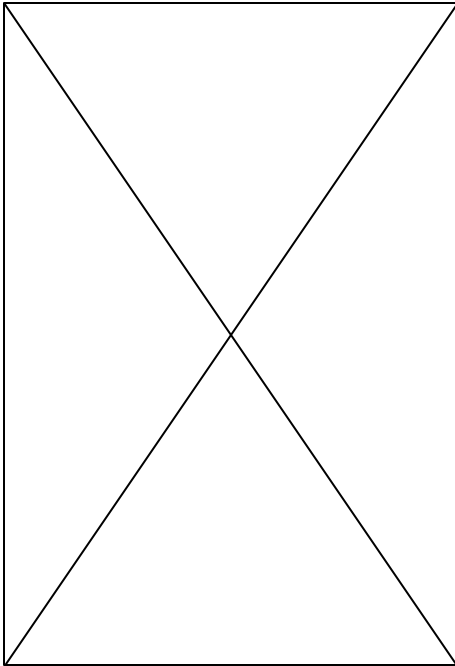# Digital-Based Solutions



## NetworkSolutionsintheVAXandVMSEnvironment

ApplehasdevelopedAppleTalkforVMStoenabletheintegrationofAppleTalk-basedMacintoshsystemsandDigital'sVMScomputingenvironment.With AppleTalkforVMS,aVAXcomputersystemcanparticipateonanAppleTalk internet.Likewise,anycomputerontheAppleTalkinternetcanaccesstheVMS environment.

WithAppleTalkforVMS,VMSsystem-basedapplicationsandservicescanappear justlikeotherAppleTalkservices.TheseVMSsystem-basedservicesregistertheir namesontheAppleTalkinternetinthesamewaythatAppleShareserversand LaserWriterprintersregistertheirnames.MacintoshuserscanfindVMSsystem-basedservicesthroughtheChooserorthroughapplication-specificinterfaces.

AsnetworkedMacintosh/VAXsystemworkgroupsproliferate,theycanbe internetworkedbymeansofDECnetwideareanetworkingproducts.AppleTalk andDECnetcancooperatetoformlargenetworks,allowingworkgroupsto exchangedataandshareresources.Forexample,aMacintoshonanAppleTalk networkwithaVAXsysteminCaliforniacantransparentlyuseanX.25,synchro-nousorasynchronous,DECnetlinktoprintadocumentonaLaserWriteronan AppleTalknetworkwithaVAXsysteminNewYork.Theusercanselectthe LaserWriterinNewYorkusingthestandardMacintoshChooserdesktopaccessory onhisorherMacintoshcomputerinCalifornia.

It'seasytoimaginehowaworkgroupofMacintoshusersinterlinkedviaAppleTalk cansharethelarge-scalecomputingpowerofVAX,usingproductsincorporating AppleTalkforVMS.EndusersrequiringthisuniquefusionofMacintoshflexibility andVAXpowerwillfindthatfile-andprint-serverproducts,terminalservice,and networkedMacintoshandVAXdatabasesbuiltonAppleTalkforVMSarealready available.SoftwaredeveloperswishingtointegratetheirMacintoshapplications intotheVMSmarketplace,orvalue-addedresellers(VARs)recognizingthecom-petitiveadvantagethatacustomMacintosh-basedVAXfrontendcangivetheir systems,willfindadocumentedandprovenprogrammingtoolinAppleTalk forVMS.

### MakingtheEthernetConnection

Ethernetisanindustry-standard,high-speednetworkingmediasystemthattrans-mitsdataat10Mbps.Apple'sEthernetboardsareavailabletoconnectMacintosh

## Solutions

computerstoEthernet.AlloftheseproductsmakeuseofApple'sEtherTalk software,whichallowsuseofAppleTalknetworksystemprotocolsonhigh-speed Ethernetmedia.Thistypeofperformanceisparticularlyusefulinenvironments wherethereisheavyuseofthefile-serverforsuchapplicationsasmulti-user databaseorapplicationdevelopmentwithsharedlibrariesonthefileserver.

TheAppleEtherTalkNBcardandotherthird-partyproductsallowMacintosh computerstocommunicatewithadiverserangeofEthernet-basedcomputer systems.ShivaandCaymanSystemsofferintelligent,orapplication-level,routers andbridgesbetweenLocalTalkandEthernetsystemsthattransparentlyintegrates MacintoshcomputersintoEthernet.Formoreinformationontheseproducts,see the*NetworkingEnvironment*chapterofthisGuide.
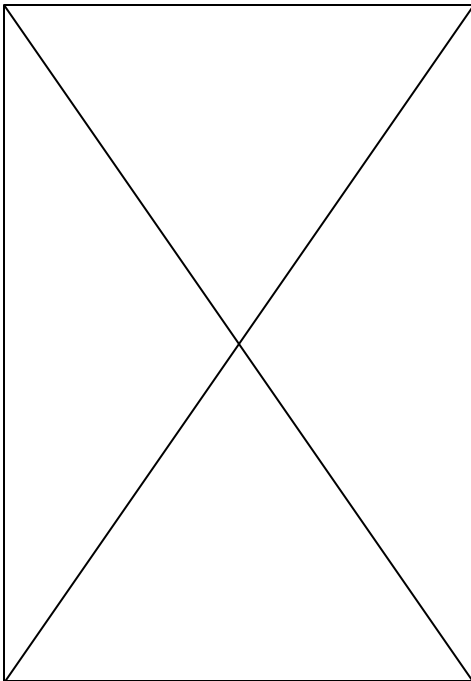
# IntegratedMacintoshandDigitalEnvironment– DECLanWORKSforMacintosh

DECLanWORKSsoftwareforMacintoshcomputersintegratesAppleComputer, Inc.'sMacintoshcomputersandtheAppleTalknetworkwithDigitalEquipment Corporation'sVAXcomputersandDECnet/OSInetwork.Jointlydevelopedby DigitalandApple,DECLanWORKSforMacintoshoffersVMSserversoftware, Macintoshclientapplications,connectivitysoftware,anddevelopertools.

DECLanWORKSsoftwareforMacintoshcomputersisanimplementationof Digital'sNetworkApplicationSupport(NAS)services.Theclient/serverimplemen-tationprovidestransparentinteroperabilitybetweentheAppleandDigitalenviron-ments;userscanaccessVAXsystemspowerandscalability,DECnet/OSInetwork-ingfunctionality,Macintoshtools,andAppleTalkresourceswhileusingthe interfaceswithwhichtheyaremostfamiliar.

### FileSharing

VAXshareVAX-residentfileservicesareindistinguishablefromfamiliarAppleShare devices,andprovidetheadditionalbenefitsofsharedresources,enhanceddata security,increasedfilestorage,andimproveddataintegritythroughautomated backups.VAXsharefileserviceiscompliantwithAppleFilingProtocols(AFPV2.0). ByusingaVAXasafileserver,VMSandMacintoshusersandapplicationscan sharethesamefilesandfoldersordirectories.VAXsharefileservicesupportsVMS AccessControlLists,whichprovidesVMSsystemmanagerswiththeabilityto determine,onauser-by-userbasis,whohasaccesstoaparticularfileordirectory.

## Solutions

### PrintServices

MacintoshandVAXuserscansharePostScriptprintersfromDigitalandApple LaserWriterprinters.VAXshareprintserviceimplementsApple'sPrinterAccess ProtocolandusesVMSprintqueuesontheVAXforhighcapacityprintspooling.
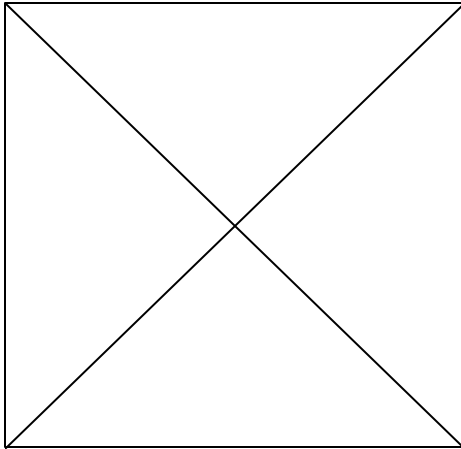
### ElectronicMail



MacintoshuserscancommunicatewithotherusersonaMAILbusenterprise messagingsystem,eitherlocallyorworldwide,viaALL-IN-1MAIL(X.400compli-ant)orPCMAIL(aclientforVMSMailutility).ALL-IN-1MAILfortheMacintosh provideselectronicmailcapabilitiessuchasstore-and-forwardservices,binary attachments,andmessagedeliverynotificationsaswellasinformationaboutthe messageandtheuser.ALL-IN-1MAILfortheMacintoshimplementsallthemanda-toryservicesdefinedbythe1984CCITTX.400"P2"useragentrecommendations.

Theclientapplicationallowsuserstocreate,edit,fileandmanipulatemessages. UserscanaccessDigital'sDistributedDirectoryServiceforassistanceinaddressing otherusersanywhereontheMAILbuselectronicmailnetwork.TheALL-IN-1MAIL Serverprovideslocalmessagedeliveryserviceswithinalocalareanetworkand submitsmessagestoMAILbusforremotemessagedelivery.Messagescanbe exchangedwithotherALL-IN-1MAILservers,Digital'sALL-IN-1IntegratedOffice System,VMSmail,aswellasusersofIBMPROFS,IBMDISOSS,andpublicand privatesystemsconformingwithX.400recommendations.

