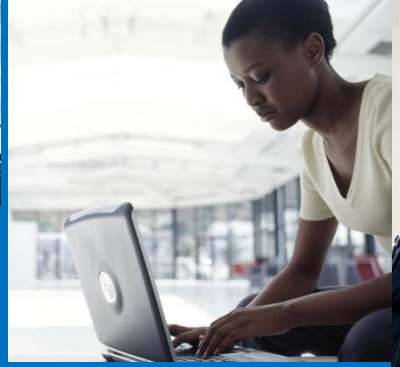
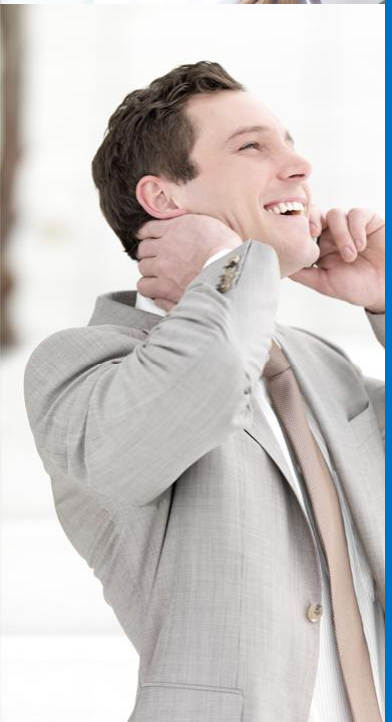
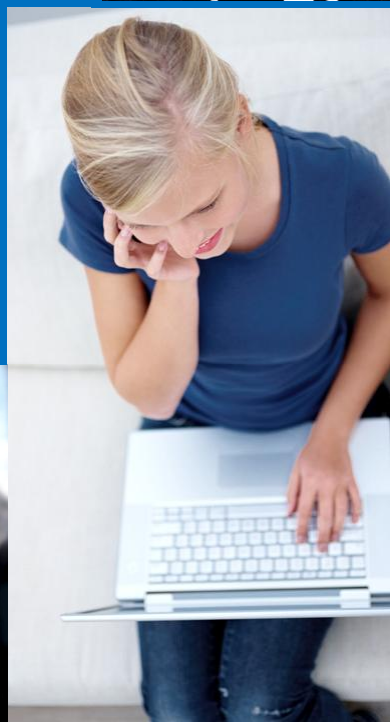


