



IPv6 : what else?

France Telecom Orange

(convincing decision makers to go for

IPv6)


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overview

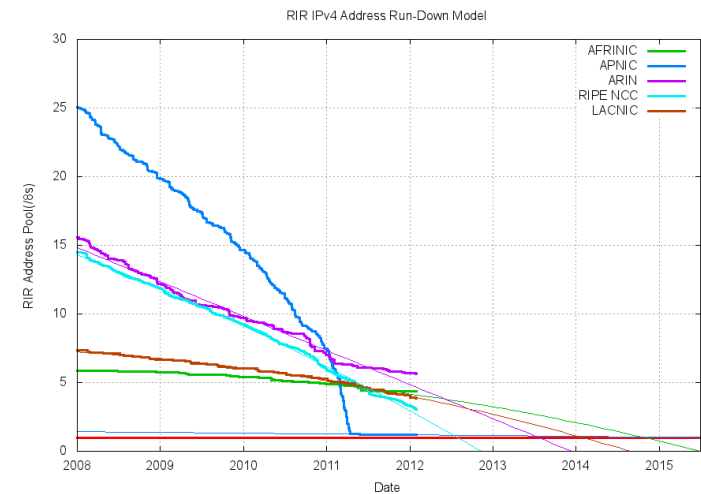


1 about us

2 key business drivers

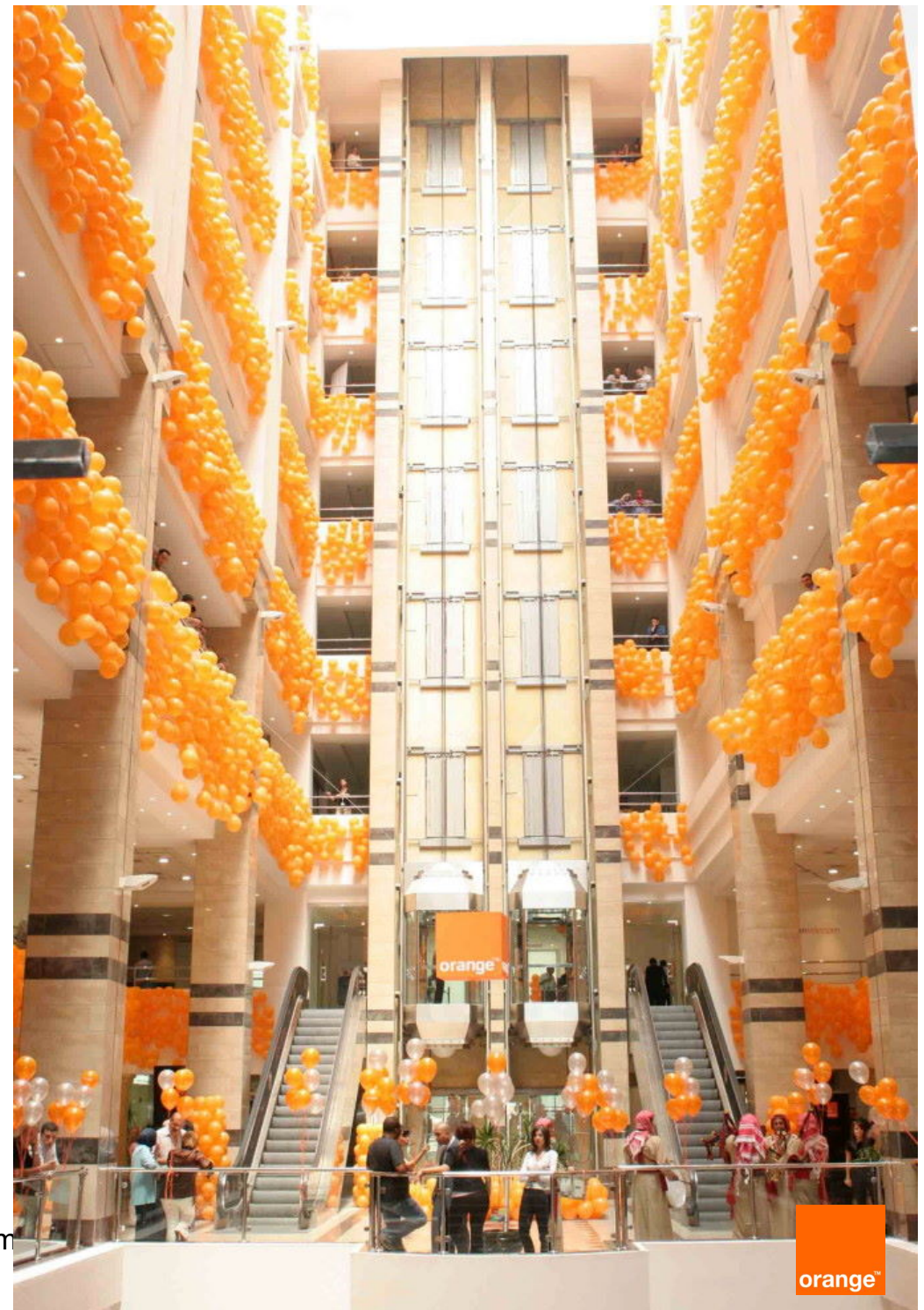
3 challenges

4 status & conclusion



1

France Telecom Orange Group



one of the world's leading telecom operators

1st mobile network in France

226 million customers worldwide

38.4% Q4 dsl net market share in France