PCMAILprovidesallthefunctionalityaccessibleintheVMSmailutility.PCMAILfor Macintoshenablesuserstoreadnewlyreceivedmail,reviewpreviouslyreceived mail,sendaMacintoshtextfile,andcreatemessageswithitsbuilt-intexteditor. PCMAILuserscansendmessagestootherPCMAILusersonMacintosh,VMS,and IBM,andcompatiblecomputersrunningPCMAILforDOSorOS/2.

### ApplicationAccess

LanWORKSofferseasyaccesstoenterpriseapplicationsanywhereonawidearea networkthrougheitherMacTerminal,aVT320compatibleterminalemulator,or MacX$^s$,anXWindowSystemserver.MacXenablesuserstodisplay(ontheir Macintosh)DECwindowsapplicationsrunningremotelyonVAXsystems.Formore detailedinformation,pleaseseetheMacTerminaldescriptionlocatedinthischapter andtheMacXdescriptioninthe*UNIXandTCP/IP*chapterofthisGuide.

### DatabaseAccess

TheApple-Digitaldevelopmenteffortoffersaccesstodepartmentalandenterprise datastoredinVAXRdb/VMSrelationaldatabaseswithApple'sDataAccessLan-guage(includedwiththisproduct)orDigital'sSQL/Services(includedwithVAX

# Solutions

### DECLanWORKSforMacintosh Includes:

### VMSServerSoftware

· VAXsharefileservices,basedonAFP

· VAXshareprintservicesforApple LaserWriter,LaserWriter-PLUS,Laser- Writer-IINT,LaserWriter-IINTXand DigitalLN03RScriptPrinter,PrintServer 20and40+printers

· Network-basedfileandprintserver management

· DataAccessLanguageVMSserver softwarewithadapterforRdb/VMS relationaldatabase

### MacintoshClientApplicationSoftware

· ElectronicMail

   −ALL-IN-1MAILforMacintosh,an X.400client(licenseonly)

   −PCMAILforMacintosh,aVMSMail client

· MacX,anXWindowSystemserverfor DECwindowsapplicationsaccess

· MacTerminalV3.0terminalemulator

### ConnectivitySoftware

· DataAccessLanguageclient

· AppleTalkforVMSV3.0

· AppleTalk-to-DECnetTransportGateway

· DECnetforMacintosh:NCP,Netcopy,FAL

### DeveloperTools

· ApplicationProgrammingInterface(API) forAppleTalkforVMSV3.0

· APIforAppleTalk-to-DECnetTransport Gateway

· DECnetprogrammingdocumentation

Rdb/VMSV4.0product).FormoreinformationonDataAccessLanguage,please seetheNetworkApplicationToolschapterinthisGuide.Informationonavailable DataAccessLanguageserverscanbefoundinthischapterandtheIBM/Hosts chapter.

## NetworkConnectivitySoftware

LanWORKSincludesAppleTalkforVMS,DECnetforMacintosh,andMacintosh CommunicationsToolboxwithTCP/IP,LATandCTERMtoolsfornetworkand communicationsflexibility.AppleTalkforVMS3.0isanimplementationofApple- TalkPhase2networkingprotocolandinterfacelibrariesforVMSsystems.Apple- TalkforVMSenablesroutingor"tunneling"throughDECnet,wherebyAppleTalkis encapsulatedinDECnetsoMacintoshuserscan"see"acrossDECnetwidearea networksandAFPfileserversasiftheywerelocal.

DECnetforMacintoshallowsMacintoshcomputerstoparticipateasfullDECnet PhaseIVnonroutingendnodes.Thismeansthatdirectconnectionscanbemade fromtheMacintoshtoDECnetapplicationsandservicesonanyDECnetnode withouthavingtoberoutedtoaVAXserver.

TheAppleMacintoshCommunicationsToolboxprovidestoolsusedbyMacintosh applicationsfornetworkconnections,terminalemulationandfiletransfers. AdditionalinformationfortheMacintoshCommunicationsToolboxcanbefoundin theNetworkApplicationToolschapterinthisGuide.

## InteroperabilityinMixedEnvironments

DECLanWORKSforMacintoshandDigital'sPersonalComputingSystemsArchitec- ture(PCSA)deliverDigital'sNetworkApplicationSupport(NAS)services,allowing userstoshareinformationandresourcesbetweenMacintosh,DOS,OS/2,VMS, UNIX,andterminal-basedusersonthesamenetwork.Openinterfacesandtools providecapabilityforthedevelopmentofdistributedapplications.

## ServiceandSupport

DigitaloffersworldwideserviceandsupportfortheDECLanWORKSforMacintosh product.DigitalDesktopServicesofferssupportforthird-partyMacintoshapplica- tions.DigitalisanauthorizedserviceproviderfortheApplefamilyofproductsat U.S.Digitalsites.

## AppleTalkforVMS

AppleTalkforVMSisApple'simplementationoftheAppleTalknetworkprotocols onDigital'sVMSoperatingsystem.WithAppleTalkforVMS,aVAXcomputer systemcanparticipateinanAppleTalkinternet.Likewise,anycomputeronthe

## Solutions

AppleTalkinternetcanaccesstheVMSenvironmentofaVAXcomputer.Appleand DigitalhavechosenAppleTalkforVMSanditsintegrationwithDECnetasthe primarywaytointerconnecttheproductstheydevelopundertheApple-Digital agreement.Thus,usingAppleTalkforVMSasabase,adevelopercanbuild distributedapplicationsacrossMacintosh,AppleII,MS-DOS,andVMSsystems.

WithAppleTalkforVMS,VMSsystem-basedapplicationsandservicescanappear justlikeotherAppleTalkservices.TheseVMSsystem-basedservicesregistertheir namesontheAppleTalkinternetinthesamewaythatAppleShareserversand LaserWriterprintersregistertheirnames.MacintoshuserscanfindVMSsystem-basedservicesthroughtheChooserorthroughapplication-specificinterfaces.

AppleTalkforVMShasthefollowingfeatures:

- AppleTalkPhase2routing
- enhancedperformancebyrunningintheVMSkernel
- enhancedtunnelingcapabilities
- supportfortheAppleTalkADSPtoDECnetNSPtransportgateway
- amorecompleteandeasierconfigurationandmanagementutility
- asimple,welldocumentedAPI

### AppleTalkforVMSRouter

IntheAppleTalknetworkarchitecture,routersforwarddatagramsbetween separateAppleTalknetworks.WithAppleTalkforVMS,aVAXcomputercan becomeafull-functionAppleTalkrouter,providinginternetrouting,zoneinforma-tionmanagement,routingtablemaintenance,andmanagementofname-binding requests.AnAppleTalkforVMSrouterhasmultipleports,sothatitcansimulta-neouslyroutedatagramsoverdifferentphysicalcommunicationchannels.For example,aroutercanroutedatagramsovermultipleEthernetlocalareanetworks oroverDECnet/OSIwideareanetworks.ByencapsulatingAppleTalkdatagrams intoaDECnetpacketandroutingthispacketthroughDECnet/OSInetworks--a technique called*tunneling*--theAppleTalkforVMSroutercaninterconnect AppleTalkinternetsseparatedbygreatdistances.

### HowAppleTalkforVMSWorks

AppleTalkforVMSversion3.0hasfourmainparts:

- AppleTalkProtocolStackDriver
- AncillaryControlProcess
- ProtocolInterfaceLibrary
- ConfigurationProgram(ATK$MANAGER)

# Solutions

The AppleTalk Protocol Stack Driver is a standard VMS I/O driver that implements the main capabilities of the AppleTalk protocol suite. The Ancillary Control Process works with the Protocol Stack Driver to implement the more complex protocol functions, such as creating processes, authenticating users, and managing AppleTalk for VMS.

The Protocol Interface Library is the applications programming interface with the AppleTalk Protocol Stack Driver. The library is a set of simple subroutine calls, each implementing a different protocol function. Using these subroutines, applications can perform protocol functions such as looking up names, executing transactions, and transferring data. The Protocol Interface Library conforms to the VAX procedure-calling standard and can be called from any VMS system-supported programming language.

The Configuration Program is the user interface through which VMS system managers set up and observe AppleTalk for VMS. With this program, a system manager can perform such tasks as starting the AppleTalk for VMS router, opening and closing router ports, and reading performance counters.

Approximate Cost ……………………………………………… $295 client license per Macintosh; $440 for media and documentation (1 copy for network)--no VAX server license required.
**Supplier:** Digital Equipment Corporation and Authorized Digital Distributors. Contact your local DEC sales office.

## Macintosh-to-VAX Integration Toolkit

The Macintosh-to-VAX Integration Toolkit is a set of software components, APIs and documentation made available to developers interested in building distributed applications between the Macintosh and the VAX. This package includes AppleTalk for VMS, an AppleTalk-to-DECnet transport gateway, a VAX-based configuration utility, as well as an ADSP and a Gateway access connection tools for the Macintosh Communications Toolbox. These are described in more detail in the DEC LanWORKS for Macintosh section earlier in this chapter.

These components are the connectivity foundation for products developed under the Apple/Digital joint development agreement. This package includes program-mer documentation for all of the exposed APIs. Developers interested in redistrib-uting some of the software components with their application can obtain a license from Apple Software Licensing.

