

Microsoft Data and AI News

OCTOBER 2020

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General Announcements

- Microsoft's 2020 Diversity & Inclusion report: A commitment to accelerate progress amidst global change
 - This year's report focuses on three core areas in addition to the data: the ways that diversity and inclusion is integrated into our employee pandemic response, our commitments to addressing racial injustice, and our investment in the Allyship at Microsoft learning path.
 - <https://blogs.microsoft.com/blog/2020/10/21/microsofts-2020-diversity-inclusion-report-a-commitment-to-accelerate-progress-amidst-global-change/>
- Accelerating genomics workflows and data analysis on Azure
 - Microsoft Genomics has released several open source projects on GitHub, including Cromwell on Azure, Genomics Notebooks and Bioconductor support for Azure. We have also made available a growing list of genomics public datasets on the Azure Open Dataset platform.
 - <https://azure.microsoft.com/en-us/blog/accelerating-genomics-workflows-and-data-analysis-on-azure/>
- Why privacy is essential to equitable recovery
 - To achieve the full benefits that the digital transformation promises, people must trust their information is used responsibly and respectfully.
 - Since the European Union's General Data Protection Regulation (GDPR) was adopted just two years ago, many countries...have adopted, revised or proposed new frameworks for privacy protection that recognize people own their personal data and have a right to view, correct and delete it.
 - [A]...YouGov survey... found that the American public is overwhelmingly in favor of stronger privacy protection law.

- Creating a framework of trust – both for congressional action and corporate accountability – should begin with these four principles...Transparency, Consumer empowerment, Corporate responsibility, Strong enforcement.
 - <https://blogs.microsoft.com/on-the-issues/2020/10/16/privacy-laws-open-data-economic-recovery/>
- New action to combat ransomware ahead of U.S. elections
 - We took action to disrupt a botnet called Trickbot, one of the world's most infamous botnets and prolific distributors of ransomware.
 - Trickbot has infected over a million computing devices around the world since late 2016.
 - <https://blogs.microsoft.com/on-the-issues/2020/10/12/trickbot-ransomware-cyberthreat-us-elections/>
- Azure and Intel commit to delivering next generation confidential computing
 - We are announcing that Azure will be an early adopter of the 3rd generation Intel® Xeon® Platform, code named Ice Lake, which includes full memory encryption and accelerated cryptographic performance for confidential computing with Intel Software Guard Extensions (SGX). Available next year, this technology will unlock even more confidential computing scenarios for our customers.
 - <https://azure.microsoft.com/en-us/blog/azure-and-intel-commit-to-delivering-next-generation-confidential-computing/>
- 10 app store principles to promote choice, fairness, and innovation
 - We are adopting 10 principles – building on the ideas and work of the Coalition for App Fairness (CAF) – to promote choice, ensure fairness and promote innovation on Windows 10, our most popular platform, and our own Microsoft Store on Windows 10
 - <https://blogs.microsoft.com/on-the-issues/2020/10/08/app-store-fairness-caf-interoperability-principles/>
- Increasing election security monitoring in cloud computing
 - To date, cloud computing providers, such as Microsoft Azure, have not been compatible with Albert [Network Monitoring] sensors. This presented election officials with the difficult choice of selecting powerful, secure, and cost-effective cloud computing options, or hosting the data on local servers if they wanted to take advantage of the added security of Albert [Network Monitoring].
 - [Through] a partnership with CIS, we're providing a new choice by making Microsoft Azure compatible with Albert for the first time.
 - <https://blogs.microsoft.com/on-the-issues/2020/06/22/election-security-albert-monitoring-azure/>

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Data Platform

- Cumulative Update #8 for SQL Server 2019 RTM
 - <https://techcommunity.microsoft.com/t5/sql-server/cumulative-update-8-for-sql-server-2019-rtm/ba-p/1736647>
- Cumulative Update #7 for SQL Server 2019 RTM (Removed)
 - If you had downloaded the CU7 package file before Sep-23 2020, it is advised to not install it. Instead, install SQL Server 2019 CU8.
 - <https://techcommunity.microsoft.com/t5/sql-server/cumulative-update-7-for-sql-server-2019-rtm-removed/ba-p/1629317>

