

Fehleranalyse bei HCL Connections

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#dachnug50

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 HCL Ambassador



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DAS JUBILÄUM

- Senior IT Architect at Skaylink GmbH.
 - IBM / HCL Connections since 2007
- Experience in
 - Deployment, Migration, Operation and Customization
 - Kubernetes EKS and AWS, Container
- Focusing on
 - enhancing with own containers
 - make the most out of customizer
- More and more
 - DevOps, Automation

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 HCL Ambassador

- Senior Consultant at [Vegard IT](#)
 - Linux (Slackware) since 1995
 - IBM Domino since 1999
 - IBM Connections since 2009
- Experience in
 - Migrations, Deployments
 - Performance Analysis, Infrastructure
- Focusing in
 - Monitoring, Security
- More and more
 - DevOps stuff



Allgemeine Troubleshooting Tipps



- Wiederholbarkeit prüfen
- Abhängigkeiten identifizieren
 - Bestimmter Kontext
 - Bestimmter User
 - Bestimmte Tageszeit
- Lastbedingte Fehler (Lasttest zur Reproduzierbarkeit)
 - Problem isolieren
 - Am besten auf einen API Call

HCL Connections Herausforderungen



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- Grosse Vielfalt an Backend Optionen
 - Datenbanken (DB2, Oracle, SQL Server)
 - Java Backend (WebSphere Application Server)
 - Container basierte Erweiterungen (Component Pack)
- Viele Client Möglichkeiten
 - Browser
 - Plugins (Desktop, Outlook, Notes)
 - Mobile Apps (iOS, Android)
- Security
 - Username / Passwort
 - SSO (Kerberos, OIDC, SAML)
 - SSL / TLS
- Abhängigkeiten sind nicht ausreichend dokumentiert
- Viele unterschiedliche Stellen für Logdateien

Identifizieren der Ursache

Browser Developer Tools



- Client side Javascript Fehler in den Serverlogs nicht sichtbar
- Web Developer Tools der Browser hilfreich
- Sind Fehler nicht reproduzierbar, HAR abspeichern und vergleichen
- Alternativ Intercept Proxies wie Burp Suite, mitmproxy oder ZAP verwenden

Dev Tools - Netzwerk Tab



- API Call identifizieren
 - Response prüfen
 - Oft sprechendere Fehlermeldung als in der GUI
- Call als `curl` Kommando kopieren
 - Achtung! Enthält Cookies.

Dev Tools



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The screenshot displays the Chrome DevTools Network tab. The left pane shows a list of network requests. The right pane shows a context menu for a selected request. The menu items are:

- Copy Value
- Save All As HAR
- Resend
- Edit and Resend
- Block URL
- Open in New Tab
- Start Performance Analysis...
- Use as Fetch in Console
- Copy URL
- Copy URL Parameters
- Copy POST Data
- Copy as cURL (Windows)
- Copy as cURL (POSIX)
- Copy as PowerShell
- Copy as Fetch
- Copy Request Headers
- Copy Response Headers
- Copy Response
- Copy All As HAR

Dev Tools



Headers Cookies Request Re

Filter Request Parameters

JSON

content: "Testing some calls to show."

Headers Cookies Request **Response** Timings Stack Trace Security

Filter properties

JSON Raw

```
entry: Object { summary: "Testing some calls to show", published: "2023-06-13T05:16:37.190Z", content: "Testing some calls to show", ... }
  summary: "Testing some calls to show."
  author: Object { id: "urn:lsid:lconn.ibm.com:profiles.person:ea6d0c32-8761-103a-80ad-ef5b407dea30", displayName: "Christoph Stoettner", objectType: "person", ... }
    id: "urn:lsid:lconn.ibm.com:profiles.person:ea6d0c32-8761-103a-80ad-ef5b407dea30"
    displayName: "Christoph Stoettner"
    connections: Object { isExternal: "false", state: "active" }
      objectType: "person"
    published: "2023-06-13T05:16:37.190Z"
    content: "Testing some calls to show."
    url: "https://preview.hclconnections.net/profiles/html/profileView.do?userid=ea6d0c32-8761-103a-80ad-ef5b407dea30&entryId=c2295cfc-c43b-42d4-9a1c-ef4b298133be"
    objectType: "note"
  replies: Object { totalItems: 0, url: "https://preview.hclconnections.net/connections/opensocial/rest/ublog/@all/@all/urn:lsid:lconn.ibm.com:profiles.note:c2295cfc-c43b-42d4-9a1c-ef4b298133be/comments" }
    totalItems: 0
    url: "https://preview.hclconnections.net/connections/opensocial/rest/ublog/@all/@all/urn:lsid:lconn.ibm.com:profiles.note:c2295cfc-c43b-42d4-9a1c-ef4b298133be/comments"
  id: "urn:lsid:lconn.ibm.com:profiles.note:c2295cfc-c43b-42d4-9a1c-ef4b298133be"
  updated: "2023-06-13T05:16:37.190Z"
  connections: Object { isExternal: "false" }
    isExternal: "false"
  likes: Object { totalItems: 0, url: "https://preview.hclconnections.net/connections/opensocial/rest/ublog/@all/@all/urn:lsid:lconn.ibm.com:profiles.note:c2295cfc-c43b-42d4-9a1c-ef4b298133be/likes" }
    totalItems: 0
    url: "https://preview.hclconnections.net/connections/opensocial/rest/ublog/@all/@all/urn:lsid:lconn.ibm.com:profiles.note:c2295cfc-c43b-42d4-9a1c-ef4b298133be/likes"
```



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Login via Skript

- Verwende curl, wget oder Postman
- curl:

Cookie in Datei speichern

```
curl -v -u <username>:<password> -b  
cookies.txt -c cookies.txt  
https://connections/profiles/atom/
```

Cookie im nächsten Call wiederverwenden

```
curl -v -b cookies.txt -c cookies.txt  
https://connections/communities/event/
```

