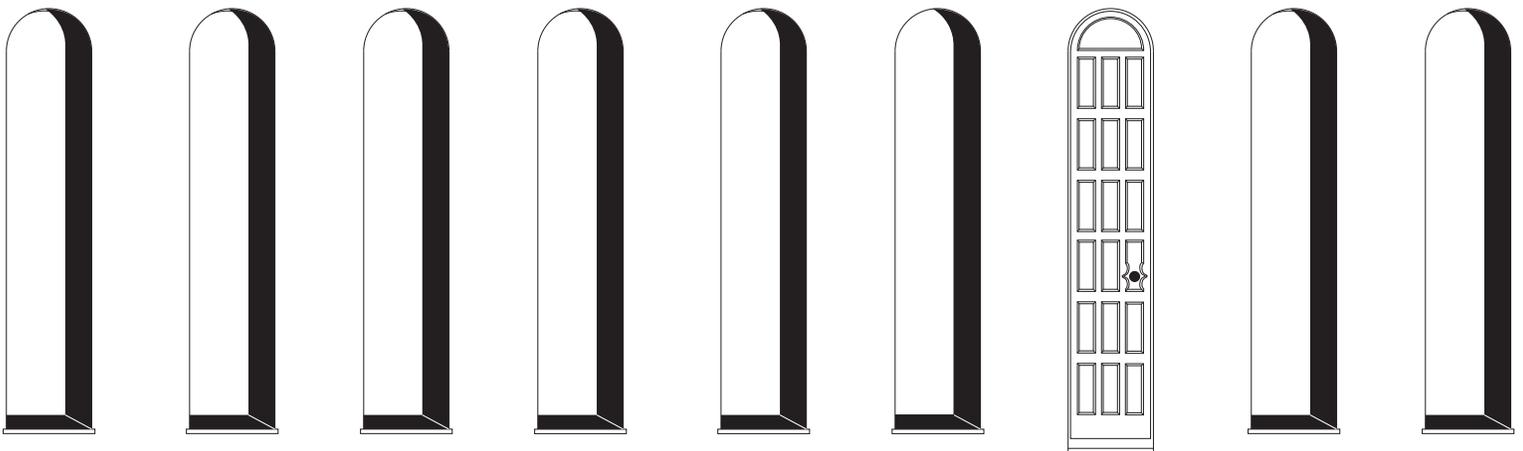


The Temple at Four in the Morning

The Built Network of Connectivity and Consciousness in Toronto



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Does the Internet exist?

I couldn't stop thinking about this question as I walked down Unwin Avenue, a long, straight road in Toronto's Portlands that seemed to go on forever. I had just left a techno and noise music festival at the Hearn—a megalithic decommissioned electrical generating station. Electricity and connectivity were on my mind; it was my first time inside the Hearn, a location I knew of as a popular site for urban exploration, not to mention the vibrations I could still feel in my body from standing next to the speakers during Tim Hecker's performance. I was walking towards the Power Plant Contemporary Art Gallery, another shell of Toronto's industrial past, to retrieve my bike before heading home.

To pass the time I put on my headphones and listened to Philip Glass's *Einstein on the Beach*, the iconic 1976 opera. I've often wondered how the aesthetics of an internet-aware culture will be identifiable to future generations. How will we look at a building, or a film, or a piece of music and be able to situate it in this particular time and place? I'd made it to my bike by this point and started to ride home. As Glass's electronic arpeggios started to build towards a climax in the third act of *Einstein*, I thought maybe this was one of those traces; after all Glass' minimalist style owes a great deal to the avant-garde compositions of John Cage who the *Globe and Mail* called "Musical McLuhan" for his affinity towards the network theory of Toronto's own Marshall McLuhan. (2) Perhaps it was the Hearn itself, the bones of which now rest on land that Alphabet, Google's parent company, has proposed to redevelop as a "smart city" through their new initiative called Sidewalk Labs. I found myself daydreaming about these questions, flights of fantasy of how I could articulate this emerging iconography, when I arrived at a red light at the intersection of Parliament Street and Mill Street. I looked up, the light turned green, but I stood still straddling my bike. It was four in the morning and I had stumbled across Toronto's newest data centre.

The windowless facade emanated a resonant hum, one that I had a hard time distinguishing from the persistent ringing in my ears. If I hadn't known about the

building's recent unveiling I wouldn't have noticed it.

