# Blake R1 v Eden Prairie SD

#### Our story begins with the advent of the nuclear era – a world permeated by global accidents. Every ‘innovation’ of the accelerated age comes with a constitutive accident built into it, making it inevitable. While accidents used to be localized, happening in a specific location at a specific time, the invention of the atomic bomb and information technologies creates accidents that take place somewhere, but affects everyone.

Crosthwaite 13 [Paul, Paul Crosthwaite was a Lecturer in English Literature and member of the Centre for Critical and Cultural Theory at Cardiff University for four years before joining Edinburgh in 2011. “Accident” in *The Virilio Dictionary* edited by John Armitage. Edinburgh, Edinburgh UP, 2013, pp. 17-19. //WWBW recut]

The accident, in Virilio’s philosophy, is the negative potentiality inherent in every technological system. If the history of technoscientific innovation is conventionally understood as a progressive lineage, in which human capacities are incrementally augmented, enhanced and extended, then Virilio is determined to highlight the fact that every such advance necessarily brings into existence, as its ineradicable shadow, new risks , dangers and threats. As he puts it in conversation with Sylvère Lotringer in Pure War (2008): Every technology produces, provokes, programs a specific accident. For example: when they invented the railroad, what did they invent? An object that allowed you to go fast, which allowed you to progress – a vision à la Jules Verne, positivism, evolutionism. But at the same time they invented the railway catastrophe. (PW, 46) The accident, then, is central to Virilio’s sceptical approach to technology. The roots of Virilio’s notion of the accident lie in the philosophy of Aristotle. Whereas in Aristotelian metaphysics, however, ideas of the accident concern that which is secondary, relative, contingent or – precisely – accidental, in Virilio’s ontology the potential for the accident is a necessary and essential property of any object or process. Similarly, Virilio fully mobilises the term’s connotation of a destructive malfunctioning – a malfunctioning that is also, at the same time, the realisation of the phenomenon’s true character: The word accident, derived from the Latin accidens, signals the unanticipated, that which unexpectedly befalls the mechanism, system, or product, its surprise failure or destruction. As if the ‘failure’ were not programmed into the product from the moment of its production or implementation. (Virilio 1993 [1982]: 211–12; emphases in original) More idiosyncratically and contentiously, perhaps, Virilio’s conception of the accident also draws on his ‘Judeo- Christian religious background’ (he is a practising Catholic): ‘it is obvious to me’, he remarks, ‘that one must link any definition of the accident to the idea of original sin [. . .] [T]his idea of original sin, which materialist philosophy rejects so forcefully, comes back to us through technology: the accident is the original sin of the technical object’ (Virilio 1998b: par. 8). While ‘[e]very technical object contains its own negativity’ (1998b: par. 8), however, its destructive potential may be anything from negligible to cataclysmic. One of Virilio’s key claims is that the scale of the accident has vastly expanded in the period since the Second World War. Earlier accidents, such as those spawned by the ‘transportation revolution’ of the nineteenth and early twentieth centuries, while often devastating, nonetheless remained ‘localized in space and time: a train derailment took place, say, in Paris or Berlin; and when a plane crashed, it did so in London or wherever in the world’ (Virilio 1996b: par. 2). In a radical break, however, the advent of the atomic age at Los Alamos and then – catastrophically – at Hiroshima and Nagasaki materialised on the horizon as the prospect of an ‘integral’, ‘generalised’ or ‘global’ accident that would ‘[take] place somewhere’ but ‘might destroy everything’ (Virilio and Armitage 2001a: 32), for the horror of radioactive fallout lies in its unfurling of a shroud of sickness and death across vast expanses of terrain. It is not only the development of atomic and nuclear energy and weaponry that ‘makes the accident global’, however, but also ‘the revolution of instantaneous transmissions brought about by telecommunications’ (Virilio 1998b: par. 2). ‘To invent the electronic superhighway or the Internet,’ Virilio claims, ‘is to invent a major risk which is not easily spotted because it does not produce fatalities like a shipwreck or a mid- air explosion. The information accident is, sadly, not very visible. It is immaterial like the waves that carry information’ (Virilio 1999: par. 6). The ‘information accident’ or ‘information bomb’ is no less destructive for its invisibility and immateriality, however, as contemporary phenomena ranging from computer viruses to stock market crashes abundantly demonstrate. Similarly, as Steve Redhead notes, the new communication technologies such as satellite television mean that a disaster such as the collapse of the World Trade Center in New York in September 2011 ‘was not simply a local, catastrophic event but a global “accident” shown “live” [. . .] around the world at the same moment’ (Redhead 2004a: 4). Virilio has proposed several responses to the pervasive presence of the accident in modern life. First, as a self- professed ‘critic of the art of technology’, he argues that the accident should simply be confronted and acknowledged as an integral dimension of technological modernity, rather than occluded, marginalised or dismissed, as it is in progressivist narratives of technoscientific change. Second – and more pointedly and provocatively – he has called for the institutionalised examination ‘of the havoc wreaked by progress’ (OA, 25) in a university, laboratory or (most often) museum of the accident, a vision at least partly realised by the exhibition ‘Ce Qui Arrive’, which Virilio (UQ) co- curated at the Fondation Cartier pour l’art contemporain in Paris in 2002. As Virilio explains in The Original Accident: in order to avoid shortly inhabiting the planetary dimensions of an integral accident, one capable of integrating a whole heap of incidents and disasters through chain reactions, we must start right now building, inhabiting, and planning a laboratory of cataclysms, the museum of the accident of technological progress. (OA, 24) Finally, in a more pragmatic and interventionist vein, Virilio urges scientists and policymakers to strive at least to mitigate the dangers of the accident by learning the lessons of ‘the previous development of transport technologies’. Whereas ‘engineers of the 19th century [. . .] invented the block system [. . .] a method to regulate traffic so that trains are speeded up without risk of railway catastrophes’, ‘traffic control engineering on the information (super)highways is conspicuous by its absence’ (Virilio 1995: par. 11). While the actual and potential accidents that face us today might be curbed, however, the logic of Virilio’s work makes it clear that – inherent as they are to our technological way of life – we will not rid ourselves of such accidents without relinquishing that way of life itself.

