Ensuring Customer Satisfaction Through End-To-End Business Process Monitoring

Using Splunk IT Service Intelligence

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September 27, 2017  |  Washington, DC

September 2017  |  Washington, DC
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Introduction

To Cardinal Health and the speakers
About Cardinal Health

- Founded in 1971
- Headquartered in Dublin, Ohio
- Ranked #15 in the Fortune 500
- Expertise in Logistics, Products, Business and Patient Solutions
- Cardinal Health strives to make healthcare more efficient, providers more effective and patients as healthy as possible.
Michael Hurley

- Splunk Ninja
- Splunk Solution Architect and Solution Owner at Cardinal Health
- Focused on integration, monitoring and automation
- Favorite Splunk tagline: More brain, less surgery
Patrick Farrell

- Sr. Engineer
- Java Jedi and Splunk Ninja
- Splunk Champion at Cardinal Health
- Focused on cloud-native application development and devops initiatives
- Favorite Splunk tagline: Australian for grep
The Challenge

Pharmaceutical Modernization
Pharmaceutical Modernization

- Multi-year investment in the future of Cardinal Health
- Aligning people, processes and technology
- Enabling us to continue to be a leader in healthcare
- Replacing multiple critical independent systems: Accounting/Financial, Warehouse Management and the ParMed Order Management application
- Monitoring and traceability is a key requirement
Systems Landscape

- EDI (Electronic Data Interchange)
- Salesforce
- SAP ECC
- SAP HANA
- Manhattan Associates
“Correlating business transactions across multiple independent systems is challenging.”

Patrick Farrell
Business Sponsor
Backing and buy-in

Desire
- Ability to provide a current state view of the entire business process

Considerations
- Capability
- Cost

Buy-in achieved based on
- Speed-to-market
- Business process visualization
- Support for Agile methodology
How Do We Approach The Problem?

- Gather the transactions
- Connect the dots
- Tell the story
Which Options Did We Consider?
For end-to-end business process monitoring

► Custom solution using a database
  • High license cost
  • Long time-to-market
  • Fixed database schema
  • Lack of alerting capability

► Splunk Enterprise
  • High development cost
  • Long time-to-market
  • Schema-on-read
  • Alerting

Bottom line:
We did not want to build a custom solution based on a fixed database schema or lacking a built-in alerting capability.

Bottom line:
We liked the features provided by Splunk Enterprise but needed faster speed to market.
The Solution

Splunk IT Service Intelligence™
Why Splunk and ITSI?
Key Features Provided By ITSI

- Service Analyzer
- Glass Tables
- Deep Dives
- Multi-KPI Alerts *
- Notable Events *
- ITSI Modules *

* We are not currently using these features.
What Was Built

Features
## Services & KPIs

### Service Analyzer

**Top 50 Services**

<table>
<thead>
<tr>
<th>Service</th>
<th>DHEConnect Health</th>
<th>KINWAY-Prod</th>
<th>PD-Prod</th>
<th>SPD-Prod</th>
<th>Consumer Health</th>
<th>SCORE</th>
<th>MIF-SalesOrder</th>
<th>WMS-Sales Order</th>
<th>EBI-Sales Order</th>
<th>StLouis Warehouse</th>
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<td>ITU8Connect Health</td>
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<td>66.6</td>
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<td>Goods Receipts</td>
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<td>81.8</td>
<td>83.3</td>
<td>83.3</td>
<td>84.4</td>
<td>87.5</td>
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<td>95.7</td>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### Top 50 KPIs

<table>
<thead>
<tr>
<th>KPI</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Eqty Invl</td>
<td>1</td>
</tr>
<tr>
<td>Total Missing ASN</td>
<td>316</td>
</tr>
<tr>
<td>Goods Receipts</td>
<td>0</td>
</tr>
<tr>
<td>Goods Receipts</td>
<td>0</td>
</tr>
<tr>
<td>Missing ASN Invl.</td>
<td>2</td>
</tr>
<tr>
<td>Missing Goods Ret.</td>
<td>12.9k</td>
</tr>
<tr>
<td>Total Other ASN</td>
<td>1</td>
</tr>
<tr>
<td>Total ASN at Co.</td>
<td>4</td>
</tr>
<tr>
<td>Goods Receipts</td>
<td>0</td>
</tr>
<tr>
<td>Total ASN Delv</td>
<td>318</td>
</tr>
</tbody>
</table>
Business End User Monitoring

End-to-end transactional event correlation

▶ One view of the entire business process

Drill down

▶ With one click business users have the ability to drill down into a sub business process or see details for a specific business object

Machine learning

▶ Able to clearly see when things are not normal
How Was It Built

Implementation
Building the Team
Within a short time span

Splunk skills
- Splunk ITSI
- Splunk SPL and Knowledge Objects
- Splunk Administration

Other skills
- Project Management
- Solution Architecture
- Business Analysis
- End Point Application SMEs

“Hiring Splunk Certified Ninjas will have a significant impact on success of your ITSI Project”
“Agile software development methodologies work well with Splunk ITSI.”

Michael Hurley
Establishing Governance

When and how to use ITSI

It was essential to establish use cases for Splunk ITSI

▶ Too many competing technologies

Defending when to use ITSI was a constant battle since expectations had already been set

“Providing Architectural Guidelines to the BA’s in the very beginning would have helped significantly”

Key considerations

▶ ITSI is used as a visual means to show transactional correlation across a business process

▶ Business users should be given the ability to see correlations in sub processes and see the data that is traveling through each process

▶ For this project application monitoring is outside the scope

▶ Also not in scope is using ITSI for any long term analysis
Gathering The Transactions

SaaS

AWS Cloud

On Prem

DB Connect

Amazon API Gateway

HEC API

Dell

Boom

Salesforce

SAP HANA

SAP ECC

EDi

PARMED PHARMACEUTICALS

Manhattan Associates

Splunk

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Connecting The Dots
Using Splunk Enterprise

We correlate business transactions consisting of multiple ‘events’ across multiple systems using information such as PO number, ASN ID, etc.

