



shaping tomorrow with you

Introduction of Fujitsu DRM Solution for Marlin DRM/MPEG-DASH Solutions

March, 2013

FUJITSU LIMITED

Fujitsu was dealing with the creating open specification of DRM from about 20 years ago. The reasons why we think open specification of DRM is very important are the following,

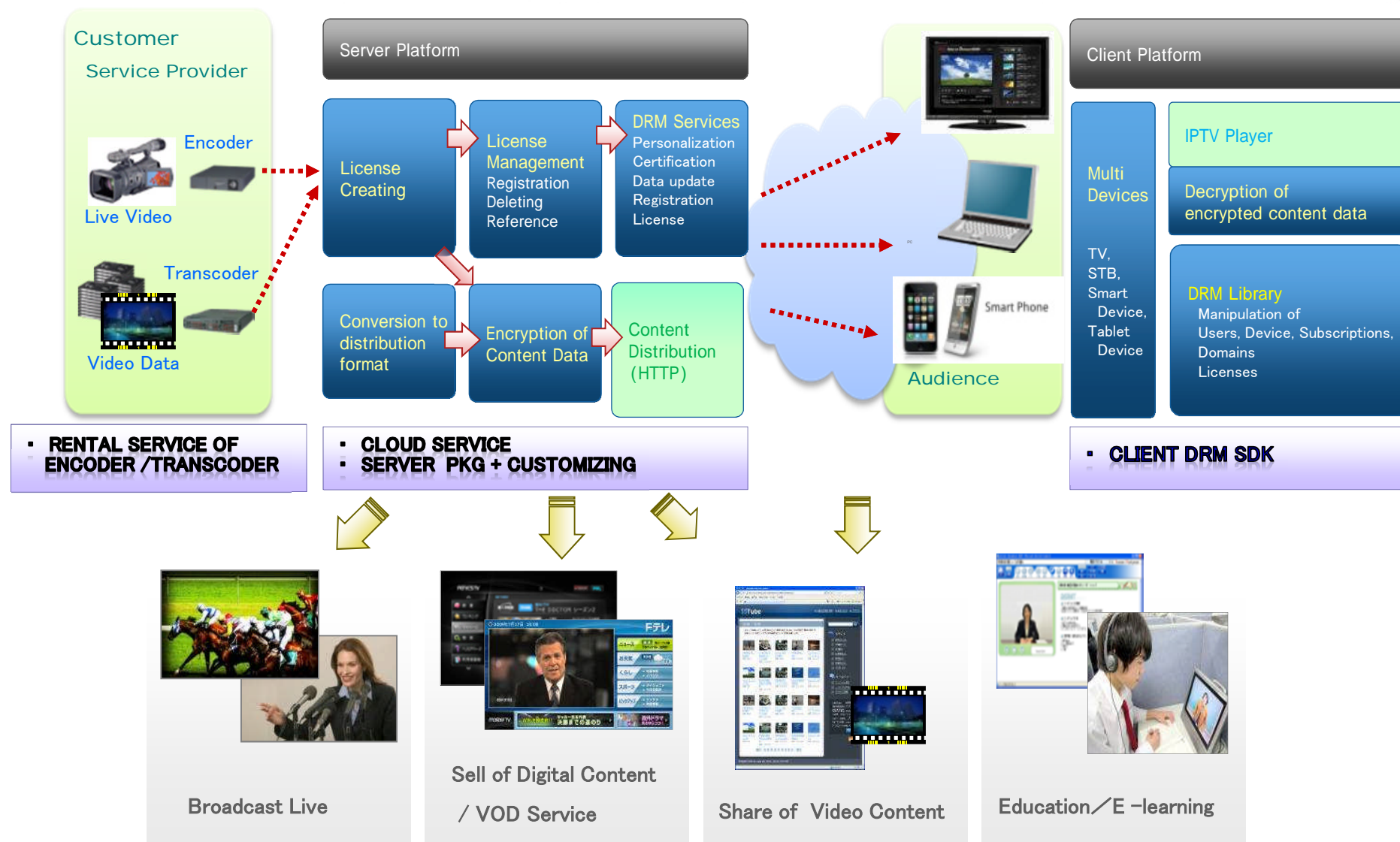
- To keep the security level of DRM high
In case of open specification, multiple makers try to develop more secure DRM with competing against another makers.
- To prevent monopolization of content distribution business by one particular company
Closed specification of DRM tends to cause monopolization of content distribution infrastructure, and this situation is not good for many content holders and content creators.

When Marlin specification was issued, we decided to implement Marlin because we estimated that Marlin was better than our specification in consequence of our research and analysis. We respect for Marlin founder's effort of creating and expanding very nice open DRM specification.

In this material, we introduce our services and products implementing Marlin specification.

PART Over view of Fujitsu's DRM Solution for IPTV

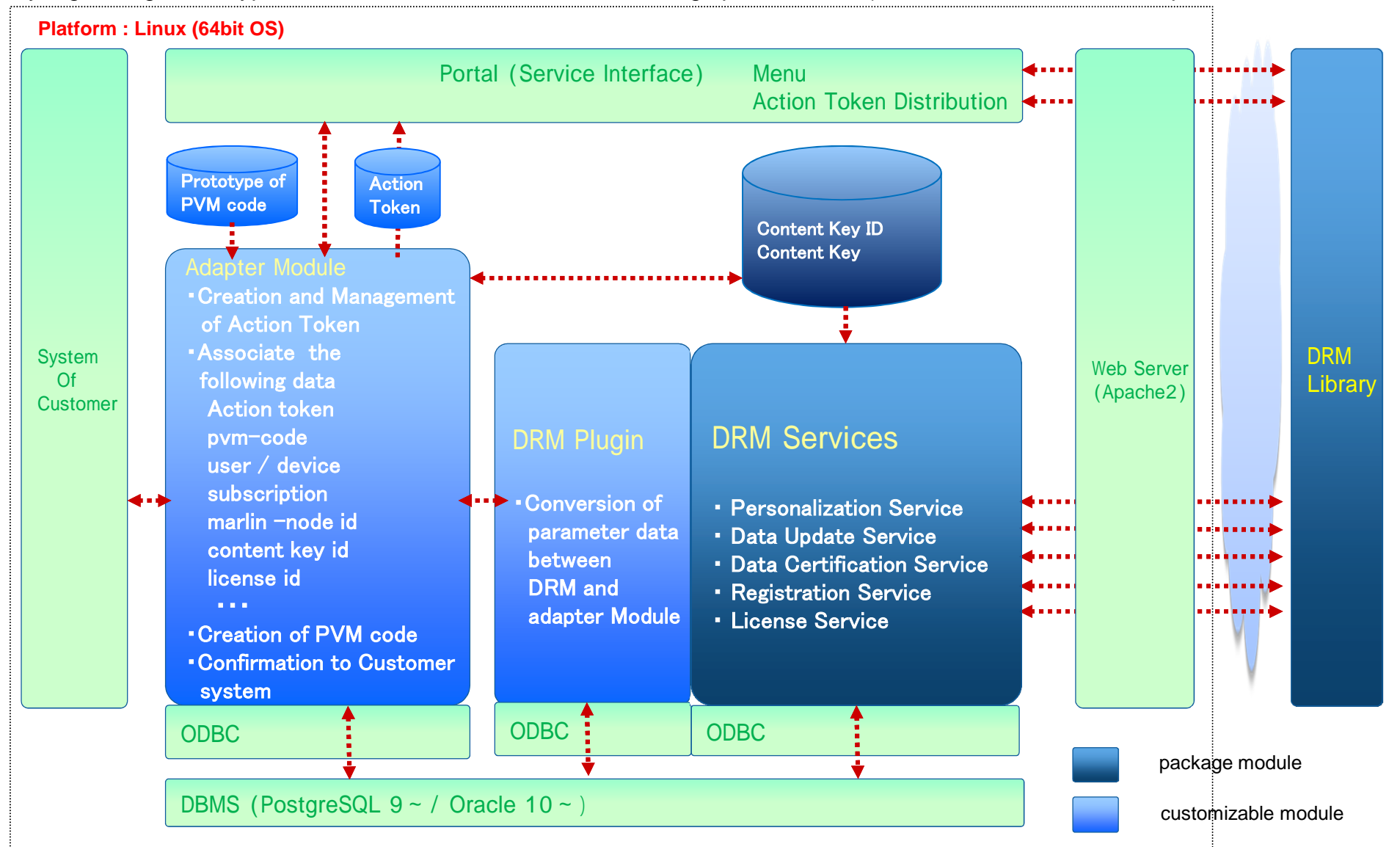
1. Structure of our services and products



- * Fujitsu has been contracting patent license agreement of DRM server with **Intertrust Technologies Corporation**.
- * Fujitsu has been contracting **Wasabi SDK** license agreement with **Intertrust Technologies Corporation**.

