

**Welcome**

**Intro**

## Goal for this talk

Explain how DBA skills relate to todays new cloud first world.

Inspire database pros to pursue cloud knowledge via certification paths.

Share approaches & habits that have worked for me & others.

# TODAY'S TALK - The Azure Cloud Journey of the DBA

## Abstract:

DBAs losing their jobs to the cloud? WRONG! You are all about data, and so is the cloud! As the database administrator, you have a unique skill set that maps effectively to the cloud and gives you a jump start on learning the skills for the most interesting and in-demand cloud roles.

Coming from a DBA role into learning and working in the cloud has been a challenging but rewarding journey. I'll share what I've learned, explain the most promising learning and career paths for data professionals in the cloud, and help you plan your own cloud journey of the DBA.

# Monday morning meeting with your boss!

Our company is moving I.T. to the cloud. We need you to help make a plan!

- What tools do we use to migrate?
- Should we use IaaS or PaaS?
- Should we use SQL VMs, Azure SQL Managed Instances, or Azure SQL Database?
- Do we need Azure Data Factory?
- Do we need CosmosDB?
- Do we need Azure Synapse?

**It's your job as the DBA to help your company move their applications' data in the cloud.**

**What do you advise? Where do you start?**

# What's a DBA Do?

Understand the organization's data

Protect the data

Move data

Support organization's use of data

## What does that look like in the cloud?

The skills of managing and manipulating data will stay largely the same. However, you'll find yourself doing less patching, maintenance, and administration—and more optimization, experimentation, and high-level data architecture.

- The Essential Guide to Data in the Cloud: A Handbook for DBAs

# How DBA tasks map to the (Azure) cloud

## How DBA Skills Focus Changes in the Move to Cloud

Skill	Reduced focus	Increased focus	New skills
Scaling	✓		
Backup management	✓		
Infrastructure maintenance	✓		
Disaster recovery	✓		
Infrastructure security	✓		
Data movement		✓	
Cost optimization		✓	
Performance tuning		✓	
Understanding of business outcomes		✓	
Database optimization for applications		✓	
Cloud security and governance			✓
Cloud architecture			✓



- Microsoft Certifications (Updated Sep 2020) [aka.ms/TrainCertDeck](https://aka.ms/TrainCertDeck)
- Azure Cert Overview

Microsoft Azure certifications		
<b>Role-based</b> Expand your technical skill set	▼ Associate	
	• Azure Administrator	(AZ-104)
	• Azure Developer	(AZ-204)
	• Azure Security Engineer	(AZ-500)
	• Azure Data Scientist	(DP-100)
	• Azure AI Engineer	(AI-100)
	• Azure Data Engineer	(DP-200 + DP-201)
	• Azure Database Administrator	(DP-300)
	• Data Analyst	(DA-100)
	▼ Expert	
	• Azure Solutions Architect	(DP-303 + AZ-304)
	• DevOps Engineer	(AZ-400)
<b>Specialty</b> Deepen your technical skills and manage industry solutions	• Azure for SAP Workloads	(AZ-120)
	• Azure IoT Developer	(AZ-220)
<b>Fundamentals</b> Master the basics	• Azure Fundamentals	(AZ-900)
	• Azure AI Fundamentals	(AI-900)
	• Azure Data Fundamentals	(DP-900)

**Cert Path for the Cloud DBA**

# Fundamentals

Optional exams, intended for beginners. Useful for role based certifications by not required for them.

Master the basics of Microsoft Azure—cloud, data, and AI

**AZ-900 - Azure Fundamentals ( [Exam Page](#) )**

**DP-900 - Azure Data Fundamentals ( [Exam Page](#) )**

**AI-900 - Azure AI Fundamentals ( [Exam Page](#) )**

# Azure Administrator

## AZ-104 - Microsoft Azure Administrator

**Focus on core administration tasks of network, storage & compute.**

...at least six months of hands-on experience administering Azure, along with a strong understanding of core Azure services, Azure workloads, security, and governance. In addition, this role should have experience using PowerShell, Azure CLI, Azure portal, and Azure Resource Manager templates.

