

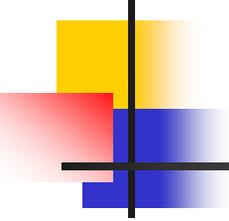
Net Neutrality ?

Geoff Huston

Chief Scientist, APNIC



CAIA, Swinburne University of Technology



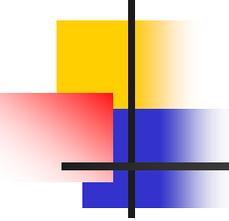
Net Neutrality

Interview with SBC CEO Edward Whitacre, Business Week Online, 7 November 2005

How concerned are you about Internet upstarts like Google, MSN, Vonage, and others?

How do you think they're going to get to customers? Through a broadband pipe. Cable companies have them. We have them. Now what they would like to do is use my pipes free, but I ain't going to let them do that because we have spent this capital and we have to have a return on it. So there's going to have to be some mechanism for these people who use these pipes to pay for the portion they're using. Why should they be allowed to use my pipes?

The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo! or Vonage or anybody to expect to use these pipes [for] free is nuts! "



Net Neutrality

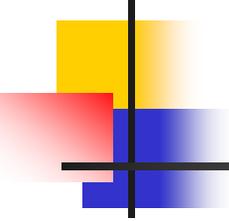
Scott Kriens, chairman and chief executive of California-based Juniper Networks, says it is inevitable that the internet will split into different data streams, and those who can afford a better quality of service will be able to buy it.

Argument is raging over this issue in the US, where the Congress and Senate are debating bills that would either allow or prevent such a change.

Opponents claim that privileging some applications over others - for instance video over the web - could hamper innovation. Also it could fragment the internet so that it was no longer available to everyone in its entirety, but only to those who could pay for the full service.

But Mr Kriens says the internet has to be overhauled, to develop the full potential of technology such as streaming video and voice-over-IP telephony. "It has to change," he says.

Sydney Morning Herald, 21 November 2006



Net Neutrality and Bundling

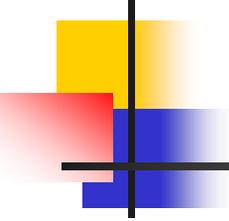
Interview with Scott Kriens, CEO Juniper Networks

[Customers will] find contracts with communications providers, either as businesses or individuals, and the provider will be responsible for the unified communications of all types.

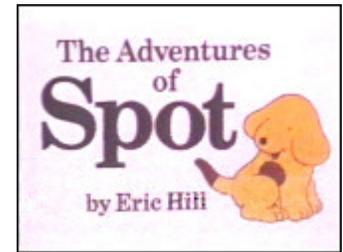
Who will these branded providers be?

Obviously, Telstra and the major operators in any country will be the primary providers, to both enterprises and individuals. There will be significant business for organisations providing integration of those services – those taking the raw services and integrating them, for the benefit of customers.

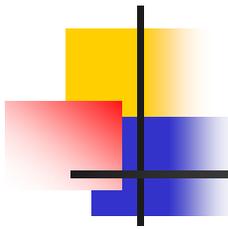
The Australian, 5 December 2006



Spot Buys a Business



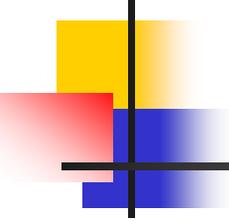
- See Spot buy a Telco
- See Spot sell DSL access for \$19.95 a month
- See Spot's customers use the net
- See Spot's revenue margins vaporize
- See Spot blame Google
- See Spot head off to the FCC to get Common Carrier provisions annulled!



The Tradition

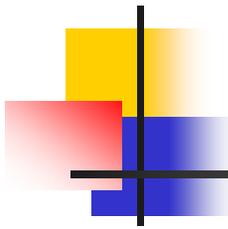
Network Neutrality and Common Carrier Roles:

- The Carrier's network is strictly neutral with respect to carried content
- The network does not prevent the carriage of data and services
- The network does not bias its response or tariffs in favour of certain services and service providers
- The network is strictly neutral with respect to competing service providers



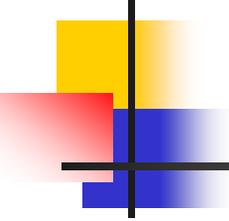
The Roles

- The Cast of Players:
 - Access, Carriage, Services, Content, Customers
- The Critical Question:
 - **Who owes who?**
 - **And how much?**