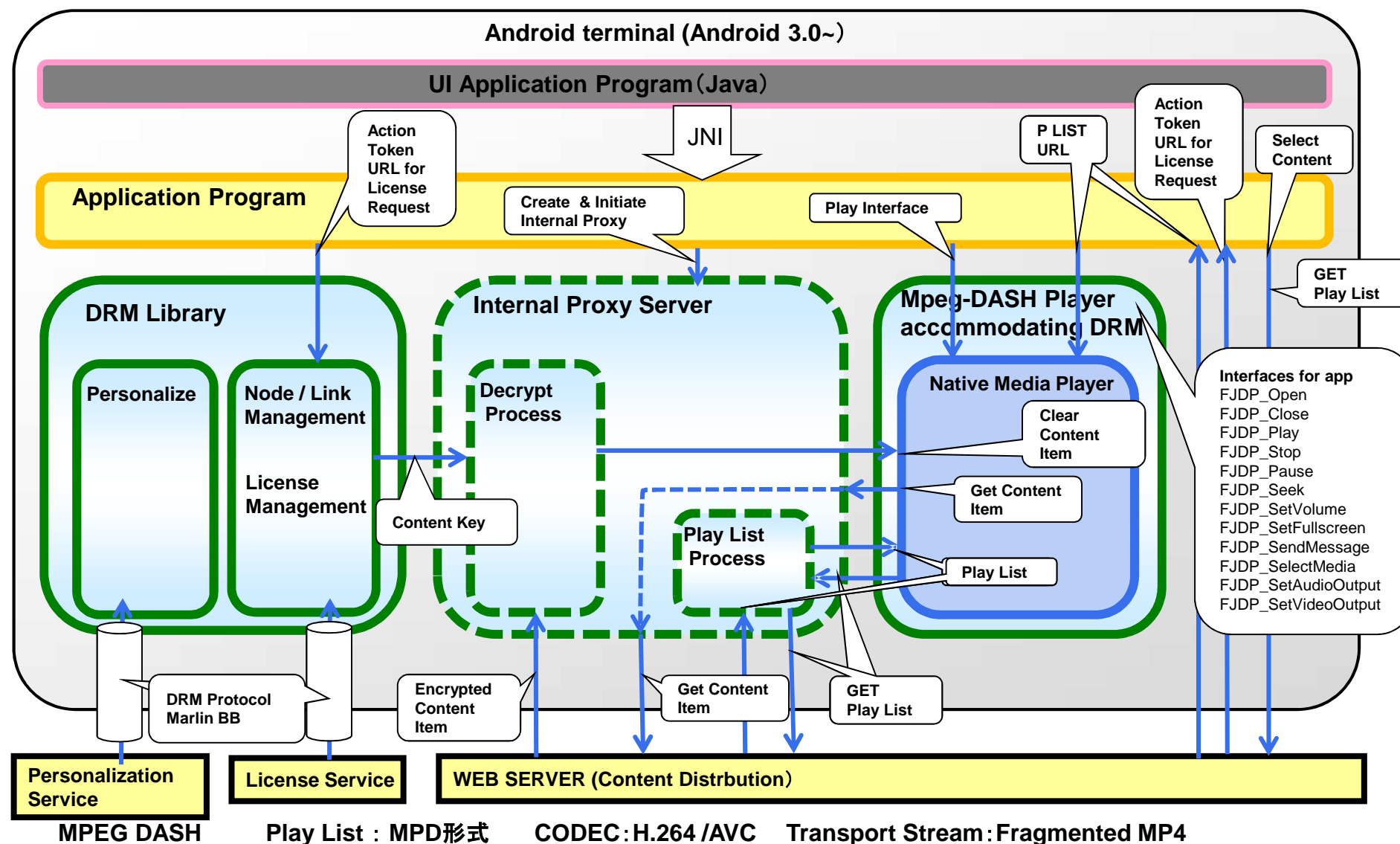
2. DRM Solution for Server Platform

You can adopt Fujitsu's server DRM package to your service system by customizing "Adapter Module" and "DRM Plugin".
By registering "Prototype of PVM code", DRM Services attains high performance. (more than 50 licenses/sec :cpu class Xeon 2.0GHz)



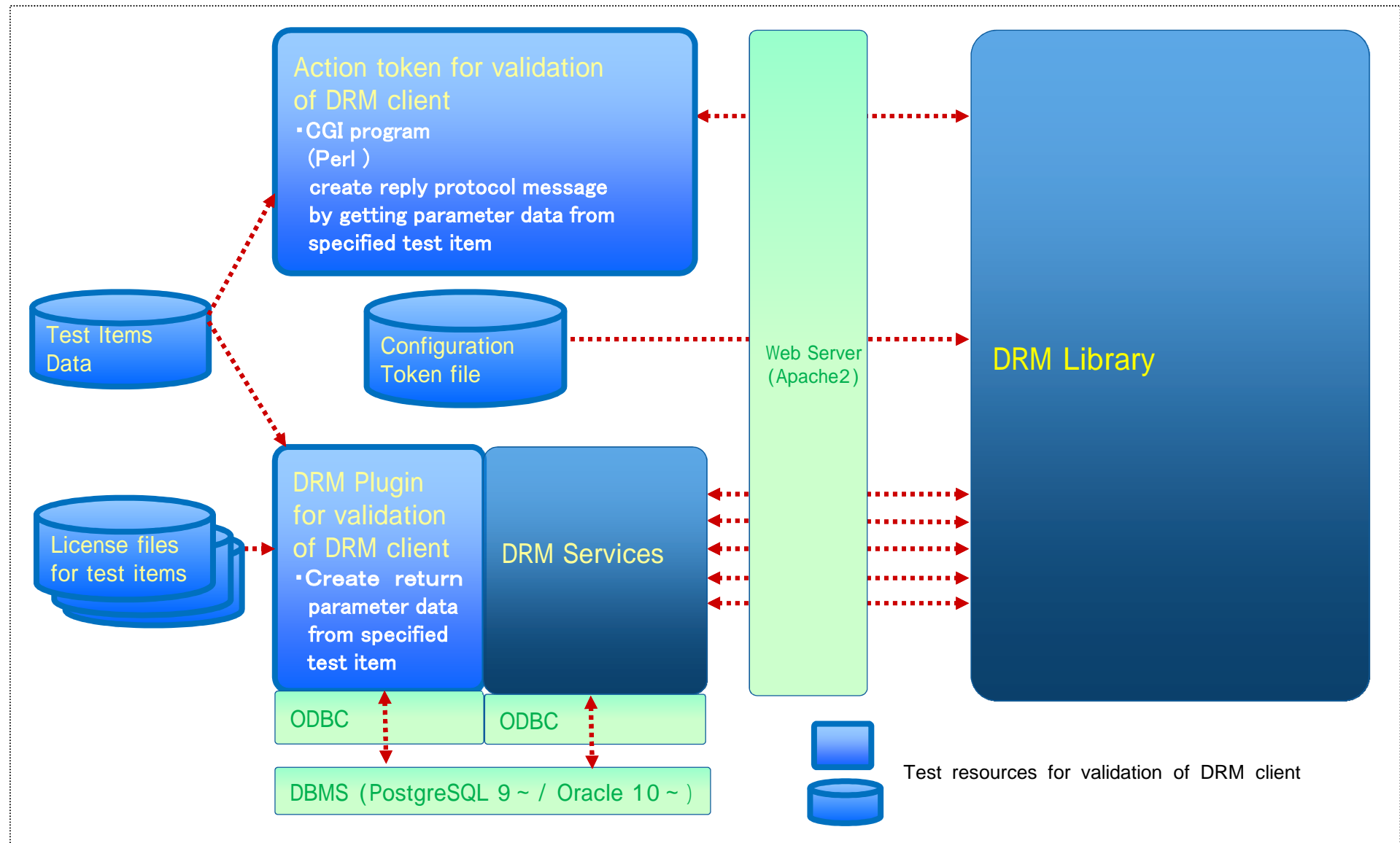
3. DRM Solution for Client Platform

Fujitsu's DRM solution for client platform uses Wasabi SDK of Intertrust Technologies Corporation.



