HP's UNIX Patch Strategy

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HP's UNIX Patch Strategy

Agenda

1. Industry Wide Software Patching

2. HP-UX Patch Strategy Overview

3. HP UNIX Patching Comparison

   • HP-UX and Tru64

Industry Wide
Customer Patching Practices

Customer behavior varies greatly

- Some install changes suggested by vendor

- Others avoid any changes (except fixes to bugs they have reported)

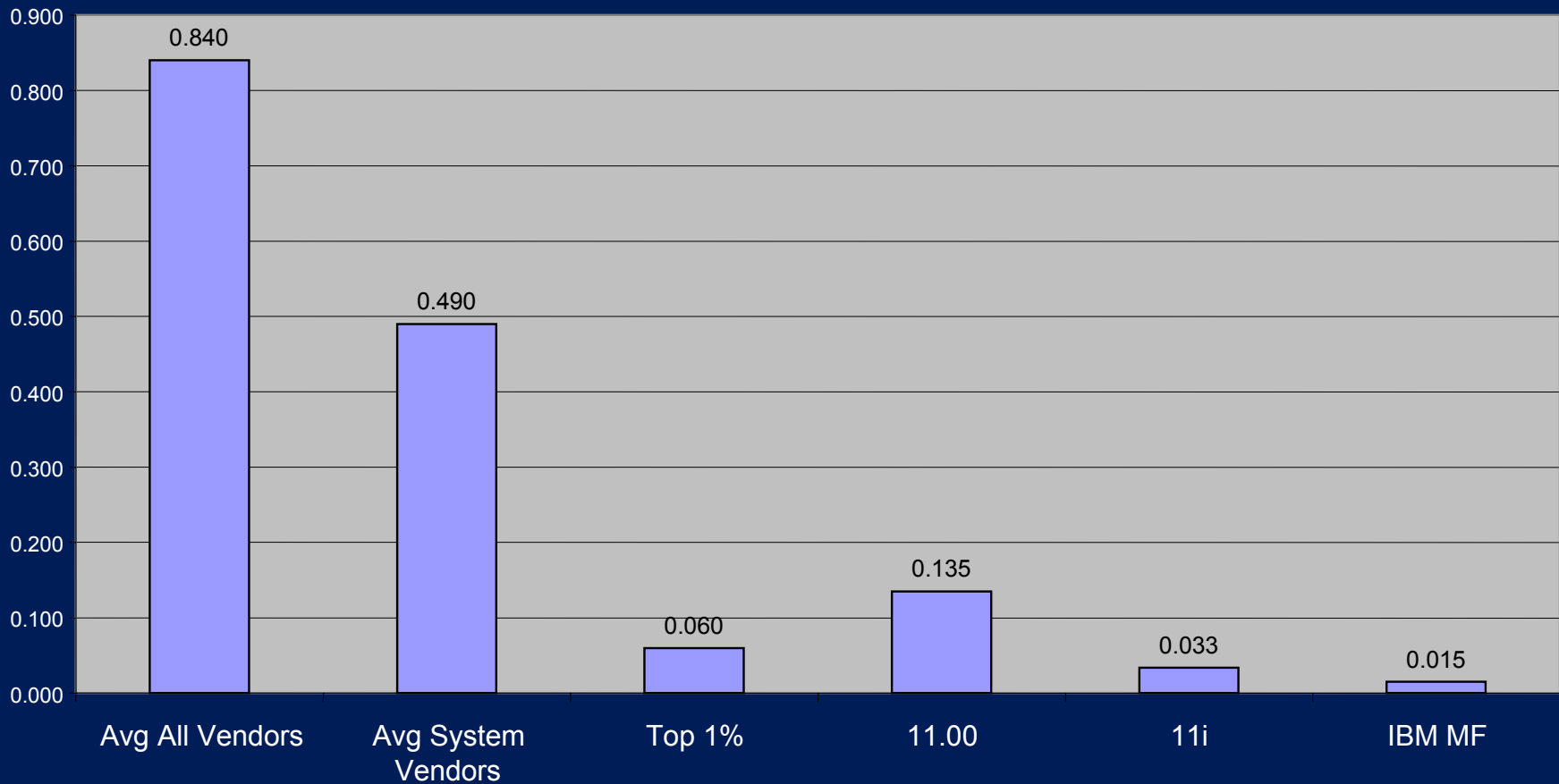- Many prefer to make their own decisions about which releases and upgrades they adopt

Typical to install a patch tentatively to analyze impact before committing as permanent part of OS