Dev Tools - Console Log



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```
Filter output
ERRORS (Warnings) Logs Info Debug CSS XHR Requests
This page is in Almost Standards Mode. Page layout may be impacted. For Standards Mode use <!DOCTYPE html>. [Learn More] updates
This page uses the non standard property "zoom". Consider using calc() in the relevant property values, or using "transform" along with "transform-origin: 0 0".
Uncaught SyntaxError: redeclaration of const teamsState
<anonymous> https://cnb-ora.steaps.home/connections/static/20230508_220008/ui/cnb-react/cnb-ui.js:1 cnb-ui.js:1:1
[Learn More]
Synchronous XMLHttpRequest on the main thread is deprecated because of its detrimental effects to the end user's experience. For more help http://kh.js-6497:4/r.speccy.welap.org/
Uncaught (in promise) Error: Minified React error #208; visit https://reactjs.org/docs/error-decoder.html?invariant=208 react-dom.production.min.js:290:271
for the full message or use the non-minified dev environment for full errors and additional helpful warnings.
render React
  widgetLoader.js:62
  runtime.js:64
  runtime.js:209
  runtime.js:124
  28-Bc209e49f7f8954bc05f.chunk.js:1
  28-Bc209e49f7f8954bc05f.chunk.js:1
  28-Bc209e49f7f8954bc05f.chunk.js:1
  28-Bc209e49f7f8954bc05f.chunk.js:1
  28-Bc209e49f7f8954bc05f.chunk.js:1
  widgetLoader.js:57
  appLoader.js:40
  runtime.js:64
  runtime.js:209
  runtime.js:124
  app-loader-2860c811591356a88950.chunk.js:1
  app-loader-2860c811591356a88950.chunk.js:1
  app-loader-2860c811591356a88950.chunk.js:1
  app-loader-2860c811591356a88950.chunk.js:1
  appLoader.js:38
  cnb-ui-0a1a.js:145
  _load_react_bundle
  _add_cnb_react_components cnb-ui.js:686
  scriptLoader ics-nbl.js:4
  loadScript ics-nbl.js:4
  scriptLoader ics-nbl.js:4
  loadScript ics-nbl.js:4
  scriptLoader ics-nbl.js:4
  loadBundles ics-nbl.js:4
  _add_cnb_react_components cnb-ui.js:682
  _anonymous- cnb-ui.js:792
  async* cnb-ui.js:811
XHR Parsing Error: not well-formed
Location: https://cnb-ora.steaps.home/selfservice/racl/invite invite:1:1
Line Number 1, Column 1:
Content Security Policy: Ignoring 'x-frame-options' because of 'frame-ancestors' directive. js:8977
Cookie "icon_sand_recommendationTimeout" does not have a proper "SameSite" attribute value. Soon, cookies without the "SameSite" attribute or with an invalid value will be treated as "Lax". This means that the cookie will no longer be sent in third party contexts. If your application depends on this cookie being available in such contexts, please add the "SameSite=None" attribute to it. To know more about the "SameSite" attribute, read http://developers.mozilla.org/docs/Web/HTTP/Headers/Set-Cookie/SameSite
Source map error: Error: request failed with status 404
Resource URL: https://cnb-ora.steaps.home/connections/static/20230508_220008/ui/api/ics-api.js
Source Map URL: runtime-0418bc098f980204e980.js.map [Learn More]
This page is in Almost Standards Mode. Page layout may be impacted. For Standards Mode use <!DOCTYPE html>. [Learn More] 1fr
This page uses the non standard property "zoom". Consider using calc() in the relevant property values, or using "transform" along with "transform-origin: 0 0". 1fr
Use of Mutation Events is deprecated. Use MutationObserver instead. updates:1697:38
Source map error: Error: request failed with status 404
Resource URL: https://cnb-ora.steaps.home/connections/static/20230508_220008/ui/api/ics-api.js
Source Map URL: runtime-0418bc098f980204e980.js.map [Learn More]
```

- Fehlermeldungen auch bei funktionierendem Connections
- 8.0CR2 mit Orient Me Image CR1

Console Log 2

- Hier ist z.B. Top Updates leer
- 8.0CR2 mit original Orient Me Image



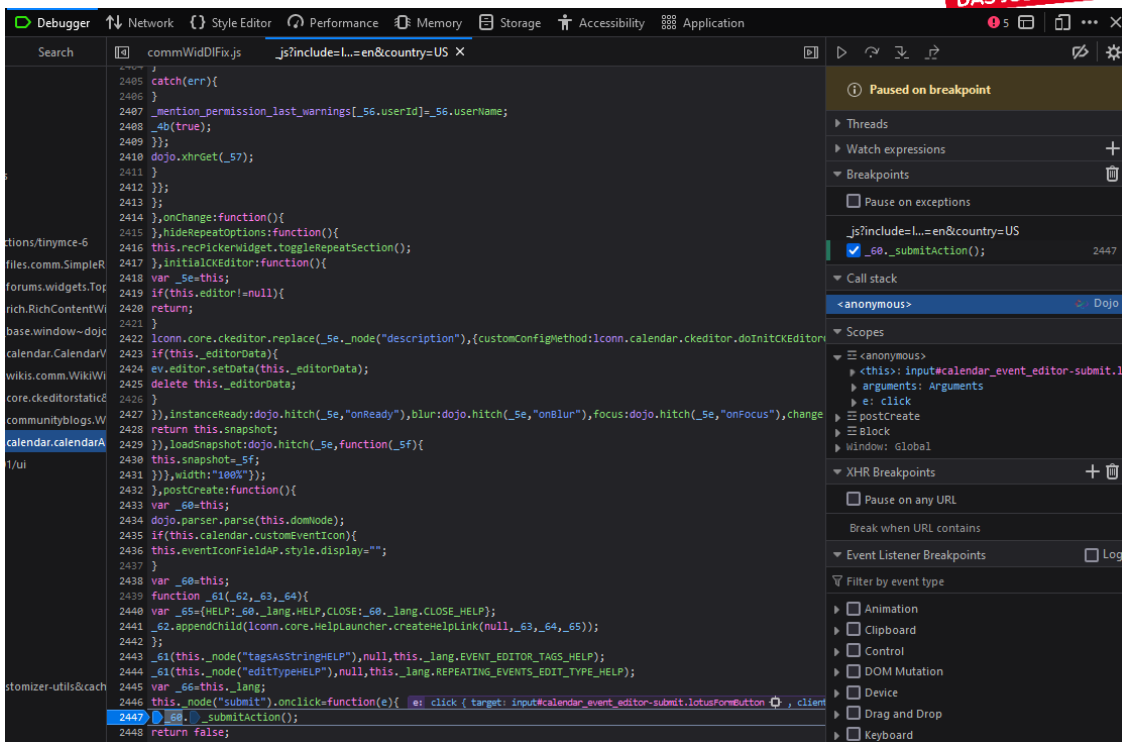
Dev Tools - JavaScript Debugger



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- Break Points
- Variablen Überwachung
- Call Stack



Fehler bereits auf der Serverseite

- Identifizieren der App
 - Path in URL
 - Netzwerk Tab der Browser Dev Tools
- Application Server Logs
 - Log Sprache in Englisch!
 - Internetsuche in anderen Sprachen praktisch sinnlos

Generic JVM arguments: `-Duser.language=en` `-Duser.region=GB`

Debugging WebSphere Server



- J2EE Server – Programmierkenntnisse für Java nützlich
- Java Classes für Debug Scope
 - Java Stack Trace

Einschalten Trace für alle Server eines Clusters



- Einschalten via WAS Console umständlich und langwierig
- wsadmin skript vereinfacht den Prozess
 - https://stoeps.de/posts/2021/websphere_traces_on_steroids/
- wsadmin Skript Sprache hinterlegen

