Just 'Google' for flaws

Operational Intelligence een paradigma verandering?

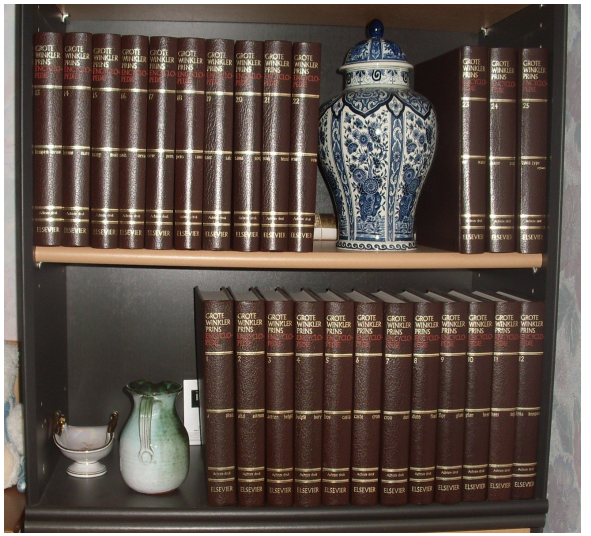
14 Oktober 2015
Testnet

Albert Witteveen

Pluton IT

5 years BG?

Google



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Een paradigma verandering

- Voor internet:
  - beperkt
  - openingstijden
  - verouderd

- Sinds internet:
  - De hele wereld
  - Vers
  - Search engines indexeren continue

Het verhaal in data

```
<Order>
<Timestamp>2015-30-9 10:43:58.001</Timestamp>
<CustID>B366547</CustID>
<BusID>CO12548689</BusID>
<Product>Banana</Product>
<Amount>5</Amount>
<Discount>0/Discount>
<Price>2.50</Price>
<SalesPerson>John Slick</SalesPerson>
<Unit>Piece</Unit>
<Option></Option>
</Order>
```

```
<Message>
<Response>ERROR</Response>
<Messageid>5fd13a50836b024390cba3a7f9c916d7</Messageid>
<Replay>Unit Piece not available for Banana</Reply>
<Timestamp>2015-30-9 10:44:20.001</Timestamp>
<CustID>B366547</CustID>
<BusID>CO12548689</BusID>
```

CO12548689	2015-30-9 10:43:58.001	Order placed	5 Bananas
CO12548689	2015-30-9 10:44:20.001	Reply from logistics	Bananas not by piece
CO12548689	2015-30-9 10:45:02	Order registered in Order DB	Status failed

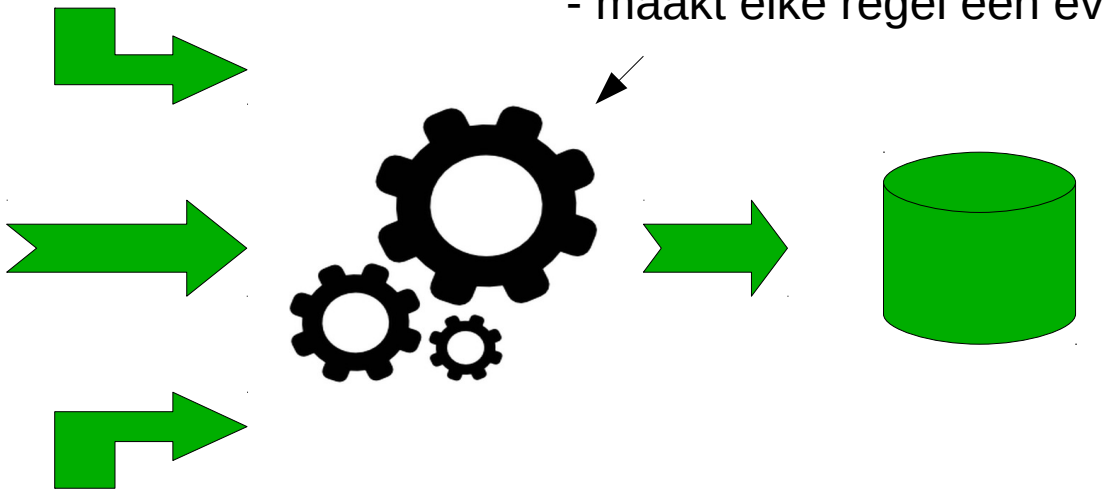
DateTime	Status	CustID	CorID	Product	#	Unit	Discount	Option
09/30/2015 10:45:00	succes	B254788	CorID12548687	Apple	1	Kg	10	sliced
09/30/2015 10:45:01	pending	B356489	CorID12548688	Carrot	5	Piece	0	na
09/30/2015 10:45:02	failed	B366547	CorID12548689	Banana	5	Piece	0	na
09/30/2015 10:45:10	succes	B112554	CorID12548690	Apple	2	Kg	5	na
09/30/2015 10:45:12	succes	R45456	CorID12548691	Orange	1	Kg	5	none

Operational intelligence systeem

```
64.242.88.10 - - [07/Mar/2015:16:05:49 -0800] "GET /twiki/bin/edit/Main/Double_bounce_sender?topicparent=Main.ConfigurationVariables HTTP/1.1" 401 12846
64.242.88.10 - - [07/Mar/2015:16:06:51 -0800] "GET /twiki/bin/rdiff/TWiki/NewUserTemplate?rev1=1.3&rev2=1.2 HTTP/1.1" 200 4523
64.242.88.10 - - [07/Mar/2015:16:10:02 -0800] "GET /mailman/listinfo/hsdivision HTTP/1.1" 200 6291
64.242.88.10 - - [07/Mar/2015:16:11:58 -0800] "GET /twiki/bin/view/TWiki/WikiSyntax HTTP/1.1" 200 7352
64.242.88.10 - - [07/Mar/2015:16:20:55 -0800] "GET /twiki/bin/view/Main/DCCAndPostFix HTTP/1.1" 200 5253
64.242.88.10 - - [07/Mar/2015:16:23:12 -0800] "GET /twiki/bin/oops/TWiki/AppendixFileSystem?template=oopsmore¶m1=1.12¶m2=1.12 HTTP/1.1" 200 11382
64.242.88.10 - - [07/Mar/2015:16:24:16 -0800] "GET /twiki/bin/view/Main/PeterThoeny HTTP/1.1" 200 4924
64.242.88.10 - - [07/Mar/2015:16:29:16 -0800] "GET /twiki/bin/edit/Main/Header_checks?topicparent=Main.ConfigurationVariables HTTP/1.1" 401
```

