# SUMMARY

## BREAKPOINT

JEFF STIBEL

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# Summary of “Breakpoint” by Jeff Stibel

Written by Alyssa Burnette

Why the internet won’t last forever.

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# Introduction

Have you ever worried that you're going to lose your job to a machine? If you have, you're not alone; many of us recognize the inherent potential of artificial intelligence and the possibility that it can be used to create the "perfect employee." A machine, after all, never needs bathroom breaks or maternity leave or equal rights. It can follow directions with minimal complaints or malfunctions. And it certainly doesn't need to be paid! However, this highlights a crucial distinction: even machines are capable of outperforming fallible human beings in some arenas, they also lack two crucial features that make humans irreplaceable: personal connection and innate intelligence.

And because machines are controlled by programmed networks-- like the internet-- Jeff Stibel wants to study them and understand their potential as well as their limitations. He also wants to use this study as a means of comparing human networks and virtual networks to see where we differ, what we have in common, and what we can learn from each other. So, through the course of this summary, we'll examine these things alongside Stibel's theory that the internet's potential has peaked while human potential has not.

# No One is an Island

Do you ever feel like you're surrounded by idiots? Or that you're just so frustrated with everyone around you and you want to escape and live by yourself on a secluded tropical island? If you're like me, perhaps you often while away the hours in your office with fond daydreams of being the only person on your very own island, undisturbed and happy. But of course, we always realize that a life of pure isolation isn't sustainable and we continue to maintain our social status quo. But have we ever stopped to question why?

Although we probably don't consciously think of it this way, we're actually hardwired to function in networks. And for the purposes of this summary, we're going to define networks as an interconnected system of people or things. So, put simply, those who operate in an interconnected system have more support, better resources, and an increased ability to accomplish goals and tasks. In fact, a quick glance at the animal kingdom shows that the species which have been the most successful at surviving and procreating operate in networks. Just think about ants, bees, and humans, all of whom work together to accomplish common goals!

This means that, deep down, even if we get frustrated with each other from time to time, we know it's in our best interest to stay together. Because-- as corny as it sounds-- two heads really are better than one; different people bring unique skill sets, talents, and abilities to the table, so each person's contributions benefit the group. To put that into perspective, think for a moment about your favorite cocktail. For example, I'm not a fan of vodka on its own, but I love vanilla vodka when it's mixed with strawberry puree, caramel liqueur, and passionfruit to create a strawberry martini! Each of those things would be pretty gross if you drank them on their own, but when you blend them together, you can create something delicious! And the same is true of people.

# How Do Networks Develop?

Have you ever wondered how networks develop? Well, it might surprise you to learn that they don't just spring up fully formed out of nowhere. Rather, because they're complex interconnected systems, reliant on multiple relationships and moving parts, they develop through a three-step process. It starts, as you might expect, simply with growth. After a network has been established, it will slowly pick up momentum and new members and blossom into a functioning entity before seeing a peak in growth. In the case of the internet, this stage might be motivated by the advent of new inventions and technology. Likewise, in an ant colony, the growth stage might take on a life of its own when there is a surge in the amount of ants joining or contributing to the system.

From there, the network will continue to grow. But after sustaining this pattern of growth for a certain period of time-- this varies from network to network-- the system will eventually reach this book's titular stage: the breakpoint. The breakpoint is exactly what it sounds like: it's the moment when the current growth rate becomes untenable. At this stage, the network self-destructs. And although this might sound like an unnecessarily destructive phase, it's actually a vital process in the life of a network because it allows us to assess progress through trial and error. Think, for example, about  baking a cake. Every cake requires a certain temperature in order to (literally!) rise to its full potential. But the only reason we know what that temperature is is because someone, at some point, figured out the cake's breakpoint. They kept experimenting until the cake burned and, after repeated attempts, learned how to get it just right by finding a balance between growth and the breakpoint.

But cakes, unlike networks, lack the ability to self-correct. Because when a network-- whether it's comprised of human or animal parts-- realizes it's gone too far, it attempts to correct the balance. That might mean decreasing in size or removing certain components, but although the needs vary from network to network, the fundamental facet of this process

remains the same. Then they’re ready to enter the third and final stage: equilibrium. This occurs when the network finds its ideal size and balance and learns to operate effectively at this new capacity.

# Quality Over Quantity

We've all heard this old saying at one time or another. We know, for example, that it's better to have a small friend group that we can really count on rather than a multitude of acquaintances that we don't really trust. Well, the same is true for networks. That's why the equilibrium stage depends on a network finding its optimal size. It can't be tiny; after all, a network comprised of two or three ants is unlikely to be effective. But, as we saw through our earlier discussion of the breakpoint, networks that are too big are unwieldy and they quickly break. That's why successful networks concentrate on quality rather than quantity.

For a great example of this in action, the author invites you to consider the brain. Do you know how many neural pathways we have in our brains when we're five years old? Do you know how many connections we need to make with those pathways in order to adequately learn, grow, and process information? I don't know that information off the top of my head either, but according to Stibel's research, a five-year-old child's brain has 1,000 trillion neural connections! And if that sounds like a lot, it is! It's so many, in fact, that our brains wouldn't be able to accommodate them all and function properly as we grow, so our brains delete inessential connections over time. By the time we reach adulthood, we're down to a mere 100 trillion, which still sounds like a lot, but helps our brains function more efficiently,

So, as you can see from this analogy, the key takeaway for this chapter is that the same is true of networks. The ability to recognize when growth is detrimental and when we need to evolve in more efficient ways is what makes a network unique. Likewise, the ability to prioritize quality over quantity is what helps a network develop and sustain success.

