Peering: a peer into competition
Peering makes a peer ISP appear stronger
Peering consumes resources
Potential transit sale
Traffic asymmetry (and investment asymmetry)

Why Not Peer?

Transit: does not purchase transit from anyone
This access to global routing table
Tier-1 ISP
One ISP sells transit to another ISP
Traffic:
Non-transparent relationships
Provide connectivity to other customers
Peering: an ISP relation

Why Peer?

Reduced number of hops
Reduced latency
Reduced cost
Buying transit is expensive

Why Not Transit?

Reduced cost
Reasonable relationships

Definitions

ISP1
ISP2
ISP3

Peering Example

Transit Example

http://merlot.usc.edu/cs551-712

Bill Cheng
Phase 1: Identify Peer

- Traffic engineering, data collection and analysis
- Technical, business and legal issues
- Broad business arrangements (CEOs play golf together)
- Peering policies (open, exclusive)

I will peer with you if you pay all the cost.
Cost sharing

Phase 2: Contact Peer

- Find the right person!
- Share traffic statistics
- Direct-circuit vs. exchange-based interconnection (or a combination)

Phase 3: Peering Methodology

- # of participants
- Traffic engineering_peering policy: we will peer with anyone
- Cost sharing
- Number of peers participating in the region

Value of the Internet Exchange

<table>
<thead>
<tr>
<th># of Participants</th>
<th>Cost Sharing</th>
<th>Capacity</th>
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<tbody>
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<td>Large Facility</td>
<td>Startup Hump</td>
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Decision Phases

- Phase 1: Identify Peer
- Phase 2: Contact Peer
- Phase 3: Peering Methodology

Value of the Internet Exchange

- Value = cost
- (value = cost)
- Critical Mass Point
- (value = cost)