

# Apache - Korean UserGroup

*WebDAV : Collaboration based on Apache*

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*Apache Korean User Group*

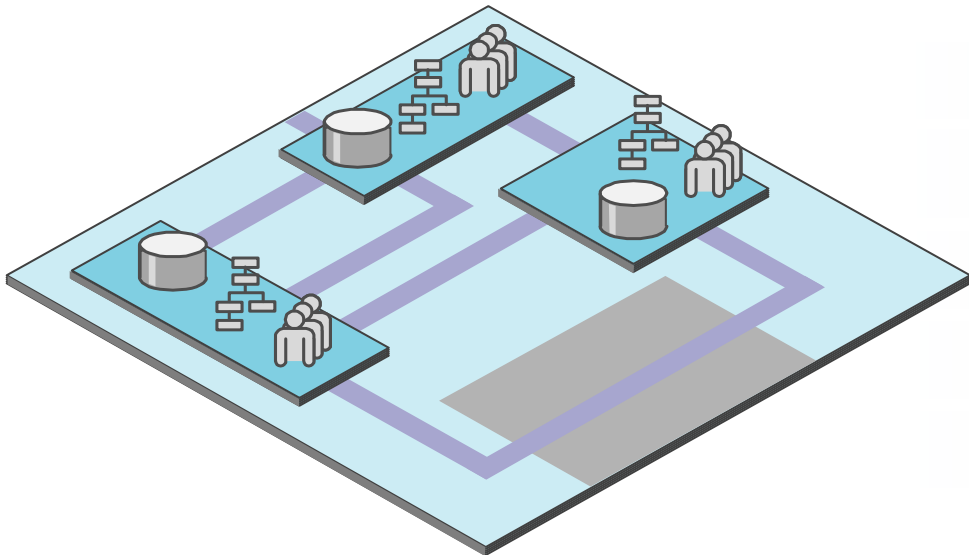
- 협업
  - WebDAV 이전의 아파치 웹서버
- WebDAV란?
  - WebDAV Benefits
- WebDAV Basics
  - mod\_dav 소개
- WebDAV 활용
  - WebDAV softwares
- WebDAV 설치 및 운영
- SubVersion이란?
  - SubVersion & CVS features
- SubVersion 설치 및 운영
  - SubVersion Basic work scenario
  - SubVersion softwares
- Resources & References
- Q&A

## ➤ Collaboration

## ➤ 협업 소프트웨어들

- Collaborative groupwares
- Groove
- Collaborative tools
- Collaboration systems

