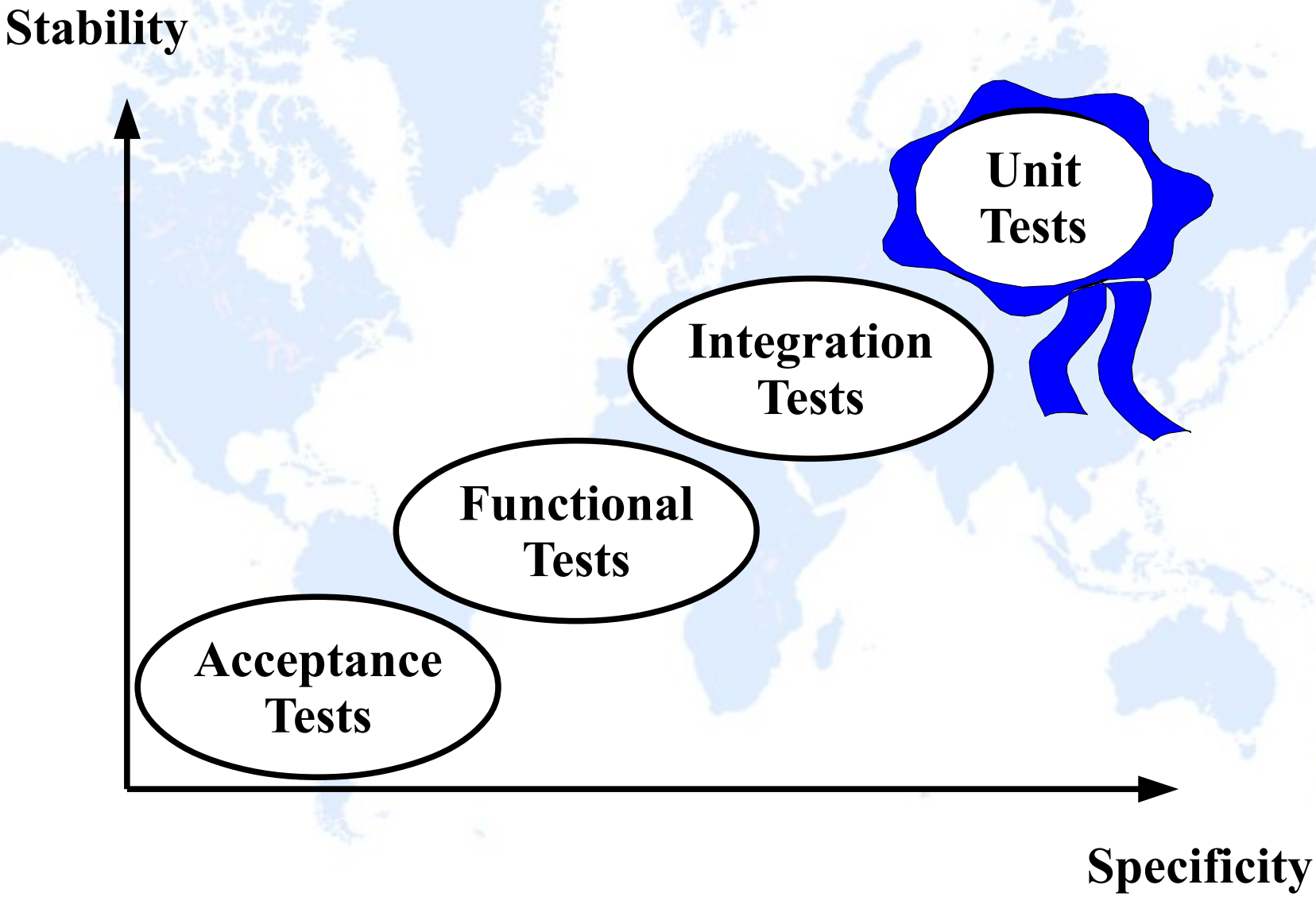
Dependency Injection

Not all tests are created equal



