



Your Improved Customer Satisfaction With Splunk MLT and DBX

Sebastián Fernández | Digital Analytics LATAM Airlines

September 2017 | Washington, DC

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Presenter

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130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D15L9FF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-5W-03"
128.241.220.82 - - [07/Jan 18:10:57:123] "GET /product.screen?product_id=FL-DSH-01&JSESSIONID=5D35L7FF6ADFF0 HTTP 1.1" 404 3322 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268product_id=K0-CW-01"
317 27.160.0.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L7FF6ADFF0 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-189"
10 - - [07/Jan 18:10:56:189] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L7FF6ADFF0 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-189"
10 - - [07/Jan 18:10:56:187] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L7FF6ADFF0 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-187"
10 - - [07/Jan 18:10:56:188] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L7FF6ADFF0 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-188"

Agenda

1. About LATAM Airlines
2. How we use Splunk?
3. You have a lot of feedback, Splunk it!
4. Discover the correlation between web operations and CSat
5. Listening your customers with MLT
6. Q&A

“While **66%** of responding companies claim they deeply know their customers, only **24%** of customers believe the same.”

[Pega Systems](#)

“Surprisingly, [...] 38% of companies ‘never’ survey their customers and 25% ‘sometimes’ survey their customers.”

[Chris DiCenso](#)

“How can a company satisfy its existing customers, or outperform their competitors if they don’t know what their customers want?”

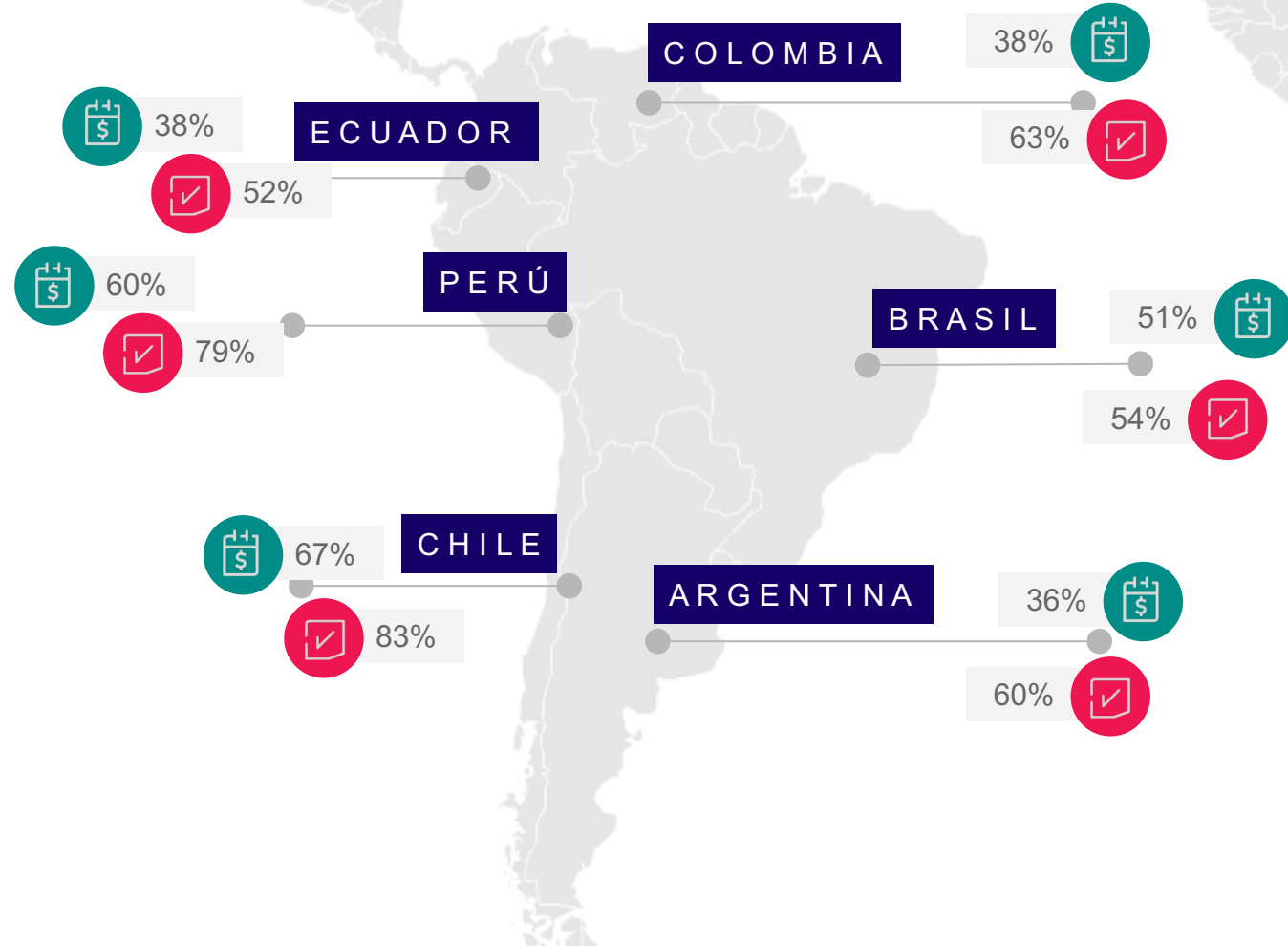
LATAM Airlines

We make dreams come to their destination

- ▶ Top 10 airlines in the world
 - 45.8 MM Passengers
 - +120 Destinations
 - 25 Countries
 - 355 Aircrafts
- ▶ 66% CSat by 2018
 - Digital Empowerment




