Drivers and barriers for inter-network connectivity

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Communications landscape

- Faster
  - Increased demand for capacity
  - Improved access and transmission technologies
- Cheaper
  - Convergence on IP
  - More and different service providers
  - Competitive price
  - Lower cost base
- Better
  - Proliferation of services
  - Global availability
  - Quality of Service
  - Customer interaction and service

LTE growth 2013-18 CAGR 47%

Europe mob rev 2008-12 CARG -4.7%

Snapshot of consumer service evolution

Defined consumer service: messaging services – SMS, MMS, video messaging, apps, and social networks

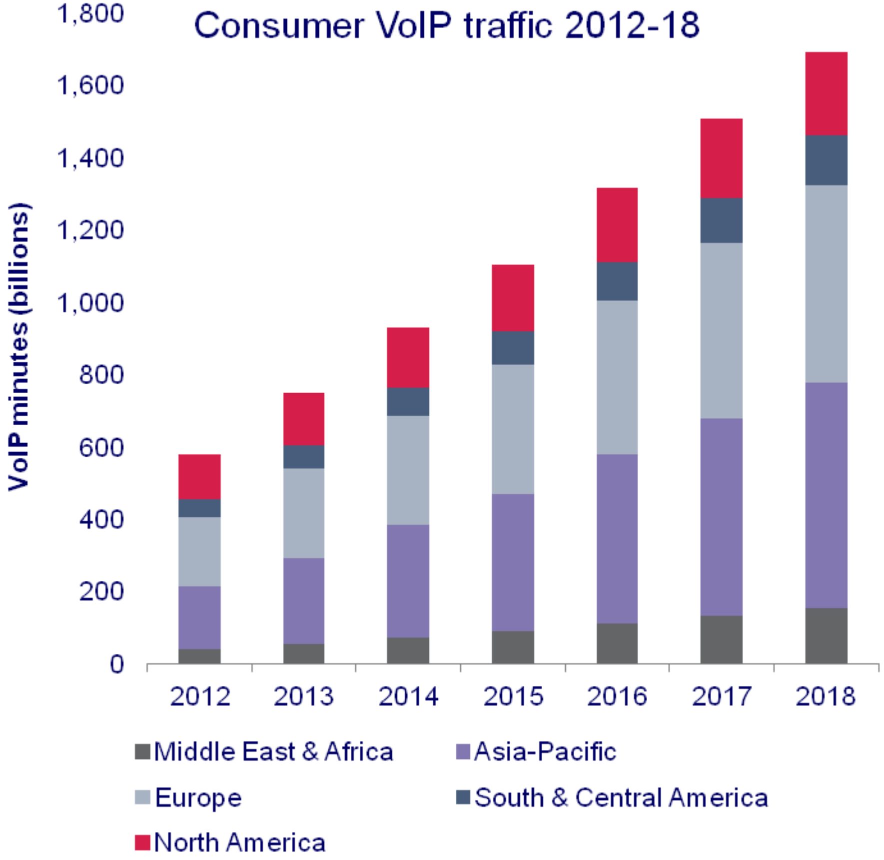
Technology and service adoption	2010–13*	2014–17*	2018–21*	2022–25*	Adoption barriers
Decline		**SMS** **MMS** **IM**		**4G** **Email** *Social network PM* *Social network IM* *VoIP messaging integration*	
Maturity	**SMS** **Email** **IM** **MMS**	**Smartphones+** **Email** *Games*	*Social network PM* *Social network IM* *VoIP messaging integration* *Location services* *Payments* **Smartphones+** **4G** **Email**	*Unified communications stream* *Video and VoIP integration* *Connected TV* *Location services* *Payments* *Sharing* **Smartphones+** **RCS** **WebRTC**	**Disruption barrier:** NGN competition (5G)
Mainstream	*Social network IM* *Social network PM* *Games*	*Messaging apps* *Social network IM* *Social network PM* *VoIP messaging integration* *Location services* *Payments* *Sharing* **Smartphone+** **4G** **RCS** **WebRTC**	*Connected TV* *Unified communications stream* *Sharing* *Video and VoIP integration* **RCS** **WebRTC**	*Curved screens* *Device agnostic* *Connected home communications* **Augmented reality**	**Growth barrier:** Laggards more difficult to convert and innovation slows.
Early adopting	*Multi-device* *Mobile media* *Sharing* *VoIP messaging integration* *Payments* **Smartphones+** **4G** **RCS**	*Connected TV* *Curved screens* *Unified communications stream* *Device agnostic* *Connected home communications* *Video and VoIP integration*	*Curved screens* *Device agnostic* *Connected home communications* **Augmented reality**	**Virtual presence**	**Critical mass barrier:** Failure to find vehicle or proposition for mass market penetration.
Innovating	*Connected TV* *Curved screens* *Unified communications stream* *Device agnostic* *Connected home communications*	**Augmented reality** **Virtual presence**	**Virtual presence**		**Take-off barrier:** The intangible value problem of digital forces use of 'free'.