Approximate Cost ……………………………………………………………… Contact supplier
**Supplier:** Apple Computer, 25025 Mariani Ave., Cupertino, CA 95014, 408-996-1010

**Solutions**
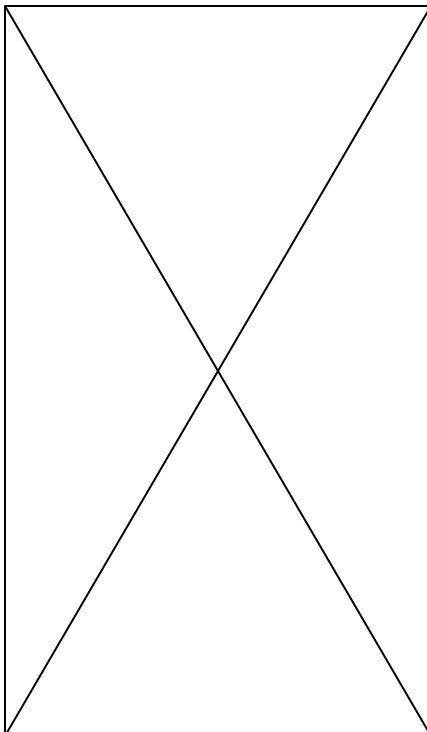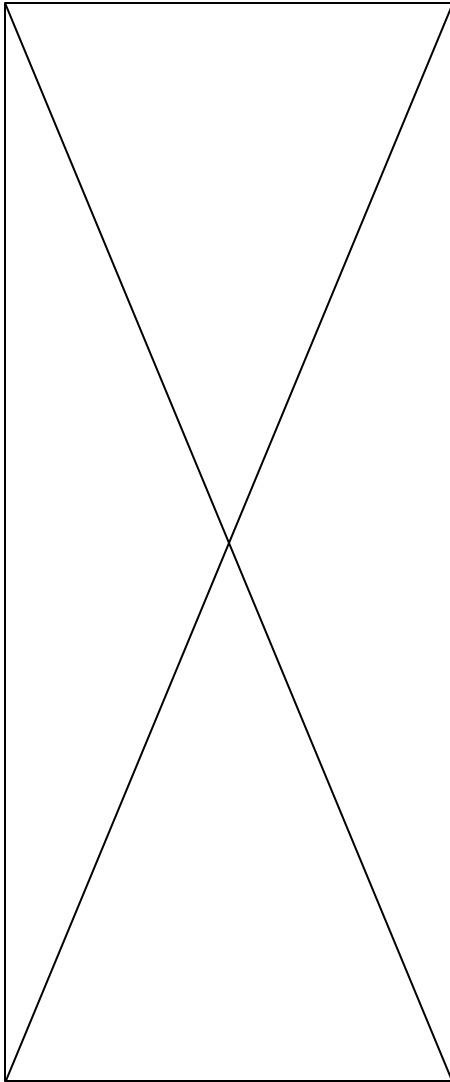
# AppleTalkNetworkServices

### AlisaTalkNetworkServicesforVAXandVMSandMacintoshSystems

AlisaTalk,whichincludesAlisaShare,AlisaPrintSystem,AlisaTerminalandthe optionalAlisaDigitalPrintpackage,providesapackageofnetworkservicesfor Macintosh,VMSandPCusers.NewfeaturesofAlisaTalkV3.3includesupportfor ACLsforfileaccess,commandfileproceduresforAlisaShareandAPSorADP managersandaprintjobnotifierforMacintoshusers.

AlisaTalkretainstheMacintoshgraphicinterface.AlisaTalkcanbesetupon existingAppleTalknetworks,soadditionalcablingmaynotbeneeded.AlisaTalk usesstandardsendorsedbybothAppleandDigital,includingAppleTalkNetwork Architecture,AppleTalkforVMS,AFP,DECnetCTERM,PostScript,andstandard MacintoshAppleShareandLaserWritersoftware.

### AlisaShareAFPFileServer

AlisaShareisaVAX-basedfileserverforMacintoshandIBMPC-compatiblesystems usingtheAppleTalknetwork.AlisaShareusesMacintoshandVMSstandards, includinguserinterface,file-security,andfile-structuresystems.AlisaShareusesthe MacintoshgraphicinterfacesothatMacintoshusersseeVMSfilesasiconsontheir desktops.AlisaShare'suseofACLandUIC-basedsecuritymakesitpossibleto maintainstandardsofsecurityacrossnetworks.AlisaSharemapstheMacintosh HierarchicalFileStructure(HFS)totheVMShierarchicalfilestructure.Macintosh, VMS,andIBMPCfilessharethesamedirectoriesontheVAX.

### AlisaPrintSystem

AlisaPrintisaprintsystemthatmakesuseoftheVMSprintingandqueuingutilities todeliverPostScriptprintingtobothMacintoshandVMSusers.AlisaPrintconsists ofareceiverprocessandasymbiont,bothresidentontheVAX.Thereceiver mimicsaLaserWriterprinterandcapturesMacintoshprintjobs,whicharethen queuedforprintingbythesymbiont.ThismeansthatonlyoneVMSprocessis neededtohandletheMacintoshusers.AlisaPrintalsoprovideselectronicformsand papertypecontrol,optionaljobandfileflag/trailerpages,genericqueues,auto-maticdownloadofspecialfontsanddictionaries,Diablo630emulation,and recordsforVMSaccounting.

### AlisaTerminalRemoteTerminal

AlisaTerminalprovidesMacintoshuserswithaccesstoremoteDigitalsystemsvia theAppleTalknetwork.AdriverresidentontheMacintoshimplementstheDECnet CTERMprotocoltocommunicatewiththestandardDECnetremoteterminal

## Solutions

servicesviaAlisa'sproprietaryDECnetgateway.Terminalemulatorsandfront-ends ontheMacintosh,suchasVersaTermandMac240,usethedriverasthoughitwere anasyncdriver.AlisaTerminalsupportsDCLlineeditingandlinerecall,and providesaccesstoanyDigitalhostonDECnetinternet.

### AlisaDigitalPrinterSupportSystem

AlisaDigitalPrinter(ADP)supportsystemisanadd-onoptiontotheAlisaTalk packagethatprovidesprintingservicestoDigital'sPostScriptprinters.ADPconsists ofareceiverprocessontheVAXthatmimicsaLaserWriter.Thereceivercaptures Macintoshprintjobsandqueuesthemforprintingtoa DigitalPostScriptprinter. ADPusesstandardMacintosh,LaserWritersoftware,andstandardDigital-supplied printsymbiontsandqueueingsystems.

ApproximateCost,AlisaTalk ................................................................$2950to$14,400
**Supplier:**AlisaSystems,Inc.,221EastWalnutSt.,Suite175,Pasadena,CA91101,818-792-9474

### PacerNetworkServices

PacerSoftwareoffersafamilyofproductsforMacintosh-to-VAX(VMSoperating system),DataGeneral,Prime,StratusandUNIXsystemsincludingSun,Harris, NCR,VAX(ULTRIXoperatingsystem),DECsystem/station,InteractiveandMotorola networkedenvironments.TheseincludePacerLink,whichprovidesterminal-emulation,file-transfer,andprint-spoolingcapabilities;PacerPrint,whichprovides PostScriptprintspoolingforVMSandULTRIXsystemusers;PacerShare,which enablesVAX(VMSandULTRIX)andDECRISCsystemstoimplementAppleShare fileservicesthatcanbeaccessedfromaMacintoshorMS-DOS-compatiblecom-puter;PacerPost,whichprovidesaVAXandVMS-basedMicrosoftMail2.0compat-ibleserverandgatewaystovariousotherVMS-basedmailsystems;andPacerTOPS, whichenablesaVAXandVMSsystemtoparticipateinthedistributedfileserving environmentwithanyMacintoshorIBMPConaTOPSnetwork.

Pacer'sMacintoshtohostcommunicationsproductshavebeendevelopedusing theAppleTalkprotocolsuite.PacerLinkalsooperatesoverasynchronousserial connectionstohostsystemsandcanusetheTCP/IPprotocolinanEthernet environment.WithPacerSoftware'sAppleTalkimplementationontheVMSand ULTRIXsystems,thelowerlevelsoftheprotocolrunasadriver.Anyapplication basedonApple'sAppleTalkforVMSstandardcancoexistonthesameVAXsystem thatisrunningcommunicationssoftwarefromPacer.

## Solutions

### PacerShare AppleShare File Server on the VAX/VMS, VAX/ULTRIX and RISC/ULTRIX

PacerShare extends PacerLink to let a VAX running ULTRIX or VMS or a RISC-based DECstation/system running ULTRIX to act as a large, AppleShare-compatible file server for a Macintosh computer network, eliminating the need for dedicated Macintosh file servers. To access the file server, a Macintosh computer (or other suitably equipped microcomputer) runs only the standard AppleShare client software from Apple.

Maintaining Macintosh and VAX files in a common area means that VAX files can be accessed by Macintosh applications. For example, VMS text files can be created and edited using Microsoft Word, MacWrite, or any other Macintosh word-processing application. The Macintosh computer views part or all of the ULTRIX or VMS file system as HFS volumes whose folders represent host directories and whose files represent host files. PacerShare integrates the Macintosh computer and host file systems, allowing the same file to be accessed from either the host or the Macintosh computer. It enforces full AppleShare concurrency handling, including byte-level locking, and is compatible with multi-user applications.

