Administrative Changes

- POSIX used to be managed by TCOS (Technical Committee on Operating Systems). A separate IEEE committee has now been formed - PASC (Portable Application Standards Committee).
- IEEE document number changes:
  - Old Format

    - 1003.n where n was some number between 0 and ~25. Each area had its own document number.
  - New Format

    - 1003.1x (x is lower case letter) - systems interfaces (C language)
    - 1003.2x (x is lower case letter) - Shell and utilities interfaces
    - 1387.n (n is a number) - System Administration
    - 1003.n (n is a number) - used for other POSIX items (languages bindings, POSIX guide, and POSIX profiles)
  - In the case of 1003.1x and 1003.2x, each item is a revision to the existing POSIX (and ISO) standard.

Other significant changes

- No longer developing Language Independent Interfaces. In my opinion, this is a big win for useful and more readable standards.
- No longer requiring test methods. This is probably a loss for standard quality, but a win as far as bringing standards forward more quickly.
- Attendance is down at meetings (however it is still dominated by vendor participation). Attendance drop is partly do to some areas finishing work, but more related to economic pressures.

Finished Work

System Interfaces

- 1003.1-1990 (ISO 9945-1). Revised version of 1988 standard and is "classic" POSIX, defined much of sections 2 and 3 of the UNIX manual.
- 1003.1b-1993 - Real Time Extensions. Defines interfaces in the following areas: real-time signals, synchronized I/O, asynchronous I/O, semaphores, memory locking, memory mapped files and shared memory, priority scheduling, high-resolution clocks and timers, and message passing.

Shell and Utilities

- 1003.2-1992 (ISO 9945-2). Defines POSIX shell (ksh like). Defines large number of standard UNIX utilities (72 execution environment utilities; 37 user portability utilities option; & ar, make, and strip for the software development utilities option). It also defines a variety of other things like regular expressions, command option parsing, pattern matching, etc. Finally there is a C-Language Development Utilities Option (c89, lex, yacc); a C-Language Bindings Option (moving to 1003.1) and a FORTRAN Development and Runtime Utilities Option (asa, fort77).

Finished Work (Cont)

- **Languages**
  - 1003.5-1992. ADA bindings to 1003.1-1990.
  - 1003.9-1992. FORTRAN 77 bindings to 1003.1-1990. There will be no FORTRAN 90 bindings as there was not enough interest.

Work in Ballot

System Interfaces

- 1003.1a. Incremental items to 1003.1-1990 such as symlinks. Also includes resource limits and checkpoint/restart from Super Computing Group. Initial ballot was 4/94. Scheduled for next ballot 1/15/95.
- 1003.1c. Additional real-time extensions (threads). Undergoing last (hopefully) ballot. Goal for approved standard is 3/95.
- 1003.1d. Even more real-time extensions. It covers the following topics: optimized process creation, sporadic server scheduling, execution time monitoring, device control, interrupt control, optimized I/O, and timeouts for blocking services. Undergoing ballot resolution process from 11/93 ballot.
- 1003.1e. Security APIs to go along with utilities defined in 1003.2c. Finished last ballot 5/94.

Work in Ballot (Cont)

● System Interfaces (Cont)

- 1003.1f. Transparent File Access. Defines interfaces for determining which POSIX file system features aren't implemented. (A variety of file systems such as NFS and MS-DOS don't meet current POSIX requirements.) Standard in some jeopardy as it has been in ballot for quite some time and missed scheduled dates. Ready to enter 2nd ballot recirculation. Consensus is high, however revisions are probably needed to address 1003.1b-1993 issues. (Standard is based on 1003.1-1990.)

- 1003.1g. Protocol Independent Network Interfaces. Specifies both sockets and XTI. Finished 2nd recirculation 10/7/94. Consensus is high. Major issue is whether or not to require both sockets and XTI to claim conformance.

- 1003.1i. Technical corrections to 1003.1b-1993 (initial real-time standard). Document is very thin and will enter ballot 11/94. Quick approval hoped for with goal of final approval for 3/95.

Work in Ballot (Cont)

- **Shell and Utilities**
  - 1003.2c. Security utilities to accompany API defined in 1003.1e. Finished last ballot 5/94.
  - 1003.2d. Command line batch interface based on NQS. Ballot process is nearly finished with expected final approval in 3/95.
- **System Administration**
  - 1387.2. Software Management standard based on HP's swinstall package. Defines command line interfaces and a distribution format. First ballot completed 7/94. Second ballot late '94 or early '95. I have served on this group in the past.
  - 1387.4. Printing standard based on Palladium. Addresses both user print commands and system administration interface. Defines both command line interface and a C-language interface. Completed first ballot 7/93. Will be ready to submit significant revision for 1st recirculation ballot.

Work in Ballot (Cont)

- **Languages**
  - 1003.5b Revision of 1003.5-1992 ADA bindings to add bindings to 1003.1b-1993 and other real-time standards in ballot. Ends first recirculation ballot 10/21/94.
- **Guides and Profiles**
  - 1003.0. POSIX Guide. This is the *manager's* POSIX working group. It creates an architectural framework and guidelines an organization can use to identify requirements for standards, select appropriate standards, and fill in the gaps when standards aren't available. Schedule for final (hopefully) recirculation ballot 11/94 with goal of 3/95 final approval.
  - 1003.10. Super Computing Profile. Requires much of what already is specified in POSIX with regards to system interfaces (core of 1003.1, much of the real-time extensions, transparent file access.) It also requires the security, languages, and system administration part of POSIX. Finally it specifies non-POSIX items such as TCP/IP and graphics standards. Also proposed resource limits and Checkpoint/Restart items in 1003.1a standard. Exited ballot 8/15/94 with 93% approval. Need to address some minor issues.

Work in Ballot (Cont)

● Guides and Profiles (Cont)

- 1003.18 POSIX Interactive System Application Profile. Defines requirements for a *traditional* UNIX system. Specifies 1003.1-1990 and 1003.2-1992, as well as specific values for items such as number of groups supported, chown behavior, etc. Provided some interfaces in the 1003.1a specification regarding group ownership of newly created files (Berkeley semantics). Also specifies as options a C, FORTRAN, and ADA language option. Undergoing 1st recirculation ballot 10/94.

Work in Development

System Administration

- 1387.3. User and Group Administration. Provides command line interface to administer the user and group databases (nominally /etc/passwd and /etc/group). Scheduled to go to ballot the end of 1994. Steve Hanson serves on the group.

Languages

- 1003.5a. Revision of 1003.5-1992 ADA bindings to meet ISO requirements and to respond to interpretation requests.

Profiles

- 1003.14. Multiprocessing Systems Application Environment Profile. Based on interactive systems profile but increases values of some variables such as open files required by larger systems and a variety of items specified in the real-time standard such as re-entrant libraries and optionally shared memory, semaphores, and threads. There are other real-time options such as locking and spinlocks that are still desired but no yet in any other standard. First ballot scheduled for 11/94.

Work under Investigation

- **Removable Media**
  - Purpose of project is to specify a set of interfaces related to removable media (i.e. tape) which under *traditional* UNIX has been very non-standard. Coordination work had been done with IEEE 1244 (Storage Systems Standard Working Group). Goal is to submit PAR (and thus become official project) by 2/95. Group has existed for quite some time and has a base document. Chuck DeBaun serves on group.
- **Fault Tolerance**
  - Purpose of project is to specify a set of interfaces to allow portable access to underlying fault management services by application programs. This group has only existed for a couple of minutes.
- **Encryption API**
  - Just getting organized to determine if the area of encryption APIs is ripe for standardization.