End-to-end monitoring

for a successful Power BI implementation

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🌐 Data-Marc.com

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Bronze   **Raffle**
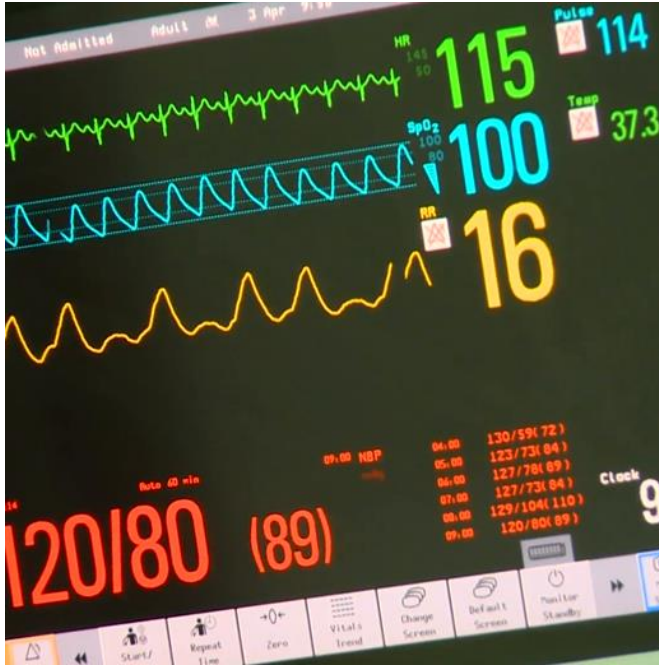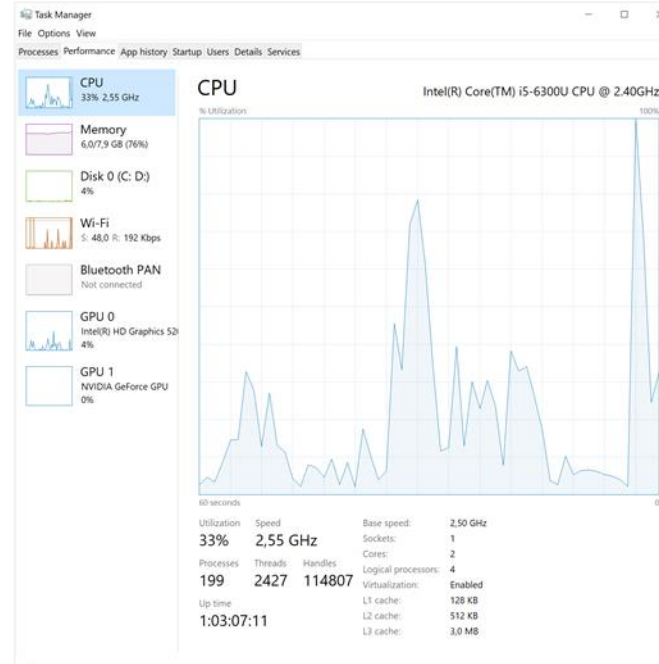
WEBSTEP   MANNING   PASS

@MarcLelijveld | #SqlSatOslo | #PowerBIer
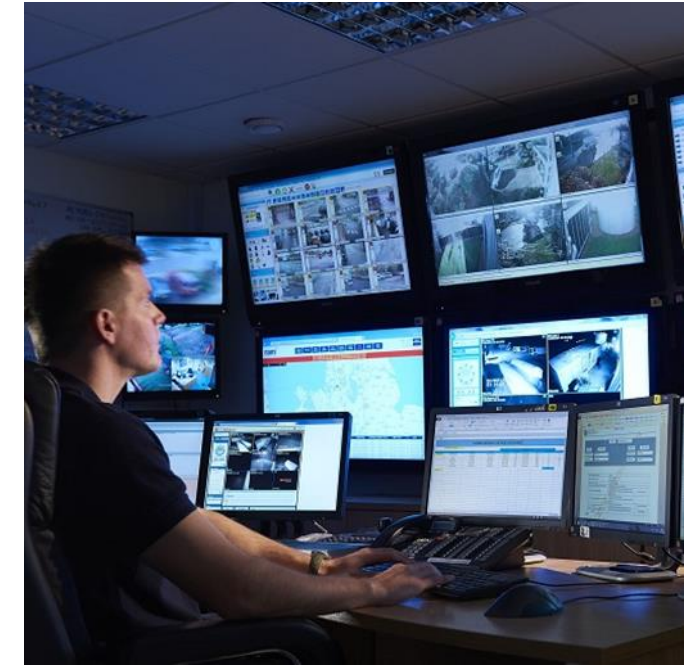
First thoughts on monitoring

Health monitoring

Task manager

Security

- Why monitoring

- What do we want to monitor?

- How to monitor this?

- Mistakes we've made

Why monitoring?

BI for everyone!

