Worldwide

Developers

Conference

Mac OS
Networking
Update

Thomas Weyer

Network and
Communications Evangelist

Mac OS Networking Update

Session 108, Wed- 5:50-6:50pm, room A-2

- Introduction & Logistics
- Session Overview
- Other Sessions of Interest
- Contact Information

Session Overview

- **Evangelism Introduction**
  - Thomas Weyer (weyer@apple.com)
- **OT Roadmap and update**
  - Richard Ford (rvf@apple.com)
- **ARA & OT/PPP Roadmap and update**
  - Richard Ford (rvf@apple.com)
- **Demo**
- **Q&A**
  - DTS & OT Engineering

Related Sessions of Interest

Advanced Mac OS Networking

- Session 109, Thurs- 9:50-10:50 am, room A-2
- Agenda:
  - Single Link multihoming
    - David Kim (davidkim@apple.com)
    - Chin Niazi (cniazi@apple.com)
  - OT 1.1.x API Changes
    - John Comiskey (comisk.j@apple.com)
  - Performance Optimization
    - Quinn (eskimo1@apple.com)
  - Q&A
    - DTS & OT Engineering

Related Sessions

- **Rhapsody Core OS Kernel and Runtime**
  - Session 201, Tues- 4:50-5:50 pm, Hall 1
- **Mac OS Support in Rhapsody's Blue Box**
  - Session 204, Wed- 1:30-2:50 pm, Hall 1
- **Rhapsody Network Administration Model**
  - Session 221, Fri- 4:30-5:30 pm, room A-2
- **Rhapsody Networking API's & Service**
  - Session 220, Fri- 5:50-6:50 pm, room A-1

Related Sessions

Feedback Forums

- **Rhapsody Core OS Feedback Forum**
  - Session 292, Thurs- 11:10-12:10 pm, room J-4
- **Mac OS Networking Feedback Forum**
  - Session 194, Thurs- 1:50-2:50 pm, room J-4

Your Evangelist !!!

Thomas Weyer

N&C Evangelism

Apple Computer, Inc.

3 Infinite Loop, MS 303-2 EV

Cupertino, CA 95014

Phone: (408) 974-5017

Fax: (408) 974-1211

Email: weyer@apple.com

http://www.devworld.apple.com/
dev/opentransport/

Open Transport Update

Richard V. Ford

Product Manager

Open Transport is not dead!

So, Where Are We?

"Two years ago you couldn't curse about it fast enough. At this point, however, Open Transport is pretty nice..."

- Gil Amelio in MacWeek

Cool, Recent OT-Native Products

- **Apple Personal WebSharing**
- **AppleShare IP**
- **DAVE™ from Thursby Software Systems**
- **Fetch 3.0.2 w/Resume**
- **IP NetLink from Sustainable Softworks**

DAVE™

🌐 Sustainable Softworks

Cool, Recent OT-Native Products

- Neon CyberGage 2.0

- NTS TunnelBuilder™

- PGP Phone

- PointCast™

Open Transport Update

- What is OT?
- Burning Questions
- Year in Review
- Times, they are a' changing
- New releases: OT 1.2 and beyond
- Licensing
- Remote Access

And Just a Reminder...

