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**Say Mac,  
How do you talk to  
A/UXs, CRAYs, IBMs,  
SUNs, VAXs?**

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TCP/IP



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**To Seamlessly  
Integrate Macintosh  
Into the TCP World**

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# Operating Goals

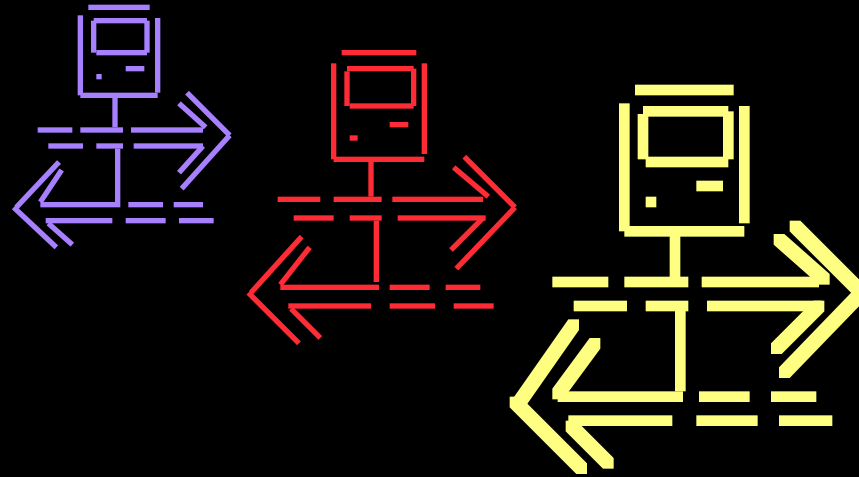
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- Short term
  - Give users TCP and AppleTalk **SIMULTANEOUSLY**
  - Make TCP friendlier
  - Evangelize great applications
- Long term
  - Make the network even more **transparent**

# Ongoing Activities

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- Create building blocks
- Help foster standards
- Evangelize applications



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# Building Blocks: MacTCP

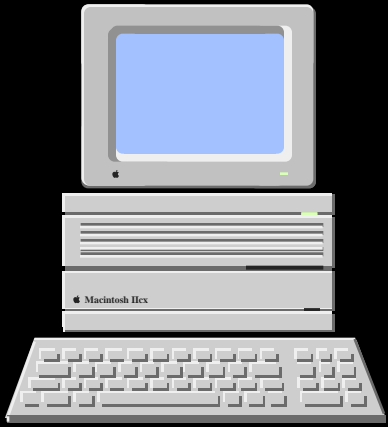
Developing Applications  
Using TCP/IP Networks

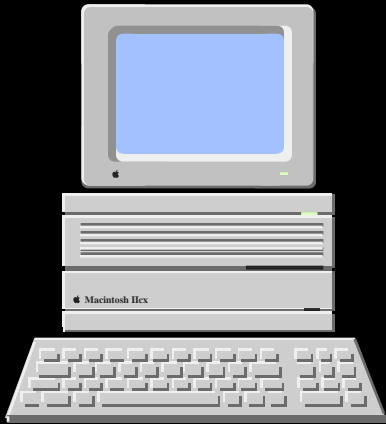
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# What is MacTCP?

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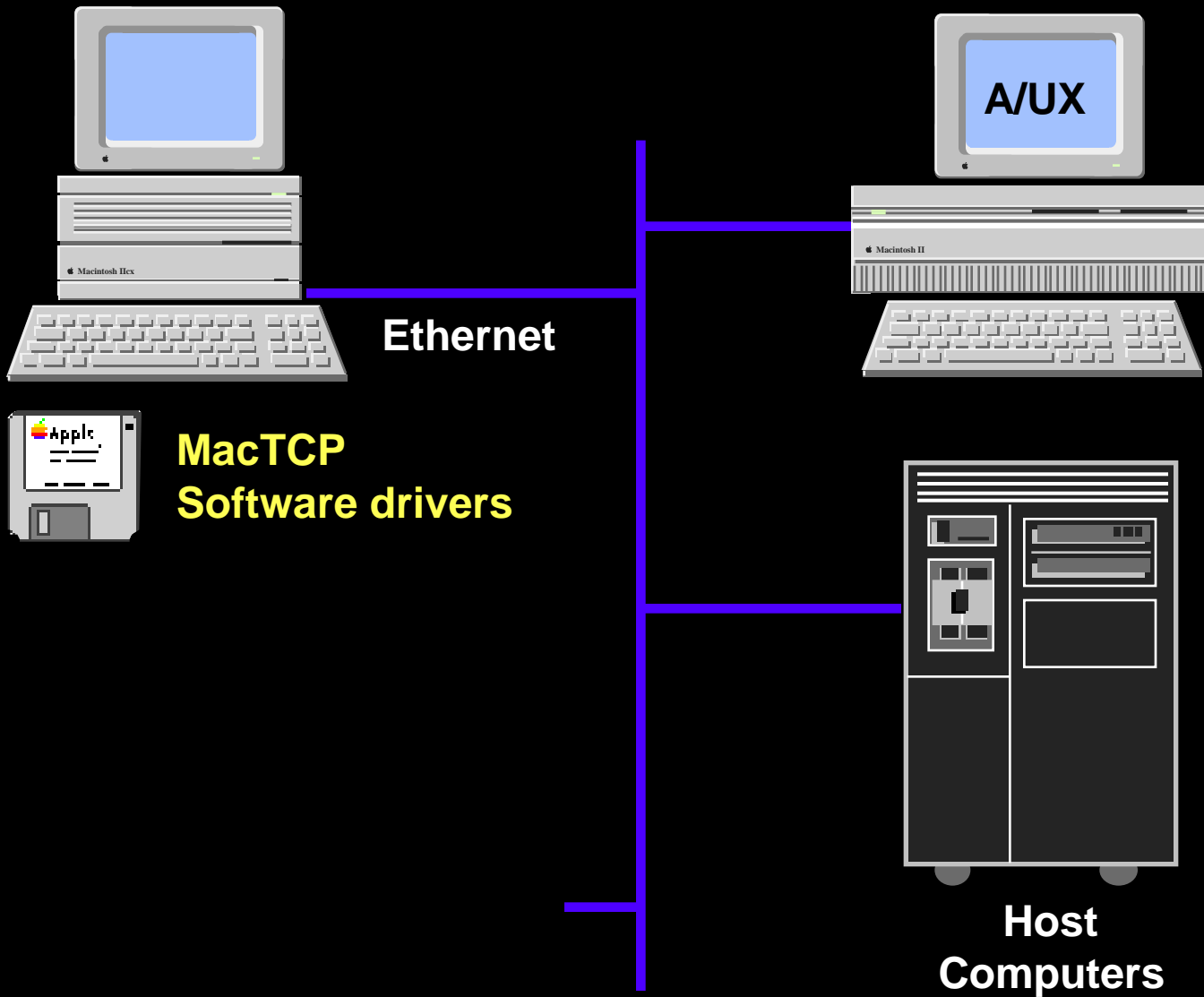
- **TCP/IP drivers** for the Macintosh OS
- **Fully integrated** with AppleTalk:  
access BOTH services simultaneously
- **Fully compliant** with relevant RFC's  
and Mil-STDs
- **Fast:** 3 megabits per second (Ethernet,  
Macintosh II)
- **TCP networking platform**

