

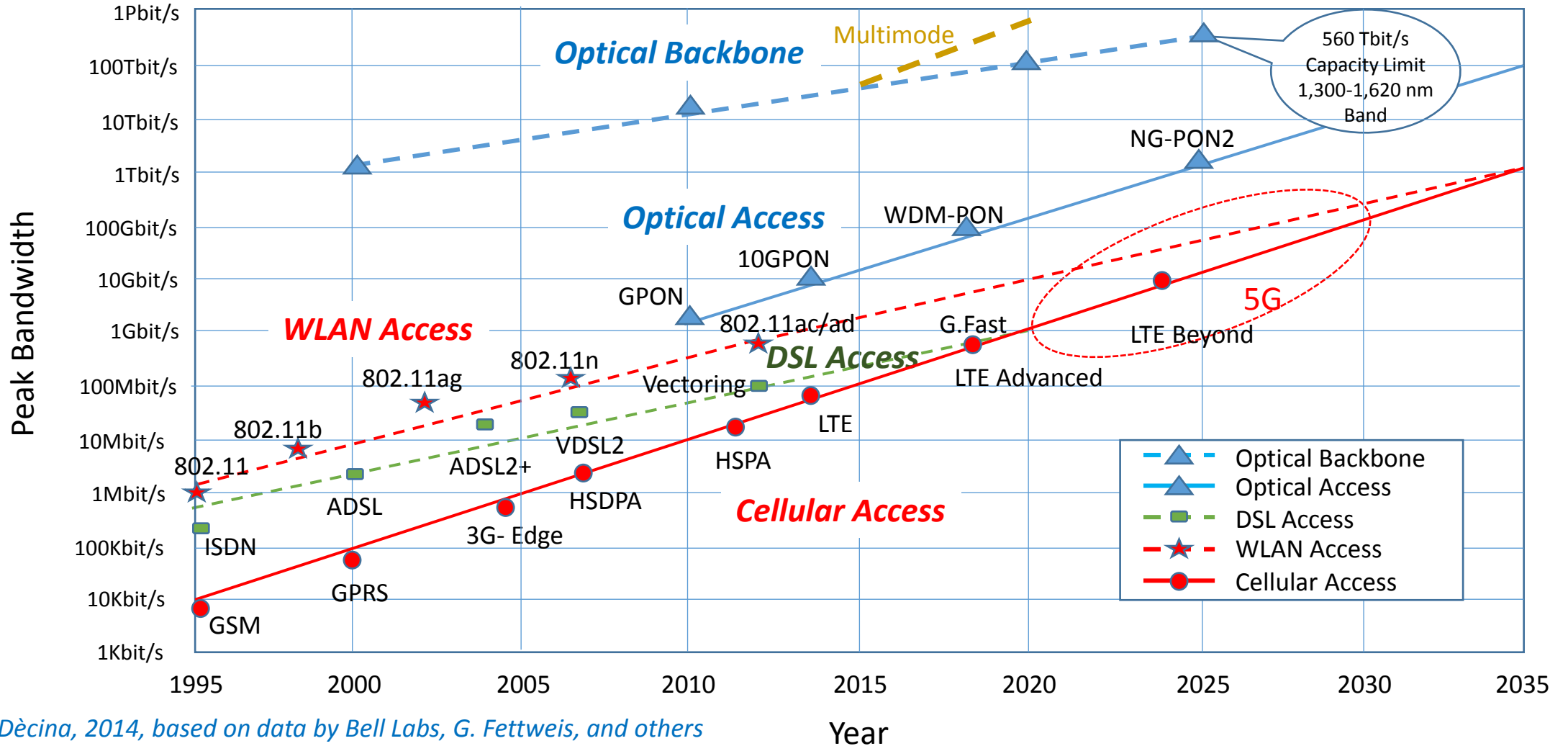
Telcos vs. OTTs

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Politecnico di Milano

Convegno INFORAV, Il paradosso delle Telco
Roma, 30 Marzo 2015



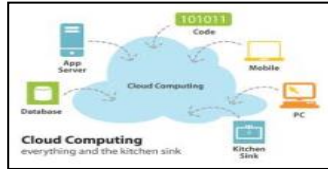
Market Entry Benchmark of Wired and Wireless Technologies with Projections



Source: M. Dècina, 2014, based on data by Bell Labs, G. Fettweis, and others

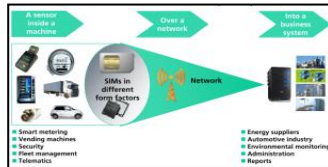


Managed Internet Services (QoS)



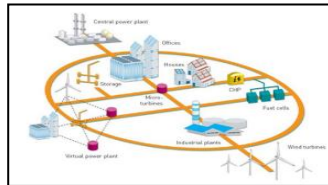
Cloud Computing

The evolution to on-demand service models, enabled by virtualization and communication networks, offers the opportunity to further advanced scenarios of "utility computing "



Internet of Things

The spread of cheap and pervasive computing capacity and sensors opens the way for automation applications and mass market Web applications involving personal and public smart objects



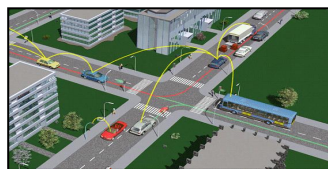
Smart Grid

The transformation of the energy sector (especially electricity) is based on a substantial supply of ICT infrastructure components able to "activate" the energy transport network



e-Health

The emerging need for health and social care (also associated with the growth of population life expectancy) finds in ICT a chance to increase effectiveness and efficiency

