required to ensure that the merger did not result in the merged entity having any increase in market power. The FCC stated that the "divestiture alleviates any competitive effects that may have arisen from the merger in its original form."[84] The DOJ took no formal action[85] but instead relied on the EC-mandated divestiture.

Economic Rationale for the Decision

The government agencies in basing their finding of competitive harm determined that a sufficiently large IBP may have the ability and incentive to exert market power by threatening to terminate or degrade a peering agreement with smaller backbone rivals, or to charge these rivals for peering, which would then permit the merged entity to raise its rivals' costs and increase prices for transit services. This occurs because, in a market where the largest providers exchange traffic on a settlement-free basis, if a peering interface is terminated or degraded by the largest IBP, all traffic that flows over that interface cannot reach its destination over alternative paths. As a result, an ISP seeking superior service would be likely switch to the largest IBP, even though transaction costs may reduce the rate of switching, Growth in the relative size of the largest IBP as the result of the merger would further enhance its ability to gain customers, and the market could eventually tip completely to the largest IBP.

Because MCI agreed to completely divest its entire Internet business prior to closing the transaction, the FCC stated that it did not need to decide the relevant market for purposes of evaluating the competitive effects of the merger on any Internet services.[86] Nevertheless, the FCC stated that it agreed with other commenters that Internet backbone services constitute

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84 *WorldCom-MCI Order*, 13 FCC Rcd at 18109 (¶ 150).
85 *DOJ Press Release.*
86 *WorldCom-MCI Order*, 13 FCC Rcd at 18108 (¶ 150).

a separate relevant product market.[87] The DOJ and the EC likewise determined that there was a national backbone market.[88] The FCC also assumed the geographic market is nationwide.[89]

b) MCI Worldcom–Sprint Merger

In November 1999, MCI WorldCom and Sprint filed an application with the FCC for approval to transfer control of certain licenses and authorizations from Sprint to MCI WorldCom in connection with their proposed merger.[90]

Facts

At the time, WorldCom and Sprint were the first and second, respectively, largest Tier1 IBPs in the United States and the world.[91]

Issues of Concern

The DOJ filed a complaint to enjoin the merger in June 2000.[92] The complaint alleged, among other things, that the proposed acquisition would substantially lessen competition in the Internet backbone services market in violation of Section 7 of the Clayton Act.[93]

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87 *Id.*

88 *Protecting the Internet,* n. 51.

89 *Id.*

90 *Applications by Sprint Corporation, Transferor, and MCI WorldCom, Inc., Transferee, For Consent to Transfer Control of Corporations Holding Commission Licenses and Authorizations, Pursuant to Section 214 and 310(d) of the Communications Act and Parts 1, 21, 24, 63, 73, 78, 90, and 101,* CC Docket No. 99-333 (filed Nov. 17, 1999).

91 *See* United States of America v. WorldCom, Inc. and Sprint Corporation (No. COMP/M. 1741-MCI), Complaint, ¶ 4. (June 26, 2000) (*DOJ Complaint*) available at: http://www.justice.gov/atr/cases/f5000/5051.pdf.

92 *Id.*

93 *Id.*, ¶ 5.

The DOJ found certain characteristics of Tier 1 IBPs that distinguished them from lower tier IBPs:[94] (1) Tier 1 IBPs have large nationwide or international networks capable of transporting large volumes of data; (2) Tier 1 IBPs typically maintain private peering relationships with all other Tier 1 IBPs on a settlement-free basis, in contrast to purchasing Internet connectivity (*i.e.*, transit) from any other IBP; (3) lower-tier IBPs that must purchase a significant amount of connectivity from other IBPs operate at substantial cost disadvantages compared to Tier 1 IBPs, which rely exclusively on peering; (4) Tier 1 IBPs have significant competitive advantages compared to lower tier IBPs in their ability to provide higher-quality service through their direct and private interconnections, rather than relying on indirect transit service or on the inferior and congested public interconnection points; (5) many important ISPs and business customers will not purchase Internet connectivity from an IBP unless that IBP maintains direct, private peering connections with most, if not all, Tier 1 IBPs; and (6) Tier 1 IBPs charge higher prices for Internet access than do lower-tier IBPs because they offer distinct value to their customers and are not significantly constrained by the competition of lower-tier IBPs.

Because of these characteristics, the DOJ found that the Tier 1 Market is a separate relevant product market for purposes of Section 7 of the Clayton Act and that these IBPs can be distinguished from other lower tier IBPs.[95] The DOJ further found that "there are no close substitutes for this connectivity sufficiently close to defeat or discipline a small but significant

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94 *Id.*, ¶¶ 27-29.

