STATE UNIVERSITY OF TELECOMMUNICATIONS

Educational and Scientific Institute of Telecommunications and Information

Department of Computer Engineering

BIG DATA AND INTERNET OF THINGS: FOG COMPUTING

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Life in the Cloud Begins at Birth
1/3 of children born in the U.S. already have an online presence before they are born.
Within weeks of their birth, 1/3 of all children's photos and information are posted online.
On day one of a baby's life, the amount of data generated is 70 times what is contained in the Library of Congress

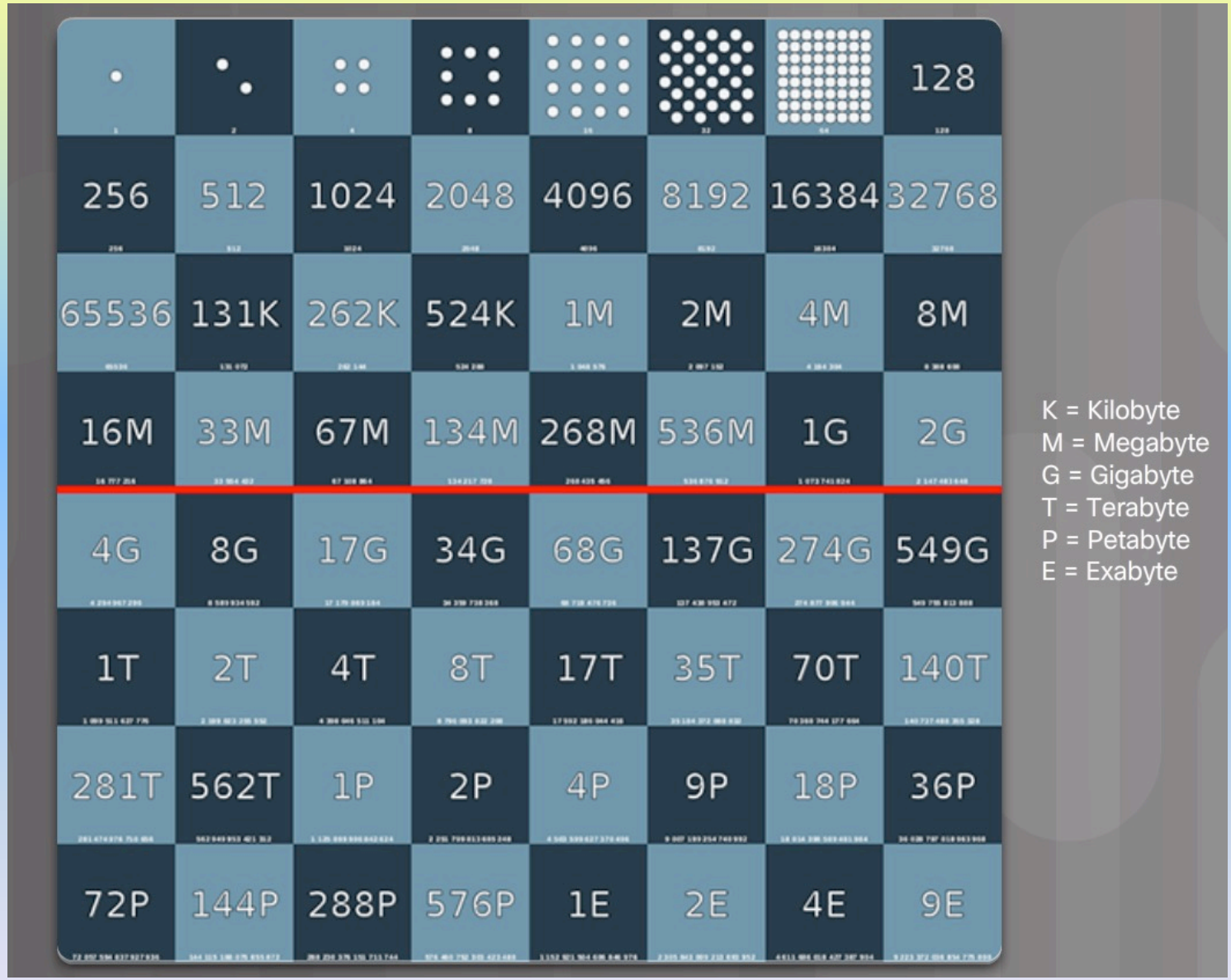

Fig. 2. Doubling the number of Bytes

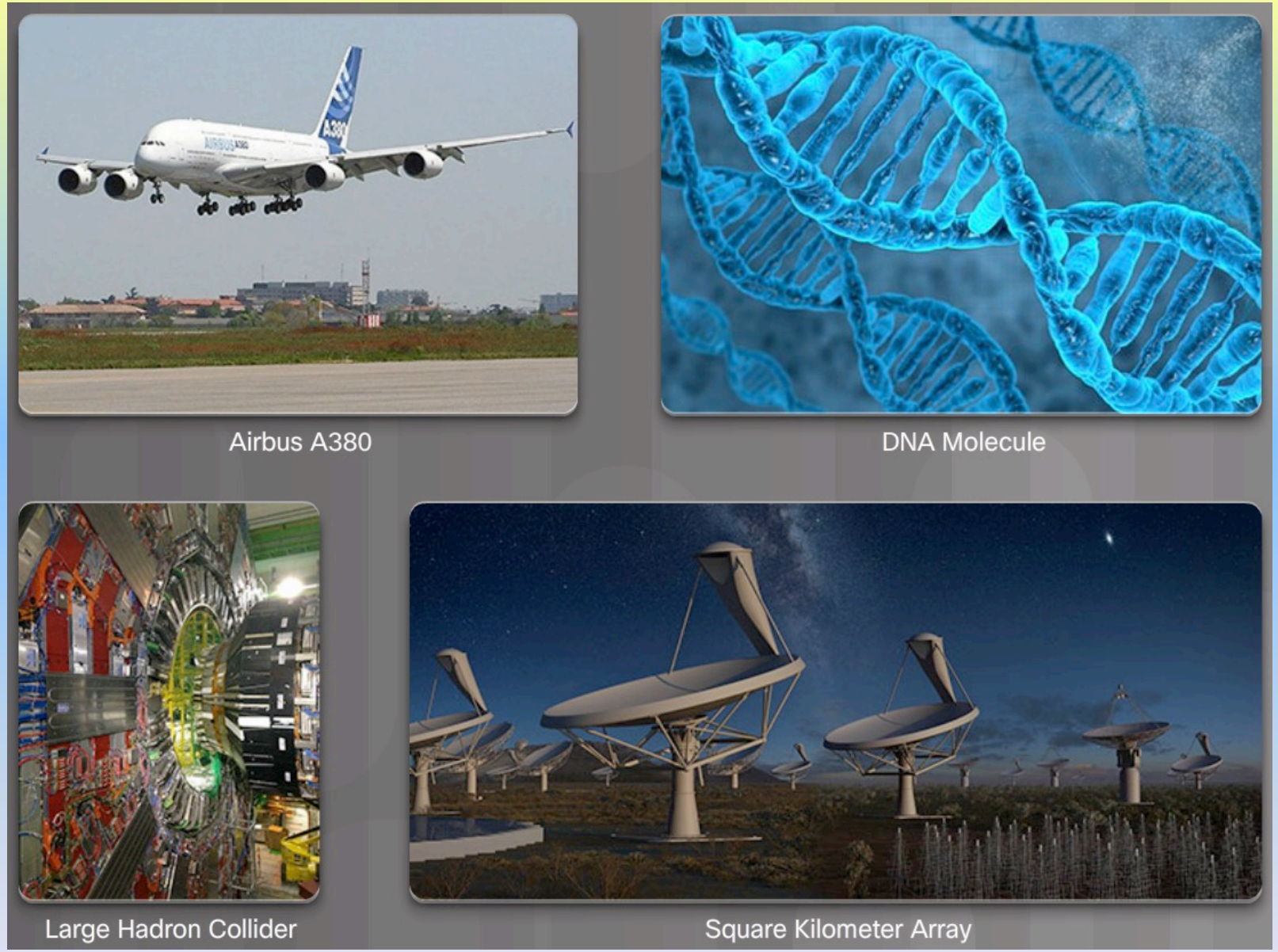

Fig. 3. Big Data Sources

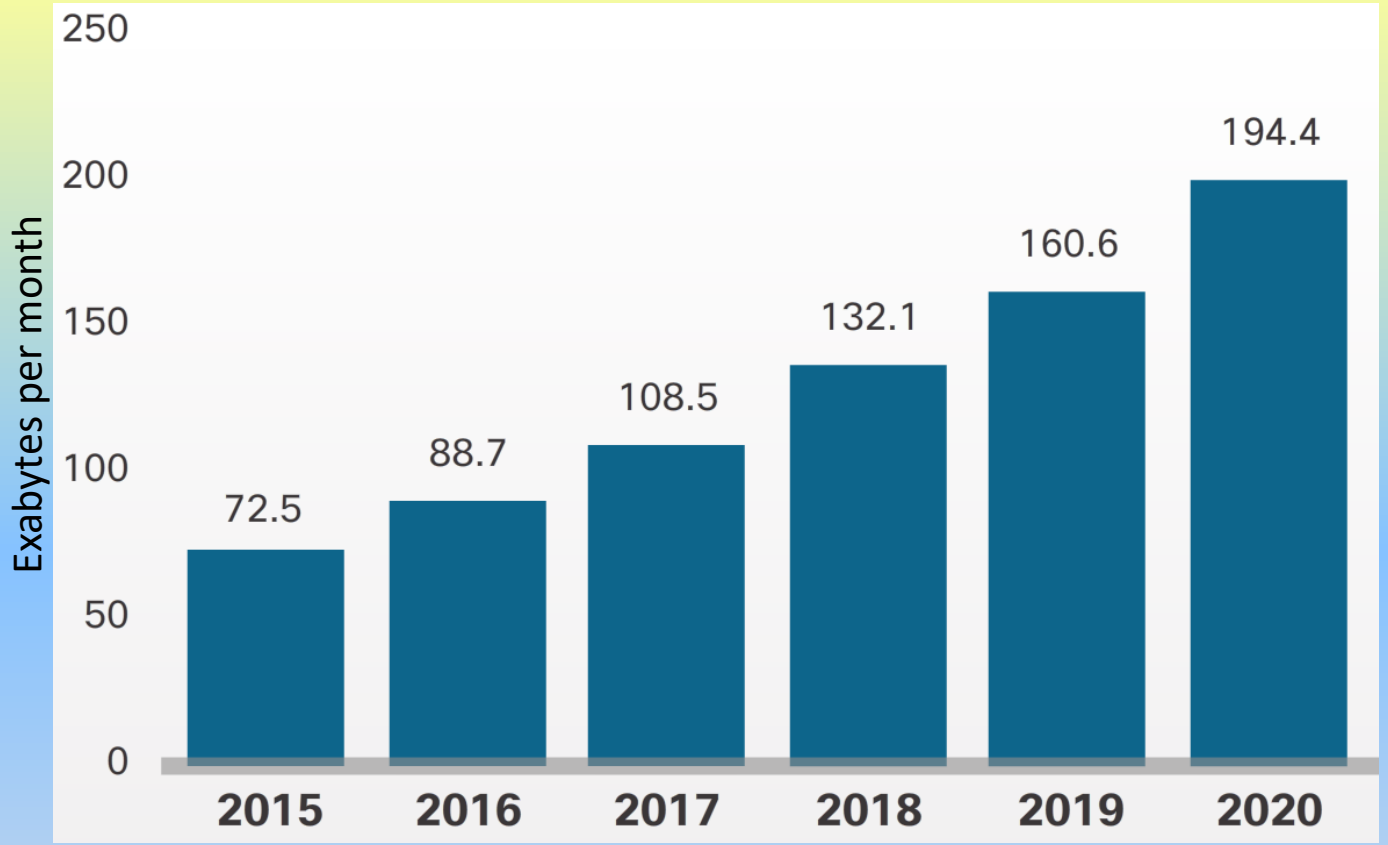

Fig. 4. Global IP traffic growth

Forecast for data growth between 2015 and 2020:

- Consumer mobile data traffic will reach 26.1 exabytes per month in 2020.
- Globally, IP traffic will reach 194.4 exabytes per month in 2020, up from 72.5 exabytes per month in 2015, as shown in the figure 2.

- Globally, 64% of all Internet traffic will cross content delivery networks in 2020, up from 45% in 2015.
- Global mobile data traffic will grow 3 times faster than global fixed IP traffic from 2015 to 2020.
- Global Internet traffic in 2020 will be equivalent to 95 times the volume of the entire global Internet in 2005.
- Globally, the average fixed broadband speed will grow 1.9-fold from 2015 to 2020, from 24.7 Mbps to 47.7 Mbps.
- In 2020, the gigabyte equivalent of all movies ever made will cross global IP networks every 2 minutes.
- Globally, consumer IP VOD traffic will reach 28.8 exabytes per month in 2020.

