

Set Top Box, Smart TV, and Connected TV Device Operating System Forecast - 2020-2026

Android TV shines in set tops and Smart TVs as global pay TV market declines, but Huawei's HarmonyOS poised to surge



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Executive Summary

“Rethink has a commitment to forecasting markets that others shy away from – those on the verge of radical transformation”

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Snapshot Executive Summary

- Operator Set Top OS footprint embraces Android TV globally, with RDK remaining entrenched in North America and making some progress in Europe.
- Smart TVs and Connected TVs see Android TV drive out Chromecast and AOSP-based installations, with Roku holding strong in North America.
- Pay TV Households decline from an estimated XXX million in 2020 to XXX million in 2026, impacting the annual shipments of Operator Set Tops. Estimated annual shipments decline from XXX.X million to XXX.X million, propped up by the upgrade cycle for new Set Top Box operating systems.
- Expected Operator Set Top installed base declines from X.XX billion in 2020 to XXX.XX million in 2026.
- Android TV to reach 25% share of Smart TVs and Connected TV Devices by 2026, representing an estimated XXX million of a total XXX million devices.

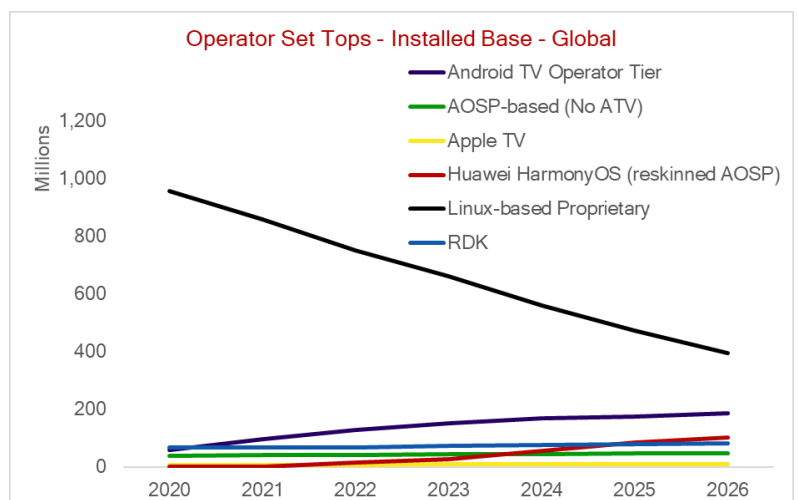
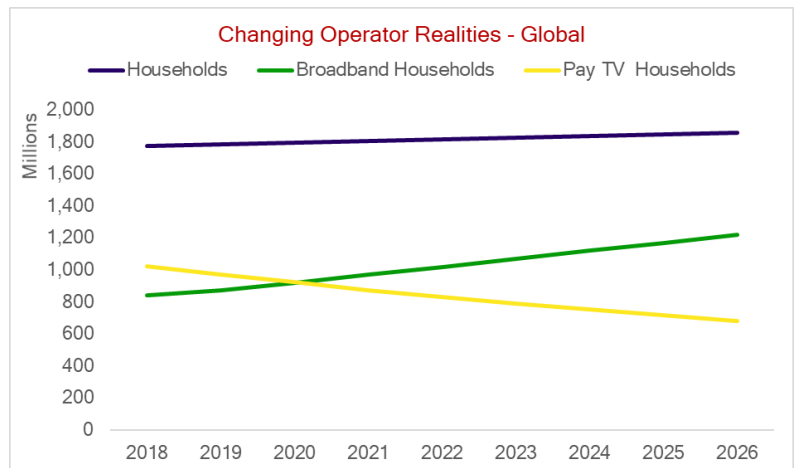
Introduction

Operators will embrace Android TV globally, as the pay TV market continues its emphatic decline. Android TV Operator Tier will begin to make headway in replacing legacy Linux-based devices, while RDK will begin its expansion from North America and into Europe.

