

From: Godeseth, Torstein[/O=FUJITSU EXCHANGE ORGANIZATION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=73367F867463422895A411E49BD]
Sent: Wed 01/03/2017 8:08:17 AM (UTC)
To: Keating, Lewis (UK - Leeds) [GRO]; Mark Underwood [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Newsome, Pete [GRO]; Iosifidou, Elena (UK - London) [GRO]
Cc: Wolstencroft, Liam (UK - Manchester) [GRO]; 'jonathan.gribben' [GRO] [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Lewis,

We have now amended the query and re-run the '25 ARQ set' and the data should be coming across if it's not already there.

I have checked that we now have the correct number of records on the detail sheet when compared against the number of JSNs reported on the summary sheet.

The query we ran previously specified 'GenericRequestDTO' as you can see on the summary sheets of the previous set -

```
{  
  for $s in fn:doc("Filteredhx.xml")/*GenericRequestDTO
```

In the new query we have removed this restriction which allows the hitherto missing JSNs to be picked up.

```
{  
  for $s in fn:doc("Filteredhx.xml")/*
```

You will see that these JSNs relate to CutOff reports.

Regards etc
Torstein

From: Keating, Lewis (UK - Leeds) [GRO]
Sent: Tuesday, February 28, 2017 5:06 PM
To: Godeseth, Torstein [GRO]; Mark Underwood1 [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Newsome, Pete [GRO]; Iosifidou, Elena (UK - London) [GRO]
Cc: Wolstencroft, Liam (UK - Manchester) [GRO]; 'jonathan.gribben' [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Thanks Torstein

Is there any update on the below?

Thanks
Lewis

From: Torstein.O.Godeseth [GRO]

Sent: 22 February 2017 18:45

To: Torstein.O.Godeseth [GRO]; Mark Underwood1 [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; pete.newsome [GRO]; Iosifidou, Elena (UK - London) [GRO]
Cc: Wolstencroft, Liam (UK - Manchester) [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Just a quick update to say that we have found a problem with the query and we are double checking that there are no more.

The re-assuring news is that there is no evidence of missing JSNs.

Regards etc

Torstein in

Sent from my Windows Phone

From: Godeseth, Torstein

Sent: 22/02/2017 11:55

To: Mark Underwood1; Keating, Lewis (UK - Leeds); Westbrook, Mark (UK - Manchester); Newsome, Pete; Iosifidou, Elena (UK - London)

Cc: Wolstencroft, Liam (UK - Manchester)

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Thanks – we have the data and will look at it shortly.

Regards etc

Torstein

From: Mark Underwood1 [GRO]

Sent: Wednesday, February 22, 2017 11:31 AM

To: Keating, Lewis (UK - Leeds) [GRO]; Godeseth, Torstein

[GRO]; Westbrook, Mark (UK - Manchester) [GRO]

Newsome, Pete [GRO]; Iosifidou, Elena (UK - London) [GRO]

Cc: Wolstencroft, Liam (UK - Manchester) [GRO]

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Torstein should now be in receipt of the files.

Mark

Mark Underwood

Head of Portfolio: Legal, Risk & Governance

[GRO]

From: Keating, Lewis (UK - Leeds) [GRO]

Sent: 22 February 2017 10:07

To: Torstein.O.Godeseth [GRO]; Westbrook, Mark (UK - Manchester); pete.newsome [GRO]; Iosifidou, Elena (UK - London)

Cc: Mark Underwood1; Wolstencroft, Liam (UK - Manchester)

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hello

We have provided some files to Huddle, the platform we are using with POL to share data.

The 3 files uploaded are:

- Summary sheet showing the 25 new 'ARQ' sets of data sampled, and from the 25 we sampled, the 4 which had gaps. (*"Analytic1_GapsInSessionID_Sample25"*)
- List of all JSN gaps from the 25 new 'ARQ' sets of data. (*"Analytic1_MissingJSNs"*)
- Detailed example of 1 ARQ file requested based on missing Session ID's in original data provided, with our formulas in there so you can see where the gaps in JSN are (where the final column is greater than 1 after the JSN have been ordered). (*"Project_Sparrow"*)

Mark U – are you able to process these to Torstein somehow? Alternatively if you are all happy for me to password protect the documents and send via email with password being sent separately please let me know.