3rd wave
End user BI

Everyone

2nd wave
Self-service BI

Analyst to end user

1st wave
Technical BI

IT to end user
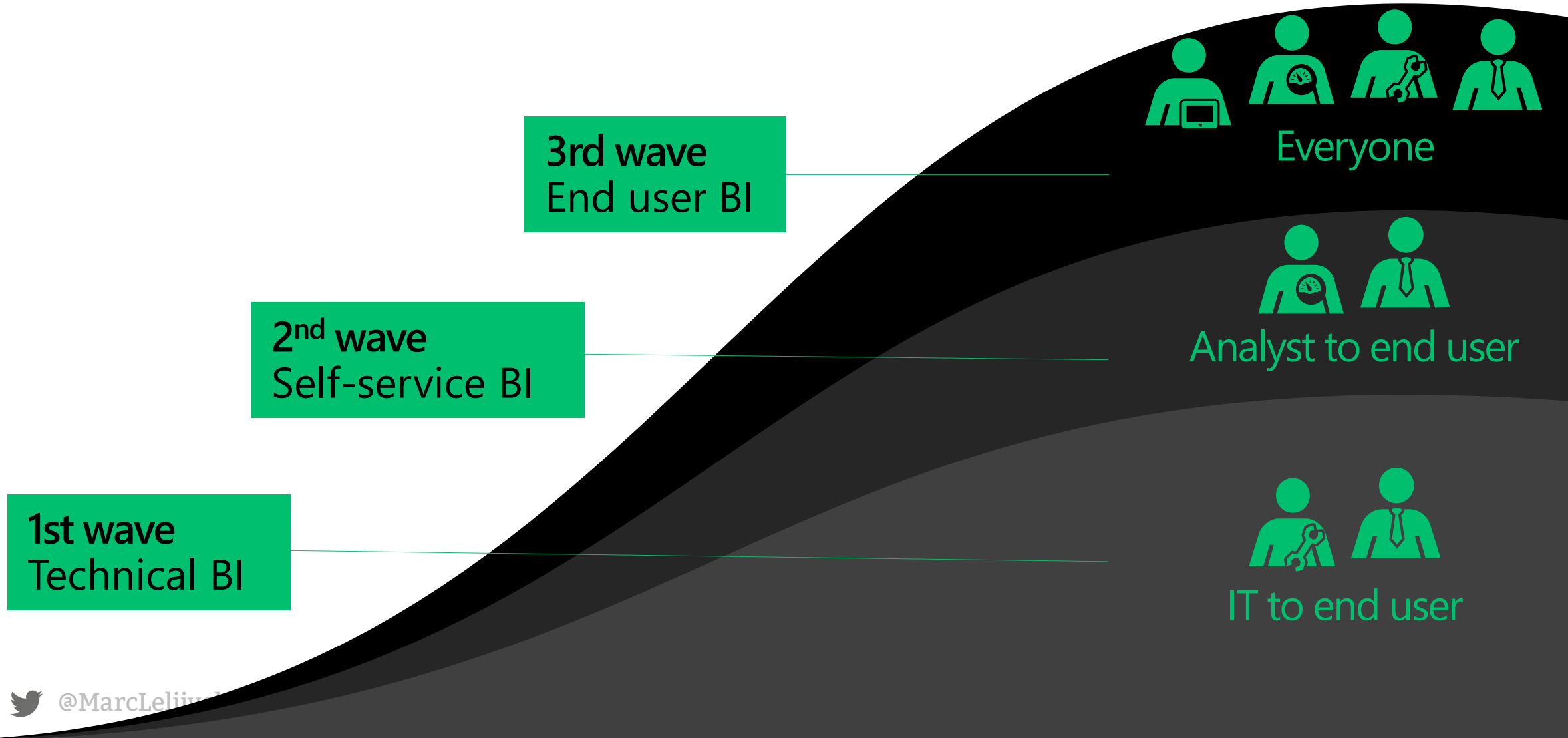
Everyone engages with software

Enterprise rollout

Enterprise IT Adoption Cycle

Adoption

Rest of World

Enterprise IT

Ignore | Ignore | Ignore | "No" | "No" | I said "No" dammit | "Oh No" | "Oh fuck"

