



Session 1 - Setting the Scene

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December , 2015

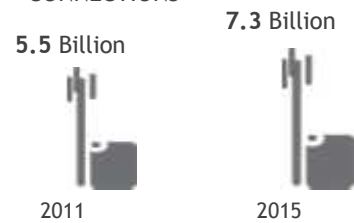
INDUSTRY TRENDS

FAST GROWING MARKETS

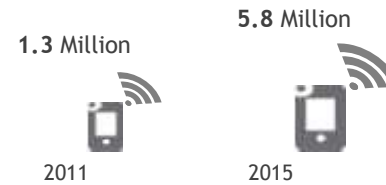
+30%
FIXED BROADBAND CONNECTIONS



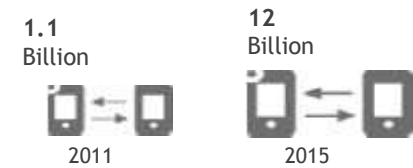
+32%
MOBILE CONNECTIONS



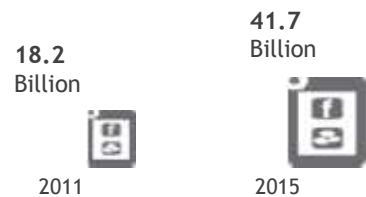
+346%
WI-FI PUBLIC SPOTS



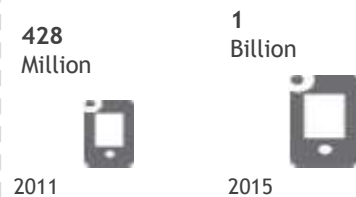
+990%
M2M DEVICES



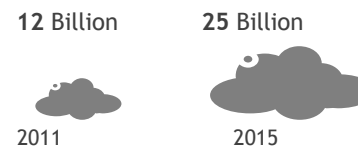
+129%
APPLICATIONS DOWNLOADS



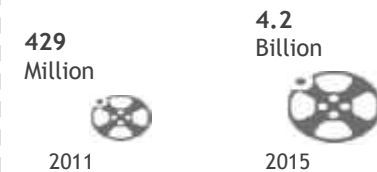
+134%
SMARTPHONE SALES



+100%
ENTERPRISE CLOUD SERVICES*



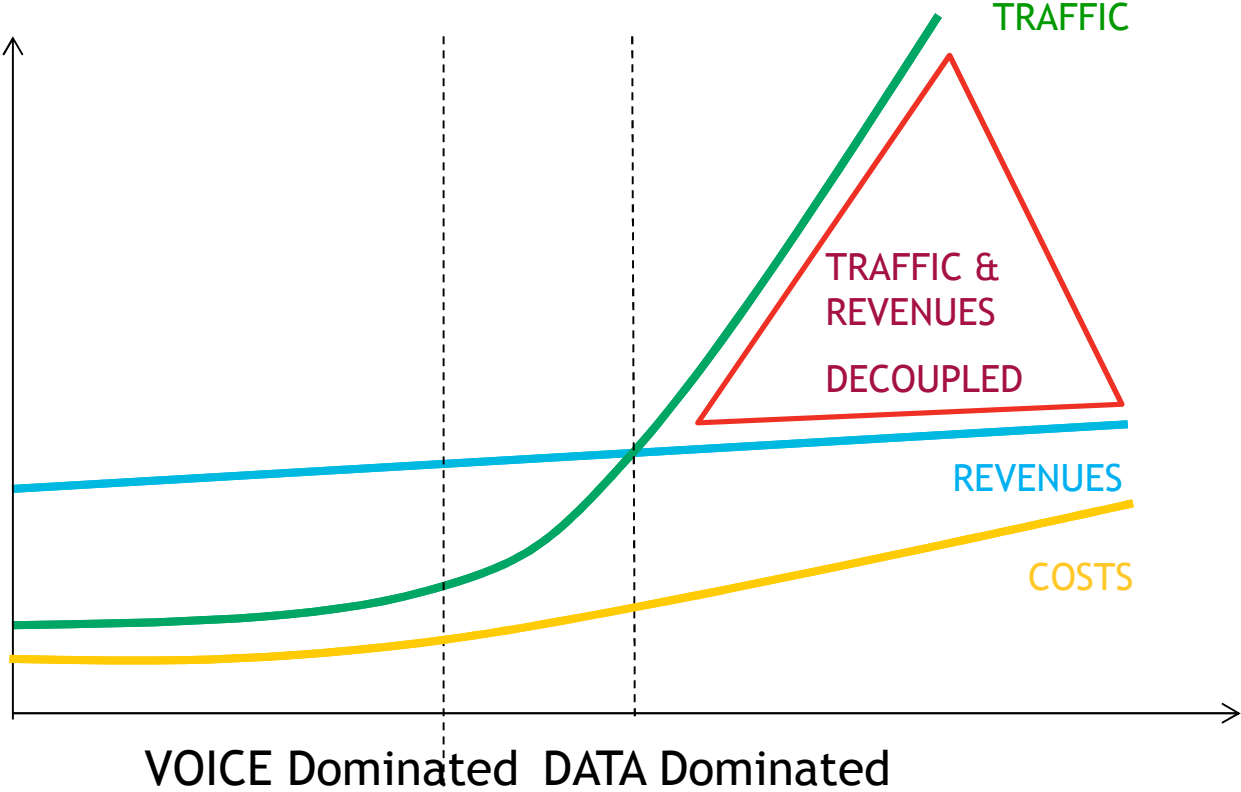
+879%
MOBILE VIDEO CONSUMPTION



* Source : Yankee

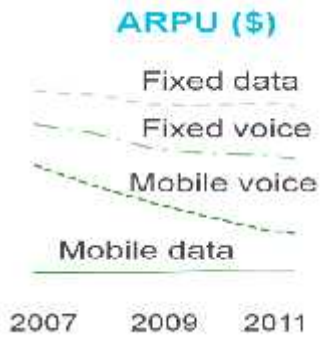
THE INDUSTRY REALITY

ERODING REVENUES, INCREASING TRAFFIC, HIGHER COSTS

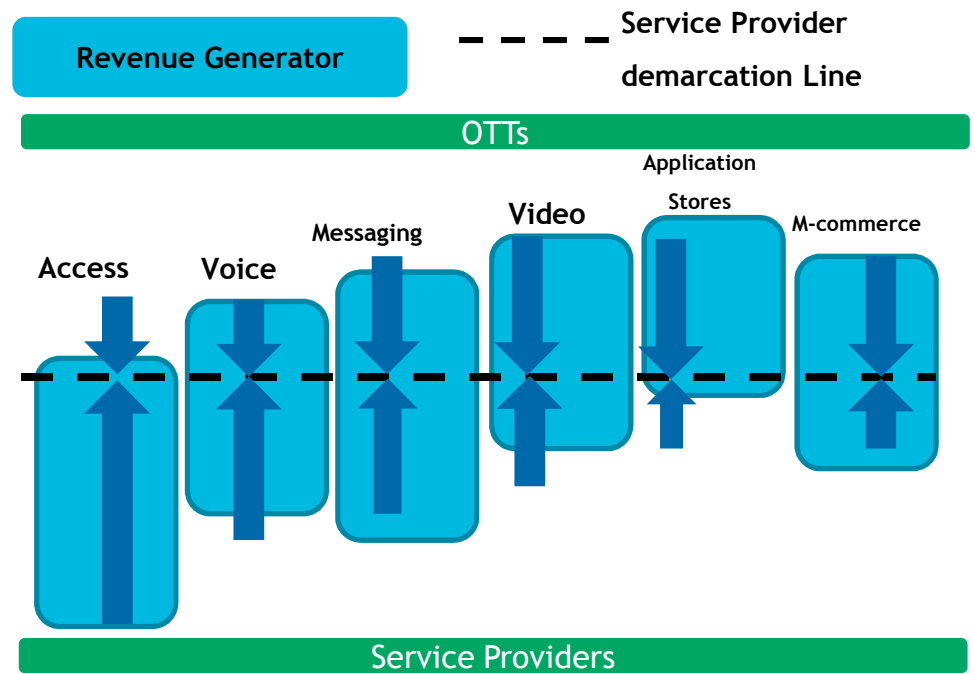


TELECOMMUNICATIONS MARKETS ARE CHALLENGING REVENUES AND ROI ARE UNDER PRESSURE

REVENUES UNDER PRESSURE



OTTs TARGET SP CORE SERVICES



THE INDUSTRY REALITY

OTT FORECASTS

- OTT users will account for 18% of total global mobile subscription base in 2016 (mobileSQUARED)
- OTT service revenues in the US and EU5 will increase to 15 billion euros in 2016 from 7 billion euros in 2012 (IDATE)
- Consumers will send 41 billion OTT messages per day by end 2013, compared to an average of 19.5 billion SMS (Informa)