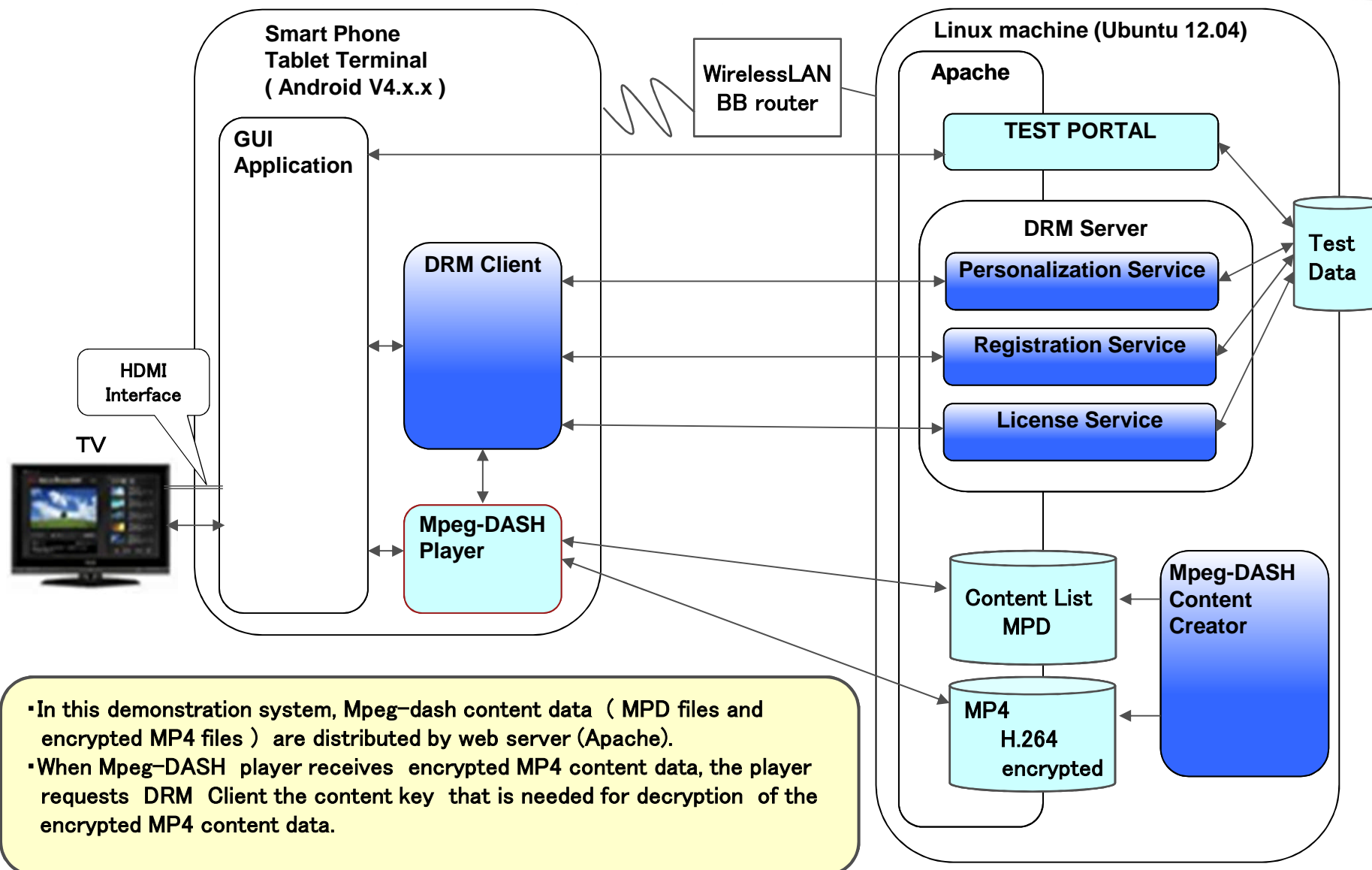
4. Client DRM SDK including test resources for validation

Client DRM SDK includes server DRM package and test resources for validation of client DRM. Client application vendor can validate client application finely by using server DRM package and test resources before connecting validation service of service provider.

