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Challenges in Telecom Regulation

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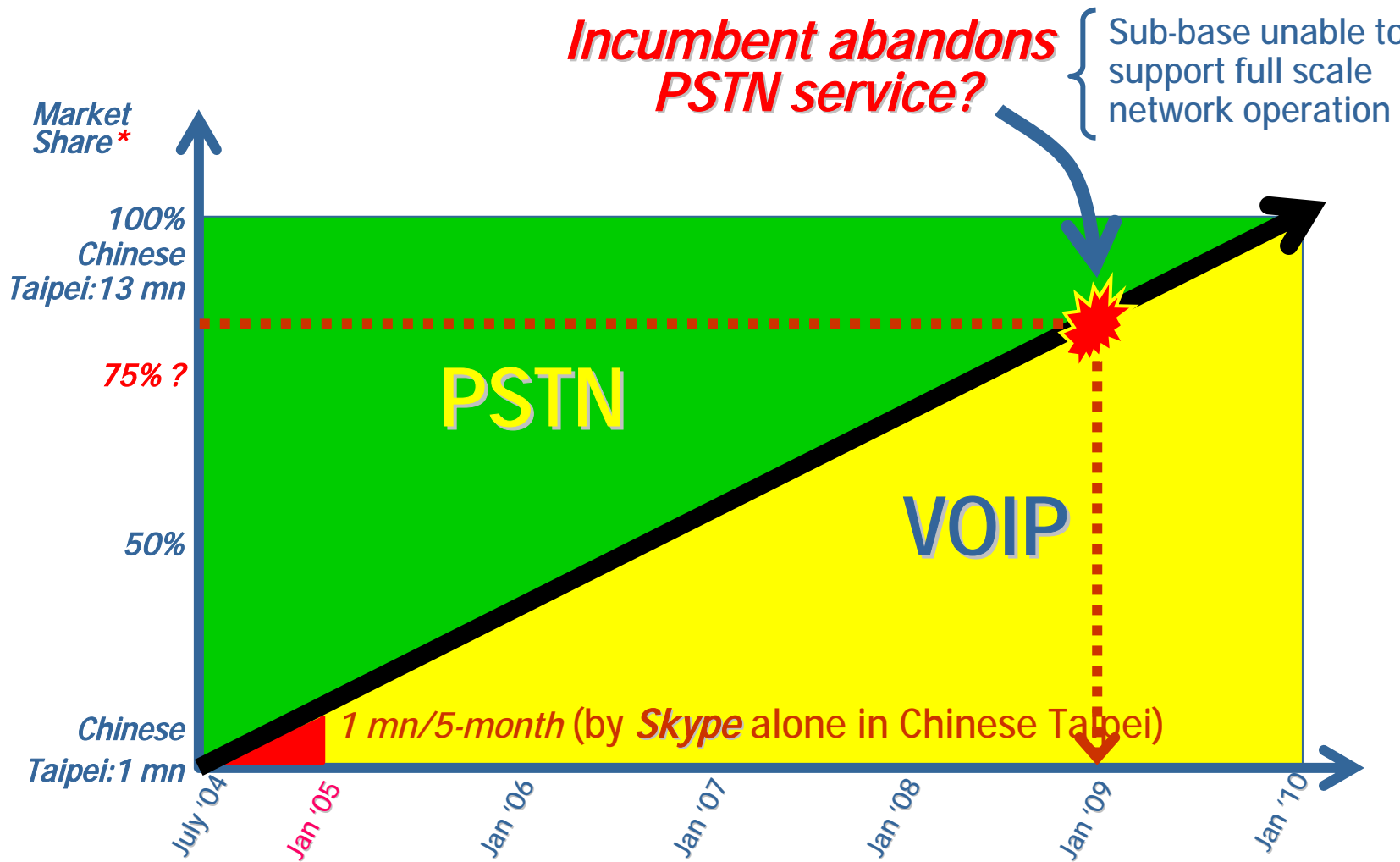
Observations, Vision and Propositions

- Observations – a perfect storm is forming
 - PSTN-based telephony business' ever difficult position
 - Saturating Mobile Voice Service
 - Emerging Wireless technology – disruptive innovation
 - Regulatory regime at crossroad
- Vision – A Structure Change
 - The Convergence of Fixed, Mobile, Wireless, Broadcasting, and Information Services
 - Industry Structure: from vertical to horizontal
- Propositions
 - Regulatory solutions going forward

