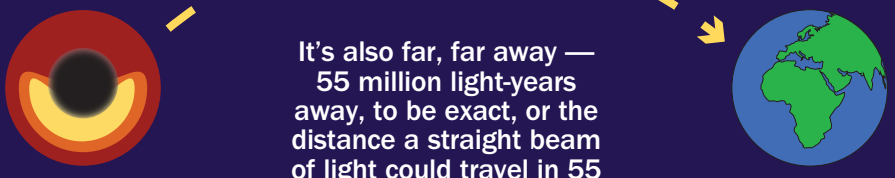
A shot in the dark

How scientists made the first-ever photo of a black hole, and why it's so hard to capture

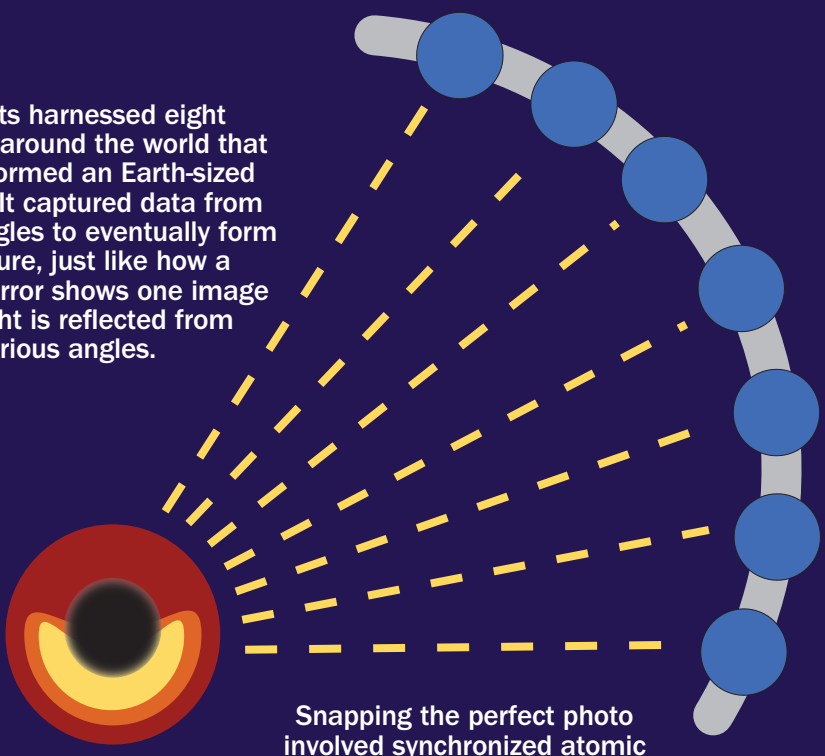
The black hole at the center of the Messier 87 galaxy is dense — the mass of 6.5 billion suns fits inside.



It's also far, far away — 55 million light-years away, to be exact, or the distance a straight beam of light could travel in 55 million years.

Trying to photograph an object that far away is like trying to read the date on a quarter in Los Angeles if you were standing in Washington, D.C.

Scientists harnessed eight telescopes around the world that together formed an Earth-sized telescope. It captured data from different angles to eventually form one picture, just like how a concave mirror shows one image when light is reflected from various angles.



Snapping the perfect photo involved synchronized atomic clocks, accounting for Earth's rotation and avoiding bad weather.

The Event Horizon Telescope was so powerful it could read a newspaper in New York from Paris. Not only that, but the data files were so big that hard drives had to be flown in from the telescope sites (which include volcanoes in Hawaii and Mexico, the Chilean Atacama Desert and Antarctica). So much for AirDrop.

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Sources: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, EVENT HORIZON TELESCOPE, NATIONAL SCIENCE FOUNDATION, TIME, VOX