VoD2live: How We can Be Efficient in Mixing VoD and Live Streaming

Gabriele Ubertini – Sky Italia

Sky in Europe

7
Countries

23.7m
Customers

£6bn
Content investment

31,000+
Employees

£11bn
Revenue

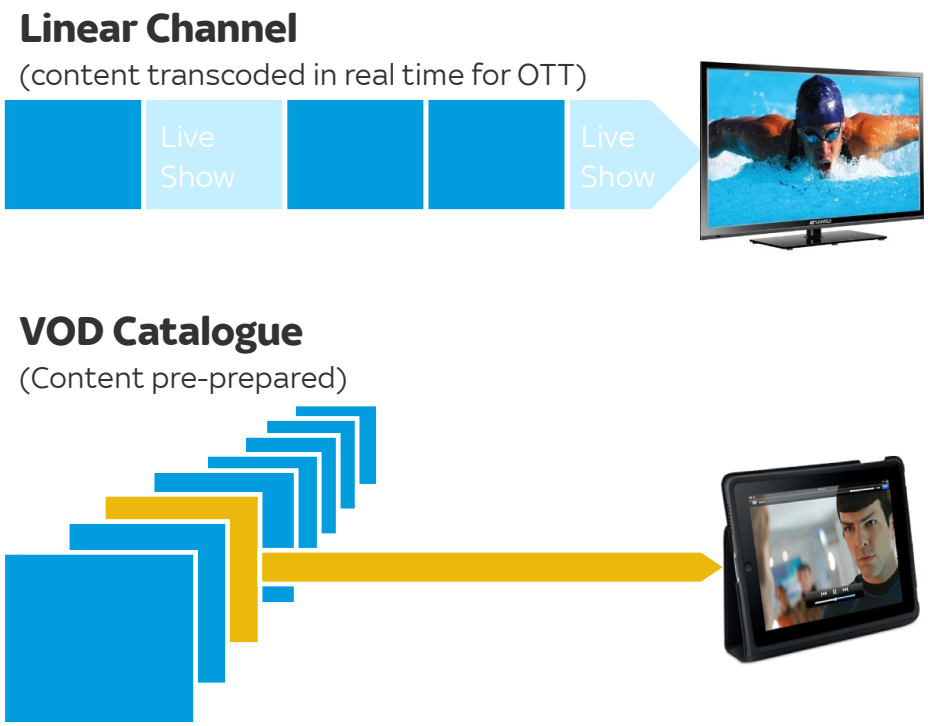
100+
Original productions

Sky Services

- ~500 Linear Sat Channel
- ~500 Linear OTT Channels
- ~60k VOD Assets per year

Typical OTT playout

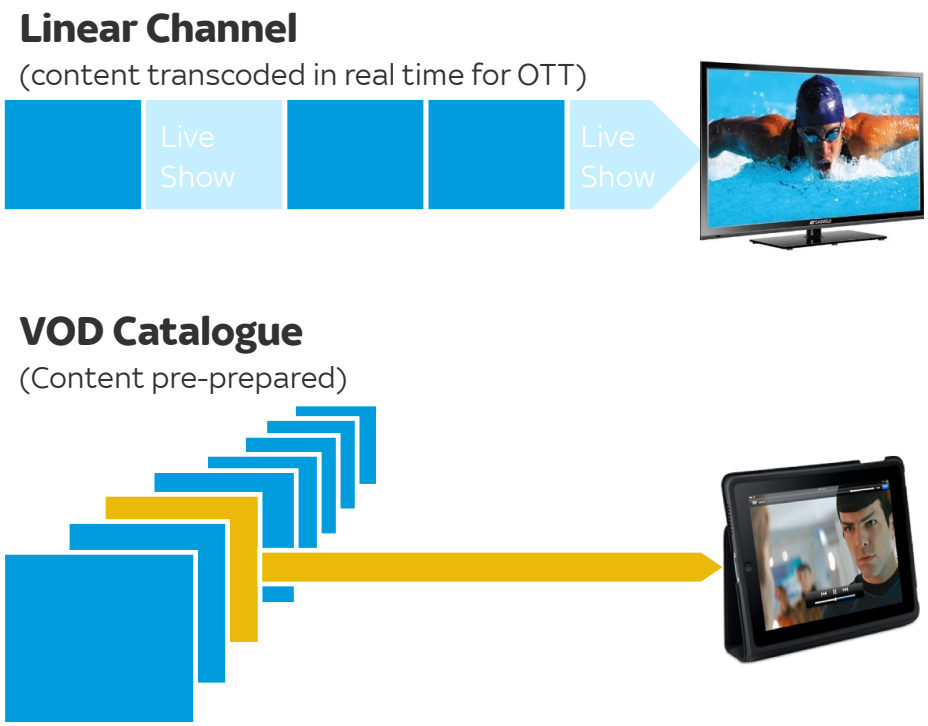
- On Sky linear channels playout, some content gets aired multiple times and a lot of that content is also available as on demand.
- The channels also get transcoded for OTT delivery.
- This means the same content gets processed* many times (ie transcoded into multiple bit-rates, packaged into multiple ABR formats, encrypted with different DRMS and published to multiple CDNs many times).