95 *Id.*, ¶ 30.

nontransitory increase in price.[96] The DOJ also found that the United States is the relevant geographic market for Tier 1 Internet backbone services for purposes of Section 7 of the Clayton Act.[97]

The DOJ described in its complaint how a consolidated MCI WorldCom-Sprint would produce anti-competitive harm. First, the DOJ alleged that the proposed merger threatened to destroy the competitive environment that had created a vibrant, innovative Internet by forming an entity that would have an overwhelmingly disproportionate size advantage over any other IBP.[98] Second, the DOJ alleged that the proposed transaction would substantially lessen competition by eliminating the second-largest IBP in an already concentrated market as a competitive constraint on the Internet backbone market.[99] Third, the DOJ claimed that the combined entity would have the incentive and ability to impair the ability of its rivals to compete by, among other things, raising its rivals' costs and/or degrading the quality of its interconnection to its rivals.[100] As a result, rivals would become increasingly dependent upon being connected to the combined entity, and the combined entity would exploit that advantage.[101] The DOJ was concerned that such behavior would likely enhance the market power of the combined entity, and ultimately facilitate a "tipping" of the Internet backbone market.[102] As the DOJ explained–

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96 *Id.*
97 *Id.*, ¶ 31.
98 *Id.*, ¶ 33.
99 *Id.*, ¶ 34.
100 *Id.*, ¶ 35.
101 *Id.*
102 *Id.*

> When a single network grows to a point at which it controls a substantial share of the total Internet end user base and its size greatly exceeds that of any other network, network externalities may cause a reversal of its previous incentives to achieve efficient interconnection arrangements with its rival networks. In this context, degrading the quality or increasing the price of interconnection with smaller networks can create advantages for the largest network in attracting customers to its network. . . . Once the market begins to "tip," connecting to the dominant network becomes even more important to competitors. This, in turn, enables the dominant network to further raise its rivals' costs, thereby accelerating the tipping effect. As a result of an increase in their costs, rivals may not be able to compete on a long-term basis and may exit the market. If rivals decide to pass on these costs, users of connectivity will respond by selecting the dominant network as their provider. Ultimately, once rivals have been eliminated or reduced to "customer status," the dominant network can raise prices to users of its own network beyond competitive levels. Once this occurs, restoring the market to a competitive state often requires extraordinary means, including some form of government regulation.[103]

In sum, the DOJ's concern was that the proposed transaction would substantially enhance the risk that the consolidated entity would have the power to engage in anti-competitive behavior. Whereas in a competitive market Tier 1 IBPs have roughly equal incentives to peer with each other, the merged entity would be so large relative to any other IBP that its interest in providing others efficient and mutually beneficial access to its network would diminish. The DOJ argued that, as a result of the merger, the market power of the combined firm would have been enhanced, thus tipping the Internet backbone market towards monopoly.[104] The DOJ argued that the combined entity would also have had the incentive and the capacity to impair the ability of its rivals to compete by raising its rivals' costs and/or degrading the quality of its interconnection to them.[105] Moreover, the DOJ contended that

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103 *Id.*, ¶ 41.

104 *Id.*, ¶¶ 42-46

105 *Id.*, ¶ 44.

entry barriers were already high and the proposed transaction would make them even higher.[106]

Remedy

With respect to the Tier 1 Market, the applicants were prepared to divest Sprint's Internet backbone business rather than fight over the competition issues. The critical question in the context of the proposed MCI WorldCom-Sprint merger was whether a voluntary divestiture of Sprint's Internet backbone business would be sufficient to satisfy concerns about competition in the Internet backbone market. In this case, the DOJ never rendered an opinion on the proposed divestiture.[107] The EC, however, rejected the proposal in very strong terms:

> Given the high growth of the Internet and the importance attached by consumers to the quality of service, any proposed business for divestiture should be in a position to compete fully and effectively from the date of transfer of ownership. Any difficulty met by the divested entity could result in a limitation to its growth and lead quickly to a relative lowering of its market share. The combination of uncertainties . . . make it highly unlikely that the divested entity would exercise in the short to medium term any competitive constrain [sic] on the parties.[108]

In reaching its decision prohibiting the merger, the EC explicitly recognized the existence of caching, mirroring, and multi-homing that had emerged since its review of the WorldCom-MCI merger. But it apparently did not believe that the structure of the Internet and the competitive impact of the proposed merger had been altered significantly by these new forms of interconnection. There was no FCC decision in this case, because as a result of the

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106 *Id.*, ¶ 47.

107 The applicants never submitted a formal divestiture plan to the DOJ, hence the DOJ did not discuss the competitive consequences of a divestiture in its Complaint.

108 Commission Regulation (EEC) 4064/89 of 28 June 2000 on WorldCom/Sprint, Case No. COMP/M.1741-MCI, ¶ 339, (*EC Decision*), *available at*: http://ec.europa.eu/competition/mergers/cases/decisions/m1741_en.pdf.

practical difficulties of litigating the proposed merger, the parties abandoned the planned merger in July 2000.[109]

c) WorldCom–Intermedia Merger

On September 5, 2000, Intermedia Communications, Inc. ("Intermedia") entered into a merger agreement with WorldCom.[110]

Facts

At the time, according to the DOJ, WorldCom was the largest Tier 1 IBP in the world (through its UUNet subsidiary), and Intermedia operated a significant nationwide Internet backbone network.[111]

Issues of Concern

On November 17, 2000, the DOJ filed a civil antitrust complaint alleging that the proposed acquisition of Intermedia by WorldCom would substantially lessen competition in the Tier 1 Market in violation of Section 7 of the Clayton Act.[112] The DOJ alleged that based on the current position of UUNet in the market, the increase in UUNet's size relative to other IBPs as a result of the merger would allow UUNet to charge higher prices for interconnection

