HOW TO DEPLOY YOUR INFRASTRUCTURE IN JUST 13.8 BILLION YEARS
PEOPLE WORKING IN OPEN TELECOMMUNICATIONS MANHOLES

Most of the time, construction or street excavation work is something that people in most cities try to walk around rather than stop to look at. Good indicators of whether the work happening at a particular site is telecommunications-related are the types of vehicles surrounding the site and the kinds of equipment and cables visible. It’s also helpful to look for certain company names. (Verizon, Empire City Subway, and Hugh O’Kane Company are among the companies most commonly seen working in Manhattan ducts.)

Sometimes it’s possible to take a peek inside an open manhole or handhole to see what’s going on under the street. In open manholes, you’ll often see large cylinders into which a whole bunch of cables feed in and maybe only one cable feeds out. These cylinders are fiber splice enclosures, where different fiber optic cables get spliced into another cable. In handholes like the one illustrated here, you’ll sometimes see devices that connect and convert signal from coaxial cable into optical cable and feed fiber coaxial from buildings onto a fiber network.

MOBILE LICENSE PLATE READERS

There are more than 4,000 police officers in New York City and more than 8,000 police vehicles. While police cars were networked to each other long before the Internet thanks to radio communications, in the last few years the NYPD has pursued increasingly impressive networked tools to help cops do their jobs.

Starting around 2006, NYPD began equipping some NYPD cars with Automated License Plate Readers (ALPRs), devices that photograph and store records of license plates of vehicles on the street. The ALPRs on NYPD vehicles are manufactured by ELSAG North America, a subsidiary of Italian company Finmeccanica. Its Mobile Plate Hunter can capture up to 1,000 license plate reads per minute. The camera takes a picture of a passing vehicle’s plate and then processes that image into raw letters and numbers that find into a central database maintained by the NYPD. Those plate records, which include the location, date, and time that the plate was captured, are kept in NYPD databases for five years.

While law enforcement tends to point to the usefulness of ALPRs in tracking down stolen vehicles, the NYPD’s first foray into the technology began as part of what was then called the Lower Manhattan Security Initiative, a post-9/11 project that initially focused on security for the Financial District and later expanded to include Midtown and then the rest of the city. In other cities throughout the United States, state, and municipal police departments have also acquired ALPRs in the service of counterterrorism or security, as federal agencies like the Department of Homeland Security, the Drug Enforcement Agency, and Customs and Border Protection offer grants to help police departments purchase this type of technology. The majority of vehicles I’ve seen with ALPRs are marked as CTB—Counterterrorism Bureau.

ALPRs aren’t only vehicle-mounted; the devices are also placed at street intersections and bridge and tunnel entrances.
Networks Land

Tools and activities for understanding the internet from the ground up.
Where the Cloud Rises From the Sea

The cable that connects the U.S. to the global Internet runs right next to a small coastal town in California. Why do so few of its residents have broadband?

Imagine you’re the kind of person who drives out to see submarine-cable landing sites for fun. This should not require too much imagination. We’re talking about places in the world where the Internet rises out of the ocean. Of course you’re the kind of person who wants to see that.

Now imagine you’re in San Francisco. You have two options for landing sites to visit for a day trip. You can drive south to San Luis Obispo, where there are a few cable landings in close proximity to each other; or north, to Manchester, where there’s only one landing for the Japan-U.S. Cable Network. Fate sends you to Manchester. Fate is a wicked mistress, my friend.

The Environmental Toll of a Netflix Binge

The data centers that support the Internet use a huge amount of energy.

My favorite part of highways in the American midwest are the wind turbines. Not so much the massive wind turbines on the horizon, begging for a contemporary Don Quixote to come at them, but the bits and pieces of wind turbines—single fan blades and bits of foundation—that pass by on long-haul trucks. They’re like an exploded diagram on wheels, a useful reminder of the sheer scale and complexity involved in building energy systems.