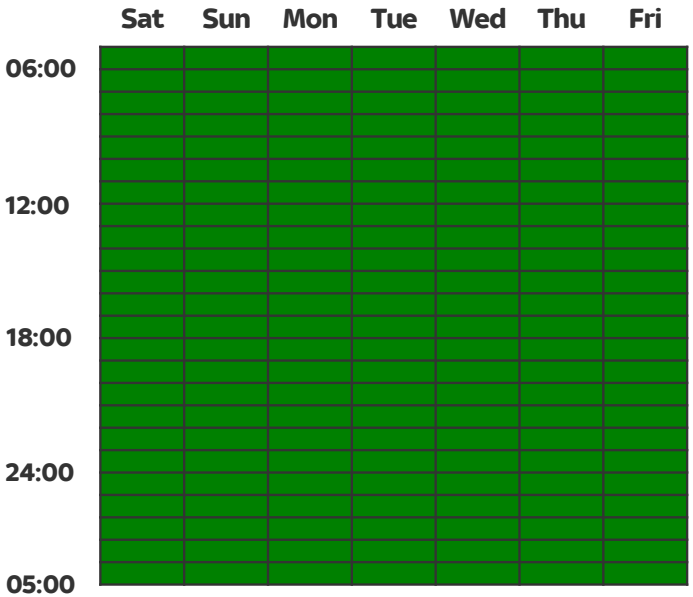
Typical OTT playout

If only...

We could transcode all the content once only

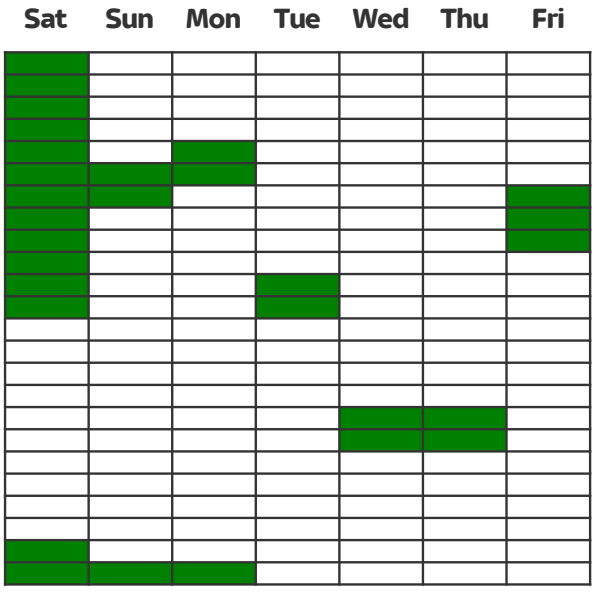


Example: Sky Cinema



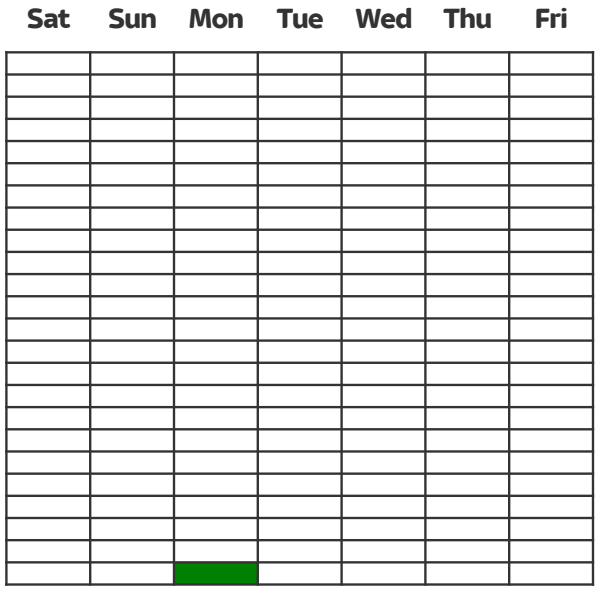
1Week Live Schedule

Shows the programming for a typical week. Grid represents 1 hour time slots and reflects the EPG day (starting 6am)



