



Visual Studio  
**ALM** Days 2012



# Missing link in the automated development process – DevOps Integrating TFS and SCOM

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# Agenda

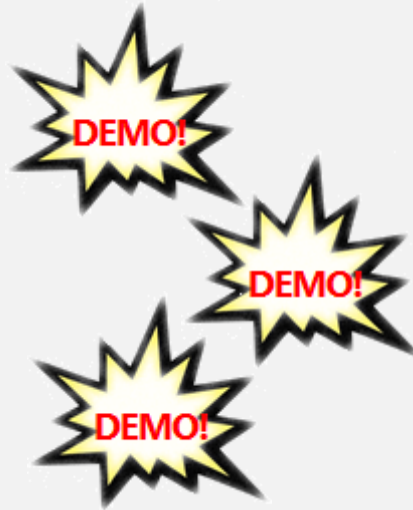
DevOps

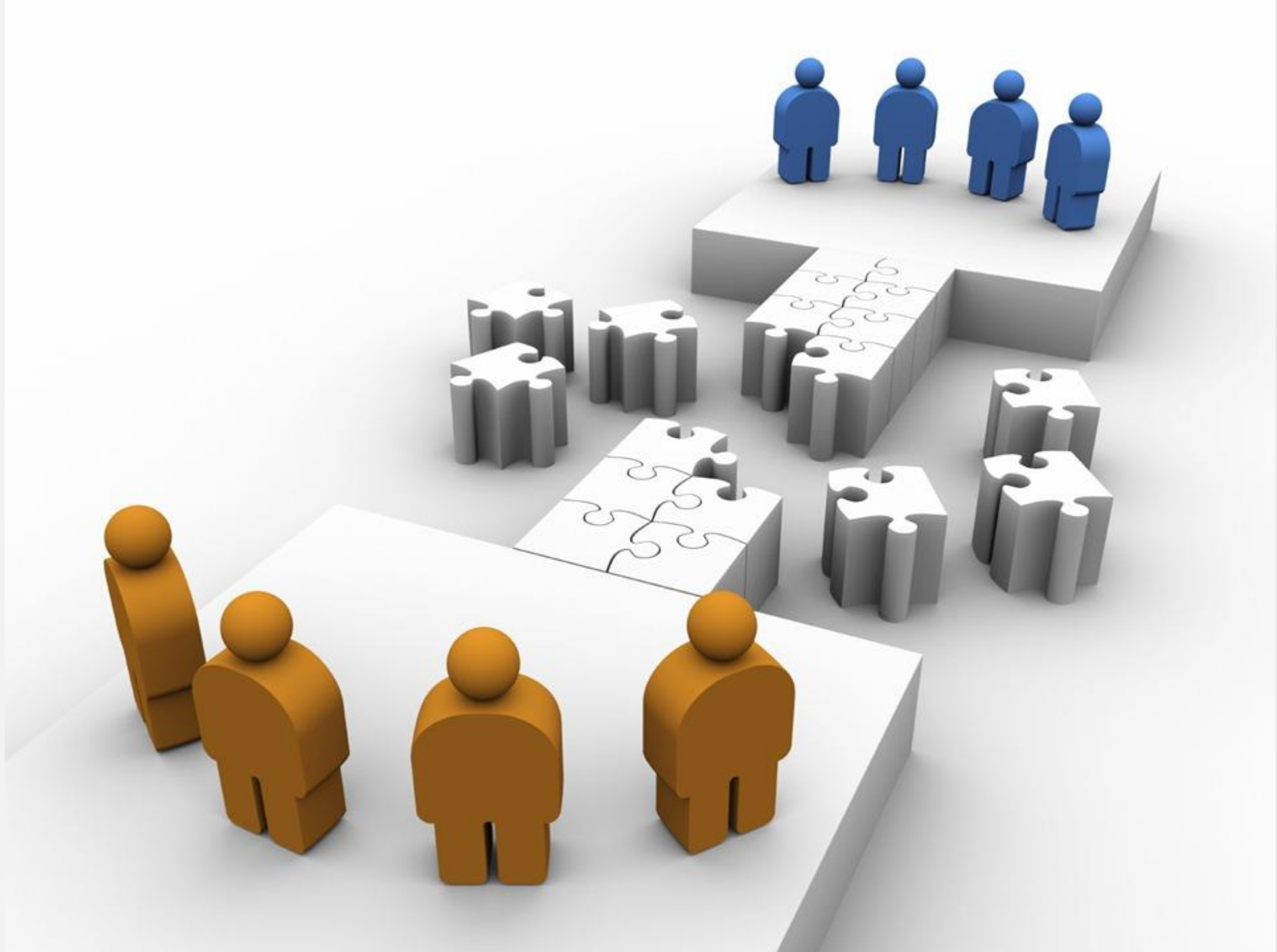
DevOps impediments

SCOM

TFS- SCOM integration

Intellitrace in production





# DEVops

Developer:

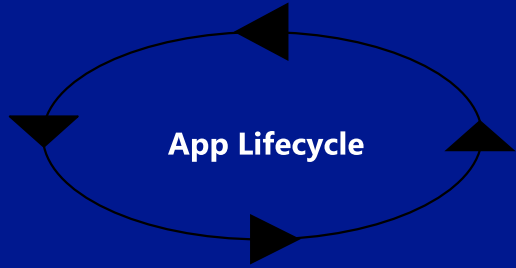
***„It's not my code,  
it's your machines!“***

# DevOPS

Administrator:

***„It's not my machines,  
it's your code!“***

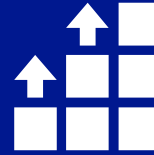
# DevOps in a nutshell



DevOps is a  
full lifecycle investment



DevOps is a  
team undertaking

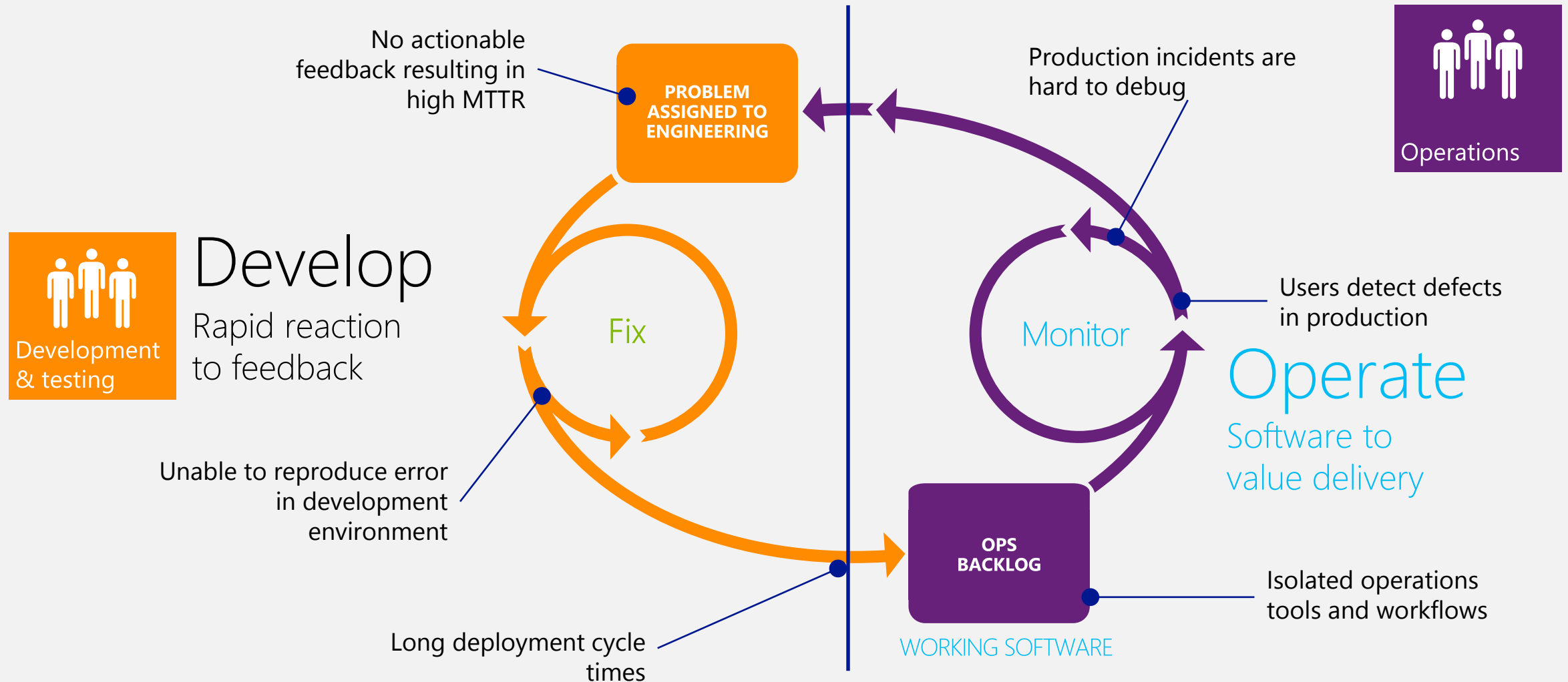


DevOps enables better  
software development  
practices



DevOps makes  
continuous delivery  
feasible

# DevOps impediments to problem resolution



# Production system monitoring

Collaboration between operations and development team

# Production system debugging

Using diagnostic and debugging tools in production environment





Microsoft®

# System Center Operations Manager 2012

System Center Management Pack for Microsoft Visual Studio Team  
Foundation Server Work Item Synchronization

Visual Studio 2012 Intellitrace PowerShell Extension  
Intellitrace management package for SCOM (in SCOM 2012 **SP1**)

# Problems

- Application monitoring is very difficult
- Lots of tools for monitoring
- IT staff can't be expert for every application
- Developers and administrators require different information
- Developers and administrators are putting the blame on each other

# Solution – SCOM 2012

- One monitoring tool for applications and infrastructure
- No need to modify the application
- Supports heterogeneous environments – Windows/Linux/Unix
- Captures high quality diagnostic information about incidents
- Facilitates communication between IT operations and development

# Solution – SCOM 2012

- Improves collaboration and application team productivity
- There is no visible impact on application performance
- Takes an extra 5% CPU on the monitored server
- Support for ASP.NET and WCF applications on IIS 7

