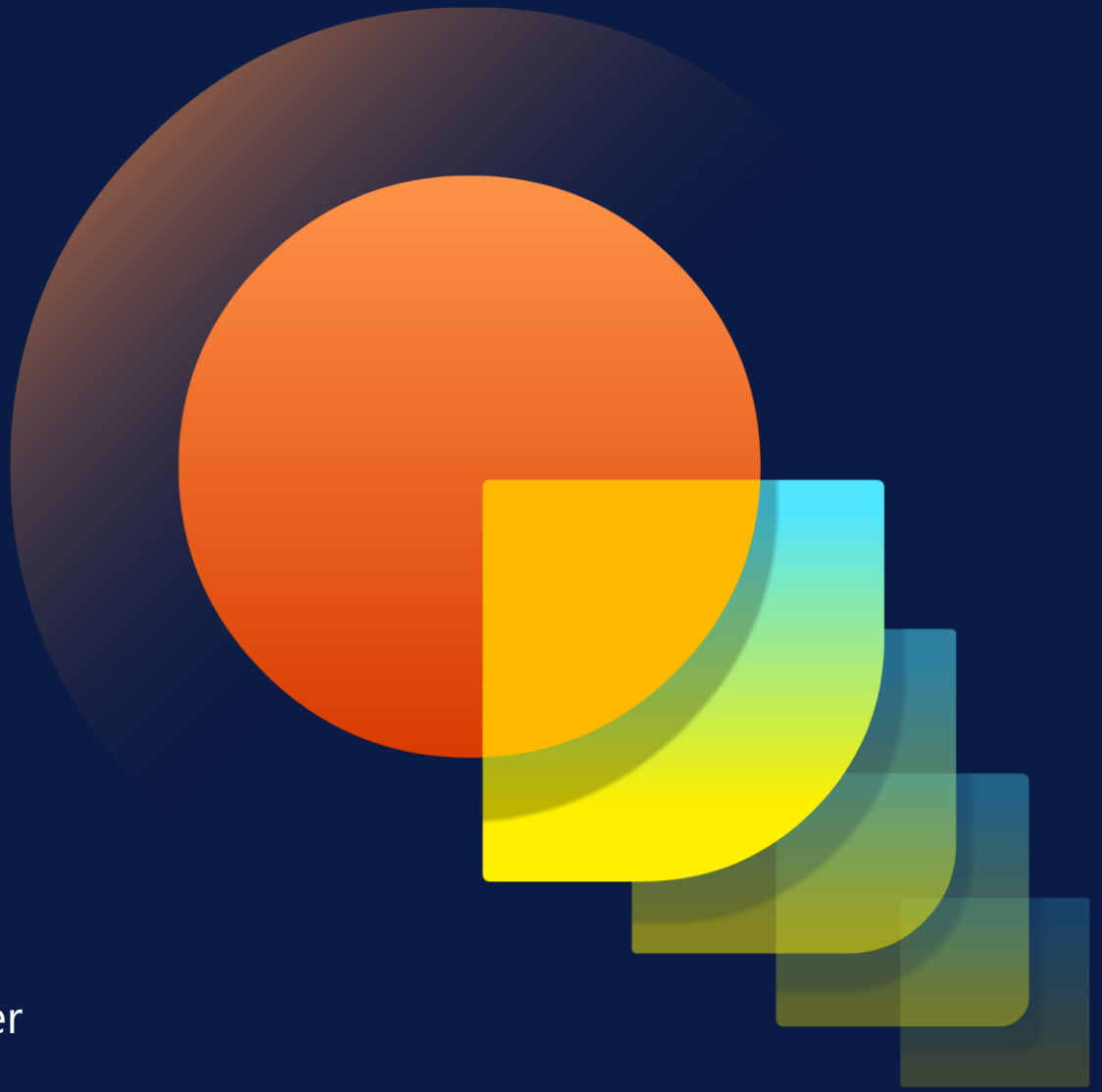
Microsoft Dynamics 365

# Dynamics 365 Business Central Launch Event



**What's new in Cloud Migration**

Nikola Kukrika, Principal Software Engineer
Dmitry Chadayev, Principal Group Program Manager

April 2022

# Agenda

- New functionality
- Hardening and fixes
- Tooling availability

# Delegated admin can run Cloud Migration

# Delegated admin can run Cloud Migration

Requires an approval from Licensed User with SUPER Permissions

After approval is granted, Delegated Admin can configure and run Cloud Migration

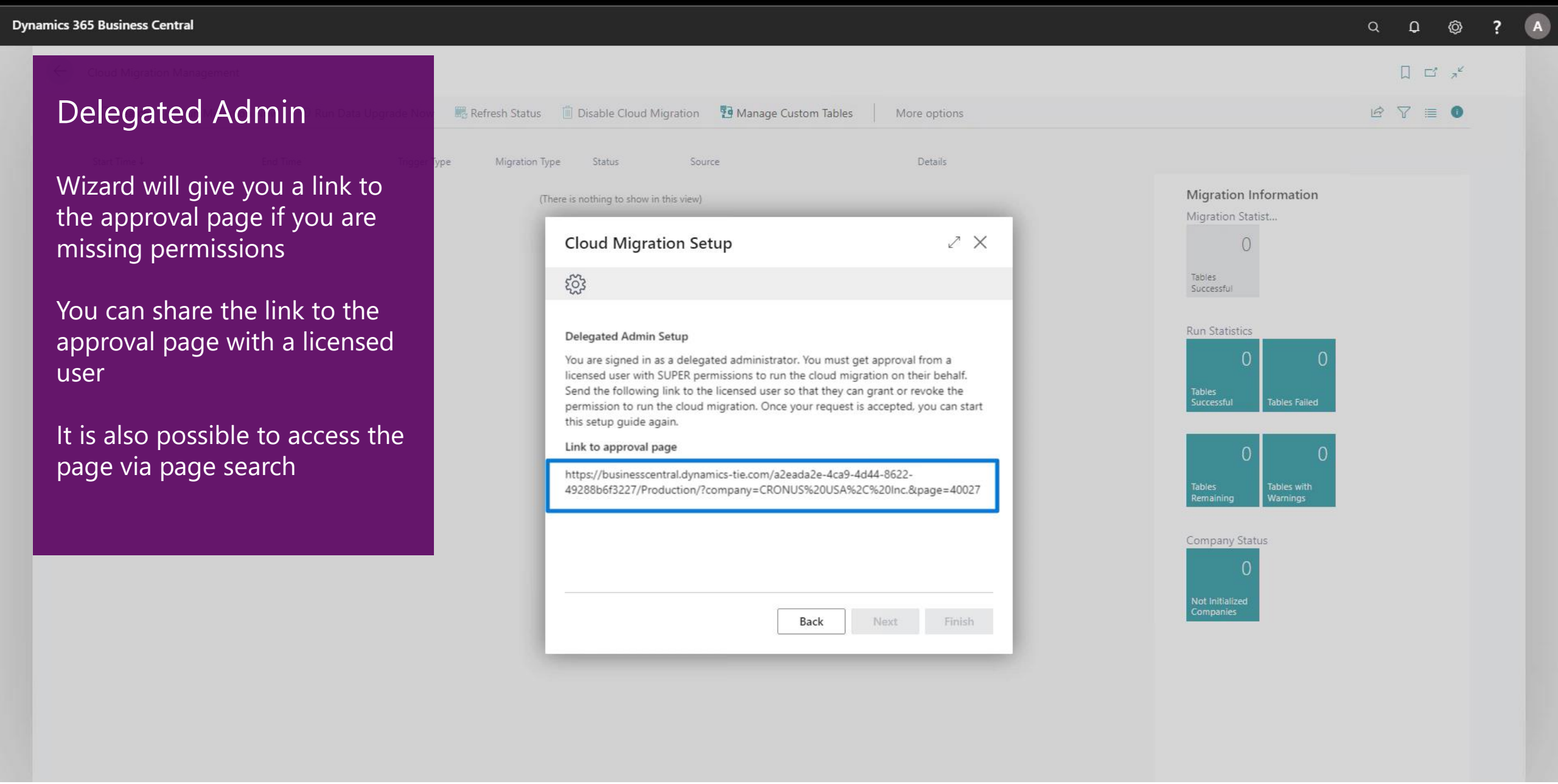
If approval is revoked, cloud migration stops

