AFIX Technical Workshop: Session 9 Trainer's Notes

Final Exercise and Wrap

During this session participants will explore the strategic and financial role of peering in an ISP strategy, though playing the Peering Game developed by WB Norton.

Timing

1.5 hours.

Prerequisite skills/knowledge

Attendance at the previous sessions.

Resources included

- Powerpoint presentation.
- William B Norton : Internet Service Providers and Peering (nor01.pdf)
- T9_scoreboard.xls (a spreadsheet for calculating scores)
- There is no class handout for this session.
- The game board design is shown overleaf. This should be drawn on the whiteboard before the session starts.

Additional Equipment needed

Dice

Content outline

In this game, four ISPs (A, B, C, D) seek to maximize their revenues and minimize their costs. The revenues are determined by the number of regions or "squares" they occupy on the game board (see overleaf) , representing their market coverage and the content traffic (revenue) that market generates. The costs are determined by the number of squares that others occupy, representing the transit expense to access the rest of the Internet. The game board is shown overleaf.

To play the game

You need:

- One die
- A copy of the game board, drawn onto the whiteboard or a large sheet of paper so all the players can see it clearly.
- The scoreboard should be projected onto the screen (next to the whiteboard, if possible), so that the trainer can fill it in as the game progresses and teams can see their live scores.

Divide the class into four groups, which are to act as ISPs A, B, C and D. It may be useful to rearrange the classroom furniture so that the four ISPs are grouped together around the game board and scoresheet.

Each ISP takes a turn to roll the die. That ISP can then occupy the same number of squares on the board as are indicated by the die, starting from its home corner. For each square occupied, the ISP should write its name in the square and collect $2,000 transit revenue. The ISP must then pay its upstream transit provider (shown as Transit Provider X or Transit Provider Y around the border of the board) $1,000 for each square the other ISPs own. Fill in the scorecard as the die is rolled and squares are collected – the spreadsheet automatically calculates the revenues and costs involved.

Peering Negotiation

If and when two ISPs reach an exchange point, they can negotiate peering. If they agree to peer, the transit costs to each others' squares are eliminated (both their transit costs are reduced by the number of squares the other ISP occupies). However, the ISPs must collectively cover the cost of peering ($2,000 per round and two lost turns), split however they see fit. (This is the peering negotiation.)

Variations

Transit Sales Negotiation (Optional)

