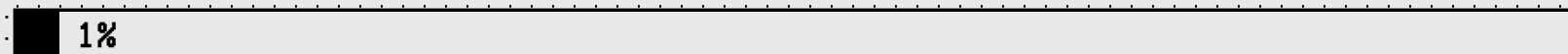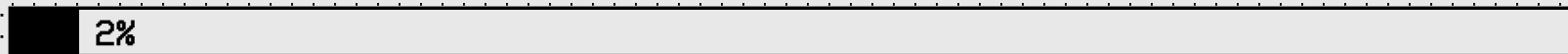SQL SERVER PARTITIONING ANY% SPEEDRUN
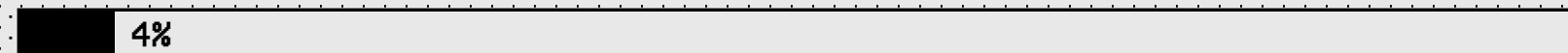■

■ 1%

WHY?

■

2%

WHY?

MANAGEABLE RETENTION STRATEGY
SELECTIVE COMPRESSION
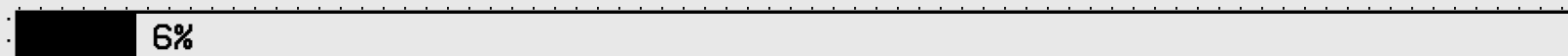SMART BACKUPS FOR VERY LARGE DATABASES
█

4%

WHY?

MANAGEABLE RETENTION STRATEGY
SELECTIVE COMPRESSION
SMART BACKUPS FOR VERY LARGE DATABASES

WHY NOT?
█

6%

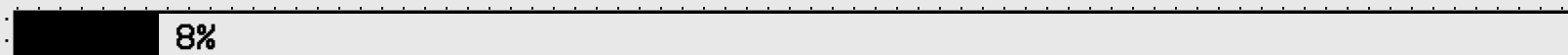WHY?

MANAGEABLE RETENTION STRATEGY
SELECTIVE COMPRESSION
SMART BACKUPS FOR VERY LARGE DATABASES

WHY NOT?

MAGICALLY MAKE YOUR DATABASE FASTER
SIMPLIFY YOUR WORK
█

8%

DANIEL HUTMACHER

SQL SERVER CONSULTANT
SPEAKER & CONFERENCE ORGANIZER
MICROSOFT MVP
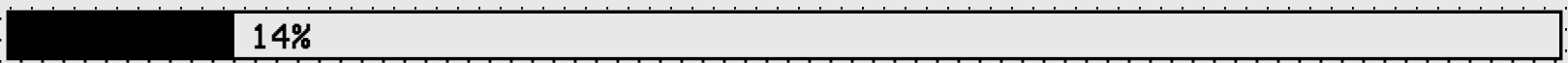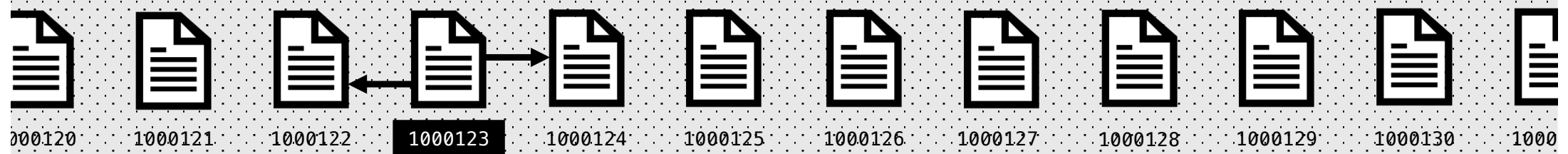
MVP
Microsoft®
Most Valuable
Professional

10%

12%

PAGE: 1000123
NEXT PAGE: 1000124
PREV PAGE: 1000122

1000120   1000121   1000122   **1000123**   1000124   1000125   1000126   1000127   1000128   1000129   1000130   1000

