Content strategies in a socially connected world: production, distribution and protection

Orange: towards an efficient content management

Eric Gourdin – Orange Labs
Sept 20th, MIT Workshop

agenda

the digital world is changing our lives

7 billion devices will be connected by 2015

Human Resources 2.0

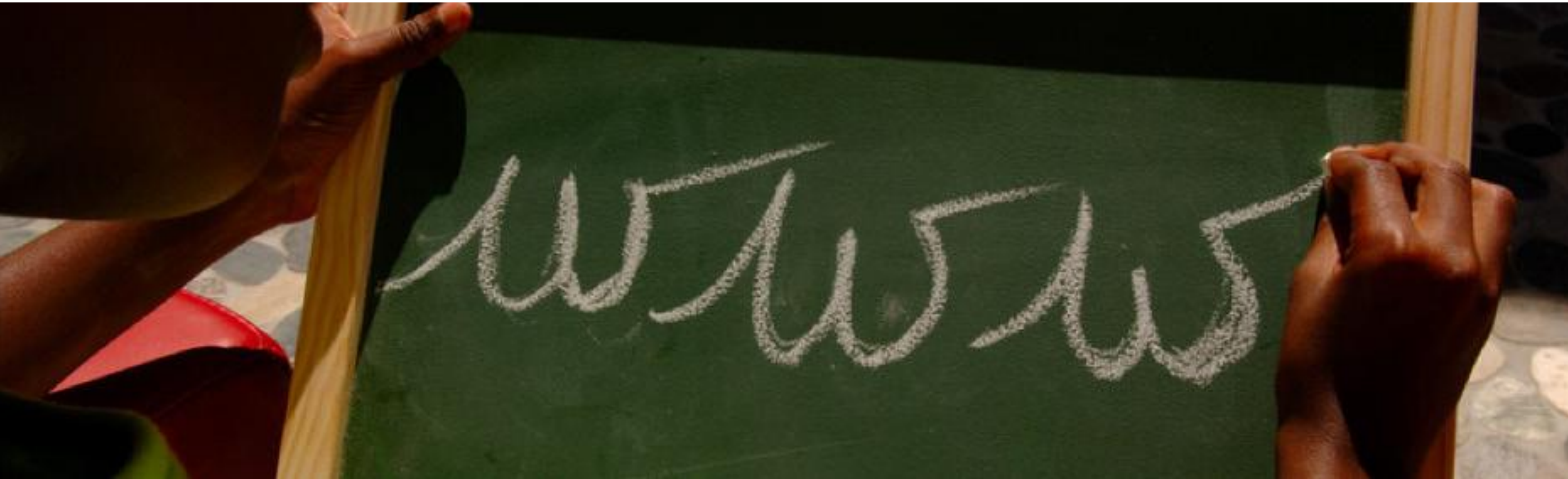
80% of businesses hire through social networks

exchanging views with the world

64% of internet users share opinions on the Web

600 million profiles

Facebook is the the 3rd largest “country” in the world, after China and India…



with life turning increasingly digital, we strive to be the creative operator for all

universal

giving more people access to digital technologies and new digital practices than any other

creative

offering the innovations of the future – those that will permit new usage

mindful

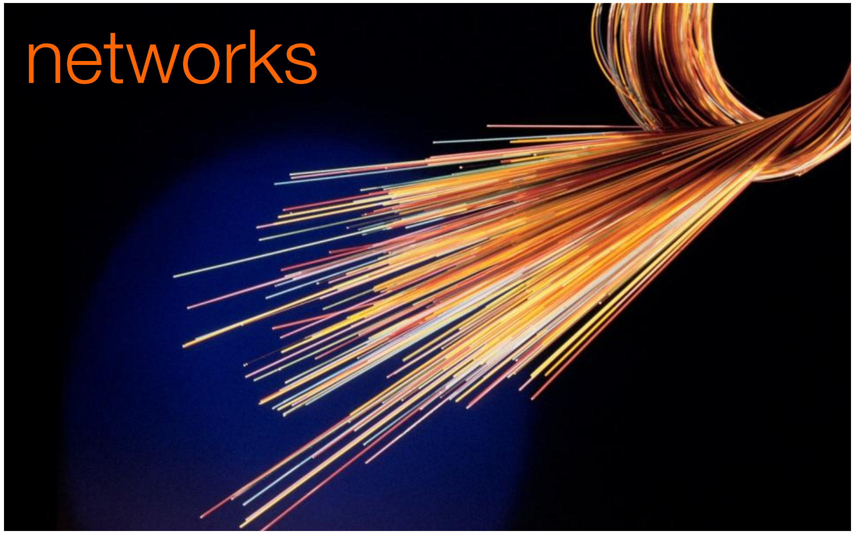
helping our customers with absolute simplicity, transparency and security across the world