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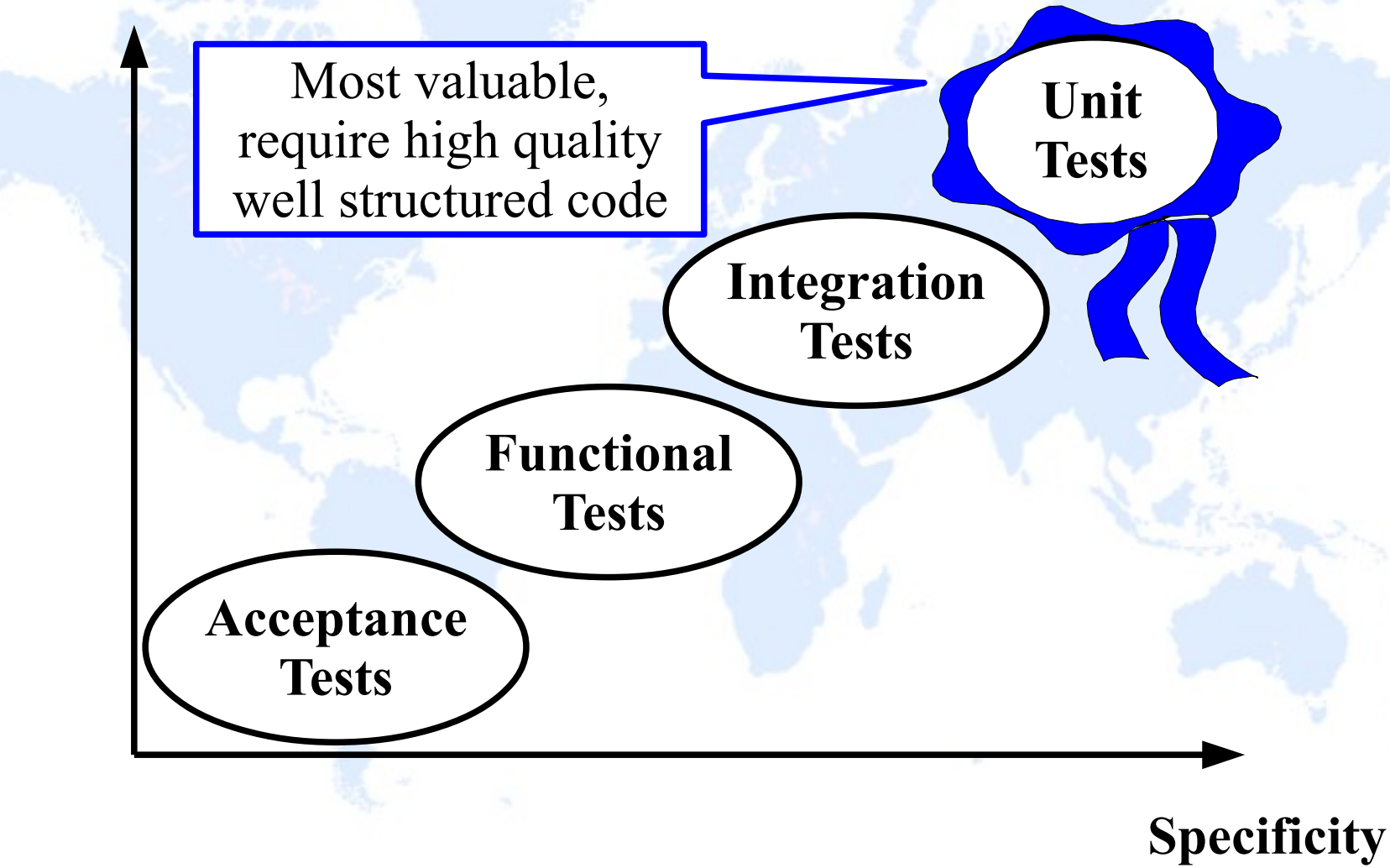