Thanks
Lewis

From: Torstein.O.Godeseth [GRO]
Sent: 20 February 2017 17:30
To: Westbrook, Mark (UK - Manchester) [GRO]; Keating, Lewis (UK - Leeds)
[GRO] pete.newsome [GRO] Iosifidou, Elena (UK - London)
[GRO]
Cc: Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Could you send me a spreadsheet which you believe demonstrates missing JSNs please? I presume this is one of the 25 'new' ARQs which we provided. I have only looked at a couple of these.

Alternatively if you can send me the just the 'Summary' sheet from any suspect ARQs I can get the data from our support team.

Regards etc.
Torstein

From: Westbrook, Mark (UK - Manchester) [GRO]
Sent: Monday, February 20, 2017 4:30 PM
To: Godeseth, Torstein [GRO]; Keating, Lewis (UK - Leeds)
[GRO]; Newsome, Pete [GRO]; Iosifidou, Elena (UK - London)
[GRO]
Cc: Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hello Torstein,

Just to check we are on the same page, we've taken onboard the fact that the session IDs are not necessarily continuous, but that the JSNs are. My comments below are focused on the fact that the new data, centred on JSNs, also has gaps in the sequencing. Given this seems too fundamental to the correct operation of the system to possibly be true, I felt that there must still be a filter applied, and picked out the italicised text from one of your previous emails which might support this:

"The explanation is that it is the JSN (journal sequence number) that is guaranteed to increase by exactly one – i.e. no gaps. The JSN is used for more than just basket identifiers and so the gaps in the SessionId are explained by instances where the JSN has been used against something other than a basket to record a block of data in the audit trail. In the specific example that I looked at the 'missing' JSN was used to record assembling a pouch in the branch.

The extract that was produced for this ARQ confirmed that there were no gaps or duplicates in the JSN sequence on the summary page; checking this is part of the standard extract process. However, the data that is output to the spreadsheet is tailored to provide specific pertinent data."

I've highlighted the key sentence in yellow. Does this account for the gaps in the new data?

Sorry if you already had grasped all of the above and your below email remains pertinent, but felt it worth double checking that you were aware we're now focused on the new data centred on JSN, because as far as we can see there are definitely gaps!

Thanks,

Mark

Mark Westbrook

Senior Manager | Deloitte LLP

GRO
markwestbrook@deloitte.co.uk | www.deloitte.co.uk

From: Torstein.O.Godeseth (GRO)
Sent: 20 February 2017 15:41
To: Westbrook, Mark (UK - Manchester) (GRO); Keating, Lewis (UK - Leeds) (GRO); pete.newsome (GRO); Iosifidou, Elena (UK - London)
<GRO>
Cc: Mark Underwood1 (GRO)
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Mark,

There are no gaps in JSNs from my analysis.

I will have another go at providing the explanation when I back to my laptop - probably tomorrow.

A key point, which I had missed previously is that the session ID which you have looked at in your analysis is not based on JSN, so any gaps in session ID does not imply any gap in JSNs. The completeness of the sequence of JSNs for each ARQ is confirmed on the Summary sheet in the spreadsheet.

Regards etc
Torstein

Sent from my Windows Phone

From: Westbrook, Mark (UK - Manchester)
Sent: 20/02/2017 12:35
To: Godeseth, Torstein; Keating, Lewis (UK - Leeds); Newsome, Pete; Iosifidou, Elena (UK - London)
Cc: Mark Underwood1
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hello Torstein,

Thanks for the response below.

We have reviewed the response below and gone back over all evidence received on this analytic. In summary:

- The original Huddle data was used for Analytic 1 'gaps in transaction logs'. Gaps were found however further investigation noted the analytic was ran on Session ID, not JSN as per description below. As such we obtained new data including JSN field.
- New data for the specific instances where gaps were found was provided, this included the JSN field.
- We have re-ran the analytic and still found gaps in the JSN using this data (you can see gaps by simply filtering A-Z in the JSN column.
 - o For example on sheet 403 (which you provided in the below email) the JSN numbers include 166762, 166765, however omit 166763 & 166764. There are many other gaps.
 - o We have also re-reviewed the full new dataset provided (i.e. all the new ARQ data) and have found many gaps throughout. We had a detailed look at one sheet (REF: POIA4329B, BranchID: 223644) and again noted many gaps in JSN (631447 – 631451)
- This causes concern as per your statement below there should be no JSN gaps " this is explicitly confirmed as part of the standard extract process – for each counter included in the extract we show the lowest message number (JSN) and the highest message number and confirm there are no gaps and no duplicates."
- Are you able to advise on a reason for these gaps? You noted someway below that

"The explanation is that it is the JSN (journal sequence number) that is guaranteed to increase by exactly one – i.e. no gaps. The JSN is used for more than just basket identifiers and so the gaps in the SessionId are explained by instances where the JSN has been used against something other than a basket to record a block of data in the audit trail. In the specific example that I looked at the 'missing' JSN was used to record assembling a pouch in the branch.

