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UNIX® 03

*A Status Update From
The Open Group
<http://www.unix.org>*

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Agenda

- ❑ The Single UNIX® Specification
- ❑ New features of UNIX 03
- ❑ UNIX 03 Certification
- ❑ UNIX 03 Product Standards
- ❑ UNIX 03 Internet Server



The UNIX® Operating System

- ❑ Continual development over the last thirty years
- ❑ Deployed in millions of installations on nearly every hardware platform
- ❑ A reputation of stability and scalability
- ❑ Continued innovation as new technologies assimilated
- ❑ The popular choice for the internet
- ❑ *Mature, Standardized and Start-of-the-Art*

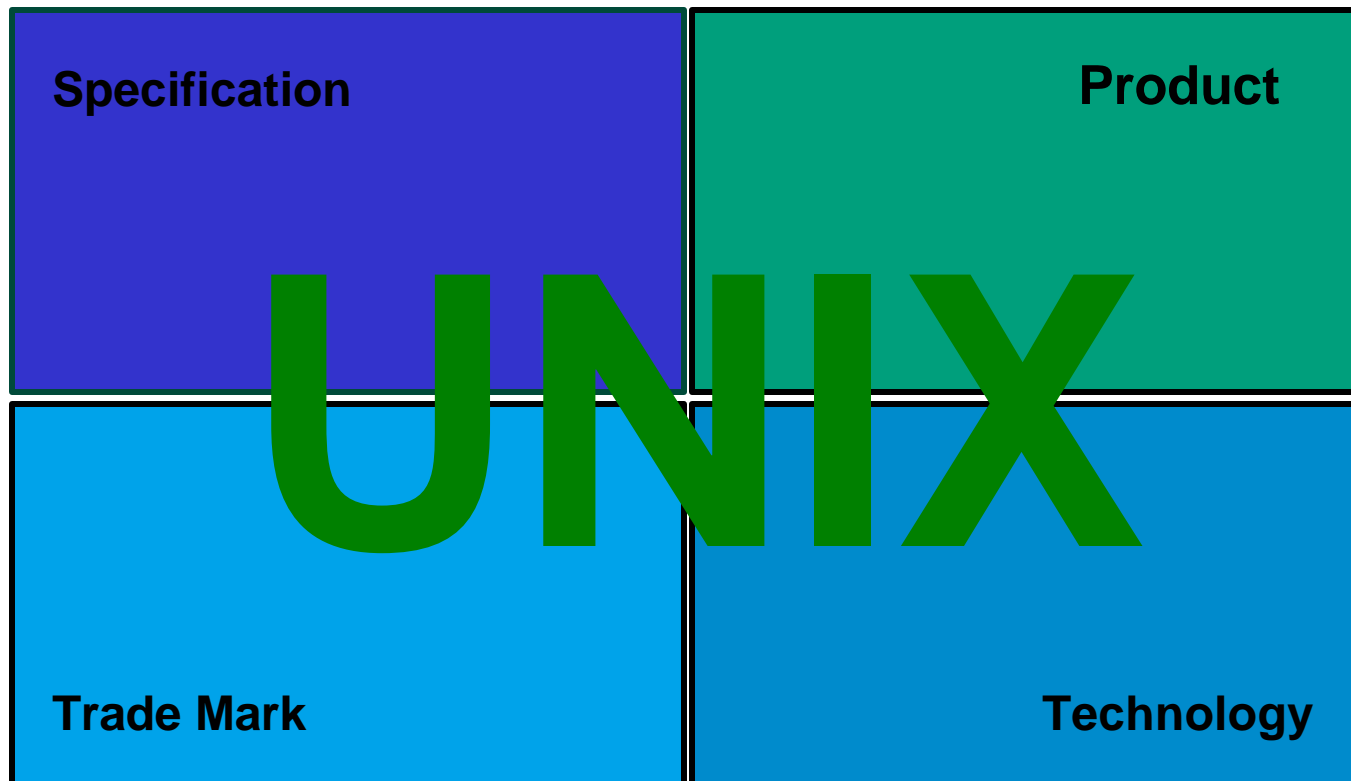
UNIX® Past Perceptions

- ❑ Uncompromising
 - ❑ Command line interface required technical competence
 - ❑ Command line syntax not intuitive
 - ❑ Interface unfriendly
 - ❑ Security often nonexistent
-
- ❑ Today, these perceptions are only of historical interest.

UNIX® Present

- ❑ A Standard and stable definition of the core application programming environment - the *Standard Base*
 - The Single UNIX Specification
- ❑ Graphical User Interface
 - The Common Desktop Environment
- ❑ The internet server of choice
- ❑ Clustering and other high availability innovations available today

UNIX Present



The Single UNIX Specification

- ❑ A single set of APIs supported by every UNIX system.
- ❑ Shifted the focus from incompatible UNIX system product implementations to compliance to a single set of APIs.
- ❑ If an OS meets the specification and commonly available applications run on it, then it is open.

The Value of Standards (Cont'd)

- ❑ Today, all the major vendors have implemented the Single UNIX Specification
- ❑ The UNIX 95, UNIX 98 and UNIX 03 marks are validated using extensive tests that allow objective determination of conformance and backed up by a unique vendor guarantee –
 - ***The Open Brand***

The Open Brand

- ❑ Operates under trademark law
- ❑ Designates products that are guaranteed to conform to open systems specifications
- ❑ A vendor guarantees that any non compliances will be fixed within a defined time period
- ❑ <http://www.opengroup.org/openbrand/>

The Single UNIX Specification

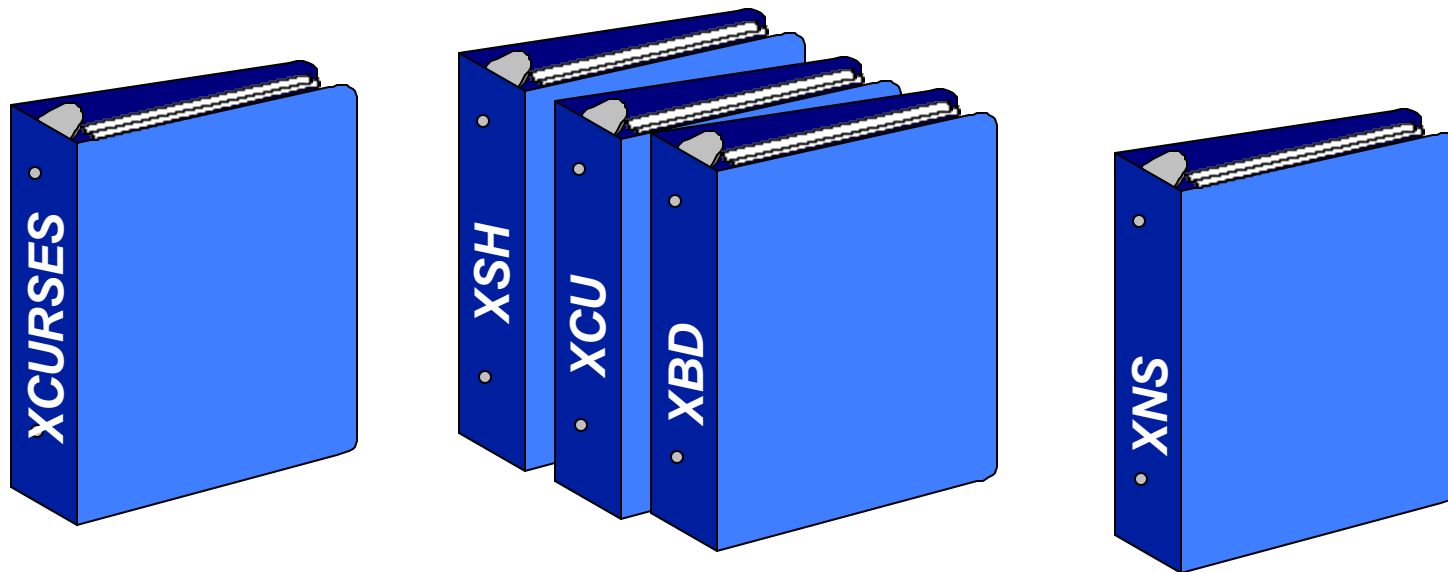
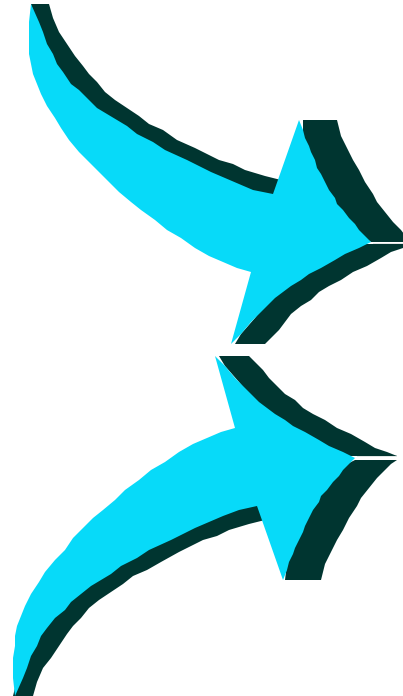


