

Multi-user support in an embedded secured environment

Practical return of experience from Tizen 3 in Automotive

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- I - User management
- II - Application framework
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- IV - Resources management
- V - Current status

Conclusion

Questions



Multi-seat:

- Several users using the system at the same time
- User sessions separation
- User privilege management

Peripherals management:

- Wi-Fi, bluetooth...



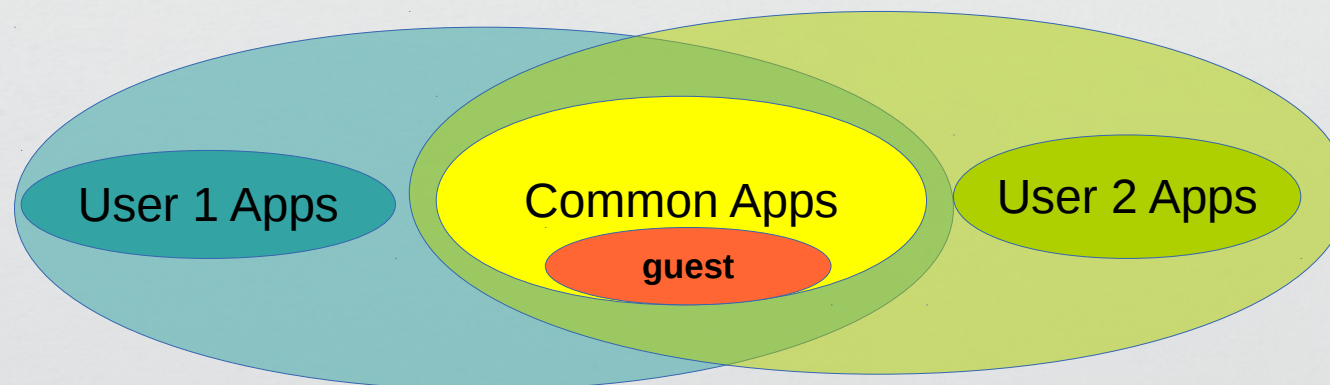
I – User management

3 types of users:

- Privileged user
- Regular users
- Guest user

Separate databases

- app_info.db, pkgmg_parser.db pkgmg_cert.db



II – Application framework

1) Package installation

| | For all users (Common) | Only for current user |
|---------------|--------------------------|------------------------------------|
| Preinstalling | pkg_initdb ail_initdb | pkg_initdb_user ail_initdb_user |
| At Runtime | pkgcmd | pkgcmd |