▶ Information is collected, correlated and displayed in Near Real Time

Providing business users

▶ With the ability to see what is happening now
▶ Almost immediate notification when there is a delay in a business transaction
▶ An overall health gauge of their business process
Telling The Story
With Splunk ITSI

- Define entities (Optional)
- Configure services
- Add KPIs
- Create visualizations
- Setup alerts
Services are logical groupings of IT objects that align with your business goals, such as a group of applications or a business service, containing one or more Key Performance Indicators (KPIs).

Key Performance Indicators (KPIs) are recurring saved searches that return the value of an IT performance metric, such as response time, that can be used to monitor service health.

“Writing the SPL queries to build KPIs consumed about 90% of our development time”
Glass Table Exercise

One day event where Splunk engineers describe the process of building an ITSI solution and walk you through the build out of a glass table

*Extremely helpful and highly recommended before starting work on any ITSI solution*

Splunk will provide more detailed information about the Glass Table Exercise (GTE) later on during this session…
Process:
1. Identify the systems that make up a business process and how data flows between them
2. Create a diagram
3. Convert to PNG
4. Import

It is that simple
Key Performance Indicator (KPI)

- Drag and drop KPIs onto glass table
- Configure KPI behavior

Business Processes and Sub Processes

- Tendency is to get everything on one screen
- Use drill downs to break up business process and save screen space
Requirements:

1. Detect missing events
2. Compare day of week with same day from previous weeks at the same hour and indicate if greater than -2 Standard Deviation

   - None of the supplied templates fit our requirement
   - Creating a new template that met the requirement was time consuming

Once created, applying to non static KPIs required only two steps

1. Configure threshold on the Service KPI and
2. Turn on the KPI threshold in the glass table
Early identification of business logic defects in monitored applications through KPI analysis reduced costs compared to identification of the same defect in production.

Early discovery of business transaction and process failures prevented service disruption resulting in a better customer experience.

Educating senior leadership about our solution sparked new ideas that ultimately led to the discovery of new Splunk use cases.

Strong user adoption including 100+ business users and 30+ IT analysts.

Interest in Splunk is at an all-time high.
Key Takeaways for your next ITSI project

► Define use cases and provide architectural guidelines before gathering requirements
► Participate in the Glass Table Exercise provided by Splunk before beginning an ITSI project
► Hire Splunk Certified Ninjas whenever possible to reduce risk when faced with short deadlines
► Use agile methodology when building out solutions based on Splunk Enterprise or Splunk ITSI
Thank You

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Ready, Set, Go! Learn From Others - The First 30 Day Experiences of ITSI Customers: Tuesday, September 26th, 2017 12:05 PM- 12:50 PM Room Salon C

Splunk ITSI Overview: Tuesday, September 26th, 2017 1:10 PM-1:55 PM Room 147 AB

PWC: End-to-End Customer Experience: Tuesday, September 26th, 2017 2:15 PM-3:00 PM Room 143ABC

RSI: Operational Intelligence: How to go From Engineering to Operationalizing IT Service Intelligence Where the Rubber Meets the Road: Tuesday, September 26th, 2017 2:15 PM-3:00 PM Room 147AB

Cardinal Health: Ensuring Customer Satisfaction Through End-To-End Business Process Monitoring Using Splunk ITSI: Tuesday, September 26th, 2017 3:30 PM-4:15 PM Room 143 ABC

ITSI in the Wild - Why Micron Chose ITSI and Lessons Learned From Real World Experiences: Tuesday, September 26th, 2017 4:35 PM- 5:20 PM Room Salon C

Event Management is Dead. Time Series Events are the Means to the End, not the End Itself. See How Event Analytics is Revolutionizing IT: Wednesday, September 27th, 2017 11:00 AM-11:45 AM Ballroom C

Triggering Alerting (xMatters) and Automated Recovery Actions from ITSI: Wednesday, September 27th, 2017 1:10 PM- 1:55 PM Room Salon C

Leidos - Our Journey to ITSI: Wednesday, September 27th, 2017 2:15 PM-3:00 PM Room 147AB

How Rabobank’s Monitoring Team Got a Seat at the Business Table by Securing Sustainability on Competitive Business Services Built on Splunk’s ITSI: Wednesday, September 27th, 2017 2:15-3:00pm Room 147AB

Here Comes the Renaissance: Digital Transformation of the IT Management Approach: Wednesday, September 27th, 2017 3:30 PM-4:15 PM Room Salon C

The ITSI ‘Top 20’ KPI’s: Thursday, September 28th, 2017 10:30 AM-11:15 AM Room Salon C

Automation of Event Correlation and Clustering with Machine Learning Algorithms – An ITSI Tool: Thursday, September 28th, 2017 11:35 AM-12:20 PM Room Salon C

Event Management is Dead. Time Series Events are the Means to the End, not the End Itself. See How Event Analytics is Revolutionizing IT: Thursday, September 28th, 2017 11:35 AM - 12:20 PM in Ballroom B

IT Service Intelligence for When Your Service Spans Your Mainframe and Distributed ITSI: Thursday, September 28th, 2017 1:20 PM-2:05 PM Room Salon C