PSTN --- Endangered Spicy

- **Voice Empire -- Collapsing**
 - Price Cap, ILD Price Competition → Shrinking pie
 - Traffic shift – Fixed Mobile Substitution → 20% to 50%
 - Hi-growth VOIP business → 10% to 20% evaporated, up to now
- **Core Network – Obsolete and Vulnerable**
 - Expanding IP Network – PSTN marginalized
 - Vendors Maintenance Capacity – divested
- **Access Network -- Challenged**
 - Bandwidth: Cable and Fiber vs. ADSL
 - Deployment Cost: WiFi (WiMax) vs. ADSL
- **Regulation -- Unfriendly**
 - Asymmetric Regulation vs. Mobile and Wireless Businesses'
 - USO, Interconnection charge, UNE (for incumbent), ...
- **Business – Stalled**
 - Broadband VAS not taking off, no promising new revenue stream

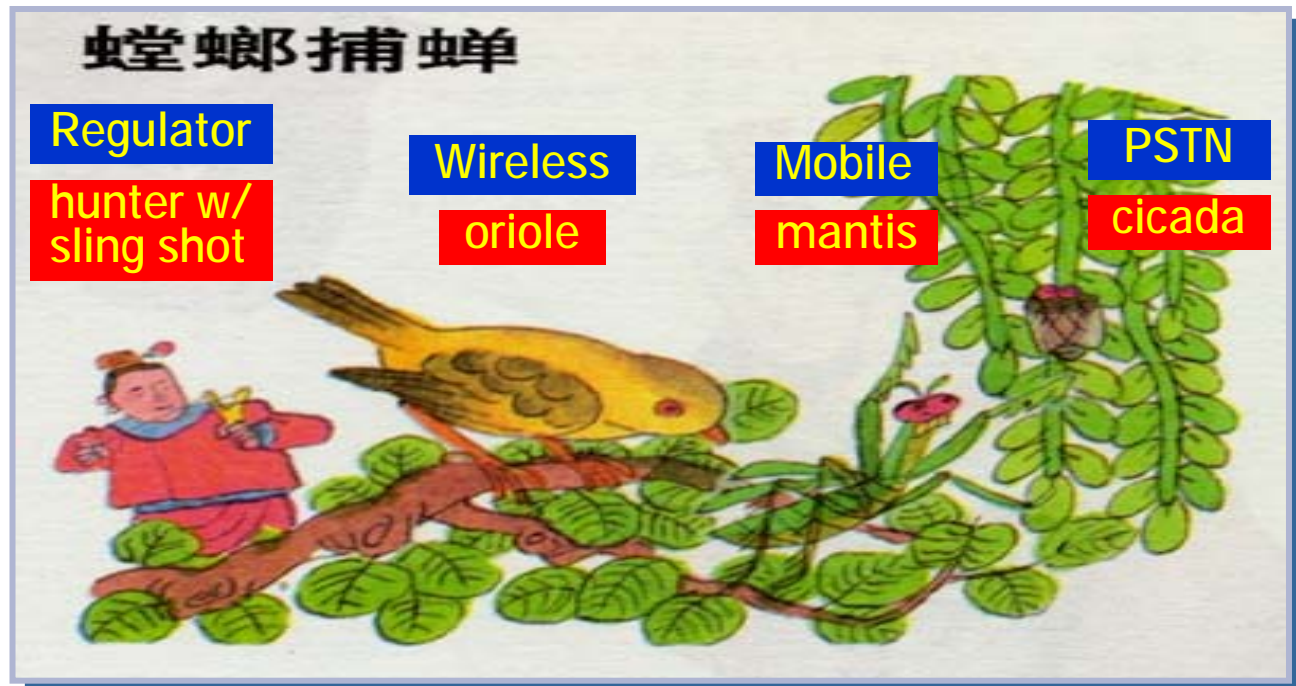
PSTN's Vanishing Point ?



* The fixed-mobile substitution effect not included.