#### **Capitalism’s response to the climate crisis is fundamentally flawed – powerful actors use information overload to confuse the general populace and render them helpless in the face of capital. Modernity’s obsession with calculation and scientific knowledge creates policy failure in the face of urgent threats – the citizenry suppresses their growing anxiety about the climate crisis because of a fear of being ‘irrational’ or ‘extremist’.**

Lacy 14 [Mark Lacy, (Dr. Lacy is a Senior Lecturer in Politics, Philosophy & Religion at Lancaster University.) "Security, Technology and Global Politics: Thinking With Virilio" Routledge, 2-5-2014, https://www.taylorfrancis.com/books/9781135129545, DOA:7-2-2019 // WWBW]

In an essay called ‘A Sick Planet’ (1971) Guy Debord provides his perspective on ‘pollution’ and capitalism. Debord notes that a time when humanity has the capacity to radically transform life on earth is also a time where we have: the ability to ascertain and predict, with mathematical certainty, just where (and by what date) the automatic growth of the alienated productive forces of class society is taking us: to measure, in other words, the rapid degradation of the very condition of survival, in both the most general and the most trivial senses of that term.28 But for Debord, this type of knowledge is useless, disconnected from broader questions about how society should respond to this condition; we are given suggestions about how much time we have left and the ‘palliative measures’ (the technical fixes) that might help us. As well as being a source of new business opportunities, capitalism responds to the problems of this sick planet because the threats could become a reason for revolt; but societies struggle to counter 110 Time of the integral accident the degradation that is accelerating because our political systems are essentially too conservative whereas ‘the conditions of a capitalist society have never been susceptible to conservation’**.**29 It is possible to argue that when we confront a problem such as climate change we see the scientific predictions and warnings about the future at their most alarming: we have detailed global knowledge on the various ways that we are degrading the planet for future generations. And a society that is obsessed with its acceleration is like the driver of a fast car, only able to look ahead, unable (and unwilling) to pay attention to the warning signs around us: as Virilio comments in an interview, ‘Why do animals have eyes on the side? There are very few that have eyes in the front like us. It’s because real danger comes from the side or from behind. Speed flattens the vision, like a screen.’30 In addition, when we confront a problem (or mega-risk) such as climate change – a problem that potentially requires a radical transformation of all aspects of contemporary life – we have to deal with the information bomb, the constant production of conflicting explanations and evidence where there are often intense debates and controversies over questions of power and knowledge (on how, for example, evidence might be distorted to serve different interests): ‘Disinformation is achieved by flooding TV viewers with information, with apparently contradictory data.’31 The scientific knowledge that – as Debord notes – promises to provide certainty about the precariousness of our condition is used to undermine any sense of urgency, overwhelming and confusing us, undermining trust in the knowledge, contributing to what Félix Guattari saw us our ‘fatalistic passivity’ on the ecological consequences of development. 32 In addition, as already suggested, what has made discussion over the future of the ‘threat horizon’ more complicated is that a range of actors construct traditional dangers – such as ‘rogue states’, terror networks using bioweapons or cyberthreats – as requiring the attention of the ‘military-scientific complex’ and the resources of the state rather than these ‘new generation’ of accidents (such as climate change), accidents that to take seriously would require a radical reimagining of all aspects of life. In a ‘democracy of emotion’ it is much easier to mobilize political energies on seemingly more ‘immediate’ threats, threats with an economy of security ready to provide technologies and services for the consumption of protection. It is much harder to mobilize political and economic energies around threats that may not materialize: the ‘spectral’, ‘invisible’ threat can be mobilized – threats such as cybersecurity and terror – if there is a ‘shadowy’ actor supposedly at the root of the threat, the deterritorized terror network or crime organization. Not only does such a threat lend itself to an ‘emergency’ politics, it can create a market in the consumption of protection, in technical fixes. The causality is fairly simple, as are the solutions. Simply put, there are threats in the politics of securitization where powerful actors have a lot to gain; and there are threats that – if one were to take them seriously – powerful actors would have a lot to lose. Yet while a consumer society might be caught up in the desire for acceleration and technological progress, there is also fear and anxiety about the future. There is a sense that we are increasingly haunted by the future, by the ghosts of the future, by the planet that we might be creating in our pursuit of consumer pleasure Accident and emergency 111 and technological efficiency. While the optimistic visions of the liberal capitalist ‘technical fixers’ seems plausible, the darker visions of a future of constant states of emergency and disappearing nature seem more and more likely, an obsession of popular culture that we continue to be fascinated by in films and books like Cormac McCarthy’s The Road or the film Children of Men. Just as the speed of information technology ‘shrinks’ our perception of the planet, so the future appears to shrink into a limited number of possibilities: consumer dreamworld, authoritarian nightmare or ecological collapse. During the 1990s representations of environmental catastrophe were not so central to popular culture as they are now, in a time of ‘cli fi’.33 A future planet dealing with the impact of environmental disaster had an abstract, ‘spectral’ quality, a lack of definition; this lack of definition made it easier for interests that wanted to maintain ‘business as usual’ regarding energy and pollution policies. Since the beginning of the twenty-first century, popular culture has incorporated environmental disaster into the ‘imagination of disaster’ through documentaries such as Al Gore’s An Inconvenient Truth, popular films focusing on climate-related problems (Roland Emmerich’s The Day After Tomorrow) or disease-related global disaster (Steven Soderbergh’s Contagion), video games such as Fracture (a game that takes place in a war-torn America dealing with climate-related catastrophe, allowing players to use weapons that enable them to radically deform terrain to enable a strategic advantage). There are less mainstream explorations of global insecurities such as The Age of Stupid (a film that involves an archivist in 2055 looking back at the catastrophes that have transformed life on earth due to humangenerated climate change). One of the issues here is to what extent we consume the ‘imagination of disaster’ as a coping mechanism to deal with the anxiety about the future and the possibility of integral accidents – or whether we simply enjoy these spectacles of destruction.