LATAM Digital Platform Penetration



 LATAM Direct online share

OVERALL 50%

 LATAM Self Check-in penetration

OVERALL 61%

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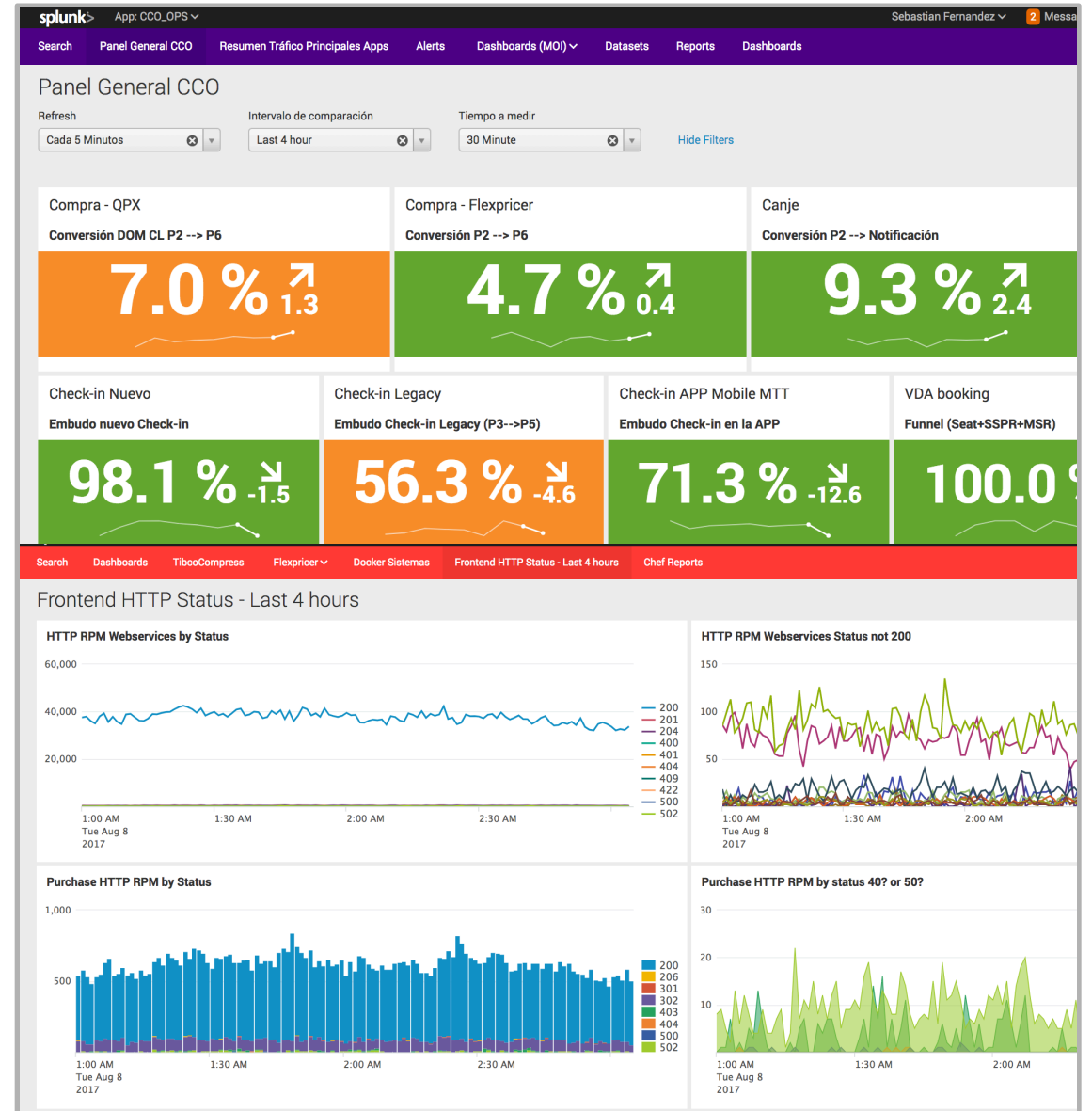
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125.17.14.14 - - [07/Jan 18:10:55:187] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L9FF1ADFF3"
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```

How We Use Splunk?

How We Use Splunk?

Operational Intelligence

- ▶ 4 Years using Splunk
- ▶ Agile and DevOps as culture
 - From APIs
 - Desktop version / Mobile app
- ▶ IT OPS
 - Measure effectiveness of the business process
 - Status of infrastructure
 - Anomaly detection