Remove Duplicate Programs

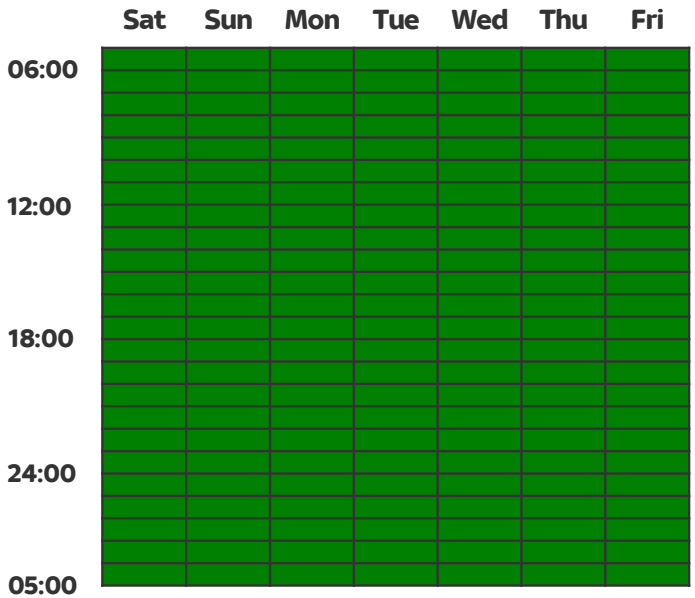
The grid now reflects unique airings within the week on the channel (green blocks). Duplicates (where the same content has been shown earlier in the week) have been removed (white blocks).



Remove On Demand Programs

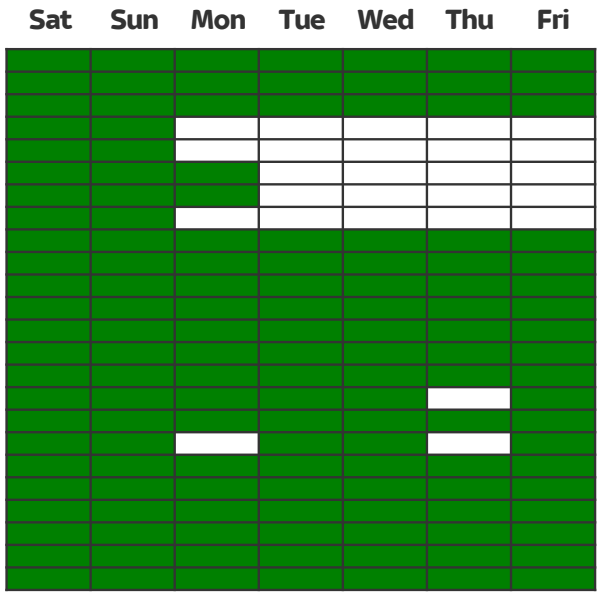
The grid now reflects content that is not available in the on-demand catalogue.

Example: Sky Atlantic



1Week Live Schedule

Similar analysis for an Entertainment channel (Sky Atlantic)



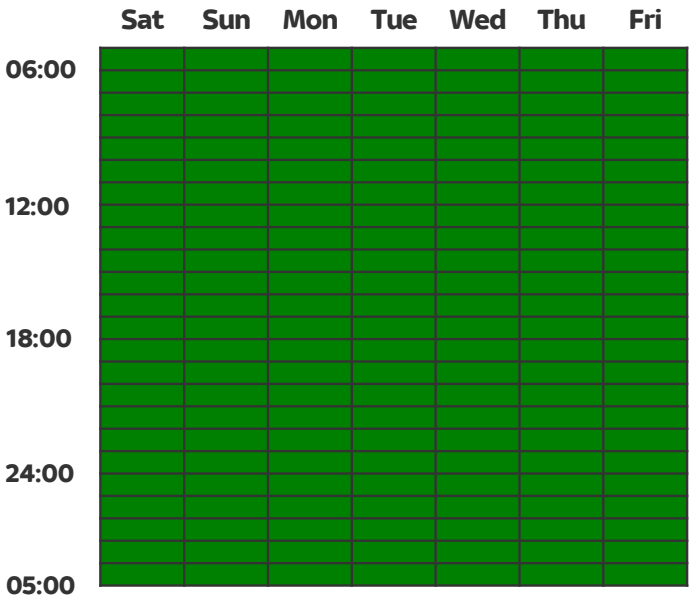
Remove Duplicate Programs

Again removing content that had been aired earlier in the week (far less than for the Movies Channels).

