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CHAPTER ONE

Net Neutrality: Content Discrimination

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!"

Ed Whitacre, AT&T

Net neutrality is a contested policy principle regarding access for content providers to the Internet end-user, and potential discrimination in that access where the end-user's ISP or another ISP blocks that access in part or whole, often subject to special fees, bluntly described by Whitacre in the now-infamous comments (see above) in an interview. By Internet content, I refer to content accessible to the general consumer on the public Internet,² as opposed to secure private networks, an important qualification as most material on the Internet is private (hidden behind enterprise or other firewalls).³ The net neutrality debate has two broad elements:

- The 'positive' forward-facing element of charging more for better QoS on the Next Generation Networks (NGNs) now being developed⁴
- The 'negative' backward-facing element, degrading or 'throttling' customers who attempt to take maximum advantage of applications (typically delivered using P2P protocols) over their current broadband connection.

The first is an emerging area, while the second is the object of current consumer controversy.

Dividing net neutrality into its forward-looking positive and backward-degrading negative elements is a common approach used by Felten, Sandvig, Mueller and many others.⁵ It is the vital first step in unpacking the term, in comprehending that there are two types of problem: charging more for more and charging the same for less.

Net neutrality has been variously defined, most prominently by regard to its forerunners 'open access' and common carriage by US legal theorists Werbach,⁶ and Lemley and Lessig,⁷ and the term 'Network Neutrality' was first coined by Wu in 2003.⁸ Abusive discrimination in access to networks is

usually characterized in telecoms as a monopoly problem, manifested where one or two ISPs have dominance, typically in the last mile of access for end-users. As we will see, this is not the whole story, and this chapter considers the current US situation at mid-2009 and the progress towards competition in Europe, and tries to identify whether it is a competition or a more general problem. If it cannot be competed away, then we will need to look elsewhere for answers.

ISPs can discriminate against all content or against the particular content that they compete with when they are vertically integrated. Conventional US economic arguments appear to be broadly negative to the concept of net neutrality.⁹ Hahn and Wallsten explain:¹⁰

net neutrality has no widely accepted precise definition, but usually means that broadband service providers charge consumers only once for Internet access, don't favor one content provider over another, and don't charge content providers for sending information over broadband lines to end users.

Frieden, whose perspective is analytical and consumer-centric, reflects where regulators' perspectives need by law to be focused:¹¹

Network neutrality advocates worry that major ISPs have both the wherewithal and incentive to bifurcate the Internet into one medium increasingly prone to congestion and declining reliability and one offering superior performance and potential competitive advantages to users able and willing to pay, or affiliated with an ISP operating a major bitstream transmission network.

I agree that this is the focus of the problem: Network owners with vertical integration into content or alliances have enhanced incentives to require content owners (who may also be consumers) to pay a toll to use the higher-speed networks that they offer to end-users. Note all major consumer ISPs are vertically integrated to some extent, with proprietary video, voice, portal and other services. My approach is of the middle way proposed in the United States by Atkinson and Weiser¹² and Frieden. It proposes neither:

- an absolute ban on 'positive' price discrimination when justified (for example, when higher-speed access to fibre links to the consumer provides an investment that certain high-bandwidth applications find attractive)

- nor an absolute prohibition on regulatory oversight, particularly of ‘negative’ net neutrality.

Instead, it begins by asking which abuses are key to the problem, by looking at US regulation, including the abandonment of common carriage, and then European regulation. As discussed later, the problems for end-users in accessing content (and vice versa) are not necessarily the same as those for networks competing with and interconnecting with each other.

The chapter progresses as follows: the first section addresses the changes towards deregulation in US communications policy and the abandonment of common carriage. The second investigates the FCC Four Freedoms, the ‘smoking gun’ case of *Madison River* and the 2006 merger conditions on Verizon and AT&T. The third explores the Comcast decision and the ramifications of that case. I then turn to European policy and the previous ‘American problem’ that many European policymakers used as their lens to suggest that different conditions predetermined different responses. Finally, I sum up the latest manoeuvres in the United States under the Obama administration. These are of such recent vintage, and so likely to rapidly develop, that I draw no firm conclusions, in view of FCC Chair Genachowski’s speech of 21 September as this book went to press: see <http://www.openinternet.gov/read-speech.html>. This paints the background for the rapidly developing scene in Europe that preoccupies much of the rest of the book.

The American Challenge: Abandoning Common Carriage

The United States is different to Europe. US telecoms policy, as we saw in the Introduction, has rolled back from allowing competition to information providers on cable networks in its AOL-TimeWarner and AT&T/MediaOne merger cases in 1999–2000, to reversing entirely the presumption of competition on networks. The position established in 2005 by regulatory and court decisions is that competition is to be inter-modal – between the networks – rather than intra-modal – on both the cable and telephone wires.¹³ Instead of regulated access to both cable and telecoms networks, there is now a monopoly on both wires, which are classed as ‘information’ not ‘telecommunications’ services, and therefore largely unregulated.

The ‘Baby Bells’, the Regional Bell Operating Companies, divested from AT&T with the Modified Final Judgment of 1984 and re-emerged in 2006 as

two local–long distance–Internet–wireless combines, now called AT&T and Verizon¹⁴ (the latter having also absorbed MCI WorldCom, the biggest Bell competitor in the 1990s). Some tinkering with the terms of those mergers in 2006 does not dispel the greatly increased concentration in the industry, and the abandonment of competition on the telecoms local loop. In the United States, the recreation of ‘Ma Bell’¹⁵ via a series of mergers has led to a situation in which only cable companies make an effective challenge to incumbents.¹⁶ Competition is now only ‘inter-modal’ between cable and telecoms, not ‘intra-modal’ between different telecoms companies using the incumbents’ exchanges to access the ‘last mile’. This has been viewed with a bemused detachment by the European Union, whose members and the Commission have carried on pursuing the competitive unbundling of incumbent facilities that began in 1996, inspired by the US Communications Act.¹⁷

Network congestion and lack of bandwidth at peak times is a feature of the Internet. It has always existed. That is why video over the Internet was until the late 1990s simply unfeasible with patchy quality and why engineers have been trying to create higher QoS, as we will see in Chapter 2. ‘End-to-end’ is a two-edged sword, with advantages of openness and a dumb network, and disadvantages of congestion, jitter and ultimately a slowing rate of progress for high-end applications such as high definition video. End-to-end may have its disadvantages for those introducing zoning as compared with QoS, and in this it has obvious parallels with ‘common carriage’ under the Telecommunications Act and its alter ego ‘information services’.

