

Technology drivers of infrastructure evolution

Moore's law and microprocessing power

Has been interpreted as:

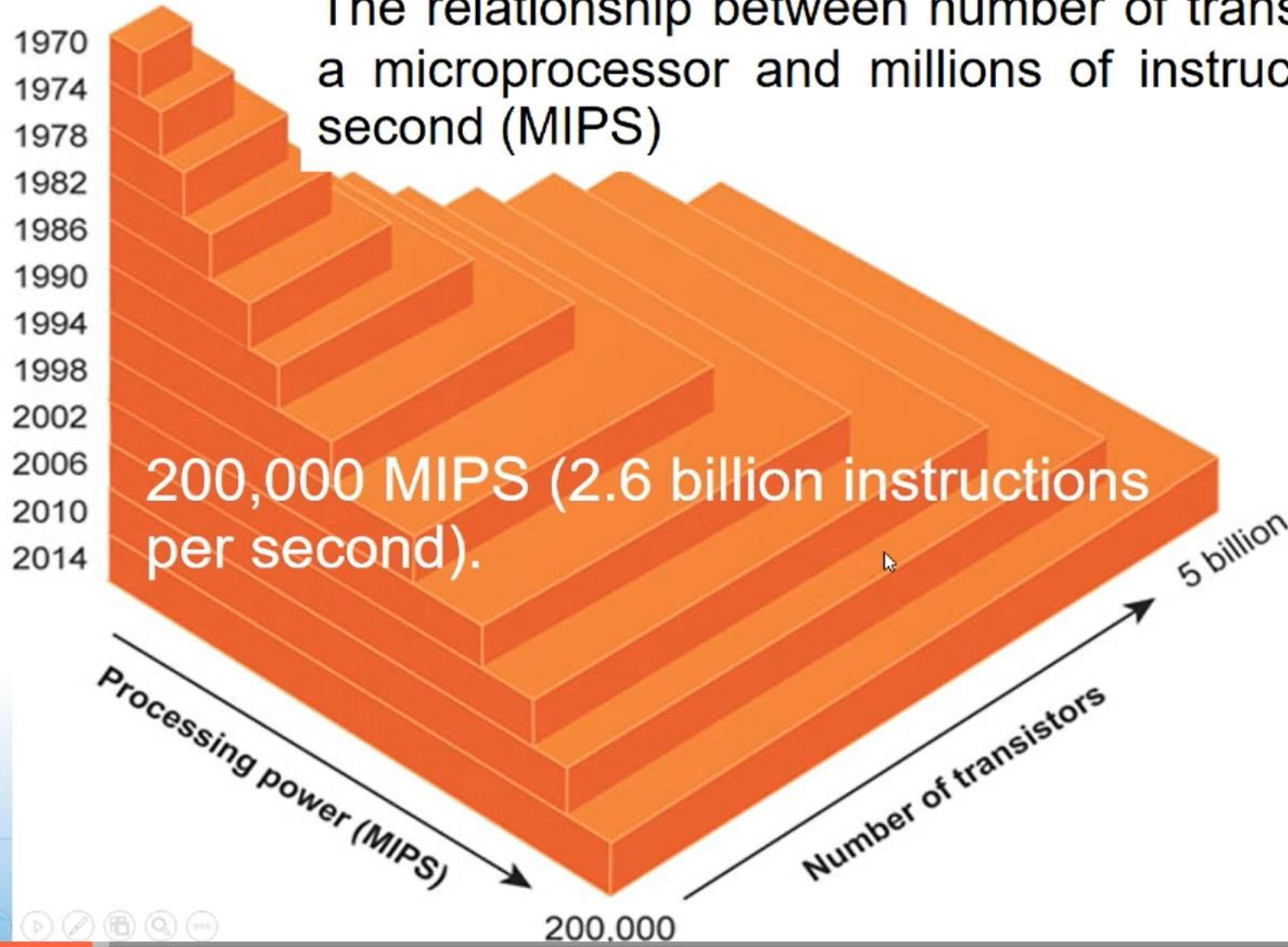
- The power of microprocessors doubles every 18 months
- Computing power doubles every 18 months
- The price of computing falls by half every 18 months