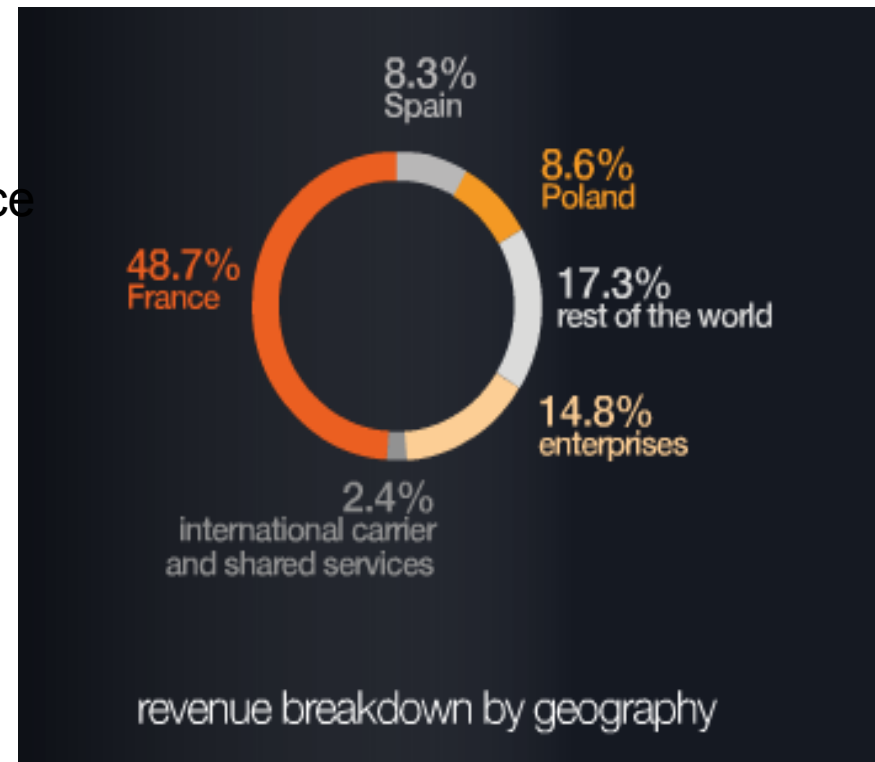
45.5 billion euros revenues

5.5 billion euros in CAPEX

9.3€bn operating cash flow in 2011

170,000 employees worldwide

FT Orange affiliates



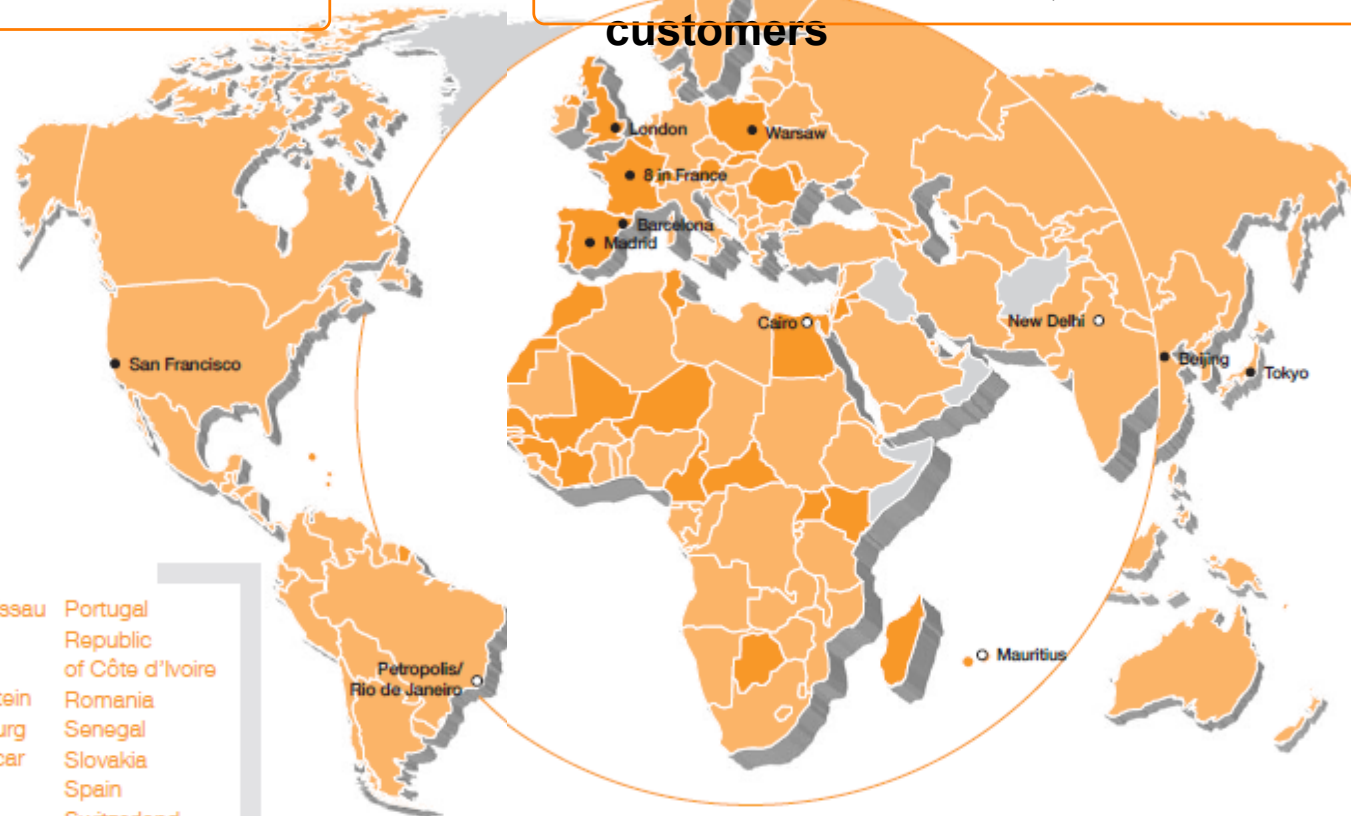
global presence & service areas

mobile

162 million mobile customers

fixed and internet

59 million fixed & internet, 14.2 million ADSL, 9.2 million Liveboxes, 4.1 million IP TV customers



> enterprise business

220 countries and territories

> consumer/enterprise business

- | | | |
|--------------------------|---------------|---------------------------|
| Armenia | Guinea | Portugal |
| Austria | Guinea-Bissau | Republic of Côte d'Ivoire |
| Bahrain | Jordan | Romania |
| Belgium | Kenya | Senegal |
| Botswana | Liechtenstein | Slovakia |
| Cameroon | Luxembourg | Spain |
| Central African Republic | Madagascar | Switzerland |
| Dominican Republic | Mali | Tunisia |
| Egypt | Mauritius | Uganda |
| Equatorial Guinea | Moldova | United Kingdom |
| France | Morocco | Vanuatu |
| | Niger | |
| | Poland | |