Interplay among Alternative Technologies

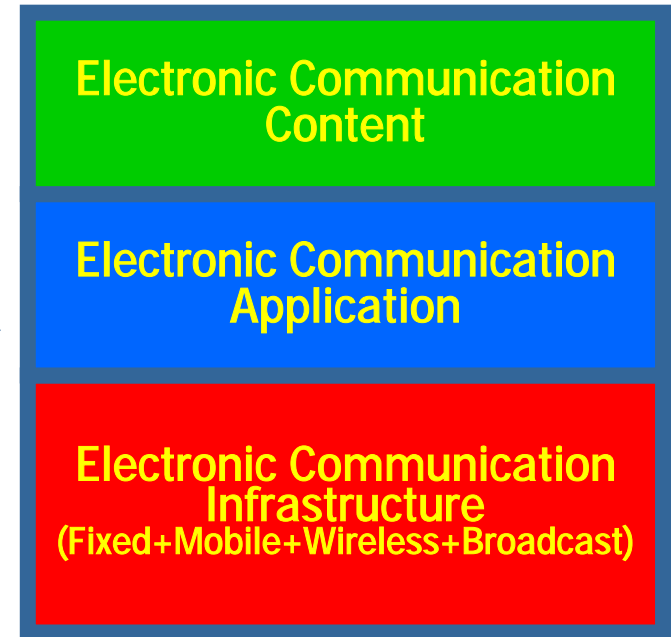
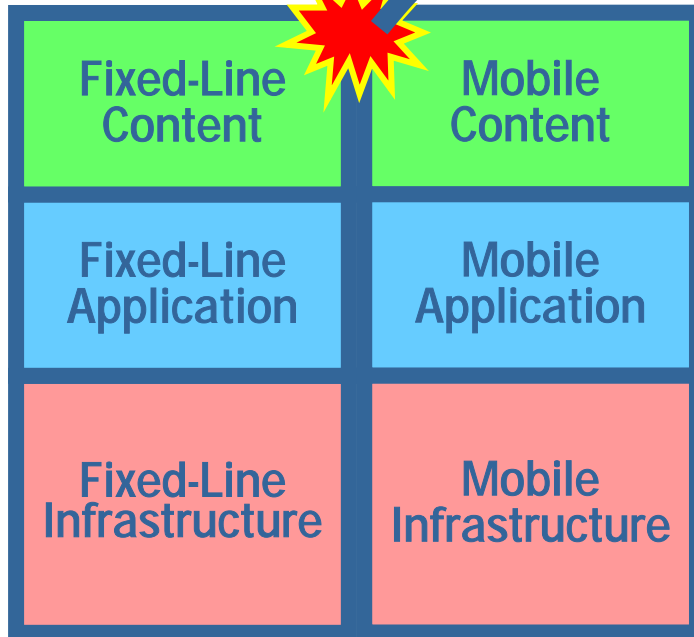
- The Game
 - The mantis is seizing the cicada not knowing the oriole just behind
- The hunter has the power to decide who wins
 - What the hunter should really do is the creation of a win-win-win situation



Vision: Horizontal Convergence

Wireless Services, Broadcast

- Lines between vertical markets blurred
- Industry structure Change
→ Horizontal "Integration"; Vertical Division