## ➤ 협업 소프트웨어의 기본적인 요건들



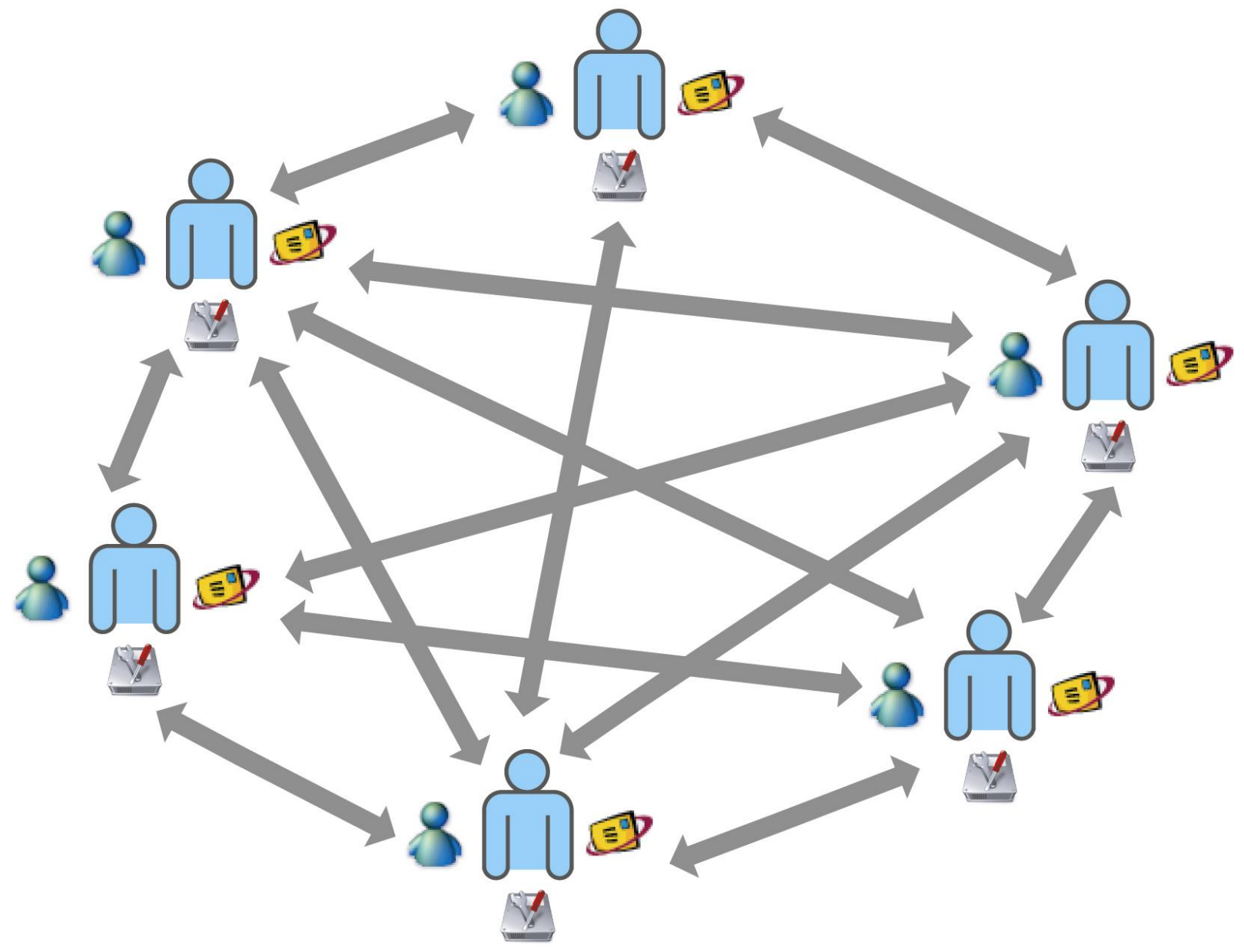
참여자들의 입장에 따라 보장되는 가시성

완벽하고 실제적인 보안성

다양한 배경의 사용자들을 위한 확장성

언제 어디서든 표준환경으로 참여할 수 있는 접근성

쉬운 사용으로 교육 없이 참여할 수 있는 사용성

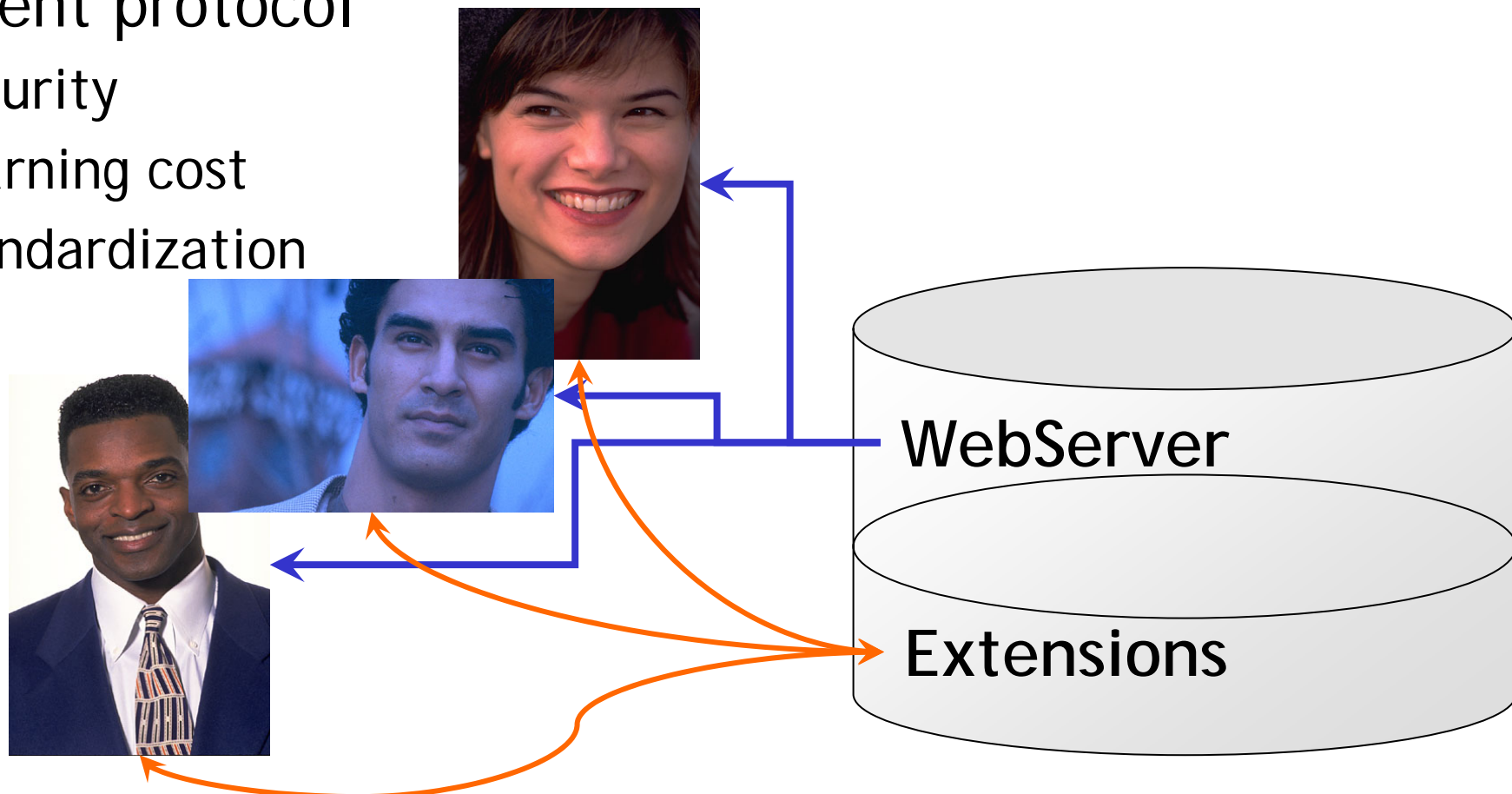


- **Apache : A patched web server**
  - HTTP 프로토콜을 기반
  - WEB을 전 인류에게.
  - 점유율 1위
  - 오픈 소스 기반 웹 서버 소프트웨어
  - 다양한 확장 소프트웨어들

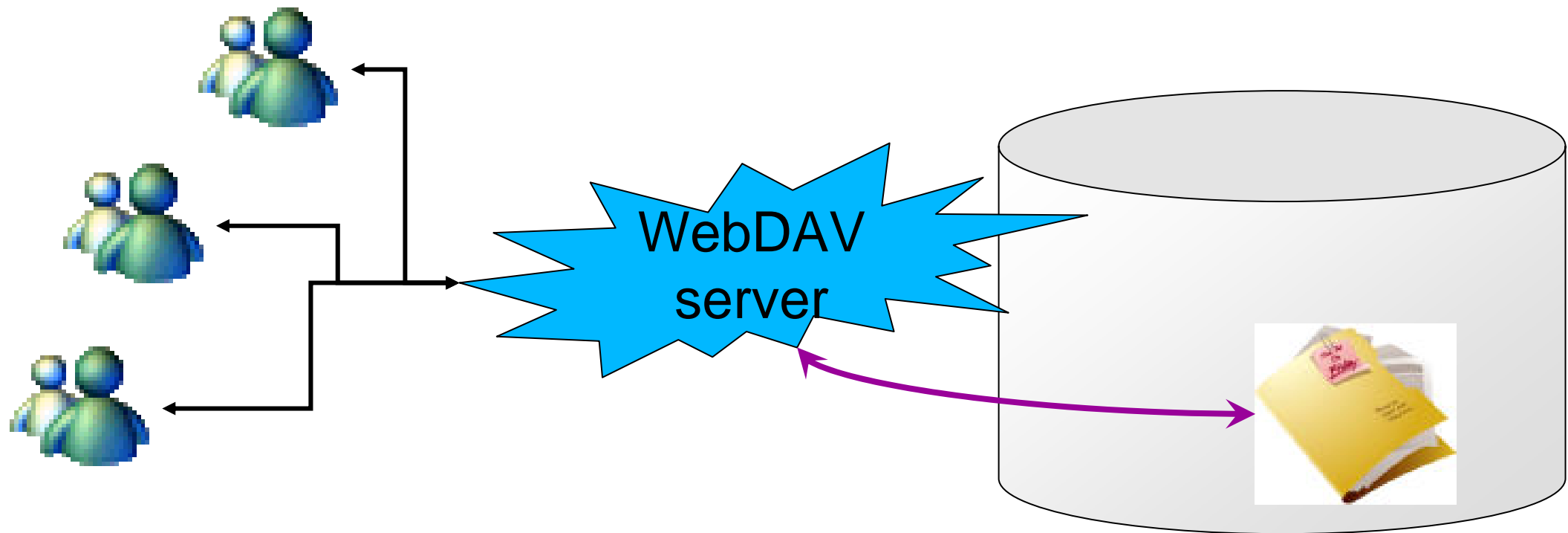
## ➤ Readonly!

## ➤ Extensions

- Additional tools
- Different protocol
  - ✓ Security
  - ✓ Learning cost
  - ✓ Standardization



## ➤ Web based Distributed Authoring and Versioning —HTTP + Collaboration



- **협업 인프라**
  - 모든 종류의 콘텐츠를 협업적으로 작성하고 관리할 수 있도록 하는 프로토콜
- **데이터 통합**
  - 문서 관리, 버전관리 및 형상관리, 이메일 저장소, 파일 서버 등
- **원격, 분산 소프트웨어 개발**
  - 분산 협업 소프트웨어 개발 Subversion (DAV & DeltaV)
- **HTTP 프로토콜의 확장**
  - **덮어쓰기 방지**
    - ✓ Lock, Unlock
  - **리소스 관리**
    - ✓ Collection
    - ✓ Resource creation, copy, move, Mkdir, Move, Copy
  - **문서 속성**
    - ✓ Propfind
- **XML 기술의 활용 : 속성, 제어, 상태**
- **표준화**
  - RFC 2518, RFC 3253



## ➤ WebDAV 이전의 다른 시도들

- Data integration
  - ✓ NFS : Network file system / WebNFS
  - ✓ POP3, IMAP and other many protocols
- Distributed authoring :
  - ✓ Microsoft FrontPage
  - ✓ Netscape Composer

## ➤ 1996 년

- Web을 통한 소프트웨어 개발 및 원격 저작을 위한 방법 모색
- Jim Whitehead(UC Irvine), Dan Connolly (W3C), Larry Masinter(Xerox)
- Microsoft , Novell, Netscape 등 업체에서 참여.