The extract that was produced for this ARQ confirmed that there were no gaps or duplicates in the JSN sequence on the summary page; checking this is part of the standard extract process. However, the data that is output to the spreadsheet is tailored to provide specific pertinent data."
- If the above holds true for the gaps in JSN noted above, are you able to advise how we can evidence this?

Currently these gaps in the JSN sequencing feel so fundamental to the correct operation of the Horizon system, that I suspect there is still some kind of filter being applied to the data (especially given your commentary in the penultimate bullet above), as the alternative would be fatal to all previous understanding and assurance over the system.

Thanks,

Mark

Mark Westbrook

Senior Manager | Deloitte LLP

markwestbrook@GROGRO | www.deloitte.co.uk

From: Torstein.O.Godeseth@GRO

Sent: 12 February 2017 13:33

To: Keating, Lewis (UK - Leeds) GRO; [pete.newsome](#) GRO; Westbrook, Mark (UK - Manchester) GRO; Iosifidou, Elena (UK - London) GRO

Cc: Mark Underwood1 GRO >

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Lewis,

As indicated in my response of February 1st I promised I would check the '5' you noted in the JSN/Session Id comparison. I'm afraid I now have to grovel as my explanation of how the session number is generated was wrong – I had jumped to a conclusion from a small sample of data. The integrity of the audit trail is not affected by my error, but I am embarrassed nevertheless.

In fact the session number is generated using the USN (not the JSN). The definitions from DES/APP/HLD/0083 are pasted below

JSN	Journal Sequence Number. Every auditable message from the counter to the BAL (e.g. settlement) will have a JSN associated with it.
Session Id / SSN	Each Basket will have a unique Session Id associated with it. Session Ids have the property that they contain a number that is always increasing for a given counter. Note: Session Ids are held "Mod 1,000,000" and so they can occasionally wrap around to zero. This needs to be taken into account when comparing values
USN	The USN is a Unique Sequence Number managed by the Counter Business Application for systems that require one. One is allocated by the counter for each recoverable transaction. Its presence defines the transaction as recoverable. Note USNs are not used exclusively for recovery (e.g. Postage Labels)

From DES/APP/IFS/0018

horizonTxId			Transactions id of the form "00-" + branch accounting code + "-" + counter id + "-" + usn
-------------	--	--	---

The **JSN** is the number that must have the property of incrementing by exactly 1 to demonstrate that no auditable messages between counter and the central systems have been lost or inserted.

You will see from the 'Summary' sheet on the ARQs that this is explicitly confirmed as part of the standard extract process – for each counter included in the extract we show the lowest message number (JSN) and the highest message number and confirm there are no gaps and no duplicates.

There is no need for Session Id's to demonstrate the same property as they are derived from a different source.

I have asked our support team to regenerate a couple of the 'JSN' queries to show the SessionId (where there is one) and attach these for information. These queries give a pretty good overview of the activities that took place at each counter. Other, more specific queries, drill into the detail.

Regards etc.
Torstein

From: Godeseth, Torstein
Sent: Wednesday, February 1, 2017 10:03 AM
To: 'Keating, Lewis (UK - Leeds)' [GRO]; Newsome, Pete [GRO]
Westbrook, Mark (UK - Manchester) [GRO]; Iosifidou, Elena (UK - London)
[GRO]
Cc: Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Lewis,
Pete asked me to respond on the 'new' ARQ questions.

-
- Much fewer columns in 'new' ARQ data

This is a new query written specifically to show that all the JSNs are accounted for. In my view the query does that – when you find 'gaps' in the original query you are able to confirm that the JSN was used for some other purpose (and what that purpose was).

- 'Time' column called something different in both & also has a different time format.

The names given to columns are specified in the query used and I did not specify that the column name had to be identical in this new query; we could obviously do this but I don't think it would add value.