# Samsung's View on Release 12 Items

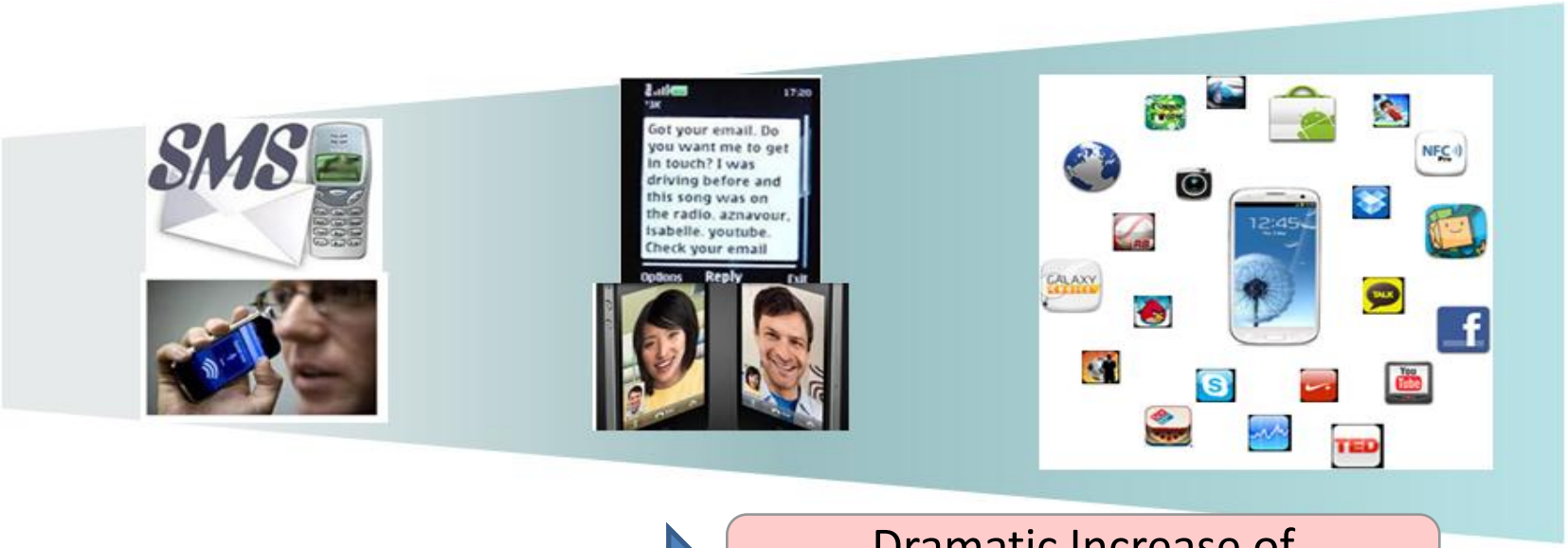
## Samsung Electronics





# Problems We Face

- Users enjoy a variety of data applications and services.




Result → Dramatic Increase of Data Bandwidth Demanding

**1 QoE Decrease**

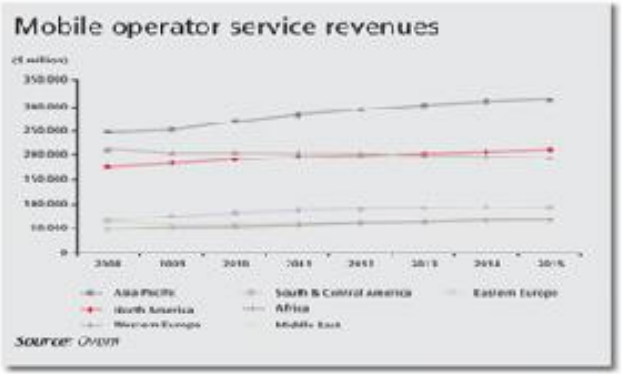
**Users experience network congestion**

**2 Cost Increase**

**CAPEX Increase**

**OPEX Increase**

**Revenue Saturation**



# Focus Areas for Release 12

**QoE Improvement**

**Cost Reduction / Revenue Increase**

**Improve for Delivery of Applications**
Better understanding of application and network

- **User Plane Congestion management (UPCON)**
- **Application specific Congestion control for Data Communication (ACDC)**
- **ABC, CNO**, PCP, …

