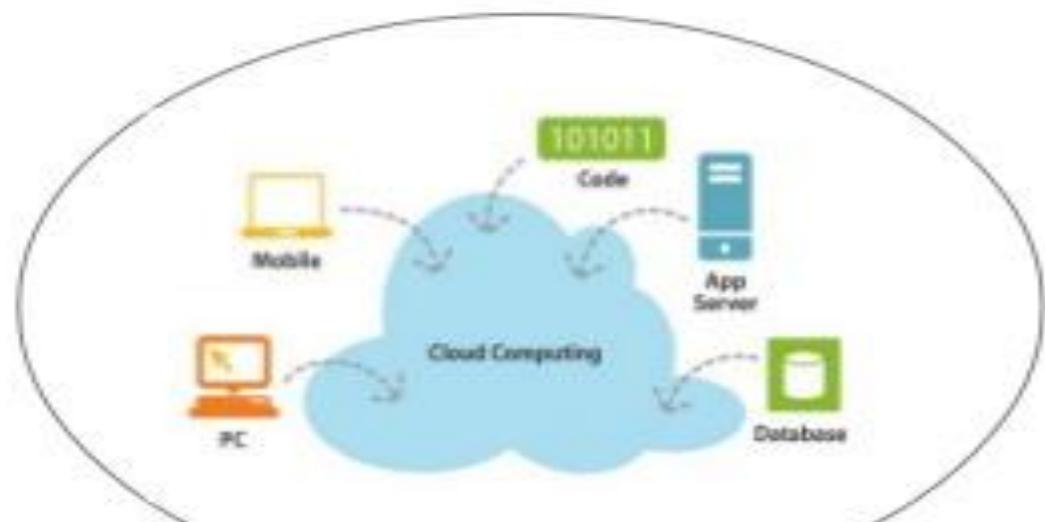


# Today

- 1) Re-cap
- 2) Three technologies: Cloud, Internet of Things (IoT), Big Data Analytics
- 3) Case study: Amazon
- 4) The Big Tech 5
- 5) Essay 1