#### I affirm the resolution: The appropriation of outer space by private entities is unjust.

#### Technologies of globalization and war have left humanity polluted by speed and unable to properly relate to the world, destroying the possibility of meaningful experience. There is only so much that can happen in one moment – constant accelerationism produces fleeting and disappearing experiences as each moment disappears as fast as it appears – we couldn’t possibly process that much information in shorter time. Time is the new defining experience, it’s not what you’re perceiving but how fast you’re perceiving it.

Clarke and Doel 13 [David B. Clarke and Marcus A. Doel. Clarke is Professor of Human Geography at Swansea University, and Marcus Doel is Professor of Human Geography and the Deputy Pro-Vice-Chancellor for Research and Innovation at Swansea University in the UK. “Speed-Space” in *The Virilio Dictionary* edited by John Armitage. Edinburgh, Edinburgh UP, 2013, pp. 176-178.]

‘The new space is speed- space; it is no longer a time- space’, claims Virilio (Virilio and Dercon 2001: 71). At its most basic, this suggests the end of an era dominated by vehicular transportation technologies – dedicated to overcoming the friction of distance – and the inauguration of an era defined by virtual information technologies – devoted to enabling instantaneous communication over space, to realising the fiction of distance. In Virilio’s (1991 [1984]: 18) words, ‘Speed distance obliterates the notion of physical dimension. Speed suddenly becomes a primal dimension that defies all temporal and physical measurements.’ At the limit – the speed of light – lies a world ‘devoid of spatial dimensions, but inscribed in the singular temporality of an instantaneous diffusion’ (LD, 13). To gain a fuller grasp of the intended sense of ‘speed- space’, it is important to consider the term in relation to Virilio’s (1997 [1995]: 9) claim that ‘we have not yet digested relativity, the very notion of space- time’ (in Einstein’s sense of a four- dimensional continuum, with all that this implies) and, crucially, in relation to the phenomenological register of Virilio’s thought, particularly the sense in which ‘speed metamorphoses appearances’ (Virilio 2005a [1984]: 105). Only when these two aspects converge does the full force of Virilio’s argument become apparent. Distinguishing ‘speed- space’ from ‘time- space’ demonstrates the kind of insight Virilio consistently achieves by ‘deterritorialising’ concepts devised in other contexts; suggesting, in this instance, the importance of shifting social thought from a Newtonian to an Einsteinian conceptual framework. Rather than defining speed in relation to absolute and independent notions of space and time, Virilio borrows from the theory of relativity the sense in which space and time are, so to speak, in the eyes of the beholder: strictly speaking, relative to the state of motion of the observer, amounting to substitutable aspects of a four- dimensional continuum in which space is translatable into time, and vice versa, such that the speed of light remains constant for all observers. ‘If the categories of space and time have become relative (critical), this is because the stamp of the absolute has shifted from matter to light and especially to light’s finite speed’, says Virilio (1994b [1988]: 71). ‘From now on’, he (VM, 71) argues, ‘speed is less useful in terms of getting around easily than in terms of seeing and conceiving more or less clearly.’ The upshot, as the sociologist Zygmunt Bauman (2002: 13) points out, is that ‘speed is no longer a means but a milieu; one may say that speed is a sort of ethereal substance that saturates the world and into which more and more action is transferred, acquiring in the process new qualities that only such a substance makes possible – and inescapable’. The implications of this are legion: numerous aspects of Virilio’s thought fall into place when considered in this frame of reference. Insofar as speed conditions perception, the liminal speed of action- at- a distance defining speed- space is marked not merely by the sudden appearance [surgissement] of things but, more pointedly, by their instantaneous disappearance. This is a source of consternation for Virilio, insofar as technologically mediated perception removes from vision its ‘prophetic’ quality: ‘Today we are no longer truly seers [voyants] of our world but [. . .] merely reviewers [revoyants]’ (Virilio 2005a [1984]: 37). Accordingly, one should properly speak of reception rather than perception: ‘An indirect and mediatized reception succeeds the instant of the direct perception of objects, surfaces and volumes [. . .] in an interface which escapes daily duration and the calendar of the everyday’ (Virilio 1991 [1984]: 84). Here, Virilio’s phenomenological background becomes apparent, as the lived experience of the present moment is reduced to ‘real time’, which he (1997 [1995]: 10) accuses of ‘killing “present” time by isolating it from its here and now, in favour of a commutative elsewhere that no longer has anything to do with our “concrete presence” in the world, but is the elsewhere of a “discreet telepresence” that remains a complete mystery’. The instantaneous disappearance associated with action- at- a- distance may equally be characterised, then, in terms of absence – ‘the absence of the actor from the scene of the action, the actor’s presence sous rapture – appearance and disappearance, so to speak, rolled into one’ (Bauman 2002: 13). In this paradoxical state, ‘The philosophical question is no longer who I really am but where I presently am’ (Virilio 2000a [1990]: 85). Just as one only really notices things once they begin to fall apart or fade from view, the most crucial aspect of Virilio’s musings on the new form of ‘speed- space’ is the revelation that ‘speed- space’ was, in fact, there all along: all space is speed- space. In a manner directly comparable to the French philosopher Jean- François Lyotard (2011), Virilio decries the ‘geometricising’ of vision inherent to the quattrocento tradition of representation, which freezes the observer in order to constitute the world as a picture. For Virilio (1991 [1984]: 102), ‘acceleration and deceleration, or the movement of movement, are the only true dimensions of space [. . .] This space is not defi ned as substantive or extensive; it is not primarily volume, mass, larger or smaller density, extension, nor longer, shorter, or bigger superficie’. This phenomenological insight becomes increasingly apparent in an era where: Past, present and future – that old tripartite division of the time continuum [. . .] cedes primacy to the immediacy of a tele- presence [. . .] in which the fourth dimension (that of time) suddenly substitutes for the third: the material volume loses its geometrical value as an ‘effective presence’ and yields to an audiovisual volume whose self- evident ‘tele- presence’ easily wins out over the nature of the facts. (NH, 118) This belated recognition is, for Virilio, a source of lament, as our technological prostheses take us ever further from an immediate, sensory experience of the world, inducing a motion that puts an end to movement by transforming the actor into a tele- actor. ‘This tele- actor will no longer throw himself into any means of physical travel, but only into another body, an optical body; and he will go forward without moving, see with other eyes, touch with other hands from his own [. . .] a stranger to himself, a deserter from his own body, an exile for evermore’ (PI, 85).

#### All that is left to perceive is the end of the world—when we cannot comprehend anything about the natural world, all we can understand is its destruction. The problem of human pollution requires an acceptance of Grey Ecology, a methodology of accepting our inability to master the world and a withdrawal from systems of technology.

Reid 13 [Julian Reid, (Julian Reid is Professor of International Politics at the University of Lapland, Finland.) "Grey Ecology" in “The Virilio Dictionary” Edited by John Armitage, 5-31-2013, https://global.oup.com/academic/product/the-virilio-dictionary-9780748646838, DOA:12-24-2018 // WWBW recut]

