

# Introduction to Peering

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# Purpose of this talk?

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- Define Peering
- To outline the costs & benefits of developing a peering strategy



# Eh? Peering? whatnow? - Overview:

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- What is Peering?
  - Peering vs Transit
  - Differing forms of peering
    - BGP/Internet Interconnection
    - VoIP Peering
  - Peering as Infrastructure
- Why do it?: Business case of peering
- Opportunities and Opportunity Cost



# What is Peering?

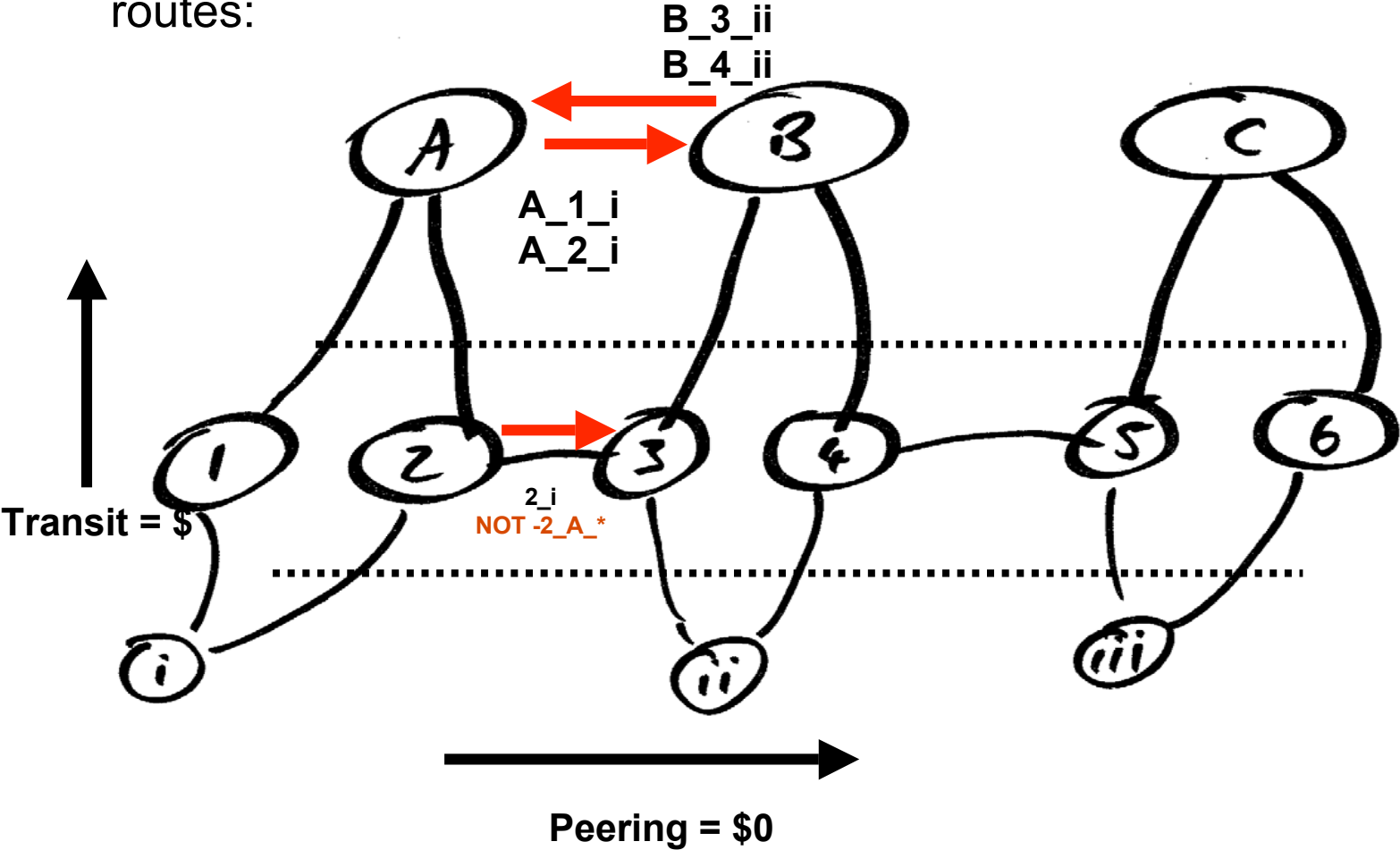
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- If we see BGP as a Exchange of Promises
  - The BGP route: a “promise” to carry data to a section of IP space.
  - Attributes to these routes are applied to build a routing policy
    - Define exit, entry locations of traffic by ASN, prefix etc
    - Define how routes will transit your network by the same method
    - Define preferences for exchange of traffic = Peering Policy