**Features for New Market Potential**
New service enabler

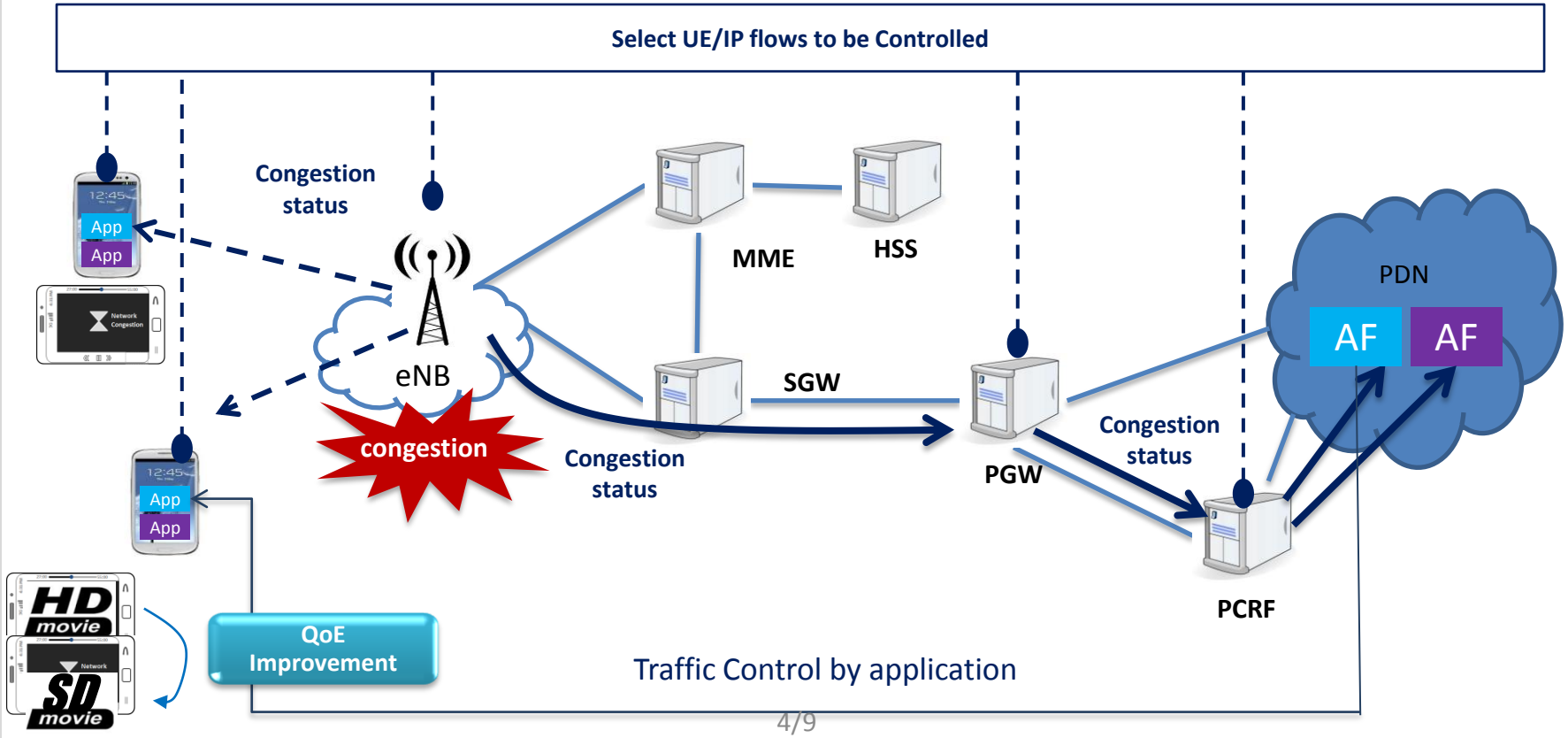
- **Machine Type and other mobile data applications Communications enhancements (MTCe)**
- **ProSe, GCSE_LTE**, P4C, …

**Increase Available Bandwidth**
Better offloading / Reduce backhaul usage

- **WLAN Network Selection for 3GPP Terminals (WLAN_NS)**
- **LIPA Mobility and SIPTO at the Local Network (LIMONET)**
- SaMOG, WORM, NBIFOM…