## ➤ 1999년 2월

- RFC 2518 : Core features defined

## ➤ 웹 콘텐츠 사용자

- 문서 작업을 위한 메타데이터 활용
- 디렉토리 리스팅

## ➤ 웹 콘텐츠 저작자

- 서버에 저작물을 올려두기 위한 표준적인 방법 제공
- 저작물의 복사 및 이동
- 동시 저작을 위한 겹쳐 쓰기 방지

## ➤ 관리자

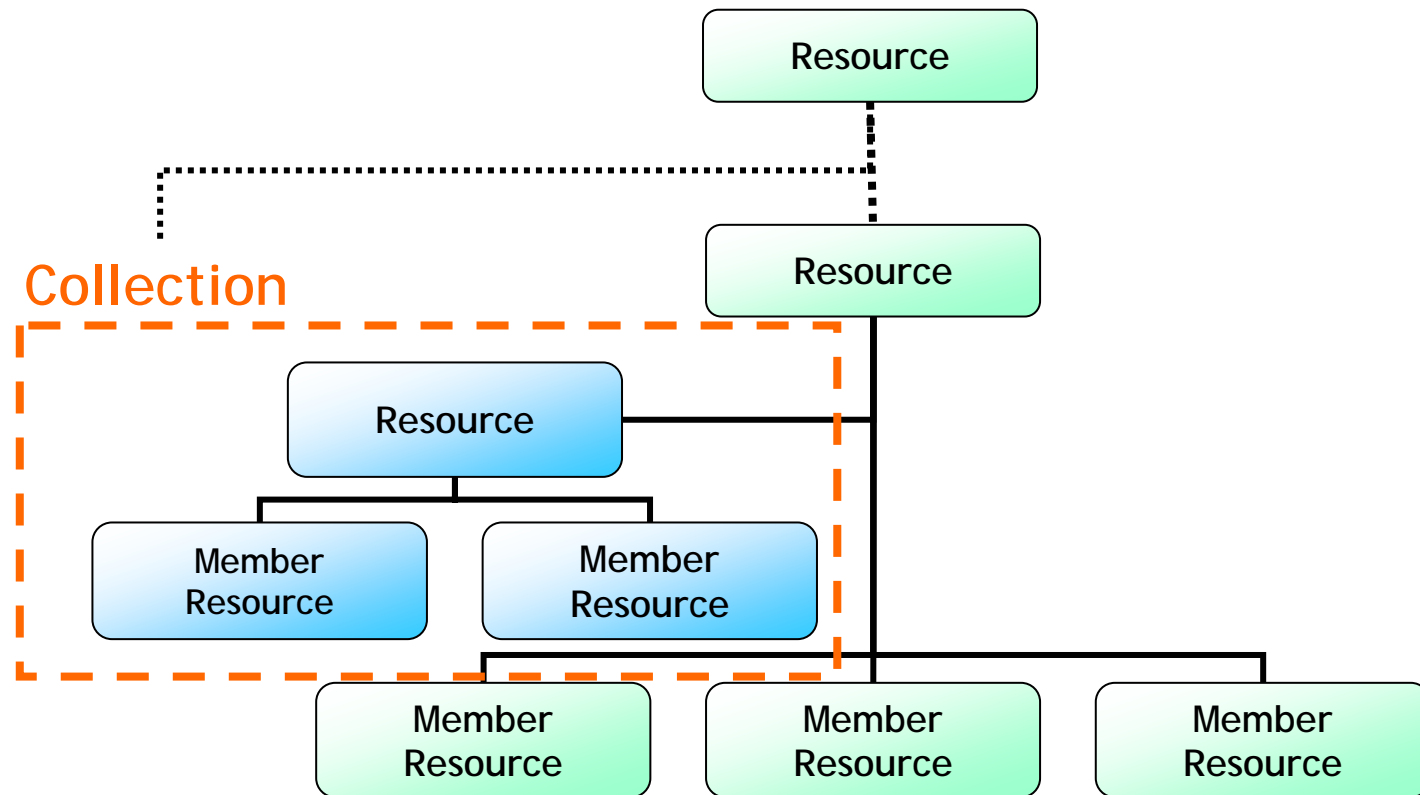
- Security Benefits
- 표준 프로토콜을 통한 데이터의 이동
- 시스템 계정 없이 HTTP 기반으로 인증 제공

- **단순성 !**
- **HTTP 인프라스트럭처에서의 장점 계승**
  - 인증(Authentication)
  - 암호화지원(Encryption)
  - Proxy /Firewall navigation
  - 가장 널리 사용
  - 다양한 기존 툴들
- **이미 준비된 다양한 툴 및 제품들**
- **Pluggable data storages**
  - RDBMS, XML database, File system
- **널리확대된 저변 (Knowhow pool)**

- **분산 및 협업 소프트웨어 구현을 위한 최적의 인프라 스트럭처**
  - 협업 프로젝트, 문서 관리 기반 협업, 콘텐츠 관리, 웹 디스크, 협업 소프트웨어 개발
  - Cost effective
- **이미 WebDAV를 지원하는 많은 수의 서버 제품 및 툴들.**
  - Cross platform data integration 가능
- **기존 투자 보호**
  - WebDAV서버로의 변경
  - 다양한 웹 서버 기반 Datastorage자원 활용

## ➤ Namespace & Resource management

- Collection
- Resource
- Member Resource
- URL 계층구조
- Create, move, copy, delete...





## ➤ Search

- DASL : DAV serching and locating
- Server Wide Search
- Property and contents searching
- Multiple Scopes

## ➤ Versioning

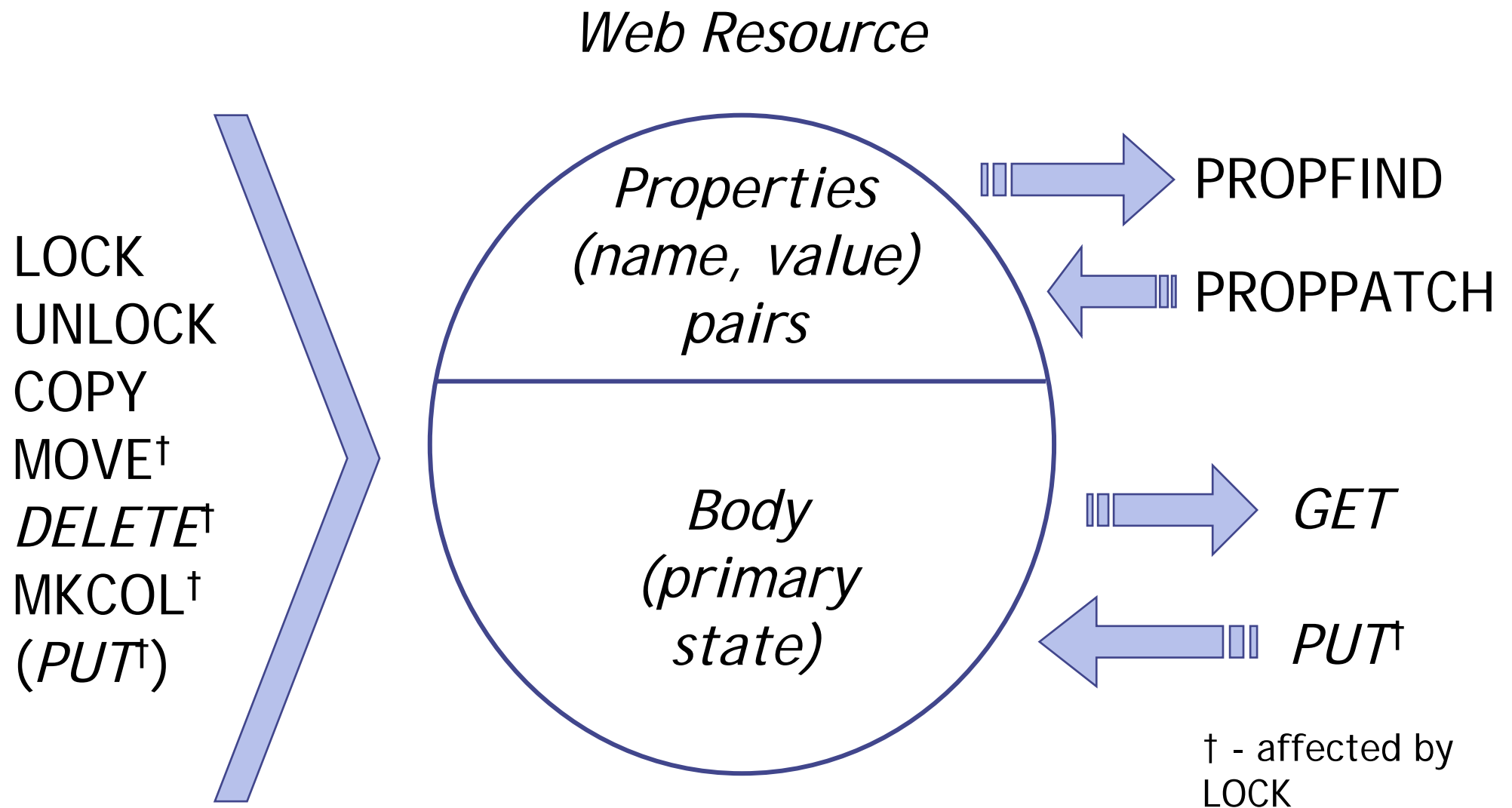
- DeltaV : RFC3253
- Revision control
- Configuration management
- Server Repository & Client Working copy
- Baselines :: Snapshots
- Activities :: change sets