Unique application ID = user name + application ID

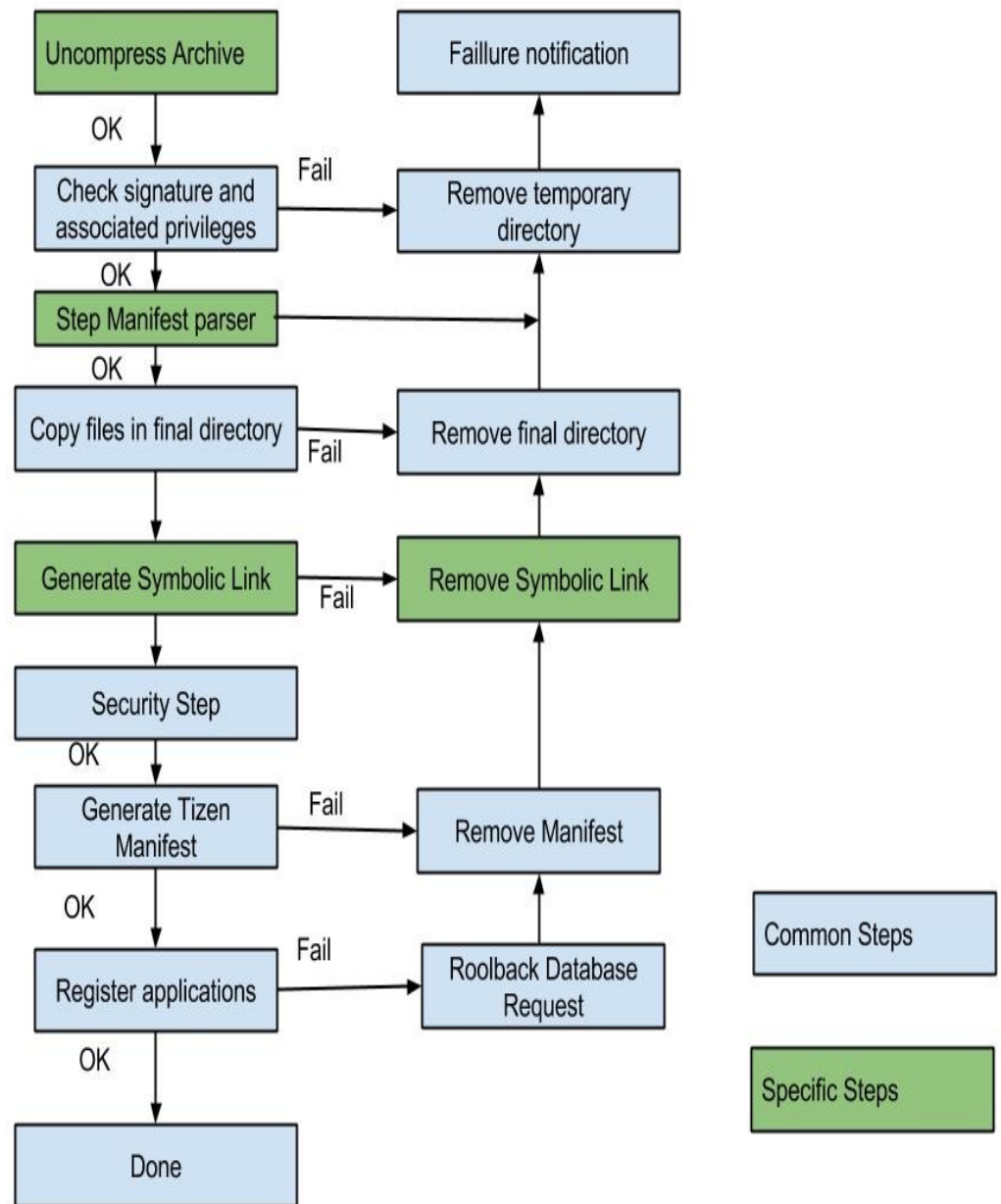
Application ID = package ID + application name



