Bringing Linux apps to HP-UX11i: It's easier than you think

Mary Kwan

Linux Affinity Product Manager
HP

HP WORLD 2003
Solutions and Technology Conference & Expo

Agenda

- Provide Linux app development benefits
- How to bring Linux apps to hp-ux 11i
- Share hp-ux 11i insights for Linux apps
- References and Q&A

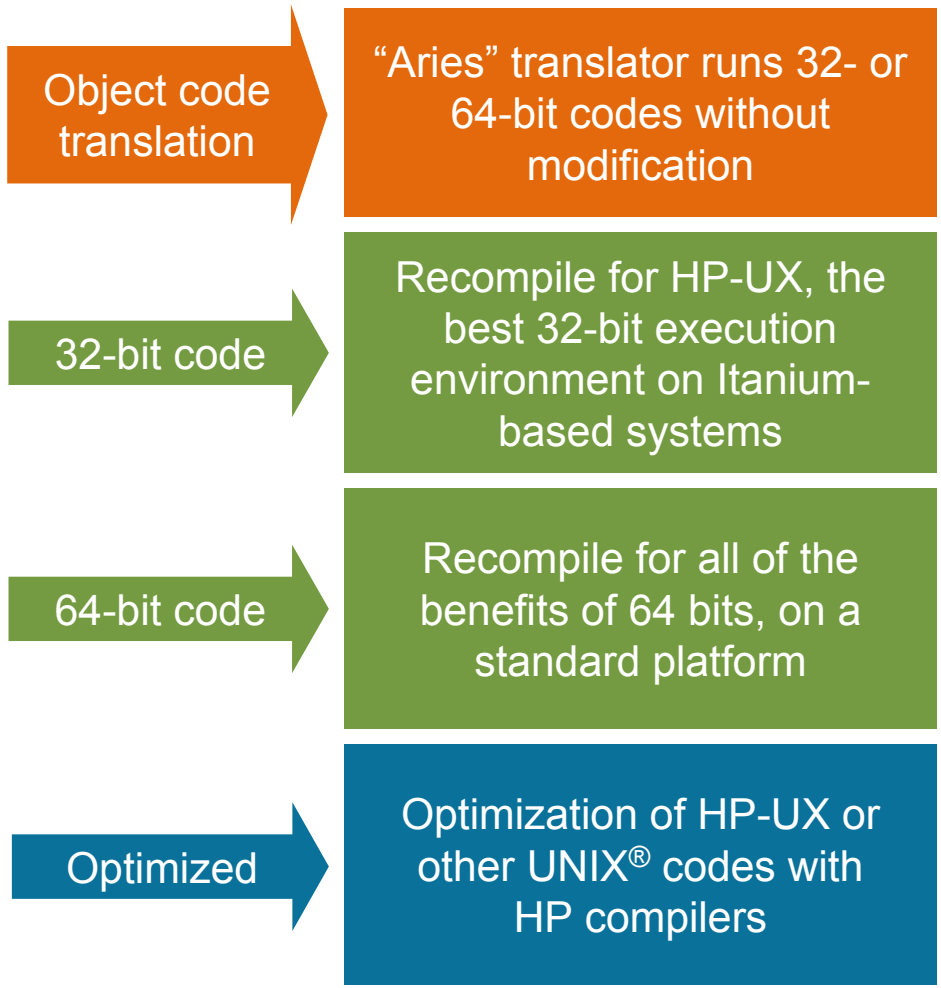
Getting to know you

- you & Linux soon
  - planning to use Linux soon?
- you & Linux now
  - using Linux today?
  - using both Linux & hp-ux today?
- using Linux for application development?

HP-UX 11i compatibility

Key benefits

- Binary compatibility through Aries dynamic code translation technology—no recompilation
- Source code compatibility from PA-RISC to Intel® Itanium® Processor Family—single source code stream
- Data compatibility between PA-RISC and Itanium Processor Family—no data conversions



Enabling compatibility: UNIX®, Linux, and Windows®

HP-UX 11i

- Same look and feel
  - For PA-RISC or Itanium®-based servers
- Application compatibility
  - Source, data, and binary
- Same administration tools
  - Serviceguard, Workload Manager, Partition Manager, OpenView, to name a few