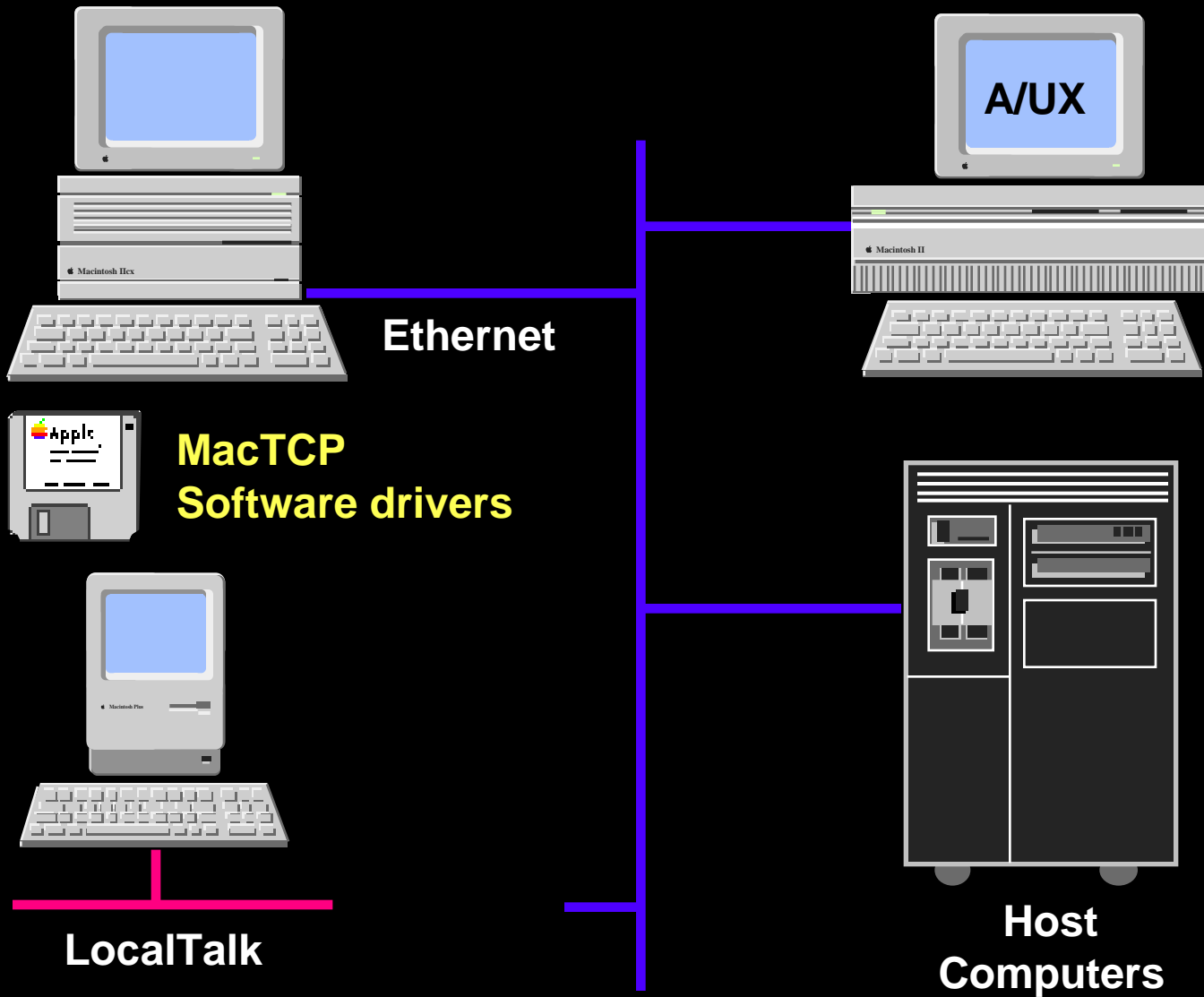


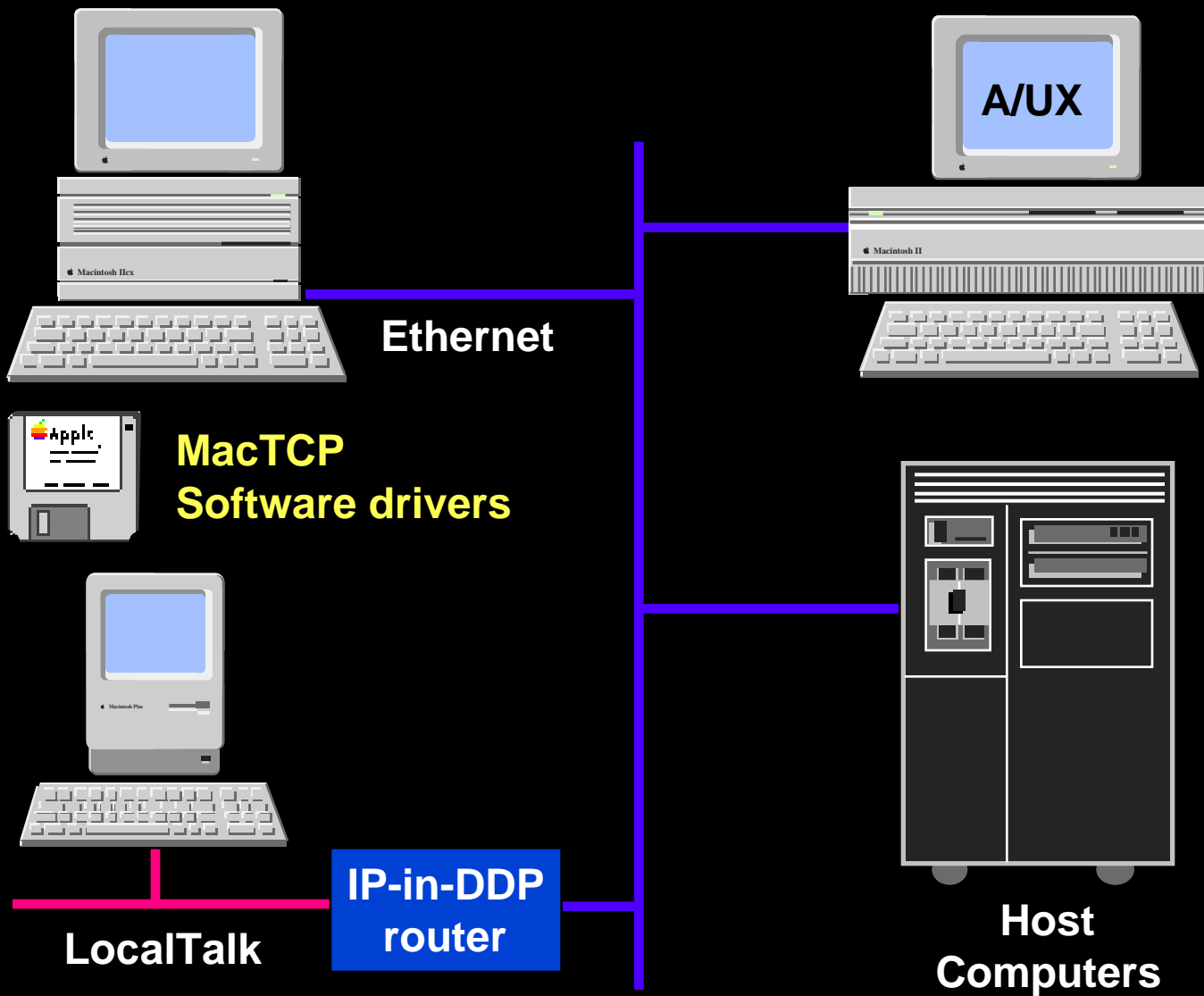


**MacTCP**  
**Software drivers**









# Configuring Typical UNIX Station for TCP

**UNIX commands  
you type in:**

```
$vi /etc/rc.local
```

```
$ vi /etc/rc.host
```

# Configuring Typical UNIX Station for TCP

## UNIX commands you type in:

```
$vi /etc/rc.local
```

## and what you get ...

```
PATH=/etc:/usr/etc:/bin:/usr/ucb:/usr/bin  
# hostname and domainname are set in /etc/rc.host  
# my-netmask is specified in /etc/networks
```

```
$ vi /etc/rc.host
```

```
/bin/hostname goofy  
/bin/domainname apple.com  
# Internet networks  
default-subnet      90
```

# Configuring MacTCP: Addressing and Administration

Obtain Address:

Manually  
 Server  
 Dynamically

Node Range:


From:   
To:

Routing Information:

Gateway Address:

IP Address:

Class:  Address: 90.180.0.59  
Subnet Mask: 255.255.252.0



	Net	Subnet	Node	
Bits:	8	14	10	
Net:	<input type="text" value="90"/>			<input type="checkbox"/> Lock
Subnet:		<input type="text" value="11520"/>		<input type="checkbox"/> Lock
Node:			<input type="text" value="59"/>	<input type="checkbox"/> Lock

Domain Name Server Information:

Domain	IP Address	Default	
<input type="text" value="apple.com"/>	<input type="text" value="90.1.0.00"/>	<input checked="" type="radio"/>	<input type="button" value="↑"/>
<input type="text"/>	<input type="text"/>	<input type="radio"/>	<input type="button" value="↓"/>

# Configuring MacTCP: Addressing and Administration

Obtain Address:

Manually

Server

Dynamically

Node Range:

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Domain Name Server Information:

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<input type="text"/>	<input type="text"/>	<input type="radio"/>

OK Cancel

# Configuring MacTCP: Addressing and Administration

Obtain Address:

Manually

Server

Dynamically

Node Range:

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		<input type="radio"/>

OK Cancel

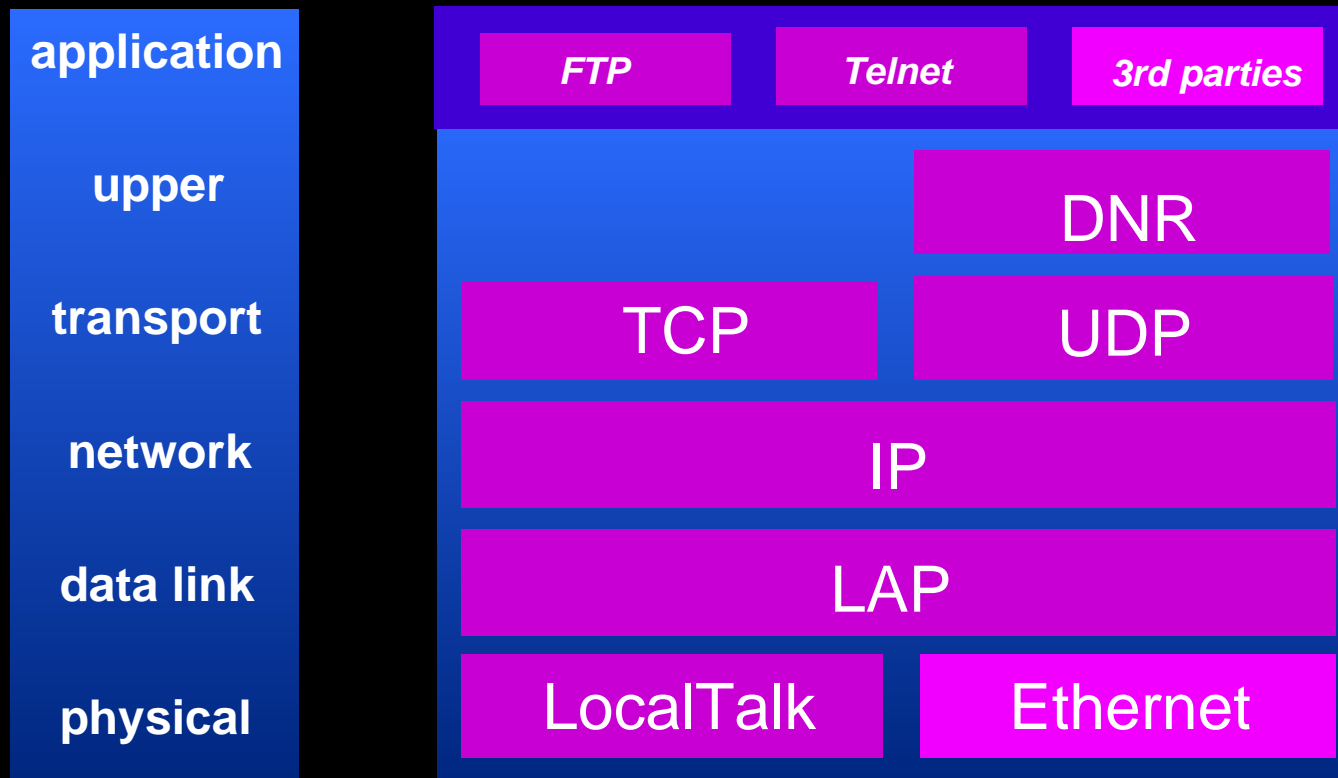


# Programming Information

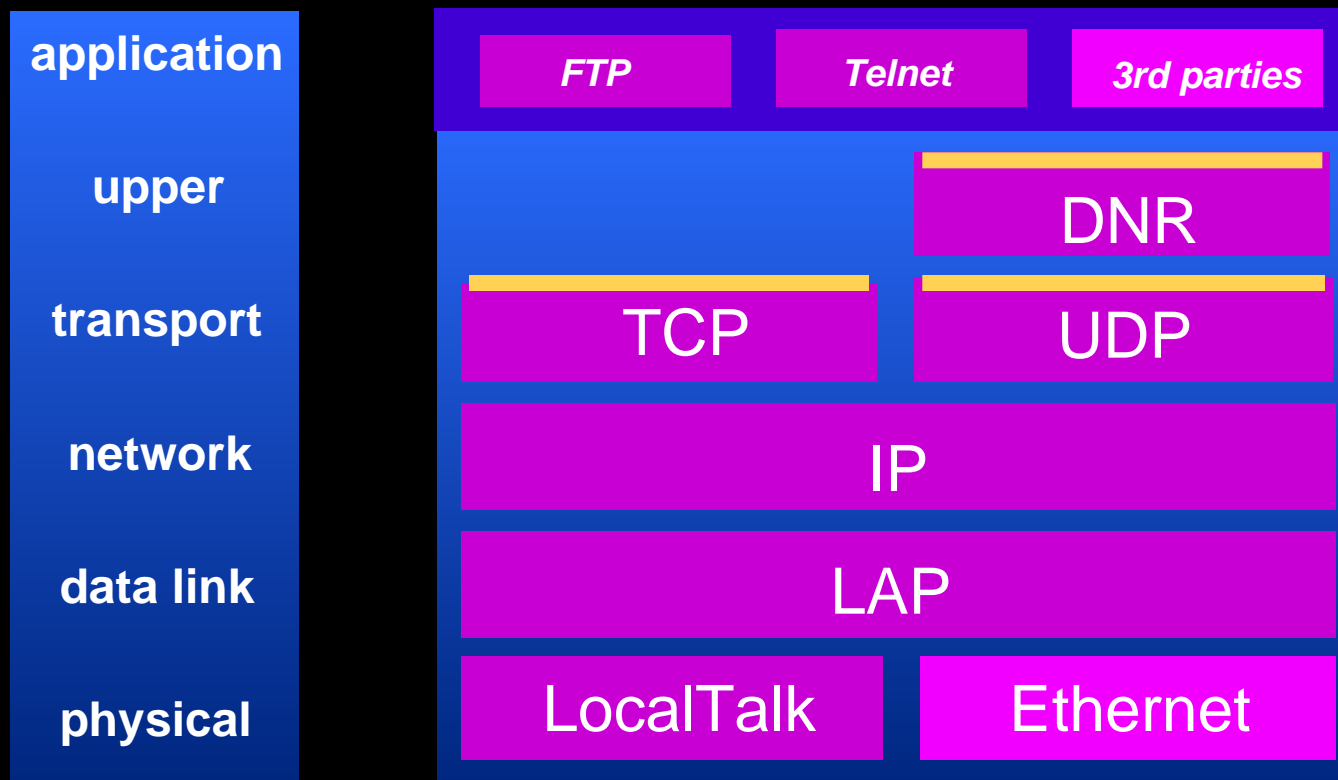
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- Implementation of MacTCP
- Programming interfaces and routines
- Some useful product specifications