- index en timestamp in 'real time'
- maakt elke regel een event

Order_ID	Status	CorrelationID
O1254486	completed	C24ec540d000ee0b7d2304bc34c769a4
O1254487	in progress	a2a551a6458a8de22446cc76d639a9e9
O1254488	in progress	be121740bf988b2225a313fa1f107ca1
O1254489	error	b0293108cc2a2aa7c88738c2215b1a05
O1254490	completed	68c4283db8074b12df1660b31c0220a9
O1254491	completed	9a1f30943126974075dbd4d13c8018ac



```
<?xml version="1.0" standalone="yes" ?>
- <shop location="Birmingham" size="Large">
  - <food>
      <Name>Apple</Name>
      <type>fruit</type>
      <cost>15</cost>
    </food>
  - <food>
      <Name>Carrot</Name>
      <type>vegetable</type>
      <cost>10</cost>
    </food>
  </shop>
```

```
)1 server CRON[14748]: (root) CMD (   cd / && run-parts --report /etc/cron.hourly)
)1 server CRON[15493]: (root) CMD (   cd / && run-parts --report /etc/cron.hourly)
:4 server dbus[426]: [system] Activating service name='org.freedesktop.ConsoleKit' (using servicehelper)
:5 server dbus[426]: [system] Activating service name='org.freedesktop.PolicyKit1' (using servicehelper)
:5 server polkitd[15604]: started daemon version 0.105 using authority implementation `local' version `0.105'
:5 server dbus[426]: [system] Successfully activated service 'org.freedesktop.PolicyKit1'
:5 server dbus[426]: [system] Successfully activated service 'org.freedesktop.ConsoleKit'
:/var/log$
```

