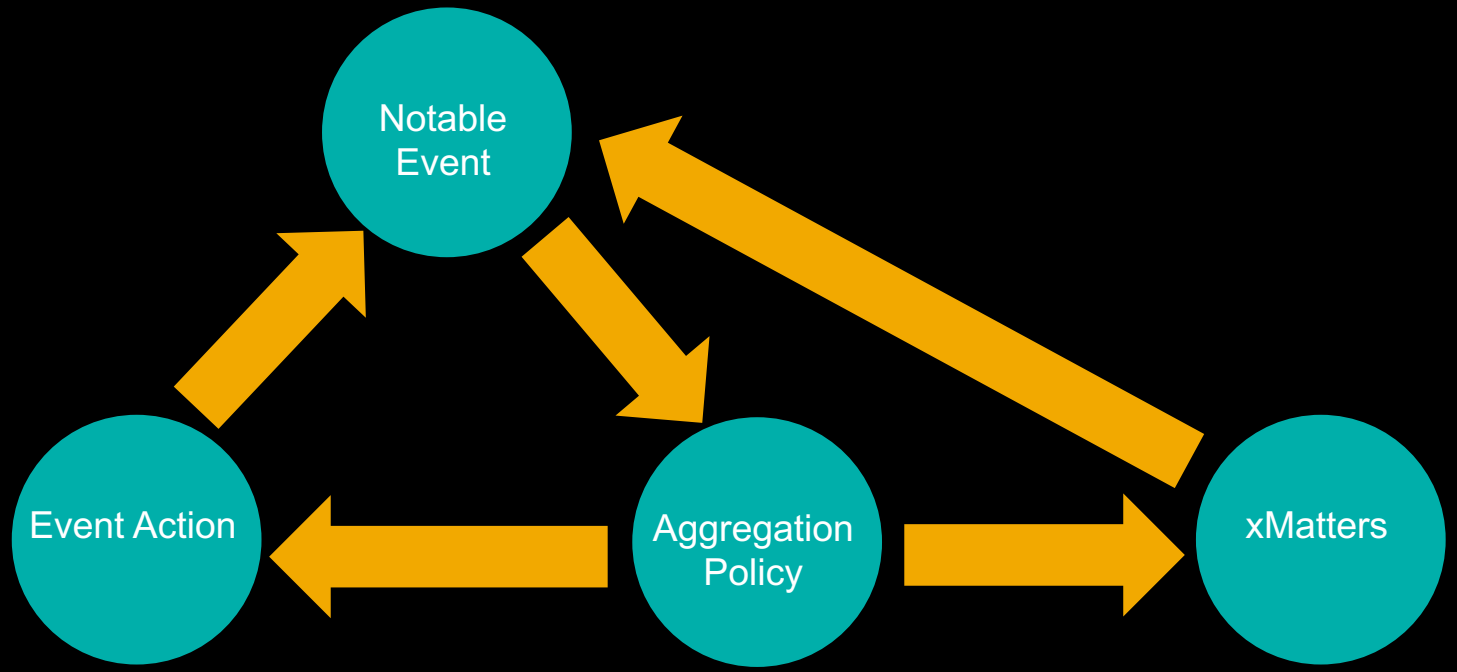
KPIs

Severity	KPI	Service	Sparkline
High	CPU Load	aggs01-san0006.naw.spprod...	
High	CPU System	aggs01-san0006.naw.spprod...	
Low	CPU User	aggs01-san0006.naw.spprod...	

The Solution

Aggregation Policies to the Rescue!