business services

- Orange Business Services 3,700 multinational clients

● Orange Labs

○ primary business customer service centers

our five priorities

be a caring and
socially
responsible
employer

ensure customers
choose Orange
for its outstanding
customer
experience

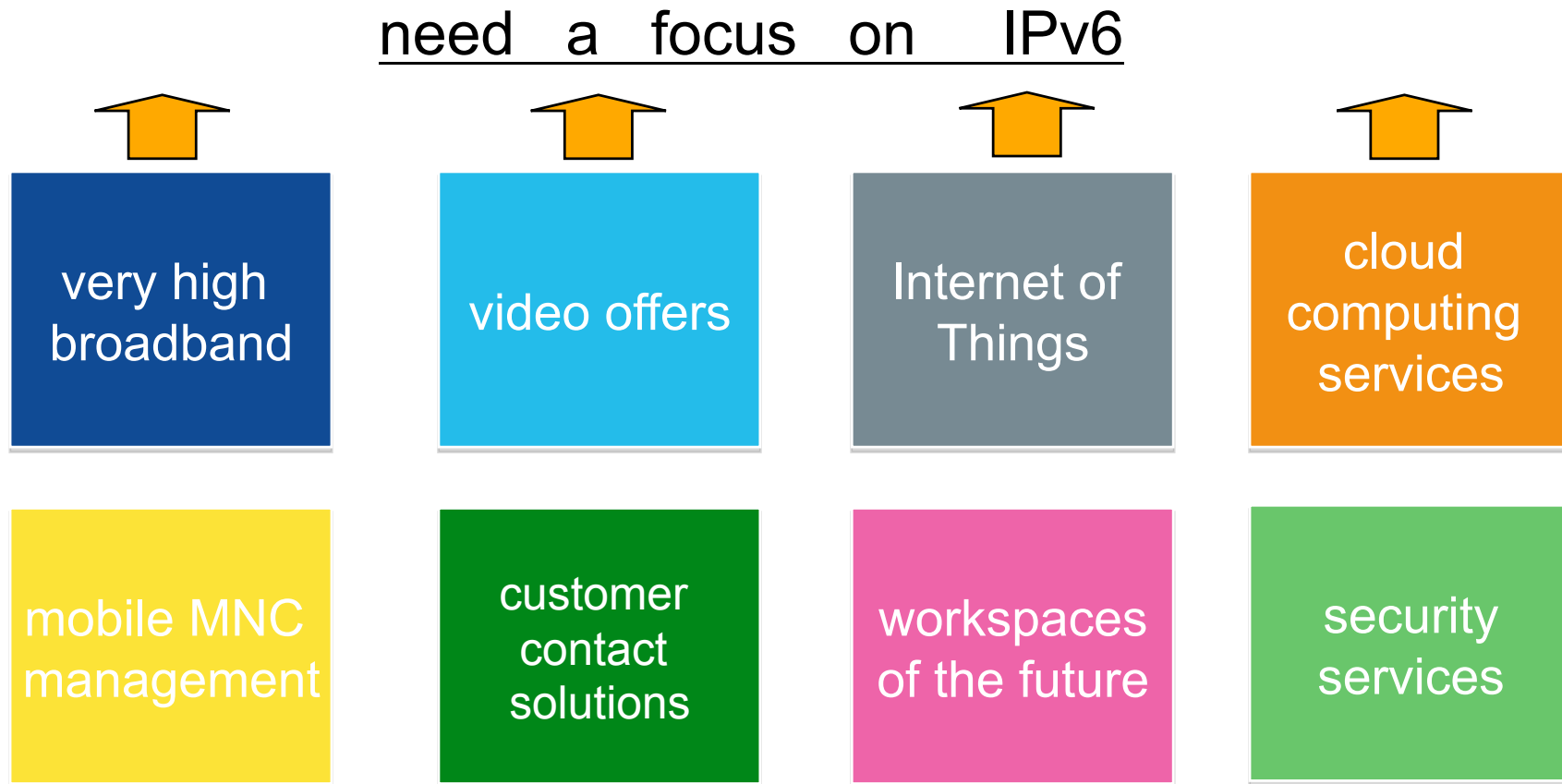
focus on our
growth areas and
bring new
services to market
effectively

define and deploy
the best regional
strategies

conquestS 2015
together, we can do more

optimize our
performance

our growth areas



2 | drivers



key business driver



- **lack of global IPv4 addresses infers two major collateral damages**
 - **customer's QoE degradation** because of aggravated address translation (NAT) hurdles
 - access to user-generated contents is jeopardized
 - VoIP QoS is questioned by the severe performance degradation inferred by traversal techniques (switching performances of access Session Border Controllers can be downgraded by more than 50%)
 - **likely risk of losing customers**
- **roadblock for growth** in major mobile markets (like France) where private IPv4 addresses are already running out

business opportunities with IPv6



- **anticipate global internet evolution**

- make sure residential and business customers can access IPv6 contents whatever their location (Asia, Europe) as soon as 2012

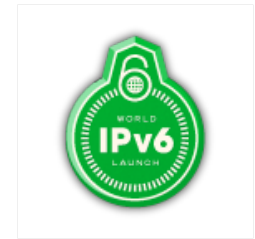
- **consolidate technical leadership**

- promote IPv6 usage while confirming robust know-how
- cornerstone of business development for the corporate market

- **become a major IPv6 reference in Africa**

- primary motivation to develop business in countries that now welcome large Asian communities

