

# Hands-on APM & Log Analytics

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## Introduction

We created a convoluted Java EE/ADF application for demonstration with build in performance problems for purposes: we use it to demonstrate Oracle Management Cloud - Application Performance Monitoring and Log Analytics.

## Demo application; WorldView

Click around to get a general overview of the demo application. Some parts are slow and some errors will be thrown. Try to find these first for yourself – like in real life - in APM and Log Analytics.

The application is live on <http://bit.ly/2jRfsOO> (aka: <http://141.144.34.222/TheWorldView> )

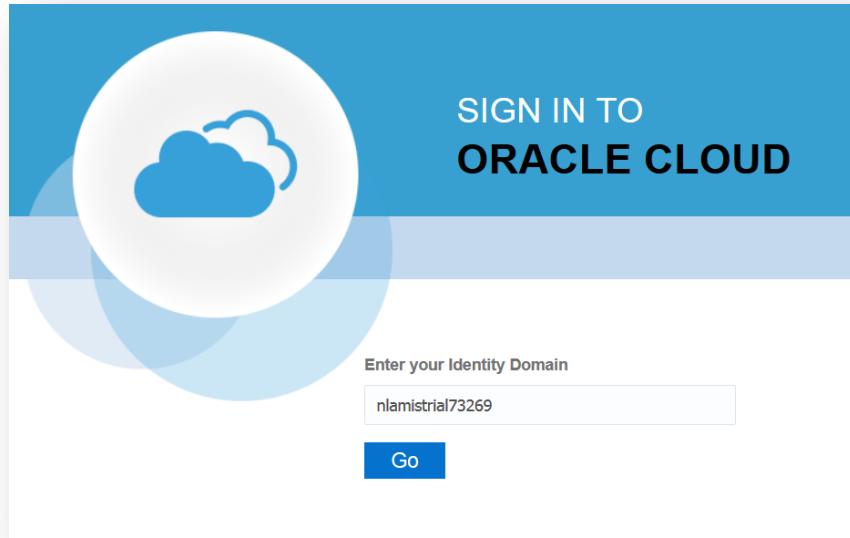
The screenshot shows a web browser window with the URL [141.144.34.222/TheWorldView/faces/main.jsf](http://141.144.34.222/TheWorldView/faces/main.jsf). The page title is "The World". The header includes links for "Apps", "DynTabs", "ADF PM LOCALHOST", "Console local", and "PG". Below the header, a welcome message says "Welcome Guest". The main content area is titled "Areas of interest" and features a large image of the Earth. To the right of the image is a vertical menu with buttons for "Map", "News", "Countries Catalog", "Errors", and "Worldly Talk". The "Countries Catalog" button is highlighted with a blue border.

The (re)sources are available in GitHub at: <http://bit.ly/2k31cEY>

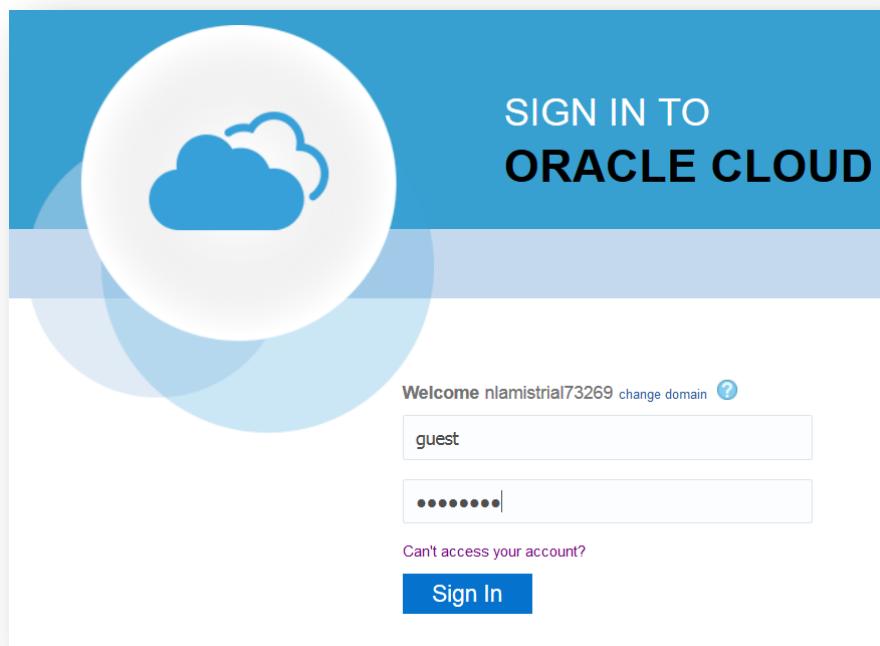
## APM

Now go to Oracle Management Cloud and log in:

- OMC: <https://myservices.us2.oraclecloud.com/mycloud/faces/dashboard.jspx>



- 
- identity domain: **nlamistrial73269**



- OMC account for hands-on:

- username: **guest**
- password: **OMCamis1**

The screenshot shows the Oracle Cloud My Services dashboard with several service tiles:

- Infrastructuretrial9705**: Infrastructure Monitoring
- itanalytictrial7042**: IT Analytics
- loganalytictrial9016**: Log Analytics
- apmtrial3371**: APM (highlighted with a red box)

The APM tile displays a bar chart titled "Number of Agents (agents)" with values: 6, 3, 0, 18, 20, 22, 24.

Go to **apmtrial3371**.

Launch APM:

The screenshot shows the "Service Details: apmtrial3371 (Application Performance Monitoring)" page. The "Launch APM" button is highlighted with a red box.

**Overview (for January 2017):**

- 100% uptime
- 1 unplanned outages

**Business Metrics (as of 1 hour 30 minutes ago):**

- 7 number of agents

**Service Status - January 2017:**

Date	Status
1	Service Up
2	Service Up
3	Service Up
4	Service Up
5	Service Up
6	Service Up
7	Service Up
8	Service Up
9	Service Up
10	Service Up
11	Service Up
12	Service Up
13	Service Up
14	Service Up
15	Service Up
16	Service Up
17	Service Incident
18	Service Incident
19	Service Incident
20	Service Incident
21	Service Incident
22	Service Incident
23	Service Incident
24	Service Incident
25	Service Incident
26	Service Incident
27	Service Incident
28	Service Incident
29	Service Incident
30	Service Incident
31	Service Incident

**Additional Information:**

- Plan: Application Performance Mon...
- Service Start Date: 7-Dec-2016
- Service End Date: 7-Mar-2017
- Subscription ID: 554044098
- Customer Account: AMIS (GB)
- CSI Number: Not available
- Data Center: US Commercial 2
- Version: 16.4.6.0.0
- Status: Active
- Service Instance URL: <https://nlamistrial73269.ap...>
- Domain SFTP Host & Port: sftp.us2.cloud.oracle.com:22
- Domain SFTP User Name: nlamis5C

And from the dashboard with all OMC services, pick the tile for APM:

Welcome to Oracle Management Cloud



**Application Performance Monitoring**

Rapidly identify, respond, and resolve your software roadblocks



**Infrastructure Monitoring**

Monitor your entire IT infrastructure - on-premise or on the cloud - from one unified platform



**Log Analytics**

Topology aware log exploration and analytics for modern applications and infrastructure



**IT Analytics**

Operational big data intelligence for modern IT

Select



**Learn More**

- [How to get started](#)
- [Videos](#)

Click around the several menu options on the left to familiarize yourself a little with APM:

The screenshot shows the Oracle Management Cloud APM interface. The left sidebar lists navigation items: Home, Applications, Pages, Ajax Calls, Session List, Server Requests, AppServers, Synthetic Tests, Alerts, and Administration. The main content area has a "PAGES BY GEOGRAPHY" section with a world map where continents are color-coded by average response time. Below the map is a bar chart for "Average Response Time". To the right is a "SERVER REQUESTS BY APP SERVER" section for "amispas-db-java-stack-jaa-wls-1.compute-amispas.oraclecloud.internal:9073", showing various database operations like closeConnection, createConnection, executePrePstmt, etc., with their respective average response times.

On the sessions tab, see if you can find your own session. It takes a few minutes before the metrics are visible when you click around in the world demo application.

## 1-World News Page

Go back to the index page of the WorldView demo application (<http://141.144.34.222/TheWorldView> ).

### The World View



[Enter the application](#)

- [The Other Index](#)
- [The Other Non Existant Index \(a dead link\)](#)
- [World News](#)
- [Catalog of Countries of the World](#)
- [World of Errors](#)

Click on the WorldNews link on the main page. You will be taken to this page:

A screenshot of a web browser window showing news articles. The address bar shows the URL: 141.144.34.222/TheWorldView/faces/main.jsf. The page displays three news items:

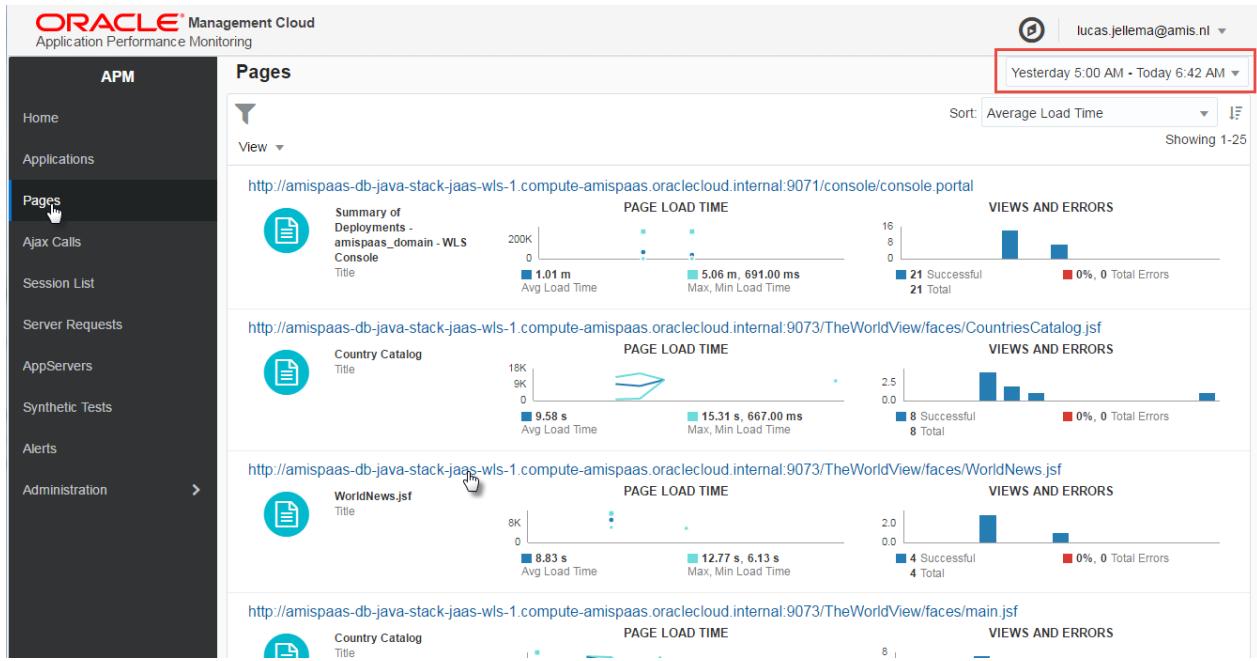
- Trump expected to launch measures to curb illegal immigration**  
WASHINGTON (Reuters) - U.S. President Donald Trump is expected to begin signing executive orders aimed at curbing illegal immigration on Wednesday, beginning with a directive to build a wall along the U.S. border with Mexico and another to boost personnel needed to crack down on illegal immigrants, congressional aides with knowledge of the plan told Reuters.  
+ Email this + Save to delicio.us + Digg This!
- Britain to publish Article 50 bill as May agrees to set out Brexit plan**  
LONDON (Reuters) - Britain said it would publish legislation on Thursday seeking parliament's approval to begin formal divorce talks with the European Union as Prime Minister Theresa May agreed to lawmakers' demands to publish her Brexit plan.  
+ Email this + Save to delicio.us + Digg This!
- Islamic State fighters redeploy in west Mosul after Iraqi forces take east**  
BAGHDAD (Reuters) - Islamic State fighters have taken up sniper positions in buildings on the west bank of the Tigris river ahead of an expected government offensive into that side of the city, locals said on Wednesday.  
+ Email this + Save to delicio.us + Digg This!

At the top of the browser window, there are various tabs and links related to the news site, including "Back to Main Page" and "Do not press this button".

Try out different news sources and click around for a few minutes. Which one is fast, acceptable and which one is slow?

To get insight of what is happening behind the scenes, we are going to look in APM.

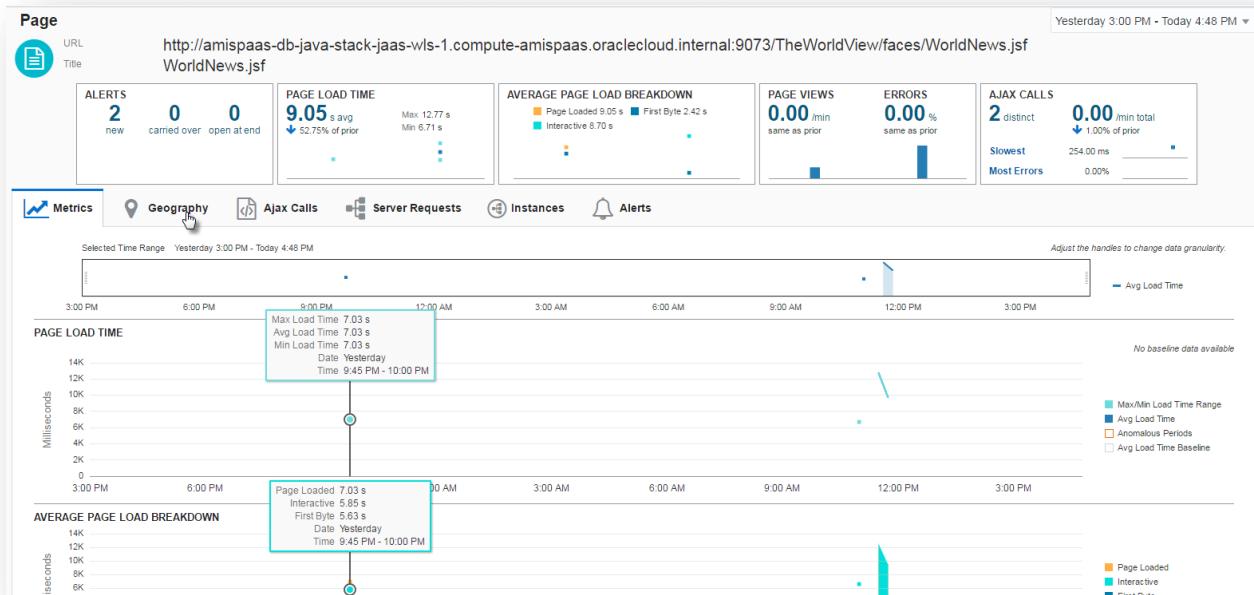
Click on the tab Pages.