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109 *See* Letter from Sue D. Blumenfeld, Wilkie Farr & Gallagher, and Richard Metzger, jr., Lawler, Metzger & Milkman (Counsel for WorldCom and Sprint) to Magalie Roman Salas, Secretary, FCC, CC Docket No. 99-333 (filed July 13, 2000). The FCC subsequently terminated the proceeding. *See Applications by Sprint Corporation, Transferor, and MCI WorldCom, Inc., Transferee, for Consent to Transfer Control of Corporations Holding Commission Licenses and Authorizations, Pursuant to Section 214 and 310(d) of the Communications Act and Parts 1, 21, 24, 63, 73, 78, 90, and 101*, Order, DA 00-1771 (Aug. 4, 2000).

110 *See* Dept. of Justice, Antitrust Division, United States v. WorldCom, Inc. and Intermedia Communications, Inc., Hold Separate Stipulation and Order, 66 Fed. Reg 2929, 2937 (Jan. 12, 2001) (*Proposed Final Judgment*).

111 *Proposed Final Judgment*, 66 Fed. Reg at 2935 (Jan. 12, 2001).

112 *Id.*

to IBPs, convert non-paying IBPs to paying ones, avoid giving better prices to small Internet backbone providers and lower the quality of interconnection to them.[113] In addition, the DOJ alleged that the proposed merger would enhance the ability of UUNet to control and inhibit successful entry by refusing to interconnect with new entrants or by limiting those connections in order to control the growth of its rivals.[114] The DOJ also alleged that the merged company could degrade the quality of interconnection and raise its rivals' costs, thus further preventing entry and expansion by other Internet backbone providers.[115] Moreover, the DOJ alleged that because the merged company would have control of public interconnection facilities, its refusal to upgrade these facilities would enable it to limit opportunities for existing rivals and new entrants to build their traffic volumes through "public peering."[116]

The DOJ found that the Tier 1 Market is a separate relevant product market that can be distinguished from other IBPs.[117]

Remedy

The DOJ allowed the merger to proceed under the condition that WorldCom divest Intermedia's Internet backbone network within six months of closing the transaction.[118] The FCC reviewed the transaction and also raised the issue of raising rivals' costs.[119] But, after a

113 *Id.* at 2937.
114 *Id.*
115 *Id.*
116 *Id.*
117 *Id.*
118 *Id.*
119 *Intermedia Communications, Inc. and WorldCom, Inc.*, Memorandum Opinion and Opinion, 16 FCC Rcd 1017, 1020-1021 (¶ 9) (2001).

review under the public interest standard, the FCC cleared the merger subject to the same divestiture conditions imposed by the DOJ.[120]

Economic Rationale for the Decision

The DOJ's decision in the WorldCom-Intermedia was based on the same economic theory used in the WorldCom-MCI merger and the proposed MCI WorldCom-Sprint merger.

d) SBC–AT&T Merger and Verizon–MCI Merger

In early 2005, SBC Communications Inc. ("SBC") and AT&T,[121] and Verizon Communications, Inc. ("Verizon") and MCI,[122] each filed a series of applications with the Commission in connection with their respective mergers.

Facts

In evaluating each proposed merger, the Commission found that there likely were between six and eight Tier 1 IBPs based on the definition of Tier 1 backbones that has been used in the past:[123] AT&T, MCI, Sprint, Level 3, Qwest, GCL, and likely SAVVIS and Cogent.[124] Neither SBC or Verizon were considered Tier 1 IBPs at that time, although they were among the largest ISPs.[125]

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120 *Id.* at 1017 (¶ 1).

121 *SBC Communications, Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, WC Docket No. 05-65 (filed Feb. 22, 2005).

122 *Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, WC Docket No. 05-75 (filed Mar. 11, 2005).

123 *See SBC-AT&T Order*, 20 FCC Rcd 18290, 18353 (¶ 155) (2005); *Verizon-MCI Order*, 20 FCC Rcd 18433, 18495 (¶ 116) (2005).

124 *See SBC-AT&T Order*, 20 FCC Rcd 18290, 18353 (¶ 155) (2005); *Verizon-MCI Order*, 20 FCC Rcd 18433, 18495 (¶ 116) (2005).

125 *SBC-AT&T Order*, 20 FCC Rcd at 18355 (¶ 121); *Verizon-MCI Order*, 20 FCC Rcd at 18499 (¶ 125).

Issues of Concern

Various commenters contended that either of the proposed mergers would threaten the then-current competitive Tier 1 Market[126] because they would likely result in anti-competitive effects through either unilateral action by the merged entity or possible tipping of the Tier 1 Market to a monopoly or duopoly. However, because neither SBC nor Verizon were considered Tier 1 IBPs, most of the focus was not on the horizontal aspects of the transactions but rather, because both were major ISPs, on the vertical aspects.