## ➤ old+New HTTP Methods

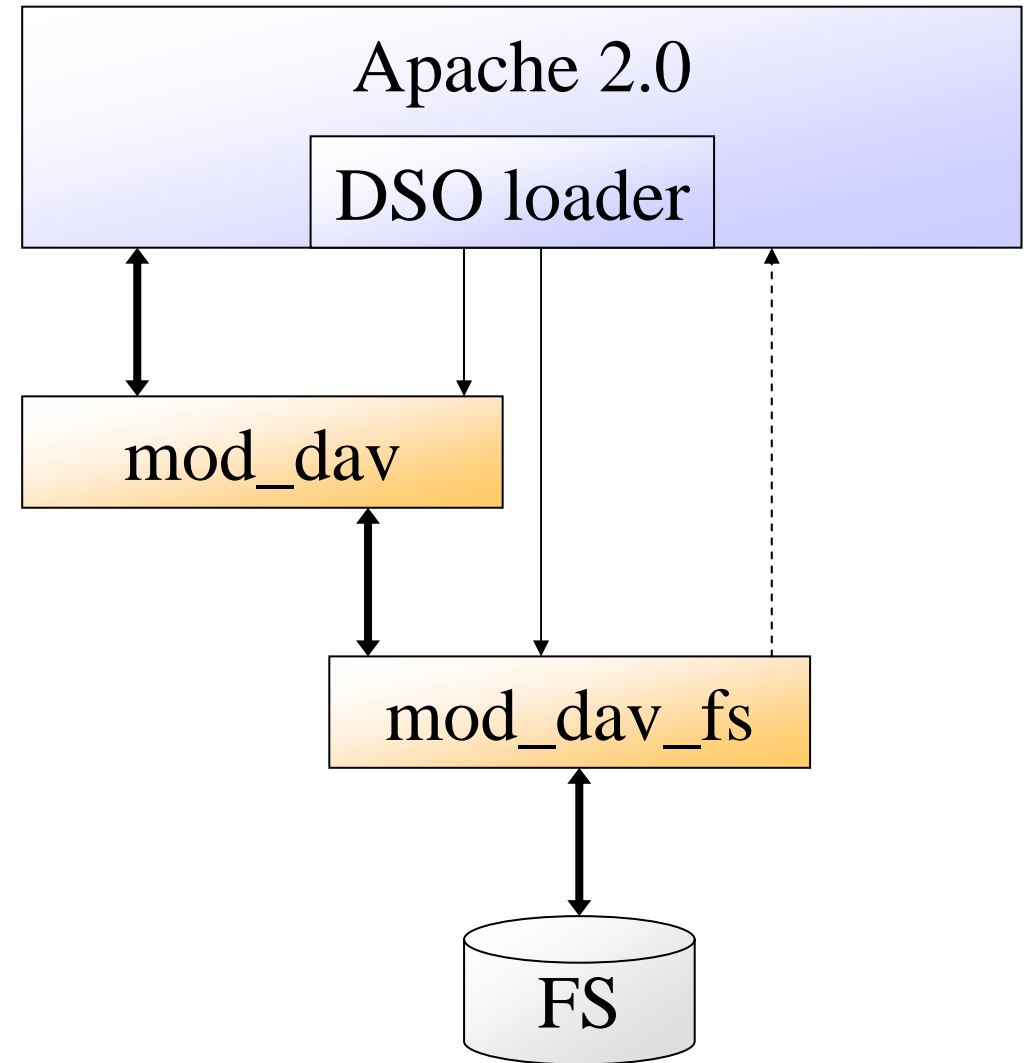
메소드	기능
Head, Trace	네트워크를 통한 접근을 찾고 추적
Get	문서 검색
Put, Post	문서를 서버에 전달
Delete	리소스, 컬렉션을 삭제
Mkcol	컬렉션 생성
Propfind	리소스와 컬렉션의 속성을 검색. 파일 목록 및 속성 검색을 의미
Proppatch	리소스에 대한 속성을 변경
Copy, Move	리소스, 컬렉션을 복사 및 이동
Lock, Unlock	덮어쓰기 방지 기능
Options	서버가 지원하는 메소드 출력

## ➤ old+New HTTP Methods



- An Apache module to support WebDAV
  - Apache 1.3 : **별도의 모듈로 이용 가능**
  - Apache 2.0 : **기본 모듈로 포함**
- Greg stein
  - Chairman, Apache software foundation
- **기본적으로 파일 시스템을 저장소로 사용**
  - Pluggable back end repository **지원.**
- **상업용 제품에서의 이용**
  - Oracle
  - IBM Rational ClearCase

- mod\_dav Back-ends = providers
- Reference name
  - Dav directive. (eg. DAV svn)
- mod\_dav\_fs
  - Apache module
  - Register your provider with mod\_dav
- OpenSource providers
  - MySQL backend : Catacomb



- Collaborative Authoring
- Network file system
- Distributed software engineering
- Unified repository access protocol

## ➤ Projects & tools

- Java based contents and authoring : Slide , Skunkdav , elipse (plugin)
- Utilities : davfs, DAVtool, KDE - Conquerer
- Others

## ➤ Commerical Products

- Adobe , Microsoft, MacOS X products
- Oracle XML DB
- Dreamweaver , XML authoring tools
- Commercial DAV Servers : A part of solution product
- Others

- SkunkDAV
- DAVExplorer

The image shows two screenshots of WebDAV client software. The top screenshot is DAV Explorer, and the bottom screenshot is SkunkDAV.

