After the Triple Play
A ten-year plan

David D. Clark
MIT Communications Futures Program
April, 2010
Why this topic? Why that title?

- This talk is focused on the broadband ISP industry and its future.
- A lot of what any company does is short/medium term.
- Some small group of strategists needs to look long term.
- This is a long term talk.
- Over (say) 10 years, the nature of the broadband access business is going to shift.
Disclaimers and warnings

- This is a U.S. centric talk.
  - You will have to map it into your context.
- This is a very young talk.
- It contains a lot of speculation.

- We will discuss in our members’ session tomorrow, when you can object...
Ten years ago

- Residential broadband was just heating up.
- In the U.S., there were about 7,000 dialup ISPs.
  - They essentially all died, or turned into web hosting/design firms.
- Current ISPs, which own facilities, will have greater staying power.
  - But they will change.
Ten years from now?

- Broadband to the home will be critical. No way society is going to let this capability erode.
  - Continuing pressure for improved performance.
- Broadband costs significant amounts of money to provision.
  - There are those who think about an “infrastructure-less” future, and I welcome their comments here.
- Mobility will have grown in importance.
- Anything else we should take as sure?
The video experience

- Perfect storm: money, usage, tectonic collisions
- Not just the movement of the “traditional TV experience” onto the Internet.
- Rather, the evolution, perhaps beyond recognition, of what the “video experience” is.
  - Interactive, not a one-way experience.
  - A social, not an isolated experience.
  - An any time, anywhere experience.
  - And much more, as I will describe.
  - The value chain blows up.
A social science perspective

“Technology is society made durable”
--Bruno Latour 1991

His hypothesis is that technology tends to lock in and define behavior that would otherwise evolve.

Phone, music, TV emerged in the “pre-computer” era of rigid technology.

Once we enter the computer era of plastic technology, things go crazy.
The centrality of the “triple play”

- The idea of the “triple play” as a revenue model is not that old. It arises from the movement of three traditional revenue streams into a single firm.
  - But plastic technology overthrows tradition.
- The idea emerged, and it will erode over time.
  - “Over the top everything” (OTTE).
My thesis

- The erosion of the triple play is inevitable.
  - Current trends make this clear.
- This change will be slow.
  - No current business models are going to implode suddenly in a cloud of losses.
- No need to panic.
  - There are still lots of ways to make money and be profitable.
- But do look ahead.
  - ISPs should expect to change (or die).
Two halves to my story

- Cost and cost structure.
  - How do firms make and spend money today?
  - How might that change?
- New business options 10 years out.
  - I have 8 options to explore with you.
Pick a candidate company

- I picked Comcast, a U.S. cable-based triple play provider.
  - About 25% of the U.S. market.
  - Essentially in one business: residential access.
    - No enterprise.
    - No software services.
  - No mobile (except for investment in Clearwire.)
  - I think I can understand their annual report.
How they make their money

- Video: 24.2 M customers  $18.85B
- Internet: 14.9M customers  $7.23B
- Phone: 6.5M customers  $2.65B
- Advertising  $1.53B
- Other  $2.2B
- Total  $32.44B
## Costs allocated to video

**Revenue:**
- Customers: $18.85B, $64/m
- Advertising: $1.53B, $5.25/m

**Costs**
- Programming: $6.48B, $22.3/m
- CPE: $2.0B (?), $6.9/m

**Net:** $11.9B, $41/m
Costs allocated to Internet

- **Revenues**
  - Customers: $7.23B / $40.5/m

- **Costs**
  - Allocated: $.52B / $2.9/m

- **Net:** $7.0B / $39.3/m
Conclusion

- Video is not this wonderful, high margin product, compared to commodity Internet.
  - They both have about the same net ARPU.
  - ISPs should not favor one over the other.
  - They just are depending on the total average ARPU.
    - The question is “how best to get it”? 
Costs allocated to phone

- **Revenues**
  - Customer: $2.69B, $34.5/m

- **Costs:**
  - Allocated: $.73B, $9.5/m

- **Net:** $1.96, $25.1/m
Conclusions about phone

- Providing phone service is expensive.
  - Compared to Internet: $2.9/m vs. $9.5/m
- That cost is not just termination charges. It is not minutes.
- So do not ask “will minutes go away”? Ask “will the need for the service go away”?
  - Skype drains minutes away from the product, but they don’t really replace the service.
The cost of video

- If all video were to go over the top, who is harmed?
  - ISPs fear the loss of that cable revenue and all the usage. (Or do they?)
  - But what about the programmers?
  - Comcast is about 25% of the US market, so programmer are getting about $26B/y.
- Why would they want to go over the top?
  - Answer—not all content is the same.
  - Advertising revenues? Not a chance. Later…
Aside: video and wireless

