Microsoft

Understanding High Availability and Disaster Recovery

Module 1

Learning Units covered in this Module

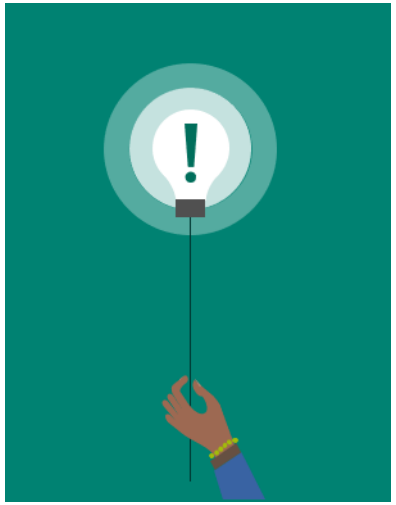
- Lesson 1: High Availability and Disaster Recovery Concepts
- Lesson 2: Introduction to Always On

Lesson 1: High Availability and Disaster Recovery Concepts

Objectives

After completing this learning, you will be able to:

- Understand High Availability and Disaster Recovery
- Understand why High Availability and Disaster Recovery are important



What is High Availability?

In the real world, numerous problems can cause data to become unavailable.

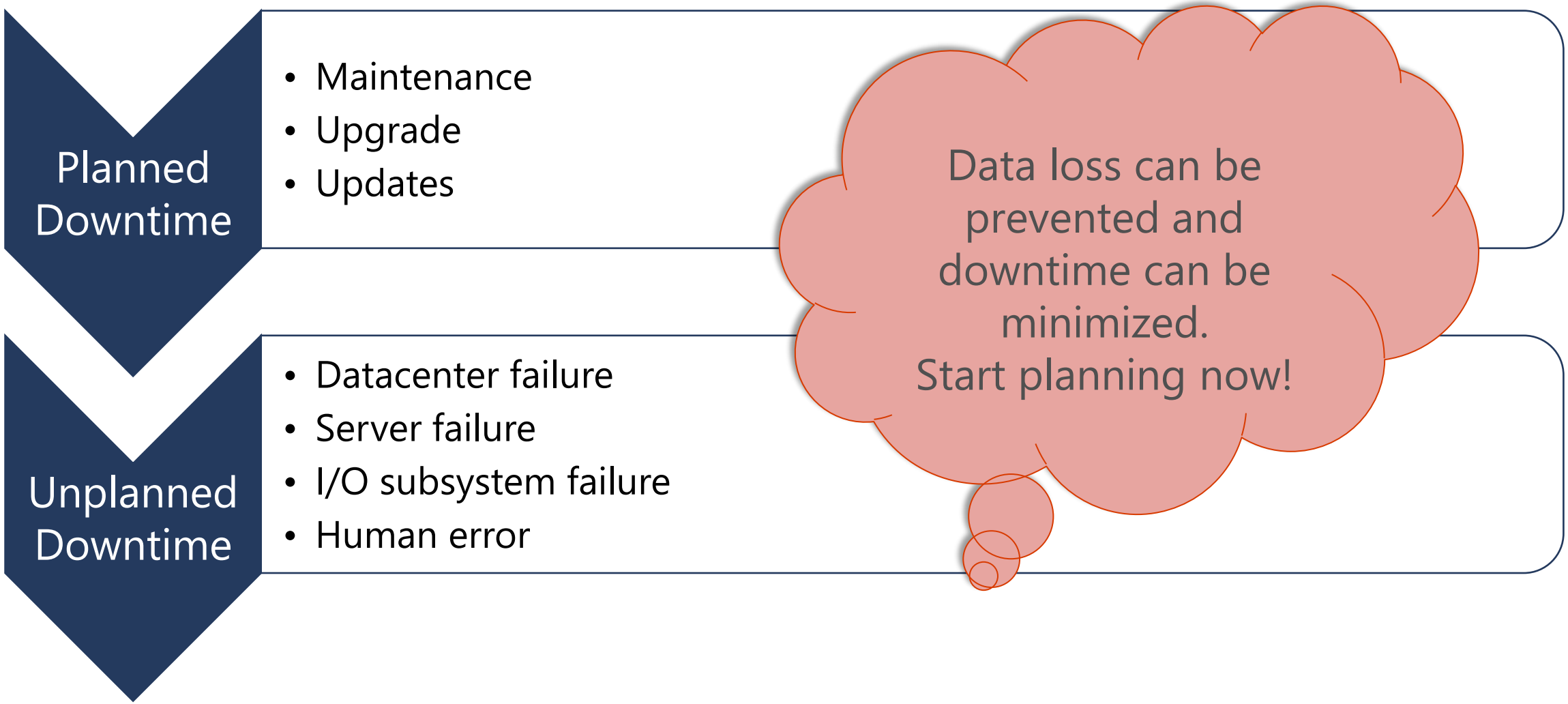
A proactive strategy must be formulated to mitigate the threats to availability. This is commonly called a **high-availability solution**.

The goal is to mask the effects of a hardware or software failure, and to maintain availability so that the perceived downtime for users is minimized.