For each proposed transaction, consistent with Commission precedent and the DOJ's previous findings, the Commission found that Tier 1 Internet backbone services constituted a separate relevant product market.[127] Likewise, for each proposed transaction, again consistent with Commission precedent and the DOJ's previous findings, the Commission analyzed the market for Tier 1 IBPs using a national geographic market.[128]

Remedy

The Commission determined that neither merger would likely result in anti-competitive effects in the Tier 1 Market.[129] The Commission noted that for each transaction, the Applicants had put forward on the record several commitments, which were found to be in

[126] *SBC-AT&T Order*, 20 FCC Rcd at 18355 (¶ 120); *Verizon-MCI Order*, 20 FCC Rcd at 18497 (¶ 121).

[127] *SBC-AT&T Order*, 20 FCC Rcd at 18352 (¶ 112); *Verizon-MCI Order*, 20 FCC Rcd at 18494 (¶ 113).

[128] *SBC-AT&T Order*, 20 FCC Rcd at 18353 (¶ 114); *Verizon-MCI Order*, 20 FCC Rcd at 18495 (¶ 115).

[129] *SBC-AT&T Order*, 20 FCC Rcd at 18354 (¶ 116); *Verizon-MCI Order*, 20 FCC Rcd at 18496 (¶ 117).

the public interest.[130] The commitments related to maintaining settlement-free peering arrangements after the merger, publicly posting peering policies, and complying with the 2005 Internet Policy Statement, which was designed to ensure that broadband networks are widely deployed, open, affordable, and accessible to all consumers.[131] The Commission adopted the commitments as conditions of its approval of each merger.[132]

Economic Rationale for Decision

Under its horizontal analysis, the Commission examined the relative market shares of the Tier 1 IBPs and concluded that the proposed merger would not create a backbone provider of sufficient size to cause tipping.[133] The Commission also found that in the period since the WorldCom-MCI merger, the Tier 1 Market had become less concentrated such that the proposed mergers would not create a dominant Internet backbone provider.[134]

The Commission did not find that the Tier 1 Market was likely to tip to monopoly or duopoly, based either on market share or other factors, such as changes in relative traffic volumes or through targeted de-peering or degraded interconnection. Rather, the Commission stated that it expected a number of Tier 1 IBPs to remain as competitive alternatives to the

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130 *SBC-AT&T Order*, 20 FCC Rcd at 18351 (¶ 108); *Verizon-MCI Order*, 20 FCC Rcd at 18492 (¶ 109).

131 *SBC-AT&T Order*, 20 FCC Rcd at 18351 (¶ 108); *Verizon-MCI Order*, 20 FCC Rcd at 18492 (¶ 109).

132 *SBC-AT&T Order*, 20 FCC Rcd at 18351 (¶ 108); *Verizon-MCI Order*, 20 FCC Rcd at 18492 (¶ 109).

133 *SBC-AT&T Order*, 20 FCC Rcd at 18355 (¶ 118); *Verizon-MCI Order*, 20 FCC Rcd at 18496 (¶ 119).

134 *SBC-AT&T Order*, 20 FCC Rcd at 18355 (¶ 119); *Verizon-MCI Order*, 20 FCC Rcd at 18497 (¶ 120).

merged entity.[135] The Commission also stated that it was not persuaded that either merger would increase the Applicants' incentive and/or ability to raise rivals' costs. Given the level of competition it expected to remain in the Tier 1 Market, the Commission stated that it was not persuaded that such actions would be viable.[136]

In reviewing the market structure of the backbones in connection with the mergers, the FCC concluded that "[s]o long as there is 'rough equality' among IBPs, each has an incentive to peer with the others to provide universal connectivity to the Internet."[137]

2. Market Definition: Relevant Product and Geographic Market

In addressing the issue of market definition for Internet peering and transiting services most recently, the Commission has found that the provision of Tier 1 backbone constitutes a "separate relevant product market."[138] This was based on the Commission's analysis of the unique attributes of IBPs, including a "high level of ubiquitous service."[139] As a result, the Commission concluded that "there are no substitutes for these Tier 1 connectivity services sufficiently close to defeat or discipline a small but significant nontransitory increase in price."[140]

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135 *SBC-AT&T Order*, 20 FCC Rcd at 18356 (¶ 123); *Verizon-MCI Order*, 20 FCC Rcd at 18498 (¶ 124).

136 *SBC-AT&T Order*, 20 FCC Rcd at 18353 (¶ 114); *Verizon-MCI Order*, 20 FCC Rcd at 18495 (¶ 115).

137 *See-AT&T Order*, 20 FCC Rcd at 18354 (¶ 117); *Verizon-MCI Order*, 20 FCC Rcd at 18496 (¶ 118).

138 *See*, *e.g. Verizon-MCI Order*, 20 FCC Rcd at 18494, ¶ 113.

139 *Id.*

140 *Id.*

XO submits that the Commission's conclusion still holds despite the increased use of other arrangements to exchange Internet traffic, such as secondary or direct peering or use of CDNs. As stated in the attached declarations:

> At the top of the Internet AS graph, providing global connectivity for all AS's, are the Tier I Internet backbone providers (IBPs), which rely exclusively on peering for exchanging traffic and do not purchase transit. They alone, even today, ensure that all routes are covered efficiently. As such, there is no substitute for them.[141]
>
> The Tier 1 Internet backbone market is a distinct market, where Internet global reach and connectivity are essential. A Tier 1 Internet backbone network is one that reaches every other network on the Internet without transiting through another network.[142]

Thus, the Commission should continue to find that there are no close substitutes for Tier 1 connectivity services, and this constitutes the relevant product market.