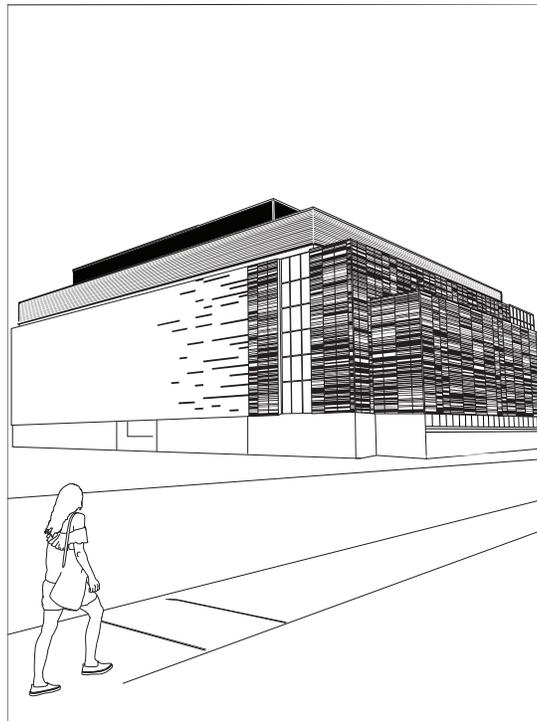
The Internet does not exist. (3)

This provocation was used as the title for the April 2015 issue of the *e-flux* journal. The title and content of the publication implied that the internet had become so integrated in our lives, and our consciousness, that it is no longer a place that we can simply log on and visit. The utility of the internet has rendered it unavoidable. The built infrastructure of the internet has had to grow to support the increasingly immaterial notions that support our networked public. The internet has permeated our lives and marked our landscapes with its very physical footprint. As a result, it is no longer possible to think of the internet as a box where we can simply deposit and store our personal data, detached from our day-to-day lives.

More recently, with the advent of cloud computing, our ability to determine where the technology begins and ends is increasingly obscured. The interface is dissolving. The sound of a local hard drive spinning once indicated that the bridge between the physical and virtual world had been established—today, computers reveal no audible indication of working, emanating a muted hum. With more and more data being stored in the cloud, the sound is displaced and becomes part of a droning symphony in the sprawling data centres that are being built around the world. This displacement of a physical connection to digital space is the result of an inverse relationship that has emerged between the myth of invisibility of the cloud and the monumentality

of the architecture that supports it. Here the term "cloud" takes on a double meaning. It no longer simply refers to the weightless, ephemeral, and invisible transfer of data; it also represents an opaque distraction away from the very real infrastructure of the medium—such as the miles of fibre optic cables and the associated cost of building, powering, and cooling millions of square feet of server space—in favour of lifting it higher into the realm of immateriality and imagination.

In the artist statement to the exhibition titled "Parallel Tracks," Toronto-based artist Sam Cotter writes how photographs of the construction of the Canadian

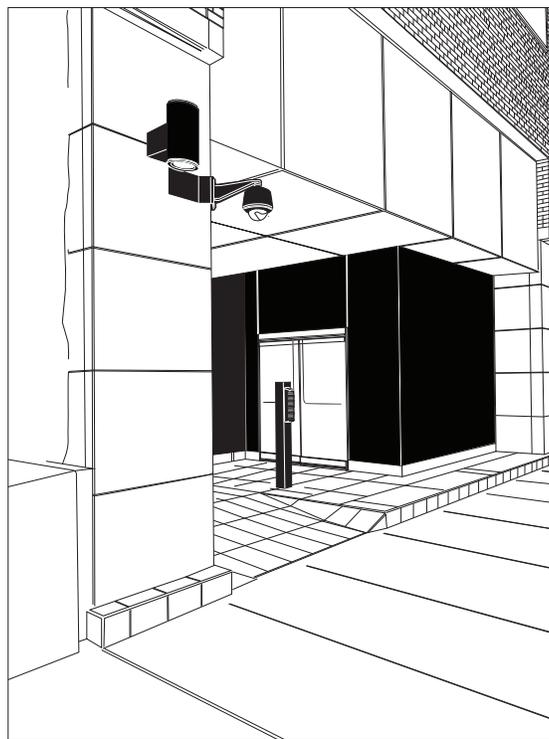


Equinix Data Centre (TR2), 45 Parliament St, Toronto, ON M5A 2Y5

an Pacific Railway simultaneously aided in early nation building efforts while also marginalizing those who were omitted from the photographs, and in turn, the land. Cotter alludes to the camera's capacity to render the image frame as both a visual and social tabula rasa by stating that "the presence is an absence, the absence is felt, a presence now felt through its negation." (4) This notion is perhaps most successfully communicated through the titular image Cotter selected for the publication which depicts a large trench carved through a mountainside with workers standing on the left half of the frame (Figure 1.). Without any tracks visible in the image, the empty trench represents the myth of the Canadian Pacific Railway more than any stretch of depicted track could.