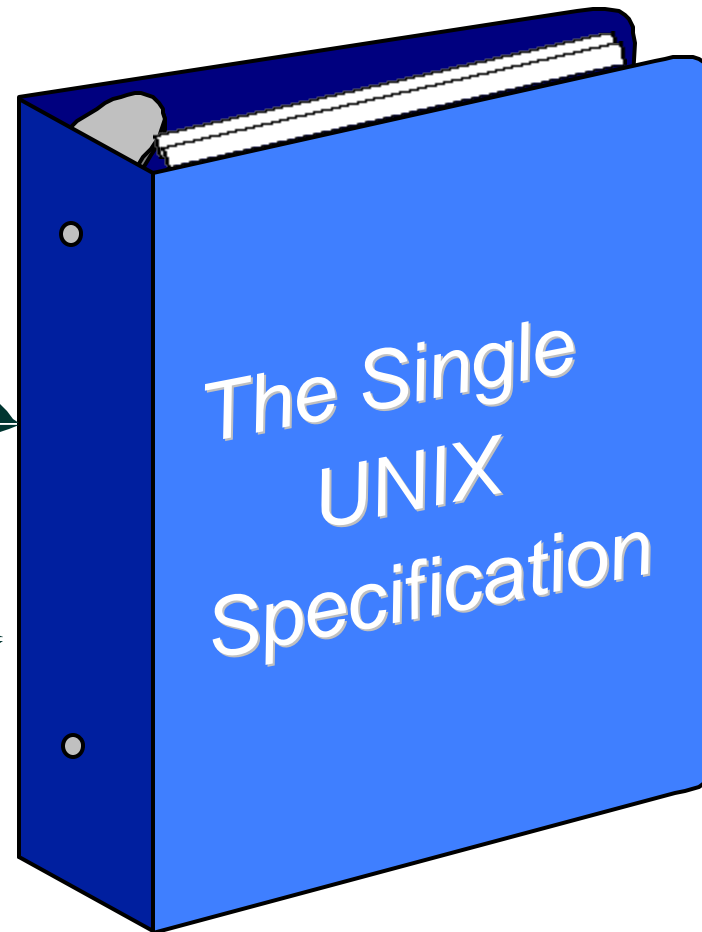
Diagram shows Version 1 (1994)
and Version 2 (1997)