- JSN & SessionID column are called different things, and in the New extract this column seems to be prefixed with a '5'. I don't think the different format for time should be an issue – Excel may well have decided to present it in a prettier way; if the values were different then that would be an issue.

As above on the column names; as this query is looking at JSNs specifically I would argue that JSN is the appropriate heading. The previous extract it is appropriate to use SessionID as that has more meaning to the POL Business as a 'session' means something to a SubPostmaster whereas it is unlikely they would warm to the more technical terminology. The JSN is used in constructing the SessionID.

I don't know what the '5' signifies and will check; I can't imagine it is significant to the exam question.

Finally I can assure you that the data in the new queries has been extracted from the same source with all the checking of digital signatures and other safeguards that we have explained in the past.

Regards etc.
Torstein

From: Keating, Lewis (UK - Leeds) [GRO]
Sent: Tuesday, January 31, 2017 1:28 PM
To: Newsome, Pete [GRO]; Westbrook, Mark (UK - Manchester)
[GRO]; Godeseth, Torstein [GRO]; Iosifidou, Elena (UK -
London) [GRO]
Cc: Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Thanks Pete

In addition to the below, we have a question on the additional ARQ data which we have received.

It is in a different format to the original data we received and we would like to understand why if possible. I will list a few of the differences below for ease, however Torstein we can provide you with a line from each output in a password protected excel via email if this will help.

- Much fewer columns in 'new' ARQ data

- 'Time' column called something different in both & also has a different time format.
- JSN & SessionID column are called different things, and in the New extract this column seems to be prefixed with a '5'.

Are we able to understand why these differences exist, has the data been extracted in a different way / from a different source. This may be easier to discuss on a call.

Thanks
Lewis

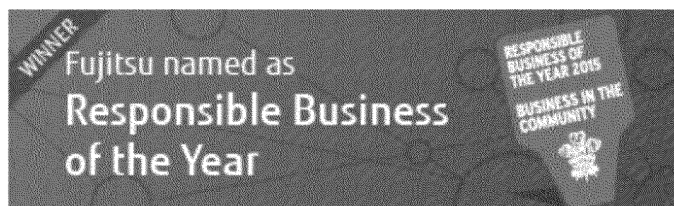
From: [pete.newsome](#) **GRO**
Sent: 30 January 2017 14:11
To: Westbrook, Mark (UK - Manchester) **GRO**; Mark Underwood1
GRO; Keating, Lewis (UK - Leeds) **GRO**
GRO; Iosifidou, Elena (UK - London)
Cc: Gribben, Jonathan **GRO**; Parsons, Andrew
GRO; Kathryn Alexander **GRO**
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Mark

Still in discussion. Will resolve this week.

Pete

Pete Newsome
 Business Change Manager
 Post Office Account, Fujitsu UK&I
 Tel: **GRO**
 E-Mail: [pete.newsome](#) **GRO**
 Web: <http://uk.fujitsu.com>
 Web: uk.fujitsu.com



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Please consider the environment - do you really need to print this email?

From: Westbrook, Mark (UK - Manchester) **GRO**
Sent: 27 January 2017 12:30
To: Newsome, Pete **GRO**; Mark Underwood1 **GRO**
 Keating, Lewis (UK - Leeds) **GRO**; Godeseth, Torstein **GRO**
 Iosifidou, Elena (UK - London) **GRO**

Cc: Gribben, Jonathan [GRO] Parsons, Andrew

[GRO] Kathryn Alexander [GRO]

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hello all,

I believe this is the latest email in the trail relating to further investigations on this analytic. I wanted to keep this front of mind, and enquire as to latest status?

Thanks,

Mark

Mark Westbrook

Senior Manager | Deloitte LLP

D: [GRO]

markwestbrook [GRO] | www.deloitte.co.uk

From: pete.newsome [GRO]

Sent: 19 January 2017 13:59

To: Mark Underwood1 [GRO]; Keating, Lewis (UK - Leeds)

[GRO]

Torstein.O.Godeseth [GRO]; Iosifidou, Elena (UK - London)

Cc: Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan

[GRO]; Parsons, Andrew [GRO]; Kathryn

Alexander [GRO]

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Mark

I am discussing currently with colleagues the amount of the work involved. I will hopefully be able to give a definitive answer shortly.

