



CHARON-AXP

Alpha Hardware Virtualization

“Preserving your software investment across hardware generations”

Dogan Baser / Oct 2006

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Software Resources International (SRI)

- Former European application migration department of Digital Equipment Corporation (DEC)
- Management buy-out in 1998
- Headquarters in Geneva, Switzerland
- Focus on preserving software investments via
 - Hardware emulators (VAX, PDP-11, Alpha), and
 - Application source code migrations
- Sales and support channel worldwide

DEC computers



PDP

Programmable **D**ata **P**rocessor



VAX

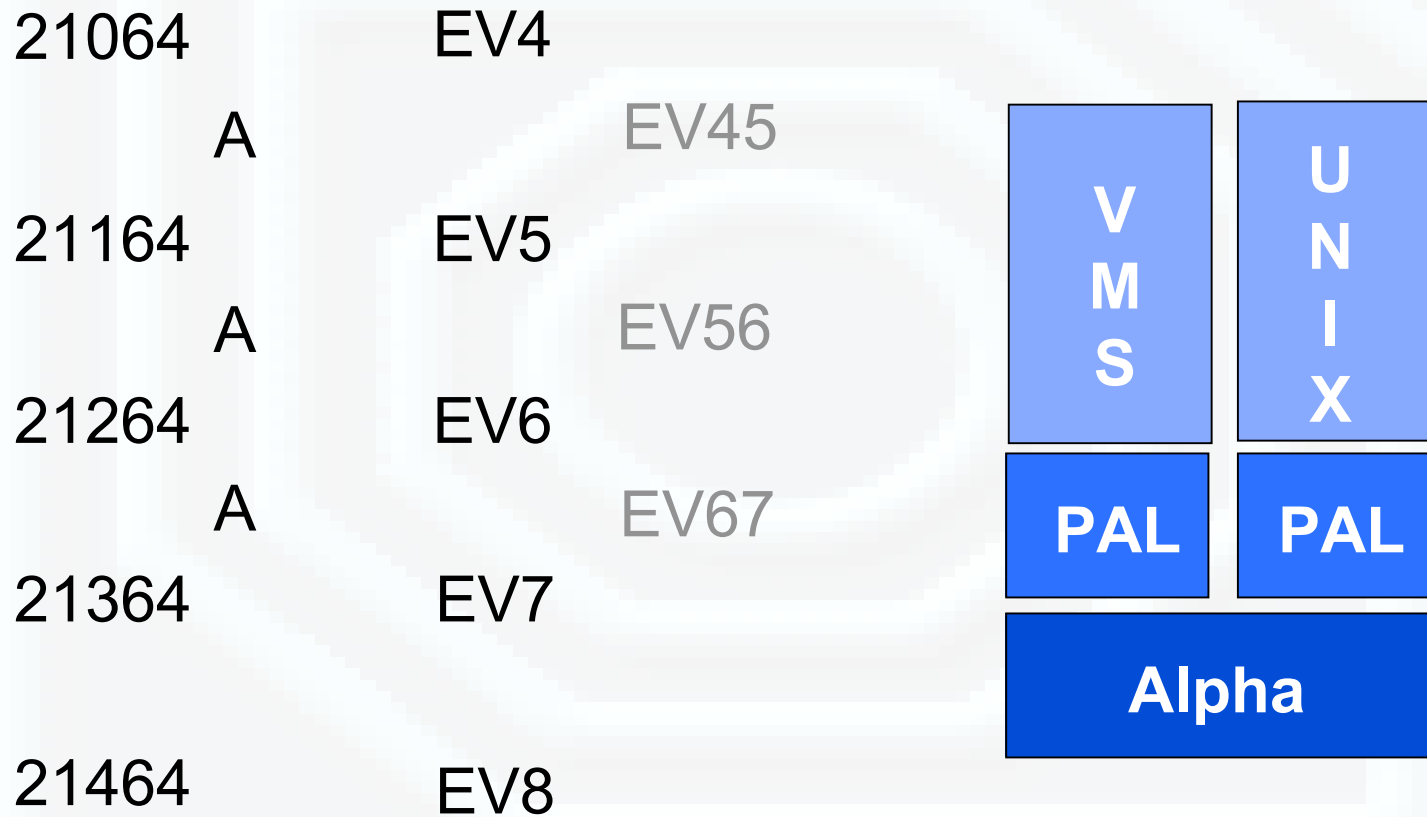
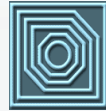
Virtual **A**ddress **eX**tension