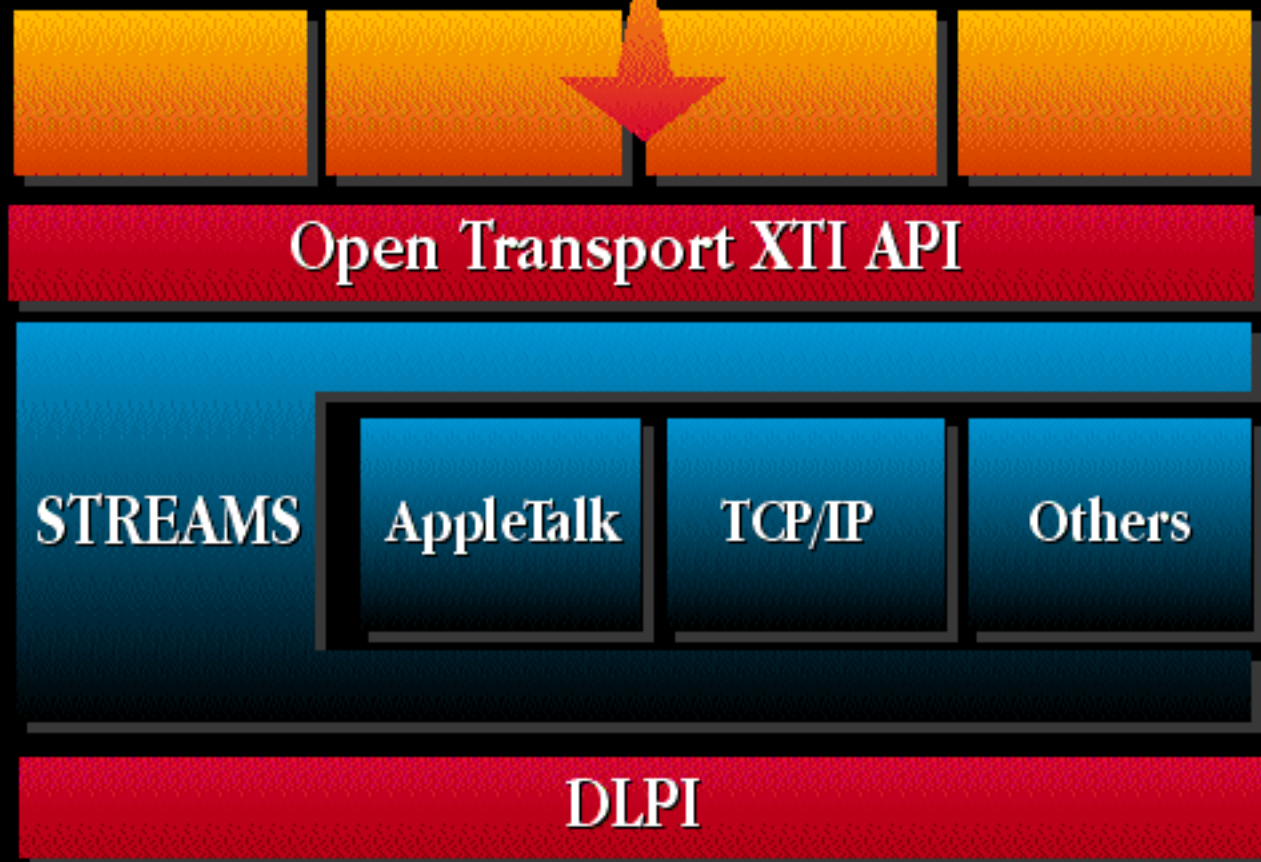## *What is Open Transport?*

- Open Transport is the new, modern networking and communications subsystem for Mac OS

- It's based on 3 industry standards also used in AT&T style UNIX variants: XTI, STREAMS and DLPI

- It encompasses LAN, WAN and serial communications

- It provides TCP/IP, AppleTalk, Serial, PPP, ATM connectivity for Mac OS

Architecture

Applications

Open Transport XTI API

| STREAMS	AppleTalk	TCP/IP	Others

DLPI

Should I Develop for Open Transport ?

- The Open Transport market is now established and growing at over 1M units/quarter

- Every new Mac OS System and Mac OS Upgrade ships with Open Transport

- Updating to Open Transport gains you performance, particularly for TCP applications

- If you develop for Mac OS, and you develop network software OT is for you

Open Transport Market Size

8M

6M

4M

2M

500k '95

3M '96

6.5M+ (projected by year end)