Host access security and file access protection are preserved in all cases. With the mouse, a Macintosh computer system user can peruse the ULTRIX or VMS file system, drag-copy files between ULTRIX and VMS, create directories, move subdirectory trees, and access any type of file with a Macintosh application. Users can view and modify only those directories that they would be authorized to access through a normal terminal session.

Approximate Cost ............................................................................... $400 to $7500
**Supplier:** Pacer Software, Inc., 7911 Herschel Ave., Suite 402, La Jolla, CA 92037, 619-454-0565
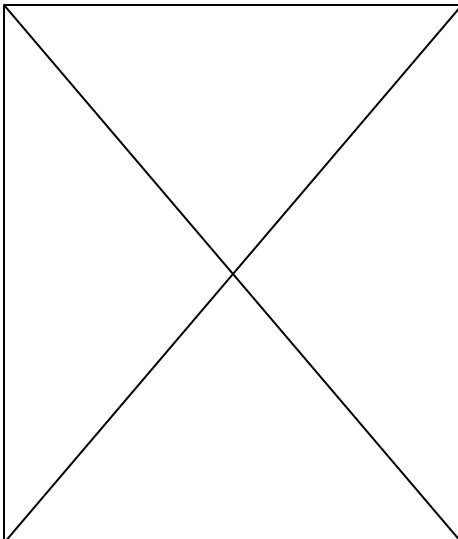
### PacerPrint PostScript Printing and AppleTalk Printer Access for VMS and ULTRIX Users

Initially available in the VMS and ULTRIX environments, PacerPrint is a print server software product that enables both Apple Macintosh and host users to print in their normal fashion to PostScript compatible printers. VMS users can submit jobs to the PacerPrint queues via the standard PRINT command under VMS, while ULTRIX users access printers attached to AppleLocalTalk networks with the Berkeley Standard Distribution (BSD) lpr(1) mechanism, following the same procedure as for a locally attached printer. PacerPrint connects to the printer, transfers PostScript files across the network, and interacts with the printer to coordinate and download AppleLaserPrep files (Macintosh-specific PostScript macros). PacerPrint provides a set of translators that convert ASCII text, Tektronix 4014 (VMS version only) and Diablo 630 (VMS version only) file formats to PostScript. Options to the print

## Solutions

commandareprovidedtorequestaparticulartranslationaswellastospecifypage layout(e.g.,portraitvs.landscape).FromaMacintosh,usingthestandardChooser toselectatargetprinterprovidestheoptionoftransparentlyspoolingallprintjobs throughthehostserver.PacerPrintthusenablesMacintoshandhostuserstoshare networkedPostScript-compatibleprinters.

ApproximateCost ...................................................................................$1000to$4000
**Supplier:**PacerSoftware,Inc.,7911HerschelAve.,Suite402,LaJolla,CA92037,619-454-0565

### PacerTOPS

PacerTOPSenablesVAXandVMSsystemstoparticipateinthedistributedfile servingenvironmentwithanyMacintoshorIBMPConaTOPSnetwork.The mergingoftheVMSandTOPSfilesystemsresultsininformationsharingwith performancecomparabletoalocalharddisk.PacerTOPSenablesMacintoshand PCuserstosharetheirfilesstoredontheVAXandtoalsotransparentlyaccessVMS files.Inaddition,VMSuserscanaccessMacintoshandPCfileswhicharestoredon theVAX.PacerTOPSallowsTOPSworkstationuserstotakeadvantageoftheVAX system'sdiskstoragecapacity,highvolumebackupfunctionsanddatasecurity features.PacerTOPSisanextensionofPacerLink,Pacer'scorecommunication packageandrequiresanEthernetconnectionbetweentheMacintoshcomputersor PCsandtheVAXandVMSsystemsviaeitheradirectconnectionorAppleTalk bridgedtoEthernet.

ApproximateCost .................................................................................. $400to$7500
**Supplier:**PacerSoftware,Inc.,7911HerschelAve.,Suite402,LaJolla,CA92037,619-454-0565
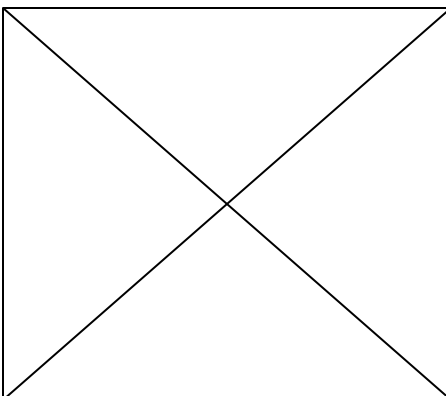
### AsynchServer

AsynchServerisVAXandVMSsoftwarethatcommunicateswithaclientMacintosh systemoveranordinaryasynchronousterminalport,providingtheMacintoshwith accesstoallAppleTalkfacilitiesavailablethroughtheDigitalVAX.Supported AppleTalkservicesincludenotonlyadvancedMacintosh-to-VAXnetworking products,suchasAlisaTalk,HelixVMX,andPacerShare,butalsoaccesstoother AppleTalk-basedservices,suchasApple'sLaserWriterandAppleShareservers.

LocallyconnectedMacintoshcomputerscanuseAsynchServertonetworkwith theirhostDigitalVAXsystemsoverdedicatedasynchronouslinesathighbaud rates,inmanycaseseliminatingspecializednetwork"bridge"hardware.Similarly, remoteMacintoshuserscandialintotheirhostVAXsystemsandjointheVAX host'sAppleTalkinternetwork,usingexistingmodemhardwareandcommunica-tionslines.

AsynchServerislicensedforuseonthehostVAXsystem.Theproductmaybeused interactivelyatdial-up,oritmaybestartedinbatchmodeononeormorepre-definedasynchronousports.AsynchServersupportsseveralsimultaneously

## Solutions

connected Macintosh systems (up to the host's load limits), even on VAX and VMS hosts with server (one interactive user only) VMS licenses.

Approximate Cost ............................................................................................. $595 to $1895
**Supplier:** Computer Methods, Inc., 525 Route 73 South, Marlton, NJ 08053, 609-596-4360

### TSSnet-DECnet Services on the Macintosh

TSSnet is a software package that enables Macintosh communications with a DECnet network as a DECnet Phase IV end node. The Macintosh can communicate with any DECnet host including Digital systems, IBM-PC systems and IBM mainframes, as well as other Macintosh systems. TSSnet allows DECnet and AppleTalk to operate on the same Macintosh simultaneously providing access to services on both networks.

TSSnet enables Macintosh communication with a DECnet network as a Phase IV end node. It provides a complete set of DECnet services, including background objects for VMS mail and file access (FAL). TSSnet consists of a DECnet driver, a Control Panel (CDEV) resource, and three applications (NetMail, NetCopy and NCP). TSSnet V2.0 also includes a version of White Pine's Mac220 terminal emulator that can be used with either CTERM or LAT sessions. The DECnet driver contains DECnet Phase IV protocols for Ethernet, LocalTalk and serial (DDCMP) connections. It also contains the file access listener (FAL), the background mail receiver, a CTERM module and a loopback mirror object for network testing.

Approximate Cost ................................................................................................... $195
**Supplier:** Alisa Systems, Inc., 221 East Walnut St., Suite 175, Pasadena, CA 91101, 818-792-9474

### CommUnity-Mac

CommUnity-Mac is a software product that utilizes an intelligent Ethernet controller to provide DECnet connectivity for Macintosh Plus, SE, and II computers. The controller reduces the networking load on the Macintosh for high-speed performance on a DECnet Phase IV Ethernet network. This networking solution provides terminal emulation (VT100, VT220, and, as an option, VT240), file transfer, compatibility with VAX and VMS services from Digital, and task-to-task communications for Macintosh-to-VAX system programming, VMS mail, and File Access Listener for Macintosh-to-Macintosh networking.

Approximate System Cost ................................................................................ $350 to $495
**Supplier:** EMAC, 48431 Milmont Dr., Fremont, CA 94538, 415-683-2222

### MacRAF

MacRAF is a Macintosh-to-VAX Ethernet integration package that provides the Macintosh user with remote file and print service. Users can access files stored on the VAX as if those files were on their Macintosh hard disks. MacRAF uses a LAT

## Solutions

compatibleprotocoltoconnecttheMacintoshtoremoteVAXhostsprovidingthe user withfiletransferspeedsofupto100,000bytespersecond.Thesoftwarealso providesuserswithVT100andVT200terminalemulationandsupportsupto10 terminalsessions.MacRAFissupportedontheMacintoshIIseries,MacintoshSE andSE/30.Approximately115kilobytesofdiskspaceandaminimumofone megabyteofmemoryisrequiredontheMacintosh.MacRAFusesAppleEtherTalk specificationssoMacRAFcanberunusinganyEthernetcardthathasanApple EtherTalkinterface.Onthehostside,MacRAFissupportedonVMSversions4.7 through5.2.

