

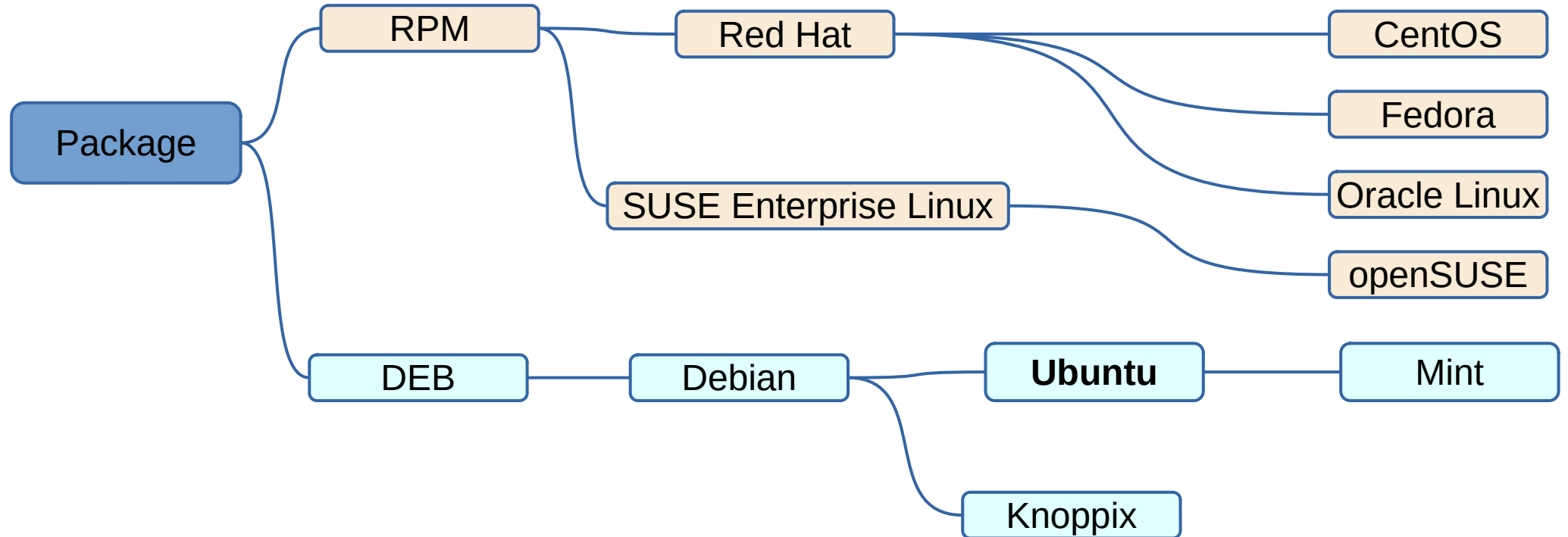
# Software Management

Using package management systems

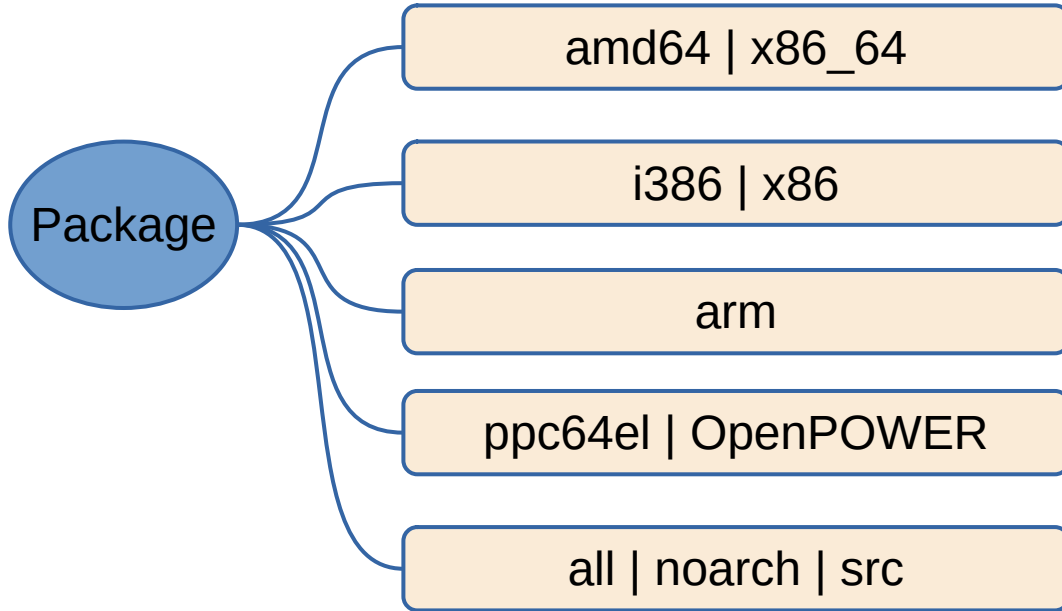
# Need for a package manager

- Tools for installing, updating, removing, managing software
- Install new / updated software across network
- Package – File look up, both ways
- Database of packages on the system including versions
- Dependency checking
- Signature verification tools
- Tools for building packages