The User Driven Process

50 Popular Applications

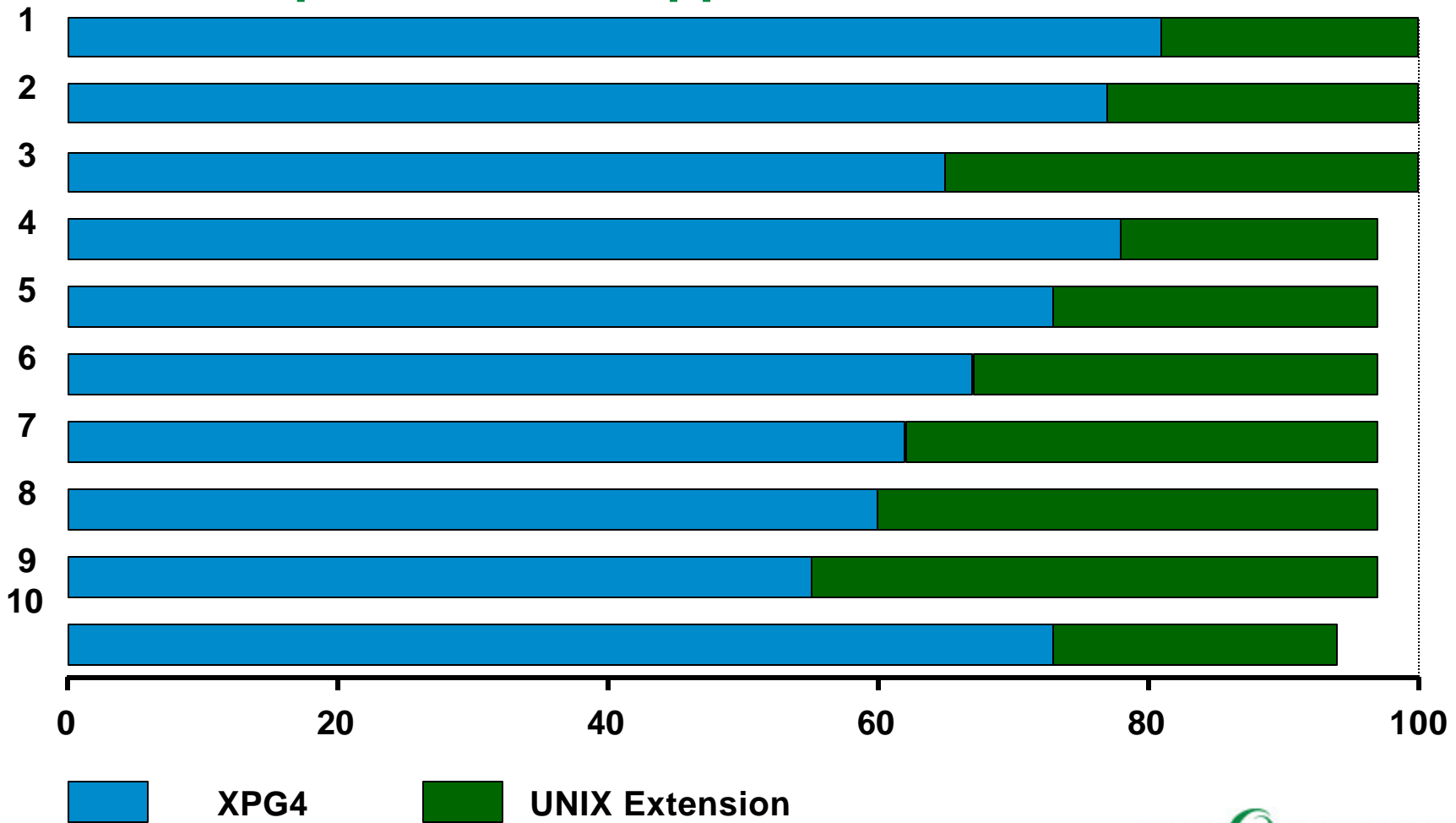


*Formal and
Defacto Standards*



Application Coverage by Specification

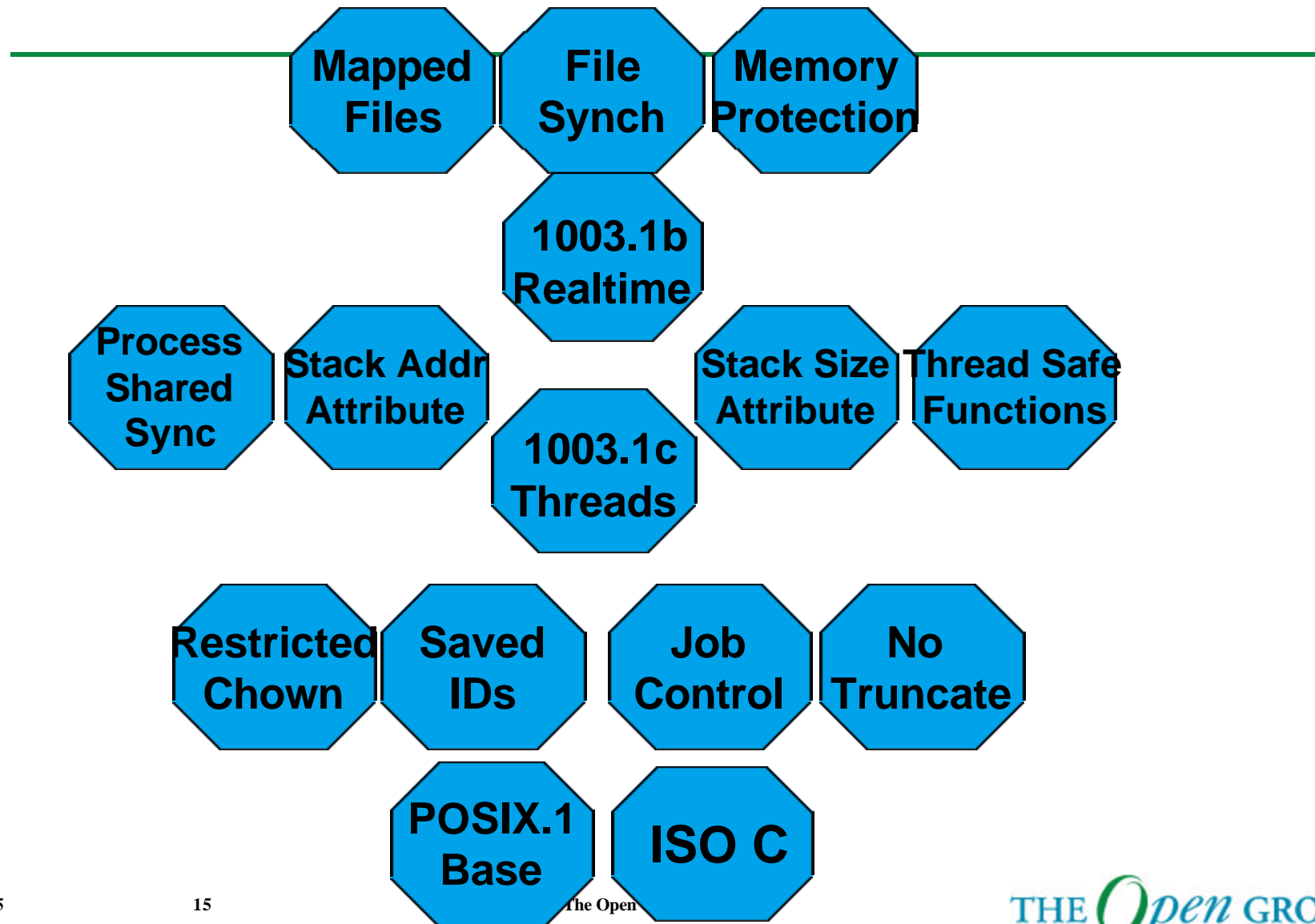
For Ten Representative Applications



Formal Standards Alignment

- The Single UNIX Specification is a profile built on the foundation of international standards.
 - Has a formal deference policy.
 - Mandates key options from international standards to form a rich foundation which you can depend on.

Mandated POSIX.1 Options



The Single UNIX Specification Version 3

- ❑ Developed by the Austin Common Standards Revision Group
- ❑ An open industry initiative to revise the core *POSIX standard* and the *Single UNIX Specification*

About the *Austin Group*

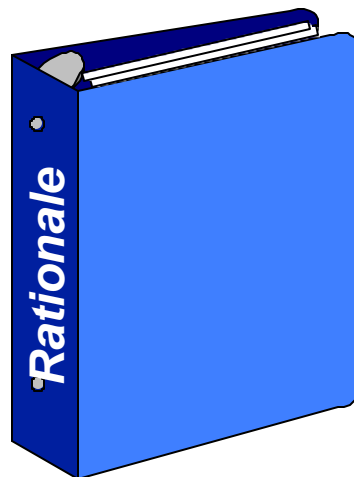
- ❑ Over 600 participants
- ❑ Wide industry support:
 - *AT&T, Fujitsu, HP, IBM, Lucent, Microsoft, Red Hat, SGI, Siemens, Sun*
 - *DoD, USENIX*
- ❑ Participation in the *Austin Group* from the open source community included:
 - *The Linux Standard Base, NetBSD, FreeBSD, and many others*

Scope of the revision

- ❑ Production of a single document to be adopted by multiple parties
- ❑ Minimize the number of changes required to implementations of earlier versions of the Base documents for the revision
- ❑ Limit new work items to those related to integration and consistency, resolving any conflicts
- ❑ Alignment with the ISO C 1999 standard

The Common *Base* Specifications

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IEEE Std 1003.1,

ISO/IEC 9945

The Open Group Base
Specifications Issue 6



*The Core of the
Single UNIX Specification V3*

Approvals Status

- ❑ The Open Group September 12th 2001
- ❑ IEEE December 6th 2001
- ❑ ISO/IEC 9945:2002 Parts 1 thru 4, November 2002
- ❑ Published in hardcopy (3700 pages, 9kg!!),
electronic and CDROM

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Technical Corrigendum 1

- ❑ IEEE December 2002
- ❑ The Open Group February 2003
- ❑ *2003 Edition of Specifications published March 31st 2003*
 - *IEEE Std 1003.1, 2003 Edition*
- ❑ *ISO/IEC 9945:2003 August 2003*

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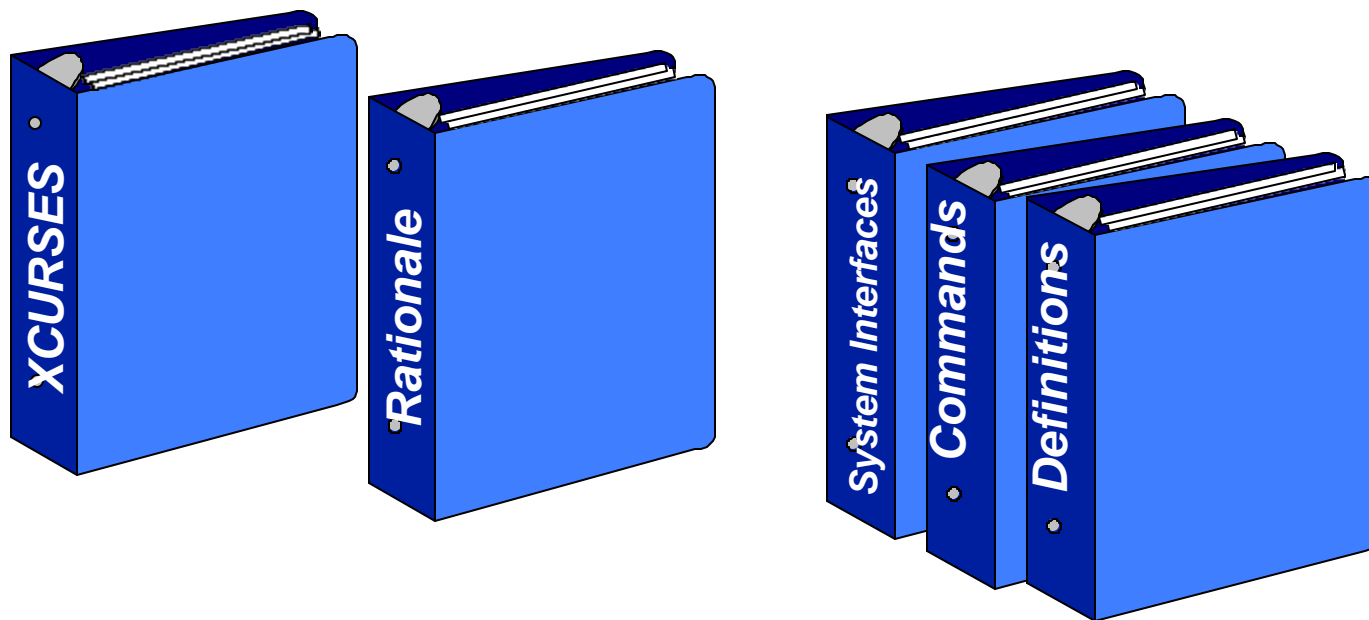
Technical Corrigendum 2