ApproximateCost ……………………………………………………………………… $794
**Supplier:**DatabilitySoftwareSystems,Inc.,322EighthAve.,NewYork,NY10001,800-DIALDSS

### MacBLASTforAsynchronousConnectivity

MacBLASTcommunicationssoftwareprovidesanasynchronouscommunications linkbetweenMacintoshandDigitalVAXandPDP/RSXorRT-11.VAXBLAST runsunderVAXandVMS(Rev.4.4+)providingtransferandtextfileconversion betweenVAXandMacintoshcomputerswithBLAST(seeMacBLAST).Itusesany RS-232portandprovidesTTY/VT52/100/VT220emulationontheMacintoshend. MacBLASTtransfersbinarydata,text,orgraphics.MacBLASTandVAXBLAST productscanbeusedtocreatewideareanetworksbetweencentralcomputersand anynumberofremotesitesviadial-uporX.25nets.BLASTrunsoverstandard telephonelines,X.25networks,andsatellitelinks,andisunaffectedbyline noiseorpropagationdelays.Featuresinclude:scriptingcapabilitiesforcreating unattendedoperations,pollinganddatacollectionroutines;custommenus,for transparentintegrationwithMacintoshandVAXapplications;on-linehelp;and automaticdialingandaccesstoremotesystems.

ApproximateCost ………………………………………………………………… $495to$1295
**Supplier:**CommunicationsResearchGroup,5615CorporateBlvd.,BatonRouge,LA70808,
800-24-BLAST
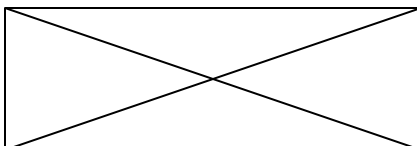
### KeywordKEYpak,Version2.8

Keyworddocumentinterchangesolutionsaredesignedtoallowtheexchangeof documentsbetweenPC,Macintoshandhostterminalusersthroughacomputer systemorlocalareanetwork(LAN)serverusingmanydifferentdocumentprocess-ingsystems.KeywordKEYpaksoftware,runningoneitheracomputersystemor LANserver,allowsuserstoexchangedocumentsbetweenotherwiseincompatible documentprocessorsorwordprocessingsystemssuchasMicrosoftWordonthe Macintosh,WordPerfect,MultiMateandmanymore.KEYpaksoftwareisdesigned toprovideflexibilityforrevisabledocumentexchangebetweenend-userson differentcomputersystems(e.g.IBMmainframes,DigitalVAX,Bull,WANGand others)bysupportingsysteminterchangearchitectures.KEYpaksoftwarerunson

### Solutions

many systems platforms including DOS, VAX and VMS, UNIX, IBM/VM, IBM/MVS and many other vendor specific operating systems.

Approximate Cost ................................................................................ $1000 to $100,000
**Supplier:** Keyword Office Technologies, 2816-11 ST. N.E., Calgary, Alta T2E 7S7, 403-250-1770

### VMacS

VMacS is a VAX application that allows Macintosh users to store Macintosh files on the Digital VAX computer. All Macintosh files can be transferred to the VAX, stored in MacBinary format, and they will retain all original characteristics when returned to the Macintosh computer. Once files are stored on the VAX, all Macintosh work groups can exchange and distribute them. Macintosh word processing and text files can be converted to VMS formats and output to VAX printers or displayed on VAX terminals using VMacS. VMS text and data files can also be converted to Macintosh formats using VMacS.

Approximate Cost ................................................................................ $399 to $999
**Supplier:** White Pine Software Inc., 94 Route 101A, P.O. Box 1108, Amherst, NH 03031, 603-886-9050

### Makeasy Version 2.1

Makeasy is a distributed software allowing Macintosh users access to the host VMS facilities via the Macintosh user interface. VMS files are displayed as Macintosh-like icons and are given a specific set of operations. Operations can be called by selecting menu options with the mouse. MultiFinder compatibility lets users access VMS services and Macintosh applications at the same time. The file transfer utility permits files, folders, or directories to be copied to or from any part of the file system; the user can specify the file format for the target file. The available file formats are: ASCII, Binary, Image, Appledouble and MacBinary standard. Menu options are automatically set by Makeasy according to the type of selected object. Makeasy includes a full text editor, which allows uploading and downloading VMS as well as local files. Makeasy is a distributed software based on a Client/Server architecture. Connections can be made either via serial lines or via Ethernet network using AppleTalk or DECnet protocols.

Approximate Cost ................................................................................ $3000 to $9800
**Supplier:** Unipress Inc., 2025 Lincoln Hwy., Edison, NJ 08817, 201-985-8000

## Terminal Emulation Products

The simplest form of connection between Macintosh personal computers and Digital minicomputers is via terminal emulation, using asynchronous communications. In this solution, the Macintosh computer is connected to the host exactly as a terminal would be. Terminal connections can be made either by directly linking the

## Solutions
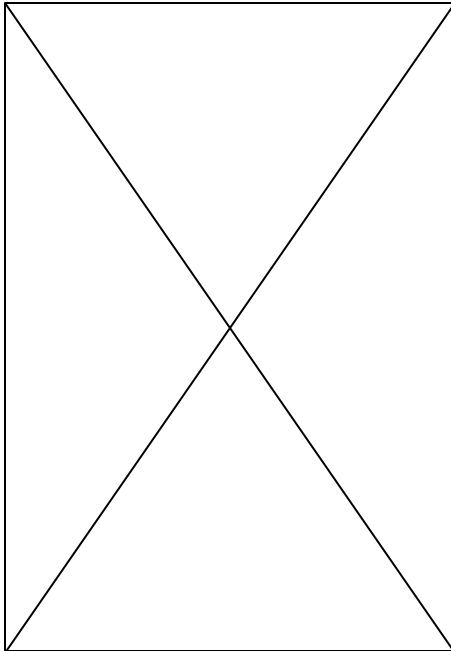


MacintoshcomputertotheVAXsystemviaRS-232cablingorviaamodem.In manyDECnetinstallations,aDECserver200terminalserverconnectedtoEthernet providesuptoeightRS-232serialterminalports.Eachoftheseconnectionmethods providesthesamefunctionality.SinceMacintoshterminalemulatorsrequireno specialcommunicationssoftwareonthehost,theycanbeusedwithanyhost systemthatsupportsasynchronousterminals,aswellaswithon-lineservices.

### MacTerminal3.0

MacTerminalisaterminalemulationandcommunicationsapplicationthatenables AppleMacintoshpersonalcomputeruserstocommunicatewithmanyhostcom- puterssuchasVAXandUNIXsystems.WithMacTerminal,userscanalsoaccess electronicbulletinboardsandon-linedatabasessuchasCompuServe,DIALOGand DowJonesNews/Retrieval.MacTerminalhasbeencompletelyrewrittenbasedon theMacintoshCommunicationsToolbox,systemsoftwarethatprovidesMacintosh applicationswithstandardaccesstocommunicationcapabilities,includingdata connections,terminalemulation,andfiletransferprotocols.Formoreinformation ontheMacintoshCommunicationsToolbox,refertothe*NetworkApplicationTools* chapterinthisGuide.

TheoughtheuseoftheMacintoshCommunicationsToolbox,MacTerminal3.0 providesDigitalVT102orVT320andTTYterminalemulation,ASCIItextand XMODEMfiletransferprotocolsandserialandAppleModem(Hayescompatible) connections.AdditionalcommunicationstoolssuchasDigital'sLocalAreaTrans- port(LAT)protocolandAppleTalkDataStreamProtocol(ADSP)arealsoavailable.

ApproximateCost ................................................................................ $125
**Supplier:**AppleComputer,Inc.,20525MarianiAve.,Cupertino,CA95014,408-996-1010

### PacerLinkTerminalEmulationandNetworkConnectivity

PacerLinkisanadvancedterminalemulationanddesktopconnectivityprogram thatallowsAppleMacintoshuserstoconnecttoandusemanyhostcomputerssuch asDECVAX,DataGeneral,Stratus,PrimeandseveralUNIXhostsincluding DECsystem/station,Sun,NCR,Interactive,MotorolaandHarrissystems.PacerLink providesavarietyofcapabilitiessuchasterminalemulation,filetransfer,virtual diskandprintservicesthatenablesMacintoshuserstosolvetheircommunication andresource-sharingproblems.Aserverprogramrunningonthehostcarriesout PacerLinkrequeststocopyfiles,accesslocalorremoteprintersandperformother hostfunctions.TheMacintoshcomputerconnectstothehostsviaanycombination ofRS-232(directseriallineordial-upthroughamodem),Ethernet,orApple LocalTalkcablebridgedtoEthernet.PacerLinkcanmakeseveralconnectionsto onehostormultiplesimultaneousconnectionstoseveralhosts,eachinitsown terminalemulationwindow.

## Solutions

Multiwindow terminal emulation lets the Macintosh computer replace any of nine terminals, including the VT100 and VT220. It augments the standard terminal capabilities with features that simplify running host programs, integrating the various hosts and microcomputers throughout a network to create a homogeneous environment that users can treat as a network system. A Macintosh computer user, for example, might have a spreadsheet window and an electronic publishing window already open, and decide to interact with a VAX host. This user opens a third window by choosing a host and the communication protocol (AppleTalk, TCP/IP, or RS-232C) to use.