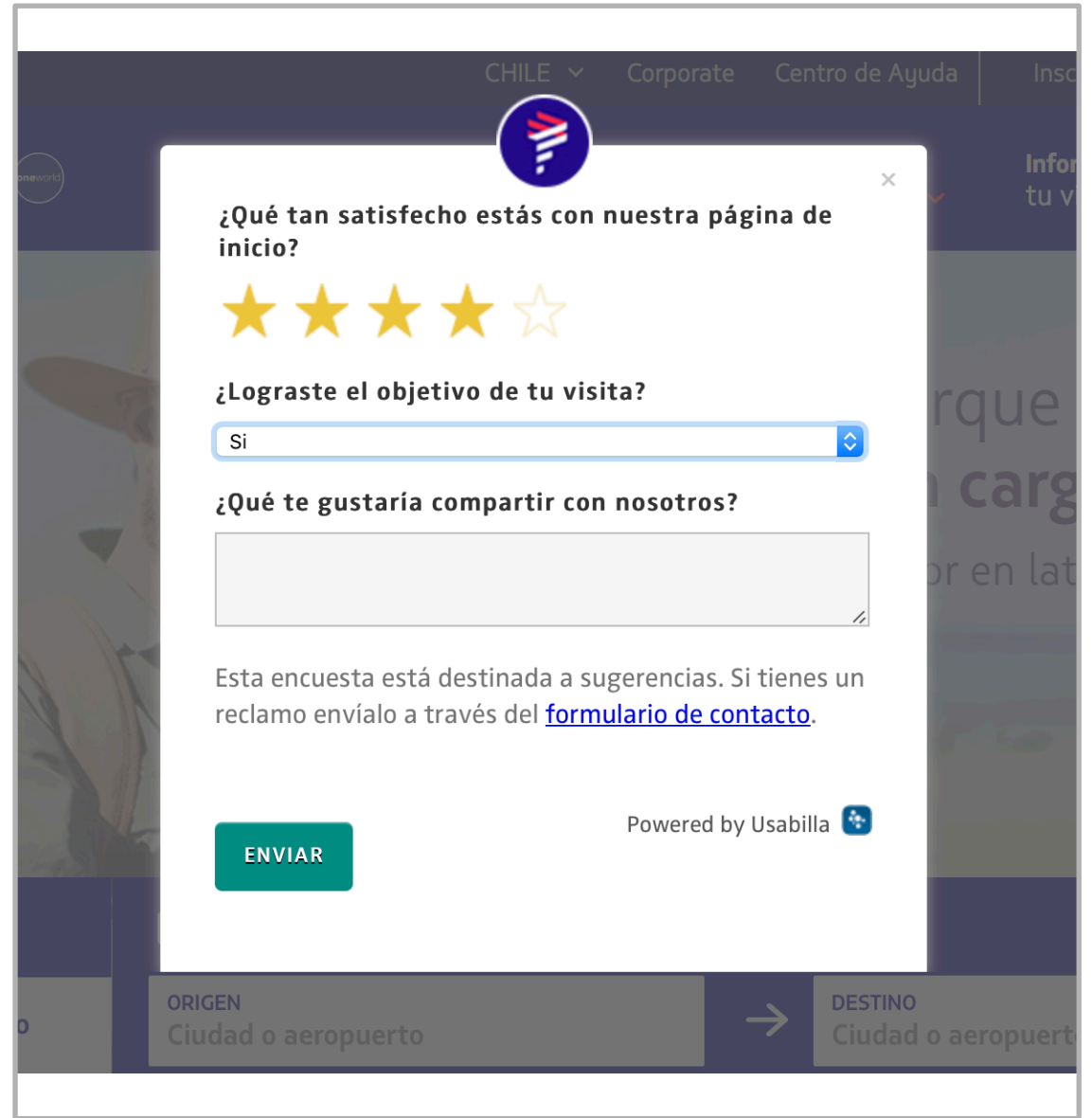


You Have a lot of Feedback, Splunk It!

Splunk Your Feedback

Usabilla and Splunk

- ▶ 6,000 Users feedbacks by day
- ▶ Understand satisfied/dissatisfied customers by app
- ▶ Bring CSat closer to dev teams



Splunk Your Feedback

Usabilla and Splunk



- ▶ Usabilla data in DDBB
- ▶ Splunk the DDBB with DBX
 - Available in Splunkbase
 - Session id, app, rating, comment, date, step, user agent, URL

Caveats, use a session id!

New Search

source="usabilla" sourcetype=user_feedback

✓ 14,253 events (7/24/17 12:00:00.000 AM to 7/31/17 12:59:34.000 AM) No Event Sampling Job

Events (14,253) Patterns Statistics Visualization

Format Timeline Zoom Out Zoom to Selection Deselect



List Format 20 Per Page Prev 1 2

< Hide Fields

All Fields

Selected Fields

- a host 1
- a source 1
- a sourcetype 1

Interesting Fields

- a apellido 100+
- a aplicacion 8
- a checkinData 100+
- a comentario 100+
- a dispositivo 2
- a fecha 100+

i	Time	Event
>	7/30/17 8:59:45.000 PM	2017-07-30 20:59:45.000, id="497385", id_encuesta="5890dfb1876927041e801974", nombre="...", comentario="LA PAG latam es horrible extremadamente lento no pudimos procesar su compra... :(", aplicacion="Compra", home="espanol/cl", fecha="2017-07-30 20:59:45.0", rating="1", url="https://ssl.lan.com/cgi-bin/compra/confirmacion.cgi?session_id=xy48141501447305_8M5WHVVI68", session_id="xy48141501447305_8M5WHVVI68", dispositivo="desktop", user_agent="Mozilla/5.0 (Macintosh; Intel Mac OS X 10_12_0; rv:53.0) Gecko/20100801 Firefox/53.0", pnr="CNANZP" host = localhost source = usabilla sourcetype = user_feedback
>	7/30/17 8:59:33.000 PM	2017-07-30 20:59:33.000, id="497465", id_encuesta="57ffc9edd3ee0d7e7e4b228c", nombre="...", ck_id="597e48b4dde9660731002e16", aplicacion="mybookings", home="es_cl", fecha="2017-07-30 20:59:33.000", url="https://www.latam.com/es_cl/apps/personas/mybookings#reservas?recordLocator=HTF3109-acd7-4bdd-9346-2ab14b71184f", tipo_encuesta="activa", dispositivo="desktop", user_agent="Mozilla/5.0 (Macintosh; Intel Mac OS X 10_12_0; rv:53.0) AppleWebKit/537.36 (KHTML like Gecko) Chrome/58.0.2988.0 Safari/537.36", page="bookingDashboard" host = localhost source = usabilla sourcetype = user_feedback

