TV Operating System（TVOS）for Smart IBB Terminals

Sheng ZhiFan
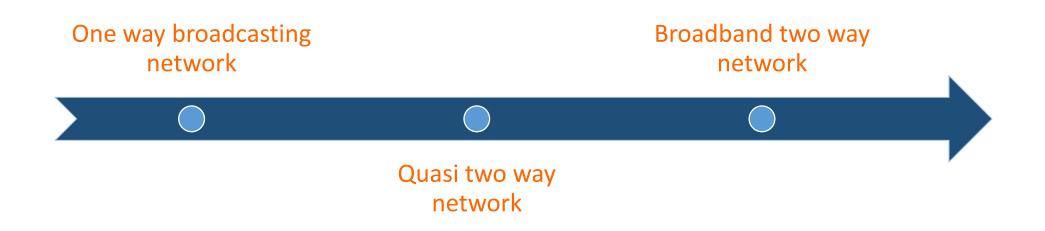
Academy of Broadcasting Science, SAPPRFT

Overview

- ☐ Background
- ☐ Requirements for Cable Terminals
- ☐ Related Software Requirements
- ☐ TV Operating System for Smart IBB Terminals
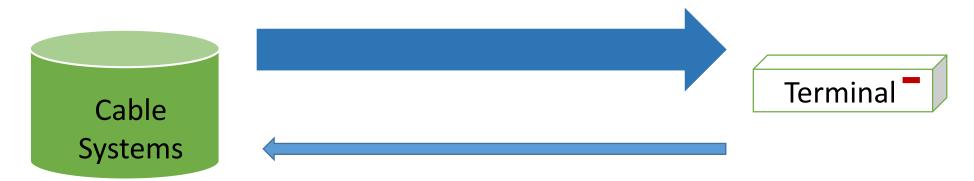- ☐ Conclusion

Background for Cable Network Evolution

☐ Cable network has experienced three major phases of evolution:
- ■ One way broadcasting network
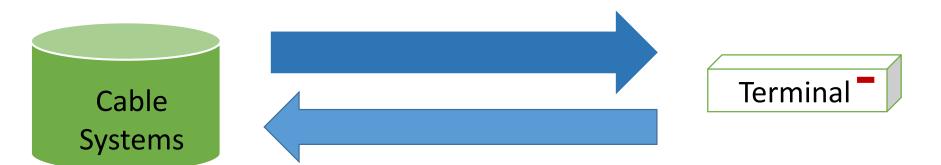- ■ Quasi two way network
- ■ Broadband two way network

One way broadcasting
network

Broadband two way
network

Quasi two way
network

Quasi - Two Way Network

Cable Systems

Terminal

Broadcasting Service

VOD Service

Broadband Two Way Network

Cable Systems

Terminal

Broadcasting Service
VOD Service
IP Video service
Second screen service
Multiple screen service

Background for Cable Service Evolution

- ☐ Broadcasting service (normally one screen)
- ☐ Broadcasting service plus VOD service
- ☐ Broadcasting service plus VOD service and IP Video service
- ☐ One screen service to second screen service
- ☐ Multiple screen service interaction
- ☐ SDTV, HDTV, UHDTV

Background for Cable Terminals Evolution

- ☐ One way analog terminals
- ☐ One way vanilla digital terminals
- ☐ Quasi two way vanilla digital terminals
- ☐ Quasi two way digital terminals
- ☐ IBB terminals
- ☐ Smart IBB terminals

Operating Software Evolution for Cable Terminals

☐ One way analog terminals ➔ No software is required or embedded.

☐ One way vanilla digital terminals ➔ light proprietary operating system.

☐ Quasi two way vanilla digital terminals ➔light embedded operating system such as VxWorks,etc.

☐ Quasi two way digital terminals ➔ Vxworks or Linux with middleware such MHP and OCAP.

☐ IBB terminals➔ Mostly Linux with middleware

☐ Smart IBB terminals ➔ Smart operating system software such as IOS, Android and other smart operating system with significant TV component inside such as RDK or TVOS.