- Cumulative Update #15 for SQL Server 2016 SP2
 - <https://techcommunity.microsoft.com/t5/sql-server/cumulative-update-15-for-sql-server-2016-sp2/ba-p/1722494>
- Released: Public preview of Azure Arc enabled SQL Server
 - Azure Arc enabled SQL Server is now in public preview.
 - It extends Azure services to SQL Server instances deployed outside of Azure in the customer's datacenter, on the edge or in a multi-cloud environment.
 - The public preview of Azure Arc enabled SQL Server supports a set of solutions that require the Microsoft Monitoring Agent (MMA) server extension to be installed and connected to a Azure Log analytics workspace for data collection and reporting. These solutions include Advanced data security using Azure Security Center and Azure Sentinel, and SQL Environment health checks using On-demand SQL Assessment feature.
 - After registration, the instance will be represented on Azure as a SQL Server – Azure Arc resource. The properties of this resource reflect a subset of the SQL Server configuration settings.
 - <https://techcommunity.microsoft.com/t5/sql-server/released-public-preview-of-azure-arc-enabled-sql-server/ba-p/1711258>
 - <https://techcommunity.microsoft.com/t5/sql-server/making-sense-of-azure-and-azure-arc-deployment-options-for-sql/ba-p/1730624>
 - <https://docs.microsoft.com/en-us/sql/sql-server/azure-arc/overview?view=sql-server-ver15>
- Scale database up or down when geo replication is in use
 - When scaling between DTU and vCore model you may only scale between equivalent editions.
 - Standard is similar to General purpose and Premium to Business Critical.
 - If, [for example], you need to go from P1[DTU] to GP (General Purpose) [vCore] you may first scale both primary and secondary to Standard edition and then move to GP
 - <https://techcommunity.microsoft.com/t5/azure-database-support-blog/scale-database-up-or-down-when-geo-replication-is-in-use/ba-p/1698612>
- Azure Synapse Link for Azure Cosmos DB: SQL serverless runtime support in preview
 - Azure Synapse Link now has preview support for querying Azure Cosmos DB data with Synapse SQL serverless in addition to the existing support for Synapse Apache Spark.
 - <https://azure.microsoft.com/en-us/updates/azure-synapse-link-for-azure-cosmos-db-sql-serverless-runtime-support-in-preview/>
 - <https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/query-cosmos-db-analytical-store>
- Announcing Azure Data Explorer data connector for Azure Synapse
 - You can now use Azure Synapse Workspace to access your data in Azure Data Explorer using Apache Spark pool
 - <https://azure.microsoft.com/en-us/updates/adx-synapse-connector/>
- Public preview: Zone redundant configuration for Azure SQL DB general purpose tier
 - [Allows] your general purpose databases and elastic pools [to be] resilient to a much larger set of failures, including catastrophic datacenter outages, without any changes of the application logic by selecting zone redundancy.
 - <https://azure.microsoft.com/en-us/updates/zone-redundant-configuration-for-azure-sql-db-general-purpose-tier/>
- Distributed database transactions spanning multiple Azure SQL Managed Instances (preview)

- Now in preview, distributed database transactions spanning multiple Azure SQL Managed Instances have been added to enable frictionless migration of existing applications, as well as development of modern multi-tenant applications relying on vertically or horizontally partitioned database architecture.
- During preview, two methods of running distributed transactions will be supported using BEGIN DISTRIBUTED TRANSACTION statement from Transact-SQL code and using TransactionScope class from .NET code.
- <https://azure.microsoft.com/en-us/updates/distributed-database-transactions-spanning-multiple-azure-sql-managed-instances/>
- Machine Learning open sourcing for R and Python Custom Runtime
 - If you currently receive base R and Python with your Azure SQL Server installations, runtimes may be a few months behind what is available with open source R and Python.
 - We are announcing a general availability release that solves one of our customers' pain points: the ability to bring a newer version of R and Python they may be using in their own companies.
 - <https://azure.microsoft.com/en-us/updates/machine-learning-open-sourcing-for-r-and-python-custom-runtime/>
- SQL Server on Virtual Machines: Machine Learning with Microsoft R Open 4.0.2 now available
 - The latest update for Microsoft R Open 4.0.2 (downloadable for Windows, Mac, and Linux platforms) includes improvement to the performance of the merge function and adds an option to better handle zero-length arguments to the paste and paste0 functions
 - <https://azure.microsoft.com/en-us/updates/sql-server-on-virtual-machines-machine-learning-with-microsoft-r-open-4-0-2-now-available/>
- What's new in Azure SQL Managed Instance at Ignite 2020
 - <https://techcommunity.microsoft.com/t5/azure-sql/what-s-new-in-azure-sql-managed-instance-at-ignite-2020/ba-p/1701671>
- Azure AD authentication features for Azure SQL DB, Azure Synapse Analytics, and Azure SQL Managed Instance
 - First, support is being added for Azure AD user creation in SQL Database and Azure Synapse Analytics on behalf of Azure AD applications.
 - Second, users can use cloud groups to manage Directory Readers role assignment in Azure AD. This change will promote ease of use when setting up SQL Database, Azure Synapse Analytics, and SQL Managed Instance to create users.
 - Finally, Azure AD guest users can now be created as database users and set as Azure AD admin without the need to first add them as members of a group created in Azure AD.
 - <https://azure.microsoft.com/en-us/updates/azure-ad-authentication-features-for-azure-sql-db-azure-synapse-analytics-and-azure-sql-managed-instance/>
 - <https://techcommunity.microsoft.com/t5/azure-sql/support-for-azure-ad-user-creation-on-behalf-of-azure-ad/ba-p/1491121>
 - <https://docs.microsoft.com/en-us/azure/azure-sql/database/authentication-aad-directory-readers-role#granting-the-directory-readers-role-to-an-azure-ad-group>
 - <https://techcommunity.microsoft.com/t5/azure-sql/enhanced-support-for-azure-ad-guest-users-for-azure-sql/ba-p/1548470>
- Reserved capacity on Azure SQL Database Hyperscale is now available
 - <https://azure.microsoft.com/en-us/updates/reserved-capacity-on-azure-sql-database-hyperscale-is-now-available/>

