

- Hubbing and wholesale issues in international traffic exchanges between operators

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Presentation

- 1. Review of international traffic exchange procedures under the bilateral system
- 2. Emergence of unregulated procedures:
 - Confidential rates
 - Refiling
 - Elimination of arbitrage
 - Impact on revenues
- 3. Reaction of incumbent operators
 - Rate harmonization
 - Sender pays transit
 - Last transit centre sends traffic
- 4. Hubbing
 - Elimination of hubbing as traffic exchange mode
- 5. Industry evolution: Wholesale organization
- 6. The wholesale market
- 7. Implications

Review of ITU bilateral system

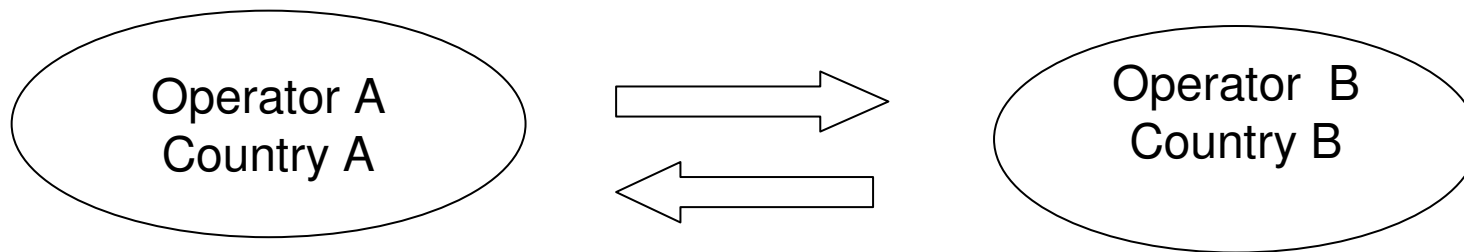
- Traditionally, traffic is exchanged between operators on a bilateral basis defined within ITU-T Recommendation D.150.

The origin for the exchange traffic was the country of residence of the two operators, who agreed on an accounting rate to pay for the use of the respective networks.

- The exchange took place either on a direct link or via a transit exchange, on the basis of an agreement on the accounting rates for the originator, transit and destination.

Review of ITU bilateral system

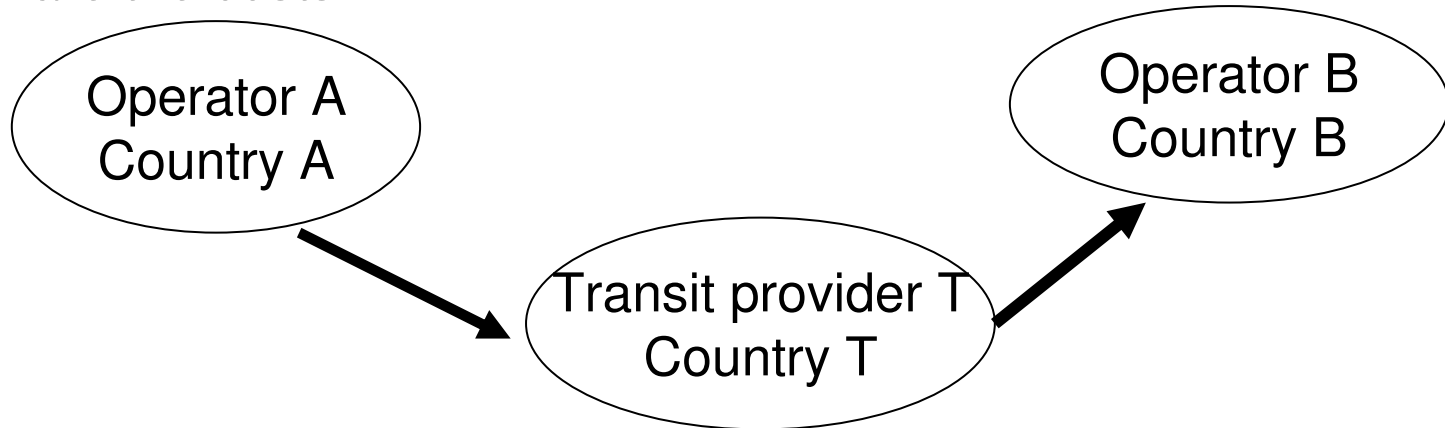
- If A and B have shared direct links



- For traffic going from A to B
 - A pays B the amount of $TAR/2$
- For traffic going from B to A
 - B pays A the amount of $TAR/2$

