Licensing woes and headaches

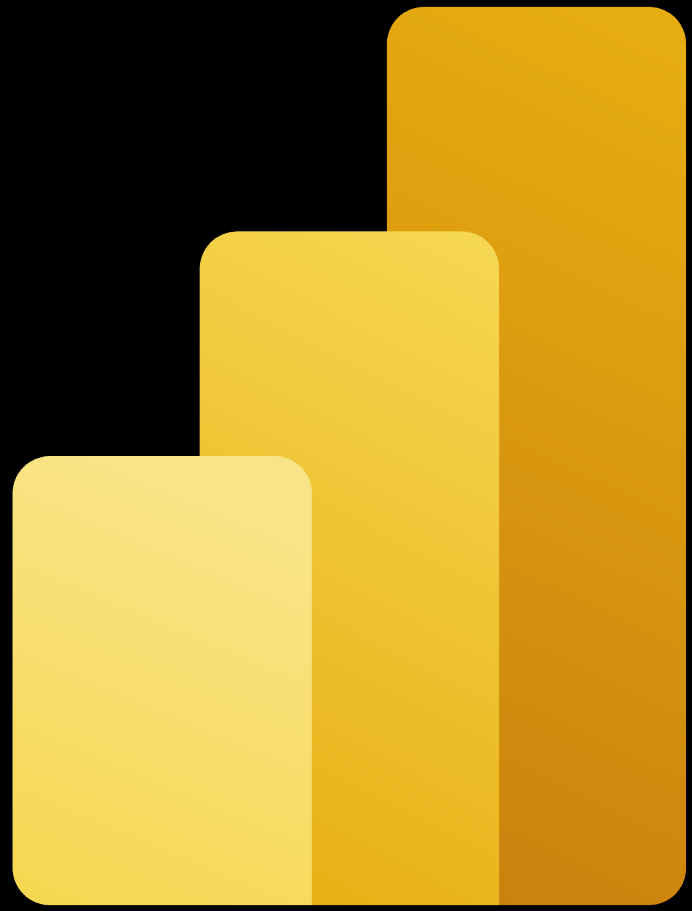
- how to handle Power BI and Fabric

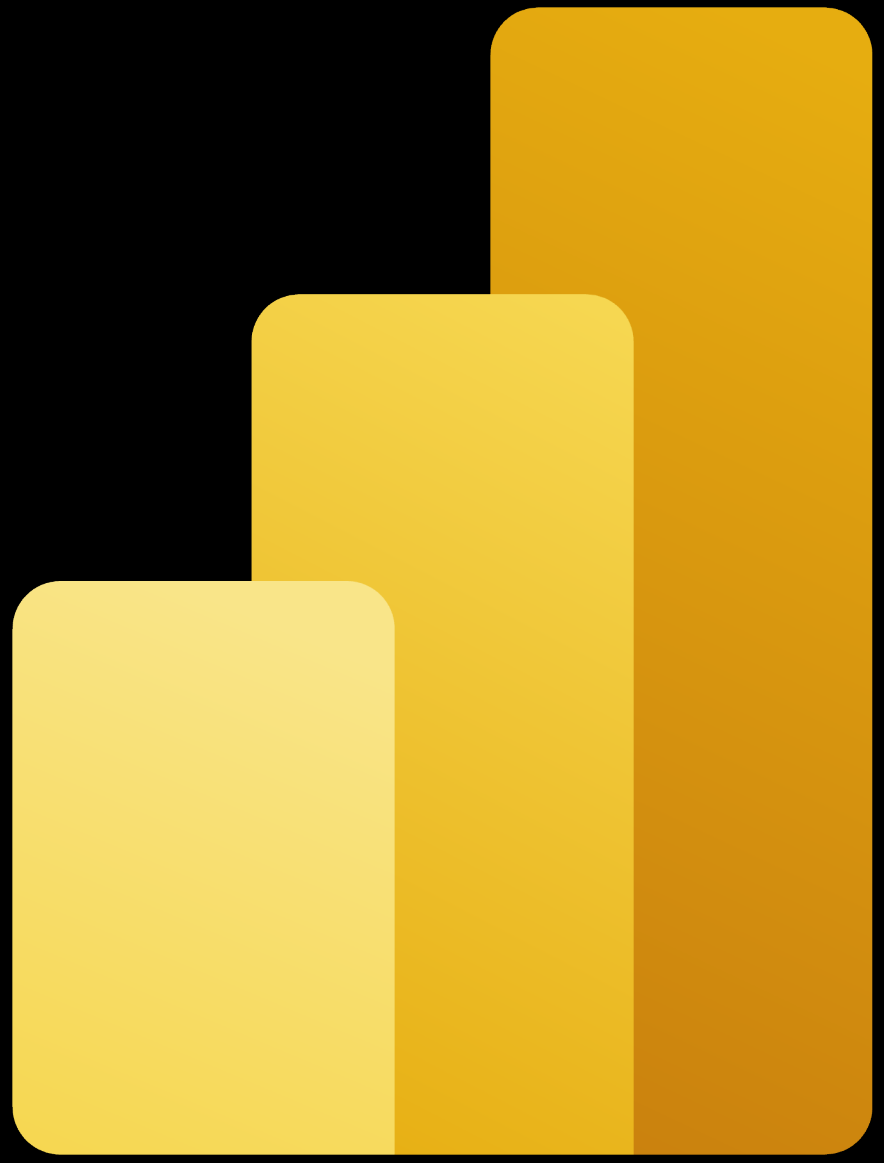
Agenda

- Licensing in Power BI
- The Fabric versions
- What are the capacity limits?
- What to use when?
- Usage patterns