Time
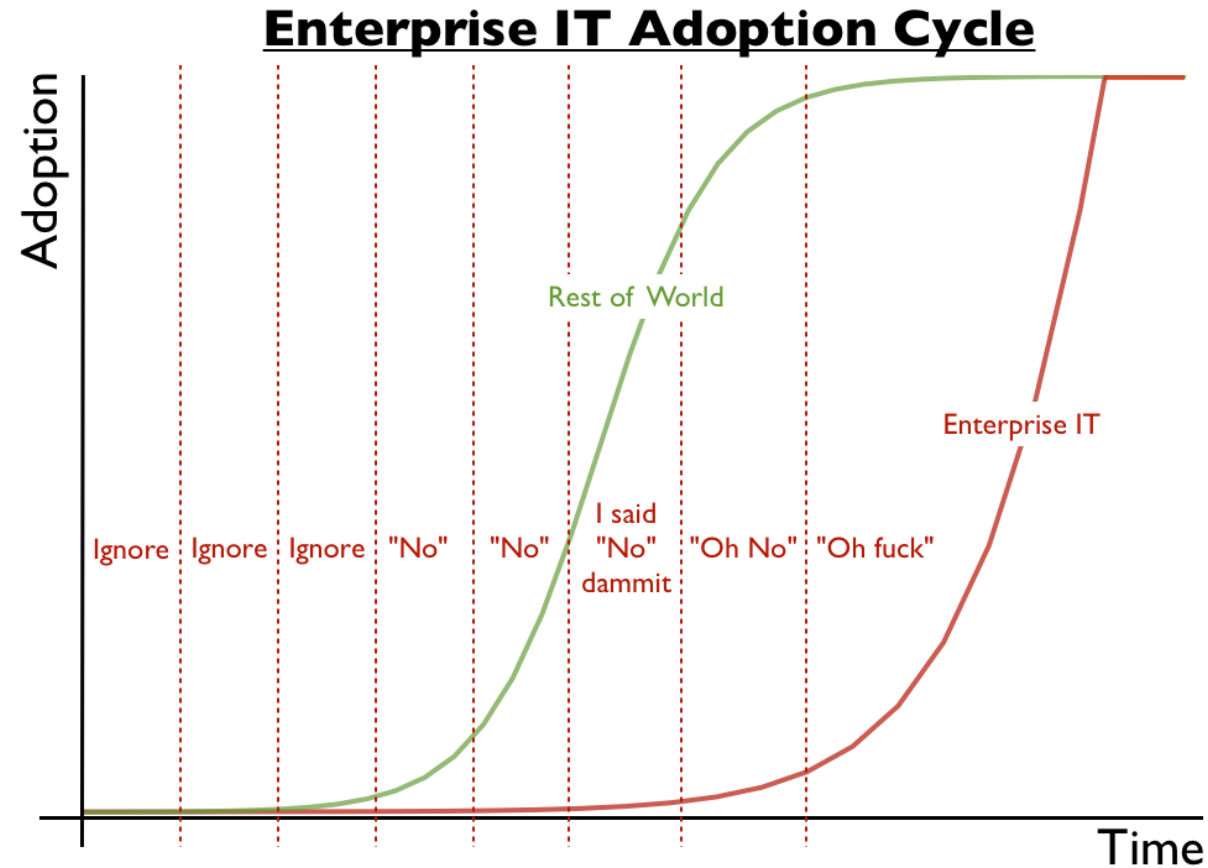
Delivery approaches

**Business-Led
Self-Service BI**
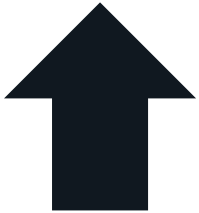
**IT- Managed
Self-Service BI**

Corporate BI

Bottom-Up

Blended
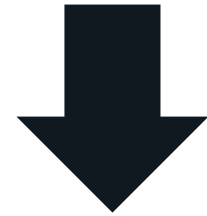
Top-Down

Exponential growth of content

Business-Led Self-Service BI

↑
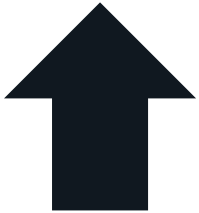
Bottom-Up

Johan
Finance

Ida
Human Resources

Cathrine
Marketing

Alexander
Engineer

Get order in the chaos

Johan
Finance

Ida
Human Resources
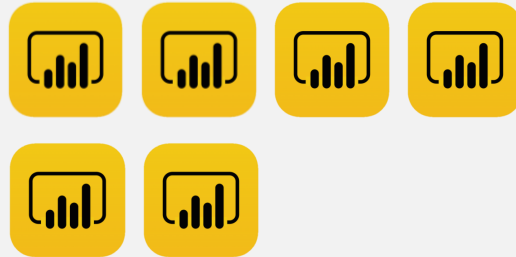
Cathrine
Marketing

Alexander
Engineer
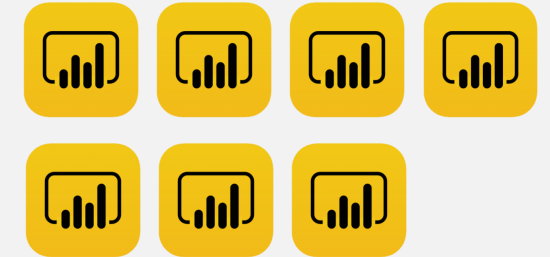
Separate people and content
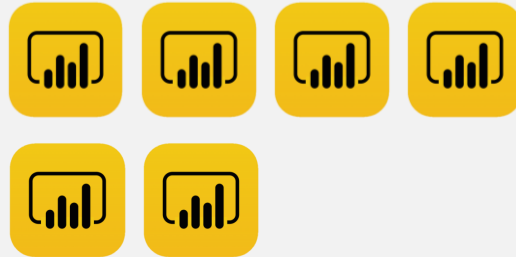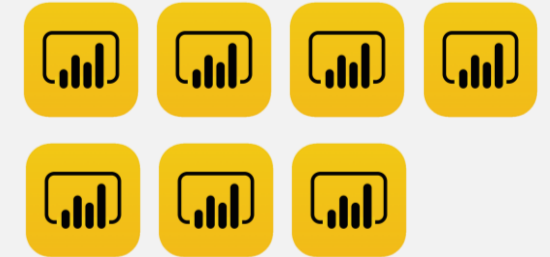
What do we want to monitor?

What we want to monitor

Content availability

Usage

Performance

What we need to monitor

🔒 Secure data uploaded to the service

👥 Publish data to the entire organisation

✈ Share content to external users

🌐 Publish to web

✳ Custom visuals

🚫 Audit logs

What objects are available

What the Power BI service provides

Usage Metrics in Power BI Service

Audit logs in O365 admin portal (manually)

