

Improving the Medical Claims Process with Splunk



Nate Kwong | Sales Engineering - Splunk

Oct 2019

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Improving the Medical Claims Process with Splunk

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Sales Engineering - Splunk

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Key Learning Objectives

1. How we used Splunk to analyze healthcare data
2. How we improved manual claims processes with automated monitoring
3. How we quickly provided value back to IT, executives, and customers

Agenda

- ▶ About the Healthcare Customer
- ▶ Our Opportunities and Objectives
- ▶ Splunk Enterprise and Healthcare Data
- ▶ Our Success and Impact
- ▶ Key Takeaways
- ▶ Q&A

About the Healthcare Customer



- ▶ One of the largest healthcare providers in the United States
- ▶ **7,000+** IT employees
- ▶ Support **~300,000** personal computers
- ▶ Over **33,000** servers run their business, health plan, and care delivery applications
- ▶ Support **1,000+** applications

Splunk @ Healthcare Customer

- ▶ Current use cases with Splunk
 - Security
 - IT Operations
 - Application Monitoring
- ▶ Splunk is monitoring **~350 applications**
- ▶ Customer is expanding Splunk to ingest **healthcare data** to provide business analytics



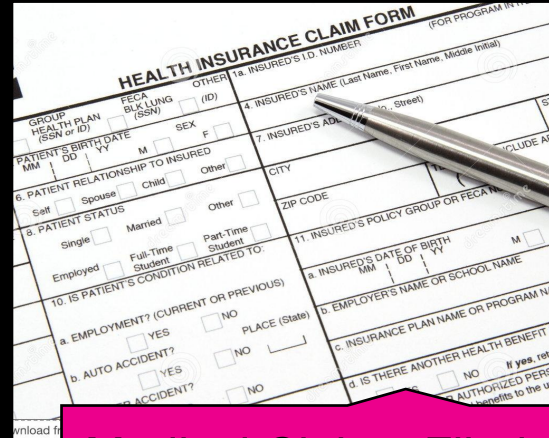
Our Opportunities and Objectives



Medical Claims Overview



Medical Services
Provided to Patients



Medical Claims Filed
(Millions Per Month)



Business Analysts
Review Claims



Services Reimbursed

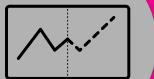
Our Opportunities and Challenges



Manual Process for Analysis



No Real-time Status for Claims Information



Limited Executive Visibility



Not Enough Automation

Our Goals



**Central Medical
Claims Dashboard**



**Eliminate Manual
Processes**



Real-time Analysis



**Leverage an
Established Solution**

Splunk Enterprise and Healthcare Data

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Medical Claims Process and Data

Medical Claims Process and Data

The data we needed to organize and automate...



Manual Processes and
Lots of Spreadsheets



Custom Logs



External Data Sources:
CSV, RDBMS

Before Splunk: Medical Claims Data

```

2018-08-15 21:29:04 INFO test.123.xyz.itp.ITP main ITP3.0 started 8Y8-
2018-08-15 21:29:04 INFO test.123.xyz.itp.LoadBalancerL... ener started lisenting at port 9999
2018-08-15 21:30:11 INFO test.123.xyz.itp.ITPThread run ... /sftp/home/EDI... /TEST... 10
2018-08-15 21:30:11 INFO test.123.xyz.itp.DBLogger log Logging - user: EDI... - file: TEST NW... 33
2018-08-15 21:30:11 INFO test.123.xyz.itp.DBLogger log SQL: com.mysql.jdbc.JDBC42PreparedStatement insert :
2018-08-15 21:30:11 INFO test.123.xyz.itp.DBLogger log Finished logging - user: EDI... - file: TEST_HSO...
2018-08-15 21:30:11 INFO test.123.xyz.itp.ITPThread run '/EDI/sftp/home/EDI... /sftp/home/EDI... /TEST_NW...
2018-08-15 21:30:19 INFO test.123.xyz.itp.ITPThread run '/EDI/sftp/home/EDI... /sftp/home/EDI... /52... D
2018-08-15 21:30:19 INFO test.123.xyz.itp.DBLogger log Logging - user: EDI... - file: 52... .TEST.360000!
2018-08-15 21:30:19 INFO test.123.xyz.itp.DBLogger log SQL: com.mysql.jdbc.JDBC42PreparedStatement insert
2018-08-15 21:30:19 INFO test.123.xyz.itp.DBLogger log Finished logging - user: EDI... - file: 52... D.TE
2018-08-15 21:30:19 INFO test.123.xyz.itp.ITPThread run '/EDI/sftp/home/EDI... sftp/home/EDI... /52... D
2018-08-15 21:30:20 INFO test.123.xyz.itp.ITPThread run '/EDI/sftp/home/EDI... sftp/home/EDI... /52... D
2018-08-15 21:30:20 INFO test.123.xyz.itp.DBLogger log Logging - user: EDI... - file: 52... D.XXXX.A.PDF
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2018-08-15 21:30:20 INFO test.123.xyz.itp.DBLogger log Finished logging - user: EDI... - file: 52... D.PE
  