Grey ecology is best understood as Virilio’s alternative to green ecology. Green ecology refers to the sciences and movements oriented around the problem of the pollution of natural environments on which living organisms rely for their wellbeing. Grey ecology is concerned with the pollution of the self- created **environment of the specifi cally human organism, its cosmos and culture, without which humans are no longer human. While green ecologists are generally concerned with the question of how to save the planet, the question for grey ecologists is that of how to save the humanity of human beings. Virilio’s Open Sky (1997 [1995]: 60)** criticises green ecologists for their failures to recognise the pollution not simply of the natural environment, but of human culture and the human cosmos, caused by forms of scientific and technological ‘progress’, especially the ‘empire of realtime communications’ he associates with the information–communication revolution and phenomenon of globalisation. Likewise, Virilio argues that the ecological crisis with regard to the security of the natural environment is itself only understandable on account of the more profound crisis in the human environment. The temporal contraction or foreclosure that determines the process of globalisation, achieved through the ongoing acceleration of reality established by new technologies of information and communication, has functioned, according to Virilio’s Grey Ecology (2009b: 50), to pollute the sense of distance between the human and its world that humanity relies on for its creative strength. The lack of eff ort required in teletechnologies for hearing, seeing and acting at a distance destroys our sense of the vastness of the world, a precondition of our ability to have meaningful experience of the world, and without which our perception of the very nature of the world and what is entailed in being in the world becomes debased. Instead of being situated in the world, moving from place to place, as well as being moved, animated, desiring and loving elements of the world around us, we are delivered over to a condition in which all we perceive is the end of the world. While this end is fundamentally temporal it is also phenomenological. ‘Everything is déjà vu or at least déjà explore: been there, done that’ (OS, 65). What is polluted, therefore, in the context of the ongoing ecological crisis, is not simply the natural environment**,** but the relation with the geophysical environment on which we rely in order to be able to create new ways of living (politics). We have exhausted not only the sense of distance of the world but also the time of the world, without which we lose all sense of the future. Without a sense of a future, which emits from the experience of distance, we will not be able to find a way out of the ecological predicament, or, literally, the ‘end of the world’, because we are faced with an era of apparently apocalyptic processes. This ‘end of the world’ condition that now haunts humanity emerges from its false understanding of what constitutes the conditions for the development of human strength and security. The predicament of human subjection to the ecological crisis results from the hubristic desire of the species to master its world; to conquer and exploit it, most signifi cantly through technological and scientific endeavour. Overcoming this predilection for mastery requires humanity to recognise its fundamental humility in relation to the world, and, just as signifi cantly, the ‘fi nitude’, both of humanit y and of the world it inhabits. To recognise the fi nitude of the world is not simply to acknowledge that the world will end, **Virilio argues, but also to recognise that we will have to learn to live after ‘the end of the world’.** Accepting the finitude of itself and the world gives, paradoxically, both the human and its world a future. It allows us to survive ‘the end of the world’ by recoiling from that end. It is a different kind of security device from that which has previously driven the history of human progress. Finitude is the ineradicable condition of (human) being, which elicits its resistance to the spatial- temporal contraction that threatens it. Facing the truth of its fi nitude and fundamental humility in relation with its world means that humanity must cast off the false faith in technoscientific ‘progress’ that has driven its historical development, the subsequent colonisation of time and space, and the establishment of the end of the world. Facing fi nitude allows the human to confront the end of the world and discover another path beyond it. This act of facing fi nitude can only occur, Virilio argues, in the form of revelation: ‘Grey ecology is revelationary’ (GE, 43). Its purpose is to open us up to a new way of thinking and living. **A way of thinking that will allow us to ‘re- civilize science’, by making it come to terms with** itsexterminating dimension(GE, 47). Most especially, it requires us to address the militarisation of science that accounts for the exterminating dimension. Grey ecology exists in this sense in a necessary conflict with military intelligence and the art of war that has conditioned the technoscientific development of humanity. How we are to achieve Virilio’s project of grey ecology remains an open question because we have not yet understood either fi niteness or how to respond to its revelation. But the links that Virilio makes between the grey and green ecological problematics that humanity is faced with and with the art of war are necessary starting points. For in establishing these links Virilio asks us to understand the extent to which the militarisation of science and technological progress have functioned as extensions of an art of war that operates not for but upon humanity. For in destroying its own relation with the world, humanity has effectively waged war on itself, and, in doing so, is in the process of destroying itself**.** The task now is for humanity to face that catastrophe, confront it in its reality, not simply in proclamation of horror at it, but in order to step back from it, evade and move beyond it, by recovering a distance from it. The pollution of distance is the problematic of grey ecology, and the development of distance its task.

#### Appropriation of outer space accelerates internet and connectedness, increasing rates of transmission to further speed space. Gone is the era of slowness as we are accelerating into a terminal state of instant internet, anywhere.

Estes 20 who does not agree with the terminal conclusion of the AC [Adam Clark Estes. Adam Clark Estes is the deputy editor of Recode. He was previously a senior editor at Gizmodo, an associate editor at Motherboard, and a staff writer at The Atlantic Wire. “How the pandemic is bringing Elon Musk’s dream to connect everyone on Earth closer to reality”. 9-26-2020. Vox. https://www.vox.com/recode/2020/9/26/21457530/elon-musk-spacex-starlink-satellite-broadband-amazon-project-kuiper-viasat. Accessed 12-18-2021]