- Social Messaging apps (e.g. Facebook) will cost operators \$32.6 billion in 2013, increasing to \$86 billion in 2020 (Ovum)
- In the last 12 months, Whatsapp moved around more messages than all the mobile operators combined in any country and that includes US and China. US and China collectively have approximately 1.5 billion subscriptions. Whatsapp with its 200M base has moved more messages in the last 12 months than all the operators in both US and China combined.

TODAY Operators' CHALLENGES and CHOICES

Blocking OTT: According to Reuters reports¹, regulators in Vietnam are moving closer towards banning OTT services. In 2012, according to a media report², Korean's regulators allowed data throttling by Telcos to control proliferation of OTT services. This appears to be a short-term strategy and will most likely directly impact on revenue-generation for the Telcos both due to higher churning and lower data usage.

Value-based pricing: Operators can develop retail pricing propositions that are customers centric and unconstrained by regulations on bundling or restrictions on rebalancing. Operators will need to develop innovative pricing models to accompany new service

Telco app: Orange's "*Libon*", T-Mobile's "*Bobsled*", China Telecom's "*YiChat*", Swisscom's "*iO*" etc., are some of the new voice/messaging app services launched by Telcos to counter the competition from OTT services. Most of these services offer free voice and text with a strategy to limit users to use rival OTT.