Fig. 5. Six Pillars of the Cisco IoT System

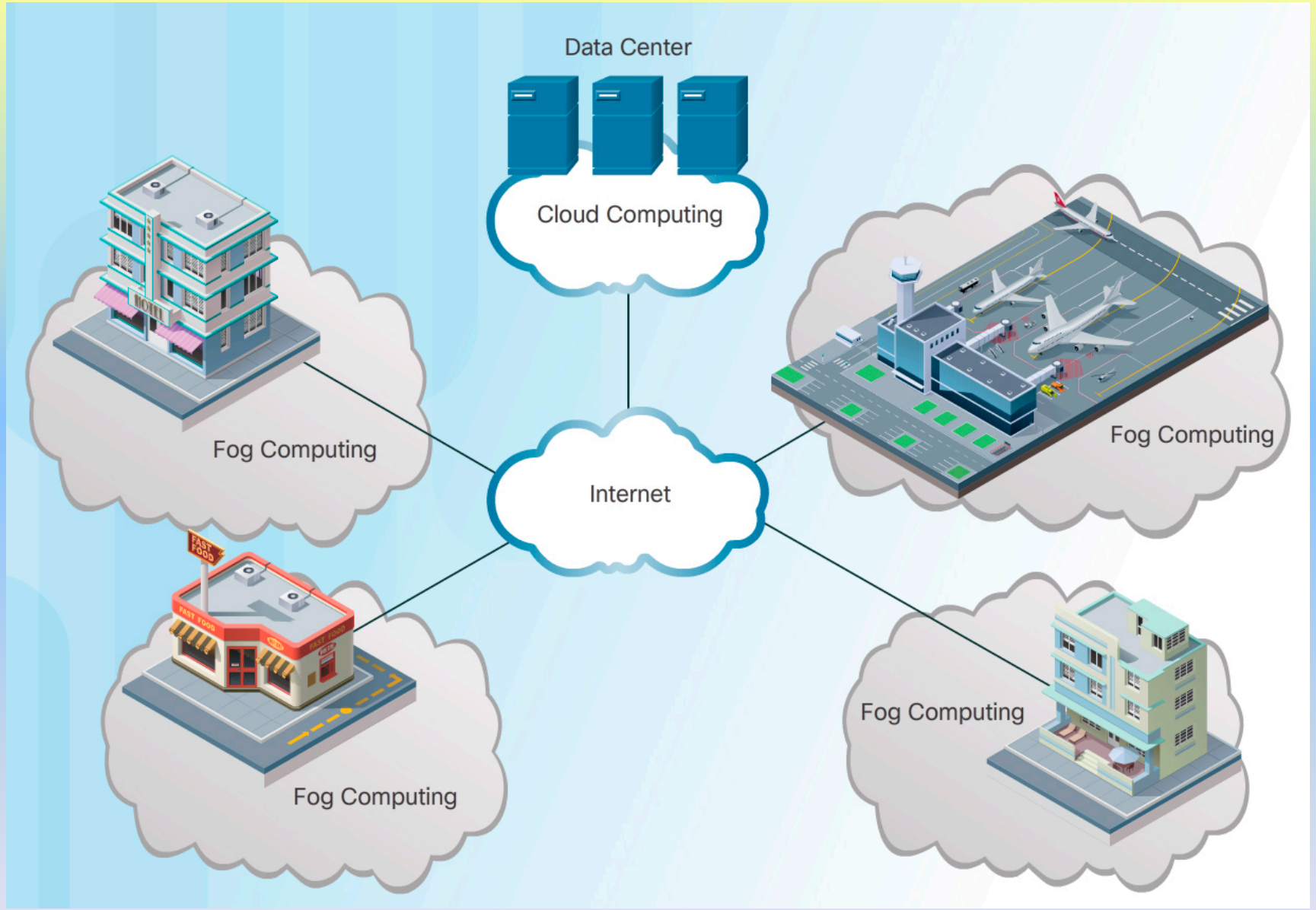

Fig. 6. Fog computing

Conclusion

Fog computing gives the cloud a companion to handle the two exabytes of data generated daily from the Internet of Things. Processing data closer to where it is produced and needed solves the challenges of exploding data volume, variety, and velocity.

Fog computing accelerates awareness and response to events by eliminating a round trip to the cloud for analysis. It avoids the need for costly bandwidth additions by offloading gigabytes of network traffic from the core network. It also protects sensitive IoT data by analyzing it inside company walls. Ultimately, organizations that adopt fog computing gain deeper and faster insights.

Thank you for your attention!