For context, the estimated global count for pay TV households falls from some XXX million in 2020, to XXX million in 2026. Consequently, the estimated installed base of set top boxes falls from X.XX billion in 2020 to XXX million in 2026. This is equivalent to annual shipments of set top boxes falling from XXX million in 2020 to XXX million in 2026 – a decline of around X.XX% annually.

In terms of market share, we believe that Linux-based Proprietary will decline from around XX% in 2020 to XX% in 2026 – and expect that the rate of replacement will increase swiftly after the end of the period, due to the average lifetime of a set top playing out through our six-year window. By the end of the period, the first Android TV Operator Tier set tops will be ready for replacement, and new shipments of Linux-based Proprietary boxes will be limited to very low ARPU markets.

Globally, Android TV Operator Tier will grow from around X% of the installed operator set top base to some XX%, in 2026. RDK, meanwhile, is only expected to grow from X% to XX%, even with interest from Tier 1 operators in Europe. Almost doubling your footprint would normally be a cause for celebration, but when compared to Android TV Operator Tier’s success, it is not as emphatic.



Apple TV is still expected to linger, although remains a niche choice among operators. Similarly, we expect some growth in AOSP-based options, as price-constrained operators are willing to forgo Google Play services to keep their overheads down. Huawei's new HarmonyOS is expected to grow to around XX% of operator set top deployments, racking up wins in APAC, and to a lesser extent in MENA and Latin America.

The shift in market share has to be considered alongside the fact that the installed base of set tops is still declining. However, the Smart TVs & Connected TV Devices segment is expected to grow from an installed base of XXX million in 2020 to XXX million in 2026. Here, Android TV (the regular non-operator customizable kind) is expected to reach an installed base of some XXX million in 2026, accounting for around XX% of the total.

However, Huawei is expected to become the largest global player in this segment, owing to its new HarmonyOS operating system and its regional influence in APAC, MENA, and soon Latin America. By the end of the period, we expect HarmonyOS to account for some XXX million devices in the Smart TVs & Connected TV Devices segment – a market share of just under XX%.

The trade dispute between China and the US, with resulting concerns over access to Android updates, has galvanized the Chinese government to push for a major independent national OS, with HarmonyOS the apparent preferred candidate. The long-term consequences for Google and Android of this trade dispute could be enormous and almost entirely negative.

In the short term, Huawei and others will continue to favor Android for set top and other connected devices, including smartphones and tablets – leading to growth in China for Android, initially. However, the likely longer-term direction is towards HarmonyOS as a ubiquitous cross-platform OS that will also increasingly take on Android in neutral markets outside China – especially in APAC and Latin America.

For set tops, among new shipments, Android will reign supreme, and make huge gains in APAC specifically, followed by Europe and Latin America. Android will also score in North America, but will be impeded by RDK's entrenched position, especially in the cable sector.

RDK's origins as an IP-native migration platform for operators looked solid, providing the RDK-V stack for video CPE and the RDK-B stack for broadband, but Android's arrival forced it onto the backfoot. It appeared that RDK would be confined entirely to North America, and largely to Tier 1 cable operators, but the organization managed to claim two major victories when it signed Vodafone and Liberty Global up as adopters. Notably, those two organizations are now in the process of a €XX billion merger, which on the one hand unites two CPE platforms, but also knocks the number of European RDK adopters down by one.

When Metrological was appointed to provide a pre-integrated and turnkey app store for RDK-V set tops, in September 2018, it finally made RDK look like a realistic alternative for operators looking to provide integrated broadcast and broadband services that might have been considering Android TV Operator Tier. The launch of the RDK Accelerator project in 2019 added to this momentum.

However, through the period, RDK has to look for new growth outside its home territory, and to this end, we expect it to grow to challenge Android TV Operator Tier in Europe, for second place – behind the declining Linux-based Proprietary footprint. In North America, as a consequence of cord-cutting, RDK will decline.