Citizens believe they have ancient rights of way and of service. The UK Carriers Act of 1830 was the first legislation for carriage of goods, codifying the common law. The Act applied to all common carriers by land (‘more effectual protection of mail contractors, stage coach proprietors, and other common carriers’²¹), including road and railway carriage, then in its infancy for passengers but well established for coal and other commodities. The UK Railways Act 1844 does include provisions for common carriage and ‘Parliamentary trains’ (low-cost trains that stop at all stations, later known as ‘milk trains’ because they ran pre-dawn to avoid inconveniencing more expensive trains at peak hours). Common carriers in medieval times included farriers and public houses (every horse to be shod and person to be allowed shelter without discrimination between travellers).²² Common carriage should not be confused with charging tolls for higher-speed networks, though the Turnpike Riots of eighteenth-century England were associated

with turning the King's Highway into a private road, and UK opposition to road charging continues to this day.

Common carriage is historically defined by the duties imposed on public networks in exchange for their right to use public property as a right of way, and other privileges:

Common carriers and public carriers are under duty to carry goods lawfully delivered to them for carriage. The duty to carry does not prevent carriers from refusing to transport goods that they do not purport to carry generally. Carriers may indeed restrict the commodities that they will carry. Further, everywhere, carriers may refuse to carry dangerous goods, improperly packed goods, and goods that they are unable to carry on account of size, legal prohibition, or lack of facilities.¹⁸

This definition offers several reasons not to 'common carry', which can be extended to ISPs – spam and viruses for instance may be refused. In common-law countries such as the United Kingdom and the United States, carriers are liable for damage or loss of the goods that are in their possession as carriers, unless they prove that the damage or loss is attributable to certain excepted causes (such as 'acts of God, acts of enemies of the Crown, fault of the shipper, inherent vices of the goods, and fraud of the shipper', perils of the sea and particularly jettison).¹⁹ There are several more reasons for ISP data loss – the loss of undersea cables or alleged foreign power denial of service (DoS) attacks, as we will see in Chapter 2. It might be stretching a definition to suggest that P2P streams can be 'jettisoned' in order to allow other traffic to progress during peak time congestion.

It is worth stating what common carriage is not. It is not a flat rate for all packets and also not necessarily for all packets of a certain size. It is, however, a medieval non-discrimination bargain between the sovereign and the transport network or facility, in which an exchange is made: for the privileges of classification as a common carrier, those private actors will be granted the rights and benefits that an ordinary private carrier would not have. As Cherry has written, common carriers are not a solution to a competition problem, they far predate competition law.²⁰ They prevent discrimination between the same traffic type – if I offer you transport of your high definition video stream of a certain protocol, then the next customer could demand the same subject to capacity, were the Internet to be subject to common carriage (in the US it is not).

Telecoms networks were established to be common carriers as they achieved maturity, following telegraphs, railways, canals and other networks. Noam explained in 1994 the practice from the glass-half-empty school of neorealist communications:

Common carriage, after all, is of substantial social value. It extends free speech principles to privately owned carriers. It is an arrangement that promotes interconnection, encourages competition, assists universal service, and reduces transaction costs. Ironically, it is not the failure of common carriage but rather its very success that undermines the institution. By making communications ubiquitous and essential, it spawned new types of carriers and delivery systems ... the pressure on common carriers come from two other directions: private NGNs offered by systems integrators; and broadband services offered by cable television operators. Neither operates as a common carrier, nor is it likely to.²³

He thus forewarned that net neutrality would have to be the argument employed by those arguing for non-discriminatory access, as well as accurately predicting the death of common carriage 10 years later. Note under common carriage, discrimination is quite possible, but not between customers, only between identical loads.²⁴ In the United States, it was finally established that a public telegraph company (and more especially the largest) has a duty of non-discrimination towards the public.²⁵ The loss of common carriage is an epoch-breaking move towards deregulation, which means that attempts to ensure universal access to an unfettered Internet will require new regulation.

Smoking Guns and Regulation for Net Neutrality: Madison River

Michael Powell when Chair of the FCC decided that a statement of consumer-oriented open access policy should suffice to persuade ISPs to avoid egregious discrimination. In February 2004 at a policy workshop, he declared:

I challenge the broadband network industry to preserve the following Internet Freedoms: Freedom to Access Content; Freedom to Use Applications; Freedom to Attach Personal Devices; Freedom to Obtain Service Plan Information.²⁶

European policymakers have many tools to implement other than black letter law, but even they were challenged by Powell's use of a 'challenge' to establish a principle that had formerly been secured by such established rules as common carriage and the voluminous Communications Act.²⁷ Nevertheless, and despite its continued legal uncertainty, the Four Freedoms became a cornerstone of policy that was to be applied in the Internet Policy Statement (2005),²⁸ Madison River (2005), the AT&T and Verizon mergers (2006) and the Comcast action (2007–8). Its legal effect is to be explored as part of Comcast's appeal.

The classic 'smoking gun' regulatory action to prevent blocking of access was the 2005 decision by the FCC to enforce non-discrimination against a small ISP that had been blocking a rival VoIP service, Madison River Communications.²⁹ It was an easy case in many ways: the abuse was incontrovertible and defended as a legitimate business practice, the vertical integration of the ISP with its voice telephone service meant it had obvious incentives to block its competitor, Vonage, and the practice was intended to degrade Vonage customers' Internet access. It was an example of negative network neutrality being breached: customers signed up for broadband service with the ISP, but the ISP chose to degrade that service to preserve its monopoly in telephone service.

Two notable elements of the Madison River decision have led regulators in Europe to rest on their laurels. The first is that the smoking gun that presented itself was such an obvious case that it may have lulled them into a false sense of security or even denial – the fact that the regulators largely were ignorant of the skills needed to spot such discrimination should have set alarm bells ringing. The second is even more pernicious. Madison River is a small consumer ISP, not a large behemoth national carrier. If it was blocking VoIP from a competitor, would that not indicate that it was likely many small ISPs were doing the same, and perhaps in Europe as much as the United States? Would it not also indicate that the problem may not lie with the huge incumbent companies such as BT or France Telecom (FT), who are in any case well policed in general by effective regulators, but with the smaller companies, who 'own' the customer but do not have economic strengths or scrutiny such that they generally are undisturbed by regulation?