Vertical Regulatory Regime

Horizontal Regulatory Regime

Propositions for New Regulatory Policy -- 1

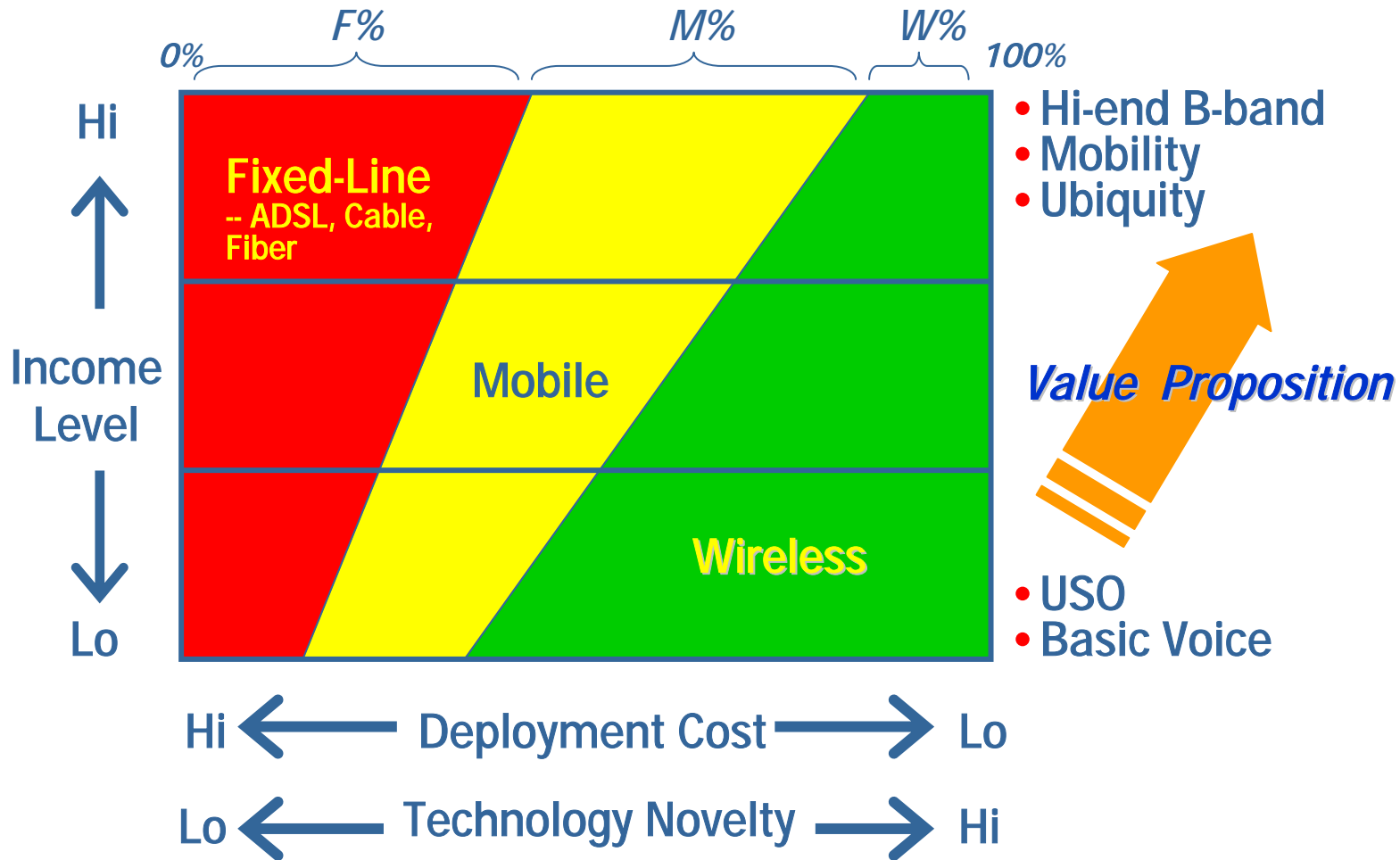
- Don't work against Technological Trend
 - It's useless to prevent a trend from happening
- Don't naively copy other countries' practices
 - Differences in infrastructures' status, competition intensity, consumer spending, calling pattern, ...
- Set Clear Goals
 - Reconcile the interests of governments, incumbents, new entrants, and consumers
 - Provide incentives to promote investment and infrastructure-based competition, and continued development of networks and technological innovation

Propositions on New Regulatory Policy -- 2

- Policy Refocus
 - Fixed-line incumbent's last mile monopoly had been broken by mobile and other wireless technologies
 - Transferring the incumbent's profit to consumer or competitor is no longer a "real" issue going forward
 - Mobile, wireless, cable, fiber, and the old fixed-lines should be all put into regulatory regime's overall picture in the future
 - From asymmetric to symmetric regulation, e.g., USO issue
- For Developed Economies
 - Horizontal integration (interconnection) of various electronic communication technological platforms
 - New form of Virtual Network Operators (VNO) and Content Providers to use new hybrid infrastructure to provide broad-band multi-media seamless services at market cost
 - More market competition force than regulation power
- For Developing Economies
 - Parallel deployment of alternative electronic communication technological platform
 - Watch the digital divide between urban and rural areas

