Network Geography 101

BIG CONCEPTS

- "the stack"
 - simplified stack:
 - APPS
 - protocols/naming
 - networks
 - physical
- the Internet is real/physical
- shape/topology matters
- who owns this stuff?
- who makes the rules?
- material/environment/geography matters
 - urban → rural (dark fibre)
 - choosing landing sites (ocean geography)
- many different scales

MODULES

- Introduction narrative
- graphic identifier
- Tool kit
 - explanatory / passive
 - exploratory
 - hardware
 - software
- Activity plans (using the tools)
- Further research links

PROTOTYPE MODULE

The Physical Internet Workshop - Point Arena

Three consecutive day workshop, 2 hours each day

DAY 1: Field Expedition

Introduction

(text) hello, welcome! what this workshop is about.

Questions

- \sim What is the internet?
- → How do you use the internet?
- → What kind of internet do you have?

→ Activity : → DRAW THE INTERNET (20-30 minutes)

In groups of 3-5, draw the Internet. This opening exercise is free-form: write or draw anything to best communicate what you think the Internet looks like. (10-15 minutes)

Materials
=====
Roll Paper
Colored pens + pencils

bulletin or display board + pins

Each group takes 5 minutes to present their drawings of the internet to the class. Put these drawings on display to refer back over the course of the workshop. (10-15 minutes)

The Stack - The internet is physical

(text)

what is infrastructure? other general questions

- slide show with some images

Where to look

=======

Ask students where they should look? Some things will be invisible!

Introduce their tools (their own observations - camera and logbook; the pointer thing; their devices)

okay let's go see the internet!

→ Activity : **•• |** SEE THE INTERNET (60-80 minutes)

Let's get outside and observe the landscape around us, documenting objects and environments that make up the internet. We will produce a zine from we see and learn in the field on day 3.

SIGN YOUR WAIVERS

Toolkit

=====

log worksheets, pencil/pens + map? take notes on your map? Pointer / identifier hoop? students smart phones digital camera

Sites + locations

========

- Manchester Cable Landing and switching station
- Microwave towers
- Cable markings
- Utility locating
- Flags
- Wifi sniffing (use your smart phones + devices, screenshots?)
- Satellite receivers?
- routers at home

Return to class.

Discussion? How was it? What did you see? Email your photos to us.

→ Take Home Activity: How do you get internet at home?

Document objects and environments you think are involved in accessing the internet at home. Take photos and field notes to bring to class to share.

DAY 2: Network Modeling

Introduction

(text)

On the most basic layer of the stack, the internet is about objects and their relationship to each other and their environments.

● ● Å Discussion: WHAT DID YOU SEE?

Let's look at your photos and field notes and identify each element together.

- each student can also talk about their home environments

How do we categorize them? How do you decipher what is part of the internet and what is not?

Questions:

- ✓ Are they wired or wireless? How can you tell?
- → What is it? What are its traits? What is its function?
 - manhole covers
 - street markings
 - antennas
 - cameras
 - towers
 - buildings
 - context/environment
 - things you cannot see



Point Arena's Internet Infrastructure Model

To understand the local infrastructure landscape here in Point Arena, let's model the relationship between the objects and learn how they affect each other, how they are affected by the natural + human made landscape, and the role each component plays in the internet at large.

Materials

=====

Color printer

White printer paper Scissors, X-acto/craft knife. Glue cardstock or cardboard

Network Blocks Kit

=========

- 4 big wooden blocks
- 9 small wooden blocks
- 4 long orange tubing
- 9 short orange tubing wireless signal representation...plastic transparency? more stuff..
- + instructions on how to make yourself + simplified versions

Instructions

=======

Print 2 copies of each image, 2 to 3" wide.

Cut cardboard into matching size. have students glue printed images to cardstock. etc..

Connect stuff

DAY 3: Zine + Network Modeling continued

Introduction

(text)

zine!

could also just jump straight into model as basis for discussion + further exploration.

Questions

- □ Big picture?
- √ local + specific to PA?



⊕ ≠ ACTIVITY: NETWORK BLOCKS

Model Review

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Ask students to name out and talk about different components and their relationships.

In Depth

=====

Get in depth about a specific feature of the physical internet (wifi?)

- WIFI sniffing terminal command lines
- i.e. we traceroute some things on different devices--wireless in the classroom, wifi from tethered phones on different carriers--to see if/how routing works differently with different networks?
 - WISPs
 - what are they? + how do they work?
 - compare and contrast to wired models (why dark fibre?)
 - FURTHER REACH

Imagine Scenarios

=========

Ask students to suggest things they do on a daily basis. Map out how information moves thru the physical network.

- liking an instagram photo
- earthquake strikes!
- my youtube video is slow.
- google something

What's missing?

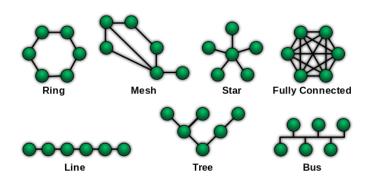
========

Instigate questions. draw missing things or print pictures from the internet (like where is the info stored?)

Modeling other shapes

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What are the possible shapes of the internet?



What shape is Point Arena's infrastructure?

imaginary infrastructures / play

- why doesn't it exist like this in the real world?
- play out imaginary scenarios in imaginary infrastructures

Review + Summary + feedback!

circle back to original drawings of the internet. ZINES! check out your zines. what did you learn? reference back to the stack - what are the other layers?

MORE RESOURCES

=========

sites

links

Things to prepare

Print Matter ======= workshop waiver log worksheets / field note map? zine /design references

hardware tools ======== network blocks pointer/identifier hoop

software tools ======= bins? terminal command line tricks - trace-routing

- whois

Bring/ things they have at tech center?

field guide roll paper pens, pencils zine supplies printer cartridge paper cutter scissors books! books to browse or reference