In early March, just days before cities across the US shut down due to the pandemic, Elon Musk shared the latest details about his plan to build a satellite broadband service called Starlink. Speaking at a satellite conference in Washington, DC, Musk described how a constellation of Starlink satellites will “blink” when they enter low-Earth orbit. As described, they almost sound like streaks of glitter in the night sky, or magic bands of flying gadgets that can beam internet down to anyone on the planet. Combined with improvements to existing technology like DSL, cable, and fiber — not to mention 4G and 5G cellular networks — futuristic satellite broadband stands to bridge the digital divide in the US and elsewhere. And because the pandemic has prompted explosive demand for better, more widely available internet connectivity, fast progress seems more inevitable than ever.Musk’s new satellites went online in early September, giving beta testers download speeds [that rival those of terrestrial broadband](https://www.theverge.com/2020/9/3/21419841/spacex-starlink-internet-satellite-constellation-download-speeds-space-lasers). SpaceX has now put 700 Starlink satellites into orbit in the past 16 months and [has plans to deliver](https://spacenews.com/spacex-submits-paperwork-for-30000-more-starlink-satellites/) as many as 30,000 more in the next few years. More satellites mean more bandwidth and faster speeds, and eventually, SpaceX says, its low-Earth orbit satellite constellations could deliver high-speed internet to the entire US. [Amazon](https://www.theverge.com/2019/4/4/18295310/amazon-project-kuiper-satellite-internet-low-earth-orbit-facebook-spacex-starlink), [Facebook](https://www.wired.com/story/facebook-confirms-its-working-on-new-internet-satellite/), and several startups have made similar promises in recent years. The concept of satellite-based internet service is actually decades old. However, the innovative low-Earth orbit satellite technology being developed by SpaceX and others could be essential, if not transformative, for everything from telemedicine to remote learning in places that aren’t already connected. [Satellite broadband](https://www.vox.com/recode/2020/9/10/21426810/internet-access-covid-19-chattanooga-municipal-broadband-fcc) could also be very profitable for whichever company figures it out first. One could imagine Amazon using satellite broadband to boost its Amazon Web Services (AWS) business, or Facebook using it to ensure that more people get on its platform. And if Musk gets his way, his Starlink constellations will generate billions of dollars in profits to fund his mission to colonize Mars. This all sounds futuristic, but satellite broadband is already a very real thing. In fact, if you’ve ever connected to wifi on a plane or cruise ship, you’ve probably used it. The basic idea is that ground stations connected to the internet, known as gateways, can send data up to a satellite which then relays that data to antennas somewhere else on the ground — or on a ship or an airplane. The problem with this technological feat is that it’s all very expensive. It can cost hundreds of millions of dollars to launch satellites into space, and that’s not even taking into account what it takes to get over regulatory hurdles. Plenty of companies have tried and failed to crack the business model in the past 20 years. But rather suddenly, the space internet game has changed. “The Covid-19 crisis has significantly accelerated attention to and investment in satellite technology,” Babak Beheshti, dean of the College of Engineering and Computing Sciences at the New York Institute of Technology, told Recode. Beheshti added that the number of launches had gone up tenfold from last year to this year. “Why? Because schools, local governments, and others suddenly needed to have broadband internet access in areas where there was really no infrastructure in place.” This might sound like proof that satellite broadband is finally on its way to solving the digital divide, but the situation remains tenuous. As SpaceX started firing up its Starlink satellites, Amazon in July [received approval from the Federal Communications Commission](https://blog.aboutamazon.com/company-news/amazon-receives-fcc-approval-for-project-kuiper-satellite-constellation?ots=1&slotNum=2&imprToken=a6bee6fb-1209-3178-080&ascsubtag=%5b%5dvx%5bp%5d21221571%5bt%5dw%5br%5dgoogle.com%5bd%5dD) (FCC) to launch 3,236 low-Earth orbit satellites for a constellation of its own called Project Kuiper. Meanwhile, longtime satellite broadband industry leaders like Viasat can’t seem to get new satellites into the sky fast enough to keep up with demand. And along the way, the federal government is pledging billions of dollars in subsidies to companies that bring broadband to rural America. In some ways, the dream of connecting everyone on Earth has never been closer. In other ways, it’s hard to tell whether the latest innovative ideas will suffer the same pitfalls as those of years past. Satellite broadband, briefly explained Satellite broadband is exactly what it sounds like: broadband internet access delivered via satellite. The basic idea hasn’t changed much since the heyday of satellite TV in the late ’90s when companies would beam internet connectivity to the same dish that received your HBO signal at speeds that were faster than dial-up but still slower than today’s broadband. In 2020, there are two main ways companies deliver satellite broadband. The key difference between them is how high the satellites