FedRAMP Cloud Solutions: Microsoft Azure Government Technical Overview

About Share Tech Solutions

- Established in 2007. Headquarters: Leesburg, VA
- Committed to a premium customer experience
- 5 million square feet of secure, data center infrastructure nation-wide
  - Supporting more than 1,000 customers
  - Unique product and services portfolio: 3Cs
    - C1 - Custom Data Center
    - C2 - Colocation
    - C3 - Cloud & Managed Services
- Industry-leading security and compliance expertise
Compliance is our Strength

**Federal NIST 800.53**
- DIACAP, FISMA, FedRAMP

**Commercial Standards**
- HIPAA/HITECH, PCI DSS

**STS Compliance Standards**

- FISMA: Federal Information Security Management Act
- FedRAMP: Provisional Authority to Operate
- HIPAA and HITECH Security Rule & Privacy Rule
- ITAR: Supports US International Traffic in Arms Regulations (ITAR)
- HITRUST: Health Information Trust Alliance
- ISO/IEC: SOC 2 Type 2
- DoD Information Assurance Certification & Accreditation Process
- PCI Security Standards Council

**Share Tech Compliance Policies are a Superset of Industry Standards**

**IBX Vault**

The most secure, federally-compliant data center in the industry

- Is a 64,000 square feet, 7.3-megawatt data center
- Delivers colocation, managed and cloud services
- Offers FISMA, DIACAP and FedRAMP compliance
- Provides superior integrated hosting services, carrier/network connectivity and 24x7x365 security
- Located just 29 miles from the White House and 4.5 miles from Dulles International Airport, delivering unmatched accessibility
- ‘Man trap’ entry and perimeter fencing
- 24x7x365 armed guards
- CCTV and recorders; motion detection; hand geometry; readers; fiber vault

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IAD2 Vault Data Center Campus
Next generation cloud operations facility in Dulles, VA

QTS

BIGGER. BETTER. STRONGER.
Data center experts and hybrid cloud leaders come together as one infrastructure services powerhouse.

Offering a high touch, consultative services approach to ensure optimum performance and reliability for our customers
Market Forces Driving Convergence

Managed Hosting

Compliant Hybrid Infrastructure

Cloud Services

Compliance
(HIPAA, PCI, SOX, FISMA, DIACAP, FedRAMP)

FedRAMP Solutions:
Microsoft Azure Government Technical Overview
Microsoft Azure overview
Microsoft offers the most complete and flexible suite of capabilities—and the experience to back it up.

On-premises
- Windows Server 2012 R2
- Systems Center 2012 R2
- SQL Server 2014
- BizTalk Server 2013 R

Cloud
- Microsoft Azure
- Outlook
- MSN
- Xbox Live
- Office
- Microsoft Dynamics CRM Online

Microsoft Cloud Platform

Microsoft Azure: A unified platform for modern business

Flexible
- Scale per business need

Faster business outcomes
- Web
- App
- Data

Enterprise-proven
- Web
- App
- Data

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Microsoft Azure: Transforming the Datacenter

On-premises

- Applications
- Data
- Runtime
- Middleware
- OS
- Virtualizations
- Servers
- Storage
- Networking

<table>
<thead>
<tr>
<th>Customer Manages</th>
<th>Microsoft Manages</th>
</tr>
</thead>
</table>

Infrastructure as a Service

- Applications
- Data
- Runtime
- Middleware
- OS
- Virtualizations
- Servers
- Storage
- Networking

Platform as a Service

- Applications
- Data
- Runtime
- Middleware
- OS
- Virtualizations
- Servers
- Storage
- Networking

Software as a Service

- Applications
- Data
- Runtime
- Middleware
- OS
- Virtualizations
- Servers
- Storage
- Networking

Azure: Comprehensive Cloud Services

 Infrastructure

<table>
<thead>
<tr>
<th>Automated</th>
<th>Managed resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elastic</td>
<td>Usage based</td>
</tr>
</tbody>
</table>

Fabric

- Virtual machines
- Cloud services

 Compute

- SQL Database
- NoSQL Database
- Blob storage

 Storage

- Dedicated connections
- Virtual network

 Networking

 Services

- Caching
- Identity
- Service Bus
- Media
- Recovery
- Notification Hubs
- Tasks

 Frameworks

- .NET
- Java
- PHP
- Node.js
- Python
Azure: An open platform powered by choice

Microsoft is contributing to the open source community and working to make Azure the platform of choice for developers.