- ❑ The Open Group December 2003
- ❑ IEEE February 2004
- ❑ *2004 Edition of Specifications to be published April 30th 2004*
 - *IEEE Std 1003.1, 2004 Edition*
- ❑ *ISO Technical Corrigenda approved Sep 2004*

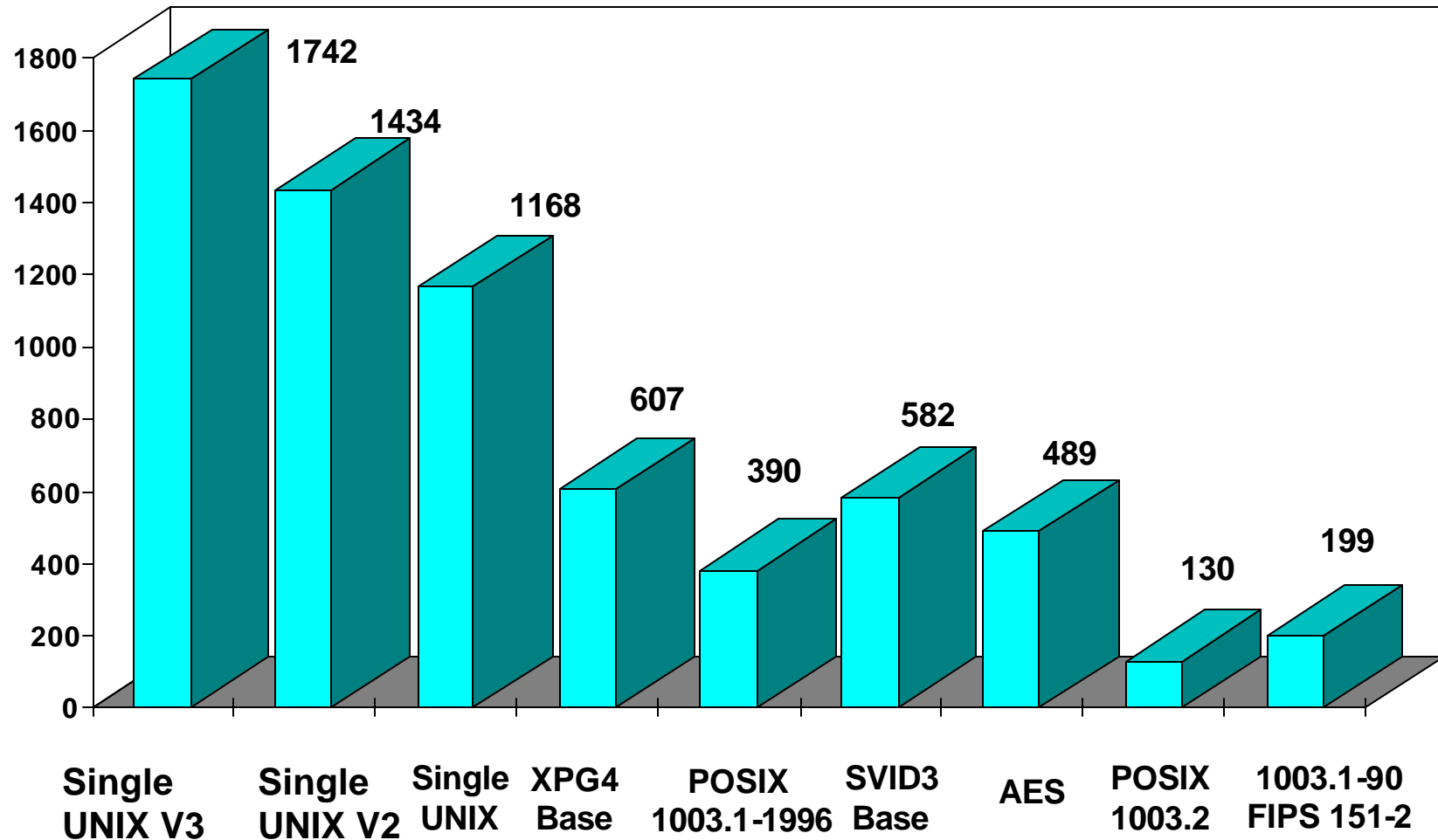
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The Single UNIX Specification V3



Portability Functions



Formal Standards Alignment

- ❑ IEEE Std 1003.1, 200x Edition (POSIX.1)
 - The Base Specifications Issue 6 and ISO/IEC 9945:200x are technically identical to POSIX.1, they are all the same document (*word for word, a single publication*)
- ❑ ISO/IEC 9899:1999, Programming Languages – C (ISO C)

Options

- ❑ Encryption
- ❑ Realtime
- ❑ Realtime Threads
- ❑ Advanced Realtime
- ❑ Advanced Realtime Threads
- ❑ Tracing
- ❑ XSI STREAMS
- ❑ Legacy

Key Changes

- ❑ Legacy and obsolescent features dropped
 - Much of this was to compromise between System V and BSD
- ❑ Job control and certain options in POSIX.1 mandated now in POSIX *Base* (FIPS 151-2 alignment)
 - No change for the Single UNIX Specification as already mandatory
- ❑ Corrigenda incorporated

Key Changes (Cont'd)

- ❑ XTI dropped
 - Is retained as a separate specification but not required for POSIX or UNIX conformance
- ❑ STREAMS optional
 - An optional feature group for those systems that wish to support the functionality

UNIX 03 Certification

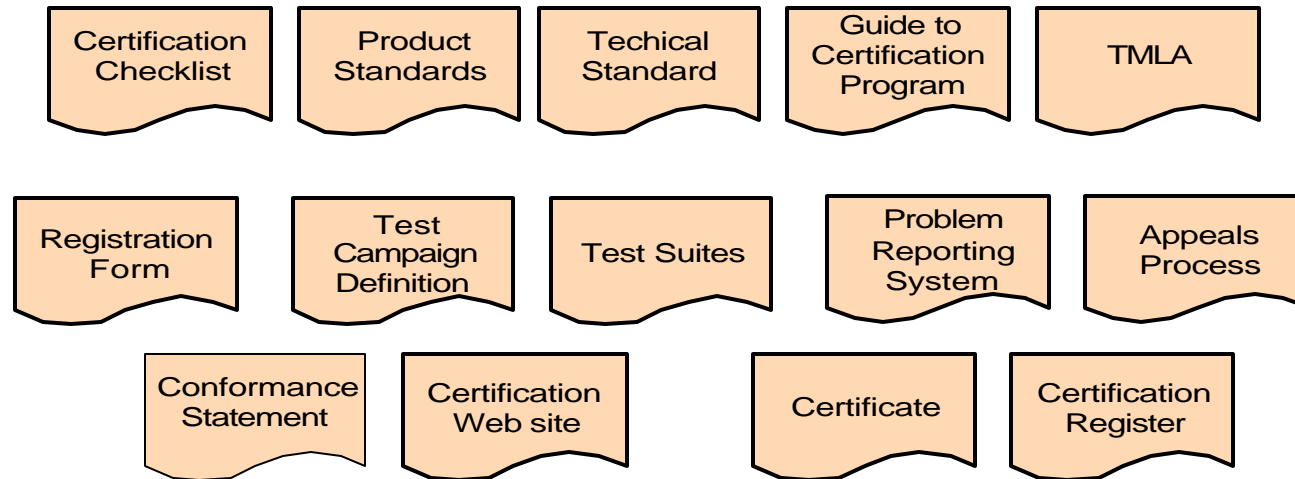
Program Principles

- ❑ Clear and well-defined:
 - certification policies
 - processes for achieving and maintaining certification
 - based on industry best practice.