Cotter's archival image are reminiscent of images of the site specific work of American artist Michael Heizer titled "Double Negative" (figure 2.), which embodies the notion of anti-form as iconic form. Created in 1969, "Double Negative" consists of two long straight trenches, 30 feet wide and 50 feet deep, cut into the "tabletop" of Mormon Mesa, displacing 240,000 tons of desert sandstone. The cuts face each other across an indentation in the plateaus' scalloped perimeter, forming a continuous image, a thick linear volume that bridges and combines the "negative" space between them."(5) Heizer's gesture to excavate and remove earthen mass allows the viewer to participate in a shared production of the completed work. The catharsis of visualizing a single form that spans the chasm of the canyon exists precisely as a result of what Heizer chose to negate or remove. This logic can be mapped onto the cloud and its myth of invisibility: in order for the public to believe in a myth, the practical realities of what it takes to realize that myth must be displaced.

In Austrian filmmaker Nikolaus Geyrhalter's 2016 documentary film CERN, Luca Bottura, a technical engineer, describes his experience working at CERN by stating that "it is actually beautiful to be a part of modern cathedral building, that's the way I see it. It's like being in a community with a single aim and a single scope and we are producing machines that nobody has built before—like a cathedral."(6) This is not the first time that religious language has been used to describe events at



Toronto Internet Exchange (TORIX), 151 Front St W, Toronto, ON M5J 2N1.

CERN. On July 4, 2012 experiments at CERN's Large Hadron Collider (LRC) observed a new particle that was consistent with the then theoretical Higgs boson particle. This discovery, when paired with the headline "our understanding of the universe is about to change," was inaccurately dubbed by the media as "the god particle." (7) In this moment the media, and an eager public wanted to believe that this was the discovery that would finally bridge the gap between science, technology, and religion. CERN's LRC boasts a circumference of 27km buried up to 175m below the ground near Geneva—with almost no trace on the surface. To return to Heizer's notion of negative space, "Double Negative" uses subtraction as a catalyst towards meaning; on the other hand, perhaps the religious meaning that is ascribed to the events and

discoveries at CERN relates proportionately to its utter invisibility to the viewing public. The monumentality of the architecture that Bottura refers to as modern cathedrals is only accessible to a select group of scientist and technicians; however, the public perception of these events suggest a compelling indication of the pseudo-religious position that emerging technologies have within the cultural zeitgeist.

Returning then to the cloud, this type of pseudo-religious language reappears both in how we engage with the services provided by cloud computing as well as in the perception of the architecture that supports it. Most strikingly, it evokes western religious iconography and art where God's seat is in heaven, an abstract domain above the clouds. This comparison is not meant to be a value judgement stating that the cloud is as significant as the notion of God in

heaven; although, the metaphorical association is provocative: Is the data centre the modern day cathedral? In an increasingly secular world, the association of heaven and the storage of our most precious data in the digital cloud is an enticing prospect. Perhaps it is easier for us to elevate these new tools to the position of a deity in the clouds rather than attempt to comprehend the complexity of their construction as well as their place in the culture.

In *Blue Monday* (2007), authors Robert Sumrell and Kazys Varnelis begin the book by tracing the major internet cables that travel over land and sea in order to arrive at 1 Wilshire Avenue, a fairly banal looking modernist tow-

er in downtown Los Angeles that, because of its physical geography, ends up being the perfect nexus point for the major network fiber optic cables that represent the physical manifestation of the Internet. Sumrell and Varnelis call this building the Temple of Ether.(8) Similar to the use of “connection” and “cloud,” Ether has many definitions, and has come to represent the mysterious and hypothetical. In a literary context its definition is the clear sky; the upper regions of air above the clouds. While in the realm of theoretical physics and philosophy, Ether was meant to have filled the whole universe. Originally proposed by the greek philosopher Aristotle, it was the hypothetical substance through which electromagnetic waves could travel. Most recently, it is the namesake of the cryptocurrency Ethereum. By abstracting the form of the Internet both in the language we associate with it, we overlook its aesthetically banal infrastructure. The language constructed around the data centre has caused it to hide in plain sight.

At four in the morning, where does the Internet sleep?