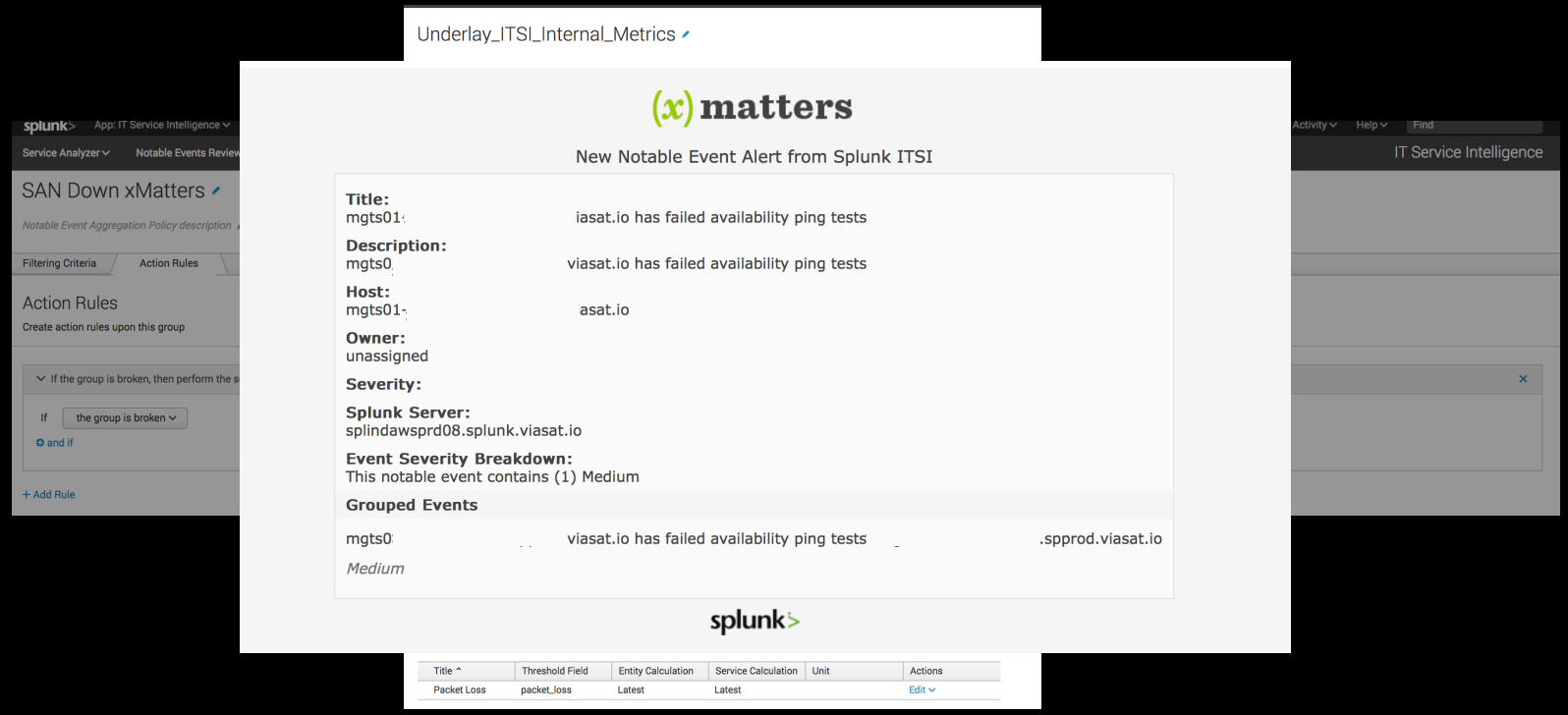
- By having aggregation policies do some validation steps, you can reduce alert fatigue and make your services better!