getting to know us

216 million customers worldwide…

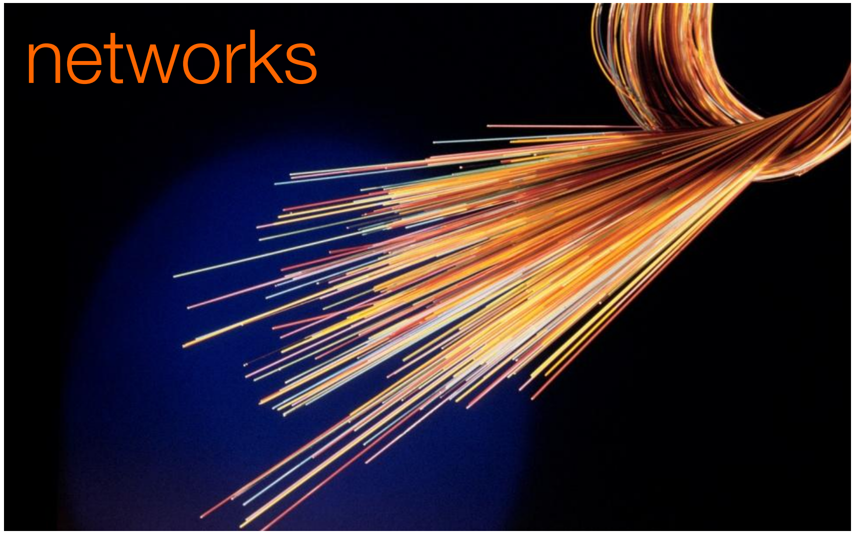
our Group provides services for residential customers in 35 countries and for businesses in 220 countries and territories

…and 169,000 employees at your service



mobile

- 35 countries
- 157 million customers worldwide



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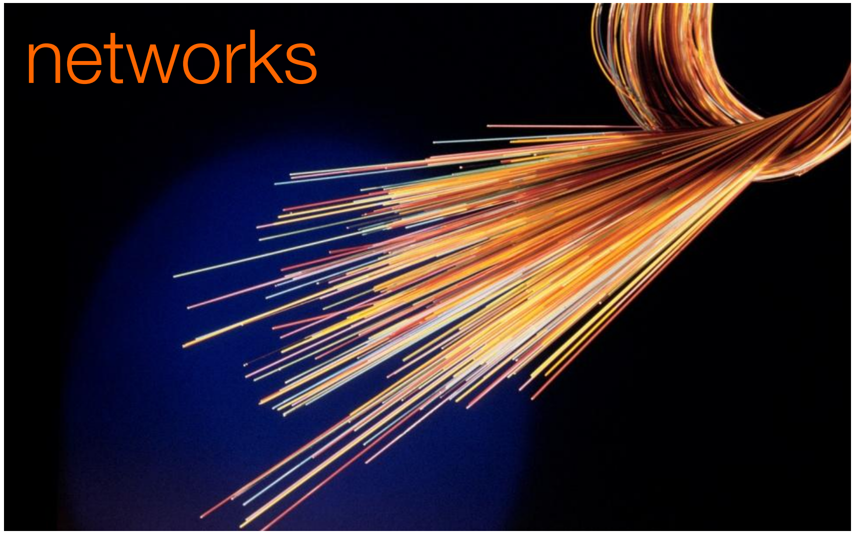
businesses