In other words, high availability is about putting a set of technologies into place *before* a failure occurs, to prevent the failure from affecting the availability of data.

Why is High Availability Important?

Causes of Downtime and Data Loss



Calculating Availability

Availability is usually expressed as a percentage of uptime in a given year.

Availability %	Downtime per year

To deploy a high-availability solution, you need a combination of people, processes, and technology!

As requirements for availability increase, costs increase too!

What is Disaster Recovery?

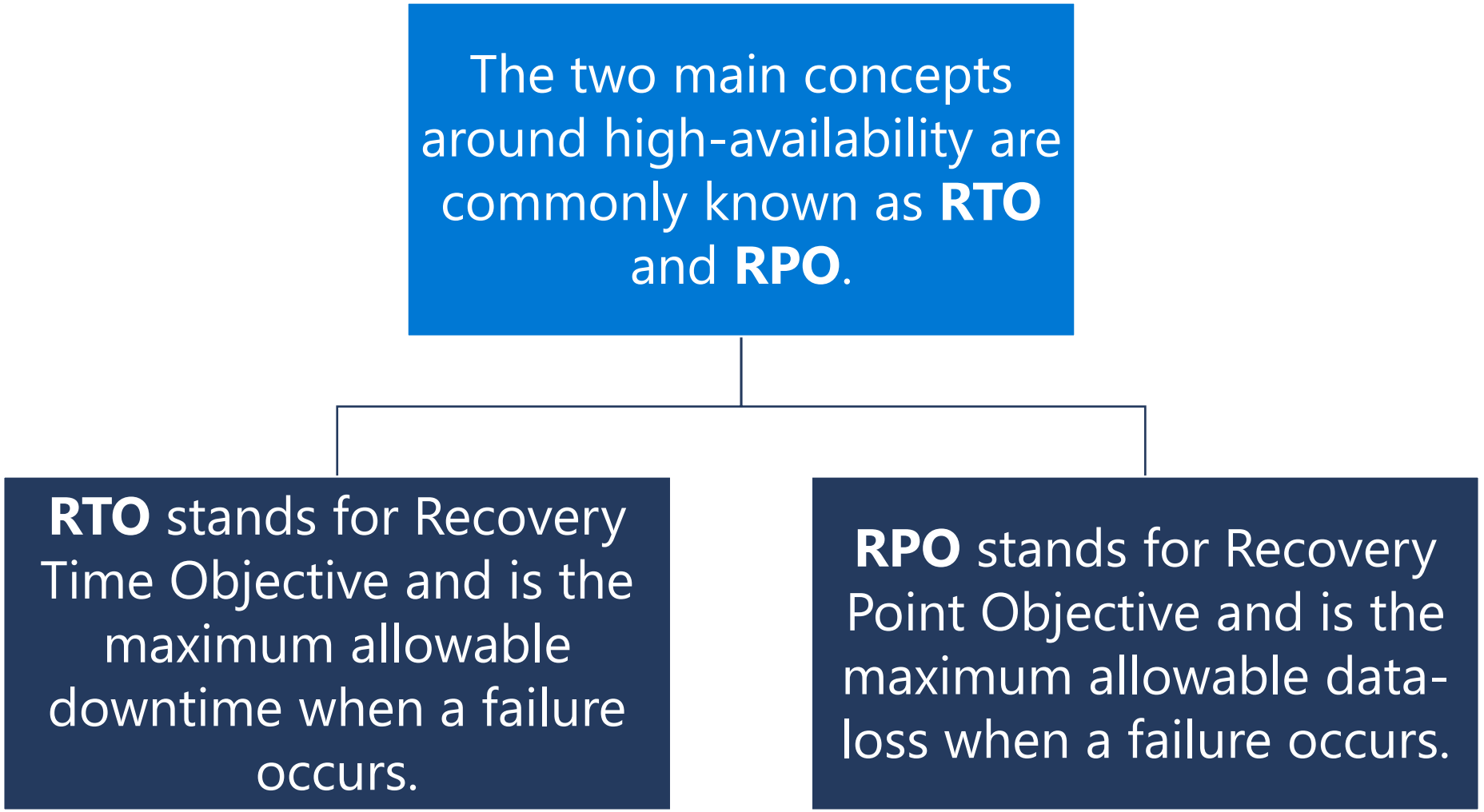
Is High Availability the same as Disaster Recovery?

High availability is not the same as disaster recovery, although the two terms are often (erroneously) interchanged.

High availability is about putting a set of technologies into place ***before*** a failure occurs in order to prevent the failure from affecting the availability of data.