Content vs Access

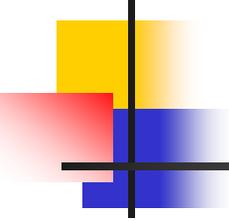
- Round 1: ~1995
 - Provider-Centric Closed Services
 - The network provided the connection between customers and service providers
 - Customers paid the network service provider to access the services
 - Service providers paid the network service provider to access the customers
 - Australia On Line, MSN, numerous Portal Services



Content vs Access

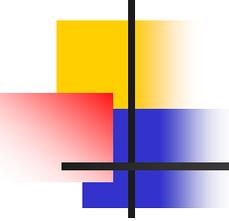
- Round 1: ~1995
 - Provider-Centric Closed Services
 - The network provided the connection between customers and service providers
 - Customers paid the network service provider to access the services
 - Service providers paid the network service provider to access the customers
 - Australia On Line, MSN, numerous Portal Services

BUSTED!



Content vs Access

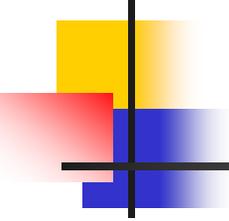
- Round 2: ~2000
 - Access owes Content
 - Content providers were failing in the initial rounds of pay-per-view models of content distribution
 - Content providers mounted the case that the only reason why customers paid access providers for Internet access was their uniquely compelling content, generated at great expense
 - Ergo: Access providers owed content providers a share of the access fees if they wanted to continue to have access to their content



Content vs Access

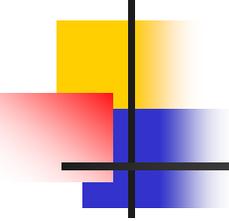
- Round 2: ~2000
 - Access owes Content
 - Content providers were trailing in the initial rounds of pay-per-view model for content distribution
 - Content providers mounted the case that the only reason why customers paid access providers for Internet access was their uniquely compelling content, generated at great expense
 - Access providers owed content providers a share of the access fees if they wanted to continue to have access to their content

BUSTED!!



Content vs Access

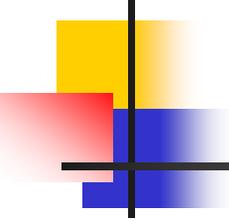
- Round 3: ~2003
 - Access owns Content
 - Network Access Providers attempted to generate their own proprietary content
 - Content was only accessible within their access domain
 - Network enterprises purchased content generators
 - Remember Telstra's tilt at Fairfax? Yahoo's proprietary content?



Content vs Access

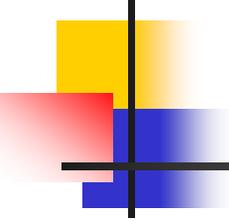
- Round 3: ~2003
 - Access owns Content
 - Network Access Providers attempted to generate their own proprietary content
 - Content was only accessible within their access domain
 - Network enterprises purchased content generators
 - Remember Telstra's tilt at Fairfax? Yahoo's proprietary content?

BUSTED!!



Content vs Access

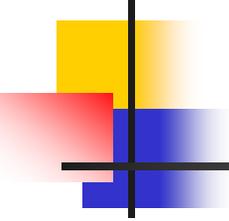
- Round 4: ~2006
 - Content owes Access
 - Penetration of high speed broadband and a new round of software platforms enables a new generation of content providers
 - Google looks at traditional media enterprises and takes on the advertising industry with an entirely novel model of advertiser-funded content and services
 - The network service provider gets squeezed out of the content model completely and is relegated to dumb pipe provider
 - The network provider heads off to the regulator to seek relief from the onerous common carrier provisions in order to leverage a position against content providers



Content vs Access

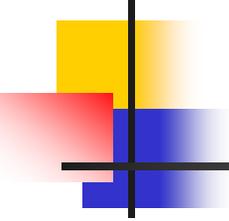
- Round 4: ~2006
 - Content owes Access
 - Penetration of high speed broadband and a new round of software platforms enabled a new generation of content providers
 - Google looks at traditional media enterprises and takes on the advertising industry with an entirely novel model of advertising-funded content and services
 - The network service provider gets squeezed out of the content model completely and is relegated to dumb pipe provider
 - The network provider heads off to the regulator to seek relief from the onerous common carrier provisions in order to leverage a position against content providers

Busted?