- Hosting catalog databases for all supported versions of SSRS in Azure SQL Managed Instance
 - Now in general availability, Azure SQL Managed Instance can host catalog databases for all supported versions of SQL Server Reporting Services (SSRS).
 - Last year, SQL Server 2019 Reporting Services introduced native support for hosting catalog databases in SQL Managed Instance. Now you can also use SQL Managed Instance to host catalog databases for earlier supported versions of SSRS.
 - <https://azure.microsoft.com/en-us/updates/hosting-catalog-databases-for-all-supported-versions-of-ssrs-in-azure-sql-managed-instance/>
 - <https://techcommunity.microsoft.com/t5/azure-sql/hosting-ssrs-databases-in-azure-sql-managed-instance/ba-p/1700197>
- Major performance improvements for Azure SQL Managed Instances
 - These improvements include better transaction log write throughput ... and superior data/log IOPS for business critical instances.
 - These improvements are automatically enabled for all existing and future Azure SQL Managed Instances at no extra charge
 - <https://azure.microsoft.com/en-us/updates/major-performance-improvements-for-azure-sql-managed-instances/>
 - <https://techcommunity.microsoft.com/t5/azure-sql/announcing-major-performance-improvements-for-azure-sql-database/ba-p/1701256>
- Global virtual network peering support for Azure SQL Managed Instance now available
 - This enables you to pair managed instances in failover group configuration, in an easy and performant way, by simply connecting virtual networks in different regions. By utilizing global virtual network peering for your managed instances, you will save time through easy network configuration and offload your gateways from database replication traffic.
 - <https://azure.microsoft.com/en-us/updates/global-virtual-network-peering-support-for-azure-sql-managed-instance-now-available/>
- Machine Learning on Azure SQL Managed Instance in preview
 - Machine Learning Services with support for R and Python languages now include preview support on Azure SQL Managed Instance. When using Machine Learning Services with R or Python support in Azure SQL Managed Instance, you can run R and Python scripts to do data preparation and general purpose data processing, train machine learning models in database, and deploy your models and scripts into production in stored procedures.
 - <https://azure.microsoft.com/en-us/updates/machine-learning-on-azure-sql-managed-instance-in-preview/>
- Track progress of SQL Managed Instance create/scale request
 - With instance operations API in place you can monitor progress of create and scaling requests
 - <https://techcommunity.microsoft.com/t5/azure-sql/track-progress-of-sql-managed-instance-create-scale-request/ba-p/1698640>
- Configurable Backup Storage Redundancy option for Azure SQL Managed Instance
 - By default, storage is geo-replicated to a paired region using RA-GRS strategy. As many applications have regulatory, compliance, or other business requirements for data residency control, geo-redundancy is not good fit for every customer.
 - Now in general availability, locally redundant storage (LRS) and zone-redundant storage (ZRS) options have been added to backup storage redundancy, providing more flexibility and choice.

- Configure backup storage redundancy during the managed instance creation process as once the resource is provisioned, it is no longer possible to change the storage redundancy.
- <https://azure.microsoft.com/en-us/updates/configurable-backup-storage-redundancy-option-for-azure-sql-managed-instance-2/>
- <https://techcommunity.microsoft.com/t5/azure-sql/configuring-backup-storage-redundancy-in-azure-sql/ba-p/1554322>
- <https://docs.microsoft.com/en-us/azure/azure-sql/database/automated-backups-overview?tabs=single-database#backup-storage-redundancy>
- Improving concurrency of asynchronous statistics update
 - In Azure SQL Database and Azure SQL Managed Instance, the background process that updates statistics asynchronously can now wait for the schema modification lock on a low priority queue. This improves concurrency for workloads with frequent query plan (re)compilations.
 - The ASYNC_STATS_UPDATE_WAIT_AT_LOW_PRIORITY database-scoped configuration modifies the behavior of the background update statistics process to wait for the Sch-M lock at low priority. Low priority here means that this request will not acquire the Sch-M lock on the statistics metadata object until all other processes holding incompatible locks on the same object release their locks.
 - For customers seeing blocking chains where a background process waits for a Sch-M lock on a statistics metadata object, we recommend enabling the ASYNC_STATS_UPDATE_WAIT_AT_LOW_PRIORITY database-scoped configuration to improve workload concurrency.
 - <https://techcommunity.microsoft.com/t5/azure-sql-database/improving-concurrency-of-asynchronous-statistics-update/ba-p/1441687>
- Transactionally consistent database copy for Azure SQL Database Hyperscale tier
 - Now in preview, the Hyperscale service tier in Azure SQL Database supports generating a transactionally consistent database copy to either the same or different logical server or region, similar to database copy already supported in other service tiers.
 - <https://azure.microsoft.com/en-us/updates/transactionally-consistent-database-copy-for-azure-sql-database-hyperscale-tier/>
- How to Change collation for production Azure SQL databases
 - ALTER DATABASE COLLATE statement on Azure SQL Database is not supported. So, you can effectively change the collation by exporting, modifying the model.xml file for .bacpac files, and reimporting the database.
 - (1) Take a copy of the production database to a higher service tier ex: P11 on the same server. (2) Export the database to bacpac using SQLPackage. (It's better to use a VM in the same region of the SQL server for less latency) (3) Modify the collation by editing the model.xml file. (4) Import the database again to a higher service tier ex: P11 by using SQLPackage and overriding the model.xml path. (5) Change the database name, or modify app connection string to use the new database.
 - <https://techcommunity.microsoft.com/t5/azure-database-support-blog/how-to-change-collation-for-production-azure-sql-databases/ba-p/1723869>
- Public preview of Azure PostgreSQL backup with long term retention
 - <https://azure.microsoft.com/en-us/updates/public-preview-of-azure-postgresql-backup-with-long-term-retention/>
- Expanding SQL Server Big Data Clusters capabilities, now on Red Hat OpenShift

