



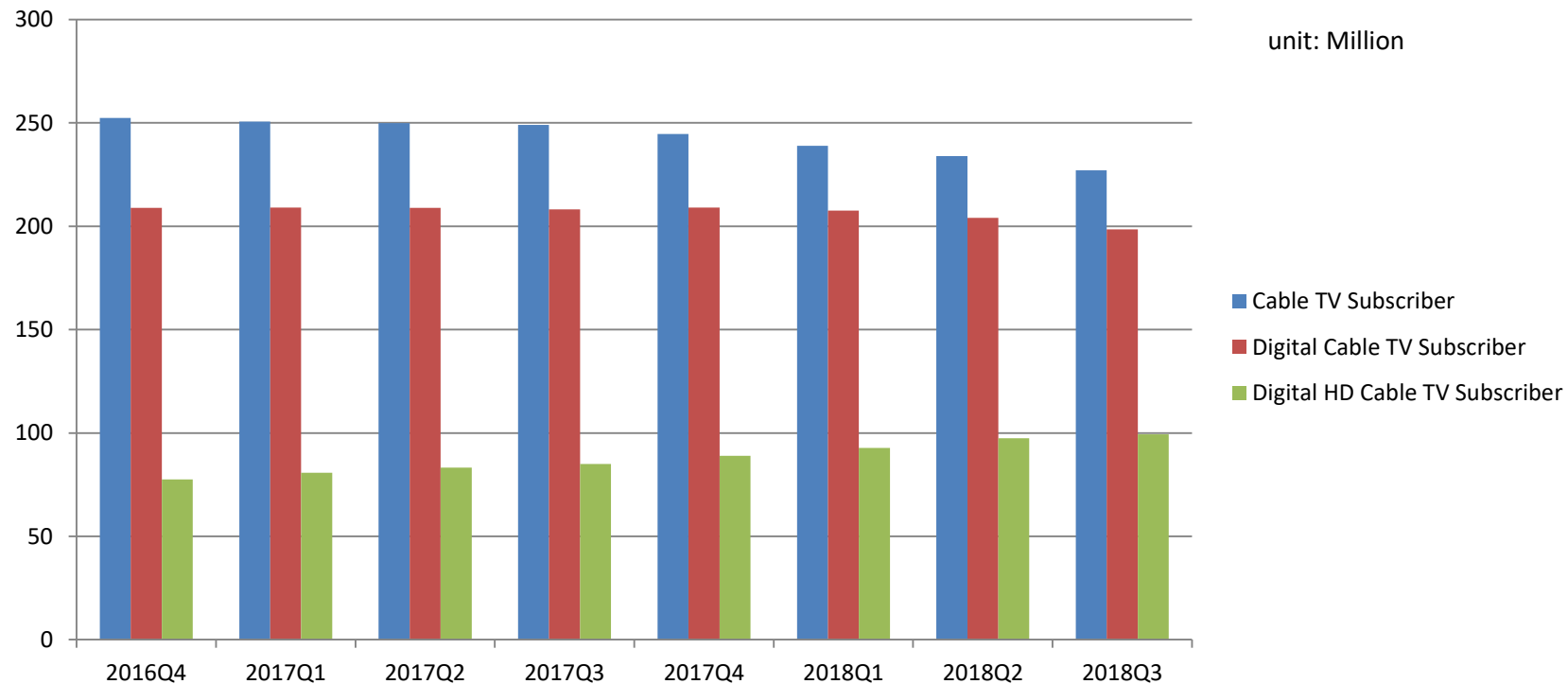
The Evolution of TVOS in China

2018. 11

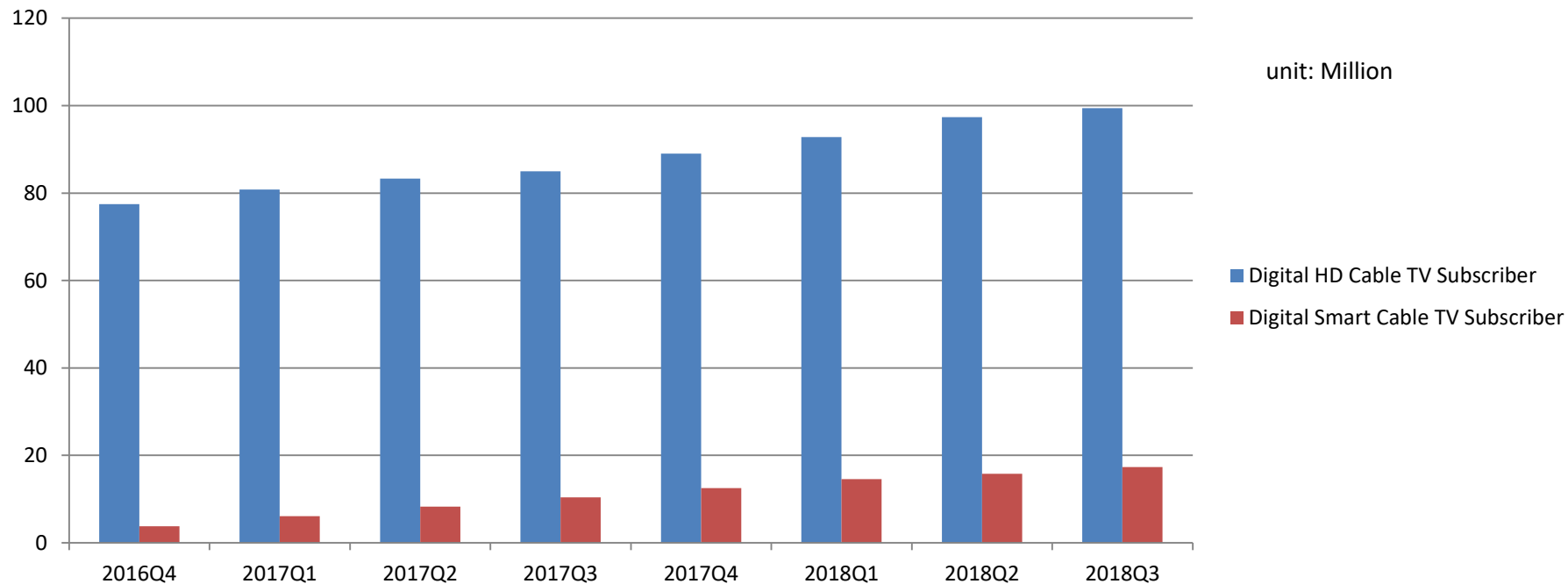