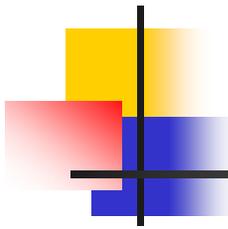
Why is this an issue at all?

- There are many commodity utility enterprises in today's world
 - water, electricity, transportation,...
- Why is network infrastructure provision any different?



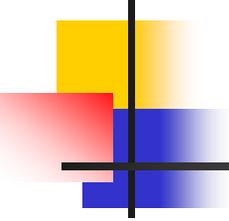
Because ...

- It wasn't always this way for the telco business model
 - Complete control of the network
 - Complete control of the service
 - Complete control of the customer



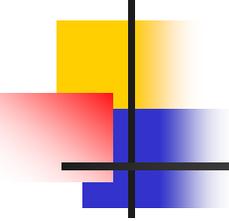
What does the telco want to be?

- This sector has no desire to become a commodity utility provider
 - It has the wrong skills, wrong assets, wrong technology, wrong shareholders, wrong management, and the wrong outlook to survive in a harsh commodity utility world
- It needs its past all over again...



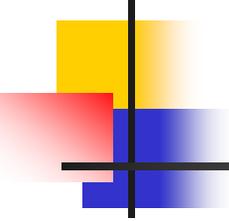
The Converged Telco Utopia

- A small number of vertically integrated “full” service providers leveraging their underlying infrastructure investment into a high yield, high margin service delivery retail system using a single network platform for comprehensive service delivery
- Low cost, high value, strong service control, fantastic margins!



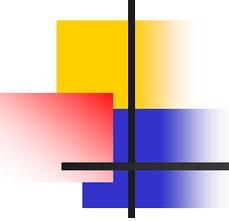
Wouldn't it be wonderful...

- If you could account for, and bill, the end user for the value of delivered services rather than just the packets
- Customers paid you for value-added service solutions, rather than the marginal cost of packet delivery
- Service Providers paid you for access to your customers



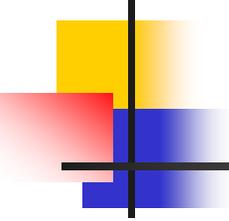
Or is this Hopelessly Unrealistic?

- The drive for convergence of services in a single delivery system is a persistent theme in this industry:
 - Mixing Data and Voice streams with ATM
 - Mixing circuits and packets with MPLS
 - Mixing Video, Voice and Data with Triple Play
- Each new generation of carriage technology is heralded as the harbinger of a wonderful new converged era of communications service provision and a new era of control over service delivery
- But - it's all slipping away from the telco's grasp!



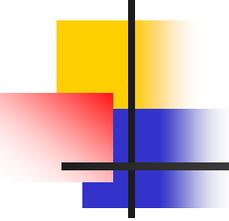
The Telco's Reality

- Deregulation, intense competition, branching role specialization at every level
- Resulting in
 - many parallel service delivery networks, many network operators,
 - industry-wide duplication of activities,
 - continual exposure to inefficient resource use,
 - exposure of niche markets,
 - limited planning capability,
 - high investment risks,
 - high costs,
 - low operating margins,
 - continual restatement of investor expectations,
 - negative returns on equity investments,
 - continual recycling of management and staff



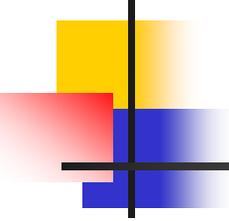
The Consumer's Reality

- Deregulation, intense competition, branching role specialization at every level
- Resulting in
 - competitive discipline placed on service providers
 - market forces match supply to demand
 - pricing based on cost of supply, not value of service
 - service delivery skill specialization
 - service innovation
 - continuous industry response to meet current user needs



Mythbusting

- Voice is no longer the emperor of communications – its reign is over
 - Voice is becoming just another UDP application (and a low volume one at that)
 - Voice signalling is just a SIP rendezvous question
 - VOIP + ENUM is inevitable

