

# LTE-B

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# LTE-B is an enabling technology for many use cases

**Live Sport is our foundational use case to kick start the ecosystem**

**Many use cases will follow:**

- Live Sport PLUS (camera angles, team stats, telemetry)
- Real time emergency alerts
- Software and app updates, faster, cheaper and to the Wi-Fi limited nations
- Real time traffic and situation info for autonomous vehicles
- Mission Critical PTT
- Prepositioning of content for high quality commute viewing, new releases
- VR/AR and 360 game watching, be inside the Indy Car



# In July 2018, Telstra enabled LTE-B for live sports



## Network:

- Enabled across our LTE network – more than 8,600 sites covering 99.2% of the Australian population



## Bitrates:

- 720p (HD) via HEVC @1.5Mbps guaranteed for LTE-B users
- 576p (SD) for non LTE-B users



## Content:

- All AFL live games broadcast by Fox Footy Channel during regular season
- All Channel 7 Finals – Victorian region
- Expanding to:
  - Soccer – Feb '19
  - Rugby – May '19
  - Netball ~ July '20



## Devices:

- Samsung devices – S8, S8+, S9, S9+ , Note 8 and Note 9



## Application:

- AFL Live Official App  
- Australian Rules Football



# Our customers enjoy a superior video experience with LTE-B



## **Faster Start-Up Time:**

- On average LTE-B users have < 3 secs video start-up time
- 40% of non LTE-B users have > 6 secs video start-up time (high traffic scenario)



## **Better quality video:**

- 80% of Samsung devices streamed at 720p (HD)
- 75% of other non LTE-B enabled devices streamed at 576p (SD) at best



## **Longer Engagement:**

- +25% higher minutes per play for LTE-B users compared to other non LTE-B users indicating good viewing experience encourage longer viewing



# Customers can clearly see the difference

## MULTICAST VIA LTE-B



- LTE-B users experienced the highest bitrate (HD quality) delivered as a sustained stream

## UNICAST WITHOUT LTE-B



- Non LTE-B users had an inconsistent viewing experience with fluctuations of video quality.
- The bitrate varied up and down up to 100 times in a single session.



# LTE-B utilisation on the network has exceeded expectations



## Improved network efficiency:

- LTE-B kicks in once a threshold is met. On activated cells we observed ~12% of traffic carried via LTE-B to capable devices.

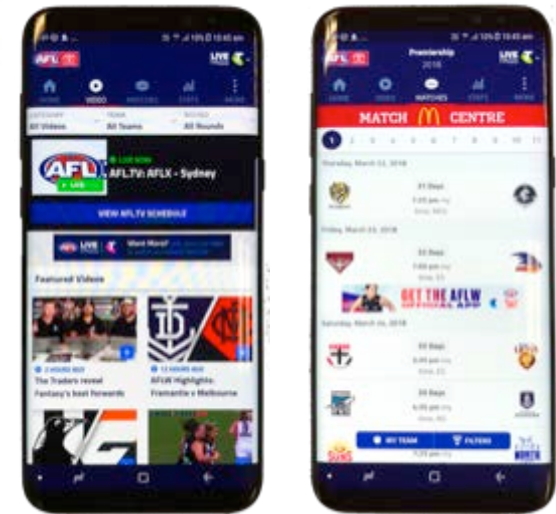


## Support consumption of live video on the network:

- Three months after launch we'd broadcast more than 50 games and live events, resulting in 43k streams to broadcast users equating to 4700hr worth of consumed video.



# The LTE-B business case can be justified with as little as 1% reduction in peak mobile traffic



# LTE-B requires the coordination of several elements



## Network Evolution & Coverage



- Network footprint
- Intelligent switching (MooD – Multicast Operation on Demand)
- Operational readiness

## Application Development & Enhancements



- Advanced analytics, authentication and charging model
- Digital Rights Management (DRM) and advanced codec support

## Device & Middleware Support



- Device enablement with middleware
- Standard approach for app development

## Content Rights



- Agreements with content providers on broadcast rights





# Beyond live sport, we are working to use LTE-B for the following applications



**Software Updates:** e.g. operating system & Fortnite game updates



**Mission Critical Communications:** e.g. joint enhanced situational awareness achieved through simultaneous broadcast of emergency notifications, video & data to first responders



**AR/VR:** e.g. enhanced stadium experience with 360 viewing and augmented digital content at concerts



**M2M / V2X:** e.g. guaranteed delivery of real time kinematics signals and other environmental data as the number of connected vehicles grows



# The industry needs to work together to grow the ecosystem and achieve scale



- ✓ Wireless Core & RAN Network Support
- ✓ LTE enablers (MBMS Gateways, Broadcast Service Centre)
- ✓ Key network support for network session continuity & Multicast Operation on Demand



- ✓ Chipset Support
- ✓ Middleware
- ✓ Devices integration and apps



- ✓ End to End Product integration
- ✓ Enabling Platforms: e.g. Mission Critical-Push To Talk, Video
- ✓ On device apps
- ✓ Content & Service Delivery