# End-to-end monitoring solution

## Server-side monitoring

Inside the datacenter

Performance monitoring from the receiving moment up to sending replies

## Client-side monitoring

Performance monitoring from the browser/end-user perspective

## Together

End-to-end application performance visibility

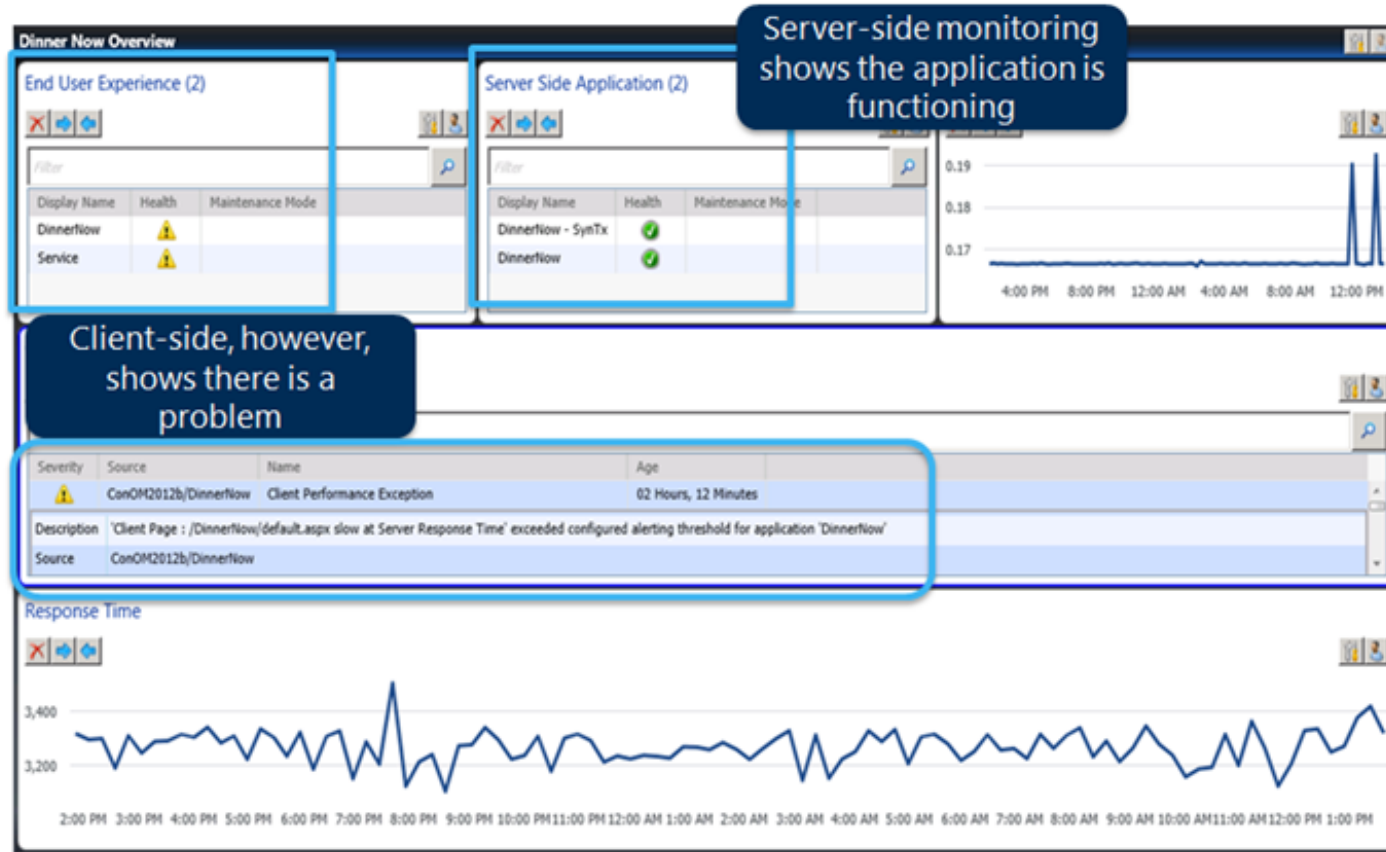
# Dashboard



"My application is running slowly!"



"The code passed all testing"



Server-side monitoring shows the application is functioning



"The Network looks good"



The servers are running fine"

Application performance monitoring pinpoints exactly where the issue is, reducing the mean time to resolution