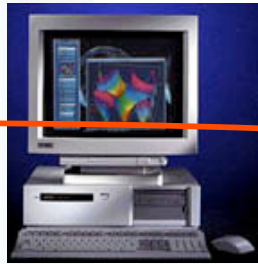
Alpha

Extended **V**AX

Alpha naming conventions



Alpha systems family album



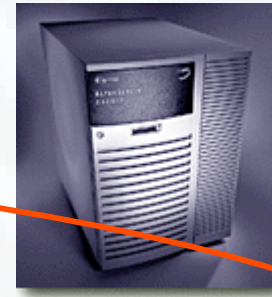
DEC3000 AXP



AlphaServer 400



AlphaServer 1000



AlphaServer 2000



AlphaServer 2100



GS160



ES40



DS20



DS10



AlphaServer 4x00



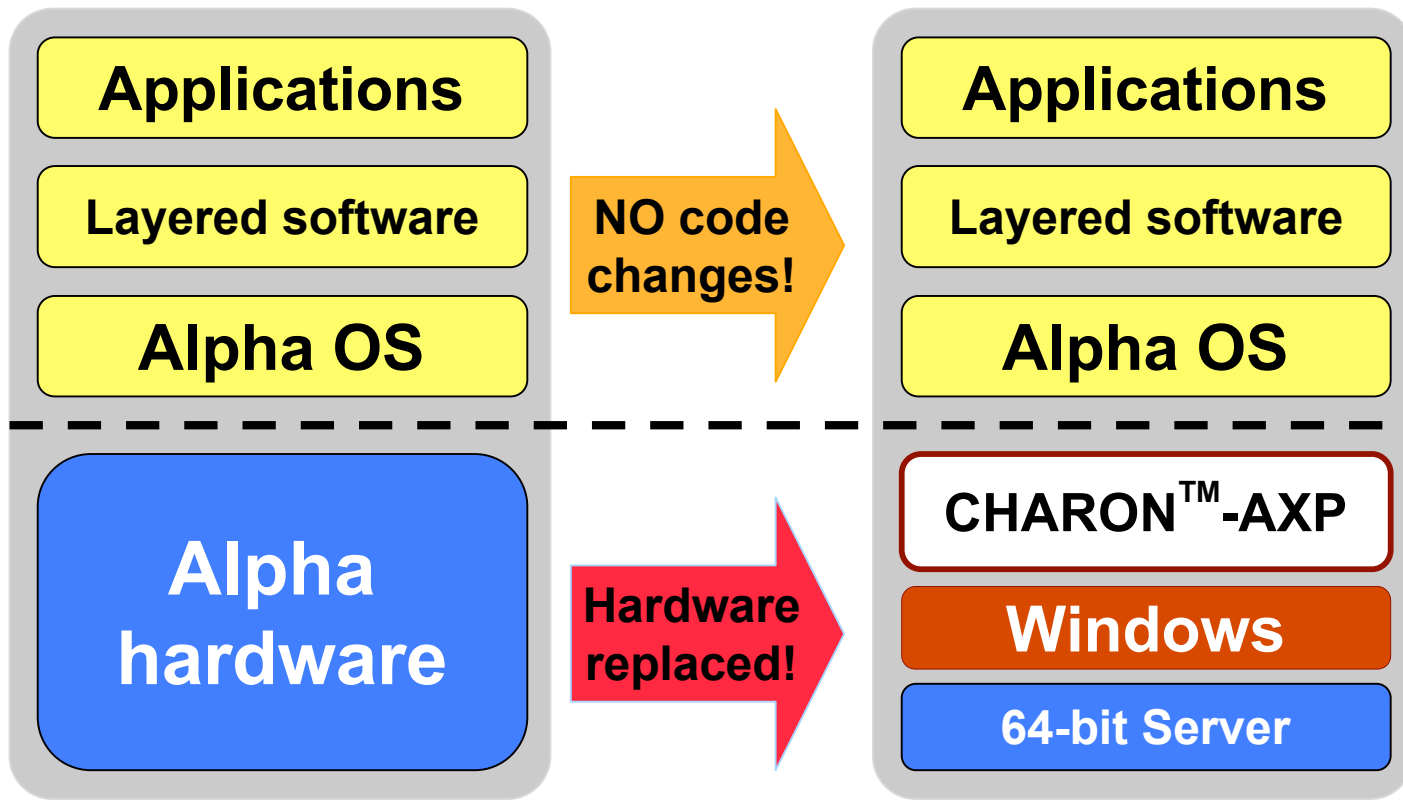
AlphaServer 800



Why an Alpha emulator?