By using nanotechnology, chip manufacturers can shrink the size of transistors down to the width of several atoms



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The relationship between number of transistors on a microprocessor and millions of instructions per second (MIPS)

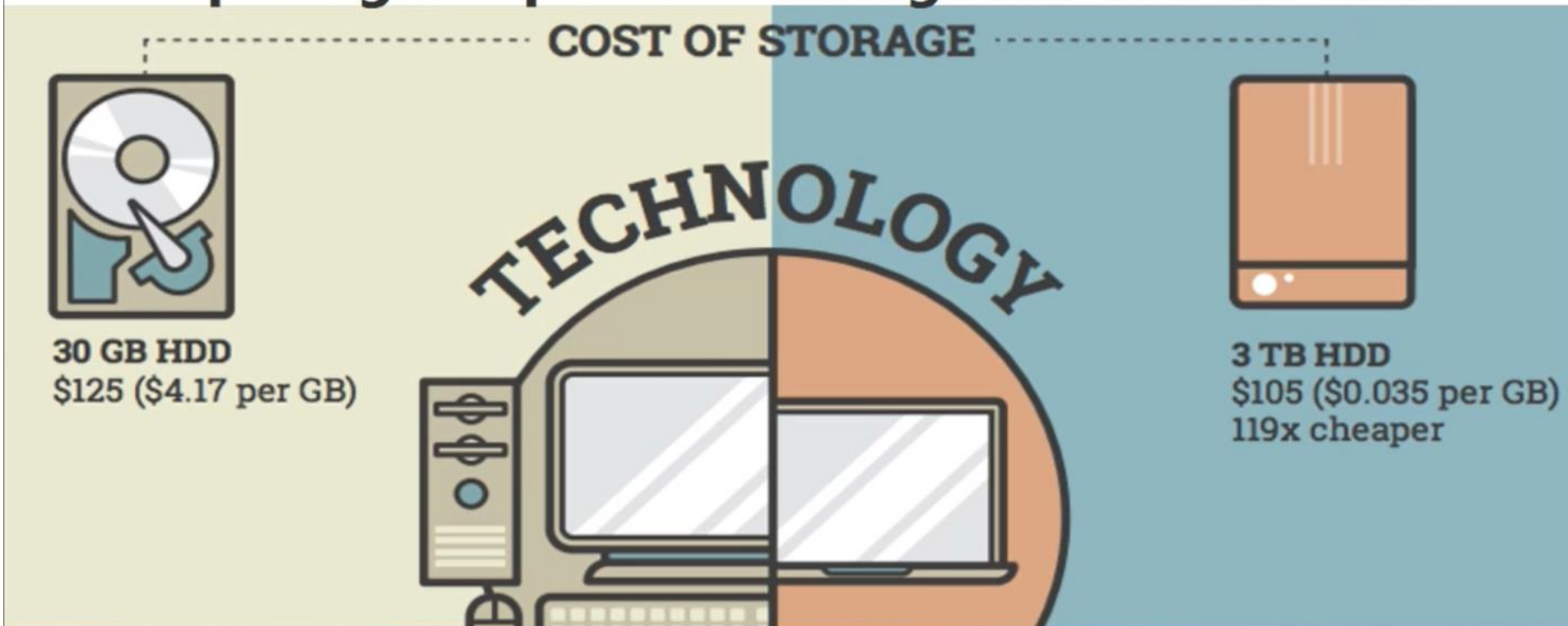


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The Law of Mass Digital Storage

- The cost of digital storage is rapidly decreased.