- Over the top video is the friend of wireline.
  - An HD video feed might go 10-12 mb/s.
  - That will blow out wireless. Even tomorrow’s wireless.
  - Over the top video will ensure that wireless is a complement, not a substitute for residential broadband.
- But usage is not free (come back to that.)
My 8 stories

- The bit pipe commodity story
- The content-caching story
- The phone story
- The “selling content” story.
- The advertizing story.
- The monopoly/public sector story.
- The “related services” story—security, etc.
- Total disruption story.
The bit pipe commodity story

- Imagine that all the content did move “over the top”, and the revenues from video and voice went away (to other actors).
- Could a facilities-based provider still make money from selling Internet access?
  - We get to other sources of revenues in my other stories…
- Again, use Comcast as an example.
  - What would they look like?
After the triple play

- Comcast would lose about $8.5B in revenues that they pass through today.
  - Programming and CPE.
- Since they would be selling a more simple suite of services, imagine they could cut another $2B out of their expenses.
- They become a $22B company, not a $32.5B company.
  - Must prepare the investors for this shock.
The price point?

- If they have 24M customers, they must charge $76/m.
- Today, if you buy only Internet access, they charge $60/m.
- Shifting the price point to $75-$80/m over a number of years can be done.
- This outcome would result in a highly profitable company.
  - So what is wrong with this?
The content-caching story—cost

- Usage is not free. Just cheap.
  - Figuring out what it costs is tricky.
  - The true cost driver is total busy-hour load.
    - Off peak costs nothing, since you provision for the peak.
    - Pricing has not gone there yet.
- Cost depends on how far it goes.
- We use approximations, such as average cost per GB, because it is inaccurate but easier to grasp.
Some estimates

- U.S. metro-centric numbers.
- Bulk transit costs $4/m for a mb/s.
  - That might imply about $.025/GB.
- Internal network costs might be the same magnitude.
  - One estimate puts total cost at under $.10/GB.
- A typical U.S customer today, pre-video, uses perhaps 3 or 4 GB/month, or less than a dollar in usage.
  - Getting real data—ask me this summer.
Costing video

- For transit (alone) $1/month buys .25 mb/s.
  - Assuming a transit price of $4/m for 1 mb/s.
  - If total cost is twice that, then $1 buys .125 mb/s average rate.

- If you watch an HD video (10 mb/s) 50% of the busy hours, you should pay $40/month.
  - A bit pricy. But these are today’s costs, not future.
    - Is there a “Moore’s law” effect that will save us?
    - Can we reduce cost by system design?
But—usage costs are variable

- They are *highly* variable.
- Traffic over a transit link is most expensive.
- Traffic from a distant part of the net is expensive.
- Traffic that originates at the head end is essentially free.
- So hosting high-volume content at the head end is critical.
Interests are aligned

- ISPs like the content close to the consumer.
  - Lowers costs.
- Providers like the content close.
  - Improves the experience, e.g. lowers latency.
- That is what companies like Akamai do, as well as ISPs themselves.
Finding your enemies

- Is Akamai and its competitors the ISP’s friend and partner, or enemy?
  - Friend because they help lower ISP usage costs. This improvement will really start to matter when we look at video.
  - But perhaps they are ISP’s enemy because ISPs might like to be in that business.
Akamai profile

- Revenues: $791M
- Operating income: $212M

- Revenues, about 2.5% of Comcast, and Akamai is a global company.
- Why bother to be in that business? ($.75/m.)
- Two reasons (see below) but not because it is a great money-maker. CDNs are a commodity business today.
  - A small part of programmer costs.
The phone story

- Do not think about “minutes”. That is old-think.
- Ask what the “experience” is, and how that might change over the next ten years.
- The major barrier to innovation has been the rigidity of the “old” phone system.
  - Folks will work around that and redefine the experience.
  - Look for hints.
Voice: is OTT a killer?

- Vonage?
  - $900M revenue; 2.61M subs.
  - 40% the subs of Comcast, and 33% of the revenues. Comcast makes more.
  - Cost of service is $226M, or about $7.27/m.
  - 3% churn/month.
  - Losing money.

- Not a fearsome competitor…

- Why do people use them?
  - Highly cost sensitive, portable numbers (e.g. specialized features).
    - Facilities providers could match those.
Who is the voice competitor?

- Not Skype.
  - A complement, not a substitute.
- Not teleconferencing tools.
- Not Vonage.
- It is the mobile service.
- Nothing to do with “over the top” worries.
- But ask, how will the service mutate?
  - Regulator has an important role here.
    - Emergency service, wiretap, disaster availability…
Heretical question

- Why would anyone want to be in “old phone” business?
  - Not like paid content, with fees flowing through.
  - No advertising.
  - It is a commodity, just like the Internet, but with much less generality and opportunity.

