Microsoft Data and AI News

April 2021

Table of Contents

General Announcements

- Microsoft Ignite Book of News
- Army moves Microsoft HoloLens-based headset from prototyping to production phase
    - The IVAS headset, based on HoloLens and augmented by Microsoft Azure cloud services, delivers a platform that will keep Soldiers safer and make them more effective. The program delivers enhanced situational awareness, enabling information sharing and decision-making in a variety of scenarios.
- Live transcription with speaker attribution now available in Teams meetings for US English
    - Live transcription in Teams uses a meeting's invitation, participant names, attachments, etc. to improve the accuracy and recognize meeting-specific jargon for each transcript automatically, without any human involvement.
- Microsoft releases findings and considerations from one year of remote work in Work Trend Index
    - Time spent in meetings has more than doubled globally, and over 40 billion more emails were delivered in February of this year compared with last.
    - 73% of workers surveyed want flexible remote work options to continue.
    - Remote job postings on LinkedIn increased more than five times during the pandemic.
    - Talent is everywhere in a hybrid work world.
- Why we are concerned about Georgia's new election law
- Unusual 'machine in the woods' taps clean energy deep underground for new Microsoft campus
    - The hidden wells will be the foundation of a large system that heats and cools the new buildings with an untraditional clean energy source: the constant temperature below the earth's surface.
    - Microsoft has a very powerful commitment in being carbon negative by 2030

- - Geoexchange systems take advantage of the temperature difference between sub-ground soil, which remains constant year-round, and that of ambient air, which changes with the seasons
- PowerPoint Presenter Coach now available on all platforms
  - Presenter Coach provides users with feedback on their pace, use of monotone pitch, use of filler words, poor grammar, lack of originality, use of sensitive phrases, and more while they rehearse their presentations. At the end of each rehearsal, Presenter Coach users receive a Summary Report highlighting the key pieces of feedback to help them become even better, more confident presenters.
- How Dynamics 365 Remote Assist enables shared surgery in underserved communities
  - Mount Sinai Hospital in New York is using Microsoft Dynamics 365 Remote Assist on Microsoft HoloLens 2 to conduct shared surgery with their surgical counterparts in Uganda.
- AI for Health – a year of innovations from grantees across the globe
  - We have awarded over 180 grants in four areas of focus, which include accelerating medical research, increasing global health insights, addressing health equity and building research capabilities.

Data Platform

- How to get the biggest bang for your buck with SQL Server on Azure VMs
  - Three key aspects to right-sizing (and right-configuring) your Azure VM for SQL Server that are based on some common pitfalls customers face when migrating their on-premises workloads to Azure VM: 1) Choosing the best VM series and size for your workload 2) Configuring storage for maximum throughput and lower cost 3) Leveraging unique to Azure features such as host caching to boost performance at no additional cost.
  - Generally a large number of small disks gives better price-performance than a small number of large disks.
  - Writes in SQL Server are flagged as writethrough which means they always write directly to storage to guarantee durability. This means writes can't take advantage of host caching. Since the transaction log is mostly writes, there's no benefit to host caching there, and in fact enabling it for log drives can cause unnecessary overhead.
  - Reads in SQL Server can take advantage of host caching, and we find that for many customers around 30% of data file reads will get satisfied from the cache.
  - Turning on host caching is free
- Azure SQL Managed Instance - A performance optimization change to default settings is coming soon
  - The default maximum degree of parallelism (MAXDOP) option for new SQL managed instances will change from 0 to 8. This will help improve workload performance and reduce unnecessary resource utilization.
- Azure Private Link for Azure Cache for Redis in general availability
  - By using Private Link, you can connect to an Azure Cache for Redis instance from your virtual network via a private endpoint, which is assigned a private IP address in a subnet within the virtual network. Once a private endpoint is created, all access to your cache instance will be restricted to only connections using the private IP addresses when public network access is disabled.
- Optimize your Azure SQL Managed Instance cost with Microsoft Azure Well-Architected Framework
  - Collect and visualize key performance metrics to determine the right resource level usage

