

# The Mass Router

He glanced nadirward through the observation window at the green and blue surface of the planet. A river, coruscating in Focus's rays, wound through the verdant jungle passing below. It was THE river, the measure to which all other rivers were compared. It was so old that it didn't even have a name. Every other river on Yih, and every watercourse wrought on other celestial bodies by pioneers in the intervening millennia, was, after peeling away one hundred thousand years of sound changes and semantic drift, named after this river.

But he had seen this sight countless times, and it failed to put his mind at ease. He spun the metal prayer ring on his writing claw, feeling each of the twelve teeth pass under the pad of his outer thumb. The ring had belonged to one of his sires, who had often handed the shiny trinket to him to amuse himself with when he was barely a pup. It had been years since he had prayed it, not until this morning just before being shriven. It had been years since he was last shriven, too. He'd be the first to say he wasn't the most pious Wayfarer, but there was a real possibility, however infinitesimal, that today his life would come to a messy end, and he wanted to have a clean conscience if it came to that.

He turned to face the cause of his anxiety. Attached to a bulkhead opposite the window was a cylindrical machine with a bore just large enough to fit a single yinrih, and maybe a satchel if the yinrih in question was particularly svelte. He floated over and looked inside, his rear paw nervously picking at wisps of loose fur on his tail. There was little within that seemed to warrant his apprehension. The inner wall was featureless polymerite, and there was a harness to keep the occupant from floating away. But he couldn't help thinking about the first martyrs from the golden age who shot themselves toward the starry firmament in primitive iron projectiles.

He tried to reassure himself. «You're going to be fine, Hearthfire. Nothing's going to happen. We did gross upon gross of tests, inert object tests, live tests, and all the tree-dwellers we sent came out perfect.»

«Except Moonbeam,» nagged a tiny voice in the back of his brain.

«Poor Moonbeam. I know you're not supposed to name them. Makes it harder when... That happens.» The little tree-dweller went in fine, but the impulse buffer failed on egress as she dropped back into realspace on the surface, retaining all the momentum from her point of ingress in orbit. In the span of a temporal quantum she ceased to be biology and turned into physics, flying out at 20 times the speed of sound. The barrier was built to take it, but her poor body wasn't. She ended up a maroon smear on the wall.

«Time to get strapped in.» said a sandy-furred acolyte floating next to the mass router.

He took a deep breath and floated into the bore, slipping his forelegs into the harness, then his hind legs, then his tail, and finally his head.

A voice came through the earpiece in his left ear. It was the same cleric that had given him absolution this morning. «Hearthfire, this is Morningstar. Everything's up and up down here. Just for review, you're being routed through an intermediate router on the surface before egressing at the antipodes. The impulse buffer is good on both the intermediate and the egress, in case a packet gets dropped along the way.»

«Ingress and egress buffers are synced.» Said the acolyte.

«Begin the countdown. May the Light illuminate your way, Hearthfire.»

The sandy-furred acolyte began solemnly sounding off the numbers.

«Twelve...» In a few seconds, a thin sheath of realspace containing Hearthfire's body would be shunted into the Underlay.

«Eleven...» This realspace bubble would be encapsulated into billions of discrete packets.

«Ten...» From the perspective of a hypothetical observer embedded in the Underlay, these packets would appear discontinuous, and could take separate paths to reach the same destination.

«Nine...» But from the perspective of an observer contained within one of these packets, the entire space would still be contiguous.

«Eight...» Blood would still flow, and nerve impulses would still travel uninterrupted.

«Seven...» Or they would if the traversal through the Underlay weren't instantaneous.

«Six...» Hearthfire's stream of consciousness would not be broken.

«Five...» There would be no ontological question that what emerged from the egress router was the same Hearthfire that entered the ingress router.

«Four...» These packets would hop instantaneously through an intermediate router directly below at the surface.

«Three...» This router would, in mere nanoseconds, direct the flow of packets to an egress router at the antipodes.

«Two...» The egress router would absorb all the momentum that Hearthfire had while in orbit before shunting him back into realspace.

«One...» Should the intermediate router drop a single packet, the whole flow containing Hearthfire's mass would be shunted harmlessly back into realspace at that router, provided it, too, absorbed his momentum correctly.

«Zero.» Hearthfire felt a tingling sensation, as though his whole body had gone numb. The feeling lasted but a fraction of a second, then he felt the weight of his body pulling him down. He had

made it. In less than the flick of a whisker, he had gone from a space station in low orbit over Yih to a lab on the surface on the opposite side of the planet. Hearthfire was the first yinrih to traverse a mass router network, and he had done it without a hitch.

This was going to change everything.

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