

Power BI - lesson 20

1. How does Power BI handle large datasets in the Online Service, and what is the role of Premium Capacity in this?

Power BI Service imposes dataset size and refresh limits in shared capacity (e.g., max 1 GB per dataset, limited refreshes per day). Premium Capacity removes many of these restrictions: it supports much larger datasets (up to 400 GB per model), provides faster refreshes, dedicated resources (so you don't compete with other tenants), and advanced features like paginated reports and AI. Premium ensures performance and scalability for enterprise-level analytics.

2. What are the differences between Import mode, DirectQuery, and Live Connection in Power BI Service?

- **Import mode:** Data is loaded into Power BI's in-memory model. Fast query performance, full DAX support, but dataset size limited by capacity.
 - **DirectQuery:** Queries run directly against the source database each time. No data storage in Power BI; real-time results but slower performance and limited DAX features.
 - **Live Connection:** Similar to DirectQuery but connects specifically to Analysis Services or Power BI datasets. No data is imported; the model is controlled centrally. Best for governed, enterprise models.
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3. Explain deployment pipelines in Power BI Online. What stages do they include?

Deployment pipelines allow structured promotion of reports, datasets, and dashboards across environments. Stages include:

1. **Development** – workspace where authors build and test content.
2. **Test** – environment for validation, QA, and stakeholder review.
3. **Production** – final stage, content is published for end users.

Pipelines ensure consistency and controlled rollout of BI content.

4. How can Power BI Service integrate with Microsoft Teams or SharePoint for collaboration?

Power BI reports and dashboards can be embedded directly into Teams channels or SharePoint pages. Users can view and interact with reports without leaving the collaboration platform. This enhances real-time discussion, decision-making, and accessibility. Teams also supports Power BI app tabs, and SharePoint allows secure embedding via web parts.

5. What is the XMLA endpoint in Premium and how does it benefit developers or enterprise BI teams?

XMLA endpoints expose Power BI datasets as Analysis Services models. Developers can connect with tools like SSMS or Visual Studio to perform advanced modeling, automate deployments, or run complex queries. For enterprise BI teams, it enables centralized governance, integration with existing processes, and programmatic management of datasets.

6. Describe how usage metrics and audit logs work in Power BI Service.

- **Usage metrics:** Built-in reports that show how often dashboards/reports are accessed, by whom, and when. Helps assess adoption and engagement.
 - **Audit logs:** Captured in Microsoft 365 Compliance Center. They track detailed user actions (viewing reports, exporting data, sharing content). Useful for compliance, governance, and security monitoring.
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7. How do you manage workspace access and permissions for different users?

Workspaces in Power BI Service have roles: **Admin, Member, Contributor, Viewer.**

- **Admin:** Full control, including permissions.
- **Member:** Can publish/update content.

- Contributor: Can edit content but not manage access.
- Viewer: Can only consume content.

Permissions can also be assigned via Microsoft 365 groups, ensuring controlled access at scale.

8. How can data governance be enforced in Power BI Service?

Governance is enforced through:

- **Sensitivity labels** (classify and protect data).
 - **Certified/promoted datasets** (identify trusted sources).
 - **Row-Level Security (RLS)** (restrict data per user).
 - **Audit logs and usage metrics** (monitor compliance).
 - **Premium features** like dataflows and centralized semantic models, ensuring consistency across reports.
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9. What are the limitations of Row-Level Security when using DirectQuery or Live Connection?

- Performance can be slower since filters are applied at query time.
 - Some data sources don't fully support RLS pushdown.
 - RLS in Live Connection is defined in the source model (e.g., Analysis Services), not in Power BI, limiting flexibility.
 - In complex DirectQuery scenarios, security rules may result in inefficient queries.
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10. Explain how you can refresh a dataset via Power Automate or REST API.

- **Power Automate:** Use the "Refresh a dataset" action in a flow to trigger refreshes based on events (e.g., new file arrival, scheduled times).
- **REST API:** Developers can call the `POST /datasets/{datasetId}/refreshes` endpoint to programmatically refresh datasets. This is useful for automated workflows,

CI/CD pipelines, or integrating refresh into broader data processes.