

SAMSUNG



Emerging Trends in Media Consumption Devices

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Media Consumption Platforms & Milestones



Stored Media

- Physical Distribution
 - VCR
 - CD, DVD..



Linear (Broadcasting)

- Digital TV Platforms: -
 - Terrestrial
 - Cable
 - Satellite..



Non-linear (Internet/Cloud)

- OTT, IPTV..



Multiscreen Viewing

Indian Broadcast & Telco Market

Broadcast

Cable	1469 MSOs Completed Digitization – India is the only large country where 100% digital cable has been achieved through mandatory regulations
Satellite/DTH	6 Pay TV Operators, total 54.36 mn active subs 1 FTA Operator (DD Direct+), ~30 mn subs
Terrestrial	Digitization (DVB-T2) in progress Evaluating HbbTV for hybrid experience

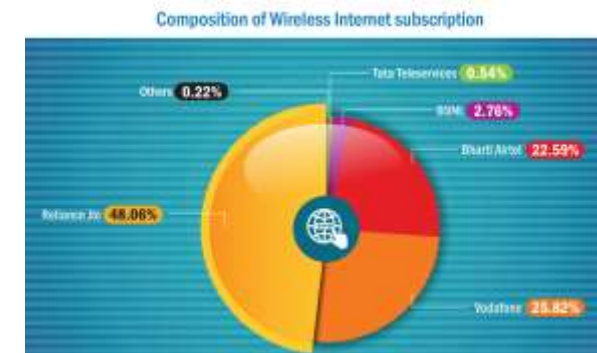
Telecom

Total Telecom Subs	Wireless	Wired
1198 mn	1176 mn	22 mn
Total Internet Subs	Wireless	Wired
604 mn	583 mn	21 mn