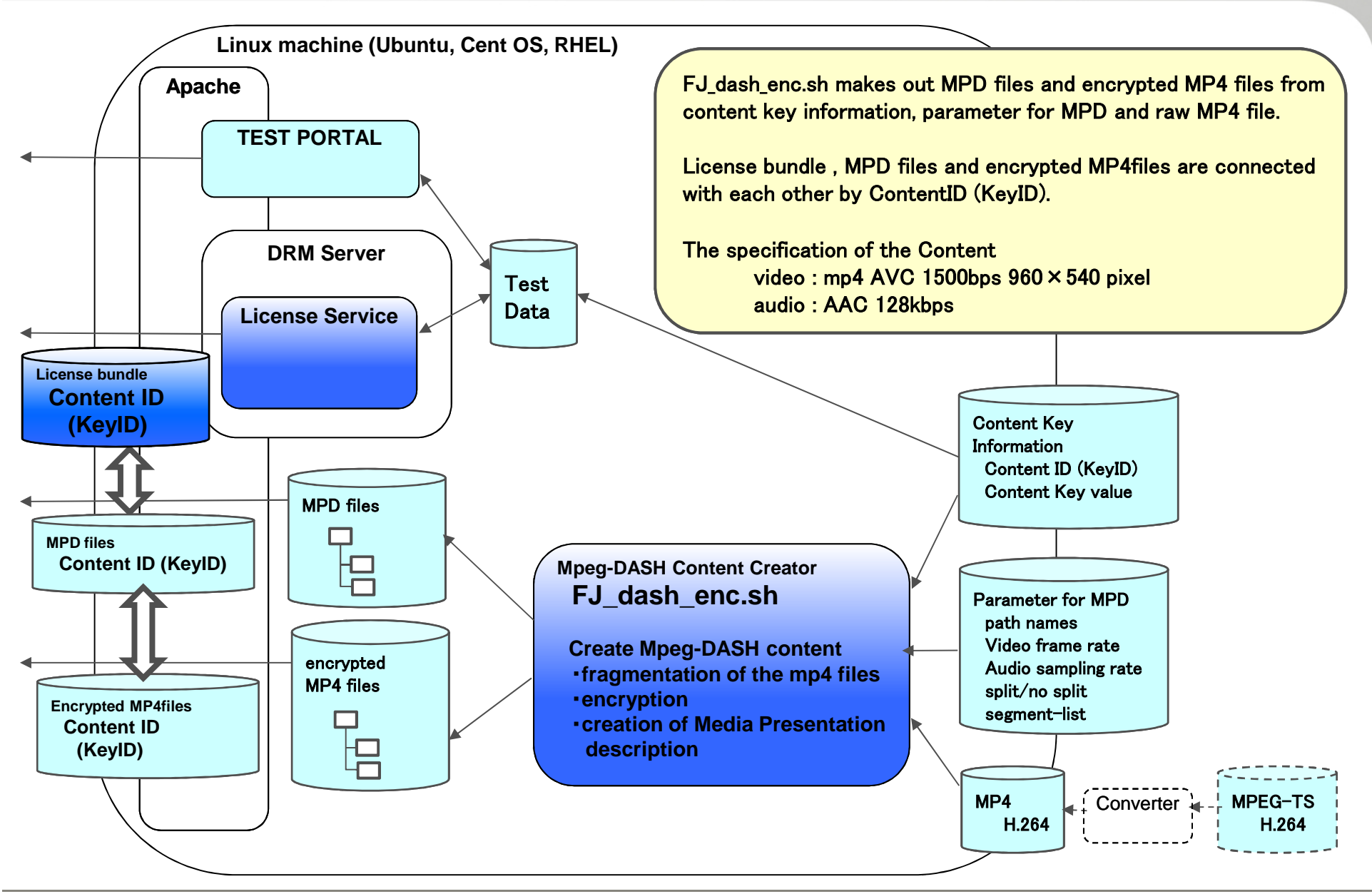


PART Demonstration system using Mpeg-DASH

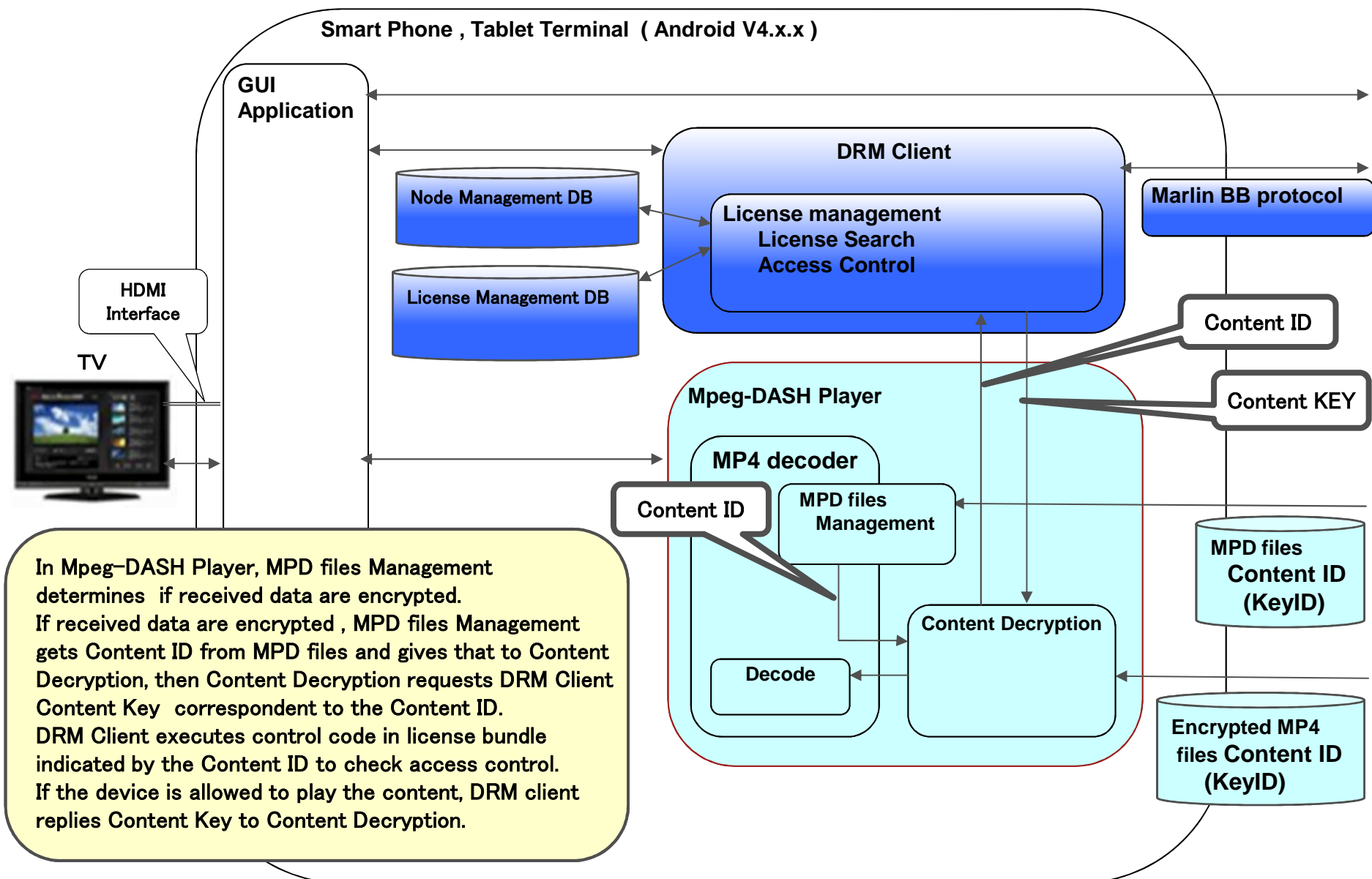
1. Overview of demonstration system



2. Creating the Mpeg-DASH content data



3. Overview of Client

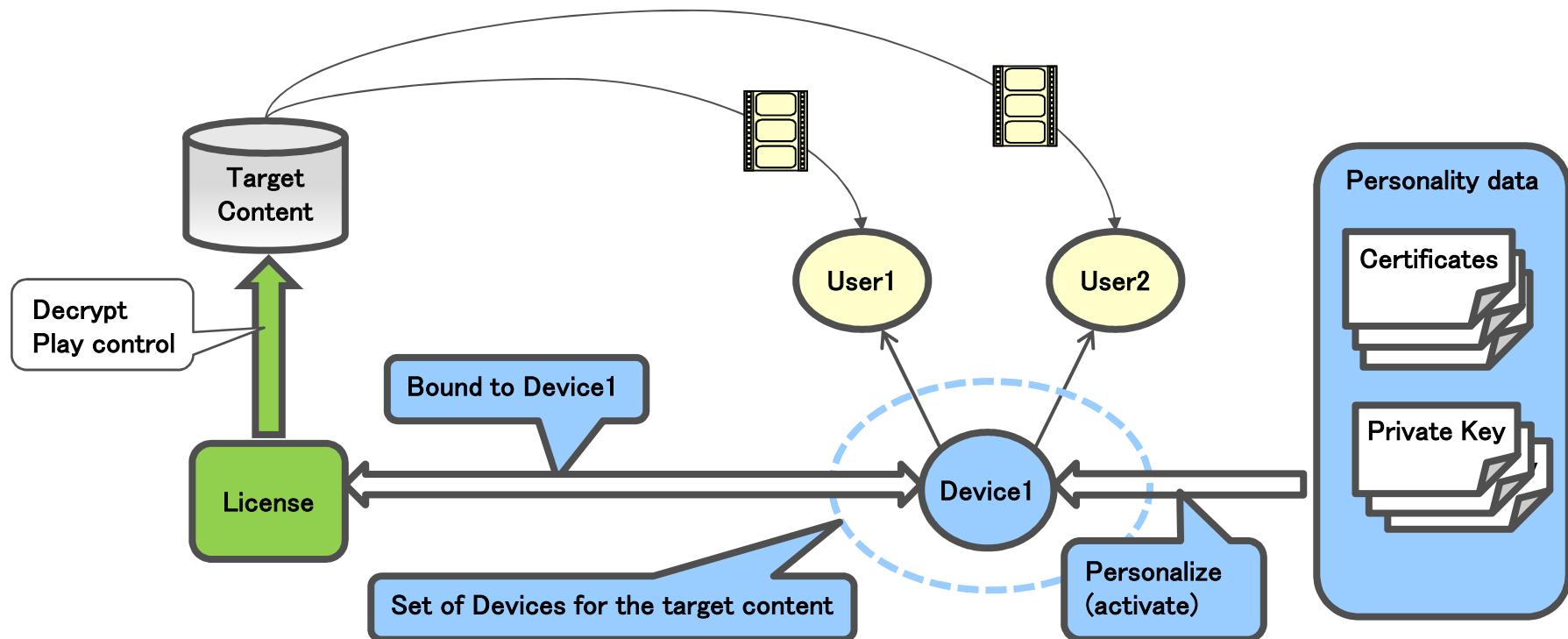


Appendix Typical Features of Marlin BB Functions

1. Domain of Marlin BB (1)

Domain : Set of Devices on which target content is able to be played

Case1 The target content is able to be played on only one device
Set of Devices for the target content has only one element

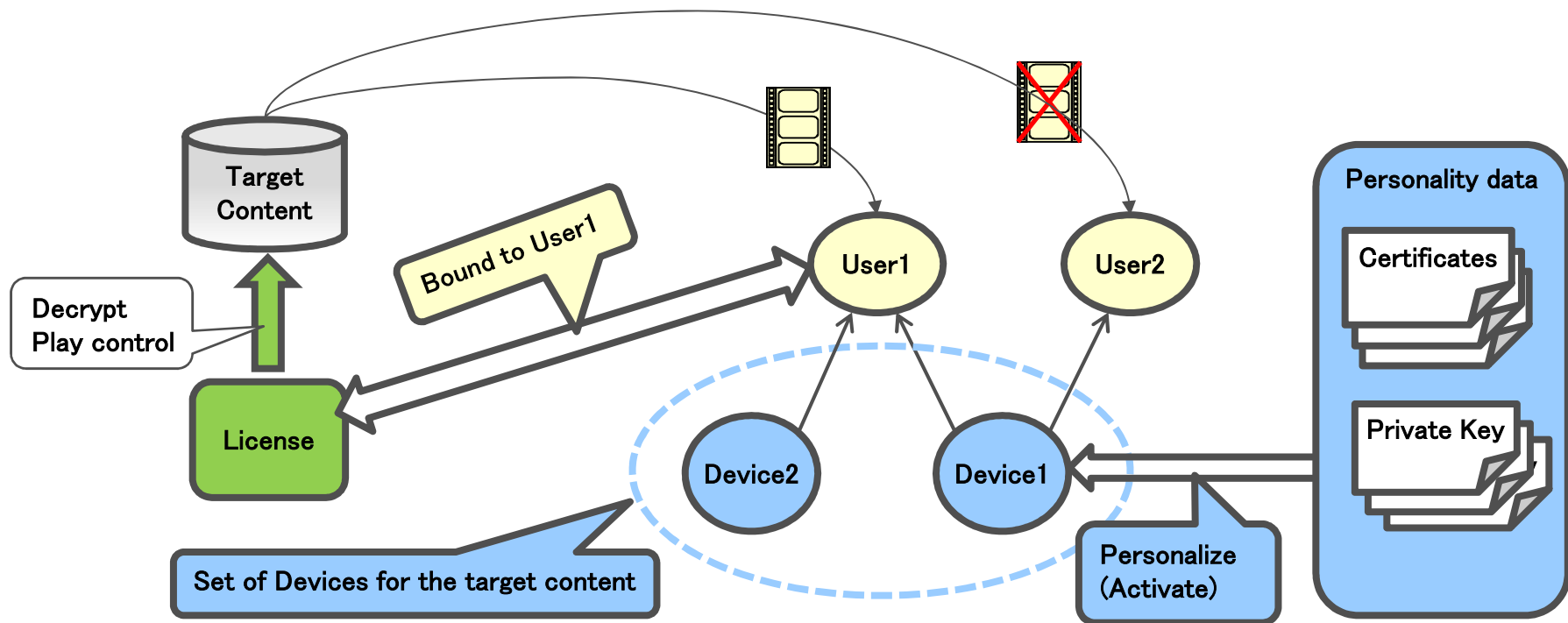


- Target Content is able to be played on only Device1.
- All users of Device1 (User1 and User2) can play the target content.