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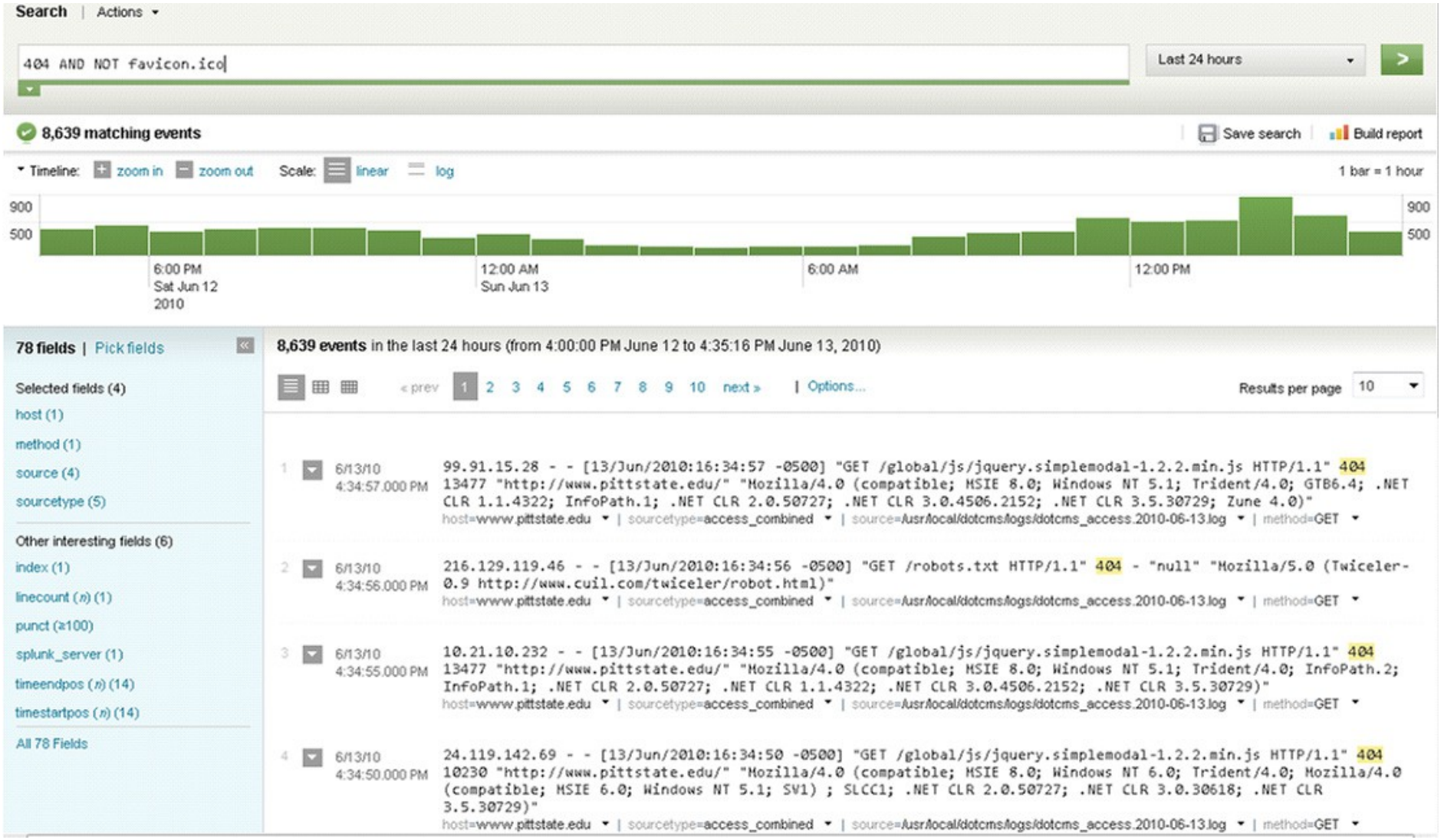
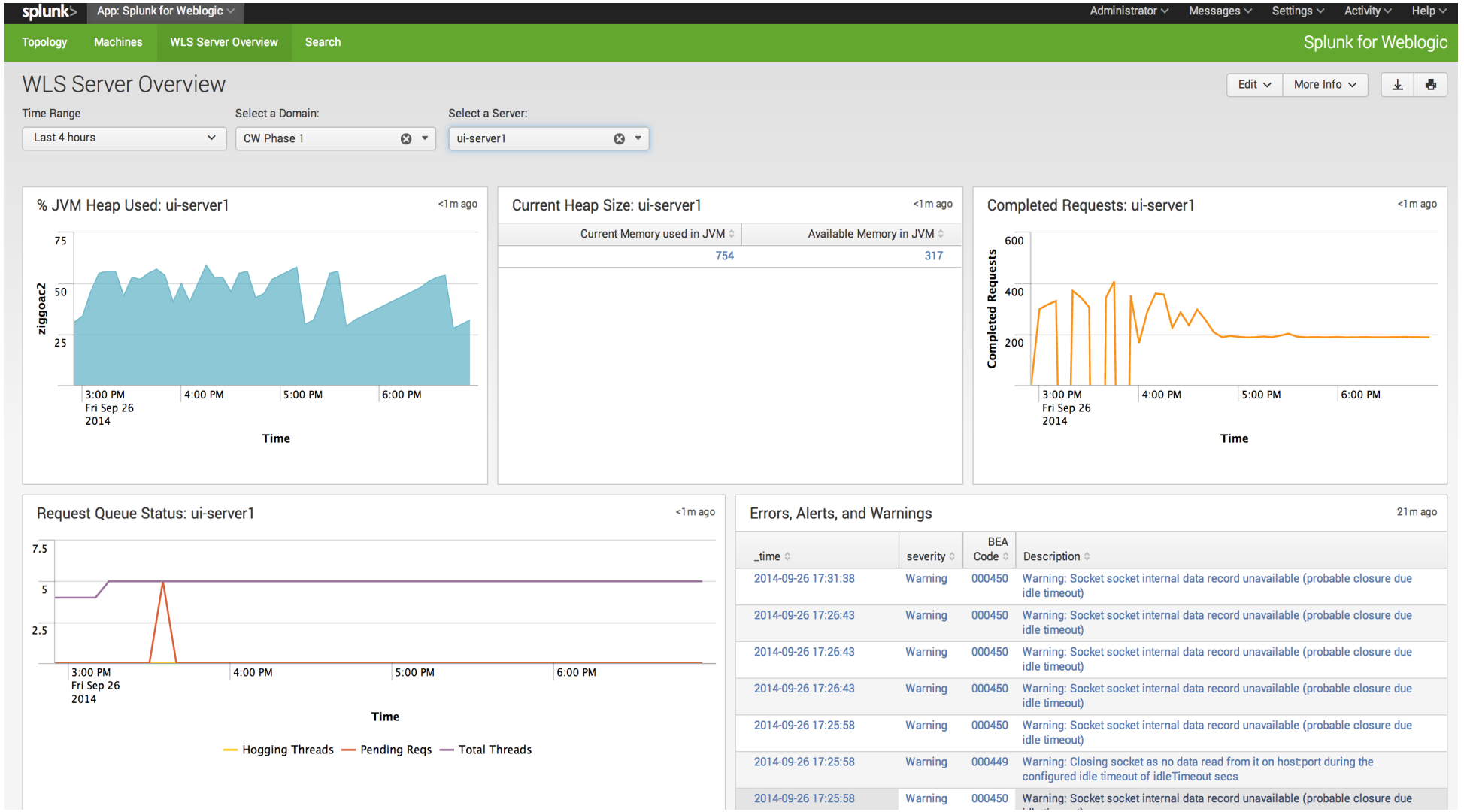
Zoek