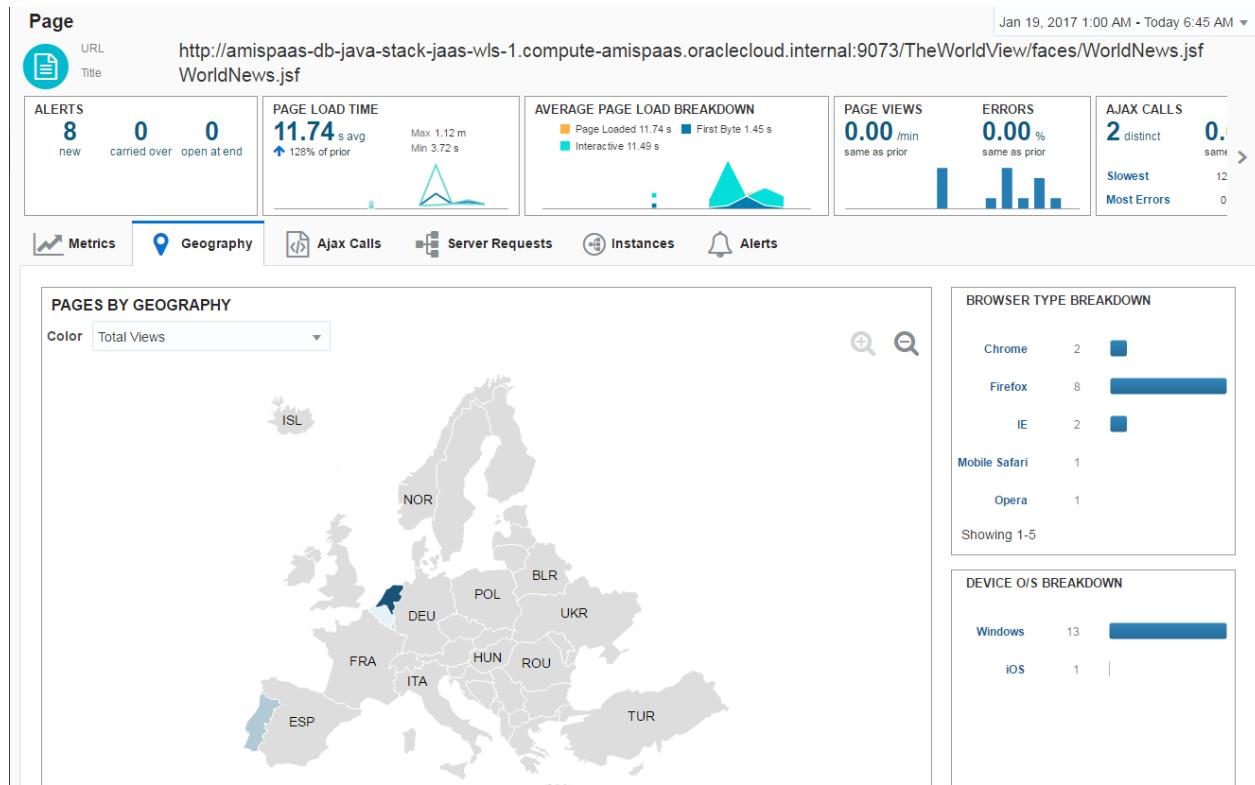
The pages accessed in the time range currently selected in the top right hand corner are listed, ordered by average load time. Note: if you do not see (m)any entries on this overview, you may need to change the time range.

One of the pages not doing so well is the WorldNews.jsf page. Click on it.

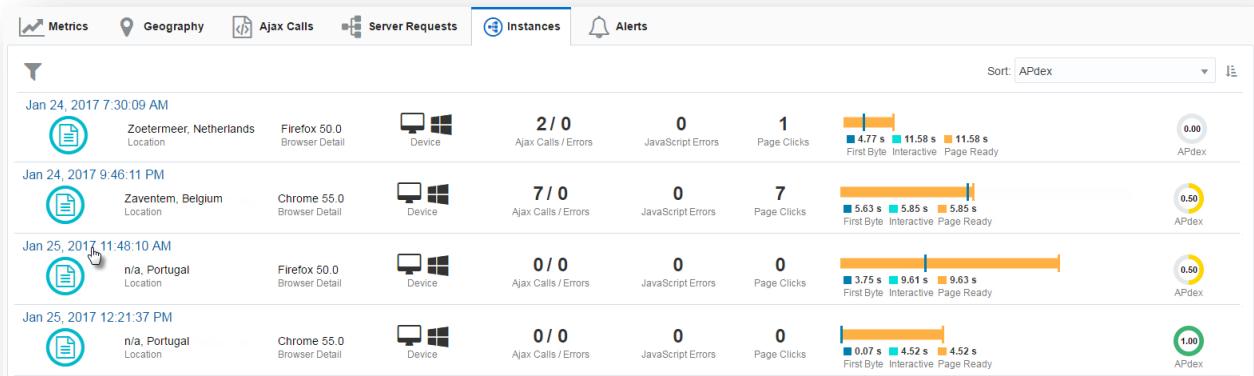
You will see some metrics about the page, confirming its poor performance.



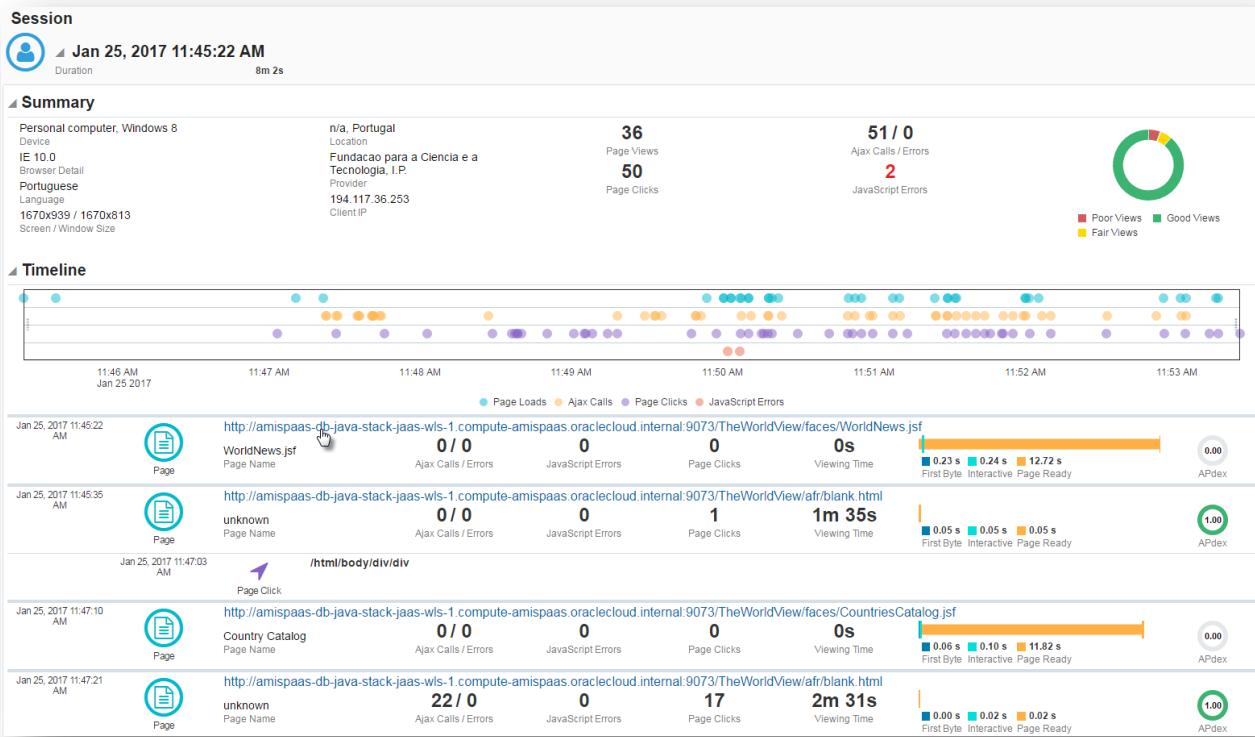
Click on the Geography tab to see where the requests for this page are coming from – just for fun:



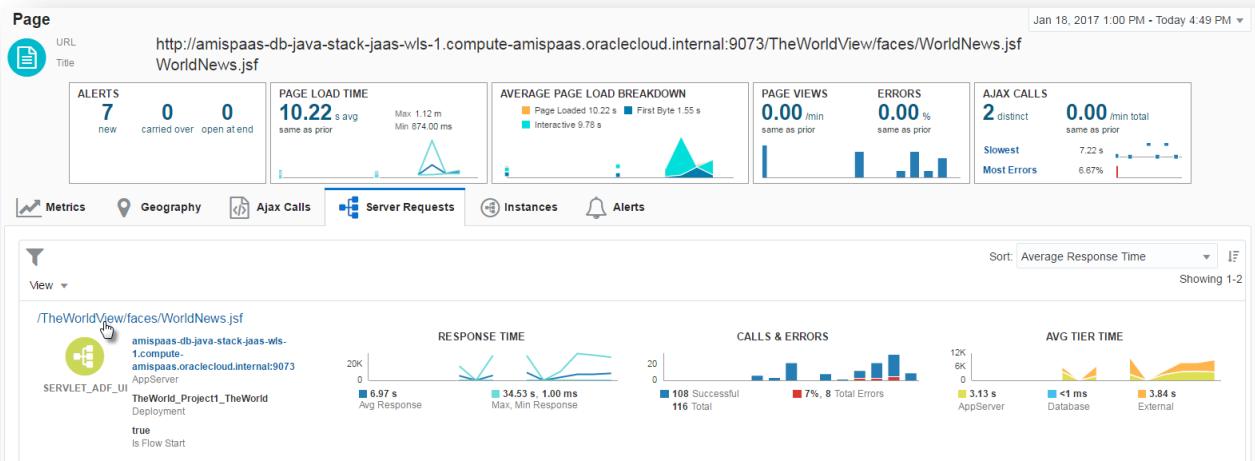
Click on Instances – to see individual user sessions that accessed this page:



Click on one of the really bad page access instances. This takes you to a detailed overview of the timeline of that particular user session along with some details about that session.

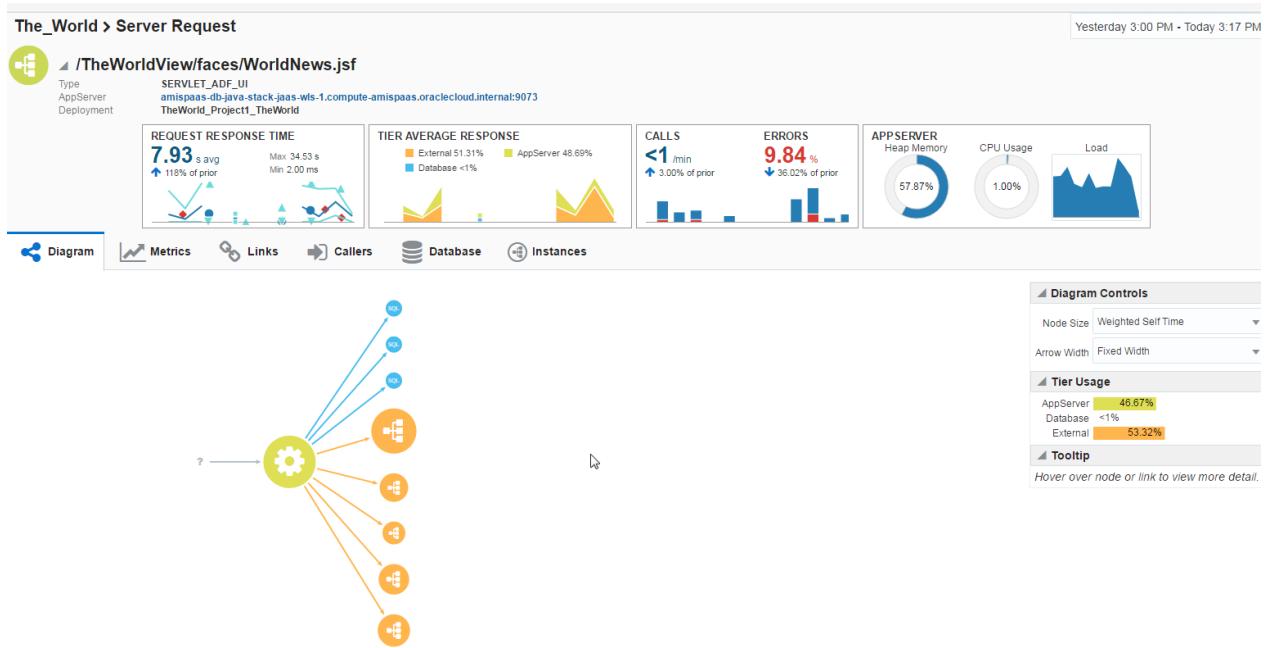


Click on the entry for the WorldNews.jsf page. Back in the Page overview, click on the tab for Server Requests, a list of the hard work being performed in WebLogic – and leveraging external help – to deliver this page experience.

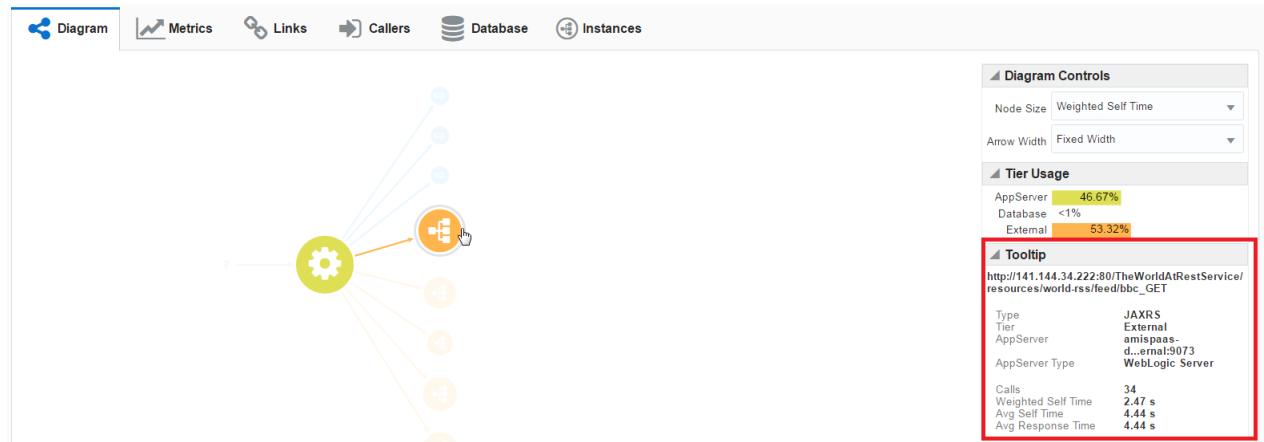


Click on the Server Request for /TheWorldView/faces/WorldNews.jsf:

The loading of the diagram can take a few seconds:



Hover over the nodes and the biggest node. On the right more detail metrics appear when we hover over the different nodes. We see that the biggest node comes from a REST service call with news from the BBC:



Also have a look at the summary charts on the top of the page. They are all interesting – especially the tier AVG response. Clearly we can see that most time is spent in an external service:



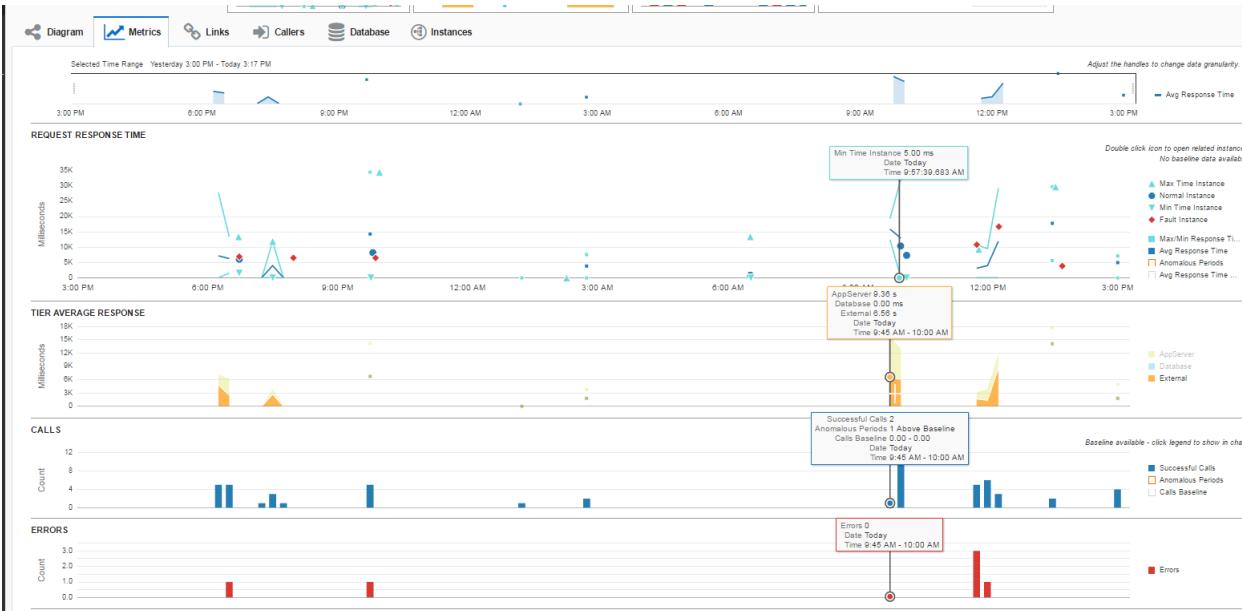


Click on the metrics tab. Here you see an overview in time – with detail metrics of response time, max, min response time, errors, tier AVG response time, number of calls. In our case we can see that more than half of the process time is spent in an external service – these are our news rest service calls:

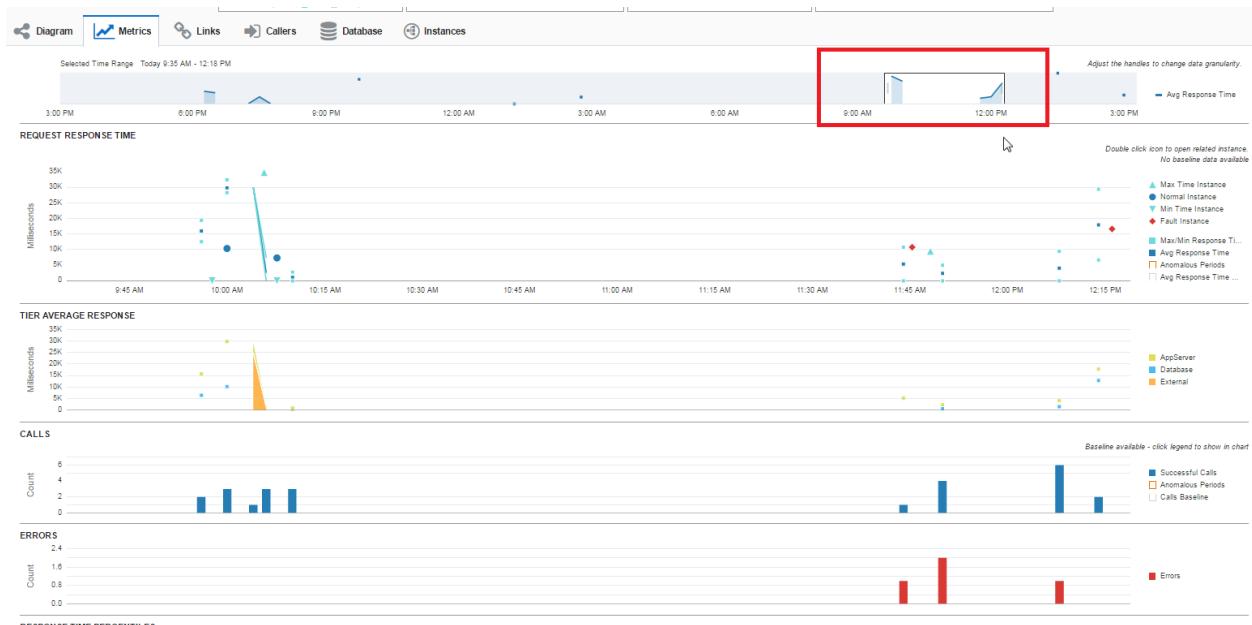


On the bottom we see a chart on response time percentiles; percentile is often used in performance tests to evaluate performance impacts.

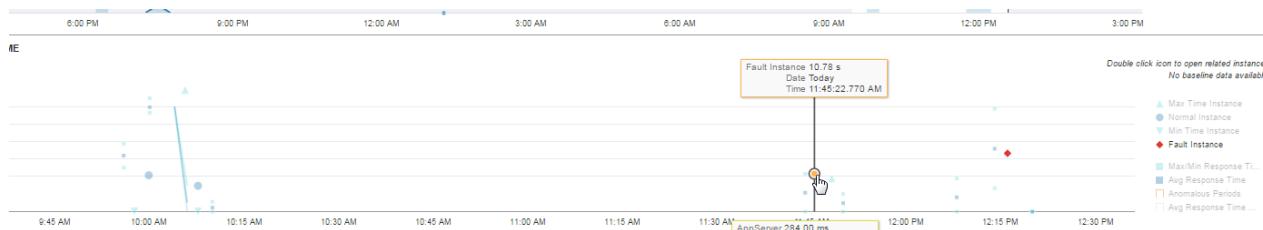
Move your mouse over the chart data points to get detail information:



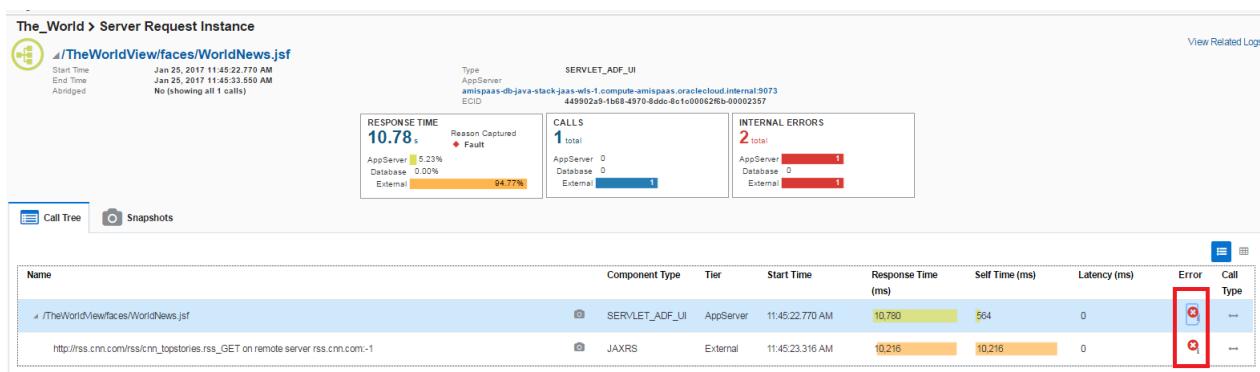
At the top chart, you can select a time frame and the other charts will update according to the new time frame:



Double click on a data point – an error if available:



APM navigates to detail information where you can further analyze the error:



Click on the error to inspect an error stack trace:

The\_World > Server Request Instance

[/TheWorldViewfaces/WorldNews.jsf](#)

Start Time: Jan 25, 2017 11:45:22.770 AM  
End Time: Jan 25, 2017 11:45:33.550 AM  
No (showing all 1 calls)

Type: AppServer  
amispaas-db-java-stack-jaws-wst1.compute.amispaas.oraclecloud.internal:9073  
ECID: 449902a9-1b68-4970-8ddc-8c1e00062f6b-00002357

[/TheWorldViewfaces/WorldNews.jsf Error Details](#)

Error Message: javax.el.EELException HTTP 500  
Error Message: @42.64 value="#{newsRssBean.rssItems}"; java.lang.RuntimeException: com.sun.jersey.api.client.ClientHandlerException: java.net.UnknownHostException: rss.cnn.com

Error Stack:

```

at com.sun.faces.taglib.core.ValueExpression.getValues (ValueExpression.java:114)
at org.apache.myfaces.trinidad.component.LFXFacesBeanImpl.getBoundProperty (LFXFacesBeanImpl.java:203)
at org.apache.myfaces.trinidad.bean.FacesBeanImpl.getProperty (FacesBeanImpl.java:69)
at org.apache.myfaces.trinidad.component.FaceBeanWrapper.getProperty (FaceBeanWrapper.java:38)
at org.apache.myfaces.trinidad.component.UIColumnBase.getProperty (UIColumnBase.java:197)
at org.apache.myfaces.trinidad.component.FaceBeanWrapper.getProperty (FaceBeanWrapper.java:61)
at oracle.adf.view.rich.component.rich.data.RichListViewBeanWrapper.getProperty (RichListView.java:178)
at org.apache.myfaces.trinidad.component.UIXComponentBase.getProperty (UIXComponentBase.java:1928)
at org.apache.myfaces.trinidad.component.UIColumnBase.getProperty (UIColumnBase.java:197)
at org.apache.myfaces.trinidad.component.UICollection._runCachedModel (UICollection.java:1977)
at org.apache.myfaces.trinidad.component.UICollection.encodeBegin (UICollection.java:659)
at javax.faces.component.UIColumnBase.encodeBegin (UIColumnBase.java:1954)
at org.apache.myfaces.trinidad.component.UIColumnBase.encodeAll (UIColumnBase.java:660)
at oracle.adfinternal.view.faces.renderkit.rich.PanelGridCellRenderer.encodeCell (PanelGridLayoutRenderer.java:1228)
at oracle.adfinternal.view.faces.renderkit.rich.CellChildrenEncoderCallback.processComponent (CellChildrenEncoderCallback.java:38)
at oracle.adfinternal.view.faces.renderkit.rich.GridChildrenEncoderCallback.processComponent (GridChildrenEncoderCallback.java:20)
at org.apache.myfaces.trinidad.component.UIColumnBase._process (UIColumnBase.java:199)
at org.apache.myfaces.trinidad.component.UIXComponentBase._process (UIXComponentBase.java:330)
at org.apache.myfaces.trinidad.component.UIColumnBase._processFlattenedChildren (UIColumnBase.java:249)
at org.apache.myfaces.trinidad.component.UIXComponent._processFlattenedChildren (UIXComponent.java:249)
at oracle.adfinternal.view.faces.renderkit.rich.GridChildrenEncoderCallback._processComponent (GridChildrenEncoderCallback.java:271)
at oracle.adfinternal.view.faces.renderkit.rich.GridChildrenEncoderCallback._process (GridChildrenEncoderCallback.java:24)
at org.apache.myfaces.trinidad.component.UIColumnBase._processFlattenedChildren (UIColumnBase.java:198)
at org.apache.myfaces.trinidad.component.UIXComponent._processFlattenedChildren (UIXComponent.java:330)
at org.apache.myfaces.trinidad.component.UIColumnBase._process (UIColumnBase.java:249)
at oracle.adfinternal.view.faces.renderkit.rich.GridChildrenEncoderCallback._processComponent (GridChildrenEncoderCallback.java:24)
at oracle.adfinternal.view.faces.renderkit.rich.RowEncoderCallback._processComponent (RowEncoderCallback.java:22)
at org.apache.myfaces.trinidad.component.UIColumnBase._processFlattenedChildren (UIColumnBase.java:198)
at org.apache.myfaces.trinidad.component.UIXComponent._processFlattenedChildren (UIXComponent.java:249)
at org.apache.myfaces.trinidad.component.UIColumnBase._process (UIColumnBase.java:249)
at oracle.adfinternal.view.faces.renderkit.rich.PanelGridCellRenderer.encodeAll (PanelGridLayoutRenderer.java:1042)
at oracle.adfinternal.view.faces.renderkit.rich.PanelGridCellRenderer.encodeAll (PanelGridLayoutRenderer.java:314)
at oracle.adfinternal.view.faces.renderkit.rich.PanelGridCellRenderer.encodeAll (PanelGridLayoutRenderer.java:314)
at org.apache.myfaces.trinidad.render.CoreRenderer.encodeEnd (CoreRenderer.java:538)
at org.apache.myfaces.trinidad.component.UIColumnBase.encodeEnd (UIColumnBase.java:1231)
at javax.faces.component.UIColumnBase.encodeAll (UIColumnBase.java:1933)
at oracle.adfinternal.view.faces.renderkit.rich.GridChildrenEncoderCallback._process (GridChildrenEncoderCallback.java:660)
at org.apache.myfaces.trinidad.render.CoreRenderer.encodeChildren (CoreRenderer.java:677)
at oracle.adfinternal.view.faces.renderkit.rich.Renderer.encodeAllChildrenInContext (RichRenderer.java:3310)
at oracle.adfinternal.view.faces.renderkit.rich.FormRenderer.encodeAll (FormRenderer.java:270)
at oracle.adfinternal.view.faces.renderkit.rich.PanelGridCellRenderer.encodeAll (PanelGridCellRenderer.java:538)
at org.apache.myfaces.trinidad.render.CoreRenderer.encodeEnd (CoreRenderer.java:538)

```

Latency (ms) Error

0	0
0	0

Close the error details and open the second tab. Here we see more detail information of this request. We can also see a call stack – with Java class line numbers. If we scroll down we can see that there is also an amis.nl class that invokes a rest service.

The\_World > Server Request Instance

[/TheWorldViewfaces/WorldNews.jsf](#)

Start Time: Jan 25, 2017 11:45:22.770 AM  
End Time: Jan 25, 2017 11:45:33.550 AM  
No (showing all 1 calls)

Type: AppServer  
amispaas-db-java-stack-jaws-wst1.compute.amispaas.oraclecloud.internal:9073  
ECID: 449902a9-1b68-4970-8ddc-8c1e00062f6b-00002357

RESPONSE TIME: 10.78s Reason Captured: Fault

APPSERVER: 5.23%	CALLS: 1 total	INTERNAL ERRORS: 2 total
DATA: 0.00%	APP SERVER: 0	APP SERVER: 1
EXTERNAL: 94.77%	DATABASE: 0	DATABASE: 0
	EXTERNAL: 1	EXTERNAL: 1

Cell Tree Snapshots

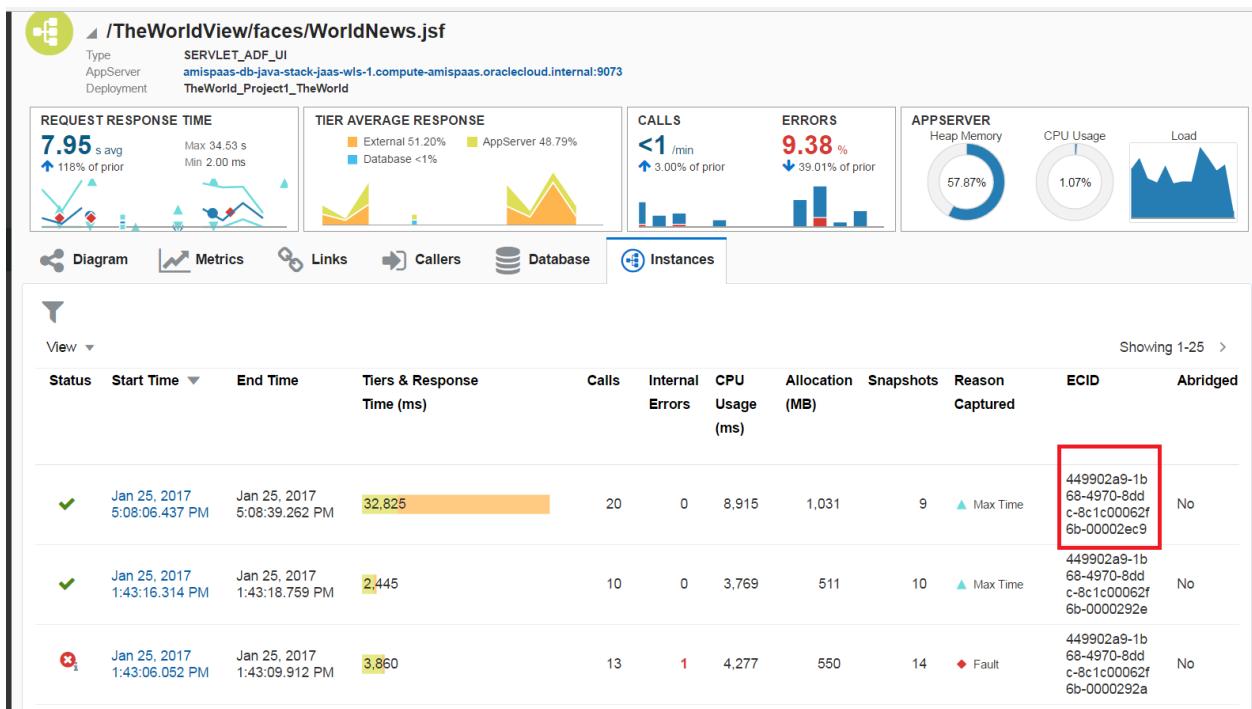
First Snapshot: Jan 25, 2017 11:45:22.977 AM Interval: 1000 ms Thread Count: 1 Runnable: 100.00% Lock: 0.00% DB: 0.00% Network: 0.00% I/O: 0.00% Other: 0.00%