# Delegated Admin

Wizard will give you a link to the approval page if you are missing permissions

You can share the link to the approval page with a licensed user

It is also possible to access the page via page search

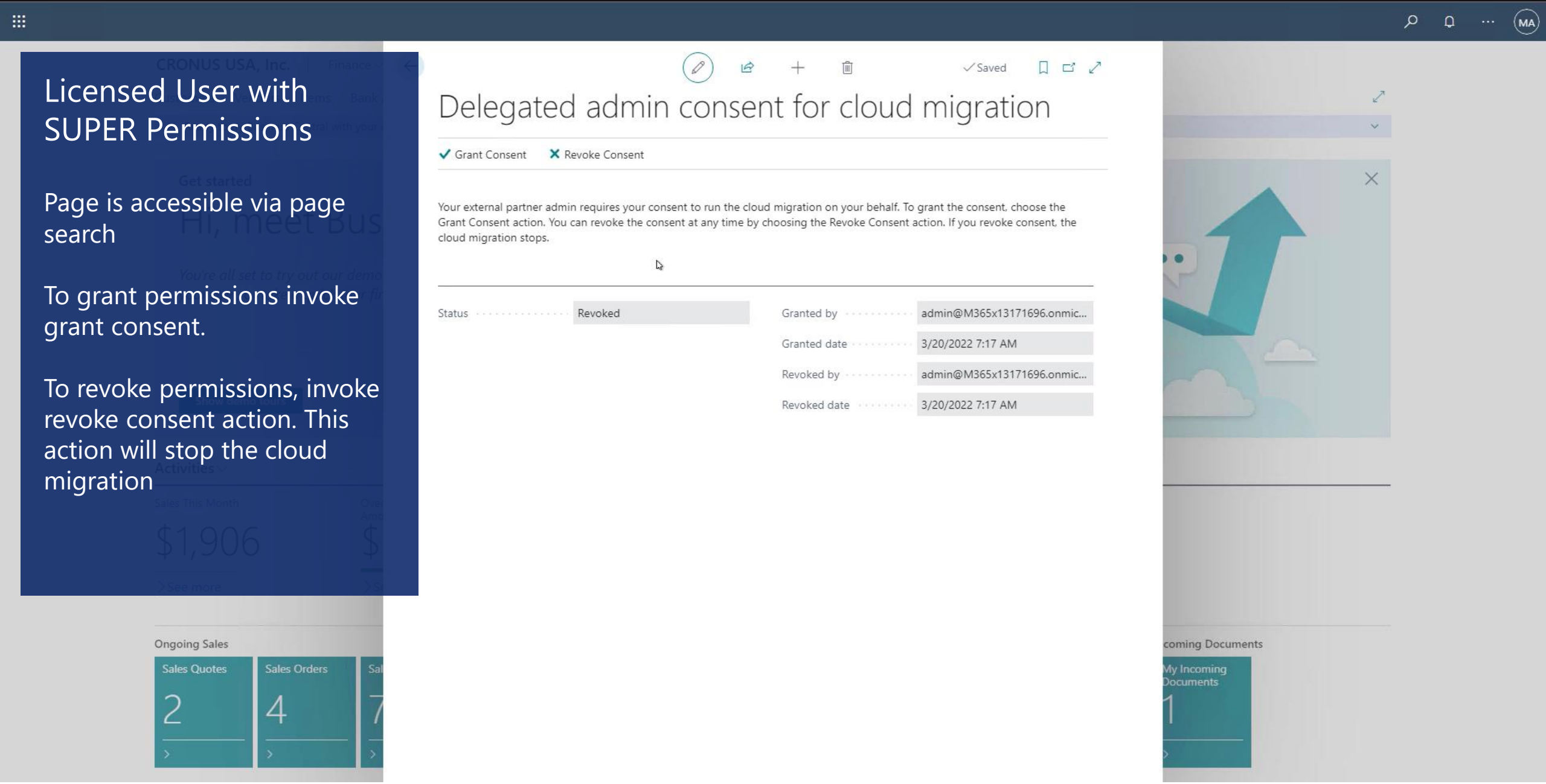


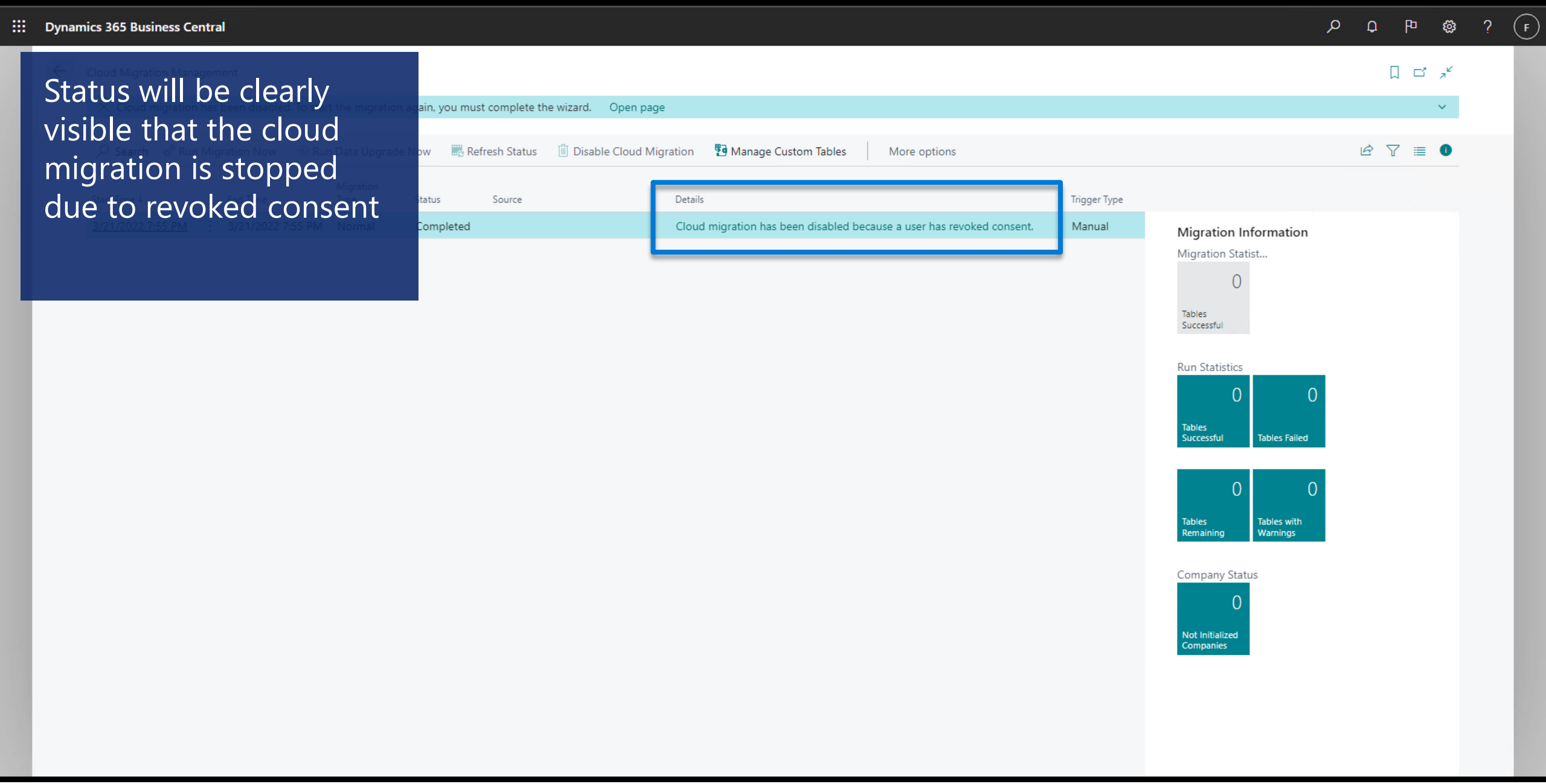
# Licensed User with SUPER Permissions

Page is accessible via page search

To grant permissions invoke grant consent.

To revoke permissions, invoke revoke consent action. This action will stop the cloud migration




Dynamics 365 Business Central
Status will be clearly visible that the cloud migration is stopped due to revoked consent
Cloud Migration Management
ain, you must complete the wizard.
Open page
Refresh Status
Disable Cloud Migration
Manage Custom Tables
More options
Source
Details
Trigger Type
Completed
Cloud migration has been disabled because a user has revoked consent.
Manual
Migration Information
Migration Statist...
0
Tables Successful
Run Statistics
0
Tables Successful
0
Tables Failed
0
Tables Remaining
0
Tables with Warnings
Company Status
0
Not Initialized Companies

# API for managing Cloud Migration E2E

# API for managing Cloud Migration E2E

Setup and manage Cloud Migration End-to-End with APIs
No UI interaction needed

# API for managing Cloud Migration E2E

## Setup APIs:

- Setup Cloud Migration (Wizard)
- Company management - choose and create On-Prem companies
- Define table mappings for custom tables

## Migration management:

- Replicate data
- Track progress – replicated, pending, failed tables
- Start upgrade
- Disable cloud migration

## Demo

66 companies (10 companies in batch)
60 GB of data
From version 14

With no UI interaction

CloudMigrationScripts.ps1

```
$script:BCProductType = 'DynamicsBC'
$script:BCLastProductType = 'DynamicsBCLast'
$script:DynamicsGPProductType = 'DynamicsGP'

$script:EnvironmentName = 'Production'

$script:GetStatusRetryAttempts = 10;
$script:GetStatusSleepSeconds = 12;
$script:MaxNumberOfCompaniesToMoveAtOnce = 10;
$script:GetReplicationRetryAttempts = 10;
$script:GetReplicationRetryAttempts = 10;

function Run-CloudMigrationE2E

    [string] $Password = $script:CurrentPassword,
    [string] $ProductId = $script:BCLastProductType,
    [string] $SqlServerType = 'SQLServer',
    [switch] $SkipSetup,
    [string] $SqlConnectionString,
    [System.Collections.ArrayList] $ExcludedCompanies = [System.Collections.ArrayList]::new(),
    [string] $Version = "v1.0"
)
{
    if(-not $SkipSetup)
    {
        $AsciiTextColor = "Yellow"
```

API has completed the wizard and received the authentication key for the Integration Runtime

```
PS C:\Users\nikolak\Desktop\API\APITestScripts>  Run-CloudMigrationE2E -SqlConnectionString $SqlConnectionString
==========================================================================================================================
SETUP CLOUD MIGRATION
==========================================================================================================================
Creating initial setup to get integration runtime
Recieved integration runtime key
==========================================================================================================================
CONFIGURING INTEGRATION RUNTIME
==========================================================================================================================
Updating integraiton runtime with new setup key
```

# We have configured the Integration Runtime programatically

```
    [string] $Version = "v1.0"
)
{
    if(-not $SkipSetup)
    {
        $AsciiTextColor = "Yellow"
```

```
PS C:\Users\nikolak\Desktop\API\APITestScripts>  Run-CloudMigrationE2E -SqlConnectionString $SqlConn
```

```
Creating initial setup to get integration runtime
Recieved integration runtime key
```

```
Updating integraiton runtime with new setup key
Integration Runtime registration is successful!
```

Microsoft Integration Runtime Configuration Manager

Home | Settings | Diagnostics | Update | Help

UPDATE AVAILABLE Click here for more information

Self-hosted node is connected to the cloud service

| | |
|---|---|
| Data Factory: | bchybridrepadf9 |
| Integration Runtime: | msft1a6720t01730459 |
| Node: | nikolak-az01 |

Stop Service

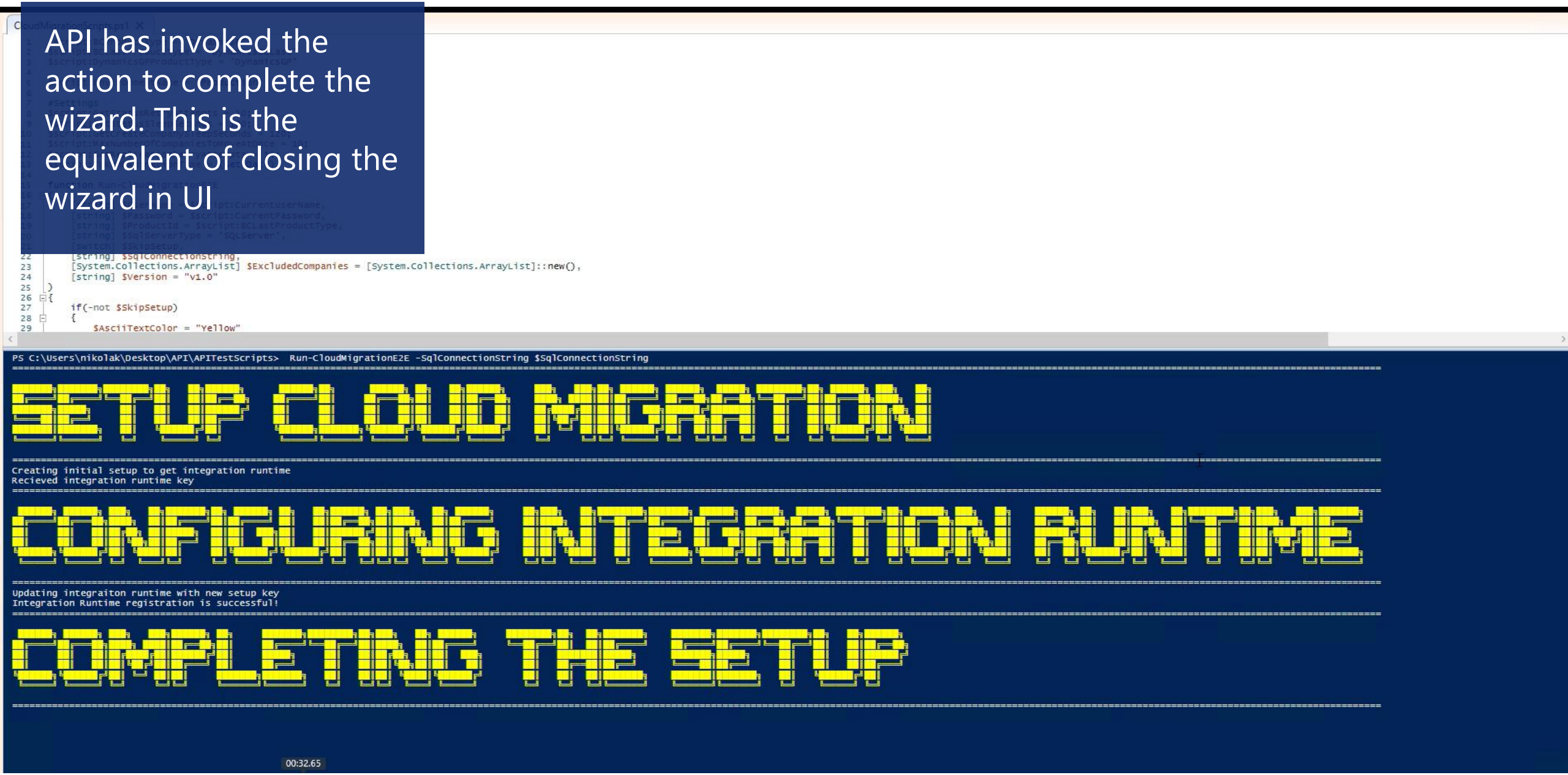
Data Source Credential

| | |
|---|---|
| Credential store: | On-premises |
| Credential status: | In sync |
| Last backup time: | N/A |