Review of ITU bilateral system

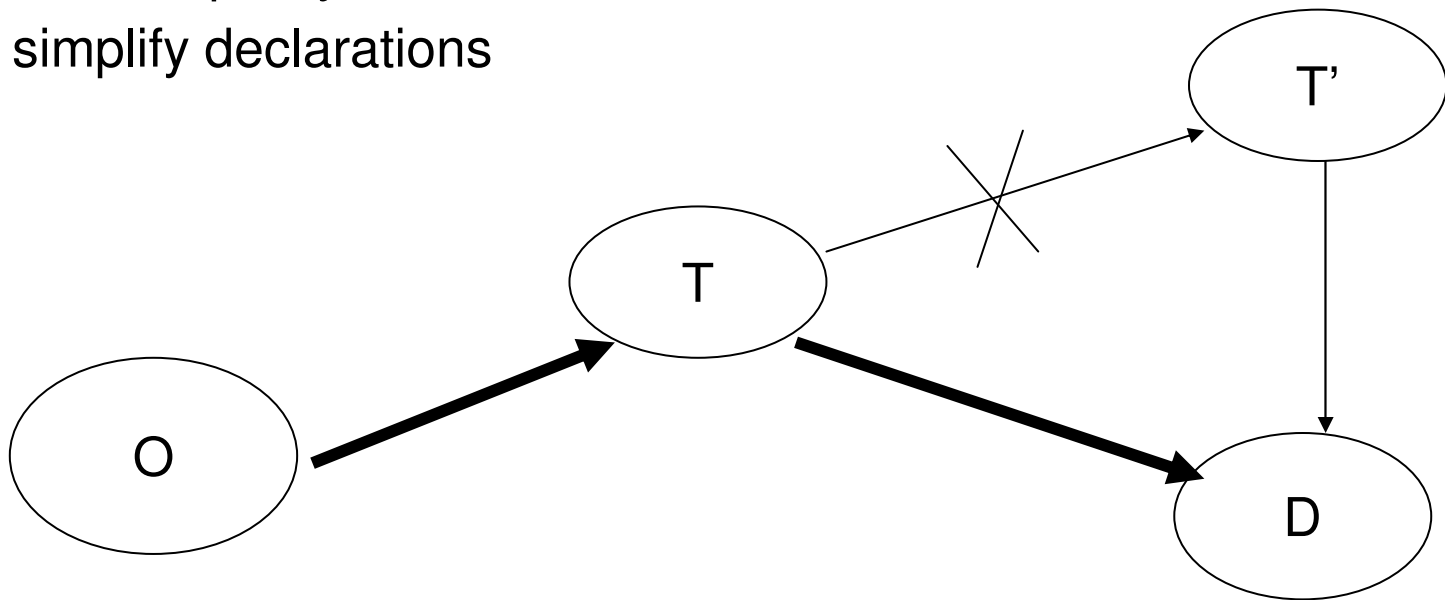
- Switched transit: the two operators make use of a transit provider and share the costs



- A and B make use of transit
 - to handle overload
 - if there is a lack of direct links between A and B
- TAR is shared after the transit rates have been paid

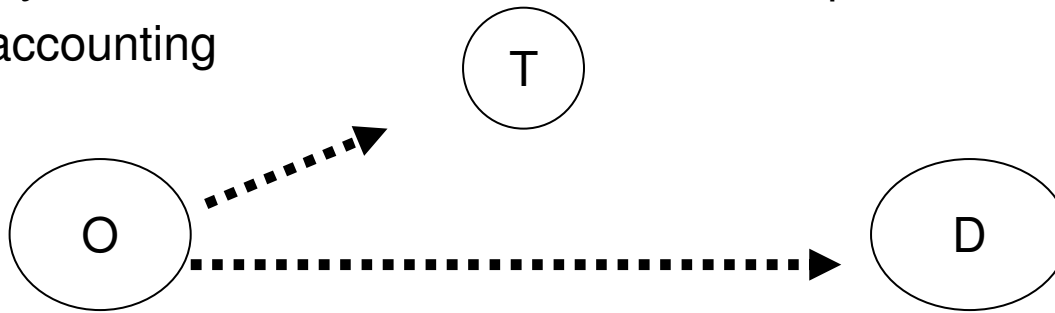
Review of ITU bilateral system

- Conventional transit consists of sending traffic via a transit operator, T, approved by the originator, O, and destination operator, D.
- The transit operator, T, is **supposed** to deliver the traffic directly to the destination D via direct links, avoiding double transit:
 - to ensure quality
 - to simplify declarations