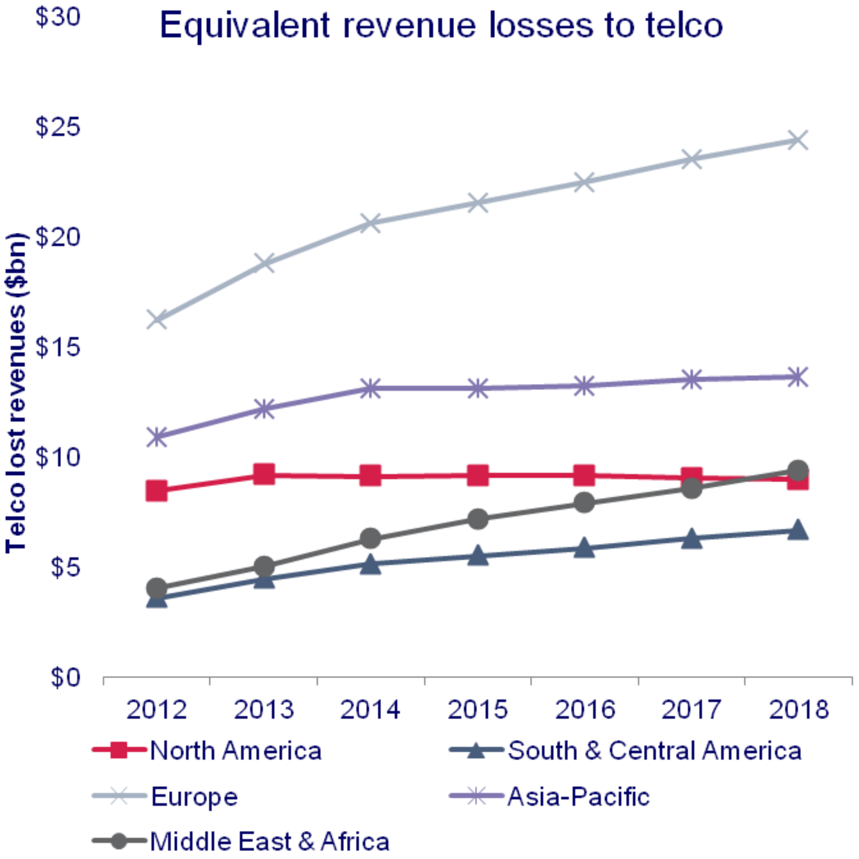
Text in bold = core technology
Text in italics = service feature