Generate Backup | Import Backup

Connected to the cloud service (Data Factory V2)

API has invoked the action to complete the wizard. This is the equivalent of closing the wizard in UI



We are creating all companies from OnPrem Instance in batches of 10 before calling replication

CloudMigrationScripts.ps1

```
[string] $sqlConnectionString,
[System.Collections.ArrayList] $ExcludedCompanies = [System.Collections.ArrayList]::new(),
[string] $Version = "v1.0"
)
{
    if(-not $SkipSetup)
    {
        $AsciiTextColor = "Yellow"
```

```
==========
Updating setup with runtime
Invoking complete setup action
Completed the Setup
==========
```

# CREATING THE ON-PREM COMPANIES IN SAAS INSTANCE

```
==========

@odata.context : https://api.businesscentral.dynamics.com/v2.0/79dbd222-0f30-42a6-9f25-3164d21b269a/Production/api/microsoft/cloudMigration/v1.0/$metadata#companies(c4c1f6b5-5896-ec11-bb88-6045bd8b19aa)/cloudMigrationCompanies/$entity
@odata.etag    : W/"JzE5OzM2ODk1MjY0NzU4Njk3MDg4NjIxOzAwOyc="
id             : eb9373a3-a0a8-ec11-997e-14cb651ee657
name           : CRONUS US Migrate
replicate      : True
displayName    :
estimatedSize  : 0.0514296875
status         : Completed
created        : True

@odata.context : https://api.businesscentral.dynamics.com/v2.0/79dbd222-0f30-42a6-9f25-3164d21b269a/Production/api/microsoft/cloudMigration/v1.0/$metadata#companies(c4c1f6b5-5896-ec11-bb88-6045bd8b19aa)/cloudMigrationCompanies/$entity
@odata.etag    : W/"JzIwOzEzMTA1NjIyOTczNDM0MDUwOTcxMTswMDsn"
id             : ec9373a3-a0a8-ec11-997e-14cb651ee657
name           : CRONUS US Migrate O365
replicate      : True
displayName    :
estimatedSize  : 0.0335625
status         : Completed
created        : True
```

We are moving data into SaaS instance

Still using batches of 10 companies

CloudMigrationScripts.ps1

```
$script:BCProductType = 'DynamicsBC'
$script:EnvironmentName = 'Production'
$script:GetStatusRetryAttempts = 10;
$script:GetStatusSleepSeconds = 120;
$script:GetCreateCompanySleepSeconds = 120;
$script:MaxNumberOfCompaniesToMoveAtOnce = 10;
$script:GetReplicationRetryAttempts = 10;
$script:GetRepliceTimeRetryAttempts = (Get-Date)
(
    [string] $UserName = $script:CurrentUserName,
    [string] $Password = $script:CurrentPassword,
    [string] $BCLastProductType = $script:BCLastProductType,
    [string] $SqlServerType = 'SQLServer',
    [switch] $SkipSetup,
    [string] $SqlConnectionString,
    [System.Collections.ArrayList] $ExcludedCompanies = [System.Collections.ArrayList]::new(),
    [string] $Version = "v1.0"
)
{
    if(-not $SkipSetup)
    {
        $AsciiTextColor = "Yellow"
```

```
status          :
created         : False
```

# RUNNING DATA REPLICATION

```
@odata.context : https://api.businesscentral.dynamics.com/v2.0/79dbd222-0f30-42a6-9f25-3164d21b269a/Production/api/microsoft/cloudMigration/v1.0/$metadata#companies(c4c1f6b5-5896-ec11-bb88-6045bd8b19aa)/cloudMigrationCompanies/$entity
@odata.etag    : W/"JzE5OzM2ODk1MjYONzU4Njk3MDg4NjIxOzAwOyc="
id             : eb9373a3-a0a8-ec11-997e-14cb651ee657
name           : CRONUS US Migrate
replicate      : True
displayName    :
estimatedSize  : 0.0514296875
status         : Completed
created        : True

@odata.context : https://api.businesscentral.dynamics.com/v2.0/79dbd222-0f30-42a6-9f25-3164d21b269a/Production/api/microsoft/cloudMigration/v1.0/$metadata#companies(c4c1f6b5-5896-ec11-bb88-6045bd8b19aa)/cloudMigrationCompanies/$entity
@odata.etag    : W/"JzIwOzEzMTA1NjIyOTczNDM0MDUwOTcxMTswMDsn"
id             : ec9373a3-a0a8-ec11-997e-14cb651ee657
name           : CRONUS US Migrate O365
replicate      : True
displayName    :
estimatedSize  : 0.0335625
status         : Completed
created        : True

@odata.context : https://api.businesscentral.dynamics.com/v2.0/79dbd222-0f30-42a6-9f25-3164d21b269a/Production/api/microsoft/cloudMigration/v1.0/$metadata#companies(c4c1f6b5-5896-ec11-bb88-6045bd8b19aa)/cloudMigrationCompanies/$entity
@odata.etag    : W/"JzIwOzE1Njg2OTU2Nzk3MDE3MjAwNDczMTswMDsn"
id             : ed9373a3-a0a8-ec11-997e-14cb651ee657
name           : My Company Migrate
replicate      : True
displayName    :
estimatedSize  : 0.00639062500000000000
status         : Completed
created        : True
```

CloudMigrationScripts.ps1

```
$script:BCProductType = 'DynamicsBC'
$script:BCLastProductType = 'DynamicsBCLast'
$script:DynamicsCRProductType = 'DynamicsCR'

$script:EnvironmentName = 'Production'

$script:GetStatusSleepSeconds = 120;
$script:ToKenExpirationTime = (Get-Date)

function Run-CloudMigrationE2E
{
    [string] $UserName = $script:CorrentUserName,
    [string] $SqlServerType = 'SQLServer',
    [switch] $SkipSetup,
    [string] $Version = "v1.0"
}
    {
        $AsciiTextColor = "Yellow"
```

Data upgrade was triggered at the end

After successful upgrade we have disabled the cloud migration

```
status          :
created         : False

@odata.context : https://api.businesscentral.dynamics.com/v2.0/79dbd222-0f30-42a6-9f25-3164d21b269a/Production/api/microsoft/cloudMigration/v1.0/$metadata#companies(c4c1f6b5-5896-ec11-bb88-6045bd8b19aa)/cloudMigrationCompanies/$entity
@odata.etag    : W/"JzE5OzU5ODQyNDIzNTU5NTQzNjgwNDcxOzAwOyc="
id             : c95dddf5-58a9-ec11-997e-14cb651ee657
name           : CRONUS Int. onprem 9
replicate      : False
displayName    : CRONUS Int. onprem 9
estimatedSize  : 0.0452265625
status         :
created        : False
```

# RUNNING DATA UPGRADE

```
Waiting for Data Upgrade to complete
Waiting for Data Upgrade to complete
Waiting for Data Upgrade to complete
Waiting for Data Upgrade to complete
Waiting for Data Upgrade to complete
Data Upgrade Completed Succesfully
```

# DISABLING CLOUD MIGRATION

```
Disabled Cloud Migration

PS C:\Users\nikolak\Desktop\API\APITestScripts>
```

# Summary

Migrated 66 companies (10 companies in batch)