- Hardware virtualization is attractive
- HP stops accepting Alpha systems orders in 2006
- Application's source code not always available for migration
- Experts not always available
- Automatic binary conversion to OpenVMS/IPF (using "OMSAI") does not always work
- Application re-writing or source code migration is expensive and risky, always needs full re-testing, may also need re-certification
- Early Alpha's lost the upgrade trail
 - Environment dependent
 - Release squeeze
- Tru64 Unix

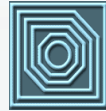
CHARON-AXP principle





Emulated hardware

- Alpha 21064, 21064A, 21164A
- 512 MB emulated Alpha memory, extendable
- Turbochannel / PCI / (E)ISA bus
- Ethernet adapters (10/100/1000 MB)
- SCSI adapter
- Hard disk drives, physical and logical
- Floppy drive
- CD-ROM drive
- DAT tape device
- VT-type terminal



Host platform

- Dual(-core) **AMD Opteron** computer system
- HP Proliant, with 64 bit extensions
- 2 GB memory, minimum
- 10/100/1000 MB Ethernet adapters
- IDE, SCSI or SATA disks
- CD-ROM / floppy
- DAT tape device
- Windows 64



Can replace

- Early Alpha systems, <1998
- Single CPU

- DEC3000 AXP
- AlphaServer 300, 400
- AlphaServer 1000, 2x00
- AlphaServer 4x00

CHARON-AXP products overview



Alpha hardware model replaced	TPS (*)	CHARON-AXP product (**)	Runs on
AlphaServer 800/500 AlphaServer 4100/466 AlphaServer 4000/400	1000 1060 980	CHARON-AXP/4000	Windows 64
AlphaServer 2100/300 AlphaServer 2000/275 AlphaServer 1000/266	640 415 473	CHARON-AXP/1000	Windows 64
DEC3000/800 DEC3000/600 DEC3000/400	270 240 160	CHARON-AXP/3000	Windows 64
		PersonalAlpha	Windows 32

(*) Modern Alpha systems (the DS, ES, GS series) range from 2,267 TPS on a DS10 to 239,000 on a GS1280.

(**) Running on a hardware host system as specified in the SPD.