Power BI audit log activities

Power BI activities

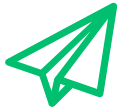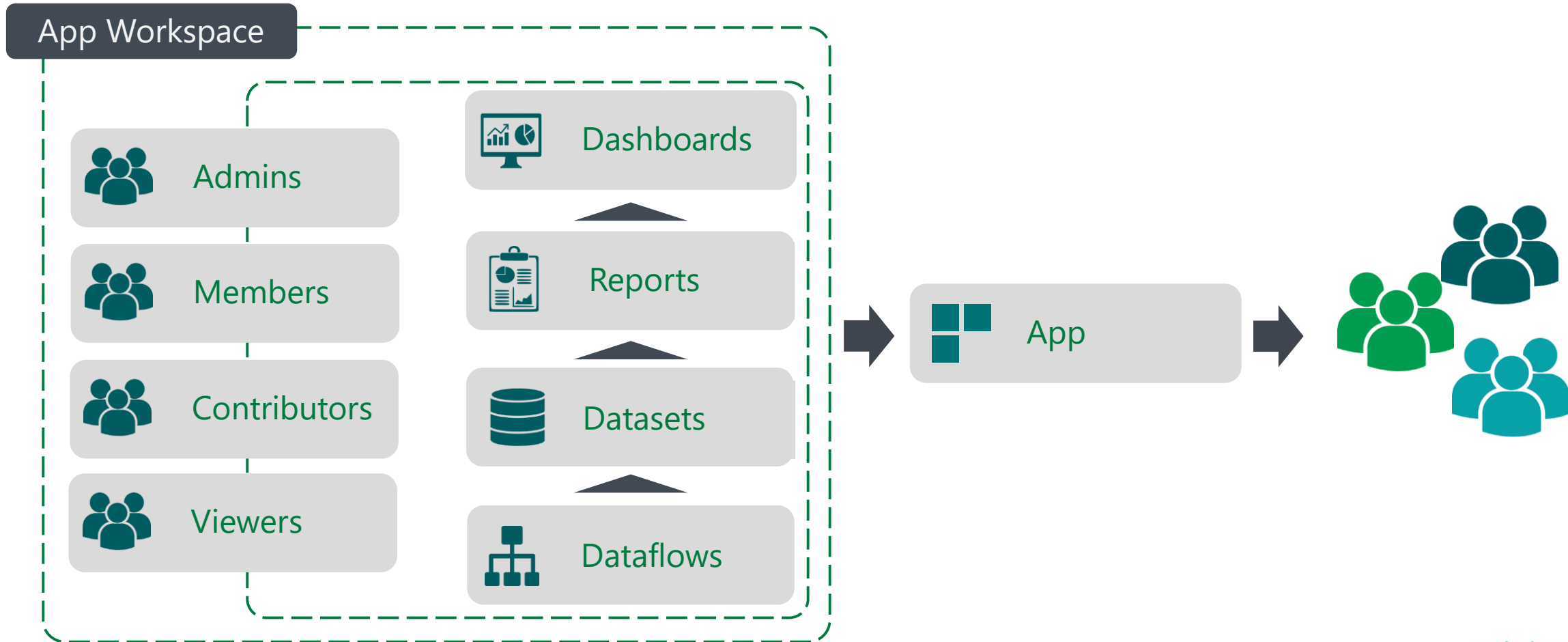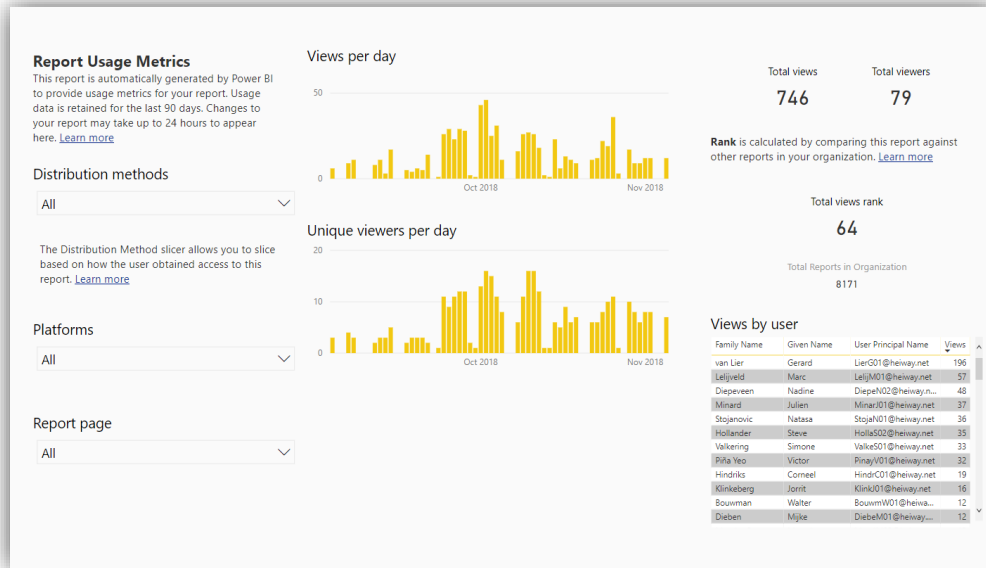|			
Viewed Power BI dashboard	Created Power BI dashboard	Set scheduled refresh on Power BI dataset	Unpublished Power BI app
Edited Power BI dashboard	Deleted Power BI dashboard	Deleted organizational Power BI content pack	Renamed Power BI dashboard
Shared Power BI dashboard	Printed Power BI dashboard	Edited Power BI dataset	Shared Power BI report
Viewed Power BI tile	Exported Power BI tile data	Generated Power BI Embed Token	Discovered Power BI dataset data sources
Viewed Power BI report	Deleted Power BI report	Updated Power BI dataset data sources	Requested Power BI dataset refresh
Printed Power BI report page	Downloaded Power BI report	Binded Power BI dataset to gateway	Changed Power BI dataset connections
Published Power BI report to web	Exported Power BI report visual data	Took over Power BI dataset	Updated Power BI gateway data source credentials
Created Power BI report	Edited Power BI report	Imported file to Power BI	Updated Power BI dataset parameters
Created Power BI dataset	Deleted Power BI dataset	Generated Power BI datapool SAS token	Created Power BI datapool
Created Power BI group	Deleted Power BI group	Updated Power BI datapool	Deleted Power BI datapool
Added Power BI group members	Removed Power BI group members	Viewed Power BI datapool	Exported Power BI datapool
Created organizational Power BI content pack	Created Power BI app	Set scheduled refresh on Power BI datapool	Requested Power BI datapool refresh
Installed Power BI app	Updated Power BI app	Received Power BI datapool secret from Key Vault	Created Power BI email subscription
Updated organization's Power BI settings	Started Power BI trial	Updated Power BI email subscription	Deleted Power BI email subscription
Started Power BI extended trial	Analyzed Power BI dataset	Created Power BI folder	Deleted Power BI folder
Created Power BI gateway	Deleted Power BI gateway	Updated Power BI folder	Added Power BI folder access
Added data source to Power BI gateway	Removed data source from Power BI gatewa:	Deleted Power BI folder access	Updated Power BI folder access
Changed Power BI gateway admins	Changed Power BI gateway data source use	Posted Power BI comment	Deleted Power BI comment
		Analyzed Power BI report	Viewed Power BI usage metrics

Demo:

Audit log

Results 532 results found

 Filter re

Date ▼	User	Activity	Item
2015-12-13 22:48:55	vasil@michev.info	PasswordLogonInitialAut...	vasil@michev.info
2015-12-13 22:41:55	vasil@michev.info	PasswordLogonInitialAut...	vasil@michev.info
2015-12-13 20:49:26	vasil@michev.info	Deleted messages from...	
2015-12-13 20:45:43	vasil@michev.info	Accessed file	vasil_michev_info_
2015-12-13 20:45:43	vasil@michev.info	Viewed file	vasil_michev_info_
2015-12-13 20:35:27	vasil@michev.info	Created or received mes...	
2015-12-13 20:29:01	vasil@michev.info	Update user.	vasil@michev.info
2015-12-13 20:28:18	vasil@michev.info	Update user.	vasil@michev.info
2015-12-13 20:27:26	vasil@michev.info	User signed in to mailbox	

How to monitor this

Power BI Cmdlets – Powershell module

- Power BI General management

- Data Management

- Profile Management

- Report Management

- Workspace Management

```
Get-PowerBIWorkspace
  [-Scope <PowerBIUserScope>]
  [-Filter <String>]
  [-User <String>]
  [-Deleted]
  [-Orphaned]
  [-First <Int32>]
  [-Skip <Int32>]
  [<CommonParameters>]
```

Demo:

Power BI Cmdlets

Windows PowerShell ISE

File   Edit   View   Tools   Debug   Add-ons   Help

Untitled1.ps1

1

```
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : ef30d312-2e2f-4fdb-b18c-80ef987e7d68
Name                  : Retail
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : 449a96e4-f9d2-4fa0-b72a-c5aeda439a12
Name                  : Electronic Events
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : e4694145-b77c-4b11-8bb2-dddd9f4b0a20
Name                  : Research And Development
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : 9a9b62be-010a-4146-875d-4912e4a6de78
Name                  : Mark 8 Project Team
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : e19bf5f5-a7b9-45bb-882f-0a5c28f18834
Name                  : Contoso #02
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : 61d9c903-a2b9-4f5f-a75c-a51e9b249bb9
Name                  : New York #03
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : 6a51e7a2-c30f-42e6-8308-4458d5870952
Name                  : Warehouse #02
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : f98afd5d-3260-4bb2-b6f8-bdba3f0de270
Name                  : New York #03
IsReadOnly            : False
IsOnDedicatedCapacity : False
CapacityId            :

Id                    : f11817af-f669-437b-b729-e9d372c16313
Name                  : Warehouse #02
IsReadOnly            : False
```