```
WebSphere/AppServer/profiles/<ProfileName>/properties/wsadmin.properties  
com.ibm.ws.scripting.defaultLang=jython
```

- wsadmin Login Daten hinterlegen

```
WebSphere/AppServer/profiles/<ProfileName>/properties/soap.client.props  
com.ibm.SOAP.loginUserId=<WebSphere ADMIN User>  
com.ibm.SOAP.loginPassword=<WebSphere ADMIN Password>
```

!!! Anschließend Kennwort verstecken !!!

```
> cd <ProfileName>/bin  
> ./PropFilePasswordEncoder.sh ../properties/soap.client.props com.ibm.SOAP.loginPassword
```

Trace Strings



- Class Name oder Package Name
 - Erhältlich durch
 - Dokumentation - https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0020711
 - HCL Support
 - Java Exceptions – Class Names in Stack Trace
 - Java Decompiler – Decompiler um weitere interessante Klassen und Zusammenhänge zu finden.
- .*=all
- Trennzeichen
 - Linux: : (Doppelpunkt), Windows: ; (Semikolon)

Java Exceptions (Beispiel 1)



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```
[6/12/23 9:17:47:521 CEST] 0000014d Og          E    com.ibm.lconn.opengraph.impl.Og
com.ibm.lconn.opengraph.messages.OpengraphRuntimeException: java.lang.reflect.InvocationTargetException
at com.ibm.lconn.opengraph.env.LogInvocationHandler.invoke (LogInvocationHandler.java:61)
at com.sun.proxy.$Proxy56.executeHttpGet (Unknown Source)
at com.ibm.lconn.opengraph.impl.Og.fetch (Og.java:92)
at com.ibm.lconn.opengraph.impl.Og.fetch (Og.java:44)
at com.ibm.lconn.opengraph.service.impl.MetadataServiceImpl.fetch (MetadataServiceImpl.java:51)
at com.ibm.lconn.opengraph.service.impl.OembedMetadataServiceImpl.get (OembedMetadataServiceImpl.java:93)
at sun.reflect.GeneratedMethodAccessor686.invoke (Unknown Source)
...
Caused by: java.lang.reflect.InvocationTargetException
at sun.reflect.GeneratedMethodAccessor688.invoke (Unknown Source)
at sun.reflect.DelegatingMethodAccessorImpl.invoke (DelegatingMethodAccessorImpl.java:55)
at java.lang.reflect.Method.invoke (Method.java:508)
at com.ibm.lconn.opengraph.env.LogInvocationHandler.invoke (LogInvocationHandler.java:56)
... 60 more
Caused by: com.ibm.lconn.opengraph.OpengraphRetrieverRuntimeException: com.ibm.lconn.opengraph.OpengraphRetrieverRuntimeException:
error.httpClient.action.exec.fail401
at com.ibm.lconn.opengraph.SonataHttpClientTemplate.execute (SonataHttpClientTemplate.java:117)
at com.ibm.lconn.opengraph.SonataHttpClientTemplate.executeHttpGet (SonataHttpClientTemplate.java:78)
... 64 more
Caused by: com.ibm.lconn.opengraph.OpengraphRetrieverRuntimeException: error.httpClient.action.exec.fail401
at com.ibm.lconn.opengraph.SonataHttpClientTemplate.execute (SonataHttpClientTemplate.java:104)
... 65 more
```

=> Trace String: `com.ibm.lconn.opengraph.*=all`

Suche nach der Klasse



- Finden der Classe in ear / war files:
 - Auf dem ApplicationServer, nicht Dmgr
 - ```
cd profiles/AppSrv01/installedApps/ICCell101
grep -r OpengraphRuntimeException *
```
- Ergebnis:
  - ```
# grep -r OpengraphRuntimeException *
Binary file URLPreview.ear/lc.urlPreview.opengraph.web.war/WEB-INF/lib/lc.util.opengraph.messages-4.5.jar matches
Binary file URLPreview.ear/lc.urlPreview.thumbnail.web.war/WEB-INF/lib/lc.util.opengraph.messages-4.5.jar matches
```
- Kopiere `lc.urlPreview.thumbnail.web.war` auf System mit JD-GUI

Java Decompiler



- JD Project
 - <http://java-decompiler.github.io/>
- Entsprechendes jar oder gesamtes .war auf System mit JD-GUI kopieren und öffnen.