# Cloud, Data, Things



**Cloud Computing**



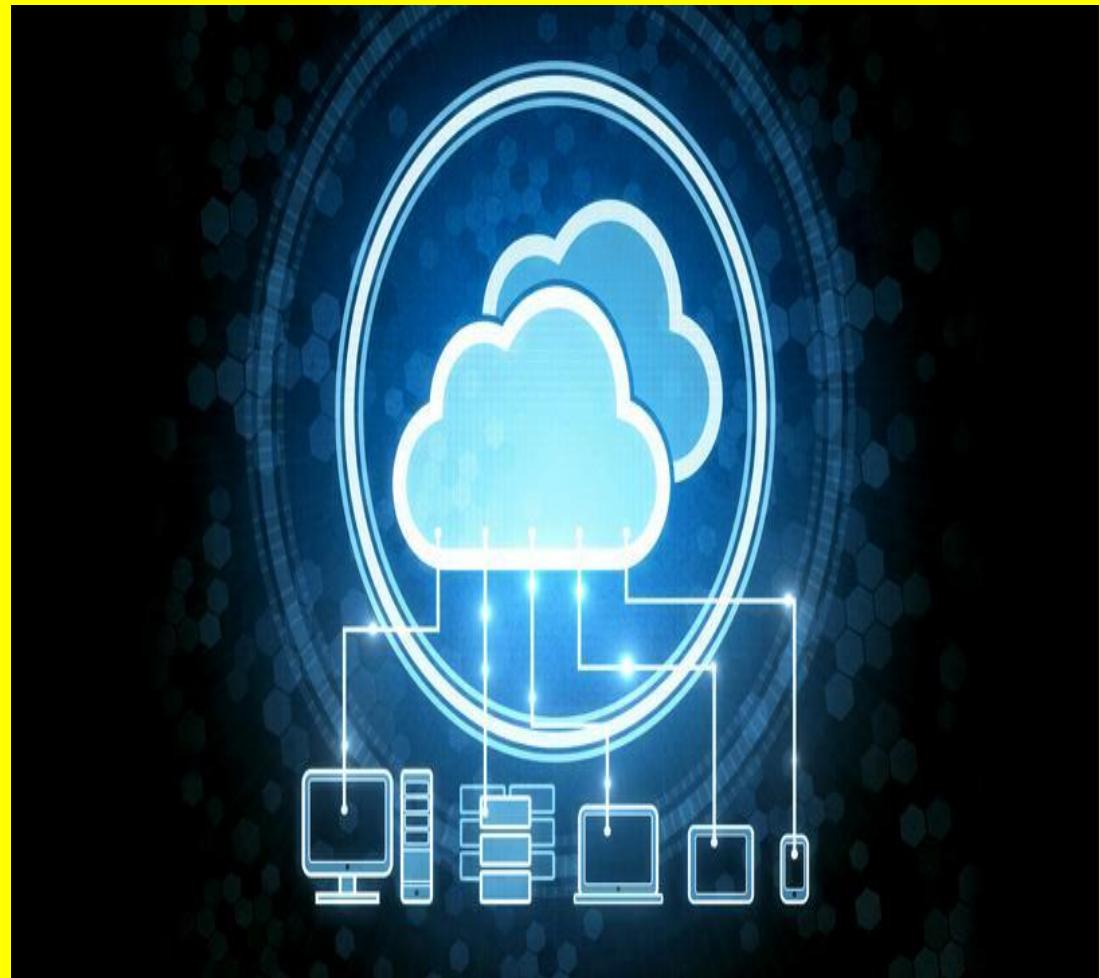
**Internet of Things**



**Big Data**

# Cloud Computing

- Information you access through your smart phone or computer
- E.g, Email, programs, apps
- Not on your device
- But stored and processed somewhere else
- In the cloud