**DAV Explorer Screenshot:**

DAV Explorer interface showing a file list for a remote location. The address bar shows `http://dav.ics`. The file list includes:

Name	Content Type	Size	Last Modified
Config.exe	application/octet-stream	328872	Fri, 18 Oct 2001 08:10:28 GMT
DAV.gif	image/gif	4850	Thu, 22 Nov 2001 18:36:46 GMT
DAVExplorer.bat	text/plain	38	Thu, 22 Nov 2001 18:55:03 GMT
DAVExplorer.sh	application/x-sh	39	Sat, 01 May 1999 03:26:46 GMT
Main.java	text/java	36613	Mon, 05 Nov 2001 22:04:32 GMT
draft-ietf-deltav-versioning-20.doc	application/msword	557568	Fri, 23 Nov 2001 21:57:34 GMT
rfc2518.pdf	application/pdf	540755	Thu, 22 Nov 2001 18:38:22 GMT
rfc2518.bt	text/plain	202829	Thu, 22 Nov 2001 18:38:12 GMT
rfc2518.xml	text/xml	215019	Thu, 22 Nov 2001 18:38:36 GMT
test collection	application/octet-stream	0	Fri, 23 Nov 2001 22:04:30 GMT

**SkunkDAV Screenshot:**

SkunkDAV interface showing a file list for a remote location. The address bar shows `216.254.118.134:80/dav/`. The file list includes:

File Name	Content Type	Size	Last Modified	Owner
blank.gif	image/gif	1958	Thu, 15 Feb 2001 05:45...	
code_and_templates_in...	text/html	1784	Thu, 15 Feb 2001 05:45...	
contents.gif	image/gif	438	Thu, 15 Feb 2001 05:45...	
index.gif	image/gif	289	Thu, 15 Feb 2001 05:45...	
index.html	text/html	7079	Thu, 15 Feb 2001 05:45...	
modules.gif	image/gif	385	Thu, 15 Feb 2001 05:45...	
next.gif	image/gif	253	Thu, 15 Feb 2001 05:45...	
previous.gif	image/gif	252	Thu, 15 Feb 2001 05:45...	
up.gif	image/gif	316	Thu, 15 Feb 2001 05:45...	
x.1.html	text/html	8313	Thu, 15 Feb 2001 05:45...	
x.10.1.html	text/html	2413	Thu, 15 Feb 2001 05:45...	
x.10.2.html	text/html	2408	Thu, 15 Feb 2001 05:45...	
x.10.3.html	text/html	3127	Thu, 15 Feb 2001 05:45...	
x.10.4.html	text/html	3091	Thu, 15 Feb 2001 05:45...	
x.10.html	text/html	3852	Thu, 15 Feb 2001 05:45...	smulloni
x.11.1.html	text/html	2135	Thu, 15 Feb 2001 05:45...	
x.11.2.html	text/html	6698	Thu, 15 Feb 2001 05:45...	
x.11.1.html	text/html	2236	Thu, 15 Feb 2001 05:45...	
x.11.2.1.html	text/html	3639	Thu, 15 Feb 2001 05:45...	
x.11.2.2.html	text/html	3161	Thu, 15 Feb 2001 05:45...	
x.11.2.html	text/html	2603	Thu, 15 Feb 2001 05:45...	
x.11.html	text/html	2059	Thu, 15 Feb 2001 05:45...	
x.12.html	text/html	2319	Thu, 15 Feb 2001 05:45...	
x.2.1.html	text/html	5214	Thu, 15 Feb 2001 05:45...	
x.2.2.html	text/html	2853	Thu, 15 Feb 2001 05:45...	
x.2.3.html	text/html	2954	Thu, 15 Feb 2001 05:45...	
x.2.4.html	text/html	2943	Thu, 15 Feb 2001 05:45...	
x.2.5.html	text/html	5588	Thu, 15 Feb 2001 05:45...	
x.2.6.html	text/html	4094	Thu, 15 Feb 2001 05:45...	
x.2.7.html	text/html	2695	Thu, 15 Feb 2001 05:45...	
x.2.8.html	text/html	7409	Thu, 15 Feb 2001 05:45...	
x.2.9.html	text/html	2536	Thu, 15 Feb 2001 05:45...	
x.2.html	text/html	2502	Thu, 15 Feb 2001 05:45...	
x.3.1.html	text/html	3970	Thu, 15 Feb 2001 05:45...	
x.3.2.html	text/html	4569	Thu, 15 Feb 2001 05:45...	

## ➤ davfs2

- WebDAV folder를 UNIX/LINUX에서 네트워크 드라이브로 마운트
- Coda filesystem

```

root@sc ~# ls -la /
total 104
dr-xr-xr-x  206 root    root    0 Dec  9 15:58 proc
drwxr-x---   22 root    root   4096 Dec  9 12:52 root
drwxr-xr-x    2 root    root   4096 Feb 12  2003/sbin
drwxr-xr-x    4 root    root   4096 May  6  2003/sc
drwxrwxrwt   10 root    root   4096 Dec 10 15:03/tmp
drwxr-xr-x   20 root    root   4096 Dec 13  2001/usr
drwxr-xr-x   18 root    root   4096 May  6  2003/var
drwxrwxr-x    2 root    root   4096 Dec  7 21:49/webdav

[root@sc /]# insmod coda
Using /lib/modules/2.4.7-10smp/kernel/fs/coda/coda.o
insmod: a module named coda already exists
[root@sc /]# mount.davfs http://sc.collabnetkorea.com:8081/nusys /tmp/dav
[root@sc /]# ls -al /tmp/dav
total 2933
drwxr-xr-x    1 root    root      512 Dec 10 14:57 .
drwxrwxrwt   10 root    root   4096 Dec 10 15:13 ..
-rwxr-xr-x    1 root    root   5251 Dec  7 21:32 address.csv
-rwxr-xr-x    1 root    root   5290 Dec  9 14:40 bak_before_startingprg_d
-rwxr-xr-x    1 root    root     28 Dec  7 20:52 index.html
drwxr-xr-x    1 root    root     512 Dec 10 15:03 MyImages
-rwxr-xr-x    1 root    root 2986038 Dec  9 14:33 showattachment.bmp

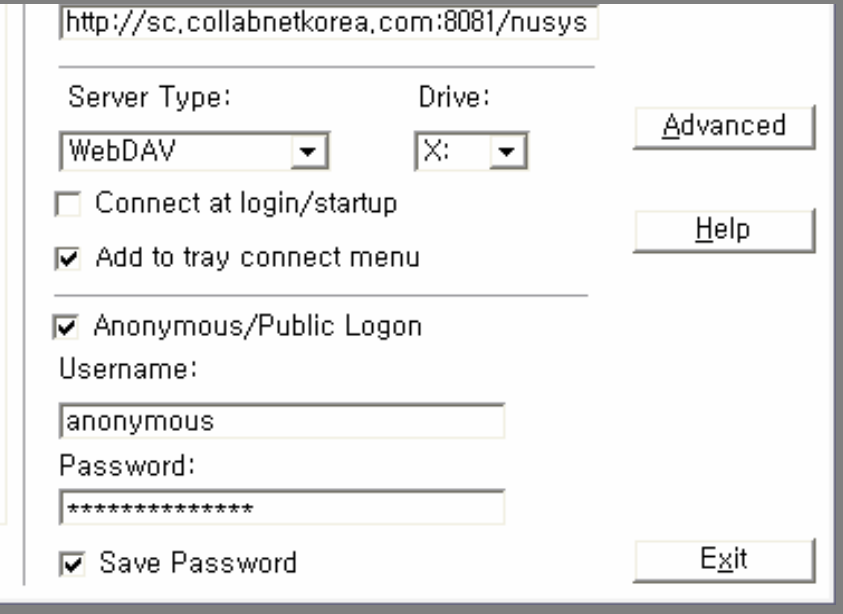
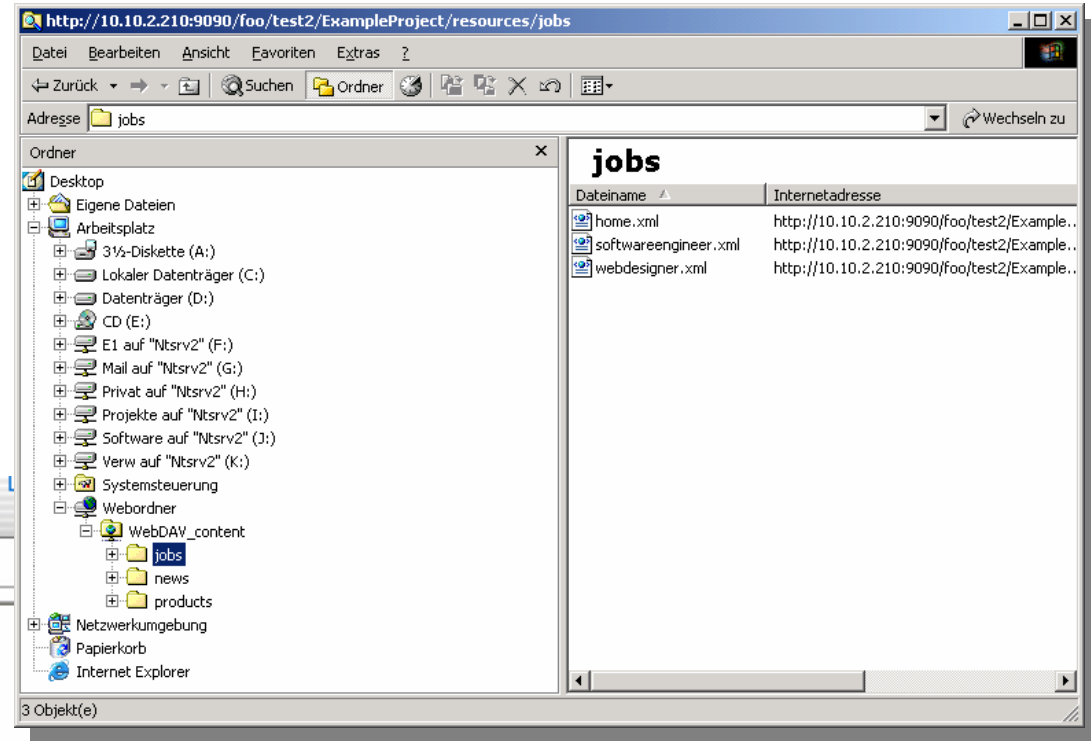
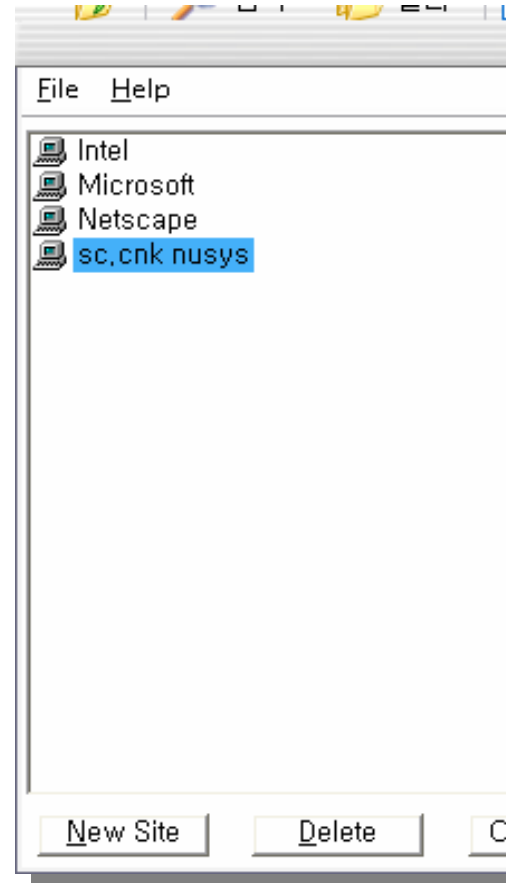
[root@sc /]# umount /tmp/dav
[root@sc /]#

