



## Application Solution Architecture

# Cloud xRP Summit

Virtual Developer Conference

Dmitrii Naumov

# Solution Architecture

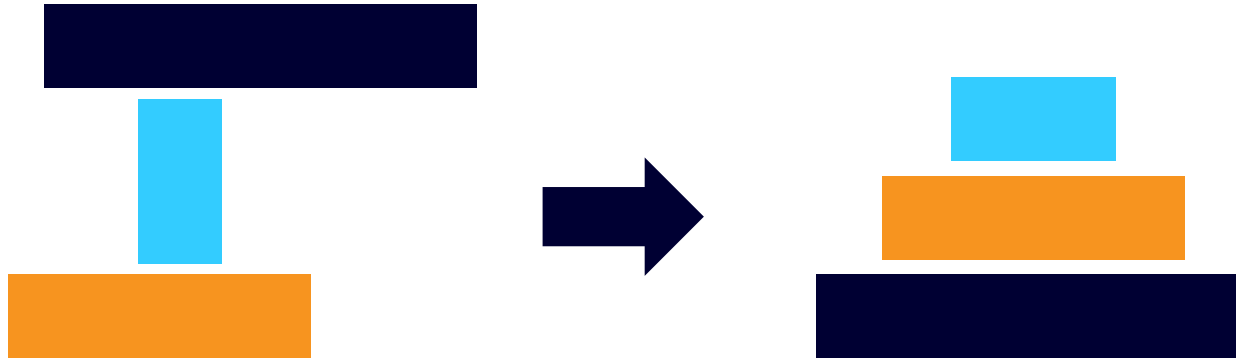
---

Proper solution architecture:

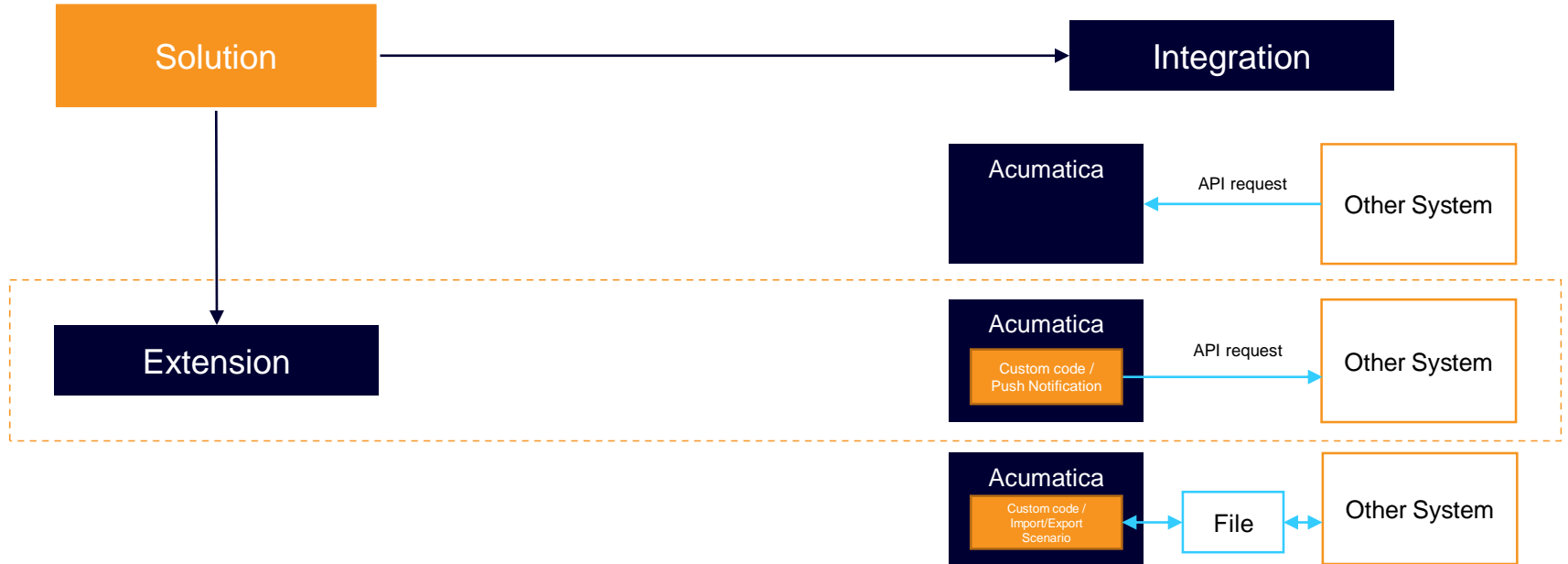
1. Define scope and purpose
2. Define needed components
3. Define relations between components