14%
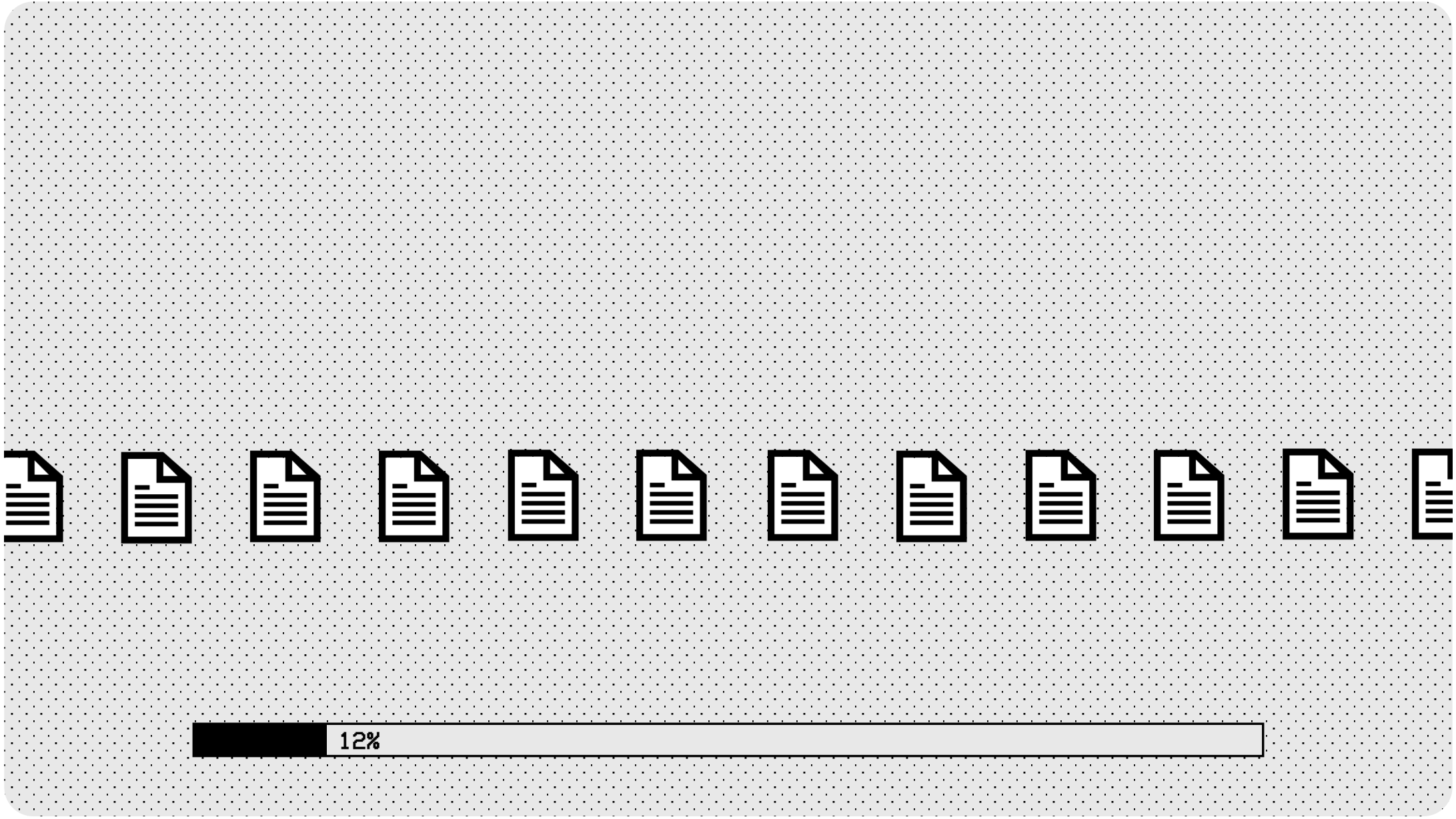
Page header

```
PAGE: 1000123
NEXT PAGE: 1000124
PREV PAGE: 1000122

INDEX KEYS: 2025-01-15
            2025-01-22
            2025-02-12
            2025-03-01
```

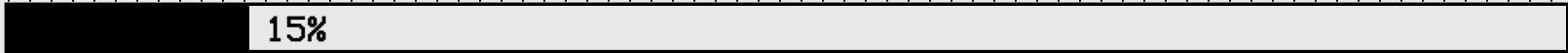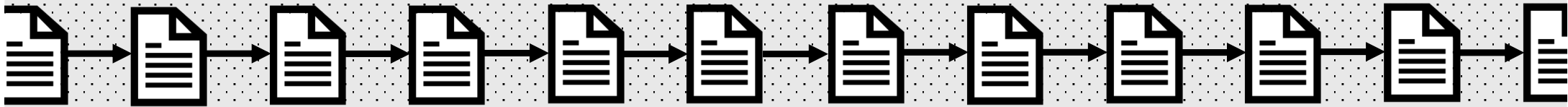| 1000120	1000121	1000122	1000123	1000124	1000125	1000126	1000127	1000128	1000129	1000130	1000
2024-03-02	2024-08-14	2024-11-07	2025-01-15 ... 2025-03-01	2025-03-10	2025-04-13	2025-05-29	2025-07-14	2025-10-01	2026-01-02	2026-04-27	2026-0