Performance comparison



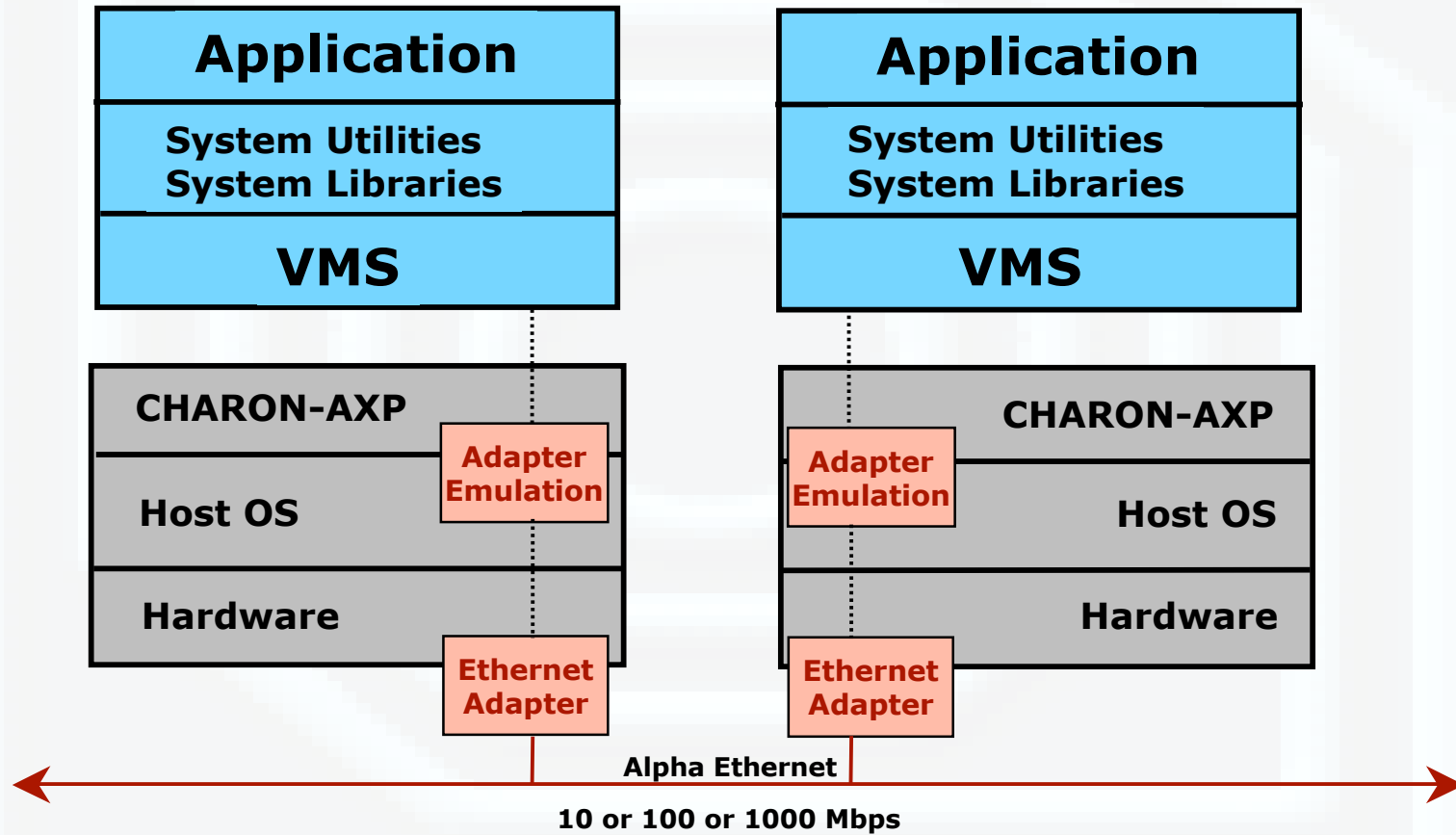
	Intel Xeon EMT64 2 x 3.4 GHz	AMD Opteron / Athlon 2 x 2.6 GHz
Dhrystones (integer)	900.000	1.200.000
Whetstones (floating point)	156 MIPS	290 MIPS



