

CHAPTER THREE – EXPLICIT DATA GRAPH EXECUTION

The evening sun, though aggressively stretching its bright orange tentacles into the prevailing gray horizon, said its final good-bye to the multicultural, suburban residents below. Another warm, fun-filled, South Florida day was about to come to an end.

Arriving at his locker so he could get some feed for Half Pint's supper, Paul yanked open its rusty green door and proceeded to scoop the molasses-coated oat, corn, wheat, and rye mixture into the five-gallon, stainless steel bucket his mother had given him the day Half Pint first came into his life. Amazingly enough, within his mind he could still recall the joy he felt that day and the smile that had been plastered across his mother's face the moment she presented both Half Pint and the feed bucket to him. However, years had passed since then, and recently he had been longing to see his mother's smile once again. The fact it was no longer being displayed on a regular basis saddened him.

Paul deeply loved his father. However, recently his dad had been making life so difficult, more often than not, he would find his mother all alone in the living room – sitting in her rocker either reading her scriptures or in quiet meditation. Feeling curious one day, he inquired about why she spent so much time doing that. She informed him it was because she felt that it helped to increase her spiritual strength and encouraged him to do the same.

Now as he poured a third scoop of grain into Half Pint's feed bucket, an unexpected metallic squeak not only brought Paul quickly back into the present, but it also triggered a neigh from the horse. She obviously was getting tired of waiting for him.

"I'm coming!" Paul hollered over his left shoulder as he began to turn toward her stall. "Just give me a minute. OK?"

The sound of one of her front hooves banging against the hard concrete floor was his reply.

When Paul finally was able to pour the feed into her old, creaky bin, Half Pint literally shoved her nose into the wooden box as if she hadn't been fed for at least the past five years. Paul just stood and watched for a few seconds. He hoped the grain would keep her busy long enough to allow him to get some hay before she would start to complain again.

"Hey, Paul. My mom's here," Tim said a few minutes later, his voice resounding from the far corner of Brave Boy's stall.

"Tell her I'll be ready in about..." Paul automatically replied, then noticed that Mary Lou was standing about three feet in front of him. "Oh. Hi, Mrs. Hegler."

"Why, hello Paul," Mary Lou said. "Did you and Tim have fun this afternoon?"

"Yes, ma'am," Paul replied, trying to be as polite as humanly possible for a person his age.

Not wanting to pursue the conversation any further, Tim's mother proceeded towards Brave Boy's stall, and Paul resumed the combing and grooming process he had started before she arrived. However, now that she was here, he knew he was going to have to perform these tasks at

a much faster pace than normal. After all, Mrs. Hegler wasn't known for being extremely patient when she was ready to leave.

About twenty minutes later, it was time to drop Half Pint's combs, brushes, and hoof picks into the stainless steel feed bucket so he could haul them back to his locker.

I guess the moment I've been trying to put off has finally arrived, Paul thought to himself. There is no doubt that this is going to be rough, but there is just no way around it. I'm going to have to tell Half Pint. ... I just hope that it won't be too bad 'cause I still need to talk to Tim as well.

"Half Pint," he said, his voice breaking with the sorrow that was internally coursing its way through his body like a dense fog, as he wrapped his arms around the mare's neck. "I need you to be a good girl 'cause ... Well, I am going to have to let my dad take care of you while I visit my brother for the next couple of weeks."

At once, Half Pint stomped her foot against the hardened floor and proceeded to stare at him. The frozen glaze in her eyes loudly proclaimed what she thought about what she deemed was an unexpected betrayal.

"I know how you feel, girl," Paul said, as he reached up to try to comfort her by rubbing the top part of her nose. "I don't really like the thought of having to leave you, either. But, Half Pint. I really don't have a choice. Can't you understand?"

Half Pint simply shook her head and began to munch on the hay he had previously placed in front of her.

I was afraid she was going to take it this way, Paul thought as he grabbed his bucket and began to head toward his locker.

"I still haven't told Tim about the trip and how I'll probably need him to keep an eye on her," Paul mumbled to himself as he reached the back of the barn. "However, with the way Half Pint took the news, it might be better if I wait until tonight."

"Are you and Half Pint about ready?" Tim's voice echoed from the stable's entranceway.

"Almost," Paul yelled back. "Half Pint should be finished any minute now."

"You need to hurry up. Brave Boy's ready to head back to the pasture and Mom's already in the car, waiting for us."

Returning to where his mare was standing, Paul reached up and gave the bottom of her halter a small jerk. "That's going to have to be all for tonight, Half Pint," he said, speaking a slight bit louder than normal. "We've got to go. If I don't hurry up and get you back in the pasture, Tim's mom might decide to leave without me."

Half Pint snorted at him in reply.

Tim tapped his foot against the ground as he watched Paul and Half Pint begin to make their way towards the barn's entranceway. Both he and Brave Boy joined their small procession as they proceeded onward toward the pasture.

At the moment the four of them reached the stainless steel gate that lead to the flat multi-acre pasture, a jagged streak of lightning seemed to appear out of nowhere and abruptly slashed across the distant western horizon. Paul ignored it and continued to lead both Half Pint and

Brave Boy into the pasture. Tim latched the five-foot high gate behind them. Once her halter had been removed, Paul paused for a moment and patted his beloved four-legged companion one final emotion-filled good-bye.

