

Protecting Your SharePoint Environment from the Evil Developers

Robert Bogue
Thor Projects
Rob.Bogue@ThorProjects.com




No developers were hurt during the creation of this presentation.

The PETD (People for the Ethical Treatment of Developers) asks that you please not harm your developers – and don't have them spayed or neutered.




Who am I?

- 7 time Microsoft MVP currently awarded for SharePoint
- Architect = Developer + IT Professional
- Author of The SharePoint Shepherd's Guide for End Users – and 17 other books.
- Blogger:
<http://www.thorprojects.com/blog>




Agenda

- The Stories...
- Quotas – Defining Limits
- Sandbox – Gotta Keep 'em Separated
- Queries – Containing Chaos



Traditional IT Department development

THE STORY



You build a beautiful farm




A developer writes some code



SharePointPro
2010 SUMMIT & EXPO

Sometime later you start to notice problems



SharePointPro
2010 SUMMIT & EXPO

Then you get a call, at 3AM



SharePointPro
2010 SUMMIT & EXPO

You fly into the office




SharePointPro
2010 SUMMIT & EXPO

You try to diagnose the issue



SharePointPro
2010 SUMMIT & EXPO

But you can't find it



SharePointPro
2010 SUMMIT & EXPO

You go home feeling like a donkey



SharePointPro
2010 SUMMIT & EXPO

Enterprise with business groups that do development

THE STORY

SharePointPro
2010 SUMMIT & EXPO

Joe Business Group IT creates a solution...



SharePointPro
2010 SUMMIT & EXPO

It becomes essential for the business



SharePointPro
2010 SUMMIT & EXPO

One day it breaks



SharePointPro
2010 SUMMIT & EXPO

And now it's your problem



SharePointPro
2010 SUMMIT & EXPO

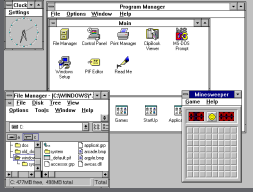

Aka User Code Host

SANDBOX



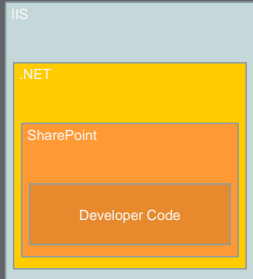
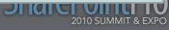
A walk down history lane...

- **Windows 3.11**
 - Cooperative Multitasking
 - One bad apple spoils the bunch
- **Windows NT**
 - Preemptive Multitasking
 - One bad apple stands alone

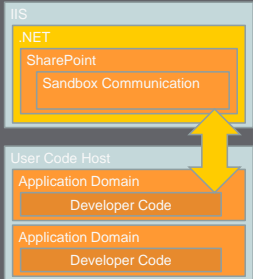
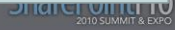
SharePoint 2007 Developer Code

- Problems in developer code can directly impact SharePoint, .NET, and IIS
- Should be used for highly trusted and tested code



SharePoint 2010 Sandboxed Code

- Code runs in a separate process and SharePoint communicates to it to get information


Understanding the User Code Host

- Applies Object Limits
- Monitoring
- Resource Tracking

Object Limits

- **CAS Policy**
 - SharePointPermission.ObjectModel
 - SecurityPermission.Execution
 - AspNetHostingPermission.Level = Minimal
- **SharePoint Objects**
 - Microsoft.SharePoint.Except
 - SPFile constructor
 - SPSecurity object
 - SPWorkItem and SPWorkItemCollection objects
 - SPAlertCollection.Add method
 - SPAlertTemplateCollection.Add method
 - SPUserSolution and SPUserSolutionCollection objects
 - SPTransformUtilities
 - Microsoft.SharePoint.Navigation
 - SPUtility.SendEmail method
 - SPUtility.GetNTFullNameAndEmailFromLogin method
 - Microsoft.SharePoint.Workflow
 - Microsoft.SharePoint.WebPartPages.Except
 - SPWebPartConnection object
 - SPWebPartManager object
 - SPWebPartConnection object
 - WebPartZone object
 - WebPartPage object
 - ToolPane object
 - ToolPart object





Monitoring

- Processes running too long are killed
- The solution gets points "against it" for allowing itself to run too long.





Resource Tracking

- CPU Execution Time
- Memory Consumption
- SQL Query Time
- Abnormal Termination
- Critical Exceptions
- Unhandled Exceptions



The Real Counters

| Title | Res./Point |
|---------------------------------|------------|
| AbnormalProcessTerminationCount | 1 |
| CPUExecutionTime | 200 |
| CriticalExceptionCount | 10 |
| IdlePercentProcessorTime | 100 |
| InvocationCount | 100 |
| PercentProcessorTime | 85 |
| ProcessCPUCycles | 1E+11 |
| ProcessHandleCount | 10000 |
| ProcessIOBytes | 10000000 |
| ProcessThreadCount | 10000 |
| ProcessVirtualBytes | 1E+09 |
| SharePointDatabaseQueryCount | 400 |
| SharePointDatabaseQueryTime | 20 |
| UnhandledExceptionCount | 50 |
| UnresponsiveprocessCount | 2 |



Local vs. Remote

- Local**
 - Quick Execution (no remoting/marshalling)
 - Sandboxed solutions can impact overall performance
- Remote**
 - Some overhead from remoting
 - Sandboxed solutions can only impact other sandboxed solutions.



Solution Validator

- Additional Restrictions on Upload
- Inspect (and Reject) Solution
- Inspect (and Reject) Assembly




Sandbox Proxy

- Allows access beyond Sandbox limits
- Requires full trust installation
- Two parts:
 - Proxy Operation
 - Proxy Arguments

Solution Gallery

- A library in each Site Collection
- Contains Sandboxed Solutions
- Shows the resource utilization






Why Not Always Sandbox?

- Performance Penalty
- Limitations ...

Consider:

- RSS Reader
- Public APIs
- Read/Write from a custom database





QUOTAS





All Quotas

- Set at the site collection level
- Can be changed on the fly





Storage Quotas

- Number of MB assigned to each site collection
- Configurable warning size
- Applies to all data in the site collection

Resource Quotas

- Measured in "points"
- Set for all solutions in a site collection
- Configurable warning when a certain number of points are used
- Resets daily

QUERIES

SharePointPro
2010 SUMMIT & EXPO

Performance Impact

- Large Queries consume a lot of resources
- Limiting large queries contributes to overall performance improvements



SharePointPro
2010 SUMMIT & EXPO

Query Limits

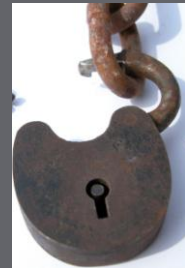
- Non-administrators have a smaller limit (5000 item default)
- Administrators have a larger limit (20000 item default)
- Limits are set per web-application



SharePointPro
2010 SUMMIT & EXPO

Overrides and Exceptions

- Happy Hour
- Object Model Override



SharePointPro
2010 SUMMIT & EXPO

Your Feedback is Important

Please fill out a session evaluation form
drop it off at the conference registration
desk.

Thank you!

SharePointPro
2010 SUMMIT & EXPO