Partnerships with OTT services: More and more Telcos are also exploring partnership opportunity with OTT players such as 3, Verizon with Skype, Reliance with Whatsapp, Airtel with Facebook etc. and benefit from their traffic. Such partnership gave illustrated that OTT also represents an opportunity for Telcos to monetize popular apps by providing them to customers as an incremental value-added service.

GSMA's Joyn initiative - Telcos such as Telenor, Orange, Telefonica, T-Mobile, Vodafone etc. are attempting to create a new OTT standard by enabling Rich Communication Services³. This GSMA-led initiative is very long term and has the potential to be the solution.

OTT: Fundamentally Different

BUSINESS MODEL

- Global actors:
 - ✓ Driving for small market share of >1B subs market
 - ✓ Focused on services with global relevance
- Assume Data-connectivity
- Skimming markets – no USO passion. Islands.
- Limited regulation - evolving
- Minimal ARPU – large volume.
- Low investment, low entry barrier. Cloud – Zero Capex
- Trial and Error – VC based
- Create cross device connectivity at application level

METHODOLOGY

- Strict isolation from data connectivity
- No integration with local APIs
- Automated end-user-driven provisioning
- Extensive use of open-source SW
- Stateless backend – (state in device)
- Achieve high availability through commodity web-technology
- Early and often, incremental improvements