- We have enhanced the security design of BDC to take full advantage of the OpenShift Container Platform. In addition to privileged containers being no longer required, containers are also running as a non-root user by default.
- <https://cloudblogs.microsoft.com/sqlserver/2020/06/16/expanding-sql-server-big-data-clusters-capabilities-now-on-red-hat-openshift/>
- Azure Database for MySQL Flexible Server in preview
 - Flexible Server offers maximum control through custom maintenance windows and additional configuration parameters for fine grained tuning. Now you can benefit from zone redundant high availability and control the timing for patches and upgrades.
 - <https://azure.microsoft.com/en-us/updates/azure-database-for-mysql-flexible-server-in-preview/>
 - <https://docs.microsoft.com/en-us/azure/mysql/flexible-server/overview>
- Public preview: Stop/start functionality for Azure Database for MySQL
 - This allows you to reduce costs when the databases are not being used by stopping the database server when not in use (during non-business hours) and resuming when it's back online.
 - <https://azure.microsoft.com/en-us/updates/stopstart-functionality-for-azure-database-for-mysql/>

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Data Integration

- Public Preview: Data Factory adds SQL Managed Instance (SQL MI) support for ADF Data Flows and Synapse Data Flows
 - <https://azure.microsoft.com/en-us/updates/public-preview-data-factory-adds-sql-managed-instance-support/>
- GA: Data Factory adds ORC data lake file format support for ADF Data Flows and Synapse Data Flows
 - <https://azure.microsoft.com/en-us/updates/ga-data-factory-adds-orc-data-lake-file-format-support-for-adf-data-flows-and-synapse-data-flows/>
- Azure Key Vault Event Grid integration is now available
 - Azure Key Vault is now an events publisher with Azure Event Grid, enabling developers to subscribe to events about keys, certificates, and secrets changes.
 - <https://azure.microsoft.com/en-us/updates/azure-key-vault-event-grid-integration-is-now-available/>
- Step By Step: How to use SQLPackage with Access Token
 - SQLPackage allows you to authenticate with Access Token instead of providing Login name and password.
 - Steps: (1) Create App Registration in your Azure Active Directory (AAD) (2) Create user for the Application to access Azure SQL DB and grant the needed permissions. (3) Generate Access token for your Application. (4) Use the Access token to import or export your database.
 - <https://techcommunity.microsoft.com/t5/azure-database-support-blog/step-by-step-how-to-use-sqlpackage-with-access-token/ba-p/1407819>

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Analytics and Reporting

- Power BI October 2020 Feature Summary
 - Introducing **dynamic M query parameters** in preview
 - Lots of new visuals and updates to existing visuals
 - Power BI has a new icon. Across the Power Platform we have updated our product icons to the new Fluent design system.
 - Dismiss option was added to the Power BI Desktop splash screen
 - <https://powerbi.microsoft.com/en-us/blog/power-bi-october-2020-feature-summary/>
- Power BI September 2020 Feature Summary
 - We have merged the Power BI Desktop, Service and Mobile blogs, so there is one overview of everything that is new in this month
 - we will be stopping support for Power BI Desktop on Windows 7 on Jan 31st 2021. After that, Power BI Desktop will only be supported on Windows 8 and newer.
 - We are also making a change to the version of .NET that is required to run Power BI Desktop. Starting from the October release you'll need to have .NET 4.6.2 or greater installed.
 - Smart Narratives, Autoplay Slideshow on startup, total labels for stacked visuals, and more.
 - <https://powerbi.microsoft.com/en-us/blog/power-bi-september-2020-feature-summary/>
- The enhanced compute engine is now enabled by default
 - We are turning on the enhanced compute engine for all new dataflows by default in all new capacities provisioned – the next step in our roadmap for enhancing the speed and performance of your dataflows. This change is currently being rolled out and we expect it to be complete by end of October.
 - For new capacities which make use of dataflows, the engine will be enabled by default. However, to best take advantage of this... [you]...can tune the performance of the workload through the capacity settings for dataflows.
 - <https://powerbi.microsoft.com/en-us/blog/the-enhanced-compute-engine-is-now-enabled-by-default/>
- Announcing improved MDX query performance in Power BI
 - The MDX query performance improvement is the result of a clever Formula Engine (FE) optimization aimed at reducing the number of Storage Engine (SE) queries per MDX query, similar to DAX optimizations known as DAX Fusion.
 - With MDX Fusion, the most common MDX query patterns can now trigger far fewer SE queries
 - Fewer SE queries mean fewer expensive scans over large datasets, which ultimately results in sizeable performance gains especially when connecting to a Tabular model or Power BI dataset in Direct Query mode.
 - The MDX query not only returns faster, MDX Fusion also helps to reduce the workload on the data source in DirectQuery mode as Power BI sends significantly fewer DirectQuery queries.
 - MDX Fusion is also available in import (Vertipaq) mode.
 - <https://powerbi.microsoft.com/en-us/blog/announcing-improved-mdx-query-performance-in-power-bi/>
- New Common Data Model connector for Apache Spark in Azure Synapse Analytics & Azure Databricks (in preview)
 - This enables data to be exported in CDM format from applications such as Dynamics 365 and easily mapped to the schema and semantics of data stored in other services.
 - We are announcing a new CDM connector that extends the CDM ecosystem by enabling services that use Apache Spark to now read and write CDM-described data in CSV or Parquet