Terminal-emulation sessions can be opened in multiple windows to communicate with several hosts. The user enters data through the keyboard into one selected window at a time, while the host updates the display in every window continually. PacerLink windows can be moved, stacked, sized, scrolled, panned, and zoomed, and data can be moved between windows, using the customary Macintosh techniques. A MiniWindows mode reduces all windows to miniature size. They can then be stacked or tiled on the screen and expanded to full size by clicking the zoom box.

Mouse-activated Soft Keys can be defined to activate host commands. Host parameters can be accepted through Macintosh dialog boxes, allowing casual users to execute mainframe programs. A "mark table" option selects a rectangle of information, which can be cut from a word-processing document, for instance, and pasted into a spreadsheet. Special features integrate the Macintosh computer into the ALL-IN-1 and CEO office-automation environments for handling of menus, files, and mail messages. Keys can be mapped to execute repetitive command or keystroke sequences, and any combination of the Shift, Command, Control, and Option augmentations can be used.

File-transfer features move text, binary or MacBinary files to or from hosts by copying single files, or multiple files identified with wildcards. The Macintosh computer can relay files between two different hosts, with optional conversion to compensate for differing storage conventions, and can transfer files even while operating unattended.

Virtual Disk uses host disk space to store Macintosh programs and data, reducing local disk requirements. Besides sharing virtual disk data, microcomputers can be integrated into the host backup procedure. Host users can access virtual disks to read or write the files stored there.

Approximate Cost ................................................................................ $2000 to $37,500
**Supplier:** Pacer Software, Inc., 7911 Herschel Ave., Suite 402, La Jolla, CA 92037, 619-454-0565

## Solutions

### PacerGraph Color Graphics Terminal Emulation

PacerGraph software adds VT240 monochrome graphics and VT241 color graphics to the PacerLink terminal emulation choices. With PacerGraph, a VT240 window can display ReGIS or Tektronix 4010/4014 graphics. The graphics window has the capabilities of any standard PacerLink window, including Macintosh drag, scroll, pan, and zoom features and its own set of SoftKeys. PacerGraph windows respond to the standard VT220 escape sequences as well as to the special ReGIS or Tektronix graphics escape sequences. On the Macintosh, PacerGraph provides status icons and editing capabilities that are used to mark a graphics region, print it and copy it to the clipboard. The graphic can then be pasted into a paint, draw or electronic publishing program.

Approximate Cost ........................................................................................ $75 to $150
**Supplier:** Pacer Software, Inc., 7911 Herschel Ave., Suite 402, La Jolla, CA 92037, 619-454-0565

### VersaTerm/VersaTerm-PRO

VersaTerm allows Macintosh computers to emulate the Digital VT100 and VT220, Data General D200 text terminals, and Tektronix 4010, 4012, and 4014 graphics terminals. VersaTerm-PRO adds emulation of the Tektronix 4105 terminal and enhanced Tektronix 4014 features. Both VersaTerm and VersaTerm-PRO support screen-driven text-editing capabilities offered by software such as ALL-IN-1 and CEO. Additionally, VersaTerm-PRO allows users to pan across or zoom in on a displayed graphics object, copy all or part of it to the Clipboard, and paste it into other Macintosh applications (such as MacDraw or PageMaker) for subsequent editing or inclusion in desktop-published documents. VersaTerm and VersaTerm-PRO support Apple's Communications Toolbox. VersaTerm-PRO's Tektronix graphics emulation is used in science and engineering applications, with host-based graphics software such as RS/1, 20/20, SAS/GRAPH, DI-3000, Enter/Act, and CAS ONLINE. VersaTerm-PRO can integrate images created by the host (using tools like Intergraph CAD/CAM software, and MACCS or REACCS for chemical design) into Macintosh documents and presentations. VersaTerm and VersaTerm-PRO support background printing, terminal session and file transfers using MultiFinder. VersaTerm-PRO also offers color hard-copy output to Apple's ImageWriter II printer.

Approximate Cost ........................................................................................ $149 to $295
**Supplier:** Synergy Software, 2457 Perkiomen Ave., Reading, PA 19606, 215-779-0522

### White Pine Terminal Emulation Software

Mac220 is a DEC VT220 terminal emulator with support of large-screen monitors, 132-column mode, function and user-defined keys, DRCS, double-wide and

## Solutions

double-highcharactersandblinking.Mac220includesKermit,XMODEMand YMODEMfiletransfercapability.UserscanconnecttotheVAXdirectly,througha modem,oroveranetwork.

Mac240isaDECVT240terminalemulator,featuringfile-transfercapabilitiesusing Kermit,XMODEMandYMODEMprotocols.Mac240supportsReGISandSixel graphics,andalsoemulatesTektronixterminals.Otherfeaturesincludecolor background,commandkeyequivalents,resizableandmultiplewindows,scrolling capabilitiesandreviewbufferstoallowreadingorprintingofscrolledtext.

Mac241isacolorDECVT241terminalemulator,featuringfile-transfercapabilities usingKermit,XMODEMandYMODEMprotocols.Mac241supportsReGISand Sixelgraphics,andalsoemulatesTektronixterminals.Otherfeaturesinclude commandkeyequivalents,resizableandmultiplewindows,scrollingcapabilities andreviewbufferstoallowreadingorprintingofscrolledtext.

AlltheseproductssupportDECnetandTCP/IPprotocolsandworkwiththe MacintoshCommunicationsToolBox.

ApproximateCost ............................................................................ $129to$300
**Supplier:**WhitePineSoftware,AmherstTechnologyPark,94Route101A,Amherst,NH03031,
603-886-9050

### TGRAF-07/MAC

TGRAF-07/MACisTektronix4107graphics-terminalemulationsoftwarethatallows theMacintoshIItoconnecttoahostcomputerandaccessmainframeapplications. TGRAFisatoolforCAD/CAM,dataanalysisandrepresentation,mapping,molecu-lardesign,andapplicationdevelopment.TGRAF-07/MACisacompleteterminal-emulationproductthatprovidesgraphicsandtextsupportbyemulatingTektronix 4010,4014,4105,4106,4107,and4109graphicsterminals,andDigitalVT102, VT100,andVT52textterminals.ItrunsunderMultiFindersoftwareapplications, supports"cut-and-paste"operations,andworkswithTSSnetbyAlisaSystems.

ApproximateCost ..................................................................................... $995
**Supplier:**Grafpoint,1485SaratogaAve.,SanJose,CA95129,408-446-1919

### Reflection2PLUS

Reflection2PLUSprovidesemulationofDigital'sVT320,VT220,VT102,andVT52 terminalswhilepreservingtheMacintoshuserinterfaceandMultiFinder.Dynami-callyRedefinableCharacterSets,UserDefinedKeys(UDKs)anddouble-high double-widecharactersaresupported.Reflection2connectstheuser'sMacintosh toVAXcomputersandotherhosts,lettinguserssendfilesbetweentheirMacintosh computersandVAXand/orUNIX/ULTRIXhostcomputersusingReflection's proprietaryfiletransferprotocol,XMODEM,orKERMIT.ASCII,Binary,MacBinary

## Solutions

andVMSImagefiletransferformatsaresupported.Userscanbackupanentirehard disktoasinglefileonthehost.Reflection'scommandlanguagehasmorethan40 commands,30functions,65settings,and800variables.Dialogsandpull-down menusmaybecreatedinscriptcommands.Commandsmaybeexecutedfrompull-downmenus,orinscriptfiles.Context-sensitivehelp,completewith"SeeAlso" branching,isprovided.Printingsupportincludesfontandsizeselection,aswellas theabilitytoresizewidereportstofitonapage.AlisaTalk,AlisaShare,TSSnet, PacerLink,andPacerTalkaresupportedaswellasdirectconnectionsthrough modemandprinterports.

ApproximateCost ……………………………………………………………………… $249
**Supplier:**WalkerRicher&QuinnInc.,2815EastlakeAve.East,Seattle,WA98102,206-324-0407

### CommSolutions

CommSolutionsisanetworkdriverpackagethatfunctionsasacompanionproduct totheWhitePineVTSeriesEmulatorsandeXodus.WhitePineSoftwarehas licensedNetwork/Communicationssoftwarefromthird-partyvendors.Networking softwareincludedconsistsofRuntimeTSSnet(Peer-to-peerDECnetcommunica-tionsforeXodus),andMacTCP(TCP/IPforeXodus&VTSeriesemulators).

ApproximateCost ……………………………………………………………………$4795to$6295
**Supplier:**WhitePineSoftware,AmherstTechnologyPark,94Route101A,Amherst,NH03031,
603-886-9050

## VAXDatabaseAccess

### DataAccessLanguageServerforVAXandVMS

TheDataAccessLanguageServerforVAXandVMSisanetworkingsoftware productthatprovidesDataAccessLanguageaccesstofilesanddatabasesona VAXandVMShostsystem.RunningontheVAXandVMShost,theDataAccess LanguageServerworkscooperativelywithMacintoshapplicationsthatsupport DataAccessLanguage.TheserverreceivesarequestfromaMacintosh application,carriesitoutontheVAX,andsendsthedesireddatabacktothe Macintoshapplication.