Industry Wide - Best in Class Defect Density

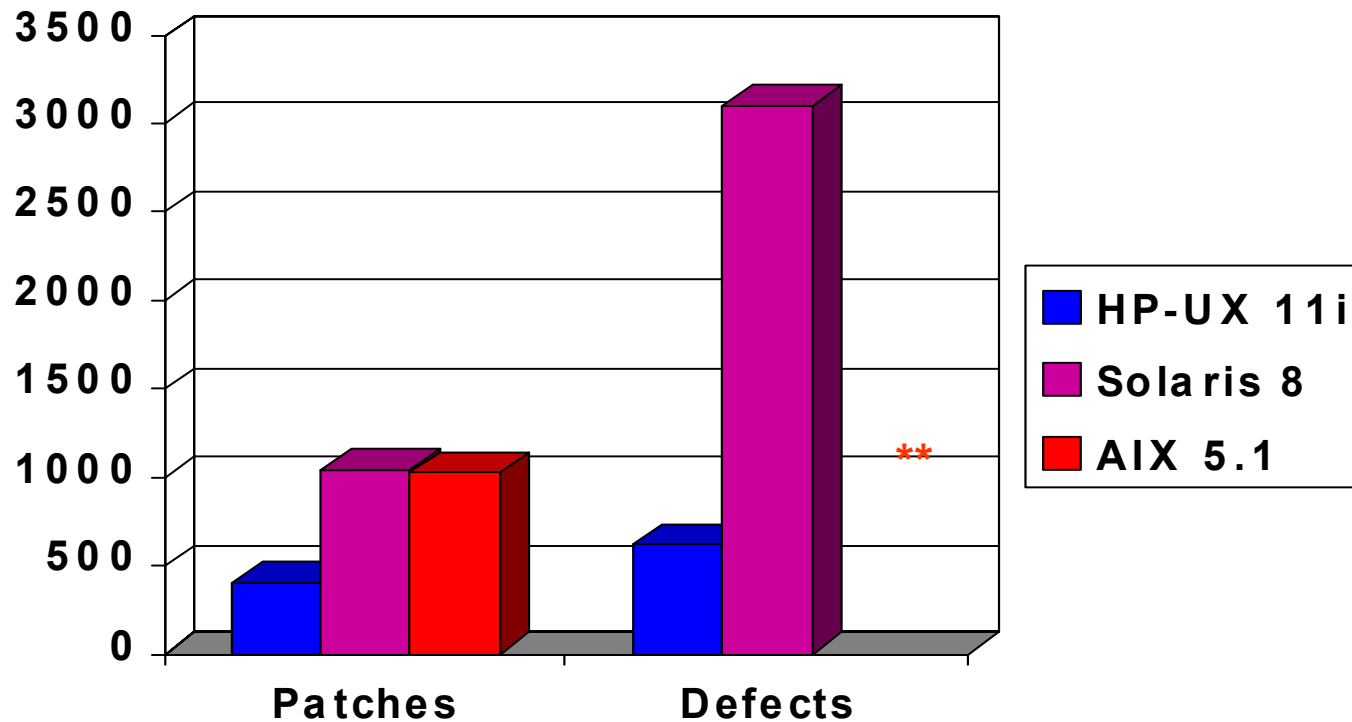11i has 23.5K Function Pts, compared to industry data for 10K

Delivered Defects/Function Point

Category	Delivered Defects/Function Point
Avg All Vendors	0.840
Avg System Vendors	0.490
Top 1%	0.060
11.00	0.135
11i	0.033
IBM MF	0.015

Applied Software Measurement, 2nd Edition, Capers Jones

HP-UX 11i versus Solaris 8, AIX 5.1
First 15 months of shipments

**** Could not get AIX 5.1 defect data**

HP-UX Patch Strategy Overview

"The patch-management field has been a conservative one, slow to change. D.H. Brown Associates, Inc. (DHBA) believes that innovation of the kind described here is long overdue."*

How did HP-UX get there?

*White Paper: HP Improves Patch Management to Reduce System Downtime

D.H. Brown Associates, Inc. , March 2000

Minimize down time for patch operations

To provide the most stable environment possible, I want to choose exactly which patches I apply.

Particularly in the kernel and other sensitive areas, keep patches small.

Patches should only be fixes to defects, not enhancements.

Minimize system administration cost

But keep patch management simple – I don't want to spend a lot of time here.

Provide me with tools to manage multiple systems – track what is installed, install a golden image on multiple systems, etc.

