UEFI Development in HP

Dong Wei

HP UEFI Support Status

- Integrity Business Critical Servers
  - Lead in the use of EDK II/UDK2010
- Printers/Scanners/Copiers/Laserjets
- Notebooks and Tablet PCs
  - HP innovating based on the UEFI technology: e.g., Diag, DayStarter
  - Commercial systems support UEFI boot
- Desktops and Workstations
  - Adopt a common UEFI codebase
  - Collaborate with Commercial Notebooks on HP features that provide enhanced manageability, security and ease of use
- Embedded: e.g., Storage, Network
  - Using UEFI to deliver next generation storage arrays
- UEFI/PI framework has enabled code sharing opportunities among business entities and with partners/vendors.
- HP supports UEFI in x64, ARM and Itanium architectures
  - UEFI provides opportunities of code sharing among systems based on different processor architectures

EDK II/UDK2010

Subtitle Placeholder

Mission-Critical Customer Challenges

Financial Services
Every minute of
downtime = a minute of
lost revenue!

**Manufacturing
and Distribution**
Production comes
to grinding halt

Healthcare
Patient outcomes
depend on 24x7
access to data

**Public Sector,
and Communications,
Media & Entertainment**
Customer retention
and fraud detection at risk
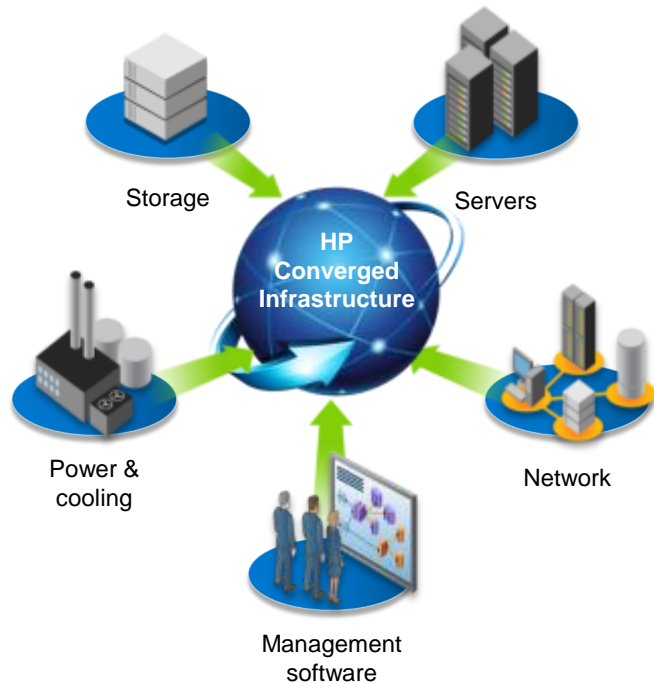
No tolerance for downtime

Increasing Service Level Agreements with decreasing budgets

Islands of legacy apps and monolithic systems

The First Mission-Critical Converged Infrastructure

New Integrity systems optimized for the converged infrastructure

Storage

Servers

HP
Converged
Infrastructure

Power &
cooling

Network

Management
software

A common, modular architecture that simplifies, consolidates, and automates everything

A mission-critical infrastructure delivering the highest levels of reliability and flexibility

What HP looks for in Firmware

HP Firmware Requirements

- Advanced Features support

  - Path to support network boot over IPv6, etc.

- HP Platform Innovations

  - Platform value-add modules

  - Protect intellectual property

- Improve Execution Excellence

  - Limited engineering resources

  - Faster time to market

  - Separate the hardware basic execution away from HP innovations

  - Reduced Integration & Validation Time

  - Used packaging supplied by Silicon driver modules from Silicon supplier

  - Maximize proper code reuse

  - Build-once, use by multiple platforms

Integrity† Leads HP EDK II Transition

EDK II Enables HP Platform Innovation and Execution Excellence

Single Source Tree
For Superdome 2, Blades and Rack Servers

Superior Packages
Ability to reuse
Single module/solution owner
Global visibility for bug fix

ECP Works Well
Reuse existing silicon modules, applications

Superdome 2
The ultimate mission-critical consolidation platform

Integrity Server Blades

c3000   c7000

BladeSystem Matrix with HP-UX

First Converged Infrastructure platform for shared services, now mission-critical