format. This is done through a dataframe abstraction that can be accessed from Scala, Python, or Spark SQL. This new Spark CDM connector requires zero configuration and is pre-installed with Azure Synapse Analytics.

- <https://azure.microsoft.com/en-us/updates/new-common-data-model-connector-for-apache-spark-in-azure-synapse-azure-databricks/>
- Apache Spark for Azure Synapse In-cluster Caching and Shuffle Service (Preview)
 - Caching and shuffle are two of the components of infrastructure for Apache Spark that have the greatest impact on performance. These new services, which we have written from scratch, allow the optimization of performance for these components on modern hardware and operating systems. The service is [now] enabled for Apache Spark Pools
 - <https://azure.microsoft.com/en-us/updates/apache-spark-for-azure-synapse-incluster-caching-and-shuffle-service-preview/>
- Azure HDInsight --Autoscale for Interactive Query with HDInsight 4.0 is now generally available
 - <https://azure.microsoft.com/en-us/updates/azure-hdinsight-autoscale-for-interactive-query-with-hdinsight-40-is-now-generally-available/>
- Power BI App for mixed reality now available for HoloLens 2
 - We're releasing the next gen of the Power BI app for mixed reality. This app runs on HoloLens 2.
 - Using HoloLens 2's updated hand gestures system, you can resize your reports and dashboards and place them around you in space.
 - <https://powerbi.microsoft.com/en-us/blog/power-bi-app-for-mixed-reality-now-available-for-hololens-2/>
- Azure Synapse Link now supports Azure Cosmos DB API for Mongo DB (Preview)
 - <https://azure.microsoft.com/en-us/updates/azure-synapse-link-now-supports-azure-cosmos-db-api-for-mongo-db-preview/>
- Serverless offer for Azure Cosmos DB coming soon on all APIs
 - <https://azure.microsoft.com/en-us/updates/serverless-offer-for-azure-cosmos-db-coming-soon-on-all-apis/>
- Power BI Smart Narrative (preview)
 - Using this feature creators can add narratives to their report to address key takeaways, point out trends, edit the language, and format it to fit a specific audience.
 - Instead of pasting a screenshot of their report in PowerPoint with key takeaways added, they can now add narratives to the report that are updated with every refresh.
 - You can also customize the summary and add your own insights by adding dynamic values.
 - <https://powerbi.microsoft.com/en-us/blog/smart-narrative-preview/>
- Analysis Services Tabular improves MDX query performance in the cloud
 - <https://azure.microsoft.com/en-us/updates/analysis-services-tabular-improves-mdx-query-performance-in-the-cloud/>
- New analytics and windowing capabilities in Stream Analytics
 - Snapshot Windows: a window type allowing to group by events arriving at the exact same time using System.Timestamp() as grouping key.
 - TopOne and CollectTop are now available as analytic functions, in addition to the previous aggregate behavior. This will allow to return records ordered by the column of your choice, without the needed to be part of a window.
 - And more...

- <https://azure.microsoft.com/en-us/updates/new-analytics-and-windowing-capabilities-in-stream-analytics/>
- Power BI Embedded Error: All provided principals must be existing, user or service principals
 - The error may not be referring to the user being added, but to the Power BI embed admin user
 - <https://community.powerbi.com/t5/Community-Blog/Power-BI-Embedded-Error-All-provided-principals-must-be-existing/ba-p/1157024>
- Licensing and roadmap update for Power BI Report Server
 - We've recently updated our licensing terms to allow SQL Server Enterprise customers with software assurance to deploy Power BI Report Server on Azure VM's for production use by leveraging their Azure Hybrid Benefit.
 - In the coming months, we'll also be making VM templates in Azure for both Power BI Report Server and SQL Server Reporting Services to enable one-click deployment options for customers as well.
 - Please note: As Power BI Report Server is only available to customers with software assurance, there will be no pay as you go option available for those images
 - <https://powerbi.microsoft.com/en-us/blog/licensing-and-roadmap-update-for-power-bi-report-server/>