Power BI licensing

- Power BI User based licensing
- Power BI Premium
- Power BI embedded





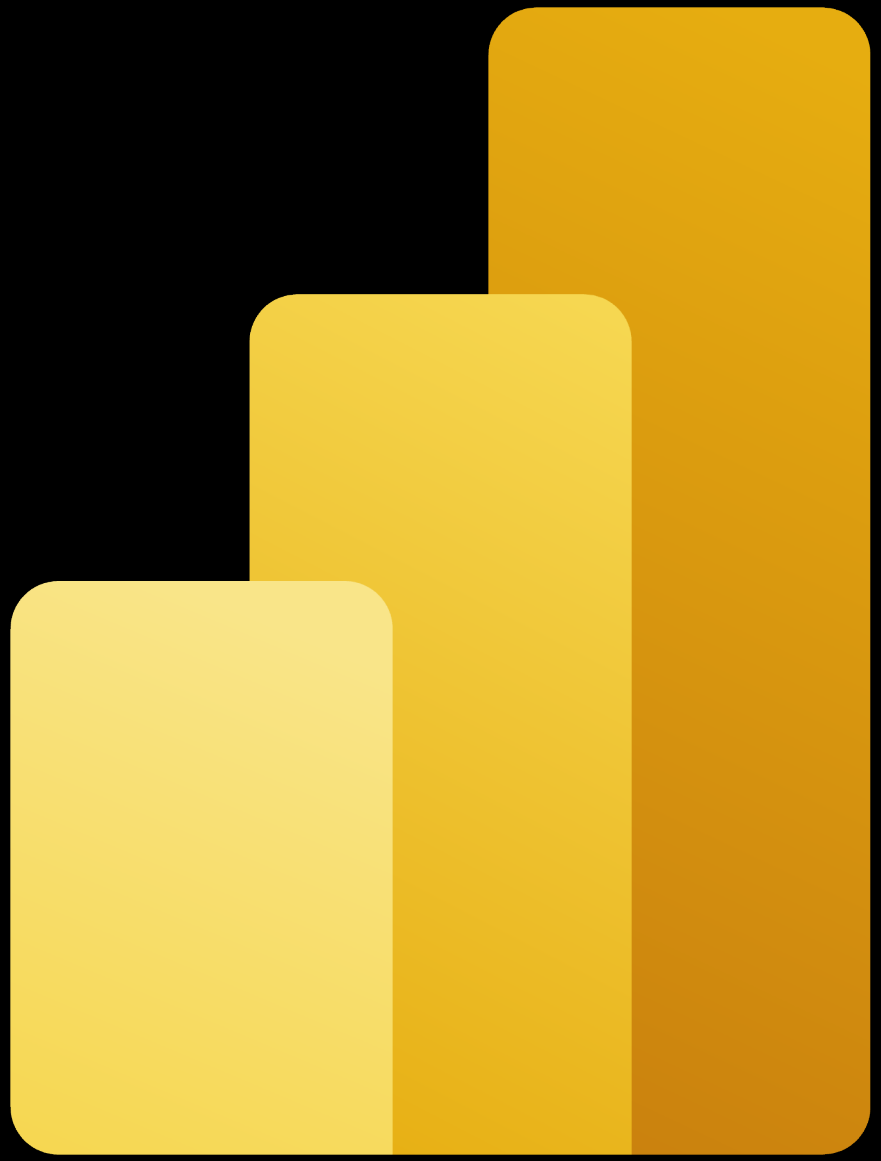