4.5M '97

← Now (5/97)
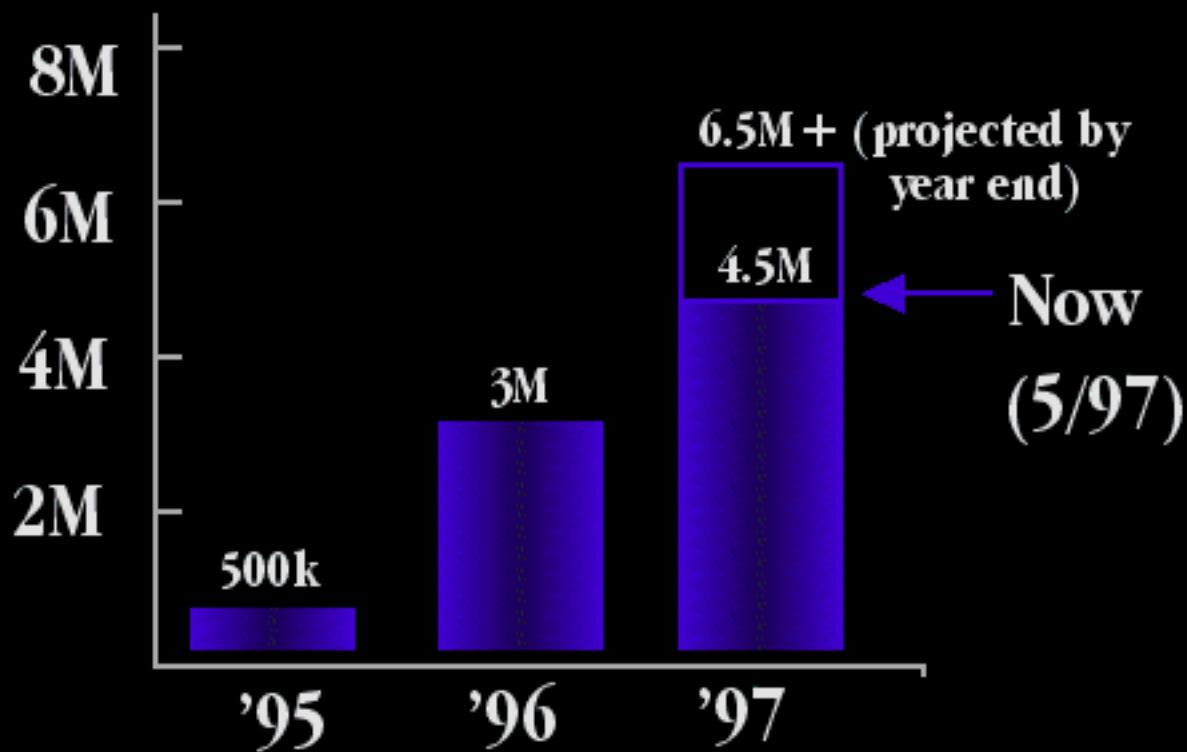
* Based on Apple sales & market research data

Market Tidbits of Interest

- 78% of Mac OS Installed base use Mac OS 7.1 or later
- 40% of Mac OS Installed base use Mac OS 7.5 or later
  - 94% of Power Macs and 68040's run 7.5 or later
- Power Macs average 24 RAM/1.1GB HD, 11 RAM /400 HD is overall average
- 51% of Macs have modems
  - 17% 28.8k, 39% 14.4k, 20% don't know speed

* Based on 1996 Apple sales & market research data

Market Openings

- *Really, Really* fast file transfer on 100Mb+ networks

- **Internet Products** (emerging applications... Intranet tools for MIS, PUSH, Browser plug-ins, Server plug-ins, Realtime, Internet as company remote access solution...)

- **Security and Encryption products**
  - Personal firewalls?

- **Management**

OT Status Update

- Open Transport has replaced "classic" networking in Mac OS

- It is *the* network architecture for Mac OS going forward

- Open Transport has stabilized and been accepted by users and developers

- OT 1.1.2 is the current release

- AppleShare (client & server) and Printing adopt OT and go transport-independent this year

The Year in Review

- Since WWDC '96 Apple delivered 4 Mac OS releases (7.5.3, 7.5.5, 7.6, 7.6.1), 3 OT releases (1.1, 1.1.1, 1.1.2), and OT/PPP 1.0
  - Mac OS 7.5.3, transition release allowing either OT or Classic (based on hardware constraints). Includes OT 1.1
  - OT 1.1.1 ships 10/96
  - Mac OS 7.6 shipped 1/97, requires OT Includes OT 1.1.1. Open Transport now shipped with every system
  - OT 1.1.2 released 12/96

