Giving Your Business the Competitive Edge: Transitioning to HP Integrity Servers

A low-risk, high-return, trouble-free process

Capitalizing on Change with HP Integrity Servers

The resilience and performance demanded by business-critical operations, combined with superior flexibility and value, make HP Integrity servers the key element to redefine enterprise computing. Based on the industry-standard Intel® Itanium® 2 processor architecture, and co-developed by HP and Intel, Integrity servers run the HP-UX 11i, Linux®, and Microsoft® Windows® operating systems as well as HP OpenVMS systems. As a single, scalable platform that runs diverse operating systems, Integrity servers simplify IT consolidation, lower the total cost of ownership, and increase agility. Delivering unprecedented simplicity and choice, Integrity servers are building blocks that can synchronize business and IT to capitalize on change.

In considering the migration of their data center to HP, enterprise businesses need to ask themselves three key questions:

- "What are the risks I am taking by moving to HP Integrity servers?"
- "What is the return on investment?"
- "How difficult is a transition to Integrity?"

This paper attempts to answer these questions and outlines the HP resources available to customers that choose to undertake a low-risk, high-return, and trouble-free transition to HP Integrity servers.

Transitioning to HP Integrity Servers: A Low-Risk Proposition

HP transition resources reduce the risk, time, and effort of your transition to Integrity servers. Using the comprehensive set of the HP Integrity transition tools and best practices, you can plan for the changes that a new server platform will make in your IT infrastructure. These changes encompass the people, processes, and technologies necessary to enable the transfer of all the elements of an IT environment, including:

- Platform infrastructure (server, operating system, storage, networking, and system management components)
- Internally developed software (custom code) and application development environment
- Independent software vendor (ISV) applications
- Databases

HP transition practices and tools integrate and automate processes using the following five-phase framework:

1. Awareness
    - Education about the transition process
    - Exploring transition options
2. Plan
    - Business and technology goal-setting
    - Assessment of potential impacts on IT staff, processes, and technologies
3. Design
    - Preparation of the transition project team
    - Prototyping, testing, and tuning of the target server environment
    - Development of scripts for each transition procedure
4. Implement
    - Pre-transfer testing, code transfer, validation
    - Production tuning with a trial workload

5. Manage
- Phase in of the Integrity platform, including the administrative tools and processes
- Retirement or redeployment of the previous system

Note that the time it takes to complete each phase will depend on the project and resources available.

Transitioning ISV Applications

HP transition resources assist both independent software vendors (ISVs) and customers as they move systems to the Integrity server family. HP actively works with its partners to ensure the availability of packaged applications on its operating environments running on HP Integrity servers, bringing the count of packaged software applications to more than 8,000 to date. For planning purposes, you can search for application availability in an online database, giving you an immediate estimate on when to best plan your transition. If an application is missing that you may need, HP has programs and incentives in place to ensure prompt availability on Integrity platforms. To search for application availability, register on HP DSPP portal:

https://h20299.www2.hp.com/CustomerTool/Default.aspx

Investing in New Technology for a Better Return

HP customers know that they can count on HP to provide the expertise and resources to help them move to the newest technologies that will boost their business. Who better than HP to know how to transition their existing infrastructure into the future of IT? HP cares for its customers and wants to retain their trust, so it has set up programs that bring together engineering and transition experience. Elements of these programs include free transition resources, as highlighted in the previous section of this paper. Additional effort has been made to provide a comprehensive transition solution for 'do-it-yourself' customers, which is described in the following sections.

HP Transition Programs

Programs such as Alpha RetainTrust (for the Tru64 UNIX and OpenVMS environments), and HP 9000 and e3000 Evolution perform fast-track transitions of existing HP platforms to Integrity servers. Complementing these programs is the solid partnership that HP maintains with its authorized channel partners and other third-party vendors to ensure delivery of top-quality transition services.

Complimentary resources included in these programs are:

- Planning consulting sessions and planning and design workshops
- Transition Modules that assist in transition planning and design for infrastructure elements, custom code, ISV applications, and databases
- Custom code, database transfer, and system management software tools
- Interoperability guides and quick reference tools for systems administrators
- Web-based training and online tutorials
- License trade-ins

An example of complimentary software tools is the HP-UX Software Transition Kit (STK), which outlines any number of impacts that you will encounter when migrating your applications to a later version of HP-UX 11i. The following impact list pinpoints areas where the migration may fail so that you can prepare your application accordingly:

- 32- and 64-bit interoperability
- 64-bit API impacts
- Compiler issues
- Capacity scaling and limits issues
- Cluster-specific issues
- Commands and utilities
- Binary compatibility
- Dates
- Internationalization and localization
- Itanium® architecture
- Kernel
- Libraries
- Networking
- PA-RISC architecture
- Standards compliance

For more information on the HP STKs, go to:

http://www.hp.com/go/STK

Transition Modules Overview

HP-UX Transition Modules address key topic areas of your transition, including platform infrastructure (servers, operating systems, storage, and tape devices); custom code applications; packaged applications from independent software vendors (ISVs); and databases for Oracle®. These modules provide you with a method and framework to approach your transition across the planning, design, implementation, and management phases.