Commands

Modules: All

Name: PowerBI

Add-PowerBIDataset
Add-PowerBIRow
Add-PowerBIWorkspaceUse
Connect-PowerBIServiceAcc
Disconnect-PowerBIService
Export-PowerBIReport
Get-PowerBIAccessToken
Get-PowerBIDashboard
Get-PowerBIDataset
Get-PowerBIDatasource
Get-PowerBIImport
Get-PowerBIReport
Get-PowerBITable
Get-PowerBITile
Get-PowerBIWorkspace
Invoke-PowerBIRestMethod
New-PowerBIColumn
New-PowerBIDataset
New-PowerBIReport
New-PowerBITable
Remove-PowerBIRow
Remove-PowerBIWorkspace
Resolve-PowerBIError
Restore-PowerBIWorkspace
Set-PowerBITable
Set-PowerBIWorkspace

Completed

Ln 209   Col 20

High-level architecture

Data sources   Ingest & Store   Model & Serve

Data collection

GET https://api.powerbi.com/v1.0/myorg/admin/groups/{groupId}/reports
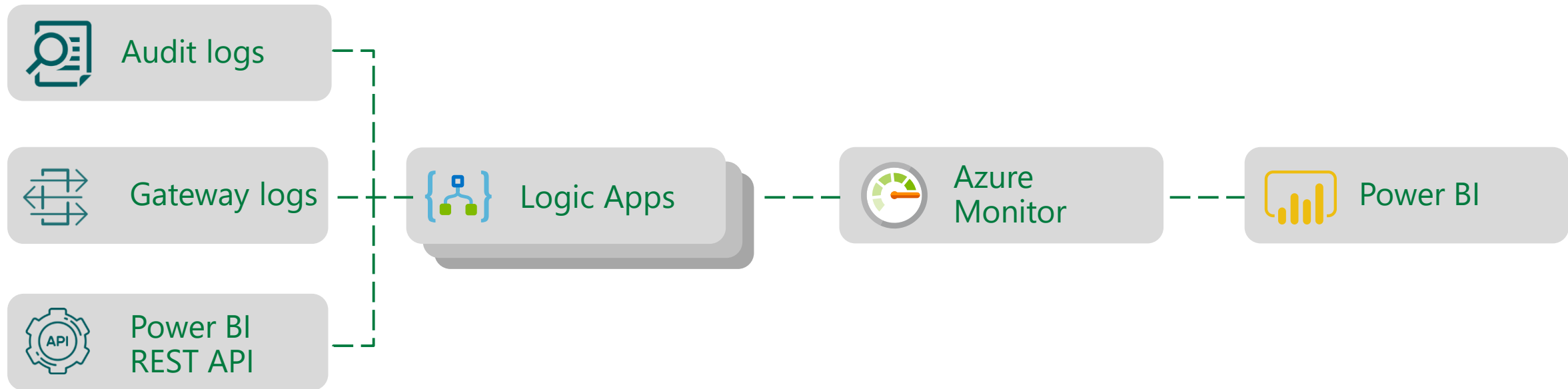
```
{
  "value": [
    {
      "datasetId": "cfafbeb1-8037-4d0c-896e-a46fb27ff229",
      "id": "5b218778-e7a5-4d73-8187-f10824047715",
      "name": "SalesMarketing",
      "webUrl": "https://app.powerbi.com/groups/f089354e-8366-4e18-aea3-4cb4a3a50b48/reports/5b218778-e7a5-4d73-8187-f10824047715",
      "embedUrl": "https://app.powerbi.com/reportEmbed?reportId=5b218778-e7a5-4d73-8187-f10824047715&groupId=f089354e-8366-4e18-aea3-4cb4a3a50b48"
    }
  ]
}
```

Data collection

Logic apps architecture

New Query 1*

Help · Settings · Sample queries · Query explorer

loganalytics-workspace-powerbi

Run · Time range: Last 24 hours · Save · Copy link · Export · New alert rule · Pin

Schema · Filter (preview)

```
PBI_Workspaces_CL
| limit 50
```

Azure Monitor / Log Analytics

Filter by name or type...

Collapse all

Active

- loganalytics-workspace-p... ★
  - LogManagement
  - Custom Logs
    - GatewayErrorLog_CL
    - GatewayInfoLog_CL
    - GatewayNetworkLog_CL
    - MyRecordType_CL
    - OnPremDataGatewayLogs_CL
    - PBIMonitorAADActivitiesTE...
    - PBIMonitorGeneralActivities...
    - PBIMonitorTenantGroups_CL
    - PBIMonitorTenantUserMem...
    - PBIMonitorTenantUsers_CL
    - PBI_AuditLog_Activities_CL
    - PBI_Dashboards_CL
    - PBI_Datasets_CL
    - PBI_Reports_CL
    - PBI_WorkspaceUsers_CL
    - PBI_Workspaces_CL
    - PbiWorkspaces_CL
    - PowerBIWorkspaces_CL
    - Workspaces_CL
  - fx Functions

Favorite workspaces

Completed. Showing results from the last 24 hours.   00:00:00.543   50 records

TABLE · CHART · Columns ·   Display time (UTC+00:00)