# MacTCP 1.0 Protocol Stack



# MacTCP 1.0 Protocol Stack

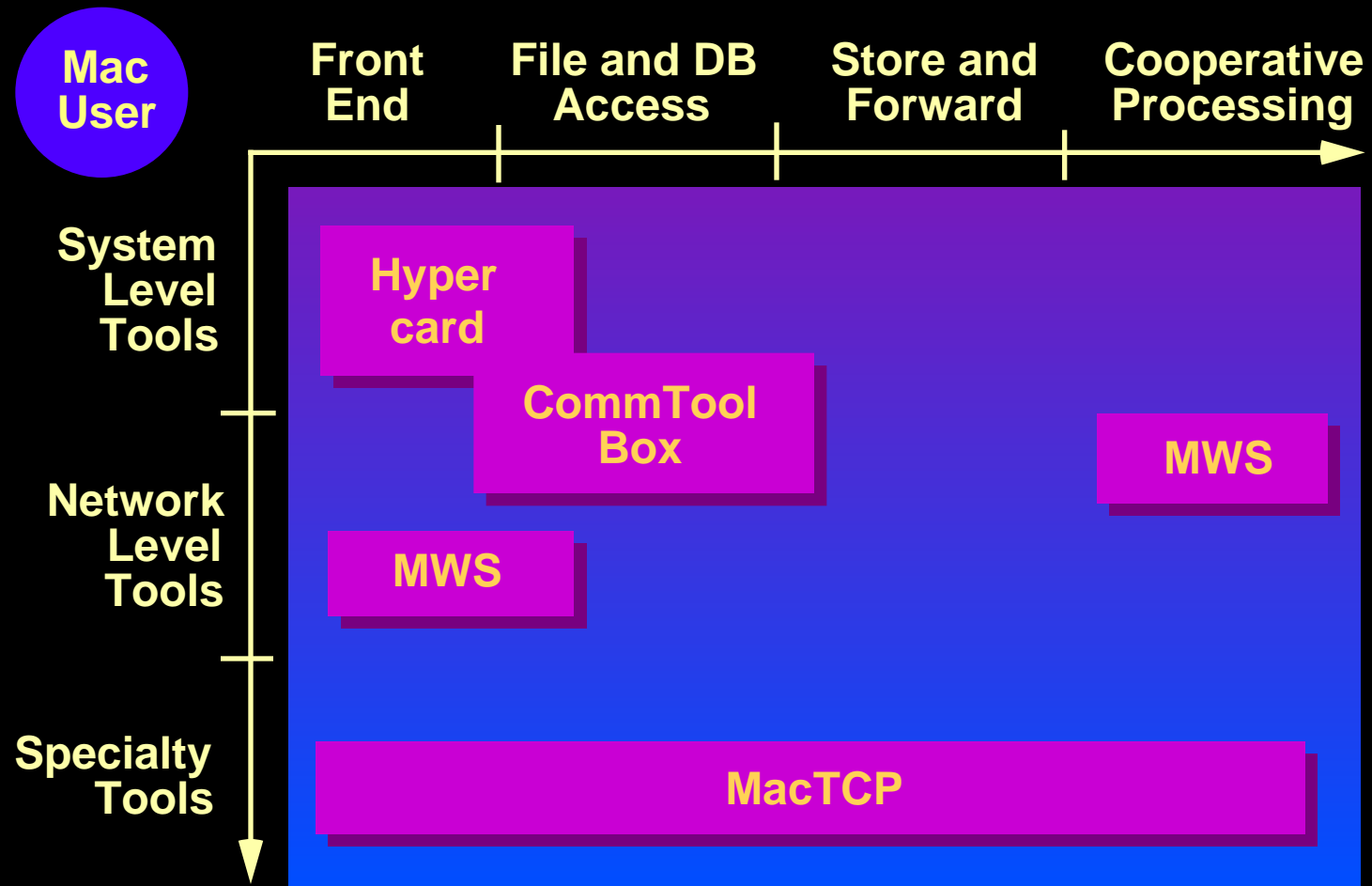


# Summary: MacTCP

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- TCP drivers for Mac OS
- Runs over **Ethernet** and **LocalTalk**
- Fully **integrated** with AppleTalk and Mac OS
- 64 simultaneous TCP streams
- MacTCP calls supported in A/UX 1.1.1
- MacTCP is evolving.

# Network Application Tools



# Ongoing Activities

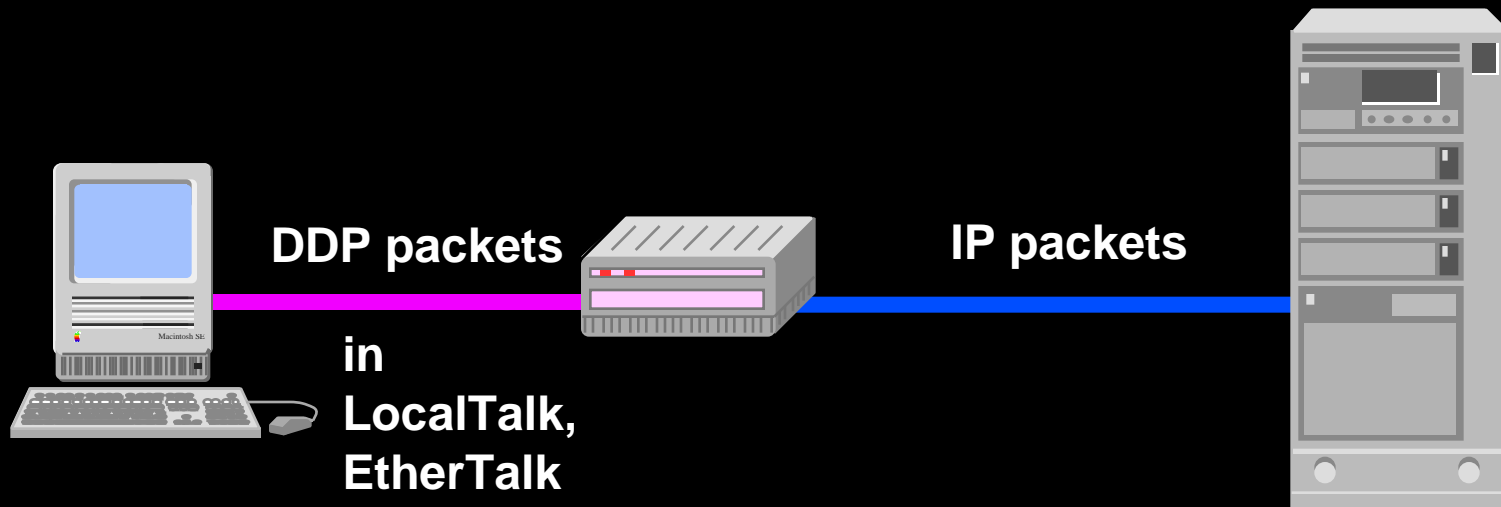
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- Create building blocks
- **Help foster standards**
- Evangelize applications

# “IP-in-AppleTalk” Routers

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- Shiva FastPath 4
- Cayman GatorBox