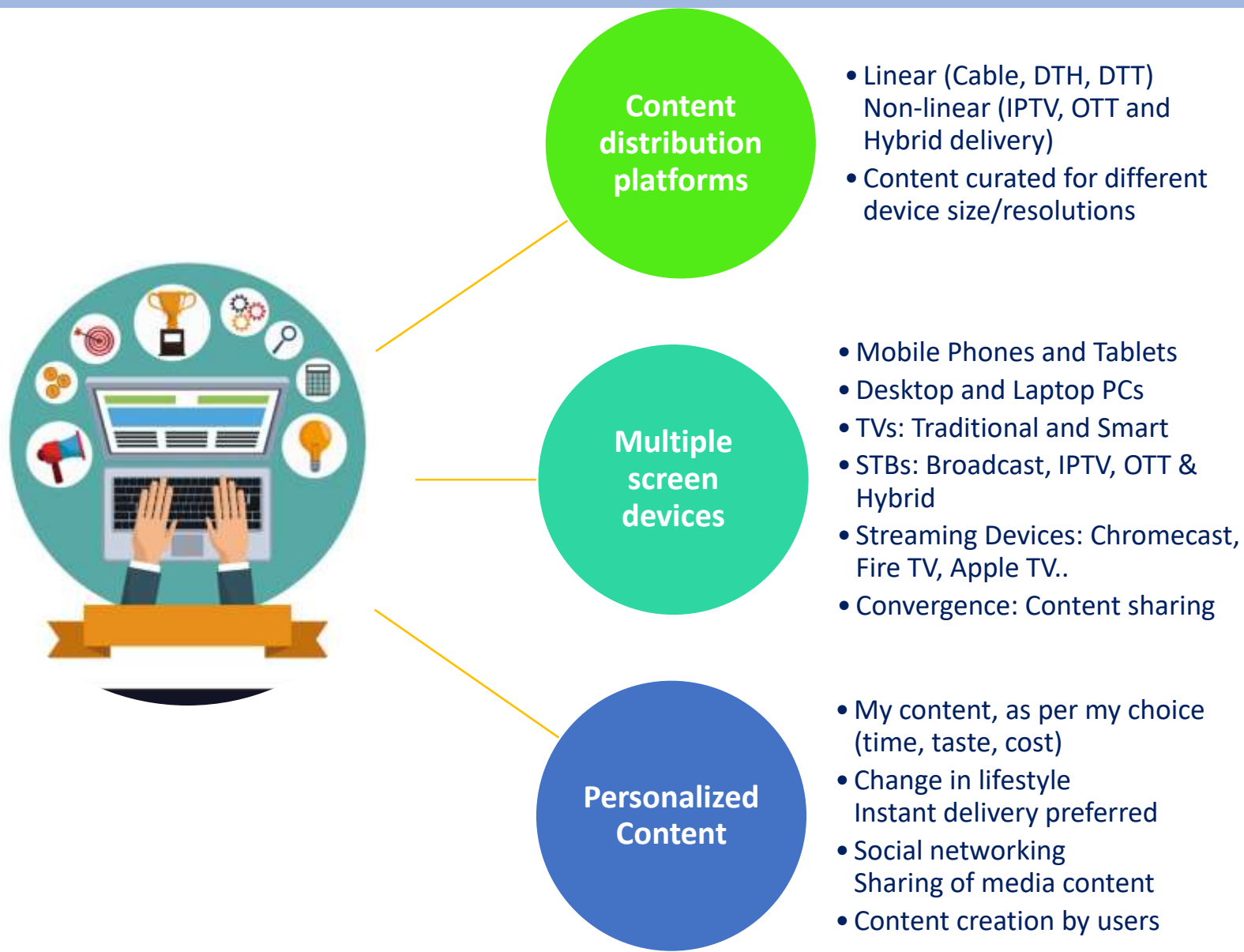
Internet Availability

- Disruption in mobile broadband due to lowest 4G/LTE data prices in the world
- Data consumption in India has increased 32 times in the last five years to 9.06 GB
- Indians spend 70 minutes a day per person on video platform

Subscriber base of top ten Service Providers (in million)



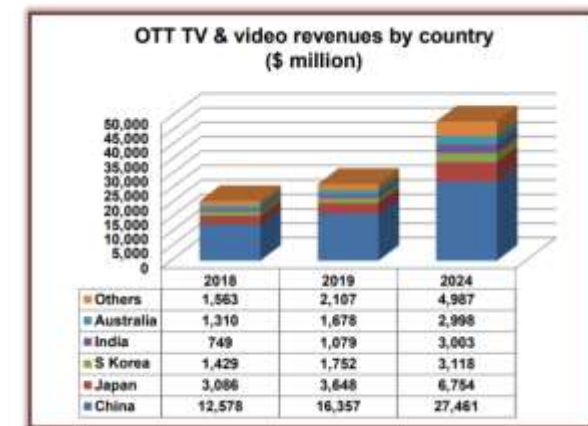
Change in Media Consumption Pattern



India – Broadcast TV v/s OTT

- Traditional broadcast TV has its own market demand (Live news, exclusive sports)
- Pay TV Operators (DTH and Cable) entering strategic partnerships with OTT platforms and also launching their own OTT services to sustain the competition
- India had the third highest pay-TV revenue at \$10 billion in 2018, which is expected to reach \$17.59 billion by 2023
- Pay-TV penetration was 91.2% in 2018
- India's TV advertising will become the world's top TV advertising markets globally over the next five years (expected to be ~\$6.8 billion)

- India - Fastest growing OTT market (highest growth rate from 2019 to 2024)
- Mobile most used device to watch Video content
- Hotstar alone has > 300 mn subs
- Number of OTT players increased from just 9 in 2012 to ~35 in 2019
- Indian video OTT service to grow at 21.8% CAGR to reach \$1.7 billion by 2023 from \$638 million in 2018
- Subscription VoD to grow at 23.3% CAGR to \$1.5 b, 89.4% of overall revenues



Source: Digital TV Research

Samsung Smart TV



PERSONAL COMPUTER

MUSIC SYSTEM

HOME CLOUD

LIVE CAST

TWO-WAY SHARING

1,00,000+ Titles	10+ Local Language	100+ Partners
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TVkey – Secure Direct to TV Solution