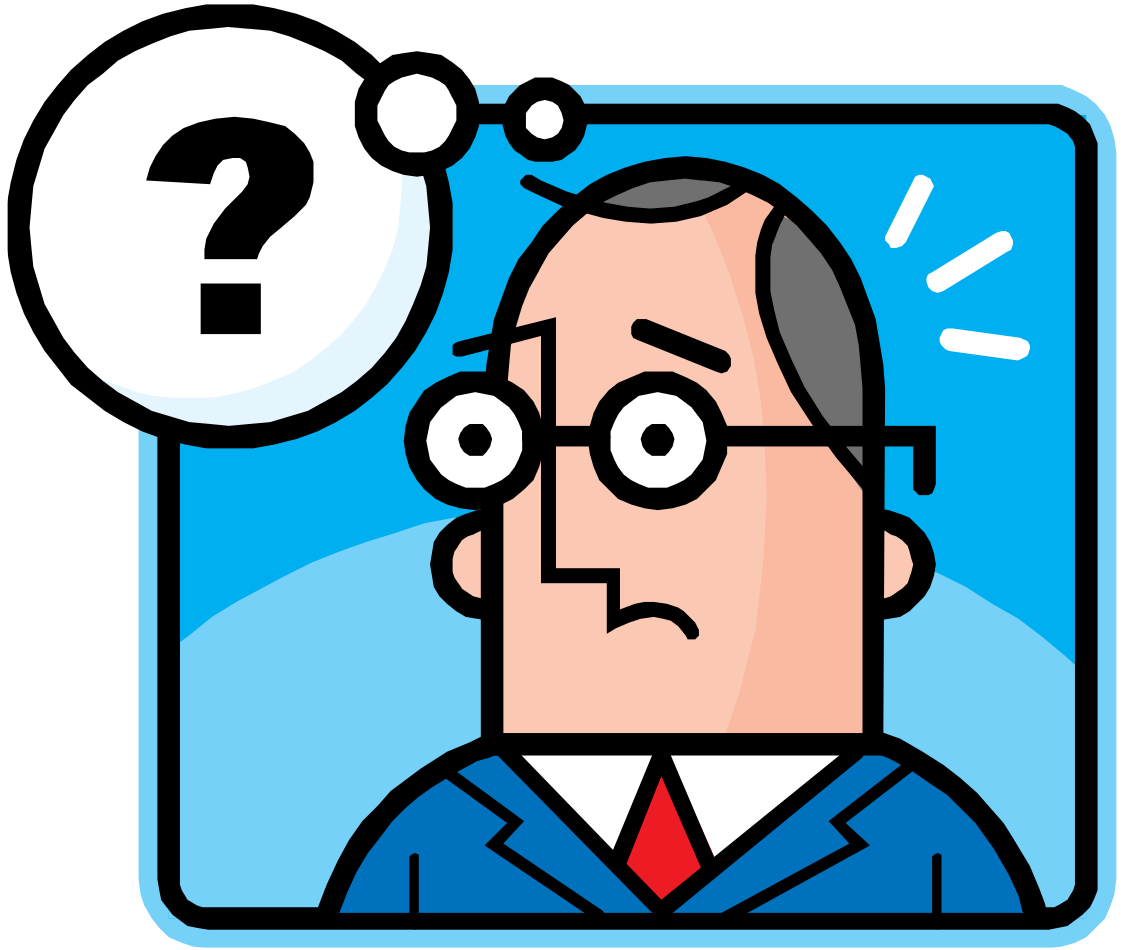
Disaster recovery is the action you take ***after*** a failure occurs to recover any lost data and to make the data available again.

What are the two main concepts for HA and DR?



What is your Disaster Recovery plan?

Our Disaster-Recovery Plan goes something like this …



Questions?

Knowledge Check

What is High Availability?

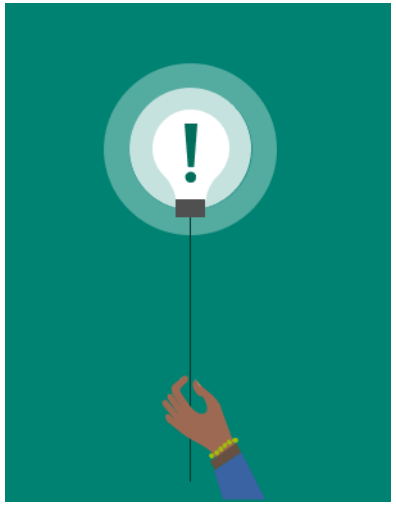
Assume a disaster recovery scenario where it takes one hour to get the servers up and running and 15 minutes of data is lost. What is the RTO and RPO in this scenario?

Lesson 2: Introduction to Always On

Objectives

After completing this learning, you will be able to:

- Understand SQL Server Always On



SQL Server Always On

Integrated

- Unified and simplified
- Easy to deploy and manage
- Extend your on-premise environment to Microsoft Azure

Flexible

- Reuses existing investment
- SAN versus direct-attached storage (DAS) environments

Efficient

- Cost-effective (Hardware utilization; No idle systems)
- Improved IT efficiency

SQL Server Always On Solutions

Failover Cluster Instances (FCI)

- Enhanced
- Server Failover
- Shared Storage
- Passive Secondary Nodes
- Failover takes 30s to couple of minutes (server restart)

Both solutions require Windows Server Failover Cluster!

Availability Group (AG)

- duced in SQL 2012
- database failover
- ect attached storage
- Active Secondary Replicas
- Failover takes less than 30s (secondary replicas are online)

Questions?

Knowledge Check

Is it true that Always On Availability Group requires Windows Server Failover Cluster?

Module Summary

Overview of High Availability and Disaster Recovery

Introduction to Always On