After Madison River, the next large-scale regulatory action came in the 29 December 2006 merger of AT&T and BellSouth, when the merged company

undertook various commitments not to block other companies' applications directed over the Internet connection provided by the merged company. This consent was extracted by a majority in the FCC.³⁰ AT&T agreed to:

- follow the FCC's four network freedoms for thirty months;
- apply network neutrality principles for its broadband ISP between subscribers and the first Internet exchange point for a period of two years;
- but it expressly reserved the option not to apply network neutrality principles for its IP Television (IPTV) service, and to any service beyond the first Internet Exchange point.

Note from the description of the first Internet Exchange or 'handover' point that, though discrimination is typically characterized as behaviour by last-mile consumer ISPs against content providers, it can equally be undertaken at peering points by third parties.³¹ Note that such discrimination may possibly be detected by the end-user when it is conducted by its ISP, while a far more pernicious and potentially undetectable discrimination may occur at peering points.³² Werbach, Lehr and others have attempted to redefine net neutrality in terms of interconnection and other inter-carrier requirements, rather than end-user centred policy.³³ This reflects the various types of discrimination that are possible at various pinch points on the Internet.

Net neutrality was the subject of a blizzard of legislative proposals in the Congress in 2006–8.³⁴ Markey's 2006 Bill uses language that is repeated in the Conyers–Lofgren proposal from 2008: if the provider prioritizes or offers enhanced QoS to data of a particular type, to prioritize or offer enhanced QoS to all data of that type (regardless of the origin of such data) without imposing a surcharge or other consideration for such prioritization or enhanced QoS.³⁵ As a group of academics wrote in 2009, petitioning the FCC to define open Internet access, companies marketing broadband to customers without making clear that a portion of capacity is portioned off for higher bandwidth non-Internet services are not clearly advertising their offer:³⁶

we strongly suggest that the Plan incorporate the FCC Internet Policy Statement of 2005 and extend it to (a) include consumer information that meaningfully specifies connection performance and identifies any

throttling, filtering, packet inspection, data collection, et cetera, that the provider imposes upon the connection, (b) prohibit discriminatory or preferential treatment of packets based on sender, recipient or packet contents.

Previous policy reform suggestions have suggested that the problem can be resolved by either introducing greater inter-ISP competition³⁷ or closely policing conditions for vertically integrated service, such as VoIP. In the United States, there is inter-modal competition between cable and telecoms networks, but no intra-modal competition within the incumbent network since 2005. Conventional US economic arguments continued to be broadly negative to the concept of net neutrality.³⁸ The Europeans saw an ‘American problem’ caused by the abandonment of LLU regulation³⁹ for broadband competition in the local access network.⁴⁰

Comcasting the Future?

The use of a ‘throttling’ technology, essentially P2P applications being slowed by use of Sandvine technology, was at issue in the FCC’s Order of 1 August 2008 against Comcast, a major cable broadband ISP.⁴¹ A Comcast deposition to the FCC states BitTorrent throttling began in May 2005–6. The Register noted the misleading nature of Comcast’s claims not to have throttled and blocked traffic when exposed in May 2007 by Robb Topolski.⁴² The Commission ordered Comcast to within 30 days:

- (1) disclose to the Commission the precise contours of the network management practices at issue here, including what equipment has been utilized, when it began to be employed, when and under what circumstances it has been used, how it has been configured, what protocols have been affected and where it has been deployed;
- (2) submit a compliance plan to the Commission with interim benchmarks that describes how it intends to transition from discriminatory to non-discriminatory network management practices by the end of the year; and
- (3) disclose to the Commission and the public the details of the network management practices that it intends to deploy following the termination of its current practices, including the thresholds that will trigger any limits on customers’ access to bandwidth.

Most damningly, the FCC found that ‘Comcast has an anti-competitive motive to interfere with customers’ use of P2P applications’. This is because P2P offers a rival TV service delivery than cable, which the FCC found ‘poses a potential competitive threat to Comcast’s video-on-demand (VOD) service’.⁴³ The Comcast use of DPI to discriminate between providers of P2P was also condemned in strong terms: ‘Comcast’s practices are not minimally intrusive, as the company claims, but rather are invasive and have significant effects’. The Commission concluded that Comcast’s conduct blocked Internet traffic, rejected Comcast’s defence that its practice constitutes reasonable network management and ‘also concluded that the anti-competitive harms caused by Comcast’s conduct have been compounded by the company’s unacceptable failure to disclose its practices to consumers’.

The FCC justified its regulatory authority to issue the order, invoking its Title I ancillary jurisdiction under the Communications Act to regulate in the name of ‘national Internet policy’ as described in seven statutory provisions, all of which speak in general terms about ‘promoting deployment’, ‘promoting accessibility’ and ‘reducing market entry barriers’. Commissioner McDowell in his dissent worried that ‘under the analysis set forth in the order, the Commission can apparently do anything so long as it frames its actions in terms of promoting the Internet or broadband deployment’. On these grounds, Comcast on 4 September 2008 brought a suit⁴⁴ to the D.C. Court of Appeals to overturn the order.

The FCC ruling against Comcast’s attempts to stop P2P by sending phantom RST reset packets to customers reflects another ‘easy’ case, that is, about as smoking gun as the VoIP blocking in Madison River in 2005. Werbach (co-leading the Obama FCC transition team in winter 2008–9) made two points that have real relevance for the UK application of the lessons in Comcast.⁴⁵ First, the ruling will be litigated in 2009 and may be overturned because Comcast broke the spirit of the FCC’s legally tenuous Four Freedoms – such spirits are not actionable, only actual rule-breaking. It will be interesting to see if the court rules that the Communications Act offers such wide discretion to the regulator. Second, he decries outgoing FCC Chairman Martin’s comments as politically ‘stuntifying’, as Martin was not condemning ‘metered broadband’. That means caps on usage, and Comcast announced a 250 GB (gigabyte) monthly limit in early September 2008, replacing its previous discretionary terms of use reasonable caps. Comcast also replied by explaining its use of Sandvine technology, and its plans to introduce a ‘blunter weapon’ in its future shaping of traffic.⁴⁶ Comcast responded to the

latest FCC net neutrality ruling by repeating its claim that it engineers its own VoIP product with QoS and avoids the public Internet. It also hints that future investment prospects will be less rosy if the FCC keeps penalizing it. As this stuff gets technical, it is useful to have a decent overview – in particular, note that Comcast has much more functionality in the Sandvine box than they are currently using (courtesy of the first FCC decision in 2008).⁴⁷ Legal challenges to any European regulator ruling under current laws can be expected.