Search | Actions
404 AND NOT favicon.ico
Last 24 hours
8,639 matching events
Save search
Build report
Timeline: zoom in zoom out Scale: linear log
1 bar = 1 hour
900
500
6:00 PM Sat Jun 12 2010
12:00 AM Sun Jun 13
6:00 AM
12:00 PM
78 fields | Pick fields
Selected fields (4)
host (1)
method (1)
source (4)
sourcetype (5)
Other interesting fields (6)
index (1)
linecount (n) (1)
punct (≥100)
splunk_server (1)
timeendpos (n) (14)
timestartpos (n) (14)
All 78 Fields
8,639 events in the last 24 hours (from 4:00:00 PM June 12 to 4:35:16 PM June 13, 2010)
« prev 1 2 3 4 5 6 7 8 9 10 next » | Options...
Results per page 10
1 6/13/10 4:34:57.000 PM 99.91.15.28 - - [13/Jun/2010:16:34:57 -0500] "GET /global/js/jquery.simplemodal-1.2.2.min.js HTTP/1.1" 404 13477 "http://www.pittstate.edu/" "Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 5.1; Trident/4.0; GTB6.4; .NET CLR 1.1.4322; InfoPath.1; .NET CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR 3.5.30729; Zune 4.0)"
host=www.pittstate.edu | sourcetype=access_combined | source=/usr/local/dotcms/logs/dotcms_access.2010-06-13.log | method=GET
2 6/13/10 4:34:56.000 PM 216.129.119.46 - - [13/Jun/2010:16:34:56 -0500] "GET /robots.txt HTTP/1.1" 404 - "null" "Mozilla/5.0 (Twiceler-0.9 http://www.cuil.com/twiceler/robot.html)"
host=www.pittstate.edu | sourcetype=access_combined | source=/usr/local/dotcms/logs/dotcms_access.2010-06-13.log | method=GET
3 6/13/10 4:34:55.000 PM 10.21.10.232 - - [13/Jun/2010:16:34:55 -0500] "GET /global/js/jquery.simplemodal-1.2.2.min.js HTTP/1.1" 404 13477 "http://www.pittstate.edu/" "Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 5.1; Trident/4.0; InfoPath.2; InfoPath.1; .NET CLR 2.0.50727; .NET CLR 1.1.4322; .NET CLR 3.0.4506.2152; .NET CLR 3.5.30729)"
host=www.pittstate.edu | sourcetype=access_combined | source=/usr/local/dotcms/logs/dotcms_access.2010-06-13.log | method=GET
4 6/13/10 4:34:50.000 PM 24.119.142.69 - - [13/Jun/2010:16:34:50 -0500] "GET /global/js/jquery.simplemodal-1.2.2.min.js HTTP/1.1" 404 10230 "http://www.pittstate.edu/" "Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 6.0; Trident/4.0; Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1) ; SLCC1; .NET CLR 2.0.50727; .NET CLR 3.0.30618; .NET CLR 3.5.30729)"
host=www.pittstate.edu | sourcetype=access_combined | source=/usr/local/dotcms/logs/dotcms_access.2010-06-13.log | method=GET

Correlatie



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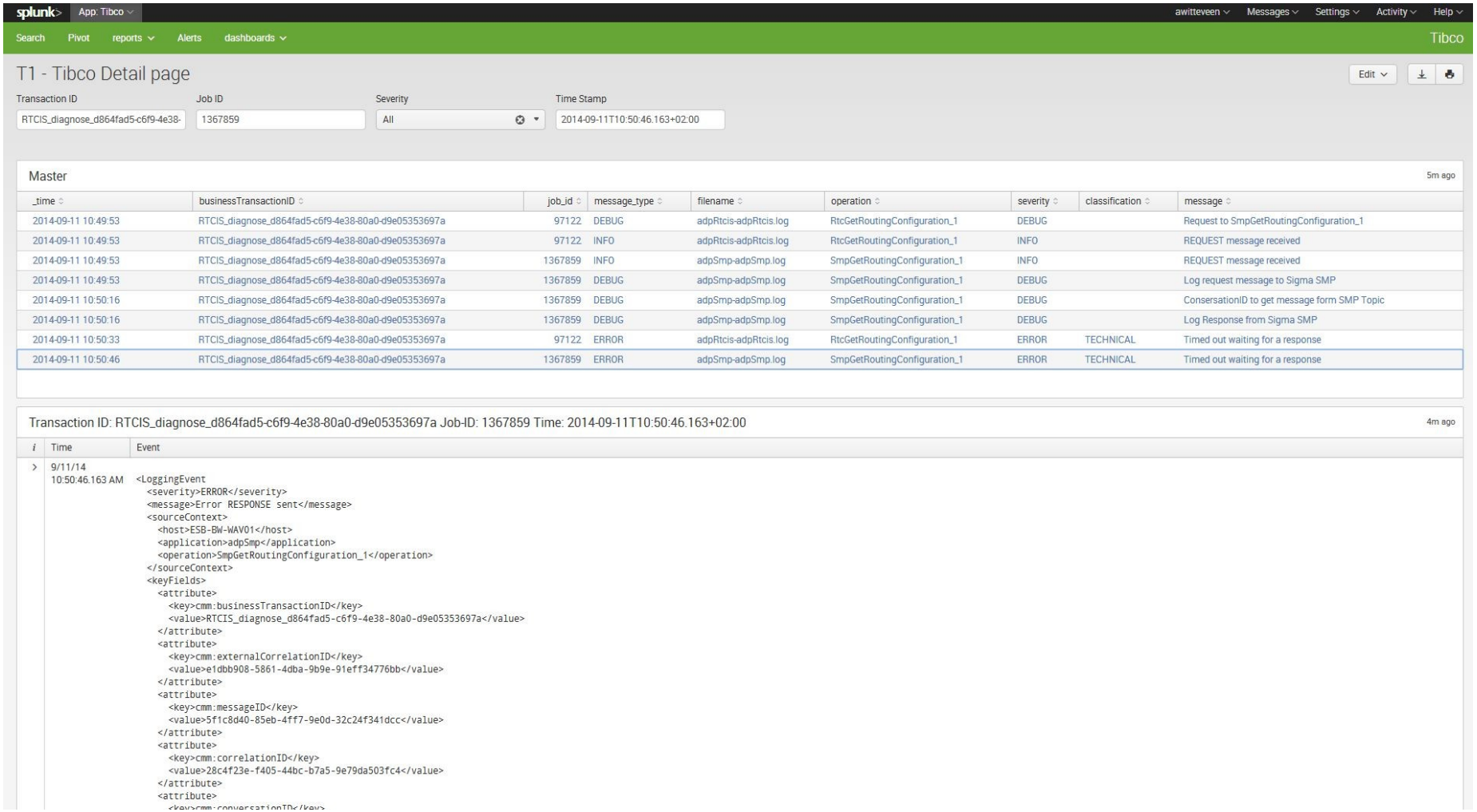
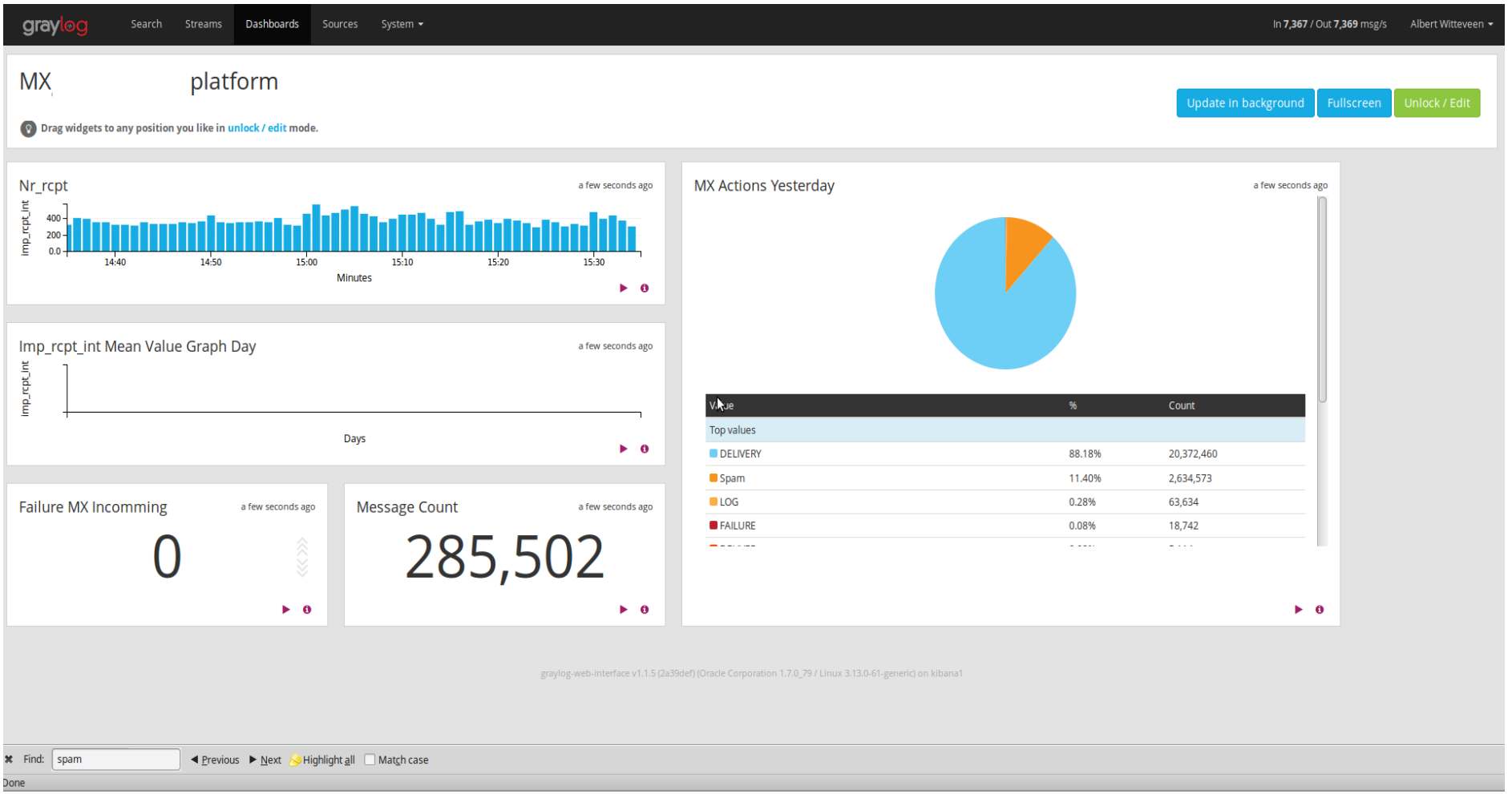
Apps