orbit. Geosynchronous satellites, which orbit about 22,000 miles above a fixed place on Earth’s surface, is an older technology that companies like Viasat use for broadband connections. You’ve probably used this tech for airplane wifi. Then there are low-Earth orbit constellations, which are made up of hundreds, if not thousands, of smaller satellites that orbit between 300 and 1,200 miles above Earth. This is the approach that’s [getting all of the buzz lately](https://www.washingtonpost.com/business/why-low-earth-orbit-satellites-are-the-new-space-race/2020/07/10/51ef1ff8-c2bb-11ea-8908-68a2b9eae9e0_story.html), and the one SpaceX and Amazon are taking. Geosynchronous satellites are the more mature, more proven technology. Viasat and a company called Hughes, which is the former parent company of DirecTV, have been around for decades. (DirecTV actually used its dishes and infrastructure to offer [a satellite internet service called DirecPC](http://www.g-c-o.com/ProductDirecPC.htm) back in the late ’90s.) Viasat and Hughes are also the two companies that most likely offer satellite broadband in remote parts of the US right now. If you’re [someone who lives in the New Hampshire wilderness](https://www.nytimes.com/wirecutter/blog/moving-to-the-wilderness-killed-my-internet/), where there are no terrestrial broadband options, you can get a version of DSL, which operates on existing copper telephone lines, that’s essentially as sluggish as dial-up. Or, you can sign up for geosynchronous satellite broadband through Viasat or Hughes and get speeds comparable to basic broadband: about 25 megabits per second. Plans start at $40 to $50 a month and get more expensive if you want more bandwidth. Though they are dependable, these geosynchronous satellite systems have some issues. The main one is latency. The satellites are thousands of miles above Earth’s surface, so it takes time for data to travel — and that might mean a slight delay between sending and receiving. This isn’t a problem if you’re just browsing the web. It’s a significant problem if you’re trying to stream video games or do video calls, something [we’re all doing more than ever before](https://www.vox.com/recode/21314793/zoom-fatigue-video-chat-facebook-google-meet-microsoft-teams). Just think about remote TV news correspondents who have to wait half a beat between when the anchor in the studio asks the question and when they hear it in their earpiece, as the signal travels up to a communications satellite and then back down to the surface. Low-Earth orbit constellations, like the ones SpaceX and Amazon are building, promise to solve the latency problem. Because the satellites are closer to the ground, the data doesn’t have to travel as far. Musk says this means SpaceX’s Starlink satellites, which will orbit at around 340 miles above the surface, [will offer low latency](https://arstechnica.com/information-technology/2020/03/musk-says-starlink-isnt-for-big-cities-wont-be-huge-threat-to-telcos/), thus reducing the risk of lag. The latency question is a big deal to the FCC and its decision to hand out billions of dollars in subsidies, by the way. The agency says it [will prioritize networks that offer low latency](https://arstechnica.com/tech-policy/2020/06/fcc-has-serious-doubts-that-spacex-can-deliver-latencies-under-100ms/) when giving out funding. Still, there are other unanswered questions about just how fast and dependable newly designed low-Earth orbit constellations will be. Unlike geosynchronous satellites, which are fixed above one spot, low-Earth orbit satellites circle the planet every 90 to 120 minutes. They’re designed to stay connected to the ground station and to the end user by staying connected to each other, but if this chain gets broken, it would disrupt the connection. These constellations are also made up of thousands of relatively small satellites — Starlink satellites weigh less than 600 pounds — which means they require multiple launches, which are expensive. “As more satellites go up, they optimize the network architecture,” explained Manny Shar, head of analytics at Bryce Space and Technology. “In the next couple of years, we should see decent improvements in rural areas where there’s really limited capability, and there’s limited competition to improve that. So at the very least, there will be an alternative option that those rural users can take advantage of.” Shar’s point about limited competition is an important one. Many parts of the United States, for instance, have access to slower DSL connections thanks to telephone lines, but because upgrading that infrastructure is so expensive, the telecom companies that serve those areas often have little incentive to do so. That leaves residents depending on a mix of poor wired connections and often spotty cellular networks. New technology like 5G could ostensibly bring faster cellular speeds to remote areas, but again, building that infrastructure takes time and money. Satellite broadband, meanwhile, can beam fast, reliable, and potentially affordable internet access down to nearly anywhere on Earth. This also requires time and money, but what we’re seeing in 2020 is that the pandemic is attracting all kinds of investment in the technology, which means more satellites are launching. Both geosynchronous and low-Earth orbit satellite broadband systems have pros and cons. The former is already viable, albeit not perfect. The latter holds promise, albeit unfulfilled. But to reach that goal of connecting more people, it will all come down to money.