Contents

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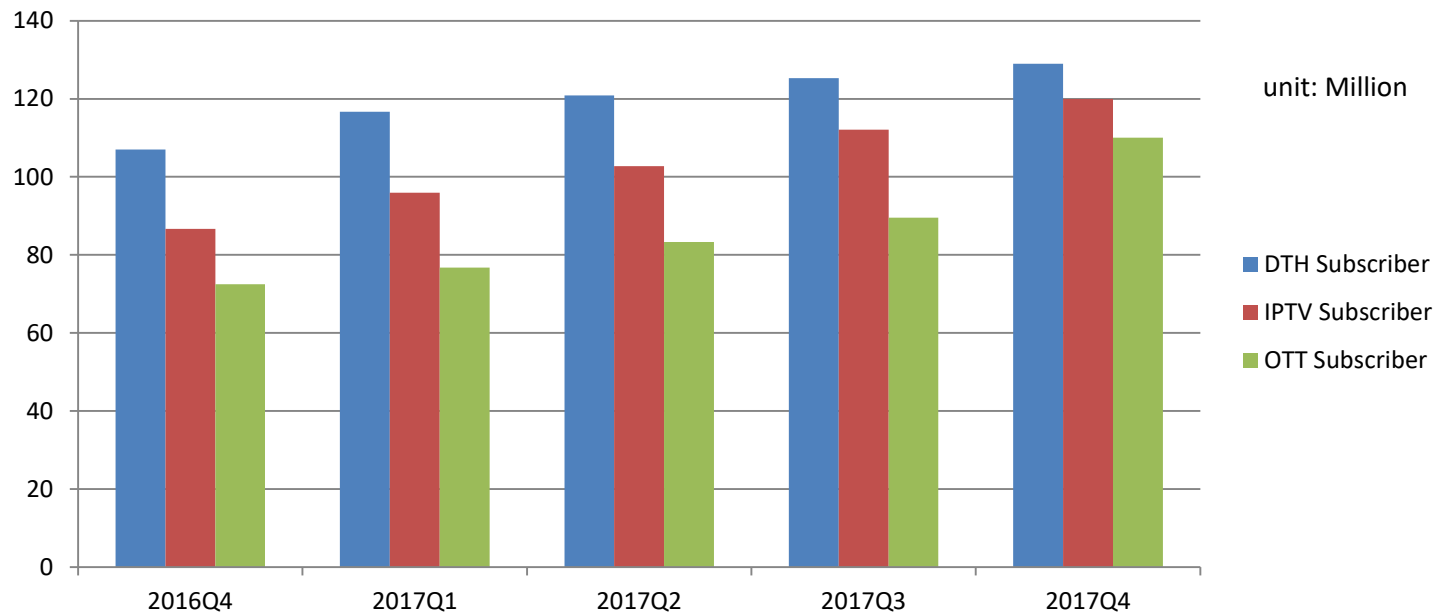
China STB Market-Cable TV