Windows

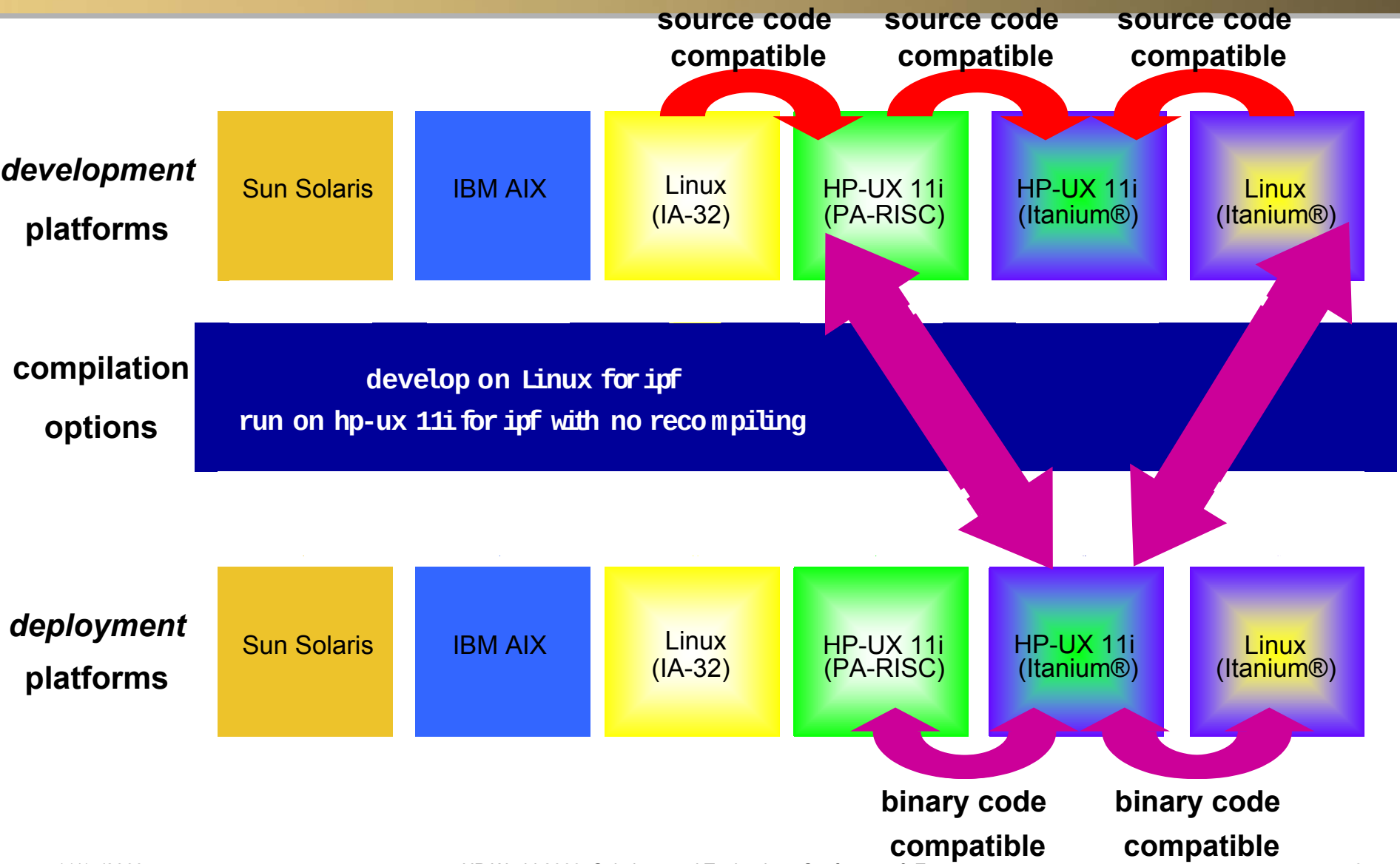
- CIFS and LDAP-UX Integration for Windows interoperability

Develop on Linux, deploy on HP-UX 11i

- Linux Porting Kit for Linux source compatibility
- Linux Runtime Environment for Linux binary compatibility

HP-UX 11i v2: ideal for new deployments

Consider the strategy



Benefits of Linux

- Low cost compared to other OSes
- Open Source
  - extensive toolsets
  - great degree of knowledge in community
  - freely available
- Popular with developers

Agenda

- Provide Linux app development benefits
- How to bring Linux apps to hp-ux 11i
- Share hp-ux 11i insights for Linux apps
- References and Q&A

How to bring Linux apps into HP-UX 11i – source compatibility

Linux Porting Kit

Open Source Developer's Toolkit
- a collection of 50+ popular Open Source tools

Linux-Compatible APIs
- work concurrently with existing hp-ux libraries to make available 96% of Linux core APIs

Linux Software Transition Kit
- scanner tools to identify porting issues and suggest recommendation for changes

Linux Porting Guide & Support Services
- extensive, easy-to-use documentation showing porting steps and issues

Benefits

- reduce porting efforts with over 50 Open Source tools and 96% of Linux core APIs
- improve productivity with scanner tools to find porting issues
- simplify developer's experience with this out-of-the-box porting kit
- free download and CD at www.devresource.hp.com/LPK

How to bring Linux apps into HP-UX 11i – binary compatibility

Linux Runtime Environment Toolkit

Linux LE Itanium Runtime Environment

- a collection of libraries and tools, including commands, utilities, packages, and marshalling layers

Linux Software Transition Kit

- scanner tools to identify porting issues and suggest recommendation for changes