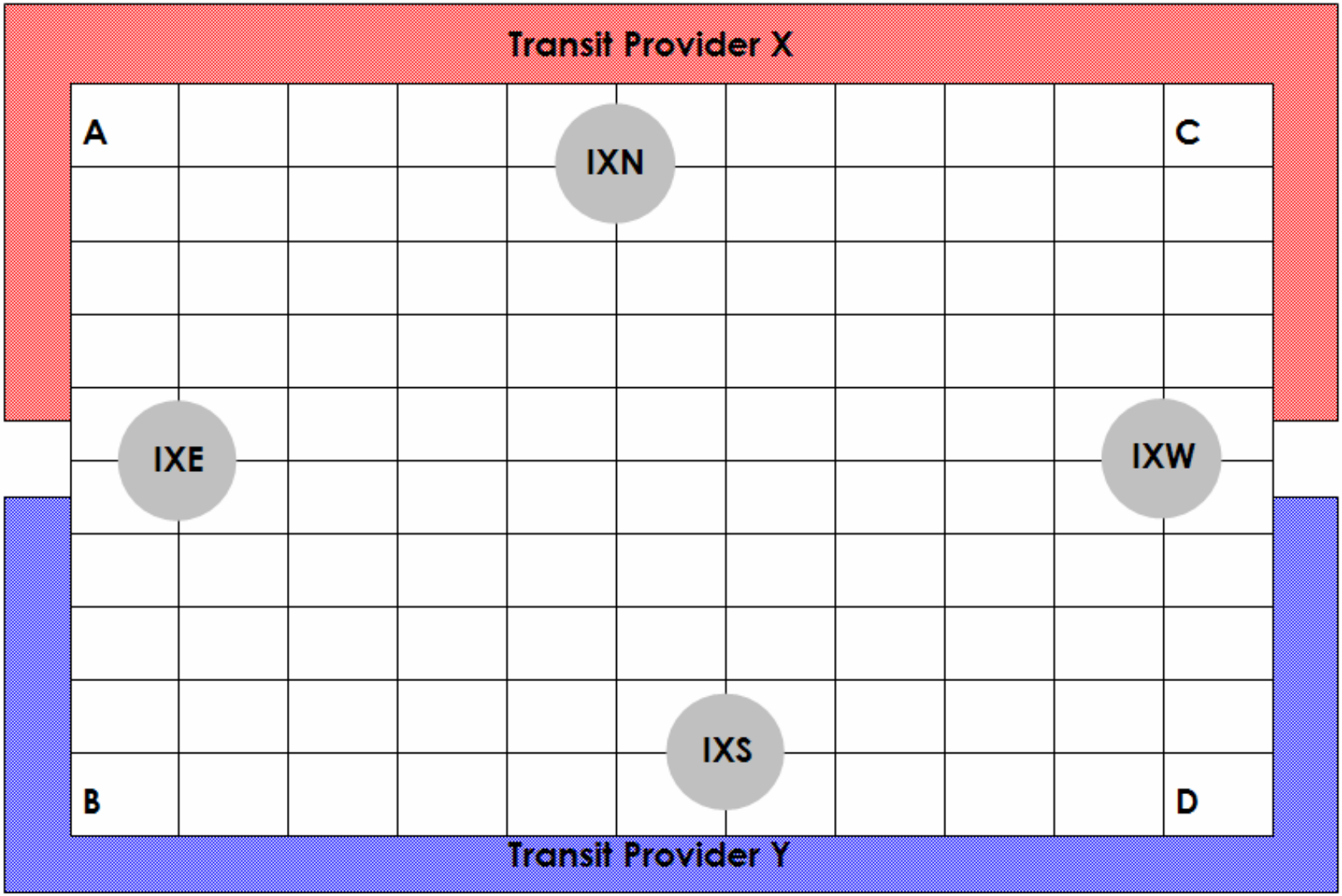
ISPs can buy/sell transit to each other at a reduced rate of $500/square. In the transit sale, the transit provider gets the $500/square transit revenue and the transit purchaser saves $500/square (compared with buying transit at $1000/square). The cost of transit ($2,000 per round and two lost turns) is identical to the cost of peering and is split however the ISPs negotiate.

Merger and Acquisition (Optional)

ISPs can agree to pool their interests and merge into a single ISP. There is functionally no difference in play except money can flow between the players and the new merged company gets two turns. Transit fees must be paid until the two ISPs peer.

How this simulation is different from peering reality

- The board is always visible so there is no possibility of bluffing during peering negotiations
- ISPs move serially in the game, while in the real world action is parallel.
- The meaning of the board squares is severely overloaded to mean regional coverage and corresponding revenue, a quantum of traffic generated, and a quantum of traffic transitted to all others. All customers are not equal in revenue, traffic.
- Customer transit revenue gained does not cause any additional financial load for the ISP in the game.
- Traffic quantum is a vague notion that ignores the asymmetric nature of traffic today.
- Shared squares should cause revenue and costs to be divided.
- Everyone starts with the same number of squares.
- Everyone is financially backed to support infinite periods of financial loss. Well, that may reflect reality for some period of Internet time.
- If ISPs fail to peer they must pay transit to get access to these squares. In reality, content multi-homes allowing alternative paths to the same content.
- Business motivations to sell transit instead of peer are an ignored dynamic in the game.


Transit Provider X
A
C
IXN
IXE
IXW
IXS
B
D
Transit Provider Y