~60 GB of data

From version 14

40000+ Tables

~12h Time to complete E2E

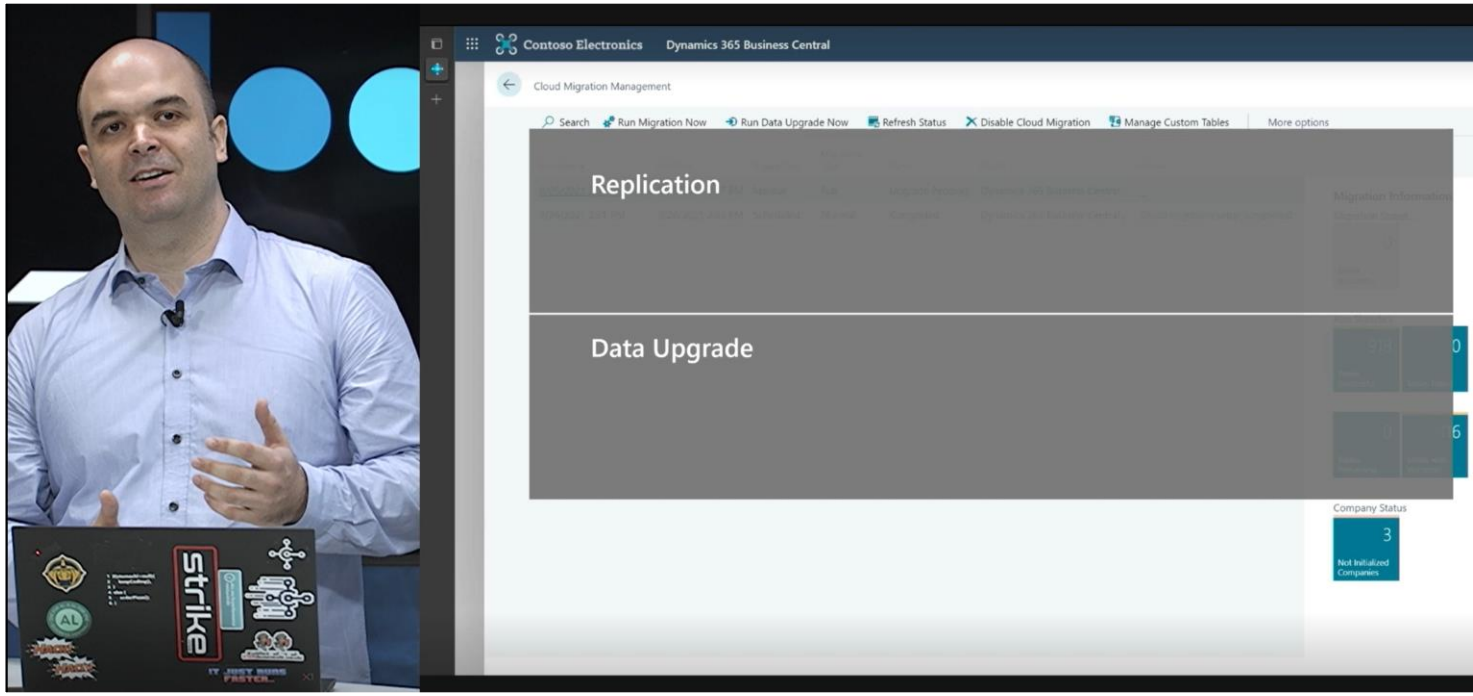
Without UI interactions

You can download the script form:
https://aka.ms/BCCloudMigrationAPI

# Two step Microsoft Dynamics GP Cloud Migration

# Previous Business Central Launch event

Running migration in two steps for **Business Central**



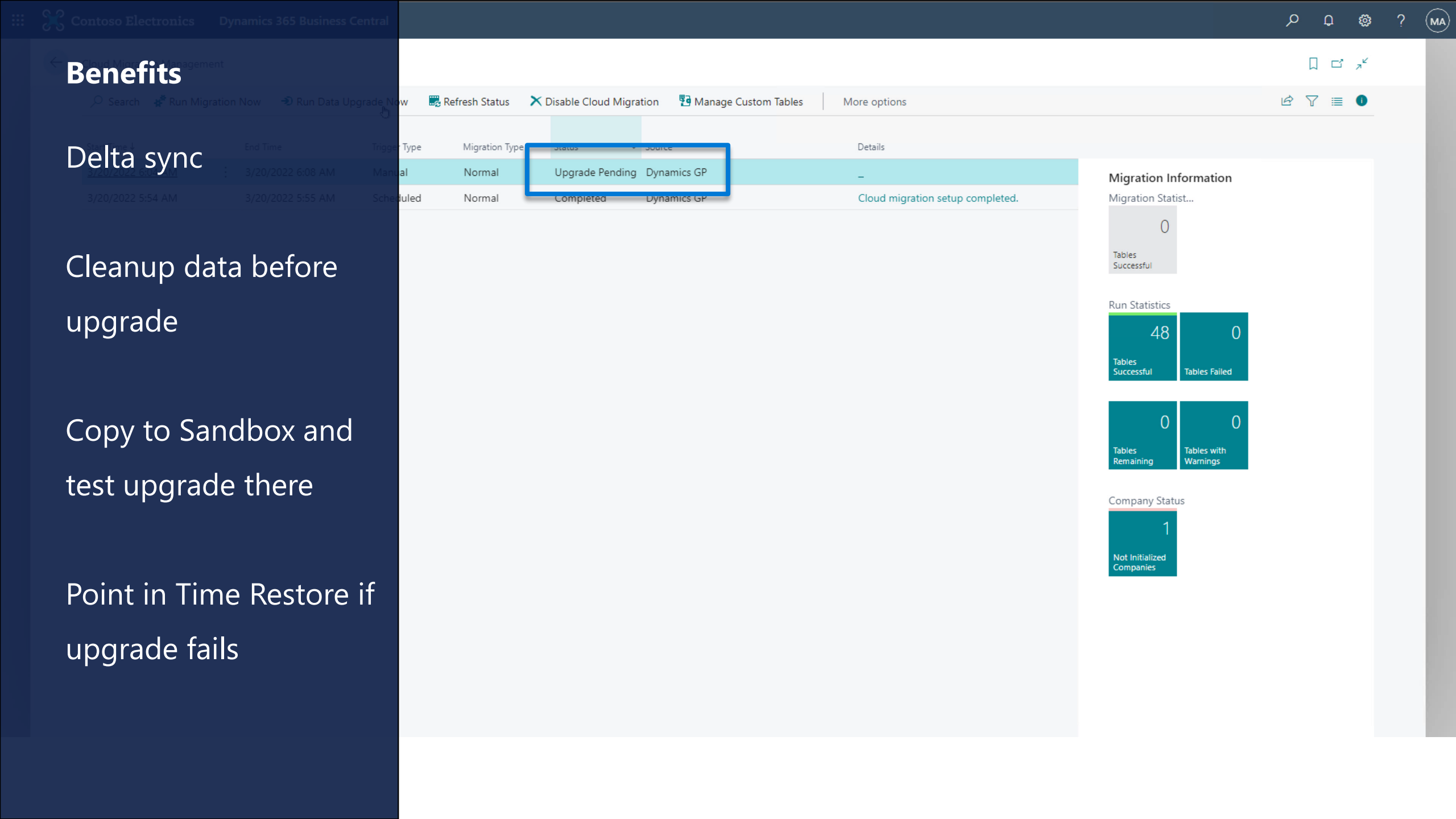
# Benefits

Delta sync

Cleanup data before upgrade

Copy to Sandbox and test upgrade there

Point in Time Restore if upgrade fails



Cloud Migration Management

Search | Run Migration Now | Run Data Upgrade Now | Refresh Status | Disable Cloud Migration | Manage Custom Tables | More options

| Start Time | End Time | Trigger Type | Migration Type | Status | Source | Details |
|---|---|---|---|---|---|---|
| 3/20/2022 6:04 AM | 3/20/2022 6:08 AM | Manual | Normal | Upgrade Pending | Dynamics GP | _ |
| 3/20/2022 5:54 AM | 3/20/2022 5:55 AM | Scheduled | Normal | Completed | Dynamics GP | Cloud migration setup completed. |

## Migration Information

Migration Statist...

0
Tables Successful

Run Statistics

48
Tables Successful

0
Tables Failed

0
Tables Remaining

0
Tables with Warnings

Company Status

1
Not Initialized Companies

Cloud Migration Management

Search | Run Migration Now | Run Data Upgrade Now | Refresh Status | Disable Cloud Migration | Manage Custom Tables | More options

| Start Time ↓ | End Time | Trigger Type | Migration Type | Status | Source | Details |
|---|---|---|---|---|---|---|
| 3/20/2022 6:04 AM | 3/20/2022 6:08 AM | Manual | Normal | Upgrade in Prog... | Dynamics GP | _ |
| 3/20/2022 5:54 AM | 3/20/2022 5:55 AM | Scheduled | Normal | Completed | Dynamics GP | Cloud migration setup completed. |

## Migration Information

Migration Statist...