Bandwidth caps are widespread in Organization for Economic Cooperation and Development (OECD) broadband markets but are notably irrelevant to the congestion pinch point: peak time Internet usage in the last-mile network. To tackle this, peak-time cap would require a more targeted (and potentially discriminatory?) form of shaping. Such a form has been introduced in the United Kingdom by Virgin Media, the dominant cable ISP, with limits imposed during peak time since May 2007.⁴⁸ This at least has the benefit of transparency for users, who are otherwise informed of ‘unlimited’ broadband offers that in reality are throttled. The OECD price-per-bandwidth charts show precipitous falls for Germany–United States–Canada amongst G7 countries and relative rises for Japan–United Kingdom–France–Italy: the former group uses facilities-based competition and the latter supplements that with LLU. There’s not much point including smaller countries in such comparisons – the combination of scale economies for investment and geographical diversity of the G7 means that you can make somewhat meaningful comparisons. For the future of such stats, note price per bandwidth within monthly cap and the cost per megabyte (MB) of additional bandwidth above the cap. The cost of broadband is not the theoretical maximum speed, but the ability to achieve a sustained high speed during peak time. There’s not much point driving a Ferrari if you only drive it in evening rush-hour gridlock. Europeans practise ‘safe surfing’ by prophylactics against P2P users and their sustained high usage of broadband, in large measure, because regulated backhaul costs are very high. As discussed in Chapter 3, it’s a middle-mile, not a last-mile problem.

The Future: Towards Open Access in United States Policy

On 13 February 2009, in a fiscal stimulus response to the recession of 2008–9, the US Congress passed the American Recovery and Reinvestment Act of 2009, H.R. 1,⁴⁹ signed into law by President Obama on 17 February 2009.

It is estimated that \$2.88 billion will be spent on extending broadband into under-served areas, with open access and net neutrality provisions built into the grants. The Congress had passed the stimulus with much jiggery-pokery in the House Committee on Rules that reconciles Senate and House versions of Bills. Of course incumbent lobbyists insist that this horse-trading sets no great precedents for the future of net neutrality, though it actually mandates non-discrimination for the Broadband Technology Opportunities Program. In part, it charges that:

The National Telecommunications Infrastructure Administration (NTIA) shall ensure that grantees ... operate basic and advanced broadband service networks on an open access basis; operate advanced wireless broadband service on a wireless open access basis; and adhere to the principles contained in the FCC's broadband policy statement.

The FCC was charged with aiding the NTIA in defining open access rules, and in a report of June 2009 explained the government role in building out previous such infrastructures, quoting Benjamin Rush, Federalist No. 84 and the United States Post Office Act 1792, as well as examples from the transcontinental Pacific Railway Act of 1862, rural electricity, universal service telephony and the Internet.⁵⁰

The appointment of Julius Genachowski as Obama's new FCC chair (a former senior legal advisor to FCC chairs under the Clinton administration), will mean a serious regulator is once more in charge of the FCC and it can get rapidly back on track – but not necessarily in convergence with European policy. The New York Law Journal reported on Obama's telecoms shopping list, the various items he has got to consider, including:

Since the [FCC/Comcast] ruling, Comcast announced plans to limit residential Internet usage and has appealed the order to the D.C. Circuit Court of Appeals, arguing that the FCC lacks authority to enforce its net neutrality principles without specific congressional authority. If the appeals court upholds the FCC's authority to enforce its net neutrality principles, then Congress and the new administration may hold off and allow the FCC to adjudicate any violations on a case-by-case basis; if the decision is overturned, interest in net neutrality legislation may be revitalized.⁵¹

The Kevin Martin–chaired FCC largely abandoned its competitive telecoms role in 2005 when it effectively abolished common carrier telecoms regulation, and seemingly descended into a top-down culture, condemned by the Congress in a December 2008 Staffers’ Report.⁵² Frieden comments on FCC policy habits, I quote at length to illustrate the process as a captured activity:

Absent peer review, a full opportunity to consider the views of the general public and general open mindedness, the FCC regularly relies on the biased filings of stakeholders. The Commission regularly accepts as the gospel truth nothing more than assertions. If stakeholders make these assertions long enough and finance ‘rock star’ academics to embrace these assertions, then it becomes quite easy for the FCC to accept assertions as fact. Economists use this process with great success, because they can create unimpeachable ‘rules’ and use math to support them. In telecommunications policy sponsored economics professors have stated with a straight face that regulation constitutes a confiscation of property, that carriers providing interconnection are entitled to retail price compensation including all ‘opportunity costs,’ that just about every telecommunications market sector is robustly competitive and deserving of deregulation and that every merger or acquisition will promote even more competition.⁵³

We should therefore take with a large grain of salt suggestions that the Bush-era FCC ‘solved’ the problem with competition and market entry: the new Obama Administration suggests that this is a false conclusion, however orthodox it appeared until recently.

Europe Net Neutrality, or ‘Lex Monopolium’

As we have seen, it has long been a goal of telecoms regulation that a competitive market be created and that sectoral regulation diminishes and possibly disappears.⁵⁴ The continuing control of the last-mile bottleneck has made such aims appear facile.⁵⁵ The procedural delays in telecoms regulation in the face of determined and aggressive defensive litigation by actors with Significant Market Power (SMP) have been as great as six to eight years.⁵⁶ It has led Deutsche Bank Research to coin a new term ‘Lex Monopolium’, to describe the manner in which telecoms reform has become bogged down

in the legal process.⁵⁷ Enck has warned that incumbent NGN plans by for instance KPN in the Netherlands risk stranding investments by competitors in LLU, adding LLU insult to earlier procedural injury.⁵⁸ With investment analysts sufficiently concerned about the future uncertainties of European and North American telecoms, it is more concerning when compared with the satisfactory conditions for local loop competition in East Asia. Sophisticated attempts have been made to explain the uncertainties in upgrading the network towards Gigabit Ethernet;⁵⁹ yet, the clear and present danger of investor and regulatory uncertainty must be the biggest single factor.

