UEFI Secure Boot use cases and Linux

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Agenda

• Introduction
• Supporting secure boot
• Changing kernel policies
• Meeting a range of customer needs
• Summary
• Questions
Introduction

• Secure Boot is not just for Windows
• Secure boot is not just for end-users
• Supporting Linux and wider deployment use-cases is important
Linux design decisions

• Linux has very different demands
• More rapid release cycles
• System level components change within releases
• Gating every update via Microsoft impractical
Our approach

- Simple trusted bootloader
  - Attempts to LoadImage() and StartImage() secondary bootloader
    - If that fails, attempts to validate secondary bootloader against built-in key
    - Obeys dbx entries
    - Installs validation handler protocol
Our approach

Benefits

- Small trusted codebase with very little churn
- Almost entirely Tiano code
- Independent testing of CryptLib implementation
Our approach

- Secondary bootloader
  - Grub2 – standard Linux bootloader
  - Validates signed kernel image via first-stage validation protocol
  - Provides UI and configuration
Our approach

- Kernel
  - Implements signed driver requirements
  - Various interfaces locked down to avoid administrator → kernel escalations
  - Significant change to the existing Linux model
Handling customer requirements
Serving customers

- Secure boot is not just about end-users
- Customer requirements vary widely
Serving customers

- Can't assume that customers desire default keys
  - Local security requirements
  - Local policy requirements
- Supporting alternative trust roots is vital
Implementation

- Support for re-keying hardware currently awkward
  - Spec mandates clearing Pk, re-enrolling
  - UI and functional inconsistencies
  - Vendors may offer different configuration to large customers
- Thoughts on improving this?
Implementation

- Replacing signed components much easier
  - Tools available for key generation and re-signing
  - Support for building install images and media
- But what about updates?
Summary

- Linux has different requirements, so takes different approaches
- Customers appreciate flexibility, expect to extend this to secure boot
Questions?
Thanks for attending the UEFI Summer Summit 2012

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