Remove On Demand Programs

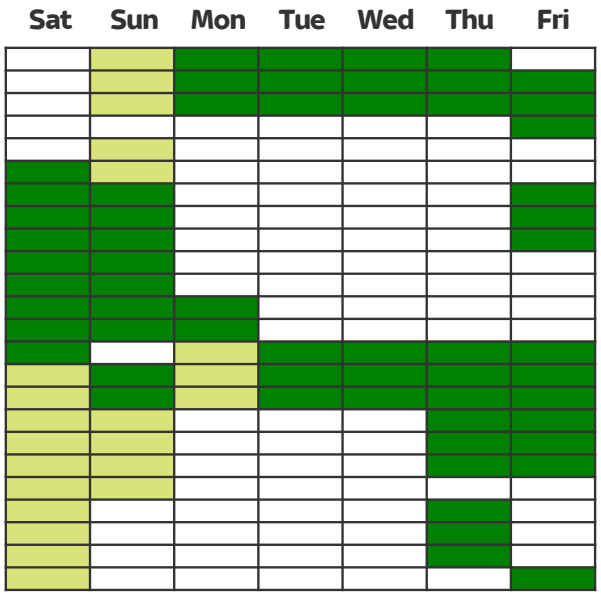
Removing programming that is available (catch-up) in the OTT On-Demand catalog.

Example: Sky Sports



1Week Live Schedule

Similar analysis on a Sports Channel (Sky Sports 1).



Leave only Live and Near Live Events: Remove programmes not either a live event (dark green) or a near live event (light green). A near live event is programming that includes footage that is less than 24 hours old (increasing the risk of it not being available On-Demand).

OTT Live & Near Live
Heat Map

1Week Sky Sports Channels

The table below shows the number of OTT Sports channels that are concurrently airing either live or near live content.

Assumption is that Sky Sports news is live/near live 24x7.

Sky Sports News HQ
Sky Sports 1
Sky Sports 2
Sky Sports 3
Sky Sports 4
Sky Sports 5
Sky Sports F1

1	
2	
3	
4	
5	
6	
7	

	Mon	Tue	Wed	Thur	Fri	Sat	Sun
6am	3	2	2	2	1	3	3
7am	3	2	2	2	2	3	3
8am	3	1	2	2	3	3	3
9am	2	1	1	1	2	3	2
10am	3	1	1	1	3	4	2
11am	2	1	2	2	3	6	4
12pm	2	1	1	1	4	7	6
1pm	1	1	1	1	3	6	6
2pm	1	2	1	1	4	6	7
3pm	2	3	2	2	6	6	7
4pm	2	3	2	2	6	6	7
5pm	2	3	2	2	5	6	7
6pm	2	3	2	2	4	4	6
7pm	3	3	2	2	4	5	5
8pm	3	4	1	1	4	6	4
9pm	3	3	1	1	3	6	5
10pm	2	3	1	1	4	6	4
11pm	2	3	1	1	3	4	3
12am	2	2	1	1	1	4	3
1am	2	2	1	1	1	2	2
2am	1	1	1	1	2	3	3
3am	1	1	1	1	1	3	3
4am	1	1	1	1	1	3	3
5am	1	1	1	1	1	3	3

