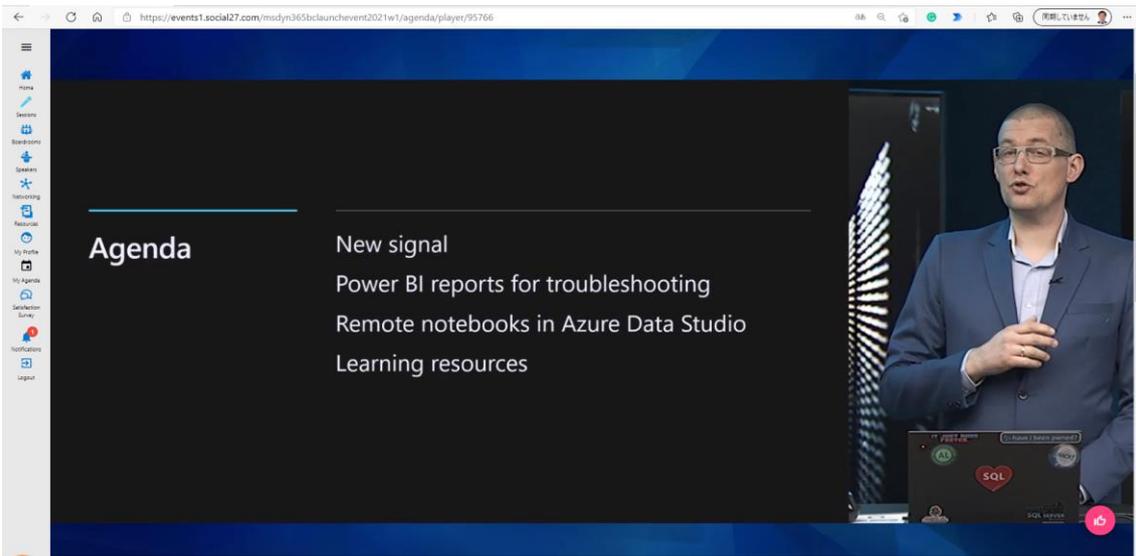
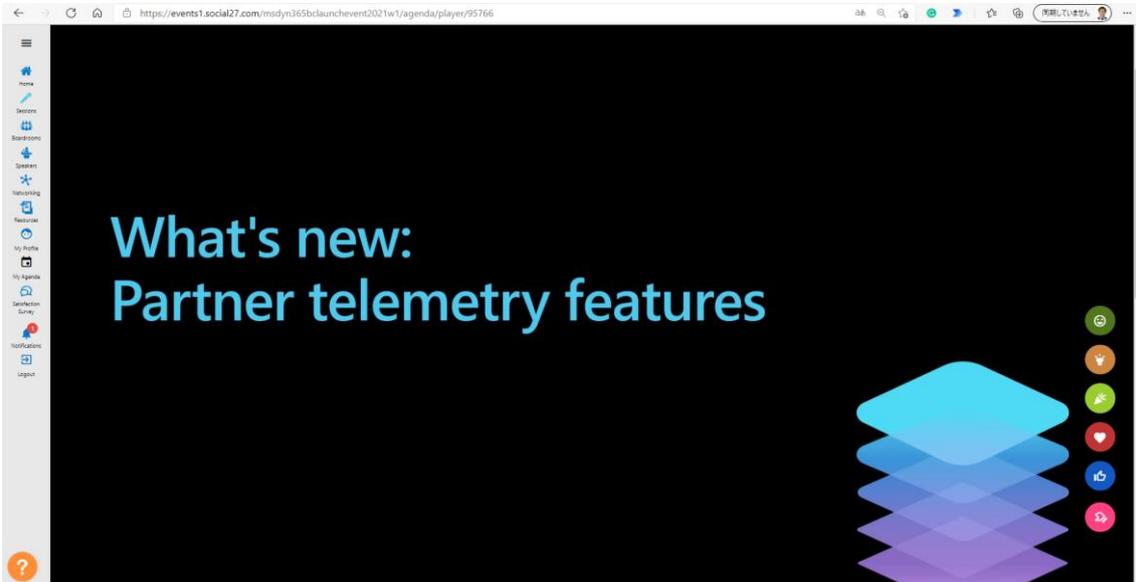


# Partner telemetry



https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

# New signal

Navigation icons: Home, Settings, Backrooms, Customers, Telemarketing, Resources, My Profile, My Agenda, Satisfaction Survey, Notifications, Logout.

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

# Available signal

Release Wave	Available Signal
2019 release wave 2	<ul style="list-style-type: none"> <li>Long Running SQL queries</li> <li>Authorization</li> </ul>
2020 release wave 1	<ul style="list-style-type: none"> <li>Report execution time</li> <li>Web service calls</li> <li>Cancelled operations</li> <li>Update errors</li> <li>Company lifecycle events</li> <li>Database lock timeouts</li> <li>Extension lifecycle events</li> <li>Client telemetry (page views)</li> <li>AL support (Session.LogMessage)</li> </ul>
2020 release wave 2	<ul style="list-style-type: none"> <li>Outgoing web service calls</li> <li>ISV telemetry pipeline</li> <li>ISV key vault</li> <li>Long Running AL execution</li> <li>Extension lifecycle (ISV)</li> <li>AL sensitive field</li> <li>Retention policy</li> <li>Performance toolkit</li> <li>Email module</li> <li>Job Queue</li> <li>Rapid start</li> <li>Permission lifecycle</li> <li>Web service key authentication</li> <li>Reporting engine</li> </ul>
2021 release wave 1	<ul style="list-style-type: none"> <li>Index creation/removal</li> <li>Client telemetry (page views) (ISV)</li> </ul>

Navigation icons: Home, Settings, Backrooms, Customers, Telemarketing, Resources, My Profile, My Agenda, Satisfaction Survey, Notifications, Logout.

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

## Important URLs

```
// sends you to the docs overview with detailed
// documentation on all types of signal
aka.ms/bctelemetry

// sends you to the GitHub repository with loads of
// sample KQL code snippets, dashboards, and trouble
// shooting Guides (TSGs) to help you get started
aka.ms/bctelemetrysamples
```



https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

## Long running AL execution telemetry

New signal in 17.1

Analyze execution time of long running AL methods

Includes a breakdown of how much time each event subscriber added to the total time



https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

## Extension lifecycle for app telemetry

New signal in 17.1

Monitor how customers install/update/uninstall your app



https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

**Sensitive Field Monitoring telemetry**

New signal in 17.1

Analyze and monitor the operations happening in the sensitive field monitoring feature

The slide features a dark blue background with white text. On the right side, there is a video feed of a man in a blue suit and glasses, standing behind a laptop. The laptop screen displays the text 'SQL' and 'SQL Server'. To the right of the video feed, there is a vertical column of social media sharing icons: a green WhatsApp icon, a yellow Telegram icon, a green Messenger icon, a red and white Email icon, a blue Facebook icon, and a pink and white Print icon. On the left side of the slide, there is a vertical navigation menu with icons for Home, Dashboard, Search, Telemetry, My Profile, My Agenda, and Notifications. The browser's address bar at the top shows the URL: https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766.

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

**Job Queue telemetry**

New signal in 17.2

Analyze and monitor performance of job queue operations

- Job queue entry enqueued
- Job queue entry started
- Job queue entry finished (success/failure)

The slide features a dark blue background with white text. On the right side, there is a video feed of a man in a blue suit and glasses, standing behind a laptop. The laptop screen displays the text 'SQL' and 'SQL Server'. To the right of the video feed, there is a vertical column of social media sharing icons: a green WhatsApp icon, a yellow Telegram icon, a green Messenger icon, a red and white Email icon, a blue Facebook icon, and a pink and white Print icon. On the left side of the slide, there is a vertical navigation menu with icons for Home, Dashboard, Search, Telemetry, My Profile, My Agenda, and Notifications. The browser's address bar at the top shows the URL: https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766.

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

**Permissions telemetry**

New signal in 17.2

Analyze and monitor changes to

- Permission sets
- Permission set links
- Permissions added/removed to users
- Permissions added/removed to user groups

The slide features a dark blue background with white text. On the right side, there is a video feed of a man in a blue suit and glasses, standing behind a laptop. The laptop screen displays the text 'SQL' and 'SQL Server'. To the right of the video feed, there is a vertical column of social media sharing icons: a green WhatsApp icon, a yellow Telegram icon, a green Messenger icon, a red and white Email icon, a blue Facebook icon, and a pink and white Print icon. On the left side of the slide, there is a vertical navigation menu with icons for Home, Dashboard, Search, Telemetry, My Profile, My Agenda, and Notifications. The browser's address bar at the top shows the URL: https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766.

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766



## Configuration Package telemetry

New signal in 17.2

Analyze and monitor configuration package operations

- Import/Export
- Apply
- Delete



https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

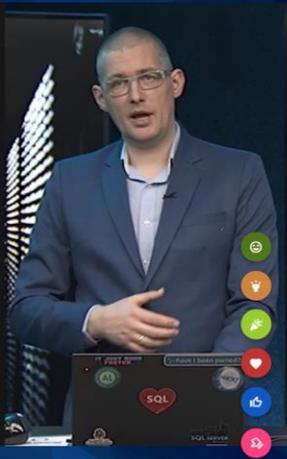


## Web Service Key Authentication telemetry

New signal in 17.3

Analyze and monitor usage of web service keys used in environments

- Authentication with web service key succeeded/failed



https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766



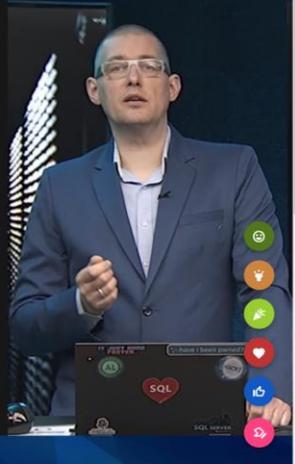
## Reporting engine telemetry

New signal in 17.3

Analyze if customers prefer RDLC or Word report layouts



https://events1.social27.com/modyn365bclaunchevent2021w1/agenda/player/95766



**Pageviews in app telemetry**

New signal in 18.0

Analyze which pages in your app are being used

Navigation icons: Home, Settings, Search, Network, Profile, Agenda, Satisfaction Survey, Notifications, Logout

Video controls: Mute, Volume, Play/Pause, Full Screen, Share, Like, Comment, Retweet

https://events1.social27.com/modyn365bclaunchevent2021w1/agenda/player/95766



**Index creation/removal telemetry**

New signal in 18.0

Monitor when indexes are added/removed using table extensions

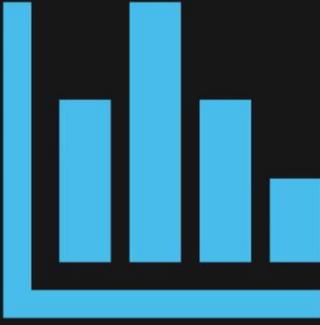
Navigation icons: Home, Settings, Search, Network, Profile, Agenda, Satisfaction Survey, Notifications, Logout