No Set Top Box required



Wire free Installation



Single Remote



Better Picture Quality – No Signal Loss

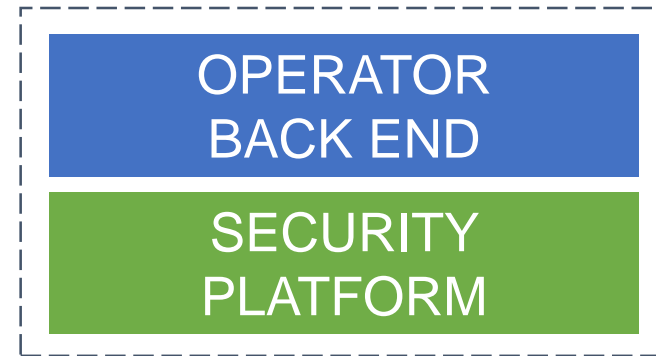
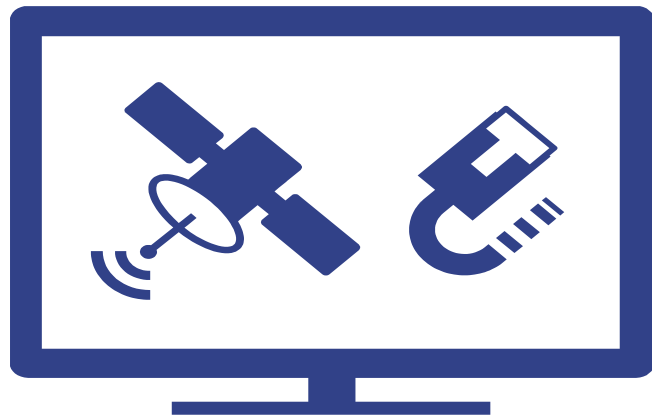