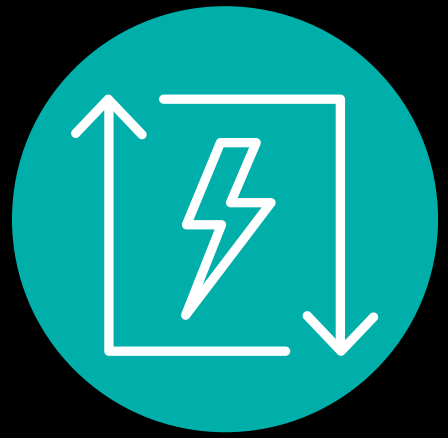
The Solution

Looping Notable Events

- Use the output of aggregation policy action rules to make new KPI's and alerts



Use Cases

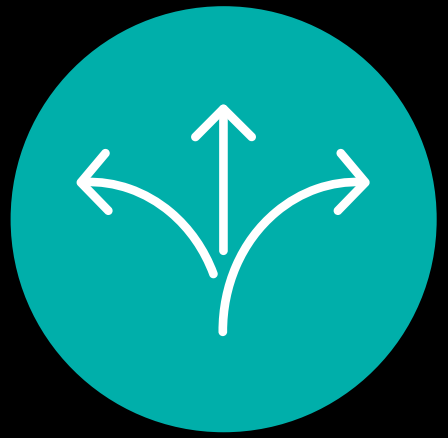


DevOps Alerting

- Only notify engineers when there is a real issue

Maintenance Validation

- Confirm services are working following a deployment



Auto-Remediation

- Send a webhook to Auto-remediation orchestrator

Scenario 3: ITSI and ML Toolkit

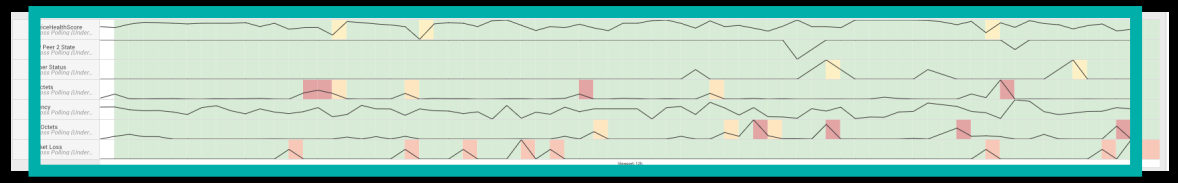
The Problem

How Do I Discover Patterns in my ITSI Notable Events?

- Deep dives are good for seeing variations in KPI's over time
  - Threshold breaches that happen in conjunction
  - Time series patterns in KPI data
  - Operator level analysis

- No mechanism for pattern matching Notable events

What should I care about here?



The Solution

Use the ML Toolkit to do event clustering

- Piping your alert values through the clustering algorithms allows you to see patterns in the thresholds

The Solution

Cluster Notable events

- Use the output of the itsi_summary index to identify patterns in your service data

Use Cases

Resource prioritization

- What to fix first

Impact assessment

- Which of my customers is having the worst experience

Predictive Operational insight

- Know what you didn't know before

Predictive Analytics Resources

- **Blog Post by Nate Smalley and Andrew Stein at Splunk:** ITSI and Sophisticated Machine Learning

- **ITSI Prediction Conf Sessions:**
  - Session IT 1676: Splunk IT Sevice Intelligence (ITSI) Not Just for IT Operations! How to Monitor a National Power Grid Using ITSI : Wednesday, Oct 03, 11:30 a.m. – 12:15 p.m.
  - Session IT1396 Transunion and a Time Traveling Delorean: MTTR Fading Like Marty McFly: Wednesday, Oct 03, 3:15 p.m. - 4:00 p.m.

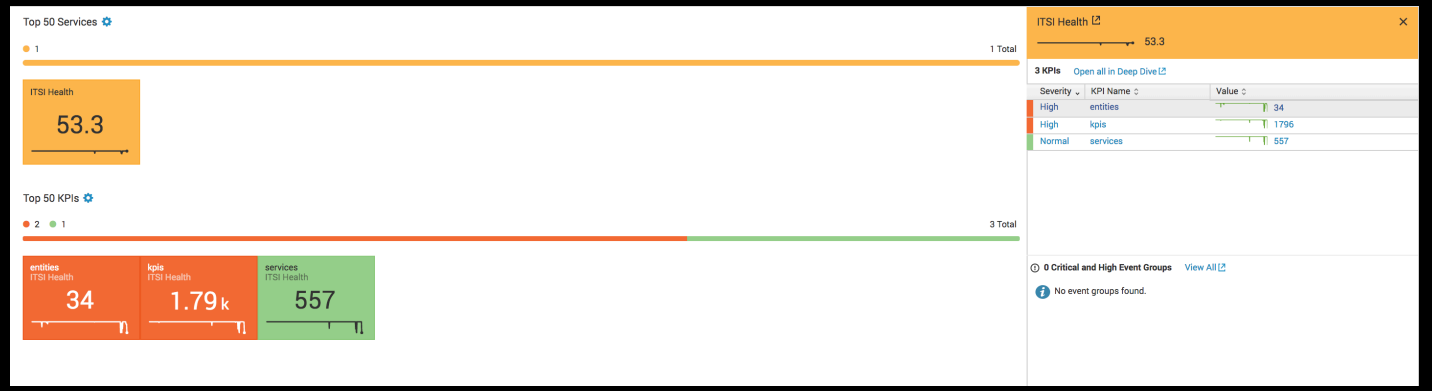
Scenario 4: ITSIaaS

The Problem

ITSI isn't in the Monitoring Console

- Several factors can impact the performance of ITSI
  - Upgrades to the environment
  - Bad base searches and correlation searches
  - Service Templates

- You need a way to monitor ITSI like the rest of your infrastructure



Key Takeaways

How to build a better ITSI

1. Make your base ITSI deployment as good as you can through best practices

2. Leverage the summary and notable event indices for better alerting, actions, and context for your Services and Events

3. ITSI and ML Toolkit are best friends

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