DataAccessLanguageoperatesunderexistinghostanddatabase-management securityandintegrityschemes,assuringcompletedatasecuritywithnoadditional maintenancerequirements.NetworkconnectionscanbeestablishedwiththeData AccessLanguageServerusingeitherseriallines(directlyorviamodem)orApple-TalkDataStreamProtocol(requiresApple'sAppleTalkforVMSrunningonthe VAXsystem).DatabasessupportedbytheDataAccessLanguageServerforVAX andVMSincludeInformix,Ingres,Oracle,Rdb/SQL,SybaseandRMSfiles(requires CDDandDatatrieve).TheDataAccessLanguageServerprovidesstandarddatabase

## Solutions
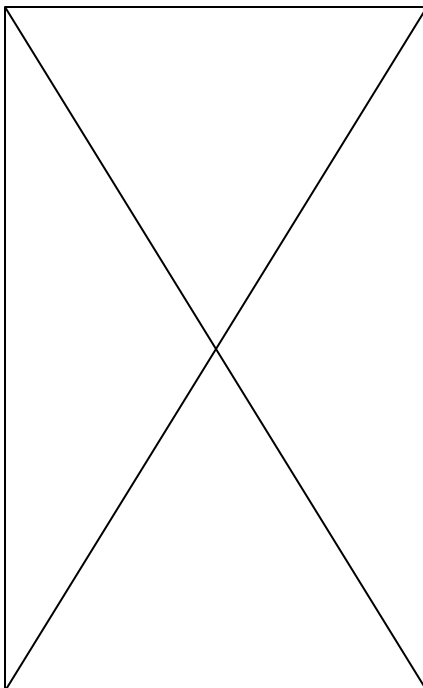
naming, data types, system catalog structure, error codes and buffer management, resulting in a uniform interface for the host databases.

Approximate Cost ................................................................................................ $5000
**Supplier:** APDA (Apple Programmers & Developers Association), Apple Computer, Inc., 20525 Mariani Ave. MS 33G, Cupertino, CA 95014, 800-282-2732, 800-637-0029 in Canada, 408-562-3910 Internationally

### Helix VMX: Applications for VAX/Macintosh Networks

Helix VMX is a multi-user database application development environment for VAX/Macintosh networks. It allows users to create applications on the Macintosh using a simple visual toolkit, and run them without modification on a Digital VAX system under the VMS operating system. Macintosh computers access these VAX-hosted applications by functioning as intelligent workstations connected to the VAX system.

Helix VMX makes use of its own distributed network architecture. On the Macintosh, a user has access to the Macintosh user interface, including pictorial database records. When the user searches for information, a request is sent to the database server (in this case, the VAX system), which performs the sorting and processing. Network traffic is kept to a minimum, and processing is conducted on the appropriate resource. Helix VMX uses the AppleTalk for VMS protocols, and requires an AppleTalk-to-VAX network connection.

Users of the VT family of terminals can access Helix VMX applications using the Helix VMX VT Terminal Support option. This software provides VT terminal users with a multiple-window, pull-down-menu interface for directly accessing Helix VMX applications.

Approximate Cost ....................................................................... $4500 to $70,000
**Supplier:** Odesta Corporation, 4084 Commercial Ave., Northbrook, IL 60062, 800-323-5423

### MultiUser Helix

MultiUser Helix allows any Double Helix application to run on an AppleTalk local area network, giving users access to current inventory, pricing, or the status of a job. As soon as an order is entered, a new client is recorded, or a price changes, that information is available to everyone who should have access to it. MultiUser Helix contains its own network software so users don't need to use a file server. In addition, MultiUser Helix incorporates database server technology rather than file server technology. The power and flexibility of Double Helix are incorporated in MultiUser Helix. This includes Double Helix's visual interface, modifiable structure, and ad hoc queries. In addition, MultiUser Helix has multithreaded searching for performance, personalized menus and password protection for customization, and

## Solutions

data logging for data security. Double Helix/MultiUser Helix applications run on Digital Equipment Corporation's line of VAX computers.

Approximate Cost ................................................................................................................. $495
**Supplier:** Odesta Corporation, 4084 Commercial Ave., Northbrook, IL 60062, 800-323-5423

### SequeLink, Version 2.1

SequeLink 2.1 allows co-operative processing between Macintosh and VAX computers. It enables users to write a Macintosh front-end to a relational database residing on a VAX, using environments such as HyperCard, MS Excel or 4D, and compiled languages such as C, Pascal or MacAPP. In this way the Macintosh application transparently accesses the relational database on the VAX, off-loading the VAX. This software can be used to write on-line transaction processing applications as well as decision support applications. SequeLink supports Oracle, Ingres, Rdb and Sybase. It requires at least 1MB of memory on the Macintosh, but 2MB is recommended if HyperCard is being used. It runs over AppleTalk as well as over DECnet. The SequeLink product family includes other client and server platforms, such as MS-DOS, OS/2, UNIX, AS/400, and MVS.

Approximate Cost ........................................................................................... $195 to $4995
**Supplier:** TechGnosis, Inc., 621 NW 53rd St., Boca Raton, FL 33487, 407-997-6687

### RMS Access: Database Server

Odesta's RMS Access is a database server for information stored in native VAX RMS files. It allows users of Odesta's Double Helix database on the Macintosh to access and build applications directly using data stored in VAX RMS files. Using Double Helix with RMS Access, users can build applications that provide a Macintosh front-end to existing VAX-based data. Double Helix combines a powerful relational database with a nonprocedural, icon-based, development environment, allowing rapid applications development by both Macintosh end-users and MIS professionals, either from scratch or as incremental additions to existing MIS systems.

The distributed-database architecture of the Double Helix/RMS Access combination allows a user to combine data from any number of RMS files, even files located on different VAX computers in a network. In addition, local (Macintosh-resident) tables can be used to incorporate either personal information or special data types (such as graphics) into the applications. Double Helix treats each RMS file as a table of data, adding relational capabilities to RMS files. In addition, RMS Access supports the VAX and VMS Common Data Dictionary, all RMS data types and indices, and VMS access controls. Double Helix/RMS Access utilizes the AppleTalk for VMS product. It is compatible with bridged LocalTalk/Ethernet, PhoneNET/Ethernet,

## Solutions

EtherTalk,andcombinationsofthesenetworkconfigurations.TheRMSAccess packageincludestheVAX-basedserverandasinglecopyofDoubleHelixfor applicationdevelopmentanduse.

ApproximateCost ………………………………………………………………………… from$4900
**Supplier:**OdestaCorporation,4084CommercialAve.,Northbrook,IL60062,800-323-5423

### SQL/ServicesforMacintosh

Digital'sSQL/ServicessoftwareextendsthepowerandcapacityofDigital'sdata-baseserverenvironmenttothedesktopbyincorporatingexistingandemerging industry-standardinterfacesintoDigital'srelationaldatabaseplatform.SQL/Services softwareletsremotedesktopapplicationsaccessVAXRdb/VMSrelationaldata-bases.TheSQL/ServicesAPIforMacintoshaccessisconsistentwiththeSQL/ ServicescallableAPIofferedbyDigitalonotherplatforms.Applicationsdeveloped usingSQL/Servicescanalsoretrieveinformationfromcertain IBM-baseddatabases, suchasDB2,accessiblethroughDigital'sVIDA(VAX-IBMDataAccess) interoperabilitysoftwareproducts.Applicationscanusethedataaccessedfroman IBMmainframeastheywouldusedataaccessedfromanRdb/VMSdatabase.

ApproximateCost ………………………………………………………………………… Contactsupplier
**Supplier:**DigitalEquipmentCorporationandauthorizedDigitaldealers.ContactyourlocalDEC salesoffice.

### SyBaseAPIforMacintosh

Sybaseisarelationaldatabasemanagementsystemforon-lineapplicationsand decisionsupport.WithSybase'sclient/serverarchitecture,client-userinterface functionsareseparatedfromserverdatamanagementandtransactionfunctions. Theclientserverinterfacesfacilitatesthemanagementofmultivendorcomputing environments.

ApproximateCost ………………………………………………………………………… From$3000
**Supplier:**Sybase,6475ChristieAve.,Emeryville,CA94608,800-8SYBASE

# ApplicationsintheMacintosh/VAXEnvironment

### OdestaDocumentManagementSystems

OdestaDocumentManagementSystems(ODMS)isafamilyofworkflowand document-managementapplicationsforMacintosh/VAXmulti-usernetworks. ODMSletsteamleadersseeandmanagewhatpeoplearedoing,whileatthesame timeprovidingadvanceddocumentmanagementcapabilities.ODMSgivesabird's eyeviewofthestatusofallworkbeingdoneonthenetwork--who'sdoingwhat, whenit'sdue,whetherit'sfinished,andsoon.Atthesametime,ODMSapplica-tionsletanyoneonthenetworkfindanduseanytypeofdocument.

## Solutions

Workdonewithwordprocessors,spreadsheets,graphics,andpagelayoutpro-grams--anytypeorsizedocument--canbecopiedfromanindividualworkstation, alongwithuser-definedkeywordsandcomments,toaVAXserver.Otheridentify-inginformationaboutthedocumentisautomaticallyentered.Documentmanage-mentfunctionsincludeaccesscontrolandsecurity,versioncontrolandrevision tracking,andaproject/taskorganizationalstructure.Automaticexceptionreport-ing,workassignments,andworkaudittrailsarealsoprovided.