In the absence of a smoking gun and an obvious culprit, European regulators generally claimed that net neutrality is a US problem, a result of duopoly competition and regulatory failure to commit to competition in the Bush years.⁶⁰ Competition within a single wholesale network was introduced, for instance, in certain Western European nations under the 'telecoms framework' reforms of 2002. The telecoms framework consists of five directives implemented in Member States in 2003 and reviewed on a process that began in 2006 and may conclude in 2009. The European Commission has proposed adding interoperability and minimal service quality requirements to the interconnection requirements in its review of the regulatory framework, as we will see in Chapter 5.⁶¹ The EC experts' i2010 High Level Group stated:

The 'net neutrality' debate in the USA highlights operators' propensity to enter into preferential distribution arrangements with some content providers ... [this] may be problematic and the issue needs to be subject to wider discussions.⁶²

This assumes that LLU provides a choice of platform, and therefore rigorous telecoms competition regulation resolves the issue in Europe, and more especially the United Kingdom. The main subjects of the regulatory analysis are discussed in Chapters 5 and 6.

I claimed in the Introduction that pro-competition litigation in the sector has largely failed in the European Union also, with procedural delays and the high level of proof required under competition law leading to lack of effective recourse against dominant actors.⁶³ The collapse of many competitors when the 'dotcom bubble' burst left weak competitors to challenge the incumbents

after 2003, although there is some sign of significant infrastructure competition emerging in, for instance, France and Italy. The institutional response to the increased sophistication of both incumbents' networks and defensive regulatory strategies has varied. The OECD has recently restated:

Although telecommunication regulators have taken steps to forbear from regulation, and competition has been developing, it would be too premature to view the regulator as only a temporary institution. The development of new technologies, new services, issues such as convergence, and the implications that new voice services may have on universal service, all raise new important regulatory issues.⁶⁴

The OECD continues to hold out the expectation that a single regulator be created to oversee both access and services, as video and voice converge, on the Internet:

The shift by operators to the NGN may create further demands to have a single regulatory structure, but not many institutional changes have been taken in order to deal with convergence. The development of new network structures may well result in the need for a review of existing regulatory structures and their responsibilities, in addition to a change in the regulations themselves.⁶⁵

Historically, a mixture of asymmetrical regulation of the former national monopolist through price control, introduction of competition in mobile, long distance and international services and social pricing of access to ensure provision of service to the economically disadvantaged has generally succeeded in reducing the price of telecoms services. This has been most dramatically the case for those national telecoms markets which were liberalized earliest.⁶⁶ Arguably, this has historically been a triumph for price caps and social regulation of access, rather than the result of free market competition, which only emerged in the most profitable long distance or metropolitan sectors of business, international and long distance calling. There is some evidence of local price competition, driven by VoIP and wholesale line rental (WLR) products. With appeal to higher courts and all the legal and economist resources available to the incumbent, it is little surprise that – to take examples – Germany and the United States have seen

regulatory impasses result from their respective 1996 telecoms legislation, as Marcus⁶⁷ indicates. The extent to which infrastructure competition has survived is very much a secondary consideration to these more intrusive regulatory factors. Regulators have regulated typically via both quantitative and qualitative requirements, such as:

- Obligation to provide network access following a reasonable request
- Non-discrimination obligations
- Obligation of price control to be implemented by way of cost orientation
- Obligation to prepare separated accounts
- Obligation to implement appropriate cost accounting systems.

These are minimal requirements under the European regulatory framework for operators holding SMP. However, imposition of more onerous conditions than these has produced relatively little competition in the market and broadband rollout.

There have been several recent comparative studies of telecom regulation in Europe,⁶⁸ all of which point to extremely large disparities in implementation of telecom liberalization in the period. This is reflected in current levels and types of residential DSL penetration, a fast-maturing technology.⁶⁹ Both in Europe following the 1998 opening of telecoms to competition and in the United States following the Telecommunications Act 1996, the incumbents generally showed how to use regulatory procedure to destroy the intent of legislation. Only in Denmark, where the regulator had full government backing and substantial technical regulatory resource from consultants, did broadband LLU initially work.⁷⁰ Once the competitors had largely entered bankruptcy protection in 2001–2, the European incumbents finally drove DSL penetration in 2002–3.

The current European consensus on competition in communications is based on a shared 1990s deregulatory vision of contemporary market and technological developments which went with the ideological grain and the technological and economic exuberance of the period. No such consensus existed in the detailed discussion of broadcasting and media policy, which were deliberately excluded from the 1999 communication which led to the Electronic Communications Services Directives of 2002. European Internet markets have a prehistory of monopoly control by national incumbents, with voice telephony liberalization occurring in 1998, and some cross-border regulation liberalizing data services, especially for the corporate (especially

financial services) sector. For consumers in Europe, the explosive growth of Internet access to households followed what became known as the 'Freeserve model' in 1999.⁷¹ Offering 'free' ISP service by revenue sharing per-minute charging with the incumbent telco, a wave of ISPs quickly achieved a million subscribers or more: Freeserve launched in September 1998 achieved 1 million in February 1999.⁷² This fragmented European competitive ISP market went through restructuring by merger led by US multinationals that grew by acquisition in the late 1990s.⁷³ Two critical decisions were made in 2000 that created conditions for competitive ISP markets in Europe. In the United Kingdom, flat rate Internet access was mandated by Oftel, the telecoms regulator, against the opposition of BT, and in response to complaints by AOL.⁷⁴ In the rest of Europe, LLU⁷⁵ permitted ISPs to offer access to broadband DSL. In the United Kingdom, BT was not prevented by Oftel from charging and provisioning at sufficiently unattractive terms that LLU produced almost no commercial interest until 2003, with a total of only 7,600 lines unbundled till September 2003.⁷⁶ Ofcom's priority on replacing the abolished Oftel on 29 December 2003 was to adjust the terms of LLU.⁷⁷ There is now a more mature ISP market in Europe, dominated by incumbent ISPs.

The outlook for telecoms competition is subject to a series of complex inter-relationships and evolutionary changes in the medium term. In Europe, LLU has succeeded in creating that last-mile competition only in some urban markets, while cable under-investment prevents effective 'inter-modal' competition.⁷⁸ Note that intra- and inter-modal competition are very much interdependent developments. In the Netherlands, the regulator is forcing open access to its dominant cable networks.⁷⁹ Far-reaching and unprecedented change in the regulation of incumbents' behaviour has also been instituted in the United Kingdom with the voluntary undertaking by BT that has functionally separated some elements of the retail arm of its residential telephone business from its wholesale arm, creating new wholesale entity 'OpenReach'.⁸⁰ The UK regulator has adopted a co-regulatory approach to negotiating the terms and conditions of interconnection with the UK NGN being built for 2010 by BT. The European Telecommunications Platform – an advisory body to the European Commission – states: 'that [the UK] could be an appropriate model for deployment elsewhere. Due to its far-reaching consequences for the regulated firm the appropriateness of the model elsewhere has to be evaluated very carefully'.⁸¹

