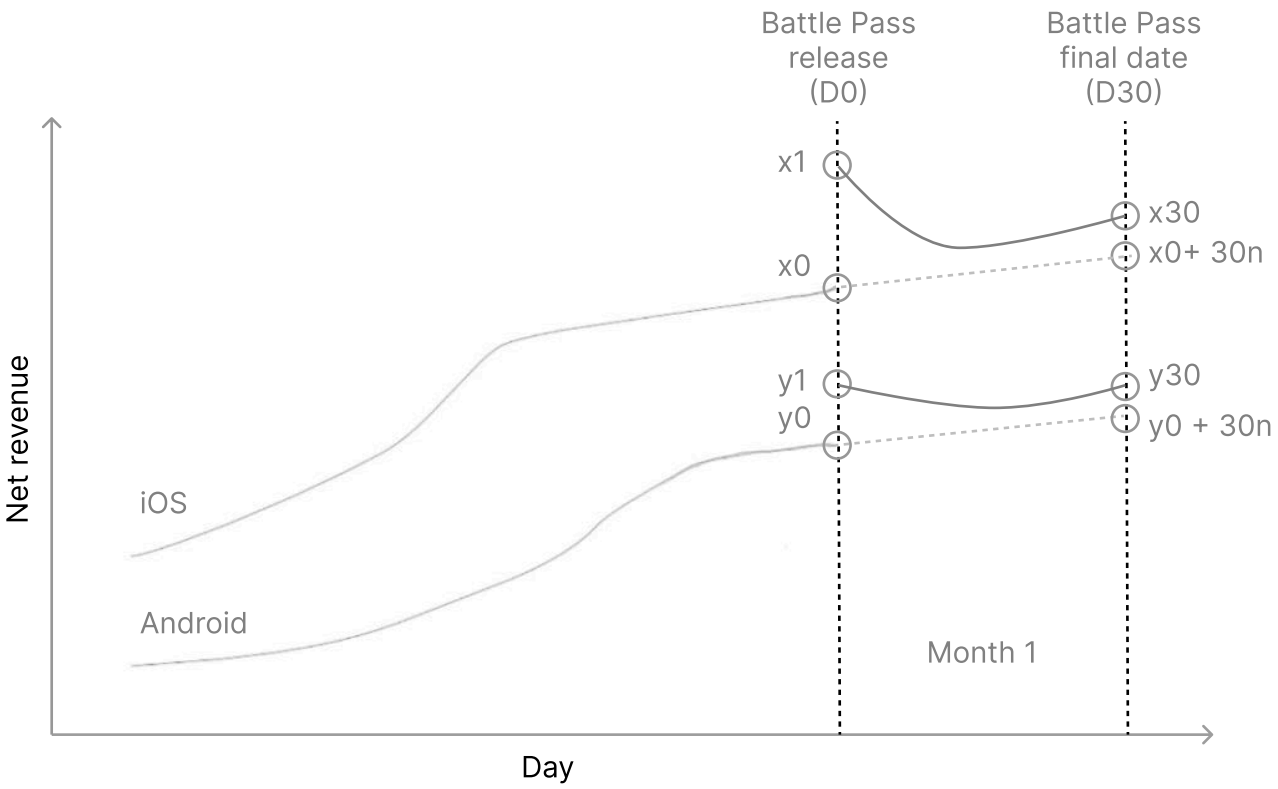
MODELLING IMPACT BEFORE BATTLE PASS RELEASE:



Above: Baseline revenue estimation post-launch of the Battle Pass

Assumptions:

1. No new monetization features apart from Battle Pass added since release of Battle Pass.
2. DAU has remained stable since launch., with roughly same number of players active on both Android and iOS devices.
3. Initial monetization features were made available to both Android & iOS devices simultaneously.
4. Small spikes observed at the end of the existing data points pre-release on both devices have been reasoned as occurring due to bugs/ platform-specific marketing that led to short unexpected spikes on both curves.
5.

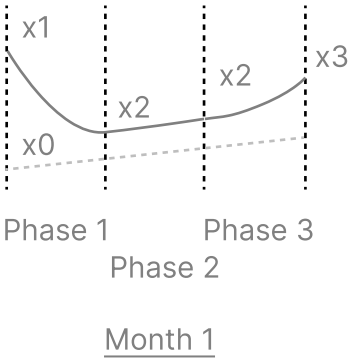
Let,
x1= pre-release ARPU (iOS)
now, assuming n= daily ARPU increase (since, Linear iOS revenue growth is visible)
So, Baseline avg. ARPU (iOS)= (x0+ x0 + 30n)/2= x0 + 15n (averaging between start point and assumed end point without battle pass release)

Let,
Baseline ARPU (Android) follow the same trend as the iOS curve.

Now, calculating actual avg. ARPU post release= (x1 +.....+ x30)/30 = xm/30 (iOS)

For iOS, Impact on daily ARPU= xm/30- (x0 + 15n)= avg. of battle-pass inclusive ARPU- avg. baseline ARPU

It is safe to assume that **x1- x0 > y1-y0**. This is because of the visible trend of higher spends among the iOS users, thus signaling a very high chance of higher conversion rates, thus resulting in consistently larger spikes in ARPU/ Net revenue.
Also, the Android curve and iOS curves will go through similar patterns albeit at different points of time.



Phase 1: Initial Revenue Spike & Decay

In the first phase after the Battle Pass release, we typically observe a sharp initial spike in ARPU followed by decay. The spike represents the immediate effect of players purchasing the Battle Pass, and the decay reflects the natural drop-off in purchases as the novelty wears off.
Decaying exponential function:
$ARPU1(t) = x0 + \Delta ARPU1 * e^{-\lambda 1 \cdot t}$
where,
x0= pre-release base ARPU
t= time frame of initial spike & decay (approx. days 1-10)
ΔARPU1= x1- x0 (initial revenue spike)
λ1= decay rate

Phase 2: Flatline

After the initial decay, we expect the ARPU to stabilize and flat line around a higher level than the baseline, reflecting continued but diminishing spending. In this phase, we assume that while players may continue to engage with the Battle Pass, the effect on ARPU is less pronounced compared to the initial phase.

Constant shifting function:
ARPU2(t)= x0 + (x2-x0)= x2
where,
x2= constant minimal shift in ARPU due to minimal purchases happening during the flat line
t= approx. days 11-20

Phase 3: Final Spike

As the Battle Pass approaches its end, we might see a smaller spike due to last-minute purchases (e.g., players rushing to unlock rewards before the Battle Pass expires). This could be modeled as a smaller exponential spike.

Exponential curve function:

$ARPU3(t) = x0 + \Delta ARPU3 \cdot (1 - e^{-\lambda 3 \cdot (t - 20)})$
where,
x0= pre-release base ARPU
t= time frame of initial spike & decay (approx. days 21-30)
ΔARPU3= highest spike point in final phase
λ1= decay rate

Post ARPU Impact model

Link