0
Tables Successful

Run Statistics

48
Tables Successful

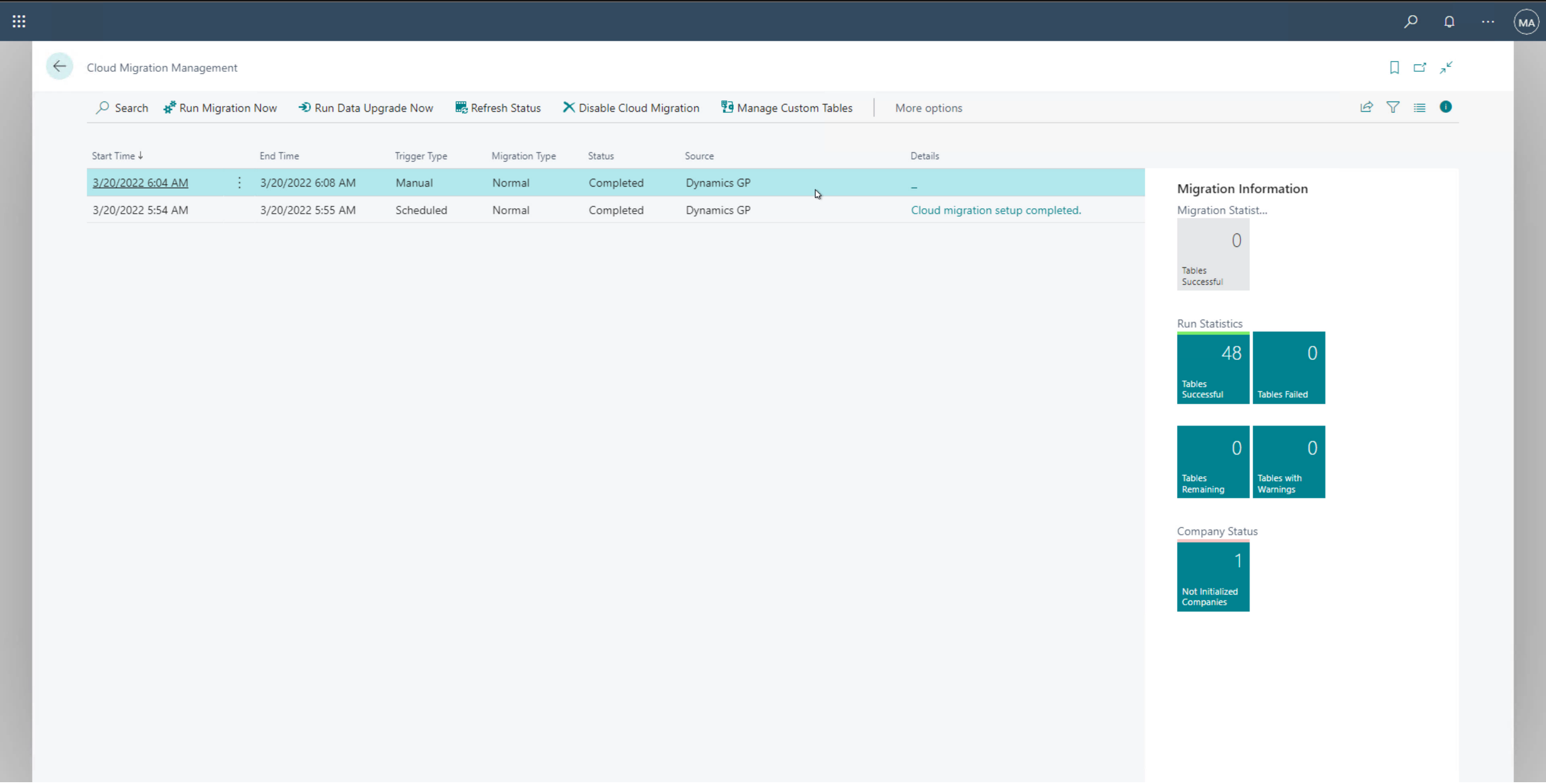
0
Tables Failed

0
Tables Remaining

0
Tables with Warnings

Company Status

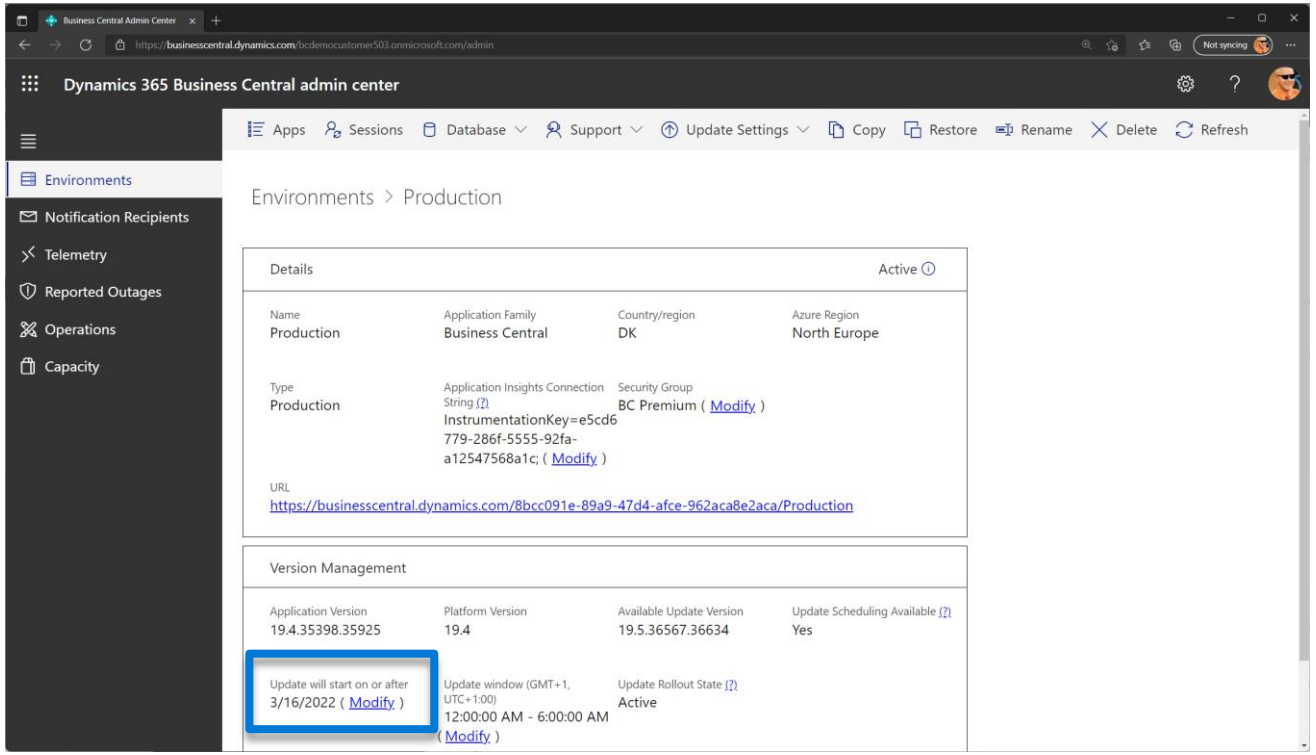
1
Not Initialized Companies


Cloud Migration Management
Search
Run Migration Now
Run Data Upgrade Now
Refresh Status
Disable Cloud Migration
Manage Custom Tables
More options
Start Time
End Time
Trigger Type
Migration Type
Status
Source
Details
3/20/2022 6:04 AM
3/20/2022 6:08 AM
Manual
Normal
Completed
Dynamics GP
_
3/20/2022 5:54 AM
3/20/2022 5:55 AM
Scheduled
Normal
Completed
Dynamics GP
Cloud migration setup completed.
Migration Information
Migration Statist...
0
Tables Successful
Run Statistics
48
Tables Successful
0
Tables Failed
0
Tables Remaining
0
Tables with Warnings
Company Status
1
Not Initialized Companies

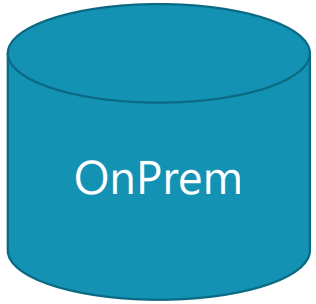
# Avoid an unexpected data upgrade during cloud migration

# Avoid an unexpected data upgrade during cloud migration

- When migrating from a previous version of Business Central, we strongly recommend that you **perform upgrade step one time** after you have completed the migration of all your customer's data to the online environment.
- Business Central major or minor update will **automatically trigger the upgrade** of the migrated data **and turn off cloud migration** for the environment.
- If you want to complete the migration before running data upgrade, you can **postpone any scheduled major and minor updates** for the target environment in the Business Central admin center.



# Handling of Per-Database tables



Company 1

Table 1 Table 2 Table 3 ...

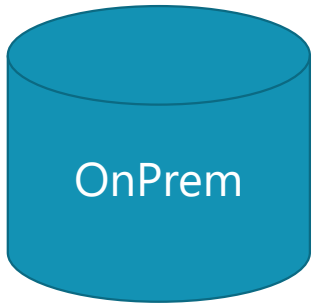
Company 2

Table 1 Table 2 Table 3 ...

Per Database tables

Table 1 Table 2 Table 3 ...

We want to move 2 companies to SaaS Instance



Company 1

Table 1 Table 2 Table 3 ...

Company 2

Table 1 Table 2 Table 3 ...

Per Database tables

Table 1 Table 2 Table 3 ...

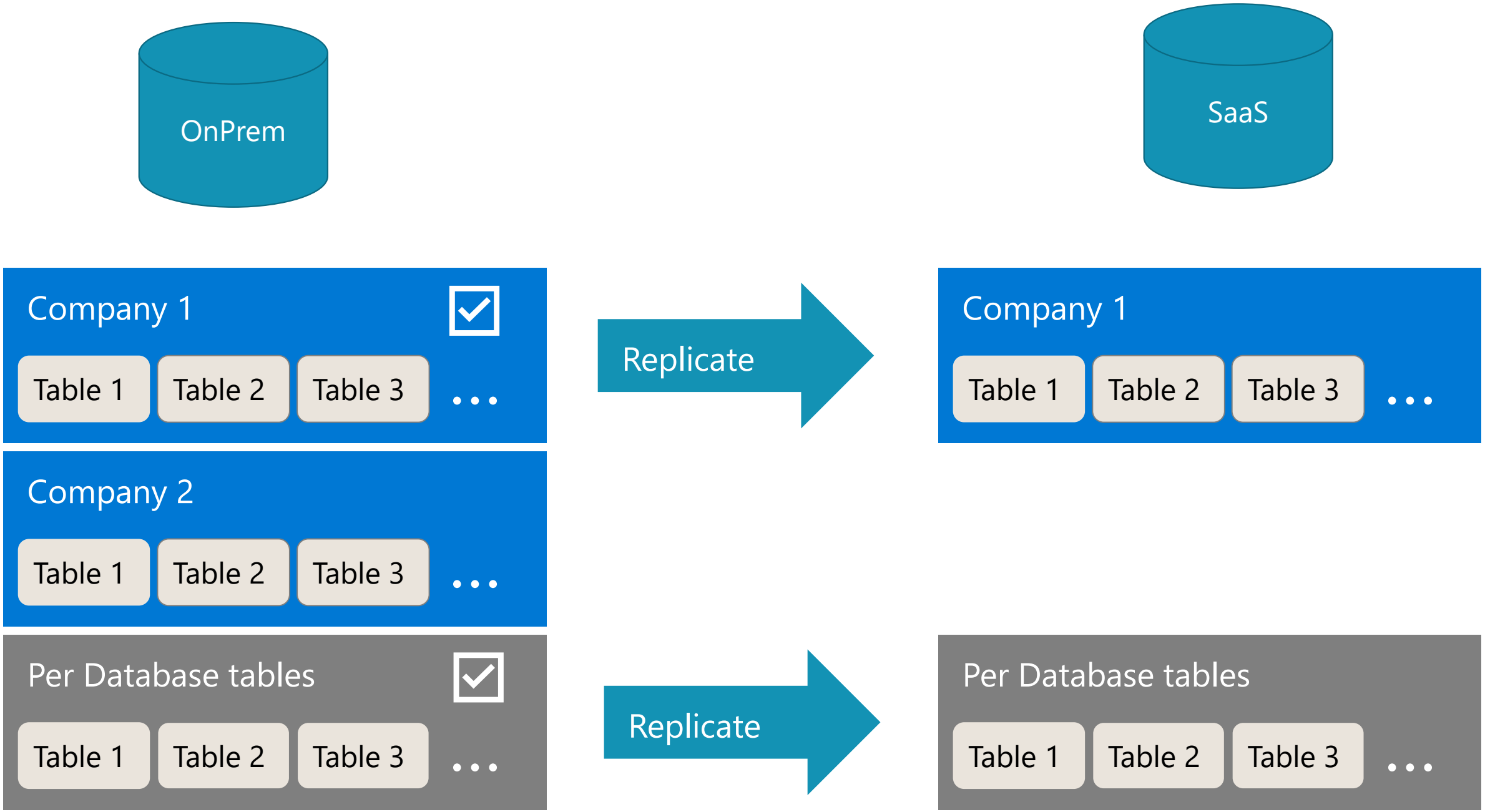
Replicate

Company 1

Table 1 Table 2 Table 3 ...

It is not sufficient to move Per Company tables only since Per Database tables are referenced and used by Per Company tables. Table references would be broken.

Thus, we need to move the Per Database tables.


OnPrem
SaaS
Company 1
Table 1
Table 2
Table 3
...
Company 2
Table 1
Table 2
Table 3
...
Replicate
Company 1
Table 1
Table 2
Table 3
...
Per Database tables
Table 1
Table 2
Table 3
...
Replicate
Per Database tables
Table 1
Table 2
Table 3
...

The issue will occur if the decision is made that Company 1 goes live in the SaaS instance.

Then Company 1 OnPrem is left behind. Company 2 is still used for business.

Company 1

Table 1 Table 2 Table 3 ...

Company 2

Table 1 Table 2 Table 3 ...

Per Database tables

Table 1 Table 2 Table 3 ...

Company 1

Table 1 Table 2 Table 3 ...

Per Database tables

Table 1 Table 2 Table 3 ...

Because both companies are used for business, working in them is going to update the Per Database tables.

Company 2 changes are marked with ** while Company 1 changes are marked with *

Company 1

Table 1 Table 2 Table 3 . . .

Company 2

Table 1 ** Table 2 ** Table 3 . . .

Per Database table

Table 1 ** Table 2 ** Table 3 . . .

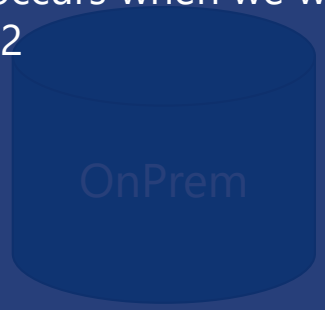
Company 1

Table 1 * Table 2 * Table 3 . . .

Per Database tables

Table 1 * Table 2 * Table 3 . . .

Problem occurs when we want to move company 2



Company 1

Table 1 | Table 2 | Table 3 | ...

Company 2

Table 1 ** | Table 2 ** | Table 3 | ...

Per Database table

Table 1 ** | Table 2 ** | Table 3 | ...

Replicate

Company 1

Table 1 * | Table 2 * | Table 3 | ...

Per Database tables

Table 1 * | Table 2 * | Table 3 | ...

We can safely move the Per Company data, but what are we going to do with Per Database data?

OnPrem

SaaS

Company 1

Table 1 | Table 2 | Table 3 | ...

Company 2

Table 1 ** | Table 2 ** | Table 3 | ...

Per Database table

Table 1 ** | Table 2 ** | Table 3 | ...

Replicate

Company 1

Table 1 * | Table 2 * | Table 3 | ...

Company 2

Table 1 ** | Table 2 ** | Table 3 | ...