II – Application framework

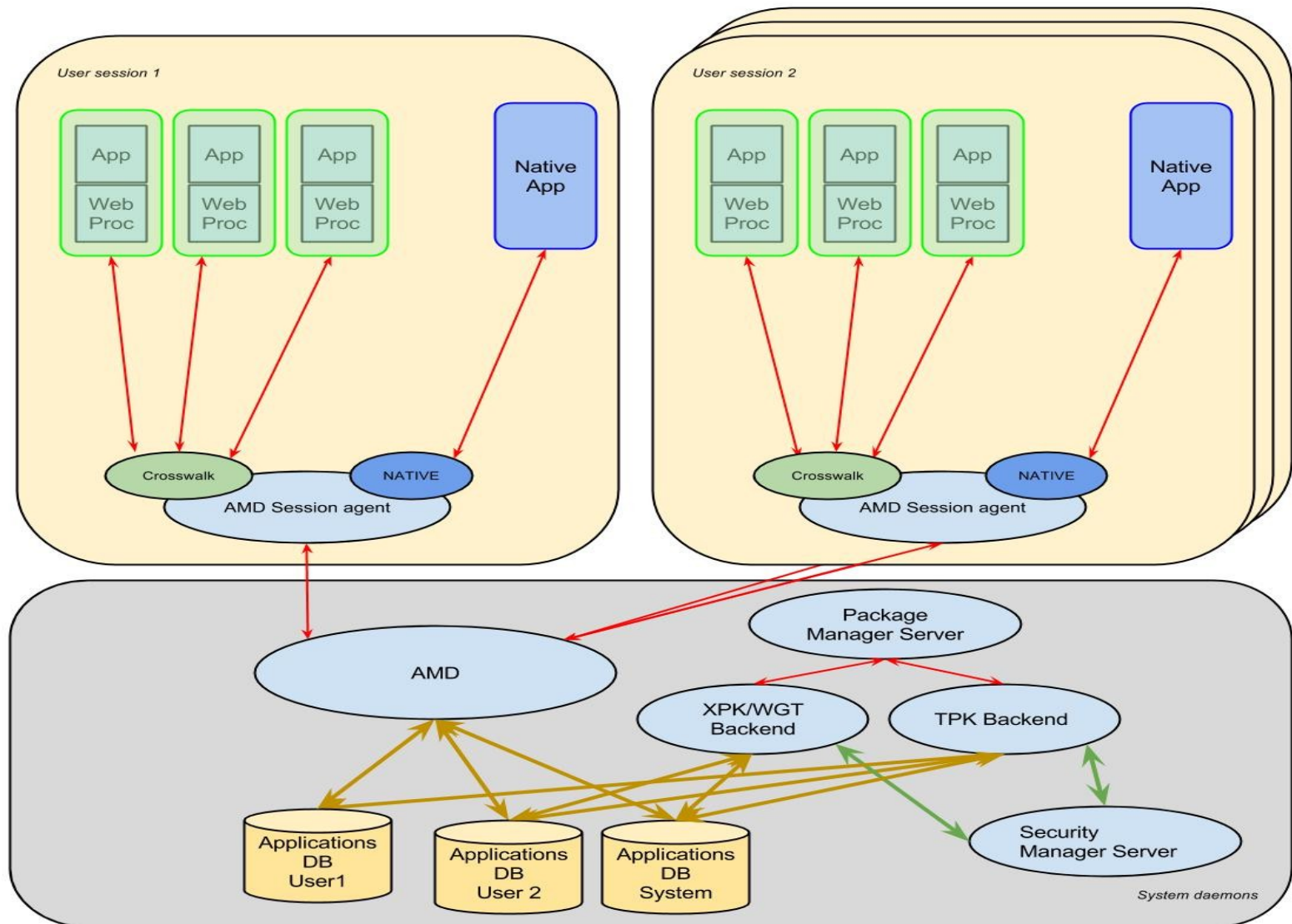
1) Package installation

- Different types of packages (wgt, xpk...)
- Only one package installer: pkgcmd + pkgmgr-server
- Use different backends provided by app-installer
- **Motivation: manage security independently of the package type**



II – Application framework

2) Launching applications



III – Multi-seat

Objectives:

- Switching from one seat to another without losing launched applications
- Prevent users from interacting with contents that belongs to other users
 - Keep user sessions separated

Solutions:

- Use only one Weston service for all users
 - Allows to switch to another screen without logging out
- Use the application framework to move applications from a display to another



IV – Resource management

Objective:

- Manage conflicts regarding resources (Wi-Fi, bluetooth...)

Solution:

- Only the privileged user can configure those resources
- Define shared and exclusive resources



V - Current status

1) Work done

Remove hard-coded paths/uid/gid

Security management

- No more old SMACK labels from Tizen 2.x
- Privileged user with gid "system"

User databases

- Separated databases: app_info.db, pkgmg_parser.db, pkgmg_cert.db
- databases registration: initdb binary and pkgcmd backend

CAPI

- CAPI with the uid in parameter in the case of a user environment

Multi-user feature in media packages

Installing and launching applications

```
pkgcmd -i -t wgt -p <path_to_.wgt> -q -G  
app_launcher -s <app_ID>
```



V - Current status

2) Upcoming

Resource service/display management

- the privileged user can launch an application on a display other than its own

Security management

- set correct permissions (security manager)
- share data between applications from the same package

Media-server: common environment remains to be done

Multi-user feature in non-media packages

Bluetooth:

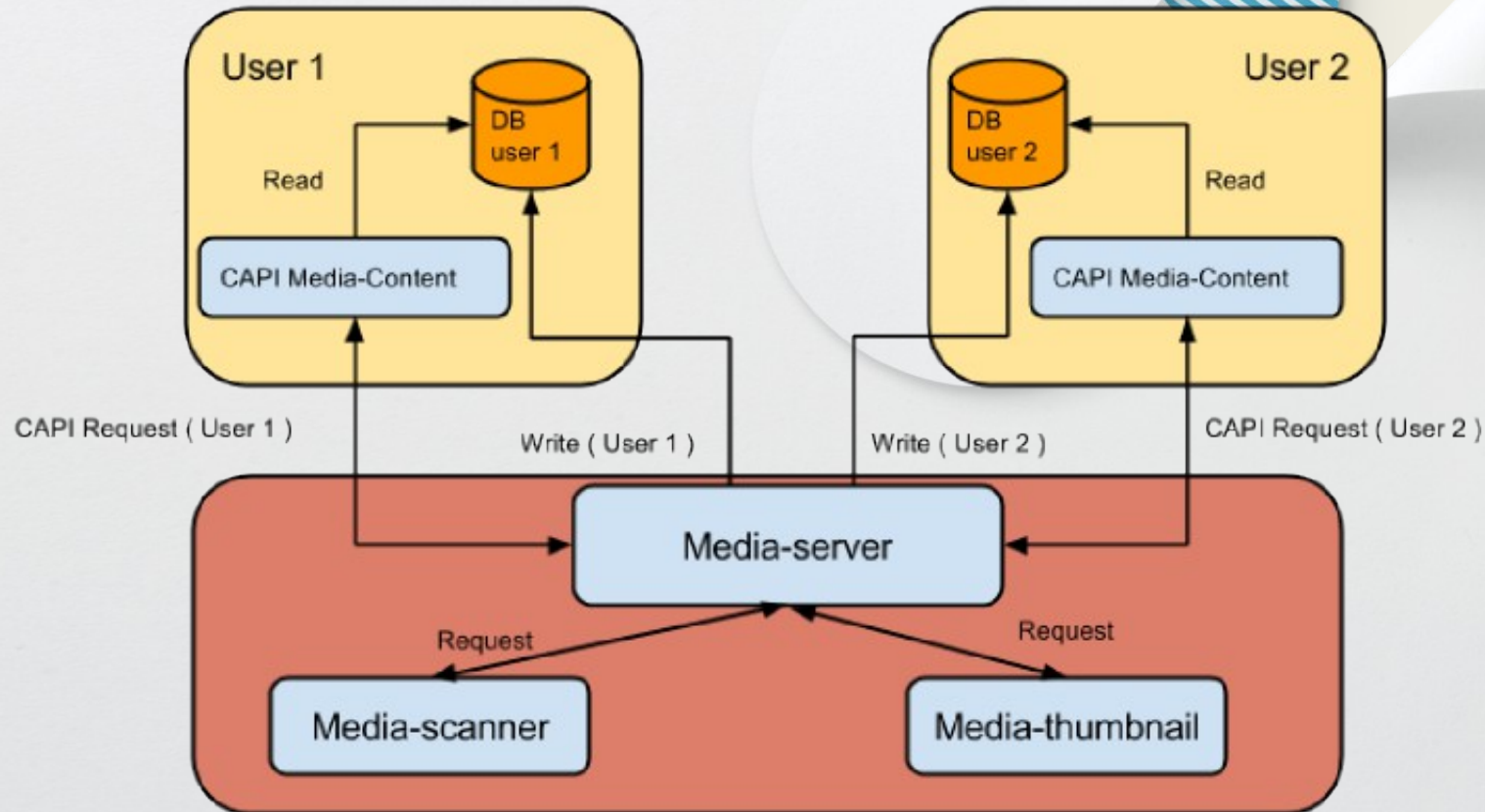
- first step done: protection of device's private data from a user to another user
- a lot of work remains to be done (shared pairing with exclusive connection, shared pairing with with parallel connections, local adapter control, sharing devices)

Winet



V - Current status

2) Adding multi-user feature: example with media packages



Duplicated:

- CAPI functions (ail, pkgmgr-info...) for global apps & user apps
- Databases



Conclusion

| IVI NEEDS | MULTIUSER |
|-------------------------|---|
| Separate users session | <ul style="list-style-type: none">• Individual environment per user• Common environment |
| Re-seating | One weston service for all users |
| Peripheral management | <ul style="list-style-type: none">• Privileged user• Access restriction• Resource allocation for dedicated user |
| Privileges requirements | <ul style="list-style-type: none">• Permission access• Security manager |



Questions ?

Documentation:

- * wiki.tizen.org/wiki/Multi-user_Architecture
- * wiki.tizen.org/wiki/Multi-user_PackageApplicationManagement
- * wiki.tizen.org/wiki/Multi-user_Media-server
- * wiki.tizen.org/wiki/Applications_Installer
- * wiki.tizen.org/wiki/Application_framework

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