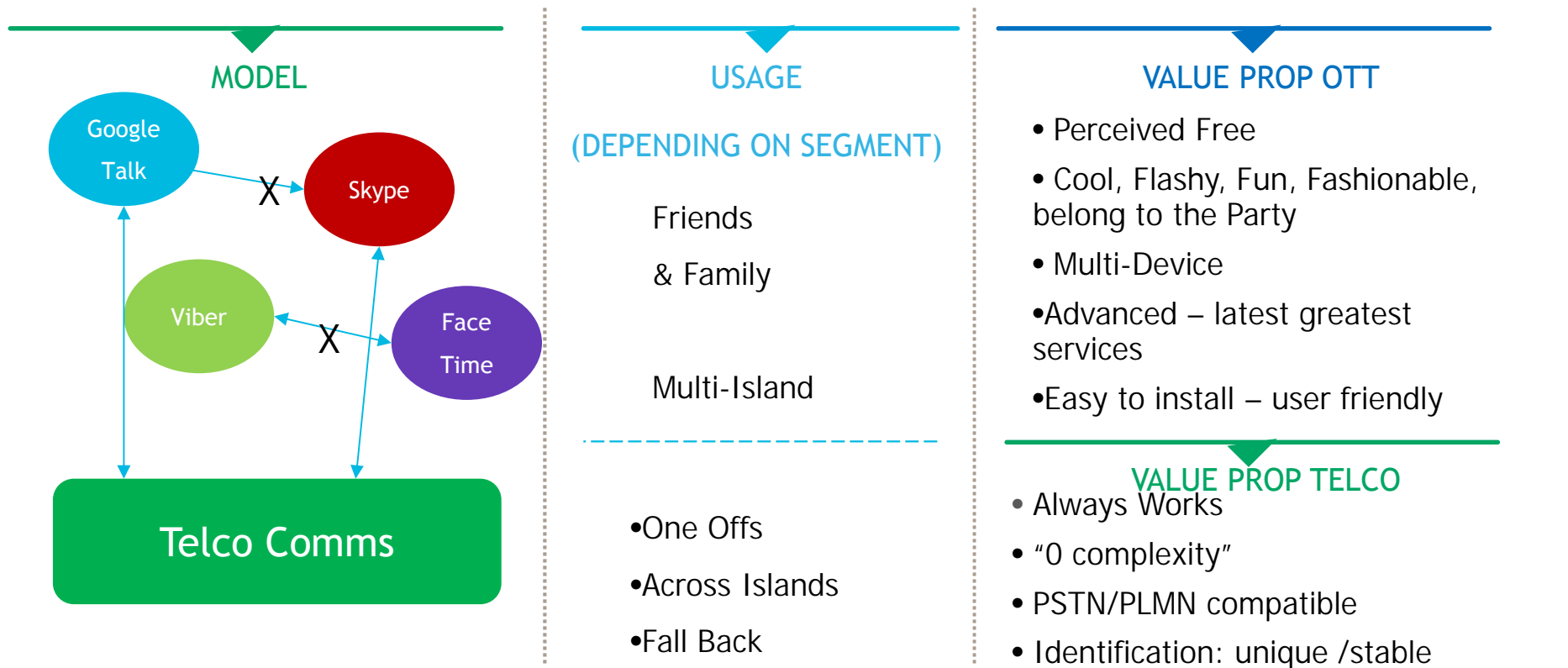
EXAMPLE: VIBER

- VoIP/Messaging
- 45 M Subs (B12)
- 3-5M€ funding
- Founded in 2010
- 20 person company. 12 engineers
- Runs on Amazon EC2
- Provisioning: download app, get provisioning code (check existence of claimed phone nr)



OTT Industry **leads innovation** for services and applications of **global relevance**.
Most Applications and Services with global consumer interest will go with the OTT flow.

OTT Value Proposition For Communication Services



TELECOM OPERATORS - Over THE TOP

MAJOR DIFFERENCES

	Telco	OTT
Addressable Market	Geofenced Regional specialization (e.g. content, marketing)	Worldwide (>1B subs) Global services.
Service Pricing	Metered , Schedules, Bundles	Freemium, advertising, ...
Legacy	Brand, customer base, complex systems, ...	No Legacy
Service Innovation	Has become complex to launch new services. Too complex systems . Need for upfront perfection a.o. driven by geofenced market. Everything coupled with everything. Try to satisfy all.	Trial and Error. Early and Often. Incremental improvement. Focus on true service value of target customer. Skimming the markets.
Regulatory restrictions	Complex: USO, legal intercept, Public Service mission, unbundling,	Practical none if small Increasing privacy etc. constraints.
Market Share target	>20% of 10M	5% of 1B Plenty of room to find a niche.
Customer Values	Needs perfect service , 5 Nines, ... QoS, Trusted, ...	Be good at the essence . Incremental Improvement (across market). Agility over perfection
Brand value	Trusted, Reliable, One stop shop	Agile, 'Smart Ass', Innovative, Free
Brand liability	Heavy, Slow, Dull,	Temporary, Futile, Privacy threat .
Business model	Triple justification upfront, little room for error.	Incremental improvement

EXAMPLE: VOIP REGULATORY ISSUES INFORMATION SOCIETY SERVICE OR ELECTRONIC COMMUNICATION SERVICE?