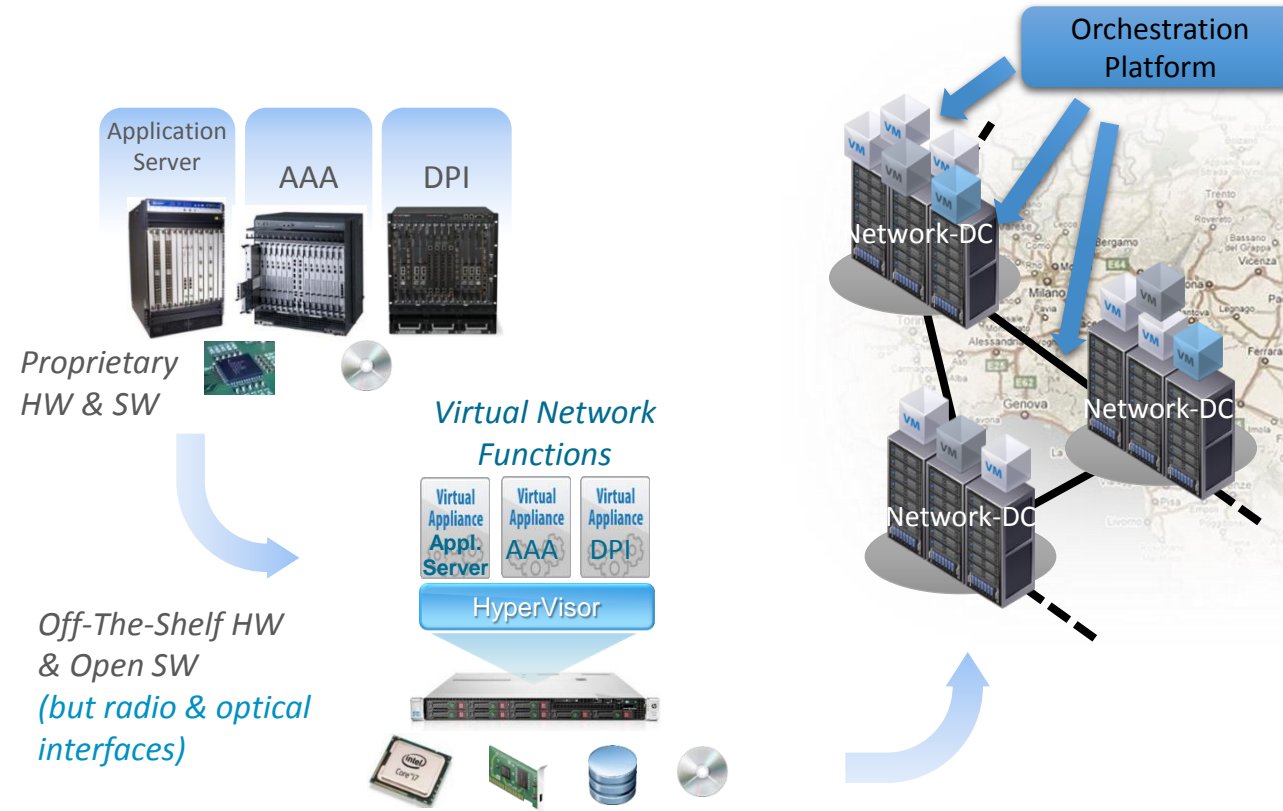


Intelligent Vehicle Transportation

ICT offers opportunities to support the growing need of security, safety and efficiency in the transportation sector, in particular for vehicles traffic automation and control



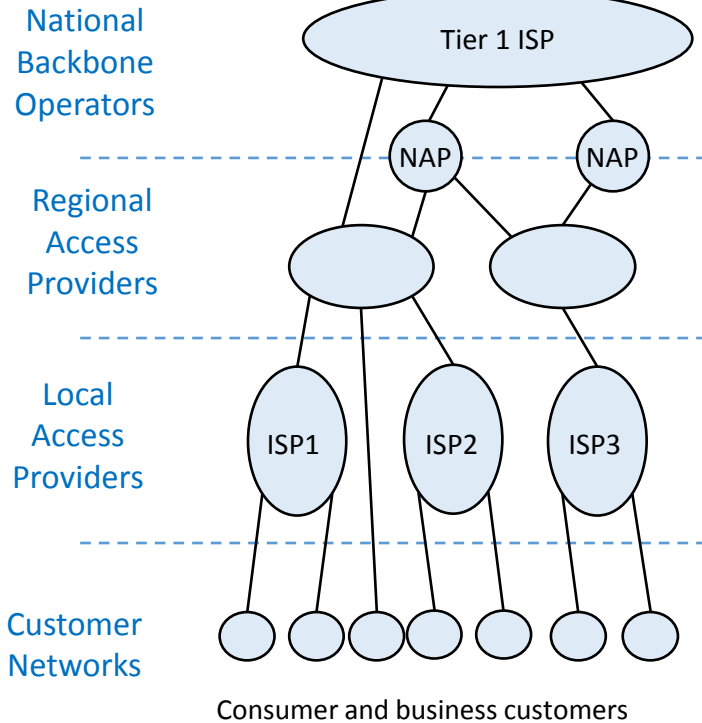
Software Defined Networks & Network Function Virtualization





Internet Peering Models

Bandwidth & Usage based

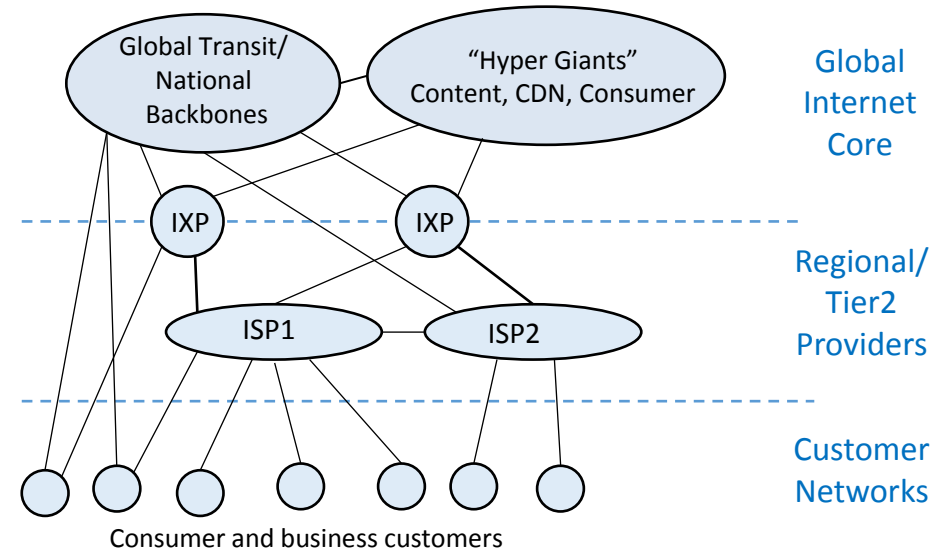


NAP: Neutral Access Point
IXP: Internet Exchange Point

Settlement free

Pay for transit BW

Pay for access BW



*Flatter and much more densely interconnected Internet
Disintermediation between content and eyeball networks
New commercial models between content, consumer and transit*

2010

Rank	Name	%
1	ISP A	9.09
2	Google	7.00
3	ISP B	4.70
4	ISP F	3.00
5	ISP H	2.96
6	ISP K	2.89
7	ISP L	2.82
8	ISP M	2.60
9	ISP E	2.30
10	Comcast	2.07