Video controls: Mute, Volume, Play/Pause, Full Screen, Share, Like, Comment, Retweet

https://events1.social27.com/modyn365bclaunchevent2021w1/agenda/player/95766

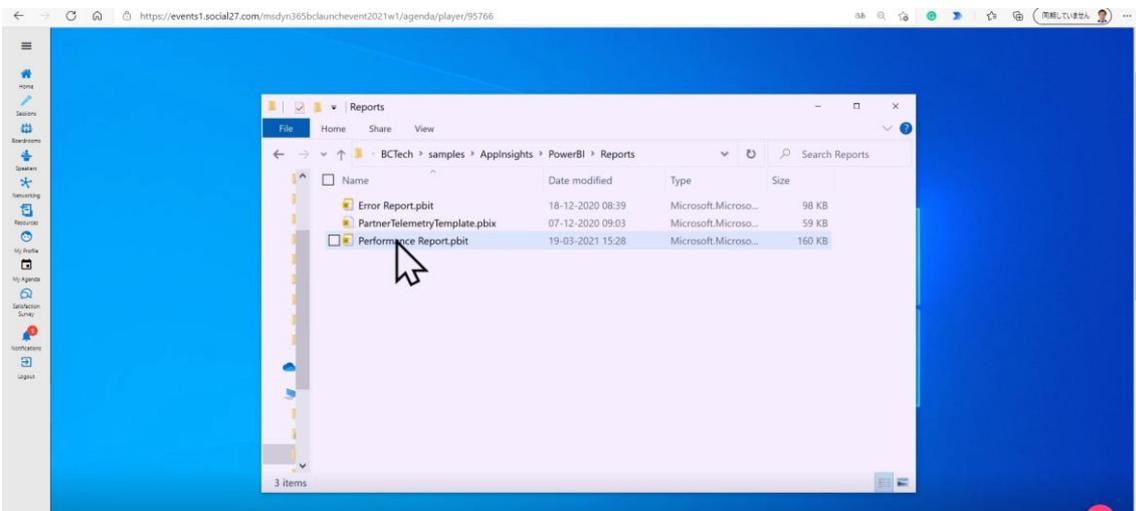
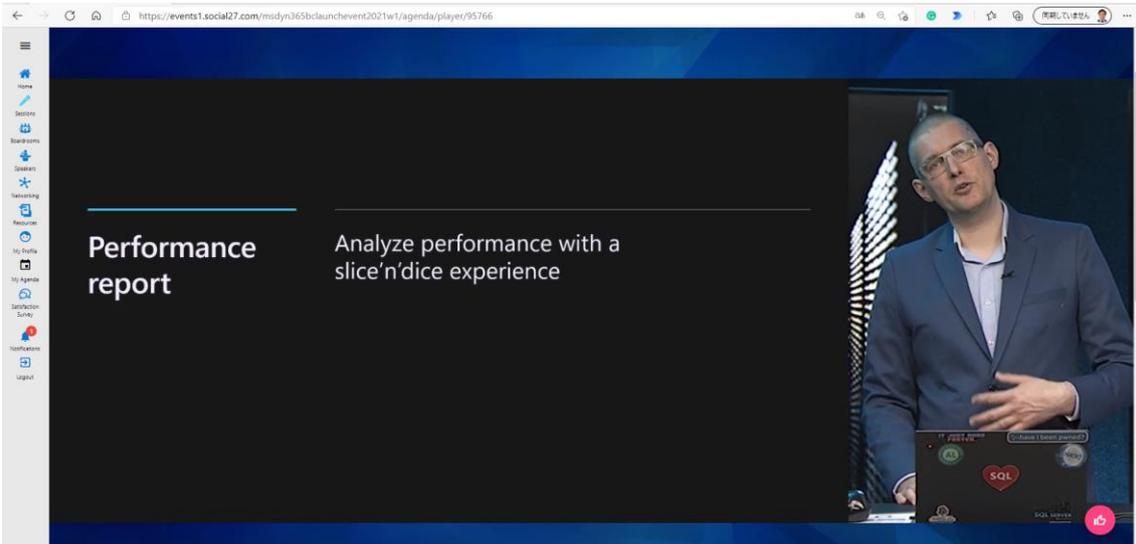
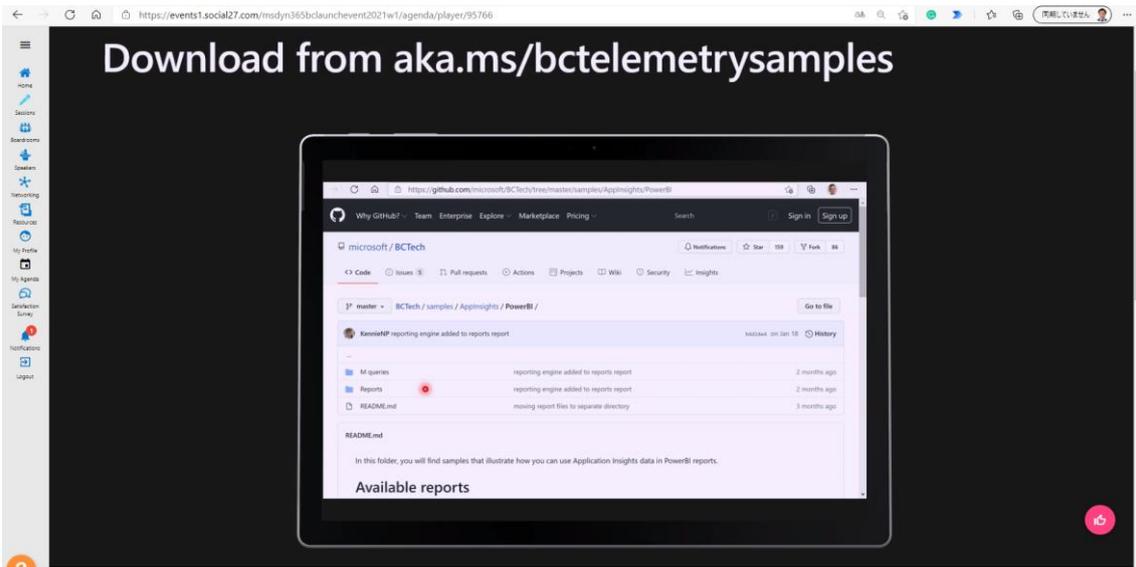


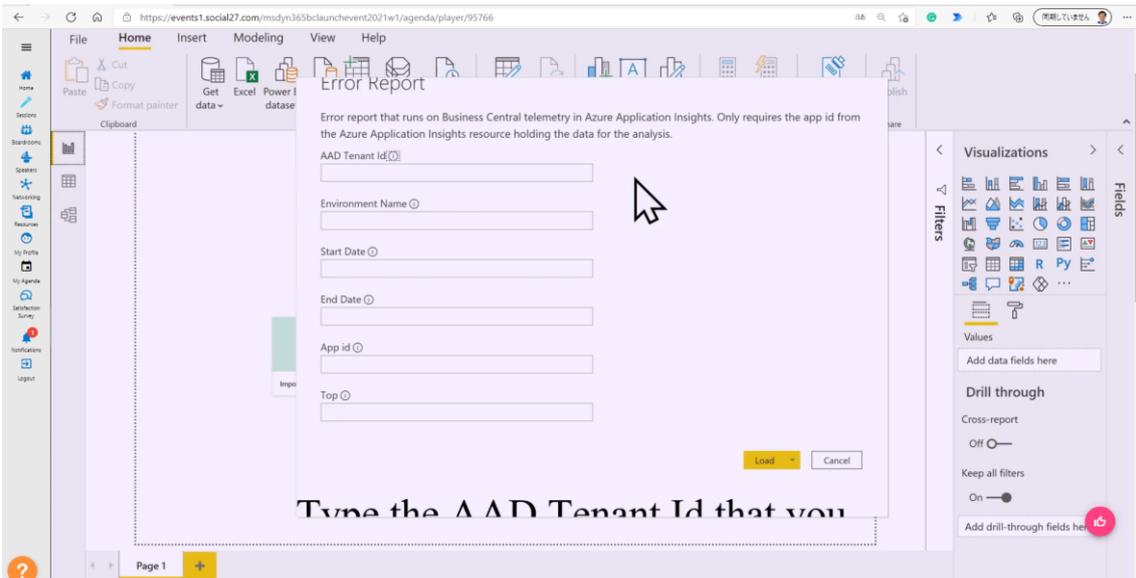
**Power BI reports for troubleshooting**



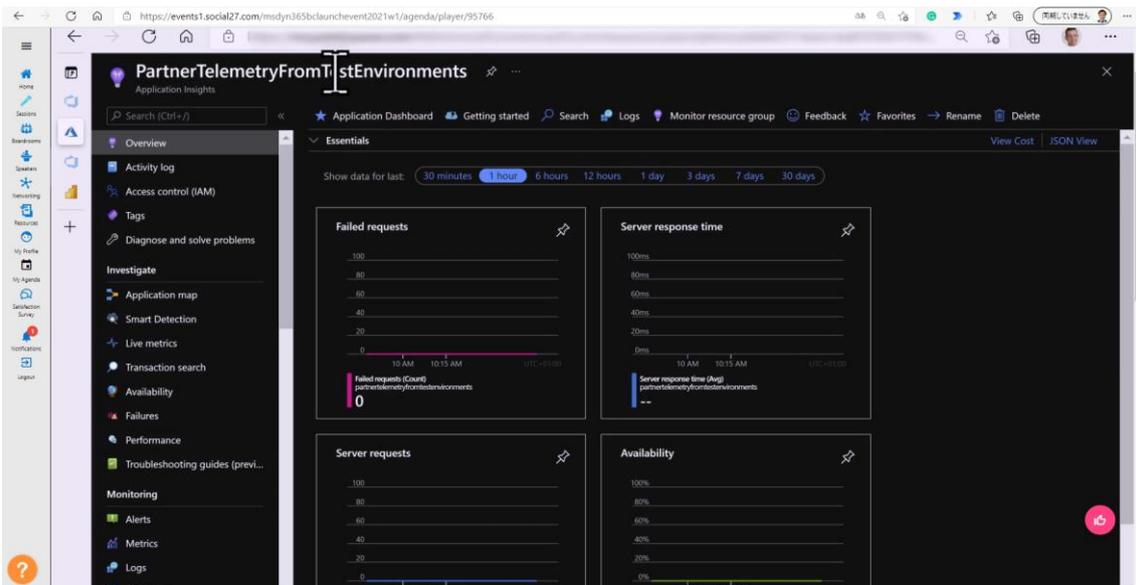
Navigation icons: Home, Settings, Search, Network, Profile, Agenda, Satisfaction Survey, Notifications, Logout

Video controls: Mute, Volume, Play/Pause, Full Screen, Share, Like, Comment, Retweet