15%

17%

INDEX SCAN

18%

20%

21%

INDEX SEEK

23%
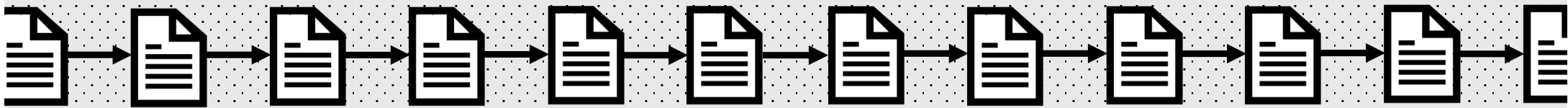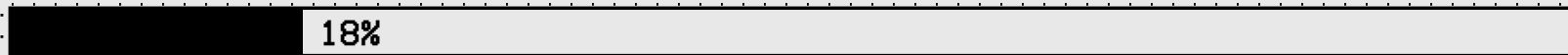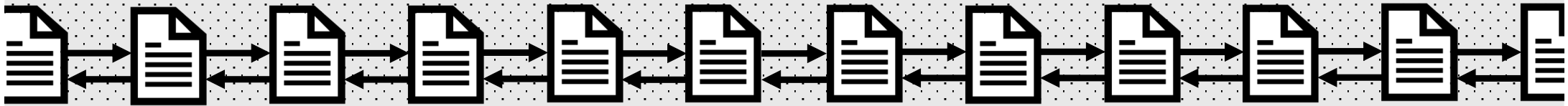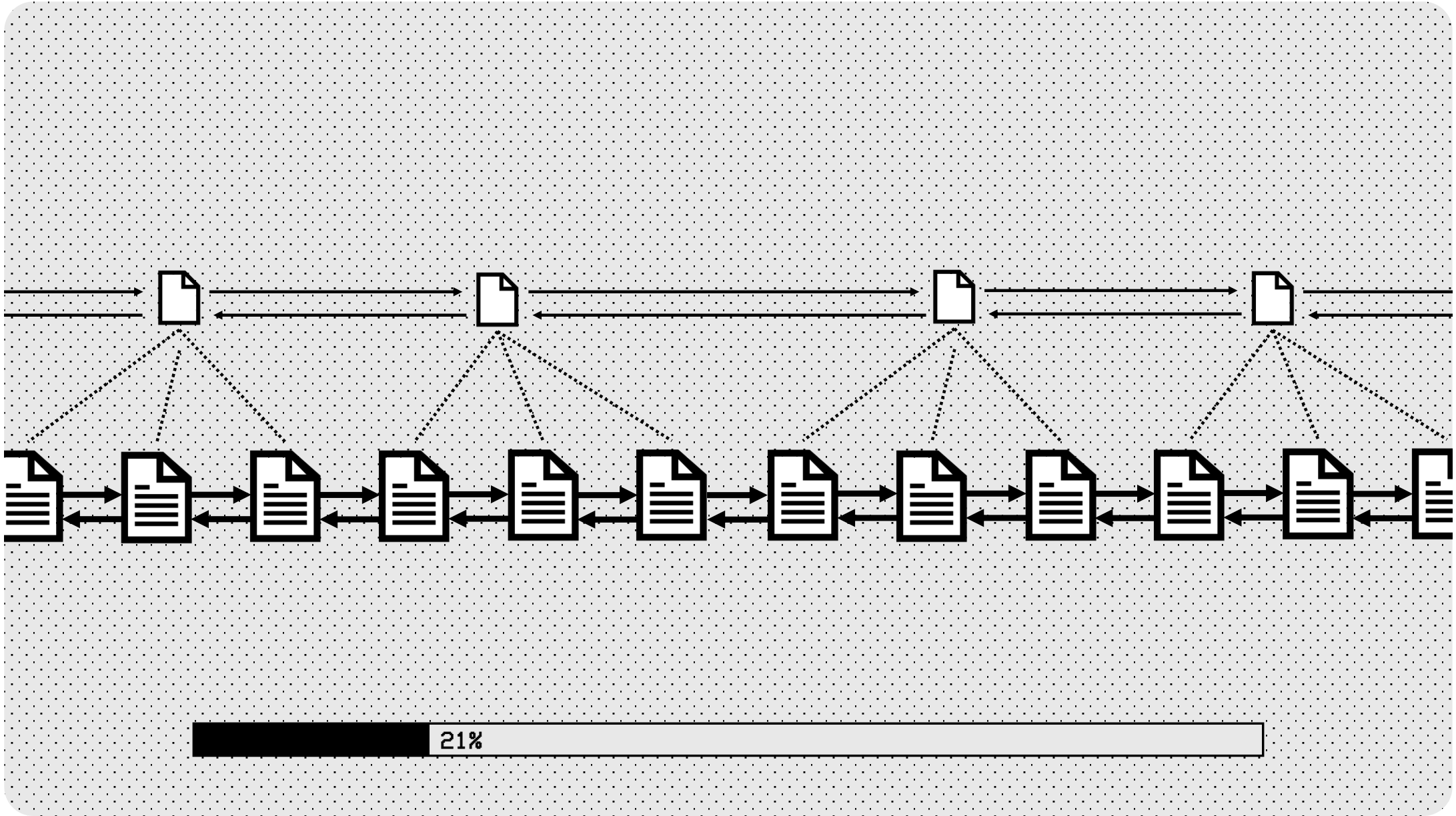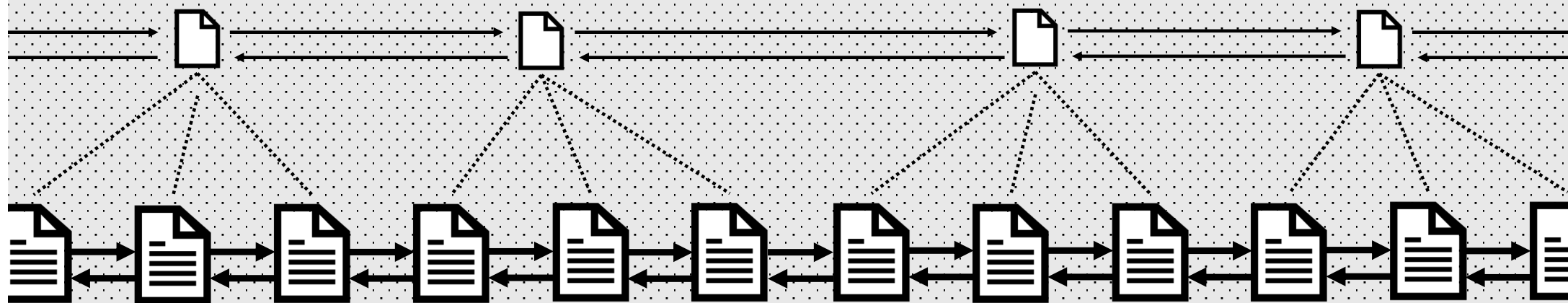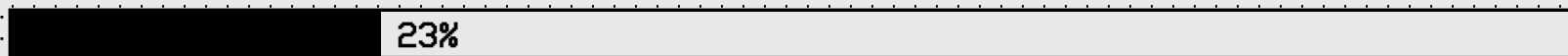
CREATING A PARTITIONED TABLE █
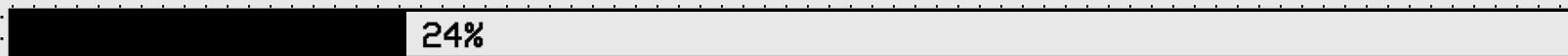
24%

```
CREATE PARTITION FUNCTION Annual_fn(date)
AS RANGE RIGHT
    FOR VALUES ('2024-01-01', '2025-01-01', '2026-01-01');
```