OT 1.1.2

- **Released in December '96**
- **Use it if you need these fixes, otherwise it's OK to stay with OT 1.1.1**
- **Minor bug fix release - 6 bugs**
  - PAP fixes for OT Native Print Spoolers, OPI Servers
  - QTC & MacPPP 2.5.1
  - Fix for Apple Token Ring card drivers
  - AppleShare IP

OT 1.1.2

- **Minor bug fix release—6 bugs**
  - Removed possible cause of crash with OT/PPP & redialing with a hung modem
  - AISS & WebStar minor performance boost

Recent Tools Notes

- Inside Mac-OT
  - Actively being updated
  - 4 new chapters on the OT web page
    http://devworld.apple.com/dev/opentransport
  - Features of this update
    - OT 1.1.1 API changes
    - New tutorial information
    - Many bugs fixed to bring in line with the Client Notes
- WinSock SDK
  - Ownership transfers to Altura
    http://www.altura.com

Times, They Are a-Changin'

- **Apple Buys NeXT, Copland cancelled Rhapsody emerges as successor**
  - Decides to use OT in Blue Box, NeXT technology in Yellow Box
- **Apple now has two Operating Systems, dual-OS strategy**
- **New OT Road Map**
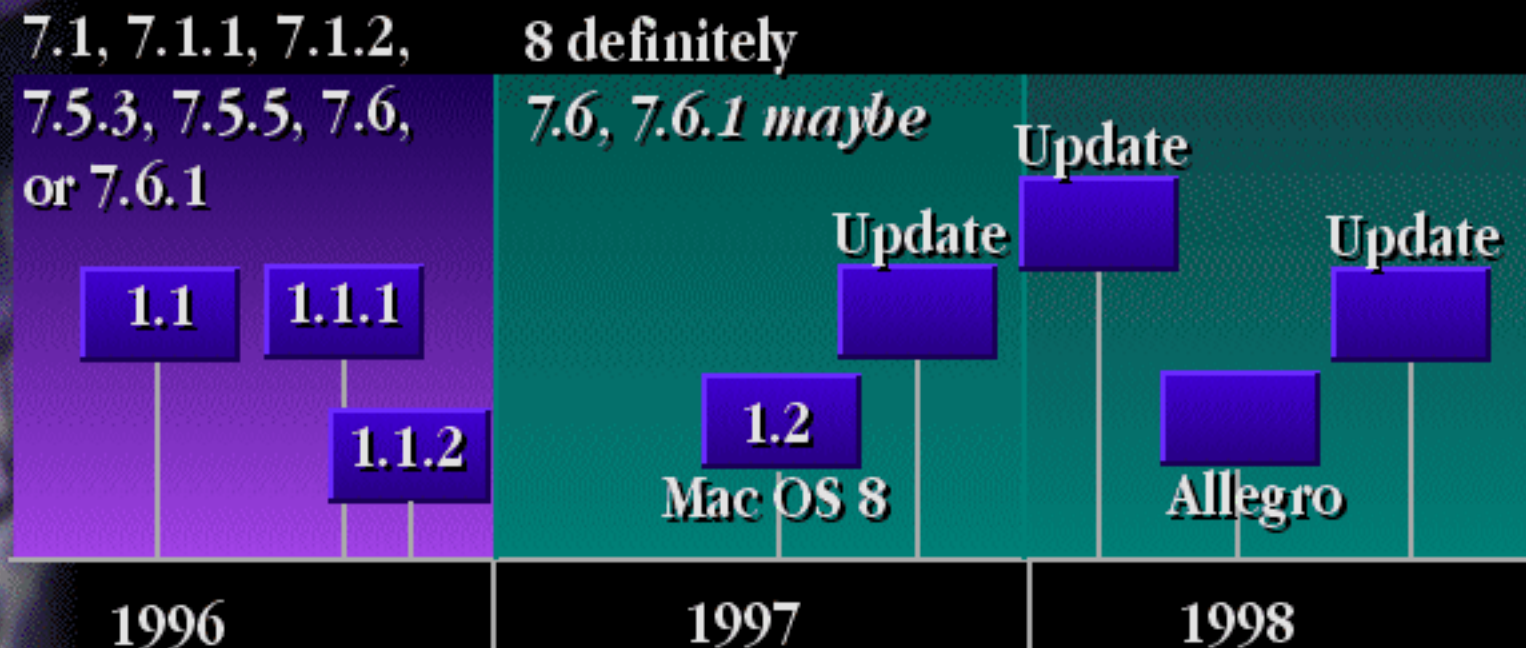- **Open Transport 1.5 release cancelled**

