Advanced Production Level Debugging (.NET)

Reduce mean time to resolution by giving skills to effectively diagnose critical problems.

Key benefits or customer evidence

- Learn how to effectively isolate and troubleshoot production issues
- Post mortem analysis techniques to identify root cause for common production issues like hangs, crashes and memory leaks
- Learn tools and techniques used by Microsoft engineers

Overview

Advanced Production Level Debugging is a 3 day L400 workshop that talks about tools and techniques commonly used by Microsoft engineers to troubleshoot production issues. The students will learn how to isolate and debug problems using Windbg rather than using Visual Studio. The course develops the skills required to troubleshoot and resolve common production scenarios such as hangs, crashes, and memory leaks in any managed (both Desktop and Web) applications. Coverage includes either Microsoft® .NET Framework 2.0/3.0/3.5 or 4.0 and focuses on debugging both during testing and after the application has been released into production.

Pre-requisites:

The attendees must be experienced application developers who understand foundational concepts such as processes, threads, call stacks and heaps. Understanding of basic operating system fundamentals like memory management, and some familiarity with debugging tools is required.

Please review the Target Audience information (below), and contact your Microsoft Services representative to ensure that this workshop is appropriate to the student's experience and technical expertise.

Target Audience:

Developers and Support
Personnel.

How the Offering Works

The workshop is usually delivered as a 3 day workshop. It has three pillars namely, memory leak, hang and crash. In addition to that CLR fundamentals will be discussed on the first day as well. Since the workshop contains a lot of technical details about a vast variety of topics, students are expected to have consistent start and end times for each day. Early departure on any day is not recommended.

Introduction

This module introduces to common troubleshooting tools and techniques. It also covers fundamental building blocks of .NET Framework or CLR. A foundation for rest of the modules

Memory Leaks

Focuses on .NET memory management, Garbage Collector and how to identify and isolate memory leaks in manged and unmanged code. The module teach how root cause analysis can be done using adavanced tools like Windbg and common tools like Performance Monitor.

Hangs

The module talks about threads, and common synchronization primitives. Then it deep dives into common causes of hangs and teaches different techniques that can be used to identify the root cause for different types of hangs. The focus then shifts to interops where we talk about pInvoke and COM interops.

Crashes / Exceptions

The module focuses on fundamental concepts of exceptions and crashes. What causes exceptions, how exception handling mechanism works and how we can identify root cause for unstable application in the production.

Labs and Demos

The workshop includes lectures, demos and hands on self paced as well as instructor led labs. Students may receive a printed or soft copy of the material.

Software and Hardware Requirements

Recommended Software

   Windows Vista Business/Ultimate or Windows 7 Professional/Enterprise/Ultimate or Windows 2008
   Visual Studio 2010 Enterprise/Ultimate
   .NET Framework 4.0 and/or .NET Framework 2.0
   Windows SDK for Windows 7 and .NET Framework 4.0

Recommended Hardware

   Minimum 2 GHz processor
   Minimum 2 GB of RAM
   Minimum of 20GB of free disk space
   At least one available USB 2.0 or 3.0 port

All hardware that is used must be listed on the Hardware Compatibility List (HCL) for Microsoft Windows® Server 2008 or Windows Vista or Windows 7.

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