Mobile Multimedia Pricing: Value Matters

IRoNet Results Seminar
January 8, 2004

K.R. Renjish Kumar, Heikki Hämmäinen
Networking Laboratory, HUT
Mobile Industry: Status Quo

• Evolution in bearer technology enabling a range of multimedia services on mobile.
• Entry of new players
• Additions to the mobile value chain
• Pricing models changing from time-based to volume-based e.g. i-mode
Challenges

• Volume-based pricing model
  – doesn’t capture the exact value of a service.
  – cannibalises services.
  – over-utilise the networks.
  – makes traffic estimation difficult.
Solution

• Value-based approach with Ramsey pricing
  – Set the value of a service based on subscriber’s willingness-to-pay.
  – Cross-subsidies.

• Vertical Bundling
  – Bundles transport with the content

Provides greater independence of the value of a service from underlying technology.
Why Value-based Pricing? - I

• *cost of production* < *price* < *willingness to pay*

• Services
  – User created, e.g: SMS, MMS
  – Commercial e.g: Video streaming

• Service charges not independent of transport
  – Leads to service cannibalisation.

<table>
<thead>
<tr>
<th>Charge/Service</th>
<th>Streaming Video (600MB)</th>
<th>Streaming Audio (4 MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Charges (€)</td>
<td>6006</td>
<td>41</td>
</tr>
<tr>
<td>Perceived Value (€)</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Transport Charges (€)</td>
<td>6000</td>
<td>40</td>
</tr>
</tbody>
</table>
Why Value-based Pricing? -II

• Operator’s Revenue Cannibalisation
  – Convergence turning voice into a commodity service.
  – Marginal cost reduces to zero
  – Competition among incumbents drives prices closer to cost.
  – Maximises consumer surplus but reduces operator’s incentive to invest.
Value-based Pricing Model

- Maximise value per byte.
  \[ p = \max \{ v/B \} \]
- Planes
  - Content Provider
  - Mobile Operator
  - Customer
- Interfaces
  - \( V_{\text{int}} \): Value Interface
  - \( TC_{\text{int}} \): Transport-content Interface
Value-based Pricing Model
Cont’d..

• Horizontal bundling of services at customer plane
  – Mix of elastic and inelastic services
  – Include services that maximise value with lower transport usage e.g: SMS, MMS
  – Cross-subsidies (Ramsey Pricing)
  – Enables service differentiation and reduces cost.
Revenue-Sharing Model

• Revenue-sharing to be based on:
  – Operator’s cost components
    • Billing and charging
    • Network expenditure
    • Customer management
  – Content provider’s cost component
    • Development cost
• Percentage share at the $\text{TC}_{\text{int}}$ may be variable
Role of...

• Competition
  – at $V_{\text{int}}$ among operators
    • Helps to keep check on service pricing
  – at $\text{TC}_{\text{int}}$ among operators and content providers
    • Generates innovation

• Uncertainty
  – Opportunities for experimentation with new service rollouts.
  – $\text{TC}_{\text{int}}$ enables greater risk sharing.
Impact on…

• Networks
  – Optimal usage
  – Synchronisation between operators’ and network designers’ goals
  – Better traffic forecasts

• QoS
  – Better resource management
Inference

• Value-based vertical bundling approach
  – creates greater demand, reduce operational cost and create service differentiation.
  – Promotes competition and experimentation

• Requirements
  – Billing and charging machinery need to be tuned for value-based pricing
  – Evaluate the willingness-to-pay of customers