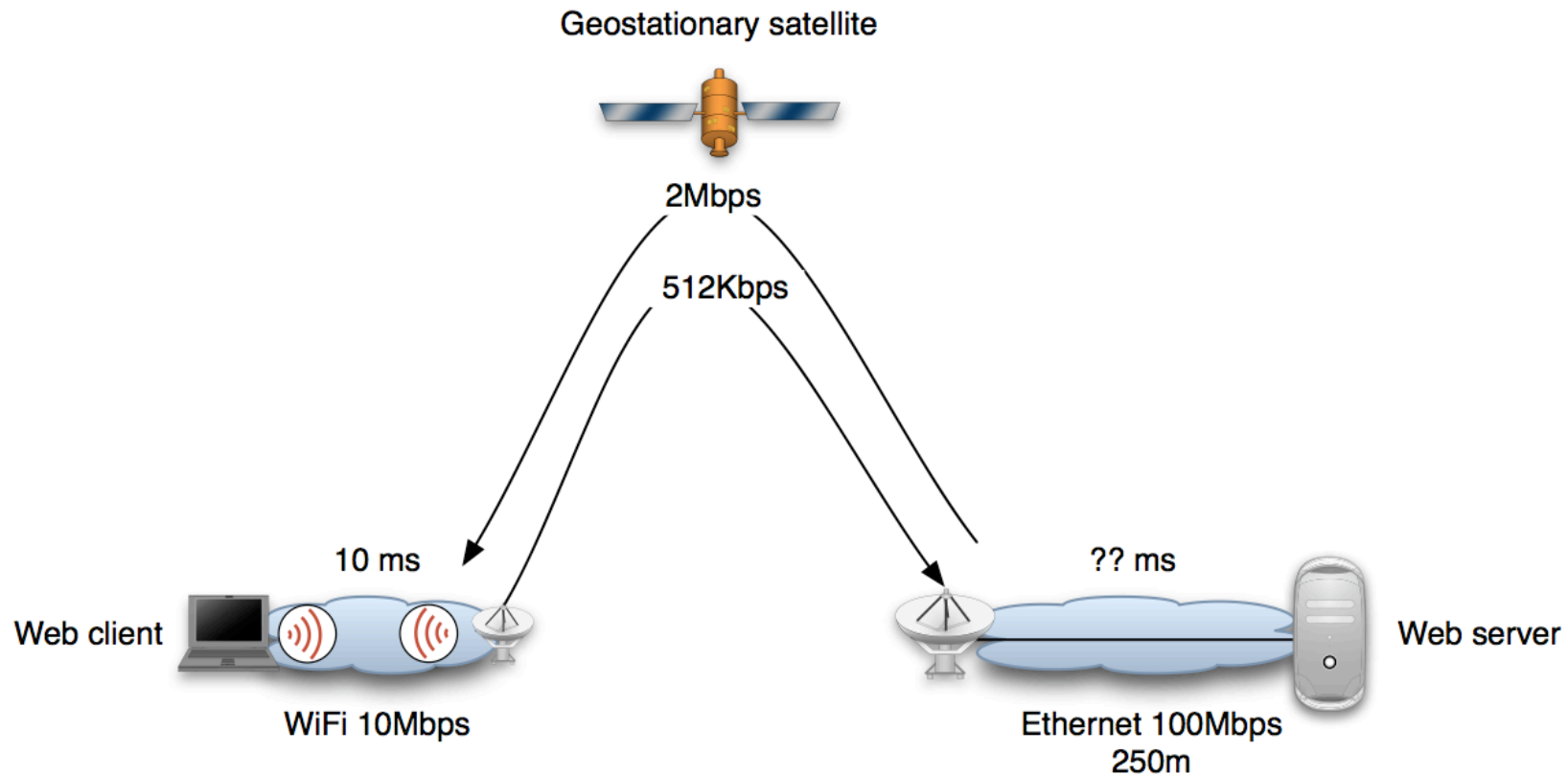


Award question

- How long does it take for ten distinct 512Kbit segments to go from the “web client” to the “web server” ?



Solution

- Wifi (1 segment) = $512\text{Kbit} / 10\text{Mbps} + 10\text{ms} \sim 51\text{ms}$
- Satellite (1 segment) = $512\text{Kbit} / 512\text{Kbps} (1\text{s}) + 2 \times 36000\text{km} / 300000\text{Km/s} (240\text{ms}) = 1,240\text{s}$
- Ethernet (1 segment) = $512\text{Kbit} / 100\text{Mbps} (5,12\text{ms}) + 250\text{m} / 200000\text{km/s} (1,25\mu\text{s}) \sim 5\text{ms}$
- 10 Segments $\sim 1,296\text{ s} + 9 \times 5\text{ ms} (45\text{ms}) \sim 1,341\text{s}$