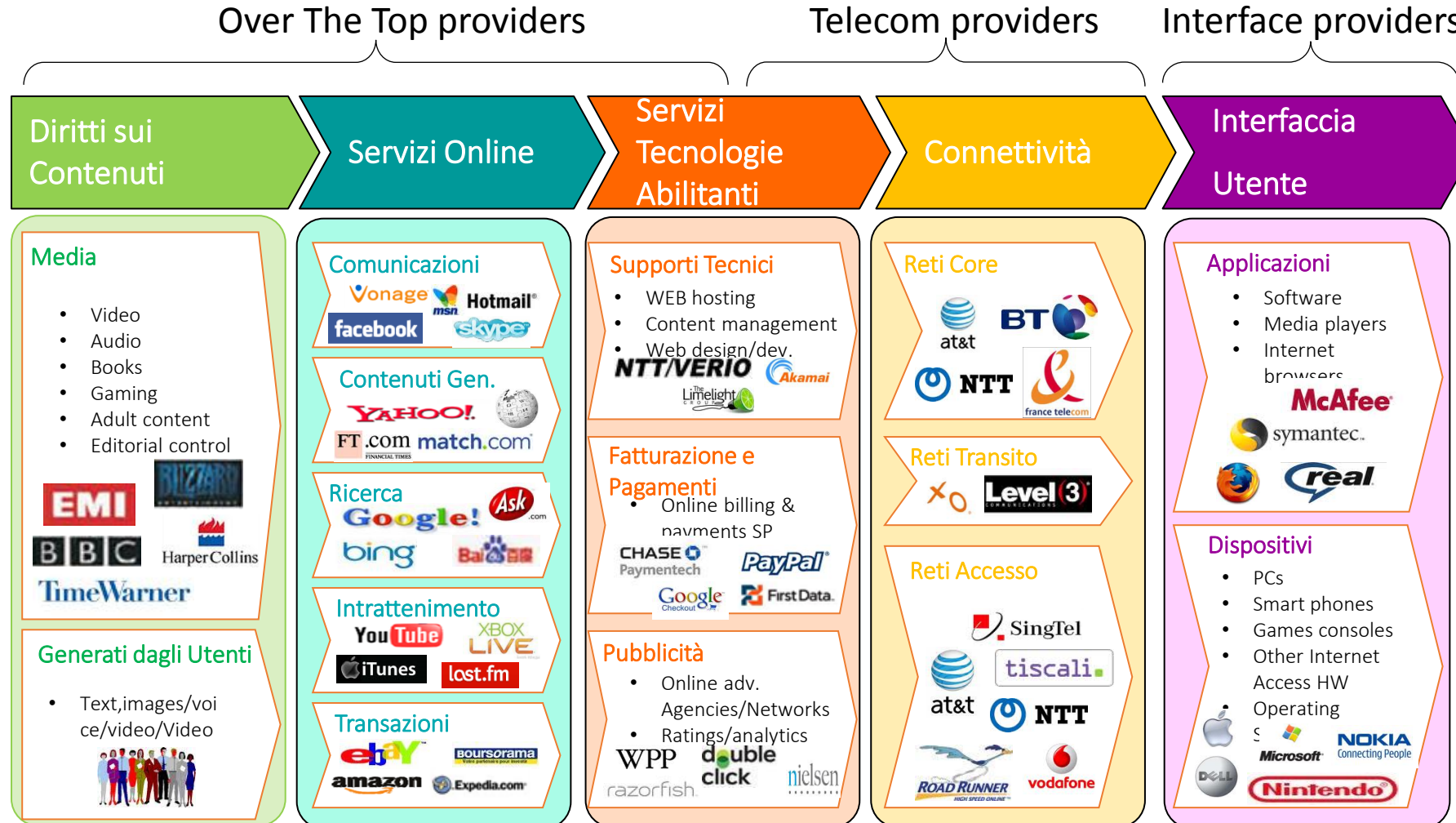
40%



Source: Craig Labovitz, Arbor Networks, April, 2011



OTTs vs. Telcos

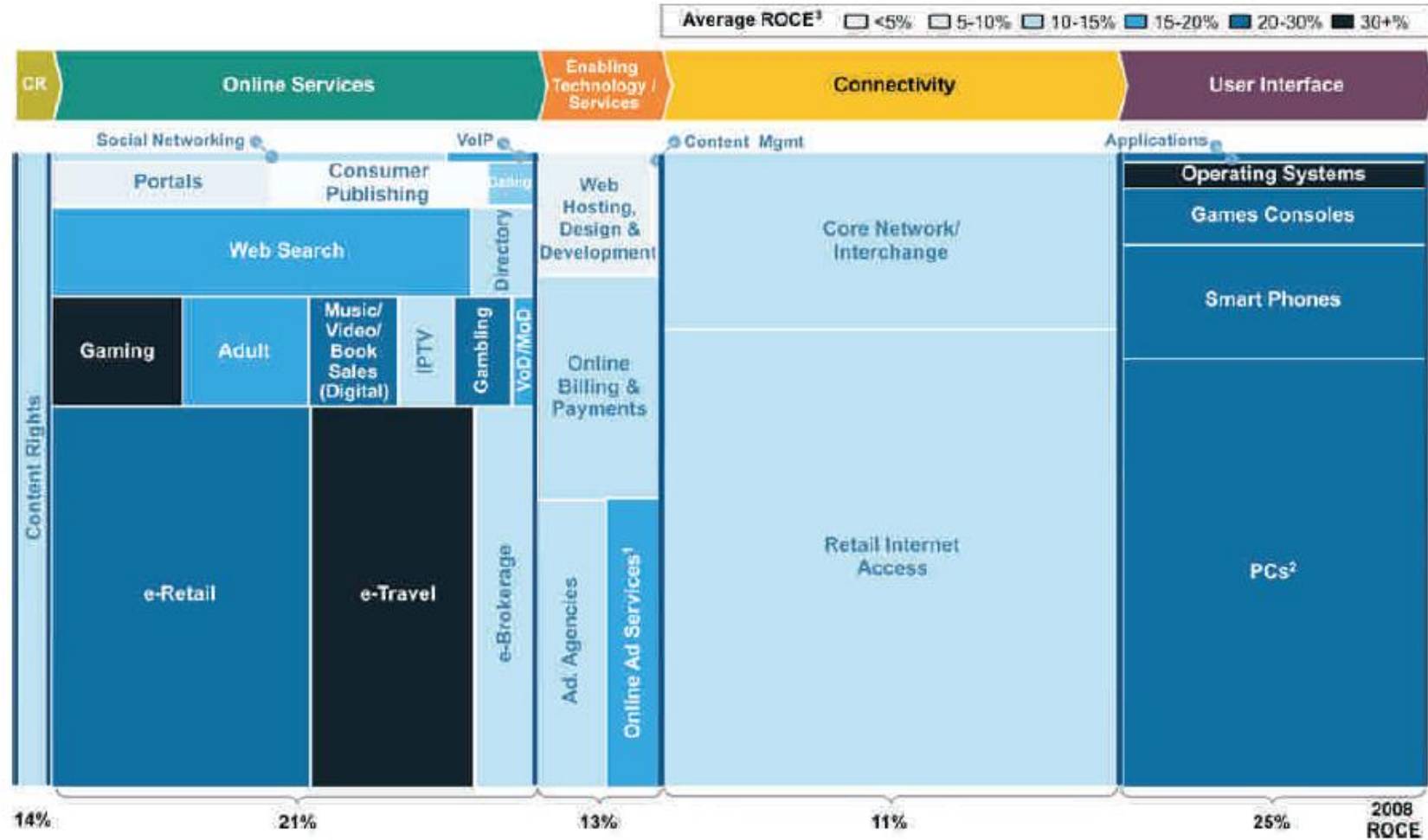


- 62% revenues from online services, 17% from connectivity
- 62% revenues from business users, 38% from consumers
- 80% business revenues from online services

Source: AT Kearney, 2010.