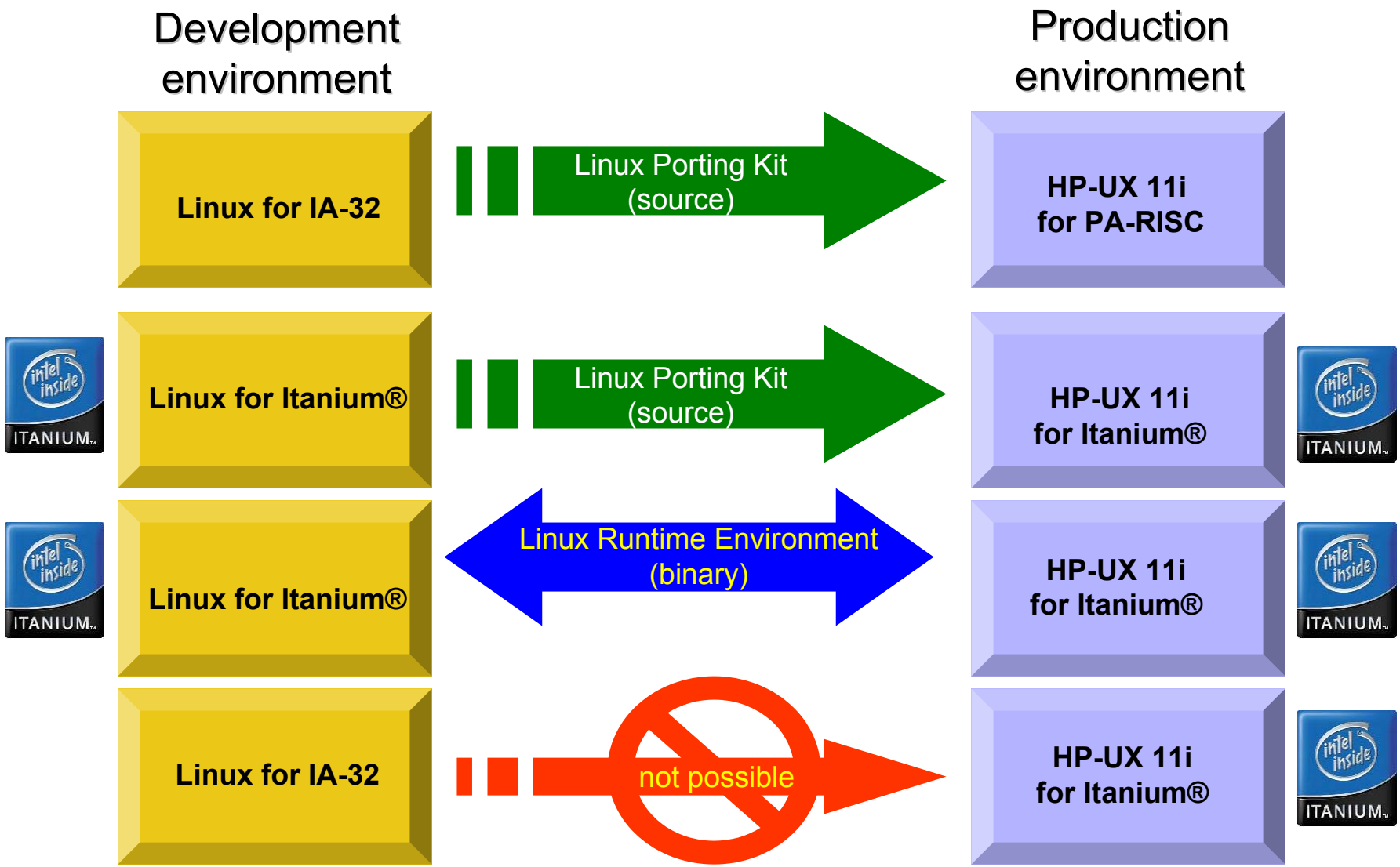
Linux Runtime Environment White Paper

- extensive, easy-to-use paper documenting binary compatibility processes between Linux and HP-UX

Benefits

- develop on Linux, deploy to HP-UX
- run “Linux” applications on HP-UX with mission critical features
- reduce build and support costs for multi-OS opportunities

Which one to use?