- Partnering with open source communities through MS OPENTECH.
- Interoperability between Microsoft and non-Microsoft technologies (i.e. Drupal, PHP, Node.JS, VM Depot and more).
- Platform and tools independent.
- Compatibility with the tools developers already know.
- Most favored open source creative development frameworks.

What is Microsoft Azure Government?
U.S. Public Sector needs and requirements

**Needs**

- Increase own agility
- Minimize datacenter investments
- Maximize existing investments by adopting hybrid cloud approach

**Requirements**

- Specific security controls
- Specific compliance requirements
- Government-only community

Introducing Microsoft Azure Government

A government-community cloud that extends world-class security and control for dedicated U.S. Public Sector workloads.

- Provides a physical and network-isolated instance of Microsoft Azure.
- Provides screened U.S. citizens and policies to help protect customer data and applications.
- Stores data within the United States.
- Offers continuous commitment to meet rigorous compliance demands (i.e. FedRAMP, CJIS, and HIPAA) of a government-community cloud.
- Provides rich infrastructure, storage, and identity management capabilities delivered through cloud, on-premises, and hybrid solutions.
- Delivers integrated, familiar experiences with Office 365 for Government in the cloud.
Azure Government: Powerful datacenter security

Customer data, applications, and hardware reside in the continental United States (CONUS) in specially constructed datacenters. The datacenters are physically isolated from Azure commercial services and geographically distributed more than 500 miles apart to support business continuity scenarios.

**Perimeter**
- 24x7 security staff
- Facility setback requirements
- Barriers
- Fencing

**Buildings**
- Alarms
- Security operations center
- Seismic bracing
- East/Central locations: U.S. Gov. Iowa & U.S. Gov. Virginia

Continuous compliance

- Security goals set in context of business and industry requirements.
- Security analytics & best practices deployed to detect and respond to threats.
- Benchmarked to a high bar of certifications and accreditations to ensure compliance.
- Continual monitoring, testing, and auditing.
- Ongoing update of certifications and attestations.

Security Compliance Framework

- Test and audit
- Security analytics
- Security benchmark analysis
- Risk management best practices
- Certificates and attestations

Business objectives + Industry standards & regulations

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Commitment to government compliance standards

More than just adhering to compliance standards, Microsoft has been actively engaged in designing and testing compliance standards, establishing itself as an integral part of the government assurance and security ecosystem. Microsoft maintains a continuous and rigorous compliance roadmap.

<table>
<thead>
<tr>
<th>FedRAMP¹</th>
<th>ECSB²</th>
<th>CJIS</th>
<th>HIPAA</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="FedRAMP Logo" /></td>
<td><img src="image" alt="ECSB Logo" /></td>
<td><img src="image" alt="CJIS Logo" /></td>
<td><img src="image" alt="HIPAA Logo" /></td>
</tr>
</tbody>
</table>

¹Microsoft Azure (commercial service) has FedRAMP ATO for IaaS, PaaS
²Microsoft Azure (commercial service) ECSB application submitted

Note: To learn more about in-scope services and additional requirements, please visit [Microsoft Azure Trust Center compliance by service](#).

Available Azure Government services

<table>
<thead>
<tr>
<th>Compute</th>
<th>Networking</th>
<th>Storage, backup, &amp; recovery</th>
<th>Identity management</th>
<th>Data management</th>
<th>Web apps &amp; sites, mobile &amp; media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual machines</td>
<td>Cloud services</td>
<td>Traffic Manager</td>
<td>Blob</td>
<td>Azure AD Multi-Factor Authentication</td>
<td>Tasks Media services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Table Queue</td>
<td>SQL Database</td>
<td></td>
</tr>
</tbody>
</table>

New services are released frequently. For a list of all available Azure Government services go to: [Azure services by region](#).
Azure Government security

Components of Azure Government security

- Monitoring & logging
- Anti-virus/anti-malware
- Threat detection
- Network isolation
Monitoring & logging

Customer responsibilities

- Configure monitoring.
- Export events to SQL Database, Hadoop cluster, or a Security Information and Event Management (SIEM) product for analysis.
- Monitor alerts & reports.
- Respond to alerts.