IPv6 M2M business catalyst



▪ a federative layer

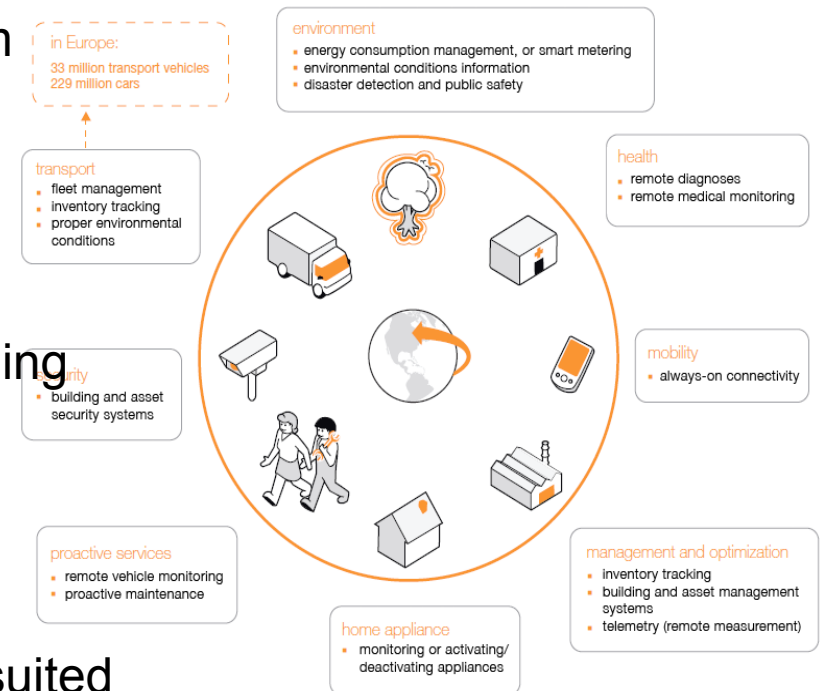
- cornerstone of the “Internet of Things” for the sake of interoperability and E2E paradigm

▪ IP is ubiquitous and scalable

- anything can be transported over IP
- IP can be transported over (almost) anything

▪ current SoA includes lightweight IP implementations

- few kilobytes of ROM and RAM are well-suited for CPU- and energy-constrained devices



Why IPv6?



- **a sustainable evolution of IP protocol**
- **an (almost) unlimited addressing capacity**
 - IPv6 addresses are 128-bit encoded, yielding up to $\sim 5.10^{28}$ addresses per person on Earth
 - M2M-inferred environments assume tens (*e.g.* home services) to thousands (*e.g.* urban services) of connected devices
- **advanced self-configuration capabilities**
 - devices automatically form their IPv6 addresses, discover their neighbors and are up and running as per a plug'n play approach
- **most of M2M nodes are severely CPU- and energy-constrained**
 - room for one IP stack, not two
- **technically, usage of private IPv4 addressing remains an option but becomes rapidly questioned**
 - M2M networking environment crosses administrative boundaries (*e.g.*, coordination of production plants deployed worldwide) or assumes several thousands of nodes (*e.g.*, urban-wise power metering)