Overview of Linux Runtime Environment

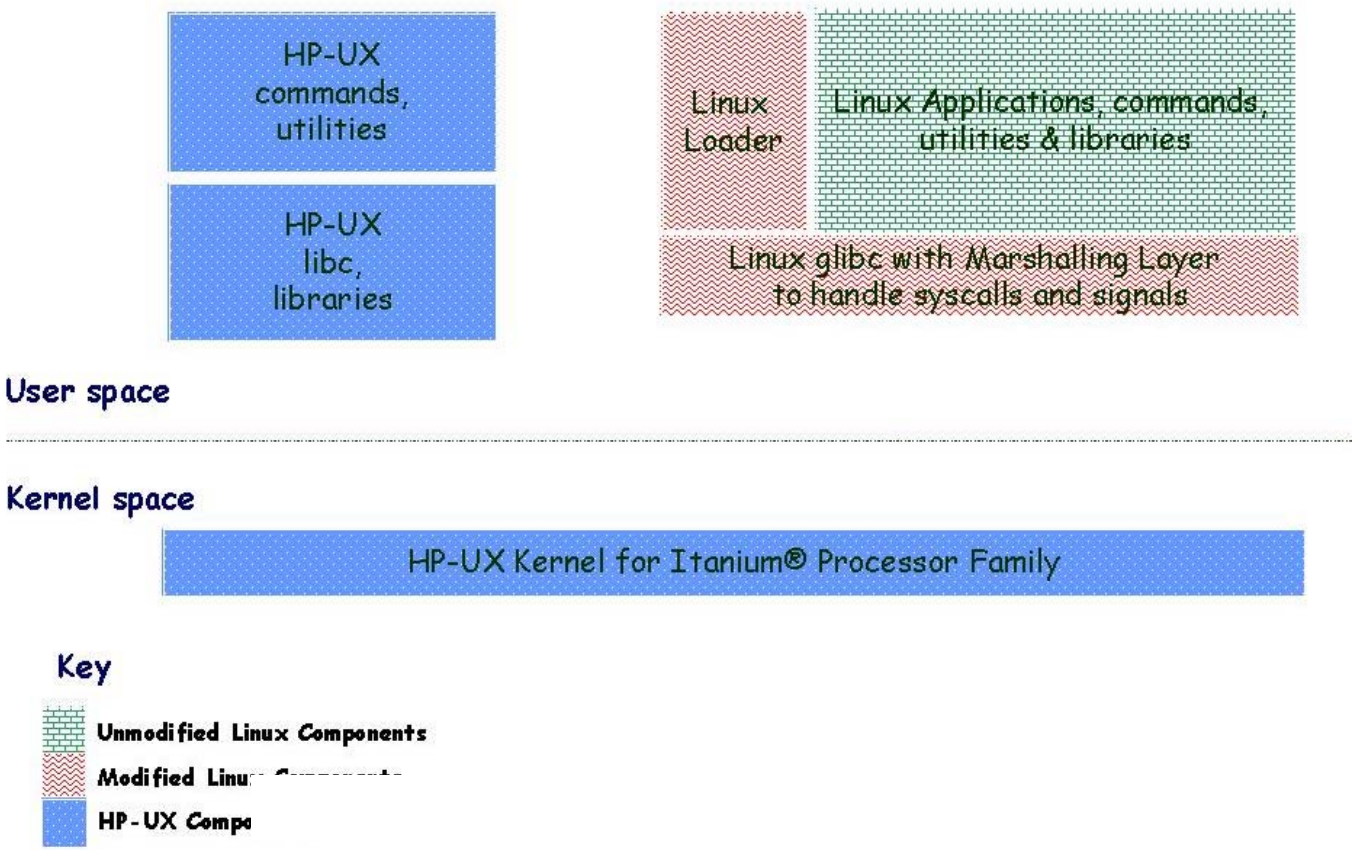


Figure 1: Overview of the Linux Runtime Environment

Program startup for Linux apps

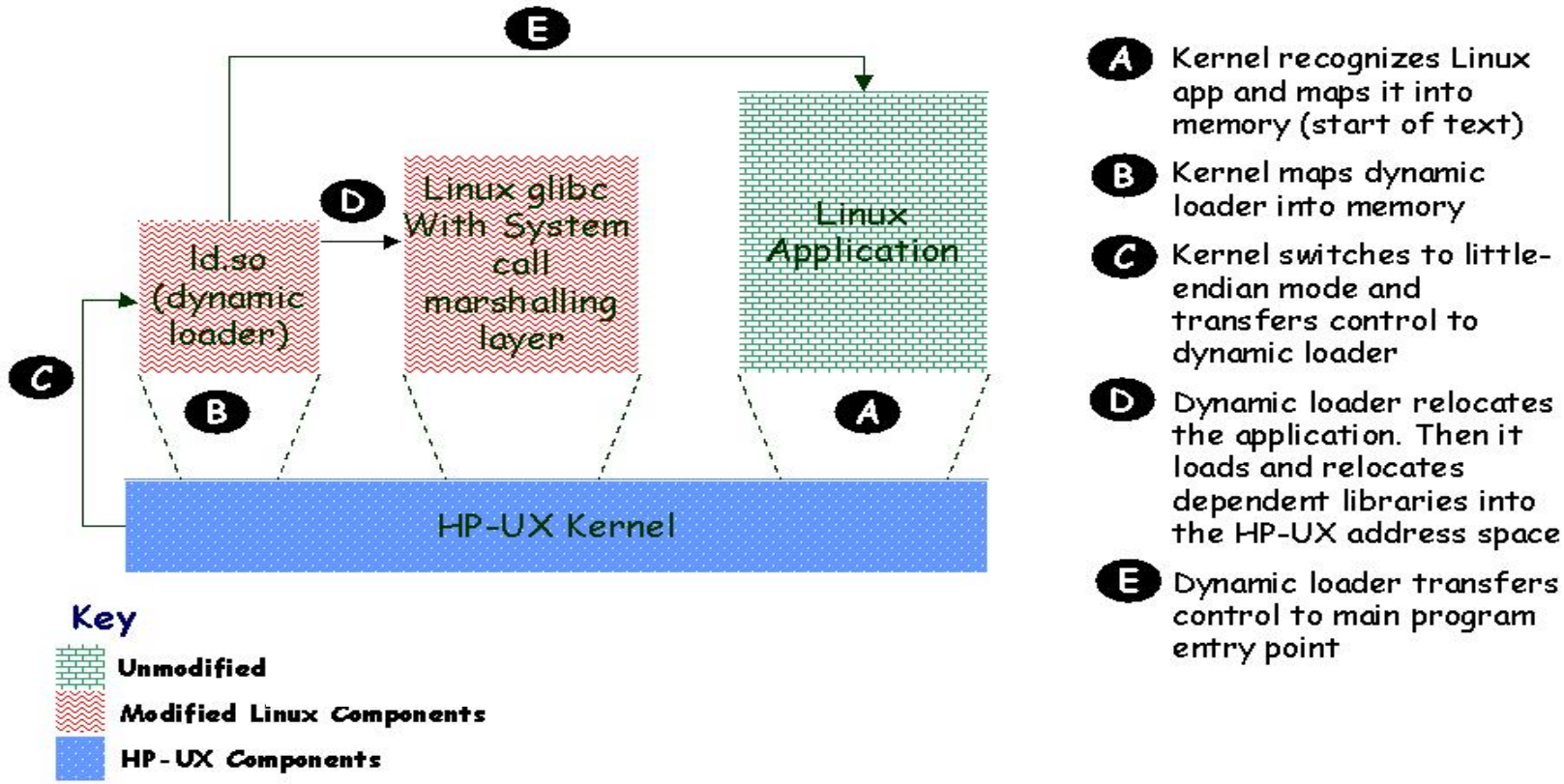


Figure 2: Program startup for Linux applications on LRE

System calls

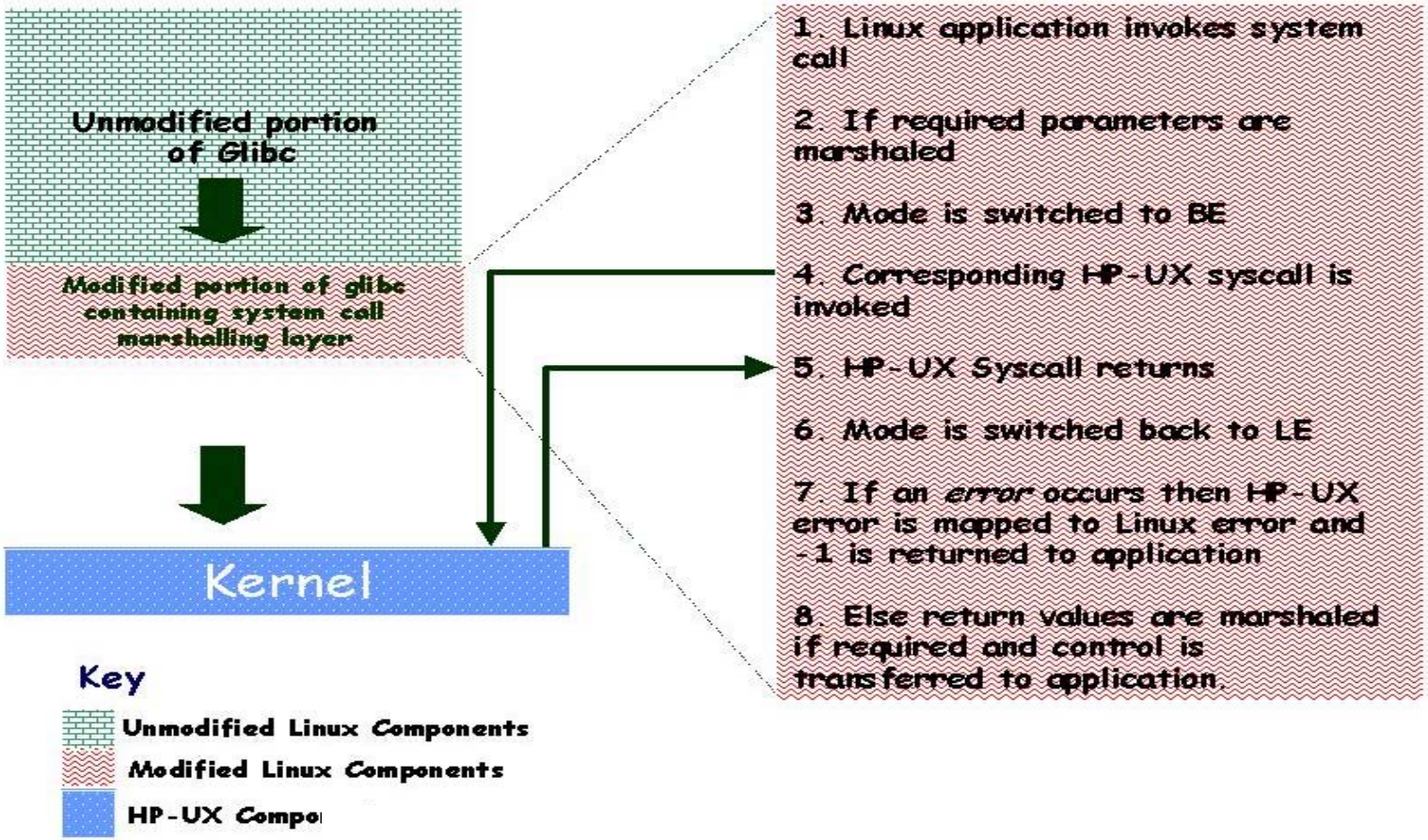


Figure 3: System call Marshalling in LRE

Signal handling

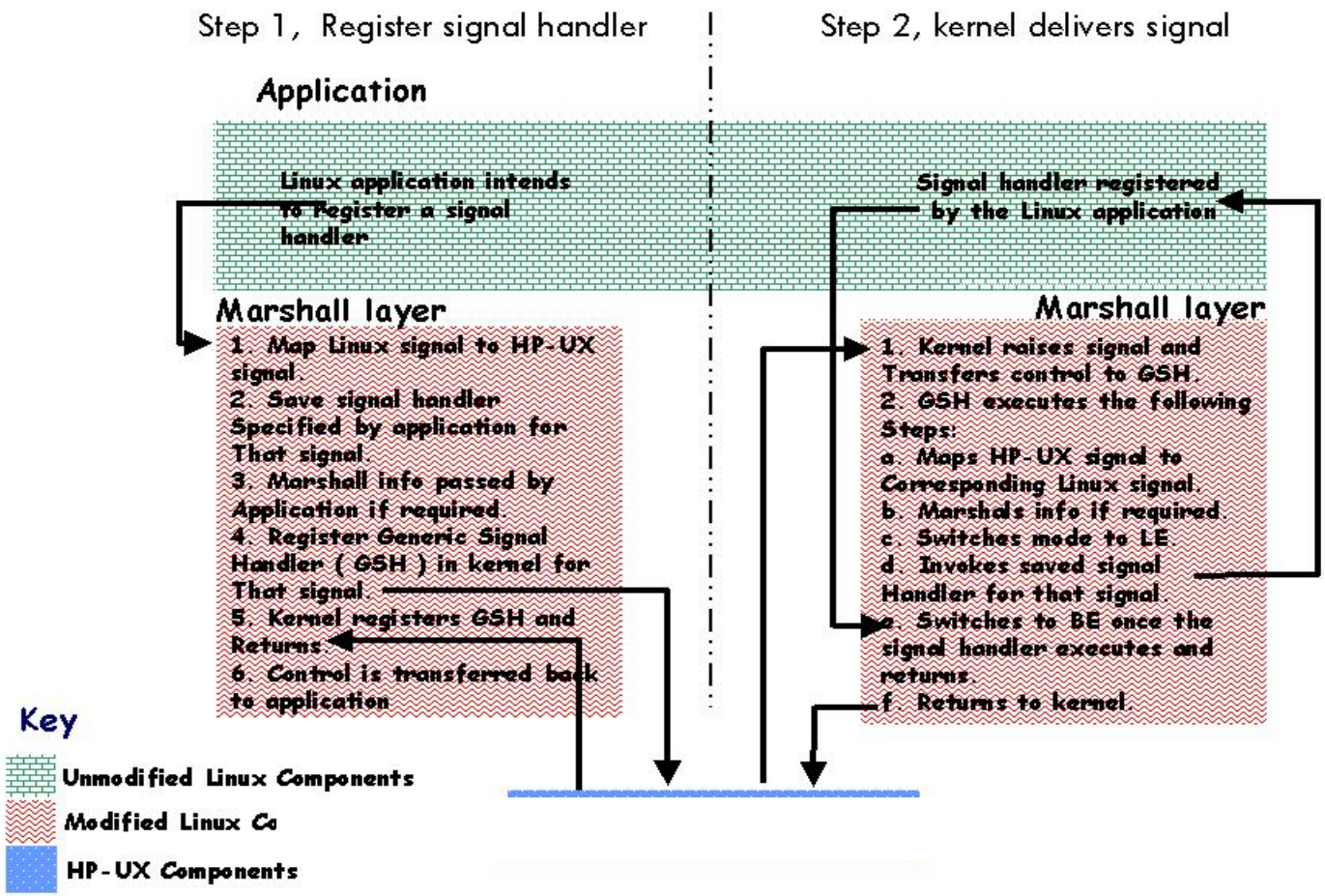


Figure 4: Signal Handling in Linux Runtime Environment

Linux runtime environment restrictions

- Linux 32 bit (x86) applications
- Applications that are bound to archive libraries through which system calls are invoked.
- Kernel intrusive applications
- Applications that directly access persistent system files, directly manipulate hardware or use Linux-specific kernel API's

Agenda

- Provide Linux app development benefits
- How to bring Linux apps to hp-ux 11i
- Share hp-ux 11i insights for Linux apps
- References and Q&A

HP-UX momentum continues

The HP-UX ecosystem

- A $20B business
- Over 2 million units active
- #1 UNIX® market share by revenue last two quarters

More than 10 years proven expertise in mission-critical and workload management

- More than 70,000 Serviceguard licenses
- Over 65,000 resource and workload management licenses

Aggressive investment in HP-UX

- Major component of HP's overall R&D budget
- Over 2000 software engineers focused on the HP-UX ecosystem
  - Over 1300 HP-UX patents filed in 2002

HP-UX 11i recognized leadership

2002 UNIX Function Review Report

#1 Scalability
#1 Reliability, availability, and serviceability
#1 Systems management
#1 Internet and Web application services
#1 Directory and security services

Butler Group

Server Operating Systems Report: Winners and losers in the open/proprietary OS market