Broadband as a sector is very hard to monitor discretely in economic terms.⁸² The key question is whether special sectoral regulation should continue for long-run bottlenecks, or whether these are becoming unnecessary as monopoly rents are short-lived?⁸³ Typically, practitioners claim that convergence of carriage and content means that we should adopt a competition-based approach, but I argue to the contrary⁸⁴ that without structural change in the sectors, such an approach is bound to fail.⁸⁵ There are very complex vertical linkages, which creates particular problems in competition evidence: today's complainant is tomorrow's supplicant.⁸⁶ The most far-ranging examination of the behavioural abuses conducted by a monopolist in defence of its dominance is often held to be that of Microsoft, in the US case which ran from 1995 to 2001, and the European Commission enforcement continues.⁸⁷ However, the evidence collection, enforcement and scrutiny afforded to dominant telecoms companies dwarfs that afforded to Microsoft.⁸⁸ In the case of the longest privatized European incumbent in a competitive market – BT – it even resulted in the functional separation of the company's regulated access bottleneck amidst attempts to move to a co-regulation model.⁸⁹ The investment required for the developed world to achieve high-speed access to an always-on Internet is enormous.⁹⁰ Further forwards, broadband Internet access will be increasingly possible through 3G mobiles and VoIP. A partial answer has been LLU: co-locating rival operators' switching equipment in local telephone exchanges, permitting them to use the higher-bandwidth element in the copper wire lines for DSL services. Within Europe, where competitive cable infrastructure is less advanced and regulators most advanced, LLU has been a partial success.

Demand for broadband appears sensitive to both price and 'free at the point of use' P2P applications. It is clear that price sensitivity has created enormously increased demand for broadband – in the United Kingdom, for instance, a very late deployer of broadband DSL (if not cable) broadband take-up increased hugely in 2004–6 as prices dropped. The price of broadband in Japan proved demand was hugely sensitive, with a leapfrogging high-speed deployment of first DSL then fibre in 2002–5.⁹¹ LLU drives lower pricing and therefore greater penetration in the short term.⁹² In Korea, price and online gaming proved important demand issues.⁹³ From the examples of Napster and Kazaa, it is clear that an attractive application at least for early adopters has been access to copyrighted materials via P2P networks. The increasing network effect of VoIP via services including Skype is another attractive

P2P application, especially those sensitive to free international calls at lower quality. The availability of broadband does not equate to service, as cost and bandwidth vary significantly, and there appears a clear correlation between network competition and price/bandwidth.⁹⁴

Though the FCC under George Bush's Presidency gradually moved to a position of extreme deregulation, thus creating a divergence of view, European telecoms is in general bedevilled by regulatory capture, incumbents owned by governments grudgingly permitting some 'inset' competition on their own networks on disadvantageous conditions such as prices or quality, and with no widespread infrastructure competition such as that exists in the United States or South Korea. Reding has stated:⁹⁵

Up to now, there are two main differences between the US telecoms markets and the EU situation: First of all, the US achieved, partly thanks to the radical shake-up of the market in the 1980s, a considerable degree of infrastructure-based competition ... contrast to this, we in Europe have mostly vertically integrated operators and a much lower level of infrastructure-based competition, with some exceptions to this only in Belgium, the Netherlands and Denmark.

Secondly, as the US implemented regulation on a nation-wide level under the guidance of the Federal Communications Commission, the US is today characterized by a telecoms market of continental dimension ... we in Europe have entrusted regulation initially to the national telecoms regulators, thus matching exactly the scope of the market of the respective former national monopolies. As a result of this, Europe continues to have 27 different regulatory systems in telecoms.⁹⁶

The often-claimed difference that Europe has more competition, and therefore consumers can always choose their own type of provider, is therefore not the whole story, in most European countries. It may be true in Denmark or the Netherlands, perhaps, but the European rules have to account for the other twenty-five countries too.⁹⁷

Termination Monopoly and Net Neutrality

The problems of net neutrality touch on one of the most contentious market definition issues affecting telecoms: that of defining a market as narrowly as a single network for termination.⁹⁸ In mobile regulation, it was this

breakthrough – heavily resisted both intellectually and politically by the mobile firms – that enabled regulators to set cost-based pricing, after notifying the EC that each network formed a termination monopoly for its users. That is, if you want to call me, you will have to use the Hutchison ‘3’ mobile network in the United Kingdom. This raises a series of issues for the mobiles, which I will consider in turn, before considering similar arguments applied to fixed networks – indeed all networks, if we want to be ‘technologically neutral’ about net neutrality.

Since the development of the EC case law on bottlenecks, more formally called ‘essential facilities’ in cases from *Magill* to *Microsoft*, it has been established that where a monopoly provider of such facilities fails to grant access to competitors, government can intervene to require that access is on fair, reasonable and non-discriminatory (FRAND) terms. ‘Essential’ means that facilities cannot be replicated with economic viability by a competitor. An obvious example is a network, whether hardware (e.g. telecoms infrastructure) or software (e.g. Microsoft’s operating system, Windows), or a standard that has been accepted by the market. I discussed these in specific communications terms a decade ago,⁹⁹ and since then the case law has continued to be applied by regulators with gusto in Europe, although with market-oriented caution in the United States. The George W. Bush White House made sure its Justice Department let markets and monopolies innovate freely, but there appears to be a rapprochement with the European approach in the Obama administration.¹⁰⁰

The accused monopolists unsurprisingly argue that their facilities can be reproduced, and that allowing access to competitors at a regulated FRAND rate is expropriation, unconstitutional according to the Takings Clause in the United States Constitution. Their arguments for reproduction start with the most obvious: they built them, so why can a competitor not build a better mousetrap, or indeed railway. In telecoms, this most obviously applies to the local loop, where not only the incumbent telecoms company, but also the cable company, have very evidently built infrastructure. Two problems with that are:

- telecoms local loop was built by a government-sanctioned monopoly over many decades;
- both telecoms and cable company were given rights of way to construct ‘civil works’ – dig up your streets and cause serious short-term inconvenience – which makes them continued state-sanctioned special cases, and therefore makes the prospect of further fixed-line competition rather moot.

In any case, the second point is why European law discussed ‘public communications networks’ as having universal service and other special regulatory requirements, and it is from the special nature of such services that the common carrier/public house/common carrier tradition arises. Cable regulation is a pretty straightforward problem: unless you live on an island of prosperity (such as Singapore, Hong Kong), in a major conurbation or in the United States, you probably don’t have cable plant that can support high-speed services, and therefore your choice of broadband telecoms is simply that wire from the incumbent telco.