Java Decompiler



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```
Og.class - Java Decompiler
File Edit Navigation Search Help
lc.utl.opengraph.messages-4.5.jar lc.urlPreview.opengraph.service.jar lc.utl.opengraph-4.5.jar
META-INF
com.ibm.icmn
oembed
  impl
    HashMapAdapter.class
    ICOembedResponse.class
    JacksonSerializer.class
    JAXBSerializer.class
    ListEntry.class
    ListType.class
    MapEntry.class
    MapType.class
    OembedResponse.class
    package-info.class
    OembedModel.class
    OembedSerializer.class
    OembedSerializers.class
    package-info.class
  opengraph
    impl
      Og.class
      Og
      Parser
        parser : Og.Parser
        Og(HttpTemplate)
        Og(HttpTemplate, Og.Parser)
        Og(HttpTemplate, Og.Parser, long)
Og.class
OgAbstractFetcher.class
OgFetcher.class
}
public Og(HttpTemplate<HttpClientTemplate> paramHttpTemplate, long paramLong) {
  this(paramHttpTemplate, Parser.JSOUP);
}
public Og(HttpTemplate<HttpClientTemplate> paramHttpTemplate) {
  this(paramHttpTemplate, Long.MAX_VALUE);
}
public Parser getParser() {
  return this.parser;
}
public OpenGraph<?> fetch(final URI targetUri) {
  Preconditions.checkNotNull(targetUri, "Target URI is not specified");
  String str = "fetch(URI targetURI)";
  if (this.logger.isLoggable(Level.FINER))
    this.logger.entering(this.CLASS_NAME, str, targetUri);
  try {
    String str1 = (String)getHttpClientTemplate().executeHttpGet(targetUri.toString(), new HttpTemplate.EntityConsumer<St
    public String consume(HttpEntity paramHttpEntity) throws Exception {
      String str = null;
      Header header = paramHttpEntity.getContentType();
      if (header != null) {
        String str1 = header.getValue();

```

Unerklärliches Verhalten (Beispiel 2)



Events

Events [Calendar View](#)

Create an Event

1 - 10 of 16

1 2

Show Past Events



Event 2023_06_12

Today at 2:45 PM - 3:45 PM | Created by [Test User1](#) | Updated on Today at 3:00 PM | Tags:test



Event 2023_06_22

Jun 22 at 2:45 PM - 3:45 PM | Created by [Test User1](#) | Created on Today at 2:41 PM



Event 2023_06_23

Jun 23 at 2:45 PM - 3:45 PM | Created by [Test User1](#) | Created on Today at 2:41 PM



Event 2023_06_26

Jun 26 at 2:45 PM - 3:45 PM | Created by [Test User1](#) | Created on Today at 2:41 PM

Show 10 20 50 items

Jump to page of 2

Browser API Call



- Suche via Browser Console:
- `https://cnx.beaslabs.com/communities/calendar/atom_form/calendar/event?calendarUuid=a0c43b4d-e6c6-4bd4-835b-8c959d242f2f&startDate=2023-06-12T15%3A04%3A00%2B02%3A00&page=1&ps=10&lang=en_us&anonymous=true&daylight=2023-03-26T11%3A04%3A35%2B02%3A00%2F2023-10-29T10%3A04%3A35%2B01%3A00`

Datenbank Inhalt



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```
select * from calendar.ca_eventinstance where calendar_uid = 'a0c43b4d-e6c6-4bd4-835b-8c959d242f2f';
```

select * from c | select * from c

Rows 16; select * from calendar.ca_eventinstance where calendar_uid = 'a0c43b4d-e6c6-4bd4-835b-8c959d242f2f';

Results | MetaData | Info | Overview / Charts | Rotated table | Results as text

EVENTINST_UID	CALENDAR_UID	EVENT_UID	EVENTINFO_UID	STARTDATE	ENDDATE
c7004283-05e3-46bb-acd5-d75d2a612ffc	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	758cab4436574248854d4af520db7a69-013	<null>	2023-06-14 14:45:00.0	2023-06-14 15:45:00.0
07be93fd-d696-448b-a425-b4622d9f5458	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	5714230f3bd14bb2a98f7a840a326e02-013	<null>	2023-06-15 14:45:00.0	2023-06-15 15:45:00.0
dfd3d7fa-48cb-4859-a51c-6fe90e2b29df	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	e1c2eb75eab24333803598a461ec462d-013	<null>	2023-06-16 14:45:00.0	2023-06-16 15:45:00.0
fd9ed67d-3bf9-4184-a60f-97578f441ef9	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	c732431af28e4f82a6c541cc5b496838-013	<null>	2023-06-19 14:45:00.0	2023-06-19 15:45:00.0
fd8c0b3d-0095-4922-9b82-2efd9e0dd214	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	a256464f11654023842df2745ec5ae4be-013	<null>	2023-06-20 14:45:00.0	2023-06-20 15:45:00.0
fe4cbe4a-60c6-40e9-98f2-460f4560ee3c	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	6d7b64c8e7374724b143c43ce0bf5323-013	<null>	2023-06-21 14:45:00.0	2023-06-21 15:45:00.0
324456f2-a689-49c2-b205-b9572eab5243	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	cf42268fc59a4b1cb689118b9a8425d-013	<null>	2023-06-22 14:45:00.0	2023-06-22 15:45:00.0
9c9e4143-f586-4fe3-9112-5cfa0a9fe708	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	456b4c82c02f4d24b8e12ad155ec30a4-013	<null>	2023-06-23 14:45:00.0	2023-06-23 15:45:00.0
a2e77d37-e8a9-4aaa-ac14-50b809e9ad20	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	55eda641c02147de8db15a2c6b63dcf-013	<null>	2023-06-26 14:45:00.0	2023-06-26 15:45:00.0
82c7783b-ccc5-44cd-b82d-960289a1500e	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	20c8d1b9c5a3487f912beb84eedafe-013	<null>	2023-06-27 14:45:00.0	2023-06-27 15:45:00.0
c918c362-9f93-4875-87d9-11ec43ce8014	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	324cbedd75a740a793297c1a43f21d51-013	<null>	2023-06-28 14:45:00.0	2023-06-28 15:45:00.0
01e9b980-a2c1-4007-9cbd-348fd203ca9	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	7cd3a0fec214e369e77fa4cd561c4c9-013	<null>	2023-06-29 14:45:00.0	2023-06-29 15:45:00.0
43849aa2-7c12-4f99-bbeb-fe77c5e0b115	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	0d0b19cd80b4487d8117487bfc9c49c2-013	<null>	2023-06-30 14:45:00.0	2023-06-30 15:45:00.0
841d3638-475c-4eb0-9a28-2bf8f28b47b1	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	43fe3f9cf57a45609859a076b320fc2-013	<null>	2023-07-03 14:45:00.0	2023-07-03 15:45:00.0
b0ce0a2d-4327-48f3-a16f-60643f5c0e90	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	e90dfa643dbb45d0bcc7713564cf0cb9-013	<null>	2023-07-04 14:45:00.0	2023-07-04 15:45:00.0
2e7bcc9c-98ae-4a84-9bb3-0f5350a0a162	a0c43b4d-e6c6-4bd4-835b-8c959d242f2f	63a8c8db0d68a49649d27198382c19551-013	<null>	2023-06-12 14:45:00.0	2023-06-23 15:45:00.0