Enjoy SD, HD & UHD Services



Easy & Intuitive Samsung UX

TVkey Cloud: Leveraging The 2-Way Connection



Trusted Execution Environment (TEE) and Secure Media Path Support by TV

TV embedding NAGRA HW IP block (CERT) as HW ROT supporting TVkey Certificates

HTML5 TVkey operator app support

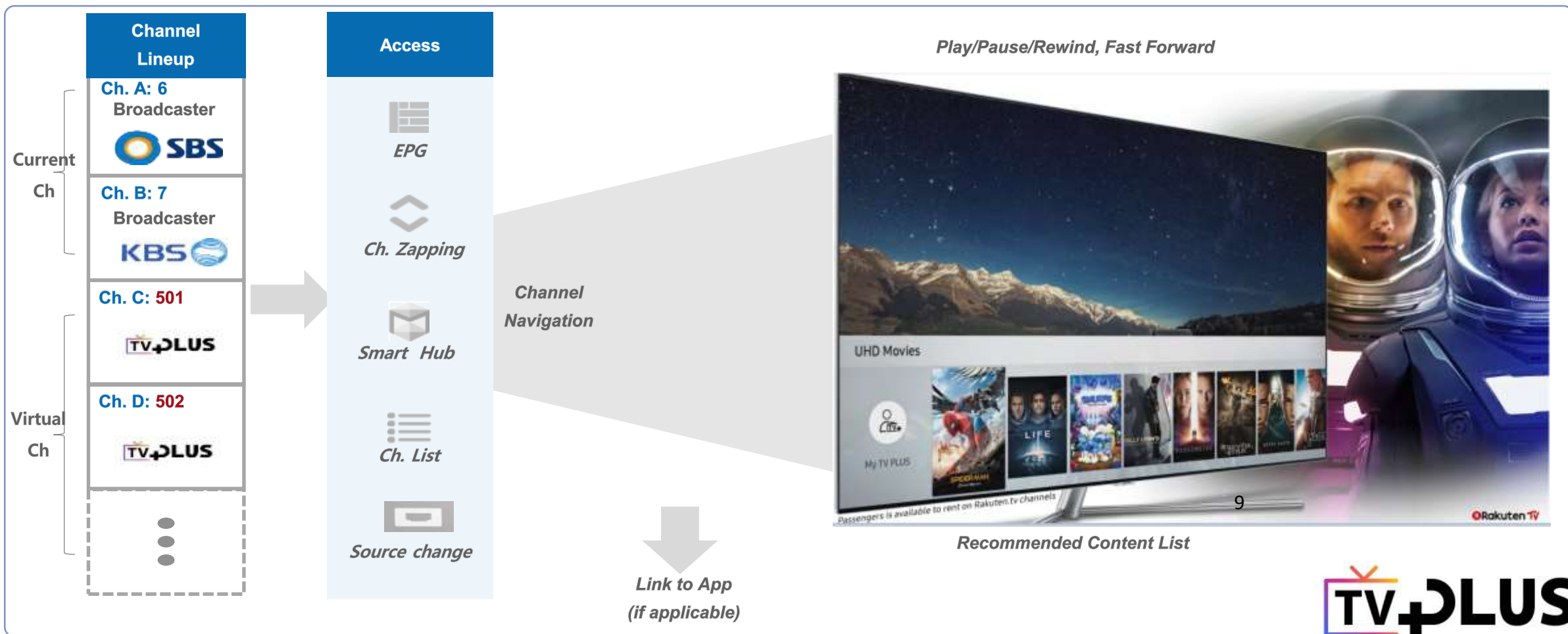
Security managed by CAS platform

Business logics by Operator back-end

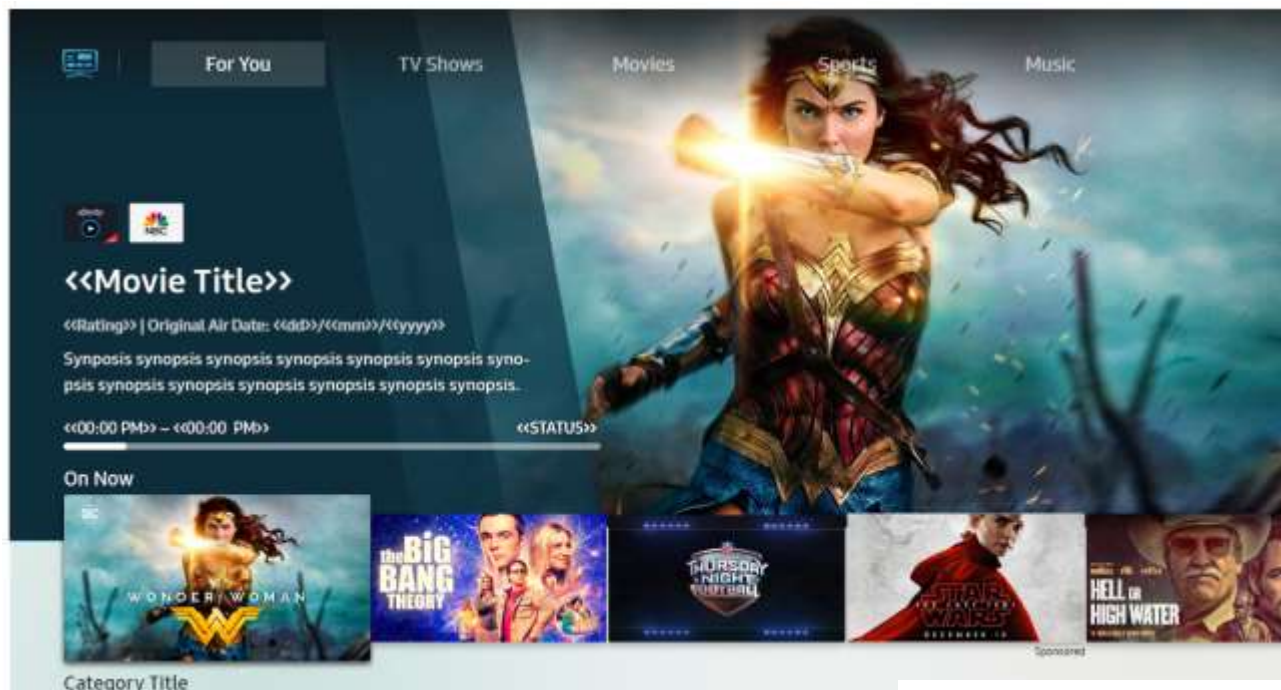
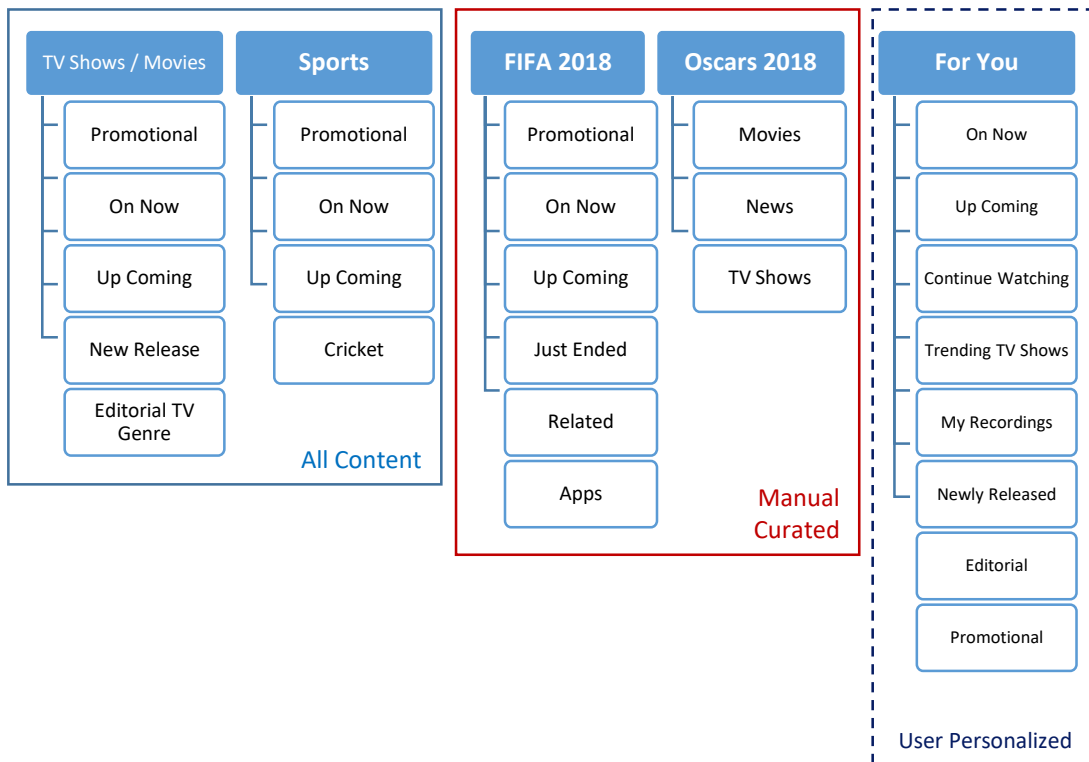
2-way connected environment