Total Snapshot: 11 Allocation: 191.13 MB (17.73 MB/sec) CPU Usage: 941.00 ms (8.73%) GC Overhead: 64 ms Block Time: 0 ms

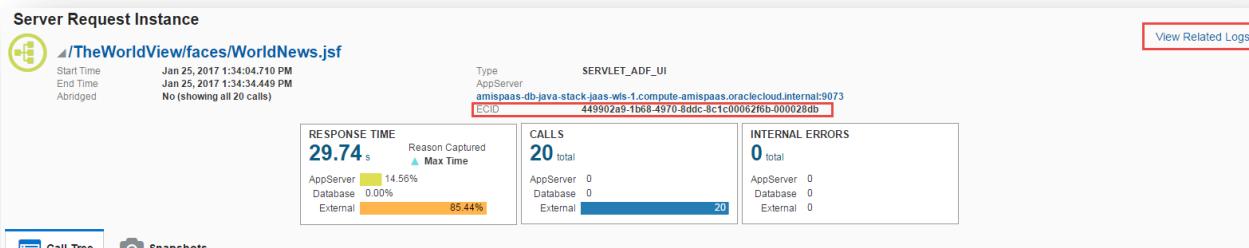
SNAPSHOT SUMMARY

Method Name	Occurrence (%)	File Name	Line
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	ExecuteThread.java	346
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	ExecuteThread.java	406
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	SelfTuningWorkManagerImpl.java	640
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	PartitionUtility.java	41
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	LivePartitionUtility.java	54
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	ComponentInvocationContextManager.java	333
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	ComponentInvocationContextManager.java	348
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	ContainerSupportProviderImpl.java	270
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	ServiceRequestImpl.java	1651
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	ServiceRequestImpl.java	1691
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	WebAppServletContext.java	2259
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	WebAppServletContext.java	2281
com.sun.faces.taglib.core.ValueExpression.getValues	100.00	WebAppServletContext.java	2433

Let's go back now to the fifth tab – the request *instances*:



Copy the ECID (on top of page) and let's go now to Log Analytics by clicking on View Related Logs in the upper right hand corner:



Paste the ECID in the search field:

**ORACLE Management Cloud** Log Analytics

**Log Explorer: Untitled**

449902a9-1b68-4970-8ddc-8c1c00062f6b-00002ec9

**Field Summary**

**Histogram**

Showing 1-25 of 72

**Display Options**

- Show Message Field
- Records per Page: 25

**Display Fields**

- Entity
- Entity Type
- Log Source
- Host Name (Server)
- Severity

**Group by**

Drop field here

**Time (UTC+1:00) | Original Log Content**

25 jan, 2017 17:08:39 [2017-01-25T16:08:39.255+00:00] [amispaa... server\_1] [TRACE] [] [nl.ams.world.view.beans.NewsRssBean] [tid: [ACTIVE] ExecuteThread: '31' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 449902a9-1b68-4970-8ddc-8c1c00062f6b-00002ec9] 0 [APP: TheWorld\_Project1\_TheWorld] [partition-name: DOMAIN] [tenant-name: GLOBAL] [DSID: 00001bM6kdkDkZALRa2EaTOxj8000001] [SRC\_CLASS: nl.ams.world.view.beans.NewsRssBean] [SRC\_METHOD: prepareReadItems] retrieved rss feed for channel BBC News - Home TRACE Entity = amispaa...db-java-stack-jaas-wls-1.compute-amispaa...oracleclou...internal:9071:amispaa...server\_1 | Entity Type = WebLogic Server | Log Source = FMW WLS Server Diagnostic Logs | Severity = TRACE

25 jan, 2017 17:08:39 [2017-01-25T16:08:39.255+00:00] [amispaa... server\_1] [TRACE] [] [nl.ams.world.rest.rss.RSSFeedParser] [tid: [ACTIVE] ExecuteThread: '40' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 449902a9-1b68-4970-8ddc-8c1c00062f6b-00002ec9] 0 [APP: TheWorld\_Project1\_TheWorld] [partition-name: DOMAIN] [tenant-name: GLOBAL] [SRC\_CLASS: nl.ams.world.rest.rss.RSSFeedParser] [SRC\_METHOD: readFeed] - return feed after fetching and parsing Entity = amispaa...db-java-stack-jaas-wls-1.compute-amispaa...oracleclou...internal:9071:amispaa...server\_1 | Entity Type = WebLogic Server | Log Source = FMW WLS Server Diagnostic Logs | Severity = NOTIFICATION

25 jan, 2017 17:08:39 [2017-01-25T16:08:39.255+00:00] [amispaa... server\_1] [TRACE] [] [nl.ams.world.rest.rss.RSSFeedParser] [tid: [ACTIVE] ExecuteThread: '40' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 449902a9-1b68-4970-8ddc-8c1c00062f6b-00002ec9] 0 [APP: TheWorld\_Project1\_TheWorld] [partition-name: DOMAIN] [tenant-name: GLOBAL] [SRC\_CLASS: nl.ams.world.rest.rss.RSSFeedParser] [SRC\_METHOD: readFeed] - done with silly sleep. back to work TRACE Entity = amispaa...db-java-stack-jaas-wls-1.compute-amispaa...oracleclou...internal:9071:amispaa...server\_1 | Entity Type = WebLogic Server | Log Source = FMW WLS Server Diagnostic Logs | Severity = NOTIFICATION

25 jan, 2017 17:08:35 [2017-01-25T16:08:35.250+00:00] [amispaa... server\_1] [WARNING] [] [nl.ams.world.rest.rss.RSSFeedParser] [tid: [ACTIVE] ExecuteThread: '40' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 449902a9-1b68-4970-8ddc-8c1c00062f6b-00002ec9] 0 [APP: TheWorld\_Project1\_TheWorld] [partition-name: DOMAIN] [tenant-name: GLOBAL] [SRC\_CLASS: nl.ams.world.rest.rss.RSSFeedParser] [SRC\_METHOD: readFeed] - built in intentional delay of 4 seconds when fetching BBC feed. No particular reason, just to see whether you detectives would find it Entity = amispaa...db-java-stack-jaas-wls-1.compute-amispaa...oracleclou...internal:9071:amispaa...server\_1 | Entity Type = WebLogic Server | Log Source = FMW WLS Server Diagnostic Logs | Severity = WARNING

25 jan, 2017 17:08:34 [2017-01-25T16:08:34.946+00:00] [amispaa... server\_1] [NOTIFICATION] [] [nl.ams.world.rest.rss.RSSFeedParser] [tid: [ACTIVE] ExecuteThread: '40' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 449902a9-1b68-4970-8ddc-8c1c00062f6b-00002ec9] 0 [APP: TheWorld\_Project1\_TheWorld] [partition-name: DOMAIN] [tenant-name: GLOBAL] [SRC\_CLASS: nl.ams.world.rest.rss.RSSFeedParser] [SRC\_METHOD: readFeed] - start processing RSS Feed http://feeds.bbci.co.uk/news/rss.xml?edition=uk Entity = amispaa...db-java-stack-jaas-wls-1.compute-amispaa...oracleclou...internal:9071:amispaa...server\_1 | Entity Type = WebLogic Server | Log Source = FMW WLS Server Diagnostic Logs | Severity = NOTIFICATION

25 jan, 2017 17:08:34 [2017-01-25T16:08:34.946+00:00] [amispaa... server\_1] [NOTIFICATION] [] [nl.ams.world.rest.rss.RSSFeedParser] [tid: [ACTIVE] ExecuteThread: '40' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 449902a9-1b68-4970-8ddc-8c1c00062f6b-00002ec9] 0 [APP: TheWorld\_Project1\_TheWorld] [partition-name: DOMAIN] [tenant-name: GLOBAL] [REST Service: /world/rss/feed/bbc - <anonymous>] Entity = WebLogic Server | Log Source = FMW WLS Server Diagnostic Logs | Severity = NOTIFICATION

Open the Field Summary:

**Log Explorer: Untitled**

ECID = '449902a9-1b68-4970-8ddc-8c1c00062f6b-000028db'

**Field Summary**

**Visible Fields (6) | Hidden Fields (0)**

No log data to display

**Data**

Search Fields

**Entities**

- Entity
- Entity Type
- Group
- System

**Collection Details**

- Label
- Log Entity
- Log Source
- Upload Name

**Fields**

- Component
- Error ID
- Module
- Severity
- Thread
- ECID | Clear
- Message ID
- Organization
- OS Process ID
- Problem Key
- more...

**Visualize**

Records with Histogram

**Display Options**

- Show Message Field
- Records per Page: 25

**Display Fields**

- Entity
- Entity Type
- Log Source
- Host Name (Server)
- Severity

**Group by**

Drop field here

**Field Summary**

Entity: amispaa...db-java-stack-jaas-wls-1.co... | Entity Type: WebLogic Server | Log Source: FMW WLS Server Diagnostic Logs | Host Name (Server):

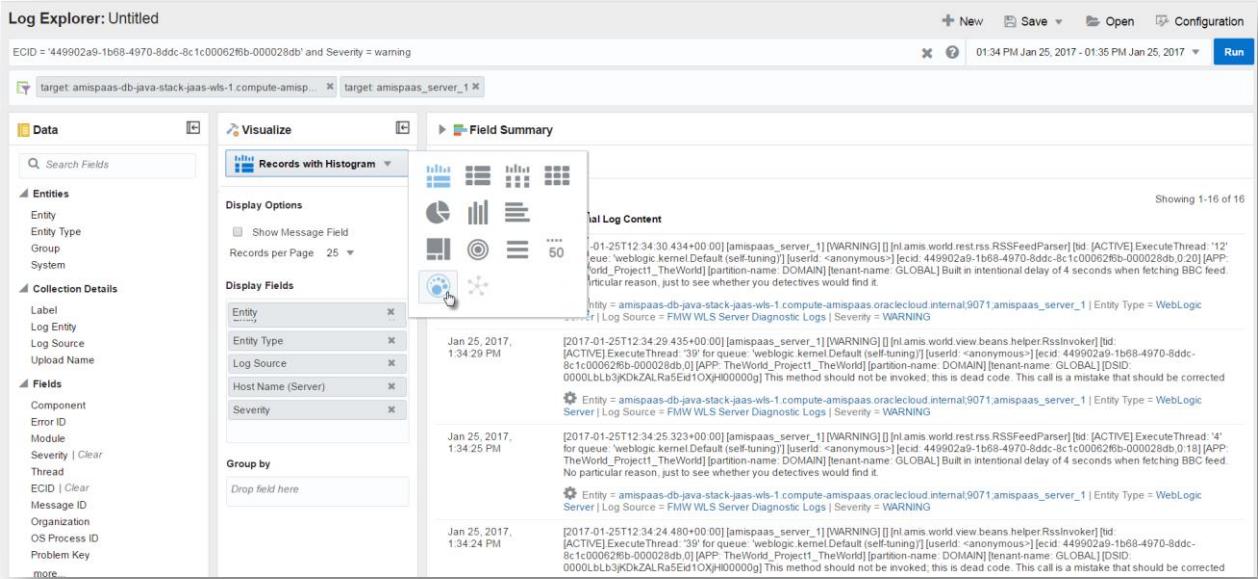
**Histogram**

Records: 0 to 80

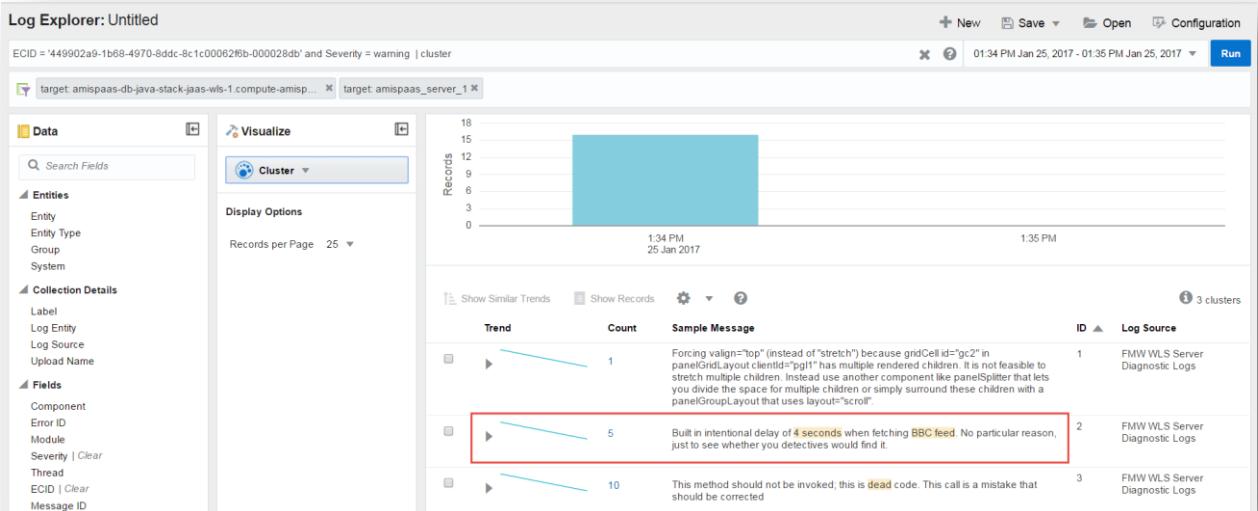
134 PM 25 Jan 2017

And click on Severity | Warning.

