Peering and Financial Settlements

• An overview of the financial basis of interconnection within the Internet
Follow the Money

- In a uniformly structured retail market the money flow is easy to identify:
  - John initiates the transaction
  - John pays his local provider A for the entire end-to-end transaction charge for the end-to-end service
  - A pays B to terminate the transaction
  - B terminates the transaction at Mary without charging Mary
Interprovider - Who pays who?

• The inter-provider financial relationship will vary for each individual transaction

• The net outcome is balanced through financial settlement

A pays B

B pays A

Financial Settlement

$0 settlement point
Interprovider - Who pays who?

• BUT, this assumes:
  - each transaction has a measurable value
  - each transaction is individually accountable
  - each transaction is funded by the end clients in a consistent fashion
    • initiator direction pays or
    • responder direction pays
In the Internet there is no readily identifiable uniform bi-directional transaction
  - The currency of interaction must shift to the lowest common denominator
  - Each individual IP packet is an individual ‘transaction’

In a chaotic retail market each part of a multi-provider supported transaction has an individual monetary flow
  - The ‘value’ can be in either direction at each interconnection

Per-Service charging is difficult
  - The service is within the IP payload
  - Per-packet transmission is the currency of IP money
Cost Apportionment

- Financial Settlements are intended to undertake a role of fair cost apportionment
  - How are costs incurred by Internet Providers?
  - How does each provider apportion local costs?
Distributed packet costs

Per-packet transit costs
BUT

• IP packets
  - have a vanishingly small value
  - have no readily identifiable transaction context
  - may not be delivered
  - have no tracking field in the header to accumulate ‘value’
  - are usually not individually accounted within a retail tariff structure
The Internet model

- There is no known objective financial settlement model which is financially robust and technically feasible in the Internet.
- The most stable outcome is a bilateral agreement creating a provider/customer relationship, or SKA peer relationship.

A is a customer of B

SKA

B is a customer of A
How are costs apportioned?

- At the consumer level, IP transmission costs are administratively apportioned bilaterally between sender and receiver.
Fixed Relationships

• There are no known IP financial settlements models that are technically and financially fair and robust

• Every peering tends to a statically determined relationship of provider/ customer or SKA peer

• The resultant business strategy
  - only SKA peer with ‘larger’ ISPs
The Aggregation of ISPs

- Every customer wants to be a peer
- Every peer wants to be a provider

- Bigger is better
  - ISPs that aggregate through mergers and takeovers can obtain access to a more advantaged position with respect to their peer ISPs
Today’s Environment

• Natural tendency to aggregate within the ISP industry
  – Economies of scale of operation
  – Access to more advantageous SKA peering agreements

• Risk factors
  – reduction of competitive pressure
  – collective action on industry peering arrangements
  – collective action on retail pricing
Imminent Death of the Net

Predicted - MP3 at 11:00

- Aggregation of the IP global transit market to a very small number of operators
  - Ability to execute global price setting through control of the underlying transmission resource
  - Recovery of operating margins through elimination of competitive pressure for commodity pricing

- Is the communications industry attempting to rebuild the colonial structures of global provider and local franchise operator?
The Bottom Line

• Continued operation of a strongly competitive diverse national IP supply market is the wrong answer.

• The money is NOT in IP. Regulatory intervention at the IP level is stunningly dangerous to any national economy.

• Intense IP provider aggregation is coming, but it may not matter. The margins are in services, not plumbing.