1. Domain of Marlin BB (2)

Domain : Set of Devices on which target content is able to be played

Case2 The target content is able to be played by only particular user
Set of Devices for the target content has devices that the user can use

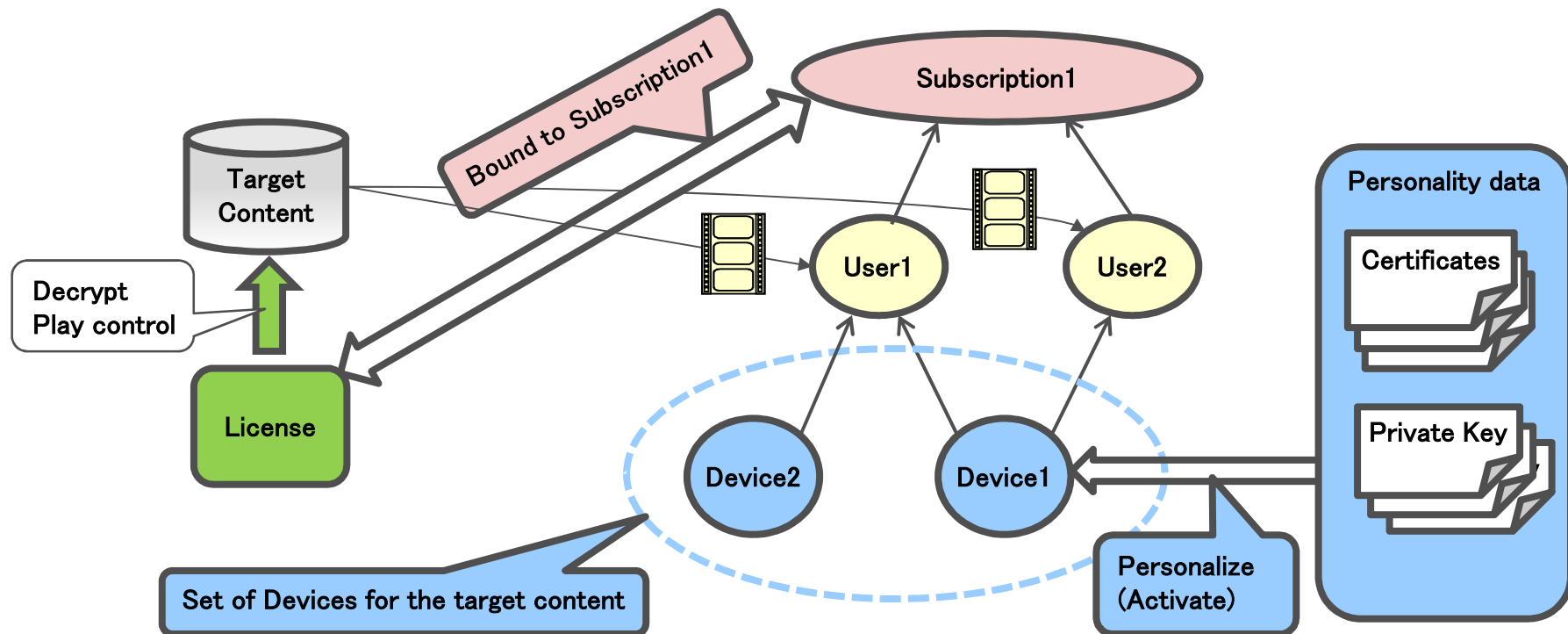


- Target Content is able to be played on devices of User1 (Device1 and Device2).
- Only User1 can play the target content.

1. Domain of Marlin BB (3)

Domain : Set of Devices on which target content is able to be played

Case3 The target content is able to be played by user who contract particular subscription
Set of Devices for the target content has devices that the user who contract for particular subscription can use



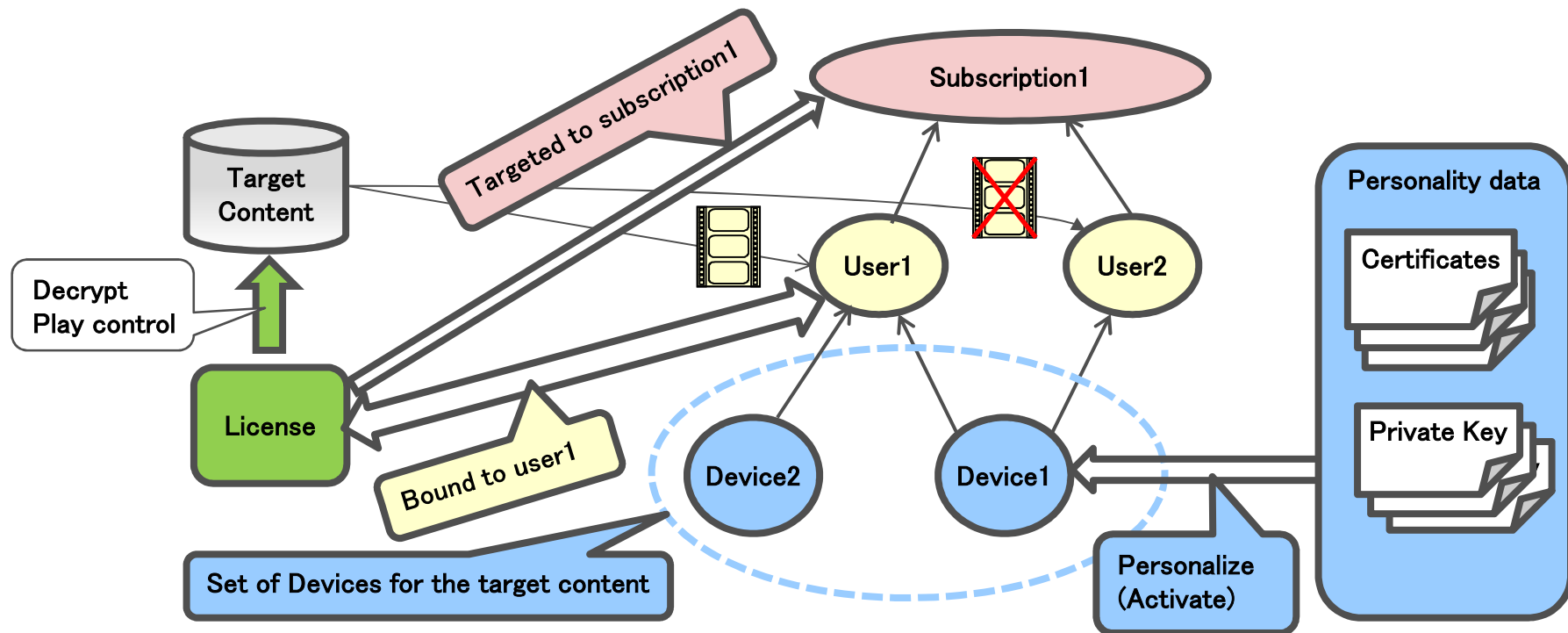
- Target Content is able to be played on devices of users who contract the Subscription1 (Device1, Device2)
- All users who contract the Subscription1 (User1 and User2) can play the target content

1. Domain of Marlin BB (4)

Domain : Set of Devices on which target content is able to be played

Case3 The target content is able to be played by particular user who contract particular subscription

Set of Devices for the target content has devices that particular user who contract for particular subscription can use



- Target Content is able to be played on devices of particular user (User1) who contract the Subscription1, (Device1 and Device2)
- Only particular user (User1) who contract particular subscription (Subscription1) can play