There is a lot of uncertainty about the Chinese sector, in both Operator Set Tops and in Smart TVs & Connected TV Devices. Our assumptions are based on the likely future course of international relations between the US and China, but if the new Biden administration were to move towards a reconciliation, then bets would move from HarmonyOS back to Android. This seems unlikely, and once the Chinese government has begun its journey towards a national operating system, it would be foolish to abandon that plan. We believe it is reasonable to expect HarmonyOS to make major gains in the Chinese Smart TV market, and then radiate out into other regions where sales of Chinese TV sets are strong.

Methodology

This forecast builds on a previous Rethink TV forecast, and intends to update our projections with our latest insights and market developments. As a recurring subscription, Rethink TV intends to more frequently update its core research archive, while exploring new areas.

To this end, we adapted our previous forecast's data and conclusions to suit our latest geographic regions, and undertook our usual process of vendor and customer interviews. We used the insights gleaned from these interviews to inform our model, as well as embracing refine previous research, our historic forecasts, and our macroeconomic demographic model.

The main focus of this project has been the market shares of the new operating systems, and how they will displace legacy deployments. Our secondary effort was modelling the anticipated installed base and annual shipments, based on the market share projections.

The basis of the market shares stems from the previous report. We wanted to apply those projections, after they have been updated and refined, to our latest operator KPIs, to track the expected shape of the pay TV and broadband markets through the period.

However, our usual process of speaking to significant customers and vendors in the market were frustrated significantly by JLM Partners, the PR and communications firm employed by RDK. Never before have we encountered a firm actively attempt to block us from speaking to clients it represents.

After an invitation to an RDK leadership event was sent to Faultline, our investigative news outlet attended and reported on what was heard – as any team of journalists should do. Proper security mechanisms would have prevented Faultline from joining, but none were in place, and what Faultline thought were connection errors were apparently a manual process of someone removing Faultline from the attendees list.

Following the event and consequent article, JLM Partners' Jeremy Pemble alleged we had hacked their systems, and that we had posed a significant security risk. We pointed out that if the contents of the meeting were this mission critical, and that the event organizers knew that an apparently unauthorized member was in attendance, then the presentations should have been paused until that problem was dealt with.

That the event wasn't halted suggests that the event organizers either didn't know or that they didn't want to tell the speakers about the intrusion. Security through obscurity appears to have been how these events have been run, and our view is that Faultline is hardly going to have been the first to have been sent a link in error. We wonder how many members of the current US' entities list have found their way into RDK meetings over the years, given that there is apparently no proper mechanism to prevent them having access once the link is shared.

Our view is that JLM Partners is embarrassed about the error, is trying to sweep it under the rug, and has been entirely unprofessional in their handling of the matter, in quite an unprecedented fashion.

Once our industry stakeholder interviews were completed, the various insights gleaned from the process were collated and tested, before being applied to our initial model. In particular, a lot of work was put into charting how video device shipments have changed over the past decade, and then forecasting how they will play out over the next ten years.

With that in place, we were able to estimate the installed base of Set Tops, Smart TVs, and Connected TV Devices, across our macroeconomic regions, to provide a global view of the market. Against this, we then attempted to model how the changes in market share would affect the installed base, and then how those changes translate to annual shipments of devices.

Key to this was the overall modelling of the pay TV market, across those regions. We undertook a significant counting operation, to chart the revenues and subscriber numbers for the entirety of North America, across the operators. Once that was complete, we were able to use North America as a baseline, to model how the other regions will behave. Future work will attempt to create similar counts for the other regions, however, the disclosure environment in North America is much more accessible than elsewhere, so we suspect this will be difficult.

Our modelling draws on Rethink Technology Research's deep knowledge of the markets, as well as Rethink TV's expertise in the video ecosystem. Public documents and filings, and private confessions, have been combined with and used to corroborate the forecast.

Rethink TV maintains a demographic model that charts a range of criteria that help us profile countries. This ranges from population projections, landmass usage and urban population data, household income and spending, broadband internet and mobile usage, transport infrastructure and usage, and national productivity and economic data.