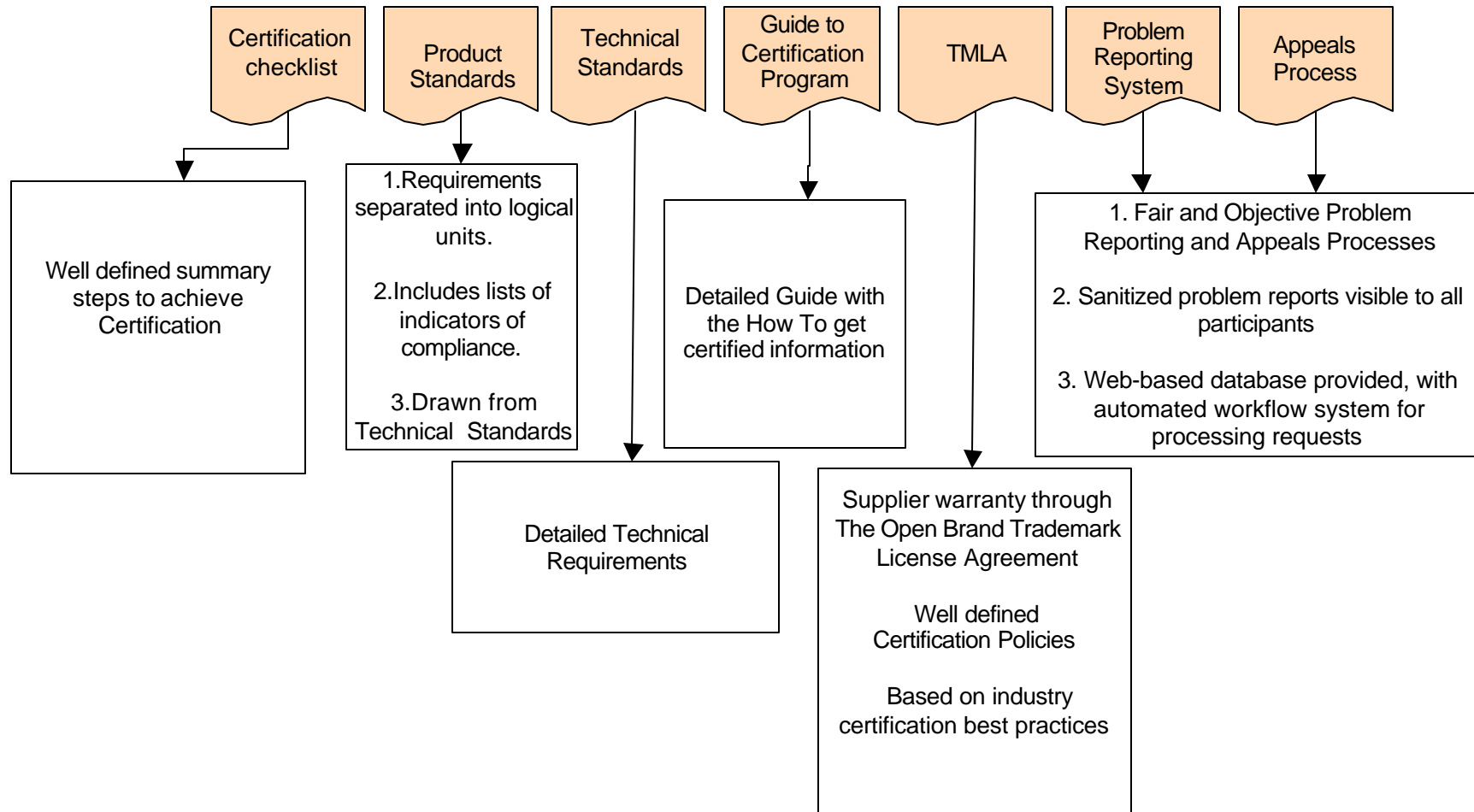
Trademark License Agreement

- ❑ Vendor guarantee of conformance to specifications.
 - Vendor 'Warrants & Represents'
- ❑ This guarantee ensures that:
 - Products conform to a specification
 - Products remain conformant throughout the life of the product's registration
 - Any non-conformance will be fixed in a timely manner

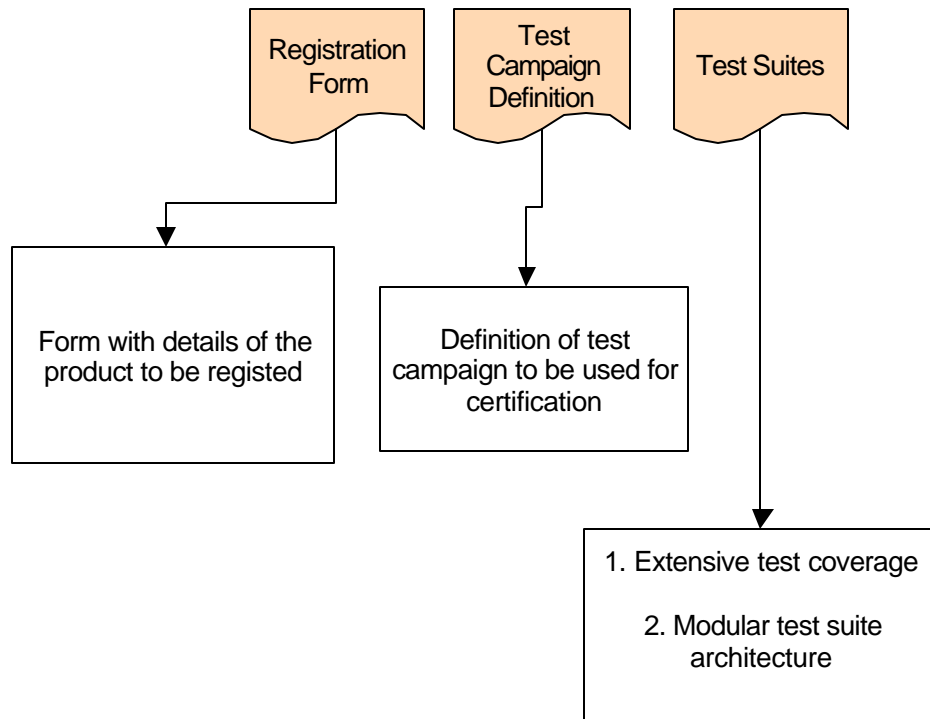
Program Elements



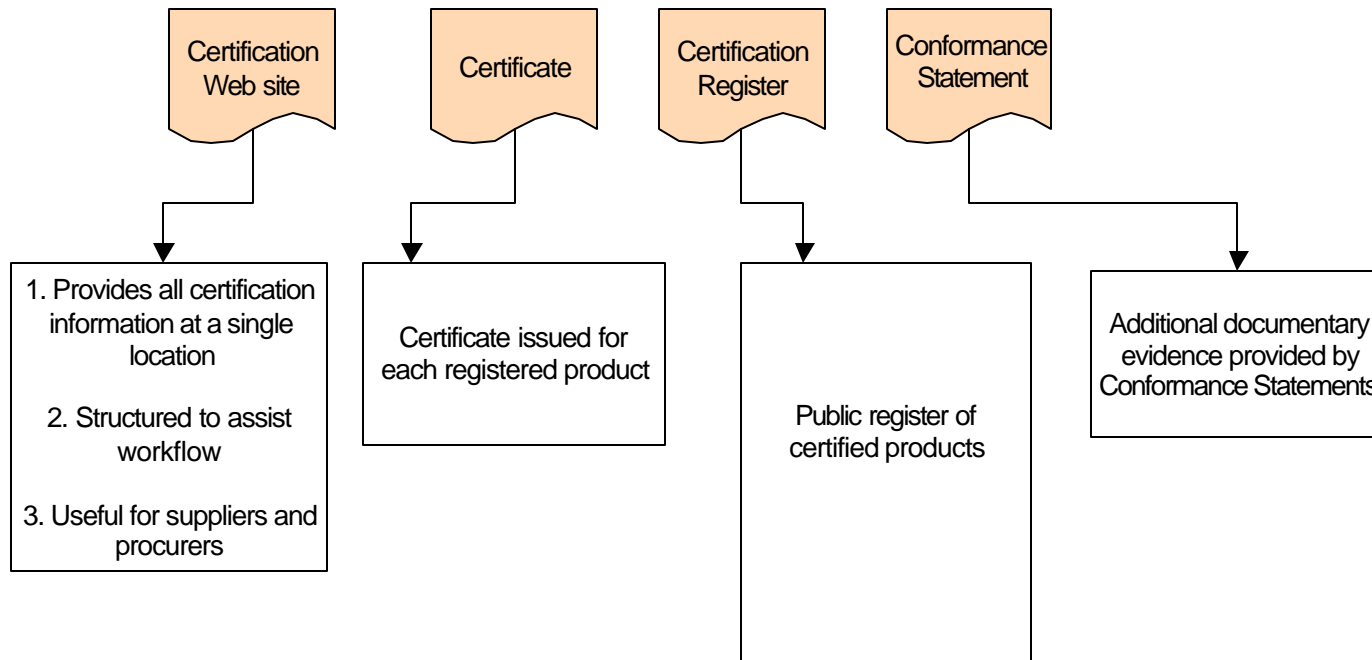
Elements (1)