At first glance, the locations of Toronto’s data centres might seem like outliers. Typically, because of the cost of real estate in cities, the proximity to industrial areas, and privacy concerns, data centres are built either in suburbs or rural areas. However; in many Canadian metropolises you will find data centres located within the city centre. Because of the sheer size of Canada, it is difficult to install arms of the fibre optic network that reach the more remote parts of the country, as a result data centres tend to be located in urban centres where access to the network is readily available.(9)

In Toronto specifically, the data centres are all situated next to the existing rail corridor (Figure 3.), which carries the major network cables coming from Detroit, MI, into Windsor, ON, and along the shore of Lake Ontario. Toronto’s three main Temples of Ether are all located within a 5 km radius of each other. After my initial run in with Toronto’s newest data centre at 45 Parliament St. (Figure 4) I would come to find out that it was code named TR2 and was one of two Equinix Data Centres in Canada. TR2 provides services like colocation, switching, and most notably cloud storage. The Toronto-based WZMH Architects designed and completed the build-

ing in 2015 at an investment of over \$100 million CAD from Equinix. Unique among Toronto’s data centres; TR2 is not attempting to disguise itself as anything but its intended function. As a building almost entirely devoted to server storage, WZMH decided to forgo windows on 3 of the 4 facades and instead opted to “clad them entirely in a combination of smooth and ribbed porcelain panels. The patterned façades are designed to pay homage to computer “punch card” technology, an early form of data processing.”(10)

Heading west from TR2 you will find The Toronto Internet Exchange (TORIX), Toronto’s first data centre and largest financial ecosystem in Canada.(11) Located at 151 Front St. West (Figure 5.) this 8 storey concrete and steel

building was created “from a need in the technical community to keep local data traffic local. When Canadian traffic flowed through the United States, the latency and costs associated with this model needed improvement.”(12) Interestingly, because of TORIX’s proximity to Lake Ontario, it incorporates lake water as a method for sustainable cooling. Located further west again, the Cologix’s TOR2 (Figure 6.) is Toronto’s third and final data centre. TOR2 can be found in a inconspicuous 6 storey building at 905 King St. West. Acting largely as a storage expansion solution for Cologix’s presence at TORIX, TOR2 is the host location to much of Toronto’s cloud storage, serving previously mentioned clients such as Amazon Web Services and Microsoft Azure. In a city with a population of 2.8 million, these buildings go largely unnoticed, or unacknowledged, despite their central location. However, through

the experience of urban exploration, one can discover a compelling paradox at the core of these structures. The juxtaposition between the intentional banality of the architecture and the cultural significance of the data the architecture stores points to the Internet’s myth of invisibility.



Cologix Data Centre (TOR2), 905 King St W #500, Toronto, ON M6K 3G9

End Notes:

1. For an investigation on the intersection of the digital cloud with the great outdoors please refer to: <http://www.thesitemagazine.com/read/the-digital-cloud>
2. Kragland, John. "John Cage: Musical McLuhan." *The Globe and Mail* (Toronto), May 13, 1966.
3. *E-flux Journal: The Internet Does Not Exist*. Berlin: Sternberg Press, 2015
4. Cotter, Sam. *Parallel Tracks*. Toronto: University of Toronto, 2018. P 22.
5. "Double Negative." The Museum of Contemporary Art, Los Angeles. Accessed June 01, 2018. <https://www.moca.org/visit/double-negative>.
6. CERN. Directed by Nikolaus Geyrhalter. Performed by Luca Bottura. Austria: *Under The Milky Way*, 2016. DVD.
7. "The Higgs Boson | CERN Accelerating Science." *Superconductivity | CERN*. Accessed October 01, 2018. <https://home.cern/topics/higgs-boson>.
8. Sumrell, Robert, and Kazys Varnelis. *Blue Monday: Stories of Absurd Realities and Natural Philosophies*. Barcelona: Actar, 2007.
9. "Cloud Computing Sub-Sector Study: A Situational Analysis." Information and Communications Technology Council. 2013. Accessed June 29, 2018. https://www.ictc-ctic.ca/wp-content/uploads/2013/05/ICTC_Cloud_Computing_Situational_Analysis_EN.pdf.
10. "45 Parliament Street Data Centre." WZMH Architects. Accessed June 01, 2018. <http://www.wzmh.com/projects/43a-parliament-street?cat=high-technology>.
11. "TR1." Equinix. Accessed June 27, 2018. <https://www.equinix.com/locations/canada-colocation/toronto-data-center/tr1/>.
12. "Who Is TorIX?" Toronto Internet Exchange TorIX. Accessed June 01, 2018. <https://www.torix.ca/who-we-are/>.