- 3,750 multinational businesses
- 2.7 million professionals, and small, medium and large businesses in France
- 28 dedicated customer service centres



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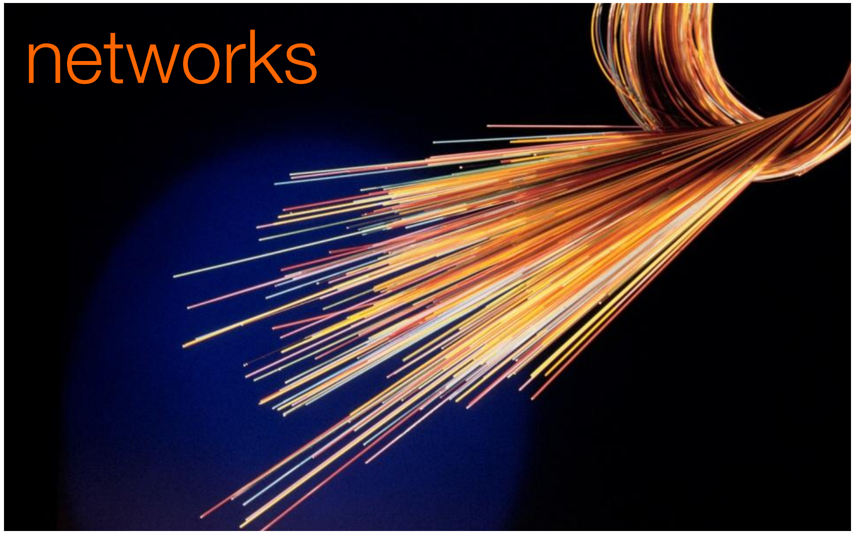
internet and fixed-line

- 9.2 million Liveboxes
- 8.3 million internet telephony customers
- 4.1 million internet TV customers

networks



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networks

- 400,000 km underwater cables – almost 10 times the Earth's circumference
- 3G networks in 23 countries

key financial indicators for 2010

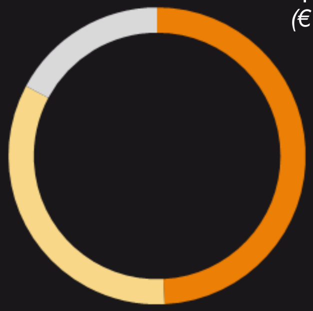
€45.5 billion
turnover

€4.9 billion
net profit

€1.40
dividend per share

turnover broken down by region

turnover broken down by activity



innovation is our strength

expertise

7,892 patents in our portfolio
327 patent applications filed in 2010

investments

€845 m invested in 2010
1.9% of sales

rewards

- 2011 award for Best Mobile Technology for Emerging Markets
- 2010 award for Best Technological Advance in Mobile Telephony
- 2010 award for Best Project Management (Orange Business Services)