As for the relevant geographic markets, the Commission found that "it is appropriate to aggregate customer locations and evaluate Tier 1 IBPs at the national level."[143] XO agrees with the Commission's reasoning and its conclusion. However, it notes that Tier 1 IBP's have global networks and operations and urges the Commission to account for this reality in its analysis.

3. Economic Basis for Determining the Effects of Horizontal Mergers in the Tier 1 Market

Horizontal mergers of leading firms in a market are of significant concern because they "can enhance market power by eliminating actual or potential competition between the

141 Nicklas Declaration, ¶ 7.
142 Nixon Declaration, ¶ 9.
143 *Verizon-MCI Order*, 20 FCC Rcd at 18494 (¶ 115).

merging parties, by increasing the risk of coordination among rivals, or both."[144] As recognized by the Commission and the DOJ (*see* discussion above), horizontal mergers of leading firms in the Tier 1 Market pose an extra risk to competition because of network effects "created by the fact that users of the Internet value being connected to all other users of the Internet."[145] Professor Rogerson succinctly sums up the additional concern that arises from concentration in the Tier 1 Market:

> IBPs must interconnect with one another in order to provide their customers (i.e., ISPs, content providers) with access to all other customers. If an individual IBP becomes too large relative to other providers, it may have the incentive to either degrade interconnection and/or charge other IBPs for interconnection, with the result that the market may tip to the dominant provider. Thus mergers that create a single IBP that is disproportionately large or dominant relative to other IBPs create a particular risk to competition.[146]

Not only is there a "plain vanilla" network effect in the Tier 1 Market, where customers value reaching all other customers, but in this market, there is a desire for customers to connect as directly as possible to ensure high-performance, high-quality service. Professor Rogerson elaborates on this factor:

> A recent development in the Internet marketplace is the growing importance of applications, such as streaming video, VOIP, and financial market applications that demand very low levels of latency. This is significant because, even if IBPs make good faith efforts to seamlessly interconnect with one another, the latency of Internet transmissions between two users will generally be lower if both users are customers of

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144 *Antitrust Division Policy Guide to Merger Remedies*, U.S. Department of Justice, Antitrust Division, June, 2011, at 4-5.

145 Rogerson Paper, at 2.

146 *Id.*, at 2-3. Also *see*, Level 3 *Ex Parte*, at 16: "Generally, any provider of network services has an incentive to refuse to interconnect with or to provide inferior interconnection to any rival who has a substantially smaller customer base relative to the larger entity."

> the same IBP, than if they are customers of two different IBPs. Thus the greater importance attached to low latency has amplified the advantage that customers receive from being connected to the largest IBP and thus increased the tendency of the market to tip to the largest provider.[147]

Thus, in reviewing the competitive effects of the proposed horizontal combination of Level 3 and GCL Tier 1 assets, the Commission will need to examine both traditional concerns of increased concentration and concerns raised by network effects – both the effects of valuing connection with other users and effects from requiring direct connection. In the following section, XO examines both concerns using the attached White Paper by Professor Rogerson.

4. Horizontal Effects of the Proposed Combination

At the outset, it is important to note that, as the Commission itself has found, it is difficult to find publicly available data about traffic flows and revenues of IBPs.[148] This information is generally considered proprietary by IBPs. XO urges the Commission to seek that information from the Applicants and others, including by committing to preserve confidentiality to the maximum extent.

Even without access to original sources of information about traffic or revenues, XO has found publicly available data relevant to economic analysis of the proposed combination, and it also has access to its own data. By using these data, Professor Rogerson undertakes "two different methods of estimating market shares of traffic and the effect of the transaction

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147 Rogerson Paper, at 10.

148 *Id.*, at 4.

on these shares using two different data sources."[149] It is most telling that even though these two calculations are different, they yield very similar qualitative results: "the transaction will combine the two largest IBPs in the industry and result in a provider that is significantly and disproportionately larger that any other provider in the industry."[150]

Market Share Calculation Method #1 – Market Shares Derived Using Renesys Data (Share of Internet Addresses Served)[151]

Renesys collects and publishes data and information about the Internet addresses or routes served by all IBPs. If one assumes that traffic flows are approximately proportional to these routes, then share data about the routes served by different IBPs can be viewed as each firm's market share of traffic.[152] Professor Rogerson examines the share on Internet addresses of the top 10 IBPs and finds:

> Level 3 and Global Crossing are the two largest IBPs with, respectively, 20% and 15% of the market. Therefore the merged firm would have a market share of 35% which is three times the share of the next largest firm. Today, prior to the transaction, the largest firm is only 1.33 times as large as the next largest firm. Therefore the effect of the transaction will be to create a new firm that is disproportionately larger than all other firms, which in turn creates a danger of tipping in this market.[153]

Professor Rogerson also calculates that the change in the HHI index from the proposed transaction will be 404,[154] which would make the Tier 1 Market moderately concentrated and would, according to the DOJ/FTC Horizontal Merger Guidelines, "raise significant

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149 *Id.*

150 *Id.*, at 5.