Data-center operations managers love to talk about energy systems—or, more specifically, efficiency in their use of energy systems. The fact that companies increasingly foreground this sustainability information when engaging with journalists demonstrates a growing public interest in The Cloud’s environmental impact.
HOW TO DEPLOY YOUR INFRASTRUCTURE IN JUST 13.8 BILLION YEARS
CARL KNEW!!
The chemical elements and their periodic relationships
(circa 1975)
STEP ONE TO COMPUTER: MAKE A UNIVERSE
STEP TWO TO COMPUTER: VARIOUS EXPLODING STARS
STEP THREE TO COMPUTER: PLATE TECTONICS BABY
STEP FOUR TO COMPUTER: IT’S ALIVE!!!
STEP FIVE TO COMPUTER: CIVILIZATIONS I GUESS
A FEW HUMAN THINGS THAT HAPPEN BEFORE COMPUTER:

- Tools
- Language (Spoken)
- Maths
- Pyramids somehow
- A Magna Carta
- Language (Written)
- Organized religion(s)
- The Protestant Reformation
- The printing press
- The transatlantic slave trade
- Railroads
- Petroleum production
- Imperialism
- Capitalism
- Communism
- Confucianism
- A couple of world wars
- Domesticated animals
- Agriculture
- Libraries
- Class stratification
- The metric system
- Time zones
- Aviation
- Guns
- A distinction between alchemy and chemistry
- The French Revolution
- The concept of “the patriarchy”
- The Silk Road (the first one)
- Motion pictures
- Opium Wars
- Stock markets
- The Bureau of Reclamation
- The concept of “robots” (TY Josef Čapek)
- Lots of genocide
- The Enlightenment I guess
- Marcel Duchamp
- Universal suffrage
- A Bronze Age
- Music (just like, as a thing)
- Islam
- Dentistry
- The Hippocratic oath
- Boats
- Principles of navigation
- Astronomy
- Hinduism
- Oligarchies
- Wheels, motherfucker!!
- Sappho
- Supply chains (but we didn’t really call them that yet exactly)
- Dancing
- Concepts of an afterlife
- Nuclear weapons
- Heliocentrism
- The Aztecs
- Figuring out how to make fire
- Weaving
- The Bauhaus
- Psychology
- Pollution
- Cave paintings of Lascaux
- Witchcraft
- Fused quartz glassware
- Mormons
OK NOW WE MIGHT BE READY TO COMPUTER!!
NOTHING WORKS LIKE THIS

THE INTERNET AS THE MOST AMBITIOUS TERRAFORMING PROJECT OF CIVILIZATION
BASICALLY EVERY BANK STILL RUNNING COBOL RIGHT NOW IS KRANG
ACTUALLY, MAYBE EVERYTHING IS KRANG
TEN THOUSAND YEARS OF TECHNICAL DEBT (PROBABLY MORE TBH)
This place is not a place of honor.

No highly esteemed deed is commemorated here.

Nothing valued is here.

This place is a message and part of a system of messages.

Pay attention to it!

Sending this message was important to us.

We considered ourselves to be a powerful culture.
Point Scenarios of Possible Future Societies
(Adapted from Hora et al., 1991).

A feminist world, 2091

Women dominate society partially through selection of girl babies. Twentieth century science is discredited as male arrogance. Warnings about repository are dismissed as another example of muddled masculine thinking.

Mysticism and religion, 1981

A religious cult searches emerges rejecting existing scientific consensus and realities. settling in New Mexico, they searched for deeper meaning by digging up the WIPP site.

Buried treasure, 2091

New Mexico secedes from the US and is annexed by Mexico. Knowledge about the WIPP site is lost except for some rumors that something valuable is buried there. Treasure hunters are happy to find “warning signs” and begin to dig.

WIPP as the Nation’s nuclear waste site, 2091

WIPP is expanded to receive all kinds of radioactive wastes and other and it is enlarged to many times its planned capacity. Later some of the wastes are recovered for processing or improved storage leading to releases of radionuclides.

A Houston to Los Angeles Tunnel, 2991

A high speed transportation tunnel is dug between Houston and Los Angeles with stops near Carlsbad and Phoenix. The tunnel is 2000 feet underground and passes close by the WIPP site. Construction and vibration disrupt the repository.

Global Illiteracy, 2991

A declining US is replaced by a new State of Eastlandia, which establishes prison mines in New Mexico. Illiterate miners are incapable of reading the messages warning of the danger of the site.

Virus Impairs computerized people, 11991

Due to a computer virus, robots disregard commands and begin to dig compulsively in the area of New Mexico, penetrating the WIPP site.

Human warriors return from space, 1191

A battleship returning from a mission lost control upon re-entering the earth environment. Attempting to reduce speed the ship fired laser into the ground near the WIPP site. The effect of lasers and the crash impact penetrated the site.
WHAT TIMESCALE ARE YOU WORKING ON
WHAT’S YOUR TEN THOUSAND YEAR MESSAGE TO THE FUTURE
THANK YOU