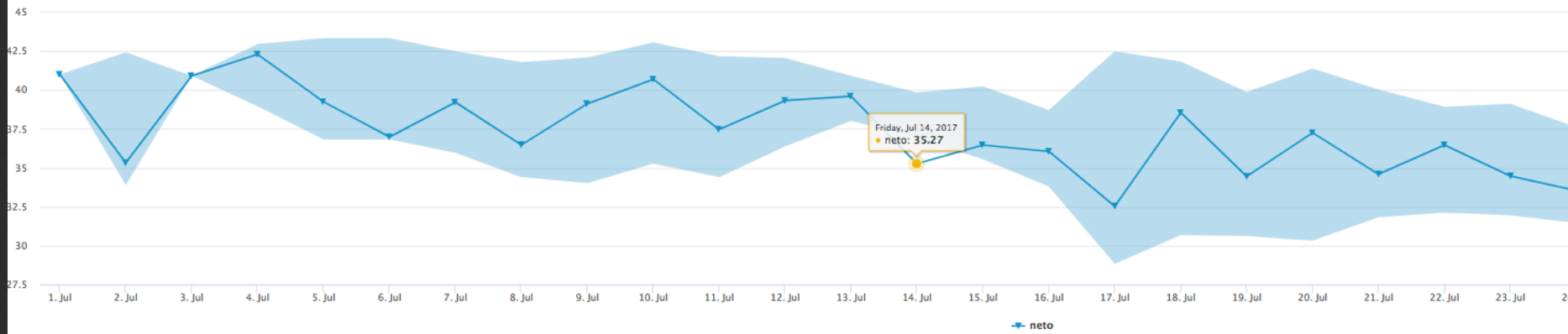
New Search

```
source="usabilla" sourcetype=user_feedback aplicacion=mybookings  
| timechart span=1d eval(100*(count(eval(rating=5)) - count(eval(rating=1 or rating=2)))/count) as neto  
| streamstats window=4 median(neto) as median,  
| eval abs_dev = abs(neto - median)  
| streamstats window=4 median(abs_dev) as median_abs_dev  
| eval lower = median - (median_abs_dev * 3)  
| eval upper = median + (median_abs_dev * 3)  
| eval outlier = if(neto<lower or neto>upper,1,0)  
| table _time neto lower upper
```

✓ 44,046 events (7/1/17 12:00:00.000 AM to 7/31/17 1:41:32.000 AM) No Event Sampling

Events Patterns Statistics (31) Visualization

Outliers Chart



_time	neto
2017-07-01	41.004498
2017-07-02	35.321821
2017-07-03	40.920555
2017-07-04	42.297650
2017-07-05	39.245983
2017-07-06	36.987179
2017-07-07	39.219450
2017-07-08	36.481340
2017-07-09	39.121482
2017-07-10	40.697674
2017-07-11	37.469734
2017-07-12	39.219450
2017-07-13	39.219450
2017-07-14	35.27
2017-07-15	37.469734
2017-07-16	36.987179
2017-07-17	32.5
2017-07-18	38.5
2017-07-19	34.5
2017-07-20	37.469734
2017-07-21	34.5
2017-07-22	36.987179
2017-07-23	34.5
2017-07-24	33.5

Discover the Correlation Between Web Operations and Customer Satisfaction

Correlation Between WebOps & CSat

- ▶ Empirically we know that there is a relationship between WebOps & CSat
 - Outage implies dissatisfied customers
- ▶ We track the CSat and the bugs in our platform in real time
 - How much an anomaly/exception impacts in our CSat
 - We are looking for rates 1 or 2
- ▶ Simple *JOIN* search tell us how to prioritize our bug fixing
 - We used to prioritize bugs for occurrence
 - Annoying bugs never where fixed

```
130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D15LAF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-SW-01" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_7; rv:53.0) Gecko/20100801 Firefox/53.0"
128.241.220.82 - - [07/Jan 18:10:57:123] "GET /product.screen?product_id=FL-DSH-01&JSESSIONID=5D35L7FF6ADFF0 HTTP 1.1" 404 3322 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268product_id=KQ-CB-01" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_7; rv:53.0) Gecko/20100801 Firefox/53.0"
ows NT 5.1; SV1; .NET CLR 1.1.4322)" 468 125.17 14.1.1.1 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-16&product_id=RP-LI-02" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_7; rv:53.0) Gecko/20100801 Firefox/53.0"
do?action=purchase&itemId=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-18" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_7; rv:53.0) Gecko/20100801 Firefox/53.0"
opping.com/cart.do?action=purchase&itemId=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1871 "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-18" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_7; rv:53.0) Gecko/20100801 Firefox/53.0"
```

CSAT Neta

Últimos 7 días

34.2 ↗
2.8



CSAT Neta Desktop

Últimos 7 días

31.8 ↘
-0.4



CSAT Neta Web Mobile

Últimos 7 días

35.7 ↘
-2.5



Insatisfacción

Últimos 7 días

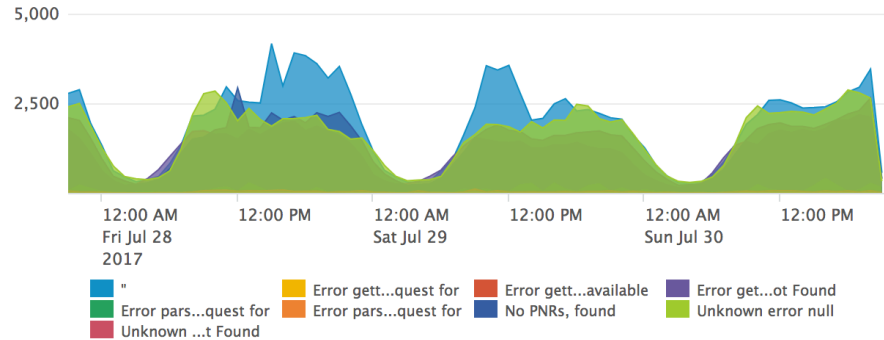
-13.1 ↘
-1.0



Principales focos de insatisfacción (Notas 1 y 2)