3,500 employees working on innovation

as for tomorrow…

your mobile can start your car and simplify your purchases

NFC

your house can become smart

Livebox

your grandchildren living 6,000 miles away can whisper in your ear

high definition voice

you take part in your conference calls by the swimming pool

4G network

it's like you can pick up Nadal's aces from your living room carpet

fibre optics

you are able to store your files in a cloud…

Cloud Computing

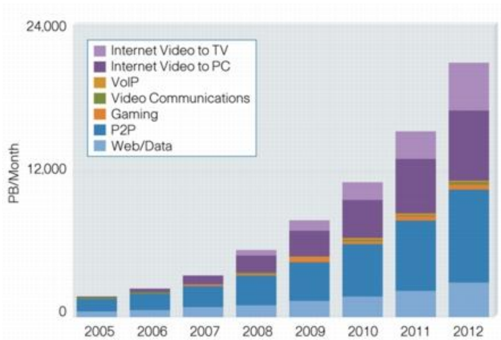
Orange CDN strategy

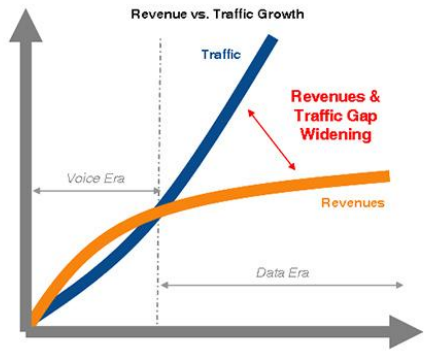
developing the networks of the future

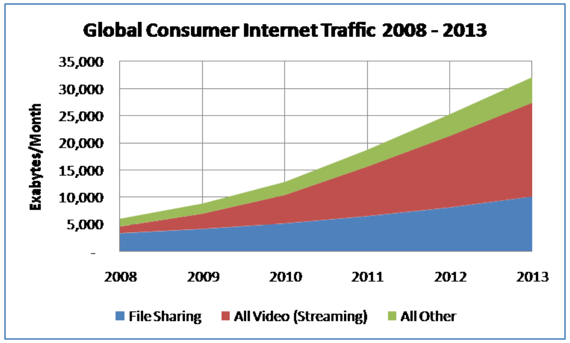
the challenges ahead

- respond to the massive increase in traffic: by 2015, we expect the standard level of mobile data traffic to have risen by 26 times
- expand coverage and increase our speed to keep pace with the digital revolution
- constantly improve the quality of our services
- renew our infrastructures while respecting the environment

Orange's position (similar to other telcos)





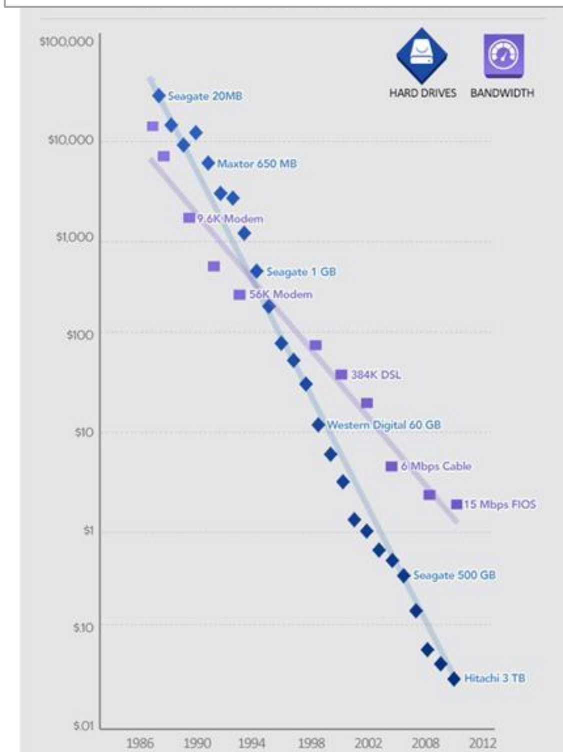


- to face these challenges:
  - upgrading constantly the bandwidth is no longer a solution
- there is a clear need to disseminate the contents closer to the final users:
  - essentially for most « popular » contents
  - « closer » = inside the telco network
- several objectives:
  - save bandwidth in our core and backhaul network
  - enhance the QoS experienced by our customers
  - provide new services, explore new markets,…

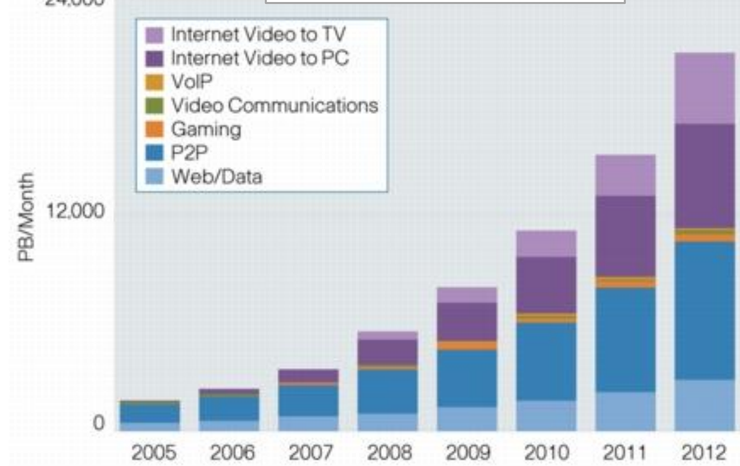
Orange’s strategy on CDN

- main driving forces:

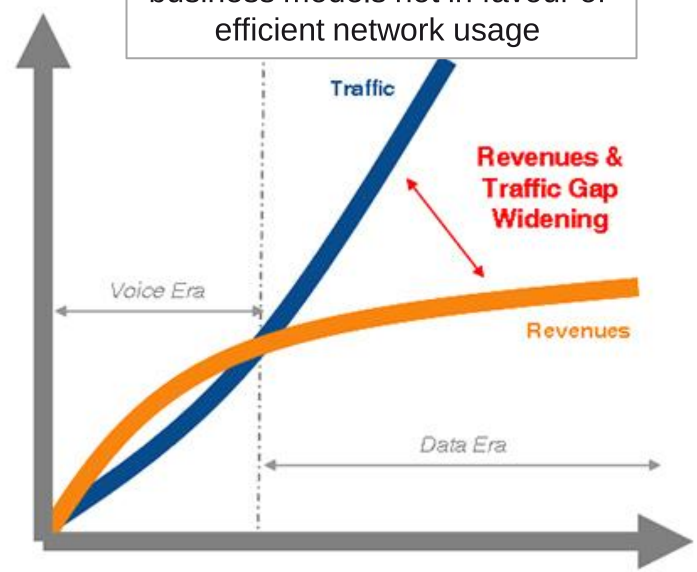
ratio bandwidth vs storage cost
more and more in favor of storage



video traffic increasing



business models not in favour of
efficient network usage

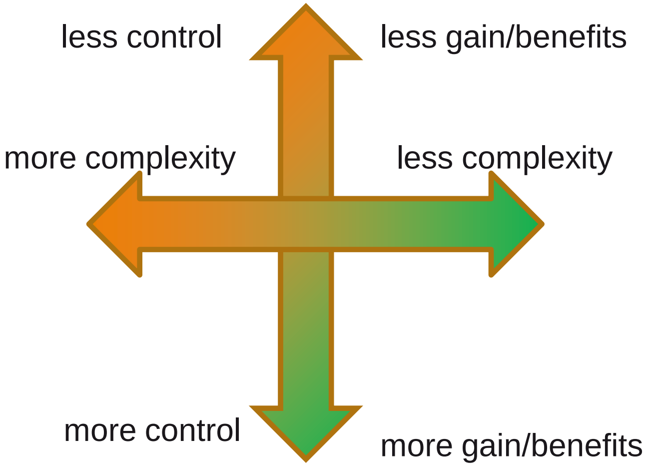


Orange's strategy on CDN

- Several options/questions:
  - rely on a CDN pure player, or
  - manage or deploy own CDN solutions ?

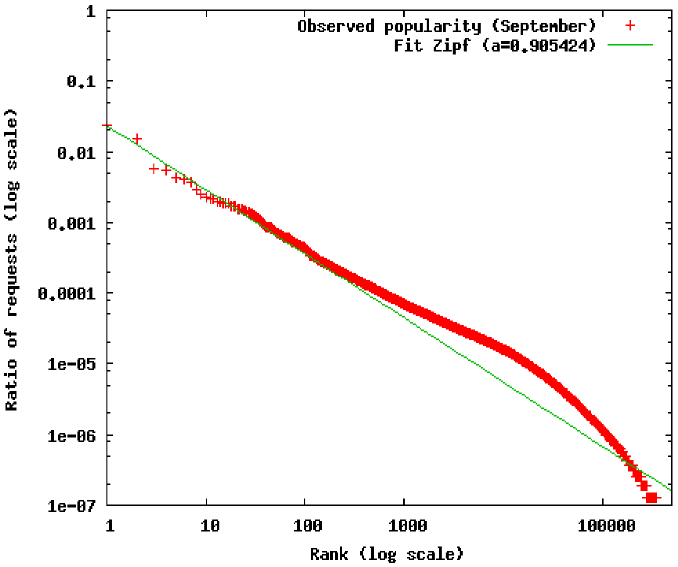
  - use transparent caching, or
  - rely on fully managed CDN ?