New OT Plan

A work in progress

- OT 1.5 to be replaced by a series of smaller releases, each time Mac OS updates. First of these is OT 1.2 to accompany Tempo

- Sync's OT Strategy with System Software strategy

- Currently 7 Mac OS releases on the plan of record between now and 2000

OT Road Map

**7.1, 7.1.1, 7.1.2,
7.5.3, 7.5.5, 7.6,
or 7.6. 1**

**8 definitely
7.6, 7.6.1 *maybe***

| 1.1 | 1.1.1 | | Update | Update | | Update |

| | 1.1.2 | 1.2 | | | | |

Mac OS 8

Allegro

| 1996 | 1997 | 1998 |

New OT Plan

A work in progress

- First release: OT 1.2—defined, on-track for Mac OS 8

- Collecting customer and developer feedback to prioritize work for future OT releases drawing from OT 1.5 code base

- Feedback trend is Single Link IP Multihoming is #1 request so far —we have that protoyped

  - Demo in session 109

Implications

- Overall
  - Future OT Updates will require also deploying Mac OS updates
  - Some OS/CPU combinations have received their last update
- Features in OT 1.5 plan
  - Some OT 1.5 features coming soon from Apple or 3rd parties
  - Some OT 1.5 features will never ship
  - Some OT 1.5 features will never ship for Mac OS, but will be offered in Rhapsody.

N&C Magic decoder-ring

- CPU   Classic OT

OT 1.1.2 is last update:

CPU	Classic	OT
68000, 68020	√	NO
68030 24-bit	√	√ *7.1.x, 7.5.3 or 7.5.5
68030 32-bit clean	√	√ *7.1.x, 7.5.3, 7.5.5 7.6, 7.6.1

Further Updates Planned:

	Classic	OT
68040	Either as allowed by OS	
PowerPC (other)	Either as allowed by OS	
PowerPC with PCI	No	√

OT Update Paths

- ## Mac OS 7.1.x

  Install OT 1.1 → Install OT 1.1.2 Update

- ## Mac OS 7.5.x

  Install System 7.5, Update 2.0
  (Incl. OT 1.1, use NSS if necessary) → Install OT 1.1.2 Update

OT Update Paths

- ## Mac OS 7.5.3

  Includes OT 1.1 → Install OT 1.1.2 Update

- ## Mac OS 7.6, 7.6.1

  Includes OT 1.1.1 → Install OT 1.1.2 Update
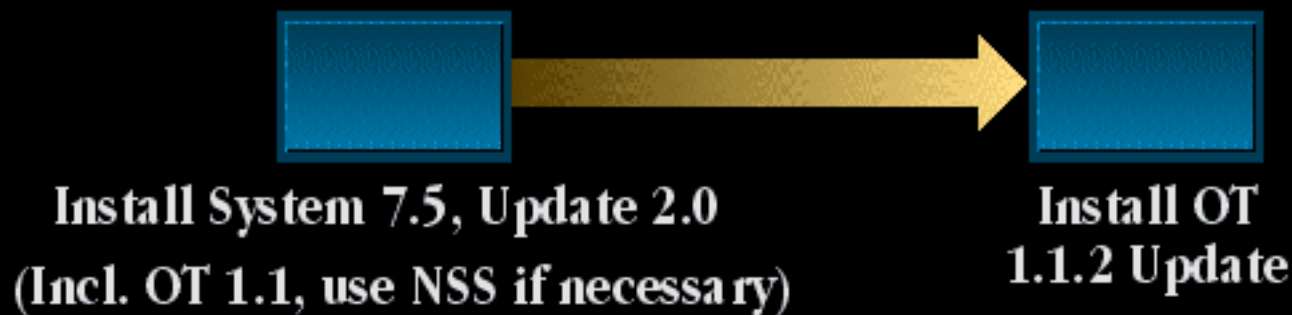
Open Transport 1.2, Highlights

- **Mac OS 8 definitely**
  - This release transitions to new OS test matrix.
  - 7.6, 7.6.1 *maybe*
- **AppleTalk Fixes**
  - Continued refinement of native ADSP & PAP
  - Enhanced native PAP & HP Printer compatibility
  - Multiple fixes to increase stability of AppleShare and AppleShare IP servers with more than 80 concurrently connected users.