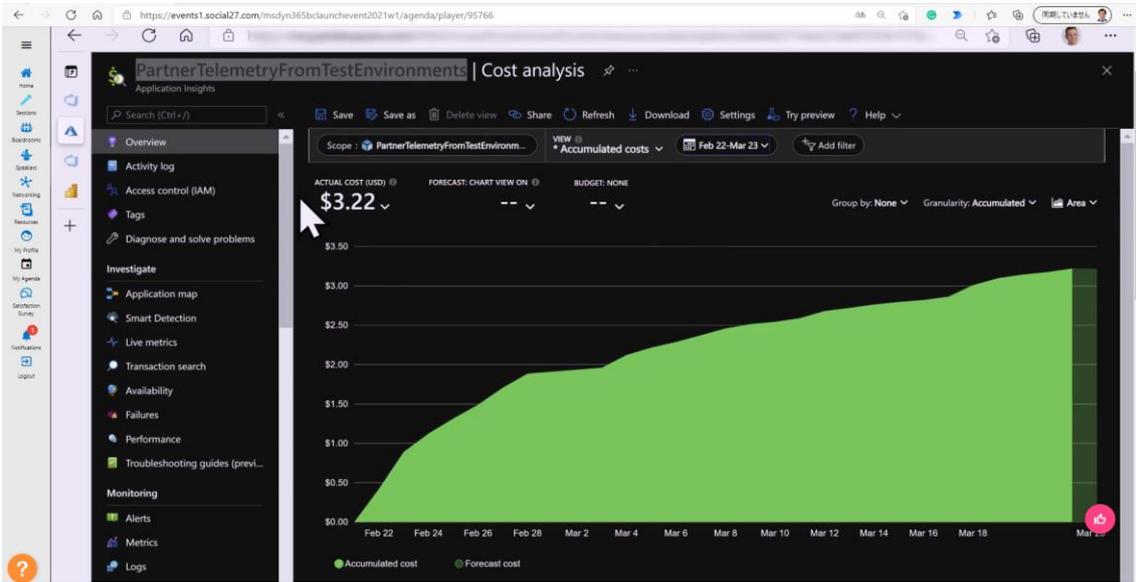


Application Insight

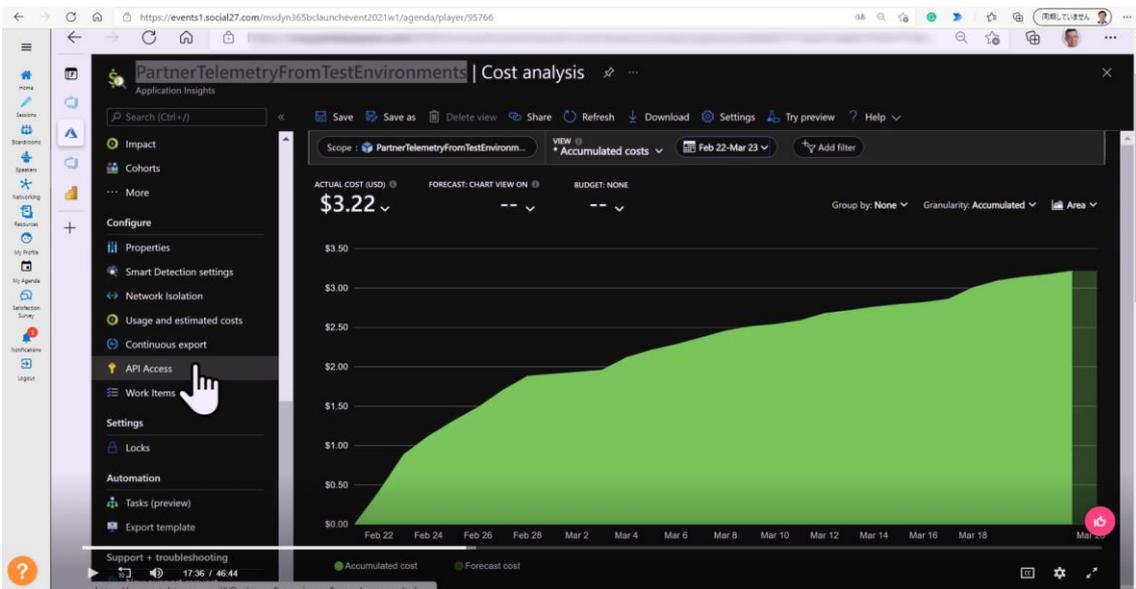


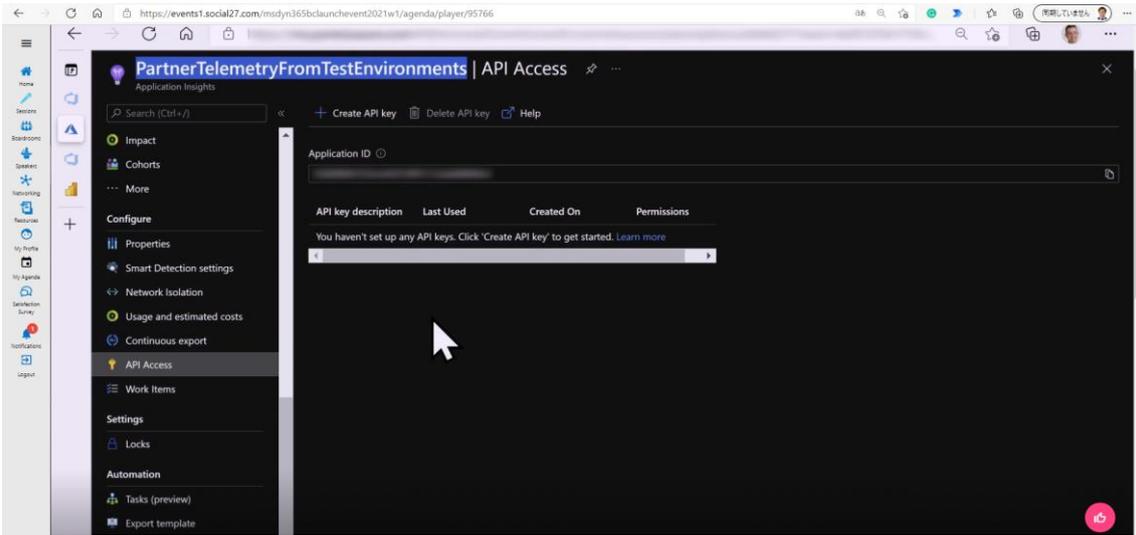
View cost

The image shows a Microsoft Azure Application Insights dashboard for an application named "PartnerTelemetryFromTestEnvironments". The dashboard is displayed in a browser window and includes a left-hand navigation menu with categories like "Overview", "Investigate", "Performance", and "Monitoring". The main content area, titled "Essentials", shows four key metrics: "Failed requests", "Server response time", "Server requests", and "Availability". Each metric is represented by a line chart with a y-axis scale and a data series. The "Failed requests" chart shows a count of 0. The "Server response time" chart shows a peak of approximately 100ms. The "Server requests" chart shows a count of approximately 100. The "Availability" chart shows a percentage of 100%. A presenter, a man in a blue suit, is overlaid on the right side of the dashboard, standing next to a laptop that has "SQL" and "K8S" logos on it. The browser's address bar shows the URL "https://ms.portal.azure.com/?".

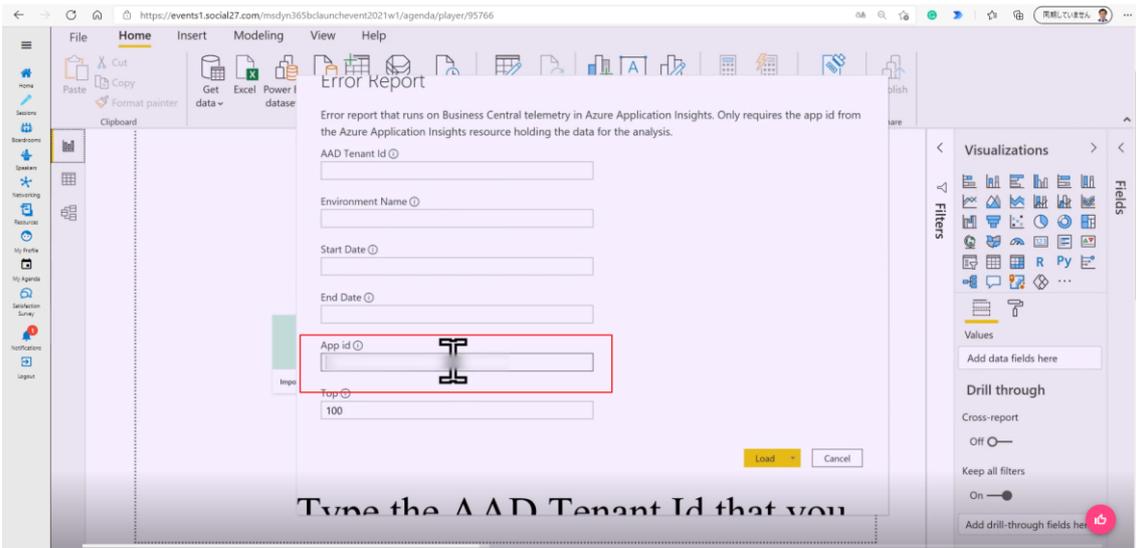
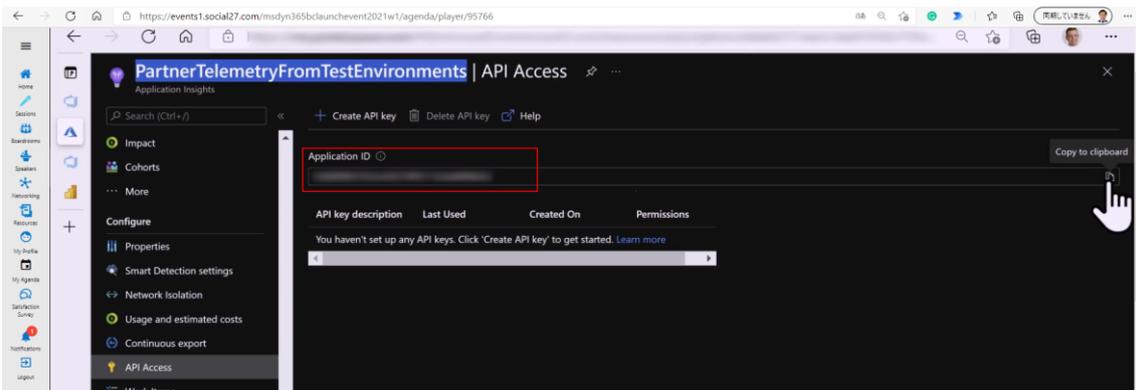