Elements (2)



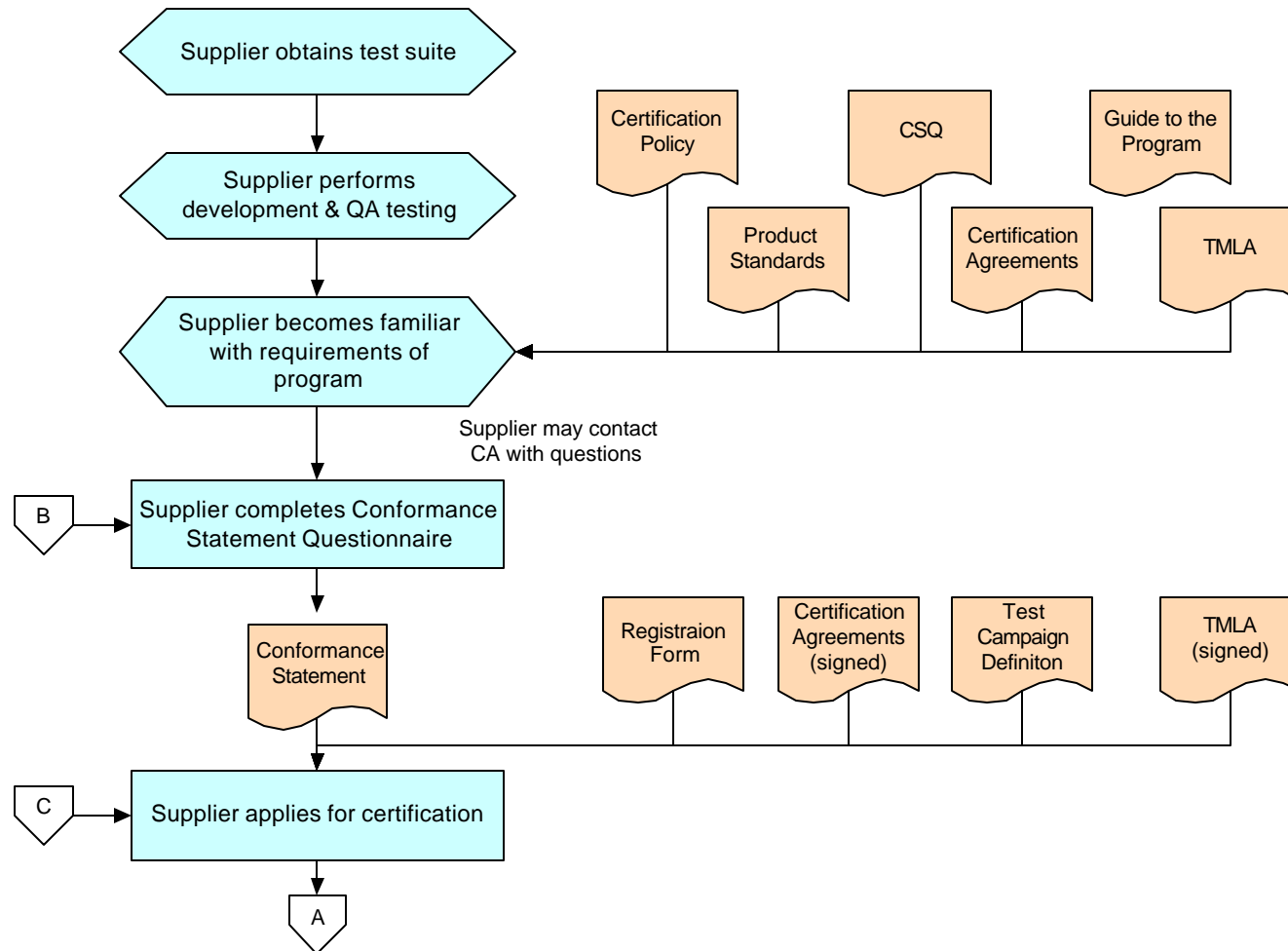
Elements (3)



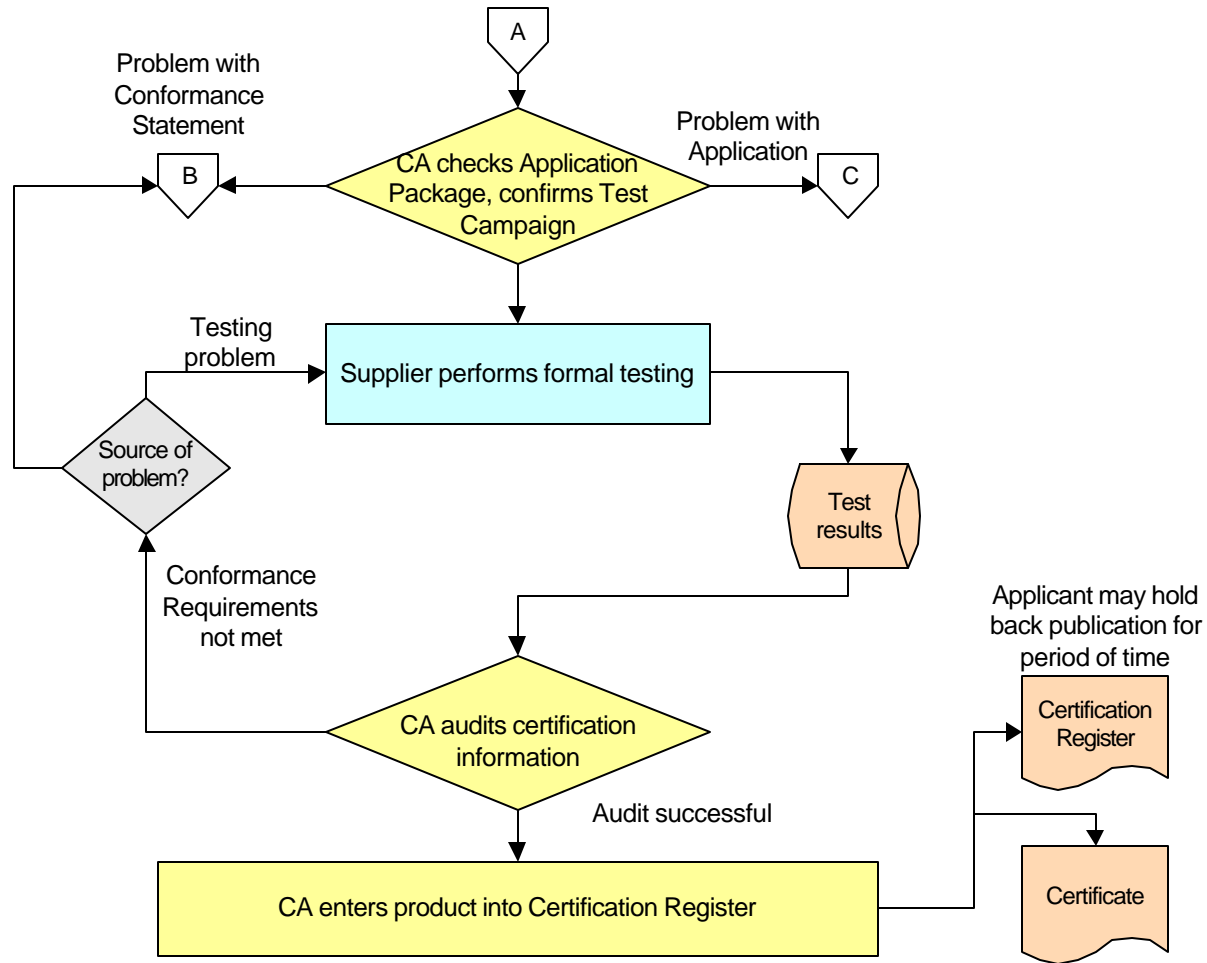
Certification Process - Roles

- ❑ Specification Authority
 - Specification owner – responsible for developing, maintaining and interpreting the specification(s)
- ❑ Certification Authority (CA)
 - Manages the day-to-day operations of the certification program
 - Ensures quality, fairness and integrity
- ❑ Test Suite Maintenance Authority (TSMA)
 - Maintain the test suites