25%

```
CREATE PARTITION FUNCTION Annual_fn(date)
AS RANGE RIGHT
        FOR VALUES ('2024-01-01', '2025-01-01', '2026-01-01');


CREATE PARTITION SCHEME Annual_ps
AS PARTITION Annual_fn
TO ( [FILEGRP_A] , [FILEGRP_B] , [FILEGRP_C] , [FILEGRP_D] );
```

27%

```sql
CREATE PARTITION FUNCTION Annual_fn(date)
AS RANGE RIGHT
    FOR VALUES ('2024-01-01', '2025-01-01', '2026-01-01');


CREATE PARTITION SCHEME Annual_ps
AS PARTITION Annual_fn
TO ( [FILEGRP_A], [FILEGRP_B], [FILEGRP_C], [FILEGRP_D] );
```

29%

```sql
CREATE PARTITION FUNCTION Annual_fn(date)
AS RANGE RIGHT
    FOR VALUES ('2024-01-01', '2025-01-01', '2026-01-01');


CREATE PARTITION SCHEME Annual_ps
AS PARTITION Annual_fn
TO ( [FILEGRP_A], [FILEGRP_B], [FILEGRP_C], [FILEGRP_D] );


CREATE TABLE dbo.my_table (
    TransactionDate         date NOT NULL,
    ...
    ...
    ...
) ON Annual_ps(TransactionDate);
```

30%

dbo.my_table

32%

dbo.my_table

34%

dbo.my_table
(partition 1)

dbo.my_table
(partition 2)

dbo.my_table
(partition 3)

36%

my_table P.1
my_table P.2
my_table P.3
my_table P.4
my_table P.5
my_table P.6
my_table P.7
my_table P.8
my_table P.9

