



Breathe ideas.

DTV Advanced

Day 1&2 - TV Input Framework

TV Input Framework

Android App

TV UI application

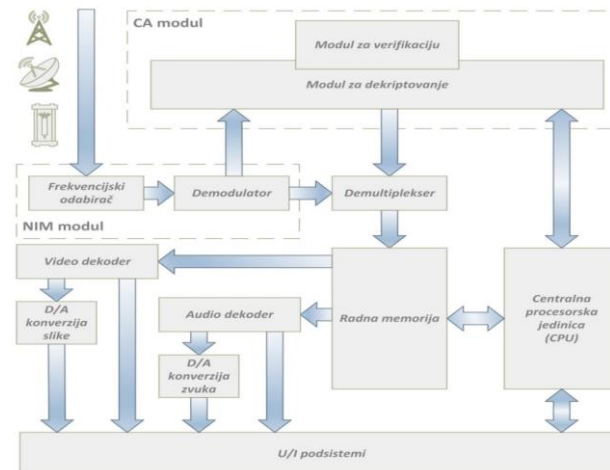
Android Service

TIF

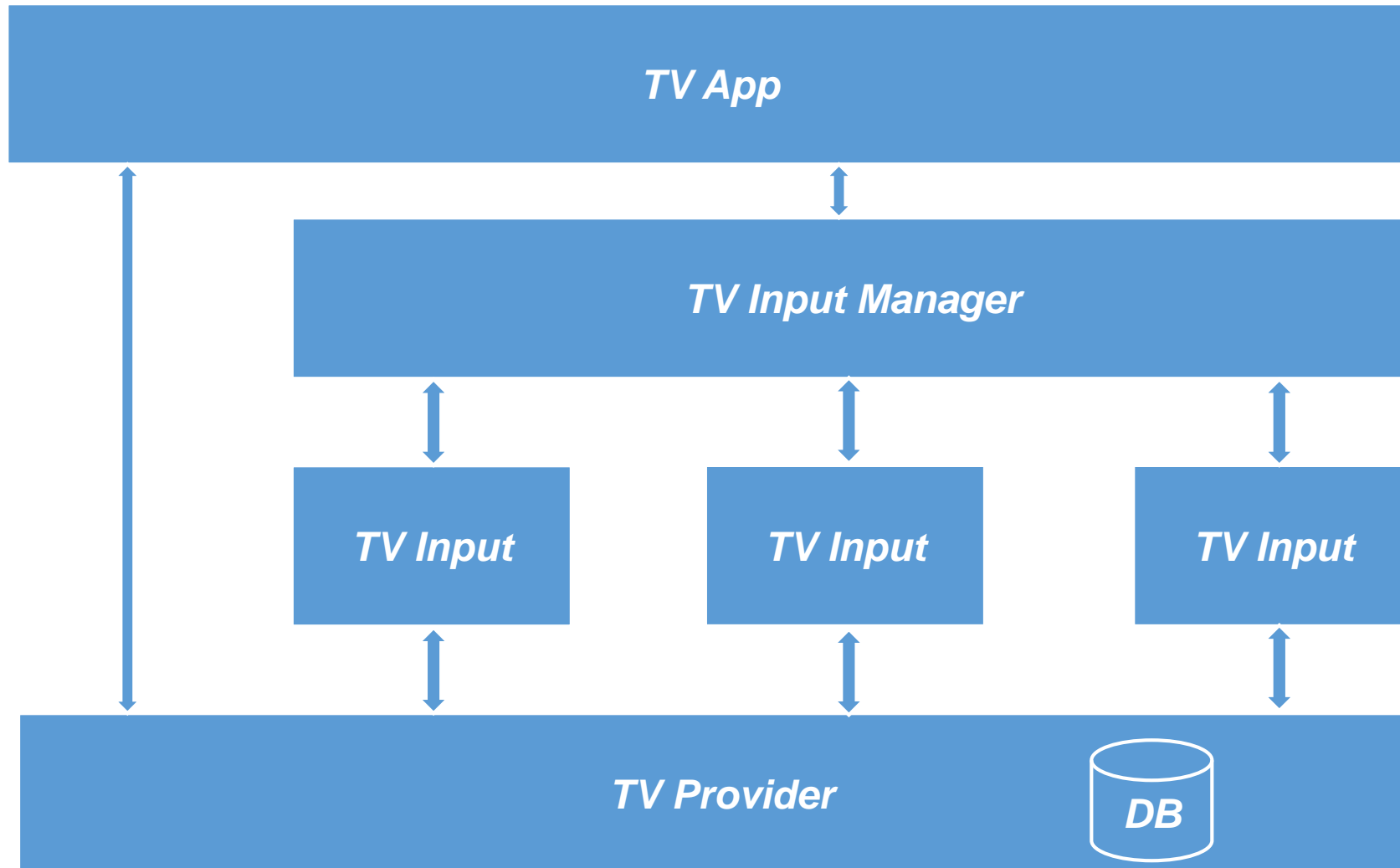
Comedia Service
A4TV API

Android native

Middleware



TV Input Framework

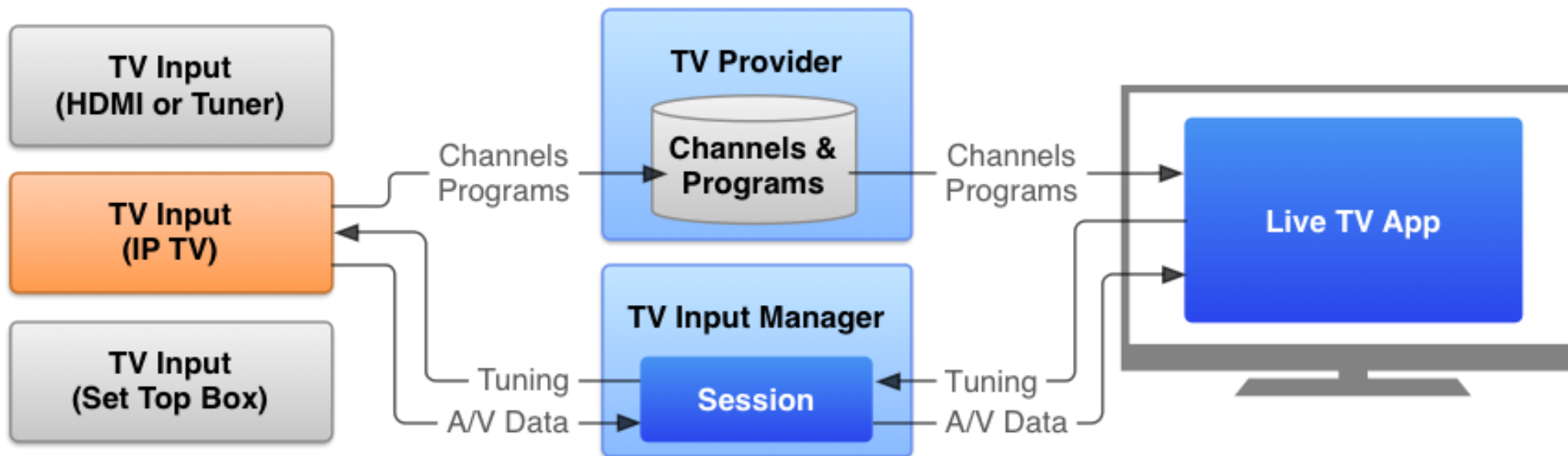


TV Input Framework

- The Android TV Input Framework (TIF) simplifies delivery of live content to Android TV. The Android TIF provides a standard API for manufacturers to create input modules for controlling Android TV, and enables live TV search and recommendations via metadata published by the TV Input.
- TIF supports:
 - **Provide channel and EPG data**
 - **responds to channel change requests – tune**
 - **audio i video track selection**
 - responds to events related to parental control
 - displays broadcast applications (e.g. MHEG5, HbbTV) - through overlay-a
 - handles events from the remote control

TV Input architecture

- TVInput obtaining data through TVProvider database and it is responsible to update database
- Request to channel change, metadata update, audio/video track update is part of session.