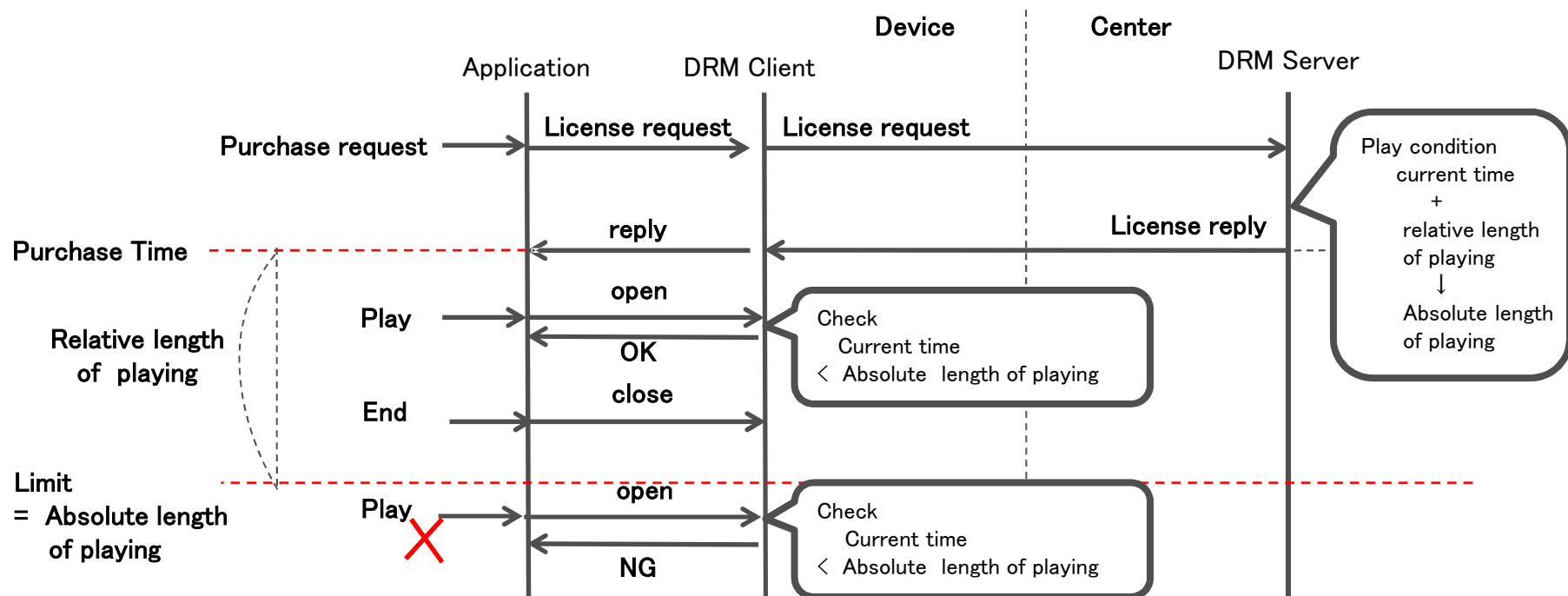
2. Relative length of playing (1)

Marlin BB regulates relative length of playing as well as absolute validated date

The period beginning from purchase or first playing for when the user is permitted to play the target content is fixed to a relative length of playing

a) The period beginning from purchase

When license distribution center receives license request from client, the center sets the value of “current time + relative length of playing” to play condition in license as absolute length of playing based on license agreement, and then issues the license to client.



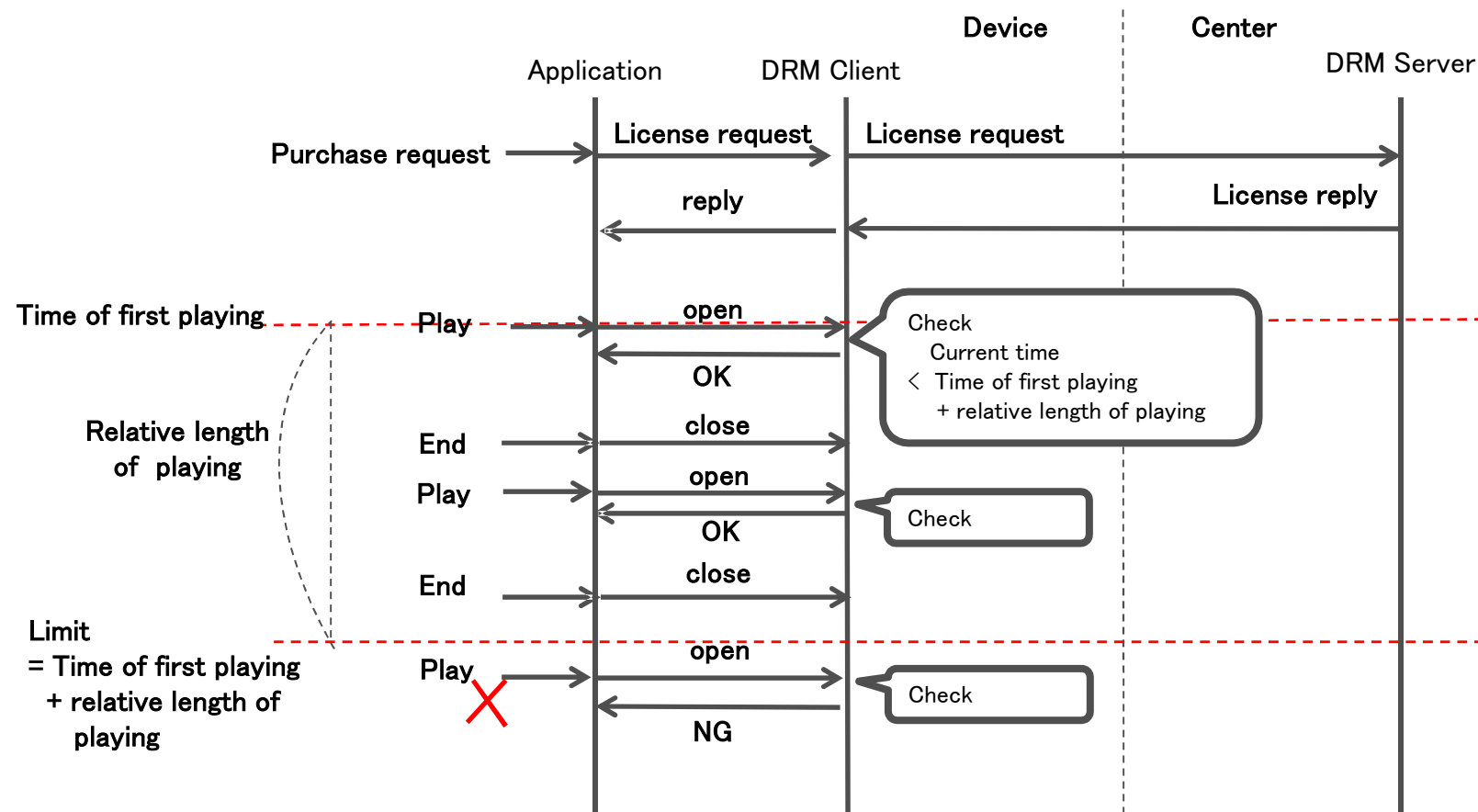
2. Relative length of playing (2)

b) The period beginning from first playing

User is permitted to play the target content for the following period,

from first playing

by time of first playing + relative length of playing



Appendix Functions of Inspirium DRM Client for Marlin BB

1. Management of user and subscription (1)

DRM client manages all relationships among personality node, user node and subscription node, and return node ids corresponding to each node when it create those nodes individually.

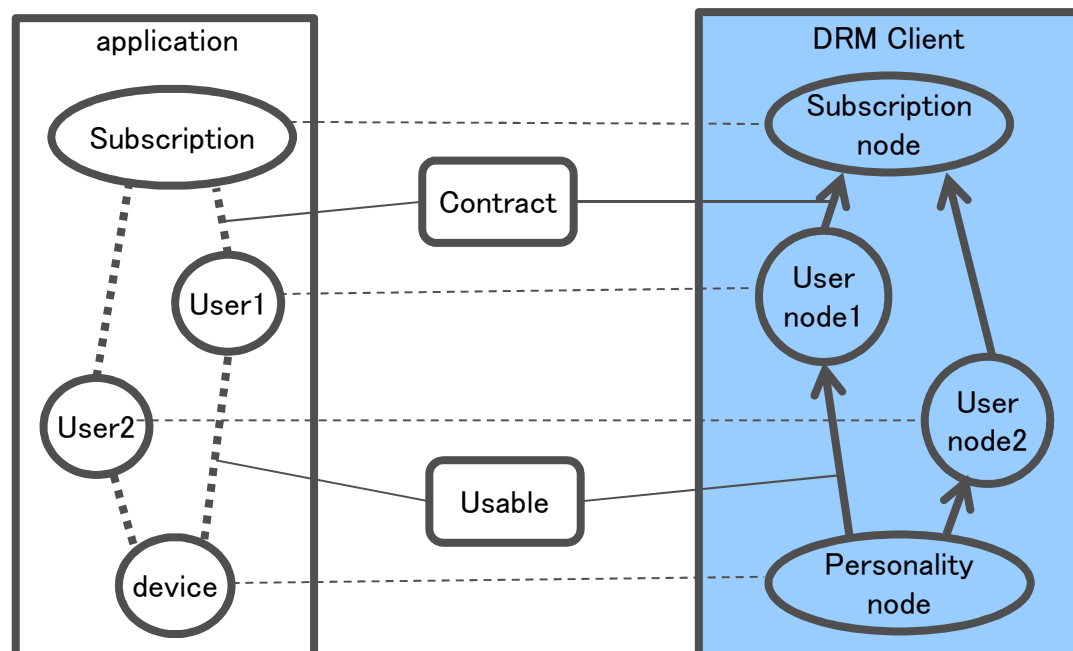
Application should manage the following correspondence relations