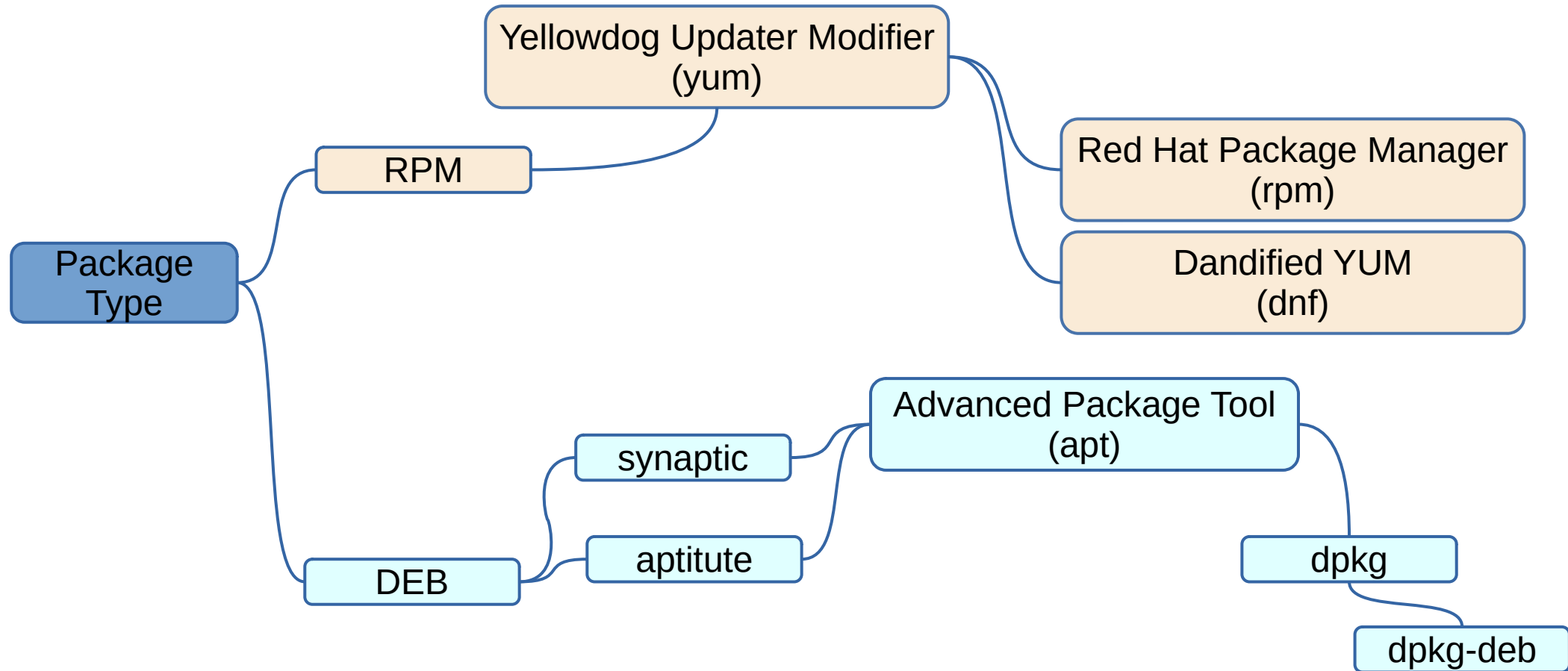
# Package types



# Architectures



# Tools

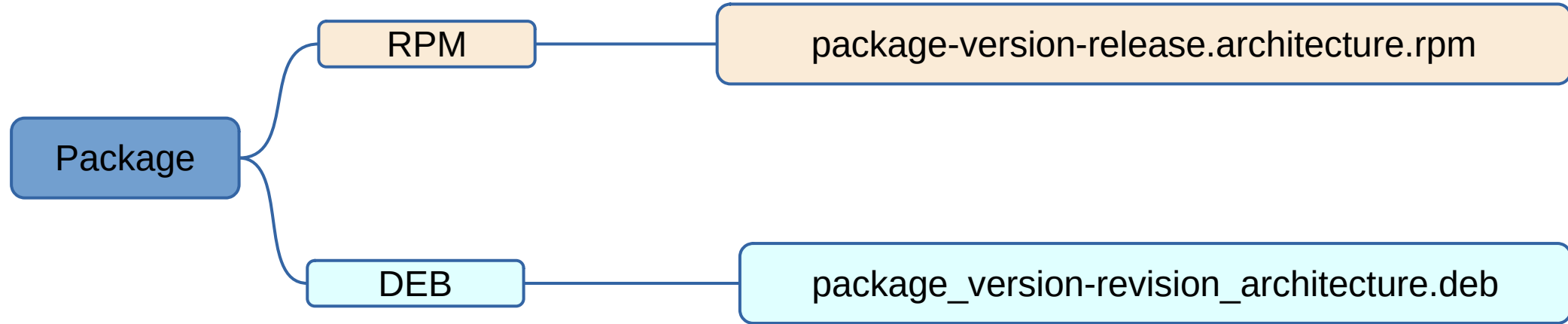


# Package management in Ubuntu using `apt`

# Inquiring package db

- Search packages for a *keyword*:  
`apt-cache search keyword`
- List all packages:  
`apt-cache pkgnames`
- Display package records of a *package*:  
`apt-cache show -a package`

# Package names





# Package priorities

- **required** : essential to proper functioning of the system
- **important** : provides functionality that enables the system to run well
- **standard** : included in a standard system installation
- **optional** : can omit if you do not have enough storage
- **extra** : could conflict with packages with higher priority, has specialized requirements, install only if needed

# Package sections

<https://packages.ubuntu.com/focal>

Administration Utilities, Mono/CLI, Communication Programs, Databases, Debug packages, Development, Documentation, Editors, Electronics, Embedded software, Fonts, Games, GNOME, GNU R, GNUstep, Graphics, Haskell, Web Servers, Interpreters, Java, KDE, Kernels, Library development, Libraries, Lisp, Language packs, Mail, Mathematics, Miscellaneous, Network, Newsgroups, OCaml, Perl, PHP, Python, Ruby, Science, Shells, Sound, TeX, Text Processing, Translations, Utilities, Version Control Systems, Video, Web Software, X Window System software, Xfce, Zope/Plone Framework