Drag a column header and drop it here to group by that column

id_g	isReadOnly_b	isOnDedicatedCapacity_b	name_s	capacityId_g	Type	_Res
82ccf334-fadf-4891-9b14-9319da9d276f	false	false	DIAD_gertjan@m365x280911.onmicrosoft.com		PBI_Workspaces_CL	
6b3d9f38-e241-418f-8120-c241eb4fd55e	false	false	DIAD_erik@m365x280911.onmicrosoft.com		PBI_Workspaces_CL	
bfdbe2eb-aa04-4630-8348-3d204b2a...	false	false	Mark 8 Project Team		PBI_Workspaces_CL	
d96efe56-e5c4-4b90-af2a-3f4a1e3715...	false	false	Engineering		PBI_Workspaces_CL	
5c4cda1e-52b9-420c-a40a-8ae0b6afb...	false	false	Finance		PBI_Workspaces_CL	
73767088-a768-497d-bca0-232f2b749...	false	false	Marketing		PBI_Workspaces_CL	
2440bc9c-2c53-456d-8745-343b2f3ca...	false	false	Sales		PBI_Workspaces_CL	
7f90a2a0-8910-4869-a430-17c0edf516fe	false	false	HR		PBI_Workspaces_CL	
2a448f2e-fd4a-4ccf-b251-c3b7bb6345...	false	false	IT		PBI_Workspaces_CL	
22c831a8-f13c-4a89-9ce6-eb7e71d4d8...	false	false	X1050 Launch Team		PBI_Workspaces_CL	
419ba4a1-fadd-4378-a7f8-41ae494abf...	false	false	Production Line		PBI_Workspaces_CL	
9d661a50-16ce-48fc-98e4-629e3b6b8...	false	false	Business Development		PBI_Workspaces_CL	
1d240e76-ac86-49ee-b4b8-34f9d571b...	false	false	DG-2000 Product Team		PBI_Workspaces_CL	
e24b202e-74db-4297-9ff8-ef90508bf...	false	false	DG-2000 Feedback		PBI_Workspaces_CL	

Demo:

Azure
Monitor

loganalytics-workspace-powerbi

▷ Run   Time range: **Last 24 hours**

```
PBI_Workspaces_CL
| limit 50
```

Schema   Filter (preview)   «

Filter by name or type...

↓≡ Collapse all

Active

▼ ⓜ loganalytics-workspace-p...   ☆

  ▶ LogManagement

  ▼ Custom Logs

    ▶ ⊞ GatewayErrorLog_CL
    ▶ ⊞ GatewayInfoLog_CL
    ▶ ⊞ GatewayNetworkLog_CL
    ▶ ⊞ MyRecordType_CL
    ▶ ⊞ OnPremDataGatewayLogs_CL
    ▶ ⊞ PBIMonitorAADActivitiesTE...
    ▶ ⊞ PBIMonitorGeneralActivities...
    ▶ ⊞ PBIMonitorTenantGroups_CL
    ▶ ⊞ PBIMonitorTenantUserMem...
    ▶ ⊞ PBIMonitorTenantUsers_CL
    ▶ ⊞ PBI_AuditLog_Activities_CL
    ▶ ⊞ PBI_Dashboards_CL
    ▶ ⊞ PBI_Datasets_CL
    ▶ ⊞ PBI_Reports_CL
    ▶ ⊞ PBI_WorkspaceUsers_CL
    ▶ ⊞ PBI_Workspaces_CL
    ▶ ⊞ PbiWorkspaces_CL
    ▶ ⊞ PowerBIWorkspaces_CL
    ▶ ⊞ Workspaces_CL

  ▶ ƒx Functions

Favorite workspaces

Completed. Showing results from the last 24 hours.

≡ TABLE   ⅲ CHART | Columns ⌄

Drag a column header and drop it here to group by that column

id_g	isReadOnly_b	isOnDedicatedCapacity_b	name_s
82ccf334-fadf-4891-9b14-9319da9d276f	false	false	DIAD_gert
6b3d9f38-e241-418f-8120-c241eb4fd55e	false	false	DIAD_erik
bfdbe2eb-aa04-4630-8348-3d204b2a...	false	false	Mark 8 Pr
d96efe56-e5c4-4b90-af2a-3f4a1e3715...	false	false	Engineerin
5c4cda1e-52b9-420c-a40a-8ae0b6afb...	false	false	Finance
73767088-a768-497d-bca0-232f2b749...	false	false	Marketing
2440bc9c-2c53-456d-8745-343b2f3ca...	false	false	Sales
7f90a2a0-8910-4869-a430-17c0edf516fe	false	false	HR
2a448f2e-fd4a-4ccf-b251-c3b7bb6345...	false	false	IT
22c831a8-f13c-4a89-9ce6-eb7e71d4d8...	false	false	X1050 Lau
419ba4a1-fadd-4378-a7f8-41ae494abf...	false	false	Productio
9d661a50-16ce-48fc-98e4-629e3b6b8...	false	false	Business D
1d240e76-ac86-49ee-b4b8-34f9d571b...	false	false	DG-2000
e24b202e-74db-4297-9ff8-ef90508bf...	false	false	DG-2000

Power BI report

Demo:

Power BI monitoring report

POWER BI OBJECT FLOW
Power BI Monitor

macaw
Challenge accepted.

| Power BI Overview | Activities Over Time | Object Flow | Repo |

Object flow

Tenant ID	Workspace	Dataset	Report
7db92917-0044-42fb-902b-ebc94e86bdd7	DIAD_erik@m365x280911.onmicrosoft.com	DIAD Final Report	DIAD Final Report
	DIAD_gertjan@m365x280911.onmicrosoft.com	DIAD Final Report	DIAD Final Report
	Engineering	Operations	Operations
	Finance	Finance	Finance
		Report Usage Metrics Model	Report Usage Metrics Report
	HR	HR	HR
	IT	IT	IT Report
		Report Usage Metrics Model	Report Usage Metrics Report
	Mark 8 Project Team	Operations Analytics	Operations Analytics
	Marketing	Marketing	Marketing
	PersonalWorkspace Megan	Contoso Q2 Division Sales	Contoso Q2 Division Sales
	PowerBIAdminGroupDisplayName	Admin Usage Model	Admin Usage Report
	Sales	Sales	Sales
	Test	Customer Profitability Sample	Customer Profitability Sample
	X1050 Launch Team	X1050 Launch Team	X1050 Launch Team