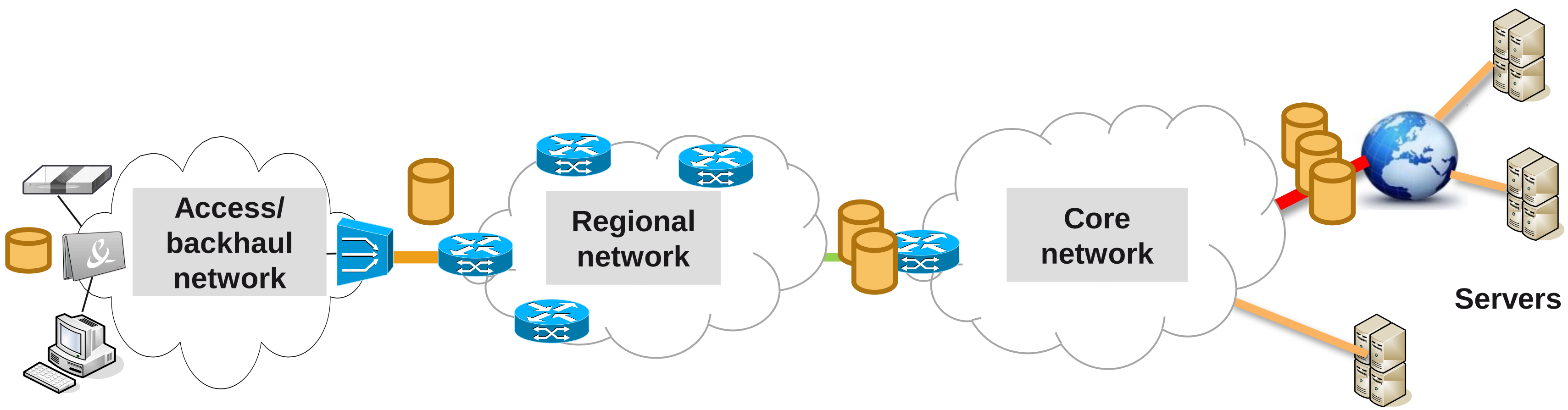
  - deploy unique CDN/caching solution, or
  - adapt to each specific market ?
- All these questions are currently addressed by Orange…



future on CDNs

- many difficult questions: research can help
  - how to deploy efficiently a caching solution ?
  - predict popularity distributions, cache hit ratio (given replacement policy),…
  - where to locate the caches, capacities, traffic redirections,…





future on CDNs

- medium/long term trends:
  - **CDN interconnection**
  - how to operate jointly several CDNs

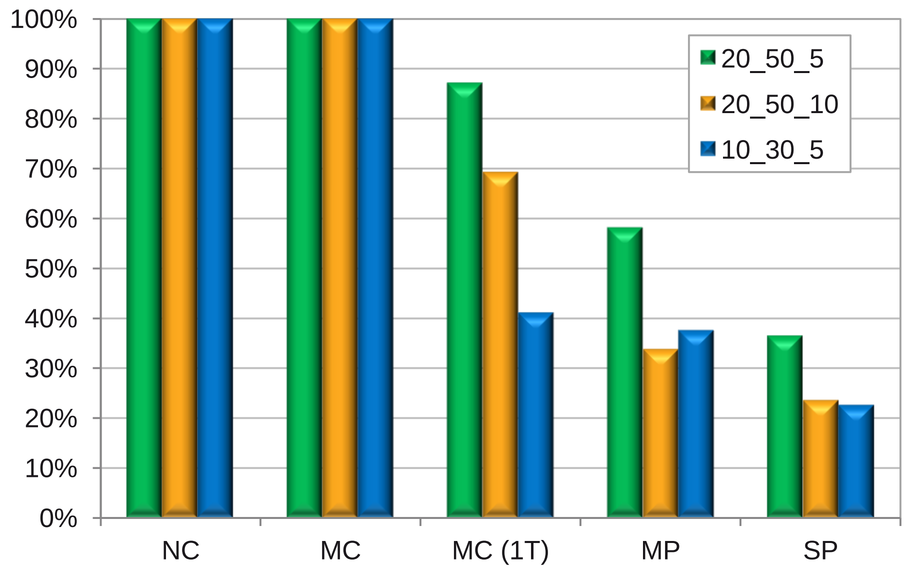
  - **cooperation between telco and CDN pure players**
  - find joint ways to improve traffic conditions for content delivery
  - for instance through different content naming (ICN networks)