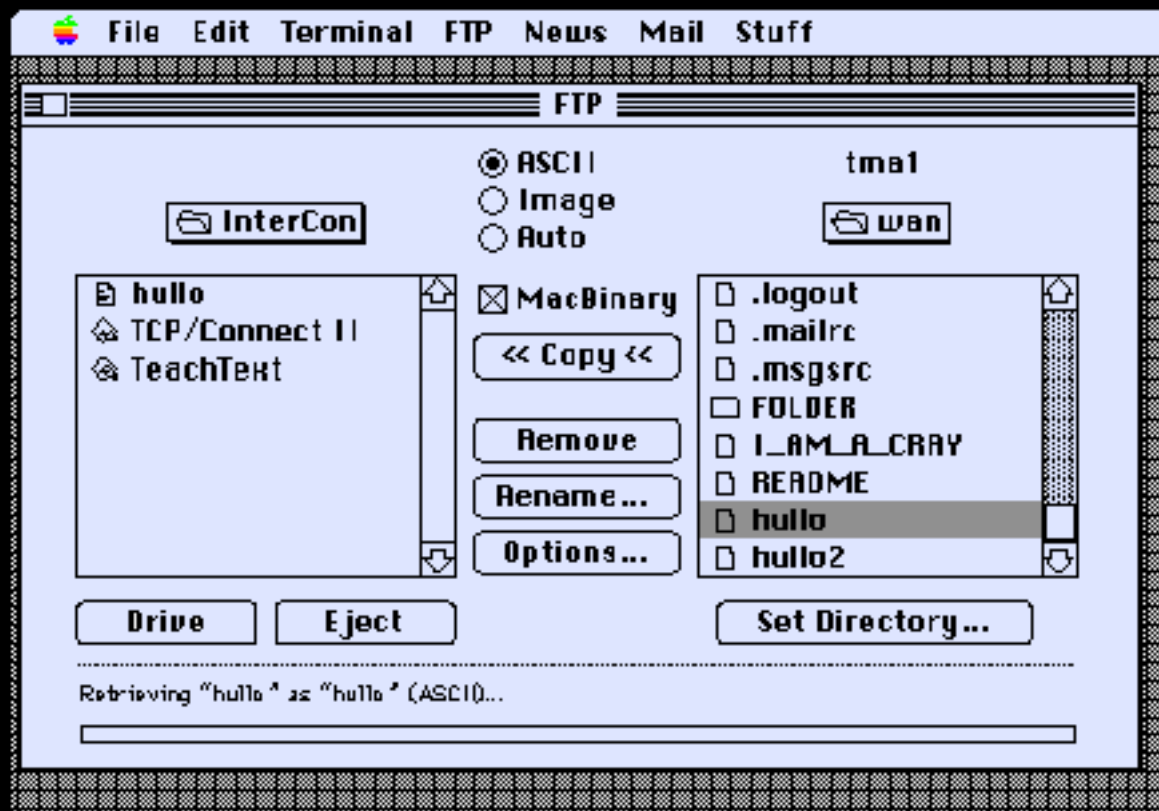
# Ongoing Activities

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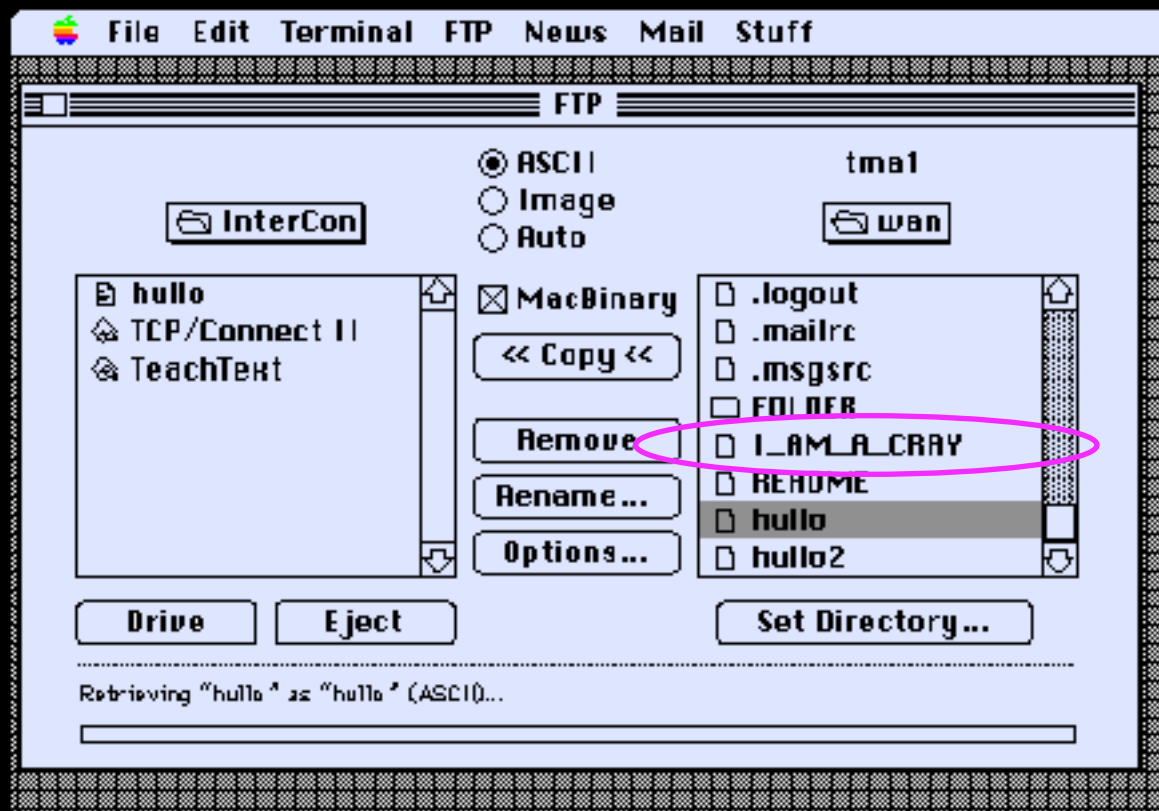