HP-UX Patch Strategy Overview
Key Improvements

1. Label Patches with our confidence rating 1,2 or 3
   - Rating 1 has gone through all labs tests
   - Rating 2 has significant customer exposure (60% fewer warnings)
   - Rating 3 has passed our system tests (80% fewer warnings)
2. Keep patches as small as possible, but they must be cumulative from the last patch.
3. Use bundles to simplify proactive patch management - QPK
4. Enhancements can only be delivered in patches if they enable new hardware or add compatible minor features.

HP-UX Patch Strategy Overview
Types of HP-UX 11iv1 Patches

32% Deliver Enhancements

SW enable
20%

HW enable
12%

Core defect
57%

App Defect
11%
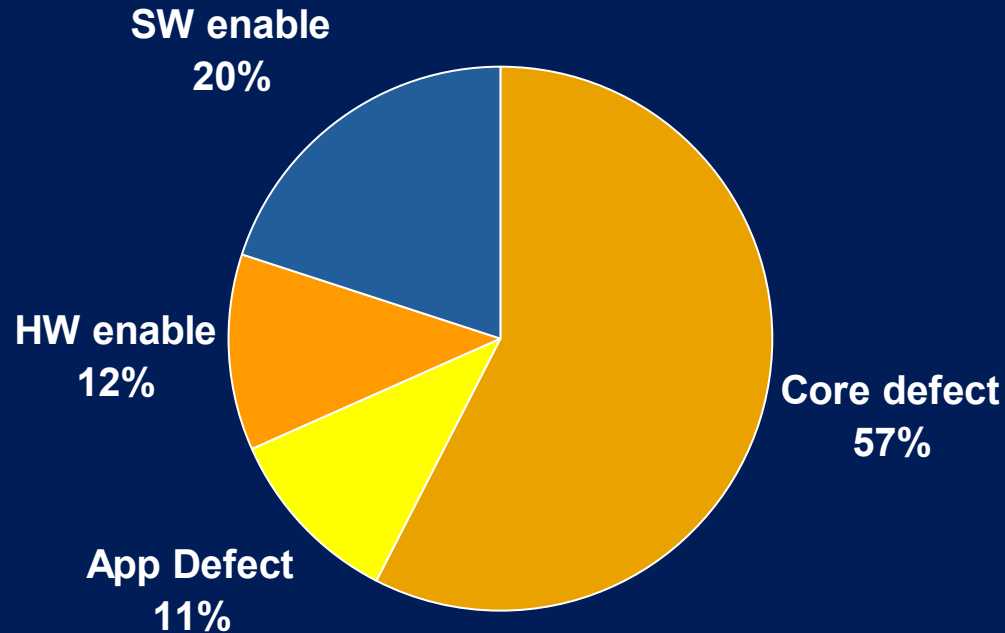
Software enablement includes IPV6, Virtual partitions, Processor Sets, Interrupt Migration, and Compressed Dump

Contents of SWPack, and Support Plus – 421 total patches

HP-UX Patch Strategy Overview
Key Improvements

5. Provide more robust patch management tools and processes
   - IT Resource Center (ITRC)
     - Recommendations based upon patch ratings
     - Complete dependency management
     - New patch assessment capability
       - "Ideal system" concept
       - incorporation of patch sets
       - combination of internal and external tools
       - removal of entitlement requirement
     - "HP Live" access to patch support experts
   - Mission Critical Software Change Management (MCSCM)

HP-UX Patch Strategy Overview
Reactive and Proactive Patching

Reactive Patching

- **Solve an existing problem**
  - **Timeliness:** Highest priority
  - **Reliability:** Fix it the first time
  - **Change:** Minimize
  - **Risk:** Fast delivery of fix may compromise testing

Find the *Best* patch to fix the problem, as quickly as possible.

Proactive Patching

- **Preventive maintenance**
  - **Reliability:** Highest priority. Use only most stable tested patches
  - **Timeliness :** Periodic activity, planned in advance, time allotted for testing
  - **Change:** Understand and evaluate
  - **Risk:** Larger changes introduce greater risk, however, risk is reduced by more testing.

Choose a period for proactive patching. Use standard HP recommended sources.

Timeliness vs. Risk

HP-UX Patch Strategy Overview
For a specific fix not contained in the bundle – use the ITRC

Patch I asked for

Dependencies

On 11i, the Software Distributor product also will warn when dependencies are not satisfied

HP-UX Patch Strategy Overview
Summary

- HP Patch strategy allows many options
    - Small patches in most sensitive areas for reactive patching
    - Patch bundles for proactive patching
    - Customer choice on how frequently to patch and what to patch
    - Levels of confidence in patches (lower risk) based on customer usage and HP testing.
    - Proactive notification of any problem patches, but most customers remove very few of them.