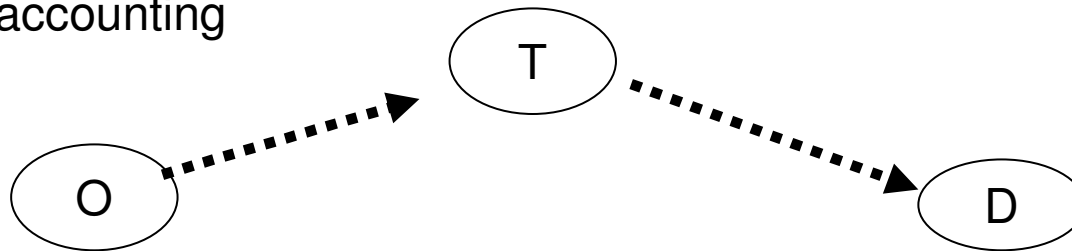


Review of ITU bilateral system

- Traffic is declared by the originator, O:
 - directly to the destination D and the transit operator T
 - star accounting

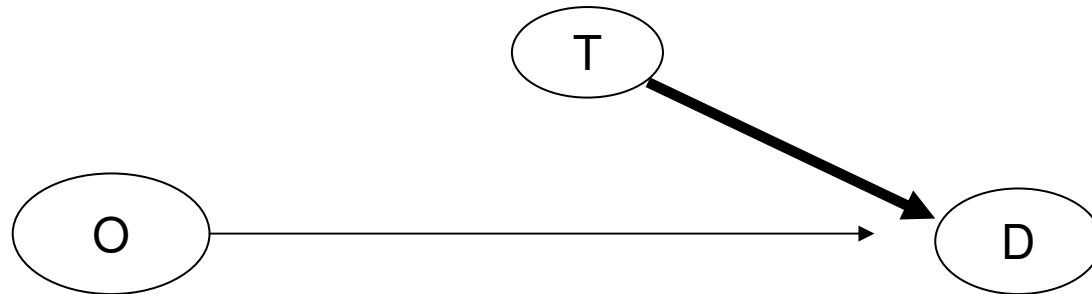


- only to the transit operator T, who then declares it to D, as having been originated by O for D
- cascade accounting



Review of ITU bilateral system

- Declaration procedure, star accounting scenario
- The originator O makes a quarterly declaration to the destination D of traffic forwarded via T
 - T does not declare to D the traffic sent by O
 - As long as O does not make a declaration to D, the latter will observe discrepancies between the volumes actually received and those declared from T



- The procedure in the cascade declaration scenario is the same, with T declaring nothing to D as long as O has not sent anything

Review of ITU bilateral system

- In the basic system, T is not obliged to either:
 - convince O to submit a declaration or
 - give D the name of O who has not made a declaration
- D may wait for months or years to receive declarations.
- Having received the declarations, D must formally approve them (declaration accepted)
- This process can take months, and involves considerable manual processing

Emergence of unregulated practices: confidential rates

- In the 1990s, the transit market gained strategic significance and became highly competitive.
- Transit costs were being maintained at artificially high levels (0.42 SDR).
- To capture the largest possible share of traffic, transit providers began to offer clandestine transit rates.
- This is the start of a great scam.
- For example: O, T and D have an official transit rate of 0.42 SDR, to be used for settlement. Unbeknownst to D, T offers O to use a confidential rate of 0.05 SDR.

Emergence of unregulated practices: confidential rates

- Mechanism:
 - For a TAR of 0.8 SDR, O will deduct the official rate ($0.80 - 0.42$) and pay half of that to D; in reality T gets only 0.05 SDR.
 - O doubles its profits
 - T wins, because it captures more traffic
 - D loses due to lower price for termination on its network.
- This mechanism has given rise to large-scale predatory exploitation, as we shall see.
- In this scenario, D is still informed about the identify of the originator (declaration).

Emergence of unregulated practices: Refiling

- After confidential rates, and in order to take advantage of TAR disparity, transit operators are prepared to offer a new method for terminating traffic, refiling.
- The mechanism works like this:
 - T makes an offer to O to terminate traffic to D for a lower cost than what he would have to pay in the basic switched transit system.
 - O pays T a termination fee for D. In fact T bills this traffic to O.
 - T will now inject the traffic from O into its own traffic to D, and pay the latter a share for all of this traffic.
 - D is led to believe that all of the traffic is originating from T.
 - D sees traffic from O shrinking or drying up entirely.
 - The revenues of D will decrease.