Azure Government benefits

- Performs monitoring & alerting on security events.
- Enables security data collection with Monitoring Agent or Windows Event Forwarding.

Anti-virus/anti-malware

Customer responsibilities

- Configure anti-malware.
- Export events to SQL Database, Hadoop cluster, or a Security Information and Event Management (SIEM) product for analysis.
- Monitor alerts & reports.
- Respond to alerts.

Azure Government benefits

- Performs monitoring & alerting of anti-malware events.
- Enables real-time protection, on-demand scanning, and monitoring with Microsoft anti-malware for cloud services and virtual machines.
Threat detection

- Can add extra layers of protection by deploying additional controls, including DOS, IDS, and web application firewalls.
- May conduct authorized penetration testing of their applications.

Azure Government benefits

- Performs big data analysis of logs for intrusion detection & prevention for the platform.
- Employs denial of service attack prevention measures for the platform.
- Regularly performs penetration testing.

Customer responsibilities

- Can add extra layers of protection by deploying additional controls, including DOS, IDS, and web application firewalls.
- May conduct authorized penetration testing of their applications.

Network isolation

- Does not enable general Internet access by default, except remote administration endpoints configured when virtual machines are created in the portal.
- Configurable ACLs on all endpoints.
- IPSec connection options and dedicated options.
- Provides a physical and network-isolated instance of Microsoft Azure.

Customer responsibilities

- Configure endpoints for required access.
- Manage Access Control Lists (ACLs) if required.
- Create connections to other clouds and on-premises resources.
Azure Government solutions

End-to-end solutions for the public sector

- Maintain consistent identity management
- Provide storage and database backup
- Develop & test applications
- Host SharePoint Server
- Quickly provision SQL
- Develop new apps in Azure SQL Database
- Deliver audio and video at scale
Maintain consistent identity management

Key scenarios

- Monitoring and protecting access to cloud applications.
- Single sign-on across many cloud service providers.
- Security monitoring and reporting to effectively manage users.

Microsoft benefits

- Centrally manages users and access to Azure, Office 365, and pre-integrated cloud applications.
- Extends on-premises directories to Azure Active Directory Premium Services.
- Enables single sign-on across cloud applications.
- Provides Multi-Factor Authentication for enhanced security.
- Leverages existing investments in identity solutions.

Technical advantage

- Single sign-on to simplify user access to cloud applications from Windows, Mac, and iOS devices.
- Enterprise directory management for Microsoft Online Services as well as non-Microsoft cloud applications.
- Industry-standard protocols such as SAML 2.0, WS-Federation, and OpenID.
- REST-based Graph API enables developers to read and write to the directory from any platform.
- Support for OAuth 2.0 for building mobile and web apps that integrate with Microsoft and 3rd party web APIs.
Provide storage and database backup

Key scenarios
- Working with existing infrastructure to provide cost-effective storage.
- Offering seamless SQL Server backup, with Azure Government, to Azure Blob Storage.
- Using Azure storage to manage disaster recovery and archive data.

Microsoft benefits
- Easily geo-synchronize data in any storage service across datacenters.
- Use low-cost public cloud storage for selected volumes and manage with on-premises capacity using a single console.
- Scale storage capacity at lower cost per TB without sacrificing performance.
- Enable self-provisioning and management using System Center.
- Offer industry-standard SMB file sharing across virtual machines.
- Provide 99.99% service availability.

Technical advantage
- Flexibility to store and retrieve large amounts of unstructured data with blobs, tables, queues, and files.
- Up to 100 storage accounts with 500 TB of total storage per account.
- Automatic data replication.
- First-class client library support for .NET, Java, Android, C++, and Node.js.
- Data also accessible with REST API.
Develop & test applications

Key scenarios
- Enable innovation and speed time-to-solution with development and testing in the cloud.
- Provision, test, and shutdown.
- Scale testing in minutes – not days.

Microsoft benefits
- Rapid self-provisioning of as many virtual machines as needed for application dev & testing in the cloud without waiting for hardware, procurement, or internal processes.
- Speed the application lifecycle with an end-to-end platform for agile, team-based development.
- Use existing development tools and languages.
- Deploy apps on-premises or in the cloud.
- Access on-premises resources when needed.