Return on Capital Employed



$$\text{Return on Capital Employed (ROCE)} = \frac{\text{Net Income}}{\text{Capital Employed}}$$

Source: AT Kearney, 2010

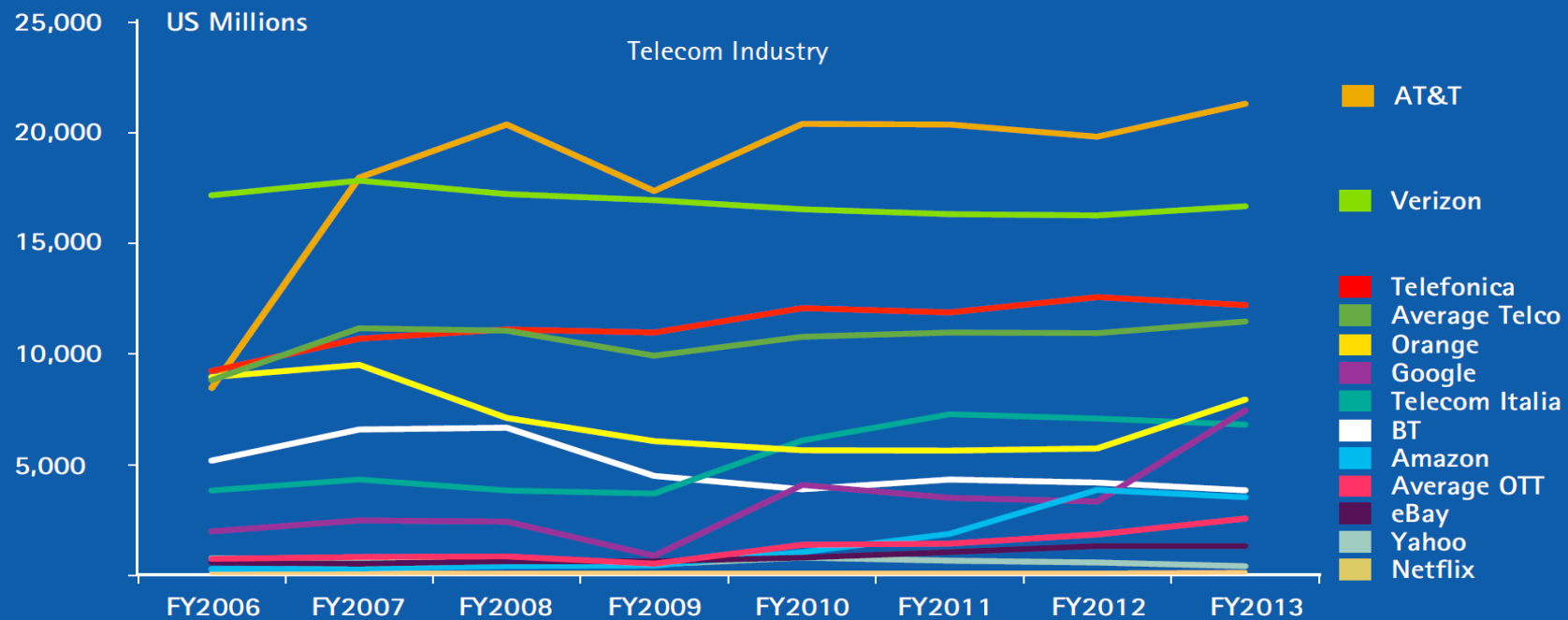


Capex: Telco vs. OTT

Figure 2 | Where is the burning platform: Telcos have to deal with high capital expenditure (capex) when competing with light OTT players

Source: Accenture, 2014

Capex Spend for Telecom vs. OTT players 2006–2013





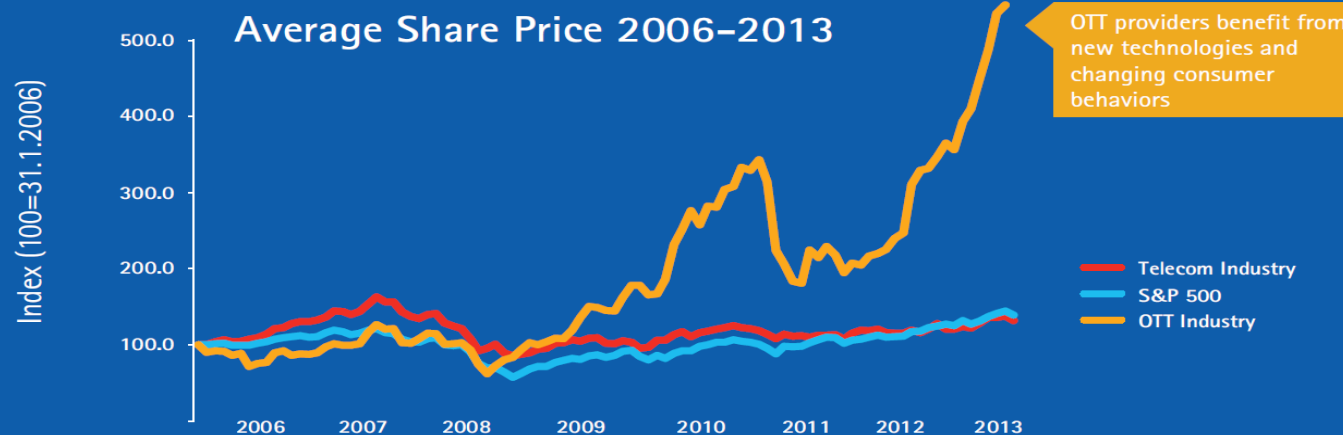
Critical Time for Operators

So, traditional operators are at a point of inflection where they need to make decisions:

- Be a provider of commoditized connectivity, effectively becoming the equivalent of a 'dumb pipe', looking for volume growth through consolidation, adding modest digital services with the hope to minimize and control operational margin erosion due to price competition within the industry.

- Take advantage of convergence to become an ecosystem provider of digital services creating a marketplace for the new digital age: a digital B2B2C provider.

Figure 1 | A Critical Time for Operators: When the Telecom Industry lowered market volatility by implementing vigorous cost cutting strategies, they underperformed against their strong OTT competitors.



Source: Accenture, 2014

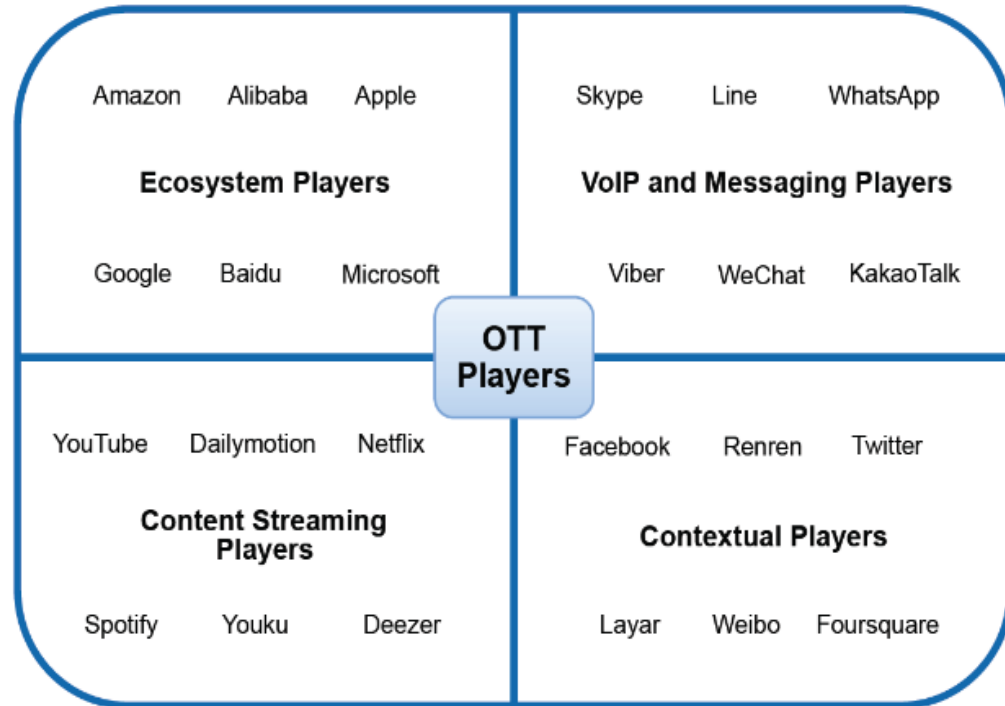
Source: Bloomberg database; Accenture Research analysis