Emergence of unregulated practices: Refiling

- Explanation:
 - The TAR between O and D is 0.8 SDR, that between T and D is 0.6 SDR.
 - T offers to terminate the traffic of O towards D at a rate of 0.32 SDR, whereas O should actually pay 0.40 SDR
- Initially, this timid practice was rejected by many operators in the south. For this reason, its name was changed to virtual transit, and then special transit, before being called hubbing, at which point it began to grow.

Emergence of unregulated practices: Arbitrage

- Shortly after 2000, this predatory practice appeared.
- Unscrupulous operators looked for some weakness in the bilateral system of which they could take advantage, to the detriment of the gentlemen's agreement that historically characterized relations between incumbent operators.
- Depending on what is found.
 - if the agreement is “sender keeps all”, they send all the traffic at extremely low prices
 - if the TAR is shared after deduction of transit fees, then confidential rates are used to undercut the prices for that route.

Emergence of unregulated practices: Arbitrage

- Explanation:
 - D has a TAR of 0.60 SDR with all operators (harmonization effort).
 - O, an operator with multiple POPs, negotiates a confidential transit rate with T (the official tariff being 0.42 SDR; no provider has applied Annex E of Recommendation D.140 on transit charges).
 - O is thus able to offer refiling-based termination to D at a price of 0.12 SDR.
 - The result is a clear loss for D, which receives 0.09 SDR instead of 0.30 SDR for a large portion of its incoming traffic.
- Collusion with some national ISPs for illegal termination.

The response of incumbent operators in the south

- Faced with these large-scale predatory practices, some operators in the south responded, in an attempt to preserve their income.
- TAR harmonization to eliminate the disparities that lay behind illegal practices.
- To counter the fault in basic switched transit (BST) (sharing after the transit fee has been subtracted), the proposal was made at the TAF Group meeting in 2001 to adopt the principle of “sender pays transit”. (TAR Group modification D.600R).
- Outright elimination of BST, its place being taken by traffic routing by means of hubs for all indirect connections.
- To this end, they proposed the principle of “last transit centre pays for traffic”. (TAF 2003)

Hubbing

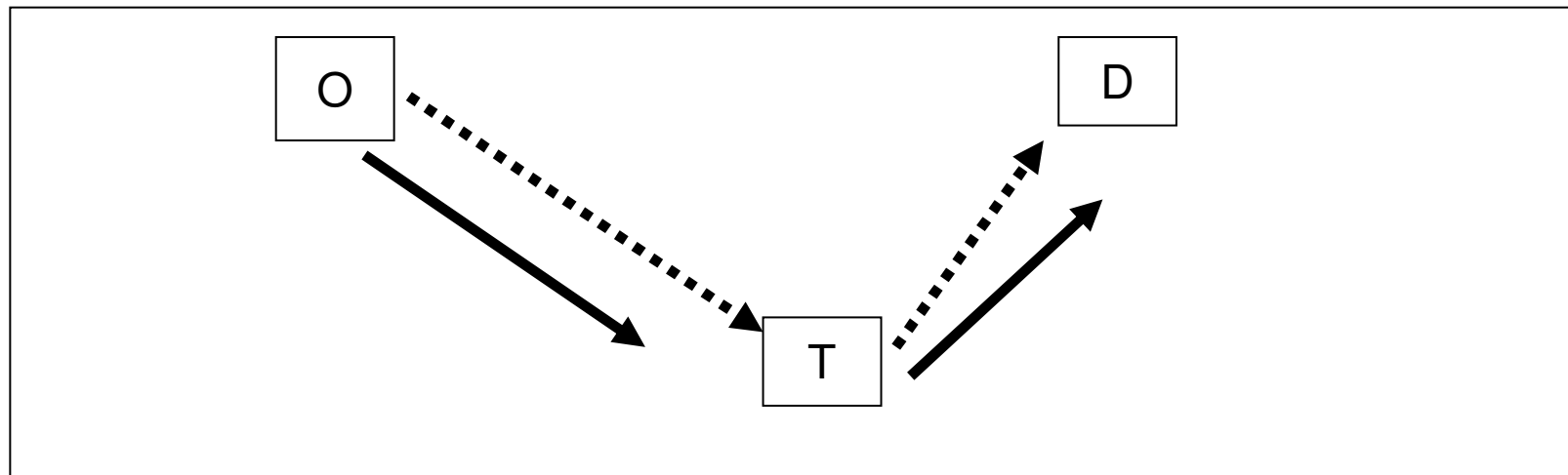
- Elimination of BST for the following reasons:
 - Because transit providers have not applied the target values in Annex E of Recommendation D.140
 - Because transit fees have remained exorbitant, making it difficult to divide the TAR remaining after transit fees have been deducted
 - Because of the unscrupulous use of the principle (TAR apportionment after deduction of transit fees) for arbitrage on tariffs for calls to certain African countries
 - Because the cascade accounting method is unsuitable in the current context, as a result of:
 - excessive delays for declarations
 - a variety of deadlines for payment
 - the risks of non-declaration and non-payment

