Seminar on Costs & Tariffs

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Incremental Costing Process

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Note: The views expressed in this presentation are those of the author and do not necessarily reflect the opinions of the ITU or its membership.

Service costs

- Asset costs
- Operation & Maintenance costs
- support costs
  - *business support*
  - *technical support*
- overheads

Asset costs

- Network costs
  - *traffic dependant costs*
  - *traffic independent costs*
- other costs

Costing concepts

- Fully Distributed Costs (FDC)

  Each service is reputed to have a cost and the sum of those costs for all services is the cost; the unit cost of the service is equal to the cost of the service divided by the volume of traffic.

- Incremental Costs

  The traffic of a service induces a need for extra units of work and the cost of those divided by the traffic gives the minimal unit cost of a service

Fully Distributed Cost

$$K = \sum_{i=1}^{n} C_{Si}$$

$$k_{Si} = \frac{C_{Si}}{T_{Si}}$$

Incremental Costing

$$K = K_0 + f\left(T_1, T_2, .. T_i, .. T_n\right)$$

$$dK = \sum_{i=1}^{n} \frac{dK}{dT_i} dT_i \qquad dK = \sum_{i=1}^{n} \frac{df}{dT_i} dT_i$$

$$k_{S_i} = -\frac{\Delta f}{T_i}$$

IC vs FDC

- FDC: All the cost elements are contributing to the cost of a service, the cost allocation method may require a lot of attention;
- IC: Traffic independent cost elements are not contributing to the minimal cost of a service. So traffic independent costs remain to be allocated to services.

Phasing the IC Process

- Phase1: Identify direct costs of services
- Phase2: Identify traffic dependant cost elements
- Phase3: Allocate traffic independent indirect costs (i.e.: ABC method)
- Phase4: Allocate traffic dependant costs
- Phase5: Allocate remaining common costs

Allocate traffic dependant costs

Traffic dependant cost elements

- International transmission media
- international switches
- national transmission media
- national switches

  A part of the access network (the circuit side of the line concentrators) is included.

- Interconnection to other operators

Bottom-up vs Top-down

- Bottom-up:
  - ***Build from scratch an optimised network by applying general network dimensioning rules to the traffic generated by the potential users identified in the appropriate city sites;***
  - ***Identify the units of work of the network, quantify them and estimate their cost via a benchmarking process***
  - ***compute the cost of the network***

Bottom-up vs Top-down

- Top-down:
  - ***Consider the network, the dimensioning rules and the cost of the network elements of an operator;***
  - ***Identify and quantify the units of work of the network, and compute the cost of each unit of work site by site;***

Bottom-up vs Top-down

- The Bottom-up is a “laboratory” approach that doesn’t really reflect the cost reality;
- the top-down is a “static” approach that is not forward looking enough

> A combination of both methods may provide realistic and more forward looking results: bottom-up on the network and top-down on the costs.

Requirements for a bottom-up network

- Position and hierarchy level of the switches;
- number of lines and traffic of any switch (pits and falls of traffic)
- affinity factors of any switch
- routing rules of the country
- dimensioning parameters
- dimensioning tool (i.e.: trunk sizing tool)

Top-down requirements

- A analytic accounting system;
- an indirect and common costs allocation system;
- the cost of switches, transmission media and network access must be known on each site.

Units of work

- For any site, the number of trunk circuits is a good indicator of the cost of the switch;
- the quantity of circuits-kilometres is a good indicator of the transmission cost.

Two adjacent sites with a direct trunk will share the transmission cost of that trunk, each of them bearing 50% of "the distance multiplied by the number of circuits of the trunk".

Unit Cost of a given service (1/2)

- Step1: Calculate the units of work quantity and cost with the entire traffic matrix;
- Step2: Identify and isolate the traffic of the concerned service from each network node and compute a new traffic matrix;
- Step3: Re-dimension the network with the new traffic matrix to get new quantities for each unit of work;

Unit Cost of a given service (2/2)

- Step4: calculate the cost of the new network using the units of work cost calculated in Step1:
- Step5: Calculate the cost impact of the traffic of the concerned service: difference between new network cost and the total network cost (Δf) site by site;
- Step6: Calculate the unit cost of the service by using

$$k_{S_i} = -\frac{\Delta f}{T_i}$$

Is it enough?

- The incremental cost k_{S_i} is the minimal cost that an operator could consider in a competitive market;
- The following traffic independent costs should be allocated if any:
  - ***direct costs;***
  - ***indirect costs (including O&M and functional support)***
  - ***common support costs.***

Looking Forward

- Calculating the units of work cost by using the general ledger costs of an operator gives to him the present cost.
- an operator may be concerned with the near future with a view to determine target tariffs;
- in that case the units of work cost might derive from cost estimates or benchmarks on new, up to date and cheaper technologies.

When is IC appropriate

- When network assets are preponderant in the cost structure of an operator;
- the operator has an analytic accounting system allowing full separation of the cost elements;
- the operator is capable to measure the traffic of the services and have the required planning tools in connection with his network technology.
- The operator can allocated the traffic independent costs with a reasonable transparency

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