So much for hardware monopolies in telecoms, how about software? Well, Microsoft argued that it had created its dominance via innovation over a short period of years in the 1980s and 1990s, and that other companies or operating systems – notably Apple the company, Linux the OS and Sun Microsystems’s various attempts – could erode its monopoly just as fast. Similar arguments applied to its media servers and software (Windows Media Player) and Internet browser (Internet Explorer). Google makes the same arguments in the search market. We can think of several counter-arguments which are more relevant to Microsoft: it created proprietary standards in those markets, which are reinforced through network effects – the fact that everyone else exchanges their files using the same standard. Furthermore, its dominance was achieved through clever licensing of its technology to hardware manufacturers such as Dell, IBM and Hewlett Packard, which enabled them to gain tremendous market growth in personal computers. It was by no means the first into any of these markets, and the possibility that you could attack its dominance in a market of a billion or more installed machines in 2010 is obviously absurdly lower than in the market of less than a million similarly purposed machines in the 1970s. That was its good strategy and good fortune, and good luck to it, but it finds it troublesome to try to reinforce the idea that it can keep its ‘secret sauce’ (source code for Windows) and/or at the same time denying competitors FRAND access to its software. Similar ‘secret sauce’ problems attach to Google and its search algorithms, and others such as Apple’s iTunes software (though its European competition problems stemmed more from its discriminatory pricing in the United Kingdom, charging British consumers far higher per-track download prices than their continental cousins).

Is this secret sauce an issue for net neutrality? Consider: ‘positive’ net neutrality is about FRAND, at least in the terms that I have cast it. If everyone

could use the ISP network at the same price as their competitors, or no additional price if they want no additional speed or QoS above 'best effort', then there would be a lot less of an issue. It is the discrimination between rival firms, the apparent favouring of one over another, and in particular the implications for innovation that make policymakers pause for frowning thought. If a new search firm enters the market and can be accessed as fast over the ISP as Google, then it is in a straight arms race for (a) the best search algorithm; (b) the best server speed that it can control; to provide the best solution to the end-user. Yes, Google has huge advantages as the dominant firm, in its vast server farms, its caching of content near the end-user, its ingenious uses of its various inputs (human, intellectual property, energy, policy), and its brand name and consumer inertia. None of this is unusual and it would be a series of large but not insurmountable problems. Indeed, Microsoft in May 2009 launched Bing.com to assault Google's dominance in the United States. That is good competition. If one cuts a deal with ISPs that the other cannot, via exclusivity *and* higher fees to secure faster access to an ISP's consumers, then that is in my view 'bad', 'unfair' competition that should be ruled out of bounds. Competitors are not given a fair chance to gain the same terms – if they have the chance and don't take it, that's their problem. If they don't get the chance, it's the ISP at fault.

Why? Here we come back to mobile single market termination dominance. If you want to reach me as a consumer, you can only do so via one network, the one I use at home. I am a somewhat unique transient consumer with homes either side of the Atlantic, using a laptop for *Ile sans Fils* (the open free WiFi network in Montreal), '3' mobile broadband in the United Kingdom and WiFi hotspots elsewhere. The Montreal network is generally fast (especially on weekday mornings) and has no download limits as an open network, the '3' network is also fast at the same times but has a 3 GB monthly limit for my \$25 subscription (actually \$12.50 as I bundle it with a regular 3G telephone). So if you want to attract my services as a consumer, I need services which I can access quickly on a laptop. I gave up on 3G on my mobile when the Nokia browser was too clunky, the '3' network was too slow in peak-time in many locations (it's good at airports and train stations, but then it has WiFi competition there), and my faster open source browser crashed my phone terminally for the second time (and Outlook remote access was a nightmare on a mobile). You can phone me on my UK number with '3', my Canadian number with Fido (a Rogers' acquisition that used to be cheap and had

good customer service when it was independent) and a universal ‘London’ number with Skype (it routes to me wherever I am if Skype is running on my laptop).

You have choices with me, but not with the average consumer who always accesses the Internet at home. They have one mobile number and one network to access the Internet. As a result, if you want to call them, you have to use their network of choice. If you want to reach them via the Internet, it’s also whatever their ISP might be (if they use mobile broadband it could be the same ISP and network). The mobiles have always argued that consumers have lots of choices. They can move to a different network if they don’t like the charges or network use policies. They can use VoIP such as Skype if they want to stay on network but avoid charges. They can use a fixed line instead for certain usages. They have the option of WiFi and other connections. However, there are network effects such as using your phone network which imposes switching costs even if you keep your number when you change mobile network,¹⁰¹ Skype and other VoIP need high quality connections at both ends which makes them imperfect substitutes for switched phone calls, many customers are giving up fixed lines because mobile firms are advertising what an excellent substitute the mobile network represents and the law-abiding citizen will not use a neighbours’ open WiFi or their work computer for social uses. All these ‘workarounds’ also obviously rely on an unusually informed and motivated consumer.

Let’s come back to the information point much later in Chapters 5 and 6 when we consider co-regulation but consider motivations first.

It’s often said that monopolists abuse their position ‘because they can’. If you were king, would you be tempted to exercise *droit de seigneur*, if not immediately then on a rainy February evening in a few decades’ time? In the same way, it is said that consumers are abused by that monopoly because they don’t object and can’t. But the mobile and ISPs termination monopoly is interesting because the consumer probably won’t care that they’re being abused. Here’s why. If you are receiving calls from another user on a Calling Party Pays network, then it costs you nothing even if they pay too much. Whether you care depends on your concern for their welfare, as you have the choice to simply call them back. It appears that many teenagers and consumers are happy for their parents or callers from business lines to pay for their calls whatever the cost. In simple terms, there is no direct cost to the subscriber, the mobile termination monopoly exerts costs on their callers

instead. The second reason is bundling as well as the micro nature of most transactions: there are a hundred or a thousand monthly transactions on a mobile account, and exponentially more on an ISP connection. You cannot expect a rational consumer to react to each transaction in real time.¹⁰² How can they be expected to know what individual call costs are for each caller, or what carriage terms each webpage or application has negotiated with the network?