Hubbing

- The TAF Group at its meeting in Bamako in 2003 proposed the following:
 - eliminate cascade accounting
 - discontinue all existing transit relations with other operators
 - agree to have all traffic coming in via hubs, on direct links for which uniform termination fees have been negotiated with specific operators.
- However, hubbing is not recognized by ITU.
- What is hubbing?

HUBBING

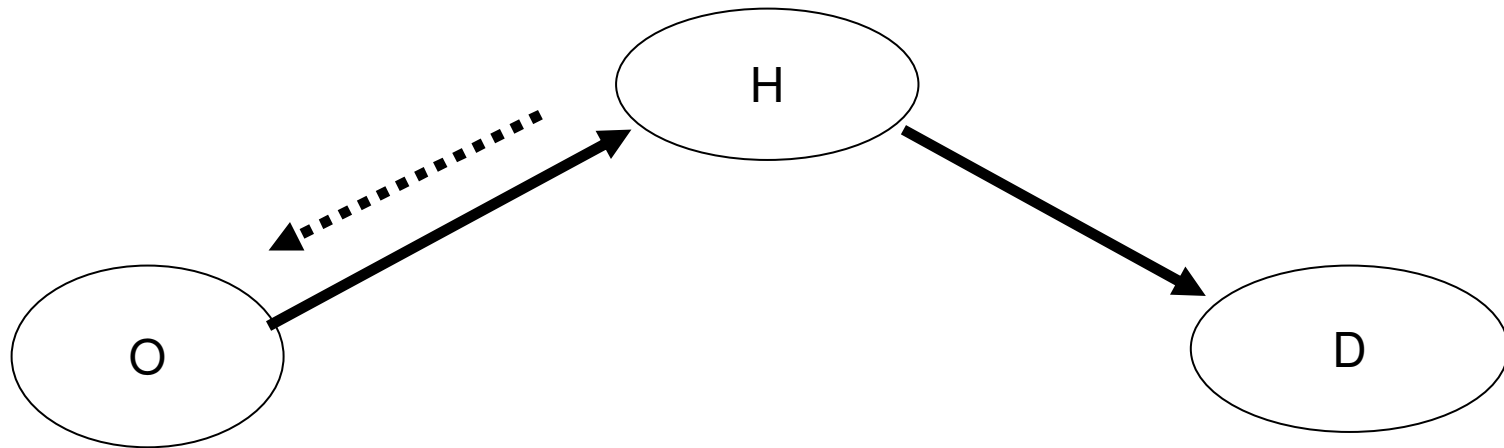
- At the origin, this was an activity practised clandestinely by some operators, pushing the bounds of the ITU regulatory framework; it was also called refiling.
- With the market opening and the number of players increasing, this activity established itself as a new way of approaching the switched transit



- Thus, refiling or special transit made it possible to terminate traffic to remote networks by passing through transit operators (hubs) without seeking the agreement of the operator in the destination country.
- Hubbing has almost completely replaced traditional switched transit.