- Use built-in features like Query Store or index usage statistics to optimize SQL workload
- Consider using compression (row, page), column store indexes where possible to keep storage footprint small and reduce storage size needs.
- Define and enforce data retention, archival requirements, or data offloading (e.g. to a storage account) strategy
- Reduce the billing charges for excess usage of the backup storage space beyond the free backup storage space provided. You can control the backup consumption using these general approaches: 1) Choose the backup storage type that is right for you 2) Optimize database backup retention period 3) Maximize your free backup storage space 4) Optimize your apps and workloads
- Azure Data Explorer performance update (EngineV3) is now generally available
  - Includes a new optimized storage format and indexes
  - Uses advanced data statistics query optimizations to create an optimal query plan and just-in-time compiled query execution.
  - Improved disk cache, resulting in query performance with an order of magnitude improvement over the current engine (EngineV2).
- Cross-instance Service Broker message exchange for Azure SQL Managed Instance
  - The Service Broker component of Azure SQL Managed Instance allows you to compose applications from independent services, by providing native support for reliable and secure message exchange between the databases attached to the services.
  - With cross-instance message exchange, which is in preview as of March 2021, you can distribute work across multiple instances that may reside in different Azure regions.
  - You establish the trust between the instances by creating server trust group starting from one instance and adding another instance to the group.
- General availability: Dynamic data masking granular permissions for Azure SQL and Azure Synapse Analytics
  - You may grant granular masking permissions using T-SQL (this feature is not currently exposed in the portal): [video] Granular Permissions for Azure SQL Dynamic Data Masking | Data Exposed
  - Code snippet:
    - `GRANT UNMASK on SCHEMA::sch1 to user1`
    - `GRANT UNMASK ON sch2.table2 to user2`
    - `DENY UNMASK ON sch2.table2(column1) to user3`
- Long-term backup retention (LTR) for Azure SQL Managed Instance in public preview
  - When using the LTR feature, you can automatically retain specified SQL Managed Instance full backups in separate Azure Blob storage with configured redundancy for up to 10 years. You can then restore any backups as a new database. LTR may be configured on both single and pooled instances.
- Limited-time free quantities offer for Azure Synapse Analytics
  - Customers with qualifying subscription types can now try the new serverless SQL pool and Apache Spark pool resources in Azure Synapse Analytics using free quantities until July 31, 2021.
- Public preview: Azure Migrate - At scale discovery and assessment for SQL Server migration to Azure SQL
  - Announcing the preview of at-scale, agentless discovery and migration-readiness assessments for SQL Server.
  - [video] How to plan Microsoft SQL Server migration to Azure with Azure Migrate
- Cumulative Update #17 for SQL Server 2016 SP2

Data Integration

- Azure Data Factory Ignite 2021 Updates
  - Azure Purview and Azure Data Factory Integration
  - Reserved Instance pricing for Data Flows
  - CDM Format Support with Data Flow
  - Azure Policy Support for Azure Data Factory
  - Automating Azure Data Factory Deployment. In the current CI/CD flow a user must go to ADF UI and manually click publish to start the ARM template generation and drop it in the publish branch. This logic is now consumable via a publicly available npm package: @microsoft/azure-data-factory-utilities.
  - Dual standby Azure SSIS IR pair for high availability
  - Azure Database for PostgreSQL in Data Flow
  - REST Connector as Sink in Copy data activity
  - When parsing Excel files using copy activity or data flow, you can now specify the worksheet index
  - Delta Lake Format support in ADF data flows
- [video] Adding source control to Azure Synapse Analytics Studio

Analytics and Reporting

- Public preview: Announcing the new Power BI embedded analytics playground
  - New playground experiences for developer and non-developers to get first-hand experience of Power BI embedded analytics.
  - Access the embedded analytics playground here
- General availability: Stream Analytics runs on Azure Stack Hub
- Announcing new Power Platform capabilities at Microsoft Ignite
  - Power BI Premium per user now generally available for purchase. Power BI Premium per users offers customers access to all the latest Premium features, including Paginated Reports, Deployment Pipelines, **Automated Machine Learning**, Large Data Model support, and much more.
  - Premium Gen2 with Autoscale automatically adds a vCore to Premium capacity when utilization peaks and removes it when no longer needed. These cores can be charged to an Azure pay-as-you-go account.
  - Enhanced Power BI security capabilities. Network security features in Power BI include Service tags, private links (for secure inbound connections to PBI), VNET gateways (for secure outbound traffic from Power BI)
  - Microsoft Power Fx, a low code, open-source programming language across the Power Platform
  - Power Automate Desktop, which offers RPA capabilities that easily automate time-consuming manual work, will be available to Windows 10 users at no additional cost.
  - Sensitivity labels, BYOK, and more!
  - See Power BI security white paper for more details.
- Power BI Quick Links Reference Sheet