Error Description	Cantidad de usuarios afectados	% de Insatisfacción
insatisfaccion_no_operacional	483	98.8
Error parsing ancillaries response Ancillaries information. Error Code: java.net.SocketTimeoutException: Read timed outError: I/O error on POST request for	6	1.2

Errores que afectan la Satisfacción



New Search

Save As ▾ New Table Close

```

index=main sourcetype=user_feedback source=usabilla aplicacion=compra rating<3 | dedup id | rename session_id as sid
| join type=left sid search host="*.prod.lan.co*" level=ERROR dom=.lan.com (script_name="cajero_notificacion.cgi" OR script_name="compra_*.cgi") |
  dedup sid
| rex field=_raw "sid={28}(?<error_log>[^\$]{50})"
| eval desc=coalesce(message,description,error_log)
| table sid desc rating
| fillnull value=insatisfaccion_no_operacional
| stats dc(sid) as cantidad by desc
| eventstats sum(cantidad) as total
| eval peso=round(100*cantidad/total,1)
| fields - total, - cantidad
| sort -peso
| rename peso as "% de Insatisfaccion"
| rename desc as "Error Description"

```

Last 48 hours ▾



✓ 42 events (7/28/17 9:06:14.000 PM to 7/30/17 9:00:00.000 PM) No Event Sampling ▾

Job ▾ || ▣ → 🖨️ ⬇️ ⚡ Fast Mode ▾

Events Patterns Statistics (4) Visualization

50 Per Page ▾ Format ▾ Preview ▾

Error Description	% de Insatisfaccion
insatisfaccion_no_operacional	81.0
Hemos superado el maximo de recargas para el medio de pago con resultado ERROR	14.3
Sabre error: '.FREQUENT TRAVELER NUMBER DOES NOT EXIST FOR THIS AIRLINE .ENTRY NOT PROCESSED BEGINNING WITH FFJJ23862277/LA,JJ,IB-1.1 '	2.4
Sabre error: '.NAME DOES NOT MATCH FREQUENT TRAVELER NUMBER OWNER .ENTRY NOT PROCESSED BEGINNING WITH FFLA177539694/LA,XL-1.1 '	2.4



Listening to Your Customers With MLT

Understanding the non-operational dissatisfaction

Listening to Your Customers With MLT

We want to cluster comments to find patterns

source="usabi
| rex field
| table rat
| fit TFIDF
| fit KMean
| table clu

New Search

source="usabilla" sourcetype=user_feedback comentario=* rating<=2 aplicacion=reissue
| rex field=_raw "(?ms)^(?:[^\n]*\n){9}\w+(?P<space>\s+)" | search space=* | table session_id rating comentario

Last 15 days

36 events (7/16/17 12:00:00.000 AM to 7/31/17 12:00:00.000 AM) No Event Sampling

Events Patterns Statistics (36) Visualization

20 Per Page Format Preview

session_id	rating	comentario
1		No sirve de nada
1		Pague una tarifa mayor para disponer de flexibilidad y el cambio me sale muy caro 231.500 pesos. Ademas en el call center no me reconocen mi tarjeta de credito y ahora no puedo intentar por internet. Malo el servicio.
1		Explicar por quÃ© despuÃ©s de pagar dice que No pudieron realizar el cambio.
1		Hacerlo realmente llevo mas de una semana tratando de realizar el cambio. LLamÃ© para realizar el cambio y no pude hacerlo fui a una oficina aconsultar me hicieron llamar otra vez. Al llamar la unica opciÃ³n que me ofrecen por un monto mayor al inicial del pasaje encuentro otra opciÃ³n en la pÃ¡gina y no puedo concretar el cambio y ahora no me permiten intentarlo de nuevo por 6 horas?. Para ese momento ya no estarÃ© disponible el vuelo lo mas probable o mas caro. Se supone que mi vuelo permitÃ
1		Porque no es Flexible necesito el mismo vuelo de regreso que tomÃ© inicialmente
1		Mala muchos errores en la pagina
1		pague al parecer 2 veces con la aplicacion Ki_Pass de banco Chile porque la primera vez la pagina de pagos no se actualizo
1		Manteniendo el asiento pagado en la fecha anterior puesto que no fue ocupado y el servicio extra ha sido pagado.
1		YO QUERIA VIAJAR LA NOCHE DEL 1 AGOSTO O SEA IR AEROPUERTO EL MARTES MEDIA OCHE Y EMBARCAR PARA ESTAR EN MIAMI EL MIERCOLES AM..PERO NO LO PERMITE Y SLO PERMITE IR MIERCOLES EN LA NOCHE PARA LLEGAR MIAMI MADRUGADA.. GRACIAS OJALA ME COMPRENDAN Y PUEDA POSTULAR PARA IR MARTES MEDIANOCHE AEROPUERTO Y LLEGAR MIERCOLES A CASA Y EVITAR DIVORCIO.. GRACIAS
2		Permitir utilizar los Km
1		Porque sirven para nada sus centros de ayuda la peor sereolinea del mundo
1		POR LO MENOS COMUNICAR COMO VA EL PROCESO....ES MUY FUSTRANTE INTENTAR SABER ALGO Y NO TENER RESPUESTA

ion=reissue
ace=*

130.60.4 - - [07/Jan 18:10:57:123] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D15LAF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=F1-5W-03"
128.241.220.82 - - [07/Jan 18:10:57:123] "GET /product.screen?product_id=FL-DSH-01&JSESSIONID=5D35L7FF6ADFF0 HTTP 1.1" 404 3322 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268&product_id=K0-CW-00"
317 27.160.0.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3855 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-10&product_id=K0-CW-00"
10 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D15LAF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268&product_id=K0-CW-00"
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Listening to Your Customers With MLT