```

Connected to 203.236.240.10      SSH2 - aes128-cbc - hmac-md      80x23

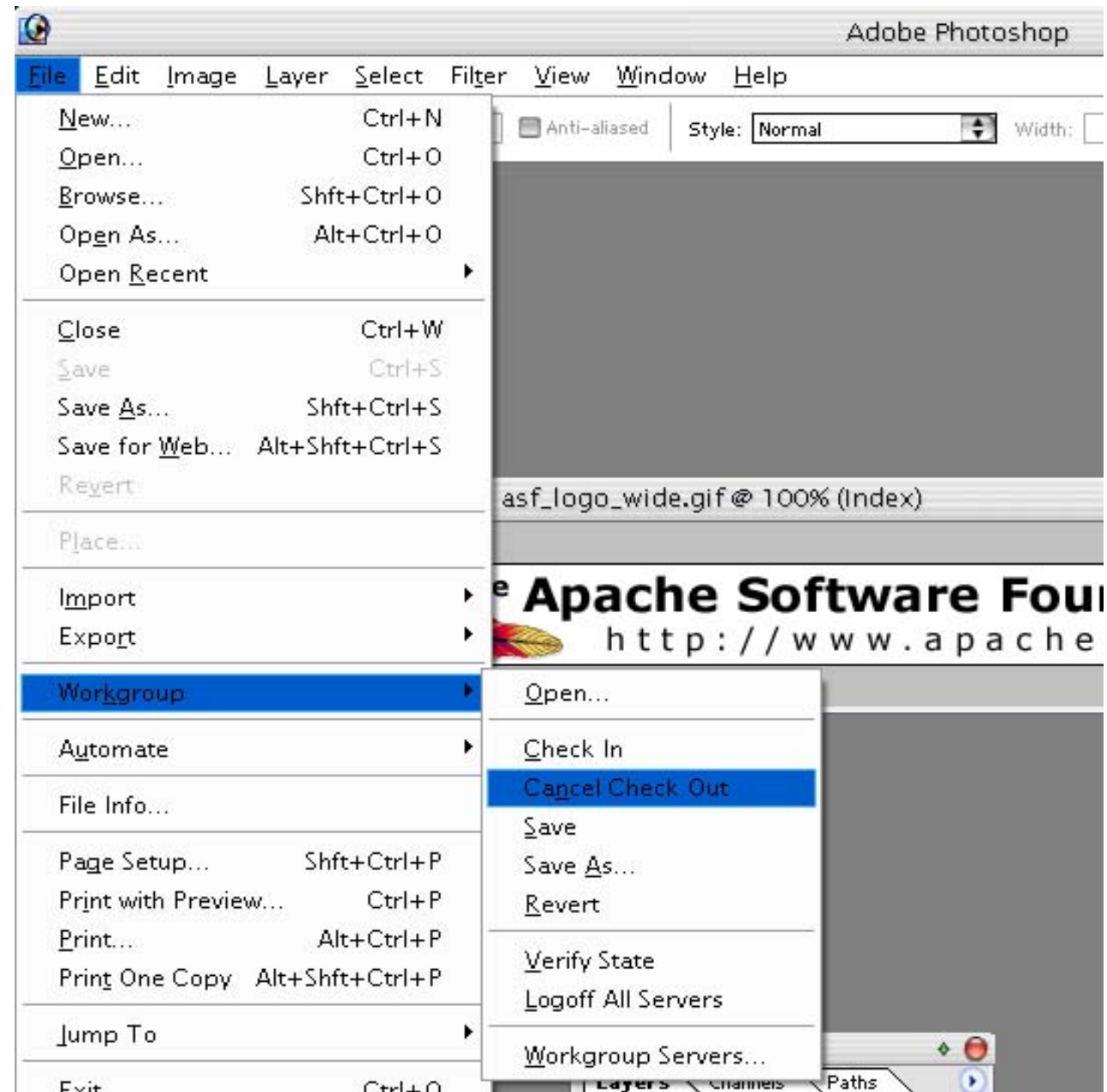


- Microsoft products
  - Windows
  - Office 2000/XP and etc
- SouthRiver Tech
  - WebDrive