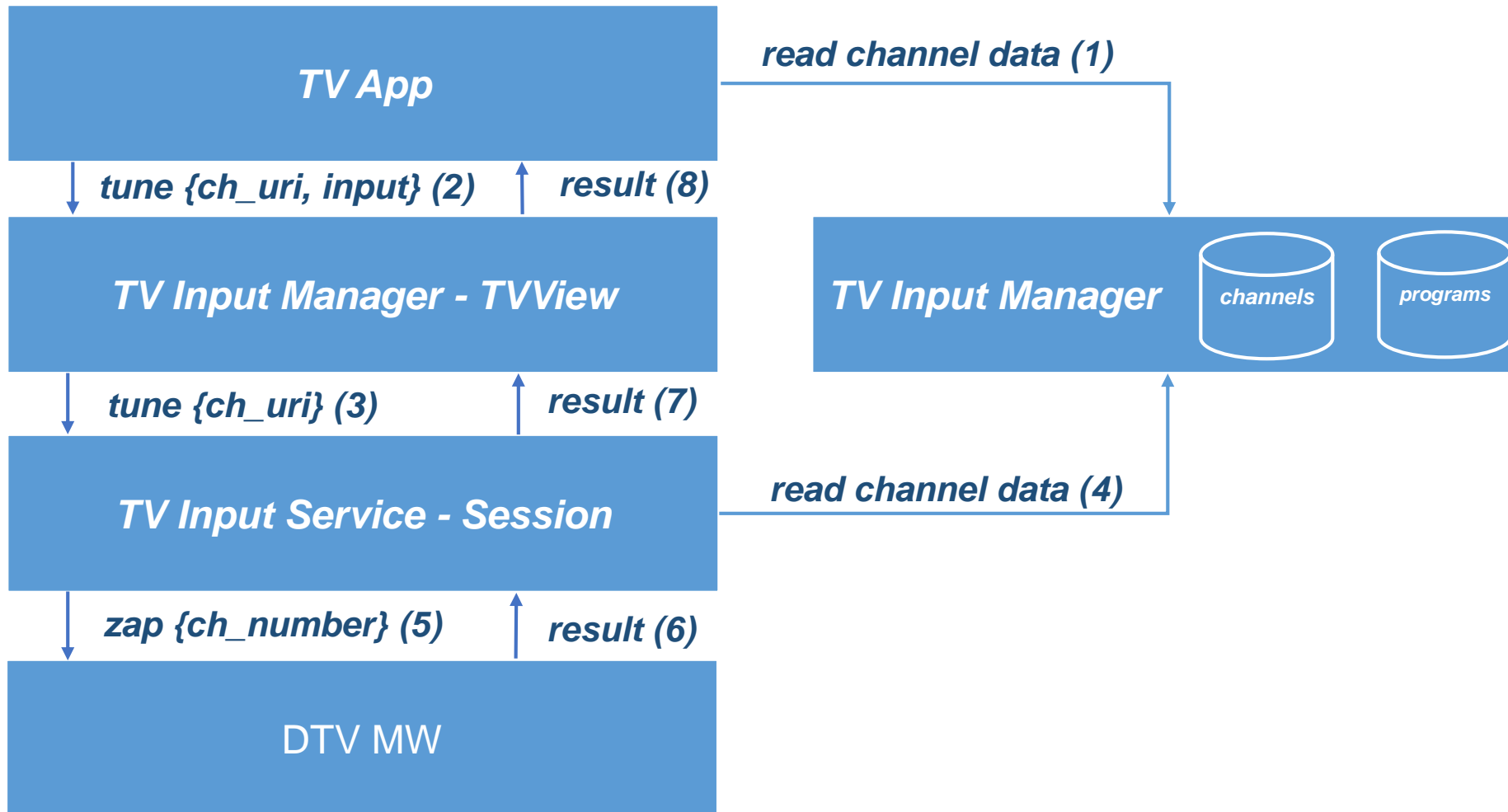
Session

- Session is created when user application calls ***onTune()*** first time for a specific TVInput
- There can be multiple active sessions of the same TVInput(e.g. Picture in Picture)
- TVInputManager provide communication interface between sessions and applications (e.g. TV application calls the ***tune()*** method over ***TVView***, and the ***TVInputManager*** calls the ***onTune ()*** method of the corresponding ***session***)
- The session is obliged to respond to application requests and send appropriate notifications (e.g. change the number of available audio tracks)