151 *Id.*, at 5-7.

152 Because Level 3 is the sole provider for Netflix and its video streaming traffic and other video content firms, it is likely that these calculations underestimate its share of traffic.

153 *Id.*, at 6.

154 *Id.*, at 7.

competitive concerns."[155] Because there are significant network effects in the Tier 1 Market, there is an increased "competitive risk posed by any increase in concentration."[156]

Market Share Calculation Method #2 – Market Shares Derived Using XO Data (Traffic Exchanged with IBPs)[157]

Professor Rogerson makes a second calculation of market share of traffic in the Tier 1 Market using XO data on the amount of traffic it exchanges with other IBPs. Here, the shares calculated "will be reasonable approximations of each firm's market share of traffic if each firm's total traffic is relatively proportional to the amount of traffic it exchanges with XO."[158] XO understands that each IBP is likely to have anomalies in its traffic flows, and it therefore urges the Commission to seek these data from other IBPs so it can perform its own calculations.

XO's traffic data is propriety. Given that, in these comments (confidential version), it presents only the market share data derived from Professor Rogerson's calculations required to demonstrate the results are similar to the market share calculated in Method #1 above:

> Level 3 and Global Crossing are the two largest IBPs with, respectively, [START CONFIDENTIAL****END CONFIDENTIAL] of the market. Therefore the merged firm would have a market share of [START CONFIDENTIAL****END CONFIDENTIAL] which is [START CONFIDENTIAL****END CONFIDENTIAL] times the share of the next largest firm. Today, prior to the transaction, the largest firm is only [START CONFIDENTIAL****END CONFIDENTIAL] times as large as the next largest firm. Therefore the effect of the transaction will be to create a new firm that is disproportionately larger than all other firms, which in turn creates a danger of tipping in this market. Furthermore, the HHI increases from

155 *See* U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, August 19, 2010 at 19, available at www.ftc.gov/os/2010/08/100819hmg.pdf.

156 Rogerson Paper, at 7.

157 *Id.*, at 7-9.

158 *Id.*, at 8.

> [START CONFIDENTIAL** **END CONFIDENTIAL] for an increase of [START CONFIDENTIAL****END CONFIDENTIAL] points. Therefore, as explained above, the transaction falls into the group of transactions that "raise competitive concerns and often warrant scrutiny" according to the DOJ/FTC Horizontal Merger Guidelines.[159]

As noted above, despite using two dissimilar methods of calculating market shares of traffic, the results are similar, which gives Professor Rogerson "a high level of confidence in the veracity of these qualitative conclusions."[160] The Applicants are the two largest firms in the market, the merged firm will have a share of approximately 35%, and it will be disproportionately larger (between [START CONFIDENTIAL****END CONFIDENTIAL] – 3 times) than the next largest IBP, where the largest firm today is only [START CONFIDENTIAL****END CONFIDENTIAL] – 1.33 larger.

Direct Connection Network Effects Calculation

As discussed above, many customers of IBPs need to ensure that their transmissions have low latency and thus value, if not require, direct connection to the maximum extent. This critical competitive factor can be measured to determine whether post-combination there will be competitive harm because the new firm will directly serve "a disproportionately large share of customers compared to all other firms relative to the situation that exists before the merger."[161] The data from Renesys can be used for this calculation, and Professor Rogerson finds based on his calculations:

> After the transaction, the merged firm will serve 55% of all Internet addresses, while the next largest firm will served only 22% of all Internet addresses. Thus the largest firm will serve more than twice as many Internet addresses as the second largest firm. Today, prior to the merger, the largest firm serves only 1.33 times as many Internet

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159 *Id.*, at 9.
160 *Id.*, at 10.
161 *Id.*, at 10.

addresses as the next largest firm. Therefore, to the extent that there are positive network affects associated with the base of customers that an IBP directly serves (due to reduced latency), the effect of the transaction will be to create a disproportionately dominant firm relative to its rivals.[162]

5. Conclusions About Competitive Harms

Professor Rogerson's calculations demonstrate that the proposed combination would substantially increase concentration in the Tier 1 Market and would create a firm that would be disproportionately larger than other IBPs. As a result, the market would be more likely to tip in favor of the new "Level Crossing," which would result in downstream ISPs, content providers, CDNs, and end-users having degraded quality, paying higher prices, or both. It also would affect innovation in the industry. After all, a dominant firm would have little incentive to cooperate with other IBPs to find more efficient ways to exchange traffic.[163]

XO, of course, acknowledges that these significant harms could be offset if entry into the market were easy or if another IBP could grow rapidly to offset the new firm's dominance. However, as discussed earlier, entry into the Tier 1 Market is very difficult and cannot occur readily. As for other IBPs merging to form a much larger entity, that is possible. But, according to calculations by Renesys, "the next five global providers would have to merge to rival Level Crossing's score"[164] – a series of events highly unlikely to occur. Even if the two next largest IBPs (NTT and Sprint) merge their assets (which appears doubtful), the resulting

162 *Id.*, at 11.