These include the following platform migrations:

- HP 9000 to HP Integrity Transition Modules
- Tru64 UNIX to HP-UX 11i Transition Modules
- OpenVMS AlphaServer systems to OpenVMS Integrity servers Transition Modules
- OpenVMS VAX systems to OpenVMS Integrity servers Transition Modules

Module	Description
Platform Infrastructure	Provides high-level planning information and recommendations to help assess your efforts to transition platform infrastructure, including servers, operating systems, storage, and tape devices.
Custom Code	Provides high-level planning and design information and recommendations to help assess your efforts to transition custom code applications and addresses programming-related transition issues.
Packaged Applications	Provides planning and design information and recommendations to help assess your efforts to transition packaged applications from ISVs.
Database	Provides planning information and recommendations to help assess your efforts to transition Oracle or Sybase databases.

License Trade-in

HP has introduced a unified software license trade-in and transfer policy to support transition to Integrity and HP 9000 servers. Cross-platform trade-ins include those shown in the following table:

From	To
HP-UX HP 9000	HP-UX on Integrity or OpenVMS I64
Tru64 UNIX Alpha	HP-UX HP 9000 or HP-UX on Integrity Server or OpenVMS I64
OpenVMS VAX or Alpha	OpenVMS I64 or HP-UX on Integrity
MPE.IX e3000	HP-UX HP 9000 or HP-UX on Integrity or OpenVMS I64

Capitalizing on Compatibility

The HP-UX 11i operating system builds in compatibility features that streamline the porting process. For example, an HP-UX 11i v2 Portability Package provides new and enhanced APIs that simplify the transfer of applications from other UNIX environments such as the Tru64 UNIX or Solaris operating systems. The C/C++ and Fortran compilers for the HP-UX 11i operating system incorporate popular Tru64 UNIX features to support efficient transfer of Tru64 UNIX applications.

At the cornerstone of the HP commitment to compatibility is the HP Automatic Recompilation and Integrated Environment Simulation (ARIES) tool. ARIES provides automatic execution with no recompilation, embedding binary translator technology into its HP-UX 11i operating system running on Integrity servers. This allows businesses to use their existing PA-RISC applications until they have been ported to the Integrity platform. ARIES performs fast interpretation and dynamic translation, emulating a set of PA-RISC instructions into IA-64 instructions with no user intervention. The interpreter translates the code that provides a boost in performance, which would not be possible with simple code emulation.

This combination of fast code interpretation with dynamic translation, provides transparent and accurate execution of PA-RISC/HP-UX applications on HP-UX 11i v1.6 or higher for HP Integrity servers. HP bundles ARIES on all HP-UX 11i operating environments so you can simply install and run applications as you would on PA-RISC systems. For more information on ARIES, go to:

http://www.hp.com/go/aries

Reducing TCO while Increasing ROI

HP-UX 11i customers understand that consolidating servers and taking advantage of the increased power and performance of the operating environment potentially lowers the Total Cost of Ownership (TCO). HP chose to partner with Alinean, the market-leading provider of IT benchmarking and return on investment (ROI) measurement tools, to provide its customers with a tool that could analyze any customer's current server opportunity, uncovering trouble spots in hard costs such as administration, maintenance, support, upgrades, facilities, and overhead, and soft costs such as those caused by availability and security issues. For more information on Alinean, go to:

http://alinean.com/CaseStudies/CS-HP-UX11i.asp

You can use the ROIAnalyst tool to model and suggest compatible configurations from HP and the competition. The model includes workload and cost of ownership information for 500 different servers, eight operating systems, eight databases, and over 40 different business applications. You can perform a "what-if" analysis to highlight the advantages of different virtualization settings, platform selections, operating system, database and application configurations, consolidation strategies, and fault-tolerant configurations. For each scenario, the tool can quickly configure and

quantify the costs, benefits, TCO, and ROI of each proposed option to help the customer decide the best option.

Using the ROIAnalyst tool's analytic capabilities, three white papers were created by Alinean to highlight the value of the HP-UX 11i solution versus competitive offerings such as Sun Solaris 9, IBM AIX, and Linux.

Making IT Easy for Our Customers

One of the key values that HP customers repeatedly request from their IT partners is to "simplify." At HP, we have placed this value first in our engineering development and our business practices because we understand that you need to focus on your business priorities instead of worrying about IT issues. Let us handle them. Better yet, let us resolve them.