Real Unit Tests

- Test a single unit of code, i.e. a **single class**

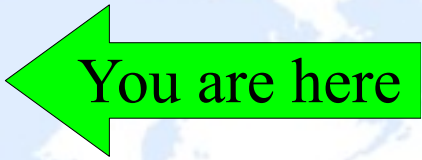
Real Unit Tests

- Test a single unit of code, i.e. a **single class**

We need to be able to
replace (mock/stub)
dependencies dynamically

Structure of this presentation

- Why do we want Dependency Injection?
- Code example: DI for generic PHP classes
- Code example: DI in Symfony 2



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<?php
use Guzzle\Http\Client;
use Acme\Logger\XmlLogger;

class FeedAggregator {
    private $client;
    private $logger;

    public function __construct () {
        $this->client = new Client();
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    }

    public function retrieveFeed ($baseurl, $path) {
        $request = $this->client->setBaseUrl($baseurl)->get($path);
        $response = $request->send();
        if (200 != $response->getStatusCode()) {
            $this->logger->log('Could not get: '.$host.$path);
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        return $response->getBody();
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    // ...
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Why is this class difficult to unit test?

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What if we want unit tests to run fast without waiting for the network?

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What if we ever want to use a different log format?

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Dependencies are **pulled**.
=> Replacing requires refactoring
=> Dynamic replacing (only for testing) is **impossible**

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Any questions?

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Who constructs and pushes all the dependencies?

Dependency Injection Container

"DI Container", "DIC", "Service Container", "the Container"

C++ [Bearbeiten]

- PocoCapsule/C++ IoC und DSM Framework

Java [Bearbeiten]

- Contexts and Dependency Injection (CDI), Standard für DI (JSR 299,[1] eine Rahmenrichtlinie, umgesetzt durch verschiedene Frameworks wie z. B. *Seam Weld* in Java EE 6)
- EJB ab Version 3.0
- Spring
- PicoContainer
- Seam 2
- Guice
- simject
- JBoss Microcontainer ab JBoss Application Server 5.0
- OSGi Declarative Services

PHP 5 [Bearbeiten]

- Garden (wird nicht mehr weiterentwickelt)
- Stubbles IoC
- Enterprise-PHP-Framework
- Symfony Components (BETA), Opensource PHP Standalone Classes
- Symfony2, Open-Source PHP Framework
- FLOW3, Open-Source PHP Framework
- Phemto
- PicoContainer for PHP
- Pimple
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- Zend Framework 2, Opensource PHP Framework
- Adventure PHP Framework

Perl [Bearbeiten]

- Bread::Board
- Orochi

Ruby [Bearbeiten]

- Copland
- Needle

Python [Bearbeiten]

- PyContainer
- SpringPython
- snake-guice
- python-inject

.NET [Bearbeiten]

- Autofac
- Ninject
- Spring.NET
- Structuremap
- Unity Application Block
- Puzzle.NFactory
- Castle MicroKernel und Windsor Container
- NauckIT.MicroKernel
- Managed Extensibility Framework
- ObjectBuilder
- PicoContainer.NET
- WINTER4NET
- LightCore
- OpenNETCF.IoC
- LOOM.NET mit Dependency Injection Aspect
- PRISM

ColdFusion [Bearbeiten]

- ColdSpring
- LightWire

Actionscript [Bearbeiten]

- Swiz
- Parsley
- Cairngorm 3
- Robotlegs
- StarlingMVC

Objective C [Bearbeiten]

- Objection

Delphi [Bearbeiten]

- Spring Framework for Delphi

Very Many Frameworks support Dependency Injection

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Vielen Dank
für Eure Aufmerksamkeit!

SOLID

- S Single Responsibility Principle
- O Open / Close Principle
- L Liskov Substitution Principle
- I Interface Segregation Principle
- D Dependency Inversion Principle