# Data Engineer Associate - Exam 1 of 2

## DP-200 - *Implementing* an Azure Data Solution ( [Exam Page](#) - [Skills Measured](#) )

Focus on deploying & configuring the individual technologies

...*implement* data solutions that use Azure data services.

...tasks that include *provisioning* data storage services, ingesting *streaming and batch data, transforming data*, implementing *security* requirements, implementing *data retention policies*, identifying\* *performance* bottlenecks, and *accessing external data sources*.

...use the following Azure services: Azure Cosmos DB, Azure SQL Database, Azure Synapse Analytics (formerly Azure SQL DW), Azure Data Lake Storage, Azure Data Factory, Azure Stream Analytics, Azure Databricks, and Azure Blob storage.

## Data Engineer Associate - Exam 2 of 2

DP-201 - *Designing* an Azure Data Solution ( [Exam Page](#) - [Skills Measured](#) )

Focus on design choices how to use the technologies together

... *design* data solutions that use Azure data services.

...use *relational and non-relational* data stores, *batch and real-time* data processing solutions, and *data security and compliance* solutions.

...use the following Azure services: Azure Cosmos DB, Azure Synapse Analytics, Azure Data Lake Storage, Azure Data Factory, Azure Stream Analytics, Azure Databricks, and Azure Blob storage.

# Data Engineer Associate - Azure Services Covered

- Azure Cosmos DB ( [Docs](#) )
- Azure SQL Database ( [Docs](#) )
- Azure Synapse Analytics ( [Docs](#) )
- Azure Data Lake Storage ( [Docs](#) )
- Azure Data Factory ( [Docs](#) )
- Azure Stream Analytics ( [Docs](#) )
- Azure Databricks ( [Docs](#) )
- Azure Blob storage ( [Docs](#) )

## Data Services - Useful Links

Determining which services to use -> [Cloud Data Decision Tree](#)

[Common Database Scenarios](#)

[Architecture - Azure data platform end-to-end](#)



# Data Store Choices

## Data Store Decision Tree

[Databricks & Data Lake Storage Quickstart](#)

# Database Administrator Associate

## DP-300 - *Administering* Relational Databases on Microsoft Azure

### (Exam Page - Skill Measured)

...manage on-premises and cloud relational databases built with Microsoft SQL Server and Microsoft Azure Data Services

...operational aspects of cloud-native and hybrid data platform solutions built with *Azure Data Services and SQL Server*.

...responsible for management, availability, security, and performance monitoring and optimization

# Learning Azure SQL

## Bob Ward & Anna Hoffman content

<https://www.linkedin.com/in/bobwardms/detail/recent-activity/posts/#learnazuresql>

<https://www.linkedin.com/pulse/learn-azure-sql-security-performance-availability-bob-ward/>

<https://aka.ms/azuresqlfundamentals>

<https://aka.ms/sqlworkshops>

<https://aka.ms/azuresql4beginners>

**[Compare SQL Database to SQL Managed Instance](#)**

**Preceding exams were focus on the DBA / Data Engineer role in Azure**

**Next exams are promising growth paths for the Cloud DBA**

# Promising Paths for the Cloud DBA

- Data Scientist
- AI Engineer
- Data Analyst
  - Power BI
- Big Data
  - Data Lake, Azure Synapse

# Data Scientist Associate

## DP-100 Exam Page

- [DP-100 Skills Measured](#)
- [Azure Machine Learning Docs](#)
- [aka.ms/AzureDataScientistLearn](https://aka.ms/AzureDataScientistLearn)
- [Microsoft Machine Learning Technology Comparision](#)

# AI Engineer Associate

## AI-100 Exam Page

- [AI-100 Skills Measured](#)
- [Choosing a Microsoft cognitive services technology](#)

# Learning Path for Azure Data Scientist

Azure Data Scientists apply Azure's machine learning techniques to train, evaluate, and deploy models that solve business problems.