TF-IDF Algorithm

- ▶ Feature Extraction with TF-IDF
 - Easier to work with numbers
- ▶ Term Frequency – Inverse Document Frequency weighting:
 - Words that occur frequently within a document but not frequently within the set of documents receive a higher weighting

$$tf-idf_{x,y} = (tf_{x,y}) \cdot \log \frac{n}{df_x}$$

frequency of term x in event y

total # of events

n

df_x

of events containing x

Listening to Your Customers With MLT

We want to cluster comments to find patterns

New Search

```
source="usabilla" sourcetype=user_feedback comentario=* rating<=2 aplicacion=reissue
| rex field=_raw "(?ms)^(?:[^\s\n]*){9}\w+(?P<space>\s+)" | search space=* | table session_id rating comentario
| fit TFIDF comentario analyzer=word stop_words=english ngram_range=1-3
```

✓ 36 events (7/16/17 12:00:00.000 AM to 7/31/17 12:00:00.000 AM) No Event Sampling

Events Patterns Statistics (36) Visualization

20 Per Page Format Preview

session_id	rating	comentario	comentario_tfidf_0_aeropuerto	comentario_tfidf_10_center	comentario_tfidf_11_cobraron	comentario_tfidf_12_cobro	comentario_tfidf_13_consigo	comentario_tfidf_...
	1	No sirve de nada	0.0	0.0	0.0	0.0	0.0	
	1	Pague una tarifa mayor para disponer de flexibilidad y el cambio me sale muy caro 231.500 pesos. Ademas en el call center no me reconocen mi tarjeta de credito y ahora no puedo intentar por internet. Malo el servicio.	0.0	0.233876997285	0.0	0.0	0.0	
	1	Explicar por quÃ© despuÃ© de pagar dice que No pudieron	0.0	0.0	0.0	0.0	0.0	0.4432

source="usabilla"

| rex field=_raw "(?ms)^(?:[^\s\n]*){9}\w+(?P<space>\s+)"

| table session_id rating comentario

| fit TFIDF comentario analyzer=word stop_words=english ngram_range=1-3

| fit KMeans comentario

| table session_id rating comentario

issue

130.60.4 - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&SESSIONID=5D15LAF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-SW-03"

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317.27.160.0 - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&SESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&SESSIONID=5D15L8FF2ADFF9 HTTP 1.1" 200 2423 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268&product_id=K0-CB-01"

10 - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&SESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&SESSIONID=5D15L8FF2ADFF9 HTTP 1.1" 200 2423 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268&product_id=K0-CB-01"

10 - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&SESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&SESSIONID=5D15L8FF2ADFF9 HTTP 1.1" 200 2423 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268&product_id=K0-CB-01"

Listening to Your Customers With MLT

We want to cluster comments to find patterns

```
source="usabilla" sourcetype=user_feedback comentario=* rating<=2 aplicacion=reissue
| rex field=_raw "(?ms)^(?:[^\\"\\n]*\\"){9}\\w+(?P<space>\\s+)" | search space=*
| table rating comentario
| fit TFIDF comentario analyzer=word stop_words=english ngram_range=1-3
| fit KMeans k=4 comentario_tfidf_*
| table cluster rating comentario
```


Listening to Your Customers With MLT

We want to cluster comments to find patterns

source="usabilla" sourcetype=user_feedback comentario=* rating<=2 aplicacion=reissue
| rex field=_raw "(?ms)^(?:[^\s\\n]*\n){9}\\w+(?P<space\\s+)" | search space=* | table rating comentario
| fit TFIDF comentario analyzer=word stop_words=english ngram_range=1-3
| fit KMeans k=4 comentario_tfidf_* |

issue

New Search

source="usabilla" sourcetype=user_feedback comentario=* rating<=2 aplicacion=reissue
| rex field=_raw "(?ms)^(?:[^\s\\n]*\n){9}\\w+(?P<space\\s+)" | search space=* | table rating comentario
| fit TFIDF comentario analyzer=word stop_words=english ngram_range=1-3
| fit KMeans k=4 comentario_tfidf_* |

38 events (7/17/17 12:00:00.000 AM to 8/1/17 12:00:00.000 AM) No Event Sampling

Events Patterns Statistics (38) Visualization

20 Per Page Format Preview

rating	comentario	cluster	cluster_distance	comentario_tfidf_0_aeropuerto	comentario_tfidf_10_center	comentario_tfidf_11_cobraron	comentario_tfidf_12_cobro	comentario_tfidf_13_consigo	comentario_tfidf_14_
1	Porque no se puedeeeee	1	0.69844978128	0.0	0.0	0.0	0.0	0.0	0.0
1	Porque no hay pasajes para ningÃn dia. Pareciera estar malo	1	0.904696690189	0.0	0.0	0.0	0.0	0.0	0.0
1	No sirve de nada	0	0.310269129483	0.0	0.0	0.0	0.0	0.0	0.0
1	Pague una tarifa mayor para disponer de flexibilidad y el cambio me sale muy caro 231.500 pesos. Adem as en el call center no me reconocen mi tarjeta de credito y ahora no puedo intentar por internet. Malo el servicio.	1	0.806225893004	0.0	0.236258540513	0.0	0.0	0.0	0.0