* Unspecified time in year band

Source: Ovum A Guide to the Future of Mobile Messaging

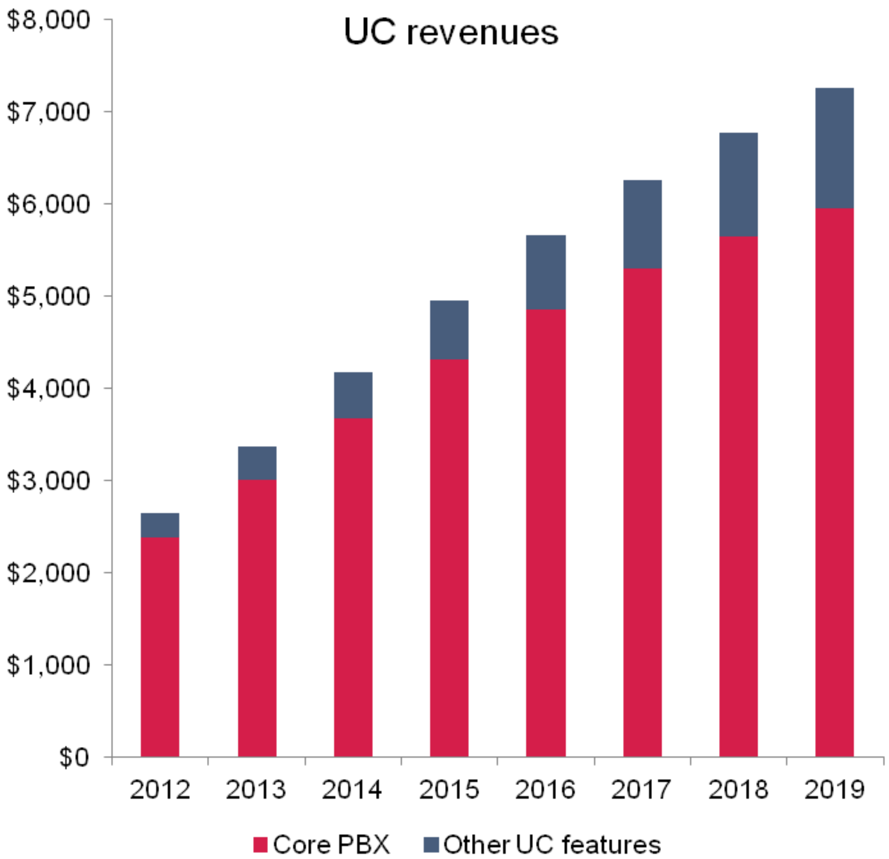
VoIP a sign of things to come?