37%
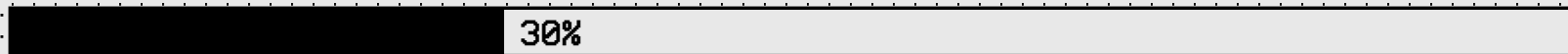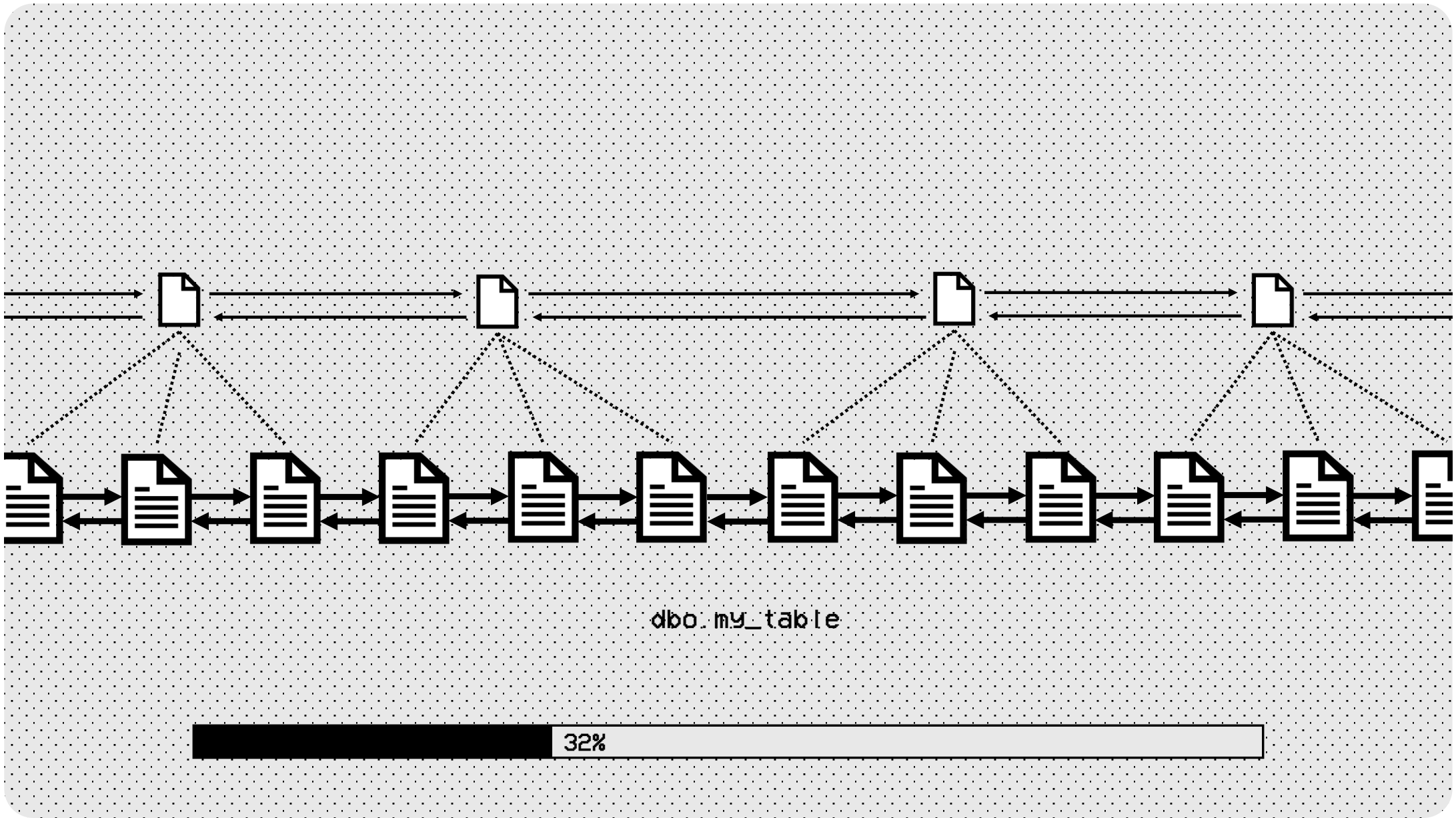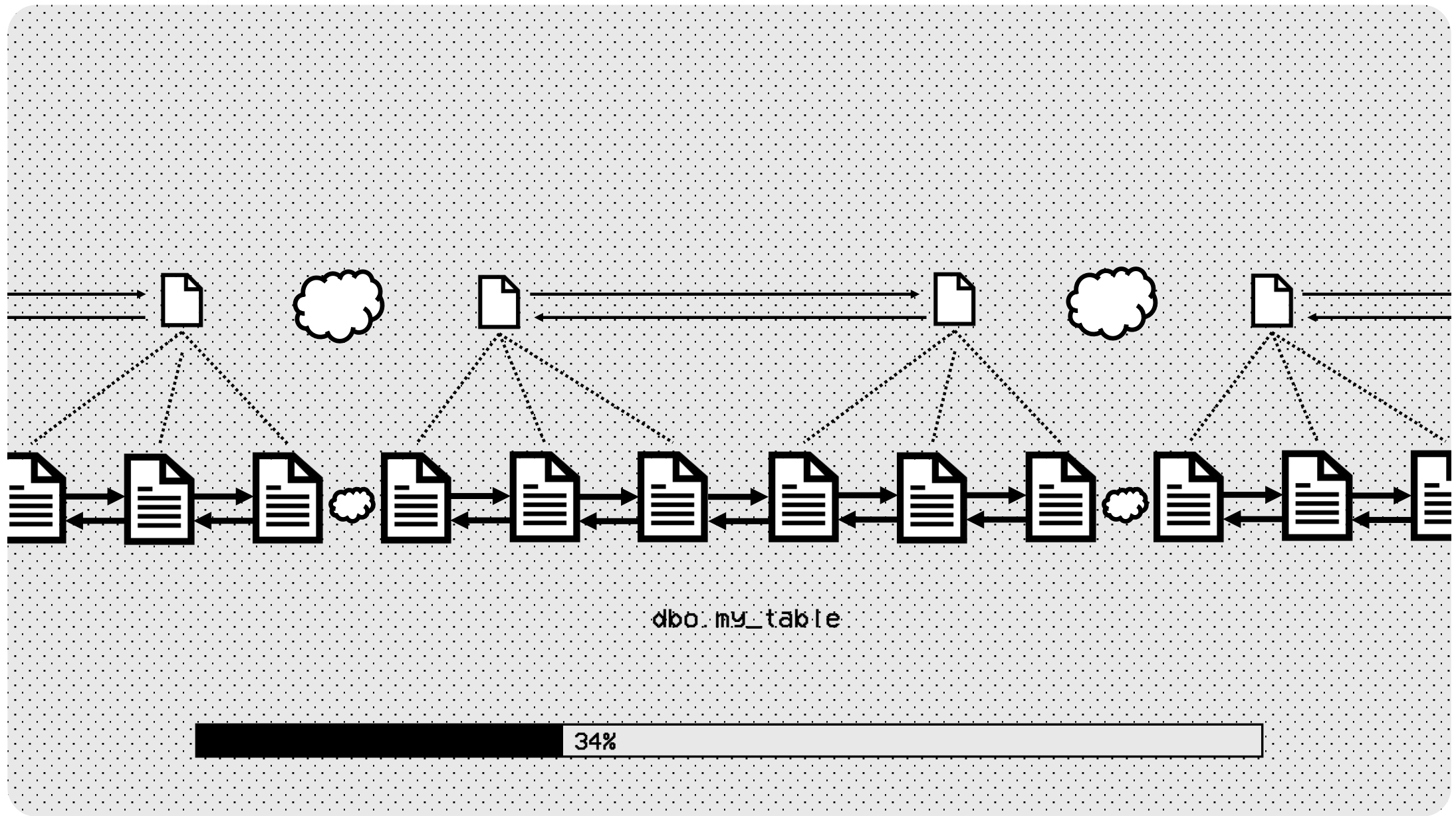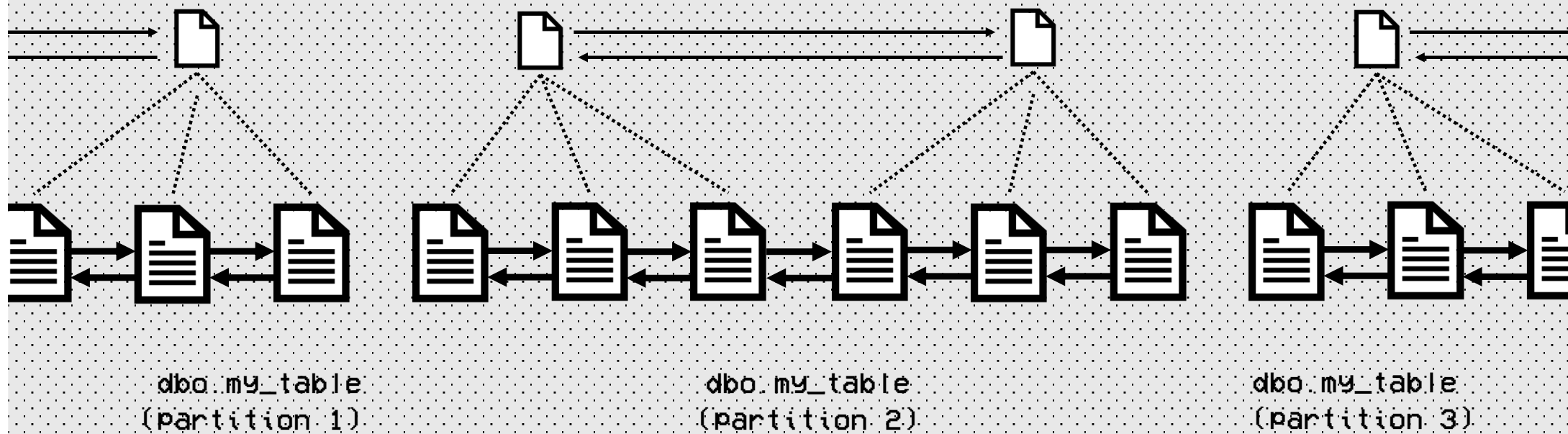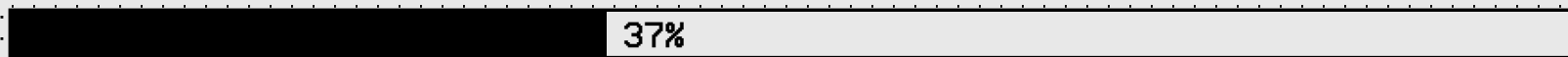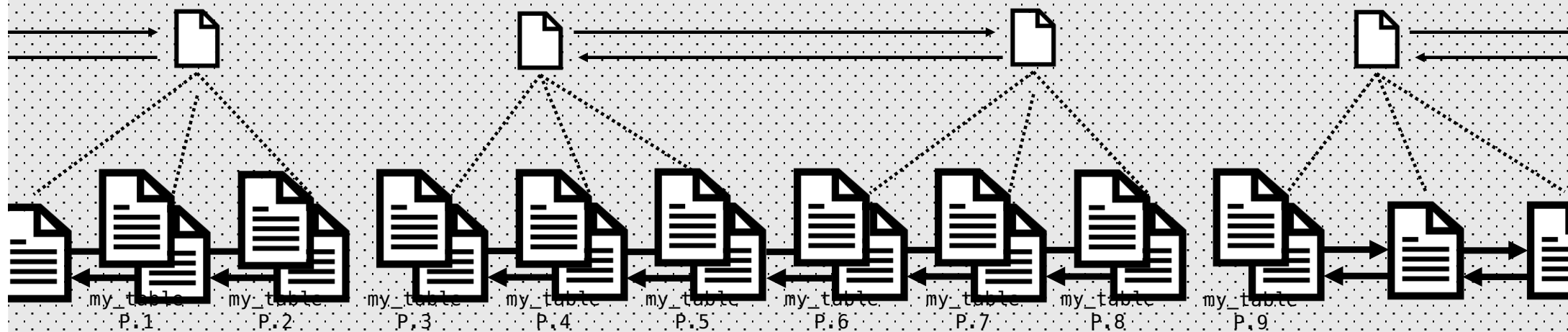
TRUNCATING PARTITIONS█

