

Module 02:

"Living SOLIDly"



Discussion: Refinement

User Story 1:

Write to both
FileStorage and
ConsoleStorage

User Story 2:

Send to SMS
instead of writing

User Story 3:

Retry the write
three times if it
fails





User Story 1 Solution: Composite Pattern

```
class CompositeWriteStorage : IWriteStorage
{
    private readonly IEnumerable<IWriteStorage> _storages;

    public CompositeWriteStorage(IEnumerable<IWriteStorage> storages)
        ⇒ _storages = storages.ToList();

    public CompositeWriteStorage(params IWriteStorage[] storages) :
        this(storages.AsEnumerable()) {}

    public Task StoreDataAsStringAsync(string outputDataAsString) ⇒
        Task.WhenAll(_storages
            .Select(storage ⇒
                storage.StoreDataAsStringAsync(outputDataAsString)
            )
        );
}
```



User Story 2 Solution: Strategy Pattern

```
class TwilioSmsWriteStorage : IWriteStorage
{
    private readonly string _recipientPhone;
    public TwilioSmsTransmissionStorage(string recipientPhone) =>
        _recipientPhone = recipientPhone;

    public async Task StoreDataAsStringAsync(string outputDataAsString)
    {
        ...

        _ = await MessageResource.CreateAsync(
            to: new PhoneNumber(_recipientPhone),
            from: new PhoneNumber(TwilioConstants.FromPhone),
            body: outputDataAsString
        );
    }
}
```



User Story 3 Solution: Proxy Pattern

```
class RetryingWriteStorage : IWriteStorage
{
    private readonly IWriteStorage _proxee;

    public RetryingWriteStorage(IWriteStorage proxee) =>
        _proxee = proxee;

    public Task StoreDataAsStringAsync(string outputDataAsString)
    {
        IAsyncPolicy policy = Policy
            .Handle<Exception>()
            .WaitAndRetryAsync(3, _ => TimeSpan.FromSeconds(2));

        return policy.ExecuteAsync(() =>
            _proxee.StoreDataAsStringAsync(outputDataAsString));
    }
}
```


Discussion: Summarizing



Agile vs. SOLID in General

- ▶ In which order did the User Story 1, 2, and 3 need to be completed?
- ▶ What about unit testing?
- ▶ SOLID is the "correct" technology side of Agile (which is "process side")
- ▶ $1+1 = 3$, if...





Life is good