3

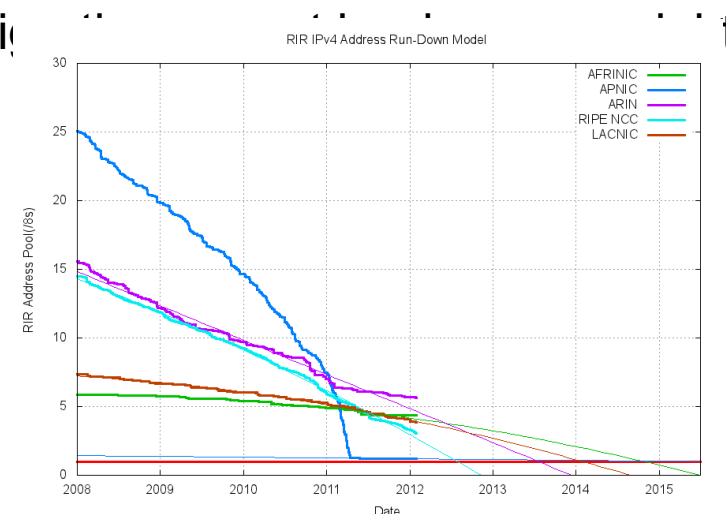
challenges



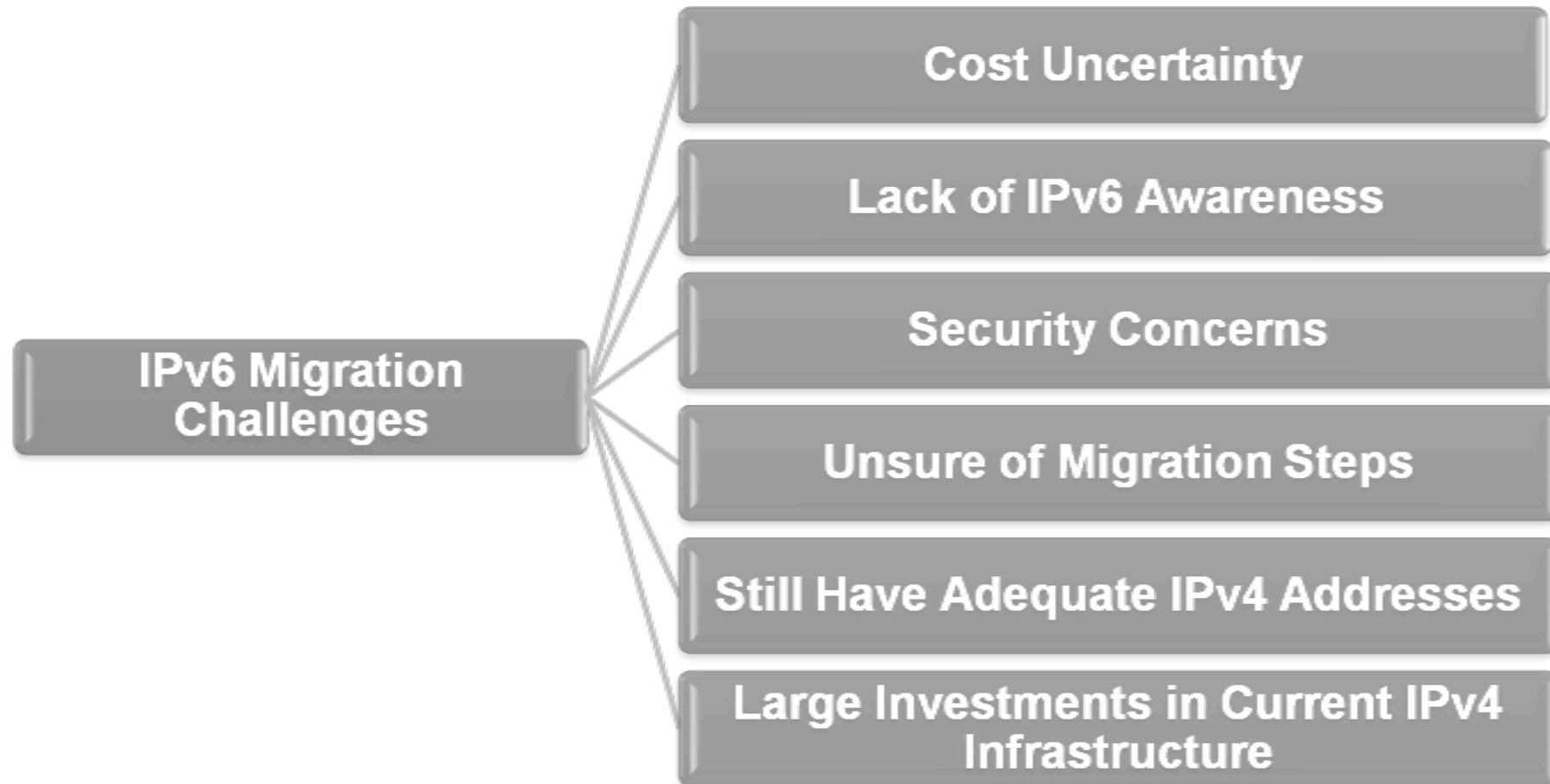


0 address, 1 solution, 2 problems

- **IPv6 is the only perennial solution to global IPv4 address depletion**
 - Cornerstone of business development (mobile data, M2M)
 - One-size-fits-all solution (enterprise, mobile, N-Play, wholesale)
- **but IPv4 service continuity during forthcoming transition period is a MUST**
 - Not addressed by IPv6 because mi



challenges for decision makers



deployment challenges for business owners



- support for IPv6 in many products is still new and not nearly mature as their IPv4 counterparts
- support for IPv6 remains a gap for various security components
- back office tool upgrades to integrate IPv6 in IT Tool change remains a challenge
- large scale testing and interoperability between various IPv6 products is critical for success of any IPv6 deployment
- simply having IPv6 network connectivity available is not sufficient
- not all contents and services are IPv6 compliant (eg. IPTV), CPE and STB vendors are still not IPv6 ready.