Power BI user-based licensing

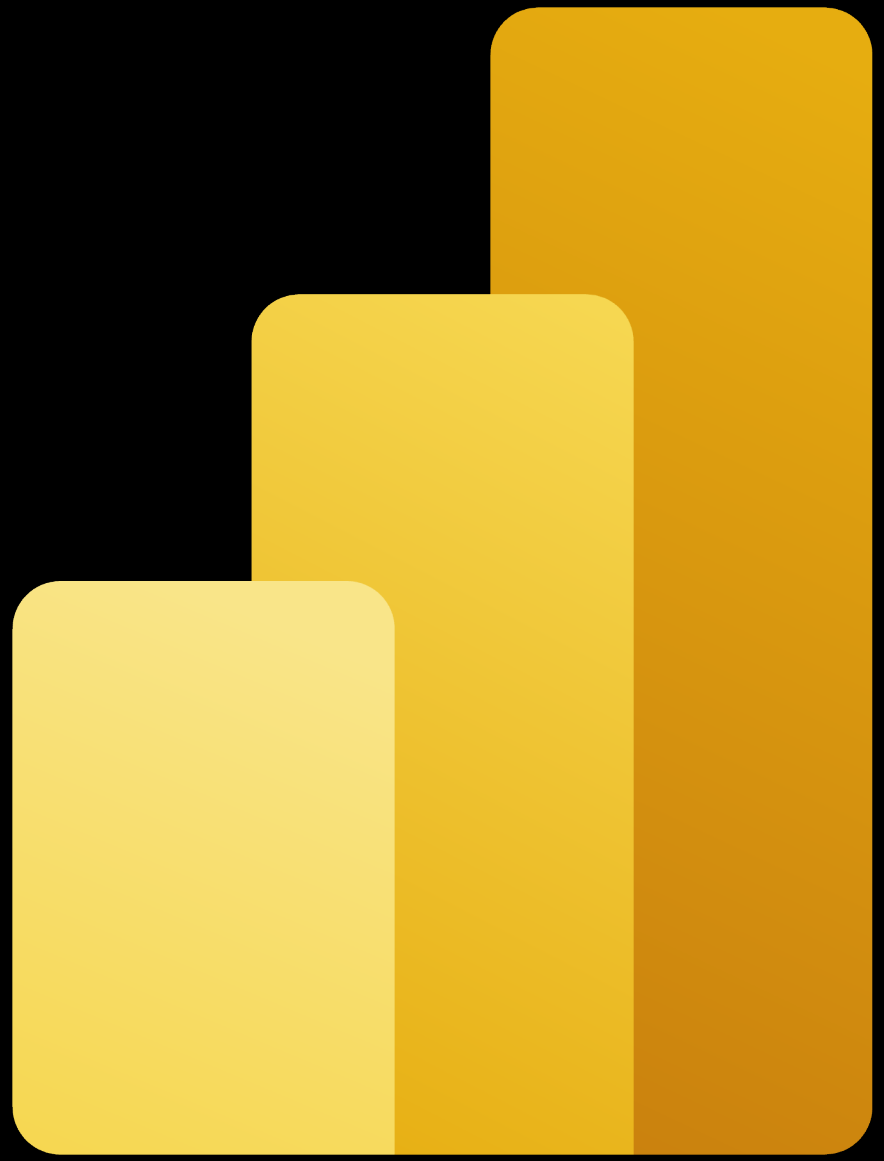
- Power BI Free
- Power BI Pro
- Power BI Premium Per user