splunk> App: Tibco
awitteveen Messages Settings Activity Help
Search Pivot reports Alerts dashboards
Tibco
T1 - Tibco Detail page
Edit
Transaction ID
RTCIS_diagnose_d864fad5-c6f9-4e38-
Job ID
1367859
Severity
All
Time Stamp
2014-09-11T10:50:46.163+02:00
Master
5m ago
_time businessTransactionID job_id message_type filename operation severity classification message
2014-09-11 10:49:53 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 97122 DEBUG adpRtcis-adpRtcis.log RtcGetRoutingConfiguration_1 DEBUG Request to SmpGetRoutingConfiguration_1
2014-09-11 10:49:53 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 97122 INFO adpRtcis-adpRtcis.log RtcGetRoutingConfiguration_1 INFO REQUEST message received
2014-09-11 10:49:53 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 1367859 INFO adpSmp-adpSmp.log SmpGetRoutingConfiguration_1 INFO REQUEST message received
2014-09-11 10:49:53 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 1367859 DEBUG adpSmp-adpSmp.log SmpGetRoutingConfiguration_1 DEBUG Log request message to Sigma SMP
2014-09-11 10:50:16 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 1367859 DEBUG adpSmp-adpSmp.log SmpGetRoutingConfiguration_1 DEBUG ConsersationID to get message form SMP Topic
2014-09-11 10:50:16 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 1367859 DEBUG adpSmp-adpSmp.log SmpGetRoutingConfiguration_1 DEBUG Log Response from Sigma SMP
2014-09-11 10:50:33 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 97122 ERROR adpRtcis-adpRtcis.log RtcGetRoutingConfiguration_1 ERROR TECHNICAL Timed out waiting for a response
2014-09-11 10:50:46 RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a 1367859 ERROR adpSmp-adpSmp.log SmpGetRoutingConfiguration_1 ERROR TECHNICAL Timed out waiting for a response
Transaction ID: RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a Job-ID: 1367859 Time: 2014-09-11T10:50:46.163+02:00
4m ago
i Time Event
9/11/14
10:50:46.163 AM
<LoggingEvent
<severity>ERROR</severity>
<message>Error RESPONSE sent</message>
<sourceContext>
<host>ESB-BW-WAV01</host>
<application>adpSmp</application>
<operation>SmpGetRoutingConfiguration_1</operation>
</sourceContext>
<keyFields>
<attribute>
<key>cmm:businessTransactionID</key>
<value>RTCIS_diagnose_d864fad5-c6f9-4e38-80a0-d9e05353697a</value>
</attribute>
<attribute>
<key>cmm:externalCorrelationID</key>
<value>e1dbb908-5861-4dba-9b9e-91eff34776bb</value>
</attribute>
<attribute>
<key>cmm:messageID</key>
<value>5f1c8d40-85eb-4ff7-9e0d-32c24f341dcc</value>
</attribute>
<attribute>
<key>cmm:correlationID</key>
<value>28c4f23e-f405-44bc-b7a5-9e79da503fc4</value>
</attribute>
<attribute>

Dashboards



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Waarom dan?