# Checksums

md5sum

128bit

SHA1

160bit

SHA256

256bit

Only sudoers can install / upgrade / remove packages

`/etc/sudoers`

`/etc/apt`

Files : `sources.list`  
Folder : `sources.list.d`

# Installing / Updating

- Synchronize package overview files:  
`apt-get update`
- Upgrade all installed packages:  
`apt-get upgrade`
- Install a *package*:  
`apt-get install package`
- Reinstall a *package*:  
`apt-get reinstall package`

# Removing / Cleaning up

- Remove packages that were automatically installed to satisfy a dependency and not needed:  
`apt-get autoremove`
- Clean local repository of retrieved package files:  
`apt-get clean`
- Remove a *package*:  
`apt-get remove package`
- Purge package files from the system:  
`apt-get purge package`

# Package management in Ubuntu using `dpkg`



`/var/lib/dpkg`

Files : [arch](#), [available](#), [status](#)

Folder : [info](#)

# Using dpkg

- List all packages whose names match the pattern  
`dpkg -l pattern`
- List installed files that came from *packages*:  
`dpkg -L package`
- Report the status of *packages*:  
`dpkg -s package`
- Search installed packages for a file:  
`dpkg -S pattern`

# Installing a deb package

```
dpkg -i package_version-revision_architecture.deb
```

By default, use package management pointing to a reliable repository

Uninstalling packages using dpkg is **not** recommended !