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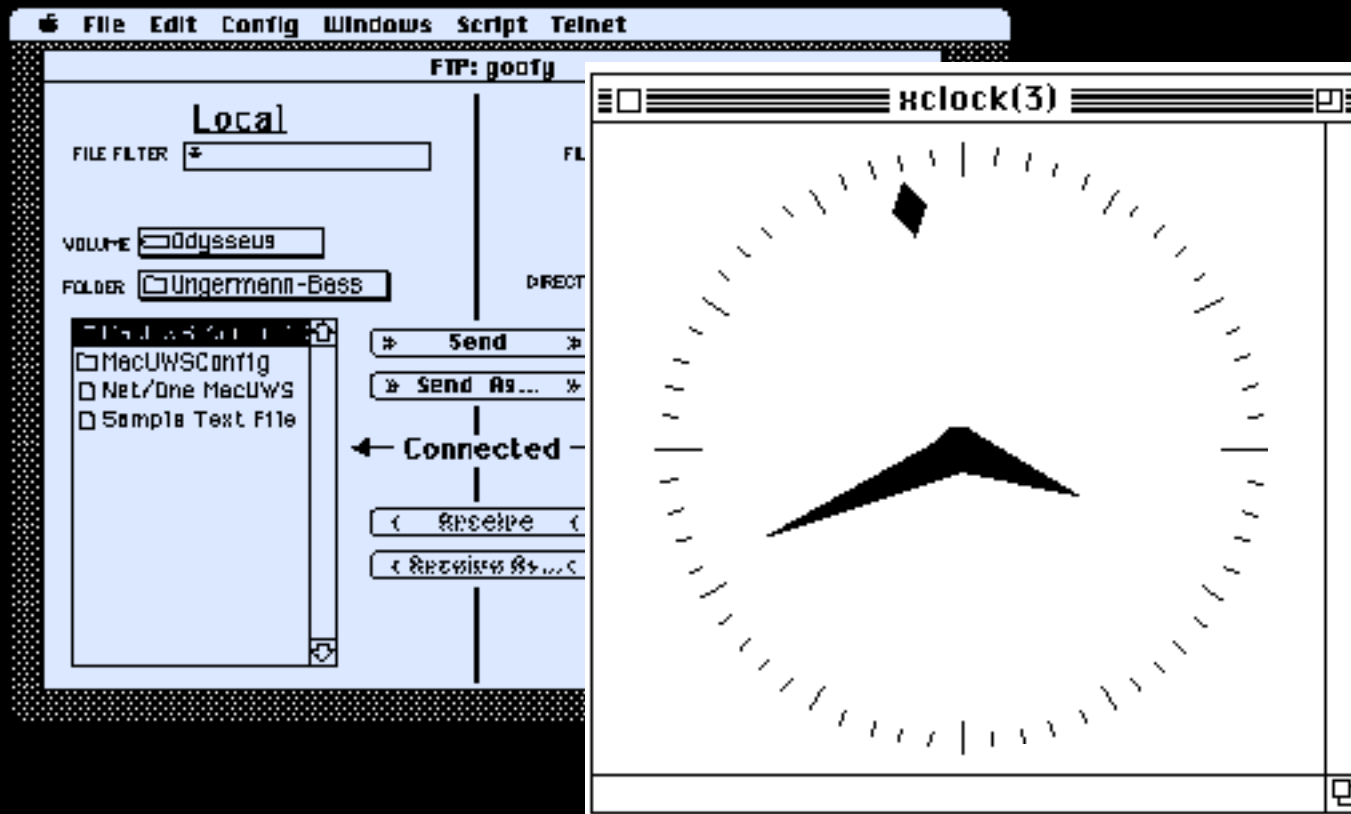
# MacTCP Based Solutions: Simpler Ways for TCP Services