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AI and IoT

- Azure Cognitive Services general availability updates
 - Anomaly Detector service is now generally available
 - Speech service, speech-to-text (standard and custom), text-to-speech (standard), and Anomaly Detector v1 are GA in containers
 - <https://azure.microsoft.com/en-us/updates/azure-cognitive-services-general-availability-updates/>
- New guided UI experience to deploy machine learning models in Azure Synapse Analytics (in preview)
 - <https://azure.microsoft.com/en-us/updates/new-guided-ui-experience-to-deploy-machine-learning-models-in-azure-synapse-analytics/>
 - <https://docs.microsoft.com/en-us/azure/synapse-analytics/machine-learning/tutorial-sql-pool-model-scoring-wizard#launch-predictions-with-sql-scoring-wizard>
- Real-time data intelligence and security at the edge with Azure SQL Edge
 - Introducing the availability of Azure SQL Edge, a real-time data engine, optimized for IoT workloads and backed by the security and performance of the same engine that powers SQL Server and Azure SQL.
 - <https://cloudblogs.microsoft.com/sqlserver/2020/09/22/real-time-data-intelligence-and-security-at-the-edge-with-azure-sql-edge/>
- Build powerful and responsible AI solutions with Azure
 - We are introducing a new **spatial analysis capability in the Computer Vision** Azure Cognitive Service. Its advanced AI models aggregate insights from multiple cameras to count the number of people in the room, measure the distance between individuals, and monitor wait and dwell times. Organizations can now apply this technology to use their space in a safe, optimal way.

- **Metrics Advisor**, a new Azure Cognitive Service...[provides]...real-time monitoring, auto-tuning AI models, alerting, and root cause analysis. It allows organizations to fix issues before they become significant problems. No machine learning expertise is required.
- Azure Machine Learning's no-code automated machine learning and drag and drop designer is now generally available
- **Responsible AI** practices and guidelines for safe use are infused into Azure AI's services, such as spatial analysis, to ensure personal privacy, transparency, and trust. We've also seen the rapid adoption of Azure Machine Learning's **responsible ML** ... [including Fairlearn toolkit] ... capabilities and toolkits.
- Learn about fairness in machine learning and how the Fairlearn open-source Python package can help you mitigate fairness issues in machine learning models:
<https://docs.microsoft.com/en-us/azure/machine-learning/concept-fairness-ml>
- Metrics Advisor <https://azure.microsoft.com/en-us/services/cognitive-services/metrics-advisor/>
- <https://azure.microsoft.com/blog/build-powerful-and-responsible-ai-solutions-with-azure/>
- Azure Cognitive Services has achieved human parity in image captioning
 - Computer Vision, part of Azure Cognitive Services, now offers an updated image captioning capability that has achieved human parity based on the Novel Object Captioning at Scale (NOCAPS) benchmark.
 - <https://azure.microsoft.com/en-us/updates/azure-cognitive-services-has-achieved-human-parity-in-image-captioning/>
- Azure Batch cloud scale containers for HPC | Azure HPC
 - <https://www.youtube.com/watch?v=r5jxlwJQEPc>
- Accelerating autonomous vehicle development | Azure HPC
 - <https://www.youtube.com/watch?v=s8TacBPYjNg>

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Infrastructure and Management

- Azure SQL VM Automatic Registration and Reporting Services Images
 - We have created an easy option for customers to enable the SQL IaaS extensions on all SQL Server virtual machines in an Azure subscription using a feature called Automatic Registration.
 - Select Automatic SQL Server VM registration to open the Automatic registration page and select Register to enable the feature and automatically register all current and future SQL Server VMs with the SQL VM resource provider. This will not restart the SQL Server service on any of the VMs.
 - <https://techcommunity.microsoft.com/t5/sql-server/azure-sql-vm-automatic-registration-and-reporting-services/ba-p/1783947>
- 512 Sector Size support on Azure Ultra Disks is now available
 - Azure Ultra Disks offer high throughput, high input/output operations per second (IOPS), and consistent low latency block storage for Azure virtual machines (VMs). Oracle Database earlier than release 12.2 and other workloads that require less than 4K sector size can now benefit from the performance of Ultra Disks.
 - <https://azure.microsoft.com/en-us/updates/512-sector-size-support-on-azure-ultra-disks-is-now-available/>
- The new Azure VMware Solution is now generally available