Demo

SCOM

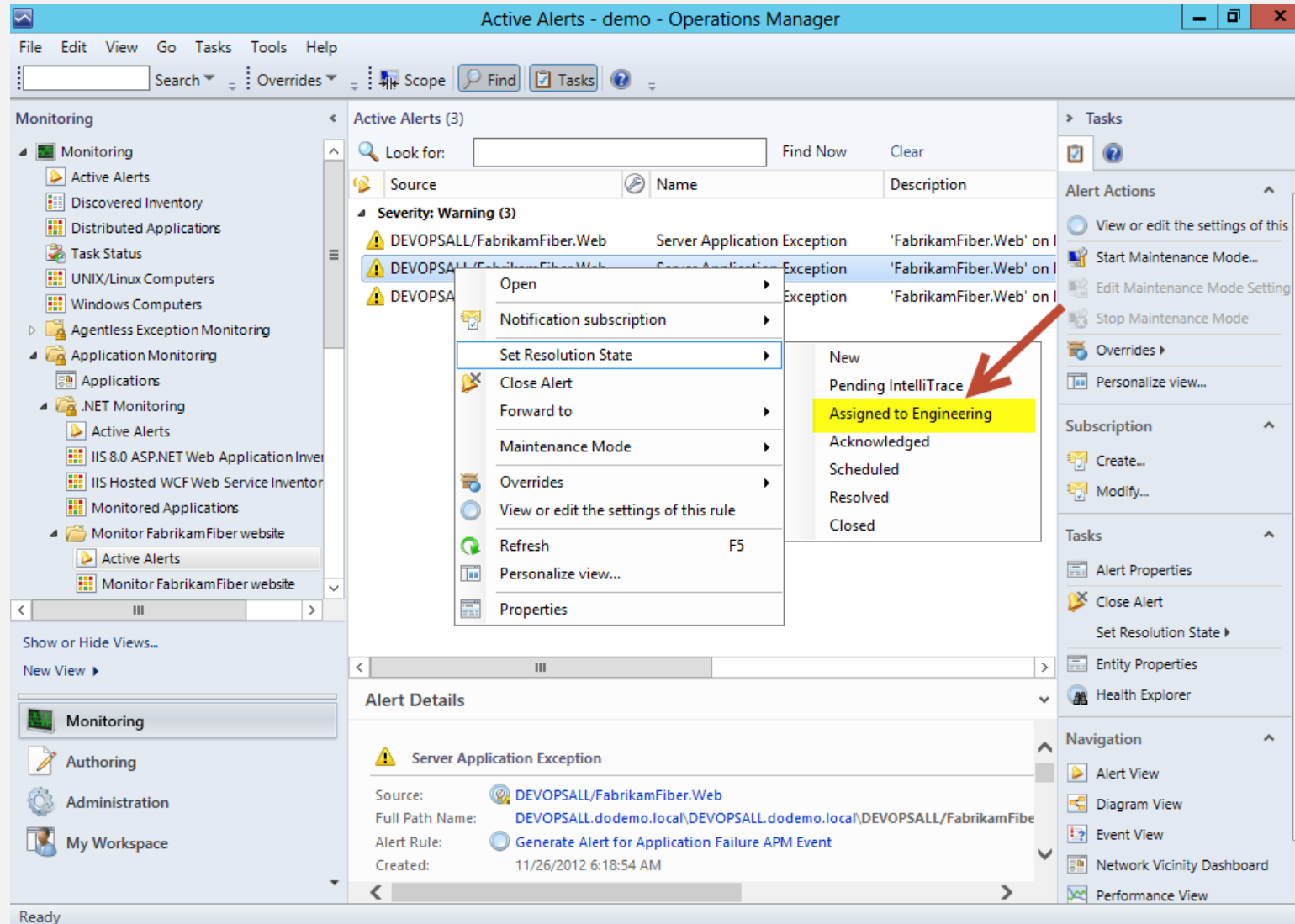
System Center Operations Manager

# Integration with Team Foundation Server

- Operators can forward information directly to the TFS (development)
- Developers can faster identify and resolve problems
- End-to-end traceability
- Better cooperation between the teams responsible for the application
- Greater end-user satisfaction



# Integration with Team Foundation Server



# Integration with Team Foundation Server

The screenshot displays the Microsoft Visual Studio (Administrator) interface. The main window shows the 'Operational Issue 3' for 'FabrikamFiber.Web' on DEVOPSALL.dodemo. The 'CLASSIFICATION' section indicates the area is 'fabrikamfiber' and the iteration is 'fabrikamfiber'. The 'OPERATIONAL INFORMATION' section shows the aspect is 'ApplicationFailure', the repeat count is 0, and the time raised is 11/26/2012 6:33:41 AM.