OTT Key Segments

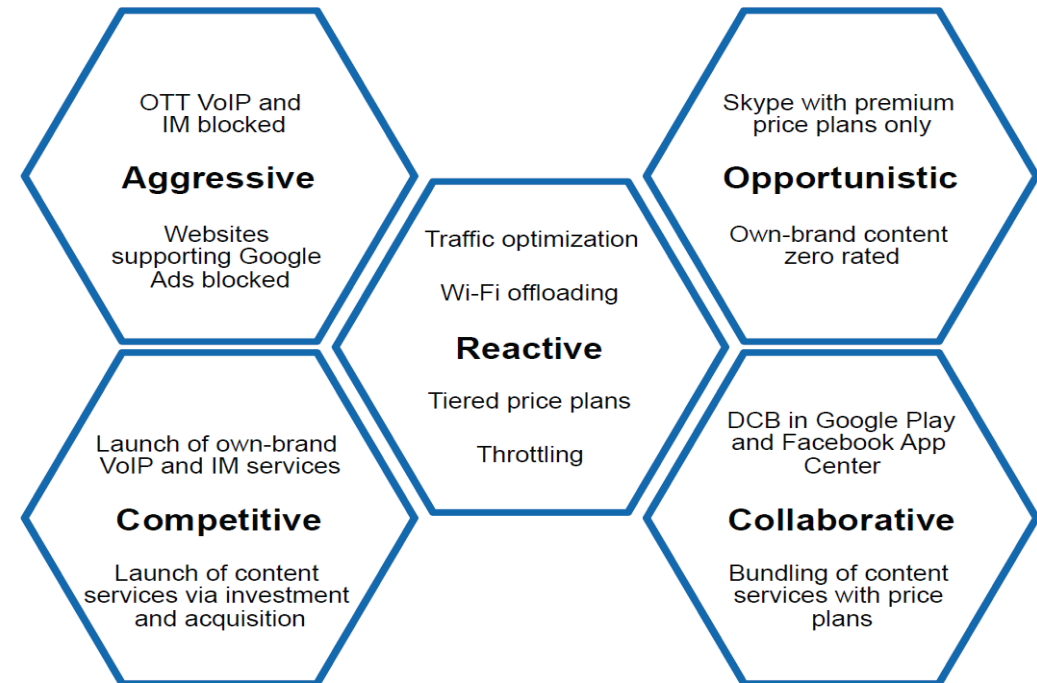
Source: Gartner, 2013

Figure 1. The Four Key OTT Segments



OTT = over-the-top; VoIP = voice over IP
Source: Gartner (February 2013)

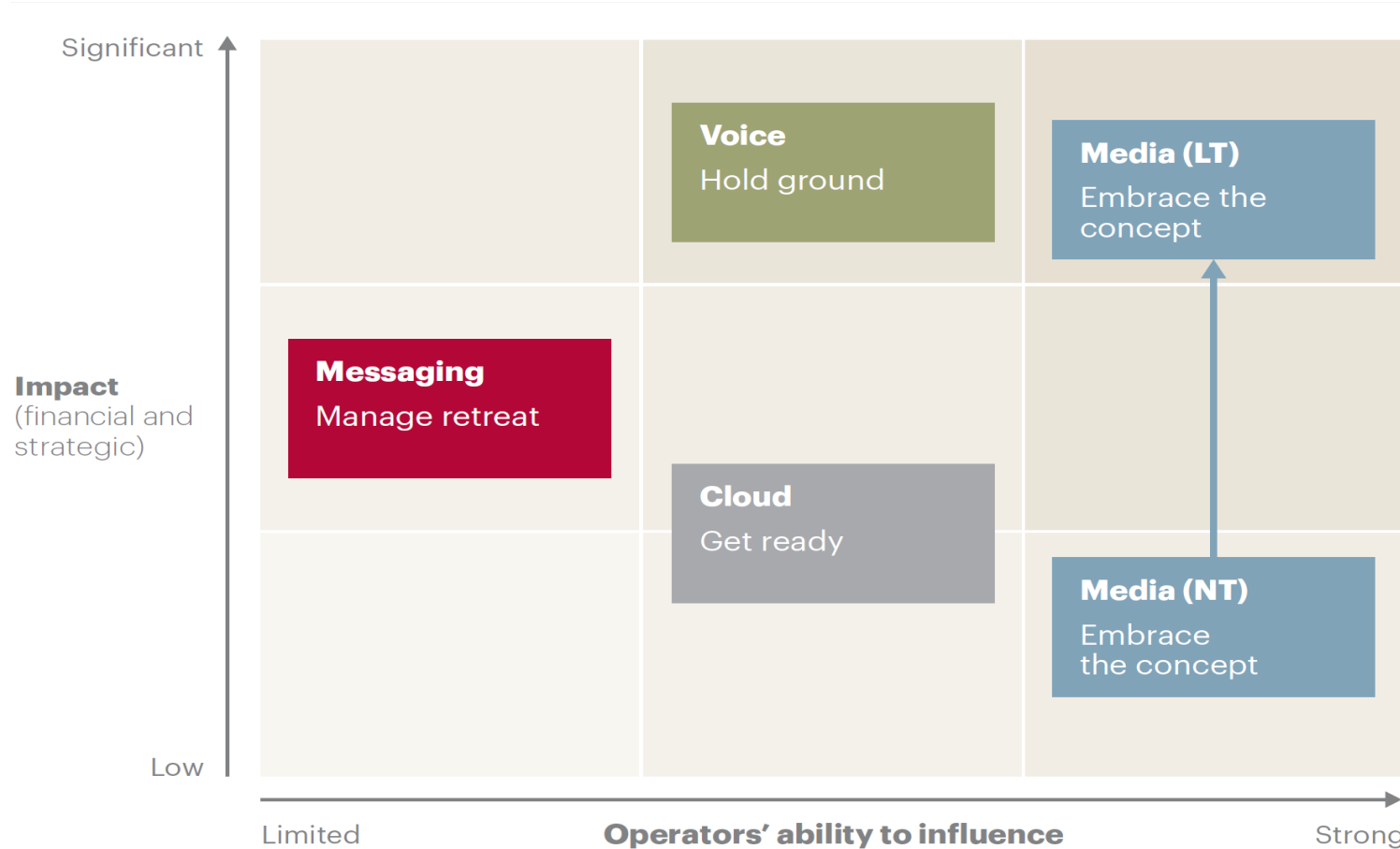
Figure 2. CSPs' Strategic Options When Dealing With OTT Players



DCB = direct CSP billing; OTT = over-the-top; VoIP = voice over Internet Protocol
Source: Gartner (February 2013)



Four OTT Emerging Battlegrounds



Source: AT Kearney, 2013



Reduction in Voice and Messaging Revenues

The scale of the OTT threat in each market varies based on two factors: the level of smartphone penetration; and the prevailing tariff structure for basic communications services. Smartphones empower the user to choose alternate services that compete with the operator's core offerings; high tariffs for telephony and SMS provide the reason for them to do so.