## API Access

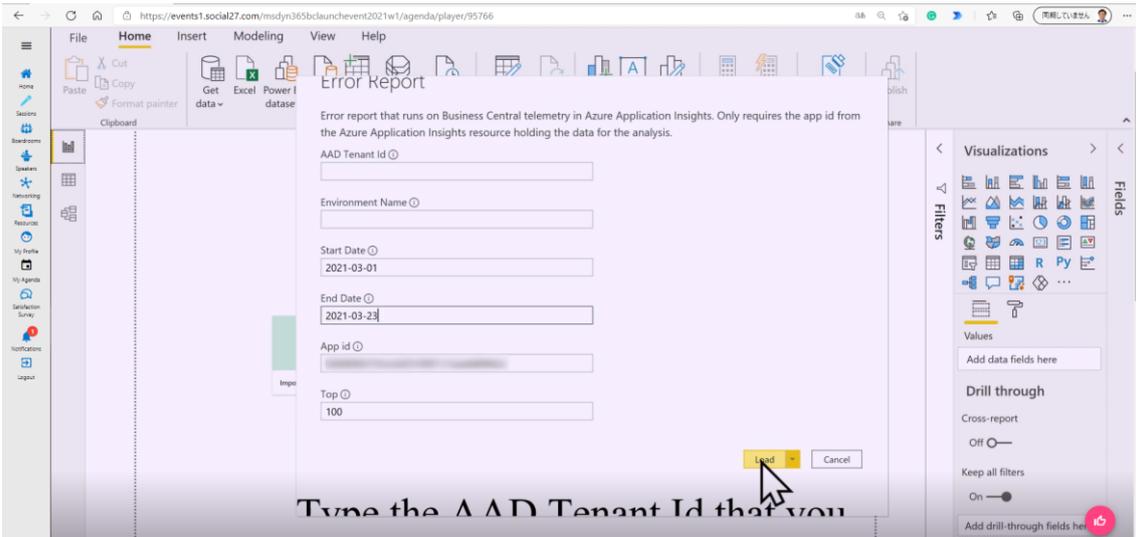




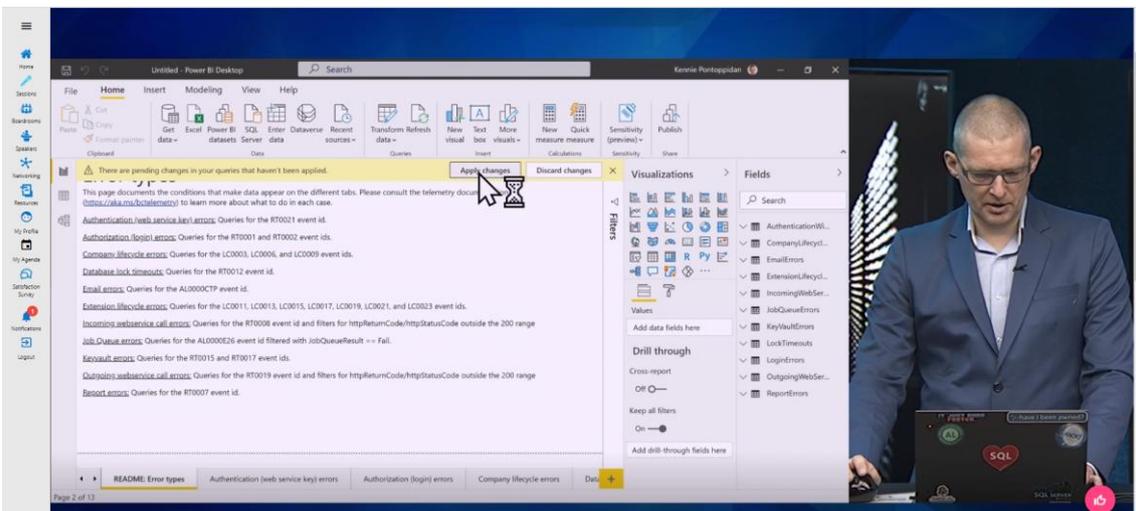
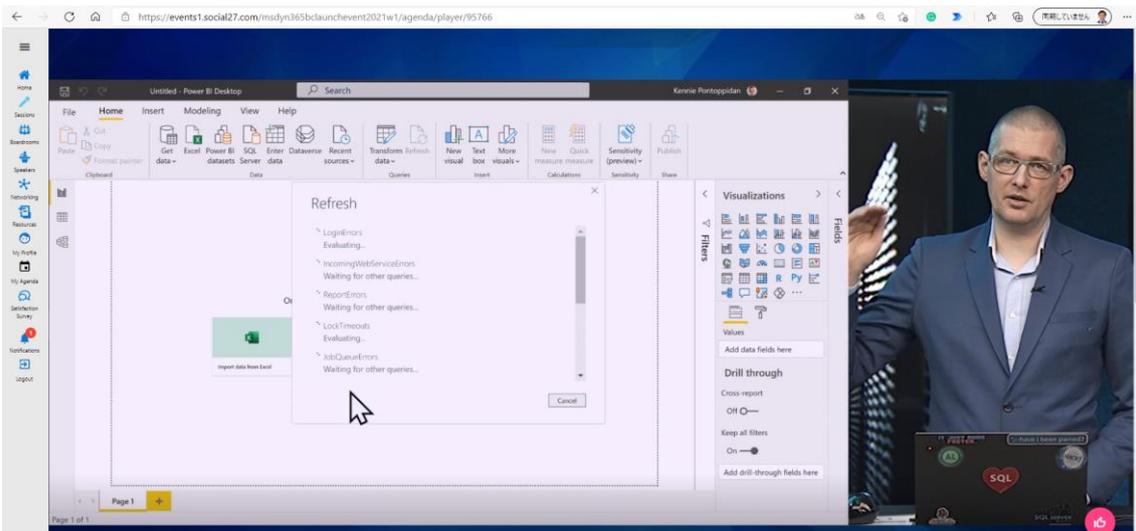
Application ID -> App ID



Load



## Reading



# Dynamics 365 Business Central Performance

**How to use the report**  
 The performance report provides a multi-perspective view into the performance of one or more environments or apps (depending on how you fill in the parameters and how you have partitioned the Azure Application Insights resource). Depending on the versions of the environments emitting telemetry, you might be missing information in some of the tabs (because that signal was added incrementally over minor updates).  
 The report is a supplement to the Jupyter notebook trouble shooting guides (TSGs). Use the report to investigate/slice'n'dice the data and the notebook to follow a prescribed path.

**Sessions:** Statistics on sessions that were started, client types (UI clients, background, or web service), and user types (normal, admin, or guest).

**OpenCompany:** Timings of the OnOpenCompany trigger (is run every time a session is created). Can show if expensive code was added here.

**Long Running SQL Queries:** Insights into SQL queries that ran longer than one second, the extensions and codeunits that called the database, and corresponding AL call stacks.

**Database lock timeouts:** Insights into SQL queries that waited for a lock longer than 15 seconds, the extensions and codeunits that called the database, and corresponding AL call stacks.

**Long Running AL methods:** Insights into AL methods that ran longer than 500 milliseconds, the extensions and codeunits they belong to, and corresponding AL call stacks.

**Incoming webservice calls/Outgoing webservice calls:** Timings of incoming/outgoing web service calls and their type (SOAP, OData, or API), http status codes, and the codeunit they expose.

**Reports:** Timings of reports, client type that ran them (UI clients or background), and reporting engine used (Word, RDLC, or processing only)

**Page views:** Timings of pages visited by users, client type that ran them (modern client or desktop), and browsers used.

**See also**  
 Performance tuning guide: [aka.ms/bcperformance](https://aka.ms/bcperformance)  
 Telemetry documentation: [aka.ms/bctelemetry](https://aka.ms/bctelemetry)  
 Telemetry sample code: [aka.ms/bctelemetrysamples](https://aka.ms/bctelemetrysamples)  
 Get Jupyter notebook here: <https://github.com/microsoft/BC-Tech/tree/master/samples/AppInsights/TroubleShootingGuides>  
 Signal version overview: <https://github.com/microsoft/BC-Tech/tree/master/samples/AppInsights/SQL#signal-overview>

**Want to contribute?**  
 This report is created by the community, and everyone is welcome to contribute with new ideas, bug reports and improvements.  
 Head over to the Github repository [aka.ms/bctelemetrysamples](https://github.com/aka.ms/bctelemetrysamples) to get started!

## Sessions

Aad tenant	Environment name	Environment type	Platform version
	Production	Production	17.0.22463.22540
	Production	Production	17.0.22463.22853
	Production	Production	17.0.22463.22994
	Production	Production	17.0.22463.23043

**Client type**

- Background
- ChildSession
- WebServiceClient

**User type**

- INTERNAL\_ADMIN
- Normal
- Normal User

**Guest user?**

- False

**Show data from**  
 Last 2 Months  
 1/24/2021 - 3/23/2021

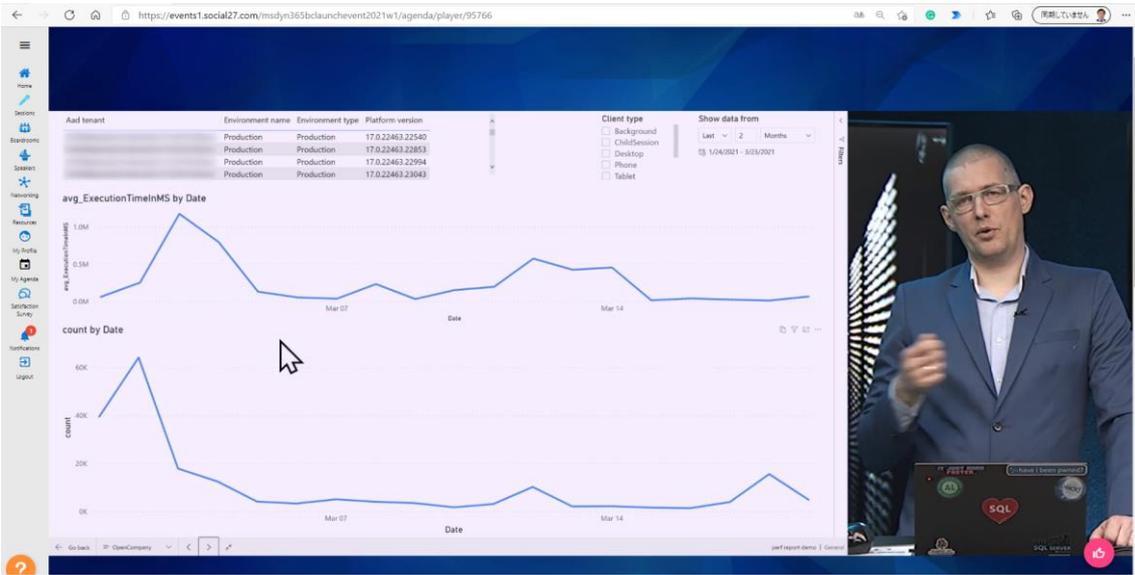
**Count by Date and Client type**

Client type: Background (blue), ChildSession (green), WebServiceClient (red)