# What Does the Cloud Look Like?

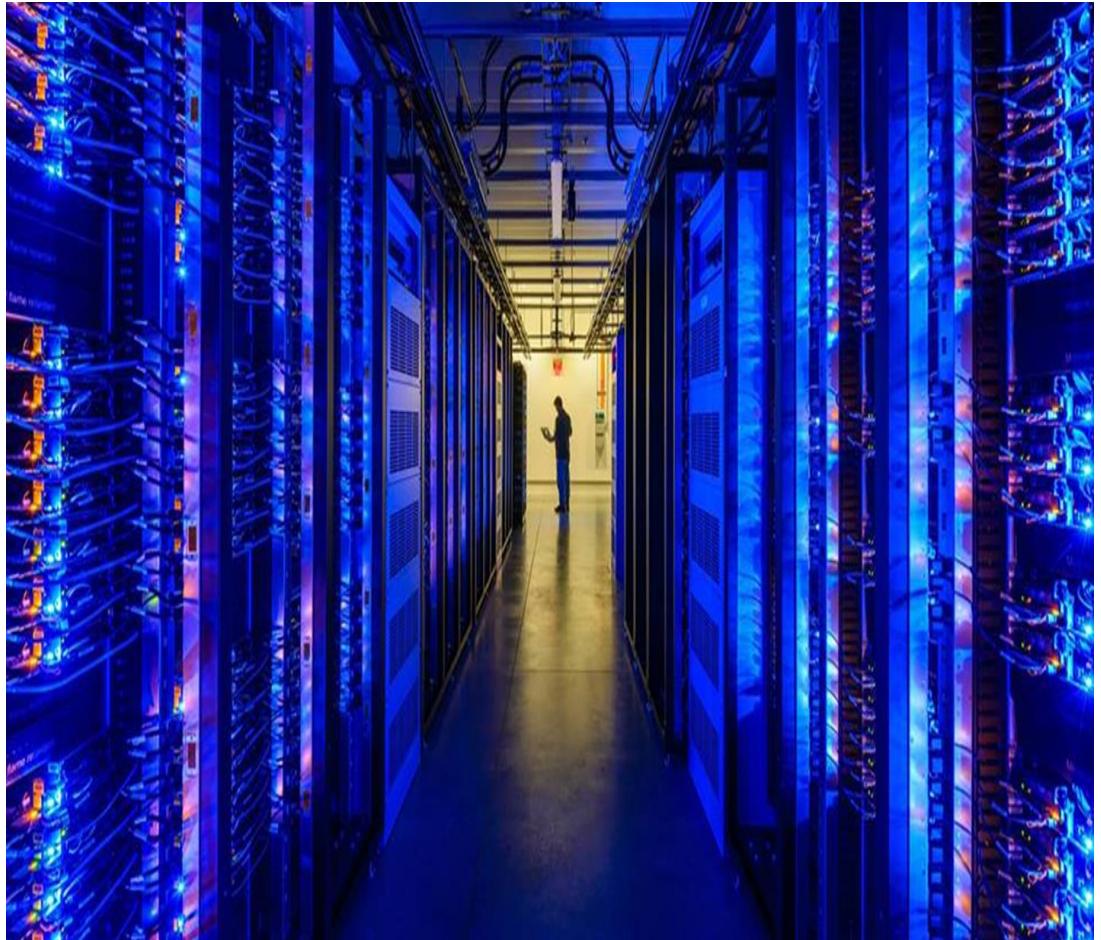






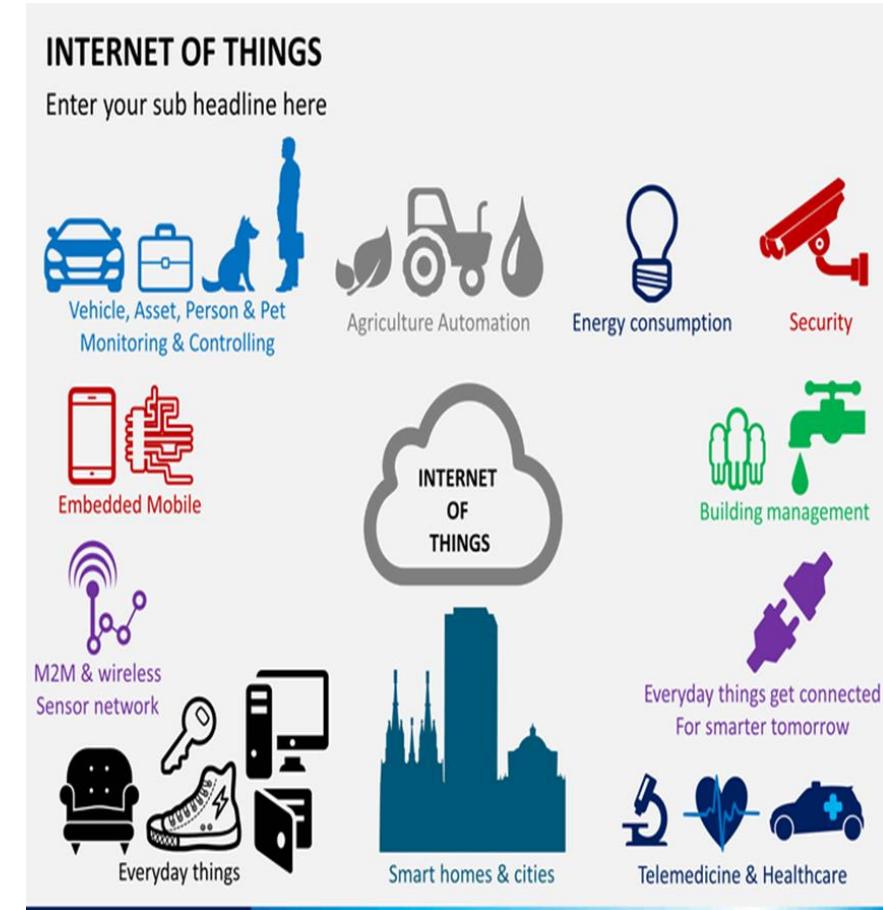
# Data Centres

- Huge info storage centres
- Tens of thousands of servers
- Remote, cool, stable locations
- Rent out storage and processing facilities
- More data factory than data locker



# Internet of Things

- Digital sensors
- Embedded in
- Industrial machinery
- Robots, Drones
- Watches
- Refrigerators
- Apps e.g. fit bit
- All networked together



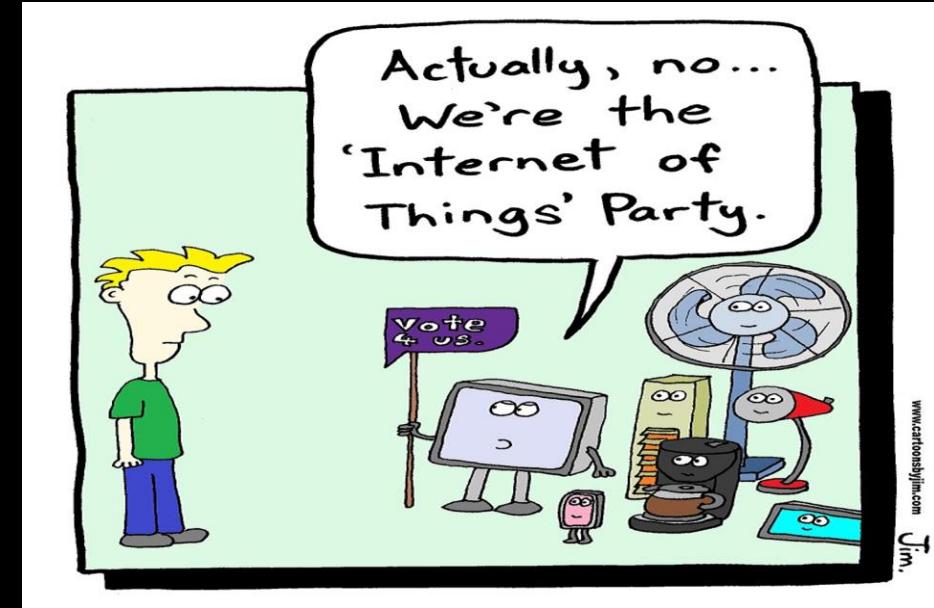
# Not just Factories

- Traffic control for self driving cars
- Smart homes and smart cities
- Microchipped bodies
- A global grid of objects all transmitting and receiving data



# IoT: How Human is the Internet?

- More traffic generated by bots than humans (2017 Internet Trends Report)
- In 2020 there will be 26 times more connected things than people (IDC)
- In 5 years, smartphones, desktops and tablets outnumbered by computers in “smart” homes, offices, cities, and cars (Cisco)



<https://www.youtube.com/watch?v=YKJFmPWEpmU>  
<https://www.youtube.com/watch?v=AAP4N3KyLmM>