```

After Splunk: Medical Claims Data

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Messages ▾ Settings ▾ Activity ▾ Help ▾ Find 🔍

ITP File Log ITP File Log All ITP User Log by List ITP User Log by User Search Alerts

ITP File Log

Edit Export ▾ ...

Last 24 hours ▾ Hide Filters

Medical Claims Data with Field Extractions

ITP Log unknown or fail status transactions

	Date ▾	User Name ▾	Invalid File Name ▾
1	2019-08-13 19:31:30	EDI	test_ _834_ca.txt
2	2019-08-13 19:31:30	EDI	test_ _834_ca.txt
3	2019-08-13 19:31:30	EDI	test_ _834_ca.txt
4	2019-08-13 19:31:30	EDI	test_ _834_ca.txt
5	2019-08-13 19:31:30	EDI	test_ _834_ca.txt

Data Enrichment via Lookup File

Job Name, Current File Name ▾	Status ▾	Result ▾
607,TEST_ _ca.txt	UNKNOWN	FINISHED
591,TEST_ _834_ca.txt	UNKNOWN	FINISHED
569,TEST_ _834_ca.txt	UNKNOWN	FINISHED
011,TEST_ _ca.txt	UNKNOWN	FINISHED
560,TEST_ _ca.txt	UNKNOWN	FINISHED

Analyst selects specific claim transactions from the dropdown list

Correct File Name

607,TEST_ _ca.txt x 591,TEST_ _834_ca.txt x

Identified transactions

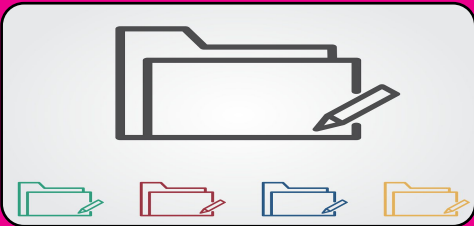
	Date ▾	User Name ▾	Invalid File Name ▾	Job Name ▾	Correct File Name ▾
1	2019-08-13 19:31:30	EDI	test_ _834_ca.txt	EDI	TEST
2	2019-08-13 19:31:30	EDI	test_ _834_ca.txt	EDI	TEST

Electronic Data Interchange (EDI)

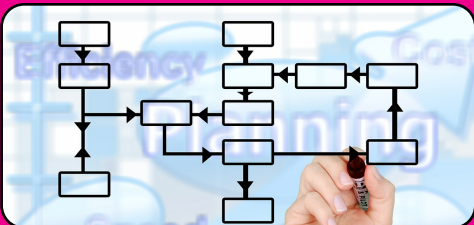
A Complex EDI Infrastructure



Electronic Data Interchange (EDI) is used to transfer data between business entities



EDI has various filetypes and transactions



EDI transactions monitored via Splunk

- Eligibility and Benefit Inquiry and Response (270/271)
- Claims Status Inquiry and Response (276/277)

Eligibility and Benefit Transaction (270/271)

270/271 Transaction Count by Number

[Edit](#) [Export](#) [...](#)All time [Hide Filters](#)

CO

270/271 Transaction Count by Number

Successful and Rejected
EDI Transactions

All time [Hide Filters](#)

CO

	Partner Name	270s counts	271s counts	271s rejected counts	271s rejected %
1	Healthcare ABA	1507	1507	19	1.26
2	Healthcare CBC	196	196	1	0.51
3	Healthcare FED	130	130	0	0.00