“What's wrong, Paul?” Tim asked after they had climbed over the three-rail wooden fence and began their journey back towards the barn.

“What do you mean?” Paul asked, not really wanting to reveal his true inner feelings.

“You seem kind of sad.”

Not knowing what to say, Paul walked in silence toward the stalls.

“Come on, boys. Get it moving,” Mary Lou’s voice rang out from across the parking lot as she watched the two of them casually lumber along as if they had all the time in the world. “I don’t have all day to wait for you. I’ve got things that need to get done.”

“OK, Mom,” Tim replied. “Just give us one more minute. OK?”

Later that evening after they had finished watching an episode of *Star Trek – The Next Generation* on the Hegler’s HD plasma TV, both Tim and Paul grabbed a soda and began to shuffle towards Tim’s bedroom. It was now time to participate in one of their favorite activities – putting their joint programming skills to use on the latest video game the two of them had been creating the past few weeks – Clash of the BattleStars.

“Are you sure this is going to work?” Tim said, noticing three hours had passed since they had sat down in front of his computer desk.

“Of course it will, Tim.” Paul replied as he finished typing the line of code he was working on.

He then paused so he could touch the flat panel monitor with his right forefinger.

“At this section of the program, we usually have two or more micro processing cores maxed out as they try to fetch data from both the computer’s ram memory and its hard drives fast enough to process it, then pass it on to the graphic cards in time to keep the game’s action scene running smoothly, correct?”

Tim nodded in reply.

“So let's try making some programming changes that should improve the system’s performance.”

“OK,” Tim replied. “But, how is using this newfangled way of grouping computer instructions together going to speed things up?”

“That is what I am about to explain,” Paul said, heaving a sigh. “Data and the instructions that operate on them are theoretically scattered about memory, right? By compiling our source code into a form consisting of statically allocated hyperblocks containing hundreds or thousands of individual instructions, these hyperblocks can then be scheduled dynamically by the CPU.”

A bewildered look instantly appeared from within Tim’s dark blue eyes.

“I hear what you’re saying, Paul. But I just don't get it. Would you mind repeating that all over again? But this time in English.”

“This isn’t all that complicated, Tim.” Paul said, stopping to take a sip of his Coke.

Setting the plastic bottle down harder than he had intended, a few drops accidentally flew out the top and landed on top of Tim's desk.

“Take this...”

“Hey boys,” Joe Hegler’s voice suddenly interrupted their conversation as he casually walked into his son’s bedroom.

At once, Tim whirled his desk chair around so he could face him. An ear-to-ear smile swept across his face.

“Hi, Dad,” he said. “Did you just get home?”

“Sure did, son,” Joe said, as he reached up to loosen his necktie. “What are you two working on?”

“We're creating a new game,” Tim said, pointing to one of the ships now displayed on the computer screen. “We're calling it, ‘Clash of the BattleStars’.”

“Oh?” Mr. Hegler said, raising an eyebrow. The broad grin on his face acknowledged that he definitely approved of what the boys were doing. “That’s a nice, catchy title. It makes the game sound interesting.”

“It will be,” Tim excitedly said. “Except I can't figure out this new type of programming architecture Paul wants to use.”

“I see,” Mr. Hegler replied. He then turned toward the computer’s display screen and began to study the boys' code. “What are you trying to do here, Paul?” he asked a couple of minutes later while pointing to a section of programming he didn’t recognize.

“Mr. Hegler,” Paul said, repositioning himself so he could face both him and Tim’s monitor. “I know that you work with computers, but are you familiar with Explicit Data Graph Execution? It’s an instructional set architecture used to improve computer performance.”

“Only vaguely,” Joe replied, scratching his head just above his right eyebrow. “I’ve read a couple of small articles about it, but that’s about it.”

“Well, you see, Mr. Hegler,” Paul said, continuing. “Explicit Data Graph Execution is a new kind of programming designed specifically for computers that have multi-core processors. Not only can it be used to help computers process multiple types of information at the same time, but it can also be used to teach the processors how to respond to specific data patterns.”

“You don't say,” Joe replied. His expression clearly showed that he found this bit of information to be extremely interesting.

Paul then explained the more minute details of how Data Graph Execution processing worked and how he wanted to implement it within the game.

“You know, Paul,” Joe said, a few seconds after he had finished. “It sounds like this idea of yours just might work. Where did you find your information?”

“EDGE technology was mentioned on a high tech show I was watching the other day on TV, so I decided to look it up on the Internet.”

“Interesting.”

Joe proceeded to watch the two teenagers resume their programming for a few minutes, before taking a couple of steps toward the doorway and turning around.

“I do hate to say this, boys,” he then began, “but you two are going to have to call it a night pretty soon. It's almost ten o'clock.”

“We will, Dad,” Tim said, letting his father’s words enter one ear and exit out the other.

Paul watched Mr. Hegler continue his journey toward the living room. *Gee*, he thought to himself. *I sure wish my dad was as nice as Tim’s always is.*