# Big Data

- Big Data = increasing amounts of information available from digital technology, esp.
- Social media and mobile phones
- About events, systems, people
- Becoming available in ever-greater volume, velocity, and variety

What happens  
**online**  
in 60 seconds?  
(2012 - 2014)



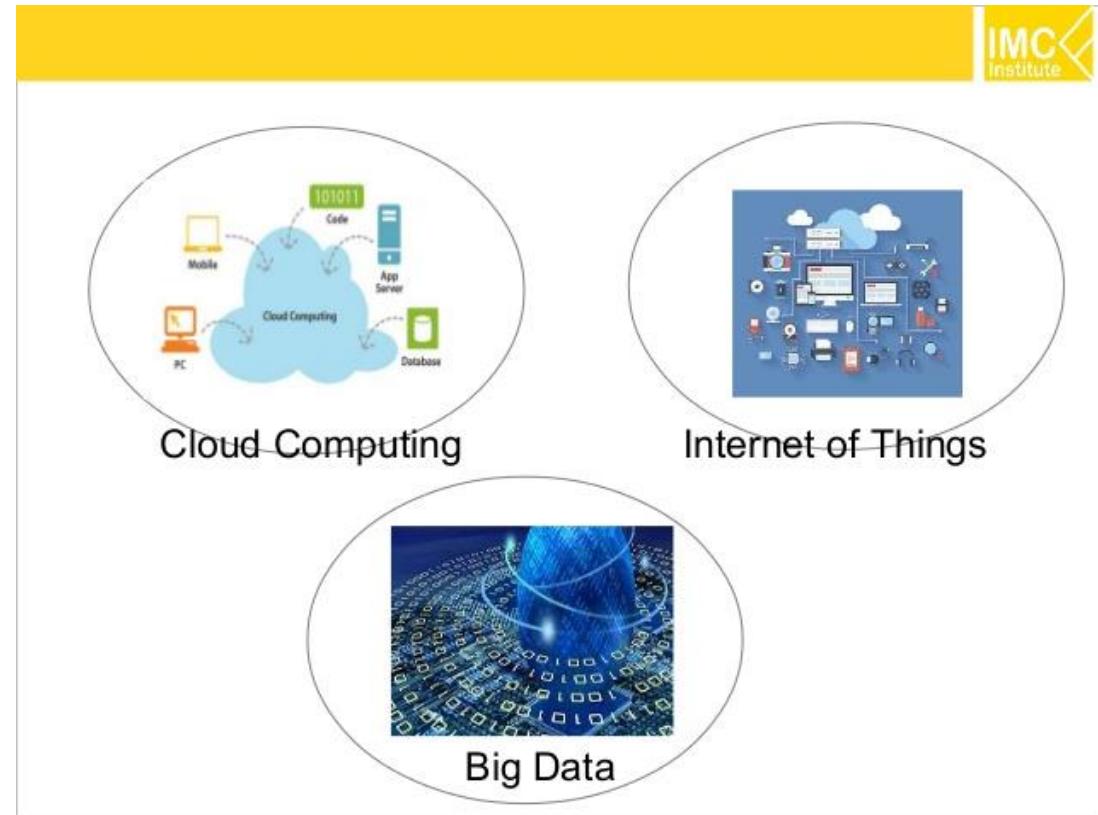
# Big Data & Analytics

- Big Data generated by computers also analyzed by computers
- Application of algorithms to sort, combine and correlate data
- Algorithms – step by step computer instructions
- “Data mining--discovering patterns, trends, preferences
- Yielding predictions about future actions or events—and interventions.