163 *See*, Level 3 *Ex Parte*, at 13: "Incumbents can inhibit innovation by providing interconnection that is technically or economically inferior to comparable interconnection links provided to others or to themselves internally."

164 Renesys Blog.

IBP would be 30% smaller than "Level Crossing."[165] Further, any new merger will take time for the firms to agree upon, have it approved by regulators, and then implement. In sum, while theoretically possible, an event that produces an entity to rival the post-combination Level 3 is far too speculative for the Commission to consider as an offset to the harms demonstrated herein.

IV. LEVEL 3'S ACQUISITION OF GCL GIVES LEVEL 3 A MUCH GREATER INCENTIVE TO DE-PEER XO AND OTHER TIER 1 IBPS, THEREBY DISCONNECTING GOVERNMENT AGENCIES, FINANCIAL SERVICE COMPANIES, COMMUNICATIONS SERVICE PROVIDERS, UTILITY COMPANIES, AND OTHER CUSTOMERS IN VITAL INDUSTRIES FROM A MAJOR PORTION OF THE INTERNET

As noted previously, the Commission considers any national security, law enforcement, foreign policy, or trade concerns in determining whether a proposed transaction serves the public interest, convenience, and necessity. These considerations also come into play when the Commission determines whether to grant a petition for declaratory ruling under Section 310(b)(4) of the Act. National security and law enforcement concerns have long been treated as important public interest factors by the FCC.[166]

The Commission evaluates national security and law enforcement concerns in light of all issues raised in the context of a particular petition or transfer application in making an independent decision on such petitions or applications.[167] In so doing, the Commission recognizes that national security or law enforcement concerns are uniquely within the expertise of the Executive Branch, and works closely with the Executive Branch agencies to

165 *Id.*

166 *Foreign Participation Order*, 12 FCC Rcd at 23920.

167 *Id.* at 23921.

ensure that its actions and policies affecting telecommunications do not impede or thwart the policies of the Executive Branch.[168] In this context, XO notes the following.

Throughout their filings, the Applicants describe their proposed transaction as ST Telemedia losing control of GCL – the "return" of "GCL and its businesses to U.S. management control and predominantly U.S. ownership."[169] The Applicants expect this will "simplify arrangements with the national security and Team Telecom agencies."[170] XO does not dispute that ST Telemedia will lose control of GCL, as "control" is defined in FCC rules and policies, if the Commission grants Level 3 permission to acquire GCL as proposed. However, the Applicants' emphasis on these particular facts minimizes other critical aspects of the proposed transaction.

If the FCC grants the pending applications, ST Telemedia will hold, at a minimum, a 24.47 percent ownership interest in the combined company and will control at least 1/3 of the board seats of Level 3. ST Telemedia is a foreign-government controlled entity that will be the largest investor in Level 3 post-close and arguably the dominant minority shareholder. The

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168 *Id.* at 23918-19.

169 Consolidated Application at 2; Petition for Declaratory Ruling at 1.

170 *Id.* XO notes that the Applicants did not request in their Consolidated Application that the FCC condition its grant of authority on compliance with the network security agreement that GCL and ST Telemedia entered into with certain Executive Branch agencies as a condition of the Commission's grant of authority for ST Telemedia to acquire control of GCL in 2003. Section 7.2 of the security agreement requires GCL to include such a request in its FCC applications for licensing or other authority. *See Global Crossing Ltd. (Debtor-in-Possession), Transferor, and GC Acquisition Ltd., Transferee, Applications for Consent to Transfer Control of Submarine Cable Landing Licenses, International and Domestic Section 214 Authorizations, and Common Carrier and Non-Common Carrier Radio Licenses, and Petition for Declaratory Ruling Pursuant to Section 310(b)(4) of the Communications Act*, Order and Authorization, 18 FCC Rcd. 20301, 20388 (2003) ("*Global Crossing Order*").

Commission has previously recognized that ST Telemedia is "a Singapore telecommunications and information technologies company that, through its subsidiaries, provides fixed and mobile telecommunications, data, and Internet services as well as telephone distribution, managed hosting, teleport, broadband cable and video, and e-business software development services."[171] Although the parties describe ST Telemedia as "a Singapore investment holding company,"[172] it does not appear from the Applicants' filings or any of the publicly-available transaction documents that ST Telemedia will hold its interests in Level 3 solely for the purposes of investment.[173]

At the same time, the proposed transaction would result in increased vulnerability to exploitation as a result of the combined entity's dominant role in the Tier 1 Market. As XO has shown above, post-close Level 3 will have a market share substantially greater than that of other IBPs and thus will have substantial market power. Level 3's control of traffic flow throughout the market will give it tremendous ability and incentive to disrupt the access of *other carriers'* customers to significant portions of the Internet – the portion served by the combined entity. In XO's case, these customers include government customers and

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171 *Id.* at 20307.