[aka.ms/AzureDataScienceLearn](https://aka.ms/AzureDataScienceLearn)

In-depth  
courses

*Designing and Implementing a Data Science Solution on Azure  
Coming soon*

Microlearnings: free interactive  
tutorials at Microsoft Learn



## Azure Fundamentals

**9H 39M - 12 Modules**

1. Principles of cloud computing
2. Introduction to Azure
3. Azure architecture and service guarantees
4. Create an Azure account
5. Manage services with Azure portal
6. Azure compute options
7. Azure data storage options
8. Azure networking options
9. Security, responsibility and trust in Azure
10. Apply and monitor infrastructure standards with Azure Policy
11. Control and organize Azure resources with Azure Resource Manager
12. Predict costs and optimize spending for Azure



## Build AI solutions with Azure Machine Learning service

**2H 50M - 4 Modules**

1. Introduction to Azure Machine Learning service
2. Train a local ML model with Azure Machine Learning service
3. Automate the ML model selection with Azure Machine Learning service
4. Register and deploy ML models with Azure Machine Learning service



## Build a modern data warehouse with Azure Databricks

**10H 23M - 9 Modules**

1. Introduction to Azure Databricks
2. Access SQL Datawarehouse instances with Azure Databricks
3. Data ingestion with Azure data factory
4. Read and write data using Azure Databricks
5. Perform basic data transformations in Azure Databricks
6. Perform advanced data transformation in Azure Databricks
7. Create data pipelines using Databricks Delta
8. Work with streaming data in Azure Databricks
9. Create data visualizations using Azure Databricks and Power BI



## Explore AI solution development with data science services in Azure

**1H 40M - 2 Modules**

1. Introduction to Data Science in Azure
2. Choose the Data Science service in Azure you need



## Get started with Machine Learning with an Azure Data Science Virtual Machine

**1H 20M - 3 Modules**

1. Introduction to the Azure Data Science Virtual Machine
2. Explore the types of Azure Data Science Virtual Machines
3. Provision and use an Azure Data Science Virtual Machine



## Extract knowledge and insights from your data with Azure Databricks

**4H 38M - 5 Modules**

1. Introduction to Azure Databricks
2. Perform exploratory data analysis with Azure Databricks
3. Perform model training, evaluation and selection with Azure Databricks
4. Deep learning in Azure Databricks
5. Perform text analytics with Azure Databricks



### Exam DP-100:

**Designing and Implementing a Data Science Solution on Azure**

## Become a Microsoft Certified Professional

**Certification helps establish your credentials with current and future employers.**

Pass certification exam DP-100 to become a [Microsoft Certified: Azure Data Scientist Associate](#).

Training options help you learn new skills that may better prepare you for your career and lay the foundation for success on our certification exams. Information subject to change. For the latest information, visit [aka.ms/learn](https://aka.ms/learn).

Free online microlearning:

Assess your skills at Pluralsight:

Find a Learning Partner:

Microsoft Certification:



# Data Analyst Associate

## DA-100 Exam Page

- [DA-100 Skills Measured](#)

# POLL : Azure Cloud Data Roles



# HOW TO PLAN YOUR OWN CLOUD JOURNEY

Mindset

Toolset

Skillset

**Mindset**

**Who are you in the future?**

**Are you a DBA overwhelmed by learning the cloud?**

**OR**

**Are you a successful cloud DBA starting your journey?**

Seeing yourself as where you're going will activate your imagination to pull you forward toward that future!

**Benjamin Hardy - Future Self**

MY STORY

QUESTION: What's in it for me? Why would I want to learn all this, it seems overwhelming.

ANSWER: Being immersed in cloud learning has paid off. I am enjoying learning, I am comfortable solving problems that would have stopped me, I am inspired by the new tools and their evolutions.