Open Transport 1.2, highlights

- **TCP Fixes**
  - Resolves Ping of Death & Denial of Service (SYN) Attacks risk
  - Obsoletes OT SlowLinkTuneUp
  - Obsoletes AOL OpenOT Patch— occurred if AppleTalk OFF with MDEVs
  - Initialization of Multiple MDEVs
  - Added CompuServe MDEV

OT 1.2

- **Other Fixes**
  - Bug in OT CRM Patch, caused "port busy" messages with OT/PPP. Bug only reported when used with GV PC Card modems

Implications

- **Overall**
  - Future OT Updates will require also deploying Mac OS updates
  - Some OS/CPU combinations have received their last update

- **Features in OT 1.5 plan**
  - Some OT 1.5 features coming soon from Apple or 3rd parties
  - Some OT 1.5 features will never ship
  - Some OT 1.5 features will never ship for Mac OS, but will be offered in Rhapsody

Our Current Thinking...

- Coming soon (*but not in OT 1.2*)
  - Single Link IP Multihoming
  - Others still TBD
- Never ship for Mac OS
  - Successor to CommToolbox, ATB
  - AppleTalk Multihoming beyond what works now (LWB, LTB, ARA, AppleShare server)
  - SNMP for OT/AppleTalk, SNMP using AppleTalk transport
- Deliver in Rhapsody
  - AppleTalk multihoming enhancements

Features under Consideration

Selected items from the list...

- AppleEvents, PPCToolBox over TCP
- Configuration API, scriptable control panels
- DHCP Enhancements
- IP Enhancements (IPv6, IPsec, L2TP, MobileIP, RSVP...)
- Network Setup Utility replaces separate control panels
- SNMP MIB II

Licensing Status

- **Currently 4 programs**
  - MacTCP stand-alone program
    - Includes MacSNMP
  - MacPPP Binary
  - MacPPP Source
  - Open Transport
- **Currently no program for OT/PPP**

Revised Licensing Program Highlights

Current Proposal

- EOL MacTCP stand-alone program 12/97
- Replace it with one program that includes
  - Classic Networking: MacTCP, MacSNMP MacPPP (binary)
  - Open Transport: OT, OT/PPP
- Also post MacTCP and OT 1.1 on Apple Internet Sites as part of roll out of new program

Revised Licensing Program Highlights

Proposed changes from current OT program

- Add MacTCP, MacPPP, MacSNMP, OT/PPP
- Add terms to adapt for developer products that ship multiple licences
- Continue $0/unit pricing for products that are native on PowerMac & use OT APIs.
- Offer 2 pricing options for licensees w/o native apps
  - Pay-as-you-go, $24,000 cap at 100,000+ lic
  - Up to 10,000 licenses, $1000

Remote Access

1996, The Year in Review

- ARA 2.1 ships 7/96
- OT/PPP 1.0 Ships 10/96
  - IP/PPP Client
  - Well Received
- Remote Access Bundled in Mac OS 7.6 1/97
  - OT/PPP 1.0
  - ARA 2.1 Client

ARA 2.1 Client & Personal Server

- ARAP over ISDN up to 115.2 kbps
- ARAP over popular 28.8/v.34 modems
- Extended set of modem scripts; includes bug fixes

ARA 2.1 Multi-Port Server NuBus Version

- ISDN up to 57.6 kbps
- OT Compatible
- 3rd Party NuBus 4-port Card

ARA 2.1 Multi-Port Server PCI Version

- ISDN up to 115.2 kbps
- OT Compatible
- 3rd Party 6-port PCI Card & Cable

ARA Futures

- **Remote Access in Mac OS 8**
  - OT/PPP 1.0.1
  - ARA 2.1
- **Ship ARA 3.0**

OT/PPP 1.0.1

- **Update in Mac OS 8**

- **Bug Fixes**
  - Compatibility between Open TPT Serial Arbitrator and some serial devices. (Wacom tablets)
  - Crash when dialog displayed if auto-dialing from faceless background app