China STB Market-Smart Cable TV



China STB Market-Other



WHY TVOS

- Industry : Sustainable development
 - ✓ pain point: technical fragmentation
 - User experience is inconsistent
 - Difficult to deploy new service
 - ✓ Media terminal to be smart is a trend

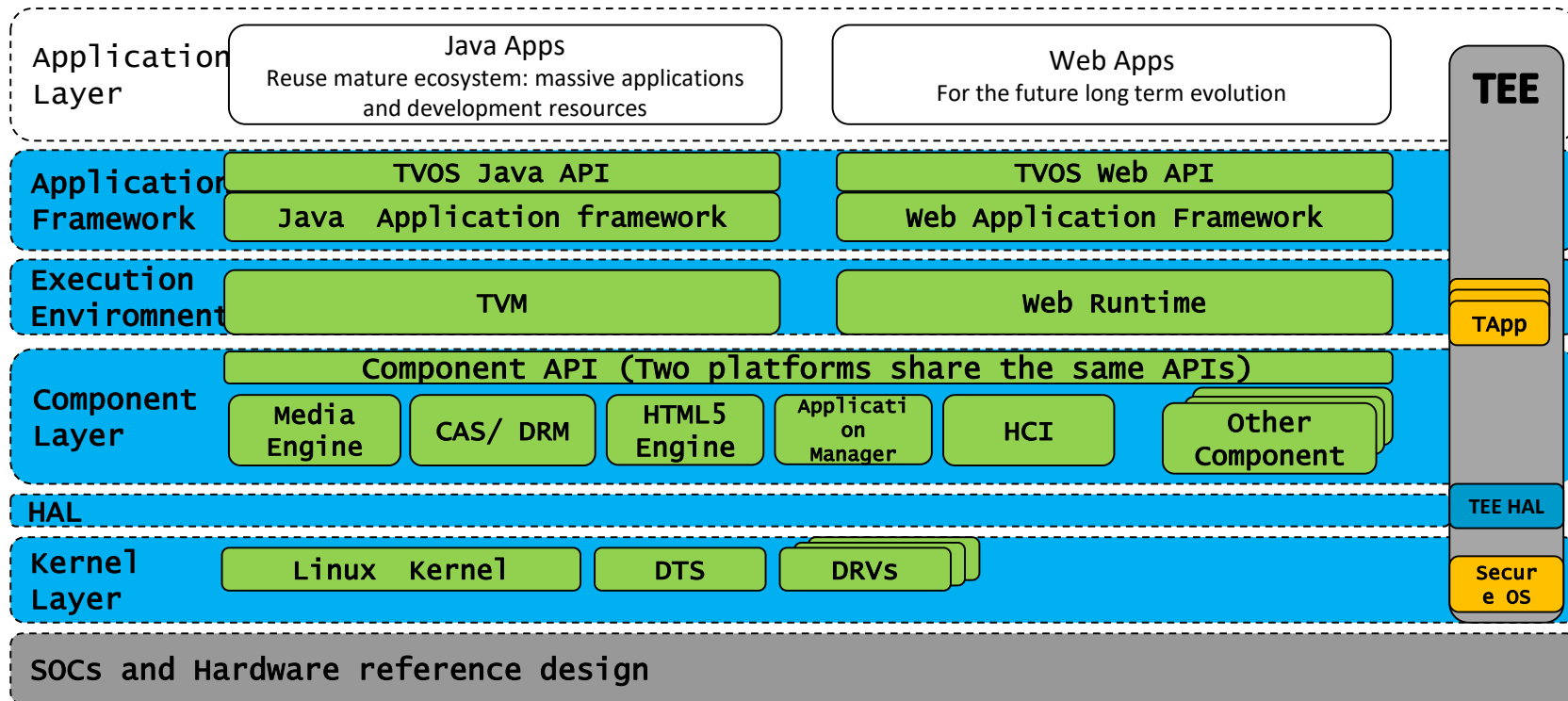
WHY TVOS

- New Chance: Developing 4K/8K UHD becomes national action of China
 - ✓ Key technologies to support the development of evolution
 - ✓ Construction of the standard system
 - ✓ Establish a mechanism to centralize excellent talents and resources

To be a global leading Smart Media Terminal OS:

- ✓ Collaborate with key technologies to build a smart media terminal OS with ultimate experience, green & security, rich services, and future-oriented.