Service Requirements for Smart IBB Terminals

- ☐ Broadcasting service (normally one screen)
- ☐ VOD service
- ☐ IP Video service
- ☐ Second screen service
- ☐ Multiple screen service
- ☐ And much more converged media services

- ☐ SDTV, HDTV, UHDTV broadcasting service

Operating System Software Requirements for Smart IBB Terminals

☐ Supporting quick deployment of innovated converged media services.

☐ Supporting openness of smart IBB terminals.

☐ High efficiency and unified media processing capability for converged media services.

☐ Supporting both broadcasting services and IP video services are necessary.

☐ Decoupling with hardware platforms.

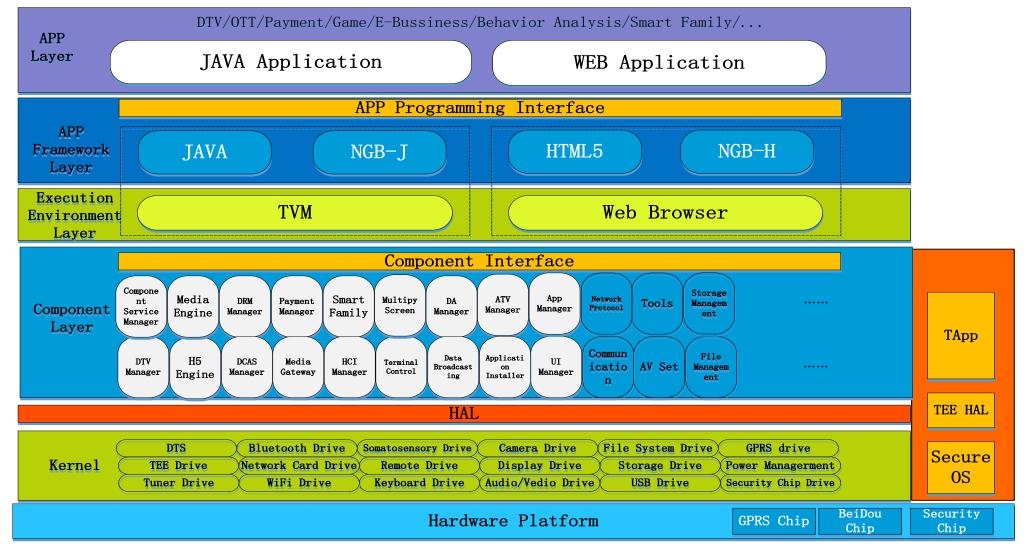# Operating System Software Requirements for Smart IBB Terminals

☐ Overall high security protection for smart terminals is the key.

