

Solaris CIFS Service

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Solaris CIFS Service

- Windows Interoperability
- **opensolaris**
- First-class Solaris Citizen
 - kernel based protocol (a la NFS)
 - file system (vfs and zfs) support
 - credential (access token) support
 - kernel i18n support
 - sharemgr
 - command line utilities

Windows Interoperability Requirements

- SMB Authentication
- Unicode and Windows OEM code pages
- NetBIOS-less SMB (SMB-over-TCP)
- Share management
- Active Directory support
- Local Authentication (PAM)
- Local Windows groups
 - Support for large group membership
- Mandatory locking
- Oplocks
- Case-insensitive file operations
- Open (share/deny) modes
- Packet signing and sealing
- DOS attributes (Hidden, Read-Only, System, Archive)

Windows Interoperability Requirements (2)

- File Change Notification
- Access Tokens (Windows credentials)
 - SID (GUID) rather than POSIX UID
 - SIDs in access tokens have attributes
 - Groups can have 1000s of members
 - SIDs in groups have attributes
- Security Descriptors (Super-set of ACLs)
- NTFS Alternate Data Streams
 - MacOS resource forks, Solaris extended attributes
- Name mangling
- SMB/CIFS Mac Extensions
- File delete-on-close

Solaris CIFS Service

- SMB/CIFS LM 0.12 protocol
 - Legacy dialects somewhat supported
- MSRPC/DCERPC NDL Compiler and Library
- Core MSRPC Services
- SMB/CIFS Redirector
- NetBIOS transport and services
 - Name Service, Datagram Service, Transport, Browser client
- ADS Client
 - Join Domain, Dynamically publish shares in ADS
- Dynamic DNS client
 - Dynamically publish hostname-IP mappings in DNS
- SMB Autohome
 - Dynamically publish home directory shares
- PRIV_SYS_SMB

Windows Core MSRPC Services

- SRVSVC Server Service
- Workstation Workstation Service
- LSARPC Local Security Authority
- SAMR Security Accounts Manager
- NETR NetLogon (authentication with DC)
- SVCCTL Service Control Service (read-only)
- WINREG Windows Registry (read-only)
- SPOOLSS Print Spool Service (access denied)
- LOGR Event Log Service (disabled by default)

SMB/CIFS Project

- PSARC/2006/715 CIFS Service
 - Commitment review: approved September 2007
 - Putback: October 2007
- Related PSARC cases
 - 2000/007 CIFS Locking and File Sharing
 - 2006/315 Winchester
 - 2007/064 Unified POSIX and Windows Credentials for Solaris
 - 2007/149 UTF-8 Text Preparation
 - 2007/173 kiconv
 - 2007/177 SMF Sensitive Property Storage
 - 2007/218 VOP Caller Context
 - 2007/227 VFS Feature Registration and ACL-on-Create
 - 2007/244 ZFS Case-Insensitive Support
 - 2007/268 CIFS share reservations

CIFS Related PSARC Cases (cont)

- 2007/280 CIFS Support for sharemgr
- 2007/281 NFS share properties for Montana compatibility
- 2007/315 Extensible Attribute Interfaces
- 2007/394 ls(1) '-/' and '-%' options for system attributes
- 2007/403 Modified Access Checks for CIFS
- 2007/410 Add system attribute to chmod
- 2007/432 CIFS system attributes support for cp(1), pack(1), unpack(1), compress(1) and uncompress(1)
- 2007/440 nbmand changes for CIFS Service
- 2007/444 Rescind SETTABLE Attribute
- 2007/458 User land UTF-8 text preparation functions
- 2007/459 CIFS system attributes support for cpio, pax and tar
- 2007/476 OPAQUE Moved to Readonly View
- 2007/544 pam_smb_passwd
- 2007/546 Update utilities to match CIFS system attributes changes

NFS and ZFS

- ZFS

- 2007/171 ZFS Separate Intent Log
- 2007/197 ZFS hotplug
- 2007/199 zfs {create,clone,rename} -p
- 2007/227 VFS Feature Registration and ACL-on-Create
- 2007/244 ZFS Case-Insensitive Support
- 2007/315 Extensible Attribute Interfaces
- 2007/403 Modified Access Checks for CIFS