Minimizing Disruption of Operations
While some level of disruption is inevitable during a technology transition, most people are ready to cope with it in exchange for enhanced productivity, increased agility, and lower cost of ownership, as long as the interference with operations is kept to a minimum.

HP is making every effort to help you move through the transition phases as effortlessly as possible. Starting with the planning process, HP offers the following complimentary planning and design consulting sessions to streamline the process:

- Account Consulting Session: HP representatives and HP transition experts meet with you to define the business and technical goals of your project and its process, people, and technology dimensions.
- Transition Consulting Workshop: Conducted at your site, this two- to three-day seminar brings together HP experts, in-house stakeholders, and, if relevant, third-party participants for detailed technology and process planning.

You may also engage fee-based offerings from HP Services for some or all phases of the transition project. Supplementing the complimentary HP transition services and tools, HP Services consultants can analyze your ISV application stack and research its availability on Integrity servers; select or adapt HP transition tools to meet your specific requirements; convert systems; and integrate and tune your new Integrity environment.

To make it easier for you to try out Integrity servers during the planning phase, you can access HP online TestDrive systems. This is a way for you to quickly try out the platform or make your code runs on the operating system of your choice. For more information on the TestDrive program, go to:

http://www.testdrive.hp.com

You can also join the DSPP Partner Program for additional software or hardware development benefits, or even walk into one of the many HP Solution Centers located throughout the world. For more information on the DSPP Partner Program, go to:

http://www.hp.com/go/dspp

Time to Market Is of the Essence
Because time to market is a key factor for successful businesses, HP designed its transition tools to accelerate the process of moving to Integrity servers by providing process automation as follows:

- Automation of application migration: As part of the set of porting tools developed to streamline the migration of software applications to Integrity servers, HP built and revises or updates the Solaris-to-HP-UX Porting Kit (SHPK), the Solaris-to-Linux Porting Kit (SLPK) and the Tru64 UNIX Migration Environment for HP-UX 11i. SLPK and SHPK are porting environments that automate parts of the

migration of Solaris applications to Linux or HP-UX 11i on Integrity servers, drastically reducing the time and effort needed for the porting process. Similarly, the Migration Environment contains selected Tru64 UNIX application programming interfaces (APIs), development tools, and commands and utilities to assist customers in moving their applications from Tru64 UNIX to HP-UX 11i on PA-RISC or Itanium®-based systems.

- Automating scripts: HP has developed script sets to automate the most time-consuming and daunting transition tasks. For example, Tru64 UNIX customers can use one of the scripts to automatically copy each printing queue configuration file on the destination platform, eliminating the manual transaction and saving large amounts of time proportionate to the number of printers in the environment. A script also exists to migrate Tru64 UNIX user account password data to HP-UX 11i.

- Most convenient to Tru64 UNIX users is the Database Migration Script Set, which helps automate the database migration process. This tool generates scripts that will create a cloned Oracle database by connecting to and extracting the information from an existing Oracle database, minimizing the effort required to migrate to an HP-UX 11i system.

- Emulating large-scale migrations: The ARIES technology described in the previous section of this paper is particularly useful when porting the application represents an enormous effort and time-to-market is critical. If the necessary third-party solutions are not yet available on HP-UX 11i for HP Integrity servers, customers might decide to run their existing versions through the ARIES technology as an interim solution. Likewise, if the source code of a legacy application running on HP 9000 servers is nowhere to be found, ARIES will transparently and automatically emulate it on HP-UX 11i without the need for human intervention.

- Accelerating SAP transitions: Integrity servers offer an ideal platform for your SAP solution by providing the next-generation efficiency, performance, and availability to fully exploit the ever-advancing capabilities of SAP software. You can obtain expert porting, testing, and migration support through the worldwide network of HP SAP solution centers and work with certified SAP migration consultants who can help you rapidly move your SAP solution to Integrity servers using a streamlined process and specialized transition tools.

Satisfaction Guaranteed with HP Services

If your IT resources are scarce and working on other tasks, you can look to HP Services to help streamline your transition, save the time and costs associated with assigning or developing internal staff to manage these procedures, and implement key IT upgrades with complete confidence. For more information on Deployment Services, go to:

http://h20219.www2.hp.com/services/cache/114104-0-0-225-121.html

Transition Training

In an effort to reduce the learning curve while moving to a new operating environment, HP has developed complimentary Web-based courses and online tutorials that you can take at your convenience. A series of side-by-side comparison presentations is also offered to HP customers and partners on a regular basis through a webcast communications vehicle. These presentations are recorded for later viewing to accommodate everyone's schedule. For more information on transition training, go to:

http://h30097.www3.hp.com/transition/resources.html

Making the Transition Process a Superior Customer Experience

The long-term benefits of transitioning to Integrity will far outweigh any short-term issues you may encounter. The long-term benefits include improved system capacity and performance as well as higher levels of application and database availability. This will enable you to deliver your products to

market faster, analyze your data quicker, as well as letting you reduce costs, consolidate data, and integrate applications and databases.