- Uses shared capacity

Power BI Premium

- Tenant level subscription with dedicated capacity
- P scale from P1 up to P5
- P1 = 8 vCores, P5 = 128 vCores
- App users don’t need a Pro license



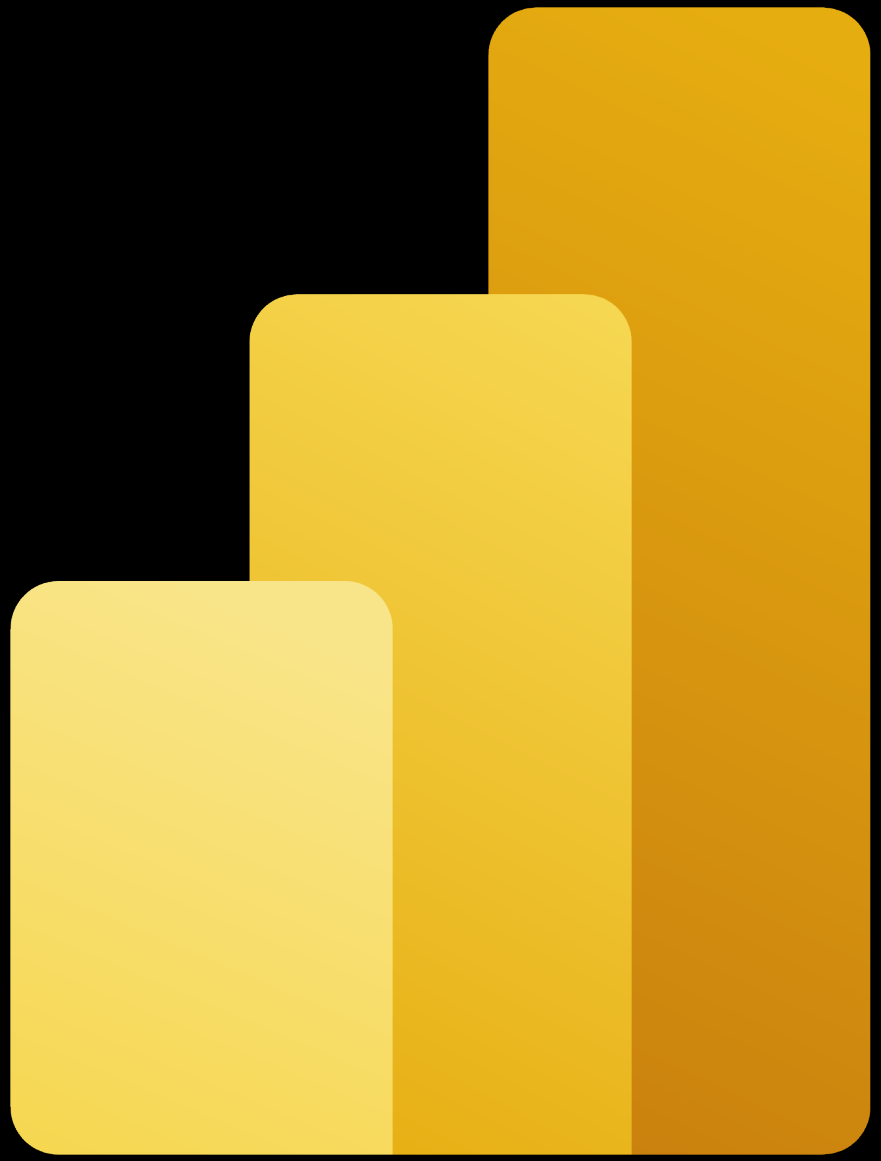


Power BI Premium

- Tenant level subscription with dedicated capacity
- EM is meant for internal embedding
- EM scales from EM1 to EM3
- EM 1 = 1 vCore, EM3 = 4 vCores
- App users need a Pro license
- Users authenticate via Entra ID