Analyse



- Check des Java Codes bringt keine Erklärung. Zu komplex. Code kann nicht nachvollzogen werden.
Erkenntnis: Prüfen der Datenbankabfragen.
- Einschalten Datenbank Traces. (Siehe KB0020711)

```
./wsadmin.sh -f clusterTrace.py ICCluster  
"com.ibatis.*=all:java.sql.Connection=all:java.sql.Prepare  
dStatement=all:java.sql.ResultSet=all:com.ibm.tango.intern  
al.ExecutionContext=all"
```

Analyse DB Abfragen



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1. `SELECT COUNT(1) FROM CALENDAR.CA_EVENTINSTANCE WHERE CALENDAR_UUID = ? AND ENDDATE >= ? AND ORG_ID = ? FOR FETCH ONLY`

Parameters: [a0c43b4d-e6c6-4bd4-835b-8c959d242f2f, 2023-06-13 15:04:00.0, a]

-> 16 -> OK ist korrekt

2. `SELECT EVENTINST_UUID as eventInst UUID, CALENDAR_UUID as calendar UUID, EVENT_UUID as event UUID, STARTDATE as startDate, ENDDATE as endDate, EVENTINFO_UUID as eventInfo UUID, MODIFIEDBY as modifiedBy, MODIFIEDON as modifiedOn, ORG_ID as ORG_ID FROM CALENDAR.CA_EVENTINSTANCE WHERE CALENDAR_UUID = ? AND ENDDATE >= ? AND ORG_ID = ? ORDER BY STARTDATE ASC, EVENTINST_UUID FETCH FIRST 10 ROWS ONLY FOR FETCH ONLY`

Parameters: [a0c43b4d-e6c6-4bd4-835b-8c959d242f2f, 2023-06-13 15:04:00.0, a]

-> Listet die ersten 10 Events -> OK ist korrekt

Analyse DB Abfragen



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3.

```
SELECT EVENTINST UUID as eventInst_UUID, CALENDAR UUID as
calendar_UUID, EVENT UUID as event_UUID, STARTDATE as startDate,
ENDDATE as endDate, EVENTINFO UUID as eventInfo_UUID, MODIFIEDBY
as modifiedBy, MODIFIEDON as modifiedOn, ORG ID as ORG ID FROM
CALENDAR.CA EVENTINSTANCE WHERE CALENDAR UUID = ? AND ENDDATE >=
? AND ENDDATE < ? AND ORG ID = ? ORDER BY STARTDATE ASC,
EVENTINST_UUID FOR FETCH ONLY
```

Parameters: [a0c43b4d-e6c6-4bd4-835b-8c959d242f2f, 2023-06-22
15:45:00.0, 2023-06-27 15:45:00.0, a]

-> Woher kommt das Datum 2023-06-22? -> Deswegen fehlen die ersten Events.

4. Es ist das Enddatum des ersten Events minus 1 Tag vom 12.06.
-> Problem mehrtägige Events werden nicht korrekt behandelt.
Wie erstellt man eigentlich mehrtägige Events?

Events > 24h

Please check the following

- The event duration should not be larger than 24 hours. Please create a repeating event instead.



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1 - 1 of 1

1

Create Ev

*Event Title [Show Past Events](#)

Tags: ?



Test Event

Starts

Today at 7:15 AM - 8:15 AM | Created by [Christoph Stoettner](#) | Created on Today at 7:12 AM | Tags: [important](#), [tagging](#), [is](#)

June 2023	
Loca	Desc
Sun 05/28	Mon 05/29
Tue 05/30	Wed 05/31
Thu 1	Fri 2
Sat 3	
4	5
6	7
8	9
10	11
12	13
14	15
16	17
18	19
20	21
22	23
24	25
26	27
28	29
30	07/01

Day 165 - 200 days left in the year



Component Pack

Abhängigkeiten verstehen

- Welcher Pod benötigt
 - Opensearch bzw. OpenSearch Index
 - MongoDB bzw. Datenbank
 - Redis
- Nicht dokumentiert



OpenSearch Indices



#dachnug50
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```
GET /_cat/indices
```

```
green open security-auditlog-2023.06.07 eEjRux-3SfG9XwGjhZzCmg 1 1 178 0 559.9kb 318.8kb
green open icmetricsconfig YTuZrSc0SvyWNq2u0Bma9w 5 1 1 0 8.9kb 4.4kb
green open icmetrics_a_2023_1h Cfq3G70uQo6mc3sJGbJdwg 5 1 694 0 1mb 576.3kb
green open icmetrics_a_2022_2h KFodGvkaQ1yactS08jE1fQ 5 1 59 0 194.7kb 97.3kb
green open quickresults GQbNo21VSlab6-xXwailPg 8 2 92 35 1.5mb 557.6kb
green open icmetricscommlist u9xpK2KbQ0G-zV2EolXmwg 5 1 2 0 17.9kb 8.9kb
green open .opendistro_security imEaa8dMR3CjVjq4hJRtlg 1 2 9 0 182.9kb 60.9kb
green open orient-me-collection BKv72Us9SNm9HvQwYswspg 1 1 32 5 181.8kb 94.8kb
green open security-auditlog-2023.06.08 0ffNq_dmTY-W1aKJGPPBoA 1 1 221 0 880kb 432.4kb
```


OpenSearch Indices 2



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Index	Funktion
icmetricsconfig	Metrics Config
icmetricscommlist	Metrics Community List
icmetrics_a_2023_1h	Metrics Events 1st half 2023
icmetrics_a_2022_2h	Metrics Events 2nd half 2023
orient-me-collection	Orient Me Top Updates
quickresults	Typeahead, Communities/Files Catalog - Visited Timestamp
security-auditlog-2023.06.07	Daily Log, useless atm



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Security Auditlogs ausschalten

- Security Auditlogs in Opensearch aktiv
- Keine Config um aufzuräumen

```
kubectl edit cm opensearch-cluster-master
```

- Löschen der Zeile

```
audit_type: internal_opensearch
```

- Neustart des Statefulsets

```
kubectl rollout restart sts opensearch-cluster-master
```

MongoDB Query



- Shell in mongo5-0 Pod öffnen

```
mongosh --tls --tlsCertificateKeyFile /etc/mongodb/x509/user_admin.pem \  
--tlsCAFile /etc/mongodb/x509/mongo-CA-cert.crt --host \  
$(hostname -f) --authenticationDatabase '$external' \  
--authenticationMechanism MONGODB-X509
```