Ohoh, een release. Dat wordt weer weken troep opruimen

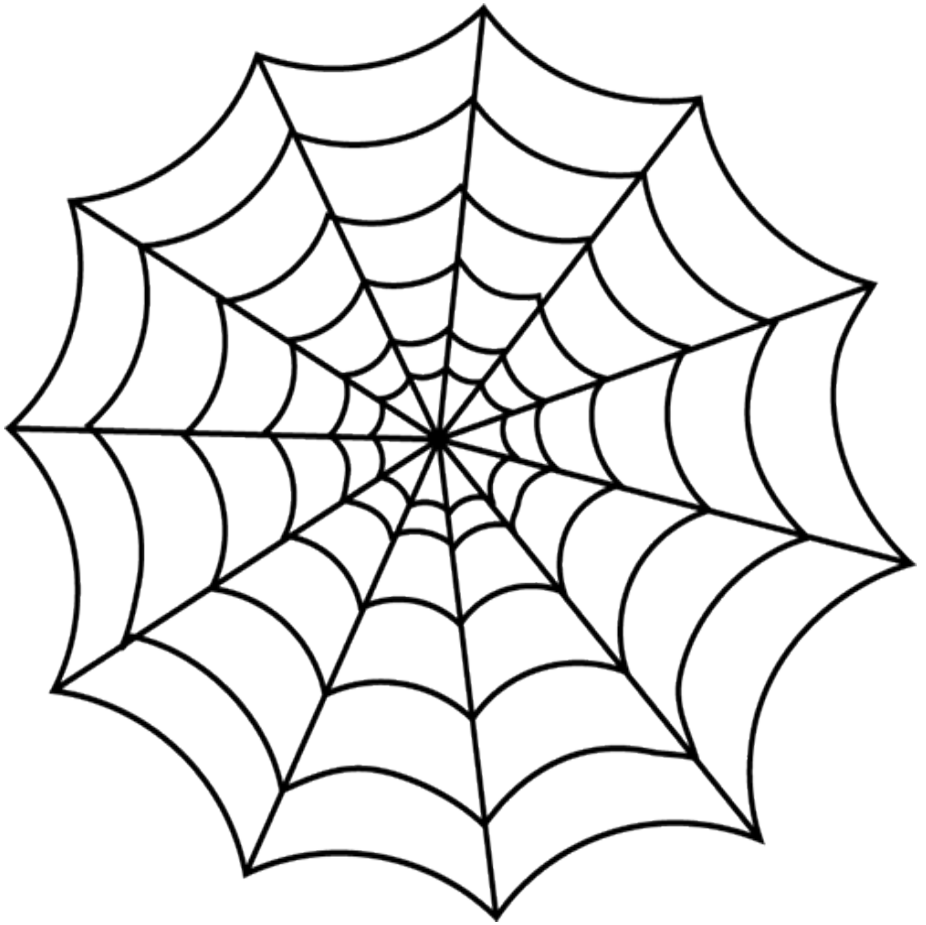
'Helemaal getest', maar Gerrit daar haalde er in 10 minuten zo nog 3 showstoppers uit

Hebben ze dit wel getest?

Onze uitdaging

Je kan niet elk log bestand doorkammen

- SOA: keten of web
- Meerdere teams
- Change gedocumenteerd
- Logs niet toegangkelijk
- Integratie drama
- Te veel...



Expected result???

Unexpected result

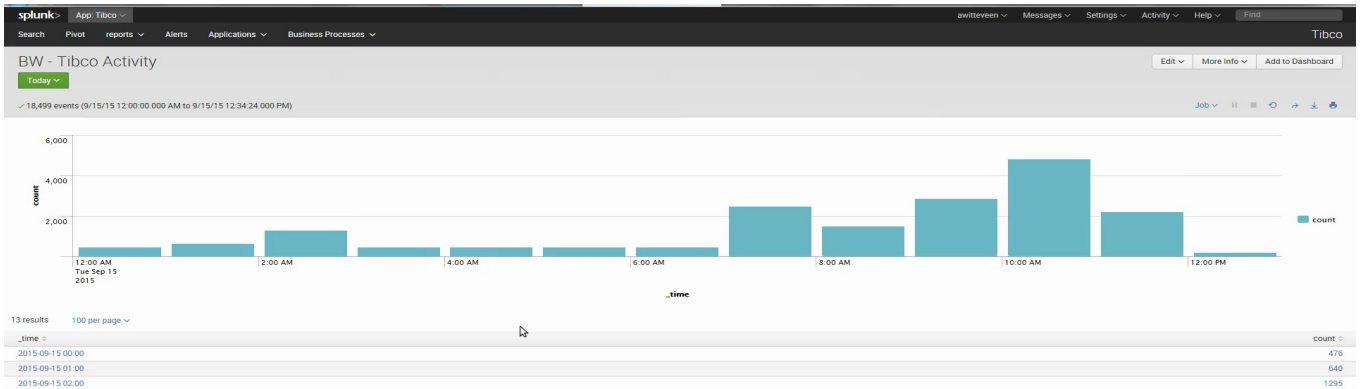
- Frontends geven beperkt informatie
- Feedback is in de logs, in de DB, in de berichten
- Kunnen we het resultaat nog wel voorspellen?