For our geographic regions, we are in the process of expanding our modelling to provide complete global coverage. Currently, we focus on specific regions. North America and Latin America are well known, as are MENA and APAC. However, because of the use of the latter two, our Europe classification is much larger than some – comprising Western Europe, Eastern Europe, and the Commonwealth of Independent States. In time, we hope to transition to complete forecast for Africa and Asia, which would see our regional classifications change accordingly.

Who should buy this report?

This report is critical for anyone who wants to understand how the operating system (OS) landscape for first screen video devices is going to shift amid the decline of the set top. The status quo of siloed, proprietary Linux-based systems is set to shatter across set tops, smart TVs and connected TV (CTV) devices as Android TV and Huawei's HarmonyOS tussle for world domination. There are other players to consider, too – most notably RDK in the set top world.

This report builds upon modelling from previous Rethink TV forecasts to evaluate the changing realities facing operators. Global broadband homes now outnumber the shrinking footprint of pay TV homes, which has direct implications on the number of set tops, smart TVs and CTV devices that will be sold in the coming years. Any operator that wants a realistic picture of first screen video devices in the home will benefit from these numbers.

This report will be of great interest to any hardware, middleware and software vendors that service the CPE market who want a mid-term view into the changing demands they are set to see from clients. Equally, the organizations that govern the CPE OS covered in this report will benefit from insight into how the wider industry regards its offering, with anonymized comments from vendors and operators summarized in a standalone section.

More broadly, this report should be read by C-Suite individuals, business strategists, marketers, public relations, and operations management, working in and adjacent to the CPE OS, OTT and triple and quad play markets.

The data contained within this report, and the wealth of additional information you will find in the Rethink TV and Faultline archives, will enrich your understanding of the technologies at play here, and the wider ecosystem in which they exist. Nearly every business can use this understanding to optimize capital and operational expenditures and win more contracts.

This report includes:

- Numbers you can drop straight into your business case
- An expectation of the shape of the set top, smart TV and CTV device market through 2026
- A clear understanding of the initial scope of this market, without hype.

A direct [eCommerce purchase can be made here](#) or you can contact roz@rethinkresearch.biz for a walk through of our service offerings.

Rethink TV: Forecasting disruption in video

Rethink TV is our video research team, producing market forecasts, technology white papers and tracking operator-technology vendor relationships in pay TV, OTT video and have documented the transition of TV services from the TV set, onto laptops, tablets, phones and smart TVs and other devices.

Our sister publication Faultline Online Reporter has been Rethinking the ideas behind TV for the past 20 years. We thought it was time we gave you a reliable source of business forecasts for the underlying technologies which have made that transition possible.

Rethink TV also tracks the top 100 paid OTT service providers and their suppliers, provides monthly updates to their key providers whether that is Adaptive Bit Rate packaging, encoding, DRM, recommendation systems, analytics or programmatic advertising systems.

It comprises of two parts:

- 1) 8 forecasts a year related to OTT and video
- 2) 100 up-to-date profiles on the top 100 operators globally.

Here are some sample titles of reports we have produced recently:

- Media & Entertainment Transcoding Workload and Device Royalty Forecast 2020-2030
- Live Sports OTT Security Forecast 2018-2026
- Pay TV and Broadband place their last chips on understanding the customer
- CDN and WebTRC Video Forecast
- New Kids on the Block – the next video wave
- Subscription VoD peaks, as Covid-19 lockdown drives sales
- How to survive the Set Top Box endgame
- Virtualization to capture 500 million fixed broadband customers by 2025
- Addressable advertising boom across all regions and platforms

Annual 1-5 User license - \$3,800 (*A group license permits up to 5 users*).

Annual corporate license—\$5,100 (*unlimited distribution inside your organization*).



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About Rethink Technology Research

Rethink is a thought leader in quadruple play, emerging wireless and renewable energy. It offers consulting, advisory services, research papers, live webinars, plus three weekly research services; Wireless Watch, a major influence among wireless operators and equipment makers; Faultline, which tracks disruption in the video ecosystem, and OTT video.. Rethink Energy, forecasting the changing energy landscape and its investment possibilities as renewables begin to take over from conventional fossil fuels .



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