Cisco Annual Internet Report (2018–2023)

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**Q.** What is the Cisco Annual Internet Report?

**A.** The Cisco Annual Internet Report is a global forecast/analysis that assesses digital transformation across various business segments (enterprise, public sector, commercial/SMB, and service provider). The initial report covers fixed broadband (Ethernet and Wi-Fi) and mobile (3G, 4G, 5G) networking. Quantitative projections are provided on the growth of Internet users, devices and connections as well as network performance and new application requirements. Qualitative summaries on the impact of strategic technology trends (SD-WAN, edge compute, datacenter/cloud, AI/ML, IoT, 5G, Wi-Fi, security, et al.) are also included.

**Q.** What methodology is used to develop the quantitative analysis of the Cisco Annual Internet Report?

**A.** The number of consumer fixed Internet users is not taken directly from an analyst source—it is estimated from analyst forecasts for consumer broadband connections, data on hotspot users, mobile-only users estimates, business-only users estimates from a variety of sources, and population forecasts from the United Nations. All of the components are together validated against what is deemed reasonable population penetration at a country level (reported or estimated). The projection for mobile users is similarly determined by looking at the mobile subscribers reported by our trusted analyst sources listed below and then benchmarked/validated against country population and other reports/estimates.

Our devices and connections methodology includes installation data and sometimes shipment data from third-party analyst firms, applying our own analysis on converting the latter to an installed base, estimating country level distributions, network connectivity splits and de-duplicating for a unique count.

The projections for mobile application downloads are determined from a myriad of publicly available and syndicated sources, customized for the regions and countries within the report.

Several factors influence the fixed and Wi-Fi broadband-speed forecast, including the deployment and adoption of fiber, high-speed DSL, cable broadband adoption, Wi-Fi6 and Wi-Fi 5 technologies as well as overall broadband penetration. For the mobile speeds forecast, 4G and 5G deployments (both sub 6 GHz and millimeter (mm) wave frequency), penetration of higher resolution dual mode devices (smartphones, tablets etc.) along with sunsetting of 2G and 3G around the world. We also analyze over 80 million speedtest records looking at average and median speeds as a part of this study.

In getting more focused on future tactile Internet applications, the online [Cisco Internet readiness tool](#) provides a sample set of business and consumer cloud services that users are accessing—and provide an understanding of the network requirements associated with those services. Within the applications, the support of network performance characteristics is key to identifying countries’ readiness in deploying these applications. We cross reference the application requirements with several fundamental characteristics: average download speed, average upload speed, and average network latency based on millions of end user speed test records. Statistical modeling is then applied to create the projections.

The forecast relies on analyst projections for Internet users, broadband connections, video subscribers, mobile connections, and Internet application adoption. Our trusted analyst forecasts come from Ovum, Ookla Speedtest.net, IDC, IHS, Gartner, ABI Research. Strategy Analytics, HarrisX, Dell’Oro, Nielsen, Maravedis, App Annie and a variety of other sources.
Q. What is the difference between “mobile users” and “Internet users”?

A. The mobile users category includes anyone using mobile technology. This encompasses smartphones, non-smartphones and other personal devices that are supported by 2G, 3G, 4G and 5G mobile networks. Mobile users may or may not have Internet connectivity (some only have access to voice/text communications services based on the capabilities of their device).

The Internet users category includes anyone able to connect to the Internet over any device (smartphone, tablet, PC, smart TV, et al.) via any access type (fixed, Wi-Fi, or mobile). This specifically encompasses all forms of access to Internet-based content and services.

Q. How is the qualitative portion of the Cisco Annual Internet Report prioritized and developed?

A. This section of the report focuses on four strategic areas of digital development: applications, security, infrastructure transformation, and empowerment of employees and teams. These areas align to the multi-domain architectural challenges and opportunities that many global organizations are trying to address across their access, WAN (wide area network), and data center domains. Curated perspectives, insights and analysis from syndicated analyst firms (Gartner, IDC, et al.) as well as Cisco’s own research and sponsored surveys are applied to this portion of the Cisco Annual Internet Report.

Q. What is the future outlook for Internet adoption and network performance?

A. Below are several projections included in the Cisco Annual Internet Report, 2018 – 2023.

- By 2023, there will be 5.3 billion Internet users (66% of global population), up from 3.9 billion in 2018 (51% of global population).
- By 2023, there will be 5.6 billion total mobile users (70% of global population), up from 4.9 billion (65% of global population) in 2018.
- By 2023, there will be 29.3 billion global devices and connections (3.6 devices and connections per capita), up from 18.4 billion devices and connections in 2018 (2.4 devices and connections per capita).
- By 2023, 45% of all networked devices will be mobile connected globally and 55% will be wired or connected over Wi-Fi.
- By 2023, nearly 11% of the global mobile connections will have 5G connectivity.
- By 2023, the average global fixed broadband speed will be 110.4 Mbps, up from 45.9 Mbps in 2018, a 2.4-fold growth.
- By 2023, the average global Wi-Fi speed will be 91.5 Mbps, up from 30.3 Mbps in 2018, a 3-fold growth.
- By 2023, the average global mobile (cellular) speed will be 43.9 Mbps, up from 13.2 Mbps in 2018, a 3.3-fold growth.
- By 2023, globally, 5G speeds will reach 574.6 Mbps and will be 13 times faster than the average mobile connection.
- By 2023, there will be 299.1 billion global mobile application downloads, up from 194 billion global mobile application downloads in 2018.
Q. Can my organization or I use or publish information from the Cisco Annual Internet Report?
A. Yes. Cisco welcomes and encourages press, analysts, service providers, and other interested industry parties, whether business, regulatory, or academic, to use or publish the data. Cisco Annual Internet Report information and projections may be cited in equity and investment research, S-1 registration statements, Initial Public Offerings (IPOs) and Security and Exchange Commission (SEC) filings, and offering memorandums. We will share our publicly published data with government regulators, press, industry analysts, academic institutions, technical conferences, journals, and other media outlets. We do require that proper Cisco attribution be given for any and all Cisco Annual Internet Report data that is published or shared in private or public, print and electronic forms (for example, “Source: Cisco Annual Internet Report, 2018 - 2023”). No further signatures or consent are required to refer to our publicly available white papers, reports, or web-based tools. We are always interested in the context in which our data is used. We appreciate when parties using our content are able to share copies of their completed work containing Cisco Annual Internet Report insertions. Post documents containing Cisco Annual Internet Report references to our community page or forward them to ask-ciscoair@cisco.com.

Q. How can I ask questions about the Cisco Annual Internet Report?
A. Post your questions or comments to our community page (preferred) or send your questions by email to ask-ciscoair@cisco.com.

For more information

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