Power BI embedded

- Power BI capacity without need for user licenses
- Aimed at external users
- Scaling from A1 up to A8 (P5)
- A1 = 1 vCore, A8 = 128 vCores
- Authenticate with own authentication method
- Non-interactive authentication. Your app uses a *service principal* or a *master user* to authenticate



Fabric licensing

Fabric capacities

- 3 ways to get Fabric capacity:
  - Trial
  - Fabric capacity
  - Power BI Premium capacity

Fabric licensing model is that easy?

Fabric Capacity

- You will see both the term SKU an CU
- SKU = Stock Keeping Units
- CU = Capacity Units

- There are 2 types of SKU
  - Azure SKU
  - Microsoft 365 SKU

Fabric Capacityic

- Azure SKU
  - Billed per second
  - No commitment
  - Can be paused (storage still being billed)
  - Bought and set up via Azure
- Microsoft 365 SKU
  - Billed monthly or yearly
  - Monthly commitment
  - Actually P SKUs

Fabric Capacityic

- SKUs start at F2 and scales to F2048
- F64 = P1 = 8 vCores – or 64 CU
- F1024 = P5 = 128 vCores – or 1024 CU
- F2048 = 256 vCores – or 2048 CU

- F64 and above = no Pro or PPU license for Power BI app users

So what does this all mean?

- How much slower is an F2 than say - an F64?

- Let’s find out!

So… What separates the SKUs?

- Fabric SKUs have 3 main differentiators
  1. Storage
  2. Compute
  3. Concurrency limits

1. Storage

- Storage is billed seperatly
- Storage does NOT consume CUs
- Transactions however does…
- Higher cost for data outside capacity
- Shortcuts
- Then there’s DirectLake

1. Storage

DirectLake

- Lets Semantic models bypass SQL endpoints
- SKU limitations on several parameters
- Table size
    a) Number of Parquet files
    b) Number of row groups
    c) Rows per table in millions

1. Storage

DirectLake

- Max Model size on disk in GB
- Max Memory in GB
- F2: 1000/1000/300/10/3
- F64: 5000/5000/1500/Unlimited/25
- F1024: 10000/10000/24000/Unlimited/400

2. Compute

Specifically burstable capacity in data warehouse (and SQL endpoints)

- A capacity is a distinct pool of resources
- SKU determines size of said pool
- Baseline and burstable capacity
- Baseline CU = Fx

2. Compute

- Trading in future CU usage
- This is called Smoothing
- CU used / duration / Baseline CU = Scale factor
- Lower capacity has higher Scale factor
- F2 = x32 – F8 and up = x12
- Ingestion is isolated from querying

2. Compute

- Throttling
- Eg. If overuse over 24 hours – throttling starts
- Background rejection normal policy
  - All new jobs rejected
- Exception for warehouse : data modeling
- Other throttle policies:
  - Overage protection
  - Interactive delay
  - Interactive rejection

2. Compute

- How to handle throttling:
  - Upgrade SKU
  - Find and fix overuse source(s)
  - Wait until overload stopped
  - Create alerts for overusage to avoid throttling

3. Concurrency limits

Specific for Spark

- 1 CU = 2 Spark vCore
- FIFO queue
- Burstable CU for 3x baseline CU
- Throttle = rejection

What to use when

- If predictability important -> P
- If complicated cost splitting -> many small F
- If need for more power -> F
- F64 < P1

Usage patterns

- No Premium capacity yet?
- Existing Premium customers – do all your reports need to be on Premium?
- One big shared capacity or several smaller?
- Fabric as front of a larger ecosystem?

Thank you to our Fabric February Friends!

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