Introduction to Business Continuity PostgreSQL

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Azure Database for PostgreSQL provides business continuity features that include automated backups and the ability for users to initiate geo-restore. Each has different characteristics for Estimated Recovery Time (ERT) and potential data loss. Once you understand these options, you can choose among them, and use them together for different scenarios. As you develop your business continuity plan, you need to understand the maximum acceptable time before the application fully recovers after the disruptive event - this is your Recovery Time Objective (RTO). You also need to understand the maximum amount of recent data updates (time interval) the application can tolerate losing when recovering after the disruptive event - this is your Recovery Point Objective (RPO).
The following table compares the ERT and RPO for the available features:

Capability	Basic	General Purpose	Memory optimized
Point in Time Restore from backup	Any restore point within the retention period	Any restore point within the retention period	Any restore point within the retention period
Geo-restore from geo-replicated backups	Not supported	ERT < 12 h RPO < 1 h	ERT < 12 h RPO < 1 h

Important: Deleted servers **cannot** be restored. If you delete the server, all databases that belong to the server are also deleted and cannot be recovered. Use **Azure resource lock** to help prevent accidental deletion of your server.

Recover a server after a user or application error

You can use the service's backups to recover a server from various disruptive events. A user may accidentally delete some data, inadvertently drop an important table, or even drop an entire database. An application might accidentally overwrite good data with bad data due to an application defect, and so on.

You can perform a **point-in-time-restore** to create a copy of your server to a known good point in time. This point in time must be within the backup retention period you have configured for your server. After the data is restored to the new server, you can either replace the original server with the newly restored server or copy the needed data from the restored server into the original server.

Recover from an Azure data center outage

Although rare, an Azure data center can have an outage. When an outage occurs, it causes a business disruption that might only last a few minutes, but could last for hours.

One option is to wait for your server to come back online when the data center outage is over. This works for applications that can afford to have the server offline for some period of time, for example a development environment. When a data center has an outage, you do not know how long the outage might last, so this option only works if you don't need your server for a while.

Geo-restore

The geo-restore feature restores the server using geo-redundant backups. The backups are hosted in your server's paired region. You can restore from these backups to any other region. The geo-restore creates a new server with the data from the backups. Learn more about geo-restore from the backup and restore concepts article.

Cross-region read replicas

You can use cross region read replicas to enhance your business continuity and disaster recovery planning. Read replicas are updated asynchronously using PostgreSQL's physical replication technology. Learn more about read replicas, available regions, and how to fail over from the read replicas concepts article.

Perform post-restore tasks

After a restore from either recovery mechanism, you should perform the following tasks to get your users and applications back up and running:

- If the new server is meant to replace the original server, redirect clients and client applications to the new server
- Ensure appropriate server-level firewall rules are in place for users to connect
- Ensure appropriate logins and database level permissions are in place
- Configure alerts, as appropriate

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