#### Space exploration is rooted in a worship of technological acceleration that makes the Accident inevitable.

Virilio 10 [Paul. Director of the Ecole Speciale d' Architecture in Paris (Paul, “The University of Disaster”, Polity Press, pg. 130)]

In physics, this situation goes by the name of SINGULARITY; whence the astrophysical quest for an eccentric planet that geo-engineering could possibly make habitable and adaptable to the 'future life' of the earthly genus , the genus humus - in other words , the human race. But when Stephen Hawking tells the BBC (in the summer of 2006), that, 'once we spread out into space and establish independent colonies, our future should be safe', he in fact denies the state of play of a knowledge singularly damaged in what it has been based on ever since the world began: the geophysics of matter known as Whole Earth. Hawking takes his contempt even further , moreover, by attributing to the speed of light the role of ensuring the salvation of history, after the abandonment of geography: If we used chemical fuel rockets like the Apollo mission to the moon, the journey to the nearest star would take 50,000 years. This is obviously far too long to be practical . . . However, by using matter/antimatter annihilation, we can at least reach just below the speed of light. With that, it would be possible to reach the next star in about six years. In those revealing words, where science and science fiction literally merge, the astrophysicist, a victim of postmodern illuminism, not only confirms the self-destructive urge of matter in attaining its goal. He unwittingly brings back sun worship - to the point of idolizing the acceleration of reality, this contemporary hubris of a NEOCREATIONISM that the famous BIG BANG seems to have allowed!

#### The standard is embracing critical dromology.

#### Dromology is the study of speed, the pervasive and all-encompassing force behind modernity. Acceleration has infiltrated every facet of modern life to shape both our epistemic thought processes and our material realities. That necessitates a dromological analysis—only it can explain both the historical and epistemological basis for the spread of capitalism.