Pete

Pete Newsome

Business Change Manager

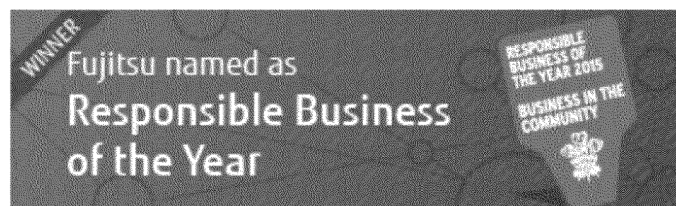
Post Office Account, Fujitsu UK&I

Tel: [GRO]

E-Mail: [pete.newsome \[GRO\]](mailto:pete.newsome [GRO])

Web: <http://uk.fujitsu.com>

Web: uk.fujitsu.com



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Please consider the environment - do you really need to print this email?

From: Mark Underwood1; [GRO]
Sent: 19 January 2017 11:49
To: Keating, Lewis (UK - Leeds); [GRO]; Godeseth, Torstein
[GRO]; Iosifidou, Elena (UK - London); [GRO]
Cc: Newsome, Pete; [GRO]; Westbrook, Mark (UK - Manchester)
[GRO]; Gribben, Jonathan; [GRO]; Parsons, Andrew
[GRO]; Kathryn Alexander; [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)
Importance: High

Torstein,

Have you managed to address the points Lewis raises below just yet? From reading the below, it appears that to do so will require a call. As such, could you please advise on which dates and timings you are available for the call to take place?

Many thanks

Mark

From: Keating, Lewis (UK - Leeds); [GRO]
Sent: 12 January 2017 13:36
To: Torstein.O.Godeseth; [GRO]; Iosifidou, Elena (UK - London)
Cc: pete.newsome; [GRO]; Westbrook, Mark (UK - Manchester); Gribben, Jonathan; Parsons, Andrew; Kathryn Alexander; Mark Underwood1
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Torstein

Thanks for the response below.

We have reviewed the evidence/rationale provided and are broadly comfortable they provide a reasonable explanation for 8 of the 15 items provided.

I think the next steps here are:

- i) To see the other evidence to support the other items within the 15 provided. (we only have a rationale for 8/15 to date)
- ii) Conversation with you (or other Fujitsu SME) to discuss:
 - a. The evidence presented in order to confirm the source of the evidence & be verbally taken through it.
 - b. Review the evidence for all of the 15 items once they are provided (see point i), as the screenshots only cover 2 items.

Thanks
Lewis

From: Torstein.O.Godeseth [GRO]
Sent: 22 December 2016 10:22
To: Iosifidou, Elena (UK - London) [GRO]
Cc: pete.newsom [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Elena,

Please find attached my explanation of the Analytic 6 observations as promised.

As you will be aware all of these observations relate to the now retired Horizon system and so we no longer have the audit data for a number of them. The Mails application at the time was a package which was integrated into the main Horizon system. The package was not written by Fujitsu.

It appears that on occasion the Mails package wrote records to the audit file which missed technical detail but there is no reason to think this would have affected the postmasters' accounts as far as I can see. Obviously we cannot recreate the scenarios discussed in the attachment as we don't have the facilities to run the old software.

Regards etc.

Torstein

From: Iosifidou, Elena (UK - London) [GRO]
Sent: Tuesday, December 20, 2016 11:26 AM
To: Godeseth, Torstein [GRO]
Cc: Newsome, Pete [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Thanks Torstein makes sense.

Looking forward to the response you mentioned below.

Kind Regards,

Elena

Elena Iosifidou

Deloitte LLP | Risk Analytics

M: [GRO]

From: Torstein.O.Godeseth [GRO]
Sent: 20 December 2016 10:37
To: Iosifidou, Elena (UK - London) [GRO]
Cc: pete.newsom [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Elena,

I cannot give guidance on whether further work should be done looking at other modes as it depends on what Post Office is trying to achieve.

From my perspective the exercise using SC has identified a small number of instances where we can see that the data from the audit trail has not been extracted by the extract tool, and I am finalising a response on that which will explain the glitch. I am comfortable that for all the cases identified to date we can see detail in the audit trail which shows what items were sold in the branch for each session in mode SC (Serve Customer).

Regards etc.
Torstein

From: Iosifidou, Elena (UK - London) [GRO]
Sent: Monday, December 19, 2016 10:48 AM
To: Godeseth, Torstein [GRO]
Cc: Newsome, Pete [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Torstein,

The analytic was designed to look at imbalances with session ids under mode 'SC'. For those cases as I mentioned below all the cases fall into your buckets of a) being relatively small and b) being negative.

