LTE BROADCAST-REVOLUTIONIZING VIDEO DELIVERY IN MOBILE NETWORK

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MARKET TREND

INCREASED DEVICE CAPABILITY
› Larger and higher quality screens
› More memory and processing capability

CONTENT EXPERIENCES

INCREASING CONSUMER DEMAND FOR VIDEO SERVICES

GROWING MOBILE DATA TRAFFIC
› Mobile data traffic will grow 10 times by the end of 2019

10 BILLION MOBILE SUBSCRIPTIONS BY 2020

NEW BUSINESS MODELS EMERGING

INCREASING LTE DEPLOYMENTS
VIDEO IN MOBILE TRAFFIC

Mobile data traffic by application type (monthly ExaBytes)

>50% of mobile data traffic will come from video in 2019

Source: Ericsson (November 2013)
“Improving transmission efficiency and enabling new revenues for premium video content”

› LTE Broadcast, named eMBMS in 3GPP
  - Secure MNO’s business model for live premium content
    › Such high value content can always be distributed even at peak popularity, with LTE Broadcast
  - Enable new business models for premium content
  - Efficient use of LTE spectrum and network investments
BROADCAST VS. UNICAST
DIVERSE CAPABILITY WITHIN ONE NETWORK

**BROADCAST**
- Brings scalability and cost optimization
  - One data channel per content
  - Limited data channels and unlimited number of users
  - Offer popular services over dense areas
  
**UNICAST**
- Brings advanced personalized services
  - One data channel per user
  - Unlimited channels and limited number of users
  - Any content, any time, anywhere
USER CONSUMPTION OF VIDEO CONTENT

- **Broadcast**: <20% of content is applicable for eMBMS. These 20% of the content cope with up to 80% of the consumed Video.

- **Unicast**: Long tail and Video on demand (the other” 80%) can be consumed with unicast. These ~80% of video content is consumed by up to 20% of the consumers.

- **Push VoD (Broadcast or Unicast)**: For handhelds and “portable computing device” only limited types of content require synchronized viewing. Therefore, popular content can be pre-stored (operator control based on network conditions) in the device for the user that is viewing the content on-demand.
END-TO-END SOLUTION OVERVIEW

CONSULTING AND SYSTEM INTEGRATION SERVICES

- Software upgrade
- New network element

Highly capable devices:
  - Processing capability
  - Video quality
  - Content storing/caching

OSS-RC/ENIQ-S

eNB/MCE

MME

MBMS GW

BMC

CMS

BDC

CONTENT SERVICE

- Live encoder
- Satellite feeds
- Live feeds
- Content stores
- CDN feeds

File delivery

Live content

Live feeds

Content stores

CMS
NETWORK BENEFITS

MBSFN gain

Improved spectral efficiency

Number of Channels

› Spectral efficiency of 2.6 b/s/Hz achieved
  • For up to 1km ISD in urban indoor environment
› 5.2 Mbit/s @ 20MHz of spectrum, with 10% eMBMS radio resource allocation
› Corresponding to 5 Sport channels using HEVC
Qualcomm have >85% of the LTE chipset market
INNOVATIVE SOLUTION WITH THREE COMBINED NEW TECHNOLOGIES

**eMBMS**
Evolved Multimedia Broadcast Multicast Service (3GPP standard)

Enables mobile networks to offer broadcast/multicast services dynamically, reducing the cost of service delivery over the radio network and for backhaul.

**HEVC**
High Efficiency Video Coding

New video compression standard promises to half the bandwidth required to transport video content compare to today’s leading implementation of MPEG-4 AVC.

**MPEG-DASH**
MPEG-Dynamic Adaptive Streaming over HTTP

Supports common use of a player on device and a live encoder head-end system for both unicast and broadcast, reducing operational cost and maximizing infrastructure usage.
LTE BROADCAST ENABLED DEVICES

NETWORK
E2E SOLUTION
MBSFN
SERVICE DELIVERY
ENABLED DEVICES
GEO DYNAMIC
Services activate in defined area in the LTE network

TIME DYNAMIC
Services activate for scheduled duration
21:00 pm - 02:30 am
08:15 am - 05:15 pm

QUALITY DYNAMIC
Bitrates are dimensioned to the service requirement
700 kbps - 1 Mbps

CHARGING DYNAMIC
Premium content services and guaranteed user experiences open up new business models for media services and content packages
OFFER YOUR SERVICE DYNAMICALLY
LTE BROADCAST IS DRIVEN BY A LARGE NUMBER OF USE CASES

- **Live Broadcasting**
  - In-venue
  - Nationwide or Regional Coverage

- **Content Caching**
  - Cached Media

- **Data Offload**
  - Over-The-Air (OTA) Software, Firmware, Application Updates

- **M2M**
  - Digital Signage
  - Connected Car

- **Emergency Service**
  - Public Safety Announcement
  - Emergency Notification
LTE BROADCAST FOR HOME

ENABLED STB FOR VOD
PUSH AND LINEAR TV
A CLEAR LEADER IN LTE BROADCAST

World first session call on commercial network
Telstra (2013-10-27)

World first live stadium trial
Telstra (2014-01-31)

Europe’s first live trial
Vodafone DE (2014-02-22)

Netherland’s first live trial
KPN (2014-04-13)

US’s first live trial

Poland’s first live trial
Polkomtel (2014-08-30)

Hong Kong’s first live trial
China Mobile HK (2014-09-10)

Connected TV Award: Outstanding Technology Innovation (2013-05-22)
Telecoms.com LTE Award: Most Innovative LTE Application (2013-06-25)
CSI Award: Best Mobile TV Technology (2013-09-25)
Telecoms.com Award: Pushing the limits - Mobile (2014-02-24)
Connected TV Award: Best TV on the Move Service (2014-03-19)
WORLD’S FIRST LTE BROADCAST COMMERCIAL NETWORK TRIAL WITH TELSTRA

› Telstra and Ericsson made the world’s first LTE Broadcast session in a commercial LTE network
› Ericsson e2e LTE Broadcast system Release 13B
› Qualcomm’s MSM8960 based devices

References:
Telstra Exchange Blog
Ericsson Press Release
“This trial proved that the LTE Broadcast solution worked effectively in a stadium environment. Instead of requiring around 2GB of data per user to stream one content channel of the game, we were able to serve all LTE Broadcast users, with 3 concurrent streams requiring a total of around 6GB for the entire broadcast, which clearly demonstrates an efficient use of spectrum. This outcome has great potential to provide new services to attendees at sporting or other entertainment events and to lift the user experience to a new level.”

- Mike Wright, Telstra Executive Director for Networks
Verizon and Ericsson take pole position at Indy 500 with LTE Multicast on May 25th, 2014

First US demonstration of LTE Multicast over commercial 4G LTE network
- Live video from trackside and in-car cameras along with real-time information from the race
- 4 video streams/channels
- 75 devices and 20 tablets

More info can be found on Verizon’s blog and YouTube
Polkomtel and Ericsson tested the Poland’s first live LTE Broadcast on August 30, 2014

- Opening game of 2014 World Volleyball Championship on National Stadium in Warszaw
- 300 smartphones (Samsung Note 3)
- 4 Video streams
- 3 mobile cells and 30% of Radio capacity

More info can be found in article