

THE LONDON STOCK EXCHANGE

Sometimes figuring out who runs a data centre is easy. There might be a sign on the door or the address listed on the owner's website. Other data centres are a bit less public about their physical location, but aren't entirely secret. For example, London Stock Exchange's data centre does not have its address online, but there is a Foursquare venue with plenty of checkins.

Atop Broadgate Tower, there are a number of microwave towers used by finance companies to get data from London Stock Exchange to the NYSE Euronext exchange in Basildon or Equinix in Slough. The information travels faster by microwave through the air than by light in glass fibre. London Stock Exchange even offers its own microwave link to Slough with "data transmission 30%–40% quicker than fibre routes" that "deviates only 3% from a straight line between the two locations".

FIBRE OPTIC CABLE

MICROWAVE SIGNALS

IOMART DATA CENTRE

CITY LIFELINE DATA CENTRE

BROADGATE TOWER

TELEHOUSE METRO

ANTENNA

LONDON STOCK EXCHANGE

RING OF STEEL

DOCKLANDS

The internet is a network of networks. For internet traffic to get from one network to another, they have to interconnect somewhere. In the UK, that somewhere is frequently Docklands. Originally the docks of the East India Company, it's now home to a number of internet exchanges and data centres.

The area's life as a hub of internet connectivity began in the 1990s, when it attracted corporations because of its status as an "enterprise zone" offering tax incentives to build there. It also attracted banks, who built backup trading floors in the area in response to IRA bombings.

Most of the Docklands exchanges lack windows. Unlike office workers, servers don't need daylight and a nice view. Instead, temperature control and efficient cooling is prioritised. Telehouse's newer buildings feature architectural touches that evoke digital systems--the under construction Telehouse Far East has a facade of the least functional-looking circuit board ever.

POSSIBLE SWITCHING STATION

TELEHOUSE NORTH

TELEHOUSE FAR EAST

UTILITY CABINET

GLOBAL SWITCH

TELEHOUSE EAST

ACCESS COVERS

TELEHOUSE WEST

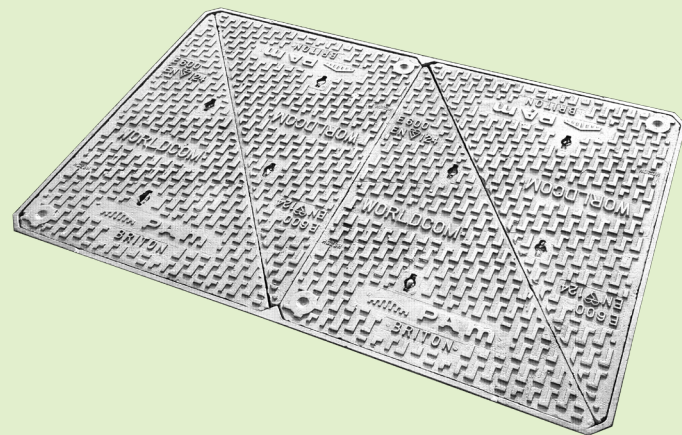
NETWORKS OF LONDON

How do you see the internet?

For a lot of people, the answer is that

they see screens--browsers, software, laptops, phones. Maybe they see some hardware in the form of a wifi router. The internet is a network, but individual users mostly just get a glimpse of it, usually by peering into black mirrors. The most popular stock photography of internet infrastructure--data centres full of servers and cables--tends to make the physical internet feel clinical, distant, opaque. But pieces of the network--cables, antennae, interchanges--are all around us, especially in cities. These pieces are at times hard, but not impossible, to see--if you know what you're looking for and how to look. Once you start looking, it's hard to stop seeing these fragmented signs of the internet everywhere, all the time.

We took a week to explore and document a few spots in London, including outside of Somerset House, as starting points for exploration. This short guide features some of the things that you might want to look for. While this is by no means an exhaustive inventory of the network infrastructure around London, it is a starting point for exploring some of that infrastructure. Have fun!