The 'PROPERTIES' pane on the right shows the description: 'FabrikamFiber.Web' on DEVOPSALL.dodemo. 'System.NullReferenceException' with a message thrown in 'MVC View rendering: Employees' at the URL <http://DEVOPSALL:45451/AppDiagnostics/Pa>.

The 'Actions' pane on the right shows the exception event details for 'Exception Event ID 68 - Windows Internet Explorer'. The event class is '.NET Exception Event', the component is 'FabrikamFiber.Web.dll', the source is 'FabrikamFiber.Web', and the status is 'New'. The event date is 11/26/2012 6:33:37 AM, the build is 1.0.0.0, the computer is 'dodemo.local\DEVOPSALL', and the aspect is 'Application Failure'.

The 'Exception Chain' section shows the exception: **System.NullReferenceException: Object reference not set to an instance of an object.**

The 'Exception Data' section shows the exception details:

Name	Value	Structure
exception		class

The 'Stack' section shows the stack trace with the following frames:

- System.NullReferenceException: Object reference not set to an instance of an object. thrown at FabrikamFiber.Web.ViewModels.EmployeeReportViewModel.GetCustomerSummary +0
- Parameters(0) Member Variables(1) Source
- Name Value Structure
- <Employees>k\_Bac... class
- ASP.\_Page\_VIEWS\_Reports\_Employees\_cshtml.Execute +309 in c:\inetpub\FabrikamFiber.Web\Views\Reports\Employees.cshtml: 30
- System.Web.WebPages.WebPageBase.ExecutePageHierarchy +84
- System.Web.Mvc.WebViewPage.ExecutePageHierarchy +29
- System.Web.WebPages.StartPage.ExecutePageHierarchy +32
- System.Web.WebPages.WebPageBase.ExecutePageHierarchy +55
- MVC View rendering: Employees +135
- System.Web.Mvc.ControllerActionInvoker.<>c\_\_DisplayClass1a.<InvokeActionResultWithFilters>b\_17 +23
- System.Web.Mvc.ControllerActionInvoker.InvokeActionResultFilter +40

Demo

TFS – SCOM Integration

# Visual Studio Intellitrace

- Basic Idea: capture debugger state information during program execution
- Operates in the background
- What it does ?
  - Records Events / Exceptions/ Call Information
  - Plays back
  - Debugging / Diagnosing
  - Rewind
- Eliminates the „not repro“ problem

# Visual Studio Intellitrace Collectors

ADO.NET	Events around executing queries against SQL, the executed command as well as the connection string.
ASP.NET	Events around the ASP.NET
Console	Console output.
Data Binding	Windows Forms data binding.
Environment Variables	Evaluation and retrieval of environment variables from the process.
File	Creation, deletion and access of files.
Gestures	User actions performed against common controls.
Lazy Initialization	Initialization of lazily loaded variables.
Registry	Creation, deletion and querying of registry information.
Service Model	Web service calls from WCF.
Threading	Queuing of user work items and parallel computing tasks.
Tracing	Debugger trace output and assertions.
User Prompt	Display of Windows Forms and WPF message boxes as well as the result of the dialog.
Workflow	Activity instantiation and completion.
XML	XML file loading.