38%

```
TRUNCATE TABLE dbo.my_table
WITH (PARTITIONS (4));
█
```

my_table	my_table	my_table	my_table	my_table	my_table	my_table	my_table	my_table
P.1	P.2	P.3	P.4	P.5	P.6	P.7	P.8	P.9

40%
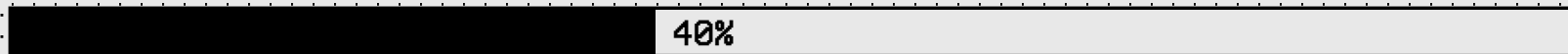
```
TRUNCATE TABLE dbo.my_table
WITH (PARTITIONS (4));
█
```

unallocated

my_table
P.1

my_table
P.2

my_table
P.3

my_table
P.4

my_table
P.5

my_table
P.6

my_table
P.7

my_table
P.8

my_table
P.9

42%
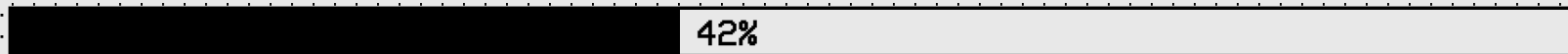
```
TRUNCATE TABLE dbo.my_table
WITH (PARTITIONS (4));
█
```

my_table
P.4

my_table
P.1

my_table
P.2

my_table
P.3

unallocated

my_table
P.5

my_table
P.6

my_table
P.7

my_table
P.8

my_table
P.9

44%
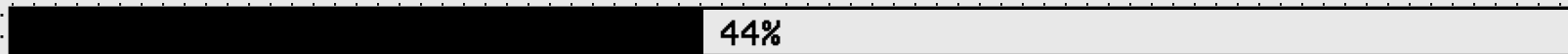
SWITCHING PARTITIONS █

45%
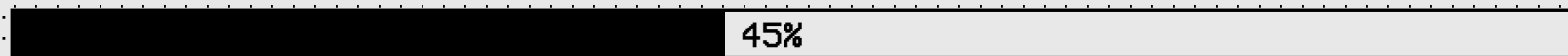
```
ALTER TABLE dbo.my_table
SWITCH PARTITION 4█
```