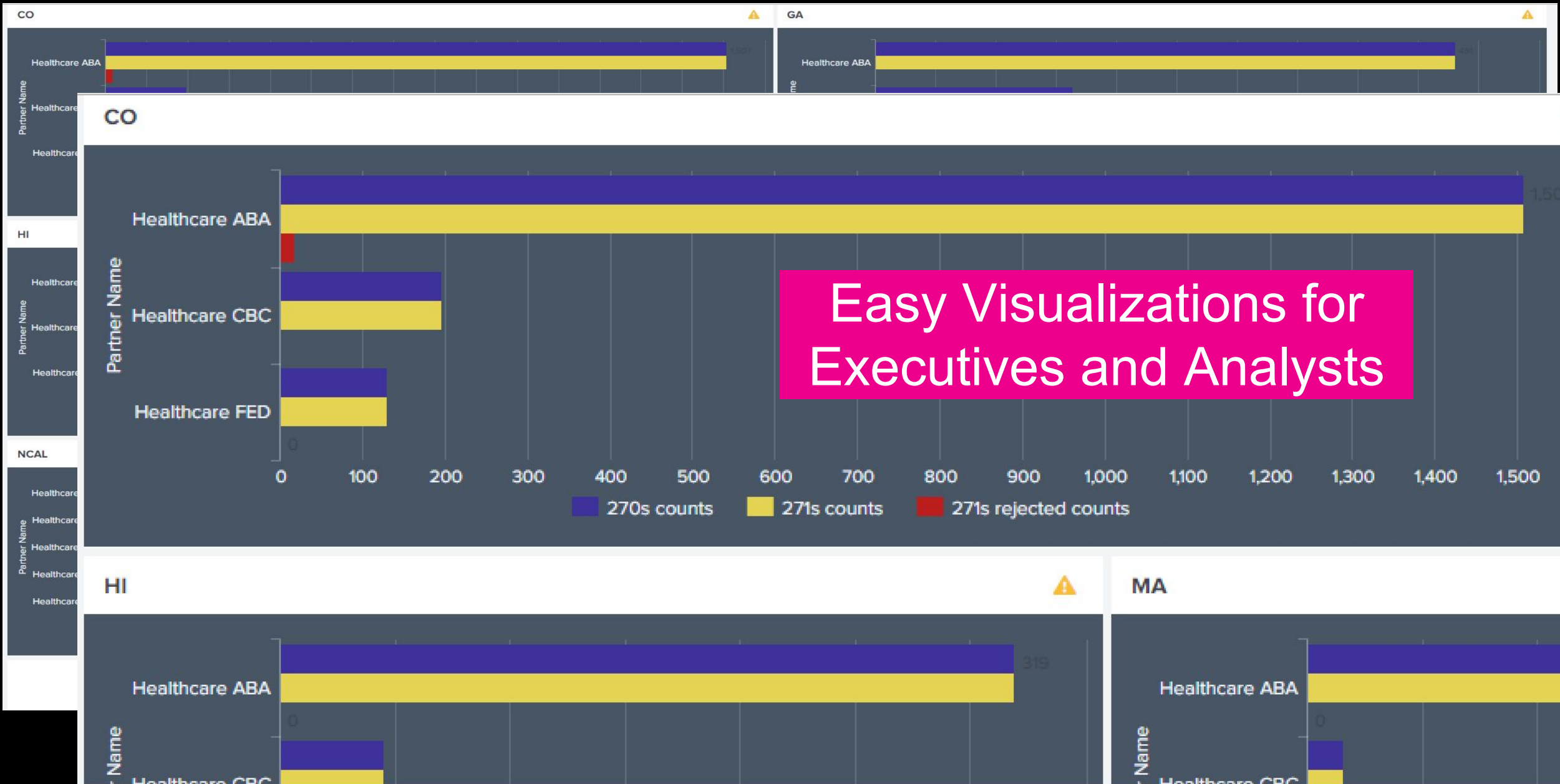
MA

Partner Name	270s counts	271s counts	271s rejected counts	271s rejected %
Healthcare ABA	574	574	0	0.00