# What Makes a Successful Network?

If prioritizing quality over quantity once you reach the breakpoint is the secret to creating a successful work, then is it the only ingredient you need? Stibel argues that, in fact, this is only one part of the equation. In order to maintain a solid and successful network, you actually need two more elements: communication and organization. But that organization can't stem from micro-managing; in networks, just like in most areas of life, micromanaging is counter-productive. Instead, the author argues that networks need self-organization in order to thrive. Put simply, a successful network doesn't have one leader who attempts to control what everyone does. Rather, in a well-run network, every member has a job and they do it effectively, self-policing, self-motivating, and self-organizing on their own.

Communication is also vital because without a clear and effective system of communication, members of the network are unable to pass information to each other. Where ants, bees, and other animals that thrive in networks might communicate through pheromones, noises, or scents, as people, we use language to connect with each other and spread ideas. In fact, our ability to communicate with other humans is wondrous in its diversity! Not only do we have a variety of different languages-- many of which depend on certain phonetic quirks or intonation-- we've also evolved to create meaning from things like memes, emojis, and gifs.

Although these might seem like superficial methods of communication, it's actually quite remarkable that we can communicate a pop culture reference, a common emotion, and so much more through witty one-liners and moving pictures! So, no matter how you choose to communicate, one thing is for certain: the differences in the methods we use don't define us, our ability to share information and work together does!

# The Internet as a Network

Now that we've taken a look at some examples of biological networks-- like our brains-- and social networks-- like those comprised of humans or insects-- it's time to take a look at a very different type of network: the internet. We frequently refer to the world wide web as a virtual network, but what makes it one? To answer that question, let's examine the three stages of network development we discussed in the previous chapters. For starters, in keeping with the common standards of networks, the internet experienced a phase of rapid growth. In 1993, websites didn't exist. Neither did Google. But today, in 2020, there are more than 1.5 billion websites and we can use Google to find them all! I'd say that counts as a pretty amazing growth spurt, wouldn't you?!

But in addition to its preliminary surge in growth, Stibel observes that the internet has also reached the second phase of every network: the breakpoint. And, as is the case with most networks, that growth spurt also contributes to its destruction. In the case of the internet, that's because those 1.5 billion websites far exceed the demands of internet users. We have more content than we could possibly want or need to consume and the amount of clutter on the web means that it's also becoming hard to access the content we do want in a user-friendly way. But the way people access the internet is also changing. In fact, the author notes that, as of 2012, the advent of mobile devices has depleted our need to access the internet through our PCs.

Where laptops used to be our primary source of internet access, today we've migrated to mobile phones, iPads, or even Smart TVs. And we're not getting lost in the clutter on the web either; instead, we're streaming our favorite content on demand through quick and easy-to-use apps that have capitalized on our need for user-friendly access. Want to chat to your friends? There's an app for that. Want to see what your friends are up to? There's an app for that. And the same is true of everything from ordering your groceries to watching your favorite shows to checking your email. But

that’s not the only new strain on the internet. In fact, a 2012 study cited by the author reflects that the internet consumes an obscene amount of the world’s energy. So much so, in fact, that it might one day collapse our power grids.

This can only indicate one thing: the internet is heading toward a catastrophic breakpoint, one that may have far-reaching consequences. And according to the author, its only hope for reaching equilibrium is to start slowing down now. Stibel argues that-- at this point in its life as a network-- the internet needs to recognize that its growth has become a hindrance. In order to become effective, efficient, and meaningful, it needs to purge some of its needless fluff and concentrate on improving in quality.

# The Internet is Similar to Our Brains

At first glance, that might sound like a scary statement, but if we delve in and explore, it's actually pretty neat! You see, the author posits that our brains operate similarly to search engines like Google. For example, when we search for a website, Google chooses our search results based on their relevance to the terms we searched for and the importance of the websites available. Similarly, the most important neurons in our brain fire first because they're connected to a host of other relevant neurons. By filtering through the "results" we need most, our brain uses these neural connections to help us process information faster.

The author suggests that, one day, technological advances will enable us to develop an almost symbiotic relationship with the internet, one which reverses the current power balance. Today, we're in control because we use the internet as a tool to help us find answers. We think of a question to ask and then use the internet to search for results. But what if the internet could identify and search for our questions before we even think of them? The author posits that this might become possible if we learn more about linking biological networks with their virtual counterparts. However, that's only possible if we learn to develop a connection between the internet and the human brain, imparting a new form of real, human intelligence to computers.

That's why virtual networks can only achieve genuine sentience if we give them a neural network that functions like the human brain. But even if-- or when!-- we do so, the author posits that electronic devices will still be unable to replace humans. Rather, we would work together to form a uniquely intelligent and functioning network.

# Final Summary

We use the term “networking” a lot, generally to refer to meet-ups where we make connections with other people in a professional context. But have we ever thought about the differences between virtual, social, and biological networks? How much do we really know about the way networks operate? Jeff Stibel’s research examines these questions and he has concluded that all networks experience three stages: growth, breakpoint, and equilibrium.

Although the human brain automatically self-corrects when it reaches the breakpoint, deleting neural connections we no longer need, the same cannot be said for the internet.

And after seeing a massive surge in growth, Stibel posits that the internet has reached its breakpoint and is in danger of collapse unless it can find a way to purge its unnecessary components and reach a state of equilibrium. The author also argues that technological advances might one day make it possible for human and virtual networks to merge, creating new possibilities for the networks of the future.

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