Benefits:

1. Scalability
2. Extendibility
3. Easier maintenance

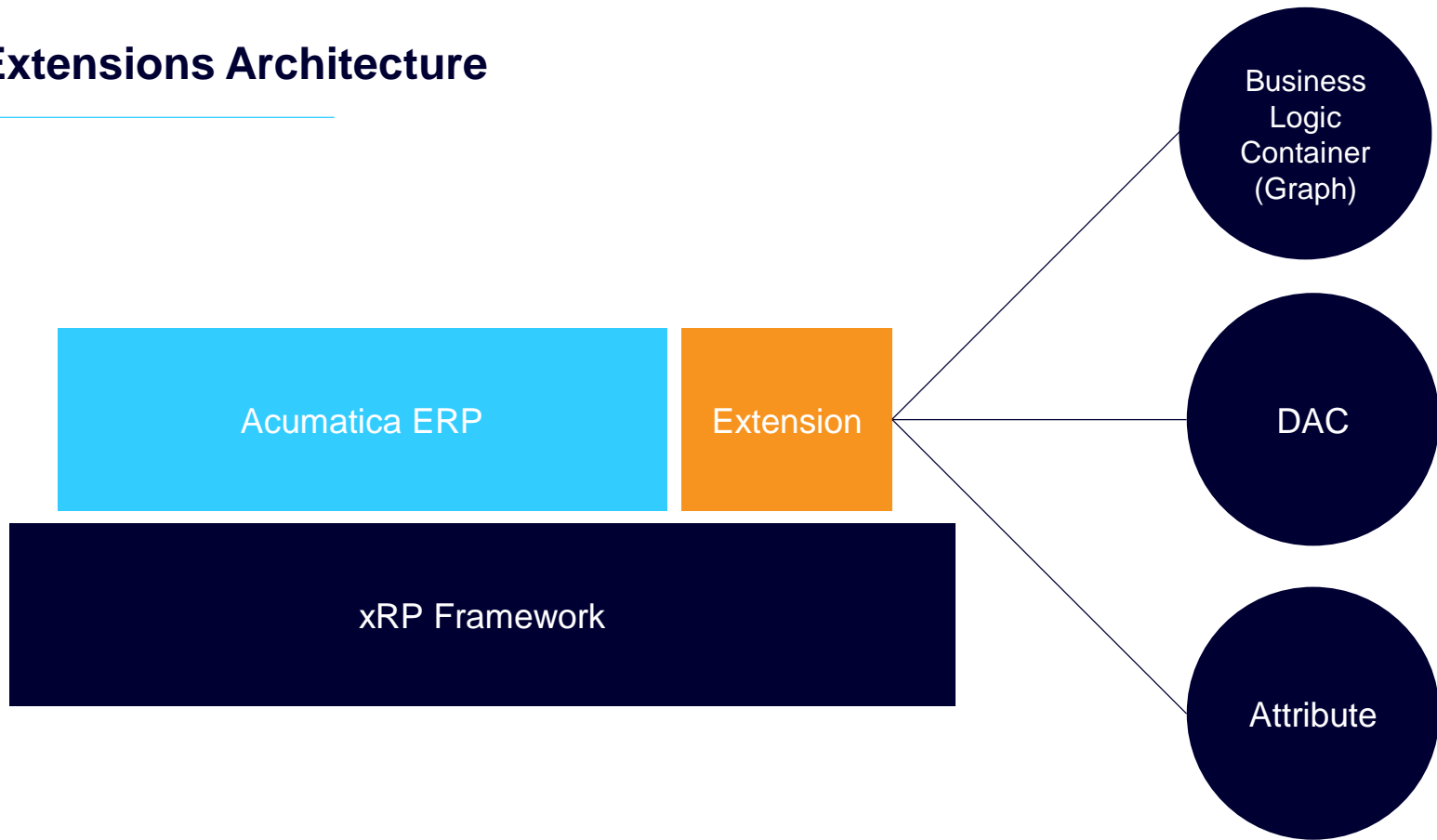


# Solution Types



# Extensions Architecture

---



## Reuse Code

# Reuse xRP Framework and Acumatica ERP Code

---

- PX.Common
  - Collections
  - Cryptography
  - Localization
- PX.Objects.Common
  - Exceptions
  - Collection helpers
  - RedirectToOrigDoc
- GitHub Projects  
(<https://github.com/Acumatica>)



