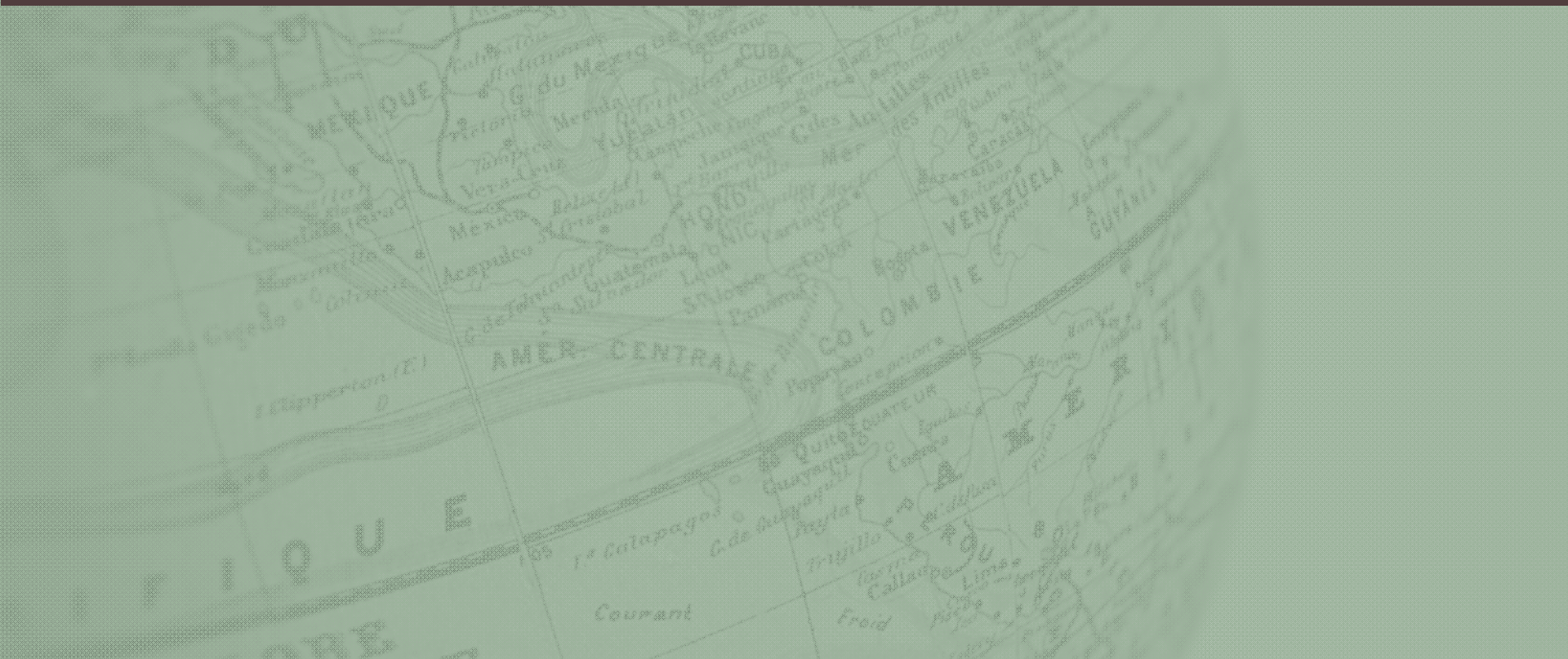


IPV6 ADDRESSES

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IPV6 ADDRESSES

- Consider that IPv4 had 4 billion addresses
- We could list each address once on a BLU-ray disc (4 bytes per address, 16 billion bytes)
- The BLU-ray disc can hold 54 billion bytes
- For 4 billion IPv6 addresses, we would need just over one disc (64 billion bytes required for expressing 4 billion addresses as IPv6 uses 16 byte addresses)

ADDRESS SPACE

- $2^{(128-32)} = 2^{96} =$
79,228,162,514,264,337,593,543,950,336 discs
required
- Let 100 discs weigh 1 kilogram (kg) or
792,281,625,142,643,375,935,439,503 kg of discs
- The Earth's mass is 5.9736×10^{24} kg or
5,973,600,000,000,000,000,000,000 kg
- It would take approximately 132 Earths ($792/6$) to
create enough discs to save the IPv6 addresses.

USING IPV6 ADDRESSES

- From this we can conclude that for the foreseeable future, we will not be able to saturate the IPv6 address space
- Why assign IPv6 addresses to people and equipment?
 - The address is ideal for working with the IPv6 network protocols
 - Provides a unique identifier (index) for a global environment