```
rs0 [direct: primary] test> show databases  
AppReg          272.00 KiB  
ITM             144.00 KiB
```

Mongo Datenbanken und Funktion



#dachnug50

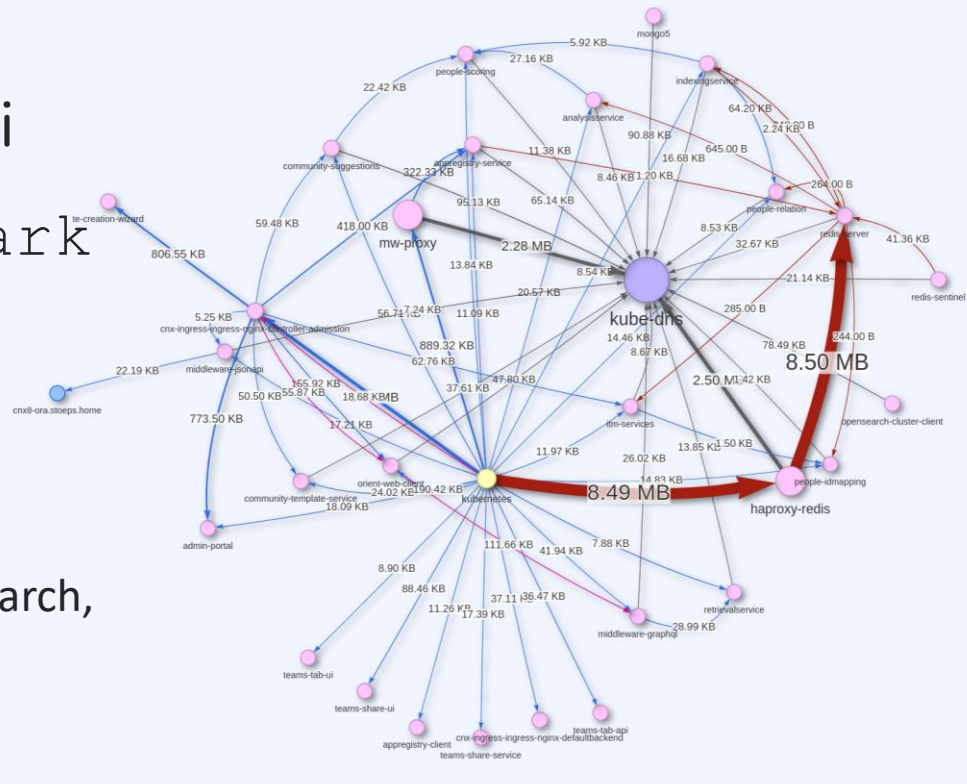
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DB Name	Funktion
appReg	Customizer (Application config/code)
boards-*	Activities Plus, Huddo Boards
collabscoredb-service	Orient Me, retrievalservice usw.
commtpldb	Community Templates
ITM	Important To Me Bar
admin	Mongo DB System



Welche Container hängen voneinander ab

- Analyse mit Istio & Kiali
- Alternativ mit kubeshark



z.B. Orient Me benötigt MongoDB, OpenSearch, Redis, middleware-graphql

Analyse Netzwerk Traffic in Kubernetes



- Kubeshark
- Erfassung und Überwachung des gesamten Datenverkehrs und der Nutzdaten, die in Container, Pods, Nodes und Cluster ein- und ausgehen.

Kubeshark



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Kubeshark Traffic analyzer for Kubernetes (Community Edition) Targeting 39 pods in namespace

streaming paused

Kubeshark Filter Syntax [Apply]

- redis-sentinel-589f5bb58d-mxt24 kube-dns
- redis-server-2.redis-server.connections.svc.cluster.local kube-dns
- mongo5.connections.svc.cluster.local kube-dns
- mongo5.connections.svc.cluster.local kube-dns
- mongo5.connections.svc.cluster.local kube-dns
- mongo5.connections.svc.cluster.local kube-dns
- mongo5.svc.cluster.local kube-dns
- mongo5.svc.cluster.local kube-dns

Showing 468 items from a total of 1.767MB UTC: 06/13/2023, 5:29:41.351 AM

Service Map

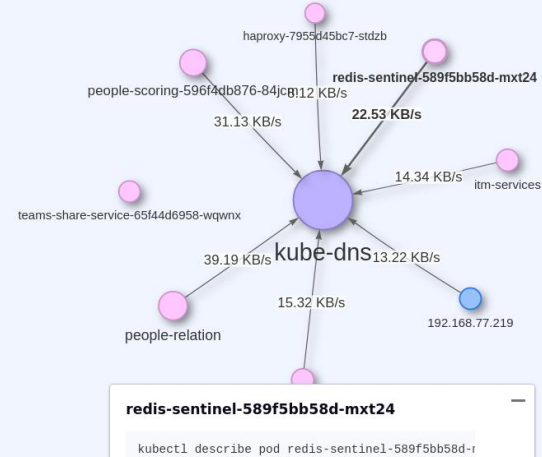
Edges: Bandwidth

Nodes: Resolved Name

- Show cumulative bandwidth
- Include request sizes
- Include response sizes

Class Name Type

- DNS Domain Name System
- kube-system Namespace
- connections Namespace





Kubernetes



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Beispiel 3 - Zombie Prozesse

- Problem:
 - Elasticsearch nicht verfügbar nach ca 3 Tagen
- ps aux
 - 70k sendRequest.sh Prozesse
 - Status Zombie

```
root 4179889 0.0 0.0 0 0 ? Z 09:57 0:00 [sendRequest.sh] <defunct>
root 4180210 0.0 0.0 0 0 ? Z 09:58 0:00 [sendRequest.sh] <defunct>
root 4180792 0.0 0.0 0 0 ? Z 09:58 0:00 [sendRequest.sh] <defunct>
root 4181307 0.0 0.0 0 0 ? Z 09:58 0:00 [sendRequest.sh] <defunct>
root 4181669 0.0 0.0 0 0 ? Z 09:58 0:00 [sendRequest.sh] <defunct>
root 4181947 0.0 0.0 0 0 ? Z 09:58 0:00 [sendRequest.sh] <defunct>
```



#dachnug50

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kubectl get events

- Events werden nur 1 Std gespeichert
- `/etc/kubernetes/manifests/kube-apiserver.yaml`
`--event-ttl=24h0m0s`
- Log zeigt Probleme bei Speicher, CPU

connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/teams-tab-ui	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/teams-tab-api	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/teams-share-ui	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/teams-share-service	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/te-creation-wizard	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/mwautoscaler	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/middleware-jsonapi	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/community-template-service	22287
connections	19m	Warning	FailedGetScale	horizontalpodautoscaler/admin-portal	22287

Für Bsp 3 nicht hilfreich



- Liveness Check beendet nicht richtig
 - <https://cloud.google.com/architecture/best-practices-for-building-containers#signal-handling>
 - <https://kubernetes.io/docs/tasks/configure-pod-container/share-process-namespace/>

shareProcessNamespace: true

kubectl logs



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- Die Ausgabe erfolgt in das normale Log.
- Bei 1 Pod:

```
kubectl logs -f <pod name> -n connections
```

- Bei mehreren Pods:

```
kubetail <deployment name> -n connections
```

```
stern opensearch -n connections
```

```
opensearch-cluster-data-1 opensearch [2023-06-08T08:29:58,823][INFO ][o.o.j.s.JobSweeper ] [opensearch-cluster-data-1] Running full sweep
opensearch-cluster-data-1 opensearch [2023-06-08T08:34:58,824][INFO ][o.o.j.s.JobSweeper ] [opensearch-cluster-data-1] Running full sweep
opensearch-cluster-data-1 opensearch [2023-06-08T08:39:58,825][INFO ][o.o.j.s.JobSweeper ] [opensearch-cluster-data-1] Running full sweep
opensearch-cluster-master-2 opensearch [2023-06-08T08:00:36,138][WARN ][r.suppressed ] [opensearch-cluster-master-2] path: /_cluster/health, params: {wait_for_status=green, timeout=1s}
opensearch-cluster-master-2 opensearch org.opensearch.discovery.MasterNotDiscoveredException: null
opensearch-cluster-master-2 opensearch [2023-06-08T08:00:36,138][WARN ][r.suppressed ] [opensearch-cluster-master-2] path: /_cluster/health, params: {wait_for_status=green, timeout=1s}
```

Shell in Container / Pod öffnen

- Single Container Pod

```
kubectl exec -it <pod name> -- <programm>
```

Beispiel

```
kubectl exec -it mongo5-0 -- bash
```

- Multi Container Pod

```
kubectl exec -it <podname> -c  
<containername> -- bash
```

Programmcode von CP analysieren



- Container
 - Programmcode ist im Klartext (nodejs)
 - Ausnahme indexingservice, retrievalservice, opensearch -> Java
 - In den Containern steht in der Regel `vi` (kein `vim`) oder `cat` zur Verfügung
 - Shell im Container öffnen und analysieren

OpenSearch Query



- `curl`
 - Zertifikate notwendig
- Shell in OpenSearch Pod öffnen `sendRequest.sh` verwenden

```
kubectl get secret opensearch-secret -n connections \ -o=jsonpath="{.data[chain-ca\.pem]}" | base64 -d > chain-ca.pem  
kubectl get secret opensearch-secret -n connections \ -o=jsonpath="{.data[opensearch-metrics\.p12]}" | base64 -d > opensearch-metrics.p12
```

```
curl -k --cert-type P12 --cert elasticsearch-  
metrics.p12:password https://hostname:30099
```

Pimp `sendRequest.sh`



- Shell in OpenSearch Client Pod öffnen

```
cd /usr/share/opensearch/probe
vi sendRequest.sh
```

...

```
echo ${response_text}
# Change to
echo "${response_text}"
```

- Ausgabe erfolgt dann mit Zeilenende (Return) und nicht als einzeliger String
- Am Besten Kopie erstellen und diese für eigene Kommandos nutzen

sendRequest.sh



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```
`${response_text}`
```

```
[lopesearch@opensearch-cluster-client-0 probe]$ ./sendRequest.sh GET /_cat/indices
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total     Spent    Left  Speed
100 1001 100 1001    0    0  2114      0  --:--:--  --:--:--  --:--:--  2116
green open security-auditlog-2023.06.07 eEjRux-3SfG9XwGjhZzCmg 1 1 178 0 637.6kb 318.8kb
green open icmetricsconfig YTuZrSc0SvyWNq2u0Bma9w 5 1 1 0 8.9kb 4.4kb
green open icmetrics_a_2023_1h Cfq3G70uQo6mc3sJGbJdwg 5 1 761 0 1.2mb 671.2kb
green open icmetrics_a_2022_2h KFodGvkaQ1yactS08jE1fQ 5 1 59 0 194.7kb 97.3kb
green open security-auditlog-2023.06.13 yCj2UvAkSzaAgbF00BshPA 1 1 596 0 3.1mb 1.9mb
green open quickresults GQbNo2lVSlab6-xXwai1Pg 8 2 99 26 1.6mb 588.8kb
green open icmetricscommllist u9xpK2KbQ0G-zV2Eo1Xmwg 5 1 3 0 25.8kb 12.9kb
green open .opendistro_security imEaa8dMR3CjVjq4hJrt1g 1 2 9 0 182.9kb 60.9kb
green open security-auditlog-2023.06.09 dXBG08jJRsm0HReAduqI0Q 1 1 1824 0 4.1mb 2mb
green open security-auditlog-2023.06.08 0ffNq_dmTY-W1aKJGPPBoA 1 1 3201 0 4.7mb 2.3mb
green open orient-me-collection BKV72Us9SNm9HvQwYswspg 1 1 29 13 226kb 116.7kb
```

```
[lopesearch@opensearch-cluster-client-0 probe]$ ./sendRequest.sh GET /_cat/indices
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total     Spent    Left  Speed
100 1001 100 1001    0    0  4637      0  --:--:--  --:--:--  --:--:--  4655
green open security-auditlog-2023.06.07 eEjRux-3SfG9XwGjhZzCmg 1 1 178 0 637.6kb 318.8kb green open icmetricsconfig YTuZrSc0SvyWNq2u0Bma9w 5 1 1 0 8.9kb 4.4kb green open icmetrics_a_2023_1h Cfq3G70uQo6mc3sJGbJdwg 5 1 755 0 1.2mb 636.9kb green open icmetrics_a_2022_2h KFodGvkaQ1yactS08jE1fQ 5 1 59 0 194.7kb 97.3kb green open security-auditlog-2023.06.13 yCj2UvAkSzaAgbF00BshPA 1 1 131 0 876.1kb 438kb green open quickresults GQbNo2lVSlab6-xXwai1Pg 8 2 98 31 1.7mb 652.5kb green open icmetricscommllist u9xpK2KbQ0G-zV2Eo1Xmwg 5 1 3 0 25.8kb 12.9kb green open .opendistro_security imEaa8dMR3CjVjq4hJrt1g 1 2 9 0 182.9kb 60.9kb green open security-auditlog-2023.06.09 dXBG08jJRsm0HReAduqI0Q 1 1 1824 0 4.1mb 2mb green open security-auditlog-2023.06.08 0ffNq_dmTY-W1aKJGPPBoA 1 1 3201 0 4.7mb 2.3mb green open orient-me-collection BKV72Us9SNm9HvQwYswspg 1 1 35 5 202.2kb 104.8kb
```

```
`${response_text}`
```