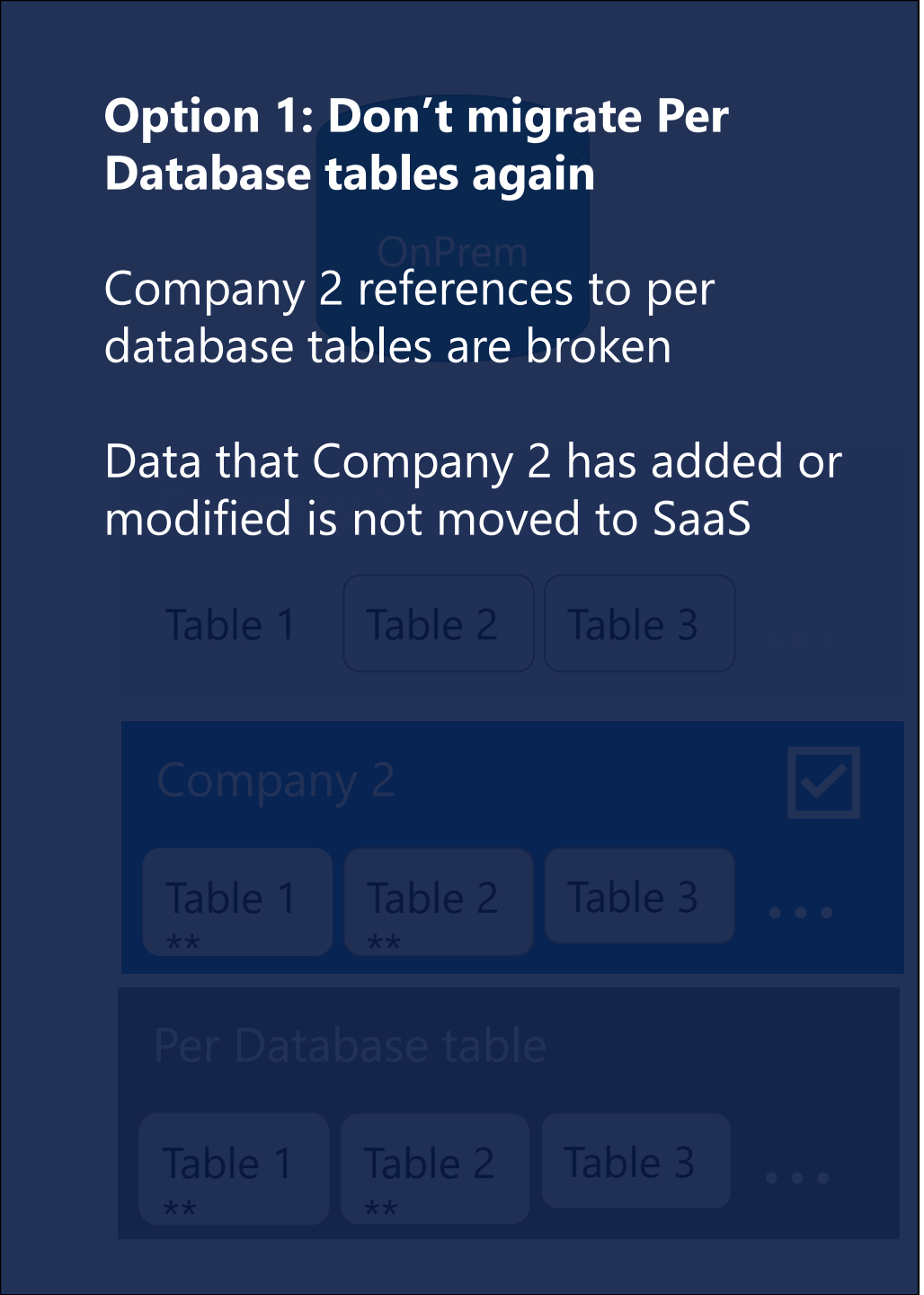
Per Database tables

Table 1 * | Table 2 * | Table 3 | ...

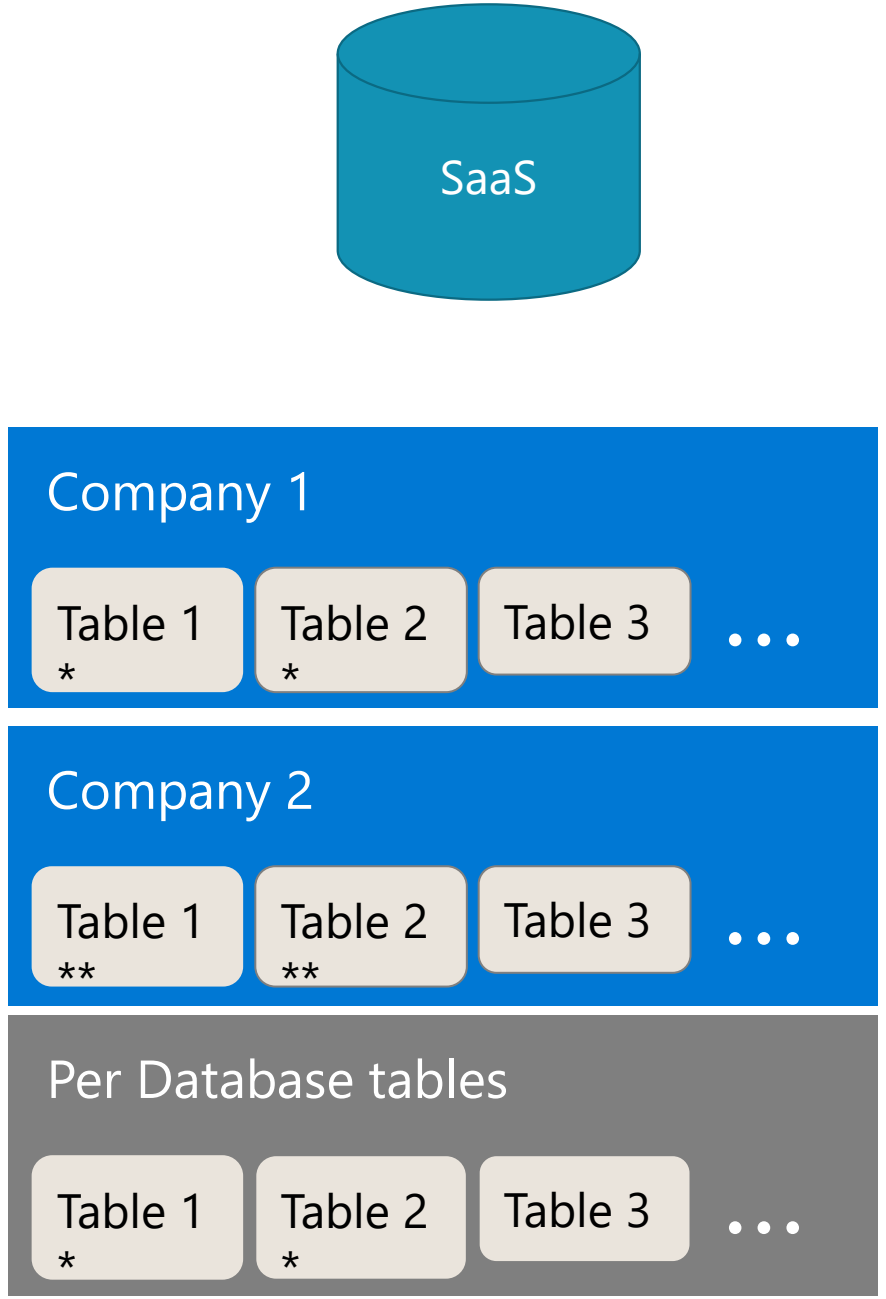
## Option 1: Don’t migrate Per Database tables again