In general, those markets with a fast-growing percentage of smartphone users and with higher tariffs for telephony and messaging are most at risk of short-term erosion of their services revenues as users rapidly switch to using third party OTT products. Conversely, markets that have low smartphone penetration (often due to regulatory blocks on operator-subsidized phones) and already low rates for telephony and SMS are less likely to be facing an immediate OTT challenge, but must still plan for the inevitable rise in smartphone adoption.

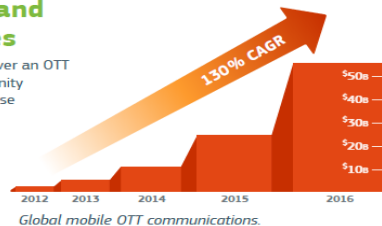
Those markets where the operator already experiences high smartphone penetration and relatively low tariffs may face a tough battle to reverse the trend in declining revenues per user. The rapid growth in third-party OTT services presents several problems for the mobile operator.

Risk assessment: the OTT threat to operator revenue.



➤ Reduction in Voice and Messaging Revenues

Messages and voice minutes carried over an OTT service represent lost revenue opportunity and, as importantly, lost margin as these services are generally profitable. For example, Ovum predicts that by 2016, OTT social messaging alone will cost the global mobile business \$54bn in lost income.



The Telco-OTT Opportunity
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➤ Relevance to the User

As their reliance on traditional communications services declines, users will likely begin to perceive these services largely as backup options rather than as their primary communication tools. For example, as peer-to-peer VoIP, messaging and WebRTC voice make their presence felt, traditional telephony services may be relegated to the voice communications method of last resort and will no longer be as highly valued.

➤ Customer Relationship & Brand Loyalty

While new entrants such as Skype, Viber, WhatsApp, and even more established players, such as RIM with their BBM product, have a clearly identifiable brand associated with their service offering, mobile operators in the past have had no such compulsion to brand their own basic communications services. Consequently, the future user is more likely to associate their smartphone and the services they use with the OTT brand, further weakening the operator's relationship with the customer.



Therefore, as core mobile messaging and telephony products are supplanted by newer OTT services that appear only as streams of data over the operator's packet service, there is a substantial risk that the mobile business becomes that of a cellular internet access provider only. With few other tangible, value-added services, operators will end up competing only with each other based on coverage, capacity and price per megabyte of data, rather than being well positioned to compete with the new entrants for higher value services.

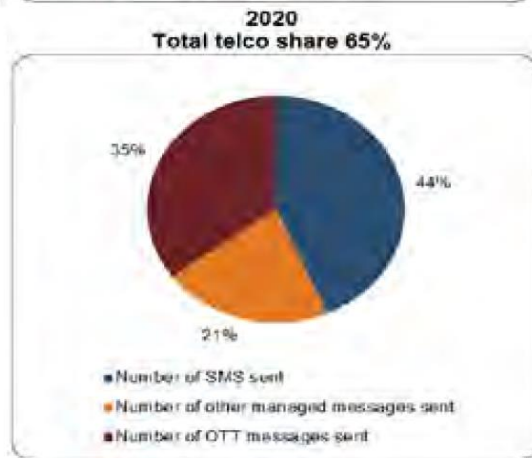
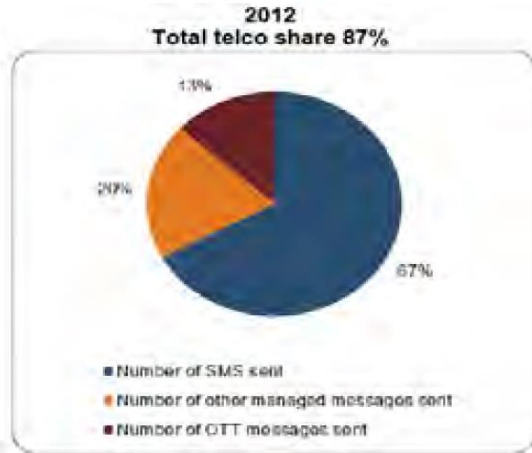
Operators should therefore realize that: Core telephony and messaging usage is heading into a gradually steepening decline. To continue to be perceived as vital communication services providers, they must further differentiate, add value and be recognized as leading the same path on which their users are treading; and just as their users' communication choices are changing, so must the operator's tariffs plans change to accommodate the swing towards data-centric, IP-based communications services.





