

# File Storage with EBS, EFS & S3

Storing & managing files

- ▶ Understanding Different File Storage Services
- ▶ EC2 & EBS or EFS
- ▶ Configuration Options & Settings

# File Storage?



## Files generated by (web) applications

User uploads

Generated invoices

Transformed images

...



## File archiving

Accounting files

Legal documents

Vacation images

...

# Different Kinds of File Storage



## Block Storage

An unformatted hard drive

Format (and structure)  
before using

Create custom structure &  
store any files

Attach a (virtual) hard drive  
to a server



EBS



## Object Storage

No information about  
underlying system

Store & retrieve files of any  
kind of size as needed

No (real) custom structure  
can be created

Store files without caring  
about the underlying system



Explored later in  
the course!

S3



## File System

A (network) file system

A pre-formatted &  
-configured file system

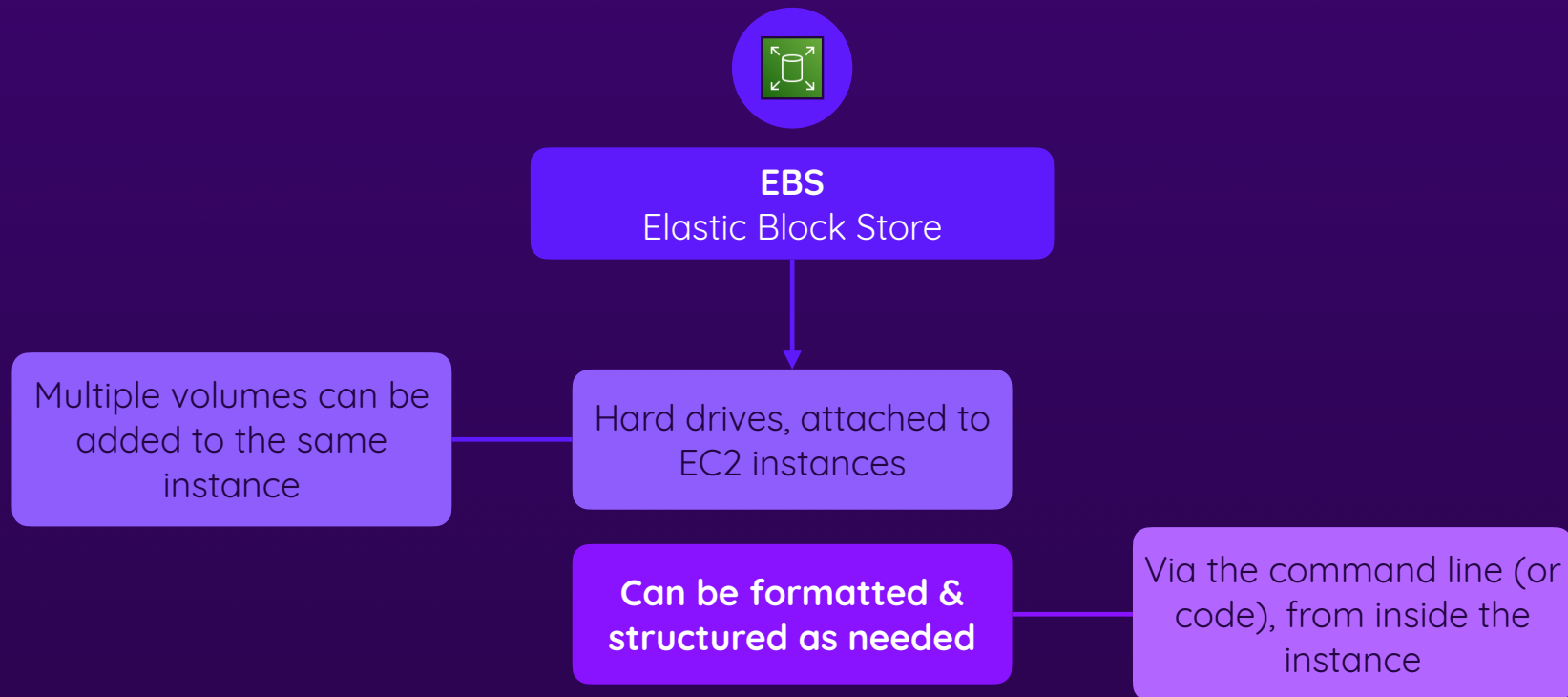
Create custom structure &  
store any files