Integrity 2s Rack Server

8-core scalability in 3x less compute density—without sacrificing RAS

HP Contributions to EDK II

An Early Adopter
- Provided review/guidance that helped to refine EDK II to the present form
- Provided multiple feedback on simplification
- Recommended the use industry-standard tools instead of proprietary tools
- Provided fixes of build tool bugs
- Identified EDK II issues that arose when enabling compiler optimization with the Intel C compiler.
- Discovered multiple EDK II bugs
  – For example, a subtle design issue with the UEFI network stack that leads to severe performance degradation on large systems

HP Contributions benefited the entire open-source community

UEFI Transition Recommendations

Development Challenge

- Code development required large-scale source tree updates
  - Updates needed on average every 2-3 months
  - Expected in early adoption phase

UDK2010 addresses this challenge through *code base maturity, packaging technology, and catching up with the latest specs*

Developers Recommendation

- Pay close attention to the specifications/errata
- Parallel versions for different spec versions
- Maintain the infrastructure support and compatibility
  - Keep "deprecated" version of lib/include/PCD
  - Avoid changing build tools/lib/include/PCD
- Proactively communicate when a bug is fixed

OEMs/IBVs Recommendation

- Take advantage of parallel versions if available
  - Get small-scale source updates needed
- Pull in the latest code at least every 2 months
- Use EDK II package solution
  - Create vendor-specific modules
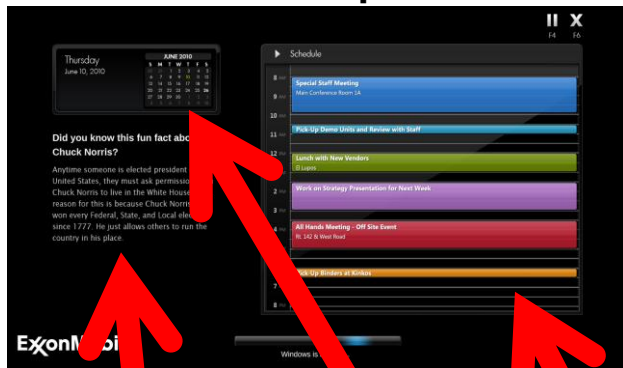
Innovation Example

Subtitle Placeholder

# HP DayStarter: Our Approach to Instant-On User Experience

Dong Wei, Distinguished Technologist

A Better User Experience

- Customizable information
- Calendar
- To-do List

- Customer benefit:
  - Instant-on User Experience
  - displays user's info
    - calendar
    - to-do list
    - customizable info
  - before Windows[†] is booting.

Boot Sequence Improvements
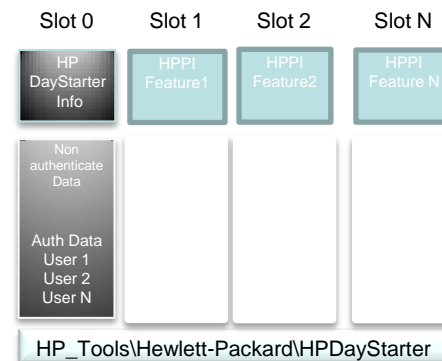

A Typical Boot Sequence to Windows[†]
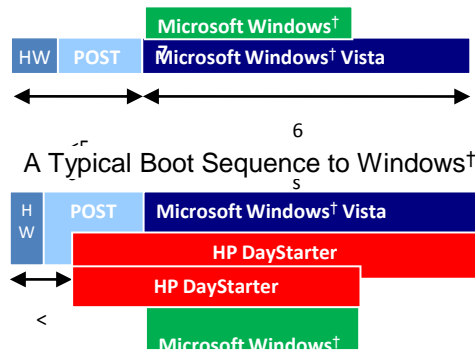
The New HP Innovative Boot with DayStarter

Innovative Technology

The main technology behind the HP DayStarter is for **UEFI** BIOS to locate the proper JPEG image and use the System Management Mode (SMM) to update the frame buffer content until Windows[†] is ready for system login.

At runtime, the HP DayStarter implements an Microsoft Outlook plug-in to capture the calendar information.

Extensible Architecture

Slot 0	Slot 1	Slot 2	Slot N
HP DayStarter Info	HPPI Feature1	HPPI Feature2	HPPI Feature N
Non authenticate Data			
Auth Data User 1 User 2 User N			

HP_Tools\Hewlett-Packard\HPDayStarter

An HP Platform Innovation enabled by UEFI