vtAlpha

Virual Alpha Emulation Software

Product Overview

Modern computer environments, such as an X86-64 computer, virtual machine or cloud computing can not support Alpha-based applications. Owners of these older Alpha systems are locked in on rare platforms, which are hard to support and can not be integrated in an organization's modern IT infrastructure.

Virtual Alpha (vtAlpha) allows the owners of Alpha computer systems to move their entire Alpha software installation to a more modern environment without changes or software migration. Six (6) vtAlpha variants are available to cover the whole range of Alpha systems that were manufactured during its lifetime. Transitioning to vtAlpha save enormous amounts of effort, time, and money.

How vtAlpha Works

vtAlpha creates the Alpha hardware interfaces that the original operating system and user programs expect to find. By emulating the old Alpha hardware in real time, vtAlpha allows systems to continue running without any changes to the Alpha software itself.

The migration process is straightforward:

- Specify the configuration of the current Alpha computer.
- vtAlpha builds a virtual equivalent of that hardware on a modern host.
- Binary image copies of the original Alpha disks are transferred to the virtual Alpha host.
- System managers boot from the copied disks and resume normal operations.

vtAlpha uses modern storage, backup, and IT infrastructure behind the scenes, translating transparently between the legacy Alpha world and the modern host environment.

Host Computer Environment

vtAlpha installs directly on a host—x86 hardware, a virtual machine, or a cloud instance—without requiring a preinstalled operating system such as Windows or Linux. This bare metal installation approach ensures security and high availability. The vtAlpha product includes everything needed to run the virtual Alphas and control the host environment; there is no additional operating system to purchase or maintain.

Product Variants

Table 1—vtAlpha Product Offerings

Product	CPUs	Alpha Model
vtAlpha-AS (Alpha Start)	1	AlphaStation 200, 250 AlphaServer 300, 400 DEC3000
vtAlpha-BS (Basic Systems)	1	AlphaServer 800, 1000 AlphaStation 500, 600, DPW AlphaStation XP900, XP1000
vtAlpha-CS (Classic Systems)	1 - 4	AlphaServer 2000, 2100 AlphaServer 4000, 4100
vtAlpha-DS (DS Systems)	1 - 2	AlphaServer DS10, DS15 AlphaServer DS20, DS25 AlphaServer 1200
vtAlpha-ES (ES Systems)	1 - 4	AlphaServer ES40, ES45, ES47
vtAlpha-GS (GS Systems)	1 - 32	AlphaServer ES80, GS80, GS160, GS320, GS1280

Storage

How Storage Works

vtAlpha presents all the hardware interfaces the virtualized Alpha expects—including KZPBA SCSI and KGPSA FibreChannel adapters—along with the storage devices the Alpha is accustomed to seeing. Behind the scenes, the host system can use modern storage technologies such as SAS, SATA, SAN, iSCSI, and NFS. These modern storage elements are transparent to the Alpha software, which still sees the original device types.
For host-based storage, any of the following can be selected: FibreChannel, SCSI, iSCSI, SATA, SAS, NAS, SAN, or NFS. All Alpha disk types and sizes are supported.

Supported Storage Devices

Logical Disks and Tapes

To the virtual Alpha, these logical devices appear as regular types, which are attached to one of the virtual storage adapters in the virtual Alpha. On the host system, these logical types are files in directories on the host-attached storage. This type of storage allows multiple virtual Alpha disks to be on a

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single host disk. With a combination of virtual Alpha disks on a single host device, logical tapes can be quickly backed up. Then, when dismounted, these logical tape files can be included in an organization's regular backup process.

Physical Disks and Tapes

Direct access to physical disks and tapes is supported, by either assigning a physical disk or partition to a virtual disk in vtAlpha, or by connecting a physical tape or disk drive to a virtual Alpha tape or disk.

CD-ROM

Physical DVD and CD-ROMs as Virtual DVD/CD-ROMs (ISO images) are supported. These physical devices can be connected as CD-ROM to vtAlpha.

Direct SCSI Device

Direct SCSI-attached devices allow connection of generic SCSI devices for which a custom peripheral driver is present in the Alpha Operating System (OS). vtAlpha only processes the SCSI communication.

Networking

Ethernet Adapters

vtAlpha supports the following virtual Ethernet adapters:

- DEGXA, EI1000 (model dependent).
- DE600, DE500.
- DE450, DE435.

Virtual network switch support enables the host's Ethernet links to be shared with multiple virtual Alphas. All Alpha guest OS-supported protocols run on vtAlpha, and VLAN infrastructure is supported. Network connection speeds may exceed those of the original Alpha Ethernet adapters, thanks to the higher capacity of modern network hardware in the host.

Serial Lines

vtAlpha supports the two COM ports available on every Alpha system (OPA0 and COM2). These virtual devices can be mapped to:

- A physical VT-like device that is connected to the host.
- Any VT-terminal emulator through telnet or Secure SHell (SSH).
- A pseudo-terminal on the host's console.

vtAlpha also supports the PBXDA serial lines adapter, which adds eight serial lines to the two that are already available. Up to seven PBXDA adapters are supported.

System Management

The product includes the **vtMonitor** management tool, which helps organize and control the virtual Alpha environment from any location with network access to the vtAlpha host. **vtMonitor** is an easy-to-use and intuitive user-interface that facilitates the management of the virtual Alpha systems and their host environments.

Security

vtAlpha creates a secure environment configurable to meet specific organizational security requirements. Key features include:

- Access roles and configurable security levels.
- Secure communication protocols.
- Encrypted environment in the cloud service.
- Event logging and alerts (configurable).

Licensing and Protection

vtAlpha is available under an End-User License. Licenses are stored on a compact smart card device with a USB connector (only 3 mm high) for maximum compatibility, flexibility, and minimal risk of damage or accidental removal during operation.

The License Protection Mechanism can control multiple vtAlpha instances within a single host computer or across a company network, providing maximum flexibility and failover capabilities for low-cost, disaster-tolerant installations.

Orderable Items

Software License to run a single virtual Alpha system. This software license includes all virtualize Alpha hardware, up to 32 GB Alpha memory and a specified number of Alpha CPUs.

Annual Software Support Service provides free access to the vtAlpha-support group as well as the right to obtain and install newer product versions during the *term of the support agreement*.

Disaster Recovery License offers 720 hours of the selected vtAlpha product to survive a breakdown of the host hardware.

Product Origin

vtAlpha is developed, maintained, and owned by Advanced Virtualization Technologies (www.avtware.com); distributed in the Americas by Vere Technologies LLC. Salem Automation, Inc. (www.salemautomation.com) is largest value-added reseller (VAR) of Vere Technologies' emulation software in the Americas.