ASIA-PACIFIC TELECOMMUNITY

14th APT Policy and Regulatory Forum (PRF-14)
20-22 May, 2014, Pattaya, Thailand

Document
PRF-14/**INP-** 15

16 May 2014

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ICT TRENDS IN ASIA PACIFIC

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ICT Trends in Asia Pacific

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22 May 2014

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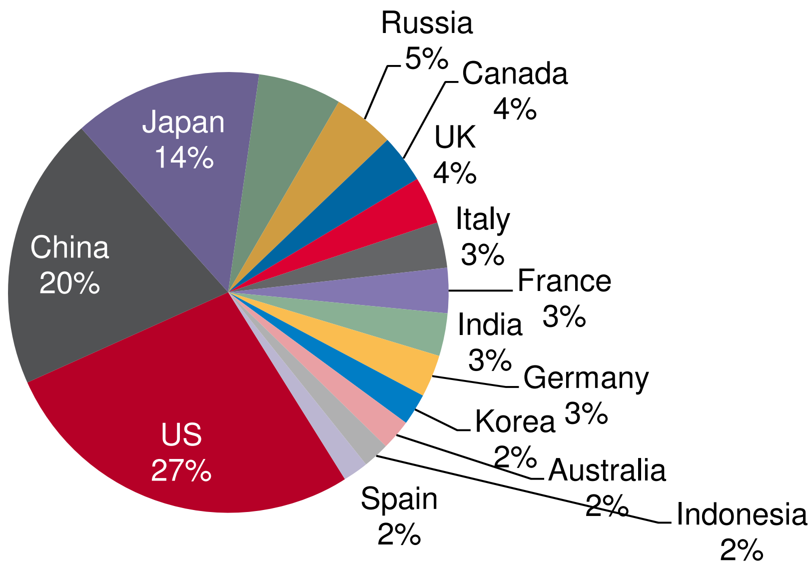
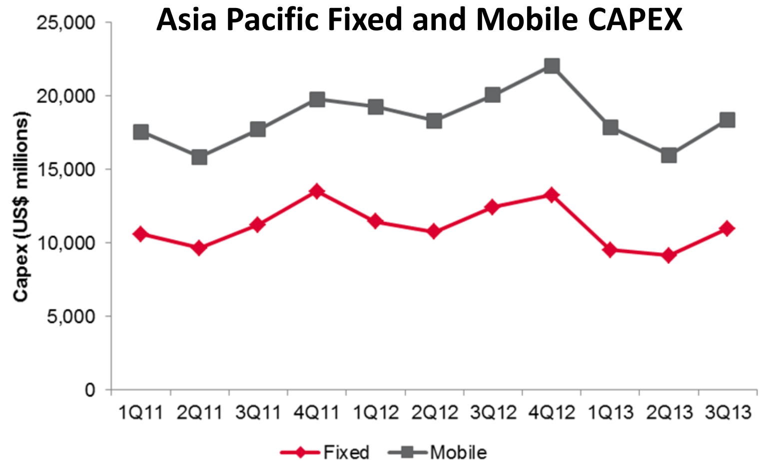
ICT TRENDS IN ASIA PACIFIC

Asia Pacific is a strong region for telecom spend and innovation

- Fixed and mobile capex healthy, but predominately fuelled by China and Japan
- Many examples of technology and service innovation are originating in Asia Pacific
- Telecom/IT standards often have regional variations, that can emerge into the wider market (such as TDD LTE from China and Wibro/WiMAX from Korea)
- A number of leading fixed and wireless access networks are based or being built in the AP region. Includes private and government supported FTTH rollouts, higher speed, capacity density and larger coverage area mobile networks
- These next generation access networks are likely to increase future service development and innovation within this region

Key countries' share of 2012-18 CapEx (total: $2.4 trillion)