- Why would someone want to be Vonage?
  - I think ISPs will keep it, and get bored with it.
The “selling content” story

- Go back to that $26B now flowing into the programmers from the “cable” providers.
- All content is *not* going to become free.
- The producers of premium content are going to collect that fee somehow.
  - Who will provide that service?
  - That is the coming battle—get in and fight.
Today?

- iTunes sells mostly music, but video is coming. Apple sells video through their Apple TV device.
- They make more or less $4B a year selling content.
  - $8B selling iPods, $32B total in 2008.
- A better business than Akamai. This is where some money is.
Tivo

- Tivo is:
  - A device for delivery. An approach to caching.
  - A channel for selling.
    - Today resell Amazon video on demand, Netflix, etc.
- Today, 29M U.S. households have a DVR.
  - A big deal.
Friend or enemy or partner?

- What is the essence of TiVo?
  - It is not simple time-shifting.
  - It is controlling, and thus creating, a new user experience.
    - Control the screen, control the experience.
    - Watching TV is no longer what you do, but just one option in a larger menu.
- TiVo got a lead here.
  - Comcast, Direct TV, Cox etc license TiVo.
A basic lesson

- The most important change occurs not when we do old things using a new tool, but when the new tool redefines what we do.

- That which we call “watching TV” is going to morph beyond recognition.
  - The video experience will always be with us.
  - Watch and understand this change, and you have a chance to control your future.
The advertizing story

- The other “follow the money” story.
- Today:
  - $58B annual US spend on TV ads.
    - Cable seems to get about 10%.
  - $23B annual US spend on Internet.
    - 70m BB homes would imply $27/m.
- Where will that $58B go and who will get a share of it?
  - This is clearly the next battlefield.
Who is fighting?

- Google
  - Search ads and behavior-driven ads.
- Ad networks.
- Ad exchanges.
- Aggregates of web publishers
- Tivo
- ISPs
Ads for over the top video?

- The approach, format, control, etc. are undefined and up for grabs.
  - Do we need standards?
- He who controls the experience controls the money.
  - Imagine a free DVR that will not skip over ads but only shows you ads you want to see.
  - There is enough ad money to give away the DVR.
To be continued...

- Tomorrow.

- Other options, and what I would suggest.
What I would do...licensing

- Set up an independent entity (perhaps owned by an aggregate of ISPs) to be the licensing and payment agent for distribution of premium (fee-based) content.
  - Competitors will include Amazon, ITunes, etc.
    - Big guys. Tough fight.
  - So count your advantages or find your partner.
    - What you want is a bit of flow-through in revenues.
  - For those who serve premium content today, the programmers know you.
What I would do...advertizing

- Make the consumer your partner.
- The behavior and demographics of the consumer are valuable information.
  - Advertisers pay a lot for that info today.
- Make the consumer a partner in gathering and exploiting that information.
  - Give the consumer a much improved experience, perhaps cost savings (watch for fraud), and a sense of control.
The “related services” story

- ISPs have this high-capacity pipe to the consumer.
- But usage is not free across your network.
- Think: what can ISPs offer the consumer.
- A few ideas:
  - Tools and services related to security.
  - Backup
  - Applications (especially “two server” apps)
  - Emergency/disaster mitigation
- Compare consumer fees with Akamai.
The monopoly/public sector story

- The story that the private sector deflects.
  - But there is a lot of frustration here and there with what the private sector is doing.
    - Australia, rural areas, ...
  - It seems that private sector investment will drive the deployment and upgrade of broadband in some places, but not others.
    - Option 1: this outcome shifts.
    - Option 2: we have regions served by a public-private partnership, or one provider at best.
    - For this product, competition does not make costs go down.
Total disruption story

- My friends at the MIT Media Lab ask: “What meteor will next kill our current dinosaurs?”
  - Wireless?
    - My answer, not if HD takes off.
  - Mobile (and other) cameras
    - Cameras are full resolution, in contrast to displays.
  - Disks
    - How much can the consumer store in 10 years?
  - Niche real-time video
    - What is the analog to website hosting? Justin.tv?
  - Cars
  - LEOS
Good news/bad news

- This talk does not fully capture the extent of the disruption.
  - User behavior—social networks, Twitter, virtual worlds, other collective experiences, e-commerce, who knows?
  - Technology—sensors, cars, cyborgs
- ISPs do not need to be in all these businesses.
  - Let others experiment, fail, make the pie bigger.
- Once ISPs provision for video, they will not notice any of this traffic.
- Focus on the places where there is real money.