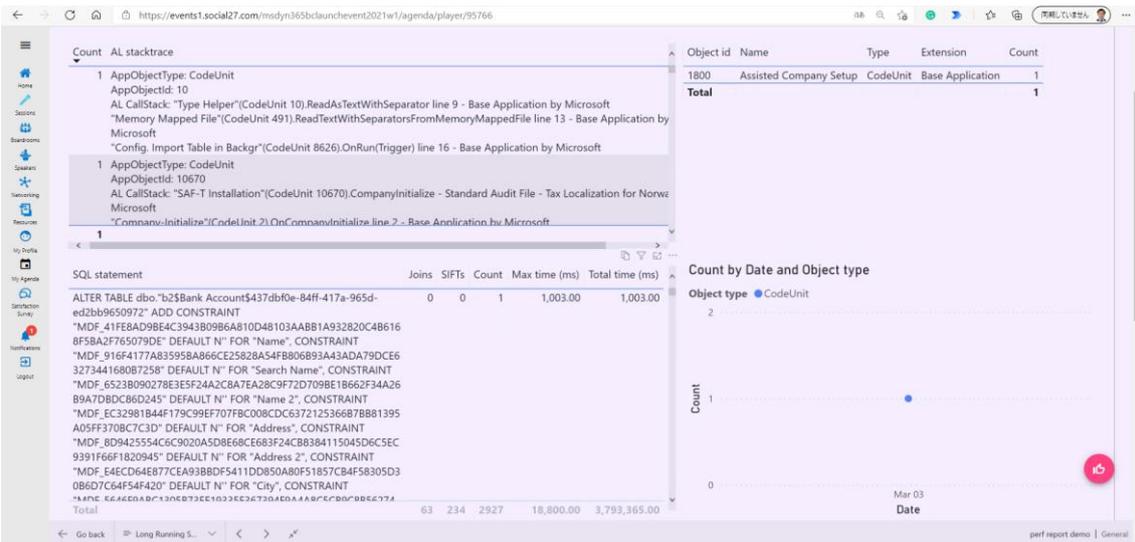
**Count by Date and User type**

User type: INTERNAL\_ADMIN (blue), Normal (orange), Normal User (red)

