Voyager 1 team recovered communication failure 45 years into the journey

A real longterm mission

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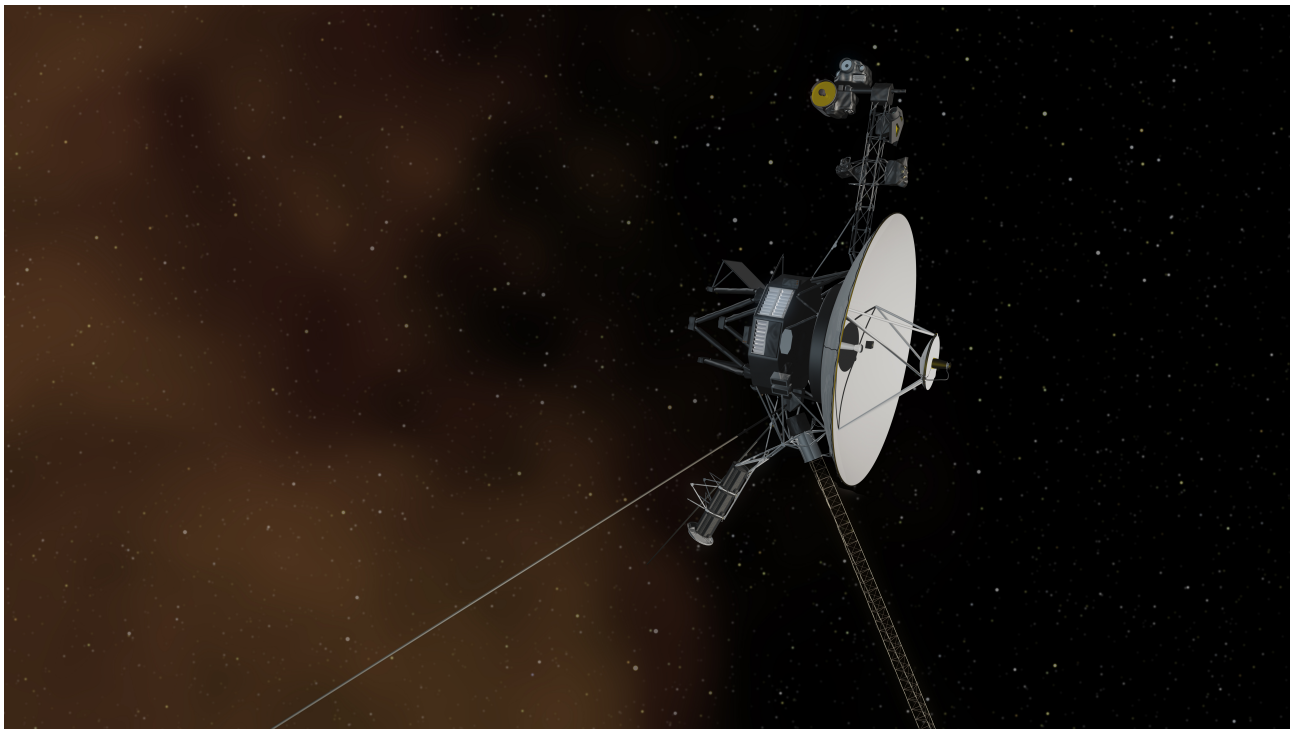

Figure 1: nasa [1]

Mankind's most distant object in interstellar space, Voyager 1, 22 light hours away from earth, still sending invaluable sensor data, experienced in May a malfunction in its communication to home. The signal appeared as just scrambled garbage.

Over summer, after deep analysis, and digging into 45 years old development documentation the maintenance team could find the reason. An accidentally switch over appeared, to an already retired computing unit, with no obvious reason. After switching back to main processing unit, the voyage can continue. The reason for the event remains unclear [2].

This NASA mission is teaching us a lot about operating mission-critical systems for really long periods of time. It tells us a story about teamwork, skills, attitude, dedication: design methods, computer science, and electronics. Perfect orchestration resulted in a system that has operated for 45 years - that's real LAVA - at a distance from Earth that was never thought possible at the start of the mission.

I can only congratulate this small team, just a handful of people, to keep Voyager running.

Working for Mission Critical Communications, I have seen first-hand the challenges of delivering LAVA to customers in a high-tech environment. This blog is about those challenges and potential answers from multiple perspectives. Company, customers, team, chips, technology, software, design, complexity, to name a few.

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[1] "Voyager Image Gallery — nasa.gov." https://www.nasa.gov/mission_pages/voyager/images.

[2] https://www.jpl.nasa.gov/, "Engineers Solve Data Glitch on NASA's Voyager 1 — jpl.nasa.gov." https://www.jpl.nasa.gov/news/engineers-solve-data-glitch-on-nasas-voyager-1.