# Convergent Technologies

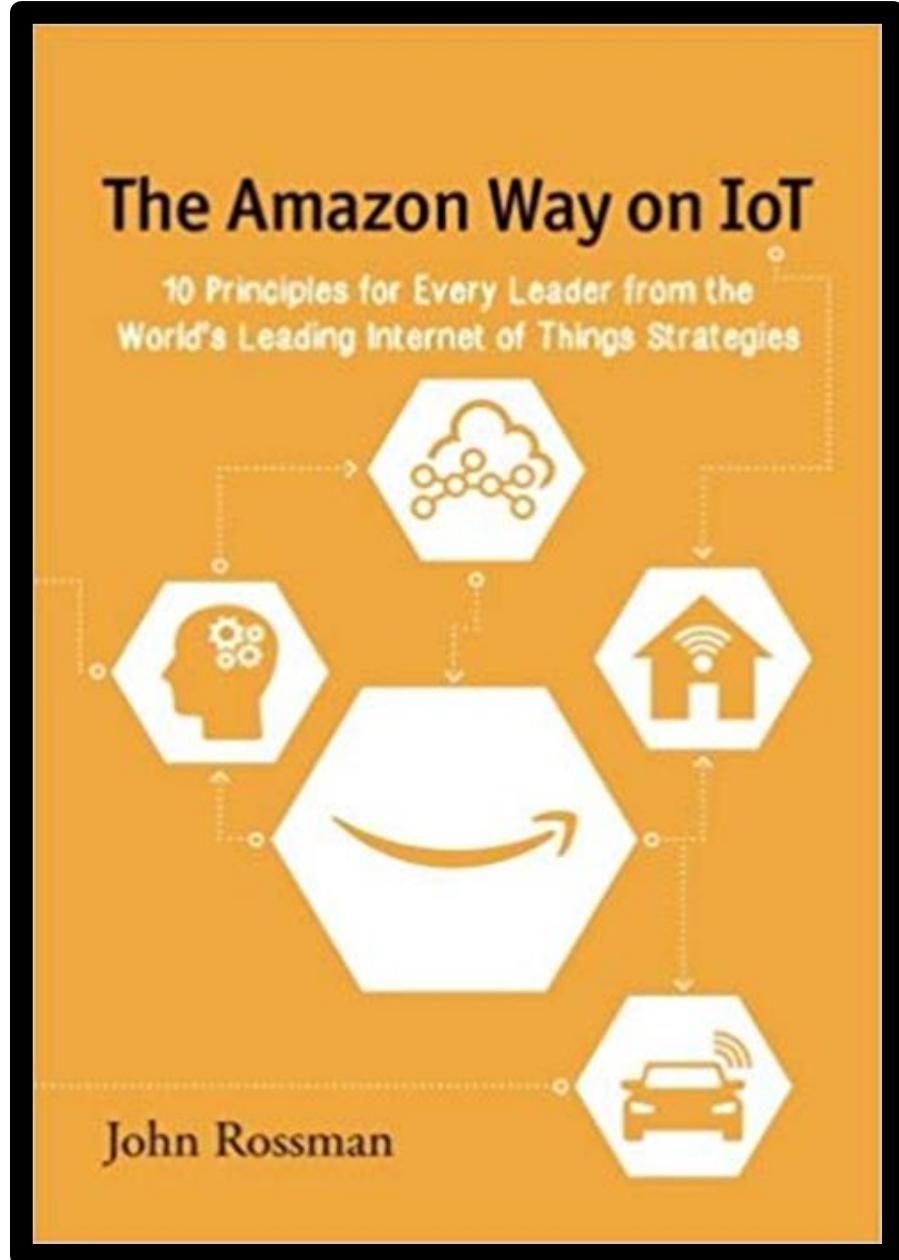
- IoT is a source of
  - Big Data
- All stored and analyzed in the Cloud
  - With decisions taken by corporations, states etc
  - Fed back into IoT



# A Case Study in Corporate Tech: Amazon



- On-line book sales
- Ebooks (Kindle)
- Streaming TV (Amazon Prime)
- Gaming (Twitch)
- General e-retail—electronics to food, drugs, real-estate
- Smart home appliances
- Cloud Computing (Amazon Web Services)
- Transnational Corporation
- World's most valuable company: Amazon's market value is now about \$797 billion.





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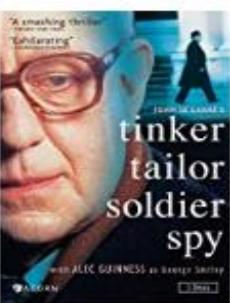
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Revolution  
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THE RISE OF ANTIDEMOCRATIC POLITICS IN THE WEST

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MARLON JAMES  
BLACK LEOPARD RED WOLF

DANIEL MENDELSOHN  
ECSTASY AND TERROR

Whole Foods Market

Handmade Valentine's Day gifts

Women's shoes

Explore our brands

Presto!

# The Warehouse

- Fulfilment Centres
- 2<sup>nd</sup> largest private employer US
- Monitoring
- <https://www.youtube.com/watch?v=Vfi9lsw8WBY> 2:44
- <https://www.youtube.com/watch?v=lrcwh4A7g4g>
- Robots
- <https://www.youtube.com/watch?v=Ox05Bks2Q3s>
- [https://www.youtube.com/watch?v=d7J2\\_vrOra4](https://www.youtube.com/watch?v=d7J2_vrOra4)