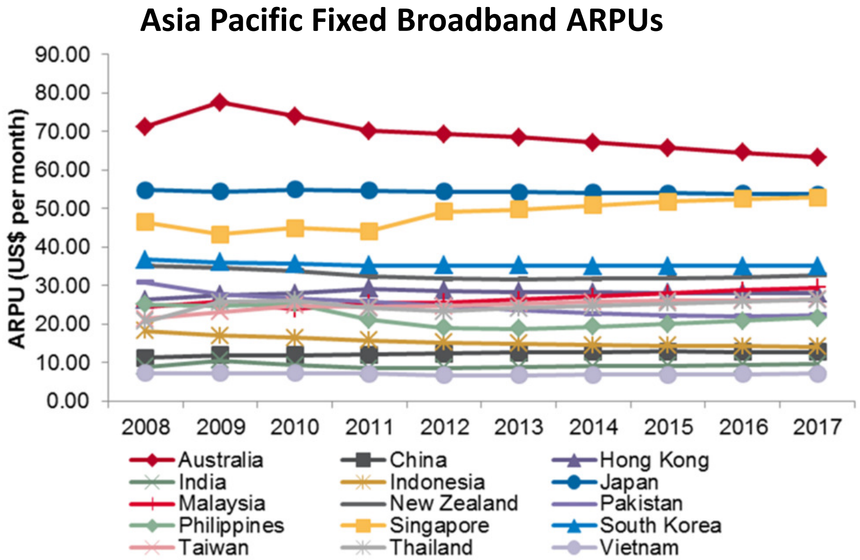


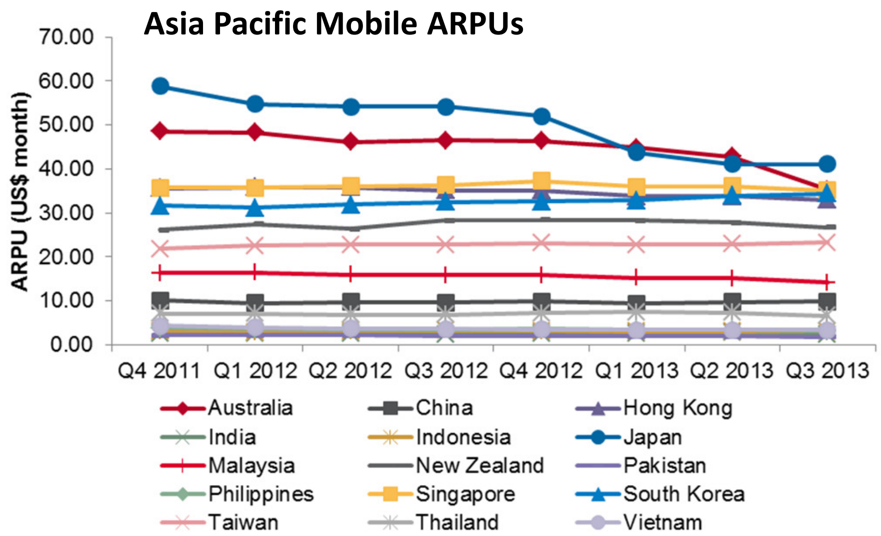


Source: Ovum

Fixed broadband & mobile ARPUs generally flat in Asia Pacific

- Large diversity in Asia Pacific markets, with Fixed broadband ARPUs ranging from US$7 (Vietnam) to US$69 (Australia) per month in 2013
- Mobile ARPU also shows a large diversity between different markets, with mobile ARPUs ranging from US$2 (Pakistan) to US$41 (Japan) per month
- Both Fixed broadband and mobile ARPUs are generally flat
- Operators are seeking new revenue opportunities and operating models such as:
  - M2M;
  - Cloud;
  - Managed; and
  - Content services.