New Search

Save As Close

```
source="usabilla" sourcetype=user_feedback comentario=* rating<=2 aplicacion=reissue
| rex field=_raw "(?ms)^(?:[^\s\\n]*\s){9}\\w+(?P<space>\\s+)" | search space=* | table rating comentario
| fit TFIDF comentario analyzer=word stop_words=english ngram_range=1-3
| fit KMeans k=4 comentario_tfidf_*
| table cluster rating comentario
```

Last 15 days Q✓ 36 events (7/16/17 12:00:00.000 AM to 7/31/17 12:00:00.000 AM) No Event SamplingJob Fast ModeEvents Patterns Statistics (36) Visualization20 Per Page Format Preview

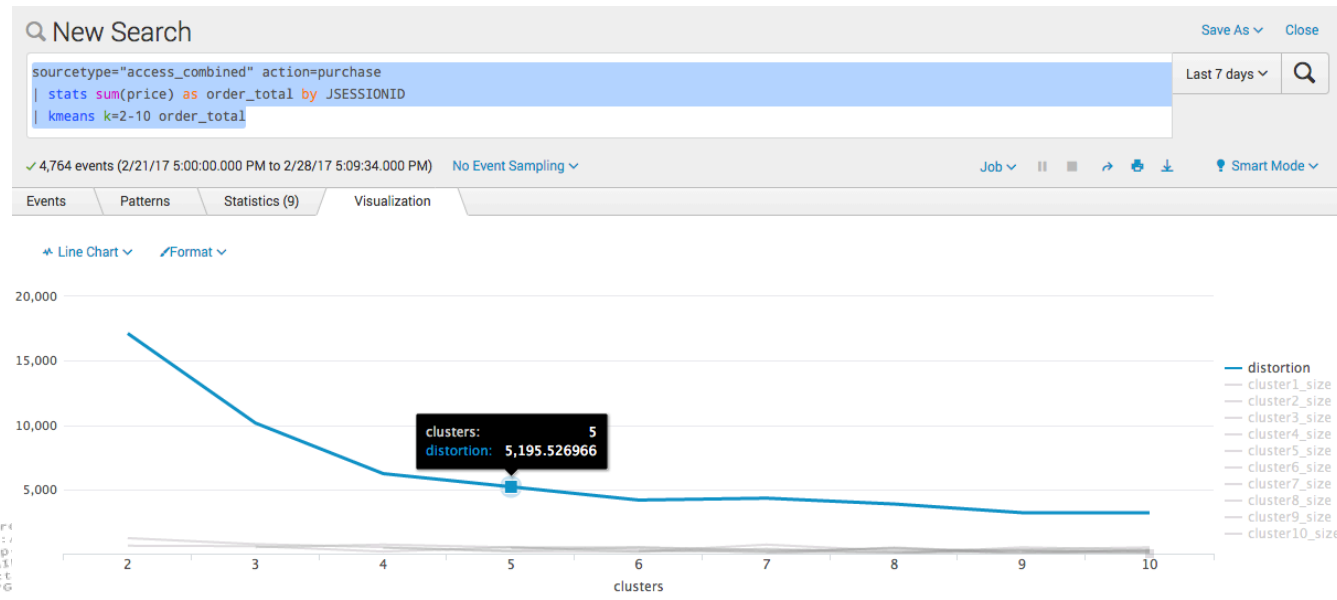
< Prev 1 2 Next >

cluster	rating	comentario
0	1	No sirve de nada
1	1	Pague una tarifa mayor para disponer de flexibilidad y el cambio me sale muy caro 231.500 pesos. Ademas en el call center no me reconocen mi tarjeta de credito y ahora no puedo intentar por internet. Malo el servicio.
1	1	Explicar por quÃ© despuÃ©s de pagar dice que No pudieron realizar el cambio.
1	1	Hacerlo realmente llevo mas de una semana tratando de realizar el cambio. LLamÃ© para realizar el cambio y no pude hacerlo fui a una oficina aconsultar me hicieron llamar otra vez. Al llamar la unica opciÃ³n que me ofrecen por un monto mayor al inicial del pasaje encuentro otra opciÃ³n en la pÃ¡gina y no puedo concretar el cambio y ahora no me permiten intentarlo de nuevo por 6 horas?. Para ese momento ya no estarÃ­ disponible el vuelo lo mas probable o mas caro. Se supone que mi vuelo permitÃ
1	1	Porque no es Flexible necesito el mismo vuelo de regreso que tomÃ© inicialmente
2	1	Mala muchos errores en la pagina
1	1	pague al parecer 2 veces con la aplicacion Ki_Pass de banco Chile porque la primera vez la pagina de pagos no se actualizo
1	1	Manteniendo el asiento pagado en la fecha anterior puesto que no fue ocupado y el servicio extra ha sido pagado.
1	1	YO QUERIA VIAJAR LA NOCHE DEL 1 AGOSTO O SEA IR AEROPUERTO EL MARTES MEDIA OCHE Y EMBARCAR PARA ESTAR EN MIAMI EL MIERCOLES AM..PERO NO LO PERMITE Y SLO PERMITE IR MIERCOLES EN LA NOCHE PARA LLEGAR MIAMI MADRUGADA.. GRACIAS OJALA ME COMPRENDAN Y PUEDA POSTULAR PARA IR MARTES MEDIANOCHE AEROPUERTO Y LLEGAR MIERCOLES A CASA Y EVITAR DIVORCIO.. GRACIAS
2	2	Permitir utilizar los Km
0	1	Porque sirven para nada sus centros de ayuda la peor sereolinea del mundo
2	1	POR LO MENOS COMUNICAR COMO VA EL PROCESO...ES MUY FRUSTRANTE INTENTAR SABER ALGO Y NO TENER RESPUESTA
1	1	AUN NO SE HACE EFECTIVO EL CAMBIO DE MI PASAJE Y YA ME REALIZARON EL COBRO. PESIMA ATENCIÃ³N POCO RESOLUTIVA ESTUVE 2 HRS EN EL TELEFONO Y NO SOLUCIONARON NADA.
1	1	EXISTE PUBLICIDAD ENGAÃSA AL NO CONTAR CON TARIFAS COMO LAS QUE APARECEN EN LA PAGINA. ESTAFA! VÃA TELEFÃNICA HAY OPERADORAS EXTRANJERAS QUE NO AYUDAN EN NADA.
2	2	Por que el precio es abusivo
1	1	Porque la atenciÃ³n es pÃ©sima no muestra valor a pagar y dice que hay que llamar. Al llamar 30 minutos esperando a que alguien conteste.
0	1	Las opciones dicen llamanos!!!! Y el telefono dice que ya se pueden realizar los cambios en la pagina. No funcionan sus sistemas!
3	1	Nunca me respondieron a la consulta que deseaba realizar
3	1	LA PAGINA NUNCA ESTÃ DISPONIBLE PARA REALIZAR CAMBIOS.
3	1	si NO PERMITE REALIZAR LOS CAMBIOS ONLINE POR OUE NOS HACEN PERDER TIEMPO EN LLENAR O SEGUIR COMO TONTOS LLENANDO PASOS?