Company 2 references to per database tables are broken

Data that Company 2 has added or modified is not moved to SaaS



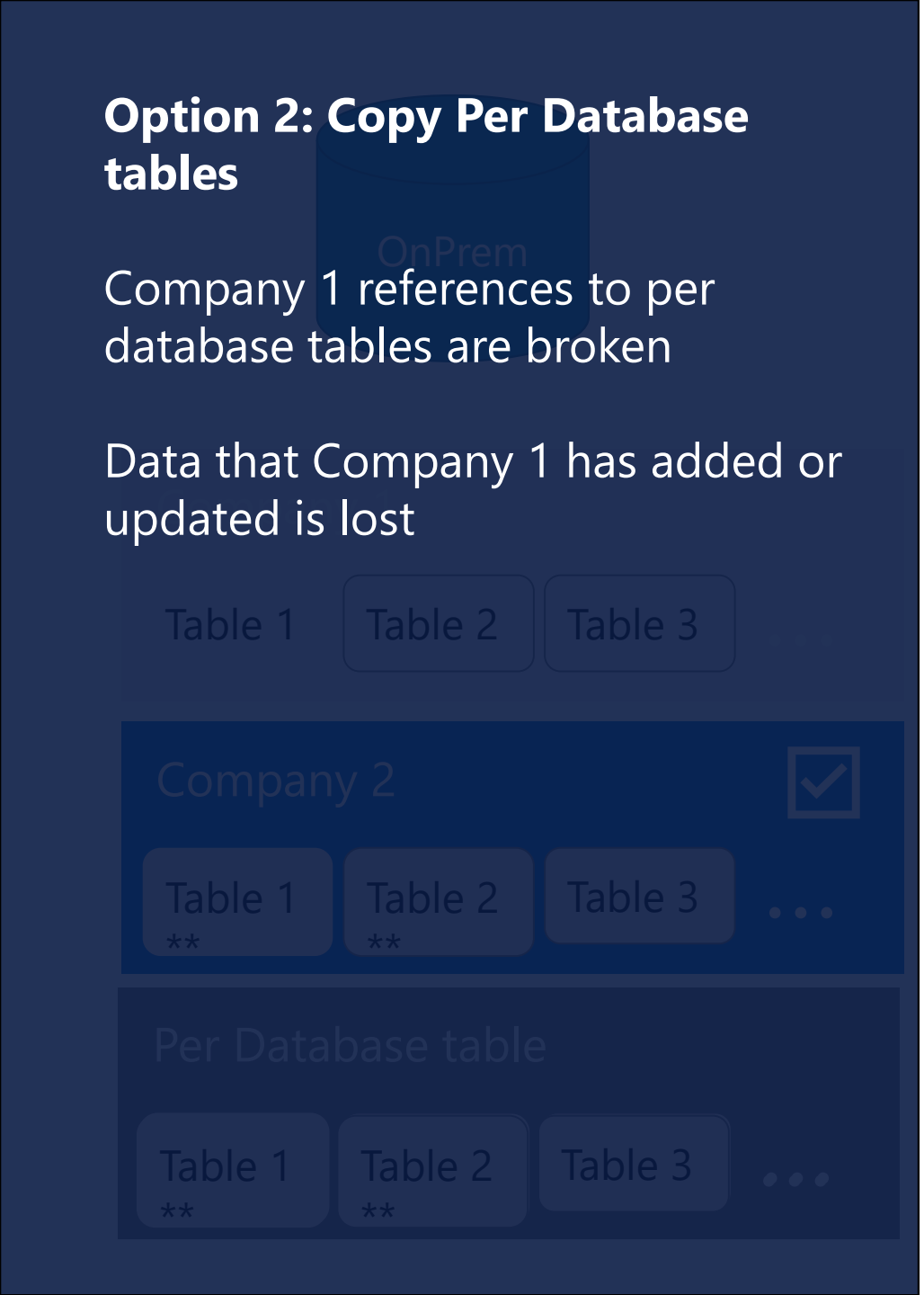

Replicate

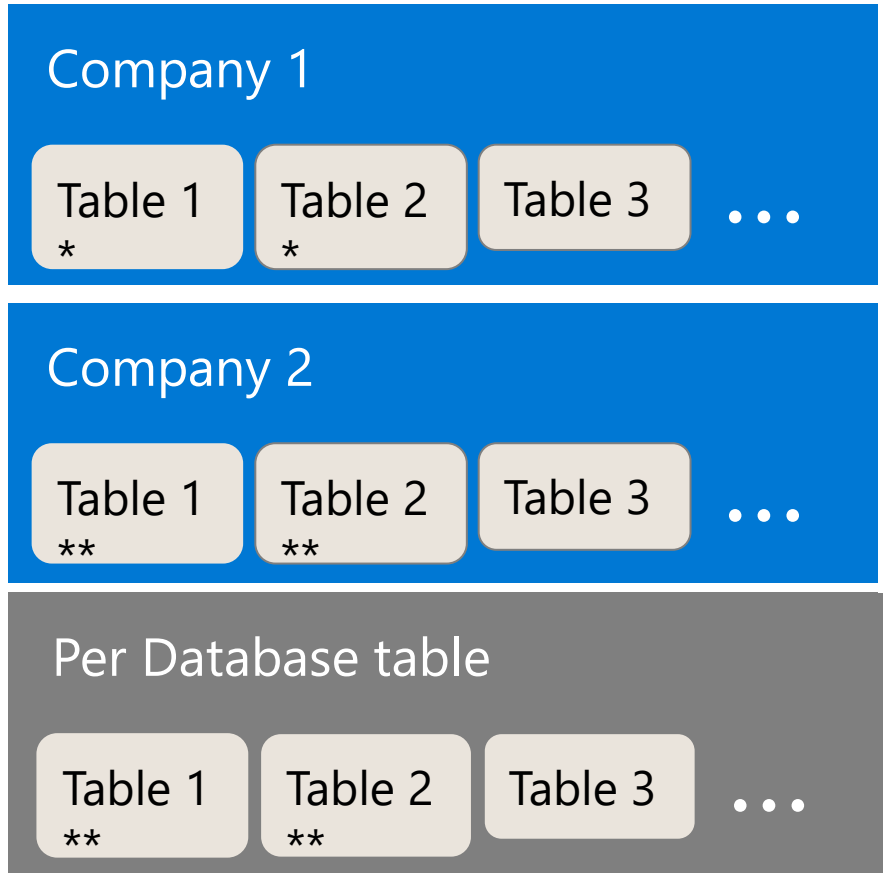


## Option 2: Copy Per Database tables

Company 1 references to per database tables are broken

Data that Company 1 has added or updated is lost



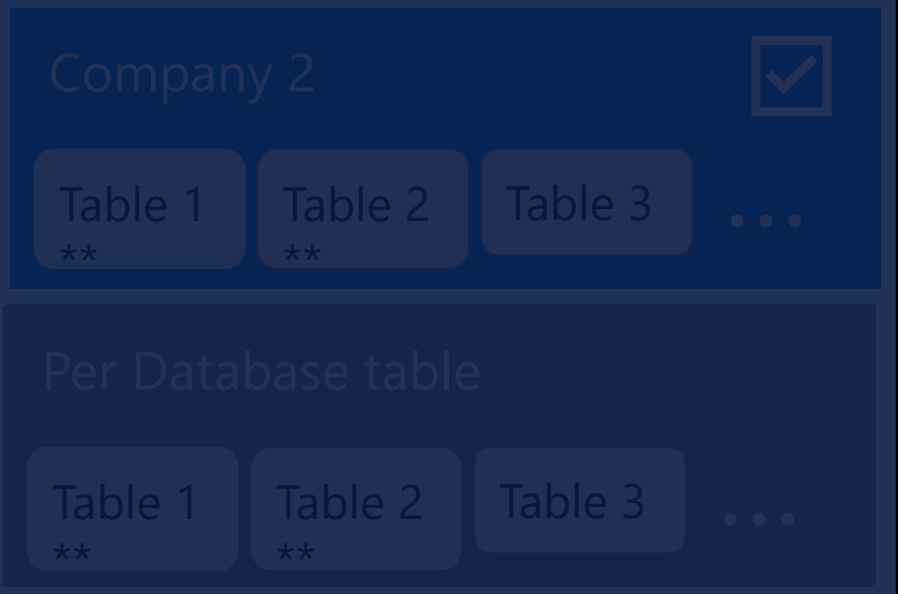


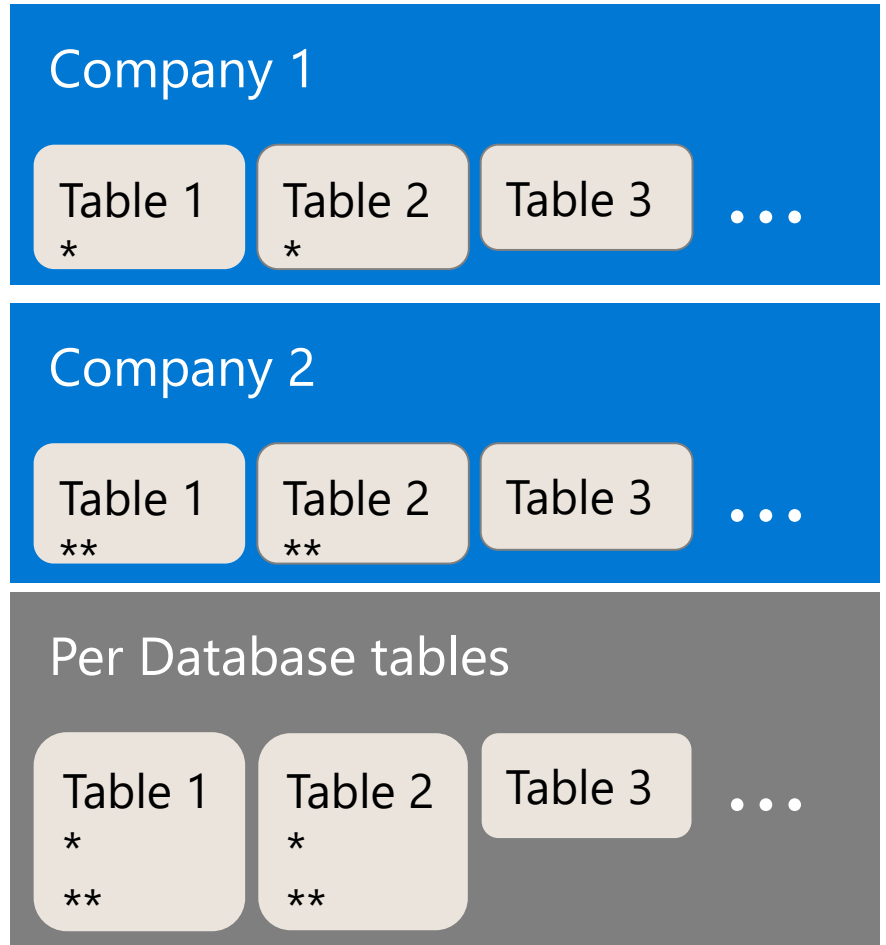
**Option 3: Insert records that do not exist**

Best option for most tables

Modifications done to the same records will be lost

Cannot be used for Singletons (Setup tables) or if both companies have modified the same record





Best option is to move all companies to SaaS before going live

OnPrem

SaaS

Company 1

Table 1 | Table 2 | Table 3 | ...