Certification Process (1)



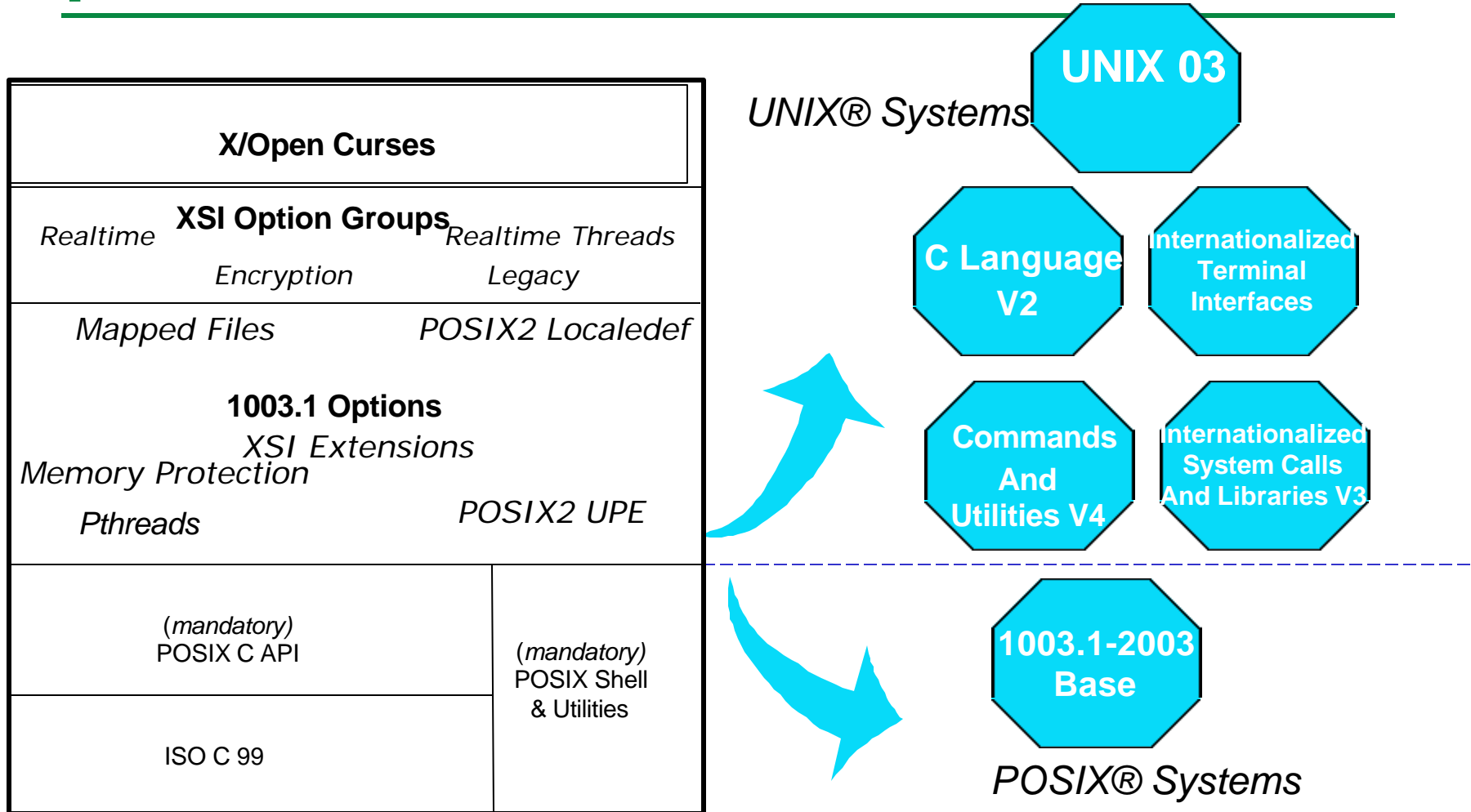
Certification Process (2)



Product Standards

- ❑ Define the Conformance Requirements
 - Define what a conforming product must do to be compliant
 - Also defines what it must not do to be considered compliant
 - Separate document for each product type or grouping of functionality
 - Provides mapping between products and Technical Standards and other referenced specifications
- ❑ Define the testing requirements

Specifications vs Product Standards



UNIX 03 Product Standards

- UNIX 03 - the mark for systems conforming to Version 3 of the Single UNIX Specification

- UNIX 03 - “*the standard base*”

- UNIX 03 Server
 - UNIX 03 plus Internet Server capabilities
 - Adds interoperability services to the UNIX 03 APIs in support of internet/intranet services

UNIX 03 Product Standards (1)

- ❑ Organized as a hierarchy
- ❑ UNIX 03
 - Top-level foundation product standard
 - Four constituent product standards organized by subject area
 - *Internationalized System Interfaces Extended V3*
 - *Commands & Utilities V4*
 - *C Language V2*
 - *Internationalized Terminal Interfaces*

UNIX 03 “*the standard base*”

- There are four constituents to the *base*
 - Internationalized System Interfaces Extended V3
 - A rich set of system interfaces mandating key options in the common specifications
 - Commands and Utilities V4
 - Mandates key options from the common specifications
 - C Language V2
 - Internationalized Terminal Interfaces

UNIX 03 Server

- ❑ Builds on the Base foundation.
- ❑ *Captures existing de-facto practice.*
- ❑ Includes a *platform-independent* Internet Server Product Standard.
- ❑ Additional functionality over existing UNIX 03 Product standard includes:
 - The Internet Protocol Suite, including IPv6.
 - Java Support.
 - Internet capabilities to support network clients.

Java is a trademark of Sun Microsystems Inc. ■

UNIX 03 Server - Internet Services

OSI Model

Application
Presentation
Session
Transport
Network
Data Link
Physical

Telnet Ftp NFS Http DNS Lpd Smtplib WebNFS NTP LDAP SNMP POP3 IMAP4 ssh			
Sockets		XTI	RPC
TCP		UDP	
IPv4	IPv6	icmp	bootp dhcp tftp
Ethernet	Token Ring	Other	