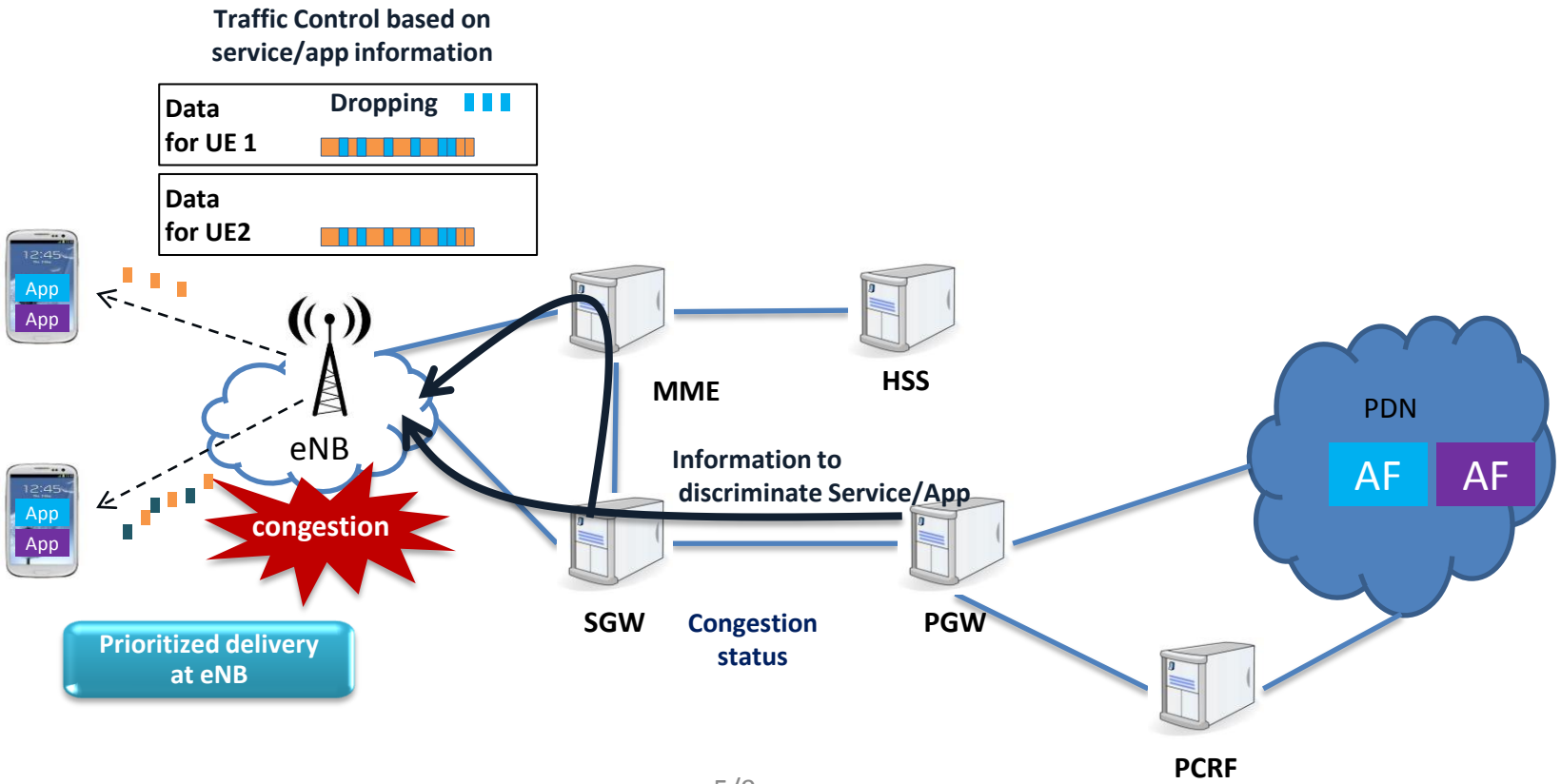
# RAN Congestion & Traffic Control [1/2]

- Example: QoE improvement by considering network status at application/service
  - RAN congestion status notification to UE/AF
  - RAN/PGW selects flows to be controlled
  - Traffic Control by application/service based on the notification