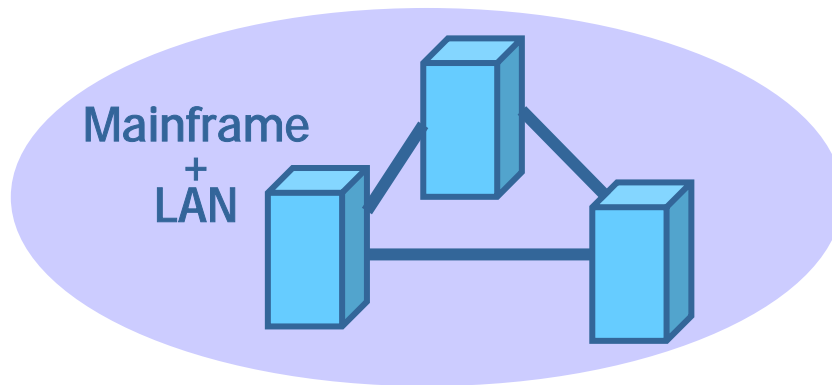
Infrastructure Deployment Strategy

Telecom Infrastructure Composition

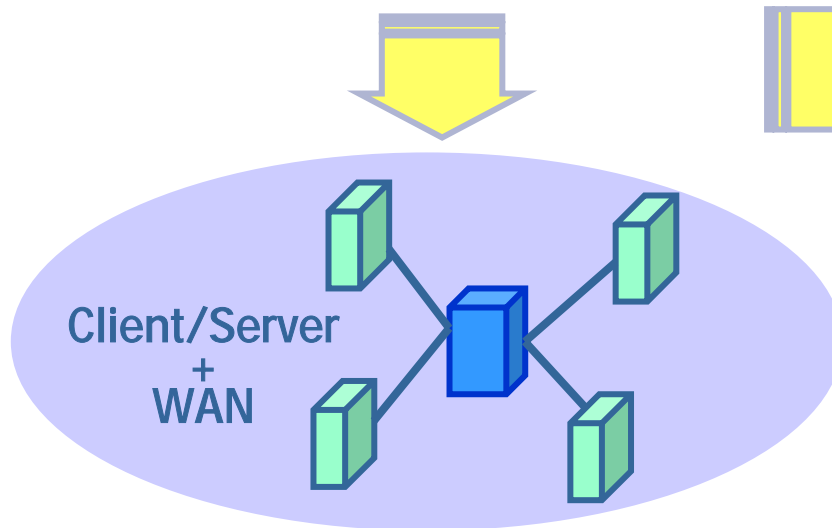


Info-communication Service in the future

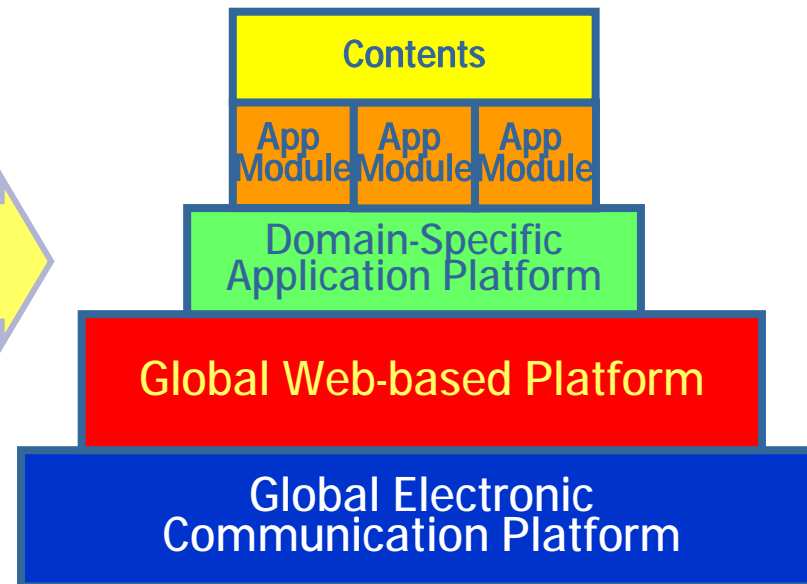
Machine-Centric Systems



Network-Centric Systems



Web-Based Application Systems



Thank you

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