- ✓ Build an application ecosystem to support long-term development of smart media terminals.

TVOS Architecture



TVOS Architecture Features

- **Layered architecture:** Cross-hardware platform; Basic media services; Supports multiple application frameworks. Can be tailored and combined.
- Security framework based on REE/TEE
- Application Manager supports multiple application types
- Unified Media Engine based on Gstreamer
- HTML5 Engine based on chromium

The Organization of TVOS

institutions

Operators

software
vendors

device
vendors

Chip vendors

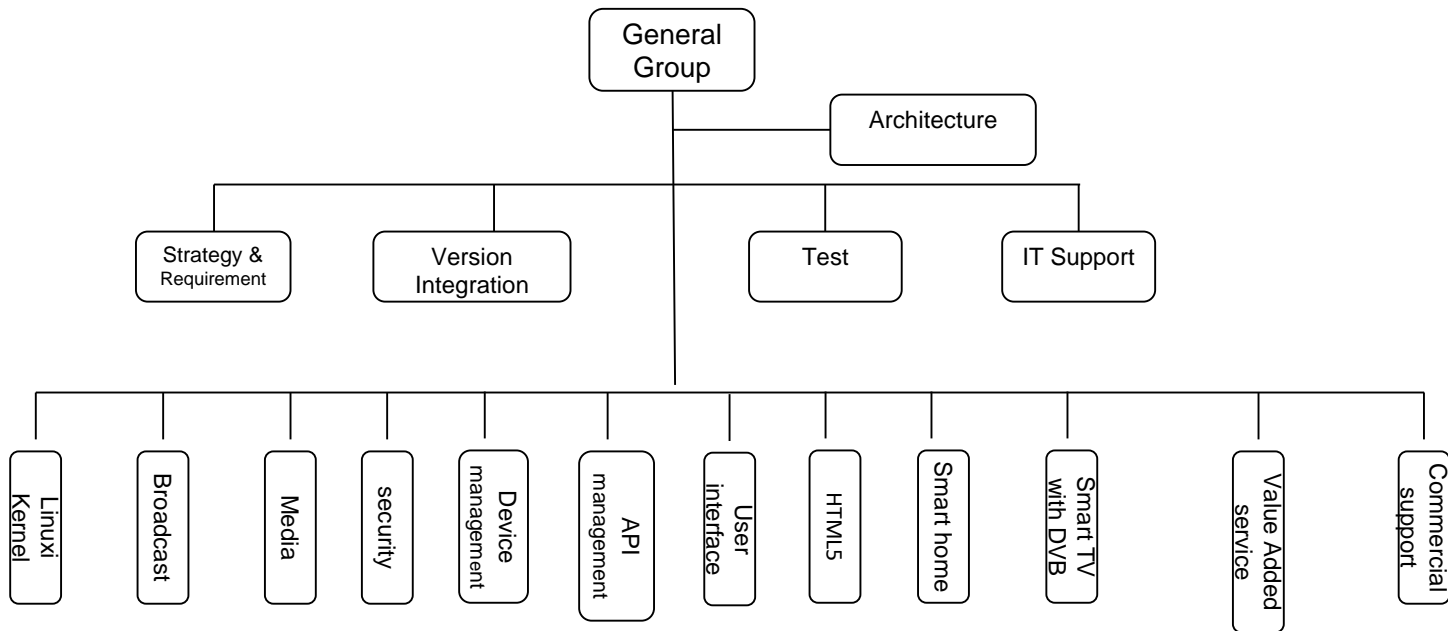
The TVOS team is officially set up by Technology Division of NRTA.