# BGP & Peering

- Typically networks only advertise their customer routes, not transit routes:



# Business Case: ISP x

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## Assumptions

Transit Cost per Mb per month 80 Rs.K  
Network Traffic Month 1 5 Mbps Peak  
Total Traffic Growth per annum 150%

Peering Traffic / Total Traffic 40%  
Peering Costs

Year 1 Opex (Cap.Dep+Tx) 90 Rs.K p/month  
Year 2 Opex (Cap.Dep+Tx) 120 Rs.K p/month

Opex Excluded  
Year 1 Transmission = 3x E1  
Year 2 Transmission = Fractional E3



# Business Case: Transit Cost 2 Year

Month	Total Traffic	Transit Cost p/mon (Rs.K)
Jan-06	5.0	400
Feb-06	5.2	417
Mar-06	5.4	432
Apr-06	5.6	447
May-06	5.8	463
Jun-06	6.0	480
Jul-06	6.2	497
Aug-06	6.4	515
Sep-06	6.7	534
Oct-06	6.9	553
Nov-06	7.2	572
Dec-06	7.4	593
		<b>5,903</b>
Jan-07	7.7	614
Feb-07	8.0	636
Mar-07	8.2	659
Apr-07	8.5	683
May-07	8.8	707
Jun-07	9.2	733
Jul-07	9.5	759
Aug-07	9.8	786
Sep-07	10.2	814
Oct-07	10.5	843
Nov-07	10.9	874
Dec-07	11.3	905
		<b>9,014</b>



# Business Case: Peering Costs

Month	Total Traffic	Transit Cost p/mon (Rs.K)	Peering Cost p/mon (Rs.K)	
Jan-06	5.0	240	90	
Feb-06	5.2	250	90	
Mar-06	5.4	259	90	
Apr-06	5.6	268	90	
May-06	5.8	278	90	
Jun-06	6.0	288	90	
Jul-06	6.2	298	90	
Aug-06	6.4	309	90	
Sep-06	6.7	320	90	
Oct-06	6.9	332	90	
Nov-06	7.2	343	90	
Dec-06	7.4	356	90	
		<b>3,542</b>	<b>1,080</b>	<b>4,622</b>
Jan-07	7.7	369	120	
Feb-07	8.0	382	120	
Mar-07	8.2	395	120	
Apr-07	8.5	410	120	
May-07	8.8	424	120	
Jun-07	9.2	440	120	
Jul-07	9.5	455	120	
Aug-07	9.8	472	120	
Sep-07	10.2	489	120	
Oct-07	10.5	506	120	
Nov-07	10.9	524	120	
Dec-07	11.3	543	120	
		<b>5,408</b>	<b>1,440</b>	<b>6,848</b>





# Business Case: Net Net

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	Peering	Transit	
Costs 2006	4,622	5903	1,281
Costs 2007	6,848	9014	2,166
		<b>Cost Saving</b>	<b>3,447 Rs.K</b>



# Business Case: Opportunity Cost

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- Peering lowers operating cost
  - producing savings that fuel traffic growth:
  - lower cost services = Increased consumer adoption
  - lower cost & higher performance = increased customer adaptation
    - product innovations (VoIP in local markets)
- Supply side effects: Market effect of concentrating networks in a single environment
  - Lowering cost of access by increasing local access competition
  - Trading hard-to-get transit routes, nationally and internationally



# Business Case:

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- Peering raises Total Market Value
    - Driving Traffic Growth
    - Proximity effect
      - Click Ad example from ELI increasing value by 20%
- = Revenue drivers



# Peering As Infrastructure

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- New Services through Partnerships
  - Local market VoIP support,
    - In house applications - toll free fixed rate on-net models
    - Skype, Gtalk, AOL, MSN all require support for RTP/RTSP
    - Higher adoption of these service drive up transit costs.
  - Content sharing/caching/replication.
  - VPN applications support:
    - Interdomain COS/QOS for premium applications/customers
- Control of routing, predictable path
  - Securing on-internet applications
    - Extending intranet applications through trusted access providers
    - Example: WiFi Access to business customers



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- Finished!!!
  - Questions?