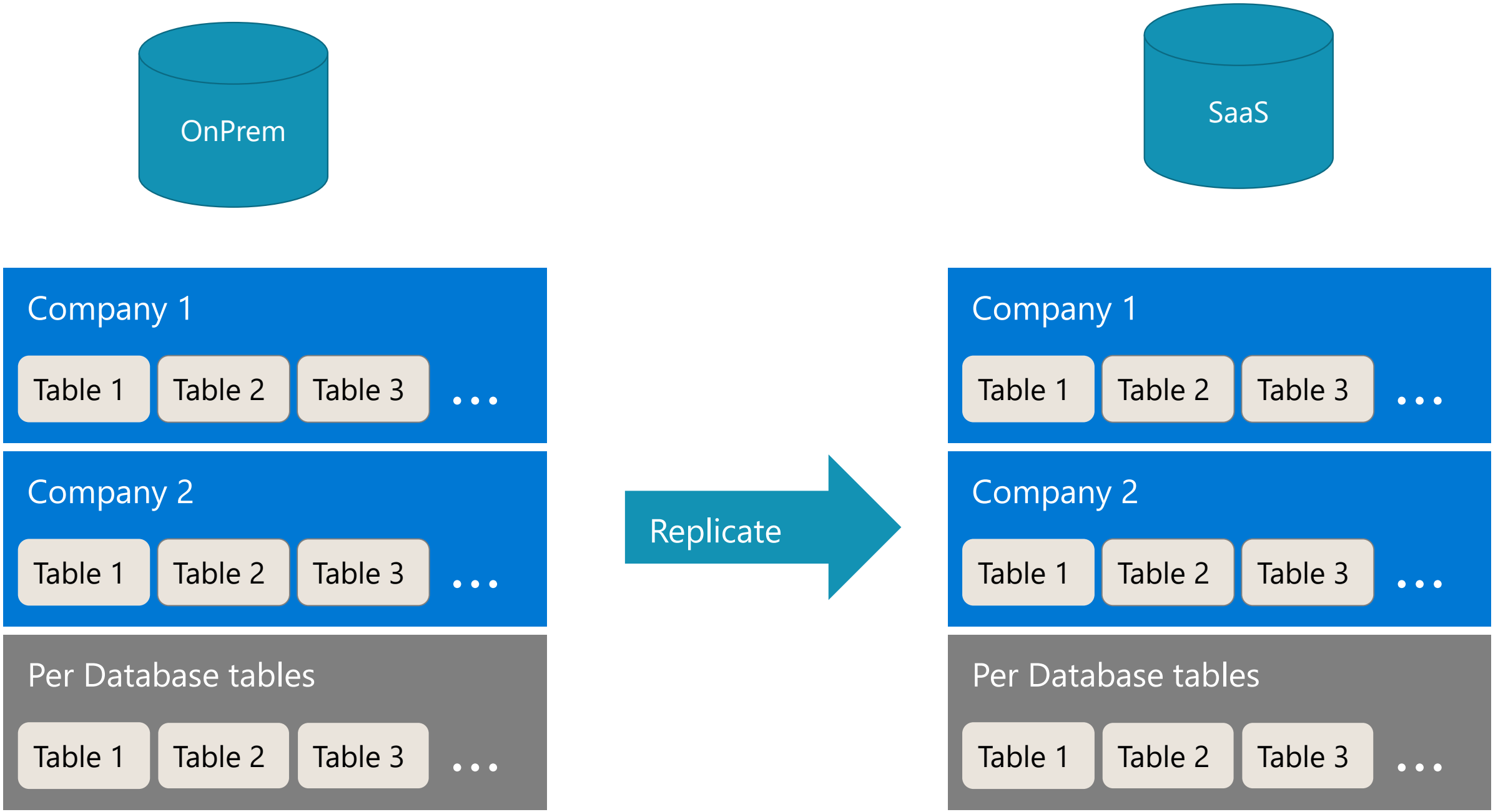
Company 2

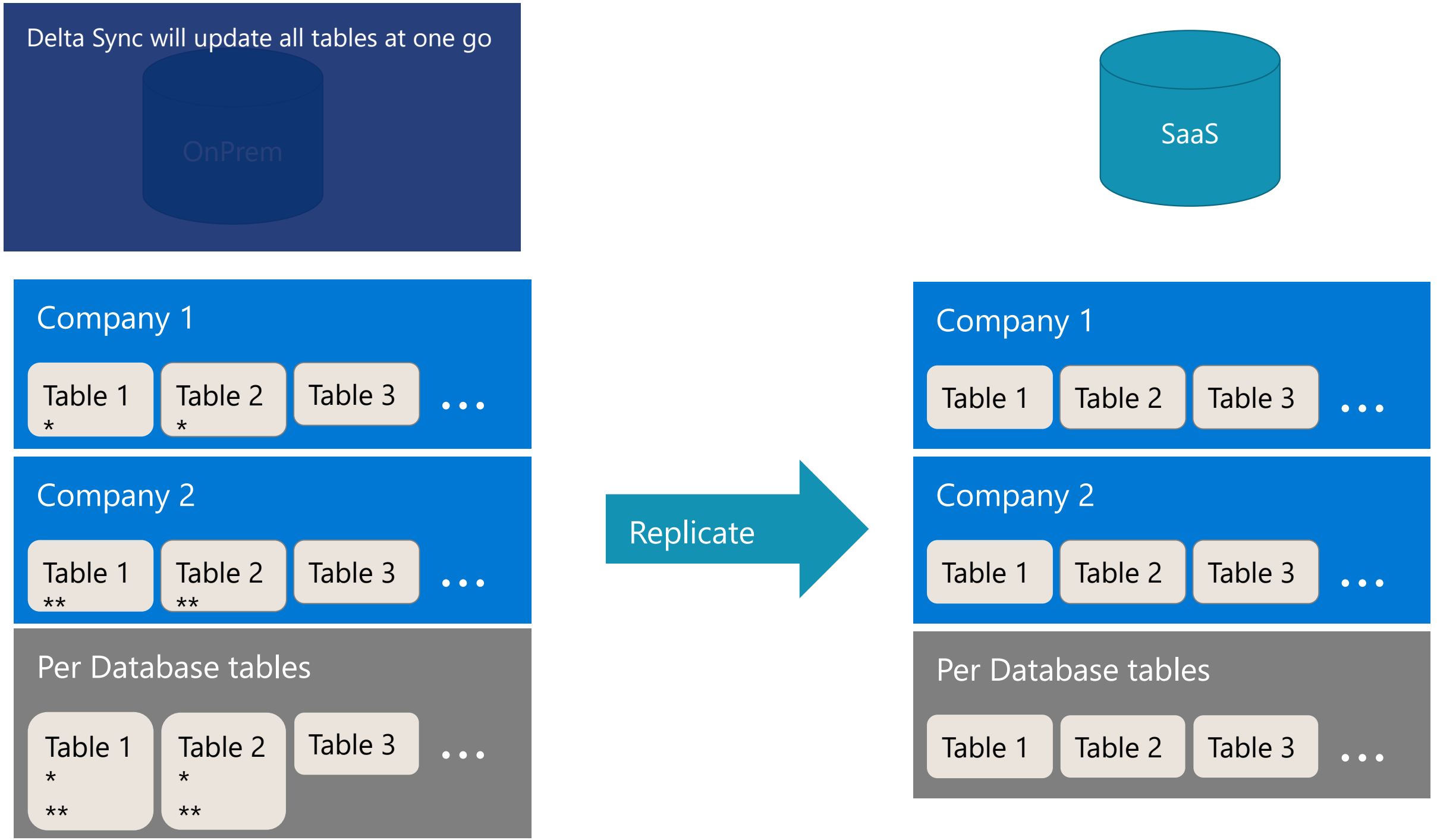
Table 1 | Table 2 | Table 3 | ...

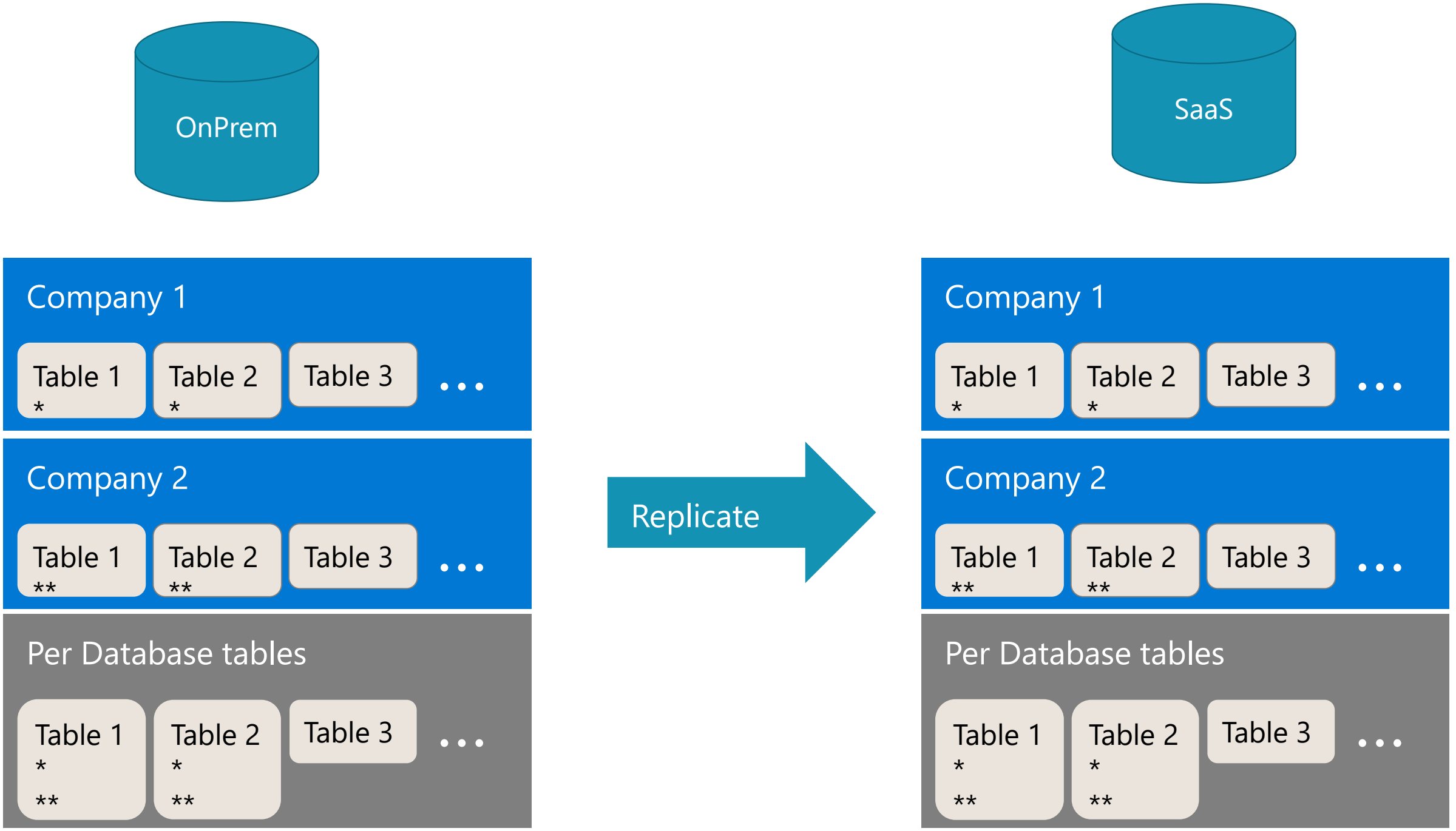
Per Database tables

Table 1 | Table 2 | Table 3 | ...

Replicate


OnPrem
SaaS
Company 1
Table 1
Table 2
Table 3
...
Company 2
Table 1
Table 2
Table 3
...
Per Database tables
Table 1
Table 2
Table 3
...
Replicate
Company 1
Table 1
Table 2
Table 3
...
Company 2
Table 1
Table 2
Table 3
...
Per Database tables
Table 1
Table 2
Table 3
...


Delta Sync will update all tables at one go
OnPrem
SaaS
Company 1
Table 1 *
Table 2 *
Table 3
...
Company 2
Table 1 **
Table 2 **
Table 3
...
Per Database tables
Table 1 * **
Table 2 * **
Table 3
...
Replicate
Company 1
Table 1
Table 2
Table 3
...
Company 2
Table 1
Table 2
Table 3
...
Per Database tables
Table 1
Table 2
Table 3
...


OnPrem
SaaS
Company 1
Table 1
*
Table 2
*
Table 3
. . .
Company 2
Table 1
**
Table 2
**
Table 3
. . .
Per Database tables
Table 1
*
**
Table 2
*
**
Table 3
. . .
Replicate
Company 1
Table 1
*
Table 2
*
Table 3
. . .
Company 2
Table 1
**
Table 2
**
Table 3
. . .
Per Database tables
Table 1
*
**
Table 2
*
**
Table 3
. . .

# Migrate all companies before going live

Do not move additional companies after users start working with migrated companies

Migrate all companies before going live

# Migration of Tenant Media

# Migration of Tenant Media

The most problematic table was Tenant Media

- Not included in all migration runs
- Would overwrite data

# Migration of Tenant Media

The most problematic table **was** Tenant Media

- Included in every cloud migration
- Add missing records, never replace (fix for this table only)

# Support for migration to 2022 Release Wave 1 (v.20)

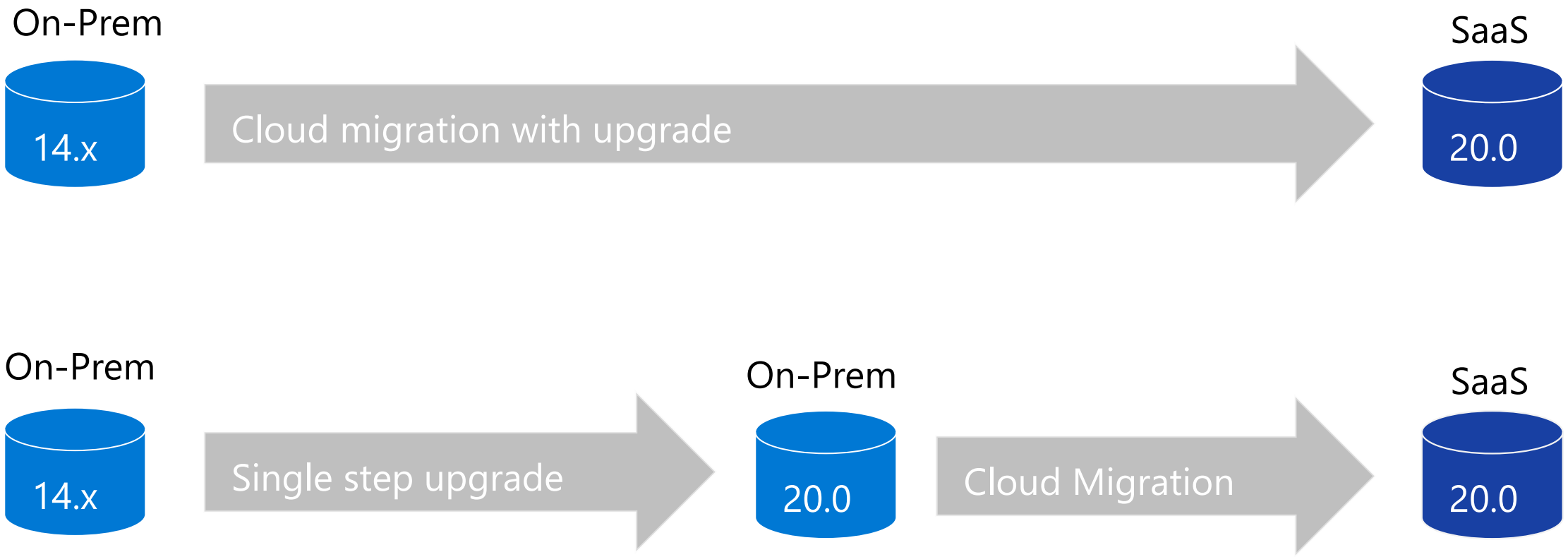
# Support for migration to v.20

When will the Cloud Migration with Upgrade to 20.x be enabled?

Cloud Migration from previous versions will be available with 20.0 release

Versions from 14 to 19 are supported

# Cloud Migration from previous versions



Join us on Yammer

https://aka.ms/BCCloudMigrationYammer

Microsoft Dynamics 365

© Copyright Microsoft Corporation. All rights reserved.