DOD Model

Application
Host to Host
Internet
Network Access

UNIX 03 Certification

□ Product Standards

- <http://www.unix.org/unix03.html>

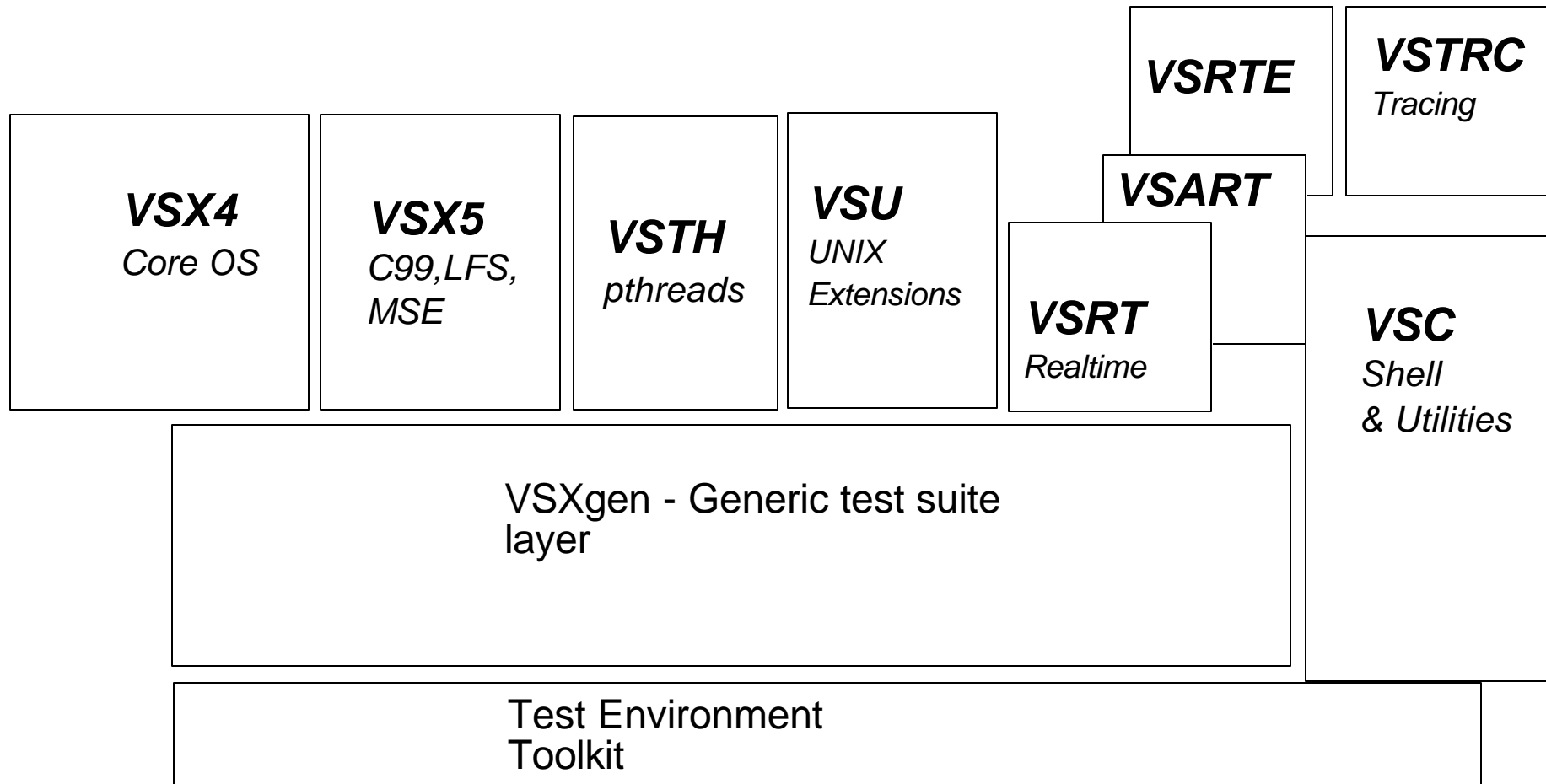
□ The Open Brand Certification Program

- <http://www.opengroup.org/openbrand/>
- <http://www.opengroup.org/openbrand/register/>
- <http://www.opengroup.org/openbrand/testing/checklist/>

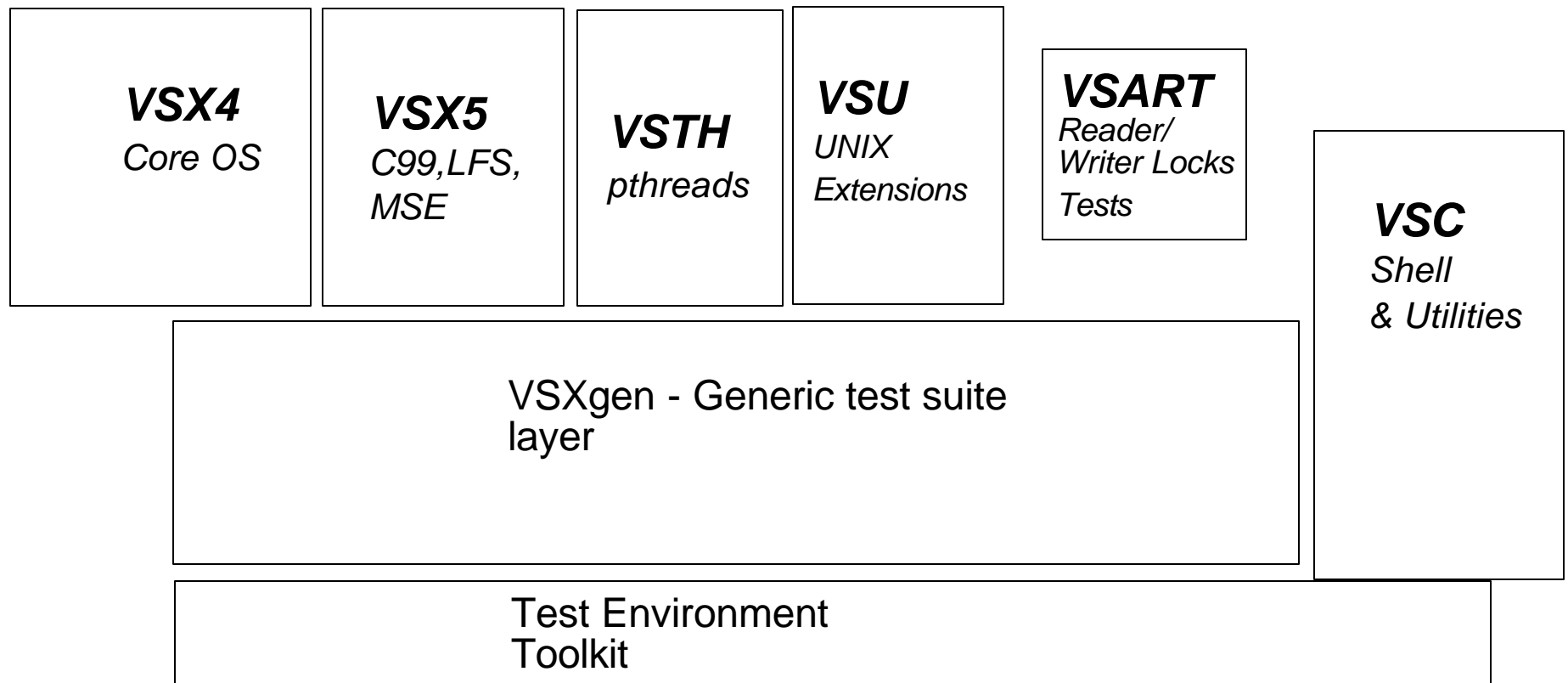
UNIX 03 Testing

- ❑ Certification is backed by an extensive set of tests
- ❑ Used by vendors to demonstrate conformance as part of formal certification
- ❑ A family of tests available for UNIX 03
 - Known as *Westwood*
 - Modular test suites
 - Covers mandatory features and key options
 - http://www.opengroup.org/testing/info/Westwood_datasheet.html

UNIX 03 Test Suites



UNIX 03 Test Suites (mandatory)



Where to Obtain the Specification?

- ❑ The html version is online at
 - <http://www.UNIX.org/version3>
- ❑ PDF either electronically or on CDROM can be ordered from
<http://www.opengroup.org/pubs/catalog/un.htm>
 - The PDF is free to members of The Open Group
- ❑ Available also on CDROM with *The Authorized Guide to the Single UNIX Specification Version 3* and the latest edition of the UNIX Internationalization Guide

Netscape: The Open Group Base Specifications Issue 6

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The Open Group Base Specifications Issue 6
IEEE Std 1003.1-2001
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This standard has been jointly developed by the IEEE and The Open Group. It is both an IEEE Standard and an Open Group Technical Standard.

Abstract: This standard defines a standard operating system interface and environment, including a command interpreter (or "shell"), and common utility programs to support applications portability at the source code level. This standard is the single common revision to IEEE Std 1003.1-1996, IEEE Std 1003.2-1992, and the Base Specifications of The Open Group Single UNIX Specification, Version 2. This standard is intended to be used by both applications developers and system implementors. It comprises four major components (each in an associated volume):

1. General terms, concepts, and interfaces common to all volumes of this standard , including utility conventions and C-language header definitions, are included in the [Base Definitions volume \(XBD\)](#).
2. Definitions for system service functions and subroutines, language-specific system services for the C programming language, function issues, including portability, error handling, and error recovery, are included in the [System Interfaces volume \(XSH\)](#).
3. Definitions for a standard source code-level interface to command interpretation services (a "shell" and common utility programs for application programs are included in the [Shell and Utilities volume \(XCU\)](#).
4. Extended rationale that did not fit well into the rest of the document structure, containing historical information concerning the contents of this standard and why features were included or discarded by the standard developers, is included in the [Rationale \(Informative\) volume \(XRAT\)](#).

Frontmatter (Informative)

[[Preface](#) | [Participants](#) | [Referenced Documents](#) | [Trademarks](#) | [Typographical Conventions](#)]

100%