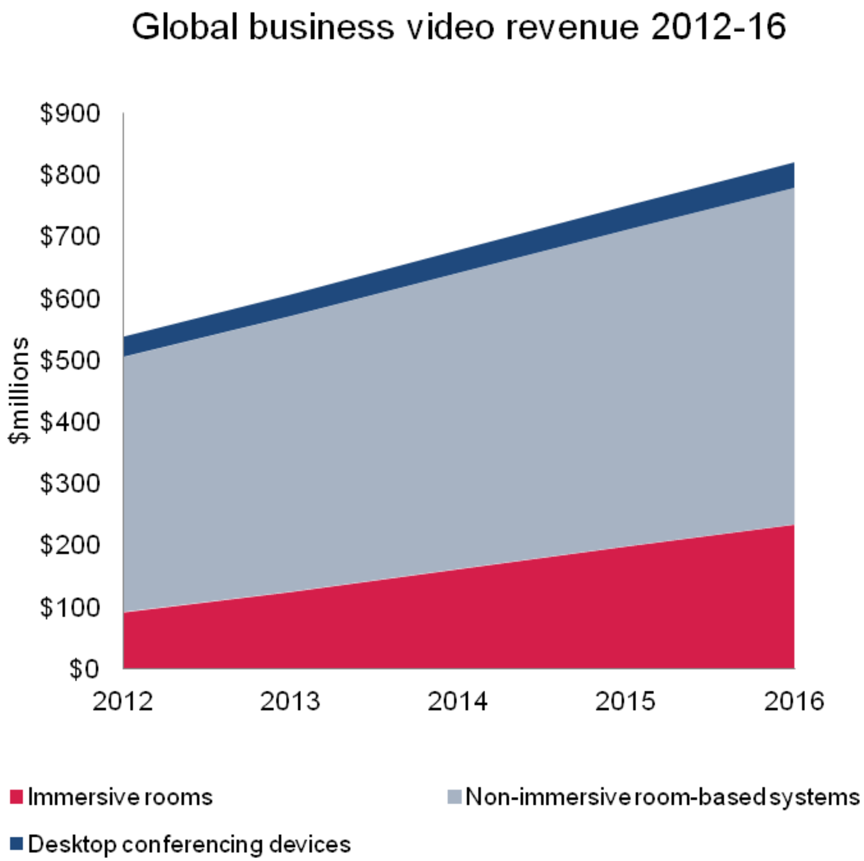




Source: Ovum Consumer OTT VoIP Forecast: 2013–18

Revenues growing fast in enterprise environments

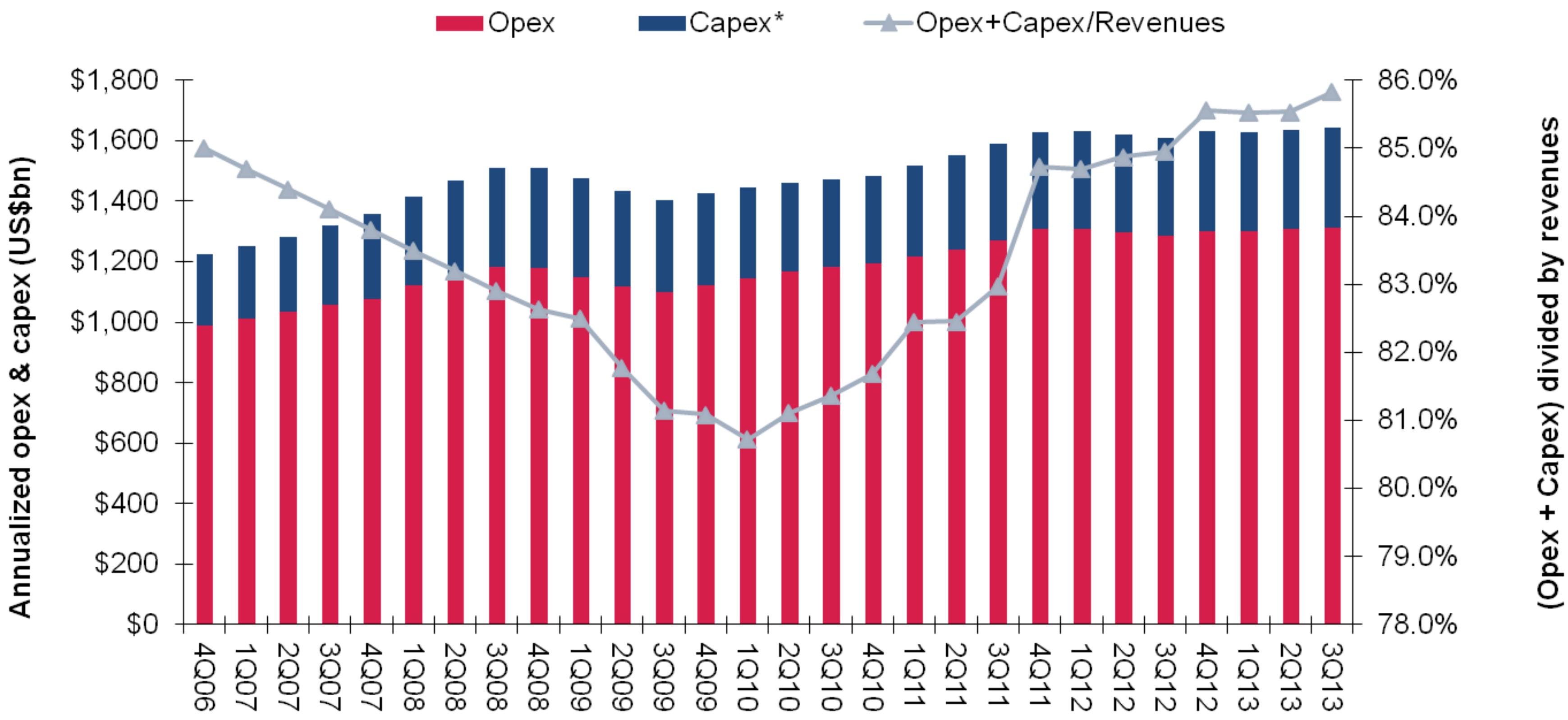




Volumes are growing much, much faster – data explosion

Source: Ovum enterprise video and UC forecasts

CSP cost to revenue pressure



A fundamental change to cost or revenue needed for a healthier future

Source: Ovum Service Provider Revenue and Capex Forecast Spreadsheet: 2013–19

Retail trends driving improvements from wholesalers

- Increasing data throughput speeds and capacity
- All IP networks
- Commoditisation of core voice, access and transit services
- New types of service provider with different business models (OTT)
- Severance of the link between network and service