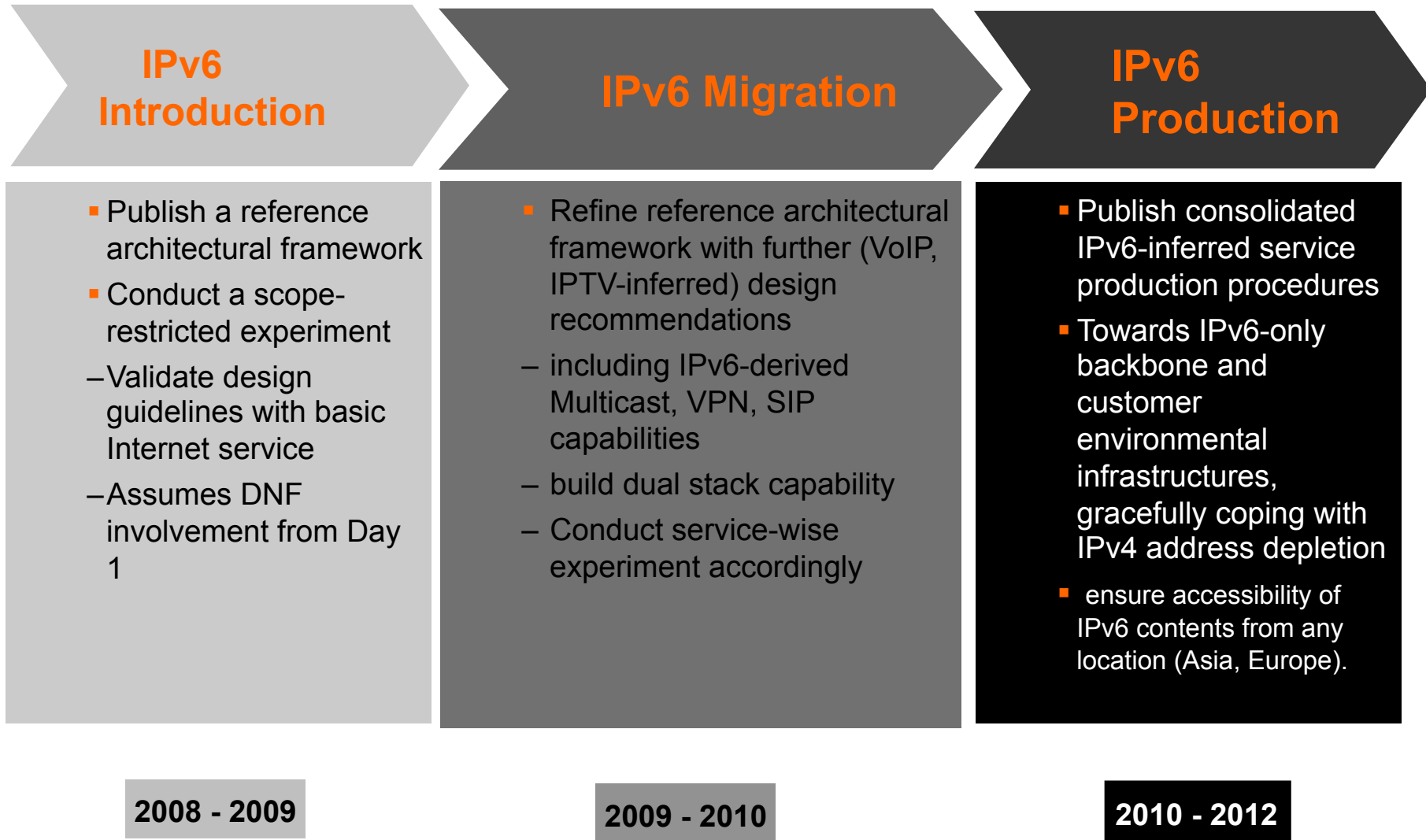


4

status & conclusion



Orange – a phased approach



status



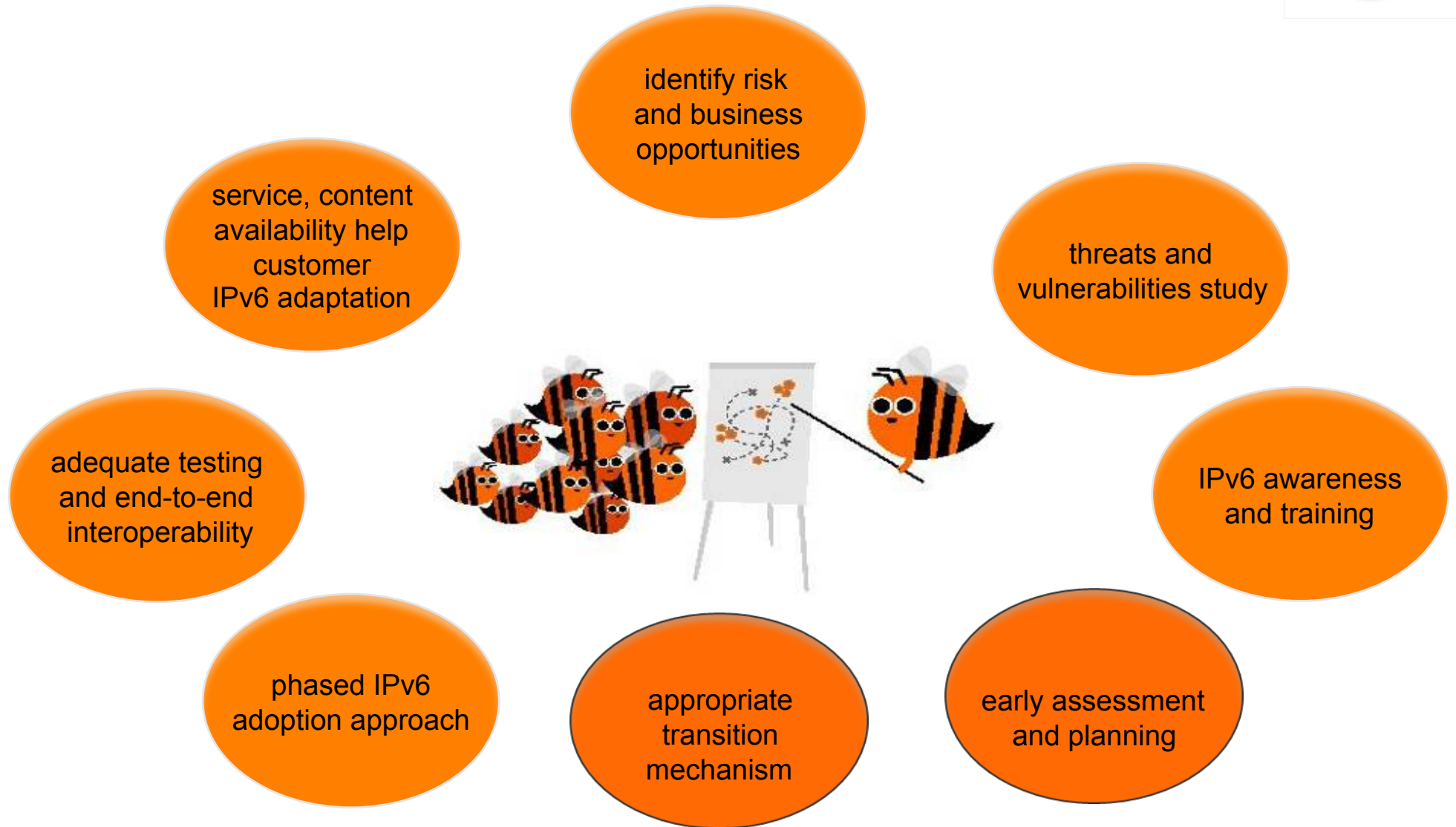
- **IPv6 transit offering available since 2002**
 - OpenTransitV6 (US, Europe, Asia)
- **19 countries ignited IPv6 activities & projects since 2008**
 - several pilot deployments started in 2010 (France, Moldova, Senegal) and 2011 (Poland)
 - additional affiliates to join in 2012
 - Moldova (mobile) and Poland (fixed/mobile) to launch IPv6 service in 2012
- **worldwide availability 130+ countries**
 - for enterprise business solution
- **our network products (VPN & internet) are IPv6 dual stack capable since 2009**
- **IPv6 consulting service to help our customers for IPv6 adaptation**
- **large pool of IPv6 trained technical work force, group-wise**



Image by Emily Alston of the Young Creatives



learning and conclusion



thank you

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