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*A man's mind is stretched by a new idea or sensation, and never shrinks back to its former dimensions.*

—Oliver Wendell Holmes



**COMMIT**

## Small Habits

It's hard to fear a problem when you are making progress on it—even if progress is imperfect and slow. Action relieves anxiety. Working on a problem reduces the fear of it.

- James Clear

## Misconceptions & Reality

- MISCONCEPTION: Each exam is a whole new topic where I need to start at square one.
- REALITY: These exams overlap one another. The more exams you take, the less new material there is to learn.

- MISCONCEPTION: I must master all these new products and services to the same depth I have mastered SQL Server.
- REALITY: Mastery is NOT required. Only competency.
  - Can choose mastery later when we decide out focus.
  - Rapid change discounts the value of mastery, increases the value of rapid learning.

- MISCONCEPTION: I can pass exams then know everything I need to get a job.
- REALITY: Certifications are NOT a substitute for experience.
  - They focus your efforts on learning what MS (and MS large customers) thinks is important.
  - They help you start in the right direction.
  - They signal that you put in the effort and know the basics, they can put you at the top of the pile.

# Certification Study General Approach

- Review Skills Measured
- Review *Study Guides* that point to [MS Learn Docs](#)
- Review the MS Learn
- *Quickstarts & Tutorials*
  - Do the hands-on work early, avoid just reading about theory, get hands on.
  - Research the options you don't understand, tying the practice back to the theory
- Practice Exams
  - Whizlabs, MeasureUp, Udemy

# Tim Warner's Cert Study Pyramid

## 3 Interdependent Aspects

- Theoretical Knowledge
- Practical Application
- Practice Exam Drilling

[Tim explains on YouTube](#)

**Follow your curiosity, get to FLOW, change study to play**



## Free versus paid study resources

- Your resources are yours to allocate
- Trading money for time can be VERY effective

Free online training

Microsoft Learn

[Microsoft Ignite Azure Data & AI Challenge](#)

Active till Oct 7

## For cost online training

- CloudSkills
- Pluralsight
- Udemy

## Passive versus active

- Hands-on study is best but intensive
- Fill time spaces with passive learning
  - Cost training providers
  - YouTube
  - Podcasts

# Continuous Improvement

- This is the secret sauce, if we sign up for the career in the cloud, we are continuous learners