Demand wholesalers deliver:

- ***Seamless*** global connectivity
- ***Competitive*** pricing
- ***Excellent*** customer service
- ***Variety*** in product breadth and depth
- ***Flexibility*** in upgrade paths and business models
- Quality of Service and Class of Service ***differentiation***

Industry trends impact on demands of IPX customers

- Global connectivity to compete with global web-based services
- Manageable QoS to support new services effectively and efficiently
- Faster speed to market with better services
- Flexibility in capacity to meet unpredictable growth in demand
- Step change in their cost base or creation of new revenue streams or both

Three routes to IPX growth

1. Connection only, to provide IP interworking, end-to-end quality of service and security.

2. Through the interworking of IP services with legacy voice and data services and their migration to IP

3. Through development of new services, including Diameter signaling, VoIP, videoconferencing, and RCS

- These are not mutually exclusive and each has different dynamics and drivers that can be targeted by IPX providers

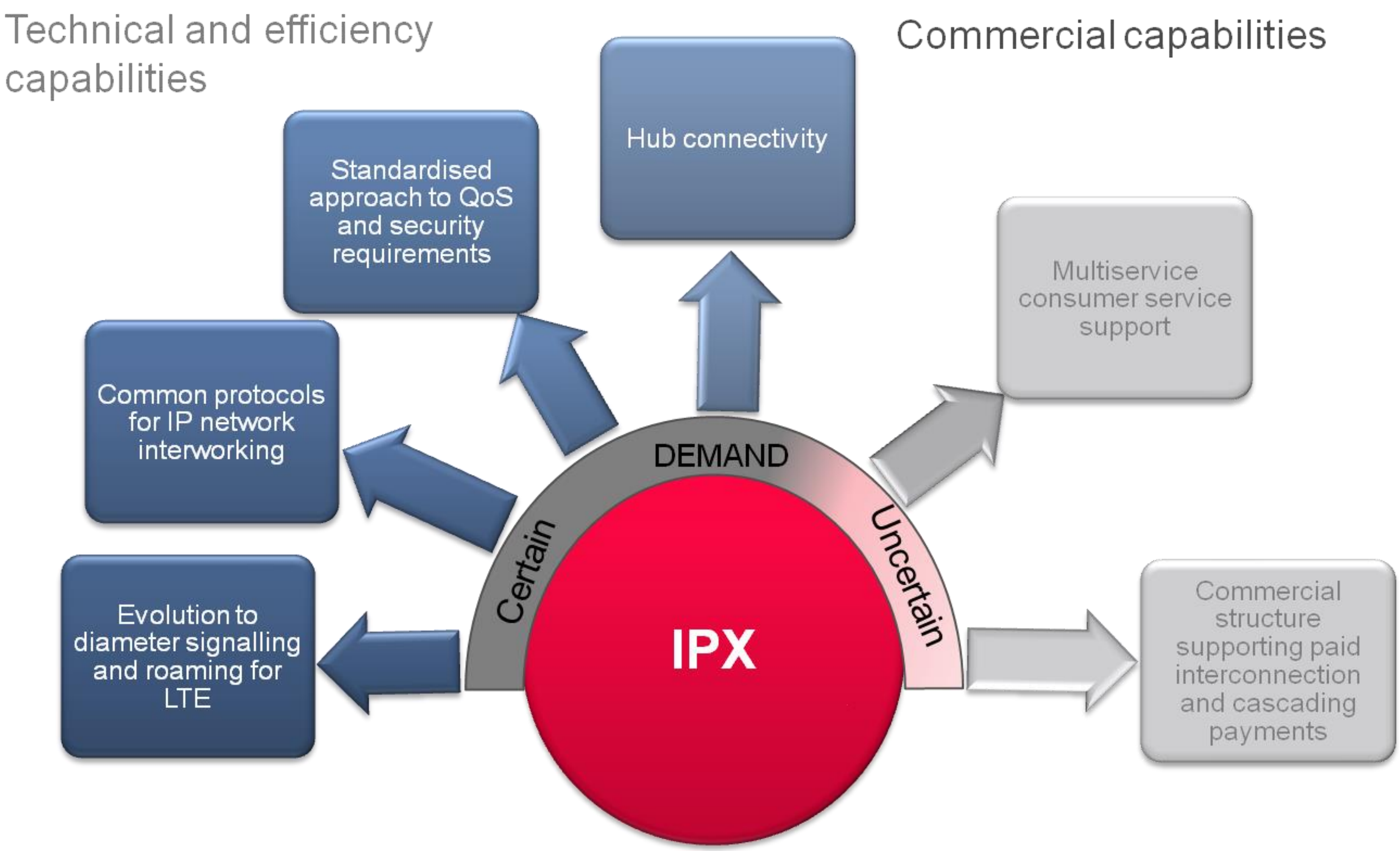
- The phases converge around LTE

LTE changes the game as user behaviour changes

The IPX market has begun

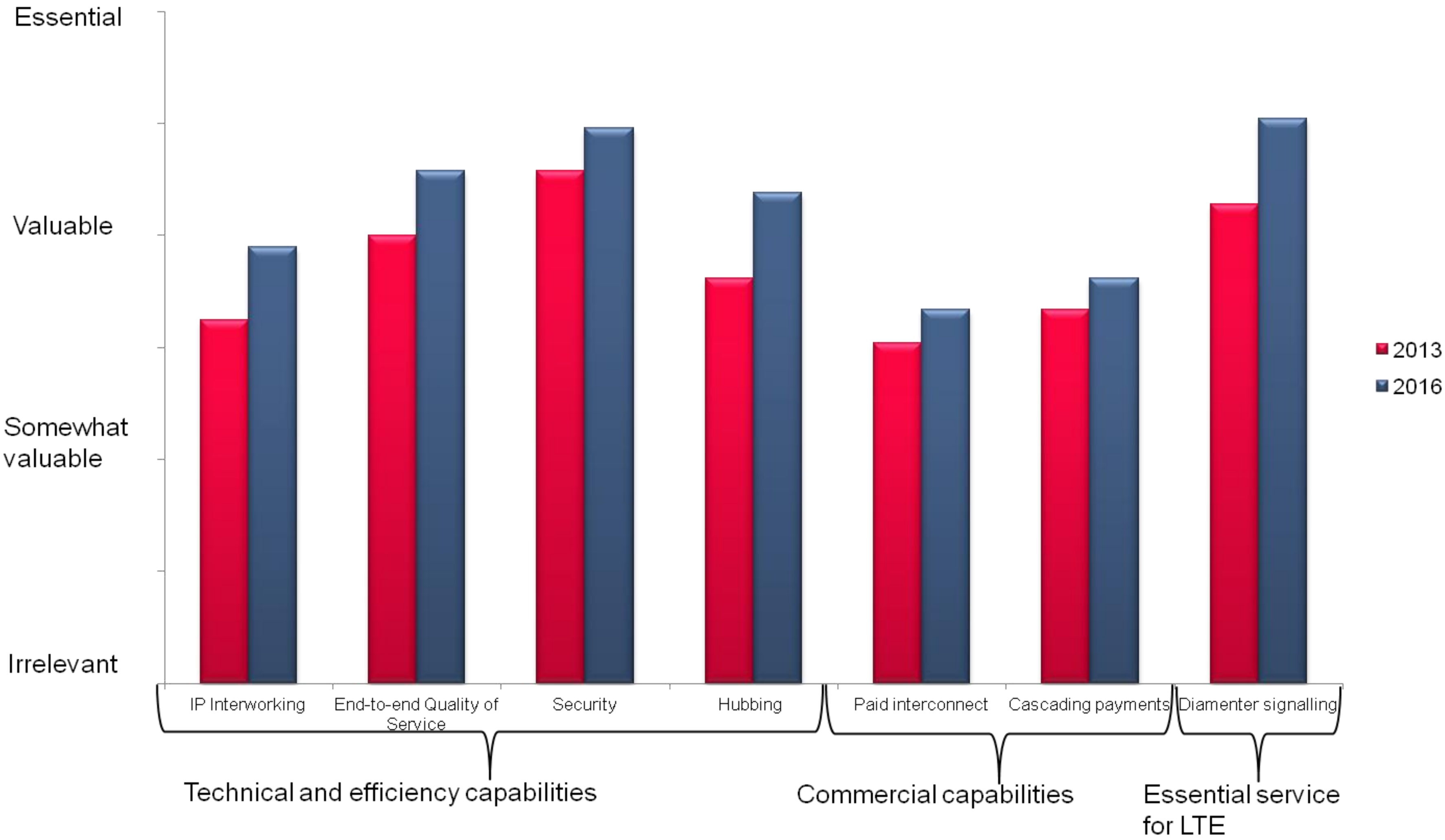
- IPX take up is growing amongst mobile operators. 43% of operators that responded to our survey currently use IPX. This is set to rise to 78% by the end of 2014
  - Most use it for legacy services – GRX and voice
  - LTE is the driver for the take-up of new services
- The technical and efficiency capabilities of IPX – IP interworking, security, Quality of Service (QoS) and hubbing are considered more valuable by mobile operators than the commercial ones – multiservice interworking and cascading payments
- Hubbing is the only sensible structure for the future – bi-laterals make little sense technically or commercially
- IPX is a solution for both legacy and new services; only by addressing both of these can wholesale providers maximize the opportunities IPX offers