Tenant ID

Dataset

Mistakes we've made

Logic apps architecture

TOTAL ⓘ

€1,777.97

BUDGET: NONE

-- ⌄

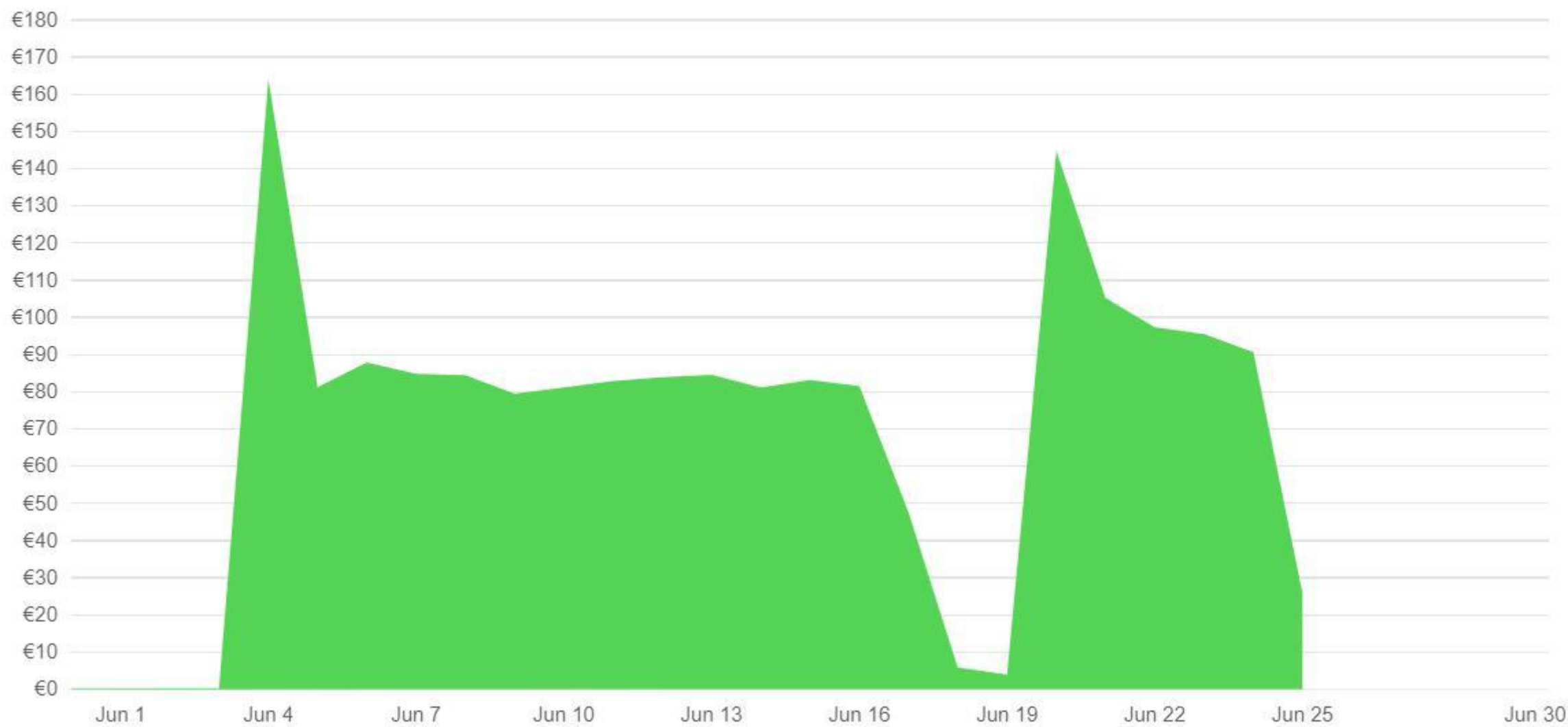| | Jun 1 | Jun 4 | Jun 7 | Jun 10 | Jun 13 | Jun 16 | Jun 19 | Jun 22 | Jun 25 | Jun 30 |
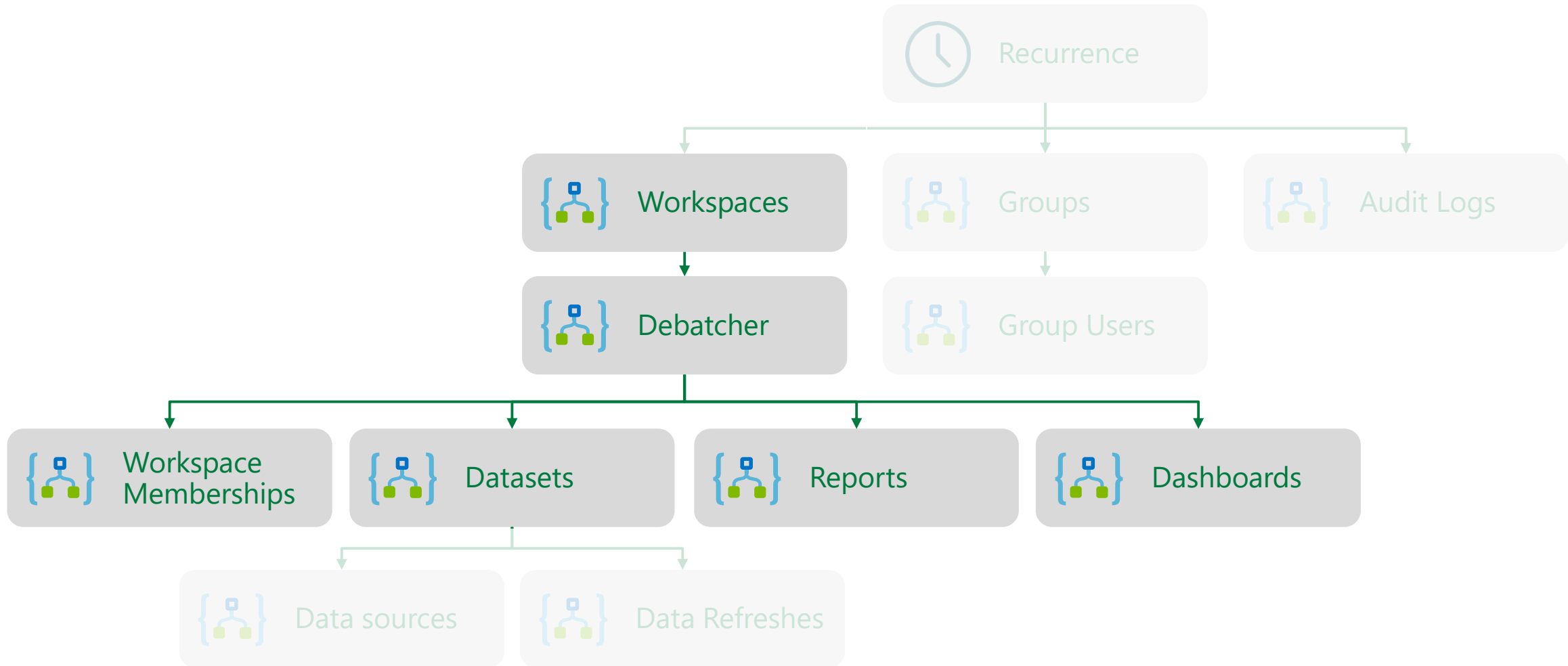
Microsoft Power BI Blog

BLOG > ANNOUNCEMENTS > DEVELOPERS > POWER BI

Avoiding workspace loops by expanding navigation properties in the GetGroupsAsAdmin API

Harjinder Raheja
Senior Software Engineer

June 28, 2019

in Share   Tweet   f Like

We are excited to announce the recent release of support for $expand in the GetGroupsAsAdmin API! As a Power BI service admin if you need to list all workspaces in your tenant, including their users, reports, dashboards, and datasets, $expand helps you do this quickly and efficiently.