  - **mobile broadband traffic**
  - adapt solutions to mobile networks

the Network Coding added-value

Orange's position regarding NC

- In fixed networks:
  - throughput gain not always very clear



NC: Network Coding
MC: Multicast
MC (1T): Multicast on a single tree
MP: Multi-Paths (unicast)
SP: Single-Path (unicast)

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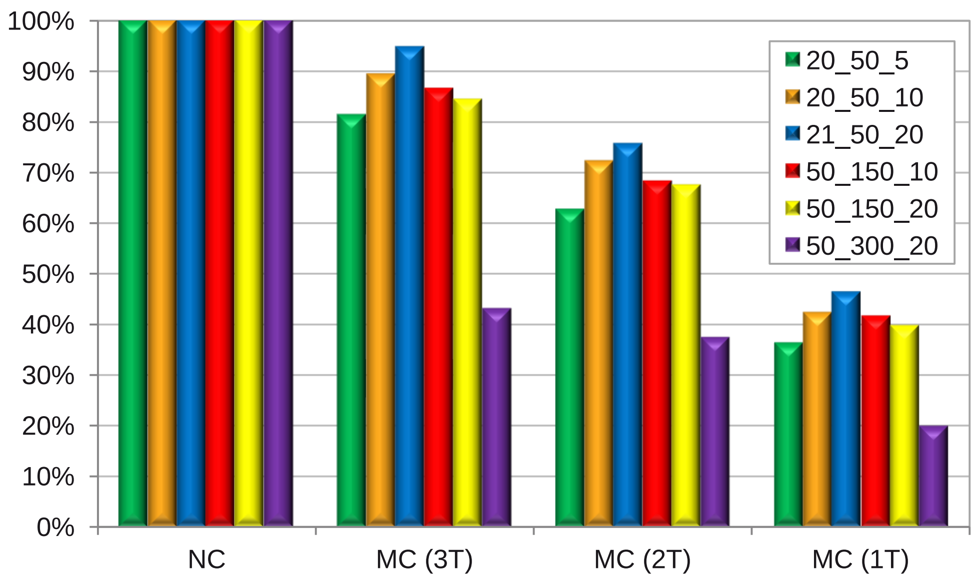

NC: Network Coding
MC: Multicast with
(3T): three trees
(2T): two trees
(1T): one tree

Orange's position regarding NC

- In fixed networks:
  - throughput gain not always very clear

- pros:

  (+++) robustness (against failures, uncertain demand pattern,…)

  (++) improved QoS/QoE

  (+) relative ease of implementation

- cons:

  (-) slight overhead (coding/decoding)

  (--) additional enabler (deployment cost)

  (---) complexity of management (difficult to track individual flows)

  (---) legal issues (can we code together any content ?)

Orange's position regarding NC

- In mobile networks:
  - probably much gain to expect from NC
  - very promising results by MIT/RLE
  - more technical issues to consider…
  - necessity to combine with global CDN strategy

Orange’s position regarding NC

- conclusions:
  - still unclear the potential benefits vs cost/risk
  - theoretical results won’t bee enough to convince managers ;-)
  - don’t forget the « operational » point of view !

thank you