Elk log gecontroleerd

Met de hand nog wel te doen?

Operational intelligence

- Vindt issues voor de klanten het zien
- Is fantastisch voor
- Geeft feiten en overzicht



He waren wij daar niet voor?

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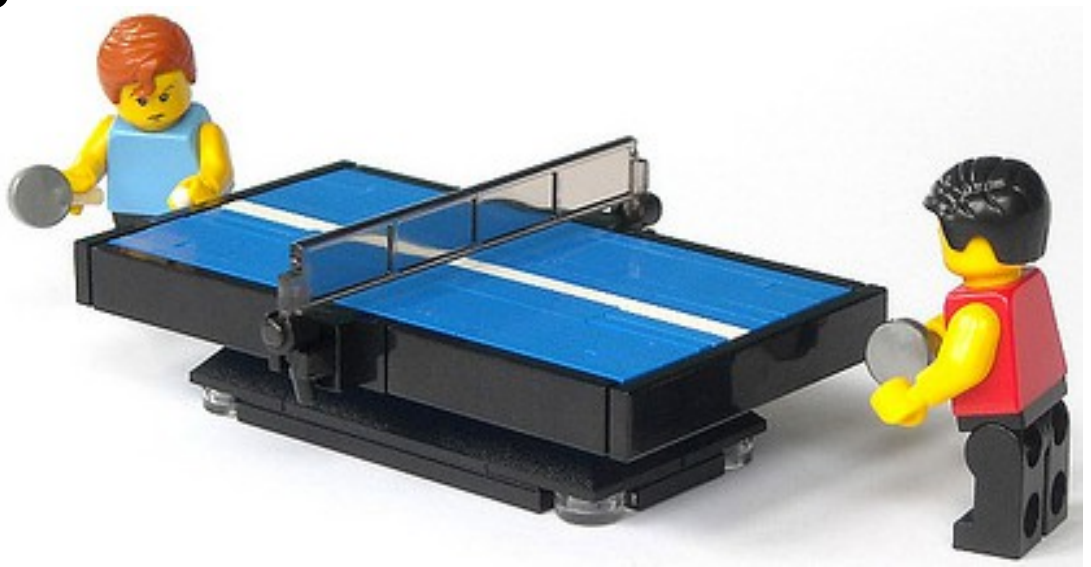
Met operational intelligence

- Alle data in een enkel overzicht
- Fouten in onverwachte systemen ook zichtbaar
- Trends en historie
- Voorkom ping pong issues



Integratie fase veel sneller

Vind issues die anders verborgen bleven

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Oplossingen

Commercieel

splunk>

IBM Predictive Maintenance

Open Source

graylog | An Open-Source Community Site

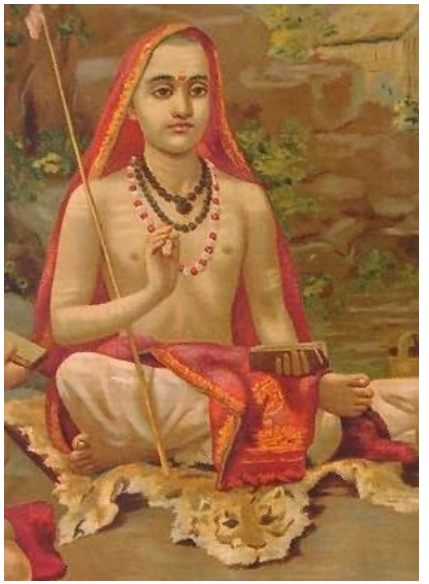
E elastic

L logstash

K Kibana | Explore & Visualize Your Data

Ervaring

- Groot programma:
  - Integratie issues opgelost
  - Testers: 'Ik zie nu wat er gebeurt'
  - Significante afname 'test issues'
  - Einde van ping pong issues
  - Snel issue opgelost
  - Inzicht voor management
  - Guru essentieel