Interest in IPX capabilities 2013



Source: Ovum “Putting IPX in its Place

The perceived value of IPX features to mobile operators 2013 and 2016



Source: Ovum “Putting IPX in its Place

Shifts coming from LTE

General pressure enhanced

- Pure traffic levels
- Video dominance
- Service choice
- Unpredictability of demand
- Creativity of roaming packages at the retail level
- Impact on legacy technologies

Early examples of carrier innovation

- Telstra Global - burstable data roaming capacity and dynamic CoS allocation
- Tata Communications – hosted policy management

The good news with IPX

- Global connectivity for current and future IP services
  - Hub over bi-laterals
- Global service interworking
  - Services added as they are demanded by CSPs
    - GRX
    - Voice and VoIP
    - Signalling (SS7, Sigtran, Diameter)
    - LTE roaming
    - *RCS*
    - *Video streaming*
- Standardised class of service

...*but* largely missing so far

- Burstable capacity
  - Telstra Global offers this for LTE roaming but there are few other examples. Help your customers by taking the risk out of traffic predictions
  - Not trivial as building models that mean busting or on-demand capacity doesn’t break existing volume packages is difficult.
- Manageable QoS
  - Classes of service defined but needs ***policy management*** to use these
  - Another investment for operators and one that is embedded in their core network.
  - Needs to work in home network, across the IPX and in the terminating or roaming network.
  - What can carriers do to help – specifications, hosting???
- Faster speed to market with new services
  - IPX can support many services. Should inter-IPX testing and implementations needs to be done ahead of operator launch?
  - Support different models to reduce capex for new services – hosting?

Recommendations for IPX players

- Co-operate quickly to develop standards and recommendations that mean carrier are never a barrier to take up
- Build capabilities on but beyond the standards
- Understand weaknesses and leverage strengths in legacy services
- To create differentiation, add value to retail services that have a discernible revenue stream in the long term
  - Develop a Plan B for consumer retail that assumes no direct retail revenue stream will be attached
  - Ensure enterprise services are well supported
  - Build solutions that help CSPs migrate and build new service portfolios and capabilities
- Stay close to wholesale customers and do not be driven only by Group demands or timescales

Ovum further reading

- A Guide to the Future of Mobile Messaging - March 2014
- Consumer OTT VoIP Forecast: 2013–18 - November 2013
- Consumer OTT VoIP Outlook: 2013–18 – November 2013
- Service Provider Revenue and Capex Forecast Spreadsheet: 2013–19 – Jan 2014
- Service Provider Revenue and Capex Forecast Report: 2013–19 – March 2014
- Putting IPX in Its Place – March 2013
- Comparative Analysis of IPX Wholesale Provider Strategies – April 2013
- Vodafone Carrier Services to play LTE roaming trump card for IPX – Noc 2013
- BICS identifies signs for bright IPX future – August 2013