HP has the resources in place to quickly resolve any transition issues that you may encounter in the transition process. Getting there is a necessity that HP will turn into a positive experience to ensure that your future computing needs meet your requirements.

Case Study: CORALY Lyon Highway Monitoring Center

This case study describes a successful transition from an environment running Tru64 UNIX to the HP-UX 11i operating system on HP Integrity server.

CORALY is a traffic-management system run by operators of roads in the Lyon region, which has the heaviest traffic in France. The main operator, Direction Départementale de l'Équipement du Rhône (DDE), worked with systems integrator AMEC SPIE to develop this collaborative, real-time infrastructure, which dissolves bottlenecks in minutes and improves road safety. They moved the traffic management system from a Tru64 UNIX environment to an HP Integrity platform using HP transition aids for a speedier and easier process.

Business Challenge

The customer required the latest technology available to monitor and provide traffic information with ever-increasing reliability and precision. In particular, they required:

- Improved performance
- Risk mitigation
- Migration onto new platforms with the latest operating system, database, and application versions
- Additional business functionalities to be implemented, such as a Web-based application for motorist users
- High availability (365 days a year, 24 hours a day, 7 days a week)

HP Solution

Working with the customer and the system integrator, HP offered the following solution:

- HP Integrity rx2620 servers (two)
- HP Alpha RetainTrust Program tools and support, including the HP Tru64 UNIX Software Transition Kit
- Plan and implementation of hardware and software transition by systems integrator
- HP-UX 11i v2 operating system
- Oracle9i database
- Gensym G2 transportation management application
- C code developed in house

Migration Timeline

The following table shows the time it took AMEC SPIE, the system integrator, to go through the transition process:

Task	Time to completion – 1.5 engineer
Feasibility study: choice of servers, application architecture	2-3 weeks
Delivery of servers, with first production version of HP-UX 11i v1.6	3 months
Installation of hardware, software, and development environment	1 week
Setup of applications (disks, Oracle, G2, user apps)	1 week
Migration of shell scripts for database	1 week
Upgrade from Oracle 7 to Oracle 9i, with creation of a database	1 week
Installation of G2 application (kernel, user app, computing process)	1 week
Migration of 10 applications to communicate with external equipment: 40,000 lines of code in C	2 months
Migration of 200 shell scripts to manage the application	2 weeks
Platform testing and performance testing with one partner	4 weeks

Benefits of the Transition

The customer is now reaping the benefits of the new HP Integrity platform with:
- An estimated 40% gain in processing performance that supports faster, more precise traffic control

- A scalable platform that keeps pace with ever-expanding operations and data streams

- An upgraded infrastructure that drives continuous innovation and growth

- Failover time completely transparent to users

In addition, HP transition process and tools allowed system integrator to meet customer's stringent deadlines:

- Tru64 UNIX to HP-UX 11i Software Transition Kit saved the porting team time and effort by identifying the correct compiler options to use on HP-UX 11i

- TestDrive systems, available from the TestDrive Web site, allowed the porting team to compile the code needed on a PA-RISC platform that they did not have on site

- Porting team received personalized help from HP Support and the account team

- Use of the Interoperability Translator Quick Reference Tool saved training time and money

Reference

To view a video of the full story about this transition, go to:

http://h71028.www7.hp.com/erc/library/GetPage.aspx?pageid=120984&audienceid=0&statusid=0&ccid=0&langid=121&ERL=true&pageTitle=Enterprise%20library:%20Lyon%20Highway%20Monitoring%20Center%20(CORALY)

For more information

http://www.hp.com/go/evolve
HP Evolution Program

http://www.hp.com/go/application-transition
HP Application Transition Web site

http://www.hp.com/go/tru64transition
HP Tru64 UNIX Transition Web site

http://h30097.www3.hp.com/transition/modules.html
HP-UX Tru64 UNIX to HP-UX 11i Transition Modules

http://h20338.www2.hp.com/hpux11i/cache/323710-0-0-0-121.html
HP-UX 11i: HP 9000 to HP Integrity Transition Modules

http://h71000.www7.hp.com/openvms/integrity/transition/modules.html
HP OpenVMS Alpha to HP OpenVMS on Integrity Servers Transition Modules

http://h71000.www7.hp.com/openvms/integrity/transition/vax/modules.html
HP OpenVMS VAX to HP OpenVMS on Integrity Servers Transition Modules