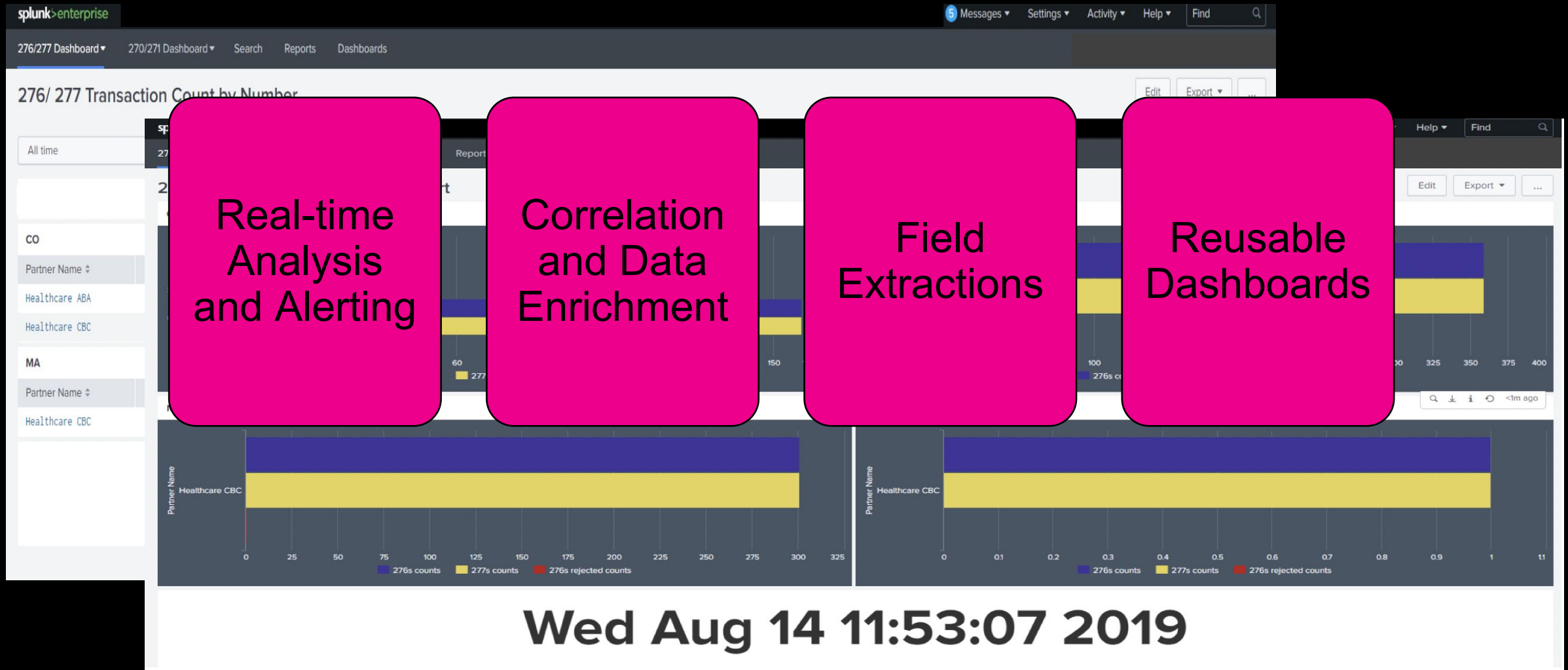
HI

Partner Name	270s counts	271s counts
Healthcare ABA	319	319

Eligibility and Benefit Transaction (270/271)



Claims Status Transaction (276/277)

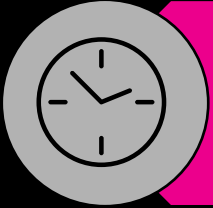


Success and Impact

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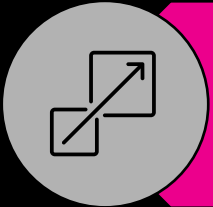


Success and Impact



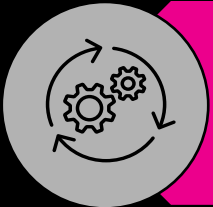
Time Savings

- Real-time monitoring of thousands of claim incidents per day
- Saves ~45 minutes of research time to resolve each claim incident

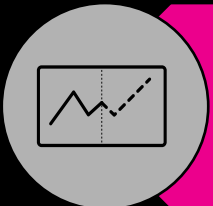


Increased Productivity

- Reduced the learning curve for new support personnel



Automation => Faster Processing => Better Customer Satisfaction



Greater Insights and Visibility

Conclusion



Key Takeaways

1. We successfully **correlated** and **enriched** healthcare data
2. Partnered early with business analysts to help **accelerate** the value from Splunk analytics
3. Replaced manual claim processes with **automated** monitoring
4. Business customers have requested **additional Splunk dashboards** for other healthcare use cases

Q&A

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**Thank
You!**