Clustering with CHARON-AXP

- NI clusters
- Shared disk clusters

Traditional NI cluster

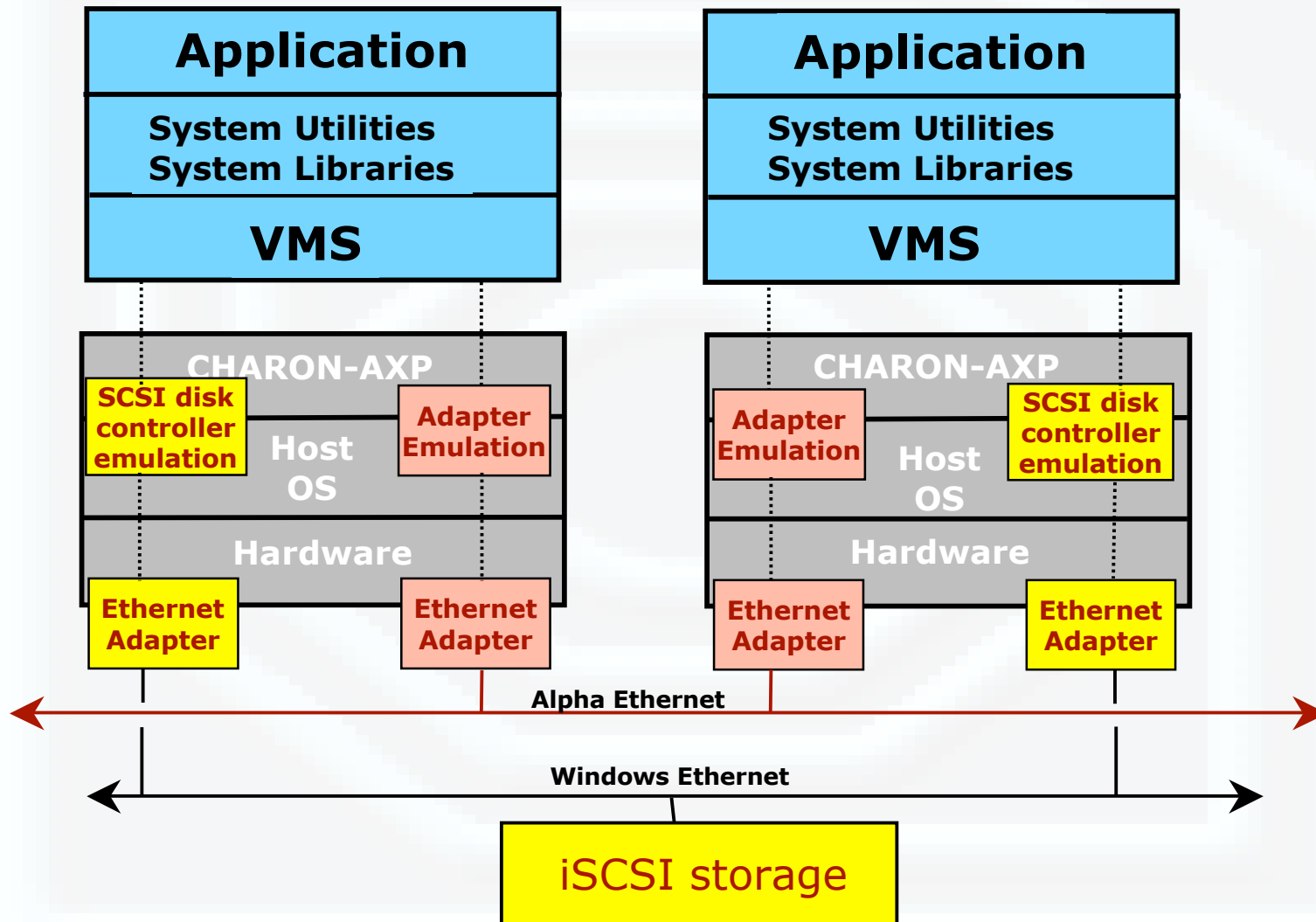


View of Cluster from system ID 1027 node: I64UMS 17-MAY-2006 20:20:51

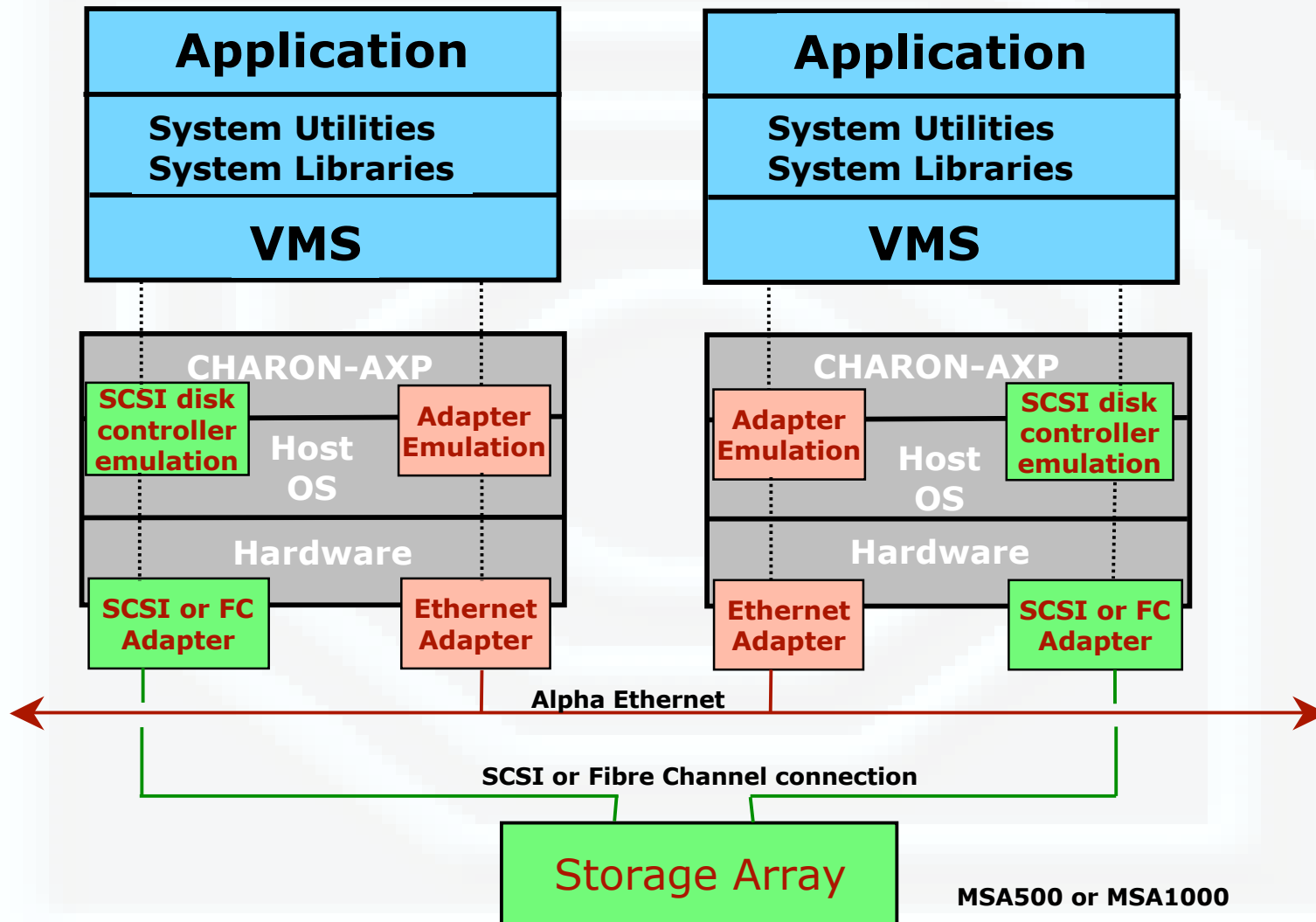
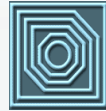
SYSTEMS			MEMBERS	
NODE	HW_TYPE	SOFTWARE	STATUS	TRANSITION_TIME
I64UMS	HP rx2600 (1.30GHz/3.0MB)	UMS V8.2-1	MEMBER	17-MAY-2006 19:58
MULTIA	DEC AXPpci166 MT	UMS U7.2	MEMBER	17-MAY-2006 15:11
PATTY	VAXserver 2000	UMS U7.3	MEMBER	17-MAY-2006 18:35
LINUS	VAX 4000-106A	UMS U7.3	MEMBER	17-MAY-2006 15:11
CHAAXP	DEC 3000 Model 400	UMS U7.3-2	MEMBER	17-MAY-2006 18:29
CHAUAX	MicroVAX 3100-96	UMS U7.3	MEMBER	17-MAY-2006 19:47
CHARLY	VAXstation 4000-ULC	UMS U7.3	MEMBER	17-MAY-2006 15:58
SNOOPY	Digital Personal WorkStation	UMS U7.3-2	MEMBER	17-MAY-2006 15:11
MARCY	AlphaStation 255/233	UMS U7.3-2	MEMBER	17-MAY-2006 15:15