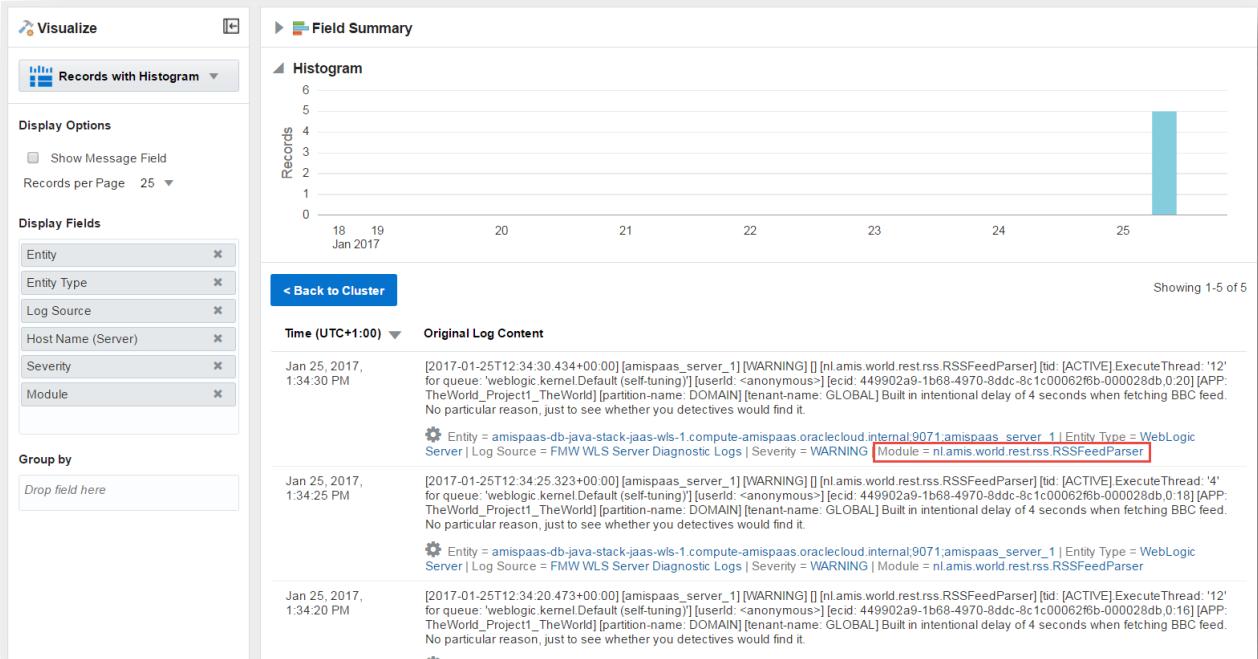
To find the different types of messages, we use the option Visualize | Cluster; this will group messages into the different types of messages in our current selection.



Only a few clusters of messages are reported and it is not hard to find the problem with one particular news feed:



We can drill down to the actual log entries and find where in the code these were published (note: in the screen shot, the Module field was added to the report by dragging it from the list of Data | Fields on the left hand side of the page):



Now we can see also our own custom log messages that we have built in in class RssFeedParser:

```

if ("bbc".compareTo(feedIdentifier.toLowerCase()) == 0) {
    _logger.warning("Built in intentional delay of 4 seconds when fetching BBC feed. No particular reason, just to see whether you detectives
    try {
        Thread.sleep(4000);
    } catch (InterruptedException e) {
    }
    _logger.fine("Done with silly sleep. Back to work.");
}

_logger.info("readFeed - return feed after fetching and barsing ");

```

Click on the ‘settings’ icon to inspect time related logs:



This can be useful if the real problem (root cause) occurred just before the log entries you are analyzing.

## Bonus:

Click on the button at the top right op the news page.



Try to find out what happened in APM and Log Analytics.

## 2-Countries Catalog Page

Navigate to the Countries Catalog page

(<http://141.144.34.222/TheWorldView/faces/CountriesCatalog.jsf>). There are several problems in this page. First click a bit around, filter, update some data in the page for yourself. If you save some changes – an error will occur:

The screenshot shows a web browser window with the URL [141.144.34.222/TheWorldView/faces/main.jsf](http://141.144.34.222/TheWorldView/faces/main.jsf). The page title is "Catalog of Countries of The World". A modal dialog box is displayed, indicating an "Error" with the message "java.lang.NullPointerException". The "OK" button is visible. The main content area shows a table of countries with columns: Name, Code, Continent, Population, Area, GovernmentForm, Birthrate, Deathrate, and LifeExpectancy. The "Save" button in the toolbar is highlighted with a red box.

Name	Code	Continent	Population	Area	GovernmentForm	Birthrate	Deathrate	LifeExpectancy
China	CN	Asia	1373541278	9596960	People's republic	12.4	6.6	75.5
India	IN	Asia	1266883598	3287263	Federal parliamer	19.3	6.4	68.5
United States	US	North America	323995528	9826675	Federal president	12.5	8.2	79.8
Indonesia	ID	Asia	258316051	1904569	Presidential repul	16.4	6.4	72.7
Brazil	BR	South America	205823665	8514877	Federal president	14.3	6.6	73.8
Pakistan	PK	Asia	201995540	796095	Federal parliamer	22.3	6.4	67.7
Nigeria	NG	Africa	186053386	923768	Federal president	37.2	12.7	53.4
Bangladesh	BD	Asia	156186882	143998	parliamentary rep	19	5.3	73.2
Russia	RU	Europe	142355415	17098242	Federal republic	11.3	13.6	70.8
Japan	JP	Asia	126702133	377915	Parliamentary cor	7.8	9.6	85
Mexico	MX	North America	123166749	1964375	Federal president	18.5	5.3	75.9
Philippines	PH	Asia	102624209	300000	Presidential repul	24	6.1	69.2
Ethiopia	ET	Africa	102374044	1104300	Federal parliamer	36.9	7.9	62.2
Vietnam	VN	Asia	95261021	331210	Republic (commu	15.7	5.9	73.4
Egypt	EG	Africa	94666993	1001450	Presidential repul	30.3	4.7	72.7

Now filter on Europe – enter the (start of the) string Europe in the field on top of the Continent column and press enter. Only countries in Europe are shown. Next, filter the countries on Asia. Compare the response times.

The screenshot shows the same web browser window with the URL [141.144.34.222/TheWorldView/faces/main.jsf](http://141.144.34.222/TheWorldView/faces/main.jsf). The page title is "Catalog of Countries of The World". The "Continent" column header has a dropdown arrow icon with the text "Asia" above it. The main content area shows a table of countries filtered to show only those in Europe. The "Save" button in the toolbar is highlighted with a red box.

Name	Code	Continent	Population	Area	GovernmentForm	Birthrate	Deathrate	LifeExpectancy
China	CN	Asia	1373541278	9596960	People's republic	12.4	7.7	75.5
India	IN	Asia	1266883598	3287263	Federal parliamer	19.3	7.3	68.5
United States	US	North America	323995528	9826675	Federal president	12.5	8.2	79.8
Indonesia	ID	Asia	258316051	1904569	Presidential repul	16.4	6.4	72.7
Brazil	BR	South America	205823665	8514877	Federal president	14.3	6.6	73.8
Pakistan	PK	Asia	201995540	796095	Federal parliamer	22.3	6.4	67.7
Nigeria	NG	Africa	186053386	923768	Federal president	37.3	12.7	53.4
Bangladesh	BD	Asia	156186882	143998	parliamentary rep	19	5.3	73.2
Russia	RU	Europe	142355415	17098242	Federal republic	11.3	13.6	70.8
Japan	JP	Asia	126702133	377915	Parliamentary cor	7.8	9.6	85
Mexico	MX	North America	123166749	1964375	Federal president	18.5	5.3	75.9
Philippines	PH	Asia	102624209	300000	Presidential repul	24	6.1	69.2
Ethiopia	ET	Africa	102374044	1104300	Federal parliamer	36.9	7.9	62.2
Vietnam	VN	Asia	95261021	331210	Republic (commu	15.7	5.9	73.4
Egypt	EG	Africa	94666993	1001450	Presidential repul	30.3	4.7	72.7

This is very strange - Asia is much slower than Europe if we filter on this.

Let's go now to APM and first try to find our session in the session list:

Date	Location	Device	Duration	Page Views	Ajax Errors	JavaScript Errors	Session Health
Jan 25, 2017 5:49:57 PM	Zoetermeer, Netherlands	Firefox 50.0	7m 47s	2	0	8	0.60
Jan 25, 2017 5:59:19 PM	Utrecht, Netherlands	Chrome 55.0	28m 31s	2	0	0	0.67
Jan 25, 2017 3:56:48 PM	n/a, Portugal	IE 11.0	5s	1	0	1	0.88
Jan 25, 2017 3:56:54 PM	n/a, Portugal	IE 11.0	5m 24s	24	0	14	0.91
Jan 25, 2017 5:35:49 PM	Redwood City, United States	Firefox 45.0	45m 29s	15	1	1	0.91

Maybe it is hard to find yourself (from the AMIS HQ we will have all the same IP address and location) – unless you have a distinct browser or device that you can recognize. Note: any other session that accessed the CountriesCatalog page will show similar data.

Now click on Server Request in the menu – and then find the *CountriesCatalog.jsf* page

**REQUEST RESPONSE TIME**  
6.90 s avg  
Max 11.32 s  
Min 131.00 ms

**TIER AVERAGE RESPONSE**  
External 0.00%  
Database 95.17%

**CALLS**  
<1 /min  
66.00% of prior

**ERRORS**  
9.09 %  
909% of prior

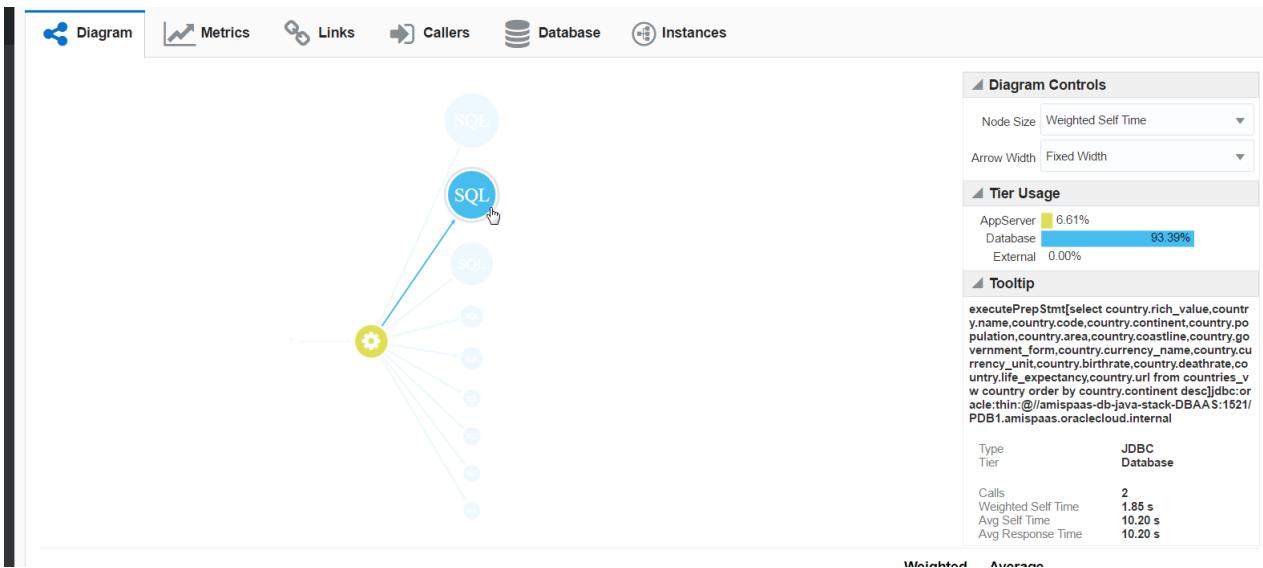
**APPSERVER**  
Heap Memory 51.84%  
CPU Usage 1.24%  
Load

**Diagram Controls**  
Node Size Weighted Self Time  
Arrow Width Fixed Width

**Tier Usage**  
AppServer 6.61%  
Database 93.38%  
External 0.00%

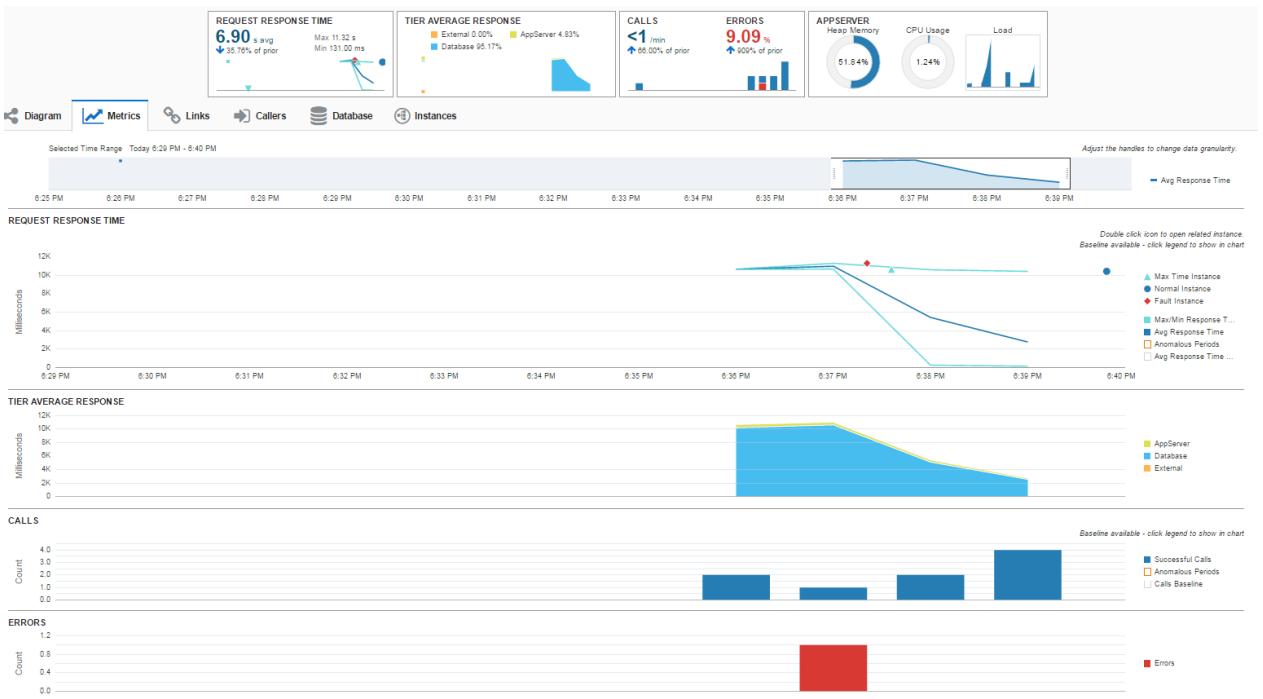
**Tooltip**  
/TheWorldView/faces/CountriesCatalog.jsf

Hover over the biggest nodes in the diagram. On the right the SQL will appear:



As we can see – also in the tier usage on the right – the most time is spent in the database. The strange thing was that the slow query seemed to be related with Asian records. We must investigate this deeper.

Go to the metrics tab and make the time frame smaller if needed. We see a nice overview what happened – that gives us insight but not yet the root cause of the slow queries:



Go to the instances tab.