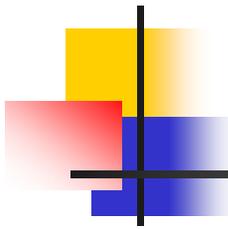


Mythbusting

- Triple Play time is over – BitTorrent won!
- It's a service network, not a forcing function - support the user to run what ever services they want rather than force feeding the user with a limited set of services that the service provider finds easy to deliver

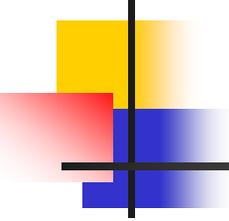
News Clip: October 24

BitTorrent is collaborating with a number of global hardware manufacturers to embed its peer-assisted digital content delivery technology into consumer electronics. ASUS, Planex and QNAP are among the first CE manufacturers to implement the BitTorrent download manager into their digital home devices. Products include wireless routers, media servers and network attached storage (NAS) devices.



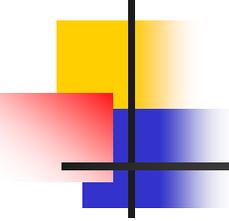
Mythbusting

- Value-Added service networks are causing value added service network providers to go value-added negative earnings per share
- Overlay-based services now own the user



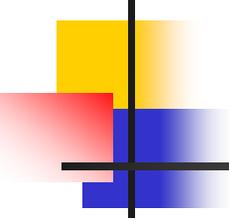
Mythbusting

- The Internet's major leverage was always cheaper price and lowest common denominator service profiles in the network
- Arming networks with complex quality and service manipulation capabilities is a business lose
 - arming networks with adequate bandwidth is a superior strategy – QoS, NGNs and their converged friends have completely lost the plot



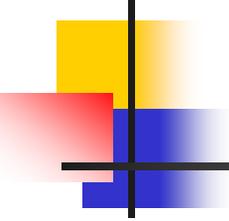
Mythbusting

- IP Transit is a volume-based low-value commodity activity
- IP Access is a volume-based low-value commodity activity
- Adding value to packet pushing happens as an end device to end device transaction



Mythbusting

- There is no next vertical “killer app”
- Overlays have already claimed the user!
 - Think XML, Ajax, RSS, Rendezvous, Torrents, Podcasts



And what about Selective Service Responses?

- One View

- It most assuredly will work. The pig is lined up on the runway. We have rocket boosters for the pig, along with some lipstick. Of course, it will still be a pig even when zooming through the stratosphere, wearing makeup. But it **WILL** fly!

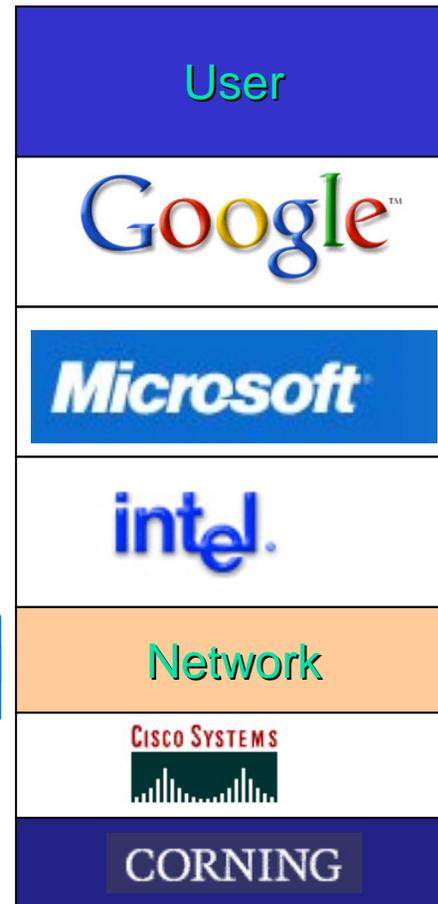
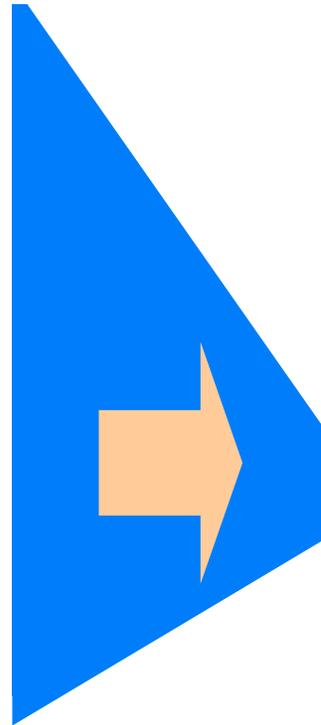
- Another Perspective:

- Pig Hurling is not Pig Flying! This is a demented farce!