ODMSincludesbuilt-innetworkingsoftware;nofileserverisrequired.This networkingtechnologymaintainstheassociativelinksbetweendocuments, offeringmoreflexibilityandorganizationalpowerthansimplefileserversprovide. However,atsitesthatalreadyhavefileservers,ODMSapplicationsmayberunon thesameMacintoshcomputerasApple'sAppleSharefileserver.ODMSiscompat-iblewithmostVAX-basedfileservers,andcanincorporateDOSPCdocuments usingDigital'sVMSServicesforMS-DOS.ODMSisavailableasasuiteofcustom-izedindustrysolutionsforapplicationssuchasnewspaperproduction,engineer-ing/technicaldocumentation,andlarge-scaleproposalandlegaldocumentman-agementsystems.

ApproximateCost ……………………………………………………………… from$20,000
**Supplier:**OdestaCorporation,4084CommercialAve.,Northbrook,IL60062,800-323-5423

### CentralSystemManager(CSM),Version2.1

CentralSystemManagerallowsthemanagementofnetworkedVAXcomputers fromaMacintoshusingastandardpoint-and-clickinterface.Allfeaturesand commandfunctionsareuser-definable.CSMallowsthesystemadministratorsto treatgroupsofVAXcomputersasasinglemanagementdomainwithoutknowl-edgeofDCL.Groupingcanbebynode,clusteroruser-determinedconfiguration. SixteenwindowsordialogsofVAXinformationcanbeopenedandupdated simultaneously.Itemscanbeshrunktoaniconforfuturereferenceofsystemand networkstatus.Alarmscanbesettonotifyoperationsofsystemconditions.Color andcustomiconscanbecreated.CSMusersmaycustomizemenus,windows, dialogsandcommandsets.Commandandwindowdefinitionscanbesharedwith otherusersorcombinedwithprivateorgroupdefinitions.CSMallowsusersto selectprocesses,batchjobs,networklinesandotheruserdefineditemswithaclick ofthemouse.Ifoneormoreitemshavebeenhighlighted,commandscanbe performedonthissetofitemswithasingleclick.

ApproximateCost …………………………………………………………………… $750
**Supplier:**IntegratedSolutions,Inc.,1020EighthAve.,KingofPrussia,PA19406,215-337-2282

## Solutions

### ALL-IN-1 DESKtop for Macintosh

ALL-IN-1 DESKtop for Macintosh integrates the Macintosh users into the ALL-IN-1 Integrated Office System server through a graphic user interface. It supports remote capabilities including file transfer and electronic mail for locally creating, reading, and processing mail on the PC, and then connecting with the ALL-IN-1 Integrated Office System server to exchange mail with other members of the workgroup. ALL-IN-1 DESKtop for Macintosh provides terminal emulation services, for accessing VMS-based applications and supports local filing of documents and data with the DESKtop for Macintosh file cabinet.

Approximate Cost ......................................................................... Contact supplier
**Supplier:** Digital Equipment Corporation and Authorized Digital Distributors. Contact your local DEC sales office.
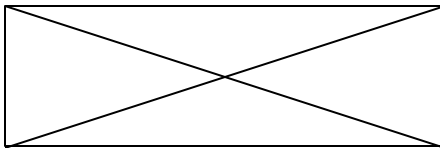


# Electronic Messaging Solutions

### AlisaMail

AlisaMail is a VAX-based electronic mail system for VAX and VMS, Macintosh and PC users. AlisaMail consists of a VAX-based server for Microsoft Mail V2.0, a VMS mail server and an SQL-based engine called the Information Switch. The Information Switch provides message and directory services for the AlisaMail servers and administration facilities, including accounting and reporting for tracking delivery delays and message traffic loads. Messages and attachments are stored in the relational database; only one copy is needed for multiple recipients. AlisaMail's Microsoft Mail server is compatible with Microsoft Mail V2.0 and provides services needed for store-and-forward message delivery and automatic directory updates in cooperation with other mail servers on the AppleTalk network. AlisaMail's VMS mail server provides message exchange with Digital mail services, permitting message exchange between users of VMS mail, ALL-IN-1, IBM PROFS, X.400 and others.

Approximate Cost ............................................................... $10,000 to $17,500
**Supplier:** Alisa Systems, Inc., 221 E. Walnut St., Suite 175, Pasadena, CA 91101, 818-792-9474

### MailMate

The MailMate family of products provide gateways to DECnet mail users for existing Macintosh-based electronic mail packages. MailMate gateways are available for CE Software's QuickMail and Microsoft Corp.'s Microsoft Mail V2.0. The MailMate gateways provide two-way exchange of text messages with Digital Equipment Corporation's DECnet mail (also known as VMS mail), making mail exchange possible between QuickMail or Microsoft Mail and Digital's ALL-IN-1 system, IBM PROFS, X.400 and other services supported by MAILbus, when used with Digital's Message Router/MAILbus services and the MRGATE gateway.

# Solutions

MailMate products support use of automatic address prefix and suffix for groups of users, restricting access to gateway services, logging of all gateway activity for the mail manager, use of pre-defined forms and templates for users, and on-off addressing. MailMate products work with existing mail packages. MailMate licenses are available for 1 to 10 users, 1 to 30 users, 1 to 100 users and Unlimited users. MailMate uses Alisa's DECnet package for the Macintosh, making the Macintosh a true DECnet node capable of receiving and sending DECnet mail. DECnet access may be via Ethernet, LocalTalk (and the Kinetics FastPath IV), or asynchronous (DDCMP) connection.

Approximate Cost ............................................................................... $450 to $4950
**Supplier:** Alisa Systems, Inc., 221 E. Walnut St., Suite 175, Pasadena, CA 91101, 818-792-9474

### MaxNotes

MaxNotes provides a Macintosh-based interface to Digital Equipment Corporation's VAX Notes electronic conferencing system. It uses Alisa's Macintosh DECnet package or a special AppleTalk for VMS package to connect to remote VAX Notes conferencing servers. DECnet access may be via Ethernet, LocalTalk (and the Kinetics FastPath IV), or asynchronous (DDCMP) connection.

MaxNotes makes use of the Macintosh graphic point-and-click interface, eliminating the need for commands and function keys. Most of the features of the VAX and VMS terminal-based front-end for VAX Notes are supported by MaxNotes. MaxNotes also supports a multiwindow interface that allows browsing of several topics at once, each with its own "threading" context; and cutting/pasting from one window into a topic or reply note in another window. A "paste quotation" feature makes it possible to include quotations from other notes complete with ">>" marks and a template citation header.

MaxNotes also provides tools for conference moderators, including a single dialog that handles the membership roster, member privileges and node assignments, a dialog to add, delete or rename keywords and read-only topic and conference controls.

Approximate Cost ...................................................................................... $295
**Supplier:** Alisa Systems, Inc., 221 E. Walnut St., Suite 175, Pasadena, CA 91101, 818-792-9474

### PacerPost: Microsoft Mail 2.0 compatible server and gateways for VAX and VMS

PacerPost is a 100% compatible Microsoft Mail server that runs on a VAX under VMS. It functions like Microsoft's Macintosh-based mail server and supports the standard Microsoft Mail 2.0 clients for the Apple Macintosh and IBM PC. A VAX TTY client is also provided, enabling direct interaction with Microsoft Mail from a

## Solutions

terminal. In addition, PacerPost provides VAX and VMS resident gateways to VAX-based mail systems. These gateways are also compatible with the Microsoft Mail server and gateway architecture. PacerPost mail servers and gateways are designed to function in conjunction with other Microsoft Mail 2.0 servers and gateways to provide enterprise-wide electronic mail capability.

The PacerPost mail server gives sites access to the entire range of VAX models and processing power, allowing for a larger number of mail clients and flexibility in designing a mail network. A site can select the appropriate processor size based on mail user population, message volume and application load.

Approximate Cost ............................................................................ $1000 to $8000
**Supplier:** Pacer Software, Inc., 7911 Herschel Ave., Suite 402, La Jolla, CA 92037, 619-454-0565

# Network Solutions in the VAX/ULTRIX Environments

The ULTRIX-32 Operating System is a UNIX operating system for Digital's VAX family of hardware. The current version is compatible with both System V and the University of California at Berkeley Software Distribution (BSD). The ULTRIX-32 Operating System is also compatible with the IEEE 1003.1 trial use standard for a Portable Operating System Environment (POSIX).

These ULTRIX systems are interactive, demand-paged, virtual-memory, time-sharing operating systems. They incorporate a high-performance file system, compatible device and interprocess I/O, asynchronous processes, disk quotas, job quotas, and a user-selectable system command language. Specific capabilities provided by these systems include tools and commands for UNIX time-sharing user interfaces, program development, documentation preparation, and communications and networking. DECnet-ULTRIX offers the flexibility to design networks that take advantage of multiple operating systems: VMS, RSX, DOS, TOPS-20, and ULTRIX. With the addition of the DECnet-Internet gateway, the resources of DECnet networks are also extended to users of non-Digital operating systems using the TCP/IP networking protocols.

The DECnet-ULTRIX software includes a semi-transparent, bidirectional gateway that bridges DECnet networks and internet (TCP/IP) networks. DECnet-ULTRIX offers task-to-task communications, network virtual terminal capabilities, remote file transfer, mail facilities, coexistence with the Internet protocols (TCP/IP-based), network-wide resource sharing, and management as defined by the DNA architecture.

See the *UNIX and TCP/IP* chapter in this Guide for product descriptions.

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