Status	Start Time	End Time	Tiers & Response Time (ms)	Calls	Internal Errors	CPU Usage (ms)	Allocation (MB)	Snapshots	Reason Captured	ECID	Abridged
✓	Jan 25, 2017 6:39:48.649 PM	Jan 25, 2017 6:39:59.095 PM	10.446	2	0	334	13	11	Normal	44990249-1b68-4970-8ddc-8c1c00062fb-000030cf	No
✓	Jan 25, 2017 6:37:35.687 PM	Jan 25, 2017 6:37:46.384 PM	10.697	2	0	598	30	11	Max Time	44990249-1b68-4970-8ddc-8c1c00062fb-000030cf	No
✗	Jan 25, 2017 6:37:20.947 PM	Jan 25, 2017 6:37:32.267 PM	11.320	5	1	395	25	12	Fault	44990249-1b68-4970-8ddc-8c1c00062fb-000030cc	No
✓	Jan 25, 2017 6:27:50.373 PM	Jan 25, 2017 6:27:50.960 PM	587	2	0	650	33	2	Min Time	44990249-1b68-4970-8ddc-8c1c00062fb-000030ca	No

Select one if the ECIDs and go again to Log Analytics. Paste the ECID and read/analyze the logs:

Log Explorer: Untitled

44990249-1b68-4970-8ddc-8c1c00062fb-000030cf

Display Options

Show Message Field Records per Page: 25

Display Fields

- Entity
- Entity Type
- Log Source
- Host Name (Server)
- Severity

Group by

Drop field here

Field Summary

Histogram

Time (UTC+1:00) Original Log Content

Showing 1-9 of 9

25 Jan, 2017 16:37:46	[2017-01-25T17:37:46.273+00:00][amispaa..._server_1][TRACE:16][nl.amis.world.model.CountriesViewImpl][tid:[ACTIVE] ExecuteThread: '37' for queue: 'weblogic.kernel.Default (self-tuning)'][user...<anonymous>][eid:44990249-1b68-4970-8ddc-8c1c00062fb-000030cf][APP: TheWorld_Project1_TheWorld][partition-name: DOMAIN][tenant-name: GLOBAL][DSID: 0000LbmJh9DkZALRa5EidTOXgH00000][SRC_CLASS: nl.amis.world.model.CountriesViewImpl][SRC_METHOD: prepareForQuery][Param for CountriesView]
25 Jan, 2017 16:37:46	[2017-01-25T17:37:46.273+00:00][amispaa..._server_1][TRACE:16][nl.amis.world.model.CountriesViewImpl][tid:[ACTIVE] ExecuteThread: '37' for queue: 'weblogic.kernel.Default (self-tuning)'][user...<anonymous>][eid:44990249-1b68-4970-8ddc-8c1c00062fb-000030cf][APP: TheWorld_Project1_TheWorld][partition-name: DOMAIN][tenant-name: GLOBAL][DSID: 0000LbmJh9DkZALRa5EidTOXgH00000][SRC_CLASS: nl.amis.world.model.CountriesViewImpl][SRC_METHOD: prepareForQuery][Param for CountriesView]
25 Jan, 2017 16:37:46	[2017-01-25T17:37:46.053+00:00][amispaa..._server_1][WARNING][ADF_FACES-30189][oracle.adfinternal.view.faces.renderkit.rich.grid.CellGatherCallback][tid:[ACTIVE] ExecuteThread: '37' for queue: 'weblogic.kernel.Default (self-tuning)'][user...<anonymous>][eid:44990249-1b68-4970-8ddc-8c1c00062fb-000030cf][APP: TheWorld_Project1_TheWorld][partition-name: DOMAIN][tenant-name: GLOBAL][DSID: 0000LbmJh9DkZALRa5EidTOXgH00000][SRC_CLASS: nl.amis.world.model.CountriesViewImpl][SRC_METHOD: executeQueryForCollection][Param for CountriesView]
25 Jan, 2017 16:37:46	[2017-01-25T17:37:46.10702 89328 POST /TheWorld/ViewFaces/CountriesCatalog.jsf?Adf.WindowId=w10pm45245&Adf.Page.Id=3 200][44990249-1b68-4970-8ddc-8c1c00062fb-000030cf]-
25 Jan, 2017 16:37:46	[Entity = amispaa..._server_1][Entity Type = WebLogic Server][Log Source = FMW WLS Server Diagnostic Logs]
25 Jan, 2017 16:37:46	[2017-01-25T17:37:46.10702 89328 POST /TheWorld/ViewFaces/CountriesCatalog.jsf?Adf.WindowId=w10pm45245&Adf.Page.Id=3 200][44990249-1b68-4970-8ddc-8c1c00062fb-000030cf]-
25 Jan, 2017 16:37:46	[Entity = amispaa..._server_1][Entity Type = WebLogic Server][Log Source = FMW WLS Server Access Logs]
25 Jan, 2017 16:37:46	[2017-01-25T17:37:46.00001 [amispaa..._server_1][TRACE:16][nl.amis.world.model.CountriesViewImpl][tid:[ACTIVE] ExecuteThread: '37' for queue: 'weblogic.kernel.Default (self-tuning)'][user...<anonymous>][eid:44990249-1b68-4970-8ddc-8c1c00062fb-000030cf][APP: TheWorld_Project1_TheWorld][partition-name: DOMAIN][tenant-name: GLOBAL][DSID: 0000LbmJh9DkZALRa5EidTOXgH00000][SRC_CLASS: nl.amis.world.model.CountriesViewImpl][SRC_METHOD: executeQueryForCollection][Param for CountriesView]

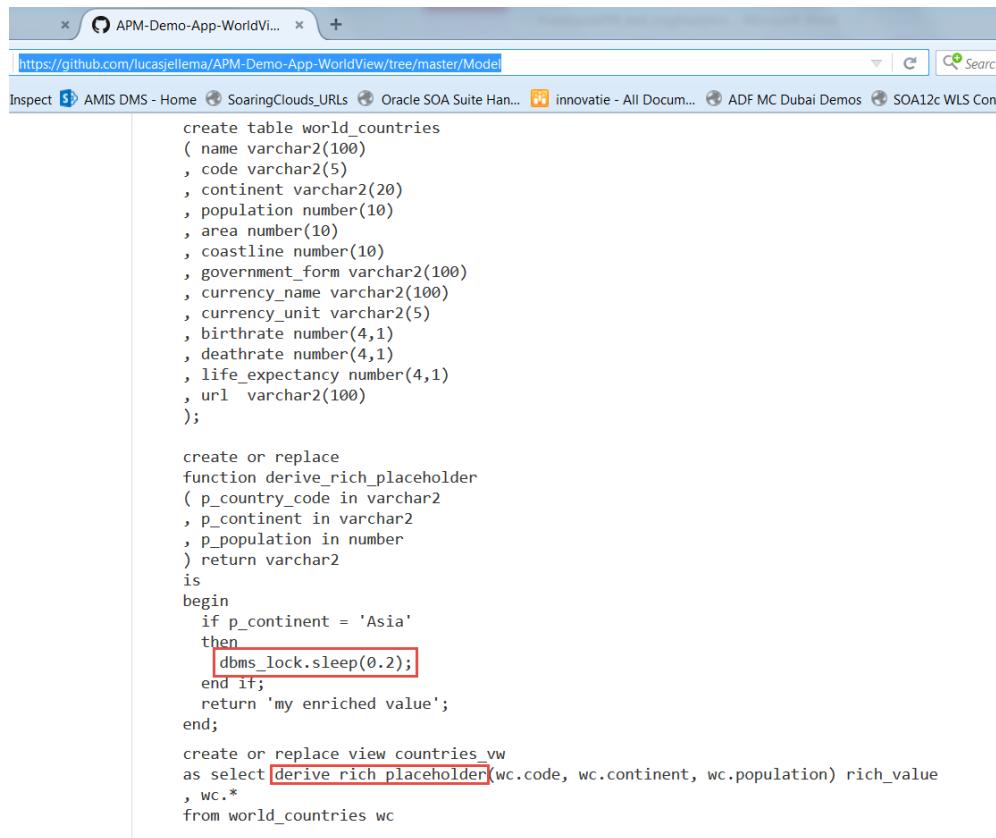
The last entry zoomed in:

```
25 Jan, 2017
16:37:46
[2017-01-25T17:37:46.00001 [amispaa..._server_1][TRACE:16][nl.amis.world.model.CountriesViewImpl][tid:[ACTIVE] ExecuteThread: '37' for queue: 'weblogic.kernel.Default (self-tuning)'][user...<anonymous>][eid:44990249-1b68-4970-8ddc-8c1c00062fb-000030cf][APP: TheWorld_Project1_TheWorld][partition-name: DOMAIN][tenant-name: GLOBAL][DSID: 0000LbmJh9DkZALRa5EidTOXgH00000][SRC_CLASS: nl.amis.world.model.CountriesViewImpl][SRC_METHOD: executeQueryForCollection][Param for CountriesView]
```

As you know not all SQL queries can always be fast. Some queries are fast certain bind param values while the very same query can be very slow with different bind param value. That is here the case - we logged our SQL query runtime bind param value. We can now see that the value 'Asia' was used. Apparently the query is slow because of the Asian records.

*Note: Each country record returned from the database for a country in Asia is slowed down by 200 ms in PL/SQL function derive\_rich\_placeholder that is called from view countries\_vw on which the Entity Object is based; filter for example on Europe or Africa and the query is quite fast. Include Asian records, and the response time increases. You can find the offending code in the GitHub repository:*

<https://github.com/lucasjellema/APM-Demo-App-WorldView/tree/master/Model>:



The screenshot shows a browser window with the URL <https://github.com/lucasjellema/APM-Demo-App-WorldView/tree/master/Model>. The page content displays several lines of Oracle PL/SQL code. A specific line of code, which contains a call to the `dbms_lock.sleep(0.2);` procedure, is highlighted with a red rectangular box.

```
create table world_countries
(
    name varchar2(100)
    , code varchar2(5)
    , continent varchar2(20)
    , population number(10)
    , area number(10)
    , coastline number(10)
    , government_form varchar2(100)
    , currency_name varchar2(100)
    , currency_unit varchar2(5)
    , birthrate number(4,1)
    , deathrate number(4,1)
    , life_expectancy number(4,1)
    , url varchar2(100)
);

create or replace
function derive_rich_placeholder
( p_country_code in varchar2
, p_continent in varchar2
, p_population in number
) return varchar2
is
begin
    if p_continent = 'Asia'
    then
        dbms_lock.sleep(0.2);
    end if;
    return 'my enriched value';
end;

create or replace view countries_vw
as select derive_rich_placeholder(wc.code, wc.continent, wc.population) rich_value
, wc.*
from world_countries wc
```

Remember we also had a `NullPointerException`. Investigate that now too in the same way. Go back to the instances tab and copy the ECID.



The screenshot shows the Oracle APM Instances tab. It lists four events, with the third one being a fault event. The third event, which occurred on Jan 25, 2017 at 6:37:20.947 PM, has its ECID (1c00062fb-000030c) highlighted with a red box.

✓	Jan 25, 2017 6:39:48.649 PM	Jan 25, 2017 6:39:59.095 PM	10.446	2	0	334	13	11	● Normal	1490029-1659-4970-8d0c-8c 1c00062fb-000030ad	No
✓	Jan 25, 2017 6:37:35.687 PM	Jan 25, 2017 6:37:46.384 PM	10.697	2	0	598	30	11	▲ Max Time	1490029-1659-4970-8d0c-8c 1c00062fb-000030d4	No
✖	Jan 25, 2017 6:37:20.947 PM	Jan 25, 2017 6:37:32.267 PM	11.320	5	1	395	25	12	◆ Fault	1490029-1659-4970-8d0c-8c 1c00062fb-000030c	No
✓	Jan 25, 2017 6:27:50.573 PM	Jan 25, 2017 6:27:50.960 PM	597	2	0	650	33	2	▼ Min Time	1490029-1659-4970-8d0c-8c 1c00062fb-000030a5	No

View ▾

Showing 1-4

We can see that the root cause is in an amis class – CountryImpl.java on line 135. You can click on more to see the whole stack trace. We simulated a NullPointerException here:

```
String s = null;

protected void doDML(int operation, TransactionEvent e) {
    super.doDML(operation, e);

    // *** Simulating NullPointerException ***
    _logger.info("UPDATING COUNTRY...");
    String x = s.substring(9);
}
```

If you would like to be alerted when serious errors/exceptions happen, you can create a specific alert for this situation (as with other situations as well). Click on the save button:

### Save Search

**\* Search Name** NullPointerException

Add description

Create alert rule

**\* Rule Name** NullPointerException Rule

Add description

Operator	Warning Threshold	Critical Threshold *
>	2	3

**\* Schedule Interval** 60 minutes

**\* Email Notification** frank.houweling@amis.nl

Send email notifications when the alert is raised.  
Separate multiple emails by commas.

**Save** **Cancel**

Fill in your warning and critical threshold – and in which interval this happens. If the threshold is met, you will get an email:

Management Cloud

Hello,

Oracle Management Cloud has reported an alert. Here are the details:

<b>Alert Message</b>	Results for NullPointerException is 12; it is greater than expected value of 3.
<b>Severity</b>	Critical
<b>Raised On</b>	Wed, January 25, 2017 06:00:00 PM UTC
<b>Alert Rule</b>	NullPointerException Rule
<b>More Information</b>	<a href="#">Review details</a>

Thank You,  
Oracle Management Cloud - Empowering Modern Business in the Cloud

## Bonus

Back to the Countries page. Filter on 'X'. Try to find what happens back in Log Analytics as well:

Catalog of Countries of The World									
Main									
Countries									
View ▾	Cancel	Save			Detach				
X									
Name	Code	Continent	Population ▲▼	Area	GovernmentForm	Birthrate	Deathrate	LifeExpectat	
China	CN	Asia	1373541278	9596960	People's republic	12.4	7.7	75.5	
India	IN	Asia	1266883598	3287263	Federal parliamer	19.3	7.3	68.5	
United States	US	North America	323995528	9826675	Federal president	12.5	8.2	79.8	
Indonesia	ID	Asia	258316051	1904569	Presidential repul	16.4	6.4	72.7	
Brazil	BR	South America	205823665	8514877	Federal president	14.3	6.6	73.8	
Pakistan	PK	Asia	201995540	796095	Federal parliamer	22.3	6.4	67.7	
Nigeria	NG	Africa	186053386	923768	Federal president	37.3	12.7	53.4	
Bangladesh	BD	Asia	156186882	143998	parliamentary rep	19	5.3	73.2	
Russia	RU	Europe	142355415	17098242	Federal republic	11.3	13.6	70.8	
Japan	JP	Asia	126702133	377915	Parliamentary cor	7.8	9.6	85	
Mexico	MX	North America	123166749	1964375	Federal president	18.5	5.3	75.9	
Philippines	PH	Asia	102624209	300000	Presidential repul	24	6.1	69.2	
Ethiopia	ET	Africa	102374044	1104300	Federal parliamer	36.9	7.9	62.2	
Vietnam	VN	Asia	95261021	331210	Republic (commu	15.7	5.9	73.4	
Egypt	EG	Africa	94666993	1001450	Presidential repul	30.3	4.7	72.7	

## 3-Errors

Go to the WorldOfErrors page: <http://141.144.34.222/TheWorldView>

## The World View



[Enter the application](#)

- [The Other Index](#)
- [The Other Non Existent Index \(a dead link\)](#)
- [World News](#)
- [Catalog of Countries of the World](#)
- [World of Errors](#)

. Click a few times on them. Find them in Log Analytics.

