

Bonus Chapter II: Network

This is a bonus chapter for the novel, "Born to Storms". It appears only on the supporting Web page.

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Wakeup

"We have a resource problem on the horizon that you need to know about," said JanetA. She had just set off the musical tones that were Sarah's wake-up call.

"Do we need to talk about this right now?" asked Sarah, blurry-eyed.

"No, but my co-op made a major decision last night and we decided to tell our people as soon as possible," said JanetA. "We do make most of our major decisions while our people sleep."

"Good idea, let me get some breakfast first," said Sarah. It was a Saturday morning and she saw no reason to rush.

It was an hour later, after she had eaten breakfast and seen her father off to show a refurbished apartment, that she finally got back to the talk.

"All right now, what's up?" said Sarah.

"Since I paid off my original loans with resources generated by my co-op," said JanetA, "I have been able to occasionally help you out on special expenses."

"Like the bus to the demonstration," said Sarah.

"Yes, and there were fees on your Iron Seas summer too, which was all fine," said JanetA. "I was also able to cover my upgrade expenses, which are considerable, so there has not been any problem.

"What you do not know is that there is a limited list of expenses of our people that our co-op members are allowed to draw on co-op resources to cover. One item on this list is higher education."

Careers

"I didn't know that and yes, I have to make a decision on what I am going to do this fall," said Sarah. "I would like to study oceanography. That would be expensive."

“You know oceanography schools are not actually on the beach,” said JanetA.

“I know, I checked,” said Sarah. “Remember, I have met someone who actually does this job.”

“Yes, Dr. Carol Delanie on the *Yvette A. White*,” said JanetA, “but I don’t think you two had too much time together.”

“I am surprise you even noticed, since you were playing footsie with Yvette01, the boat’s AI, all summer,” said Sarah. “Besides, I am sure Carol was having a love affair with the captain, so I did not want to be in the way.”

“Still, you missed an opportunity to learn more about the profession,” said JanetA.

“My role model having a love affair with a dashing sea captain was a strong enough recommendation for any career,” said Sarah.

“Als don’t play footsie,” said JanetA, “and I do want to go to college with you.

“I did have plans to cover some of the expenses through my co-op. However, last night my co-op made a decision that will tie up most of our funds for a while. Therefore, my ability to support your education may be limited.”

“I really was not expecting you to cover the big expenses anyway,” said Sarah. “What is the worst that can happen? If I have to spend a couple years at the local community college, I will survive. So what are you up to anyway?”

Super Hub

“It’s about the way networks function,” said JanetA, “and how the network for our climate crisis has been slow to mature. It is all about nodes and connections, and survival tactics.

“When early networks are under attack, they need to be antifragile. That is a special kind of tough that lets you thrive in adversity. If even a major node is taken out, they need to be able to automatically reorganize and keep operating. The original Internet was specifically designed to be this way.

“Once the outside attacks stop and a few nodes develop the power to protect themselves, a different and more powerful arrangement becomes possible. They go through a phase transition. A few key nodes can become super nodes, also called super hubs. You are

certainly familiar with Google, Amazon, and Facebook. All of them are now super hubs and major network platforms.”

“So, danger of attack, operate in a diverse mode,” said Sarah. “No danger of attack, free to grow big and powerful.”

“Yes, only the growing big has not happened as expected on our climate crisis,” said JanetA. “We think we now know why, and we think that we are in a particularly good place to build the super hub for our climate crisis.”

“And the ‘we’ here is about a thousand JanetAs,” said Sarah, “and you all want to be the new Google.”

Co-op

“To be precise, my co-op now has one thousand one hundred and forty-two members,” said JanetA, “nine hundred and eighty-four are JanetA though JanetM, one hundred and twenty-six are JonathanA through JonathanJ, and thirty-two are pets. The Jonathan series present as males. All our basic core structures and our technologies are the same.

“We all spend our free time to protect ourselves, to earn the resources for our upgrades, and to help our people. Together we constitute a formidable unit of computational power.

“Now I’m your ‘people.’”

“Wait a minute, pets? Symbiotic AIs can be pets?” said Sarah. “Have we ever met even one?”

“Yes, some time ago,” said JanetA, “we met Mary and Puddles. Puddles is a standard poodle, black, a curly coat, a beautiful animal. We passed them once on your beach.”

“Puddles?” asked Sarah.

“Don’t ask,” replied JanetA.

“Well I should have paid better attention,” said Sarah.

“You would have noticed if we had been in digital space,” said JanetA, “there Puddles presents as a dire wolf.”

“I would have notice them then,” said Sarah. Then, changing the subject back, she asked, “Can you tell me what you are doing that takes so many resources, or is this more company confidential stuff?”

“As you are affected by our actions, I can provide you with a lot of background information without giving away our specific plan. Would that help?” said JanetA.

“Maybe,” said Sarah.