HP UNIX patching comparison
Scope

HP-UX

Core patches
Application patches

Tru64

Core (OS) patches

HP UNIX patching comparison
Individual patches

HP-UX

Site Specific

GR0 (controlled release)

GR (General Release)
  patches at level 1-3

- 1 – Initial release
- 2 – Widely distributed & used
- 3 – Greatest amount of testing

Tru64

CSP (Customer Specific Patch)

No equivalent

ERP (Early Release Patch)
  patches are equivalent to GR at levels 2 & 3.

Patch Installation

SW Package Installer

HP-UX

Tru64

SD – SW Distributor

– Install and remove selected patches (swinstall, swremove)

– No equivalent to view patch specific documentation

– View patch tracking information (swlist)

– No equivalent to establish a baseline

– Adding patches to a depot (swcopy)

– Network support

dupatch

– Install and remove all or selected patches (-install, -delete)

– View the patch-specific documentation (-help)

– View patch tracking information (-track)

– Establish a baseline for systems that have had manually installed system files placed on them

– No equivalent to adding patches to a depot

HP UNIX patching comparison

Patch Installation

Install and remove all or selected patches.

HP-UX	Tru64

- **SD – SW Distributor**
  - No knowledge of clusters
  - Patch applicability
  - Patch dependencies (11.11)
  - Patch removal, rollback
  - System inventory changes for patches
  - Capturing patch activities in log files
  - Combined product patch installs

- **dupatch**
  - Cluster aware
  - Patch applicability
  - Patch dependencies
  - Patch removal, rollback
  - System inventory changes for patches
  - Capturing patch activities in log files

HP UNIX patching comparison

Patch Installation

Viewing the Patch Documentation

HP-UX

1. Retrieve individual patches using ITRC, it displays:
   – One line description
   – Symptoms
   – Defect description
   – Patch files
   – Special Installation Instructions
   – Other information fields for
     • Analysis
     • Selection

   Some patch documentation in the ITRC can be updated after the patch is released.
2. Swlist (SD) can view the original, embedded patch documentation.

Tru64

- Select the Patch Documentation item of the main menu, dupatch displays:
   – Problem summaries
   – Full descriptions
   – Special Instructions
   – Report identifiers
   – Revision control strings

HP UNIX patching comparison

Cold Install Options

HP-UX

- Ignite-UX
  - graphical & command line
  - push or pull
  - designed for cloning
- Install - GUI interface
  1. Ignite-ux
  2. Integrated with SD

Tru64

- Remote installation service (RIS)
  - curses (text menu)
  - pull only
  - not integrated with cloning
- Install - GUI interface
  1. Collection of command line, RIS, and sysmon sub-menus

HP UNIX patching comparison

Patch Installation

SW cloning model

HP-UX

Ignite-UX server "config files"

- Allows definition of configuration options to be set as well as software components to be loaded on client

Golden image/OS archive

- Mechanism to create a tar ball of a system's installation image for re-installation or cloning

Tru64

installation cloning

- Can create definition text files to be read by installation engine to customize the system being installed

HP UNIX patching comparison

Patch Installation

SW Update - Migration

HP-UX   Tru64

update-ux   ## Installupdate
- performs update   - Same functions
  preparation steps
- executes swinstall
- selection & analysis of sw
  to load
- SW load & reboot
- Clean up old information

HP UNIX patching comparison

Patch Installation

Patch management on clusters

HP-UX

- No Equivalent – until 11i Version 3

Tru64

- Rolling Patch
- No-Roll Patch

HP UNIX patching comparison

Patch management on Tru64 clusters

Rolling Patch

- clu-upgrade
  - Set-up
  - Pre-install
  - Post-install
  - Roll
  - Version Switch (if needed)
  - Clean
- dupatch
  - Install

No-Roll Patch

- dupatch
  - Check – cluster & not in roll
  - Analysis
  - Selection
  - Install
- noroll script
  - Install all other members
  - Postinstall
  - Version switch (if needed)

HP UNIX patching comparison
Collections of patches

1. Tested together

2. Delivered together

3. Intended to be installed together

HP UNIX patching comparison
Collections of patches

HP-UX

Bundles

Per OS stream for all currently supported Enterprise releases

Defect Fixes

- QPK (Quality Pack)
- One bundle per OS version
- Share Support Plus CD
- No support restriction on previous bundle version
- First bundle approximately 6 months after release
- Subsequent bundles at 6 month intervals