# RAN Congestion & Traffic Control [2/2]

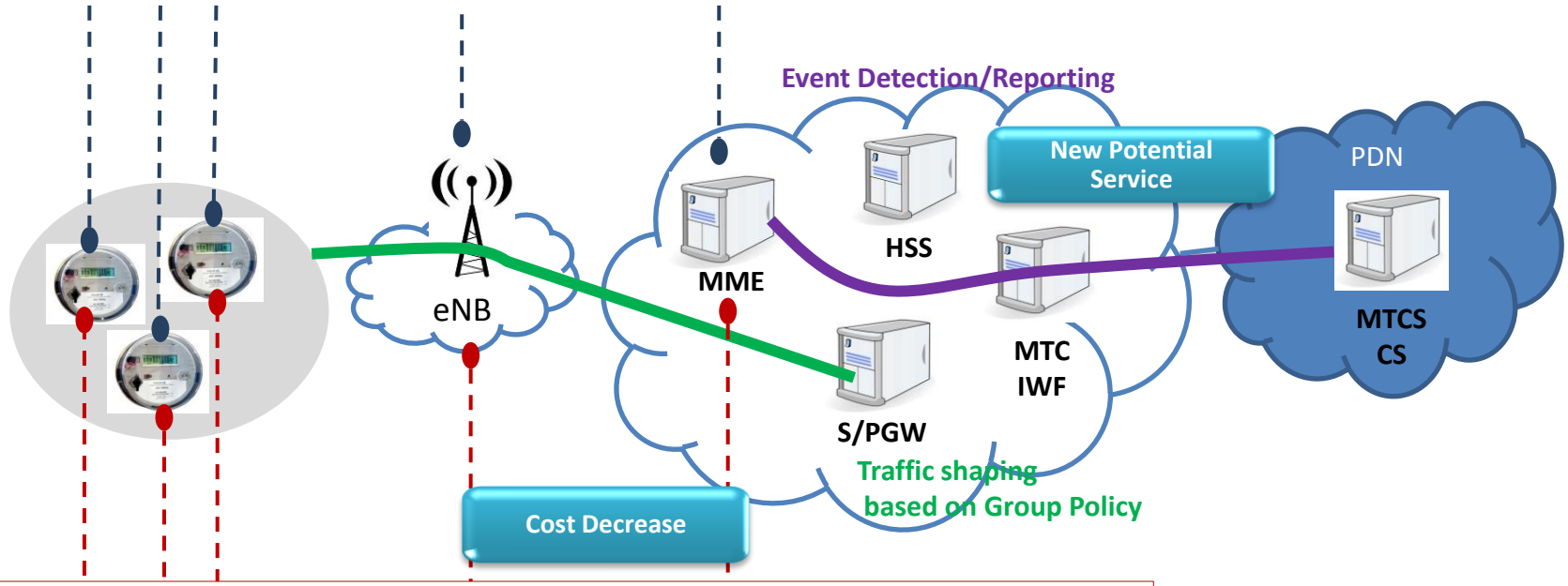
- Example: Prioritization of Application/Service by traffic control at RAN node
  - PGW/PCRF provide Information to discriminate flows for Application/Service in eNB
  - Traffic control at eNB based on the information from PGW/PCRF and priority of application/service



# MTCe

- Revenue increase by
  - Enabling new potential service, e.g. Device Triggering/Group Messaging
  - Cost decrease from Signalling optimization
- Enhancing MTC devices by considering MTC-specific requirement
  - Example: Improvement of battery life of MTC/data centric device

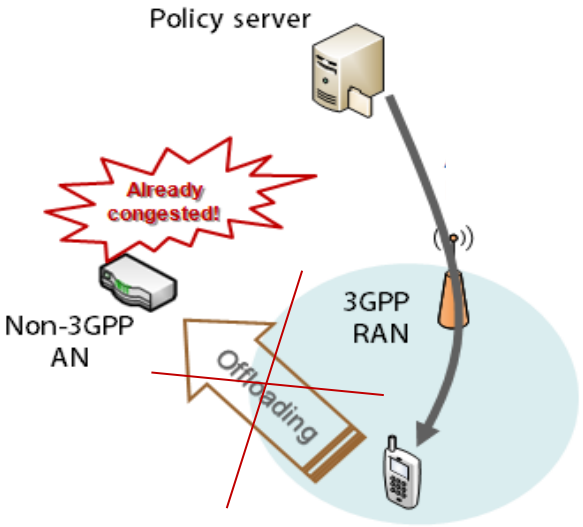
**Example: UE Battery Saving with Long DRX Configuration for MTC/Data Centric Device**