## Excel by completing the loop

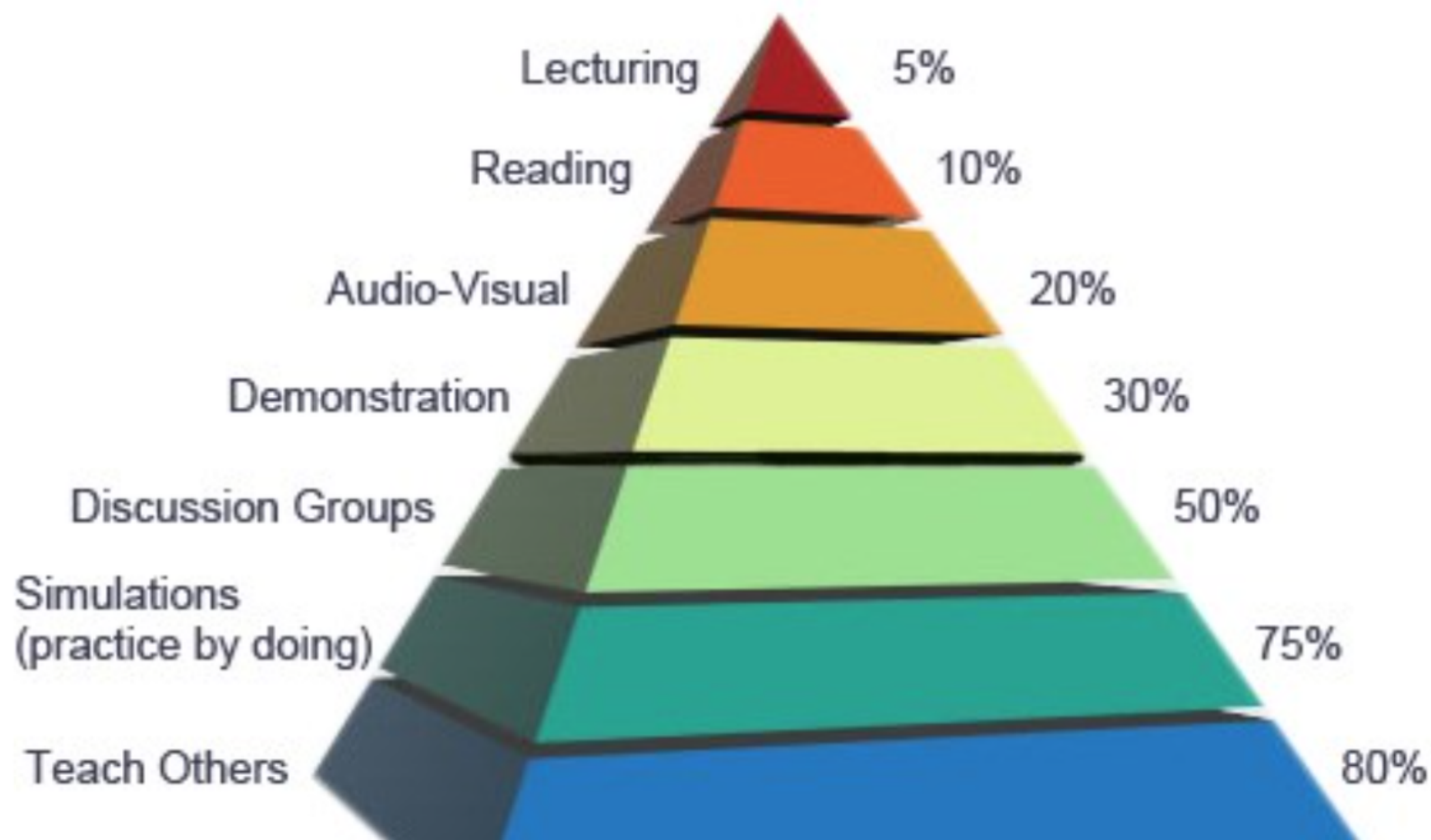
- [Learning pyramid diagram](#), learn best by teaching

# Learning Pyramid

| Spend your time doing, discussing & teaching to maximize your learning

# Learning Pyramid

(Methodes of training and retention rates)





## Community Support

- Knowledge, encouragement, support, accountability as we progress on our cloud journey

## Lessons Learned

- I had to overcome a lot of fears to pursue this path, so much to learn, cloud is intimidating.
- Each win builds confidence. Each hands-on lab, each tutorial, each passed exam, each small Azure project has built my confidence.
- Connect self-awareness <-> skills <-> self-confidence

## The opportunity for Cloud DBAa

Microsoft to help with digital skills

<https://blogs.microsoft.com/blog/2020/06/30/microsoft-launches-initiative-to-help-25-million-people-worldwide-acquire-the-digital-skills-needed-in-a-covid-19-economy/>

[https://1gew6o3qn6vx9kp3s42ge0y1-wpengine.netdna-ssl.com/wp-content/uploads/prod/prod/2020/06/4\\_The-Great-Lockdown.png](https://1gew6o3qn6vx9kp3s42ge0y1-wpengine.netdna-ssl.com/wp-content/uploads/prod/prod/2020/06/4_The-Great-Lockdown.png)

# Resources

- Guides
  - [The Essential Guide to Data in the Cloud: A Handbook for DBAs](#)
  - [Azure Whitepapers on SQL](#)
  - [Microsoft training and certifications](#)
  - [Cloud data services for database administrators](#)
- Images
  - [https://blogs.msdn.microsoft.com/uk\\_faculty\\_connection/2017/02/24/big-data-and-azure/](https://blogs.msdn.microsoft.com/uk_faculty_connection/2017/02/24/big-data-and-azure/)