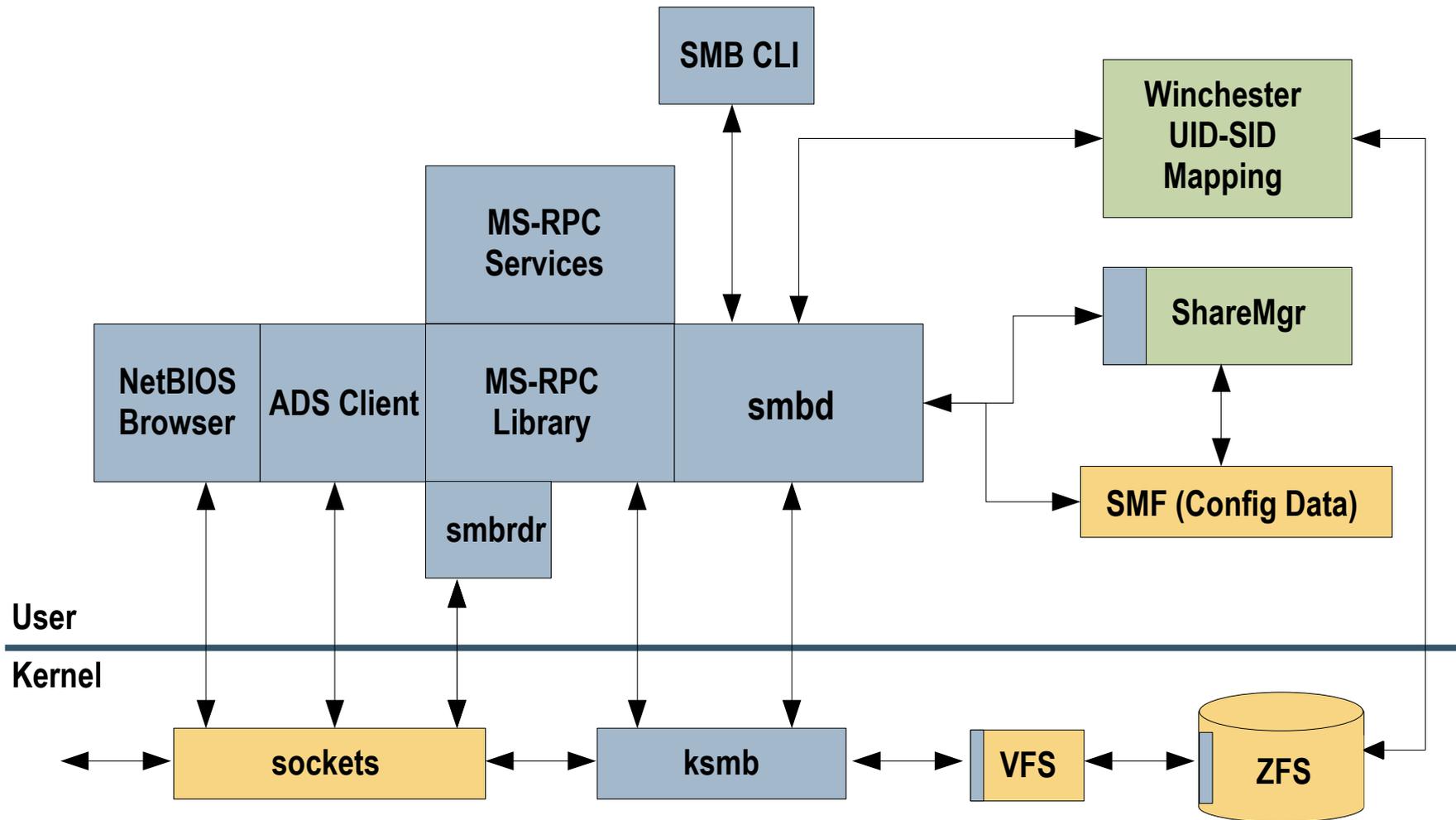
- NFS

- PSARC/2007/280 CIFS Support for sharemgr
 - Multiple resource names per shared path
 - sharemgr support for the smb protocol
- PSARC/2007/281 NFS share properties for Montana compatibility
 - New share access properties: none, root_mapping
 - Host based character mapping: iso8859/EUC to UTF-8

Multi-protocol File Server Features

- ZFS
 - Case-sensitive, case-insensitive or mixed-case datasets
 - Unified access control
 - Identity mapping (via Winchester)
 - Atomic ACL-on-create
 - Access granted masks
 - UTF-8 names on disk
 - DOS and system attributes
- Cross-protocol features
 - Mandatory locking
 - Integrated range locking
 - CIFS oplock/ NFSv4 delegation synchronization
 - User and group identity mapping (SID <-> UID)
 - Unified support for open (share/deny) modes

Solaris CIFS Architecture



SMB/CIFS Roadmap (post putback)

- Performance
- Server Manager
- Host-based access control
- Invalid character mapping
- Share-level ACLs
- MS-DFS (SMB referrals)
- NT4.0 domain support (Winchester update)
- Print support
- Ipv6
- Kerberos user authentication
- Mac/DAVE and UNIX extensions

opensolaris URLs

- <http://opensolaris.org/os/>
- <http://www.opensolaris.org/os/community/storage/>
- <http://opensolaris.org/os/project/smbfs/>
- <http://www.opensolaris.org/os/community/zfs/>
- <http://opensolaris.org/os/community/nfs/>
- <http://opensolaris.org/os/project/nfsv41/>

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