HUBBING

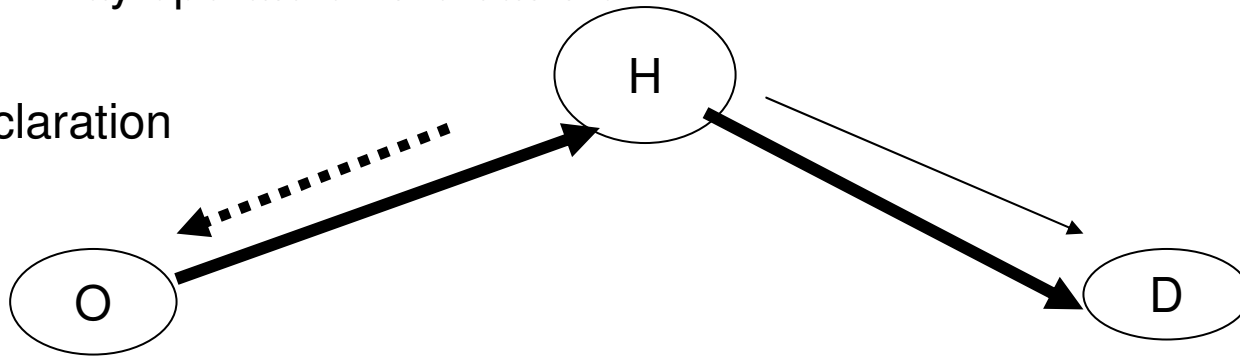
- This is the simplest way of forwarding traffic when there are no direct links.
- The hub, H, is responsible for terminating the traffic:
 - handles traffic to the destination; the latter need not know the origin of the traffic
 - charges O on the basis of its own records.