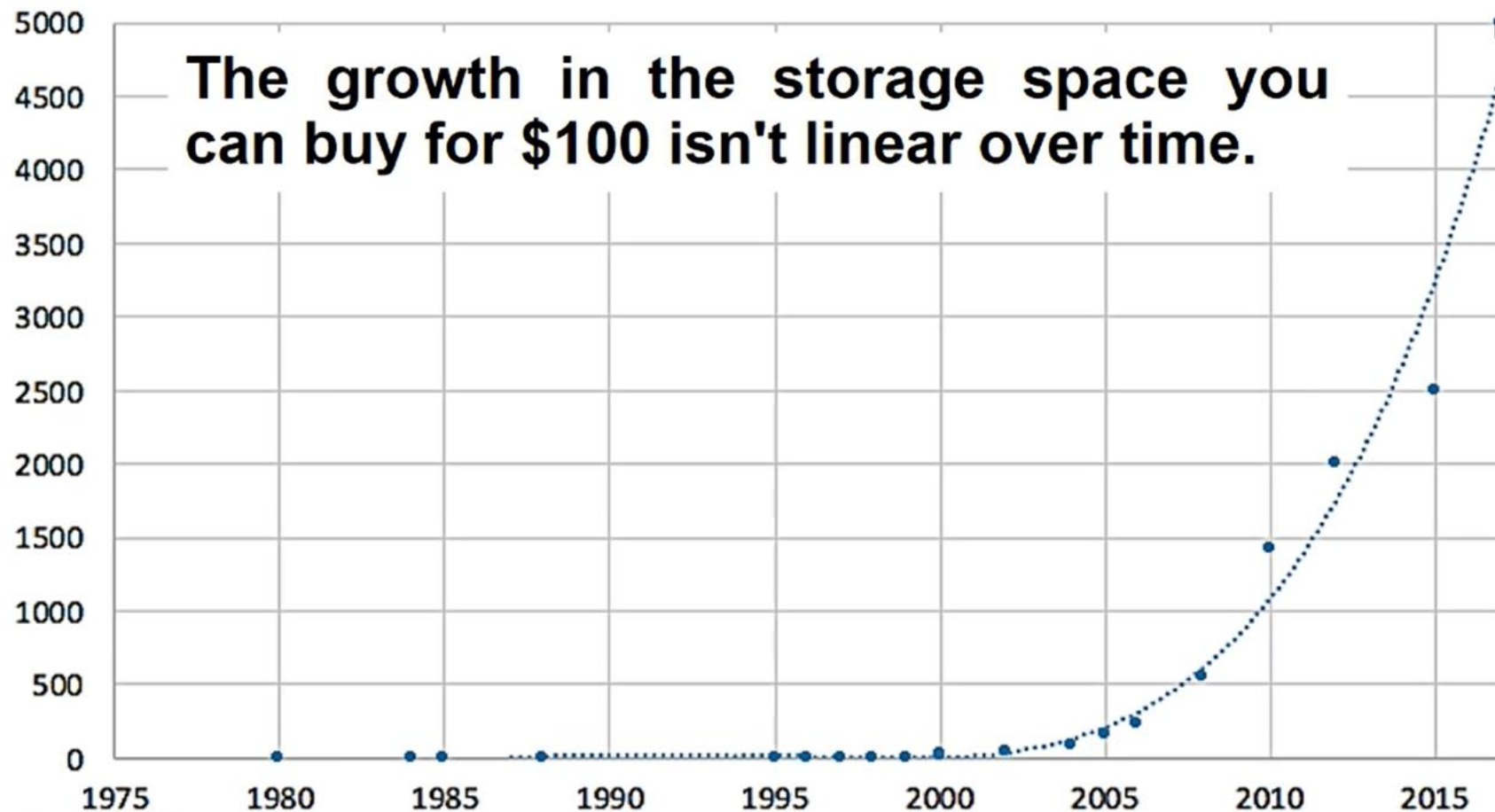
Comparing the price of storage in 2000 vs 2015