CLUSTER						
CL_EXP	CL_QUORUM	CL_VOTES	QF_VOTE	CL_MEMBERS	FORMED	LAST_TRANSITION
3	2	3	NO	9	17-MAY-2006 15:11	17-MAY-2006 20:04

Shared disk clustering with iSCSI



Shared disk clustering with storage array





OpenVMS transfer licenses

HP hosts, Windows:

- QM-755AA-AA: Right to transfer OpenVMS
- QM-756AA-AA: All supported layered products

HP contact for transfer licenses:

<http://h71000.www7.hp.com/openvms/sri-charon-vax-emulator.html>



Obtaining support

- CHARON product support
 - From SRI or an SRI-certified support organization
 - GOLD Support: 5 days / 8 hours
 - PLATINUM Support: 7 days / 24 hours*

- VMS and Layered Products support
 - From HP, as usual
 - <http://h71000.www7.hp.com/openvms/sri-charon-vax-emulator.html>

* Subject to geographical availability



CHARON-AXP benefits summary

- Hardware virtualization
- Replace old and expensive HW by modern HW
- Preserve current investments
 - Keep current applications
 - Keep current business processes
 - No re-training, no re-staffing
- Extend on new platforms, create room for future growth
- Product variations available to match application needs
- Licensing:
 - Unlimited usage license, or
 - Initial one-year license + yearly license extensions
- Migrate immediately, quickly, simply



PersonalAlpha for Windows 32

- Runs on 32-bit Windows platform
- Proof of concept
- DEC3000-400 emulation (Alpha 21064)
- 96 MB of emulated Alpha memory
- 2 logical disks
- 1 Ethernet



For more information

Software Resources International

P.O. Box 156
1228 Plan-les-Ouates
Switzerland
Tel. +41 22 794 1070
Fax +41 22 794 1073

www.softresint.com

Product descriptions
Application notes
Documentation
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