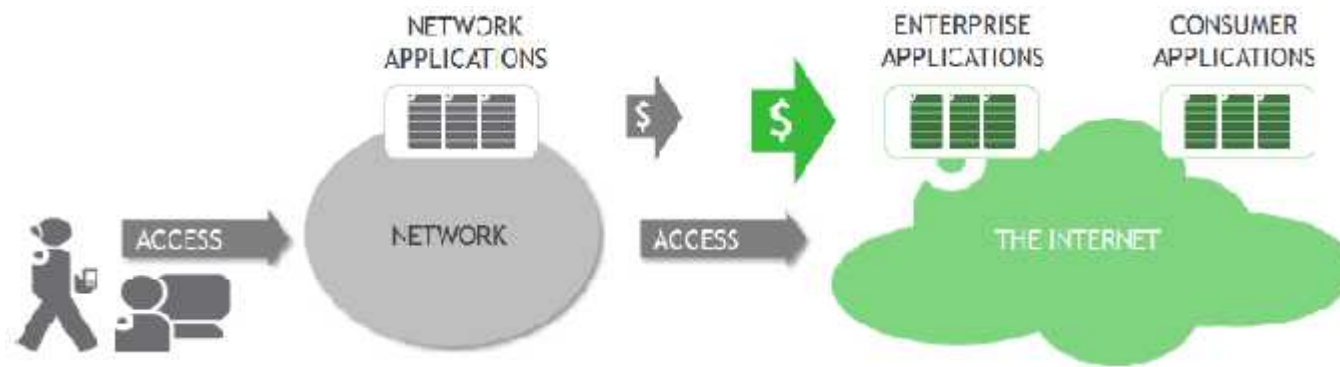
Early VoIP Market	Maturing VoIP Market	Mature VoIP Market
"Grey market" (self help) bypass and illegal termination		
Quality of Service (QOS)		Consumer Protection
Universal Service		Security of transmissions
Defining VoIP and its legality	Regulatory capture	Net neutrality and blocking
Licensing	Emergency services	Location correspondence
Numbering	Number portability	Market size and growth
Promoting competition		(Anti-) competitive issues

EXAMPLE: VOIP REGULATORY APPROACH AROUND THE WORLD

- **Singapore** also has just two class licences. VoIP providers who want PSTN numbers (starting with '6') must adhere to all PSTN rules VoIP providers can also get 8-digit numbers starting with '3' where PSTN rules do not apply.
- **Hong Kong** also adopted a two-class approach to regulating IP Telephony. Both classes of service provider must provide access to emergency services and to reserve power, but they differ in the requirements they face for number portability and numbering. Class 1 is equivalent to PSTN voice service with number portability, but Class 2 lacks numbering rights.
- **France:** The French regulator ARCEP has accused Skype of failing to register as an electronics communications operator
- **South Korea:** The Korea Communications Commission ruled in Jun 2012 to allow telcos to charge subscribers when they use mobile VoIP services, including OTT services

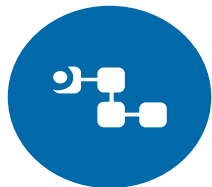
THE TENSION AND THE SYNERGY

COMMON TECHNOLOGIES, COMMON ARCHITECTURES, COMM-PETITION ?



NETWORK OPERATORS

WEB OPERATORS



Assets: Ultra-broadband Access
New Services: Limited and Closed
E/R: Increasing Network spend, flat revenue
Innovation Speed: Years

Assets: Massive global compute and storage
New Services: Limited but Open APIs to Web
E/R: Increasing DC spend, growing revenue
Innovation Speed: Days