# Find Code Duplication

---

## Anti Plagiarism

<https://marketplace.visualstudio.com/items?itemName=Acumatica.AntiPlagiarism>

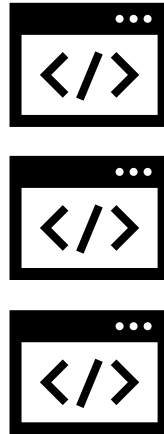
- Visual studio extension
- You can search for duplicated code inside your solution
- You can compare your code to Acumatica code and see if there is any duplication



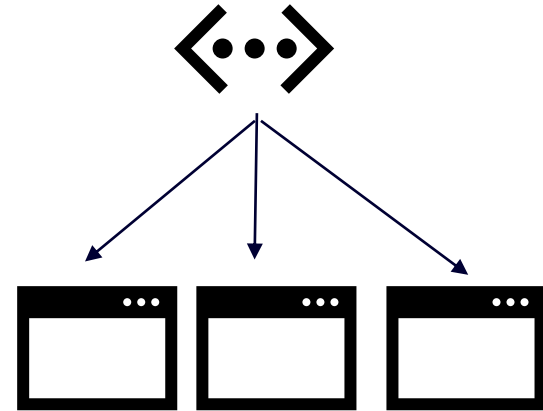
# Avoid Code Duplication

- Attributes
- Merge Attributes
- Reusable Business Objects

Duplicated code?



Reuse code!



[https://portal.acumatica.com/wp-content/uploads/D103\\_D104\\_DevPatterns\\_Final.pdf](https://portal.acumatica.com/wp-content/uploads/D103_D104_DevPatterns_Final.pdf)



# Merge Attributes

---

- **PXMergeAttributesAttribute**

[https://help-2019r1.acumatica.com/\(W\(21\)\)/Help?ScreenId=ShowWiki&pageid=b78b0a53-b9db-0693-66fa-7d2b432b9f38](https://help-2019r1.acumatica.com/(W(21))/Help?ScreenId=ShowWiki&pageid=b78b0a53-b9db-0693-66fa-7d2b432b9f38)

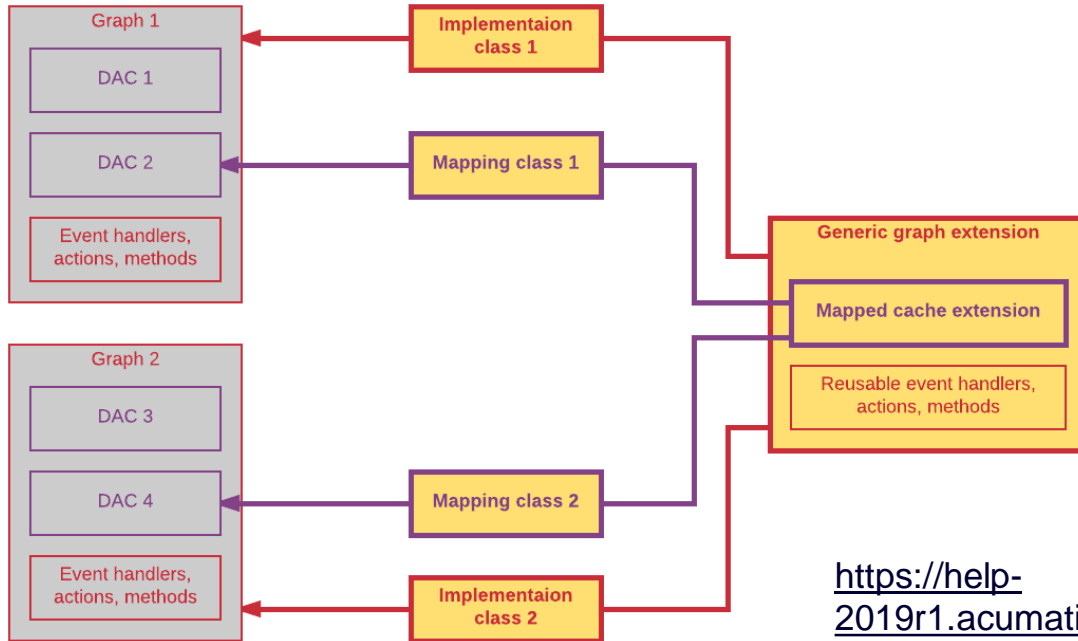
- **PXRestrictorAttribute**

[https://help-2019r1.acumatica.com/\(W\(21\)\)/Help?ScreenId=ShowWiki&pageid=8b1d5510-5820-f605-78f6-191bf1c89944](https://help-2019r1.acumatica.com/(W(21))/Help?ScreenId=ShowWiki&pageid=8b1d5510-5820-f605-78f6-191bf1c89944)