Consumers are caught in a two-sided market trap. Two-sided markets are those in which an intermediary – such as an ISP – can differentiate pricing and service to each side of the market, suppliers and consumers, making efficiencies as they mediate between the two.¹⁰³ Obviously this means both suppliers and customers are reliant on the middleman for access to the other. The ISP has good information about what each will charge and can make strategies accordingly, but suppliers and consumers cannot directly influence each other's behaviour as minutely as the ISPs can, because it is the middleman's extra information (even if it has no monopoly power) that enables him to make better – i.e. more fully informed – decisions. So how can the consumer decide what the appropriate price for the content should be? She cannot, unless the ISP tells her, she directly contacts the supplier (in which of course the Internet helps, via email and feedback forms as well as the metadata trail), or the ISP is regulated in what it can charge either end. A form of regulation is of course competition, and in supermarkets, the price and quality competition at the consumer end means that it is suppliers who get squeezed and where savings are made. Consumers can signal where they want this efficiency to be reduced by paying premiums, for instance in Fairtrade product lines or organic foods, but it is more likely that the supermarket offer will be accepted at face value. In the same way, there may be some high-value products that consumers want to support on the Internet, such as blogs or Wikipedia, but in general, it is likely that they will take whatever terms the ISP has been able to extract from the content provider.

But if we accept the ISP termination market monopoly, it makes a strong *a priori* argument for FRAND terms for the ISP offer to content providers, and for regulated access to ensure no unjustified discrimination. It argues for positive net neutrality of some type. That logic is rather clearer than what has happened in the last eighteen months of negotiation in the European institutions, but then politics is very much played out in a second- or third-best world!

So to summarize, an immediate problem requiring regulatory oversight is counter-intuitive: the immediate problem with net neutrality may not be so much with the dominant ISP (expressed in European debate as one having SMP),¹⁰⁴ but with the smaller ISPs, whether or not you accept they have their own network monopoly. It may be a disguised economic incentive problem that is first identified as a security issue. It may further impact relations between ISPs, in that those (typically smaller consumer) ISPs that are generating most spam can adversely affect the security and traffic management of other networks and cause particular problems at peering points. There may, therefore, be a case for identifying the non-SMP operators as the current miscreants in net neutrality policy. It may be that abusive discrimination can take place even where an ISP does not have dominance.¹⁰⁵ There are many types of traffic that all ISPs are motivated to filter, block or censor, based on laws, policies or carriers' own initiatives.

I suggest that widespread discriminatory behaviour can take place even when an ISP does not have SMP. Competition between ISPs is present in some metropolitan and suburban networks but is limited by both geographical scale and feature-price scope.¹⁰⁶ Note that, when only retail resellers use a broadband line from the incumbent, the degree of price and feature competition is limited given that wholesale prices and bit-rates are set by the incumbent. With dominance in most European markets at wholesale level by the incumbent telecoms actor, LLU has only a minor impact on the overall network's management. In any case, it is a very untypical, highly sophisticated, and motivated consumer who currently is able to analyse the different bandwidth and throttling options and to select to which provider to switch at the end of the contract. It is therefore an easy generalization to claim greater broadband competition in Europe, when for infrastructure (where real investment is made and real innovation in service is possible) this may not be the case either currently or in the near future.¹⁰⁷

Killing the Golden Goose?

Regulators should be cautious and beware killing the goose that laid the golden egg, because we do not know enough about innovation and the Internet to predict the outcomes of a radically changed DPI-managed QoS environment. As Lemley and Lessig state: 'The strong presumption should be in favour of preserving the architectural features that have produced

this extraordinary innovation.”¹⁰⁸ Lemley and Lessig at the end of the last century stated that telecoms companies as well as Internet broadcasters can raise costs to innovators by the existence of their strategic position.¹⁰⁹ This raising of barriers is neatly summarized by AT&T’s Jack Osterman reacting to Paul Baran’s original concept of the Internet: “First,” he said, “it can’t possibly work, and if it did, damned if we are going to allow the creation of a competitor to ourselves”.”¹¹⁰

It is vital to appreciate this problem: what is at risk is the future of video innovation and therefore possibly Internet development itself for innovators. Consider the threats listed by Lemley and Lessig of increasing entry barriers: ISP competition could diminish, one-way broadcast models could be retrofit onto an interactive medium and ‘innovators are less likely to invest in a market where a powerful actor has the power to behave strategically against it’. To which we can add the regulatory costs instituted by a paternalistic industrial policy applied to ‘level playing fields’ when what is actually being provided is a new playing field. Broadcast regulators on the Internet are as comfortable as elephants playing ice hockey.

It is the perfect storm of anti-competitive pressures which now threatens Internet innovation:

- first, the shattering of the competitive ISP market by the combination of the financial crisis of 2000–3 and the deregulation of incumbents (more especially in the United States);
- then the massive pressures to regulate content more tightly in the wake of the security threats of hackers, spammers and terrorists in 2001–4 as discussed at the end of Chapter 2;
- now increasing regulation via use of DPI and other techniques to raise revenues from exclusive content arrangements.

We are in the era of settled incumbents in mobile and fixed broadband. Their networks are public communications, yet no longer common carriage. The rights and responsibilities which they maintain towards their end-users are being redefined for a broadband era. To the extent that they are creating innovative new means of accessing the Internet, their influence is beneficial, and the positive net neutrality that would prevent their charging discriminatory pricing would be both intrusive and disproportionate. Where they are rationing and degrading existing applications and services, their influence is less benign, and it is here in particular that the next chapter

focuses. ‘Net neutrality lite’ is not deregulation, rather it is regulation to prevent negative outcomes for existing users on their existing contracts. I will argue in later chapters that this requires much more information regulation than is currently the case. Shining sunlight into the murkier corners of carriers’ practices is the goal.

Sieradski and Maxwell believe that a convergence between European and US policy is taking place in the interests of consumer policy, abandoning previous attempts to regulate net neutrality as a competition policy issue:

While the FCC’s Comcast decision and parallel initiatives by European policymakers have their roots in the historic obligations of ‘common carriers’, the question of net neutrality and the right of operators to discriminate is now also very much linked to the right of the consumers to access content and services of their choice ... The current tendency in the US and Europe is to emphasize the symmetric, consumer protection angle. On that front, there seems to be emerging a consensus that discrimination or prioritization measures would be tolerated only if they are narrowly tailored to achieve a legitimate objective.¹¹¹

Later chapters discuss the extent to which this consensus is emerging. The next two chapters are critical to the overall argument, as they consider whether ISPs have been motivated to require content providers to pay for superior service via lower levels of service for the same price (e.g. blocking or throttling content) or higher price for higher QoS, based on government fiat or commercial strategy.

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