Get a (virtual) file system  
without any manual setup



EFS, FSx

# Understanding EBS



# EBS Core Features



## Different Types

SSD vs HDD

Optimized for different workloads & tasks



## Elastic Volumes

If needed, volumes can scale dynamically

Extra feature, must be enabled / managed



## Snapshots

EC2 instance data & state can be saved

Restore snapshots on (new) EC2 instances



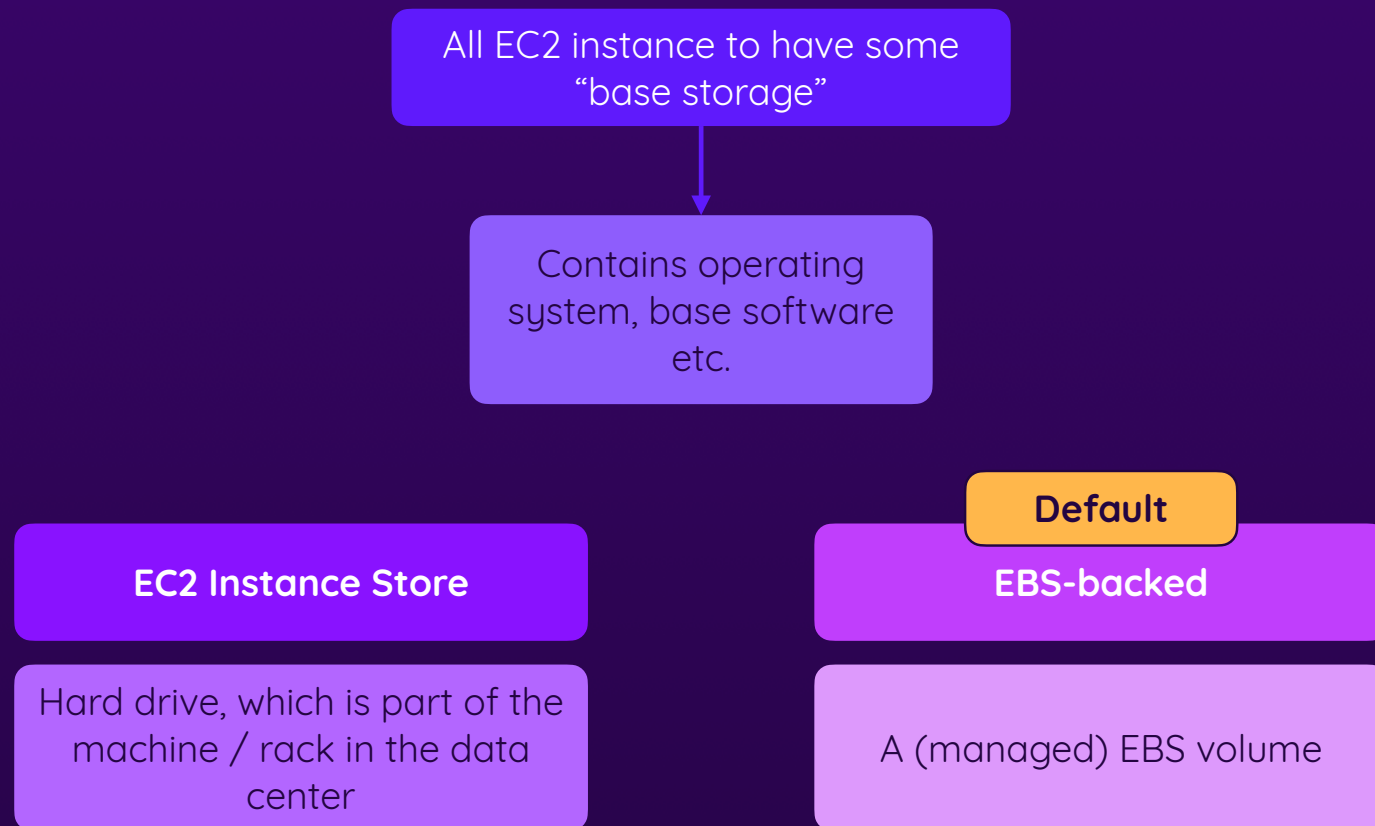
## Multi-Attach

Attach volumes to multiple instances

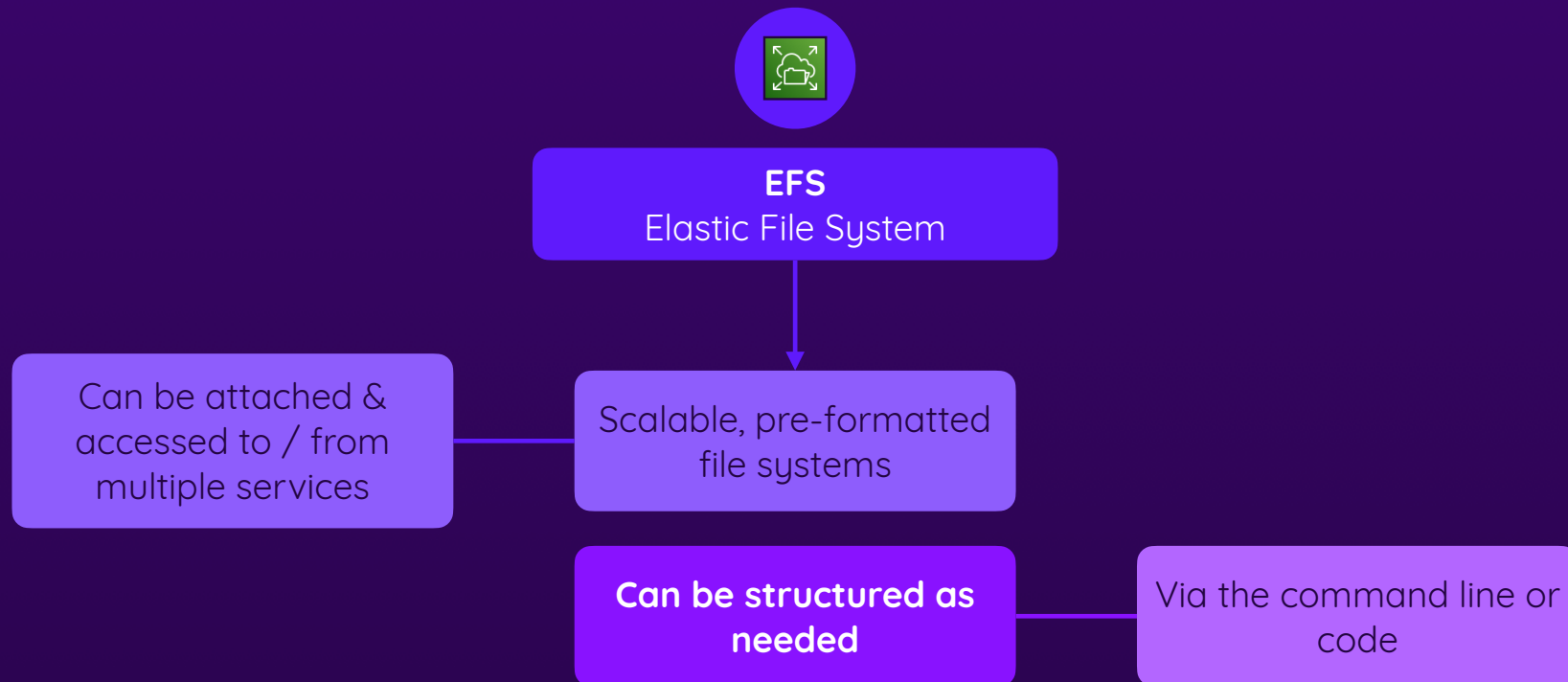
Supported on some instances

**Important: EBS is exclusively available for EC2 instances!**

# EC2 Instance Storage



# Understanding EFS



# EFS vs EBS



## EBS

Elastic Block Store

Unformatted hard drive

Less automatic scaling, more manual work

Multi-attach is possible but not the focus

EC2-exclusive (only for EC2 instances)



## EFS

Elastic File System

Pre-formatted file system

Scales automatically

Multi-attach is a core feature

Can be used with multiple services



# FSx Lustre & Others



(Sometimes) an alternative to EFS



For high-performance file  
access workloads

**No feature equality!**

# Summary



## File Storage Services

Store application, user, business or personal files

Different kinds of storage: hard drives, file systems, objects

EBS, EFS, FSx Lustre & S3 are AWS' main storage services



## EBS

Attachable block storage (unformatted hard drives)

Format, structure & use manually

For EC2 instances only

Extra features: Snapshots, elastic volumes, multi-attach



## EFS

Attachable pre-configured file system

Built for (dynamic) scalability & multi-access

For multiple AWS services

FSx Luster for high-performance file access tasks