  ■ Hardware security protection

  ■ Software security protection

  ■ Data security protection

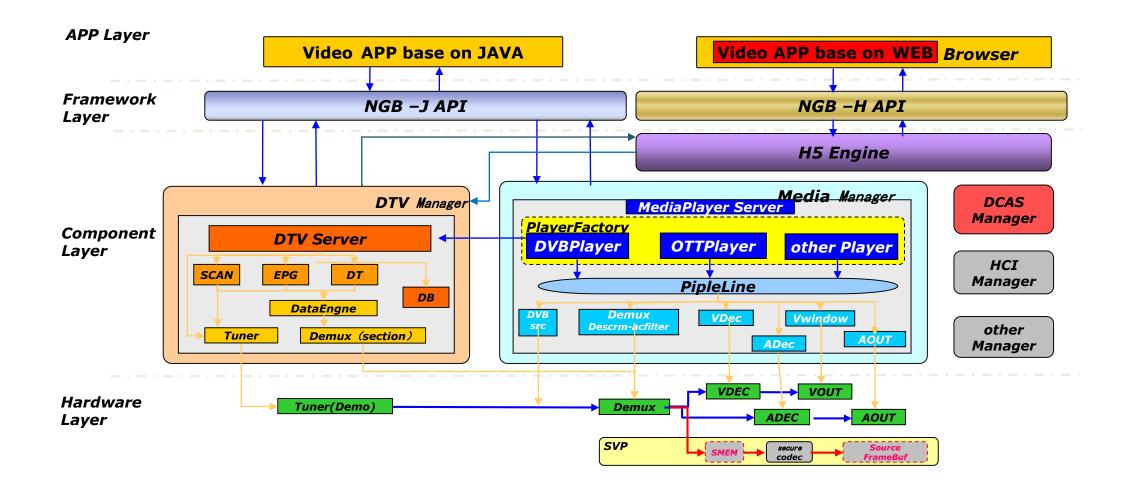 ■ Network security protection

  ■ Application security protection

The right smart Operating System solution for Smart IBB Terminals

☐ Based on the service requirement, smart IBB terminals need smart operating software, which currently we have following choices:

- ■ Android: Does not support broadcasting services well.
- ■ IOS: Closed system, does not support hardware openness.
- ■ RDK: Smart operating system with significant TV component inside, support both broadcasting services and other converged media services. Answer from north American cable industry for operating system software of smart IBB terminals.
- ■ TVOS: Answer from Chinese cable industry for operating system software of smart IBB terminals.
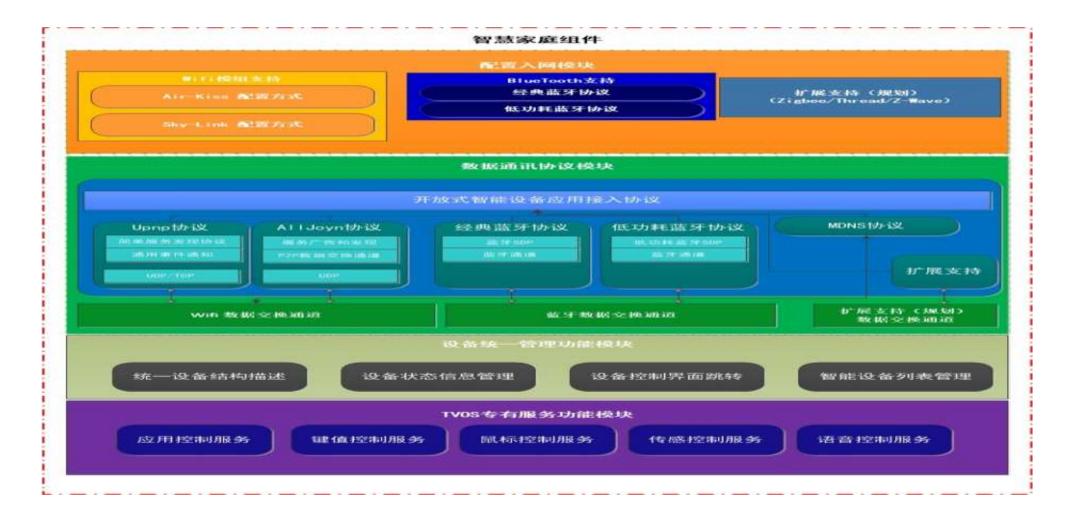
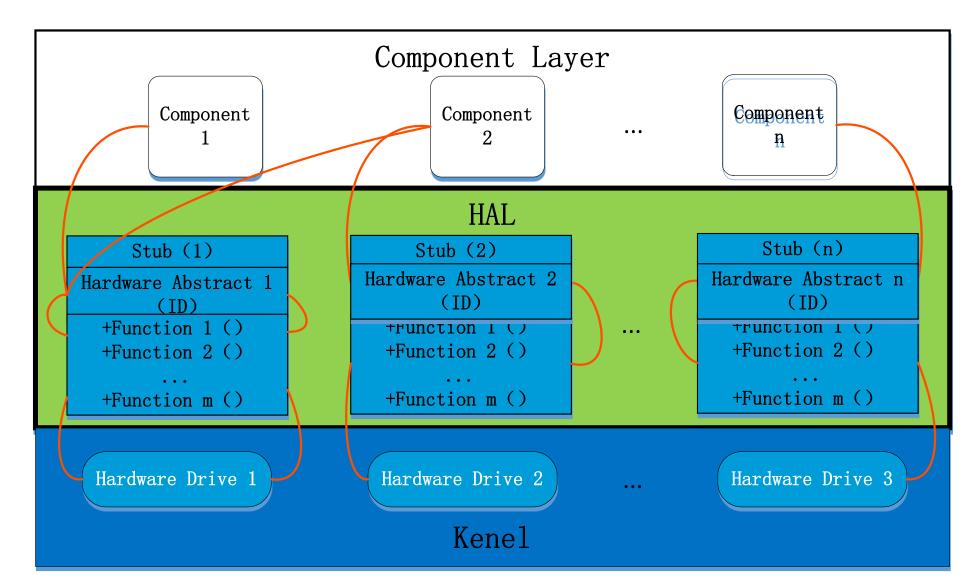# TV Operating System (TVOS) Based on Modular and Hierarchical Architecture