If we want to look at session ids with all modes then I will have to re-design the analytic (and I don't know what the results will look like) and this is what I am asking whether it's something you want us doing or not to help with your investigation.

Kind Regards,
Elena

Elena Iosifidou

Deloitte LLP | Risk Analytics

M [GRO] | eiosifidou@ [GRO]

From: Torstein.O.Godeseth [GRO]
Sent: 19 December 2016 10:40
To: Iosifidou, Elena (UK - London) [GRO]
Cc: pete.newsomel [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Elena,

If you have identified other issues in interpreting the data which currently show imbalances can you send the details as soon as possible so that we can investigate further.

Regards etc.
Torstein

From: Iosifidou, Elena (UK - London) [GRO]

Sent: Monday, December 19, 2016 9:19 AM

To: Godeseth, Torstein [GRO]

Cc: Newsome, Pete [GRO]; Westbrook, Mark (UK - Manchester)

[GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander'

[GRO]; Mark Underwood1 [GRO]

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hi Torstein,

To answer your question below - with the analytic performed on the session ids with 'SC' mode, all the imbalances are relatively small and negative.

If we want to include the full population, I believe there were bigger imbalances involved but I will have to re-run the analytic to confirm that - will that help with your investigation?

Kind Regards,
Elena

Elena Iosifidou

Deloitte LLP | Risk Analytics

M: [GRO] | eiosifidou [GRO]

From: Torstein.O.Godeseth [GRO]

Sent: 16 December 2016 16:38

To: Iosifidou, Elena (UK - London) [GRO] >

Cc: pete.newsome [GRO]

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

I think I saw one instance where it looked as though the basket would balance if you included a non 'SC' item in it. I think I would go for the full population as being valid for balancing the session.

Regards etc.
Torstein

From: Iosifidou, Elena (UK - London) [GRO]

Sent: Friday, December 16, 2016 4:35 PM

To: Godeseth, Torstein [GRO]

Cc: Newsome, Pete [GRO]

Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Torstein,

Do you have a view on whether the balancing of the session ids should have happened on the 'SC' mode only or the full population?

Kind Regards,
Elena

Elena Iosifidou

Deloitte LLP | Risk Analytics

M: [GRO] | eiosifidou [GRO]

From: Torstein.O.Godeseth [GRO]

Sent: 16 December 2016 15:36
To: Iosifidou, Elena (UK - London) [GRO]
Cc: [pete.newsome](#) [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Elena,

Apologies. A cut and paste problem on my part.

The missing text is:

- The amount is negative
- The amount is relatively small

Regards etc.
Torstein

From: Iosifidou, Elena (UK - London) [GRO]
Sent: Friday, December 16, 2016 3:04 PM
To: Godeseth, Torstein [GRO]; Newsome, Pete [GRO]
Cc: Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; Kathryn Alexander [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hi Torstein,

Thanks for coming back to us with regards to analytic6.

I just wanted to clarify, to be able to progress your diagnosis, are you asking for the remaining cases or is there some text missing after ‘:-’ below?

Kind Regards,
Elena

Elena Iosifidou
Deloitte LLP | Risk Analytics
M: [GRO] | [eiosifidou](#) [GRO]

From: Torstein.O.Godeseth [GRO]
Sent: 15 December 2016 11:06
To: Iosifidou, Elena (UK - London) [GRO]; [pete.newsome](#) [GRO]
Cc: Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; Kathryn Alexander [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Elena,

I am responding to the request for an update on analytic6 — see highlight below.

We have now looked at the raw data from the audit files for a number of the cases you identified and I can confirm that there is data which is not being extracted into the spreadsheet. For the cases we have analysed there is a common cause for the failure to extract, but it would help us to progress our diagnosis if you could confirm that in all instances you have found.

Regards etc.
Torstein

From: Iosifidou, Elena (UK - London) [GRO]
Sent: Tuesday, December 13, 2016 10:13 AM
To: Godeseth, Torstein [GRO]; Newsome, Pete [GRO]
Cc: Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hi Torstein,

Thanks for the response below with regards to analytic1.

We have discussed internally and to get the assurance we need on this, we propose the below approach, let us know your thoughts:

Deloitte to select a sample of 25 session ids identified with gaps and share them with you and for those respective ARQs to get the additional transactions for that month (i.e. the session ids that don't hit the basket) to verify the completeness of JSNs? Will that work from your side?