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API Server Zertifikate prüfen

- Zertifikate erneuern sich beim Update mit `kubeadm`
- 1 Jahr gültig

```
openssl s_client -servername cnx7-ora-  
cp.stoeps.home -connect cnx7-ora-  
cp.stoeps.home:6443 | openssl x509 -noout -  
dates
```

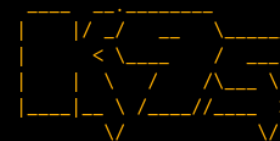
- Zertifikate ohne Update erneuern

```
kubeadm certs check-expiration  
kubeadm certs renew all
```

Müde von kubectl?

- K9s Cli Tool
- Die wichtigsten Kommandos sind einen Tastenanschlag entfernt
- Shell öffnen
- Logs
- Previous Log
- Describe





Context: cnx8-kubernetes-admin@cnx8-ora
 Cluster: cnx8-ora
 User: cnx8-kubernetes-admin
 K9s Rev: v0.27.4
 K8s Rev: v1.25.9
 CPU: 6%
 MEM: 48%

<0> all <a> Attach <l> Logs <y> YAML
 <1> connections <ctrl-d> Delete <p> Logs Previous
 <2> default <d> Describe <shift-f> Port-Forward
 <e> Edit <s> Shell
 <?> Help <n> Show Node
 <ctrl-k> Kill <f> Show PortForward

Pods(connections)[38]

NAME↑	PF	READY	RESTARTS	STATUS	CPU	MEM	%CPU/R	%CPU/L	%MEM/R	%MEM/L	IP	NODE	AGE
haproxy-6f58bf59b5-rw82n	●	2/2	1	Running	11	86	7	0	48	7	192.168.77.238	cnx8-ora-cp.stoeps.home	15h
indexingservice-c66955864-gfbgb	●	2/2	0	Running	4	437	1	0	191	21	192.168.77.200	cnx8-ora-cp.stoeps.home	15h
itm-services-5dcb7c9864-tp6kv	●	2/2	1	Running	4	132	2	0	65	8	192.168.77.241	cnx8-ora-cp.stoeps.home	15h
middleware-graphql-5c689b5cb9-qmxks	●	2/2	2	Running	4	143	2	0	70	9	192.168.77.220	cnx8-ora-cp.stoeps.home	6d15h
middleware-jsonapi-747df6d796-m8wl7	●	2/2	0	Running	4	141	2	0	69	9	192.168.77.255	cnx8-ora-cp.stoeps.home	15h
mongo5-0	●	2/2	0	Running	14	406	9	0	270	12	192.168.77.207	cnx8-ora-cp.stoeps.home	13h
mongo5-1	●	2/2	2	Running	14	411	9	0	274	12	192.168.77.253	cnx8-ora-cp.stoeps.home	13h
mw-proxy-58c6cdccc5-v6kgj	●	2/2	2	Running	10	156	6	0	77	11	192.168.77.212	cnx8-ora-cp.stoeps.home	6d15h
opensearch-cluster-client-0	●	1/1	0	Running	15	950	15	0	61	46	192.168.77.216	cnx8-ora-cp.stoeps.home	13h
opensearch-cluster-data-0	●	1/1	0	Running	17	1014	3	0	33	24	192.168.77.242	cnx8-ora-cp.stoeps.home	13h
opensearch-cluster-data-1	●	1/1	0	Running	16	1000	3	0	32	24	192.168.77.204	cnx8-ora-cp.stoeps.home	13h
opensearch-cluster-data-2	●	1/1	0	Running	19	1018	3	0	33	24	192.168.77.236	cnx8-ora-cp.stoeps.home	13h
opensearch-cluster-master-0	●	1/1	0	Running	21	957	21	2	124	62	192.168.77.209	cnx8-ora-cp.stoeps.home	91m
opensearch-cluster-master-1	●	1/1	0	Running	16	952	16	1	124	62	192.168.77.227	cnx8-ora-cp.stoeps.home	93m
opensearch-cluster-master-2	●	1/1	0	Running	14	943	14	1	122	61	192.168.77.229	cnx8-ora-cp.stoeps.home	95m
orient-web-client-5d46b7bb75-s4gsp	●	1/1	0	Running	1	58	1	0	78	5	192.168.77.226	cnx8-ora-cp.stoeps.home	15h
people-idmapping-54b5df74bf-6vg5w	●	2/2	3	Running	4	126	2	0	62	8	192.168.77.208	cnx8-ora-cp.stoeps.home	15h
people-migrate-7c9b7c874f-b4vzv	●	2/2	0	Running	3	109	1	0	53	5	192.168.77.251	cnx8-ora-cp.stoeps.home	15h
people-relation-59dc8d8dcf-hrld7	●	2/2	3	Running	4	135	2	0	66	9	192.168.77.244	cnx8-ora-cp.stoeps.home	15h
people-scoring-67b8ccd7c-6cdmh	●	2/2	3	Running	5	136	3	0	67	5	192.168.77.223	cnx8-ora-cp.stoeps.home	15h
redis-sentinel-6c49f5f856-cxhd4	●	2/2	0	Running	8	70	7	0	39	6	192.168.77.217	cnx8-ora-cp.stoeps.home	15h

<pod>

Tools



- k9s - <https://k9scli.io>
- kubetail - <https://github.com/johanhaleby/kubetail>
- Kubeshark - <https://kubeshark.co/>
- Istio - <https://istio.io/>
- jd-gui - <http://java-decompiler.github.io/>



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