## ➤ Adobe softwares

- Photoshop
- Illustrator
- Acrobat
- GoLive



## ➤ Basic installation

- Tarball : <http://www.apache-kr.org/dist/>

## ➤ Configure script example

```
./configure --enable-dav --enable-dav-fs
```

## ➤ Digest Authentication ;

- ' --enable-auth-digest '

## ➤ Basic configuration

```
Alias /userhome /home/userhome/davfolder  
<Location /userhome>  
    DAV On  
</Location>
```

## ➤ Lock DB 용의 디렉토리 생성 및 설정

- 아파치 서버 디렉토리 하위의 var/DavLock 을 이용하는 경우 디렉토리 생성
- 아파치 실행 권한에게 디렉토리 접근 및 쓰기 가능한 설정

```
DAVLockDB var/DavLock
```

## ➤ Other considerations

- CGI **프로그램의 실행 및 SSI includes 등의 방지**
  - ✓ Options None
- .htaccess **파일의 활용 방지**
  - ✓ AllowOverride None
- **사용자의 method 접근 제한**
  - ✓ <LimitExcept OPTIONS GET POST REPORT>
  - ✓ <Limit PUT GET POST DELETE PROPPATCH MKCOL COPY LOCK UNLOCK>  
Require valid-user  
</Limit>
- **홈페이지 콘텐츠를 관리할 지정된 아이피에서만 WebDAV로 접근**
  - ✓ Allow from “관리자 아이피 혹은 아이피 대역”
- Authentication Type 을 Digest로 이용
  - ✓ AuthType Digest
  - ✓ AuthUserFile “htdigest 로 생성된 파일위치”

## ➤ Advanced configuration example

```
<Location /UserDavFolder>  
  AllowOverride None  
  Options None  
  DAV On  
  AuthName "User verification for WebDAV folder"  
  AuthType basic  
  AuthFile "/htpasswd로 파일 만든 위치/.htpasswd"  
  <Limit PUT DELETE PROPFIND PROPPATCH MKCOL COPY  
    MOVE LOCK UNLOCK>  
    Order deny,allow  
    Allow from 192.168.0.1  
    Require valid-user  
  </Limit>  
</Location>
```

## ➤ Advanced configuration

```
<Location /UserDavFolder>
```

```
DAV On
```

```
AllowOverride None
```

```
Options None
```

```
AuthName "User verification for WebDAV folder"
```

```
AuthType Basic
```

```
AuthFile "/htpasswd로 파일 만든 위치/.htpasswd"
```

```
<Limit PUT POST DELETE PROPFIND PROPPATCH MKCOL COPY MOVE LOCK UNLOCK>
```

```
Order deny,allow
```

```
Deny from all
```

```
Allow from 192.168.1.1
```

```
Require user ADMINID
```

```
</Limit>
```

```
<Limit PUT POST PROPFIND COPY>
```

```
Order deny,allow
```

```
Deny from all
```

```
Allow from 192.168.2.
```

```
Require user USERID
```

```
</Limit>
```

```
</Location>
```

## ➤ 인증 파일 생성

– `htpasswd -c /만들파일의위치/.htpasswd 사용자id`

New password:

Re-type new password:

Adding password for user 사용자id

– **아파치 웹서버 실행권한이 접근할 수 있도록 퍼미션 조정**

– AuthType Digest인 경우에는 **htdigest** 이용

## ➤ 설정 확인 및 적용

– `/아파치웹서버설치위치/bin/apachectl configtest`

Syntax OK

– `/아파치웹서버설치위치/bin/apachectl restart`



- DoS Attack
  - IIS5
  - mod-dav : Limit XML body
- Authentication and encryption weakness
  - Basic authentication
  - Digest authentication
  - SSL encryption
- AccessControl

## ➤ DeltaV working group

- Versioning extention for webdav
- RFC3253

## ➤ Subversion

- <http://subversion.tigris.org>
- **2000년 부터 CollabNet이 후원하여 시작된 프로젝트**
  - ✓ Apache/BSD style 라이선스로 개발
  - ✓ WebDAV 와 DeltaV 기반
  - ✓ **현재 0.34 버전 릴리즈**
- **CVS를 대체할 수 있는 오픈소스 버전관리 시스템**
  - ✓ **엔터프라이즈 환경에서의 형상관리에 근접**
  - ✓ **향상된 기능들**
  - ✓ **TortoiseCVS 등 기존의 버전 관리 툴의 SVN버전 개발**