my_table
P.1

my_table
P.2

my_table
P.3

my_table
P.4

my_table
P.5

my_table
P.6

my_table
P.7

my_table
P.8

my_table
P.9

47%

```
ALTER TABLE dbo.my_table
SWITCH PARTITION 4 TO dbo.another_table;
█
```


another_table

my_table
P.1

my_table
P.2

my_table
P.3

my_table
P.4

my_table
P.5

my_table
P.6

my_table
P.7

my_table
P.8

my_table
P.9

49%
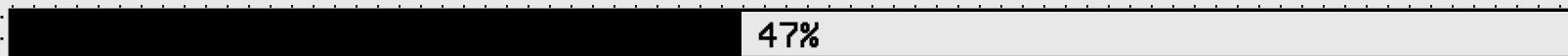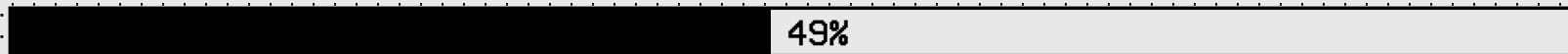
```
ALTER TABLE dbo.my_table
SWITCH PARTITION 4 TO dbo.another_table;
```

my_table
P.4

| my_table | my_table | my_table | another_table | my_table | my_table | my_table | my_table | my_table |
| P.1 | P.2 | P.3 | | P.5 | P.6 | P.7 | P.8 | P.9 |

50%

. . . AND BACK █

52%

ALTER TABLE dbo.another_table█

another_table

my_table
P.1

my_table
P.2

my_table
P.3

my_table
P.4

my_table
P.5

my_table
P.6

my_table
P.7

my_table
P.8

my_table
P.9

54%

```
ALTER TABLE dbo.another_table
SWITCH TO dbo.my_table PARTITION 4;
█
```

another_table

my_table
P.1

my_table
P.2

my_table
P.3

my_table
P.4

my_table
P.5

my_table
P.6

my_table
P.7

my_table
P.8

my_table
P.9

56%

```
ALTER TABLE dbo.another_table
SWITCH TO dbo.my_table PARTITION 4;
█
```

another_table

| my_table P.1 | my_table P.2 | my_table P.3 | my_table P.4 | my_table P.5 | my_table P.6 | my_table P.7 | my_table P.8 | my_table P.9 |

58%

SPLITTING PARTITIONS█

...2018   2019   2020   2021   2022   2023   2024   2025   2026...

FILEGRP_1   FILEGRP_2   FILEGRP_3   FILEGRP_4   FILEGRP_5   FILEGRP_6   FILEGRP_7   FILEGRP_8   FILEGRP_9

```
ALTER DATABASE CURRENT ADD FILEGROUP [FILEGRP_10];
ALTER DATABASE CURRENT ADD FILE (…) TO FILEGROUP [FILEGRP_10];
█
```

...2018   2019   2020   2021   2022   2023   2024   2025   2026...

FILEGRP_1   FILEGRP_2   FILEGRP_3   FILEGRP_4   FILEGRP_5   FILEGRP_6   FILEGRP_7   FILEGRP_8   FILEGRP_9   FILEGRP_10

```
ALTER DATABASE CURRENT ADD FILEGROUP [FILEGRP_10];
ALTER DATABASE CURRENT ADD FILE (…) TO FILEGROUP [FILEGRP_10];

ALTER PARTITION SCHEME Annual_ps NEXT USED [FILEGRP_10];
```

...2018	2019	2020	2021	2022	2023	2024	2025	2026...	
FILEGRP_1	FILEGRP_2	FILEGRP_3	FILEGRP_4	FILEGRP_5	FILEGRP_6	FILEGRP_7	FILEGRP_8	FILEGRP_9	FILEGRP_10

```sql
ALTER DATABASE CURRENT ADD FILEGROUP [FILEGRP_10];
ALTER DATABASE CURRENT ADD FILE (…) TO FILEGROUP [FILEGRP_10];

ALTER PARTITION SCHEME Annual_ps NEXT USED [FILEGRP_10];

ALTER PARTITION FUNCTION Annual_fn() SPLIT RANGE ('2027-01-01');
```

…2018	2019	2020	2021	2022	2023	2024	2025	2026	2027…
FILEGRP_1	FILEGRP_2	FILEGRP_3	FILEGRP_4	FILEGRP_5	FILEGRP_6	FILEGRP_7	FILEGRP_8	FILEGRP_9	FILEGRP_10

MERGING PARTITIONS █

…2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027…

FILEGRP_1 | FILEGRP_2 | FILEGRP_3 | FILEGRP_4 | FILEGRP_5 | FILEGRP_6 | FILEGRP_7 | FILEGRP_8 | FILEGRP_9 | FILEGRP_10

```
TRUNCATE TABLE dbo.my_table WITH (PARTITIONS (1));
```

...2018	2019	2020	2021	2022	2023	2024	2025	2026	2027...
FILEGRP_1	FILEGRP_2	FILEGRP_3	FILEGRP_4	FILEGRP_5	FILEGRP_6	FILEGRP_7	FILEGRP_8	FILEGRP_9	FILEGRP_10

```
TRUNCATE TABLE dbo.my_table WITH (PARTITIONS (1));

ALTER PARTITION FUNCTION Annual_fn() MERGE RANGE ('2019-01-01');
▉
```

	…2019	2020	2021	2022	2023	2024	2025	2026	2027…
FILEGRP_1	FILEGRP_2	FILEGRP_3	FILEGRP_4	FILEGRP_5	FILEGRP_6	FILEGRP_7	FILEGRP_8	FILEGRP_9	FILEGRP_10

```
TRUNCATE TABLE dbo.my_table WITH (PARTITIONS (1));

ALTER PARTITION FUNCTION Annual_fn() MERGE RANGE ('2019-01-01');

ALTER DATABASE CURRENT REMOVE FILE …;
ALTER DATABASE CURRENT REMOVE FILEGROUP [FILEGRP_1];
█
```