ACCESS COVERS

Access covers are one point of entry into the city's underground world, and the names on these covers indicate what part of that world they connect to. Sometimes the cover will say something generic, like CATV (Cable television, sometimes mistaken as a label for Category 5 cable), and sometimes it will have the name of the company that owns them, like BT or Cable & Wireless. Many companies listed on telecom access covers no longer exist, like Mercury, or have long since changed name, like Post Office Telegraphs. In this way, reading telecom access covers becomes a form of corporate archaeology.



SPRAYPAINT MARKINGS

Whenever a company plans to do street excavation, utility companies mark out the location of their underground cables so that the excavator knows to watch out for them. Green paint indicates communications cables. Dots indicate the number of cables or ducts. Sometimes the type of cable or owner is also noted.

This map marks fibre routes obtained from Zayo Communications' public network map. While far from comprehensive, it's a useful starting point for seeking out some fibre markings.



UTILITY CABINETS

You'll find these cabinets on the pavement, usually painted green. The outside doesn't give much away about the contents, so you'll have to look for what access covers and street furniture are near it. If there's a BT access cover, then it's likely where phone lines from nearby homes and offices are terminated. Their signals are carried from here back to a nearby exchange building and onwards to their destination. If a line is being installed or fixed, you might see the tangle of wires inside as an engineer works.



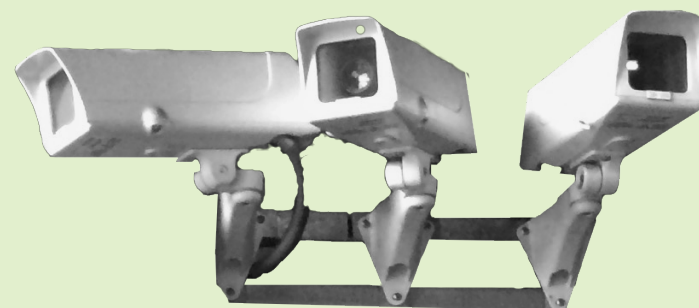
ANTENNAE

Not all network traffic travels by buried cable. Look up and you'll likely see various types of antenna. Cell towers carry mobile phone calls and wireless data for browsing the web. Microwave dishes carry point-to-point signals in straight lines, often used for private networks in finance or government communications. Satellite dishes receive broadcasts or send data. It's not always clear what an antenna is used for just seeing it from a distance, but they are definitely part of the network in some form.



ANPR CAMERAS

ANPR (Automatic Number Plate Recognition) cameras read the number plates of passing cars and record them or compare them with a database. They look much like CCTV cameras. In London they are found on the edges of the Congestion Zone and in car parks for charging drivers and issuing tickets, on enforcement vans checking vehicle tax, insurance and parking permits, and on police cars and Ring of Steel checkpoints. Reads by police cameras are sent to the National ANPR Data Centre where they are kept for up to two years.



CCTV CAMERAS

While technically not "the internet", CCTV and ANPR are crucial networked objects of London. The perimeter of the City of London is home to the Ring of Steel, a network of CCTV cameras and ANPR cameras introduced in the 1990s following IRA bombings. According to a 2011 freedom of information request, the total number of local government operated CCTV cameras in the City of London was 649. This is a small fraction of the number of government cameras throughout London. If you are in need of a deeply weird selfie, it is possible to obtain footage of yourself from UK government agencies.



INTERNET EXCHANGES

The internet is a network of networks. For traffic to get from one network to another, they have to interconnect somewhere. An exchange building is a building full of the machinery to do this. Identifying these buildings when looking on the street is not always easy, but one telltale sign is to look for signs of ventilation and cooling systems. Alternatively, look for windows, or more accurately, the absence of them.

ABOUT THIS GUIDE

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For more information on infrastructure field guides, please visit seeingnetworks.in/bigbangdata.