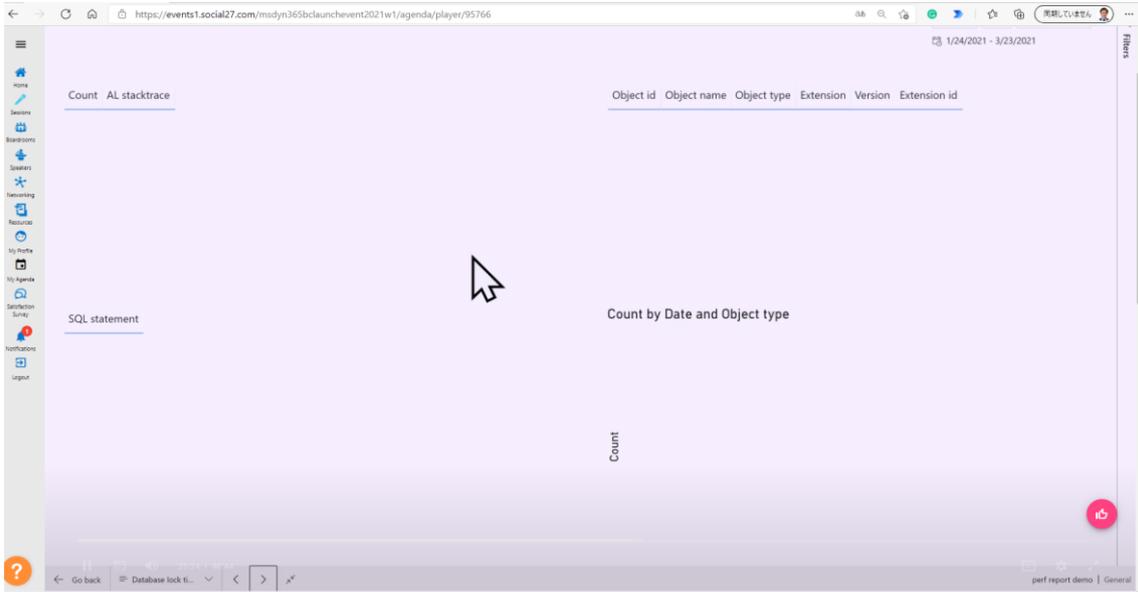
## OpenCompany trigger



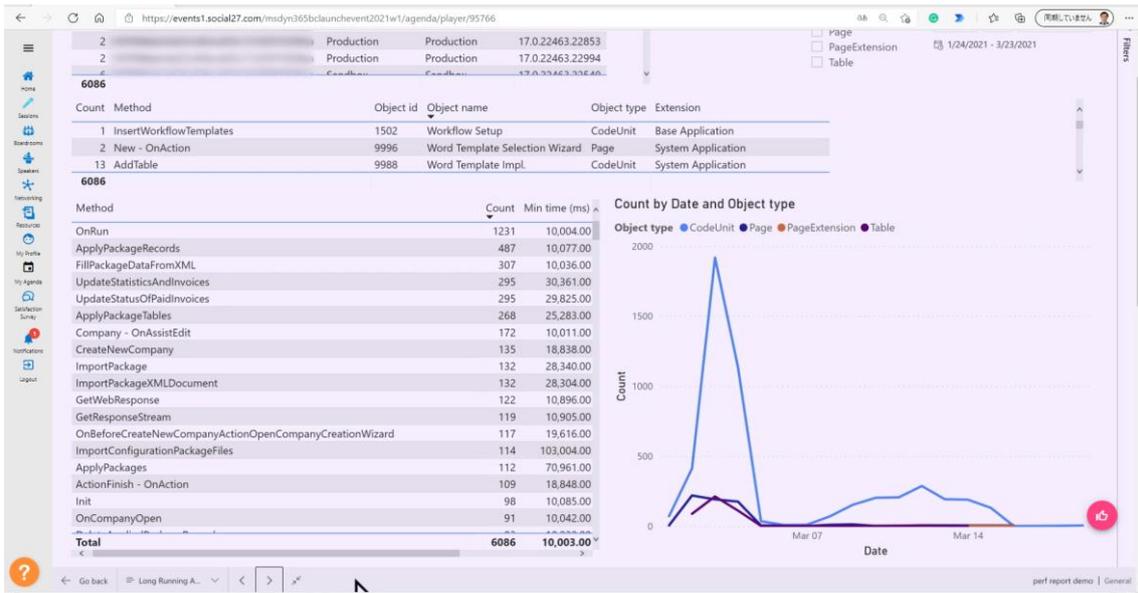
SQL query: long running

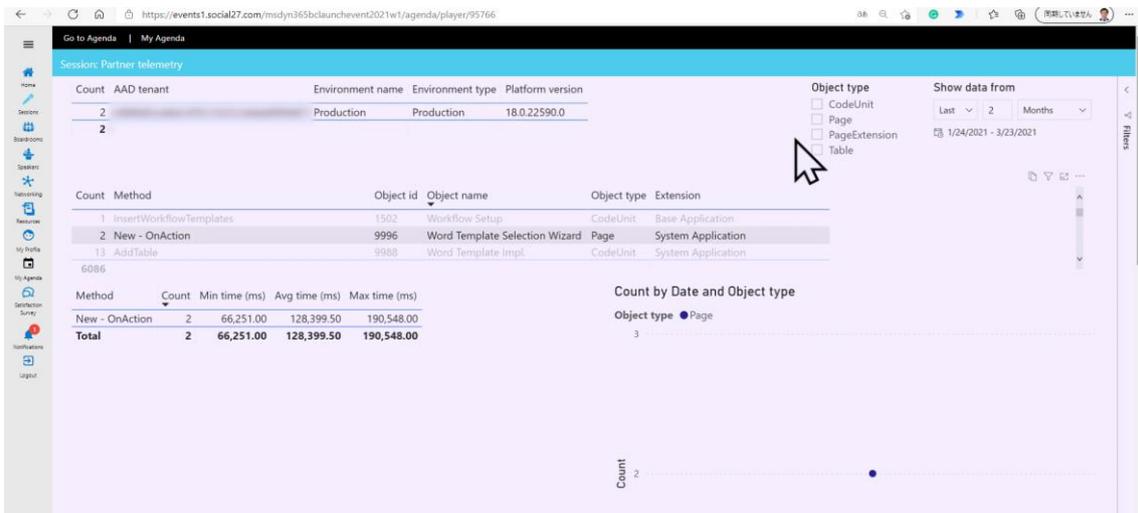


Database Lock

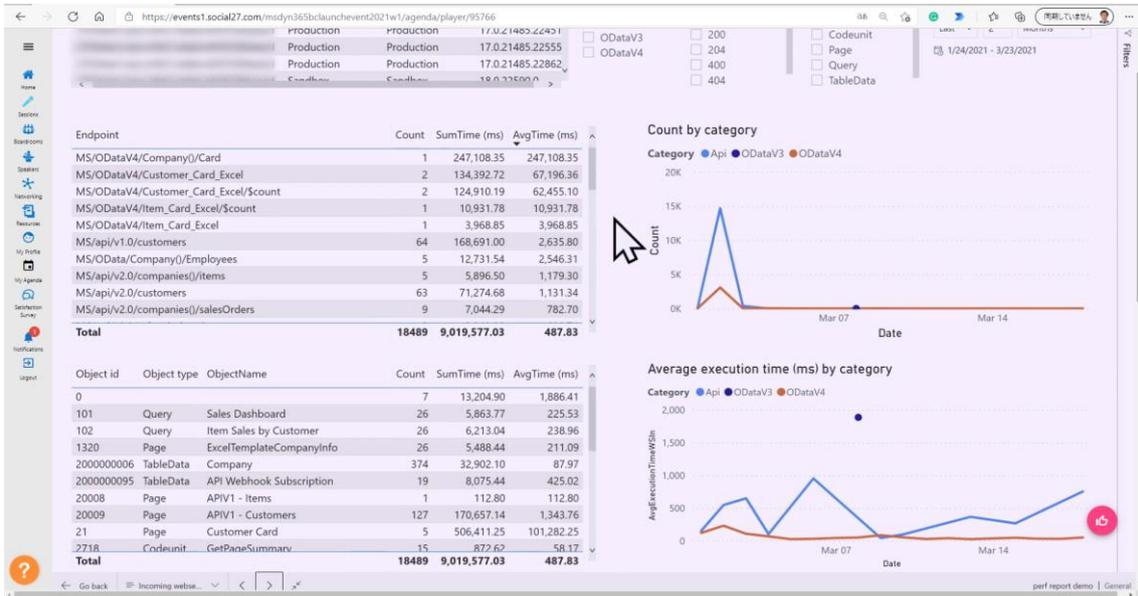


### Long running al statement

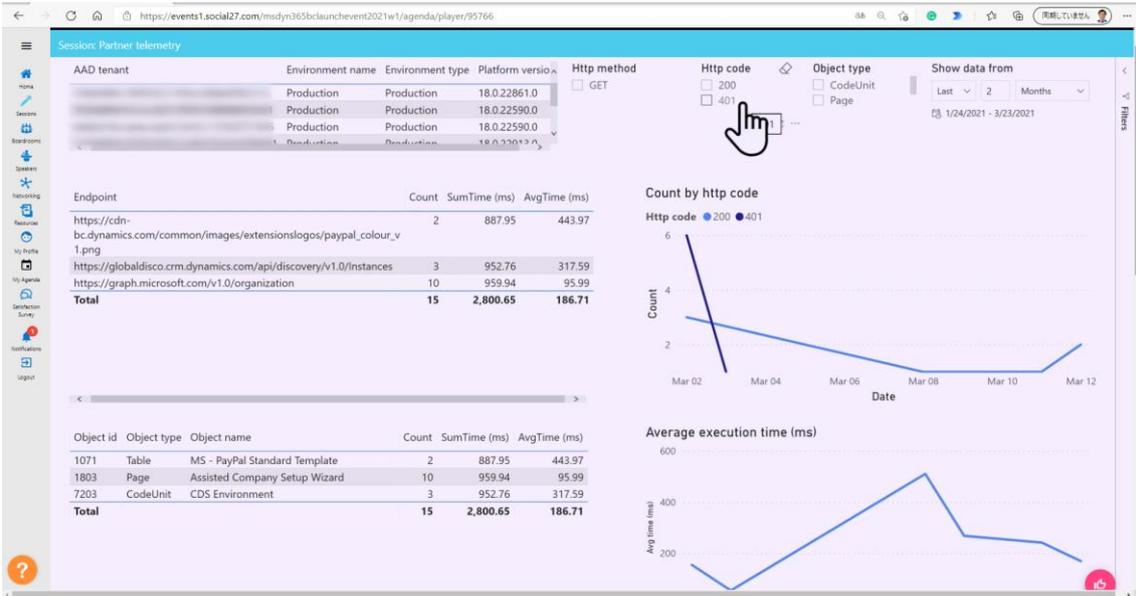




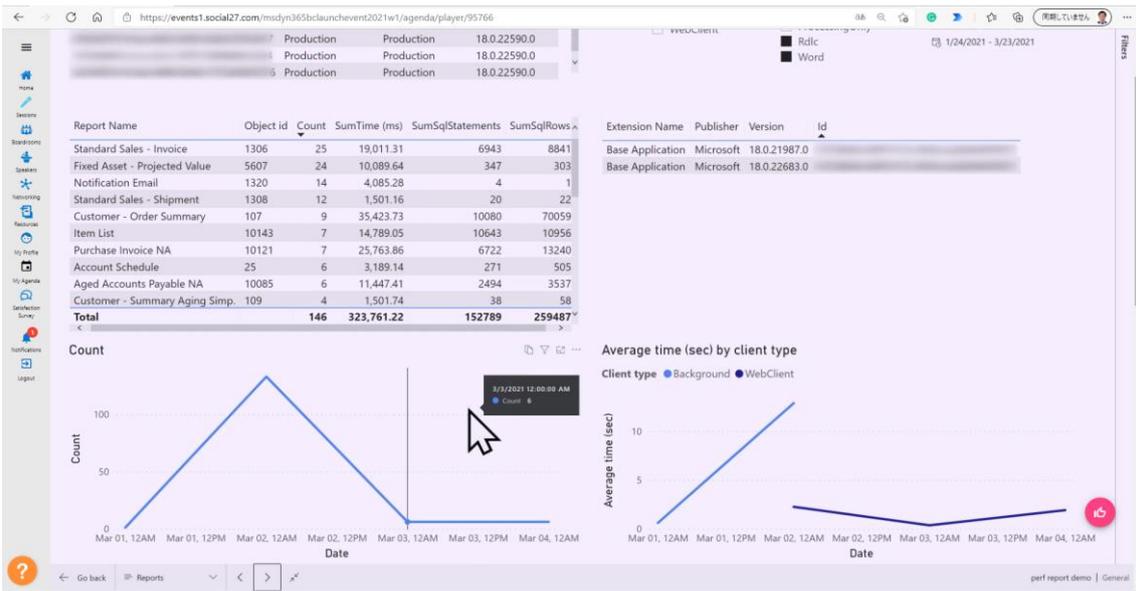
### Incoming Webservice



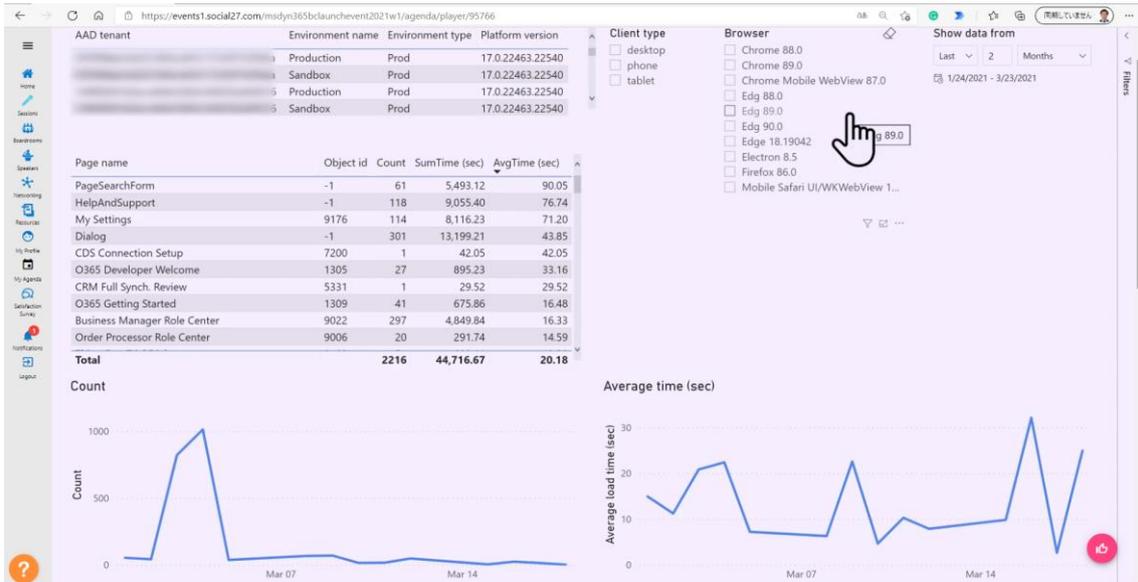
### Outgoing webservice



## Report



## Page views



**Error report**

Analyze errors with an slice'n'dice experience

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

# Error report

## Error types

This page documents the conditions that make data appear on the different tabs. Please consult the telemetry documentation (<https://aka.ms/bctelemetry>) to learn more about what to do in each case.

- Authentication (web service key) errors:** Queries for the RT0021 event id.
- Authorization (login) errors:** Queries for the RT0001 and RT0002 event ids.
- Company lifecycle errors:** Queries for the LC0003, LC0006, and LC0009 event ids.
- Database lock timeouts:** Queries for the RT0012 event id.
- Email errors:** Queries for the AL0000CTP event id.
- Extension lifecycle errors:** Queries for the LC0011, LC0013, LC0015, LC0017, LC0019, LC0021, and LC0023 event ids.
- Incoming webservice call errors:** Queries for the RT0008 event id and filters for httpReturnCode/httpStatusCode outside the 200 range
- Job Queue errors:** Queries for the AL0000E26 event id filtered with JobQueueResult == Fail.
- Keyvault errors:** Queries for the RT0015 and RT0017 event ids.
- Outgoing webservice call errors:** Queries for the RT0019 event id and filters for httpReturnCode/httpStatusCode outside the 200 range
- Report errors:** Queries for the RT0007 event id.

Database lock timeouts | Email errors | Extension lifecycle errors | Incoming webservice errors | Job Queue errors | KeyVault errors | Outgoing webservice

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

# Troubleshooting Guides (TSGs)



The slide features a large blue terminal window icon with a white prompt character and a horizontal line. To the right, a man in a blue suit and glasses stands next to a laptop that has 'SQL' written on its lid. The background is dark with a blue gradient.

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

Home  
Sessions  
Bookrooms  
Speakers  
Networking  
Resources  
My Profile  
My Agenda  
Satisfaction Survey  
Notifications  
Logout

# New tool for partners – remote notebooks

- Install and configure Azure Data Studio
- Open a remote notebook
- Run and troubleshoot

A man in a blue suit is presenting in front of a screen showing a laptop with 'SQL' logos.

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

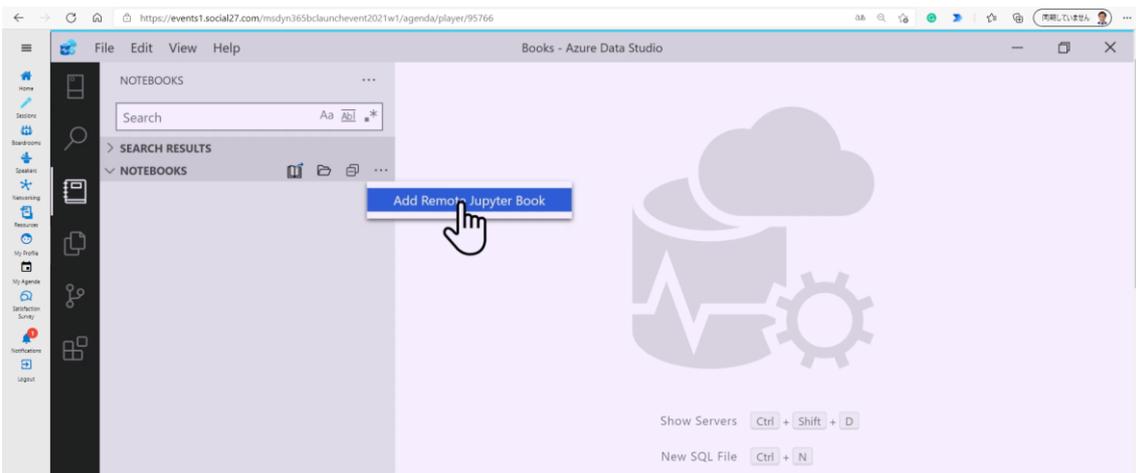
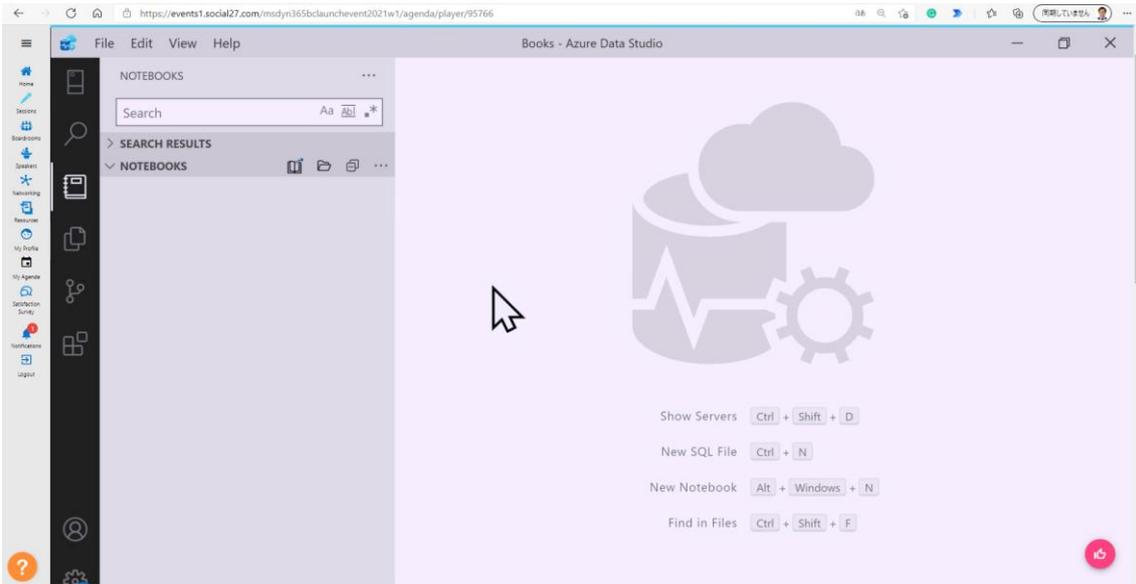
Home  
Sessions  
Bookrooms  
Speakers  
Networking  
Resources  
My Profile  
My Agenda  
Satisfaction Survey  
Notifications  
Logout