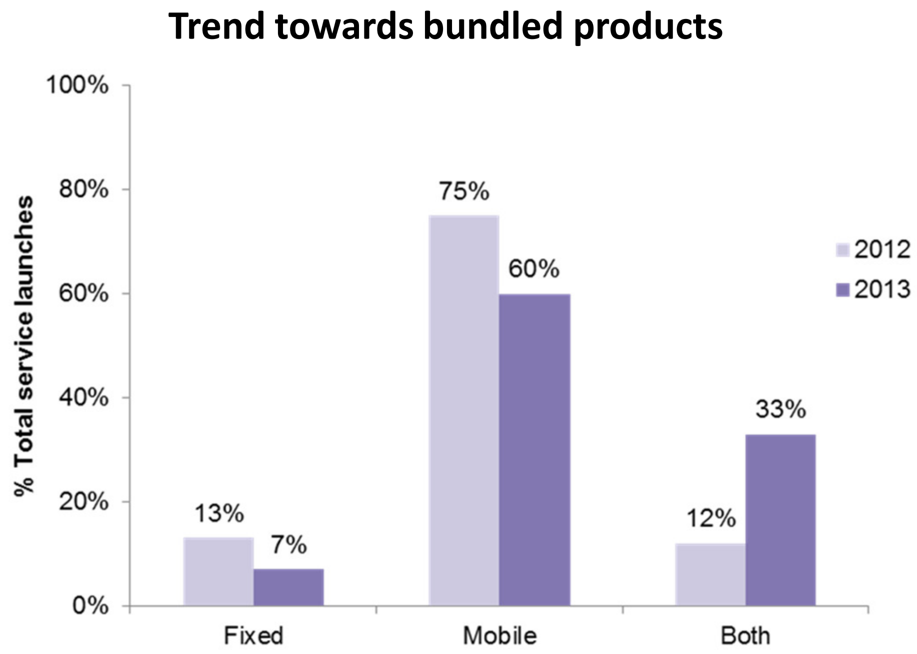




Source: Ovum

Operators are utilizing broadband as the anchor product in retail bundles

- For both fixed and mobile, broadband has become the anchor product in multi-play bundles.
- Operators are facing declining voice revenues and an increasing number of customers are cutting the cord on home voice services.
- Broadband presents a critical opportunity to capture revenues to replace lost voice.
- TV revenues are the anchor product in multi-play bundles in which the services are stickier, the customer perceives more value from the combined bundle than the individual services.
- Operators will attempt to provide more ways to connect people, places and things via web-based secure user interfaces that optimize the customer's experience according to their specific device, location, or network conditions.



Source: Ovum

Operator focus is also shifting from network-based competition to service-based competition

- There is a steady drive towards fewer telecoms networks – either driven by governments or agreed commercially.
- Governments' commitment to national broadband initiatives have led to moves back to a single network model. Singapore, Australia, Malaysia and New Zealand are all examples of government supported high speed broadband access networks.
- Mobile network sharing continues to grow, with a more commercial cost reduction focus. Examples include Optus and Vodafone in Australia, Maxis and U Mobile in Malaysia and Bharti Infratel in tower sharing agreements in India.
- With more wholesale networks and more network sharing, competition will increasingly be around services rather than based on the network.

Source: IDA

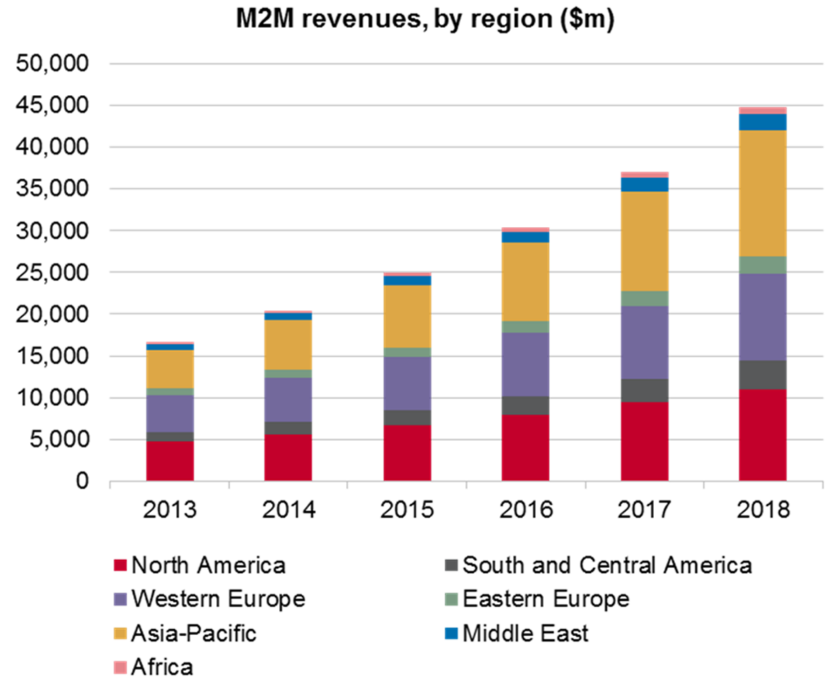
Cloud services in Asia Pacific to be concentrated in key connection hubs

- The drivers behind the increasing demand for high-quality data center co-location space and connectivity are part technology, part industry-specific, and part economic.
- Data center technology refreshes are typically required every 10 years, and in a world where technology, digitization, and the cloud make it difficult to predict capacity requirements, many enterprises would prefer to share, driving demand for cloud services.
- Global business requirements are also forcing customers to consider global expansion in regions where they have limited resources. Enterprises have to think about application performance, data privacy, and cloud consumption in a global context. They will need partners to deliver a local and regional presence to respond quickly to market needs.
- Within Asia Pacific, the prime regional locations for data centers for cloud services are in Singapore and Hong Kong, with their strong connections into the regional and global telecommunications networks.