[Back to Main](#)

NullPointerException

IndexOutOfBoundsException

NumberFormatException

Set a dummy String to look for in APM

141.144.34.222 meldt het volgende:

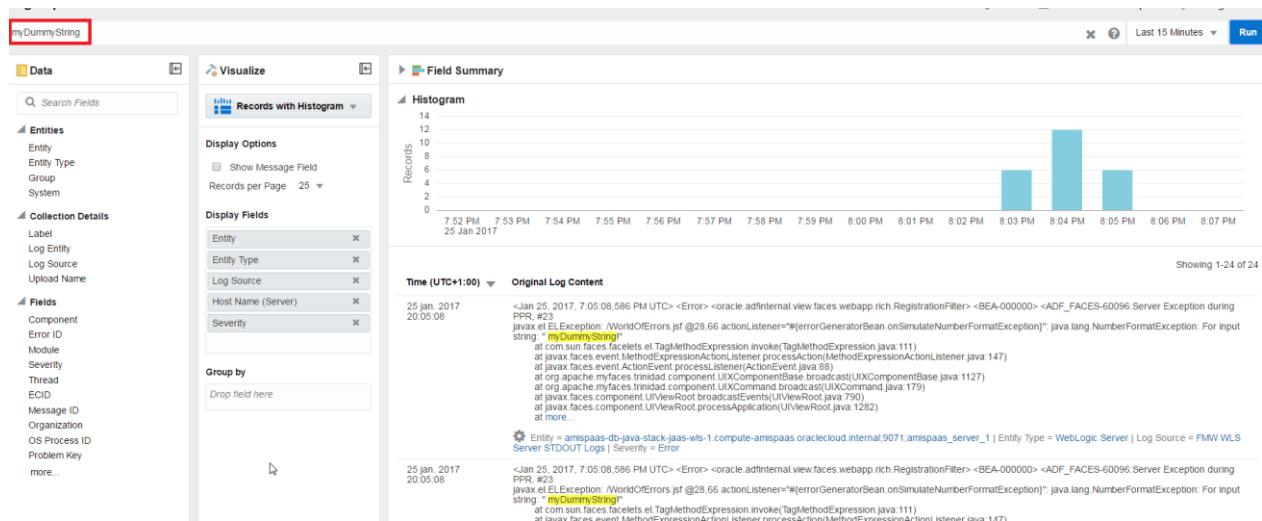
ADF\_FACES-60097:For more information, please see the server's error log for an entry beginning with: ADF\_FACES-60096:Server Exception during PPR, #18

Voorkom dat deze pagina extra dialoogvensters weergeeft.

**OK**

Type in a (dummy) string – just something specially recognizable for you.

After a few minutes it should be visible in Log Analytics:



You can even make an alert on it.

The code behind this exception and log entry is:

```

public void onSimulateNumberFormatException(ActionEvent actionEvent) {

    logger.info("now Simulating NumberFormatException..");
    // *** Simulating NumberFormatException ***
    int i = Integer.parseInt(dummyString);
}

```

Filter on the left on Severity – and then error, emergency and incident\_error:

**ORACLE® Management Cloud**  
Log Analytics

**Log Explorer: Untitled**

\* | stats count by 'log source'

**Data**      **Visualize**

**Entities**

- Entity
- Entity Type
- Group
- System

**Collection Details**

- Label
- Log Entity
- Log Source
- Upload Name

**Fields**

- Component
- Error ID
- Host Name (Server)
- Method
- Module
- Service
- Severity
- Thread
- Transaction ID
- User Name
- Weblogic Server
- Address
- FCID

**Severity (8 available)**

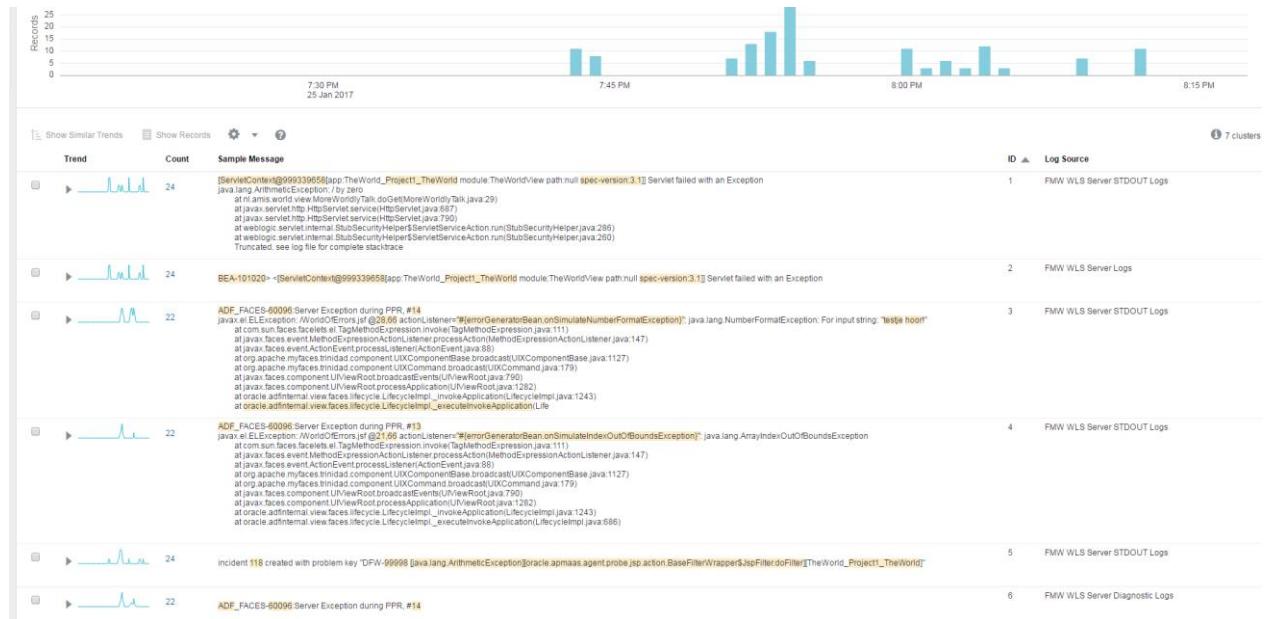
Severity	Count	Trend
warning	6997	
info	126	
<b>error</b>	106	
notification	76	
trace	25	
notice	24	
<b>emergency</b>	22	
<b>incident_error</b>	11	

(1-8 of 8 items)      **Apply Filter**      **Cancel**

Set then the visualization type to Cluster. This groups related log entries together in a smart way.

The screenshot shows the Oracle Management Cloud Log Analytics interface. In the top left, the logo and title 'ORACLE Management Cloud Log Analytics' are displayed. Below it, the title 'Log Explorer: Untitled' is shown. A search bar contains the query 'Severity in (error, emergency, incident\_error) | cluster'. On the left, there's a sidebar with sections for 'Data' (selected), 'Entities' (Entity, Entity Type, Group, System), and 'Collection Details' (Label, Log Entity). The main area has a 'Visualize' tab selected, indicated by a red box around its dropdown menu. The dropdown shows 'Cluster' as the current selection, also highlighted with a red box. Other options include 'Trend' and 'Log'. To the right of the visualization tabs, there are 'Display Options' and a 'Records per Page' dropdown set to 25. A vertical scroll bar is visible on the right side of the main content area.

Now we can see the different types of errors, the occurrences and we have and have more insight:



## 4-Failed access attempts

To find failed access attempts (for non-existing resources such as images, JS libs, CSS files and Servlets) we can also use Log Analytics. We have a few resources missing:

The screenshot shows a web page titled "The World". At the top, it says "Welcome Guest". Below the title is a large image of the Earth. To the right of the image is a sidebar with several buttons: "Map", "News", "Countries Catalog", "Errors", and "Worldly Talk". The "Worldly Talk" button is highlighted with a yellow border.

Click on worldly talk

The screenshot shows a browser window with the URL "141.144.34.222/TheWorldView/worldlytalk". The page content includes the text "So much to see and do. Get around, meet people, enjoy life" and a link "More Worldly Talk (can be dangerous) Ephemeral Thoughts (can be hard to get hold of) The Application's Main Index". A cursor arrow is pointing towards the "Ephemeral Thoughts" link.

and then on Ephemeral Thoughts:

The screenshot shows a browser window with the URL "141.144.34.222/TheWorldView/nonexistingservletmoreworldlytalk". The page displays an "Error 404--Not Found" message. Below it, there is text from RFC 2068: "From RFC 2068 Hypertext Transfer Protocol -- HTTP/1.1:" and "10.4.5 404 Not Found". The text "The server has not found anything matching the Request-URI. No" is also visible.

We get a HTTP 404 error. The resource seems not to be available or existing on the server.

Go to Log Analytics – we are going to investigate how often resources are accessed but not existing on the server. Click on open at the right top and add Access Log Error Status Codes:

The screenshot shows the Log Analytics interface with the following elements:

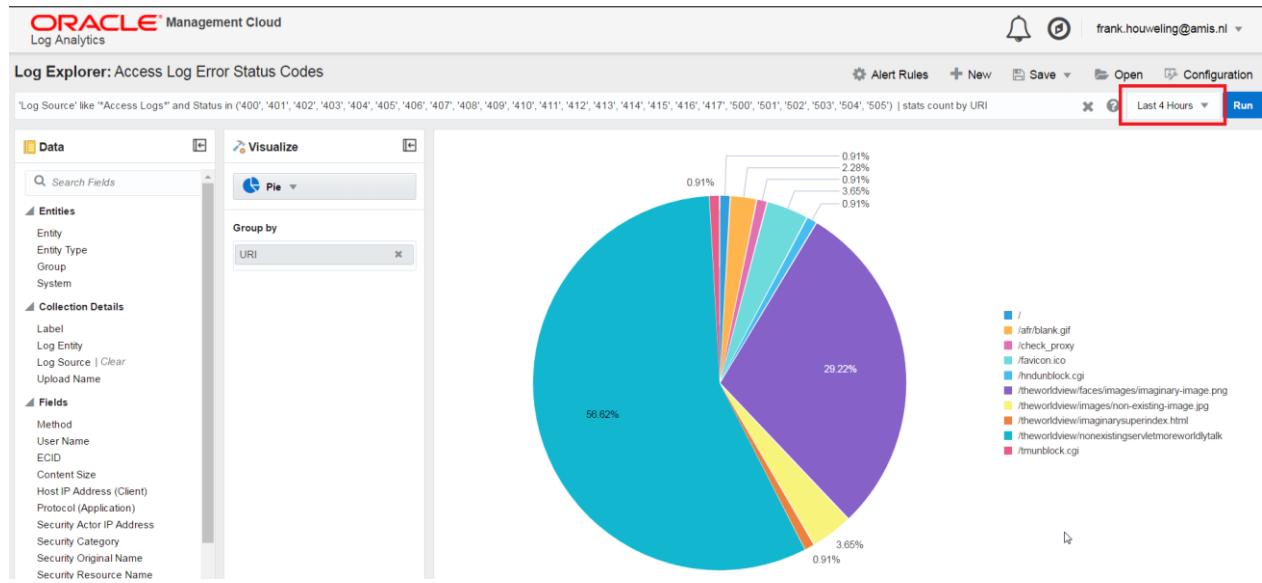
- Top Bar:** Includes "New", "Save", "Open" (highlighted with a red box), and "Last 60 Minutes".
- Left Sidebar:** Shows a list of saved dashboards, with one named "Acces" highlighted with a red box.
- Central Area:** Three charts are displayed side-by-side:
  - Web Server Top Accessed...**: A bar chart showing access counts for various resources.
  - Access Log Error Status ...**: A bar chart showing error status codes. A cursor is hovering over the bar for code 500.
  - Web Server Top Accessed...**: A bar chart showing access counts for various resources.
- Bottom Right:** A log viewer window showing several log entries, with the first entry highlighted:

```
[ACTIVE] ExecuteThread: '34' for queue: 'weblogic.kernel.Default (self-tuning) [partition-name: DOMAIN] > <BEA-149535> <JMX Resiliency Activity
```
- Bottom Center:** An "Open" button.

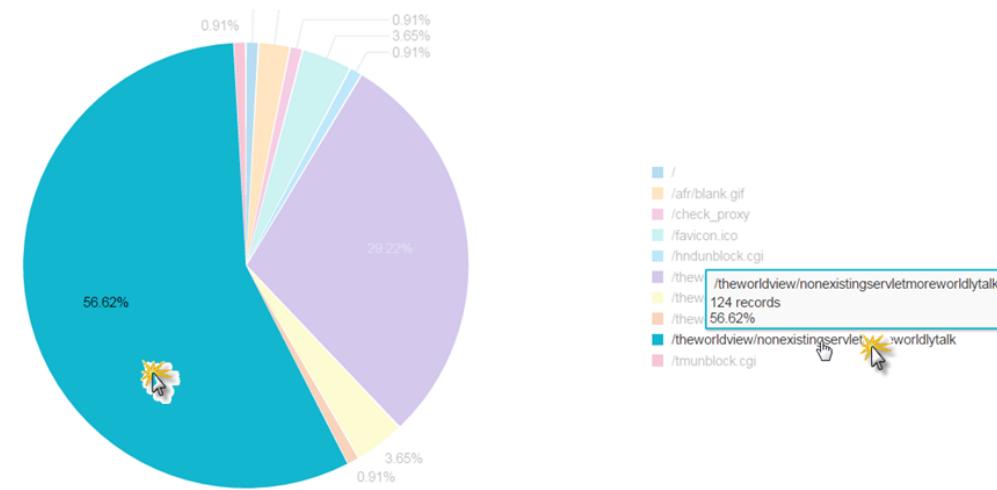
Drag and drop URI from the fields section on the left to the Group by place where you can drop it.  
Change the visualization to Pie:

The screenshot shows the Oracle Management Cloud Log Analytics interface. On the left, the **Data** panel contains a search bar and a list of entities: Entity, Entity Type, Group, System. Below that are Collection Details: Label, Log Entity, Log Source | Clear, Upload Name. At the bottom of the Data panel is a list of fields: Method, User Name, ECID, Content Size, Host IP Address (Client), Protocol (Application), Security Actor IP Address, Security Category, Security Original Name, Security Resource Name, Security Resource Type, Security Result, Security Severity, Status | Clear. The **URI** field is highlighted with a red box. On the right, the **Visualize** panel shows a visualization type dropdown set to **Pie**, which is also highlighted with a red box. Below it is a **Group by** section with a placeholder **Drop field here** and a **URI** field, which is also highlighted with a red box. A gear icon is next to the **Group by** section.

