How to Protect the Pre-OS Environment with UEFI

UEFI Fall Plugfest – October 24-27, 2011
Presented by Tony Mangefeste
Agenda

• How we got here
• The problem
• A solution
• Authentication versus Verification
• Signing
The Long Road...

• BIOS provided hooks for field-patch
• Hooks were exploited
• And limitations of BIOS
  – MBR, Disk Size, INTx
  – Wild West of Option ROMs
• Difficult to Service
The Problem

• Protecting the UEFI Boot Entry versus Firmware Recovery Mode
• The Extended Service Partition (ESP) is unlocked and accessible
• PE/COFF’s not authenticated
• Multiple Entry Points
• Regardless UEFI is best pathway forward
A Solution

• Secure Boot – Using Authenticode to sign PE/COFF images
• Signatures stored in NVS provide an approach to authenticate images
• Signatures may be hashes, keys, certificates
• Signatures are tamper-proof
Authentication vs Validation

• Authentication does not guarantee quality of code
• Not feasible for firmware to perform malware signature validation
• Firmware is offline and resource limited
• Therefore, signing is the best way to restrict unauthorized execution in the boot path ...
Signing

• Microsoft is using Winqual to provide a UEFI Signing Service
  – Winqual hosts 11,000+ companies
  – Minimal one-time administrative costs
  – Free signing of UEFI images
  – All images uniquely identified by company

• *Creates an independent certificate authority (CA) for UEFI images*
Come try it out...

• Offering signing of UEFI images this week at UEFI Plugfest
• Your company must have an IEA with Microsoft or a Winqual Account
• No formal announcement of release at this time, available only for testing this week ...
Thanks for attending the UEFI Fall Plugfest 2011

For more information on the Unified EFI Forum and UEFI Specifications, visit http://www.uefi.org
But wait, there’s more ...

- Welcoming Remarks — Aven Chuang, Insyde Software
- UEFI Forum Updates — Dong Wei, VP of the UEFI Forum
- Best Practices for UEFI Driver Compatibility — Stefano Righi, American Megatrends, Inc.
- Understanding Platform Requirements for UEFI HII — Brian Richardson, Intel Corporation
- UEFI Security Enhancements — Kevin Davis, Insyde Software
- How to Protect the Pre-OS Environment with UEFI — Tony Mangefeste, Microsoft
- Pre-OS Display Switching using GOP — James Huang, AMD
- Debug Methodology Under UEFI — Jack Wang, Phoenix Technologies

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