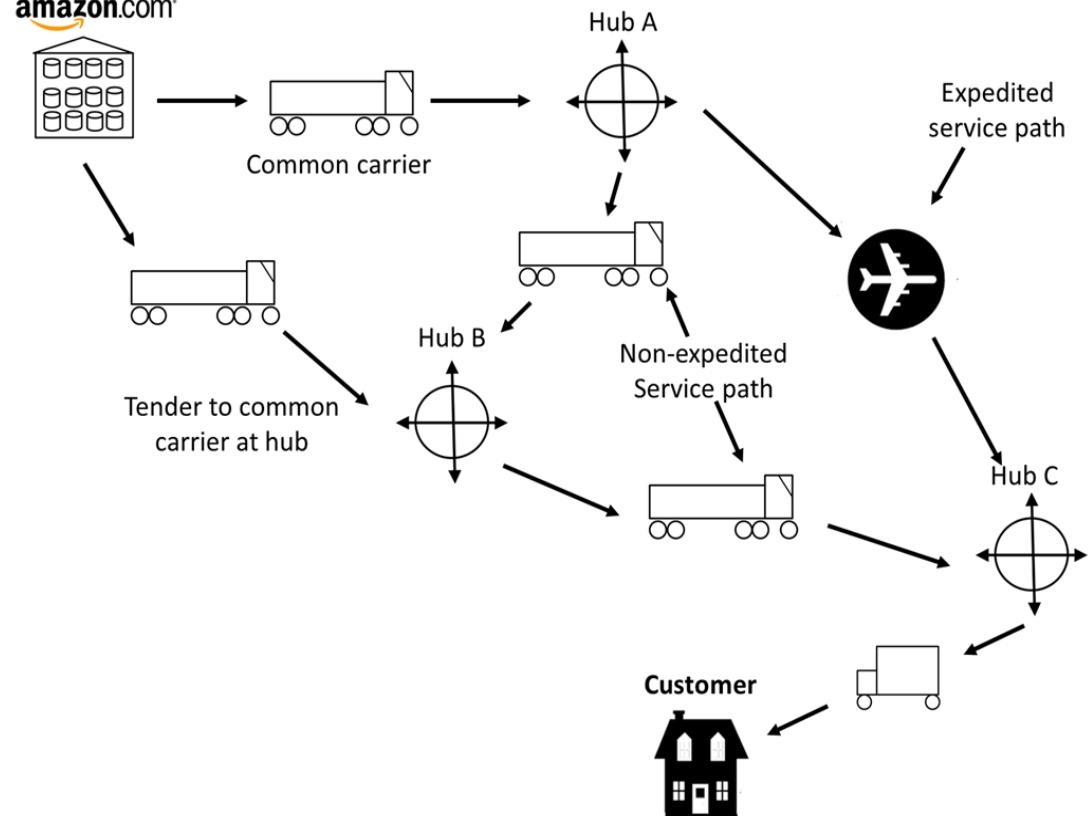
# Prime Delivery



- Trucks
- Planes
- Robots
- <https://tinyurl.com/y6ofmb9q>
- Drones
- <https://tinyurl.com/y3kdy4r5>
- Anticipatory Shipping
- <https://tinyurl.com/y3vcwhcq>
- <https://tinyurl.com/y3eqev49>

# Anticipatory Shipping

- “...a method may include packaging one or more items as a package for eventual shipment to a delivery address, selecting a destination geographical area to which to ship the package, shipping the package to the destination geographical area without completely specifying the delivery address at the time of the shipment, and while the package is in transit, completely specifying the delivery address for the package.”