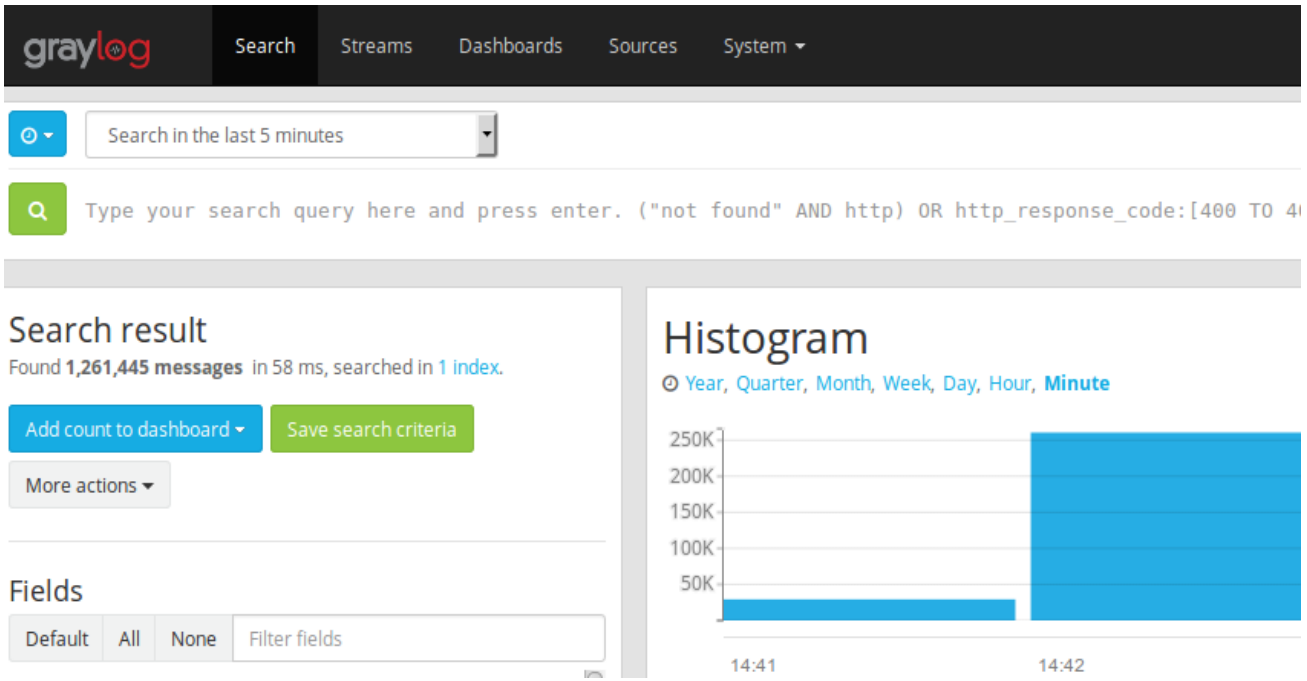


Issue manager: Eerst Splunk, dan pas loggen

Paradigma verandering?

Niet meer testen?

2+2=5 ?



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Dus

- Probeer het vooral (niet) zelf
- Het kan heel goed helpen bij complexe systemen
- We moeten nog steeds testen

Iemand een vraag gevonden?

```
[    0.000000] efi: mem60: type=6, attr=0x800000000000000f, range=[0x00000000da0a9000-0x00000000da109000) (0MB)
[    0.000000] efi: mem61: type=5, attr=0x800000000000000f, range=[0x00000000da109000-0x00000000da123000) (0MB)
[    0.000000] efi: mem62: type=6, attr=0x800000000000000f, range=[0x00000000da123000-0x00000000da126000) (0MB)
[    0.000000] efi: mem63: type=6, attr=0x800000000000000f, range=[0x00000000da126000-0x00000000da14d000) (0MB)
[    0.000000] efi: mem64: type=0, attr=0xf, range=[0x00000000da14d000-0x00000000da2a0000) (1MB)
[    0.000000] efi: mem65: type=0, attr=0xf, range=[0x00000000da2a0000-0x00000000da64d000) (3MB)
[    0.000000] efi: mem66: type=10, attr=0xf, range=[0x00000000da64d000-0x00000000da71a000) (0MB)
[    0.000000] efi: mem67: type=10, attr=0xf, range=[0x00000000da71a000-0x00000000da8b7000) (1MB)
[Question: should I be introducing operational intelligence?     ]
[    0.000000] efi: mem68: type=10, attr=0xf, range=[0x00000000da8b7000-0x00000000da8b8000) (0MB)
[    0.000000] efi: mem69: type=10, attr=0xf, range=[0x00000000da8b8000-0x00000000da8cd000) (0MB)
[    0.000000] efi: mem70: type=9, attr=0xf, range=[0x00000000da8cd000-0x00000000da8d2000) (0MB)
[    0.000000] efi: mem71: type=4, attr=0xf, range=[0x00000000da8d2000-0x00000000da8d3000) (0MB)
[    0.000000] efi: mem72: type=10, attr=0xf, range=[0x00000000da8d3000-0x00000000da916000) (0MB)
[    0.000000] efi: mem73: type=4, attr=0xf, range=[0x00000000da916000-0x00000000daa62000) (1MB)
[    0.000000] efi: mem74: type=3, attr=0xf, range=[0x00000000daa62000-0x00000000dacfa000) (2MB)
[    0.000000] efi: mem75: type=4, attr=0xf, range=[0x00000000dacfa000-0x00000000dacff000) (0MB)
[    0.000000] efi: mem76: type=3, attr=0xf, range=[0x00000000dacff000-0x00000000dad03000) (0MB)
[    0.000000] efi: mem77: type=4, attr=0xf, range=[0x00000000dad03000-0x00000000dad10000) (0MB)
[    0.000000] efi: mem78: type=3, attr=0xf, range=[0x00000000dad10000-0x00000000dad22000) (0MB)
[    0.000000] efi: mem79: type=4, attr=0xf, range=[0x00000000dad22000-0x00000000dad29000) (0MB)
[    0.000000] efi: mem80: type=6, attr=0x800000000000000f, range=[0x00000000dad29000-0x00000000daff4000) (2MB)
[    0.000000] efi: mem81: type=4, attr=0xf, range=[0x00000000daff4000-0x00000000db000000) (0MB)
[    0.000000] efi: mem82: type=7, attr=0xf, range=[0x0000000100000000-0x000000011f200000) (498MB)
[    0.000000] efi: mem83: type=0, attr=0x8000000000000000, range=[0x00000000dbc00000-0x00000000dfe00000) (66MB)
[    0.000000] efi: mem84: type=11, attr=0x8000000000000001, range=[0x00000000f8000000-0x00000000fc000000) (64MB)
[    0.000000] efi: mem85: type=11, attr=0x8000000000000001, range=[0x00000000fec00000-0x00000000fec01000) (0MB)
[    0.000000] efi: mem86: type=11, attr=0x8000000000000001, range=[0x00000000fed00000-0x00000000fed04000) (0MB)
[    0.000000] efi: mem87: type=11, attr=0x8000000000000001, range=[0x00000000fed1c000-0x00000000fed20000) (0MB)
[    0.000000] efi: mem88: type=11, attr=0x8000000000000001, range=[0x00000000fee00000-0x00000000fee01000) (0MB)
[    0.000000] efi: mem89: type=11, attr=0x8000000000000001, range=[0x00000000ff000000-0x0000000100000000) (16MB)
```