Also let us know once you had a chance to look at analytic6.

Kind Regards,
Elena

Elena Iosifidou

Deloitte LLP | Risk Analytics

M: [GRO] | eiosifidou@ [GRO]

From: Torstein.O.Godeseth [GRO]
Sent: 09 December 2016 12:04
To: Iosifidou, Elena (UK - London) [GRO]; pete.newsome [GRO]
Cc: Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Elena,

Now I am back from leave I have had a look at the query about 'missing sessions' that you raised in your email of 30th November (analytic 1). I looked specifically at the example

The explanation is that it is the JSN (journal sequence number) that is guaranteed to increase by exactly one – i.e. no gaps. The JSN is used for more than just basket identifiers and so the gaps in the SessionId are explained by instances where the JSN has been used against something other than a basket to record a block of data in the audit trail. In the specific example that I looked at the 'missing' JSN was used to record assembling a pouch in the branch.

The extract that was produced for this ARQ confirmed that there were no gaps or duplicates in the JSN sequence on the summary page; checking this is part of the standard extract process. However, the data that is output to the spreadsheet is tailored to provide specific pertinent data.

I attach the raw data for JSN 11425.

Regards etc
Torstein

From: Iosifidou, Elena (UK - London) [GRO]
Sent: Wednesday, November 30, 2016 12:54 PM
To: Godeseth, Torstein [GRO]; Newsome, Pete [GRO]
Cc: Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Torstein thanks for the note below.

Pete – let me know if you need any clarification on the revised output of analytic 6.

On the call we had previously, one of the agreed actions for **analytic 1** (Identify gaps in audit log sequencing) was to test whether the session ids have gaps between them instead of the combination of session ids and transaction ids we used previously.

Therefore, we re-designed the analytic to look at gaps in session ids only, but we still found gaps between them. I have attached 5 example cases and I also copied the data from their raw files on the respective tabs highlighting where the issue is. Torstein/Pete, can you please have a look on the attached to check whether this is something you'd expect or whether we are missing anything? Could it be branches with multiple stock units?

Kind Regards,
Elena

Elena Iosifidou

Deloitte LLP | Risk Analytics

M [GRO] | eiosifidou [GRO]

From: Torstein.O.Godeseth [GRO]
Sent: 25 November 2016 18:32
To: Iosifidou, Elena (UK - London) [GRO]
Cc: Westbrook, Mark (UK - Manchester) [GRO]; Gribben, Jonathan [GRO]; pete.newsomes [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; 'Kathryn Alexander' [GRO]; Mark Underwood1 [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Apologies - whilst I have had a very quick look at this I have not been able to spend enough time on it.
I will be in leave this coming week and will catch up with Pete on my return.

Regards etc
Torstein

Sent from my Windows Phone

From: [Iosifidou, Elena \(UK - London\)](#)
Sent: 22/11/2016 23:35
To: [Godeseth, Torstein](#)
Cc: [Westbrook, Mark \(UK - Manchester\)](#); [Gribben, Jonathan](#); [Newsome, Pete](#); [Keating, Lewis \(UK - Leeds\)](#); [Parsons, Andrew](#); ['Kathryn Alexander'](#); [Mark Underwood1](#)
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hi Torstein,

Thanks for sending the below information through for analytic 6. We took that into account and re-performed the reconciliation.

Please note that this is work in progress but there are still 40 session ids that don't balance – I am attaching the top 15.

Would it be possible to have a look at these please as it might help us identify another cause of this?

Finally we were advised by the case handlers to perform this exercise on the 'SC' mode only, is that your understanding too?

Kind Regards,
Elena

Elena Iosifidou

Deloitte LLP | Risk Analytics

M: [GRO](#) | [eiosifidou@](#) [GRO](#)

From: [Westbrook, Mark \(UK - Manchester\)](#)

Sent: 17 November 2016 16:37

To: [Torstein.O.Godeseth](#) [GRO](#); [Gribben, Jonathan](#) [GRO](#); [pete.newsome](#) [GRO](#); [Keating, Lewis \(UK - Leeds\)](#) [GRO](#); [Parsons, Andrew](#) [GRO](#); [Iosifidou, Elena \(UK - London\)](#) [GRO](#); ['Kathryn Alexander'](#) [GRO](#)
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Thanks Torstein.