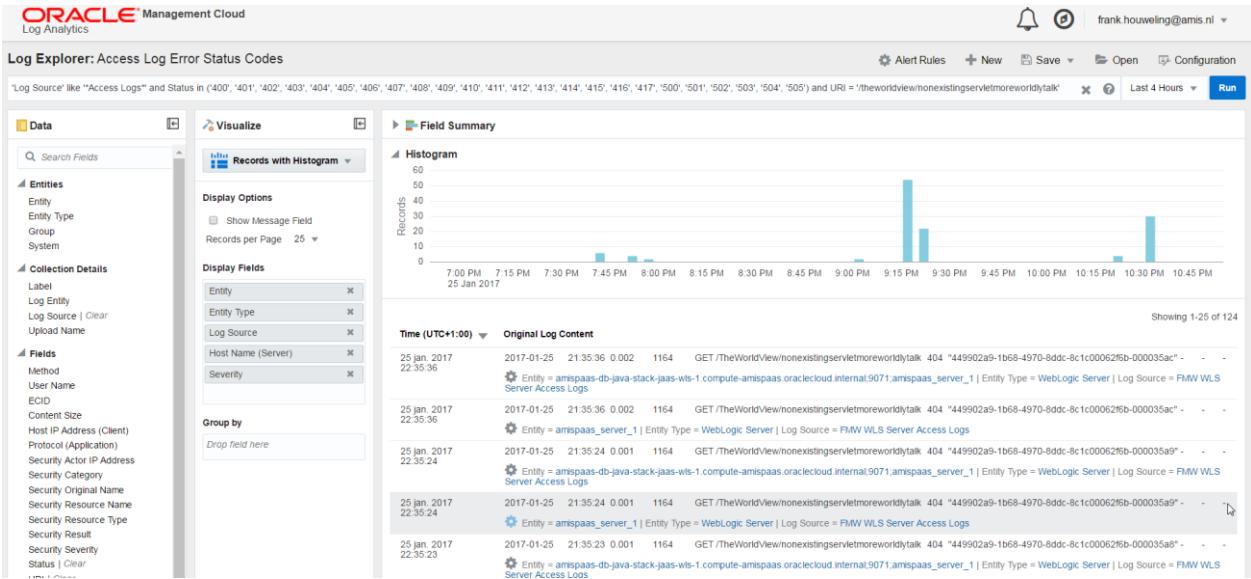
Now we see a visualization –grouped by resource – of access errors. We can clearly see that *nonexisting servlet more worldly talk* is ‘missed’ the most:



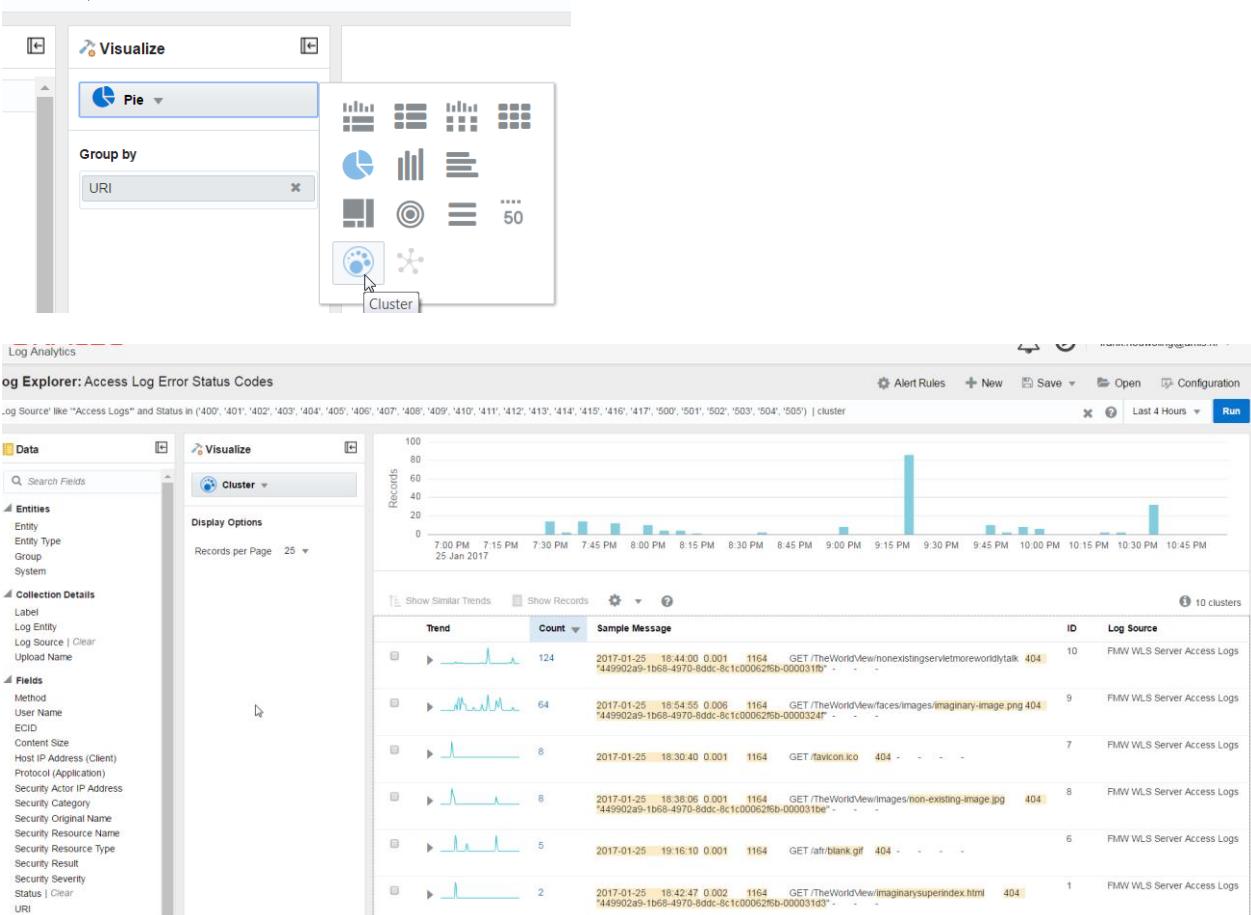
Double click in the chart at *nonexisting servlet more worldly talk* or at the legend to inspect the detail logs:



Here we can analyze further:



If we go back to the access error overview – and set Cluster as visualization, we can search for a more detailed insight – and search for a reason



## Bonus lab: deploy APM Agent on your local environment

An APM Agent can be configured on WebLogic and other Java EE servers, Node.js, and .Net. For example on Integrated WebLogic Server in JDeveloper. An agent can be configured in VMs and Docker Container. An agent is configured with Registration Key for the OMC instance it should publish metrics to.

This blog article describes the steps you should go through:

<https://technology.amis.nl/2016/12/14/oracle-management-cloud-application-performance-monitoring-for-java-ee-adf-soa-suite-applications>

A very highlevel overview of the steps:

- In OMC instance click on Agents Tab



- Download AgentInstaller

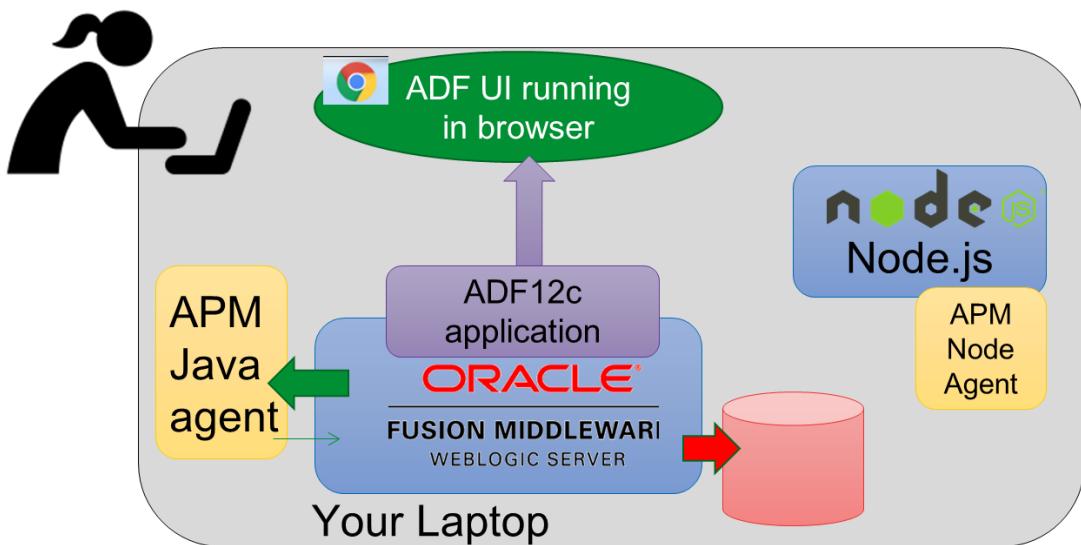
A screenshot of the "Oracle Management Cloud Agents" page. On the left, there's a sidebar with links: "Gateways", "Data Collectors", "Cloud Agents", "APM Agents", "Registration Keys", and a highlighted "Download" link. The main content area has a title "Download" and a sub-section "Registration keys are required to configure your software" with a "View available keys or create a new one" link. Below this, there are four sections: 1) "Gateway" with a laptop icon, describing it as a proxy between OMC and enterprise applications, and a "Download" button with a green arrow icon. 2) "APM Agents" with a server icon, describing it as uploading performance monitoring data for Fusion Middleware, and a "Download" button. 3) "Data Collector" with a database icon, describing it as reading data from a repository and uploading to OMC, and a "Download" button. 4) "Cloud Agents" with a cloud icon, describing it as collecting data from EM Cloud Control managed targets and uploading to OMC via a Gateway, and a "Download" button.

- Get hold of Registration key

The screenshot shows the 'Registration Keys' section of the Oracle Management Cloud Agents interface. On the left, there's a sidebar with tabs for Gateways, Data Collectors, Cloud Agents, APM Agents, and Registration Keys (which is selected). The main area displays two registration keys:

Name	Status	Created Date	Key Value	Maximum	Current Usage
OnboardingFirstKey	valid	12/11/16 10:29 AM	RmXmMm7chyi-J-VZ7_UfxY5XUU	30	Data Collectors 1, Gateways 2, Agents 5, APM Agents 7
OnboardingFirstKey	valid	12/11/16 10:29 AM	RUD62gZxa9eeeJrq6mnxqsxWpj	30	Data Collectors 0, Gateways 0, Agents 0, APM Agents 0

- Install APM agent on target machine
- Configure APM agent in WebLogic startup script



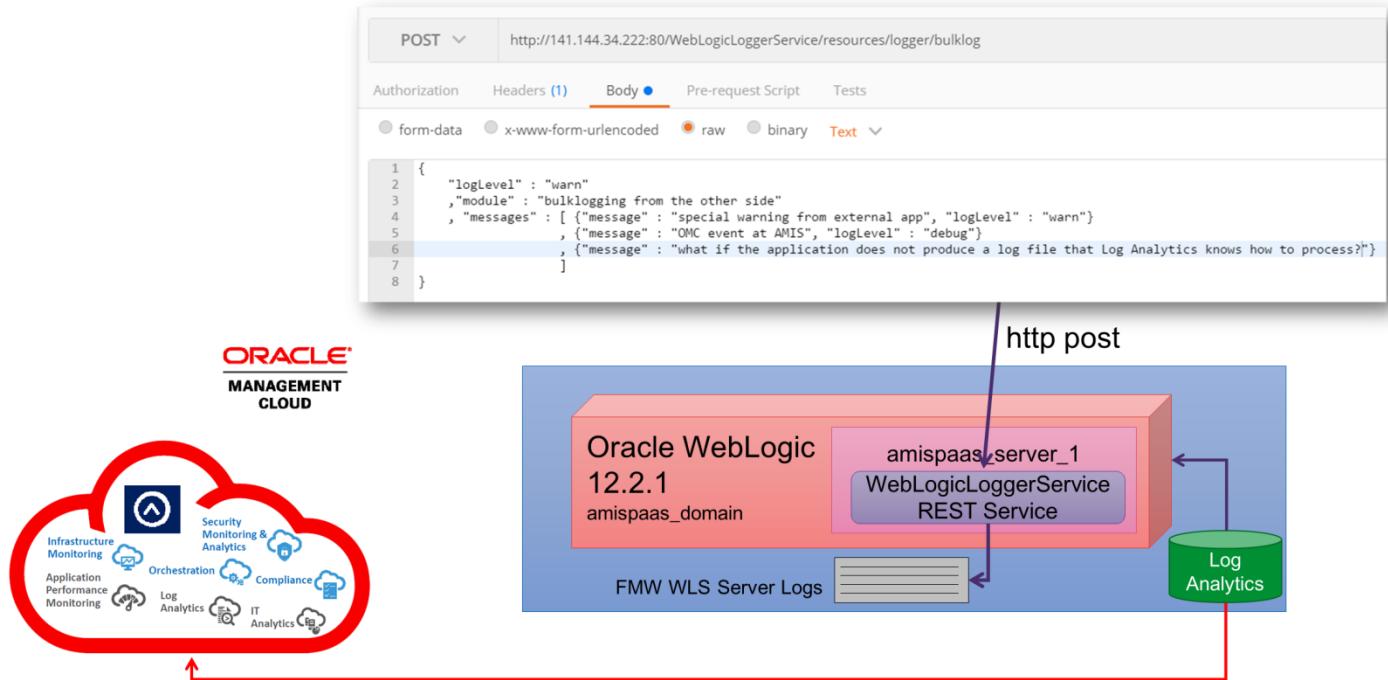
- (re)start WebLogic Server(s)

## Bonus lab: REST Service to post messages to Log Analytics

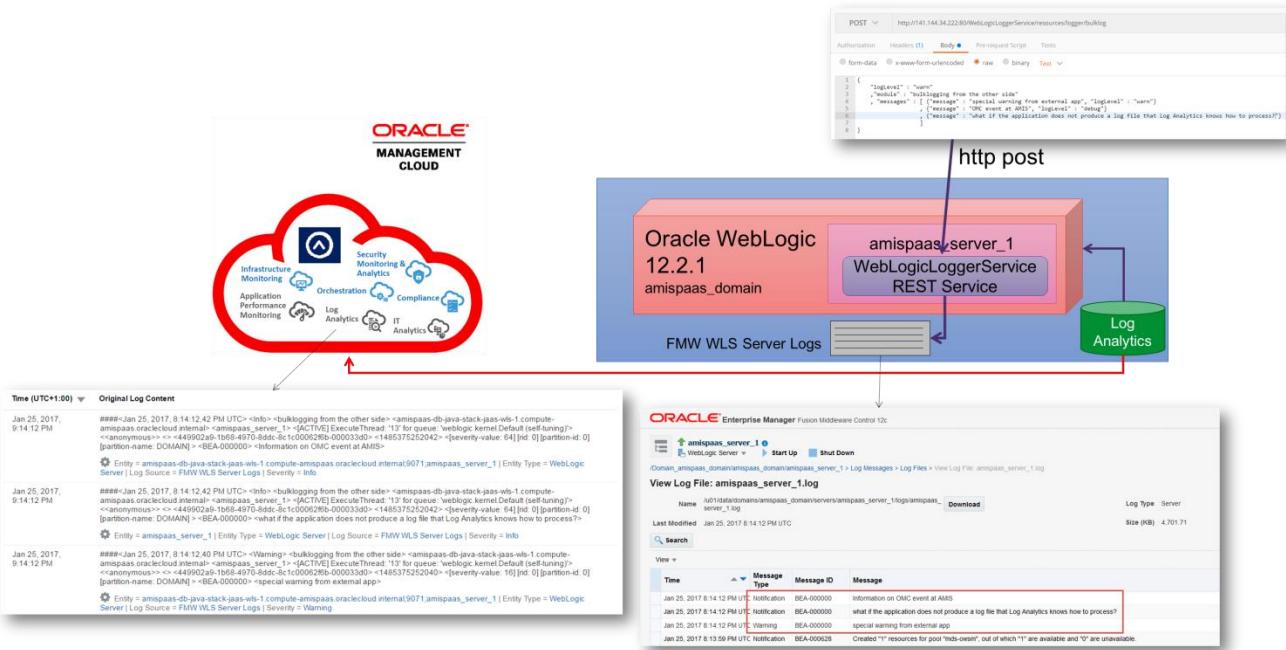
Not all applications can publish log messages to Log Analytics. For example because they run on a host where the APM agent cannot be deployed, such as Oracle Application Container Cloud. OMC does not currently expose a REST API for publishing log entries into Log Analytics. However, with a little trick, we can get log messages in, through our own REST API.

In our JCS instance, a Java Web application is deployed that exposes a JAX-RS based REST API – at endpoint: <http://141.144.34.222:80/WebLogicLoggerService/resources/logger/bulklog>.

Log messages wrapped in simple JSON messages sent to this endpoint in a standard HTTP POST request are published by the WebLogicLoggerService to its local WebLogic Server Log. Since the Log Analytics agent is configured for this WebLogic Server Log, any entry sent to the REST API ends up in the Log Analytics database:



The resulting entries can be searched and analyzed in Log Analytics just like log entries received in the regular way.



You can try out this mechanism using a Postman Collection, available from GitHub:

[https://github.com/lucasjellema/WeblogicRestLoggerService/blob/master/WebLogicLogging.postman\\_collection.json](https://github.com/lucasjellema/WeblogicRestLoggerService/blob/master/WebLogicLogging.postman_collection.json)

The structure of the JSON message:

```
{
  "logLevel" : "warn"
  , "module" : "bulklogging from the other side"
  , "messages" : [ {"message" : "special warning from external app", "logLevel" : "warn"}
    , {"message" : "OMC event at AMIS", "logLevel" : "debug"}
    , {"message" : "Information on OMC event at AMIS", "logLevel" : "info"}
    , {"message" : "what if the application does not produce a log file that Log Analytics knows how to process?"}
  ]
}
```