# Remote book URL

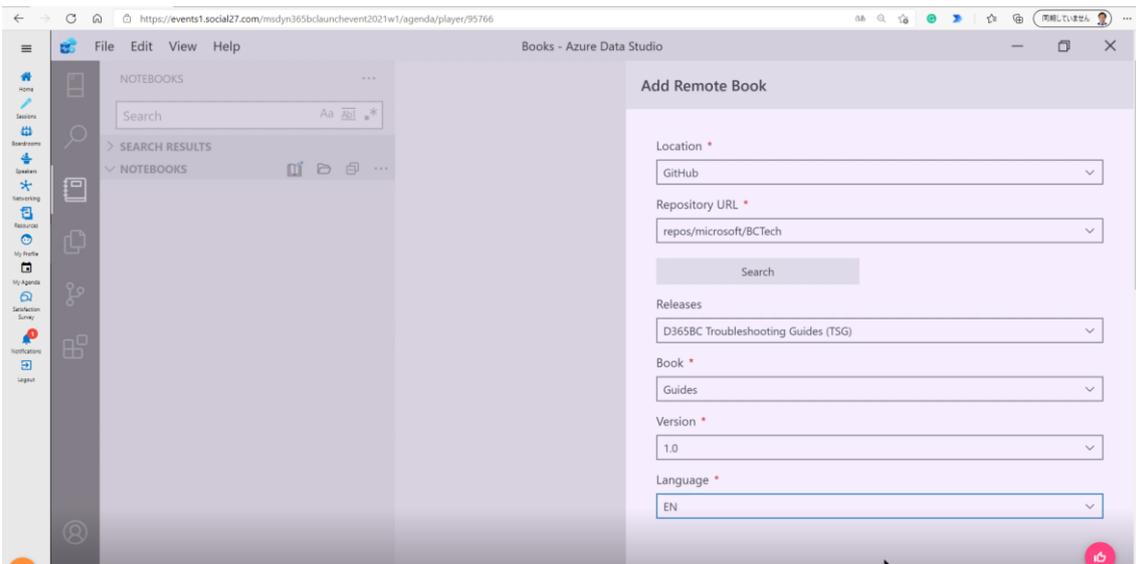
repos/microsoft/BCTech

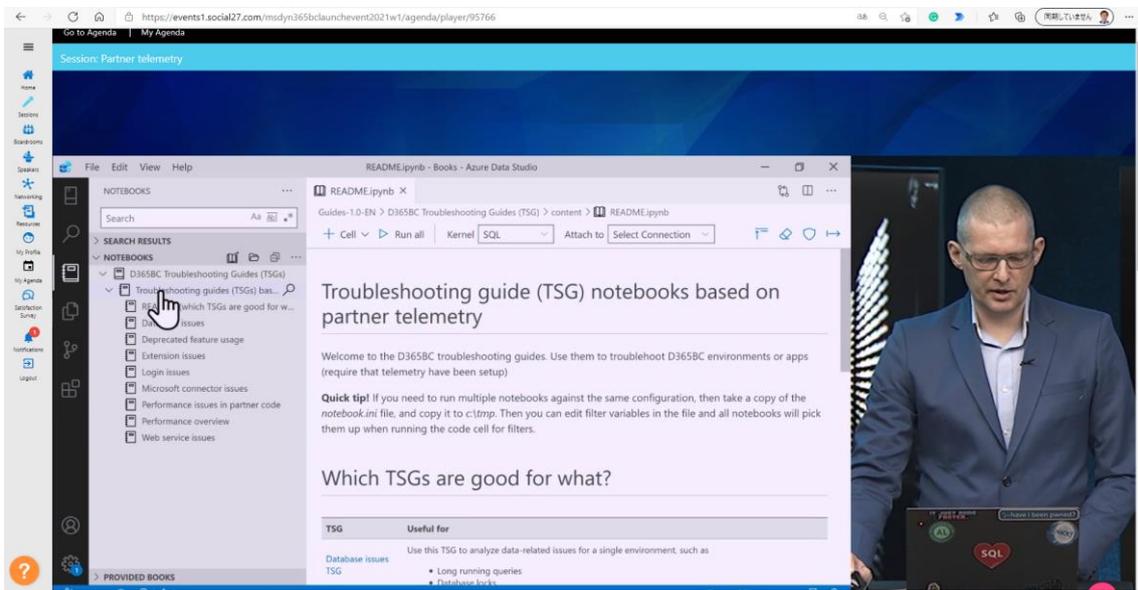
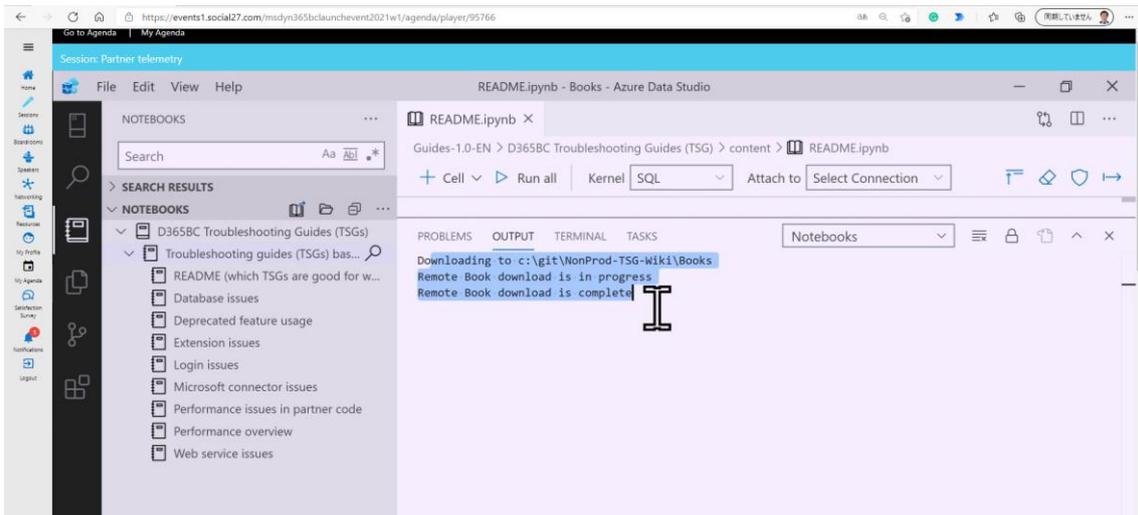
A man in a blue suit is presenting in front of a screen showing a laptop with 'SQL' logos.

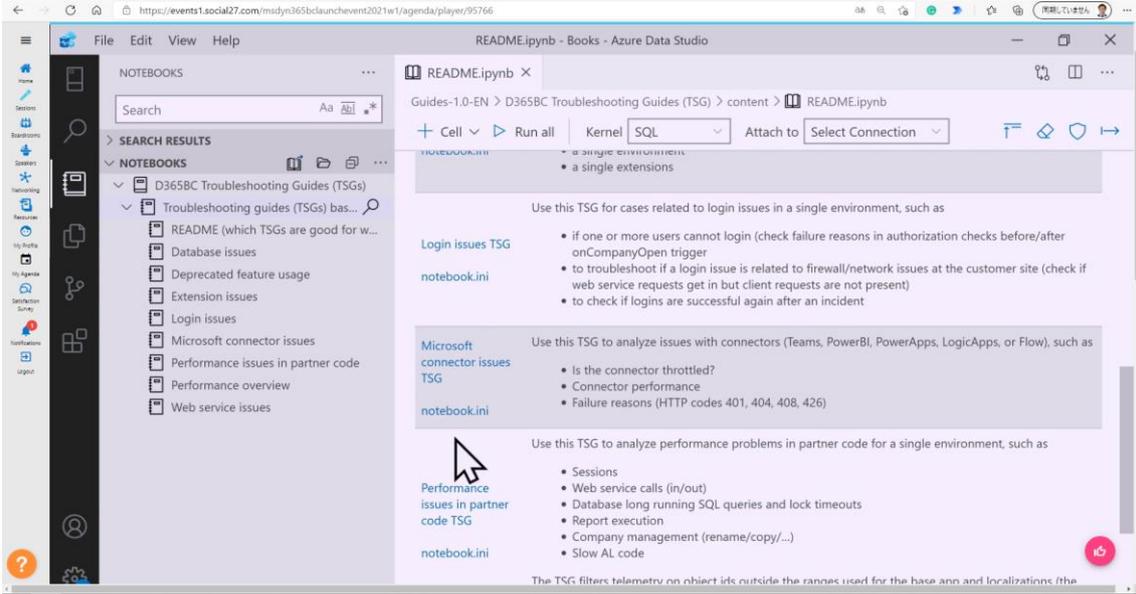
NoteBooks



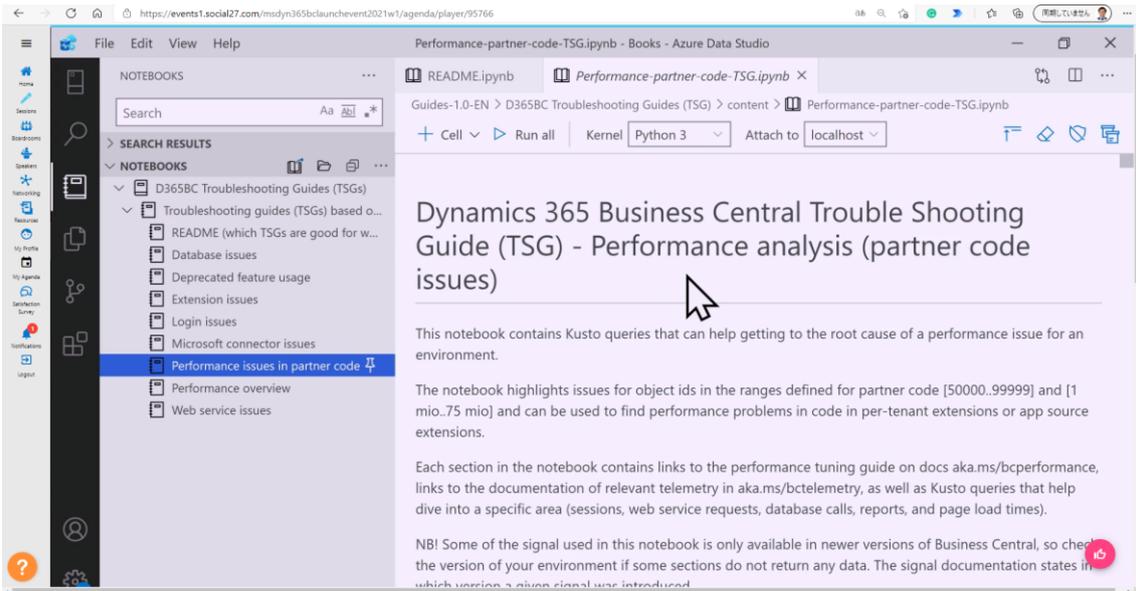
BCTech







## Performance issues



Performance-partner-code-TSG.ipynb - Books - Azure Data Studio

2. Define filters

This workbook is designed for troubleshooting a single environment. Please provide values for aadTenantId, environmentName, and extensionId (or use a config file).