# MacTCP Based Solutions: Simpler Ways for TCP Services



# Multiple TCP Applications Simultaneously



# Applications Available on MacTCP

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- MacX from Apple
- TCP/Connect (Telnet: VT240, TN3270, TEK 4014, FTP, Mail, News) from InterCon
- MacPathWay Access (Telnet: VT240, TN3270, FTP, SMTP mail) from Wollongong
- NetOne TCP for Macintosh (FTP, Telnet) from Ungermann-Bass

# More Applications...

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- TCPort Host Access (**FTP, Telnet**) from **Novell**
- Database access from **Oracle** and **Informix** (Wingz)
- TGRAF (Tektronix 4017) **graphics emulator** from **Grapoint**
- Mathematica (mathematical modelling) from **Wolfram Research**

# And More Applications

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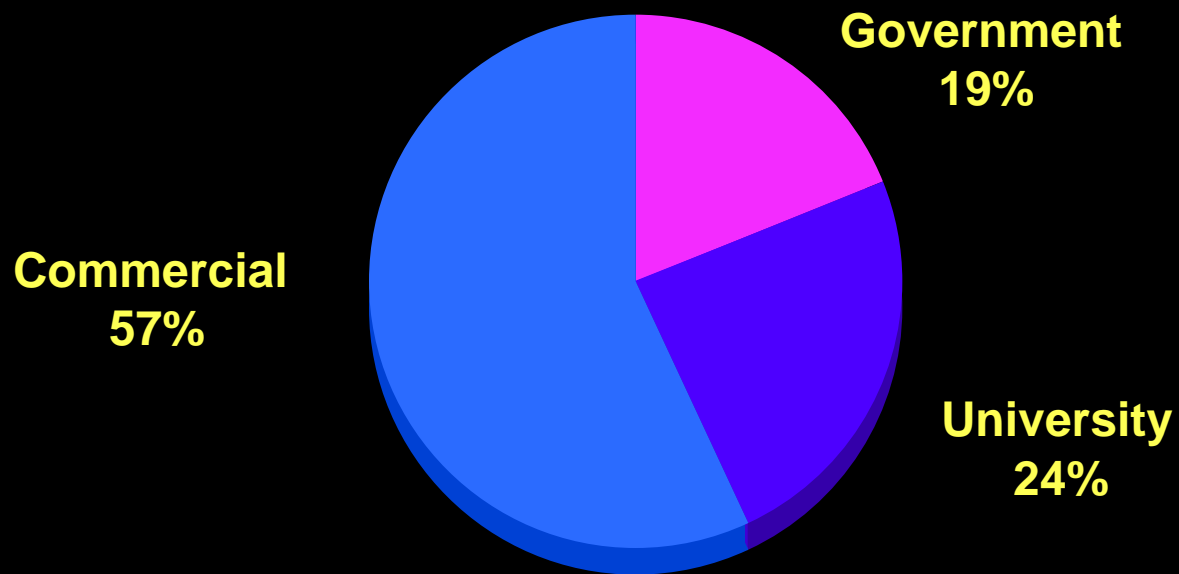
- GatorMail SMTP gateway from Cayman Systems
- MacNix: Front end to UNIX systems from List SpA
- MacIP, MacMH (FTP, Telnet, Mail) from Stanford U
- NCSA Telnet from NCSA, U Illinois
- 3270 emulator from Brown U