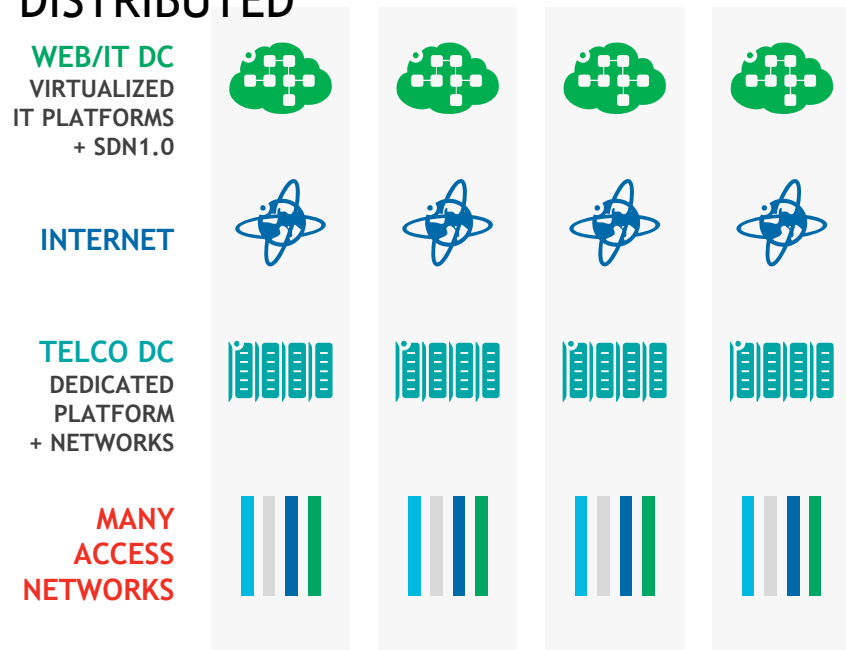
IP TECHNOLOGIES



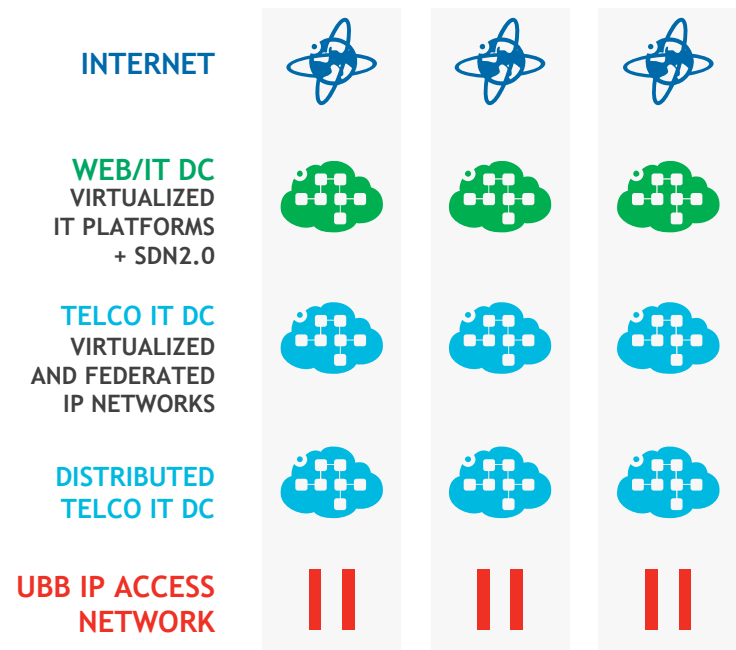
IT TECHNOLOGIES

THE COMMONALITY AND CONVERGENCE

CONVERGENCE OF DC AND WAN, IT AND IP, MANY TO ONE, CENTRALIZED TO DISTRIBUTED



NETWORK 1.0



NETWORK 2.0



KEY TAKE AWAY MOVING FORWARD

- Our sector has faced deeper changes in the past 5 years than ever before ...and it is most likely that the most disruptive challenges are still ahead of us.
- The economical model has changed. Telco operators' revenues, for a long time based on Voice minutes, have shifted to access revenues, and potentially Data revenues
- The effects of convergence are still not observed in the regulatory domain as there is a dividing gap between regulated technologies and services and less regulated activities.
- Policy makers and regulators should ensure user's expectations in terms of ubiquitous accessibility but also of QoE (Quality of experience) based not only on bandwidth but also on latency, jitter, reliability, security, privacy
- These economical changes are coming with a profound transformation of Telco networks architecture, and deduced innovation. Cooperation between operators and web-scale service providers will be key.

Every success
has its network