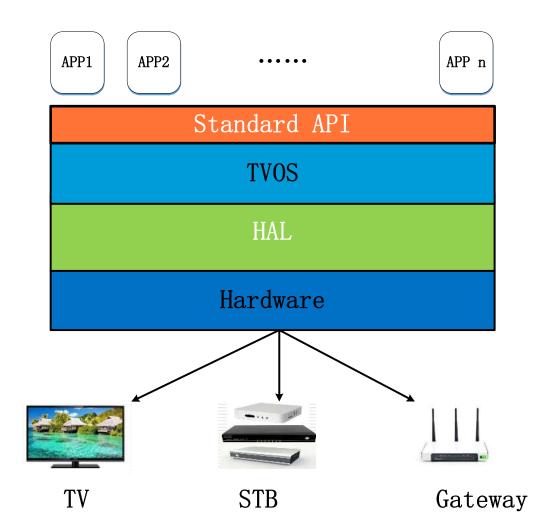# High Efficient and Unified Media Processing Engine for Converged Media Services

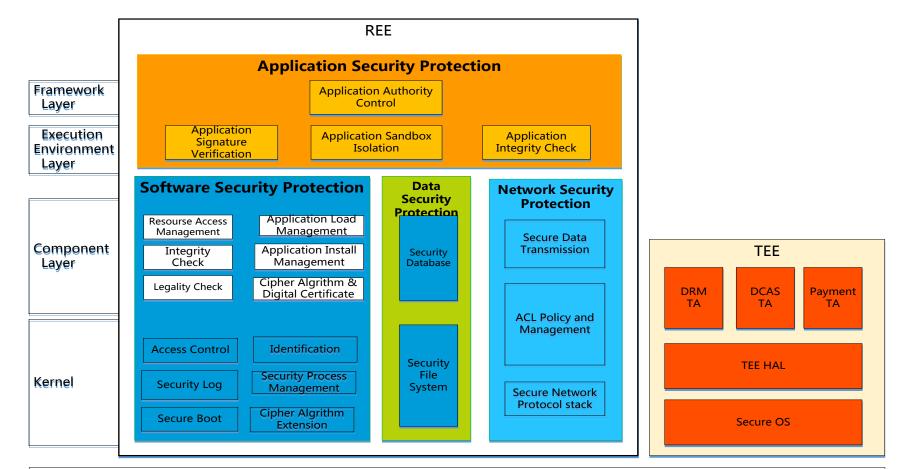# Rich Component inside: Smart Home Supporting Multiscreen Services

Hardware Abstract Layer

Hardware Abstract Layer Decouples Operating System Software from Hardware Platforms

Overall High Security Protection for Smart Terminals

TV Operating System Software Deployed in The Smart IBB Terminals in SHAOXING City

Conclusion

☐ The trend of media convergence and rapid development of high speed cable broadband is driving the transition of traditional cable terminals to smart ones. This leads to the requirements for TV operating systems.

☐ TV operating system(TVOS) is proposed for smart IBB terminals, with a high security and high converged media processing capability.

☐ This TV operating system(TVOS) has been deployed in the smart IBB terminals in SHAOXING city.

THANK YOU !