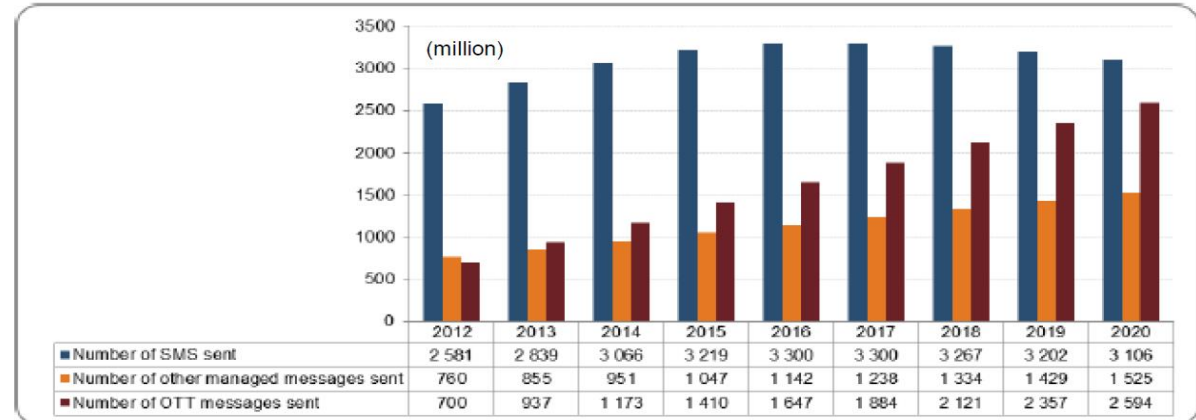
Reduction of Telco's Revenues

Share of messages sent forecast, EU5, 2012-2020

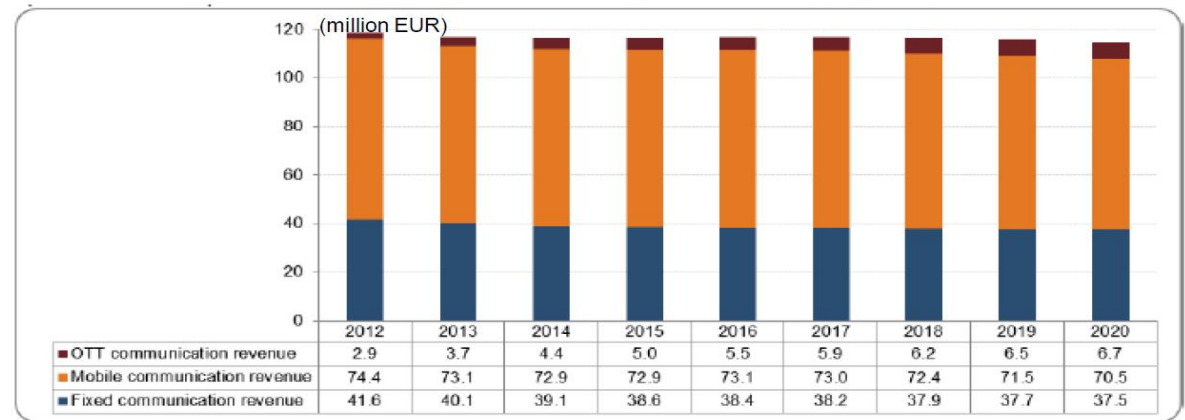


Source: IDATE

Number of messages sent by type, USA, 2012-2020



Total communication revenue forecast, USA 2012-2020

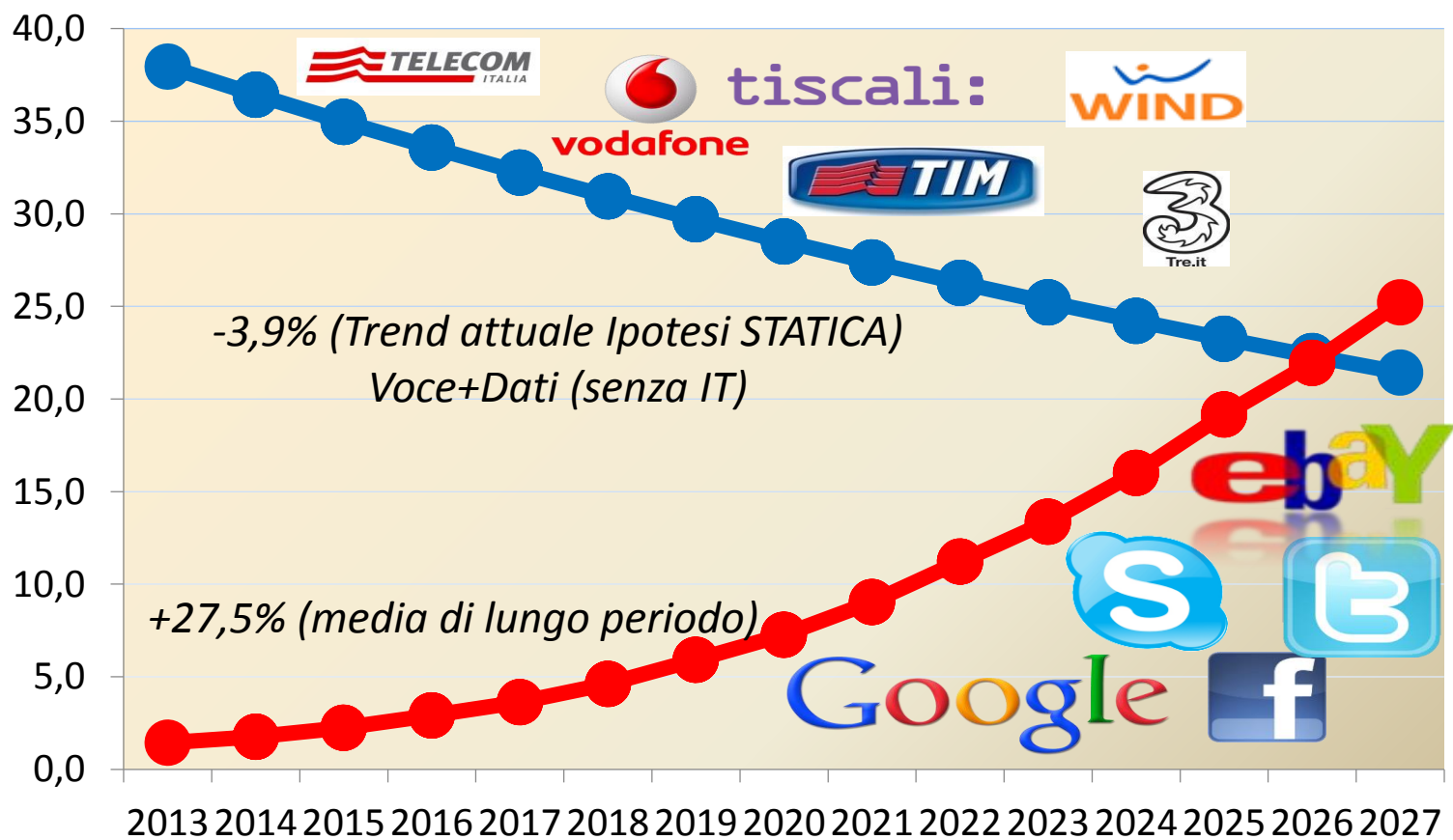


Source: IDATE

IDATE - BP 4167 – 34092 Montpellier Cedex 5



Proiezioni Fatturato Italia TLC (B€)



Fonte: elaborazione Trend Net Consulting





Internet Traffic Management

Traffic management only
applied during periods
of high congestion

Blocking illegal content:
e.g., spam, hacking,
illegal contents, etc.

Offering services with
different priority/quality
at different price:
managed services

Internet Traffic Management (*Ofcom 2011*)

Best efforts
- no priority
- no traffic
management

Offering for free
priority to most
vulnerable
services, e.g.,
voice,
videogames,
vidostreaming,
etc..

