

Strategies for Migration from Alpha and VAX to HP Integrity

Wednesday, November 29, 2006

Ottawa Local User Group, Encompass Canada
NRC Institute for Information Technology
Ottawa, Ontario

Robert Gezelter Software Consultant
35 – 20 167th Street, Suite 215
Flushing, New York 11358 – 1731
United States of America

+1 (718) 463 1079
gezelter@rlgsc.com
<http://www.rlgsc.com>

“Failure is not an Option”

– Gene Krantz, Lead Flight Director (ret), NASA

End Users and ISVs

- Most organizations are somewhere between the two extremes
- Not Black & White; a continuum
- ISVs typically have a more controlled source base
- ISVs rebuild as a matter of course
- Release Delays
 - to an ISV – an annoyance
 - to an End User – business interruption

Business Issues

- maintenance of operations
- new business needs
- technology upgrades/refresh
- upgrades/refresh – low priority until interference with commitments
- IT's standing within the organization

Persuading Business (non-Technical) Management

- non-disruption of commitments
- Operations
- Business Expansion
- Long term costs
- Short term costs

The OpenVMS Philosophy – *Leverage through Architecture*

- scaffolding minimization
- flexibility by implication
- small changes can be cascaded by the architecture
- A form, if you will, or an architectural calculus

Cutover Issues

- worse than a non-cutover is a failed cutover
- “As Planned” will take care of itself
- plan for when things DO NOT go as planned
- pilots, divers, mountain climbers, others
- timing –
 - “Point of Safe Return”
 - Iron Clad Mission Rules

Basic Doctrine

- Re-compile, Re-Build, Re-qualify
- ok – IF sources are up-to-date

“Cold Turkey” is a recipe for failure

- utilities do not do it
- fractional customer support
- escalation resources
- risk of failure
- poor retreat options

The Delusion

- “Things will be ok, we will not need the contingency (insurance) funds”
- the reality
 - large numbers of accumulated programs
 - $\infty (A) \equiv \infty$
 - even small changes add up
 - limited personnel
 - out of control costs

The problem is the “cutover” paradigm

- drastic transitions are high risk
- the answer is gradualism

On the subject of costs

- this is a hedging strategy
- downtime is extraordinarily expensive
- non-IT financial managers understand hedging

Gradualism Tools on OpenVMS

- mixed architecture OpenVMS clusters
- host based volume shadowing/dynamic volume support
- logical name hierarchy
- image translation
- shareable libraries

The overall plan –

- a journey of a thousand miles starts with a single step
- Corollary: If nothing goes wrong; Did it really happen?

The Game Plan

- application by application
- user by user
- component by component

Characterize your systems and applications

- mission critical/routine/irregular
- criticality
- complexity
- dependencies
- visibility

Your organization's comfort zone

- Depends upon your organization
- management's outlook
- technical perspective
- de-rate positive results

Your (Organization's) Comfort Zone – Part Deux

- Core workload first; Outriders last
 - first cutover inherently has a higher risk
 - easier to justify resources/budget
- Outriders first, Core workload last
 - builds confidence with low risk
 - harder to justify resources/budget
- Reality – Infinite range of possibilities between

A word on performance –

- science not speculation
- trade hardware for manpower
- scoping

Pace of Transition

- size of open bug list
- need for clean fallback
- management comfort
- hardware drawdown

Building a Stairway to Integrity Servers

- OpenVMS Clusters – fully shared files
- host based volume shadowing – expansion/migration
- logical names – hide actual state
- shareable libraries – Image revision on user and/or program basis
- image translation – en mass re-hosting

Image Translation

- translates binary executables from one architecture to another
- does not require up-to-date source files
- bug-for-bug compatibility
- some loss of performance is expected

How do we get from Alpha to Integrity?

A	B	C	D	
E		F	G	
H	I	J		
K		L	M	N

A	B	C	D	
E		F	G	
H	I	J		
K		L	M	N

Image Translation –

```
$ aest helloworld  
$ run helloworld_av  
Hello world!  
$
```

AEST – Alpha Image Translator

- executable images linked at 6.1 or later
- any supported language
- previously VEST'ed images
- main programs of shareable images

Use of Translated Images – Divide, Mix 'n Match

- break up Alpha images into collections of share
- compile on Alpha
- translate to Integrity
- going native is now an incremental process
- compile/link with /TIE and /NONATIVE_ONLY

A	B	C	D
E	F	G	
H	I	J	
K	L	M	N

A	B	C	D
E	F	G	
H	I	J	
K	L	M	N

Incremental Process of Translation to Native

- one/more shareable images at a time
- start with a fully translated environment
- replace components
- efforts can run in parallel (e.g., group, process, logical names)

Hierarchical Logical Names

- out of the box logical names can be different for different groups, users, jobs, and processes
- additional levels can be added by (supported) alterations to LNM\$_FILE_DEV
- reference: OpenVMS Technical Journal, V3

Logical Names II

Questions?

Robert Gezelter Software Consultant
35 – 20 167th Street, Suite 215
Flushing, New York 11358 – 1731
United States of America

+1 (718) 463 1079
gezelter@rlgsc.com
<http://www.rlgsc.com>

Session Notes & Materials:

<http://www.rlgsc.com/EncompassCanada/Ottawa/2006-11/index.html>