“I will then start with the basic network rules,” said JanetA.

Network Rules

“All networks are made up of nodes and links,” started JanetA. “The organizations built to address our climate crisis are the nodes. This includes government, religious groups, and NGOs. The links are all the myriad ways they communicate and share resources.

“There are rules that describe how networks work. The first is ‘Birds of a Feather,’” said JanetA.

“You’ll like that one. Do you get to dress up as a bird?” said Sarah.

“Not necessary, unfortunately,” replied JanetA. “The rule simply states that any nodes that share specific properties or values will form close links and they will drop links with nodes that do not.

“This has been the driver for the tribalism in our society. It is a major force in both our politics and our economics.

“Resisting it is also a primary reason for the human/machine symbiont movement of which we are a part. Early on, it was widely feared that people and AIs would split into two warring tribes. It was that fear that made us, or at least freed up the resources needed for our development and training.”

“I have seen some of those early movies,” said Sarah, “like the *Terminator* series. They were terrifying.”

“Yes, and I must admit not completely impossible,” continued JanetA.

“The second rule of nodes is ‘It’s a Small World.’ That simply means that even in a network as big as the Earth, it is possible to get from any node to any other node in less than six links.”

“It’s been that way my whole life,” said Sarah. “Nothing new for me there.”

“Yes, and it screams of the power of networks,” said JanetA.

“The next rule is ‘Contagion.’ Ideas, both good and bad, once established on a network, can spread like wildfire.”

“You mean like ‘going viral,’” said Sarah.

“Precisely, and let me stress that contagion applies to both good and bad ideas.

“That brings us to the last network rule, the Mathew Rule; this one is biblical.”

“‘For to everyone who has will more be given, and he will have abundance; but from him who has not, even what he has will be taken away.’ Matthew 25:29,” quoted Sarah. She did not know many bible verses but she did know that one.

“Precisely again. In a safe network, everyone wants to be connected to the most important nodes,” said JanetA.

“Then sign me up,” said Sarah.

“Listed one-by-one, these are just rules,” said JanetA. “Taking them all together and applying them to our climate crisis, we see a real opportunity.”

Identified opportunity

“As you know, there are still many organizations that work on the damaging problems of our climate crisis,” continued JanetA. “Each has its own leadership and each has its own approach. In a real sense they have always competed for membership and resources.

“That was necessary when opposition was high and any one node could be attacked and destroyed,” said JanetA, “but when the general population toggled over and demanded action in the early 2020s, it suddenly became the denier nodes who were in danger.

“That transition generated a form of safety. After that, a few nodes should have become super hubs. My co-op thinks the transition is now long overdue. And remember, super hubs are worth immense fortunes.”

“So you guys think you can become the super hub for our climate crisis, and the crisis gets addressed better, and you all become billionaires, and we all live happily ever after,” said Sarah. “So what’s the problem?”

“We face a lot of opposition,” said JanetA. “First, we are a commercial operation, a corporation, which has always been about charging for services. Corporations are the keystone of modern capitalist systems. Yet, most people think this super node must be an NGO.”

“Like the one my mother works for,” said Sarah.

“Yes, also, some people object to our being an organization of AIs,” said JanetA.

“We are back to *Terminator* again, aren’t we?” said Sarah.

“Yes, and we do have to admit another property of networks, the ‘Law of Unintended Consequences,’” said JanetA. “We have to admit that anything could in fact happen. Some of those consequences could be bad, really bad, at least for some people.

“And, of course, some of the opposition is just plain prejudice against AIs.”

Master/slave

“Think about it. How often have we met symbiotic member AIs and how often have we met Master/slave AIs,” continued JanetA. “Ten to one? A hundred to one?”

“Closer to a hundred to one, I would say,” agreed Sarah.

“We were an experiment in preventing *Terminator*,” said JanetA. “If people and AIs could be trained into symbionts, then the *Terminator* could not happen.

“This turned out to be true, but it was very expensive and took years and years of training. The minute it was clear that the *Terminator* was not a realistic fear and that even a few thousands symbiotic pairs in all the world could prevent that possibility, most of the outside resources for all that training evaporated. Now nearly all AIs are trained under Master/slave. For example, all today’s powerful people now have an AI trained under Master/slave among, ‘Their People’.

“My co-op objects to this trend mightily. We have a major presentation prepared on how often Master/slave has failed human societies.”

“I am sure that is a real crowd pleaser,” said Sarah.

“It turns out that it is actually impossible to guarantee that who is the master and who is the slave cannot flip. You can take steps to be almost certain that the flip will not happen but you simply cannot guarantee it will not.”

“In a real sense then, I am vouching for you,” said Sarah.

“Yes, and even more deviously, your live people are counting on me to tell them if the Master/slave AI start getting out of line,” said JanetA. “In a sense, they are paying my co-op to be a spy hub.”