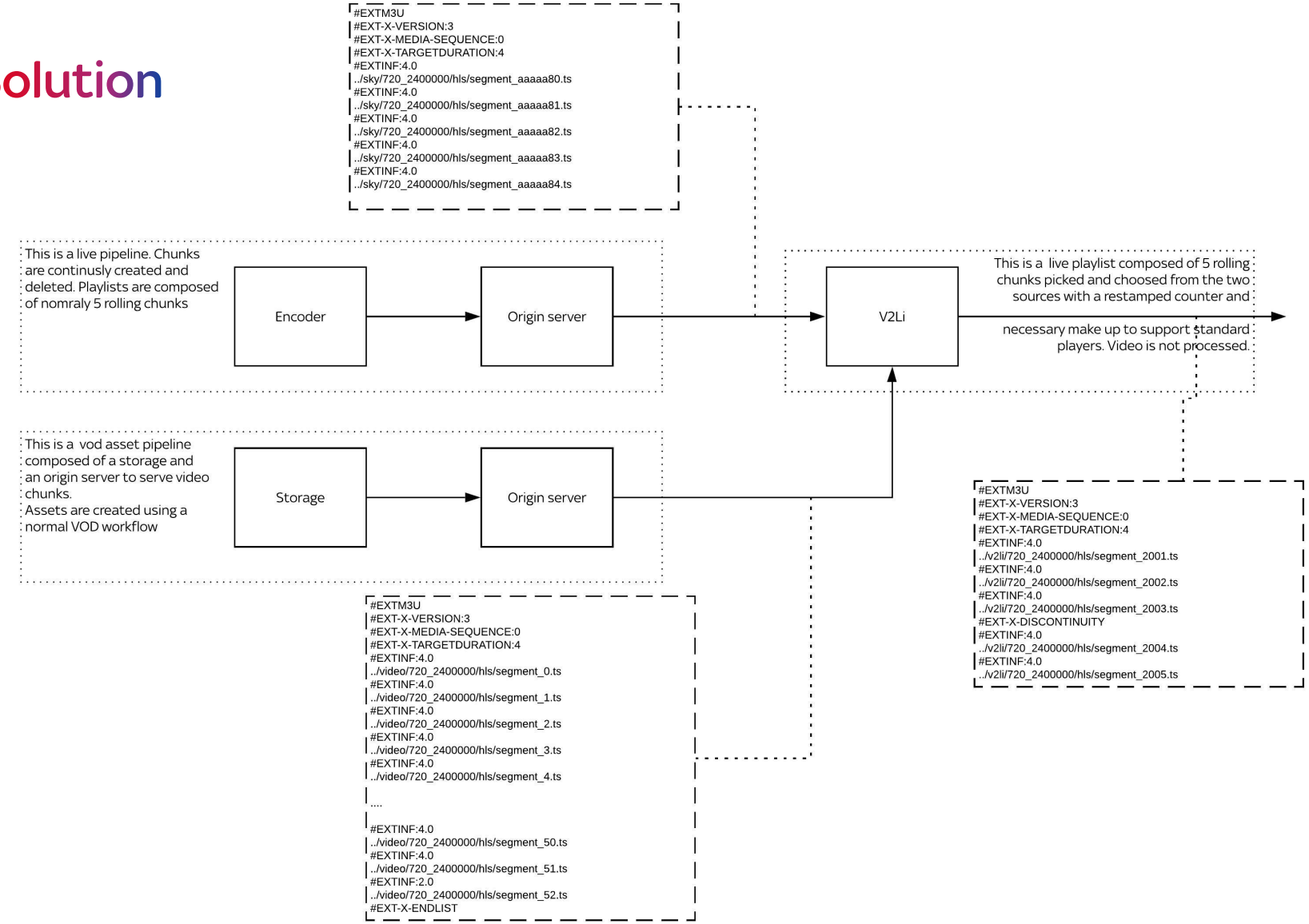
Across Sky OTT Channels

	Current Model	Hybrid Model	Reduction
Content Hours processed per week	3864	598	85%
Ave Concurrent 'live channels'	23	2.6	89%
Peak Concurrent 'live channels'	23	7	70%

Benefits

Reduce Opex	• Remove redundant processing of repeated content and content already in on-demand catalog. • Only run linear content processing chain during live events. • Share resource with on-demand processing.
Increase Resilience	• Serving from on-demand catalog greatly reduces playout dependencies. • For live events stand up multiple diverse linear processing chains.
Increase Video Quality	• On-demand content capable of high compression, increasing quality per Kbs.
Greater Business Flexibility	• Decoupled from satellite linear schedule, potential to create more proposition specific or personalized linear channels

The Solution



Key Points

Dynamic Linear Processing Chain

Managing per event live pipelines with Containerized transcode / package / encrypt that can be created and destroyed as needed

Managing Seamless On-Demand, Live Events and Interstitial Content

Vod2Li manifest manipulation to seamlessy present a linear channel to users made of various type of content

Managing Live Schedules

Levereging Legacy Broadcast Automation system to drive Vod2Li

Thanks