---

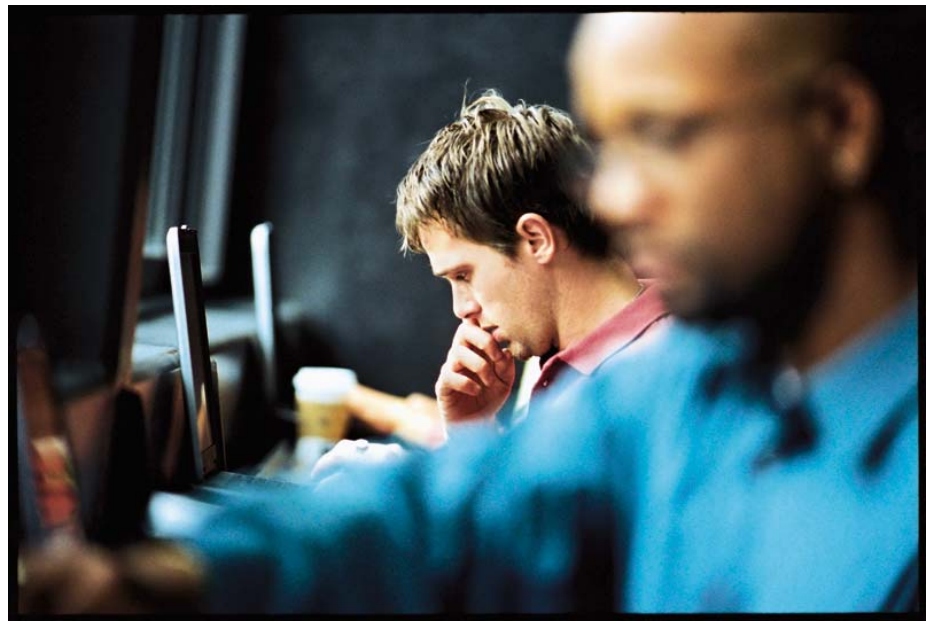
Gartner

HP Superdome listed as top UNIX® server platform in Gartner, Inc.'s OLTP Server Evaluation Model report, 2002 and Data Warehousing Server Evaluation Model, 2002

"HP climbs to the top of the enterprise operating system market"
"2002 *VARBusiness* Annual Report Card . . . voted it to the top . . . in the enterprise operating platforms category."

hp-ux 11i insights for Linux apps deployment

- better reliability and system management
- stronger directory & security features
- world-class high availability



HP-UX 11i reduces management complexity

HP WORLD 2003
Solutions and Technology Conference & Expo

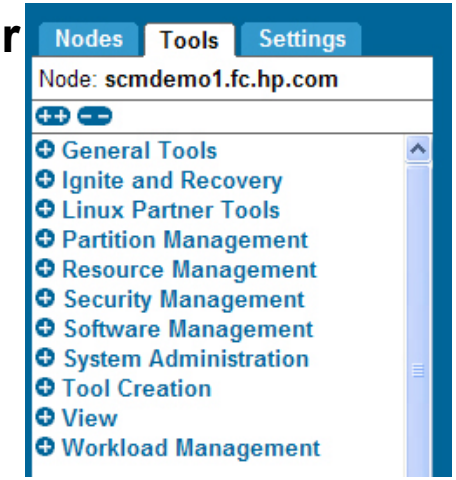
Automated and intelligent management

Servicecontrol Manager

Integrates HP-UX and 3rd party tools

Executes multi-system commands simultaneously

Reduces operator error via role-based security



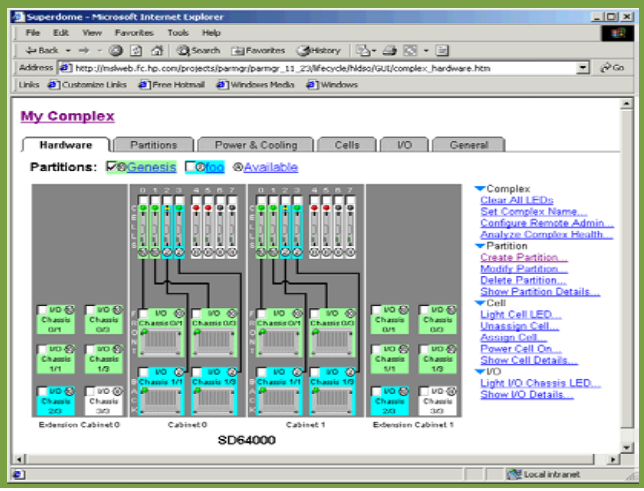
Rapid deployment (Ignite/UX)

Deploys system images and packaged software

System inventory manager

Asset management

Snapshot for troubleshooting



Partition Manager

Configures partitions

Real-life, big picture view for hard-partitioned server

Workload Manager

Adjusts resources automatically based on predefined SLOs

And many more…

Comprehensive, integrated, supported HP-UX security provides maximum protection

Physical analogy: bank security

Continuous and secure operation

Network security	Intrusion prevention	Intrusion detection and analysis	Mitigation
• IPSec • Secure Shell • Kerberos • LDAP-UX integration • Bind 9.2 • AAA Server*	• IPFilter • Bastille • Install-time security • Pluggable authentication • True random number generation (/dev/random)	• Host-based intrusion detection • Audit	• Role-based access control (SCM)

 *Delivered off-cycle; available post release

High availability built-into HP-UX 11i

Continuous and secure operation

- Highly reliable, solid foundation
  - quality is number one goal
  - patch management – responding quickly to required fixes
- Built-in resiliency – minimize downtime
  - configure for redundancy and resource sparing
  - detect and resist failure
  - failure isolation through hardware and software
- Speedy recovery
  - Discover and analyze potential problems, resolve quickly and efficiently
  - online repair and upgrade, dynamic reconfiguration
- Workload flexibility with high availability / dynamic computing
  - partitioning enables application isolation
  - load balance resources as needed