ARA 3.0

- Ship in August '97
- PPP dial up support
  - AppleTalk (ATCP) and TCP/IP (IPCP)
  - Client and Personal Server
- Backward Compatibility for ARA 2.x
  - ARA 2.x client/servers
  - ARA 2.x APIs supported
- No ARA 1.x protocol support
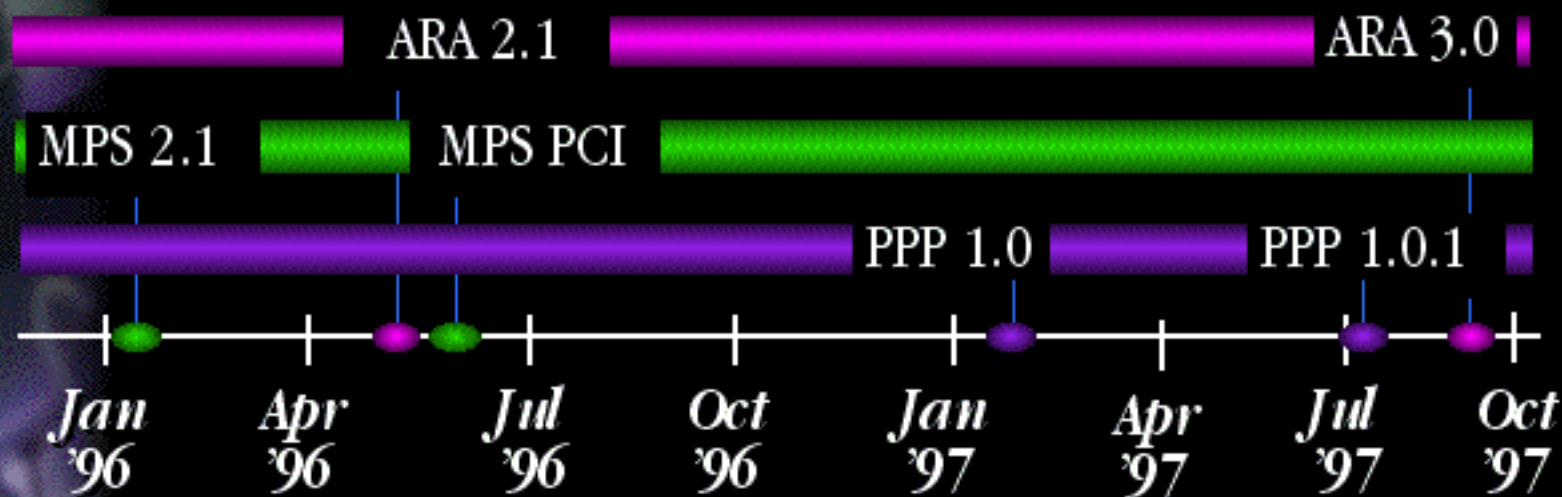- Same API functionality as OT/PPP
- AppleScript Support

ARA 3.0 Developer Todo's

- If you make or ship modems, we expect you to write CCL's and make them available

- New/updated CCL submission deadline June 2, 1997 for possible distribution with ARA 3.0

- Submission address: msg@apple.com

ARA Licensing

- Developers interested in licensing ARA to bundle with products should contact Stan Lavine <stan_lavine@claris.com> at Claris

In Summary

- OT is not dead
- New plan calls for:
  - More alignment with Mac OS direction
  - Smaller and more frequent OT updates
  - Focus on fixes 1st, features 2nd
  - Updated OS required for latest networking
- Mac OS remains a significant business opportunity
- ARA 3.0 work continues. Will ship later this year

Feedback Addresses

- **Rhapsody**
  - rhapsody-dev-feedback@apple.com
- **Mac OS/Open Transport**
  - opentpt@seeding.apple.com

Q&A