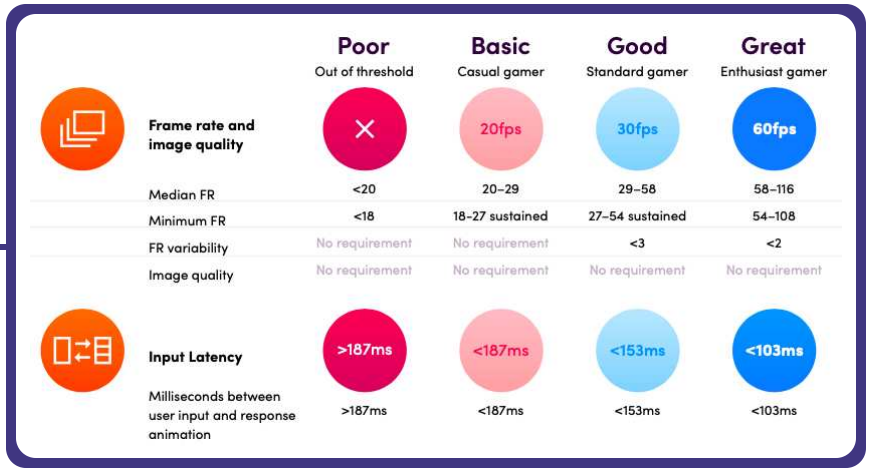
GameBench

The Intelligence Behind Outstanding Performance

Pioneering performance management in gaming since 2013.
Trusted by market leaders to deliver the metrics that matter.

GAMEBENCH LABS



An end-to-end range of services to evaluate, analyse, and deliver insights about device, application, network, and platform performance.

The deep performance data produced is delivered in meticulously designed, intuitive, and actionable reports.

Our visualisation layer, based on GameBench's proprietary Visual Badge System, provides instantly applicable performance and benchmarking insights for engineering, QA, and marketing.

SNAPSHOT

The Gamebench LABS team operates an ongoing program of pioneering research, guided by our core technology and data expertise, alongside our collective experience both in and around gaming. Our approach is scientifically driven, unbiased, and transparent.

After 8 years of work, the outcome is a penetrating and robust methodology, continuously tested and refined in our work with market-leading partners across the entire gaming ecosystem.

TYPICAL LABS CLIENT CHALLENGES

- Game performance benchmarking for ISPs, mobile operators, game developers and hardware manufacturers;
- 5G performance testing and platform comparisons for cloud gaming;
- Assessment and feasibility for new subscriber offerings in gaming and streaming media;
- Independent performance assessment and validation of marketing claims;
- Latency diagnosis and optimisation for platform-ISP cloud gaming partnerships;
- Game-device pair performance testing.

BENEFITS

Reflects the real-world gamer experience across the whole gaming ecosystem:

- Testing across game, platform, network, and devices
- Real gamers playing real games
- No synthetic workloads or proxy metrics

Accurate, Objective, Impartial, Uncheatable, Actionable:

- Devices tested out of the box
- Commercially independent
- Full-service performance testing and reporting team
- Standardised performance reporting using simplified ratings
- Optimisation advice, marketing resources, competitor comparisons, and customer feedback analysis

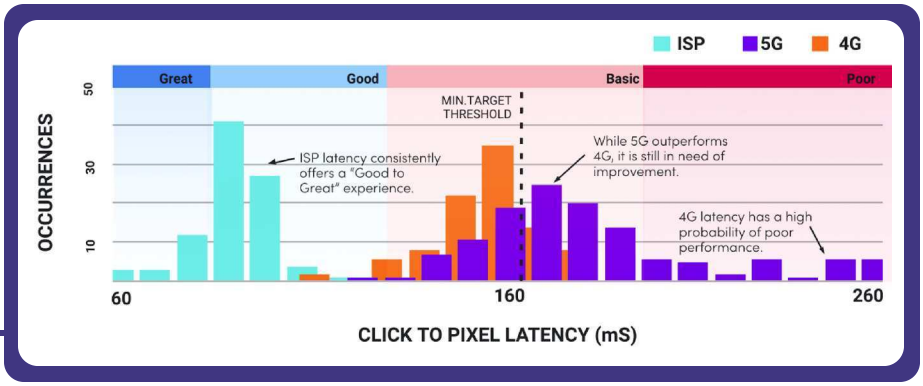
Benchmarking expertise in all key verticals:

- Native and cloud gaming
- Smartphone
- Streaming media
- Video conferencing
- Usability testing on mobile networks including 5G

gamebench.net

sales@gamebench.net

LABS
METHODOLOGIES



Testing on cellular networks MNOs

1. Acquisition and analysis of gamer behaviour market research to identify where gamers would typically play, when not at home or work.

2. Usage of this data to identify potential target test locations (POI) across the target city, within the boundary of interest.

3. Selection of a minimum of 25 test locations per city.

4. Refining the final test location selection using the following:
   - Locations with 5G service, ensuring all operators show 5G coverage on publicly available coverage maps for the test location;
   - Population density maps (higher density is given more weighting);
   - Cellular traffic hot spots from crowd-sourced data, with hotspot locations weighting target test locations.

5. Application of a grid to the area, ensuring the geographical spread of test points.

6. To minimise any impact due to outages or temporary performance issues, testing is performed over a two week period, on alternate days (M, W, F, Sn, T, Th, S), 15 to 20-minute gaming sessions, 3 sessions per test cycle, per mode (i.e., 4G, 5G).

7. Testing is performed during the network busy hours:
   - Weekdays (Monday to Friday) testing prime time (between 12.00 pm and 9.00 pm);
   - Weekends (Saturday and Sunday) afternoon and primetime (between 1.00 pm and 5.00 pm).

Testing Studio Games

1. Up to 5 mobile games, up to 6 iOS devices, and 6 Android devices;

2. Measurement of FPS, battery, and launch performance;

3. 15-minute warm-up, 15-minute gaming;

4. Active gameplay sections are isolated;

5. Data is processed in Python, outputs saved in a spreadsheet;

6. Findings are presented in the spreadsheet and/or in a PDF report.

Testing on fixed-line networks ISPs

1. To meet a statistically significant sampling size, the following distribution of testers is recommended:
   - 25 gamers per market (500K+ population) per Cable/DSL ISPs;
   - 10 gamers per market (500K+ population) per FTTH ISPs.

2. To minimise any impact due to outages or temporary performance issues, testing is performed over a two-week period, on alternate days (M, W, F, Sn, T, Th, S), 15 to 20 minute gaming sessions, 3 sessions per test cycle per mode (i.e., Ethernet, WiFi 5GHz).

3. Testing is performed during the gaming busy hours:
   - Weekdays (Monday to Friday) testing prime time (between 6.00 pm-10.00 pm);
   - Weekends (Saturday and Sunday) afternoon and prime time (between 1.00 pm and 5.00 pm).

4. Testers are selected so that broadband service subscriptions are comparable (not necessarily identical, but not extremes either), with a fair distribution across ISPs under test.

5. Only ISP-provided CPE/RGs are used. Testers do not use aftermarket WiFi routers/APs.

Testing OEM Devices

1. Testing is usually focused on one device, with a game selected by the client;

2. Measurement of FPS, battery and launch performance; when one device is compared to another, we also analyse image consistency;

3. The testing protocol can be adjusted to fit the client's requirement (e.g. room temperature when running thermal tests;

4. Active gameplay sections are isolated;

5. Data is processed in Python, outputs saved in a spreadsheet;

6. Findings are presented in the spreadsheet and / or in a PDF report.