M2M communications provides a revenue growth opportunity for operators

- Machine-to-machine (M2M) communications is a revenue growth area in mobile operators' service portfolios
- The M2M market is not a single market, but rather a collection of markets built around narrow industry verticals and applications.
- The most important industry verticals now are manufacturing and transport, which in 2012 already accounted for more than $1.7bn of revenue in APJ.
- By 2018 energy and utilities will account for 25% of M2M connections in Asia Pacific, followed by transport, manufacturing, and healthcare.
- We forecast Asia Pacific will grow at a CAGR of 26.5% from 2012 to 2018

APJ M2M revenues will account for over one third of global M2M revenues

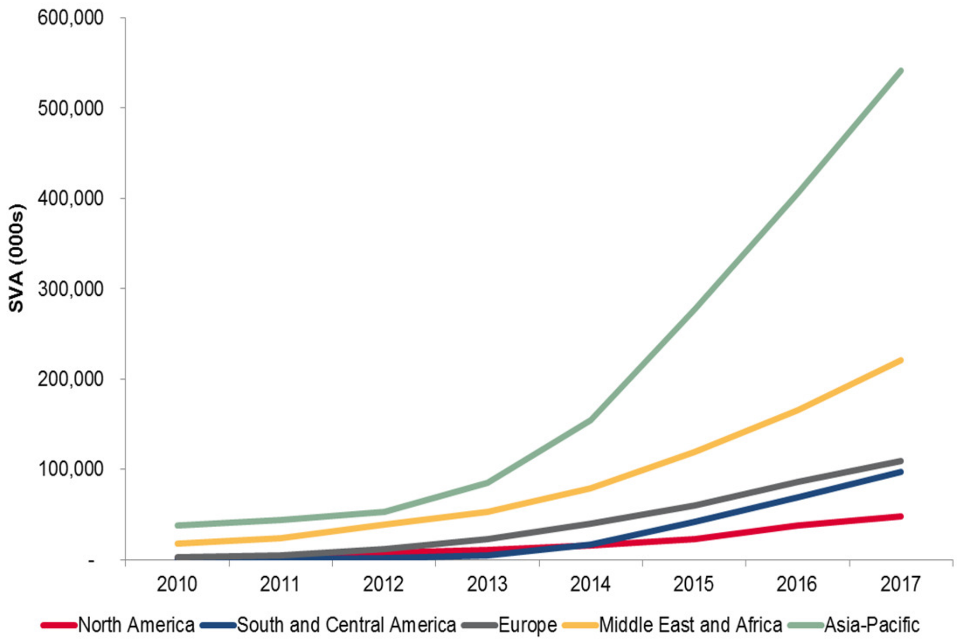


Source: Ovum

Asia Pacific has a strong global mobile payments future

- While the mobile payments market is developing at a rapid rate, it is reliant on existing payment infrastructure.
- The mobile payments market is progressing in several directions with no single roadmap for development.
- The opportunities for mobile payments are significant in all markets, but they will only be achievable through integration with existing payments infrastructure and processes.
- Many markets in Asia Pacific do not have the same cultural legacy of traditional payments methods. The development of newer online and mobile payment technologies means traditional payment systems could be leapfrogged.
- High growth segment but dependent on existing payment platforms. Requires a targeted strategy across the payment platform providers, operators, mobile devices and finance institutions.

APJ to dominate mobile stored value accounts



Source: Ovum

Ovum's AP regulatory & policy scorecard – key findings

- The independence of the regulator is of paramount importance
- National regulators need to undertake frequent market reviews
- Spectrum policy needs to keep pace with many other countries around the world
- Relative to other regions more can be done to remove regulation at the retail level
- Regulators in SEA have made some progress in consumer protection, but more can be done
- Many countries consider access to telecoms services through USO mechanisms
- Several examples of how government involvement can affect the rollout of a national fiber networks
- Governments should seek to reduce overtime any significant shareholdings in national operators

ASSESSING THE BALI PLAN OF ACTION

Assessing the success of the Bali Statement

Project scope

- Provide an evaluation report to APT on the development of Telecom/ICT in the APT member states which takes into consideration the 5 objectives of the Bali Statement.
- Provide presentation of the Report at the Asia-Pacific ICT Ministers' Meeting in Sept. 2014.

Assessment Criteria

- Direct feedback from APT members – we will ask you to "self-diagnose"
- If no feedback from members we will look at benchmarks for assessment such as:
  - Actual and Target penetration levels
  - Promotion and facilitation of broadband services
  - Initiatives for protecting children, e-waste, disaster etc.
  - QoS standards
  - Local content
  - Training and joint research programs

Next Steps

- Write to members for data submissions on Bali progress
- Conduct data research and analysis
- Complete report and presentation for September Ministers' meeting

POTENTIAL TOPICS FOR THE FORTHCOMING MINISTERIAL MEETINGS

Potential discussion topics

- Reducing the burden of regulation
- Converging regulation of broadcasting and telecommunications
- Monitoring broadband QoS: should regulators do this?
- Traffic management: is the net neutrality issue over-rated?
- Copyright piracy prevention: should telecommunications operators have a role?
- Looking broader than access stimulation – development programs for the internet of things
- Mobile payments infrastructure and policy
- Promoting international submarine cable systems for Pacific nations

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