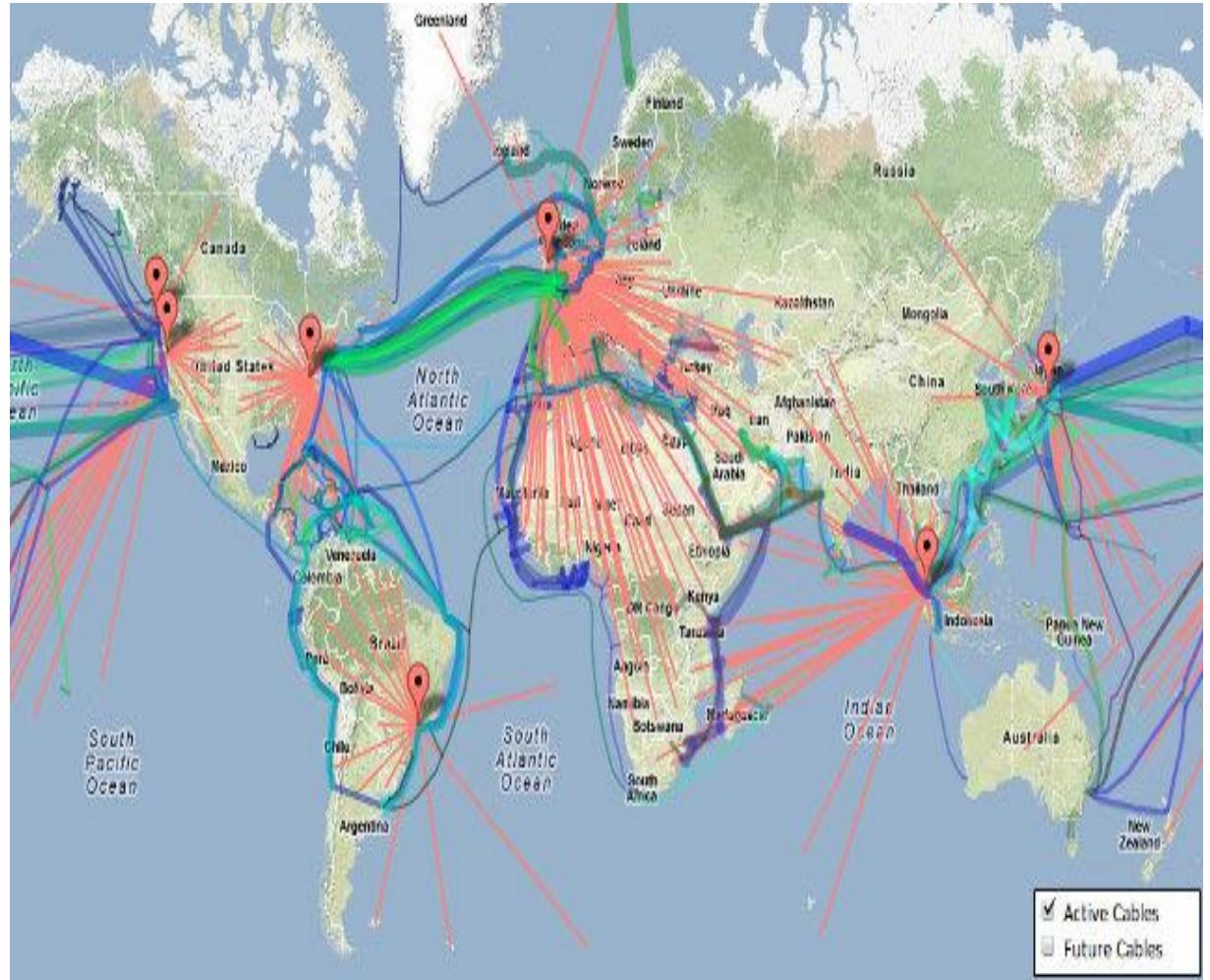
# Amazon's Smart Home

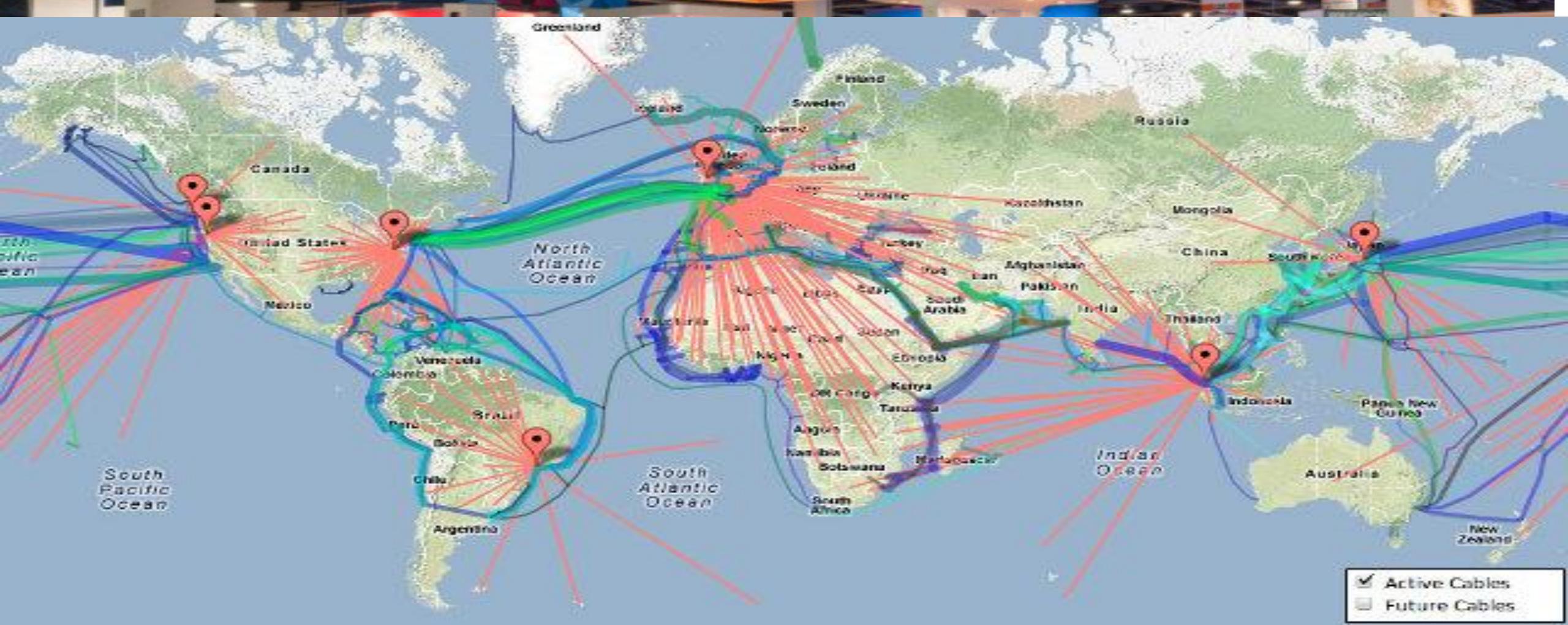
- Dash  
<https://tinyurl.com/y6xhd4m7>
- Echo
- Alexa
- <https://time.com/5568815/amazon-workers-listen-to-alexa/>
- Ring
- <https://tinyurl.com/yyz8apxb>
- <https://tinyurl.com/y4dxepnm>
- The 3:59, Ep. 566
- <https://tinyurl.com/y3ofbrsp>



# Amazon's Cloud

- Amazon Web Services
- <https://tinyurl.com/y26xa63m>
- Data Centres
- Amazon's Network
- Capitalism's Network







A photograph of Jeff Bezos, founder of Amazon, speaking at a podium. He is wearing a dark suit, white shirt, and patterned tie. He is gesturing with his hands while speaking. The background is a blue wall with a grid of small stars.