- For planned features see: Power BI Release Plan
- What's New In Dataflows – April 2021
  - Updating some terminology in Dataflows to be more intuitive and make its usage more productive: Entity -> Table, Field/Attribute -> Column
  - Support to read the latest CDM manifest
  - In Power BI Dataflows, customers can build their own reusable data preparation pipelines. A key part of making this data reusable and accessible is our Azure Data Lake Storage integration. Customers can connect their Power BI dataflows to their own Azure Data Lake Storage at the tenant or workspace level. With this flexibility, we allow workspace admins to connect to an Azure subscription to bring their own ADLS Gen2 account. This will make it easier for departments to control and assign permissions as well as give flexibility to large organizations who may require multiple ADLS Gen2 accounts for different needs and purposes.
- Announcing new deployment pipelines capabilities
  - Paginated reports can now be managed inside deployment pipelines
  - Deployment pipelines can now manage content that includes sensitivity labels, enabling users to leverage all the world-class security capabilities that Power BI offers.
  - Workspace members (not just dataset owner) can now update datasets through deployment pipelines
- Power BI April 2021 Feature Summary
  - Power Automate for Power BI
  - DirectQuery for Power BI datasets and Azure Analysis Services
  - CROSSFILTER supports many-to-many relationships
  - Performance improvements to IF and SWITCH functions
  - Easy report sharing via links
  - New and improved shapes
  - Microsoft Charticulator visual, and much more!

Back to Contents

AI and IoT

- [video] AI Show - Extract information from your documents with new capabilities in Form Recognizer
  - The new capabilities in Form Recognizer which were announced at Ignite support pre-built IDs, invoices and 73 new languages.
  - Public preview: Cognitive Services - Form Recognizer new features
- Machine Learning Services on Azure SQL Managed Instance now generally available
  - Run R and Python scripts to do data preparation and general purpose data processing.
  - Train machine learning models in database.
  - Deploy your models and scripts into production in stored procedures.

Back to Contents

Infrastructure and Management

- Backup for Azure Managed Disk is now generally available
  - Azure Backup offers a turnkey solution that provides snapshot lifecycle management for managed disk by automating periodic creation of snapshots and retain them for a configured duration using Backup policy.

- You can easily manage the disk snapshots with zero infrastructure cost and without need for custom scripting or any management overhead.
- This is a crash-consistent backup solution that takes point in time backup of a managed disk using incremental snapshots with support for multiple backups per day.
- Moreover, it is an agent-less solution and does not impact production application performance. It supports backup and restore of both OS and Data disk (including Shared disk), regardless of whether or not they are currently attached to a running Azure Virtual machine.
- Azure Security Center: Public preview updates for March 2021
  - SQL vulnerability assessment now includes the "Disable rule" experience (preview)
- Insights and workbooks for Azure Cosmos DB now in public preview
  - Azure Monitor insights and Azure Monitor workbooks makes it easier to visualize and customize metrics for dynamic monitoring of your Azure Cosmos DB resource
- Azure Monitor SQL insights for Azure SQL in public preview
  - Includes support for SQL Server 2012+, Azure SQL Database Single and Managed Instance
  - SQL Insights as the latest addition to the monitoring portfolio is the only solution at this time capable to harvest both Azure Monitor telemetry, and direct DMV queries to the database.
  - Current preview only supports SQL authentication
  - Requires provisioning a Linux VM for data collection
  - Visualize data using Azure Monitor Workbooks

Back to Contents

Training and Technical Guides

- [Video] Deep Dive: Azure SQL Virtual Machine Sizing | Data Exposed Live
  - Performance guidance for SQL Server
  - Understand VM families and naming conventions.
  - IOPs, throughput, and mem-to-core considerations.
  - Optimize for SQL Server licensing cost
- [video] Azure Purview: New connectors, Synapse integration, enhanced business glossary, etc.
  - New connectors in public preview (S3, Oracle DB, SAP, Azure Synapse Analytics Workspaces, Azure subscriptions and resource groups)
  - Support for private endpoints
  - Purview powered search in Synapse studio
- Configure SQL Server AG (Read-Scale) for SQL Containers deployed on Kubernetes using Helm
  - Walkthrough: Setup three SQL Server instances deployed on the Kubernetes aka k8s cluster. With Always On availability group configured amongst the three SQL Server instances in Read scale mode.