- **PXCustomizeBaseAttributeAttribute**

[https://help-2019r1.acumatica.com/\(W\(21\)\)/Help?ScreenId=ShowWiki&pageid=29049e2a-2e62-71c6-2f40-513894226781](https://help-2019r1.acumatica.com/(W(21))/Help?ScreenId=ShowWiki&pageid=29049e2a-2e62-71c6-2f40-513894226781)

# Reusable Business Object

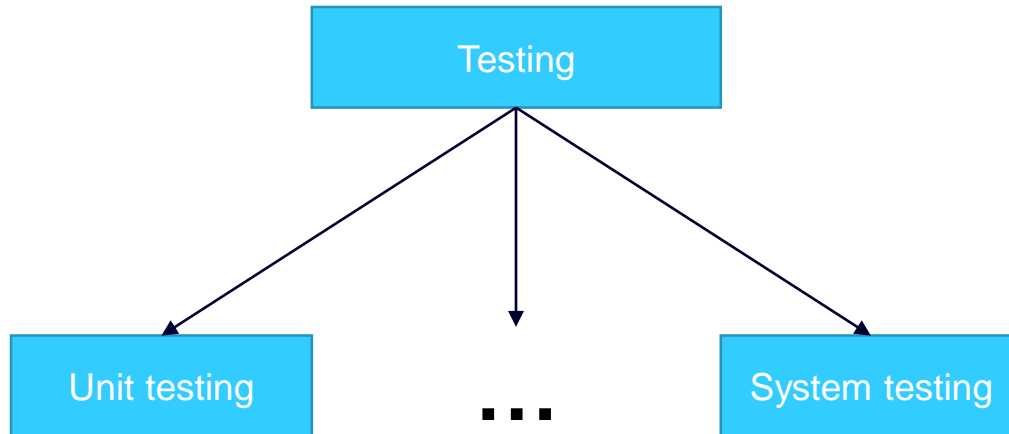


[https://help-2019r1.acumatica.com/\(W\(22\)\)/Help?ScreenId=ShowWiki&pageid=bbc04253-7686-41dd-898b-aca47c1c6789](https://help-2019r1.acumatica.com/(W(22))/Help?ScreenId=ShowWiki&pageid=bbc04253-7686-41dd-898b-aca47c1c6789)

## Auto Testing

# Auto testing

---



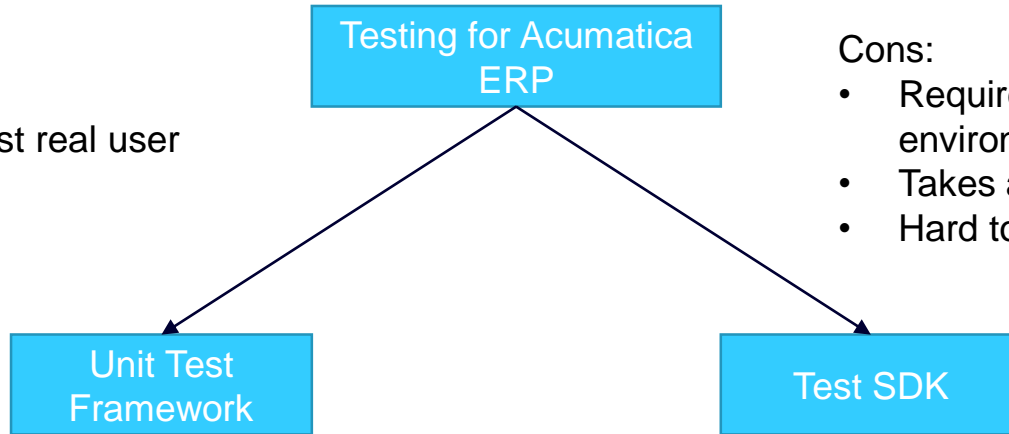
# Auto testing

Pros:

- Fast
- Tests exact function of the system

Cons:

- Does not test real user scenarios



Pros:

- 99% Emulate user interaction with the system

Cons:

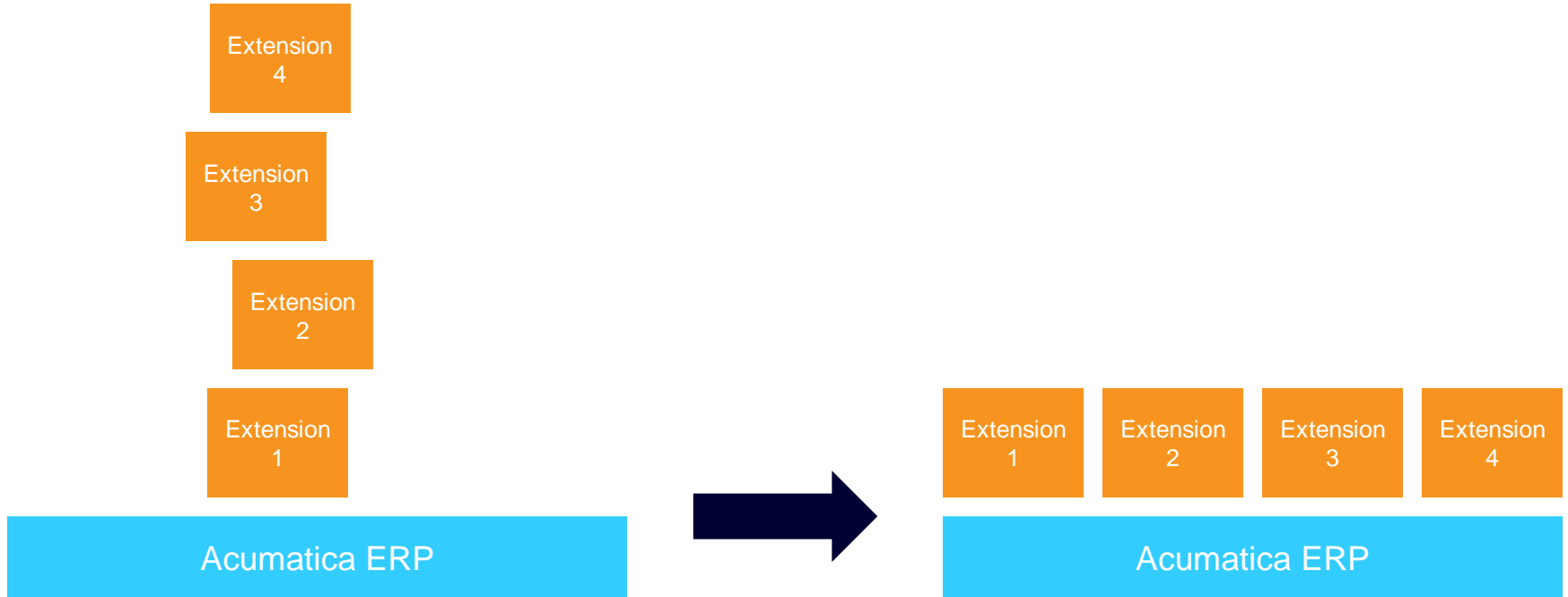
- Require Database and environment
- Takes a lot of time
- Hard to locate a bug

<http://acumatica-builds.s3.amazonaws.com/index.html?prefix=builds/18.2/18.213.0034/TestSDK/>

# Performance

# Cache Extensions

---



# Restricting Area of Extension Effect

---

## Cache Extensions:

- IsActive method
- Cache Extensions for derived DACs
- Replace Cache extension by separate DAC

## Heavy Attributes:

- Use cache attached to define only for some Graphs

```
public class SOOrder : IBqITable
{ ... }

public class SOOrderWithExtension : SOOrder
{ ... }

public class SOOrderExtension :
    PXCACHEExtension<SOOrderWithExtension>
{
    public static bool IsActive()
    { ... }
    ...
}
```



## Ensuring Data Consistency

# Do not use Framework Methods in a Wrong Way

---

- PXParent
- PXDBDefault
- PXForeignReference
- PXFormula
- Transaction scope





# Thank you!

---

**Dmitrii Naumov**

dnaumov@acumatica.com

**No Reliance**

This document is subject to change without notice. Acumatica cannot guarantee completion of any future products or program features/enhancements described in this document, and no reliance should be placed on their availability.

**Confidentiality:** This document, including any files contained herein, is confidential information of Acumatica and should not be disclosed to third parties.