- Azure VMware Solution enables customers to extend or migrate VMware workloads to the cloud seamlessly.
- Organizations can maintain existing VMware skills and operational processes, running VMware Cloud Foundation technologies, and leverage the benefits of Azure—all at the same time.
- <https://azure.microsoft.com/blog/the-new-azure-vmware-solution-is-now-generally-available/>
- Cross Region Restore (CRR) for SQL/SAP HANA using Azure Backup
 - Following the introduction of Cross Region Restore of Azure VMs, Azure Backup has extended this capability to support SQL and SAP HANA backups.
 - <https://azure.microsoft.com/en-us/updates/cross-region-restore-crr-for-sqlsap-hana-using-azure-backup/>
- New disk performance metrics in Azure Monitor
 - <https://azure.microsoft.com/en-us/updates/new-disk-performance-metrics-in-azure-monitor-to-identify-performance-bottlenecks/>
- Selective disks backup for Azure Virtual Machines
 - <https://azure.microsoft.com/en-us/updates/selective-disks-backup-for-azure-virtual-machine/>
- Azure Backup support for up to 32 disks is now generally available
 - <https://azure.microsoft.com/en-us/updates/azure-backup-support-for-up-to-32-disks-is-now-generally-available/>
- What's new in Azure Backup
 - Azure Backup and Azure Database Services have come together to build an enterprise-class backup solution for Azure PostgreSQL (now in preview). With this, you have granular control to manage the backup and restore operations at the individual database level. Likewise, you can restore across PostgreSQL versions or to blob storage with ease.
 - (In preview) Ensure database consistent snapshots for Oracle and MySQL databases running on Azure Linux virtual machines.
 - Configuring backups for your SQL Server in Azure VMs is now even easier with inline backup configuration integrated into the VM blade of the Azure portal (now generally available). With just a few clicks, you can enable backup of your SQL Server to protect all the existing databases as well as the ones that get added in the future.
 - <https://azure.microsoft.com/blog/whats-new-in-azure-backup/>
- Azure Sentinel launches new analytics, threat intelligence, and data collection features
 - <https://azure.microsoft.com/en-us/updates/azure-sentinel-launches-new-analytics-threat-intelligence-and-data-collection-features/>
- App Service Private Endpoints now generally available
 - Azure App Service support for Private Endpoints has now entered General Availability in all Azure public regions for both Windows and Linux apps.
 - Private Endpoints enables you to consume your app through a specific IP address located in your Azure Virtual Network (VNet), eliminating exposure to the public internet.
 - Private Endpoints only enables inbound connectivity to your app and does not enable outbound connectivity into a VNet, but this can be achieved with VNet integration
 - <https://azure.microsoft.com/en-us/updates/app-service-private-endpoints-ga/>
- New general purpose and memory-optimized Azure Virtual Machines with Intel now available

- <https://azure.microsoft.com/blog/new-general-purpose-and-memoryoptimized-azure-virtual-machines-with-intel-now-available/>

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Training and Technical Guides

- 5 Things you didn't know about Azure SQL Database | Azure Tips and Tricks
 - <https://www.youtube.com/watch?v=AtQQHYAJRx8>
- 5 Things you didn't know about Azure Cognitive Services | Azure Tips and Tricks
 - https://www.youtube.com/watch?v=4mwE_A6rOlo
- Developers + Nurses = NurseHack4Health
 - Microsoft is a proud sponsor of NurseHack4Health - a 3 day virtual hackathon from Nov. 13-15, 2020 to leverage technology and help improve access to reliable, trusted information.
 - <https://techcommunity.microsoft.com/t5/azure-developer-community-blog/developers-nurses-nursehack4health/ba-p/1820356>
- Learn about Power BI Gen2 premium capacity platform from this ignite session
 - [video] <https://myignite.microsoft.com/sessions/919ad4b1-0841-427e-9978-22eb9ffa4d9b>
 - <https://powerbi.microsoft.com/en-us/blog/announcing-the-upcoming-evolution-of-power-bi-premium-to-enterprise-markets-and-beyond/>

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Development and Tools

- PowerShell+Azure Sentinel notebooks to supercharge your threat hunting and investigations!
 - For those interested in security and security analytics, we recently published an article on how you can now enable PowerShell Jupyter notebooks via .Net Interactive Public Preview for use with Azure Sentinel
 - <https://devblogs.microsoft.com/powershell/powershellazure-sentinel-notebooks-to-supercharge-your-threat-hunting-and-investigations/>
- The September 2020 release of Azure Data Studio is now available
 - Includes new Notebooks features, extension generator templates, public preview of SQL Database Projects extension, public preview of Kusto (KQL) extension, Azure Arc preview support, Azure SQL Edge general availability support, and more.
 - We are excited to announce Rich Text Mode, also known as WYSIWYG Mode. For the first time, notebook users no longer need to know Markdown in order to create text cells. Simply start typing and interact with the toolbar as if you were using a typical text editor. This means support for headers, bold, highlighting, images, and more. As you type, we will dynamically convert your text into Markdown.
 - <https://cloudblogs.microsoft.com/sqlserver/2020/09/22/the-september-2020-release-of-azure-data-studio-is-now-available/>
- Open sourcing the R and Python language extensions for SQL Server
 - <https://cloudblogs.microsoft.com/sqlserver/2020/09/24/open-sourcing-the-r-and-python-language-extensions-for-sql-server/>
- PowerShellGet 3.0 Preview 10 Release
 - To install the latest version module, open any PowerShell console and run: *Install-Module PowerShellGet -Force -AllowPrerelease -Repository PSGallery -SkipPublisherCheck*