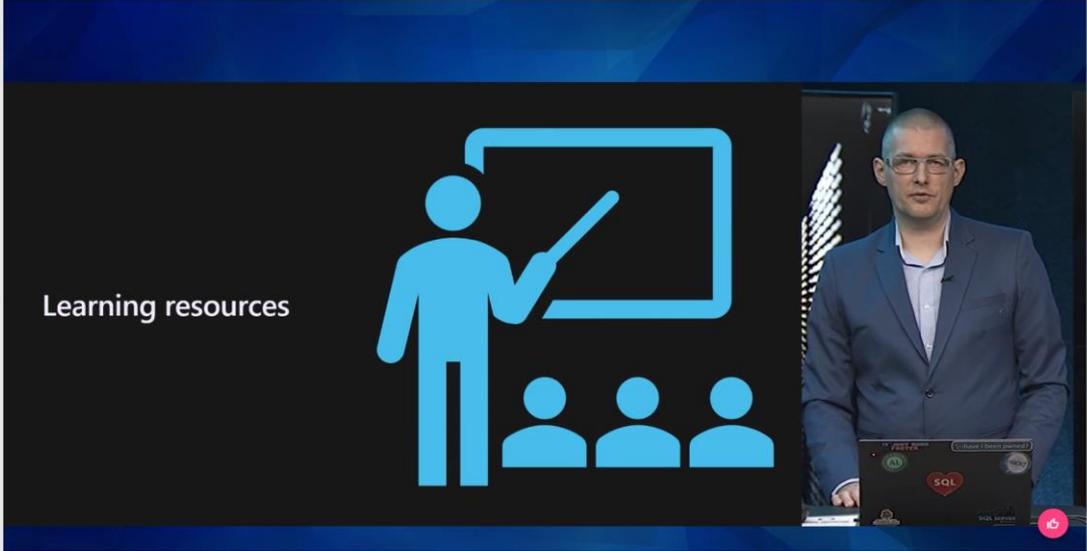
```
[ ] 1 # Add values for AAD tenant id, environment name, and extension id here
2 # It is possible to leave the value for environment name blank (if you want to analyze ac
3
4 # You can either use configuration file (INI file format) or set filters directly.
5
6 # If you specify a config file, then variables set here takes precedence over manually set
7 # config file name and directory (full path)
8 configFile = "c:/tmp/notebook.ini"
9
10
11 # Add AAD tenant id and environment name here
12 aadTenantId = ""
13 environmentName = ""
14 #extensionId = "MyExtensionId"
15 extensionId = ""
16
17 # date filters for the analysis
18 # use YYYY-MM-DD format for the dates (ISO 8601)
19 startDate = "2020-01-20"
```

Sample Trouble Shooting Guides (TSGs)

Currently, eight TSGs are available

1. Investigate performance issues (overview analysis)
2. Investigate login issues
3. Investigate if environments are using deprecated web service protocol
4. Investigate web service issues
5. Investigate database issues
6. Investigate performance issues in partner code
7. Investigate extension issues
8. Investigate Microsoft connector issues

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766



Learning resources

home  
Sessions  
Screenshots  
Desktops  
Networking  
Resources  
My Profile  
My Agenda  
Satisfaction Survey  
Notifications  
Logout

?

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

## Important URLs

```
// sends you to the docs overview with detailed  
// documentation on all types of signal  
aka.ms/bctelemetry
```

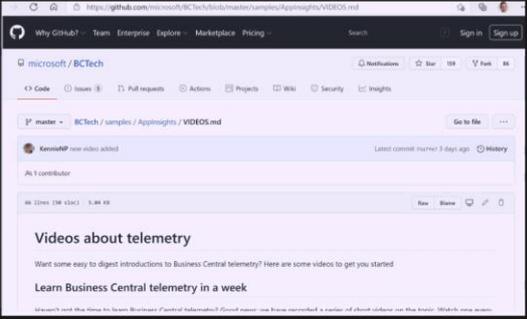
```
// sends you to the GitHub repository with loads of  
// sample KQL code snippets, dashboards, and trouble  
// shooting Guides (TSGs) to help you get started  
aka.ms/bctelemetrysamples
```

home  
Sessions  
Screenshots  
Desktops  
Networking  
Resources  
My Profile  
My Agenda  
Satisfaction Survey  
Notifications  
Logout

?

https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

## Learn telemetry in a week



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### Videos about telemetry

Want some easy to digest introductions to Business Central telemetry? Here are some videos to get you started

**Learn Business Central telemetry in a week**

Microsoft and the team in Japan Business Central Telemetry? Good question here provided a series of short videos on the topic. Watch now again.



https://events1.social27.com/msdyn365bclaunchevent2021w1/agenda/player/95766

## Five short videos on how-to

- get started with Application Insights (4 min)
- analyze performance using the Power BI performance report (8 min)
- triage errors using the Power BI error report (6 min)
- create custom Kusto queries I Dynamics 365 Business Central (9 min)
- troubleshoot issues using Jupyter Notebook troubleshooting guides (8 min)



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# FAQ (find it from aka.ms/bctelemetrysamples)



<https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/FAQ.md>

### Frequently Asked Questions (FAQ)

**How do I get started?**

Business Central uses telemetry to see if you have **Basic Application Insights** (Application Insights account). The first step then is for you to create an Application Insights account. See [this](#) for more information on how to do this.

Once you have created the Application Insights account, make a note of the instrumentation key.

You can also create an account for you on the [portal](#).

- **Do I need a partner?** Yes you do. You must specify the instrumentation key in your application file. Once you create your app in Business Central, you will be asked to specify the instrumentation key for your application. Once you have done this, the telemetry will be sent to the instrumentation key in the Business Central Admin Center of your partner. Check your partner about this. Always verify for your customer or partner. Then use your Application Insights account. You can use the instrumentation key from the Business Central Administration Center (BAC).

Please see the documentation for more details on [C#](#) - [link to open in a new browser window](#)

- [Business Central Administration Center \(BAC\)](#) - [link to open in a new browser window](#)
- [Business Central Administration Center \(BAC\)](#) - [link to all the partners](#) <https://aka.ms/bctelemetrysamples>

**What does it cost?**

Application Insights is offered on the volume of telemetry data that your application sends. Currently, the first 1GB of data per month is free. Anything above that will be charged for. See [this](#) for more information on the pricing for the tool.

Please check the documentation <https://aka.ms/bctelemetrysamples> for more details on pricing.

**Where can I learn more about Kusto Query Language (KQL)?**

Please see the [KQL](#) section page for resources on KQL.

**How can I see what data is available in my Application Insights subscription?**

Check [this](#) page for more information on how to see what data is available in your Application Insights subscription.

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# So you want to learn about KQL?



[https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL\\_README.md#resources](https://github.com/microsoft/BCTech/blob/master/samples/AppInsights/KQL_README.md#resources)

### Usage of Kusto Queries

You can use Kusto queries on the data source in a number of places. E.g.

- The Log part of Application Insights in the Admin portal
- PowerBI reports
- Azure Monitor Alerts
- Azure Dashboards
- Azure Monitor (with the Kusto extension)

**Resources**

Here you can find resources for you to get started on Kusto Query Language (KQL). Check [this](#) link to open this in a new browser window.

- [Kusto Query Language Overview](#)
- [Kusto Query Language Tutorial](#)
- [Kusto QDL - How do I use KQL?](#)
- [Kusto Query Language \(KQL\) Query Syntax Reference](#)

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# I know SQL. How do I do that in KQL?

### SQL to Kusto cheat sheet

The table below shows sample queries in SQL, and their KQL equivalents.

Category	SQL Query	Kusto Query
Select data from table	<code>SELECT * FROM AdventureWorks</code>	<code>AdventureWorks</code>
	<code>SELECT name, first_name FROM AdventureWorks</code>	<code>AdventureWorks   project name, first_name</code>
	<code>SELECT TOP 100 * FROM AdventureWorks</code>	<code>AdventureWorks   take 100</code>
Null evaluation	<code>SELECT * FROM AdventureWorks WHERE first_name IS NOT NULL</code>	<code>AdventureWorks   where first_name[!isnull]</code>
	<code>SELECT * FROM AdventureWorks WHERE first_name &lt;&gt; 'adam'</code>	<code>AdventureWorks   where first_name != 'adam'</code>
Comparison operators (AND)	<code>SELECT * FROM AdventureWorks WHERE first_name &gt; 'adam' AND last_name &lt; 'adam'</code>	<code>AdventureWorks   where first_name &gt; 'adam' and last_name &lt; 'adam'</code>
	<code>SELECT * FROM AdventureWorks WHERE first_name BETWEEN '...' AND '...'</code>	<code>AdventureWorks   where first_name &gt;= '...' and first_name &lt;= '...'</code>
Comparison operators (OR)	<code>SELECT * FROM AdventureWorks WHERE first_name &lt; 'adam' OR last_name &lt; 'adam'</code>	<code>AdventureWorks   where first_name &lt; 'adam' or last_name &lt; 'adam'</code>
	<code>SELECT * FROM AdventureWorks WHERE first_name LIKE 'adam%'</code>	<code>AdventureWorks   where first_name startswith 'adam'</code>
Comparison operators (LIKE)	<code>SELECT * FROM AdventureWorks WHERE first_name LIKE 'adam%'</code>	<code>AdventureWorks   where first_name contains 'adam'</code>
	<code>SELECT * FROM AdventureWorks WHERE first_name LIKE '%adam'</code>	<code>AdventureWorks   where first_name endswith 'adam'</code>
Comparison operators (LIKE)	<code>SELECT * FROM AdventureWorks WHERE first_name LIKE '%adam%'</code>	<code>AdventureWorks   where first_name contains 'adam'</code>
	<code>SELECT * FROM AdventureWorks WHERE first_name LIKE '%adam%'</code>	<code>AdventureWorks   where first_name contains 'adam'</code>

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## Go-dos

- Setup telemetry on customer environments
- Setup telemetry on your apps
- Start using telemetry to answer questions
- Spread the word (blogs, presentations, tweets)