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| **Feature** | **Description** | **Release - Flexible Server** | **Tools** | **Automatic/Manual** | **Environments** | **Comments/Gaps/Limitations** |
| Database Provisioning | Provisioning database to Azure Cloud | v1.0 (**PostgreSQL v14**) | Core Pipeline | Automatic | Dev/QA/UAT/PROD | TODO: security review and SRE score card for the module (GCS & SRE team involvement) |
| Scaling  CPU power, memory, IO throughput, and storage | Dynamically add more resources to the database when needed with no to minimum downtime | v1.0 (user triggered/initiated) | Core Pipeline | user triggered/initiated - (via core pipeline in a declarative manner) | Dev/QA/UAT/PROD |  |
| Patching and version upgrades | Upgrades to the latest versions, applying all necessary patches | v1.0 |  | Automatic  with having the ability to set maintenance window | Dev/QA/UAT/PROD | Leveraging MSFT offering for fully managed service  with having the ability to set maintenance window |
| Data Encryption at rest | Encrypts PostgreSQL Data files | v1.0 (for file storage)  Note: Customer managed encryption key(BYOK)- not supported |  | Part of the solution (managed service) | Dev/QA/UAT/PROD | DE on the storage is a fundamental requirement and should be enforced by policy  GAP: key rotation mechanism to be established (if automated solution is not in place before v1.0 release we would manually rotate the keys every 90 days) |
| Data Encryption in transit | providing encryption for data in motion using Transport Layer Security | v1.0 |  | Automated and enforced as part of the solution | Dev/QA/UAT/PROD | TLS 1.2 |
| Authentication and Authorization | Azure Active Directory Authentication  Using RBAC to define access roles and permissions | No (AAD support is not available) |  | Automated and enforced as part of the solution | Dev/QA/UAT/PROD | TODO: RBAC - to have a discussion how granular we would like to get, what would be declared within TFE module  How to determine application access  GAP: AAD integration - what should be done to remediate this limitation  Note: RBAC can be limited to DBA users in v1.0 |
| Networking/Security | Private access (VNET injection in a delegated subnet) | v1.0  Note: No private link support |  |  | Dev/QA/UAT/PROD |  |
| Business Continuity | Uptime- 99.99%  RTO/RPO: 12h/1h | v1.0 |  | vendor committed | QA/UAT/PROD | Included as part of offering |
| High Availability | v1.0 |  | automatic  to be further discusses with the Team what env should be supported and how | QA/UAT/PROD | **Prod - HA required**; **non-prod - QA/UAT(by request);** the rest (lower tier)  HA not required  HA- out of the box solution for the service |
| Backup/Restore  Point-in-time restore capability | v1.0 (automatic backups)  v1.0 (restore on any server within the same region) - performed by DBA |  | automatic backups - full database backups weekly, differential database backups every 12 hours, and transaction log backups every 5 - 10 minutes.  Database management scenarios - supporting DBAs team | Dev/QA/UAT/PROD | geo-restore of managed database - relies on automatically created geo-replicated backups - phase 2  All service tiers except Basic support configurable backup retention period for point-in-time restore, up to 35 days.  Auto-failover - investigate if needed based on cost efficiency and business criticality/SLA requirements (RTO/RPO: 1h/5s)  Consider manual unplanned failover  \*\* Don't allow Basic tier to be used in PROD  To be verified  backup/restore scenario will be verified by DBA team (based on permissions to be tested as well) |
| Disaster Recovery | v1.0  Note: Geo-redundant backup (Preview) |  | automatic as part of the solution  Note:  lack of fully fledged multi-regional support  Potencial solution - need to deploy another flexible server in the other region and do a database restore with a loss of up to 15 mins of data. | QA/UAT/PROD | TODO:  process of failover needs to be defined with DBA team and tested once defined  Note: instance gets replicated in 2 regions but the process needs to be established and verified |
| Data Retention | v1.0 |  | user configurable backup retention  backup long term retention (7 years) - can be configured | QA/UAT/PROD | TODO: Confirm the retention period supported by the service |
| Alerts/Notifications | v1.0 | Dynatrace | Automatic (configuration) | QA/UAT/PROD | Do we need for Dev?  Platform level - Splunk  Database performance- Dynatrace  TODO: metrics to be configured (discuss with SRE team) |
| Database Performance Monitoring (platform) | CPU utilization,  Throughput  IO | v1.0 | Dynatrace |  | DEV/QA/UAT/PROD | TODO: metrics to be configured (discuss with SRE team) |
| Application Performance Monitoring | Query stats, execution plan, etc. | v1.0 | Tools to be used by DBA team - TBD |  | DEV/QA/UAT/PROD | TODO: DBA tools |
| Scheduling tools | Scheduling jobs | TBD | DBA tools (TBD) |  |  | to be discussed what would be the best tool to use as a job scheduler |
| Logging | Platform centralized logging and SOC/SIEM Integration | v1.0 | Activity logs, Diagnostic logs, and NSG flow logs are enabled on the platform and being sent to Splunk Cloud |  | DEV/QA/UAT/PROD |  |
| User Attestation | Annual user access attestation process and reporting | v2.0 | TBD |  | DEV/QA/UAT/PROD | later phases, use manual process at the moment |
| Data Migration | * Migration of the data from on-prem to Public Cloud (priority 1) * Migration of data from Cloud to Cloud (AWS to Azure, or OCP to Azure) (priority 2) * Migration of data between subscriptions within the same Cloud (priority 3) | v1.0 (manual backup/restore) | TBD | Manual in v1.0 | DEV/QA/UAT/PROD | will be a separate discussion.   * ways to migrate * key management needs to be figured out * how encrypted data would be restored   TODO  phase 1 - backup on-prem and restore to Azure Cloud (manual) |
| Data Governance and scanning | Data Classification, scanning and sampling the data to be able to govern and manage the data | v1.0 | Azure Purview | Automated - to be enabled as part of Raiden project | DEV/QA/UAT/PROD | Will be provisioned outside of TFE Core pipeline  TODO: Azure Purview implementation (reach out to Raiden team) |