TV Plus – OTT Service

TV Plus is a new video service that provides a rich experience for Samsung Video partners. The experience isn't rooted in applications, but in native channels. Partners can provide a lean-back or interactive user experience



TV Plus – Recommendation and Personalisation



8K Association (8KA): Promoting & Educating about 8K

- 8KA is a not-for-profit organization to address the concerns of the 8K ecosystem: professionals and consumers
 - Founding BOD members: Samsung Electronics, Hisense, TCL, Panasonic and AU Optronics
 - New members: Astro Design, ATEME, Chili, Innolux, Intel, Louis Pictures, Novatek, Samsung Display, Tencent, V-Silicon and Xperi (and expanding..)



8K Technical Spec and Compliance Test

- 8KA already announced key performance attributes for 8K TVs, as part of the 8KA technical program, which also includes recommended performance levels for HDR & Color performance along with interface requirements
- 8KA will develop a compliance test enabling a transparent testing process, stay tuned @<https://8kassociation.com>

Public Details of Spec

Resolution: 7680 x 4320 pixels (> 33 mn pixels)

Input Frame Rate: 24p, 30p and 60p frames per second

Display Luminance: More than 600 nits peak luminance

Codec: HEVC

Interface: HDMI 2.1

Additional performance & interface specs (available to members)



Samsung's QLED 8K TVs with Samsung's Quantum Processor 8K and QLED Panel provides an astounding level of immersion and reality to the viewing experience and also supports upscaling to 8K resolution using AI techniques.

Conclusion

- Content curated for always on, always connected devices
- Ease of voice search with rising penetration of smart speakers will further drive revenues over next 5 years.
- Live TV still holds its charm, specially in genres like Sports, News. Existing linear TV services can be complimented by non-linear programming (additional services)
- Exploiting the power of Smart devices (Mobile phones, Televisions..) will be the key, and the personalized content provisioning would play an important role
- With the fast changing technologies, broadcasters and content providers coming up with new monetization models exploiting the traditional subscription models (a la carte) and advertisement models (dynamic ad insertion)
- Content is still the King, so the ease of content discovery with enhanced user experience and personalization, will drive the uptake of specific platform
- Technologies like AR/VR, Voice and Vision intelligence, 8K, AI and 5G will completely change the TV viewing experience very soon!