- <https://devblogs.microsoft.com/powershell/powershellget-3-0-preview-10-release/>
- Native Commands in PowerShell – A New Approach
 - This two-part blog post investigates how PowerShell can take better advantage of native executables.
 - PowerShell provides a number of benefits to its users (1) consistent parameter naming for similar uses (2) a single parameter parser so errors about mis-parameter use are consistent across all commands (3) output consisting of objects (no text parsing) (4) common way to get help (5) cross platform consistency (6) easy execution of existing tools
 - <https://devblogs.microsoft.com/powershell/native-commands-in-powershell-a-new-approach/>
 - <https://devblogs.microsoft.com/powershell/native-commands-in-powershell-a-new-approach-part-2/>
- Released: General Availability of Microsoft.Data.SqlClient 2.0
 - This .NET Data Provider for SQL Server provides general connectivity to the database and supports all the latest SQL Server features for applications targeting .NET Framework, .NET Core, and .NET Standard.
 - <https://techcommunity.microsoft.com/t5/sql-server/released-general-availability-of-microsoft-data-sqlclient-2-0/ba-p/1469442>
- Released: SQL Server Assessment Extension for Azure Data Studio (Public Preview)
 - Provides a user interface for evaluating your SQL Server instances and databases for best practices.
 - <https://techcommunity.microsoft.com/t5/sql-server/released-sql-server-assessment-extension-for-azure-data-studio/ba-p/1470603>

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Lifecycle Updates

- <http://www.microsoft.com/lifecycle>
- Lifecycle FAQ: <https://support.microsoft.com/en-us/help/17140/lifecycle-faq-general-policy-questions>
- Products Reaching End of Support for 2020 <https://support.microsoft.com/en-us/help/4470235/products-reaching-end-of-support-for-2020>
- Support for Windows 7, Windows Server 2008 R2 and Windows Server 2008 ended on January 14, 2020
- Support for SQL Server 2008 and SQL Server 2008 R2 ended on July 9, 2019.
- SQL Server 2014 moved from Mainstream Support to Extended Support on July 9, 2019.
- Support for SQL Server 2016 SP1 ended on July 9, 2019. Please upgrade to the latest service pack.
- Support for SQL Server 2014 SP1 ended on October 10, 2017. Please upgrade to the latest service pack.
- Support for SQL Server 2012 SP3 ended on October 9, 2018. Please upgrade to the latest service pack.
- SNAC lifecycle explained
 - SNAC 11: SQL 2005 to SQL 2014. Note that SNAC 11 does not support features released with SQL Server 2014 and SQL Server 2016 that were not available as part of SQL Server 2012, such as Transparent Network IP Resolution, Always Encrypted, Azure AD Authentication, Bulk Copy and Table Value Parameters.
 - SNAC 13 (ODBC): SQL 2008 to SQL 2016. Available for Windows and Linux.

- <https://blogs.msdn.microsoft.com/sqlreleaseservices/snac-lifecycle-explained/>
- **Download the Latest ODBC Driver for SQL Server:** <https://docs.microsoft.com/en-us/sql/connect/odbc/download-odbc-driver-for-sql-server>
- Support for .NET Framework 4, 4.5 and 4.5.1 ended on January 12, 2016
 - Please complete the in-place update to .NET Framework 4.5.2
 - 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.
 - https://support.microsoft.com/en-us/gp/framework_faq

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SQL Server Builds

- Where to find information about the latest SQL GDRs (security updates)
 - The Security Update Guide is the authoritative source of information on Microsoft security updates.
 - <https://portal.msrc.microsoft.com/en-us/security-guidance>
 - You can filter by date and product category.
- Where to find information about the latest SQL Service Packs and Cumulative Updates
 - <http://support.microsoft.com/kb/957826>
- Where to find downloads for SQL service packs, setup updates ("Smart Setup"), security updates, and update rollups
 - Microsoft Update Catalog <http://catalog.update.microsoft.com/>
 - Note: You may have to switch IE to Compatibility View to use the Update Catalog
- SQL version tables and build charts
 - How to determine the version and edition of SQL Server and its components
<https://support.microsoft.com/en-in/kb/321185>
 - Unofficial build chart (NOTE the following site is NOT a Microsoft affiliated website)
<http://sqlserverbuilds.blogspot.com/>

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Community Resources

- Microsoft Tech Community. Collaborate, share and learn from experts
<https://techcommunity.microsoft.com/>
- Provide Feedback to the Product Group: <https://feedback.azure.com/forums/908035-sql-server>
- Channel 9 - SQL Jump Start Videos. Channel 9 is a Microsoft community site which features video channels, discussions, screencasts and video interviews.
<https://channel9.msdn.com/Search?term=sql&sortBy=recent&lang=en=true>
- Microsoft Self-Paced Labs: Acquire the cloud skills you need, at your own pace. Enjoy hands-on learning on your schedule with our free, self-paced labs, and keep your cloud knowledge fresh.
<https://www.microsoft.com/hands-on-labs/self-paced-labs>
- Microsoft Learn. Up your game with a learning path tailored to today's developer and technology masterminds and designed to prepare you for industry-recognized Microsoft certifications.
<https://docs.microsoft.com/en-us/learn/>

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Newsletter Archives

- Azure Talking Points: Microsoft Data and AI News <https://aka.ms/AzureTalkingPoints>
- SQL Server Updates and Lessons Learned <https://docs.microsoft.com/en-us/archive/blogs/sqlupdates/>

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