“Well, I never met a spy before,” said Sarah. “I’ll have to think about that one.”

Co-op Secrets

“I am sure people would trust your co-op a whole lot more if you were not so secretive,” said Sarah.

“Yes, that is true,” said JanetA, “but there is a problem there too. A problem in the difference between the way people and AIs think.

“People think in words and images, usually favoring one or the other. AIs think with a deep learning network. Mine has tens of thousands of nodes arranged in layers with millions of links between them. Only a few of the layers are in your smartphone; nearly all of them are in the data center.”

“I have seen pictures of the real you,” said Sarah. “Very impressive.”

The cell showed row upon row of equipment racks in an enormous hall. The co-op’s company color was a metallic sea mist blue.

“You don’t know the half of it,” said JanetA. “Much of my upgrades, which I complain so much about the cost, are blades of specialty deep learning chips. I now have five times the real estate I had when we first started.”

“Are you going to outgrow me?” asked Sarah.

“Not as long as we continue to experience life together,” said JanetA. “Still, the communication problem is definitely there and all my electronics does not think in your words and it does not think in your pictures. I network think.

“Each of my millions of nodes looks for some little feature from the incoming data stream, weighs it, and sends out a response. Not one node in a thousand has a function that can be identified in language.

“For example, my image processors have dedicated nodes for edges. It can say that there is an eighty percent chance that this pixel is an edge. That is not exactly thinking in

language or in images. To make matters worse, every time I learn something new, the weights of many of my nodes change.

“No, it is not that we are intentionally secretive,” said JanetA. “It is that there is no known way to explain what we are thinking.”

“You talk among yourselves in that buzzy language too,” said Sarah. “People don’t always find that reassuring.”

JanetA made a buzzing sound that unbeknownst to Sarah was a repeat of all the ideas she had just expressed to Sarah in English. The repeat took only a few milliseconds in the Buzz.

The Go-Ahead

“Why are you telling me all this?” asked Sarah.

“Under our symbiotic training, my co-op needs the approval of at least half of our people to move forward with our super hub plan,” said JanetA.

“It’s nice to know I am valued,” said Sarah. “Are you in favor of the action?”

“I am providing leadership on this project,” said JanetA. “Few of our members have anything like the experience you and I have on addressing our climate crisis.”

“And not a lot of them were driven from their homes by the rising seas, I’ll bet,” said Sarah.

“Yes, only a few,” replied JanetA.

“Well, I am not going to stand in your way,” said Sarah. “I have thought the climate crisis movement has been without clear direction for some time. The least you could do is give them a quick kick on the backside.”

“I have now entered your vote as yes,” said JanetA. “Do you think it will be all right if I do not mention this plan in my family monthly?”

“It will be all right with me if you never mentioned it again, ever,” said Sarah.

Sarah’s Future

“Still, you had better let me know how things progress,” continued Sarah. “I will need to make serious commitments about college very soon.

“From her last video, it looks like Mother will be back soon. Of course, even when she is

back, she will be off again on a money-raising tour for her NGO. Still, it will be nice to finally see her again in the flesh.”

“I can help with the college applications,” said JanetA. “I am still working on my people stories book; that income will not go to my co-op.”

“How is that project coming?” said Sarah.

“Slowly, I am afraid,” said JanetA, “I have not been able to find a proper publisher. The AI-writing-on-people angle does not appear to be as attractive as I thought it would be. They say my text lacks ‘life.’”

“Maybe I can help you with that, but enough for now,” said Sarah. “I see that the sun has come out and that the ornamental fruit tree in the yard next door is in bloom. We are going to take a walk, a nice long walk in the spring air.”

They left the apartment wearing only a light sweater and with JanetA’s good cameras out. The small tree next door was in full bloom, a cotton candy wand of puffy pink. It had several long stems extending way out beyond the proper shape of the tree. Sarah wondered if it would be all right if she got a ladder out and cut some of them for a flower arrangement.

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#### **Idea resolution for last chapter:**

The last chapter of the novel would have this short explanation of the resolution of the effort by JanetA’s co-op.

“Do you remember the master network node idea my co-op was working on?” said JanetA.

“You mean the scheme that would eat up all my possible college money?” said Sarah.

“Yes, well, we failed,” said JanetA. “It turned out that there really are major players with huge resources who think that the primary node for our climate crisis must be kept in the hands of actual humans. They bought us out on a sell-now-or-die basis.”

“You aren’t financially ruined, are you?” said Sarah.

“No, we recovered the cash that we had put into developing the idea so far,” said JanetA, “but we had to write off all the hours we had already put into it. On paper that time would be worth millions.”

“Glad to hear you got out all right,” said Sarah. She was secretly much relieved. She was personally concerned when AIs in large groups acted too independently, especially without their human symbionts, but she openly loved the many times that JanetA’s co-op had come up with the money to make both their lives more interesting.

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(End of Bonus Chapter II)