That would appear to likely explain it. Should hopefully be a simple job for the data team to revise their analytic to account for and check this explains those 59 cases.

Thanks,

Mark

Mark Westbrook

Senior Manager | Deloitte LLP

D: [GRO](#)
[markwestbrook](#) [GRO](#) | [www.deloitte.co.uk](#)

From: Torstein.O.Godeseth [GRO]
Sent: 17 November 2016 16:14
To: Gribben, Jonathan <Jonathan.Gribben [GRO]>; pete.newsom [GRO]; Keating, Lewis (UK - Leeds) <lkeating [GRO]>; Parsons, Andrew <A [GRO]>; Westbrook, Mark (UK - Manchester) < [GRO]>; Iosifidou, Elena (UK - London) < [GRO]>; 'Kathryn Alexander' < [GRO]>
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

All,
My curiosity got the better of me and I asked our support team to redo the first two ARQs on the Analytics 6 sheet.

In both cases I get the session to balance to zero – as it should.

What looks likely here is that the basket was not fully captured in the analysis as the size of the ARQ extends to two sheets in Excel – this was set up in the days when you could only get 60,000 or so rows on a sheet; in both cases there are entries for the basket (SessionId) on the both sheets. In both cases the values on Sheet 1 sum to the Balance shown on the Analytic 6 summary.

Hope this helps resolution. The attachment lists all of the records I found.

Regards etc.
Torstein

From: Gribben, Jonathan [GRO]
Sent: Thursday, November 17, 2016 11:59 AM
To: Newsome, Pete [GRO]; Keating, Lewis (UK - Leeds) [GRO]; Parsons, Andrew [GRO]; Westbrook, Mark (UK - Manchester) [GRO]; Iosifidou, Elena (UK - London) [GRO]; 'Kathryn Alexander' [GRO]; Godeseth, Torstein [GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Dear all,

Here are the agreed actions arising out of this morning's (slightly delayed) call:

Analytic 1

In light of Torstein's explanation that transaction IDs do not need to be continuous, whereas session IDs contain the last few digits of JSNs and therefore should be continuous, Deloitte are going to check whether there are any gaps in the session IDs.

Deloitte to arrange a walkthrough to observe/verify the effect of a branch deleting a transaction on the Branch Database.

Analytic 6

In the first instance Kath is going to review the data in respect of the 15 samples identified by Deloitte and look for any

patterns (e.g. transactions that are common to every example). That will inform next steps.

One option might be for Fujitsu to re-extract data for audit trail, although everyone expects that the data will be the same as that previously extracted.

If no patterns are identified and data is the same on re-extraction, we may be in genuine exception territory. However Deloitte could attempt validation by reviewing documents in relation to Legacy Horizon.

Please let me know if I've missed anything and thanks again for your time.

Kind regards

Jonny

From: Keating, Lewis (UK - Leeds) [GRO]
Sent: 16 November 2016 14:50
To: Gribben, Jonathan [GRO]; Parsons, Andrew
[GRO] Westbrook, Mark (UK - Manchester) [GRO]
Iosifidou, Elena (UK - London) [GRO]; 'Kathryn Alexander'
[GRO]; Godeseth, Torstein [GRO]; Newsome, Pete
[GRO]
Subject: RE: Bramble: call to discuss analytics (Privileged & Confidential)

Hello all

Please find attached some samples for the 2 analytics we are following up / discussing tomorrow.

Thanks
Lewis

Jonathan Gribben
Managing Associate

Bond Dickinson LLP

Bond Dickinson

Direct: [GRO]
Mobile: [GRO]
Office: [GRO]

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-----Original Appointment-----

From: Gribben, Jonathan [GRO]

Sent: 15 November 2016 12:58

To: Gribben, Jonathan; Parsons, Andrew; Westbrook, Mark (UK - Manchester); Keating, Lewis (UK - Leeds); Iosifidou, Elena (UK - London); 'Kathryn Alexander'; Torstein.O.Godeseth [GRO] pete.newsome [GRO]

Subject: Bramble: call to discuss analytics (Privileged & Confidential)

When: 17 November 2016 11:00-12:30 (UTC+00:00) Dublin, Edinburgh, Lisbon, London.

Where: Conference Call

Dear all,

Thank you for confirming your availability to attend this call.

Data samples will be circulated in advance.

Kind regards

Jonny

Join by Phone

[GRO]

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Conference ID: 3926783

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