user \leftrightarrow user node id

subscription \leftrightarrow subscription node id

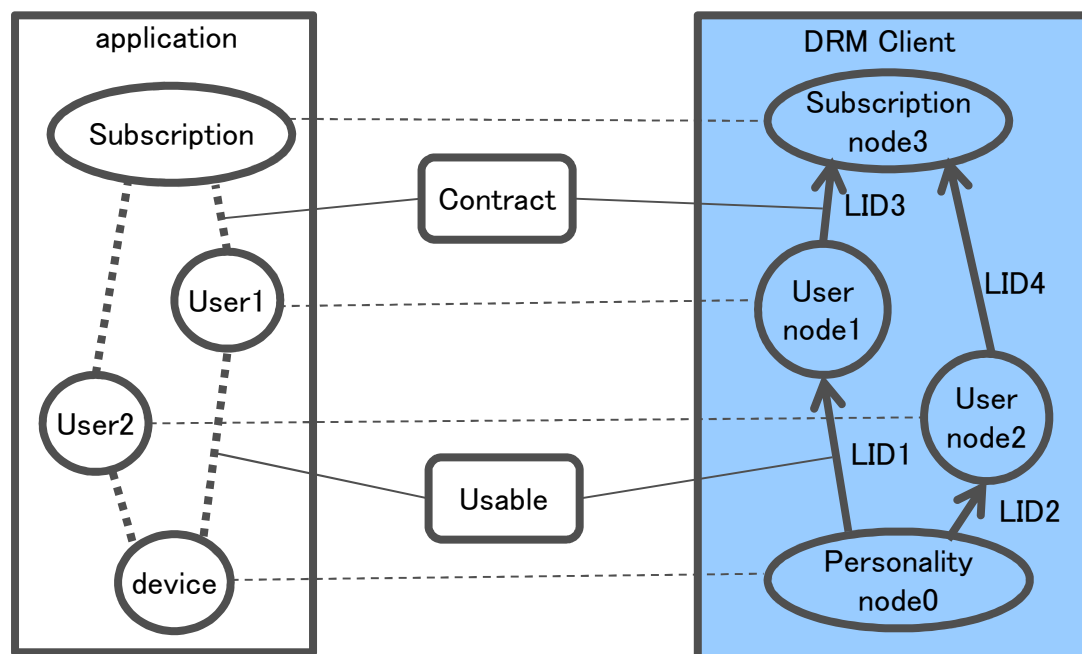
Application can obtain information regarding all relationships among subscriptions, users and devices by calling DRM client function.

Information provided in this relationship includes dates of expiration.



1. Management of user and subscription (2)

Node and link management function searches the destination node id and link id from specified source node, and searches the attribute information of link specified by link id.



Specify node0

→ **node1, LID1**
node2, LID2

Specify node1

→ **node3, LID3**

Specify node2

→ **node3, LID4**

Specify LID_i (i=1,2,3,4)

→ **attribute information of link LID_i**
(exp. Expiration Date)

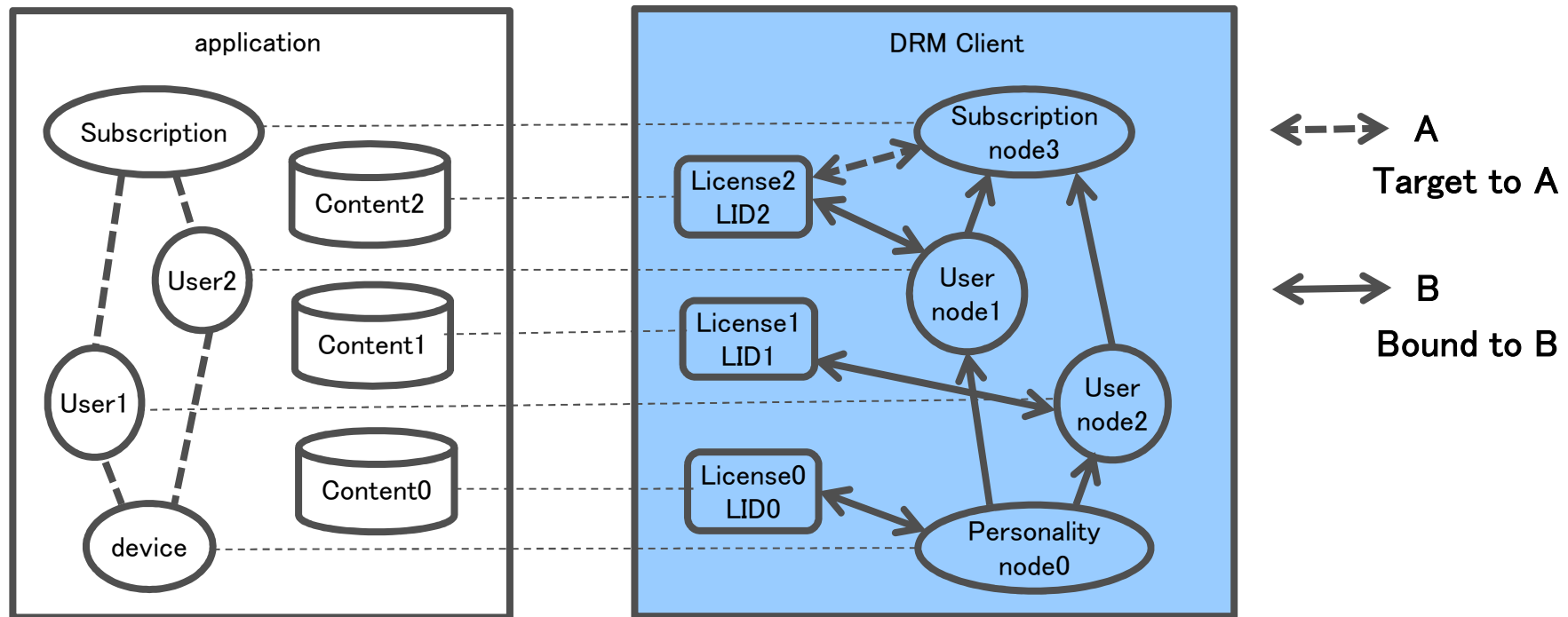
Application can create the following information through the above function before it requests license

- **Who can use this device, and if he is lent within the range of expiration date**
- **Who contracts which subscription**

2. Management of license (1)

License management functions receive the license based on application request from DRM server and provides the license id of the license to application. Functions also keep those licenses in license DB and provides the information of the license in response to the request of the application.

Application should manage the correspondence relations between content files and license ids. Application should open the decryption environment by DRM Client with specifying content file and corresponding license id.



2. Management of license (2)

License management functions receive the following information of specified license.