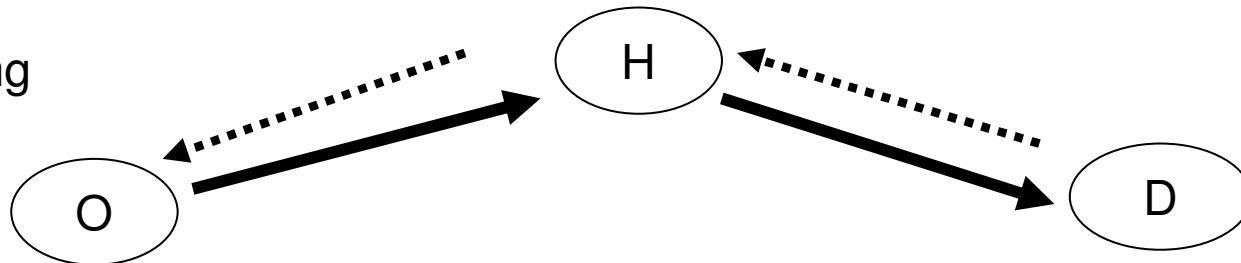
HUBBING

- O does not have a TAR agreement with D
- H and D may operate on the basis of

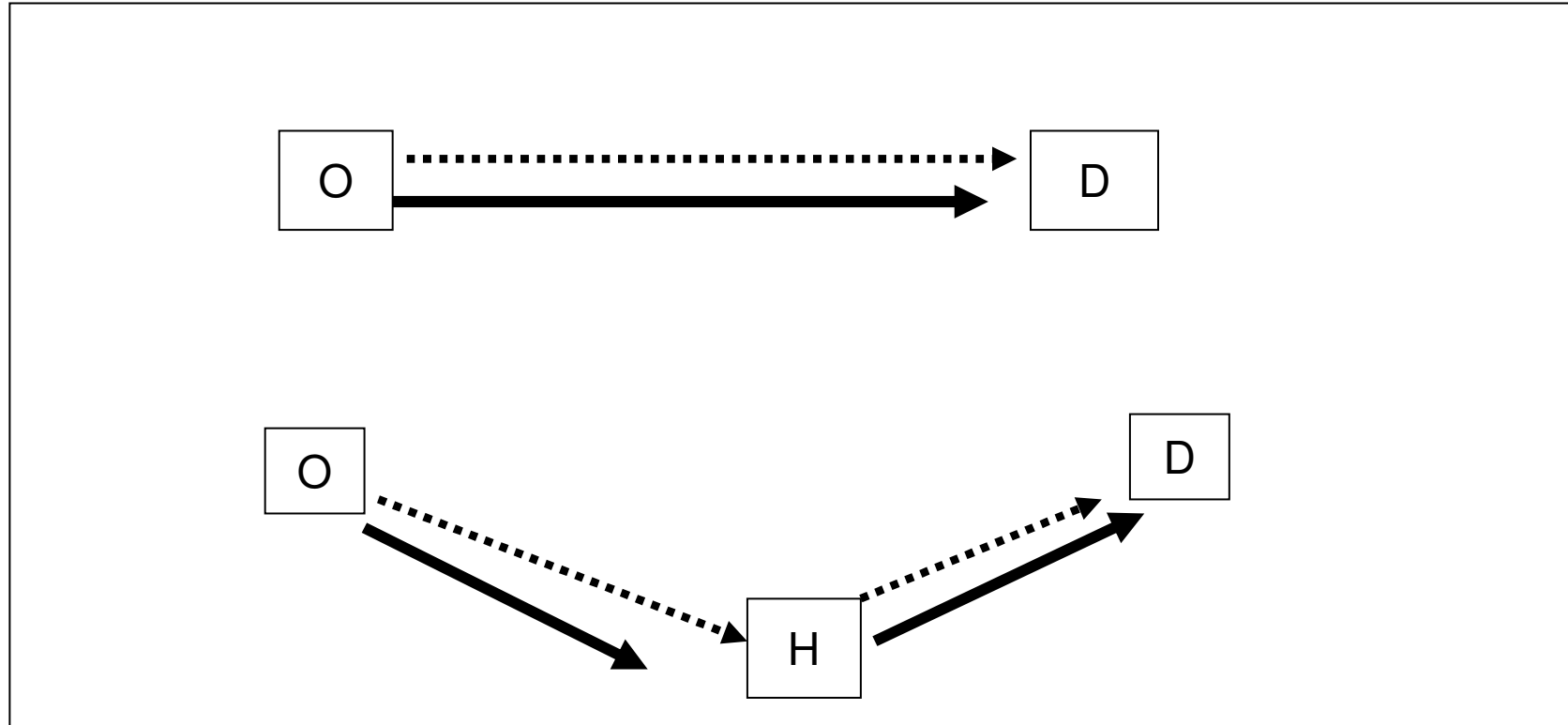
– declaration



– billing



HUBBING



- The originating operator does not declare its traffic to the destination
- The operator at the destination no longer knows the origin of the traffic

HUBBING

- The transit centres have been set up as hubs.
- They are able to aggregate traffic towards given destinations, offering termination prices that give them a margin beyond the accounting rate shares in force for those destinations.
- This is what constitutes the wholesale market for international traffic.
- New hubbing offers are put on the market every month, so that operators are obliged to practise least-cost routing.
- Forwarding traffic via hubs is simpler and less expensive than doing so through conventional transit and share agreements.
- It is estimated that 30% of worldwide traffic was handled by hubs in 2005.

HUBBING

- Tentative definition: “The routing of traffic in hubbing mode consists in routing traffic to final destinations via a transit centre (hub), with payment being made, solely to the latter, of the termination prices indicated in its hubbing offer.”
- An organization which decides to forward its traffic in hubbing mode must:
 - monitor quality
 - obtain guarantees on CLI transmission
 - try to obtain quality commitments
 - strive to find the best quality at the best price
 - keep an eye on profits.