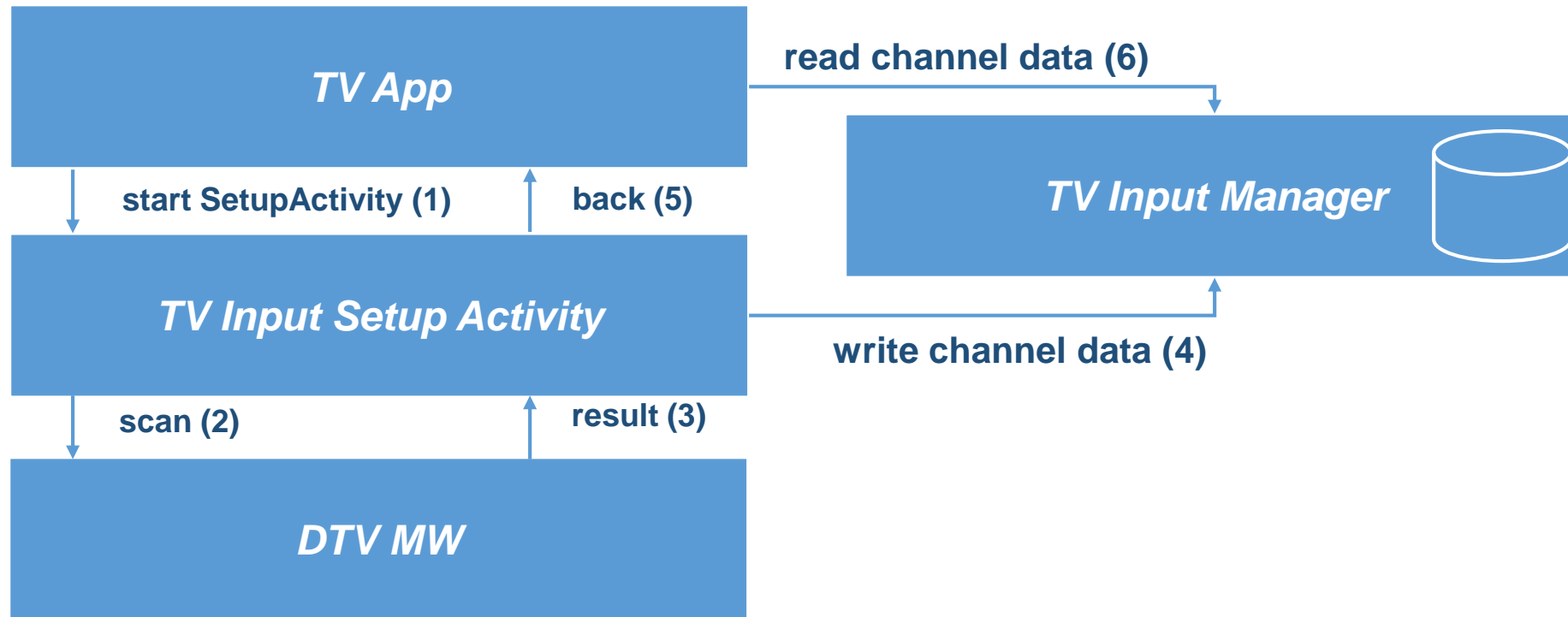
Channel change

- Based on the data from TVProvider, the TV application has a channel ID and which TV Input contains that channel
- TV application requests playback of that channel from ***TVInputManager*** (via TvView)
- TVInputManager calls ***onTune()*** over the corresponding TV Input session and forwards the channel URI
- TV Input using received URI to determines the number of channels in the DTV MW and requires a channel change
- DTV MW sends to TV Input service a event is channel change is successful or not
- The notification is forwarded to the TV application

Channel change



Channel scan



A4TV API

- iWedia Framework provides a standard API to control Comedia middleware
- A4TV API is Java library with API to control middleware
- TV Input Service, which is part of exercises, with A4TV API get TV content from Comedia middleware

A4TV API- Route

- The route concept is based on the fact that one route connects certain components of the STB hardware components to create data flow (e.g. data pipeline).
- Most important:
 - live route (used to play live content)
 - install route (used to scan channels)
- The live route connects the following parts:
 - tuner (e.g. DVB-T, DVB-C, DVB-S)
 - demultiplexer
 - decoder
 - output (e.g. HDMI)

A4TV API- Control

- Each part of the TV middleware has its "**control**"
- The API of each part of the TV middleware is represented by the appropriate "**control**"
- The starting point in the A4TV API is the ***DTVManager*** class

mDTVManager.getServiceControl ();

Note

- TV Provider API:
 - mContext.getContentResolver.query()
 - mContext.getContentResolver.insert()
 - mContext.getContentResolver.delete()
 - TVContract.Channels.buildXYZ()
 - class ContentValues – to serialization data

- Database location:

/data/data/com.android.providers.tv/databases/tv.db

- SQL liste

<http://sqlitebrowser.org/>

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