Listening to Your Customers With MLT

Some things we learned in the process

- ▶ We assume that people leave us feedback in context
 - Create one model by product in the web site
- ▶ Train your models
 - TF-IDF: Use the common words “black-list” & test different ngram ranges
 - The smaller the ngram more uniform are the clusters distributed
 - The numbers of “K” in Kmeans is defined by model
 - Use the distortion to know the “perfect” number



Q New Search

```
source="usabilla" sourcetype=user_feedback comentario=* rating<3 aplicacion=reissue
| rex field=_raw "(?ms)^(?:[^\n]*\n){9}\w+(?P<space>\s+)" | search space=*
| table session_id rating comentario
| fit TFIDF comentario analyzer=word stop_words=english ngram_range=1-3
| fit KMeans k=4 comentario_tfidf_*
| eval numero_cluster = case(cluster=0,"C1",cluster=1,"C2",cluster=2,"C3",cluster=3,"C4",cluster=4,"C5")
| table numero_cluster comentario_tfidf_*
| stats avg(comentario_tfidf_*) by numero_cluster
| transpose 1000 column_name=palabras header_field=numero_cluster
| rex field=palabras "avg\(\comentario_tfidf_\\d+_(?<words>.*)\)$"
| fields - palabras
```

✓ 36 events (7/16/17 12:00:00.000 AM to 7/31/17 12:00:00.000 AM) [No Event Sampling](#) ▾

Job ▾ || ■ ↻ 📄

Events | **Patterns** | Statistics (100) | Visualization

20 Per Page ▾ [Format](#) ▾ [Preview](#) ▾

< Prev 1

	C1 ▾ ↕	C2 ▾ ↕	C3 ▾ ↕	C4 ▾ ↕	words ▾
	0.000000	0.000000	0.398822	0.012952	nada
	0.221218	0.066089	0.185150	0.137973	no
	0.000000	0.000000	0.153986	0.000000	no sirve
	0.000000	0.000000	0.153986	0.000000	no sirve nada
	0.000000	0.000000	0.153986	0.000000	sirve
	0.000000	0.000000	0.153986	0.000000	sirve nada
	0.000000	0.077973	0.135208	0.000000	sus
	0.000000	0.155972	0.101696	0.000000	mala
	0.000000	0.000000	0.101696	0.012664	pago
	0.028910	0.000000	0.099083	0.000000	estafa
	0.049811	0.262869	0.079529	0.000000	pagina
	0.000000	0.000000	0.063373	0.012664	cobraron
	0.000000	0.000000	0.063373	0.019373	esperando
	0.000000	0.000000	0.063373	0.013083	estoy
	0.054834	0.000000	0.063373	0.000000	extra
	0.028910	0.000000	0.063373	0.000000	pasaies

Listening to Your Customers With MLT

What the future looks like

- ▶ Explore supervised models
 - If we manually classified some comments, can Splunk classify all the rest?
 - How much dissatisfied customers complain about check-in in the booking app?
- ▶ Replicate this experience in other KPI's
 - Can we take what we learn and replicate the data science model in the revenues?

```
130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D15L4FF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=F1-5W-03"
128.241.220.82 - - [07/Jan 18:10:57:123] "GET /product.screen?product_id=FL-DSH-01&JSESSIONID=5D35L7FF6ADFF0 HTTP 1.1" 404 3322 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-26&product_id=K0-CU-01"
ows NT 5.1; SV1: .NET CLR 1.1.4322)" 468 125.17 14.1.1.1 "GET /oldlink?item_id=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D15L8FF2ADFF3"
://buttercup-shopping_id=RP-LI-02" 404 125.17 14.1.1.1 "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-18"
buttercup-shopping.com/c
```


“And you, what are you doing with the feedback your customers leaves you?”

Thank You

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Q&A

Special thanks to:

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CSat Squad – LATAM Airlines

Geoffrey Martins, Manish Jiandani - splunk