- bind node and target node

license0 LID0 → bind node = Personality node0

license1 LID1 → bind node = User node2

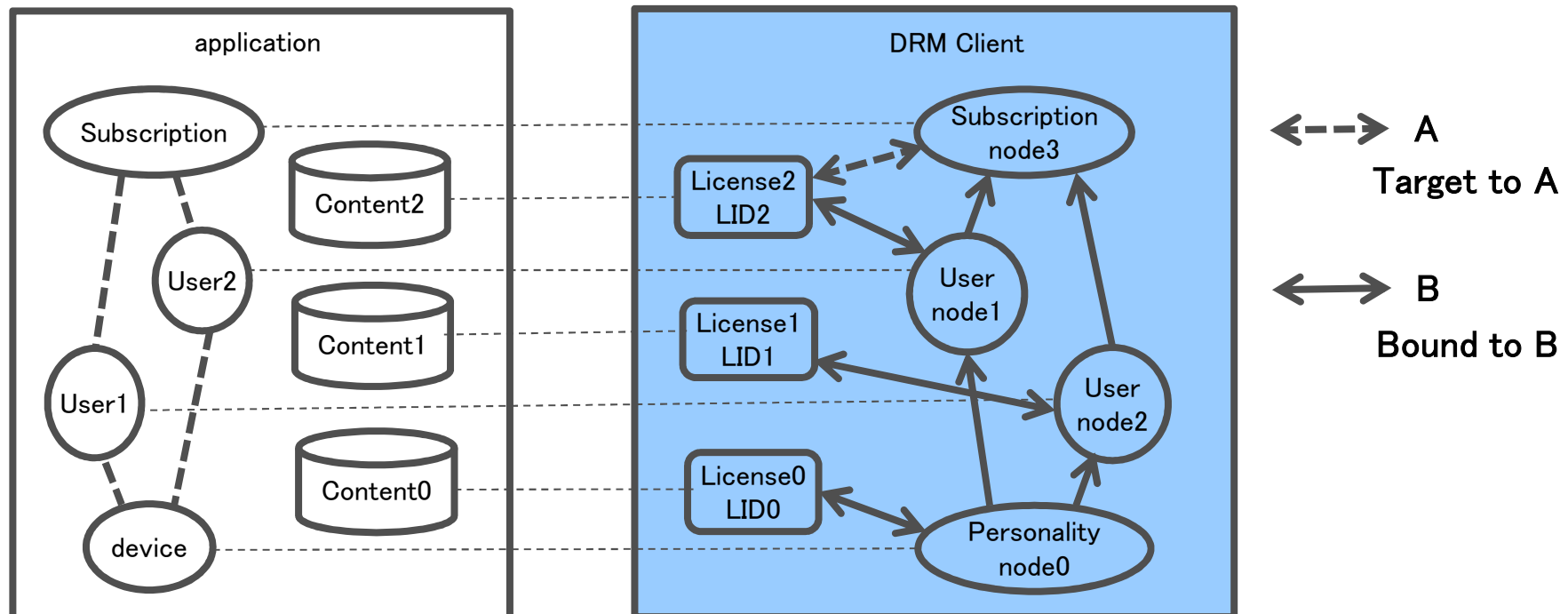
license2 LID2 → bind node = User node1

target node = subscription node

- play condition play count, expiration date, rendering obligation, ...

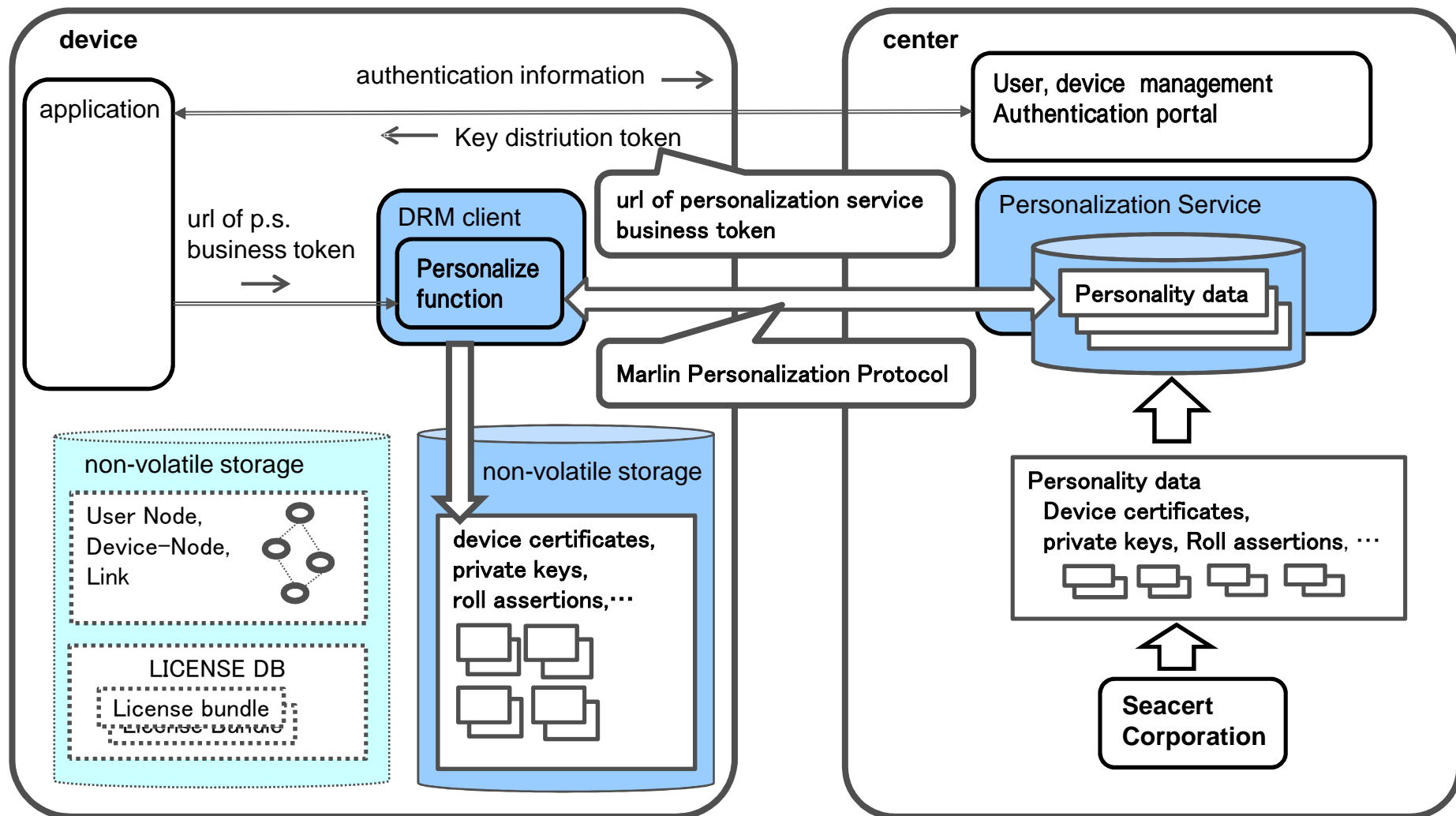
- export condition export count, expiration date, export parameter, ...

- * copy & transport condition : now developing

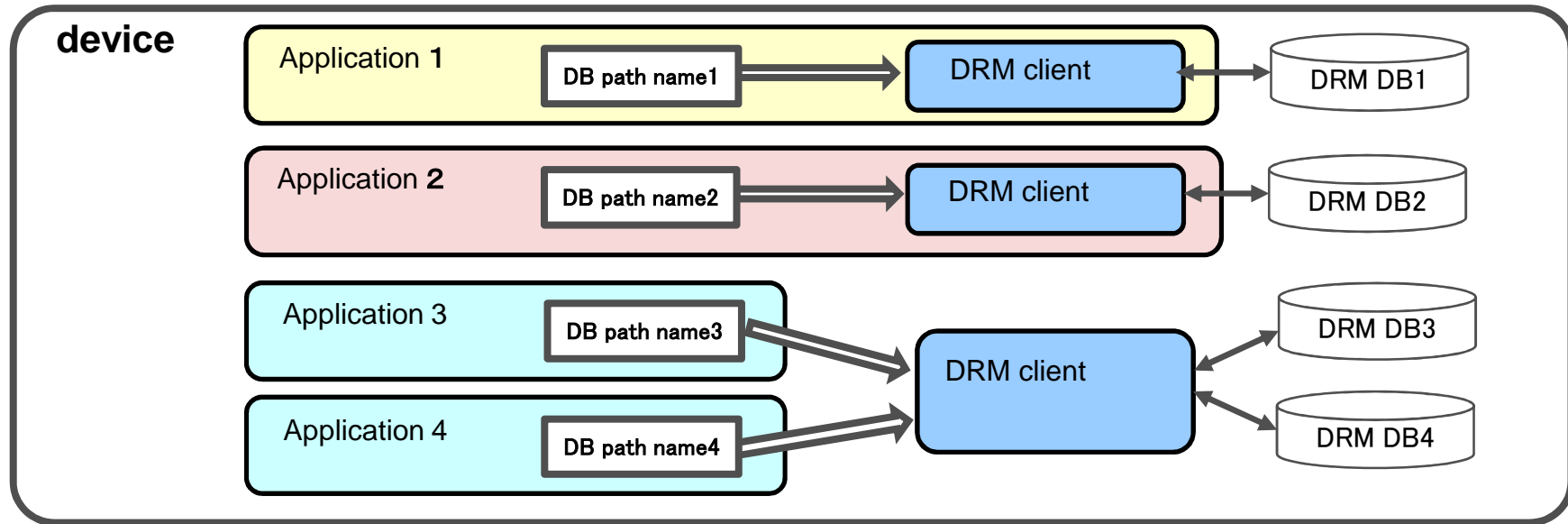


3. Personalize (activate)

When application is downloaded initially, embedded DRM client has no personality data. The application would then call Personalize function and DRM client is activated.



4. Relationship with application



Each type of application call DRM client with specifying individual path name of DRM DB . Different types of application can be executed in parallel.

Each types of applications include DRM client.

Type of application 1 ,2, and 3-4 are different individually.

Types of application 3 and 4 are the same and they share common DRM client.

Thank you for your hearing and seeing
our promotion.

Contact information for inquiries



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