Columbia Citi Conference

*Technical and Cost Breakthroughs*

*Bringing HD to the Web:*

- hybrid p2p,
- backbone efficiency,
- and cheap servers.

Lousy title, so I'll show some pictures.

http://www.microsoft.com/windows/windowsmedia/musicandvideo/hdvideo/content/showcase.aspx
http://dynamic.abc.go.com/streaming/landing
http://movenetworks.com/showcase.html
DVD
2 megabit speed
10 cents/hour

HD
6 megabit speed
30 cents per hour
Price
Dropping fast

50-80%+ saving
preload overnight
Ad-supported and free to viewers

Hybrid p2p
Used by
Disney/ABC, Fox, Bertlelsman in Spain

Offered by
Move Networks, Akamai/Red Swoosh, CacheLogic, BitTorrent, Azarus, Joost, Pando
Starts by streaming

Draws up to 70% from peers on popular shows
Falls back to streaming if necessary

Reduces Server and Bandwidth Costs in Proportion
Similar costs
ABC 1.9 meg hybrid p2p
Hulu NBC/Fox 700K stream

Scales well:
Popular shows have more peers, less server load
Moore's Law bringing down everything else

Standard, cheap Rackmount PC's work fine
Backbone generally competitive, dropping in price

Wave Division Multiplexing, 40G and 100G Ethernet
Underwater fiber much cheaper to construct

No tech limits at servers, backbone, peering points or carrier-owned fiber
Last mile:
30M can get 8 megabits

France, Germany, Holland, Japan, Korea, Verizon going to 30 megabits and more
2012
HD 5 megabits
programs
5 cents/hour

Other issues, like marketing, rights fees, ad targeting, taxes costly
Of course, Net neutrality

Everything's practical
Everything's practical