Support for $expand in the GetGroupsAsAdmin API enables you to retrieve the details of the navigation properties for users, reports, dashboards, and datasets directly in the workspace properties. You no longer need to loop through each workspace and call 4 separate APIs. With $expand, you can accomplish that work with a single API call. This makes your solutions dramatically simpler, more intuitive, faster to develop, and easier to maintain.

Using the $expand query option is very straight forward. Here's the API call to get the first 5000 workspaces in your tenant.

https://api.powerbi.com/v1.0/myorg/admin/Groups?$top=5000

WHAT IS POWER BI?

Power BI is a suite of business analytics tools to analyze data and share insights. Monitor your business and get answers quickly with rich dashboards available on every device.

READ MORE

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SUBSCRIBE

SEARCH BY CATEGORY

Analysis Services

Announcements

Developers

Features

Power BI

Power BI Embedded

Support

@MarcLelijveld | #SqlSatOslo | #PowerBIer

$expand=

HTTP   Copy

GET https://api.powerbi.com/v1.0/myorg/admin/groups?$expand=dashboards&$top=100

JSON   Copy

```json
{
  "value": [
    {
      "id": "94E57E92-CEE2-486D-8CC8-218C97200579",
      "isReadOnly": false,
      "isOnDedicatedCapacity": false,
      "capacityMigrationStatus": "Migrated",
      "description": "shorter description",
      "type": "Workspace",
      "state": "Removing",
      "name": "a",
      "dashboards": [
        {
          "id": "4668133c-ae3f-42fb-ad7c-214a8623280c",
          "displayName": "SQlAzure-Refresh.pbix",
          "isReadOnly": false
        },
        {
          "id": "a8f18ca7-63e8-4220-bc1c-f576ec180b98",
          "displayName": "cdvc",
          "isReadOnly": false
        }
      ]
    }
  ]
}
```

Logic apps architecture
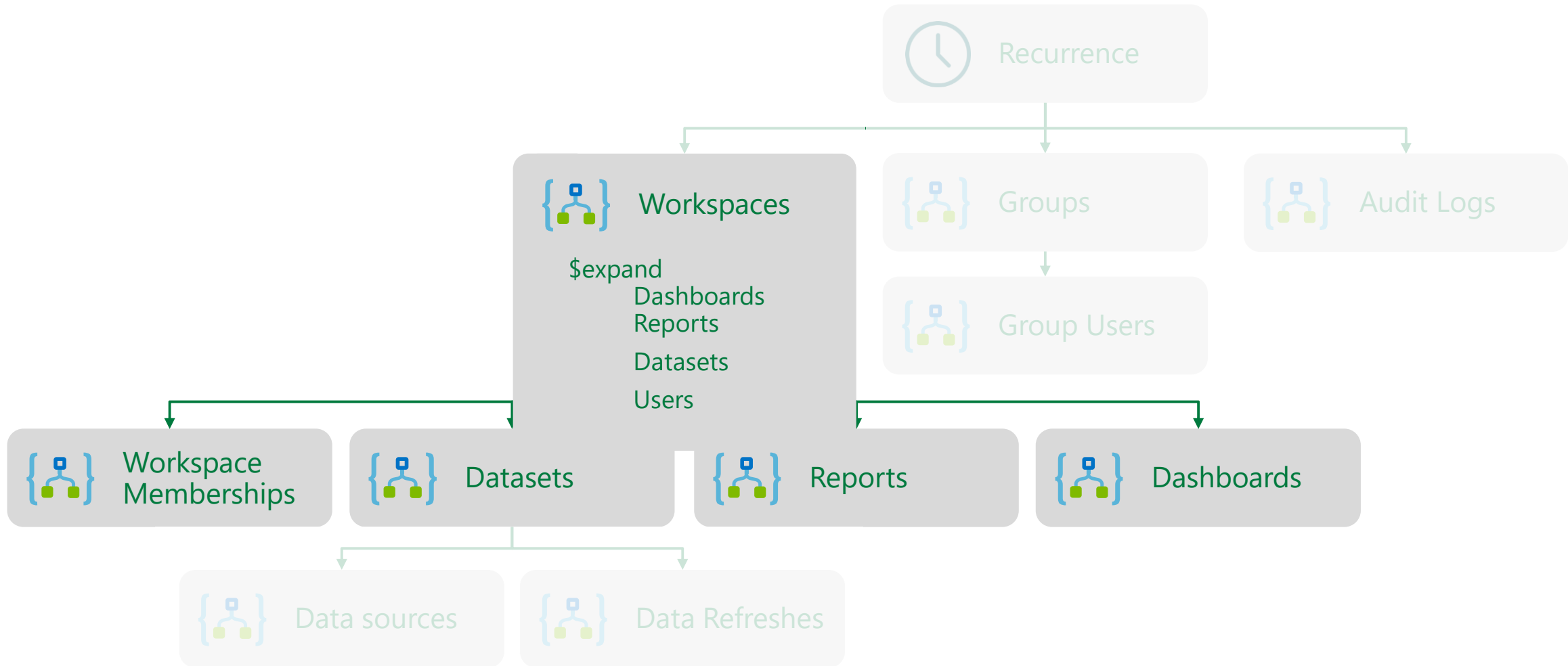
Recap

- Monitoring is **more than usage insights**.

- Monitor **end-to-end**, not only individual reports!

- Monitoring is key for a **successful implementation** of Power BI within an enterprise environment.

SQL Saturday Oslo discount!
All profit goes to charity!

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Only today, 10% SQL Saturday Oslo discount!! Use: POWERBIER

Download for free!

Https://bit.ly/cheatsheetpbi

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Macaw Netherlands

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in linkedin.com/in/MarcLelijveld

🌐 Data-Marc.com