Currently, there are more than 120 members.

The Organization Structure of TVOS

Mgr
group

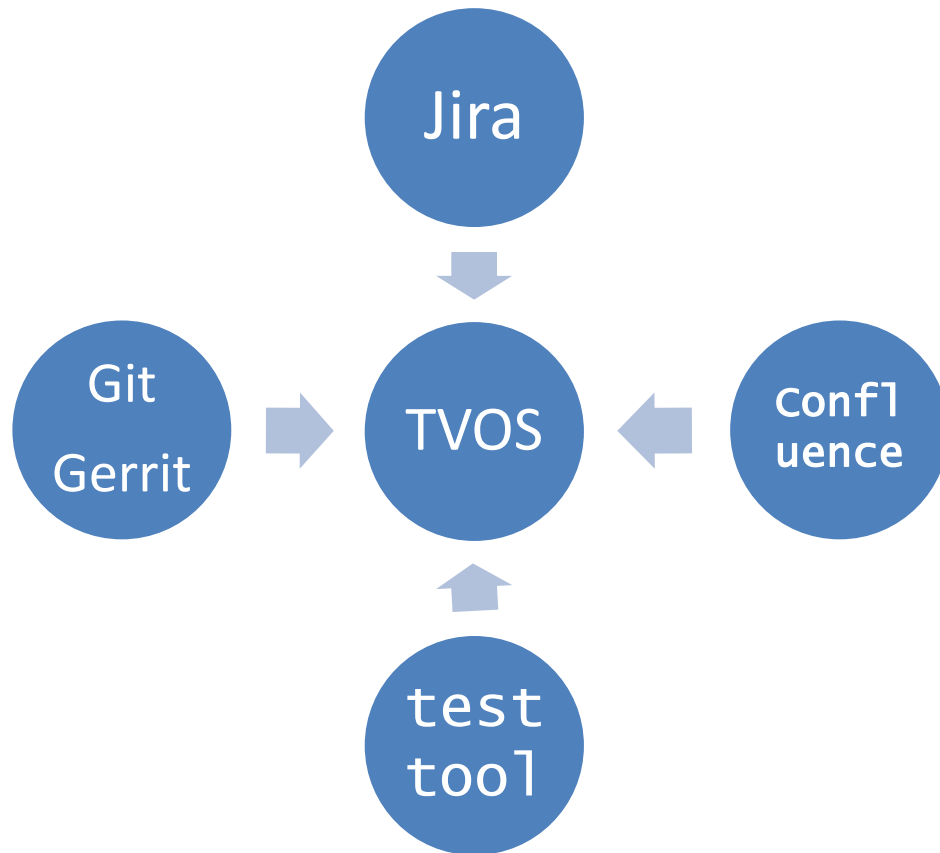
Topic
Groups



The Organization of TVOS

- Way of working: monthly F2F meeting
- Monthly meeting of TVOS leader & vice leaders
 - the work plan of TVOS
 - important decisions
- Monthly meeting of working group leaders & vice leaders
 - the plan and progress of each working group
 - technical review