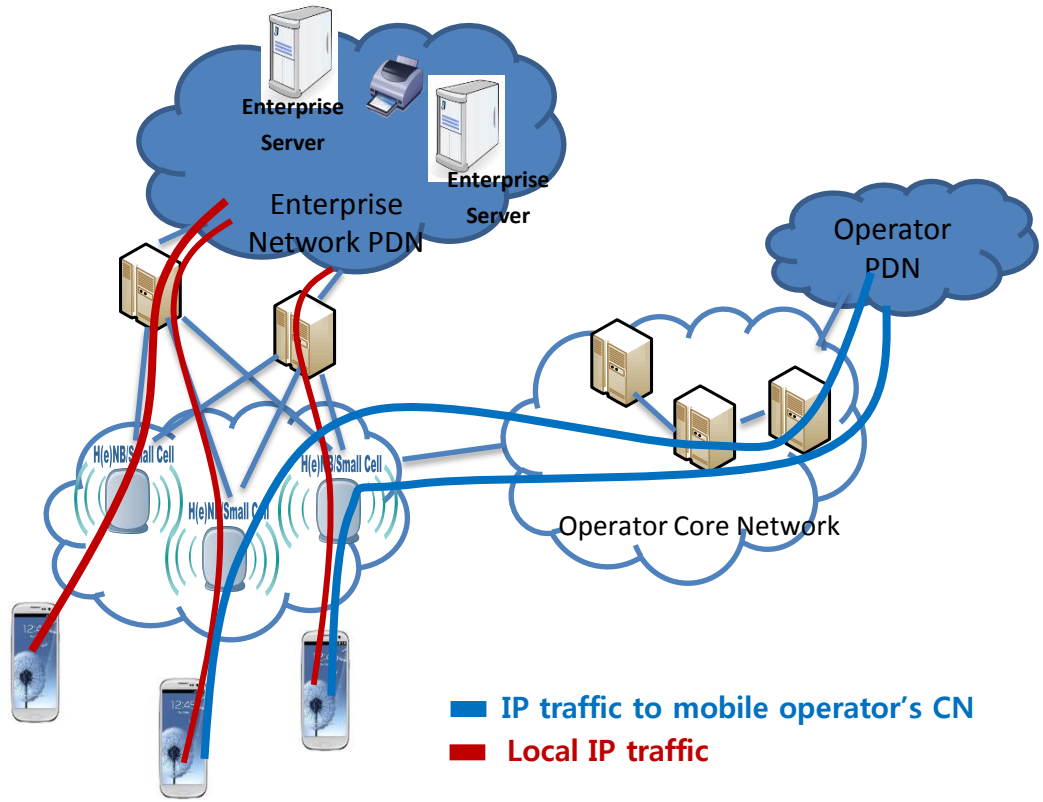



**Example: S1AP Signalling Reduction for loss/delay tolerant frequent small data**
**RRC & S1AP Signalling optimization for infrequent small data**

# Traffic Offloading with WiFi/LGW

- Expanding the use of the available bandwidth by
  - WiFi offloading considering the load (congestion) on WiFi & 3GPP EPS
  - Supporting the mobility of offloaded traffic via LGW