172 Consolidated Application at 2.

173 For example, Section 3.5 of the Voting Agreement between Level 3 and STT Crossing Ltd. ("STT Crossing," an indirect subsidiary of ST Telemedia) provides that STT Crossing has no obligation to enter into any network security agreement with Executive Branch Agencies as a condition of obtaining federal regulatory approvals for the transaction if the agreement imposes obligations, duties, limitations, or restrictions on STT Crossing, its director designees on the Level 3 board of directors, or STT Crossing's rights under the parties' Stockholder Rights Agreement other than qualification criteria for a limited number of STT Crossing's board appointments or a waiver of sovereign immunity. *See* Level 3 Communications, Inc., Form S-4/A, June 15, 2011, at Appendix D, D-4.

commercial customers in industries that are critical to the national security, such as financial services companies, healthcare institutions, utility companies, and major employers.

XO's concerns in this regard are not mere speculation. As discussed in the Nicklas Declaration,[174] Level 3 has shown XO that if it has a size or market share advantage over XO, it will not hesitate to hold XO's customers hostage to pressure XO into paying for peering, partial-transit, or full-transit. In September 2005, Level 3 approached XO and demanded payment for the direct exchange of customer traffic. Despite XO's repeated efforts to resolve the matter in an amiable fashion, Level 3 broke off the peering link and ceased peering with XO – without providing a final notice of peering termination to XO – on September 27, 2005 at midnight.[175] After several hours of de-peering, XO yielded to Level 3's unilateral demand for payment. Level 3 finally reestablished the peering links at 6:30 am that morning, restoring full Internet service between XO and Level 3.

In de-peering XO in 2005, Level 3 wreaked havoc on the business and operations of many of XO's customers. Level 3's unilateral actions disconnected XO's customers, totaling more than 30,000 in September 2005, from the portion of the Internet served by Level 3 for 6.5 hours. In 2005, XO's customer base included government agencies (*e.g.*, the EPA and various city school systems), financial services companies (such as Comstock), and tens of thousands of small-to-medium businesses employing more than one hundred thousand

174 *See* Nicklas Declaration, ¶¶ 12-15.

175 XO was not the only ISP that Level 3 de-peered in 2005. By Level 3's own admission, approximately a dozen ISPs were de-peered by Level 3 that year. *See Id.*, ¶13.

Americans across a myriad of industries. For all of these customers, connection to the Internet was and still is critical to the success of their operations.[176]

If combined with GCL, Level 3 will have a much greater incentive to once again de-peer XO to extract additional payments and to end XO's current settlement-free peering relationship with GCL, to the detriment of XO's current and potential customers. XO's current customer base includes many government customers[177] and commercial customers in critical industries.[178] As was the case in 2005, a Level 3/GCL de-peering of XO will impact tens of thousands of Internet-attached business and hundreds of thousands of Americans.[179]

In its *Global Crossing Order* authorizing ST Telemedia to assume control of GCL, the FCC conditioned its grant of authority on the parties' compliance with the terms of their network security agreement with the Executive Branch agencies.[180] Considering that the

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176 *Id.*, ¶ 14.

177 For instance, the U.S. Postal Service, the Port of Long Beach, the Port of Los Angeles, California Department of Transportation, the State of Utah, the State of Delaware, and the City of Marietta, GA.

178 These include but are not limited to: major healthcare corporations (*e.g.*, Mt. Sinai School of Medicine, Kootenai Medical Center, Intermountain Health Care, Detroit Medical Center, Cedars-Sinai Health Systems, Grady Memorial Hospital, California Transplant Donor Network, Radiological Society of America, Methodist Hospital of Memphis); utility companies (*e.g.*, Wells Rural Electric Company, Southern California Edison, Bristol Virginia Utilities); telecommunications companies (*e.g.*, Cbeyond, T-Mobile, Verizon Wireless, Alaska Communications); media and entertainment corporations (*e.g.*, XM Satellite, Gannet Co., The Seattle Times, Disney Online, HBO, Turner Broadcasting); educational organizations (*e.g.*, the Philadelphia Public School System, St. Louis University, University of Memphis, Loyola University of Chicago, Fordham University); and, other major employers (*e.g.*, Caribou Coffee Company, Autozone, Abercrombie & Fitch, McDonalds).

179 *Id.*, ¶ 15.

180 *See Global Crossing Order* at 20347, ¶ 61. Among other things, the network security agreement requires that 50 percent of the members of the Global Crossing board that are nominated by ST Telemedia and elected to the board be independent directors that

proposed transaction would result in increased vulnerability to exploitation as discussed above, XO would be surprised if any grant of the pending application and petition were not similarly conditioned.

V. CONCLUSION

In filing in opposition to the merger of MCI and WorldCom's Internet backbone assets, Level 3 stated, "The continued development of the Internet depends on innovation and competition."[181] XO agrees wholeheartedly. Yet, today Level 3 and GCL propose a horizontal combination of critical Internet assets that will greatly increase concentration in the Tier 1 Market – an event that raises particular concerns because of the importance of network effects in this market. As a result of these substantial harms to competition in general and the development of the Internet specifically, XO urges the Commission to find the proposed transaction is not in the public interest.

Respectfully submitted,

XO COMMUNICATIONS, LLC

By: Thomas Cohen

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are U.S. citizens and have been approved by the Executive Branch agencies that are parties to the agreement. *Id.* at 20375-76.

181 Level 3 *Ex Parte*, at 13.