Collaborative Work Platform



TVOS Standards

■ Industry standards in China

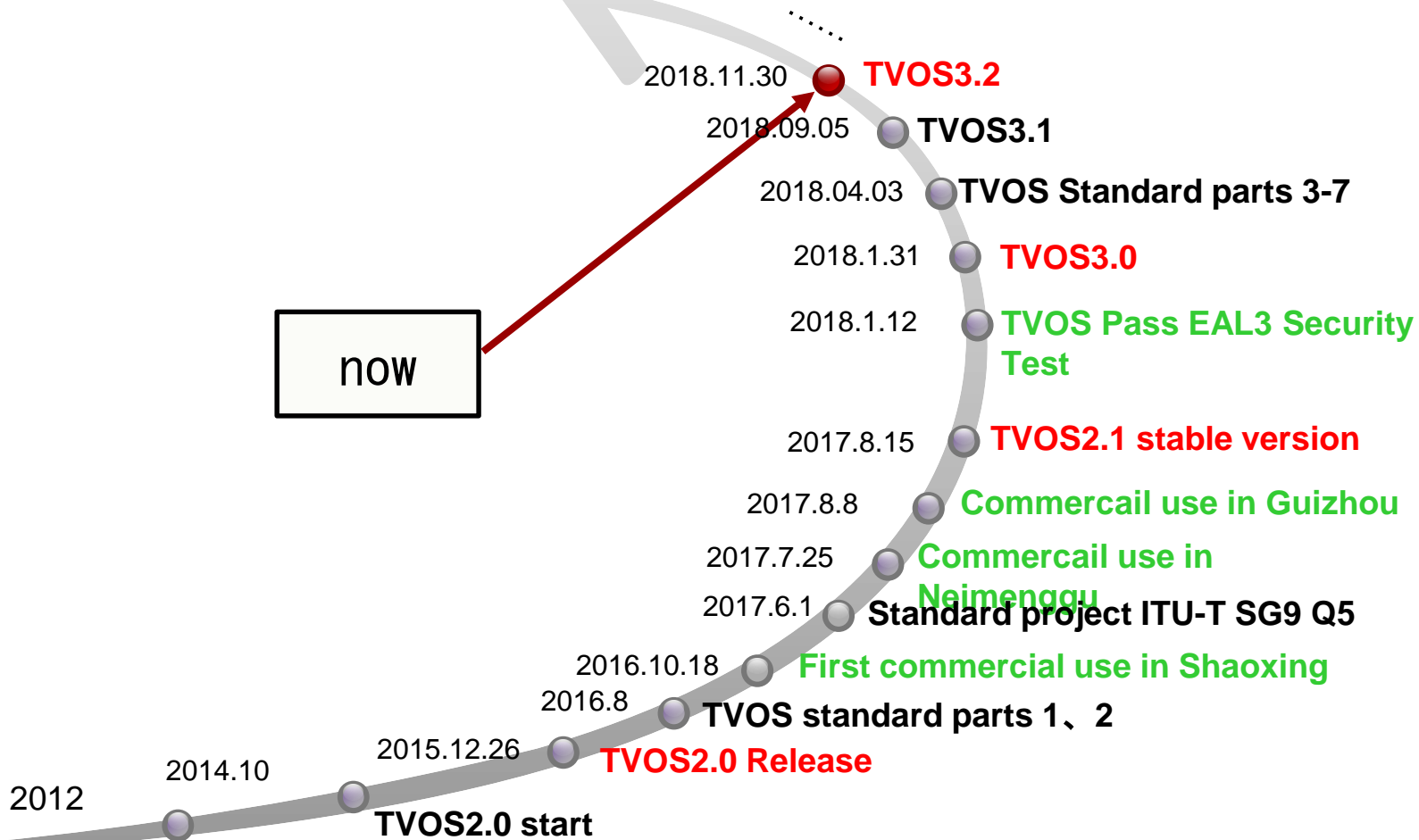
- 2016.12 GY/T 303.1 《Functions and Architecture》
- 2016.12 GY/T 303.2 《Security》
- 2018.7 GY/T 303.3 《API》
- 2018.7 GY/T 303.4 《HAL》
- 2018.7 GY/T 303.5 《Component API》
- 2018.7 GY/T 303.6 《 TEE API》
- 2018.7 GY/T 303.7 《Conformance test》

TVOS Standards

- International Standards
 - J.stvos-spec-req in ITU-T SG9
 - J.stvos-spec-arch in ITU-T SG9
 - J.stvos-sec in ITU-T SG9
 - J.stvos-hal in ITU-T SG9



TVOS History and Status



What's Next-Generation

- Commercial Promotion
- Open Source
- Propagation
- Internationalization
- Application Ecosystem Construction

What's Next-Technical

- Python Runtime
- Gateway profile
- AI framework
- Voice control framework
- Secure OS → OP-TEE
- Emulation
- Big Data collection
- TVOS link for smart home connection
- Video Communication enhancement
- Audio Manager
- ...



Welcome to join TVOS
Thank you!