# IntelliTrace Collector for Visual Studio 2012

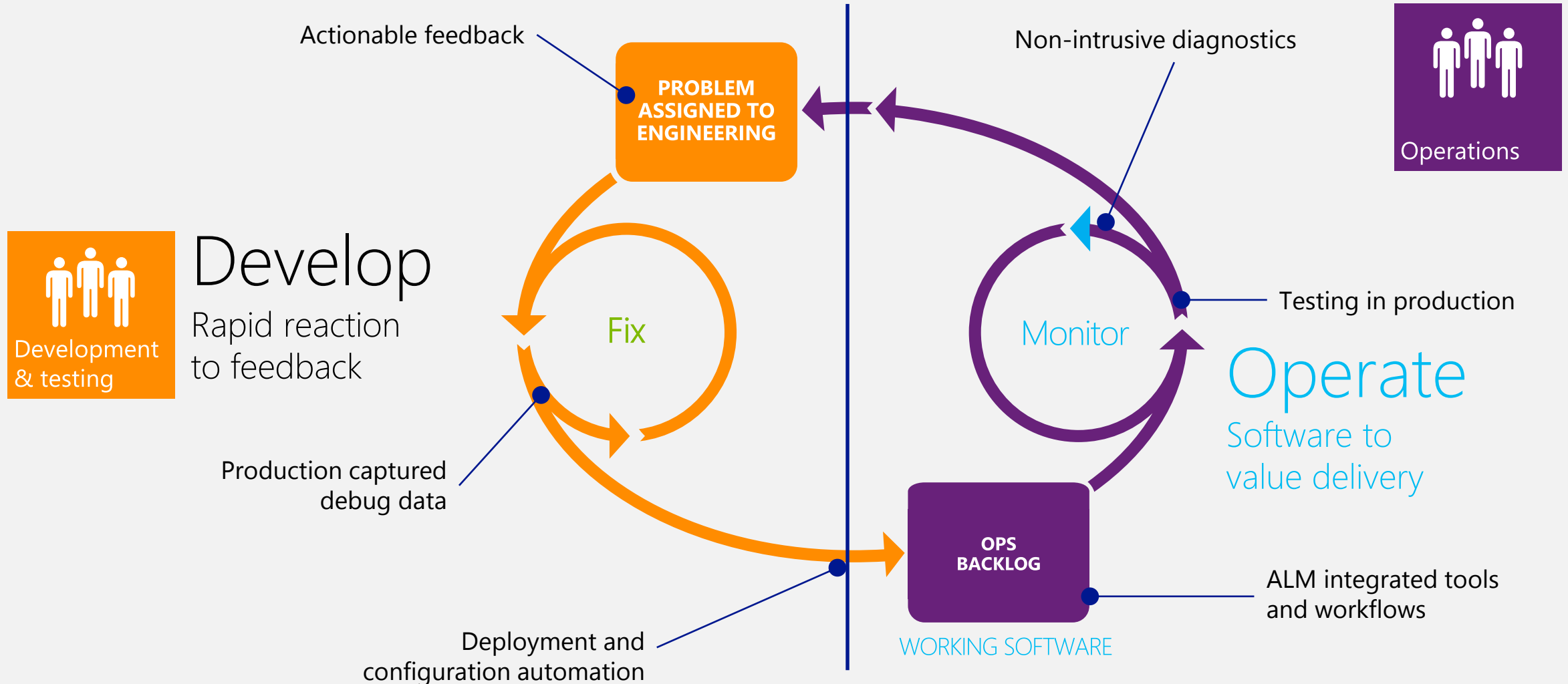
- Standalone tool for the collection of diagnostic information
- In SCOM 2012 SP1, use Intellitrace management pack
- Use on apps running in production environments
- Use on apps running on Internet Information Services (IIS) 7.0 or IIS 7.5
- No need to modify apps
- Analyze recorded information in Visual Studio 2012

Demo

Capturing diagnostic  
information in production  
environment

VS 2012 Intellitrace in production

# DevOps solutions to problem resolution





# DevOps brings Devs and IT together

Unified Tools  
TFS-SCOM integration  
Intellitrace in Production

DevOps  
facilitates Continuous  
Deployment

Optimized workflow

Improved  
Collaboration and  
communication with  
end-to-end traceability

# Resources

- Visual Studio ALM  
<http://blogs.msdn.com/b/visualstudioalm/>  
<http://msdn.microsoft.com/en-US/vstudio/>
- System Center and ALM  
<http://technet.microsoft.com/en-us/library/jj614609.aspx>  
<http://technet.microsoft.com/en-us/library/jj614615.aspx>
- ALM and Operations (in German)  
<http://www.microsoft.com/visualstudio/deu/alm/operate#alm-operate-videos>
- SCOM  
<http://technet.microsoft.com/library/hh205987.aspx>

# Questions?

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*thank you!*