# And More Applications

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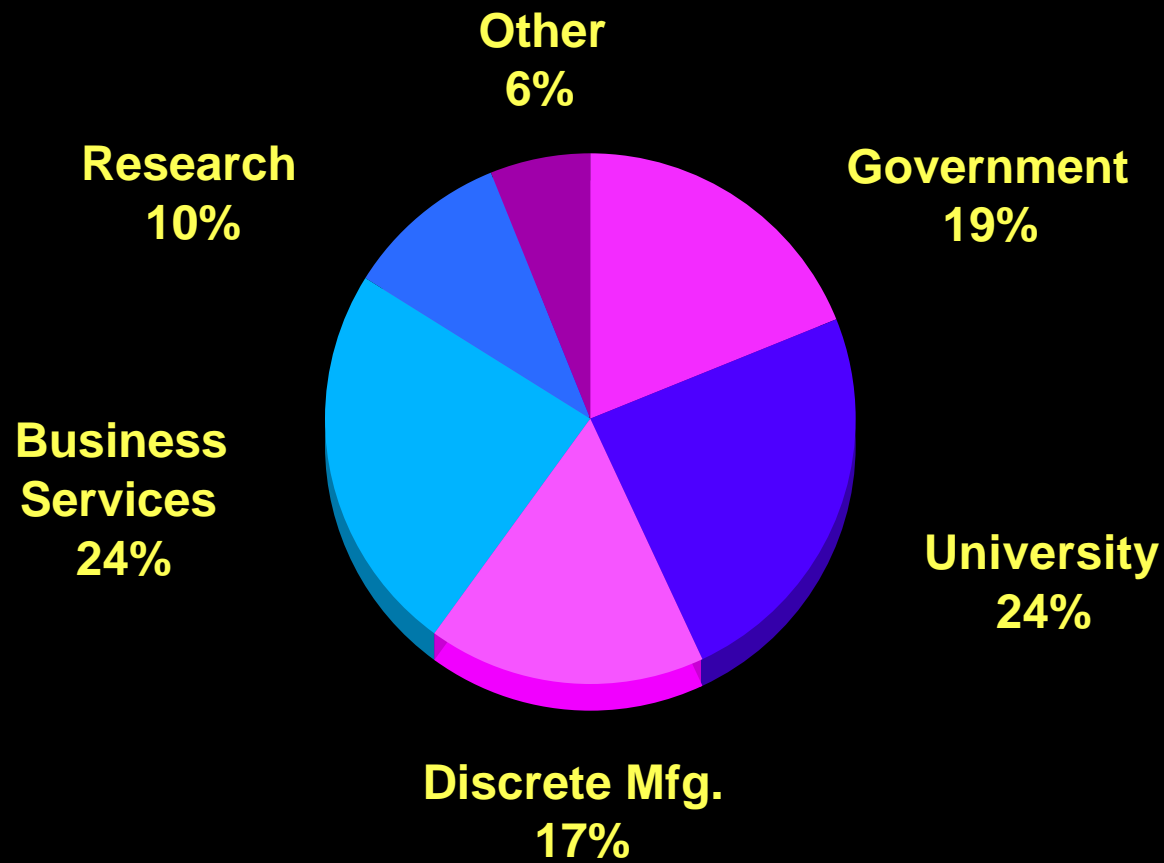
- Exodus (**X** window server) and a VT 220, 240, 241 emulator from **White Pine Software**
- UShare (UNIX based AppleShare **file server**) From **IPT**

# The TCP Market





# The TCP Market



# Opportunities

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- Vertical solutions
  - Manufacturing, financial, modeling, graphics
- Customized solutions
  - MacWorkStation, HyperCard front ends
  - Special terminal emulators
- Tools: SNMP agent, CTB tools, printing, spooling
- New ideas!

# Getting MacTCP Kits

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- Shipping since April '89
- Evaluation Kits from APDA
- Licenses from Apple Software Licensing

# MacTCP Kits from APDA

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- MacTCP Evaluation Kit (\$100)
- HyperCard MacTCP Toolkit (\$20)
- MacTCP Documentation Kit (\$60)

# MacTCP Developer's Kit: Licensing It

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- Same as MacTCP Evaluation Kit,  
*PLUS*
- Soft-copy of MacTCP Administrator's Guide (text and illustrations) licensed for your use in your manuals
- Internal Use License: \$2500
- Commercial Use License: \$5000  
(or Internal Use License + \$2500)

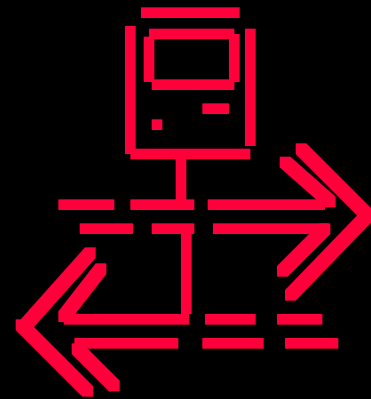
# MacTCP 1.0.1

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- Maintenance release of MacTCP 1.0
- Fully compatible with MacTCP 1.0
- Shipping: March '90
- MacTCP 1.0 Licensees receive auto upgrade
- MacTCP 1.0 Evaluation Kit purchasers get auto upgrade

# **Network Application Tools Product View**

- **TUESDAY**
- **2:30 - 5:00**
- **Networking Event follows this at 5:15**



**MacTCP**



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**The Following Slides  
Contain Product Detail  
for Your Reference**

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# Programming Interfaces: TCP, UDP, DNR

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- UDP Routines: UDPCreate, UDPRead, UDPWrite, UDPRelease, etc.
- TCP Routines: TCPCreate, TCPActiveOpen, TCPSend, TCPNoCopyRcv, TCPStatus, etc.
- DNR Routines: OpenResolver, StrToAddr, AddrToStr, EnumCache, AddrToName, etc.

# Product Specifications

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- 64 simultaneous TCP streams
- TCP buffers specified by application design
  - Allocated off application heap
  - “TCPRelease” returns memory to system
- Supports: TCP, UDP, IP, ARP, RARP, ICMP, BootP, RIP, DNR, Internet Subnetting, Internet Assigned numbers

# System Requirements

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- Macintosh 512K Enhanced or more recent CPU
- Ethernet card
- LocalTalk compatible cables
  - IP-in-AppleTalk Router required

# MacTCP Evaluation Kit

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- MacTCP software and libraries
- Programmer's Guide (70 pages)
- Administrator's Guide (90 pages)
- \$100

# HyperCard MacTCP Toolkit

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- XCMDs and source code
- Sample “netnews” stack
- MacTCP not included
- \$20
- Can be licensed for redistribution
  - Contact Apple Software Licensing

# MacTCP Documentation Kit

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- MacTCP Programmer's and Administrator's Guides
- \$60

# Ordering From APDA

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- APDA, Apple Computer Inc,  
20525 Mariani Avenue, MS 33-G,  
Cupertino, CA 95014-6299  
or calling:(U.S.)1-800-282-2732(international)1-408-562-3910  
FAX 1-408-562-3971, TELEX 171-576
- Electronic ordering:  
AppleLink:APDA      MacNet:APDA      MCI:POSTROM  
GENie:A.DEVELOPER3      CompuServe:76666,2405
- APDA Log: quarterly catalog



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20525 Mariani Avenue, MS 38-I,  
Cupertino, CA 95014



The power to be your best