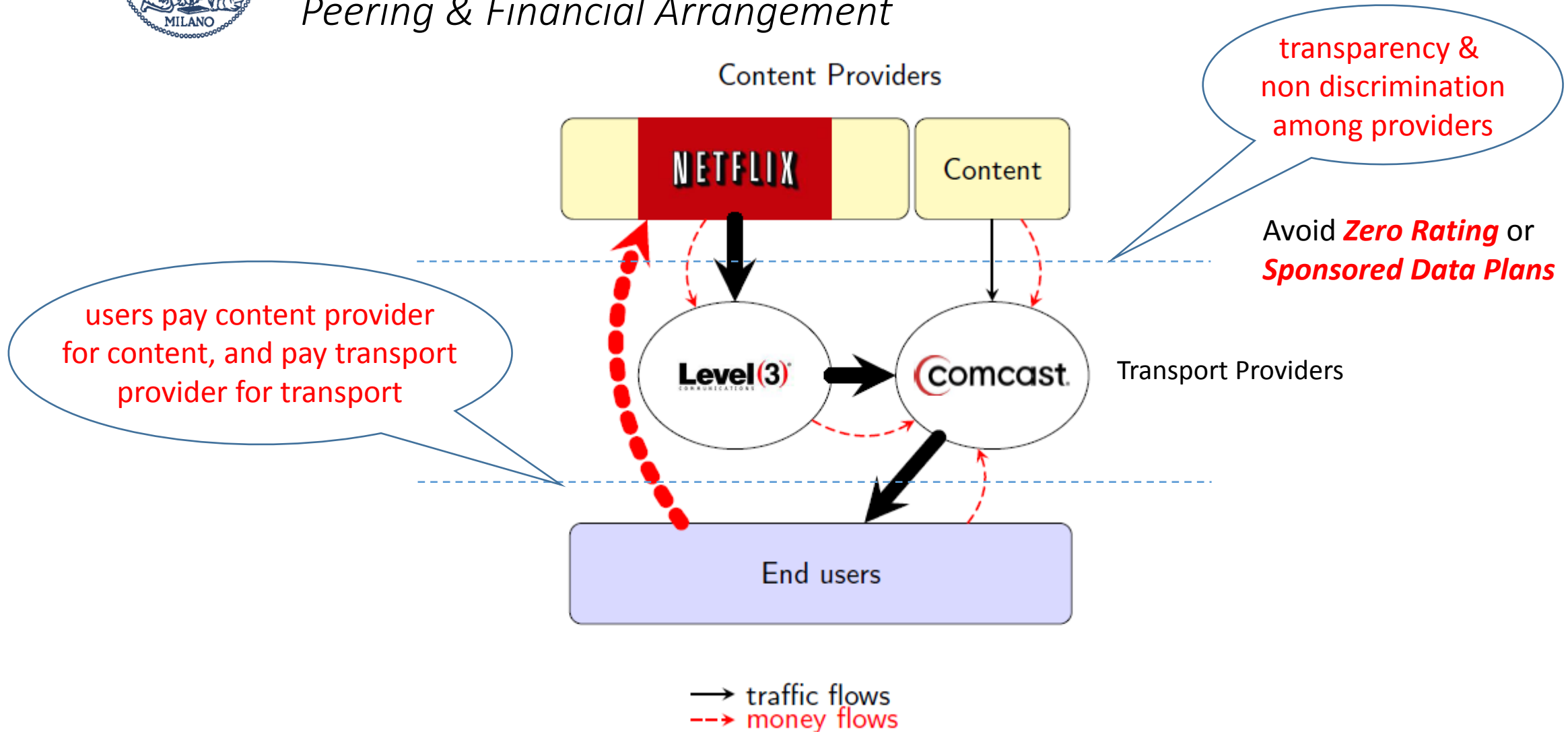
Throttling/
Degrading of
some type of
traffic, e.g., P2P

Blocking legal
contents and
applications, e.g.,
VoIP, rival IPTV
service



Netflix, Level 3 & Comcast

Peering & Financial Arrangement





Rules for the Open Internet

- **No Blocking**

Do not block lawful content, applications or non-harmful devices, subject to reasonable network management

- **No Throttling**

Do not impair or degrade lawful Internet traffic on the basis of Internet content, application, or service, or use of a non-harmful device, subject to reasonable traffic management

- **No Paid Prioritization**

Do not engage in paid prioritization. Do not favor some traffic over other traffic, including though use of techniques such as traffic shaping, prioritization, resource reservation, and other forms of preferential traffic management, either (a) in exchange for consideration (monetary or otherwise) from a third party, or (b) to benefit an affiliated entity.

A distinction between paid prioritization that is not directed by end users, and prioritization arrangements that are users driven. The Commission should not categorically foreclose such consumer-driven choices. (Telco position)



Rules for the Open Internet

- **No unreasonable Interference or Disadvantage to Consumers or Edge Providers**

Do not unreasonably interfere with or unreasonably disadvantage (i) end users' ability to select, access, and use broadband Internet access service or the lawful Internet content, applications, or devices of their choice, or (ii) edge providers' ability to make lawful content, applications, services, or devices available to end users. Reasonable network management shall not be considered a violation of this rule.

- **Reasonable Network Management**

- A network management practice has a primarily technical justification, but does not include business practice. A network management practice is reasonable if it is primarily used for and tailored to achieving a legitimate network management purpose, taking into account the particular network architecture and technology of the broadband Internet service.

- **Enhanced Transparency**

Disclose accurate information regarding network management practices, performance, and commercial terms, to consumers, content, application and device providers.



Scope of the Rules

Rules apply to fixed and mobile broadband consumer Internet access services, but not to business and to machine to machine applications

- **Broadband Internet Access Service – BIAS**

A mass-market retail service by wire or radio that provides the capability to transmit data and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up Internet access service.

- **FCC Order does not apply to Interconnection**

BIAS is a telecommunication service subject to the Title II of the Telecommunications Act, and FCC will be available to hear disputes on commercial terms among BIAS providers and very large corporations acting as edge providers, including companies like transit providers and Content Delivery Networks (CDNs), that act on behalf of smaller edge providers. However the FCC Order does not apply Open Internet rules to Interconnection.

- **Non-Broadband Internet Access Service Data Services.**

The 2010 rules included an exception for «specialized services». This is also recognized by the recent FCC Order. Some data services – like facility based VoIP offerings, heart monitors, or energy consumption sensors – maybe offered by broadband providers but do not provide access to Internet generally.



Neutralità Generalizzata

- I costruttori impediscono l'installazione di programmi non coerenti con la loro strategia commerciale: a lungo Apple ha osteggiato l'uso di Flash di Adobe sui propri terminali; a luglio Apple ha bloccato Google Voice. Il "Jailbreaking" per superare le limitazioni imposte dal "walled garden" di Apple: nell'underground si sviluppano strumenti per violare le limitazioni e nascono AppStore per applicazioni non autorizzate da Apple (Cydia)
- Apple ha intimato ad una serie di editori di giornali europei di non rendere accessibili contenuti via iPad ai propri abbonati alle pubblicazioni tradizionali, senza passare attraverso iTunes (e quindi senza riconoscere royalty a Apple)
- Annunci di grande portata: Embedded SIM, Embedded Secure Element sia hardware che software (es. Intel Insider, Android), iPhone 5 NFC

- Gli Application Store si propongono come le nuove dogane di accesso ad Internet e i loro gestori hanno un potere di discriminazione sull'ammissione delle applicazioni che possono essere ospitate: tale discrezionalità rappresenta una possibile via per fenomeni di concorrenza sleale (praticabile con l'esclusione dei concorrenti o l'introduzione di compensi economici penalizzanti): i clienti di Biblet di Telecom Italia (libreria digitale con 4mila bestseller fruibili da tablet) dovrebbero iscriversi a iTunes (revenue sharing 30-70 con Apple)
- Jimmy Wales, fondatore di Wikipedia, addita gli AppStore come fenomeni più dannosi della "Net Freedom" rispetto alla Net Neutrality

- Skype impedisce ai suoi utenti l'interconnessione con Fring (applicazione gratuita per chiamate VoIP, video-chiamate e chat per terminali mobili), dichiarando un uso improprio della API (violazione dei "Terms of Use"), impedendo l'interconnessione con un'applicazione concorrente
- Google Chrome non supporta video codificati con H.264, sostenendo che supporterà solo codec aperti (per ora il suo WebM e Theora)

- I motori di ricerca mediano l'accesso alle informazioni, contenuti e servizi di Internet attraverso i loro algoritmi di ranking e le loro tecniche di remunerazione per una maggiore visibilità. Il potere di discriminazione dei motori di ricerca nell'accesso ai contenuti è abbastanza evidente ed è legato agli algoritmi di ranking, volutamente non completamente trasparenti: player dominanti, come Google, iniziano ad essere sotto osservazione



Neutralità dei terminali



Neutralità degli Application Store



Neutralità delle applicazioni e dei servizi

Neutralità dei motori di ricerca



Source: M. Dècina, 2011