Ebert 13 [John David Ebert, (John David Ebert is an independent American scholar and author of five books) "Dromology" in “The Virilio Dictionary” Edited by John Armitage, 5-31-2013, https://global.oup.com/academic/product/the-virilio-dictionary-9780748646838, DOA:12-24-2018 // recut WWBW but recut]

From the Greek word dromos for ‘race’ or ‘racetrack’, dromology is a science invented by Virilio for the study of speed and its impacts upon human cultural and technological systems. Speed, according to Virilio, exerts a number of transformative effects upon human culture, sometimes in very subtle ways, such as, for instance, the phenomenon of the gradual enclosure of the human individual inside the automobile as it moves ever faster, fi rst with goggles, then with the windscreen and fi nally the complete enclosure of the body within the sedan. Indeed, for Virilio, speed is the decisive factor in human technological evolution. In Negative Horizon (2005a [1984]), he surveys the course of technological development, noting that there has been a gradual increase in speed throughout history, beginning with woman as the first pack animal to the mounted horse to the chariot and the road, and then onward to the automobile and the aeroplane. He points out that in the nineteenth century, a transportation revolution occurred which developed from the railroad to the automobile to the aeroplane, and that these technologies of relative speed tended to support industrial democracy. The absolute speed achieved by the communications revolution, on the other hand, with the advent of electromagnetic technologies such as the telegraph, telephone, radio and TV tended to abolish the necessity for human physical movement and to reverse into the stasis of inertia of human individuals in their homes surrounded by the gadgets of their smart houses that provide so many services for them that they no longer have any need even to leave the house. Virilio often points out the paradox of stasis resulting from the gradual increase in speed, as in the case of Howard Hughes, whom he discusses primarily in The Aesthetics of Disappearance (2009a [1980]), who spent the fi rst half of his life rushing about the planet in his aeroplanes, only to end, in the second half, isolating himself in his hotel room from which he rarely ventured forth at all. The effects of the transport revolution on military technologies, Virilio insists, have led to the gradual disappearance of the geostrategic battlefield, so that the front is no longer to be found at the boundary of the territory, but wherever the vectors of mechanised transport are found. Where the mechanised vehicles are, there we fi nd the state, for the country has today disappeared in the non- place of the state of emergency in which territorial space vanishes and only time remains. Whereas in conventional warfare we could still talk about manoeuvres of armies in the fi eld, today there is no field, since the speed of reaction time is so fast and the invasion of the instant now succeeds the invasion of the territory. The countdown becomes the scene of battle now. Reaction time and the time for political decision are reduced to nothing by nuclear deliverance. Today, speed is war. In Speed and Politics: An Essay on Dromology (2006 [1977]), where Virilio fi rst developed the idea of dromology, he points out that the reason the West was able, through colonial genocide and ethnocide, to conquer other populations was because of its speed. It moved faster than these other societies because of its ever- increasing mastery first of the sea, then the rail, then the sky, etc. In Negative Horizon, he insists, furthermore, that because the Spaniards had the horse and the Maya had no pack animals other than women, this gave the Spaniards a dromocratic superiority which allowed them to conquer the Maya simply by their ability to manoeuvre much more quickly. In Speed and Politics, he also points out how the increase in military speed has given preference to movement itself over the strategics of place, which has led to the disappearance of places themselves in what he calls ‘vehicular extermination’. The strike power of the navy in the 1940s, for instance, in which power was spoken of in knots gave way in the 1960s to machs with the advent of jet power. Geographic localisation has therefore given way to the speed of the moving body and the undetectability of its path. Furthermore, according to Virilio, it matters little whether what is sped up is information or physical objects, since in both cases it is the message of movement itself that is at issue. Acceleration, moreover, tends to produce accidents, since the faster a technology moves, the greater the likelihood that a crash of some sort will result. Dromological speed- up has aff ected both the realms of transport and of human data communications equally, for after the crashes attending the speed- up of rail and maritime accelerations comes the crashes of planes and cars, while after them, in turn, come the electromagnetic wave trains with their mediatic crashes of video and radio signals, in which news functions as what Virilio calls The Information Bomb (2000d [1998]). Dromology is also tied in with Virilio’s concept of the aesthetics of disappearance, since excess speed tends to correspond to a loss of information content. With the speed- up of war, as we have seen, the geostrategic front disappears, while the soldier himself disappears with camouflage. With the stealth bomber, the speed- up in fl ight has resulted in the actual disappearance into invisibility of the aeroplane off the radar screen. The increasing speed of the automobile leads, via the phenomenon of dromoscopy, to the impoverishment of the information content of its immediate milieu, which speeds past the observer and tends to take on a certain fl atness in the process. Cities, too, are disappearing with mobile architecture and the rapidity of demolition of buildings that are not built to last for more than a dozen or so years. The speed- up in media, in addition, has led to the disappearance of deferred time, a kind of mental space in which thought could move about slowly enough to refl ect upon the signifi cance of events, into the advent of real time, in which events take place so fast that the mind cannot keep up with them, and written media, correspondingly, suffer a diminishment of information content.