\$150  
billion

# JEFF BEZOS WORLD'S RICHEST MAN

# The Amazon “Hunger Games”

<https://www.youtube.com/watch?v=N7JQUmtj77I>





WE ARE  
THE 99%

TAX THE 1%



# Big Tech

# Google (Alphabet)

- Search engine
- On-line advertising platform
- On-line video (YouTube)
- Smart phone (Android)
- Gmail
- Google Maps
- Self-driving cars
- Big Data
- Artificial Intelligence



# Apple



- Smart phones
- iPhone
- App store
- iPad, iPod, Apple Watch
- Streaming services; iTunes, Apple Music
- Internet of Things and Cloud for own customer base

# Facebook

- Social media
- “Friendship Network”
- Images: Instagram
- What’s App & Messenger
- News services
- On-line advertising platform
- Big Data : “the social graph”



# Amazon



- On-line book sales
- Ebooks (Kindle)
- General e-retail
- Big Data for recommendations
- Cloud Computing (Amazon Web Services)
- Internet of Things—drones, robots in warehouses

# Microsoft

- Dominates computer operating systems
- Multiple personal and office applications
- Video gaming—X Box
- Owns Skype, LinkedIn, GitHub
- Major AI developer
- Won Contract for Pentagon “JEDI” cloud computing



# The Big Tech 5

## Google-Apple-Facebook-Amazon-Microsoft

- All in the top ten most highly valued companies in the world
- All big in one or more of Cloud Computing, Big Data & Internet of Things
- All have diverse technological interests
- Plus often oligopoly or near monopoly power in one more sector
- All have connections to US govt. & military-industrial complex, and major lobbying power
- All examples of “platform capitalism”

# Essay 1

- Describe one way in which you regularly interact with platform capitalism.
- Make sure you clearly define what platform capitalism is, and how and why the involvement you are describing puts you in relation with it.
- In the interaction you are describing, what role do you play in the commercial logic of the platform?
  - e.g. are you a worker, a customer, a source of data extraction, a target for advertising, some composite of all the above, or something else entirely?
- Define as precisely as you can, and with concrete examples, how and by what means the platform positions you in the role or roles you describe.
- For example, it is not sufficient to just say “when I use platform x, I am under surveillance”—you need to find out, as far as you can, what type of surveillance, by what mechanisms, is in play in the example you use.
- So you need to do research on the practices of the platform you are discussing.
- If there is important information that you need to answer the question but cannot, after serious investigation, find, what does this mean about your relation with platform capitalism?

# Essay 1: continued

- Because the starting point of this assignment is your own experience with platform capitalism, you can write the essay in the first-person.
- But remember this is not just an expression of your feelings and opinions; it requires that you actually research the platform you write about.
- Use at least six and no more than eight reference sources (not including the course texts), of which at least three must be academic (i.e. a scholarly journal or book).
- All the sources listed in your bibliography must be actually used in the essay, with proper citations.
- While you can use short quotations, most of the essay must be in your own words and your own original work.
- Plagiarism or the use of recycled or purchased essays is an academic offence and will result in serious penalties

# Essay 1: continued

- The essay should about 1250 words (plus or minus 250 words: provide a word count), double-spaced, 1" margins.
- Follow the Chicago Manual of Style Author-Date system for citations and general formatting; details are available at [http://www.chicagomanualofstyle.org/tools\\_citationguide.html](http://www.chicagomanualofstyle.org/tools_citationguide.html).
- Include a separate title page with your name, date, course title, tutorial section number, and TA name.
- Talk to your TA about your essay ideas.
- Your instructor is also available to discuss the assignment during office hours, Tuesday 1:30pm-2:30pm, FNB 4045. Last-minute questions usually reflect a too-late start, so I will not answer email questions about the assignment after Feb 9.
- This essay is worth 20% of your course grade: it is due in lecture, Feb 13.
- Late essays are penalized 10% of the full essay mark per day late, and are not accepted more than a week late.
- Extensions are only given under the conditions specified in the “Notes from the Dean’s Office” (see Syllabus).

- This is quite a challenging question for early in the semester. We are not expecting you to be expert political economists yet, just to show that you have thought about what platform capitalism is, and how you are involved in it, done some careful research, and made an intelligent attempt to analyze the interaction you select.