2019	2020	2021	2022	2023	2024	2025	2026	2027
FILEGRP_2	FILEGRP_3	FILEGRP_4	FILEGRP_5	FILEGRP_6	FILEGRP_7	FILEGRP_8	FILEGRP_9	FILEGRP_10

REBUILDING PARTITIONS█

```
ALTER TABLE dbo.my_table
REBUILD█
```

my_table P.1   my_table P.2   my_table P.3   my_table P.4   my_table P.5   my_table P.6   my_table P.7   my_table P.8   my_table P.9

```
ALTER TABLE dbo.my_table
REBUILD PARTITION=4█
```

| my_table P.1 | my_table P.2 | my_table P.3 | **my_table P.4** | my_table P.5 | my_table P.6 | my_table P.7 | my_table P.8 | my_table P.9 |

```
ALTER TABLE dbo.my_table
REBUILD PARTITION=4 WITH (DATA_COMPRESSION=PAGE);
```

my_table
P.1

my_table
P.2

my_table
P.3

my_table
P.4

my_table
P.5

my_table
P.6

my_table
P.7

my_table
P.8

my_table
P.9

BACKUP AND RESTORE█

…2019   2020   2021   2022   2023   2024   2025   2026…

FILEGRP_2 FILEGRP_3 FILEGRP_4 FILEGRP_5 FILEGRP_6 FILEGRP_7 FILEGRP_8 FILEGRP_9

...2019   2020   2021   2022   2023   2024   2025   2026...

FILEGRP_2 FILEGRP_3 FILEGRP_4 FILEGRP_5 FILEGRP_6 FILEGRP_7 FILEGRP_8 FILEGRP_9

READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY

2019.bak   2020.bak   2021.bak   2022.bak   2023.bak   2024.bak

...2019   2020   2021   2022   2023   2024   2025   2026...

FILEGRP_2   FILEGRP_3   FILEGRP_4   FILEGRP_5   FILEGRP_6   FILEGRP_7   FILEGRP_8   FILEGRP_9

READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY

2019.bak · 2020.bak · 2021.bak · 2022.bak · 2023.bak · 2024.bak · 2025.bak · 2026.bak

…2019 · 2020 · 2021 · 2022 · 2023 · 2024 · 2025 · 2026…

FILEGRP_2 · FILEGRP_3 · FILEGRP_4 · FILEGRP_5 · FILEGRP_6 · FILEGRP_7 · FILEGRP_8 · FILEGRP_9

READ ONLY · READ ONLY · READ ONLY · READ ONLY · READ ONLY · READ ONLY

						2025.trn	2026.trn
2019.bak	2020.bak	2021.bak	2022.bak	2023.bak	2024.bak	2025.bak	2026.bak
…2019	2020	2021	2022	2023	2024	2025	2026…
FILEGRP_2	FILEGRP_3	FILEGRP_4	FILEGRP_5	FILEGRP_6	FILEGRP_7	FILEGRP_8	FILEGRP_9
READ ONLY	READ ONLY	READ ONLY	READ ONLY	READ ONLY	READ ONLY		

2025.trn   2026.trn

2019.bak 2020.bak 2021.bak 2022.bak 2023.bak 2024.bak 2025.bak 2026.bak

…2019   2020   2021   2022   2023   2024   2025   2026…

FILEGRP_2 FILEGRP_3 FILEGRP_4 FILEGRP_5 FILEGRP_6 FILEGRP_7 FILEGRP_8 FILEGRP_9
READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY

2025.trn 2026.trn

2019.bak 2020.bak 2021.bak 2022.bak 2023.bak 2024.bak 2025.bak 2026.bak

…2019 2020 2021 2022 2023 2024 2025 2026…

FILEGRP_2 FILEGRP_3 FILEGRP_4 FILEGRP_5 FILEGRP_6 FILEGRP_7 FILEGRP_8 FILEGRP_9
READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY

2019.bak   2020.bak   2021.bak   2022.bak   2023.bak   2024.bak   2025.bak   2026.bak

…2019   2020   2021   2022   2023   2024   2025   2026…

FILEGRP_2   FILEGRP_3   FILEGRP_4   FILEGRP_5   FILEGRP_6   FILEGRP_7   FILEGRP_8   FILEGRP_9
READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY

2025.trn   2026.trn

2019.bak   2020.bak   2021.bak   2022.bak   2023.bak   2024.bak   2025.bak   2026.bak

…2019   2020   2021   2022   2023   2024   2025   2026…

FILEGRP_2   FILEGRP_3   FILEGRP_4   FILEGRP_5   FILEGRP_6   FILEGRP_7   FILEGRP_8   FILEGRP_9
READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY

2025.trn   2026.trn

2019.bak 2020.bak 2021.bak 2022.bak 2023.bak 2024.bak 2025.bak 2026.bak

...2019   2020   2021   2022   2023   2024   2025   2026...

FILEGRP_2 FILEGRP_3 FILEGRP_4 FILEGRP_5 FILEGRP_6 FILEGRP_7 FILEGRP_8 FILEGRP_9
READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY READ ONLY

2025.trn   2026.trn

2019.bak   2020.bak   2021.bak   2022.bak   2023.bak   2024.bak   2025.bak   2026.bak

…2019   2020   2021   2022   2023   2024   2025   2026…

FILEGRP_2   FILEGRP_3   FILEGRP_4   FILEGRP_5   FILEGRP_6   FILEGRP_7   FILEGRP_8   FILEGRP_9

READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY   READ ONLY

It is now safe to switch off your presentation.

Questions?