HP-UX 11i version 2: continuous and secure operation

HP-UX 11i Version 2

Continuous and secure operation

- Scalability
  - To 64-way
  - Cell-local memory
  - 512 GB memory; 4 TB file systems
- Deliver quality
- Secure operation
- High availability
  - Single system
  - Multiple systems (clusters)
- Disaster tolerance and recovery
- Continuous connectivity
  - IPv6 production version
  - Secure mobile infrastructure IPv4/AAA
  - Wireless TCP/IP

Agenda

- Provide Linux app development benefits
- How to bring Linux apps to hp-ux 11i
- Share hp-ux 11i insights for Linux apps
- References and Q&A

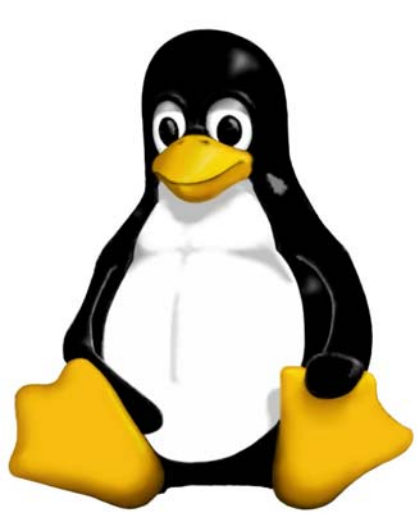
PRESENT→ FUTURE
ADAPTIVE INFRASTRUCTURE
ADAPTIVE INFRASTRUCT
BUSINESS PROCESSES
APPLICATIONS & SERVICES
WHO

Next steps

Where to go for more information

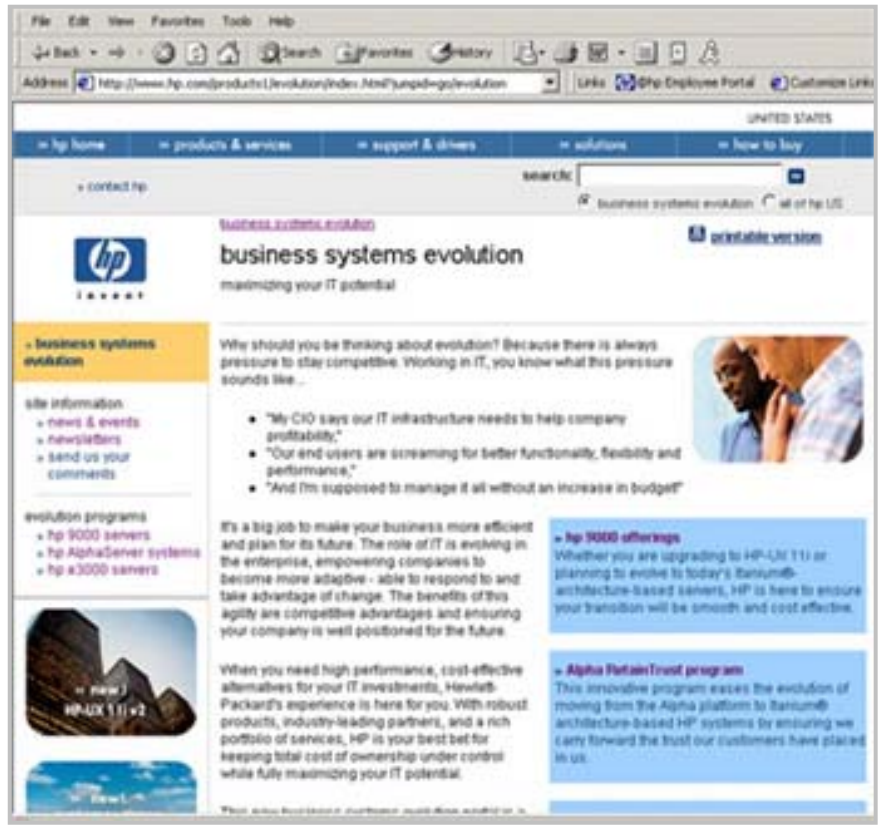
References

- **HP-UX 11i web site**
  http://www.hp.com/go/hpux11iv2
- **Linux web site from HP**
  http://www.hp.com/go/linux
- **HP's developer & solution partner portal**
  http://www.hp.com/dspp
- **Linux web site from HP**
  http://www.hp.com/go/LPK



Business Systems Evolution

- Visit the website: http://www.hp.com/go/evolve
  - Centralized resource for programs, white papers, tools, web-based training, etc.
  - Select your present platform (AlphaServer, HP 9000, HP e3000)
- Sign up for “Customer Times” newsletter for quarterly updates
- Contact your sales rep or channel partner



HP Integrity Power Partner Program

- Worldwide DSPP program for ISVs
- Launched on June 30, 2003
- Provides marketing programs, technical resources, and hardware access for volume ISVs to transition their applications to one or more of the following:
  - HP-UX 11i v2 on Itanium
  - Windows Server 2003 on Itanium
  - Linux on Itanium
- Visit web site: http://www.hp.com/go/itaniumpartners

Q & A

Thank you for your attention!

mary kwan

mary.kwan@hp.com

Interex, Encompass and HP bring you a powerful new HP World.