Evolution of the industry and organization of wholesale

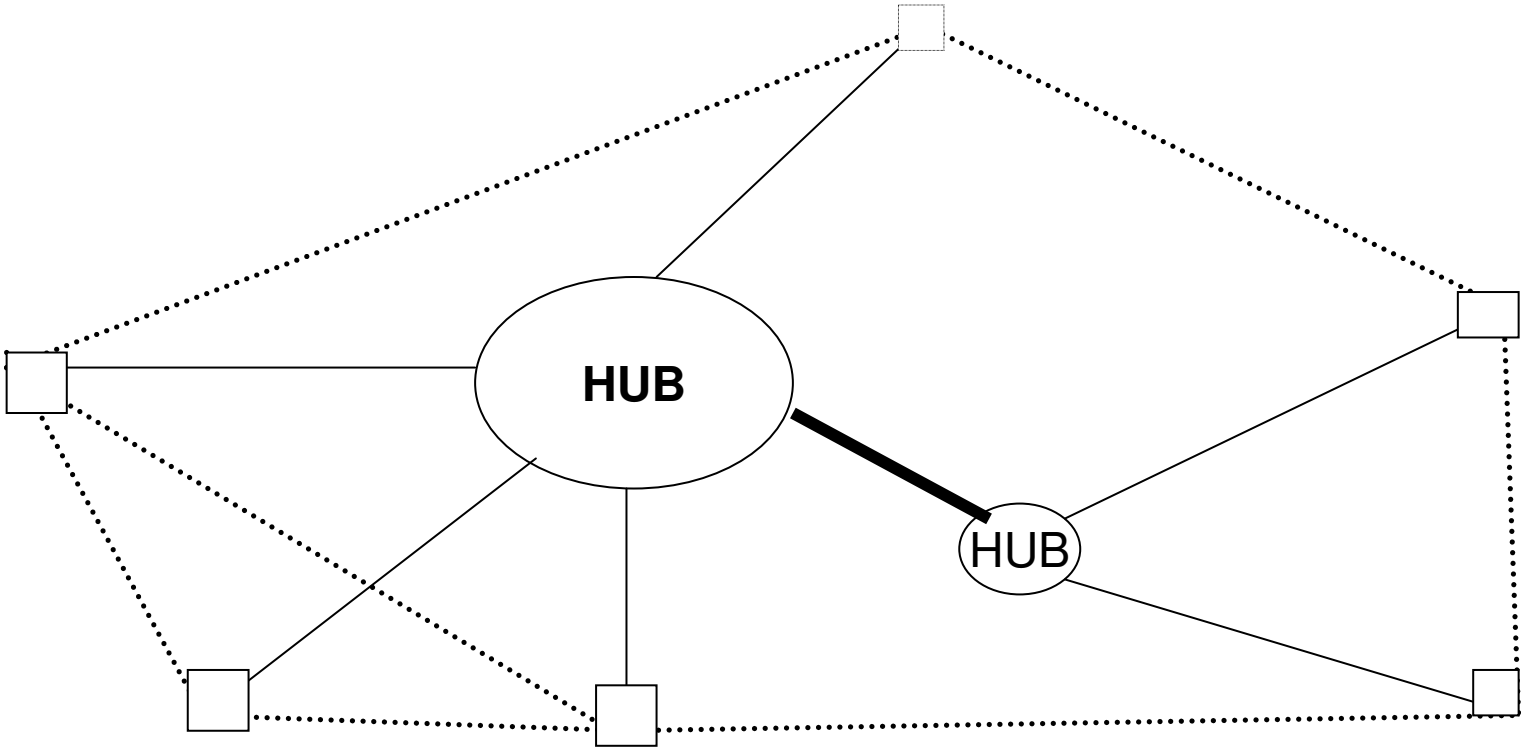
- The world of telecommunications is becoming increasingly complex.
 - From the bilateral system defined by ITU, with secure rules guaranteeing the exchange of international traffic, we have passed to a system dominated by the least-cost routing market, subject to neither regulation nor the law.
 - From an exchange relationship in which the origin, destination, and transit centre (if any) were clearly defined, along with their respective share of the fee, we have moved to a situation in which multi-POP operators use whatever means they can to attract the largest possible amount of traffic to a given destination (regardless of its origin) in a wholesale market.

Evolution of the industry and organization of wholesale

- From a market controlled by approximately 200 incumbent operators, we have moved to one in which a large number of operators (over 4 000) compete for international traffic, but without elasticity.
- From a world dominated by fixed telephony, we have entered a world of telecommunications dominated by mobile networks, the main factor of growth in international traffic.
- These developments have had significant repercussions on most of our countries, with the traffic exchange market subject to strong wholesale pressure.

DEFINITION OF WHOLESALE MARKET

- It is an operator-to-operator market



The wholesale market

- A market for wholesale selling and buying of international traffic
- Used to purchase traffic intended for various destinations, in hubbing mode
- Providers publish their offers in the form of hubbing lists or A to Z lists
- The lists give the prices offered for different destinations, and break down prices for each specific destination by:
 - fixed
 - mobile (different networks)
 - for fixed, may be broken down further by metropolitan and provincial.

The wholesale market

- Competition between the providers has led to a price war that has kept strong pressure on the termination shares.
- Numerous hubbing offers are published every month, making it necessary to identify the best offer (in terms of service quality and price) for least-cost routing.
- This means that an appropriate organization is needed to optimize selling and buying.
- Also, least-cost routing tools must be acquired.
- Major importance should be attached to numbering plans (sale of networks). A mistake by the seller can translate into a significant loss. The slightest vulnerability may be exploited by the unscrupulous.
- Wholesale is not regulated, service contracts are offered with invoicing.

Ramifications

- Wholesale has the following ramifications:
- Abandonment of basic switched transit
- Adoption of hubbing
- TAR gradually falls into disuse, in favour of termination rates for fixed and mobile
- The declaration system is gradually phased out and replaced by an invoicing system
- Payment within 30 days
- With CDR, any discrepancy can be contested
- In actuality, we are leaving the ITR of ITU, and from now on the laws of the market apply, i.e. the rule of the fittest.

Thank you