## ➤ Version control

URL path of  
Versioned  
Controlled  
Resource

→ Foo.htm

Branch

Version  
Name

Label

Successor

*initial* 1

*Beta1* 2

3 4

5 6

*Beta2* 7

Line of  
Descent

Revision  
History

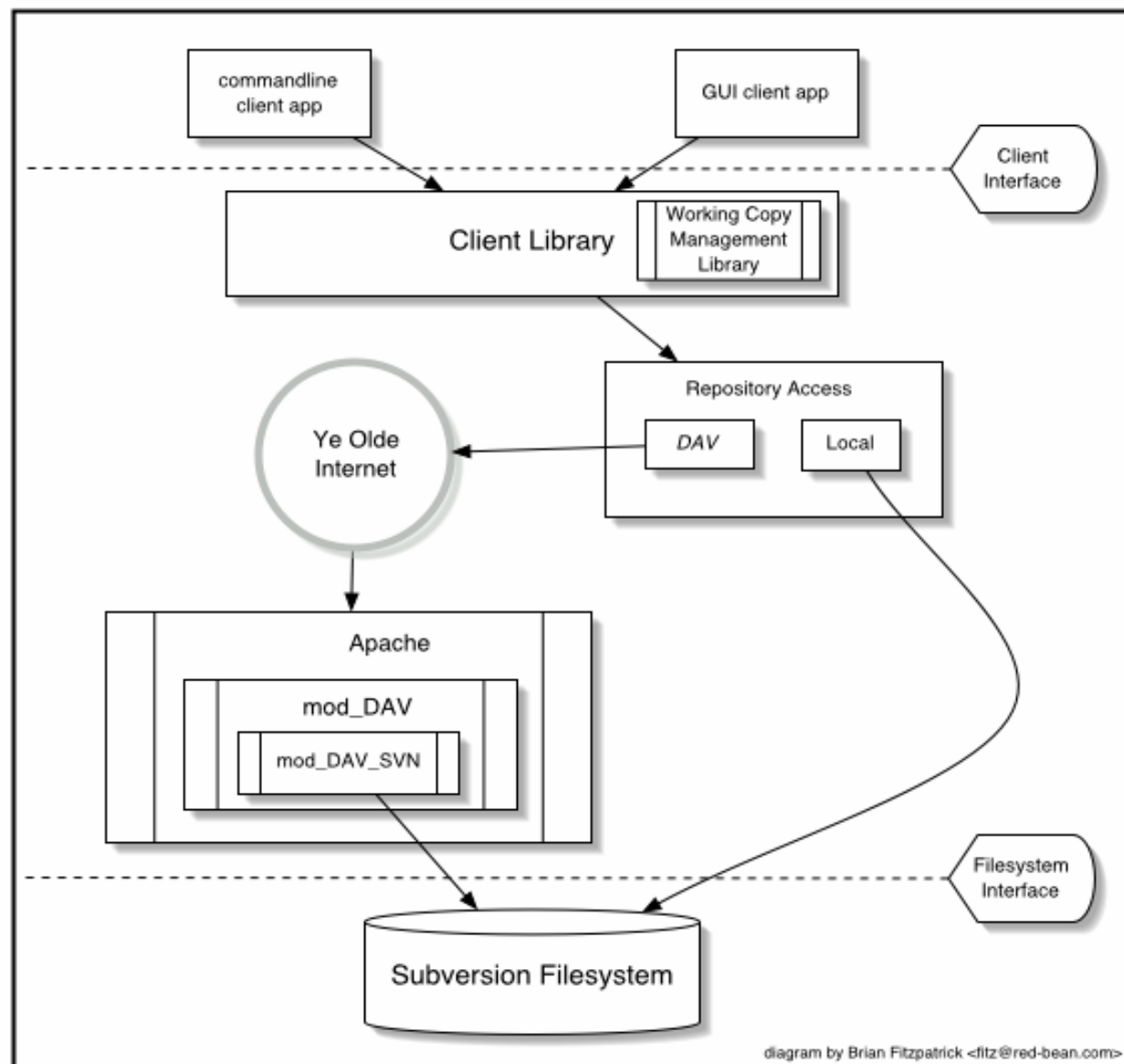
Merge

Predecessor

- Subversion features(compare with CVS)
  - Atomic commits
  - Real copies and real name
    - ✓ Directory versioning
  - Advanced network layer
    - ✓ Apache + WebDAV/DeltaV
    - ✓ Or Subversion standealone + SSH
  - Faster network access
    - ✓ binary diffs
    - ✓ mod\_deflate compression
  - Less network access
  - BerkelyDB based repository

## ➤ Subversion architecture

- Local repository
- Remote repository
- ✓ HTTP authentication



## ➤ Requirements

- Apache 2.0.48
- Subversion 0.34.0
- Gcc
- OpenSSL
- Berkeley DB

## ➤ Apache configuration example

```
./configure --prefix=/usr/local/apache2 \  
--enable-so --enable-dav --enable-maintainer-mode \  
--enable-suexec --with-suexec-caller=bin \  
--enable-ssl=/usr --enable-cache --enable-ext-filter \  
--with-z=/usr --with-dbm=db4 --with-berkley-db=/usr
```

## ➤ Subversion configure example

```
./configure --prefix=/usr/local/subversion \  
--with-editor=/bin/vi --with-jdk=/usr/java --with-zlib \  
--enable-maintainer-mode --with-ssl=/usr --with-dbm=db4 \  
--with-berkeley-db=/usr --with-apr=/usr/local/apache2 \  
--with-apr-util=/usr/local/apache2 \  
--with-apxs=/usr/local/apache2/bin/apxs
```



➤ After installation

**httpd.conf**

```
LoadModule dav_svn_module    modules/mod_dav_svn.so
```

```
LoadModule authz_svn_module  modules/mod_authz_svn.so
```

➤ Preparing subversion repository

```
#svnadmin create sample
```

➤ Permission setting

## ➤ Check out (svn co) example

```

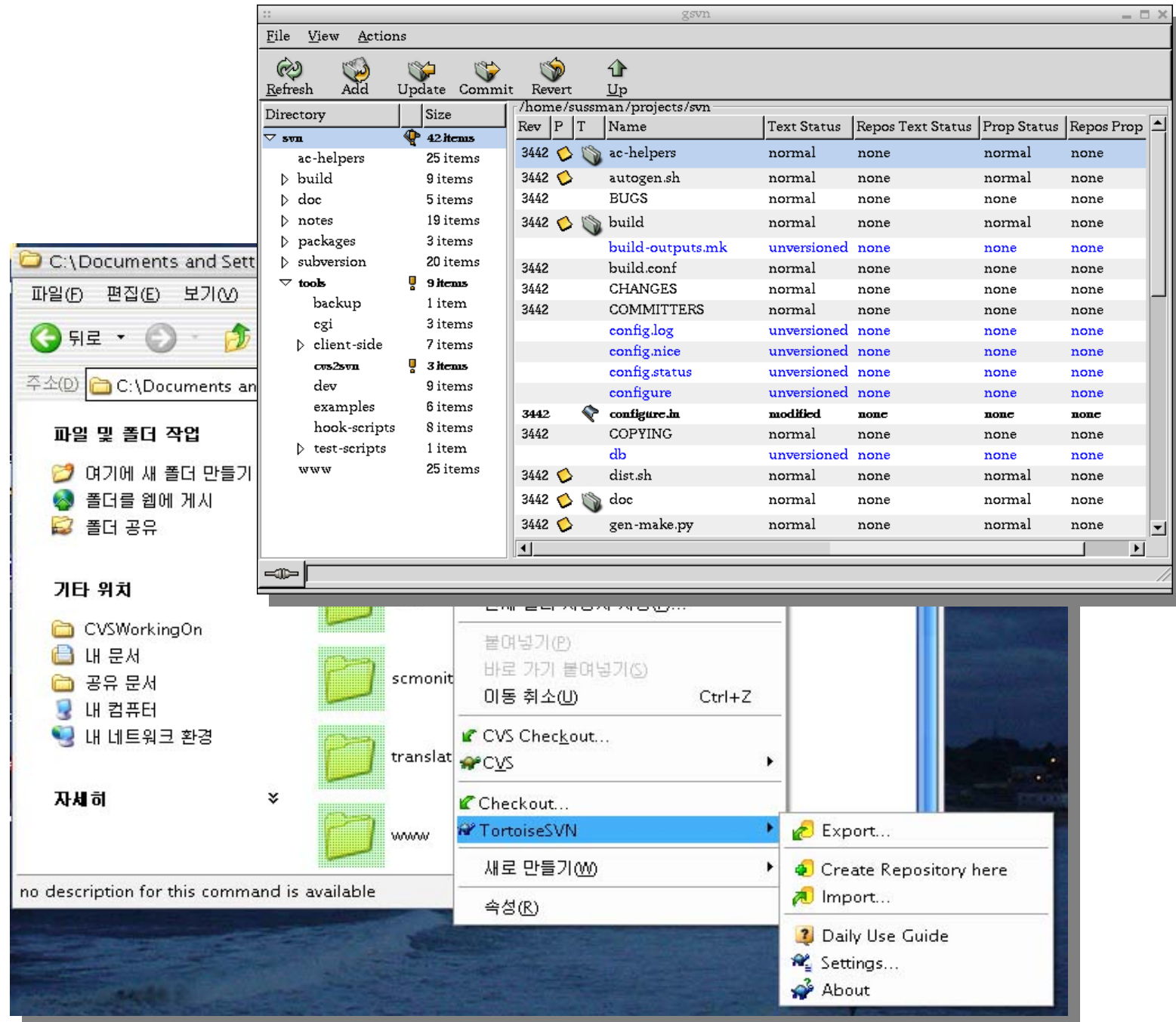
root@mike:/usr/local/subversion/bin
[root@mike bin]# ./svnserve -d -r /home/svn
[root@mike bin]# ps -ef|grep svnserve
root      28080      1   0 16:32 ?          00:00:00 ./svnserve -d -r /home/svn
root      28082    8358   0 16:32 pts/1      00:00:00 grep svnserve
[root@mike bin]# netstat -a | grep 3690
tcp        0      0 *:*          *:*          LISTEN
[root@mike bin]# svn co svn://mike.bccard.com/sample sample
Checked out revision 0.
[root@mike bin]#

```

- Commit (svn commit)
- List (svn list)
- diff (svn diff)
- Update (svn update)
- Mkdir (svn mkdir)
- Move (svn mv)
- Copy (svn cp)

# Subversion softwares

- TortoiseSVN
- Subclipse
- Subwiki
- RapidSVN
- ViewCVS
- gSVN



- <http://www.webdav.org>
  - WebDAV에 관한 모든 자료
  - Greg stein, WebDAV and Apache
  - RFC2518 , RFC 3253
- <http://www.tigris.org>
  - subversion.tigris.org
  - and other subversion scm tools
- **이외 많은 DAV관련 개발 프로젝트 홈페이지들**

➤ 감사합니다.