Technical advantage
- Integrated across many different IDEs (such as Visual Studio, Eclipse, and more).
- Visual Studio 2013 offers the best IDE for cloud development & testing.
- Automated deployments through PowerShell, .NET, Java, or REST based APIs.
- Easy provisioning and deploying of Open Source apps.
- Sign-in availability on a variety of popular platforms and technologies, including .NET, Java, Node.js, Ruby on Rails, and PHP.
Host SharePoint Server

Key scenarios

• On-premises SharePoint farms in dev & test environment makes moving to the cloud expensive and time-consuming.
• Significant SharePoint customization gives you full control of your SharePoint environment.
• Cross-agency collaboration.

Microsoft benefits

• Design, implement, and develop on SharePoint without upfront hardware costs.
• Quickly provision.
• Develop custom Internet sites and collaboration apps not supported in a Software-as-a-Service model.
• Burst compute, storage, and database for SharePoint farm when needed.

Technical advantage

• Scalability for internal and Internet-facing sites.
• Integrations with full-trust code for custom apps.
• Connections to existing on-premises networks.
• New site construction in hours rather than weeks.
Quickly provision SQL

Key scenarios

• Move existing SQL Server apps.
• Develop and test.
• Backup and restore database to the cloud.
• Extend on-premises apps to Azure virtual machines.

Microsoft benefits

• Full SQL Server capabilities.
• Transparent data encryption and auditing capabilities provide additional security.
• Library of virtual machine templates help manage the installation of SQL Server on top of the virtual OS.
• Direct attach to Azure Blob Storage delivers scale and resiliency.

On-premises

Cloud

Offline clients

Technical advantage

• Easy backup of on-premises database to Azure; geo-replication of backups stored in multiple datacenters for enhanced disaster recovery.
• Always On Availability Groups enable automated and manual fail over.
• Asynchronous replicas to Azure virtual machines use a point and click experience directly in SQL Server Management Studio (SSMS).
• Low CAPEX for additional scale.
• Seamless connections of apps in the cloud to on-premises apps.
• Full SQL Server functionality including all of the BI services in the cloud.

Increased availability that’s efficient and easy to both deploy and manage.
Develop new apps in Azure SQL Database

**Key scenarios**

- Dynamically scale out apps by developing cloud-designed apps.
- Extend on-premises apps to Azure SQL Database.
- Synchronize data across agencies.

**Microsoft benefits**

- Receive service tiers that support lightweight to heavyweight database workloads and enable apps to easily scale-up or down.
- Gain ability to maintain geo-synchronized databases across datacenters.
- Take advantage of built-in system replicas for inherent data protection, database uptime, and system stability.
- Programmatic APIs for streamlined management as you scale to hundreds or thousands of databases.

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**Develop new apps in Azure SQL Database**

**Technical advantage**

- Azure SQL Database maintains 3 local replicas and comes with options for maintaining geo-synchronous replicas across datacenters.
- Read-Only workloads are available across replicas.
- Azure SQL Database enables you to scale out your database using Elastic Scale.
- An SLA for the database running inside the virtual machine comes with high availability built-in to the service by default (99.99% SLA).

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SQL Server is the least vulnerable database among top data platforms for five years in a row.
Deliver audio and video at scale

Key scenarios

- Police & surveillance video—more cost-effective police and public safety video.
- Council meetings.
- Archiving.
- Deposition maintenance.

Microsoft benefits

- Azure Government gives customers everything needed to operate a cloud-based video platform for live events and video on demand.
- Azure Government provides the necessary tools to handle media processing, delivery, and consumption.
- Azure Government delivers media to all of today’s most popular client devices including Windows, Android, and iOS PCs, tablets, smartphones, plus TV, game consoles, and more.

Create end-to-end media workflows with flexible and highly scalable encoding, packaging, and distribution services

Technical advantage

- Available for use with most popular client device types including Windows, Android, and iOS PCs, tablets & smartphones.
- Fast ingest options & dynamic packaging of upload assets with support for UDP.
- Optimized storage with multi-bitrate MP4 encoding and delivery to all formats on the fly.
- Wide reach with player frameworks, sample players, and SDKs from Microsoft.
Summary

Microsoft Azure delivers

- Scalability without large initial costs
- The ability to help meet compliance requirements
- Agility and flexibility
- The ability to work seamlessly across your environments
Call Share Tech Solutions for demo or teaming opportunities.

703-929-1451 Ext: 4 or mark.evans@sharetechsolutions.com