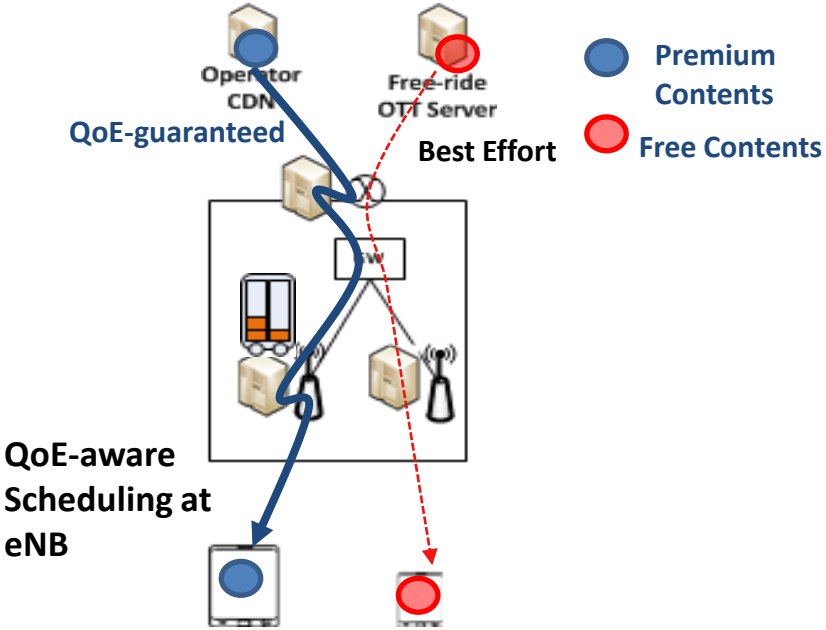




Policy for 3GPP selection
- Traffic/service/application
- Priority: Non-3GPP >> 3GPP
- condition on non -3GPP load

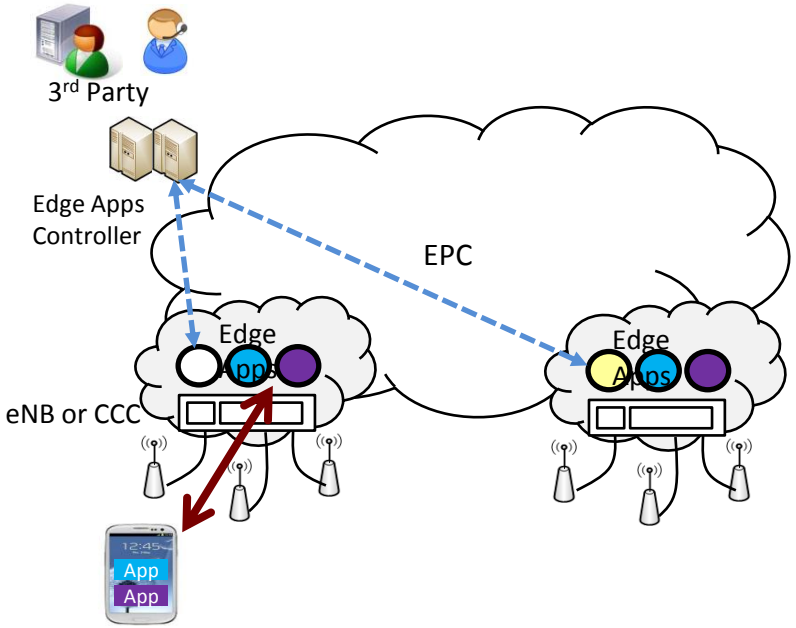
**Expand the usage of Bandwidth**

# Which Areas Need Further Work?

- For more efficient use of resource and better user experience,
  - Services on Edge node (e.g. eNB) should be studied
    - Tighter interaction between Application and RAN node is possible.
    - E2E delay can be reduced and the backhaul usage can be reduced.
    - Examples shown below:




Video Traffic Optimization




Application Server on Edge Node

# Summary

- Prioritized Items by Samsung
  - User Plane Congestion management (UPCON)
  - Application specific Congestion control for Data Communication (ACDC)
  - Machine Type and other mobile data applications Communications enhancements (MTCe)
  - WLAN Network Selection for 3GPP Terminals (WLAN_NS)
  - LIPA Mobility and SIPTO at the Local Network (LIMONET)

- For future releases (after Release 12)
  - 3GPP Architecture enhancement should be studied to support services on the edge nodes