

# Towards the Gigabit era

## Orange's view



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**Digiworld summit, October 17<sup>th</sup> 2015**

# a strong market demand for broadband services

reflected in Essentials2020 ambition

customer request: speed and volume

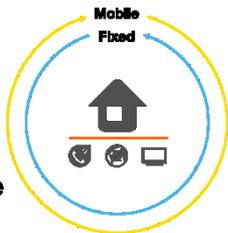
  
**x3 the average data throughput on all our networks**  
by 2018

**+50%**  
annual mobile data traffic



market trends: broadband quad-play and convergence

**Conquering European households through convergence**



Share of convergent BB customers

45% in 2014

>60% in 2018

network quality contributes to customer experience

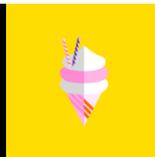
  
Powerful and reliable networks



and on the move



Towards zero drop call



more and more demanding user requirements for broadband services across all our footprint

# a strong market demand for broadband services

reflected in Essentials2020 ambition

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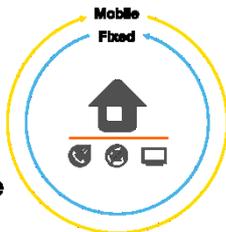
  
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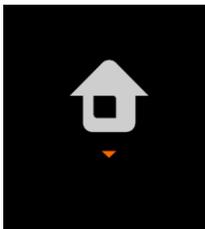
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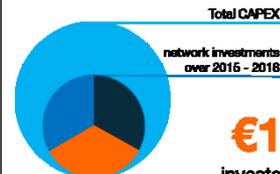
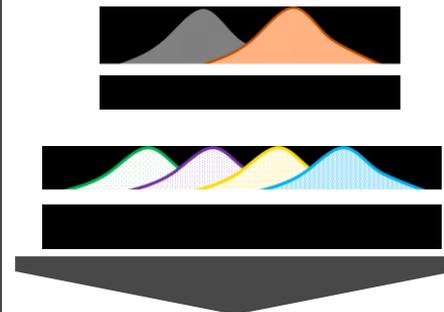
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Towards zero drop call



**€15 billion**  
invested in our networks  
2016 - 2018

**€5bn**  
in mobile access

**€4.5bn**  
in FTTH

# one size doesn't fit all in broadband

various existing assets, density circumstances, and competitive challenges

## technologies

- FTTHome
- FTTdp + G.Fast
- FTTC + VDSL
- FTTC + cable
- hybrid DSL + LTE
- LTE
- satellite

with increasing performance

## deployment models

- own deployment
- shared deployment
- rental
- unbundling

# increasing performance on wireless solutions

100 Mbps mean rate should be available in 2017  
allowing usage for home internet access

## LTE performance increase

- max throughput increase with carrier aggregation: up to 450 Mbps max theoretical with 60 MHz radio channel in coming years
- mean throughput is even more important, also increases but remains 1/4 of maximum
- closing this gap max-mean throughput is a topic for study in 5G

## LTE for fixed

- Accelerate deployment of broadband services in areas with no wireline (e.g. AMEA)
- Upgrade path for Wimax assets
- Piggyback on LTE networks already deployed for mobile usage (e.g. Europe)
- Adequate spectrum is a prerequisite, while triple play TV to be served via other networks (e.g. satellite)

## hybrid ADSL-LTE access

- Market target is “low bit rate” ADSL user base
- LTE used to “boost” Internet throughput, while triple play TV is to stay on ADSL
- Significant improvement in Internet upstream bit rate (typically 10 times faster than ADSL)
- Internet downstream bit rate can reach more than 30 Mbit/s

# a multi-factor decision tree for home access

leading to different trade-offs over time

dense urban



ADSL



FTTC/VDSL



FTTC/VDSL  
FTTH

sub urban



ADSL



hybrid LTE/xDSL  
LTE



FTTC/VDSL  
hybrid LTE/xDSL  
LTE

rural



ADSL



ADSL  
LTE



hybrid LTE/xDSL  
LTE

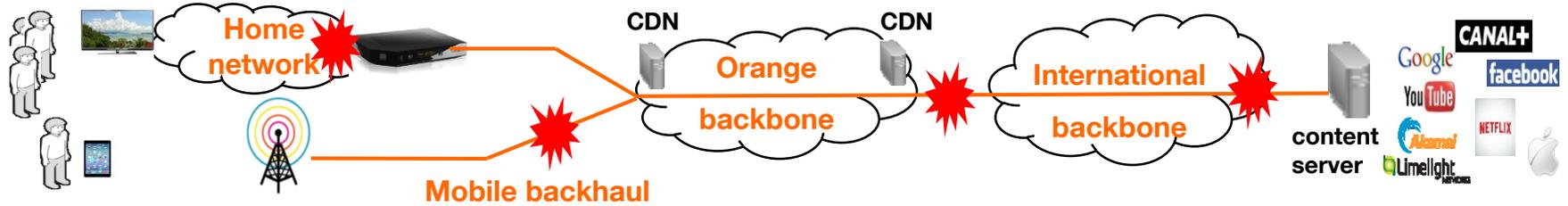
best trade-off between end-user throughput, time-to-market and cost



# overall customer experience

results from end-to-end performance and quality of service

## the “Quality of Experience” chain & potential pain points



### home network

- current technologies (Wifi, Power Line Communications) limited to tens of Mbps (few hundreds max)
- new technologies needed (Wifi 802.11ac, thin Giga Ethernet cable, thin plastic fibre)
- home network management tools needed

### Backbone networks

- because data traffic continue to increase ~50% / year
- Extensive use of fibre in mobile backhaul
- Migration to all-IP
- 100 Gbit/s in backbone networks

### Video traffic optimisation

- Above 50% of Internet traffic will be video and optimized through Content Delivery Networks (CDN) by 2017\*
- Orange is deploying CDN for own usage and to offer its capacity to content providers

\* source Cisco

## in summary



# Thank you