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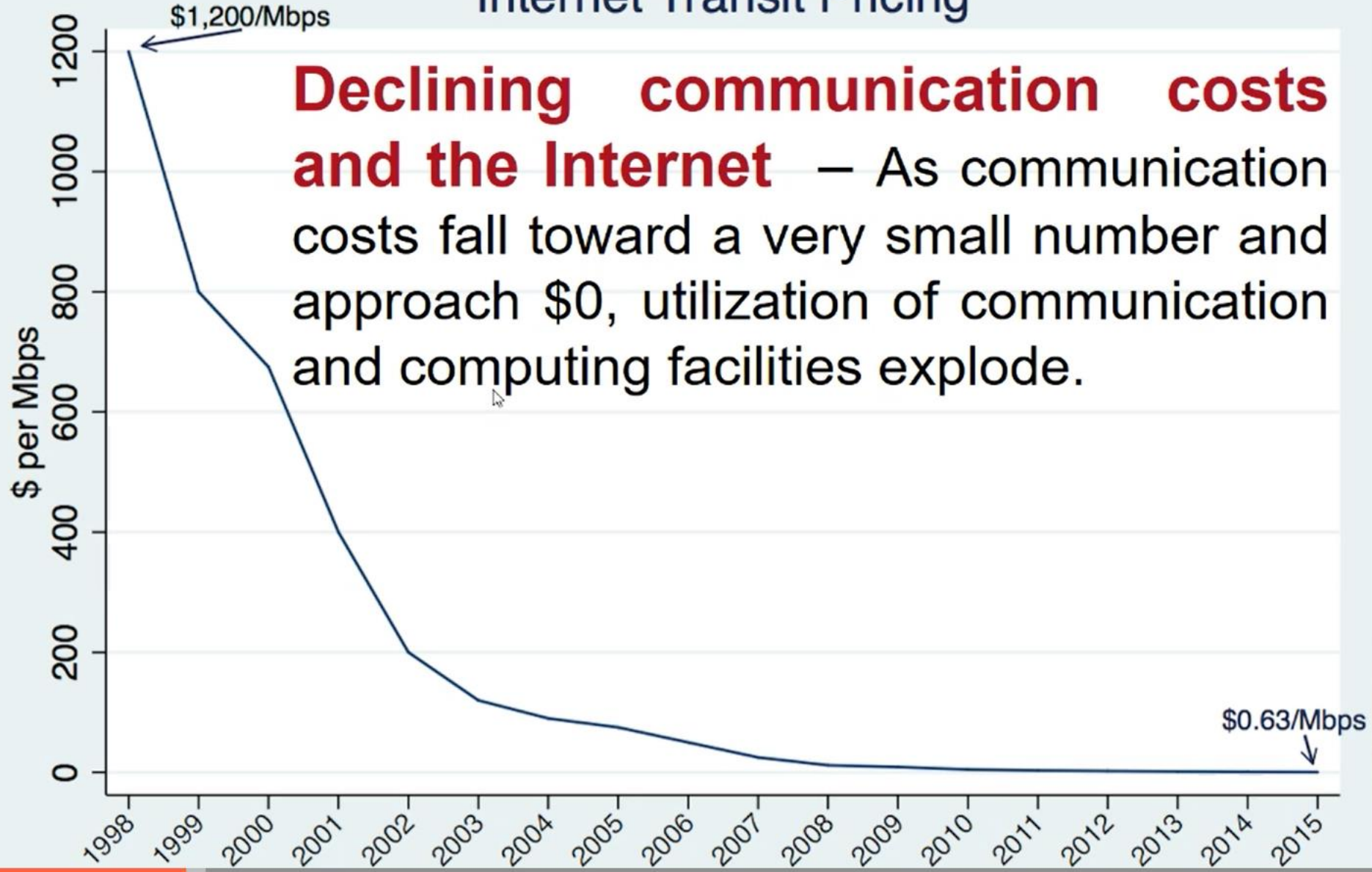
The Law of Mass Digital Storage

Gigabytes of storage you can buy with \$100



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Internet Transit Pricing



Technology drivers of infrastructure evolution

Standards and network effects

– Technology standards:

- Specifications that establish the compatibility of products (with agreements among manufacturers) and the ability to communicate in a network
- Unleash powerful economies of scale and result in price declines as manufacturers focus on the products built to a single standard

Some important standards: **ASCII, Ethernet, WWW**



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Standards and network effects

- **ASCII:** Made it possible for computer machines from different manufacturers to exchange data; later used as the universal language linking input and output devices such as keyboards and mice to computers.
- **Ethernet:** A network standard for connecting desktop computers into local area networks that enabled the widespread adoption of client/server computing and LANs.
- **WWW:** Standards for storing, retrieving, formatting, and displaying information as a worldwide web of electronic pages incorporating text, graphics, audio, and video enables creation of a global repository of billions of Web pages.