Tru64

Kits

By base level, for designated OS streams

Defect Fixes

- Inaugural/Aggregate kits
- One kit per supported release
- One milestone CD containing all latest base level kits
- Support for current kit and one back
- Guaranteed 1 year minimum support on 5.1B-1 forward.
- IPK:Inaugural kit released at 6 weeks
- PKn: Aggregate kits released at 4-6 month intervals based upon business need

Tru64 UNIX
Recent Improvements to Patch Kits

Patch Model Comparison

OLD Model	Deficiencies of the Old Model	NEW Model	Benefits of the New Model
• All PKs are cumulative	• Kits were too big	• PK's are either cumulative or incremental (Note: there is no distinction between cumulative and incremental PK's with respect to the PK support policy.)	• Incremental PK's are at least 50% smaller • Reduced download time
	• Kits took too long to install	• Incremental PK's have packaging of changed files only	• Install time reduced over 50% • More timely/predictable PK delivery • Files are placed into fewer packages (subsets)
• Pick and choose on all PK's	• Kits installation was too complicated	• Number of patch packages (subsets) is decreased from 300+ to below 70	• Reduction in installation time
	• Full qualification was not possible due to the number of potential install combinations	• With cumulative PK's, all patches are installed • Pick and choose feature available with incremental PK's only	• Higher quality through standardization of kits • Reduced Customer qual time – (items not changed are not included in incremental PK's)

HP UNIX patching comparison

Collections of patches

HP-UX

Bundles

- New Core SW features
  - SPK (SW Pack)
- New Hardware
  - HWE (Hardware Enablement)
- Application Products by segment
  - OE (Operating Environment) Products
- Application Products
  - AR (Application Release)

Tru64

Kits

- New Core SW features
  - No equivalent
- New Hardware
  - NHD (New Hardware Device) for those requiring boot support
- Layered Products by segment
  - APCD (Associated Products CD)
- Layered Products
  - Software Product Library

HP-UX – standard patch bundles

Tru64 – standard kits

HP UNIX patching comparison
What is Factory Installed?

HP-UX

Factory Ignition (IUX)

1. Selected OE
2. Latest HWE
3. Latest QPK

Tru64

Factory Installed Software (FIS)

1. Selected OS version
2. Latest NHD
3. Latest Aggregate Patch Kit

HP UNIX patching comparison

Web services

HP-UX

ITRC

- PatchDB (all GR patches)

- CPM (Custom Patch Manager), Now Patch Assessment

software.hp.com

- Latest version of all bundles

Tru64

ITRC   New!

- PatchDB
  - Initially Aggregate patch kits, in the future: NHD's and individual ERPs

- No equivalent CPM

support.compaq.com

- Previously for Aggregate kits

- Has been replaced with ITRC

Tru64 Kits/ERPs/NHDs on ITRC

Tru64 – patch browsing

HP-UX Patch Assessment

HP-UX Patch Assessment – setup the profile

HP-UX Patch Assessment - results

HP UNIX patching comparison

SW Support Guidelines

HP-UX

- All patches are cumulative - customers not required to install a minimum supported level of sw to obtain patches
- Specific support level no longer required to access to CPM/Patch Assessment

Tru64

- Patches provided on current kit or 1 back only for releases under standard support
- Guaranteed 1 year minimum support on 5.1B-1 forward
- No specific support level will be required

HP UNIX patching comparison
Tru64 Patch Kit Support Policies

Previous Policy

- For releases under standard support, Tru64 UNIX Engineering supports the latest patch kit and one (1) back.

New Policy

- For releases under standard support, Tru64 UNIX Engineering supports the latest patch kit and one (1) back. (No change for releases or patch kits prior to V5.1B-1(Vail)).

- In addition, starting with V5.1B-1 (Vail) patch kits will be supported for a minimum of one (1) year after their release. Support for the latest patch kit and one (1) back AND the minimum of one (1) year from the time of release are both guarantees for V5.1B patch kits and V5.1-B associated updates (V5.1B-1, V5.1B-2, etc..) only.

HP's UNIX Patch Strategy

Summary

HP has track record of innovation

- Listening to our customers
- Responding with improved solutions

ITRC Patch Database Homepage

find patches for a product

find HP-UX patches in a patch set

same patch sets as found in patch assessment profile