Total cost of charging and billing: CapEx and OpEx

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Introduction

• Charging: 'Process where subscriber accounting information is retrieved for billing purposes’
• Billing: 'Generate and send a bill to subscriber based on certain tariff’
• OPEX: Operational expenditures (to run the company):
  – labour (network planning/management, customer care etc.)
  – marketing costs, rental fees etc.
• CAPEX: Capital expenditures (to extend business or improve existing services):
  – purchase of land & buildings
  – network construction
  – purchase of information systems (hardware & software)
• In most telecom cases OPEX is larger than CAPEX
Charging and billing

- A crucial part of operator's/service provider's business, misconfigured charging/billing system can cause a significant loss of revenue

- Charging and billing are an integral part of OSS/BSS

- This integration requires additional (expensive) 3rd party software

- Complex to maintain, several interfaces

- Tailored billing solutions
Charging and billing system

Billing
- Financial/accounting system
- Administration module
- Billing module
- Roaming/interconnect module
- CDR processing module
- Credit control module
- Customer care module
- Fraud control module
- Rating module

Customers

Charging
- Mediation device
- Network infrastructure

Operations, planning, business and other system processes (BSS/OSS)

Network management
Charging and billing costs

• Give exact figures is difficult, costs depend on: number of subscribers, network infrastructure, services offered, business processes, company structure (internal billing/charging) etc.

• For a mobile operator, the total cost of providing and maintaining billing system may be up to 50% of infrastructure investment and annual turnover of a mobile network
# Charging and billing costs

## OpEx, billing

<table>
<thead>
<tr>
<th></th>
<th>unit price</th>
<th>#</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>90000</td>
<td>100</td>
<td>9000000</td>
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<tr>
<td>Post-processing</td>
<td>6000000</td>
<td>0.5</td>
<td>3000000</td>
</tr>
<tr>
<td>prepaid/inter-operator</td>
<td>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>200000</td>
<td>1</td>
<td>200000</td>
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## CapEx, billing

<table>
<thead>
<tr>
<th></th>
<th>unit price</th>
<th>#</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing system</td>
<td>2000000</td>
<td>5</td>
<td>4000000</td>
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<tr>
<td>Software upgrades</td>
<td>2000000</td>
<td>0.1</td>
<td>2000000</td>
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## CapEx charging

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<td>400000</td>
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## OpEx, charging

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<th>unit price</th>
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<tbody>
<tr>
<td>Installation and maintenance</td>
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<td>900000</td>
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## CapEx

<p>| | |</p>
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<tbody>
<tr>
<td>CapEx</td>
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<tr>
<td>OpEx</td>
<td>13100000</td>
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<tr>
<td>Total</td>
<td>20300000</td>
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## CapEx % of total costs

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<tbody>
<tr>
<td>CapEx % of total costs</td>
<td>35</td>
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</tbody>
</table>
Charging and billing costs

- Gartner Group: mid-size telco (3-7 million subscribers):
  - CAPEX:
    - Billing software licence ~ 7 Meur
    - Hardware + 3rd party software ~ 4 Meur
    - Integration costs 200-500%
    - Total CAPEX 22 – 55 Meur
  - Annual operational costs:
    - Maintenance and support ~ 2 Meur
    - Operating costs ~ 4 Meur
    - Total OPEX 6 Meur, however these figures don’t include customer contacts, processing of subscriber bills or company internal billing
Billing and charging in IP-based wireless networks

• New challenges:
  – Billing and charging for internet applications, QoS, services and content
  – Enabling prepaid for internet services: fraud-window elimination
  – Roaming (incl. different network technologies)

• Have an impact on total costs (OPEX+CAPEX) >30% (?)
Billing/charging models vs total costs

• Fixed price tariffing (ISPs) least expensive to implement

• In order to minimise total costs, service providers/operators can:
  – Use fixed price tariffing
  – outsource their billing operations
  – streamline internal processes
  – reduce amount of subscriber bills generated/sent

• Mobile internet operators need to implement
  (time/)
  volume/transaction –based billing and charging

• Those who need to invest can gain additional revenue by offering
  billing services to others and extending the billing system to include
  m-commerce etc.