Back to Contents

Development and Tools

- Microsoft Power Fx: The open-source low-code programming language is in public preview
  - This formula-based language originates from Microsoft Excel and is already the foundation of the Microsoft Power Apps canvas
- General availability: Azure Communication Services

- Azure Communication Services makes it easy to add voice, video, chat, and SMS capabilities to mobile apps, desktop applications, websites, and chatbots
- Public preview: Azure Database for MySQL – Flexible Server now connects with Azure CLI
- Azure Storage Explorer v1.18.0 is now generally available
- Python Durable Functions support in Azure Functions is now generally available
  - Durable Functions, an extension to Azure Functions that lets you define stateful serverless workflows, now supports Python in general availability. Developers and data scientists can now orchestrate complex data processing and data science workloads in Azure Functions using familiar Python language constructs.
  - A common scenario enabled by Durable Functions is chaining together a sequence of functions to build a long-running data processing pipeline. You write an orchestrator function that uses ordinary Python code to compose a workflow that calls other Azure Functions. Durable Functions takes care of checkpointing progress and retry logic.
  - Another scenario made possible by Durable Functions is fanning out machine learning workloads to perform parallel tasks taking advantage of the elastic scale offered by Azure Functions' serverless platform.
  - [video] Durable functions in Python for Azure Functions | Azure Friday
- Released: Microsoft.Data.SqlClient 1.1.4
- Update: ODBC Driver 17.7.2 for SQL Server Released

Back to Contents

Lifecycle Updates

- Search Product and Services Lifecycle Information
  - Microsoft Lifecycle provides consistent and predictable guidelines for support throughout the life of a product, helping customers manage their IT investments and environments while strategically planning for the future.
- Lifecycle FAQ
- Products Reaching End of Support for 2021
  - SQL Server 2016 moving to extended support on July 13, 2016. Extended Support includes security updates at no cost, and paid non-security updates and support. Additionally, Microsoft will not accept requests for design changes or new features during the Extended Support phase.
- SNAC is deprecated.
  - OLEDB: Microsoft OLE DB Driver for SQL Server. Note: OLEDB has been undeprecated.
  - ODBC: Download the latest ODBC Driver for SQL Server
- Support for .NET Framework 4, 4.5 and 4.5.1 ended on January 12, 2016
  - The support change does not affect the support lifecycle policy for older versions prior to .NET Framework 4. Support for .NET Framework 4.5.2, as well as all other .NET versions such as 3.5 SP1, will continue to be supported for the duration of the operating system support lifecycle.
  - Beginning with version 4.5.2 and later, .NET Framework is defined as a component of the Windows operating system (OS). Components receive the same support as their parent products, therefore, .NET Framework 4.5.2 and later follows the lifecycle policy of the underlying Windows OS on which it is installed.

Back to Contents

SQL Server Builds

- Find information about the latest SQL GDRs (security updates). The Security Update Guide is the authoritative source of information on Microsoft security updates.You can filter by date and product category.
- Find the latest SQL Server service packs and cumulative updates.
    - Note: SQL Server Service Packs are discontinued starting from SQL Server 2017
- Find downloads for SQL service packs, setup updates ("Smart Setup"), security updates, and update rollups in the Microsoft Update Catalog

Back to Contents

Technical Community Resources

- Microsoft Tech Community. Collaborate, share and learn from experts. View recent blog articles.
- Provide Feedback to the Product Group
- Channel 9 Shows
    - Data Exposed
    - Learn with Dr. G
- Microsoft Learn. Up your game with a learning path designed to prepare you for industry-recognized Microsoft certifications.

Back to Contents

Newsletter Archives

- Azure Talking Points: Microsoft Data and AI News
- SQL Server Updates and Lessons Learned

Back to Contents

Table of Contents