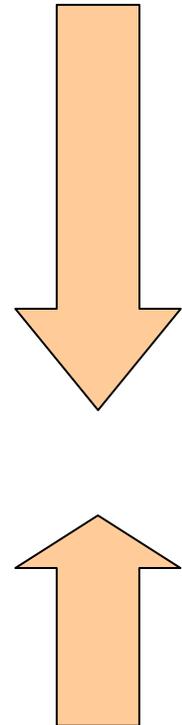
Today's Squeeze Play



Nostalgia

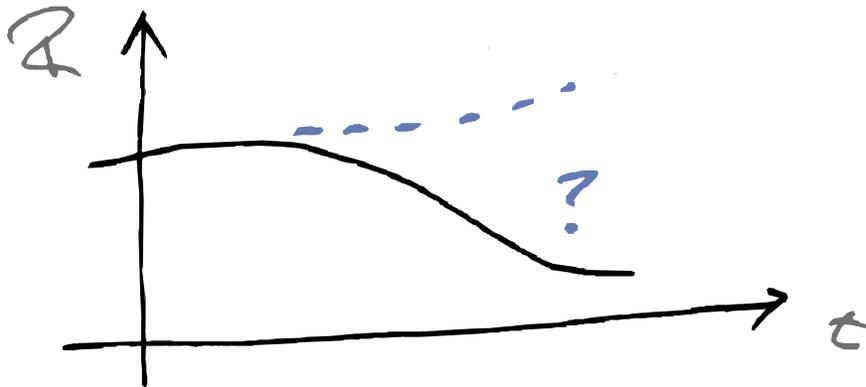


Reality



So what's the real problem?

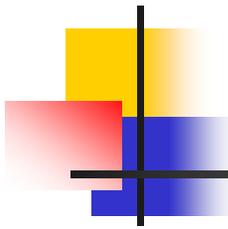
Money!



Reality

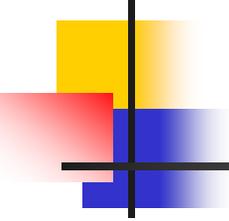
- Legacy telcos are losing control of **pricing, services, technology, content** and **customers**
 - Advanced Over-The-Top services using IP end-to-end impact every aspect of the telco business model
 - Almost the only residual asset left for the traditional telco is the local access loop
 - And that's the subject of intense regulatory pressure





What are we learning?

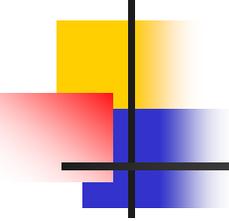
- Vertically integrated service providers are fading away into history - the deregulated competitive service industry continues to specialize rather than generalize at every level
- The threat of dismantling “Net Neutrality” looks like a meaningless and empty threat from a sector that is losing its traditional levers of control



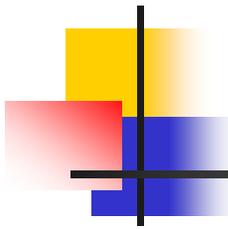
End-to-End really IS the value!

- Valued service delivery is changing – we are now seeing network value based on interactions through overlay systems that treat the network as a simple transmission service
- Services are Over-The-Top

As they should be!



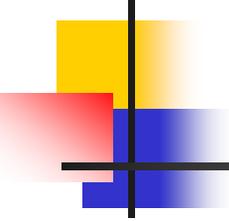
Who's network is it anyway?



Their Network?

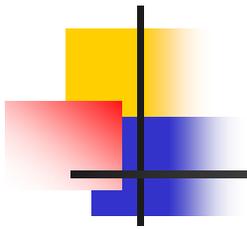
The Converged Utopia of the old world carrier industry remains only as a piece of dull, unimaginative, nostalgic monopolistic mythology within today's communications industry

The carrier's threats about introducing various discriminatory controls over the provision of services to customers are no more than empty rhetoric, devoid of meaning and substance



Or OUR Network?

The unconstrained Internet world is diverse, vibrant, innovative, exciting and very much alive



And that's a
Very Good Thing!

Thank You

